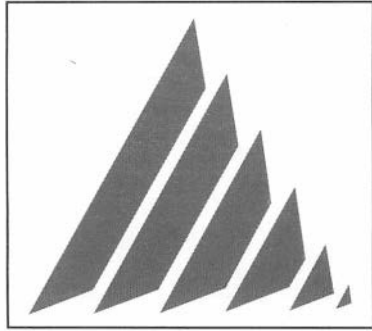


INTERACTIVE Looking Glass*
User's Guide

INTERACTIVE

product family

INTERACTIVE
.....



LOOKING GLASS

V E R S I O N 2

U S E R ' S G U I D E

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Preface

How this guide is organized

This guide is organized by task, rather than by command. For example, when you want to move a file, refer to Chapter 5, “Managing directories and files,” rather than a chapter that describes the Move command.

To find information about a specific command, task, or subject, refer to the index. We have included as many synonyms as possible for each subject and task.

Use of terminology in this guide

Throughout this guide, we have tried to avoid the use of technical terms. When it is necessary to use a term, we italicize it the first time it is used. For information about general computer terms or concepts introduced in this guide, see your system documentation or a general glossary of computer terms.

In this guide, we use the word *files* to refer to any type of file found in your system. This includes text files, data files, applications, FIFOs, symbolic links, sockets, and devices.

We use the word *directories* to refer to any type of directory found in your system.

In a few places in this manual, we use the word *objects* to refer to all types of files and directories in your system.

Style conventions

Most of this guide is devoted to step-by-step instructions for performing tasks.

Procedure styles

The following style conventions are followed in all procedures.

The steps of a procedure are printed in boldface.

For example:

1. Choose Open from the File menu in the Directory window.

The names of buttons and check boxes are capitalized as they are on your screen.

For example:

1. Click the Maximize button.

To perform certain actions, it is necessary to hold down one key while typing another.

For example:

Control+N

The number of the last (or only) step in each procedure is printed in outlined type.

For example:

1. Choose Quit Looking Glass from the System menu in the Global window.

or

1. If the files and directories you want displayed first are not already selected, select them.

2. Choose Group Selected Objects from the Sort menu in the Directory window.

The names of files, directories, programs, and arguments to programs are printed in Courier font.

For example:

The FSS maintains a small database file (.lgdb) in each directory with information needed to display, print, edit, and activate each file.

Text that you should type is printed in boldface Courier font.

For example:

If all of your text files are encrypted, you may want to use the editor `vi` with the `-x` argument for editing encrypted files. In this case you would type:

```
/usr/bin/vi -x #f
```

Command language syntax styles

The following style conventions are used in command and language syntax descriptions. Most of these apply only to the information in Chapter 13, "Defining file types." Most Looking Glass users won't need to perform the tasks that require use of command and language syntax descriptions.

Syntax diagrams and source code samples are printed in Courier type.

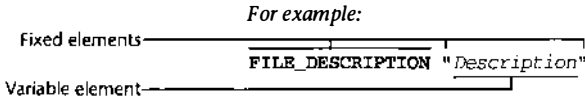
In generalized syntax diagrams, sections for which detailed syntax is not presented are represented by descriptive labels enclosed in "less than" (<) and "greater than" (>) symbols.

For example:

Generalized syntax diagram		DEFINE TYPE	<type name>
		ICON	<icon name>
		FILE_DESCRIPTION	<text>
		<rule statement>	
		<command section>	
		END	

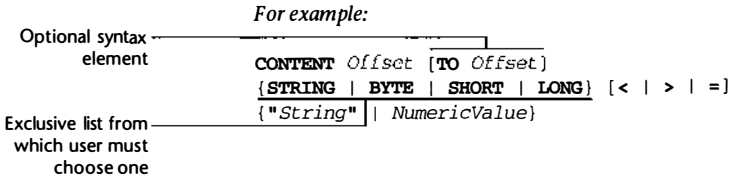
Fixed elements of the command or language (including keywords, mathematical symbols, and other non-alphabetic characters) are printed in boldface in syntax diagrams. These elements are represented literally, with any required capitalization, both in the syntax diagram and in accompanying text. When referenced in text that is not part of a syntax diagram or table, these elements are printed in the font used by the surrounding text and retain any upper and lowercase characteristics indicated in the syntax diagram.

Variable data supplied by the user is represented by italicized descriptive labels. When referenced in text that is not part of a syntax diagram or table, they are italicized and printed in the font used by the surrounding text.

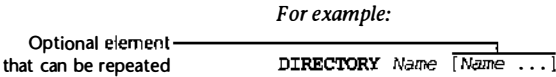


Optional syntax elements are enclosed in brackets ("[" and "]").

Lists of items separated by vertical bars (|) are exclusive lists from which the user may choose one and only one item. If the list is enclosed in braces ("{" and "}"), one item must be used.



Ellipses (...) following a syntax element indicate that the element can be repeated an unlimited number of times.



Getting started in Looking Glass

1

In this chapter, you'll learn what Looking Glass is and how to start it:

- Automatically (as your login shell)
- Manually (from a command line)

You'll also learn how to quit Looking Glass.

After you have learned the basics of starting and quitting, we'll give you a brief tour of a typical Looking Glass workspace. You'll become familiar with the Looking Glass windows and icons that you'll use in your work.

What is Looking Glass?

Looking Glass is a graphical user environment for your workstation or X Window System terminal. It gives you the ability to organize your personal workspace so that the programs, files, and directories you use most often are within easy reach.

With Looking Glass, you can run a program (like a spreadsheet or word processor) by simply double-clicking on the program's icon or one of its data files. Moving a file between directories is just as easy: you drag it from one window to another with the mouse. You can even perform tasks such as creating links and changing file ownership and access permissions without typing a single command.

Here are just a few of the many tasks that Looking Glass simplifies for you:

- Running programs
- Opening files for editing
- Printing files
- Viewing the contents of directories
- Creating new directories
- Moving, copying, and removing files
- Viewing and changing information about directories and files
- Finding directories and files in your system
- Displaying and changing information about directories and files

In the following sections, we'll tell you how to start and quit Looking Glass, give you a brief tour of a typical Looking Glass workspace, and introduce you to Looking Glass icons.

Starting Looking Glass

There are two ways to start Looking Glass:

- Use it as your login shell
- Run it from a command line

Depending on your system, you or your system administrator may have to start the License Server before you can start Looking Glass. For information about the License Server, refer to the *Looking Glass Release Notes*.

Starting Looking Glass as your login shell

If Looking Glass is set up as your login shell, you can simply log in to your system following your normal procedures. After you log in,

Looking Glass starts up immediately, and you are ready to start working.

If Looking Glass is not your login shell and you would like it to be, see your system administrator.

If you are responsible for installing Looking Glass as a login shell for yourself or other users, refer to the descriptions of the command-line arguments for Looking Glass in “Specifying Looking Glass options at startup” later in this chapter.

Starting Looking Glass from a command line

You can run Looking Glass from your system’s command-line prompt by executing the program `lg`.

If you start Looking Glass from a command line, you should run the program as a background process by placing the ampersand (&) character at the end of the command. If you don’t run Looking Glass in the background, the terminal window that you start Looking Glass from will be busy until you quit Looking Glass.

1. Type:

```
lg&
```

2. Press Return.

The Looking Glass startup window appears, followed by the Looking Glass windows.

If you need help the first time you run Looking Glass from a command line or use any program options, see your system administrator.

Specifying Looking Glass options at startup

This section is intended for system administrators and other users who are responsible for maintaining Looking Glass.

Looking Glass provides a set of startup options that allow you to open specific directories at startup time and control certain aspects of the program’s appearance and operation. If your users start Looking Glass from a command line, they can do this easily at the time they run Looking Glass. If your users start Looking Glass as their login shell, you can specify these arguments for them.

1. Click in the window of the command-line shell you want to run Looking Glass from.**2. Enter:**

```
lg <arguments> &
```

where <arguments> is the list of arguments you want to specify (refer to the following table for the list of arguments you can use).

For example:

```
lg budget plans -display lotus:0.0 &
```

This example tells Looking Glass to:

- Start as a background process (indicated by the `&`)
- Open the directories `budget` and `plans`
- Use the machine "lotus" as its display

3. Press Return.

The following table describes the arguments you can specify at startup:

This argument:	Does this:
<code>-help</code>	Tells Looking Glass to print a summary of command-line arguments.
<code>-version</code> or <code>-ver</code>	Tells Looking Glass to display version information without starting.
<code>directories</code>	Opens the directories you specify at startup automatically.
<code>-uwmstyle</code> or <code>-uwm</code>	Tells Looking Glass to display windows compatible with the <code>uwm</code> window manager.

This argument:	Does this:
-frame	Tells Looking Glass to put a frame around its windows. Use this argument for window managers that do not supply frames for windows.
-bordercolor <i>color</i> or -color	Lets you specify a color for Looking Glass window borders. This argument only takes effect when the -frame argument is also used.
-lookandfeel <i>style</i> or -laf <i>style</i>	Lets you specify a look-and-feel style. Specify 3d or 2d <i>style</i> . 3d is OSF/Motif compliant.
-font <i>font</i> or -fn <i>font</i>	Lets you specify a font for plain (nonbold) text. You can use any font available on your system.
-bold <i>font</i> or -fb <i>font</i>	Lets you specify a font for bold text. You can use any font available on your system.
-mono	Forces a monochrome display on a color monitor.
-foreground <i>color</i> or -fg <i>color</i>	Lets you specify a color for the user interface elements that are in the foreground. Use a color from the system's color database or specify a color's Red, Green, Blue (RGB) value in hexadecimal notation.

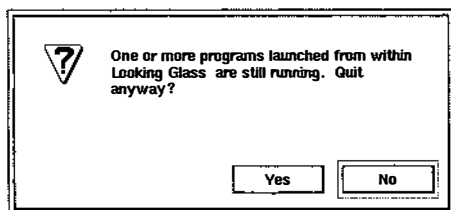
This argument:	Does this:
<p><code>-background color</code> or <code>-bg color</code></p>	<p>Lets you specify a color for the user interface elements that are in the background.</p> <p>Use a color from the system's color database or specify a color's Red, Green, Blue (RGB) value in hexadecimal notation.</p>
<p><code>-topshadow color</code> or <code>-ts color</code></p>	<p>Lets you specify a color for the top shadow of the user interface elements.</p> <p>Use a color from the system's color database or specify a color's Red, Green, Blue (RGB) value in hexadecimal notation.</p>
<p><code>-bottomshadow color</code> or <code>-bs color</code></p>	<p>Lets you specify a color for the bottom shadow of the user interface elements.</p> <p>Use a color from the system's color database or specify a color's Red, Green, Blue (RGB) value in hexadecimal notation.</p>
<p><code>-display machine</code></p>	<p>Lets you specify the hardware display name for the machine whose display will be used by Looking Glass.</p> <p>This option is only valid under the X Window System. The machine name supplied will be used to set the DISPLAY environment variable.</p>
<p><code>-preload</code></p>	<p>Tells Looking Glass to preload all icon images at startup for faster display performance.</p> <p>This is the default.</p>
<p><code>-nopreload</code></p>	<p>Tells Looking Glass not to preload icon images at startup.</p>

Quitting Looking Glass

1. **Choose Quit Looking Glass from the System menu in the Global window.**

If there are no programs running that you launched from Looking Glass, Looking Glass quits.

If there are programs running that you launched from Looking Glass (for example, the Icon Editor or a terminal emulator window), a message box opens asking you if you want to quit Looking Glass without quitting the programs you launched.



To close this message box, click:

- Yes to quit Looking Glass and leave the other programs running
- No to cancel and return to Looking Glass

NOTE:

Any Looking Glass windows you have open when Looking Glass quits will open automatically in the same positions the next time you start Looking Glass.

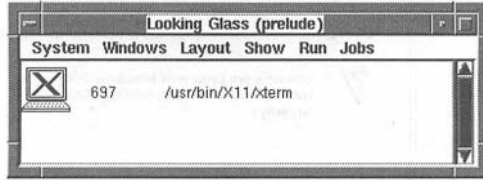
A brief tour of Looking Glass

In this section, we'll give you a brief tour of a typical Looking Glass workspace. We call this a "typical" workspace because Looking Glass gives you the ability to organize your workspace any way you want, placing the programs, files, and directories you use most often within easy reach. When you quit, Looking Glass remembers how you left your workspace and restores that arrangement the next time you start Looking Glass.

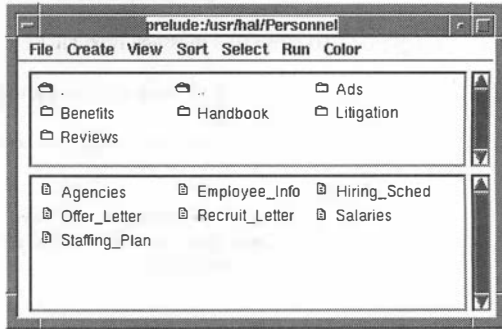
In addition, Looking Glass lets you name and save an unlimited number of workspace layouts so you can switch easily from one layout to another. For instructions on organizing your workspace and saving layouts, refer to Chapter 9, "Organizing your workspace."

The illustration on the following pages shows you a typical Looking Glass workspace. We've labeled the windows so you can begin to familiarize yourself with them. In this chapter we'll introduce the major windows in Looking Glass.

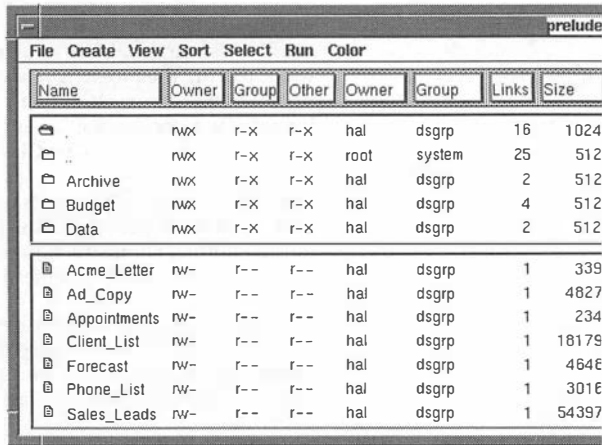
Global window



Directory window
in Name view



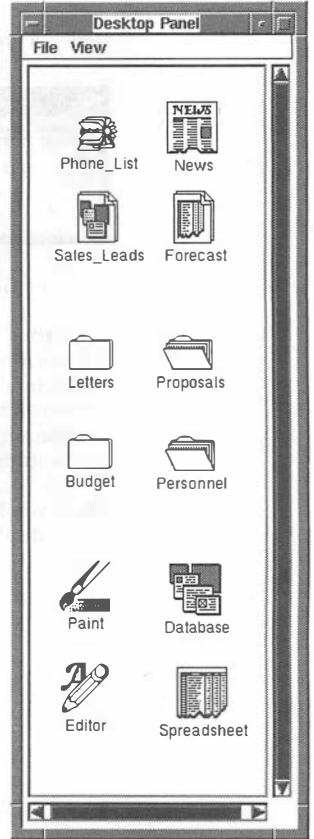
Directory window in
Wide view



Directory window in Icon view



Desktop Panel



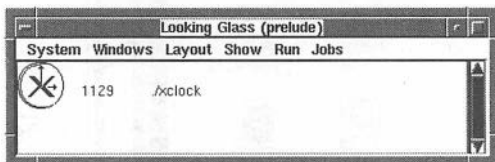
usr/hal

inode	Modification Time	Type	Link Content
71701	09:56 Oct 28 1990	Directory	
2	14:47 Nov 20 1990	Directory	
34823	18:56 Jul 26 1990	Directory	
73766	11:50 Oct 14 1990	Directory	
88072	15:35 Oct 15 1990	Directory	
71709	12:53 Mar 14 1990	Text file	
71703	11:32 Apr 28 1990	Text file	
71738	13:15 Oct 2 1990	Desktop calendar document	
71730	11:37 Sep 25 1990	Card file	
71705	13:36 Nov 20 1989	Spreadsheet data file	
71707	12:48 Aug 5 1988	Card file	
71731	12:56 Feb 28 1990	Database data file	

The Global window

The Global window is the only window in Looking Glass that always appears on your screen when Looking Glass is active. All other windows can be opened or closed at your command.

Here is a typical Global window:



From the Global window, you can perform “global” tasks such as:

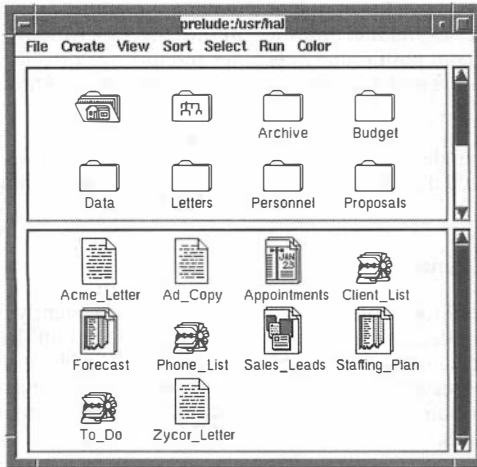
- Setting your preferences for how Looking Glass operates
- Opening other Looking Glass windows
- Maintaining environment variables
- Accessing the help system
- Running a terminal emulator
- Quitting Looking Glass

When you launch a program with Looking Glass, the application's icon is displayed in the Global window as long as its application is active.

Directory windows

Directory windows display the contents of a directory.

Here is a typical Directory window:



From Directory windows, you can perform tasks like:

- Opening and closing selected directories and files
- Launching programs
- Changing the way you view directories and files
- Printing files
- Moving and copying files
- Removing directories and files

You can view objects in a Directory window by their icon or name, or in a wide format that contains detailed information. The example above shows a Directory window with objects displayed as icons. For more information about these display formats, refer to “Changing display formats” in Chapter 4, “Working with Directory windows.”

If you have a color display, you can also control the color of icons in Directory windows. For more information about viewing directories and files in Directory windows, refer to “Changing display formats” in Chapter 4, “Working with Directory windows.”

Directory windows separate directories from files with a horizontal bar called a splitter. The top section of a Directory window displays the subdirectories in that directory and the bottom section displays the files in that directory. You can move the splitter to adjust the height of each section.

You also have the option of removing the splitter and positioning directories and files anywhere in the Directory window. For information about positioning directories and files, refer to "Repositioning directories and files" in Chapter 4, "Working with Directory windows."

You can display as many Directory windows as you want, but you can only display a particular directory in one window at a time.

The Desktop Panel

The Desktop Panel gives you a place to put frequently used programs, files, and directories. The objects you put on the panel are not actually moved from their locations in the file system—they are just displayed there for easy access. You can open or activate any object from the Desktop Panel the same way you can in Directory windows.

Here is a typical Desktop Panel:



Notice that there are several directory and file icons in our sample panel. Objects you put on the panel stay there until you take them off. You'll probably find yourself keeping directories and files on the panel on an "as needed" basis. For example, you might display the directory `Budget_90` during the week you are working on a budget. On the other hand, if you use your spreadsheet application all year round, you would probably keep it on the panel all the time.

Once you have placed an object on the Desktop Panel, you can put it in any position you want. This allows you to put directories and files in the most convenient order.

When you save a workspace layout, the size and position of the Desktop Panel, as well as its contents, are also saved.

Looking Glass icons

Icons play an important role in your Looking Glass workspace. Looking Glass icons are images that represent directories and files in your system. There's an easily recognized icon for each type of directory or file in your system. As you can see from our "typical" workspace, icons can appear in a number of locations.

Looking Glass provides an Icon Editor for managing icons. With the Icon Editor, you can:

- View the Looking Glass icons in your system
- Edit existing icons
- Create new icons

If you browse through the icons that come with Looking Glass, you'll notice that certain characteristics are represented in more than one icon design. Icons with the same design make up an icon "family." Some of the more important icon families are described on the following page.

Icons with one fold in the upper right corner represent data files that may be opened by more than one application. An example of this type of file is a file that contains only text. This type of file can be edited by more than one editor or word processor. Icons in this family often contain another visual cue that indicates what application created them or what kind of data is in them. Here are some examples of icons used to represent data files:



Text file

Empty
filePassword
file

Icons with two folds in the upper right corner are data files that contain data in a format that is probably meaningful only to the application that created them. Files in this family include the data files that programs create to store your work. Here are some examples of icons used to represent data files containing data formatted for a specific program:

Spreadsheet
documentWord processor
documentDatabase
data file

The folder icon represents a directory. Within this family, there are different types of directories. For example, the picture of a house on a folder represents your home directory. When a directory is open somewhere on your workspace, its folder icon is “fanned” to make it appear open. Here are some examples of icons used to represent directories:

Home
directoryOpen
directoryMounted
directory

As you work with Looking Glass, you'll notice other common characteristics that make up icon families; you can even create some of your own icons with the Icon Editor. For more information about the Icon Editor, refer to Chapter 10, “Working with the Icon Editor.”

How you interact with Looking Glass 2

This chapter teaches you the basic skills for interacting with Looking Glass. It is intended to help users who have not used icon- and mouse-driven programs such as Looking Glass.

You'll learn how to move around in Looking Glass using a mouse and keyboard to activate commands and operate Looking Glass controls such as menus and buttons.

In this chapter, you'll also become familiar with the window frame elements and learn how to use your window manager to:

- Move windows around on your workspace
- Change the size of windows
- Close windows

The appearance and behavior of Looking Glass is based on the Open Software Foundation's Motif™ user interface guidelines. These guidelines ensure that standard operations, such as choosing items from menus, can be performed the same way in all programs. For more information about Motif, refer to the *OSF/Motif User's Guide*.

Using the mouse and keyboard

This section explains how to use the mouse and keyboard to interact with Looking Glass. The term *mouse* refers to any kind of pointing device used to control your workstation or X terminal.

Most Looking Glass actions require a mouse, but some actions can be controlled using the *keyboard*. This section explains how to navigate with a mouse first, then describes some keyboard shortcuts.

Using the mouse

Throughout this manual, you'll be instructed to perform basic mouse actions, such as clicking and dragging. The following paragraphs explain these basic actions and tell you how to perform them. Looking Glass does not distinguish between mouse buttons, so when you are told to press a mouse button, you can press any of them.

You'll perform four basic mouse actions in Looking Glass:

- Click
- Double-click
- Shift-click
- Drag

Clicking

Clicking the object that the pointer is on in a window selects that object. Clicking in a text field moves the cursor to the place where you clicked. If an object or word is already selected, clicking anywhere else in the window unselects the object or word.

1. Put the pointer on an object or in the new location in the text.

2. Press and release a mouse button.

If you clicked an object, it is highlighted. If you clicked in a text box, the insertion cursor moves to that spot.

Double-clicking

Double-clicking the object that the pointer is on in a window activates or opens that object. You double-click a word in a text field to *select* (highlight) that word.

- 1. Put the pointer on an object or word.**
- 2. Quickly press and release a mouse button twice.**

If you double-clicked an object, it is activated. If you double-clicked a word in a text field, it is highlighted. If you double-clicked an item in a list, the command associated with that item is activated.

Shift-clicking

The *shift-click* action selects (or unselects) the object that the pointer is on in a window without unselecting other selected objects.

- 1. Put the pointer on the object you want to select.**
- 2. Press the Shift key while you press and release a mouse button.**

If you shift-clicked an unselected object, it is selected. If you shift-clicked a selected object, it is unselected. If you shift-clicked a word, it is highlighted.

Dragging

Dragging allows you to select or move one or more objects from one place to another in a window. You can also select a word or a block of text in a text field by dragging.

Before you select a group of objects, you should imagine a rectangle around the group of objects you want to select. You'll drag across the group of objects by starting at one of the corners of this imaginary rectangle.

Selecting a group of objects by dragging

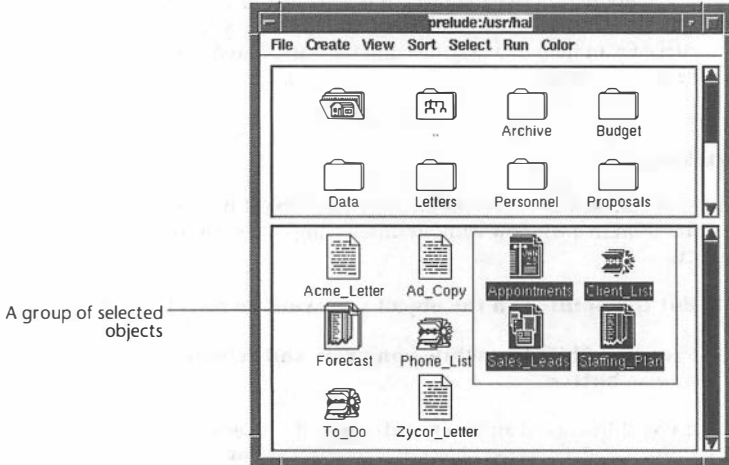
- 1. Put the pointer in the window near the objects you want to select, at the corner of the imaginary rectangle surrounding the objects.**

2. Hold down a mouse button.

3. Move the pointer diagonally across the area containing the objects you want to select.

As you move the pointer, the objects are enclosed in a selection rectangle.

Here is an example of a group of objects that have been selected:



4. When all of the objects you want to select are enclosed in the rectangle, release the mouse button.

The objects are highlighted.

Moving an object by dragging

1. Put the pointer on the object you want to move.

2. Hold down a mouse button.

3. Move the pointer to move the object to a new location.

4. When the object is where you want it, release the mouse button.

Selecting text in a text box by dragging

1. **Put the pointer at the beginning or end of the text you want to select.**
2. **Hold down a mouse button.**
3. **Move the pointer across the text you want to select.**
4. **When you are finished highlighting the text, release the mouse button.**

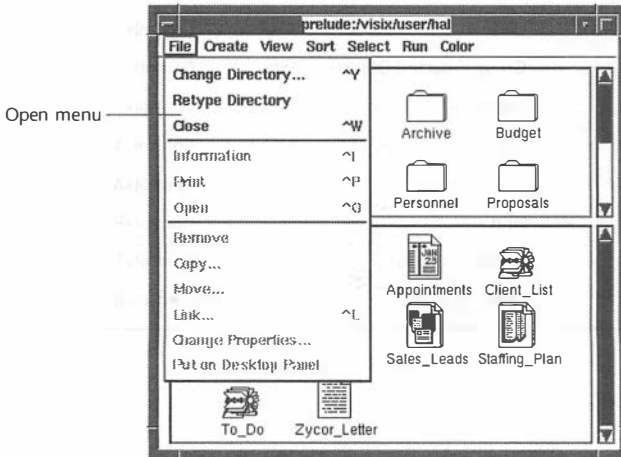
Using accelerator keys

Looking Glass is intended to be controlled primarily with a mouse. However, you can use the keyboard to perform certain tasks.

An *accelerator key* is a single key (such as F1) or a combination of keys (such as Control+F1) that is assigned to a command in a menu. Using an accelerator key has the same effect as selecting a command from the menu with the mouse.

Not all commands in Looking Glass can be selected with accelerator keys, but many can. When a command can be selected with an accelerator key, the key sequence is displayed next to the command in the menu.

Here is an example of a menu with commands and their keyboard equivalents:



The accelerator keys in Looking Glass are abbreviated in the menus.

For example, when you see ^N in the Create menu, you press Control+N.

The following table lists the commands in Looking Glass that can be selected with accelerator keys. To use any accelerator key, press the key or combination of keys listed in the table.

Window	Command	Menu	Accelerator key
Global window	Open Directory	Windows	Control+Y
	Terminal Emulator	Run	Control+T
	Command Line	Run	Control+R
Directory window	Change Directory	File	Control+Y
	Close	File	Control+W
	Information	File	Control+I (or TAB)
	Print	File	Control+P
	Open	File	Control+O
	Link	File	Control+L
	Directory	Create	Control+N
	Icon	View	Control+K
	Wide	View	Control+E
	Group Selected Objects	View	Control+G
	Clean Up	View	Control+U
	Select By Pattern	Select	Control+S
	Select All Files	Select	Control+A
	Find	Select	Control+F
	Terminal Emulator	Run	Control+T
Command Line	Run	Control+R	

Window	Command	Menu	Accelerator key
Desktop Panel	Close	File	Control+W
	Open	File	Control+O
	Show	File	Control+H
	Print	File	Control+P
	Icon	View	Control+K
	Clean Up	View	Control+U
Tree View window	Open In Tree	Directory	Control+O
	Close In Tree	Directory	Control+C
	Show In Tree	Directory	Control+I
	Open In Window	Directory	Control+Y
	Close Tree View	Directory	Control+W
	Name	View	Control+N
	Icon	View	Control+K
	All Directories	Select	Control+A
	All Open Directories	Select	Control+P
	All Unselected Directories	Select	Control+U
	Parent Directories	Select	Control+Q
	Subdirectories	Select	Control+Z
	Subtrees	Select	Control+B
	Save Tree As	Tree	Control+S
	Open Saved Tree	Tree	Control+T
	Merge In Saved Tree	Tree	Control+M
Find	Show	Control+F	

To use an accelerator key, hold down the Control key and press the appropriate letter key. You can also access the online help for Looking Glass by pressing the F1 key.

For information about the commands executed by these keystrokes, refer to the sections in this manual that explain the task associated with the command. For example, for information about the Link command, refer to Chapter 5, "Managing directories and files."

Using your window manager

A *window manager* is a special program that controls the appearance and behavior of windows displayed by programs such as Looking Glass. Because of the differences among window managers, you may notice differences between the window frames on your screen and the Looking Glass window frames shown in this manual. This manual shows Looking Glass windows with the OSF/Motif window manager, `mwm`.

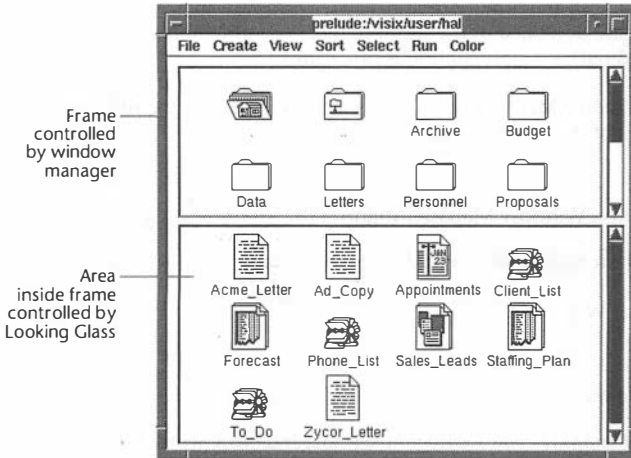
If your window manager doesn't put frames around windows, you can have Looking Glass put frames around windows by starting it with the `-frame` option. For more information on Looking Glass startup options, refer to "Specifying Looking Glass options at startup" in Chapter 1, "Getting started with Looking Glass." The frame that Looking Glass provides works according to OSF/Motif user interface guidelines.

NOTE:

Even though Looking Glass can provide frames if you need them, it does not replace the need for an actual window manager.

Knowing how to use your window manager is important because it allows you to move, resize, and close Looking Glass windows. This section tells you how to perform some basic actions using the frames that Looking Glass puts around its windows when using the `-frame` option.

The following illustration shows the portion of a typical Looking Glass window that is displayed and controlled by the window manager and the area that is controlled by Looking Glass:



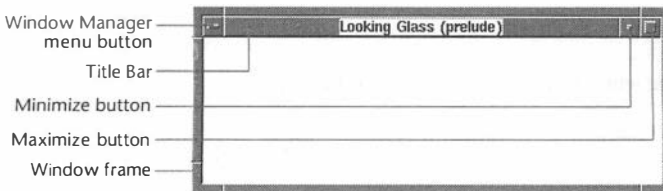
Notice in this example that the window manager controls the outer portion of the window (the *frame* around the window). Everything inside the window is controlled by Looking Glass.

Window frame elements

Looking Glass window frames contain these elements:

- Window Manager button
- Title bar
- Minimize and and Maximize buttons
- Resizable border

The following illustration shows you the locations of the window frame elements:



You can access some of the window manager functions through the *Window Manager button*. This button allows you to perform simple tasks such as maximizing, lowering, and closing the window. However, most of the actions in this menu can be performed more quickly with the other elements of the window frame. These elements are described in the next section. A command is dimmed (grayed out) when the option is not available.

The Window Manager button is located to the left of the title bar at the top of the window frame.

Accessing the Window Manager menu

1. **Click the Window Manager button.**

The Window Manager menu opens.

Moving windows

One of the ways you'll find yourself manipulating windows is by moving them around on your workspace.

The window manager provides an area called the *title bar* at the top of each frame for the name of the window. The title bar also provides a fast way to move the window to another location.

Moving a window to another position

1. **Move the pointer to the title bar in the window.**
2. **Drag the window to its new position.**
3. **When the window is where you want it, release the mouse button.**

Bringing a window to the front of a stack of windows

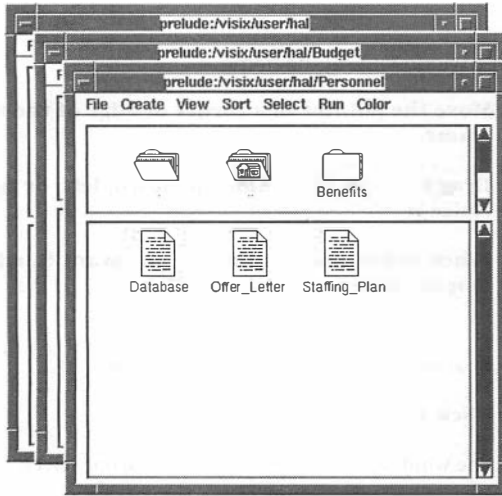
1. **Click in the title bar on the window.**

The window moves to the front of the stack.

NOTE:

Some window managers allow you to click anywhere in a window to bring it to the foreground.

Here is an example of stacked windows:



You can bring a Looking Glass Directory window to the front of a stack of windows by using the Windows menu in the Global window (for more information, refer to Chapter 4, “Working with Directory windows”). Using the Windows menu is helpful if you have so many windows open on your workspace that the window you want to bring to the front is completely hidden.

Moving a window behind a stack of windows

1. **Choose Lower from the Window Manager menu.**

The window moves to the back of the stack.

Resizing windows

In addition to letting you move a window to a new location on the workspace, the window manager also lets you control the size of the window. You can make most windows smaller or larger by using the frame provided by your window manager.

There are two ways to enlarge a window: stretching the *frame* in increments, or using the *Maximize button* to blow up the frame.

Resizing a window using the frame

- 1. Move the pointer to a corner or edge of the window frame.**
- 2. Drag the window frame up, down, left, or right to resize it.**
- 3. When the window is the size you want it, release the mouse button.**

Resizing a window using the Maximize button

- 1. Click the Maximize button.**

The window is enlarged so that it fills your screen.

Restoring a maximized window to its original viewing size

- 1. Click the Maximize button again.**

The window is restored to its original size and position on the workspace.

NOTE:

You can only restore a window to its original size if you used the Maximize button. If you used the frame to enlarge the window, clicking the Maximize button won't restore it. You must use the frame to make the window smaller.

Closing windows

Although you can close any window on your workspace by selecting a command from a Looking Glass menu, the window manager also lets you close any window with a frame around it by using the Window Manager button at the top of the frame.

NOTE:

If you close a terminal emulator in which you have been running a shell or application, you must exit the shell or quit the application before you close the window. Using the window manager to close the terminal emulator window won't quit the shell or application.

1. Choose Close from the Window Manager menu.

The window closes.

Working in Looking Glass windows

Now that you know how to perform basic mouse and keyboard actions and use your window manager, you are ready to work with Looking Glass windows.

Window types

As you work in Looking Glass, you'll use windows and dialogs. This section describes windows and dialogs and shows you how to use the controls that appear in them.

Using windows

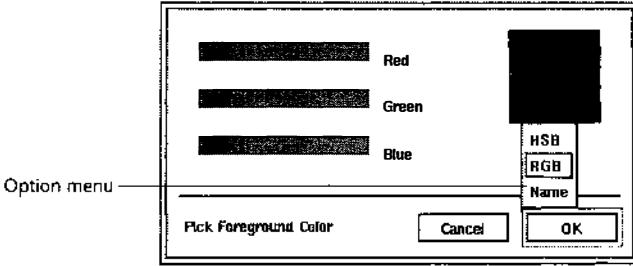
A window is an area that stays open on your workspace unless you explicitly close it. Windows can be controlled using your window manager. Windows usually contain menus.

The most important windows in Looking Glass are:

- The Global window
- Directory windows
- The Desktop Panel

These three windows were introduced in Chapter 1, "Getting started with Looking Glass." You'll learn more about the specific tasks you can perform using these windows as you continue through this manual.

Here is an example of an option menu displayed in a dialog:



Choosing a command from an option menu

1. Move the pointer to the option that is showing.

2. Click a mouse button.

The option menu opens.

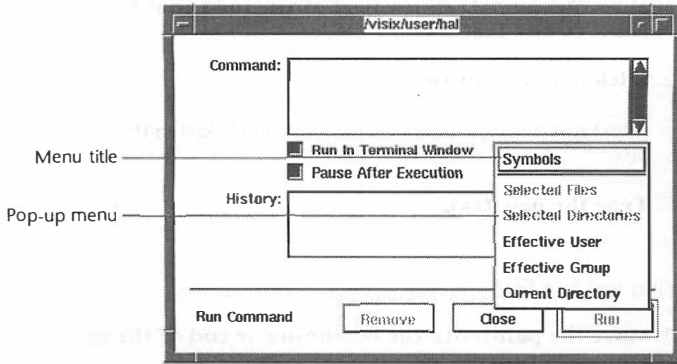
3. Click the option you want to select.

The menu closes and the option that you chose is displayed in the dialog.

Pop-up menus

Pop-up menus are similar to option menus because they may appear anywhere in a dialog. However, pop-up menus display the title of the menu rather than the currently selected option. When you click the title, the menu opens.

Here is an example of a pop-up menu:



Choosing a command from a pop-up menu

1. Move the pointer to the menu title that is showing.

2. Click a mouse button.

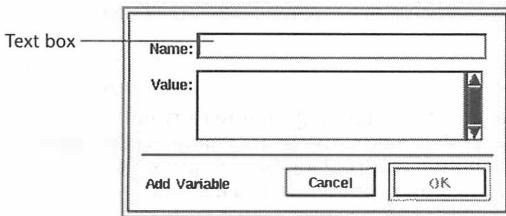
The pop-up menu opens.

3. Click the option you want to select.

The menu closes and the value that you chose is displayed in the dialog.

Text boxes

A *text box* lets you enter or edit information in a dialog by adding, replacing, or deleting text.



Adding text to a field

- 1. Move the pointer to the part of the field that you want to add text to.**
- 2. Click a mouse button.**

A text insertion cursor appears where you clicked in the text box.

- 3. Type the new text.**

Replacing text in a field

- 1. Move the pointer to the beginning or end of the text you want to replace.**
- 2. Hold down a mouse button.**
- 3. Drag across the text you want to replace or double-click the word you want to replace.**

The text is highlighted.

- 4. Type the new text.**

The text you type replaces the highlighted text.

Deleting text in a field

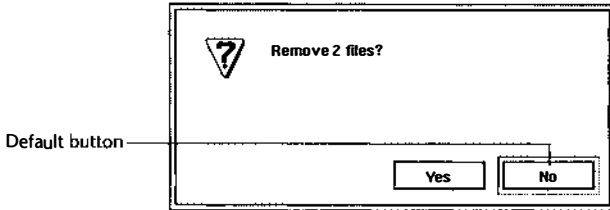
- 1. Move the pointer to the beginning or end of the text you want to delete.**
- 2. Drag across the text you want to delete.**
- 3. Press Delete.**

Push buttons

Push buttons are used to tell Looking Glass to carry out an action. The OK and Cancel buttons in dialogs are examples of buttons. Clicking the OK button tells Looking Glass to process and close a dialog. Clicking the Cancel button closes a dialog and causes Looking Glass to ignore any changes you've made in the dialog. If a button is dimmed (grayed), you cannot use it.

In most dialogs, there is a *default* button. A default button is the button that is automatically activated when you press Return unless you select another button. The default button is always highlighted with a double border.

Here is an example of a default button in a dialog:



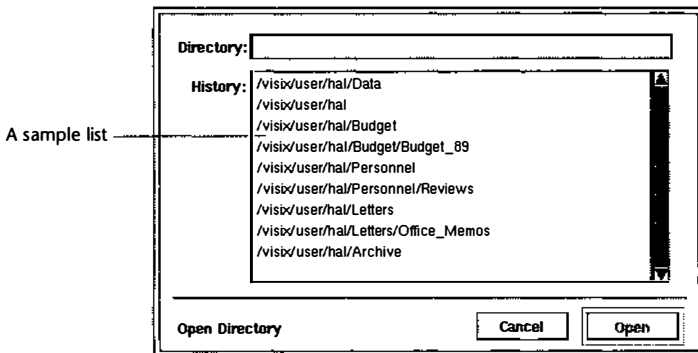
Selecting a push button

- 1. Move the pointer to the push button.**
- 2. Click it.**

Lists

Some windows contain a *list* of options you can choose from. Some lists appear with a text box. The contents of the text box are replaced by the option you choose from the list.

Here is an example of a typical list in Looking Glass:



A list usually has a title that identifies its purpose. For example, several Looking Glass dialogs contain lists of directories that have the title "History" because they are lists of the directories that you have visited most recently.

Using a list

1. Click the selection you want to choose in the list.

Your selection is highlighted in the list.

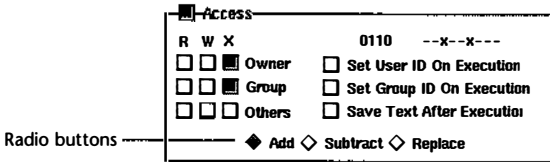
2. Click the appropriate button to activate your selection.

Your selection is activated.

Radio buttons

Radio buttons offer you a group of options. They appear in dialogs and on menus. When you turn one on, the others turn off. You can only select one radio button from a group at a time.

Here is an example of a group of radio buttons:



Selecting a radio button

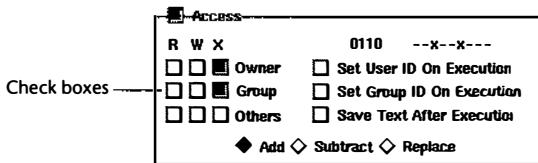
1. Move the pointer to the radio button you want to select.

2. Click it.

Check boxes

Check boxes offer one or more options that can be turned on or off (unlike radio buttons, where turning one on turns the others off). When a check box is selected, the option associated with the check box is turned on. When the check box is not selected, the option associated with the check box is turned off.

Check boxes can also appear on menus as well as dialogs to indicate whether an option is turned on or off.



Selecting a check box

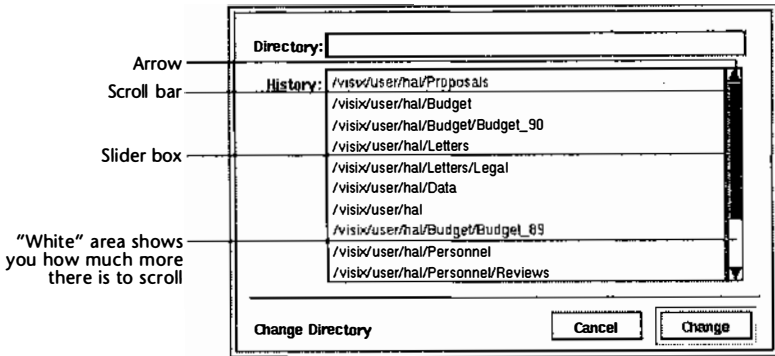
- 1. Move the pointer to the check box you want to select.**
- 2. Click it.**

Scroll bars

Scroll bars allow you to bring hidden information into view. Scroll bars appear anywhere that text or graphics are displayed but might not fit in the display area, such as text fields and lists.

Scroll bars contain arrows that you can click on to scroll a line at a time in a certain direction. They also contain slider boxes that you can click on and move in order to scroll several windows at a time.

Here is an example of a scroll bar:



The size of the slider box in the scroll bar shows you how much of the available information is currently displayed. For example, if the slider box fills half of the scroll bar, one-half of the available information is shown. If the entire scroll region is filled by the slider box, all of the available information is shown.

You can use the scroll bar three ways:

- Scroll line by line
- Scroll a windowful of information at a time
- Scroll to a specific location

Scrolling line by line

1. Move the pointer to one of the arrows.

2. Click the arrow until the information you want is displayed.

The information scrolls one line in the direction of the arrow for each click.

Scrolling one window at a time

1. Move the pointer to the scroll region above or below the slider box.

2. Click the mouse button.

The information scrolls up or down one windowful of information.

Scrolling to a specific location

1. Move the pointer to the slider box.

The scroll region represents all the information available. The slider box in the scroll region shows your relative position in the information.

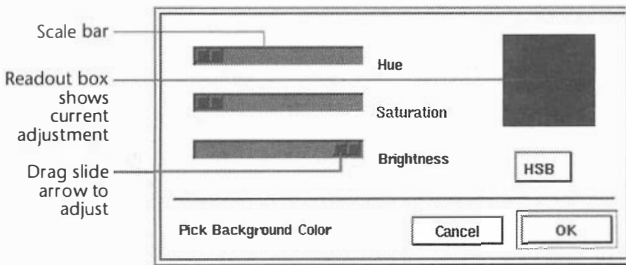
2. Drag the slider box up or down to the location you want to view.

The information scrolls as you drag the slider box.

Scale bars

Scale bars allow you to choose or adjust a value from a range of values. Scale bars always have an associated text or graphic box that shows the currently selected value.

Here is an example of a scale bar:



Choosing or adjusting a value with a scale bar

1. **Drag the slide arrow to the left or right until the value you want is displayed in the readout box.**

The scale bar reflects the value you chose.

Getting help

This chapter introduces you to the Looking Glass help system and tells you how to ask for help in Looking Glass by:

- Using the Help key
- Using the Help command

This chapter also gives you a brief tour of the following windows:

- Help window
- Index window
- History window

You'll learn how to use hypertext links, lists, and control buttons to move through the help system. Using these navigation tools, you'll be able to:

- Walk through entries in a topic
- Jump to related entries
- Retrace your steps along the path you've created

Entering the help system

There are two ways to enter the help system:

- Using the Help key
- Using the Help command

Using the Help key

When you enter the help system by pressing the Help or F1 key, you can indicate the topic you want help on by clicking in an area of the current dialog or window.

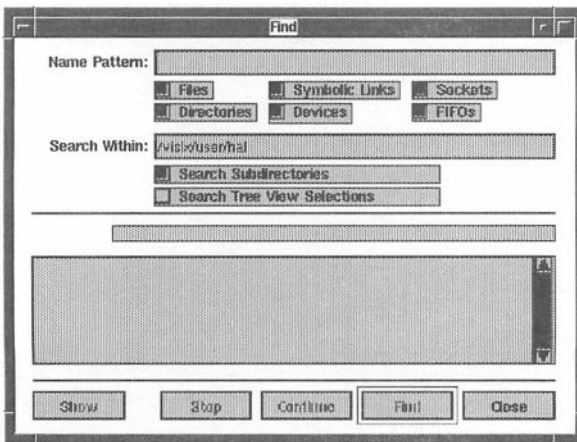
1. To enter the help system, press the Help or F1 key.

If your keyboard doesn't have either of these keys, press:

- Control+Shift+?
- or*
- Control+Shift+_

The pointer becomes a question mark and the areas for which help is available are shaded.

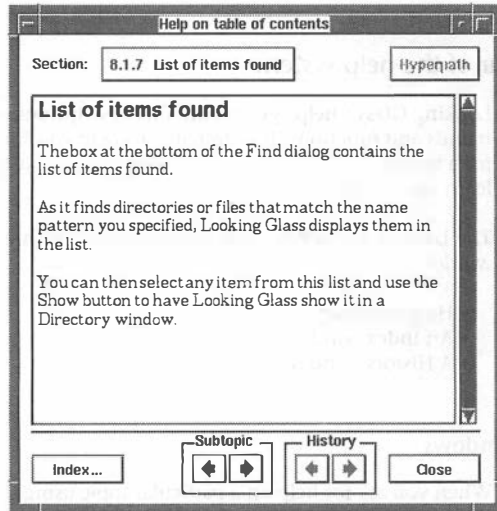
Here is an example of the Find dialog after pressing the Help or F1 key:



2. Put the period of the question mark on the area you want help on and click.

The help entry for the component you clicked is displayed in a Help window.

Here is a Help window describing one of the components of the Find window:



A new Help window is opened each time you use the Help key.

Once you're in the help system, you can move to other entries using the buttons in a Help window or by using the lists in the Index window. For more information on how to navigate, refer to "Navigating through the help system" later in this chapter.

3. Click Close to leave the window.

Using the Help command

When you enter the help system using the Help command, a help window opens displaying the Introduction to Help topic.

1. Choose Help from the Show menu in the Global window.

A Help window opens, displaying the Introduction to Help topic.

Once you're in the help system, you can move to other entries using the buttons or hypertext links in a Help window or the lists in the Index window. For more information on how to navigate, refer to "Navigating through the help system" later in this chapter.

2. Click Close to leave the window.

A brief tour of the help system

Looking Glass's help system contains descriptions of all its commands and functions. It is designed to help you find information for a specific topic quickly, but you can also use it to browse and learn about Looking Glass.

The Looking Glass help system is composed of three types of windows:

- Help windows
- An Index window
- A History window

Help windows

When you ask for help on a particular topic using the Help key, a Help window is displayed. The Help window contains the description and procedures for using the command, field, dialog, button, or other object that you asked for help on.

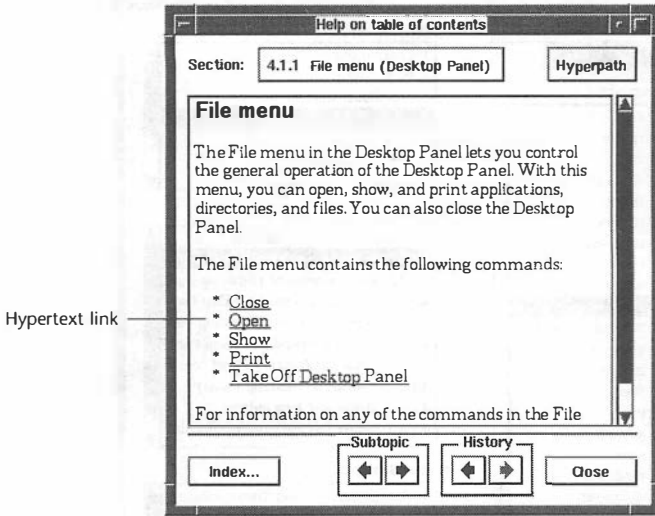
Help window text contains two unique features that let you navigate quickly to other entries:

- Hypertext links
- Indexed keywords

Hypertext links let you jump to a new topic and are indicated by underlined words in the help text.

Most of the other words in the text are indexed to the Phrases list in the Index window. You can double-click one of these other (non-underlined) words to open the Index window and see the topics that contain information about the word.

Here is a Help window showing help on the File menu in the Desktop Panel:



You can have several Help windows open on your workspace for different entries.

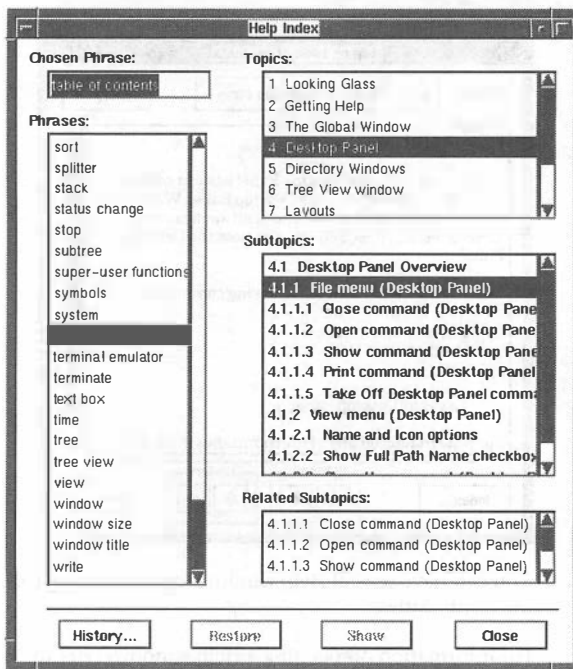
For information on opening a Help window, refer to "Entering the help system" earlier in this chapter.

The Index window

Once you've entered the help system by opening a Help window, you can click the Index button at the bottom of the window to open the Index window. The Index window gives you access to all of the topics and subtopics in the help system. It also contains a list of keywords and phrases you can choose from if you're not sure of the particular subject you want help on.

When you first open the Index window, the items highlighted in the open Index window reflect the entry displayed in the active Help window. If you open a new Help window or select another topic in the Index window, the Index window selections change to reflect the entry in the new Help window. When you close the last open Help window, the Index window also closes.

Here is an example of the Index window:



One of the most important components of this window is the Phrases list. Use the Phrases list in the Index window when you know the task or object that you want information on but you don't know which topic to select. When you select a phrase from the Phrases list, the Index window selections change to reflect the chosen phrase.

The Phrases list contains:

- Looking Glass concepts
- Operating system concepts
- Window manager concepts

The list contains the names of specific Looking Glass components, like:

- Windows
- Commands
- Dialogs
- Components of windows and dialogs, such as text boxes, list boxes, and buttons

The list also contains common tasks and new features. Select the “table of contents” phrase to see the complete list of entries in the Topics and Subtopics lists.

NOTE:

The Help window text also contains invisible links to all of the keywords in the Phrases list. You can double-click almost any word in a Help window to open the Index window and see which topics contain information about that word.

If you’ve changed the topic, subtopic, or chosen phrase in the Index window during your search for a particular entry, you can change the lists back to reflect the entry displayed in the Help window by clicking the Restore button.

There is only one Index window in the help system. If you select the Index button again from another Help window, the Index window moves to the foreground. The Index window selections change to reflect the entry in the active Help window.

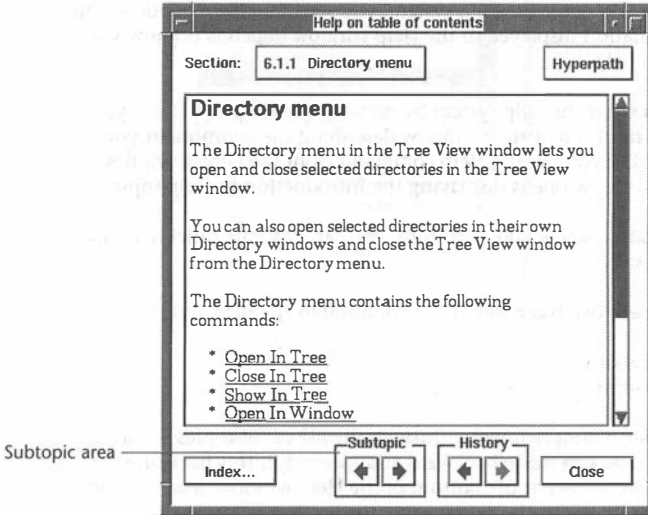
The History window

The History window shows you all of the topics and subtopics that you’ve visited. You can use this window to see where you’ve been or select an entry from the list to open a Help window for that topic.

Using the Subtopic arrows

Use the arrow buttons in the Subtopic area at the bottom of the Help window to move to the previous or next entry.

Here is a Help window with the subtopic area identified:



The entries in the subtopic you're in depend on the word highlighted in the Phrases list in the Index window. Therefore, as you walk through the entries in the subtopic, you'll skip any entries that aren't related to the word in the Phrases list.

1. In the Subtopic area at the bottom of the Help window, click:

- The left arrow to move to the previous entry in the subtopic *or*
- The right arrow to move to the next entry in the subtopic

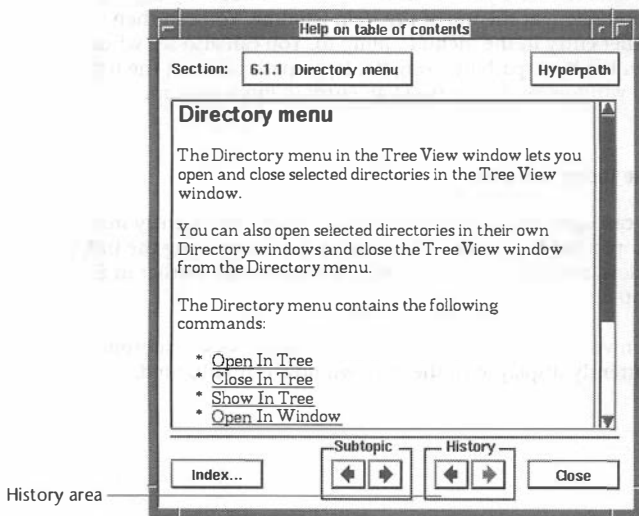
2. Continue clicking until you reach the entry you want help on.

When you reach the end of a topic going in either direction, the arrow is dimmed. You must use the Topics list in the Index window to switch to a new topic. For information on using the Index window, refer to the "Jumping to different subtopics" section later in this chapter.

Using the History arrows

As you move through entries in a Help window, the window keeps track of the entries you visit. Use the arrow buttons in the History area at the bottom of the Help window to move to the previous or next entry in the window's history list.

Here is a Help window with the History area identified:



NOTE:

If you move to another entry by any means other than the History arrows, all of the forward history disappears, as if you were never there.

1. In the History area at the bottom of the Help window, click:

- The left arrow to restore the last entry
or
- The right arrow to return to where you were before you clicked the left arrow

2. Continue clicking until you reach the entry you want help on.

When you reach the end of the window's history list going in either direction, the arrow is dimmed.

Jumping to different subtopics

There are two basic ways to jump to a related entry in the help system:

- Using the Index window
- Using hypertext links in a Help window

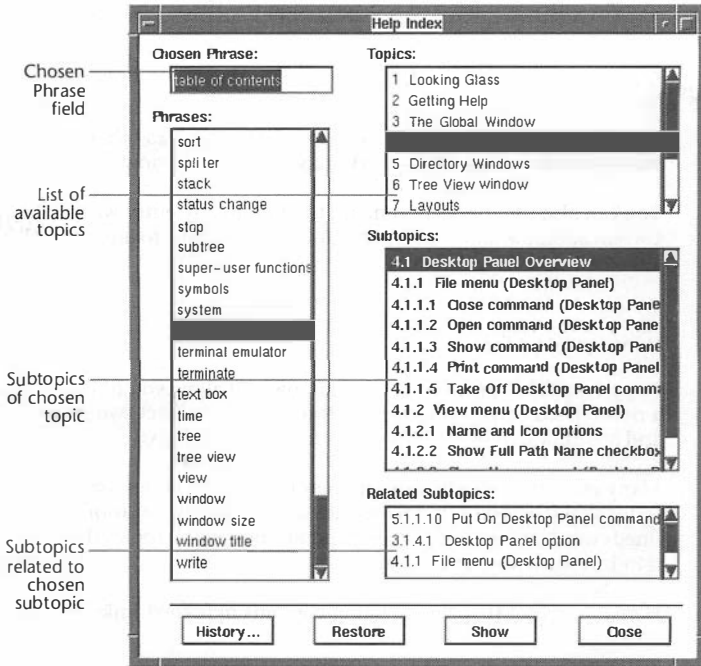
You can see where you are in the current subtopic by using the Section menu at the top of the Help window. You can then select another entry in the menu to jump to. You can also see where you are in the hyperpath by using the Hyperpath menu at the top of the Help window, and then select an entry to jump back to.

Using the Index window

You can open the Index window and choose a new entry from the Subtopics list to jump to. For information on opening the Index window, refer to "A brief tour of the help system" earlier in this chapter.

When you open the Index window, the name of the subtopic that is currently displayed in the Help window is highlighted.

Here is an example of an Index window:



To choose a new subtopic:

1. Select "table of contents" from the Phrases list.

The Topics list changes to display all of the topics in the help system.

2. From the Topics list, select the topic that contains the subtopics you want to see.

You can use the scroll bar on the side to move down the list.

3. From the Subtopics list, select the subtopic that you want to see.

You can use the scroll bar on the side to move down the list.

4. Click Show.

The entry you selected is displayed in the Help window.

Using the Help window

In addition to using the Index window for jumping to other subtopics, you can use hypertext links in a Help window.

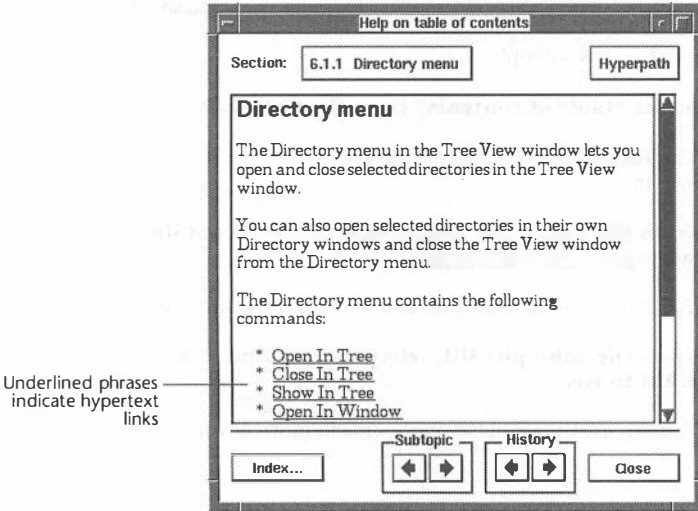
You can also use the Section menu to jump to any entry within the current subtopic and the Hyperpath menu to return to any entry already in your hyperpath.

Using hypertext links

Hypertext links appear in a Help window and allow you to jump to a new related entry. Links are like threads that connect two entries and are indicated by underlined words in the help text.

Many other words in the text are indexed to the Phrases list in the Index window. You can double-click one of these other (non-underlined) words to open the Index window and see the topics that contain information about the word.

Here is a typical Help window that contains hypertext links:



1. In the Help window, double-click in the underlined phrase that you want more help on.

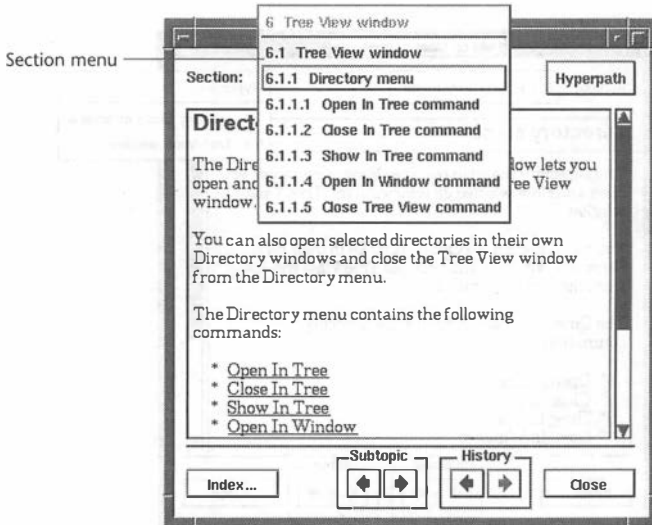
The entry you selected is displayed in the Help window and the entry you jumped from becomes part of the hyperpath.

Using the Section menu

The Section menu is an option menu that displays the name of the help entry currently showing in the Help window. The menu contains the topic above and all of the entries directly below the subtopic showing. Entries are dimmed in the Section menu if they aren't related to the chosen phrase in the Index window.

When you click the Section menu, the menu opens and you can jump to another entry.

Here is an example of a Help window with the Section menu open:



1. Click the entry showing in the Section menu.

The menu opens displaying all of the subtopics above and all of the entries below the current entry.

2. Select the entry you want help on.

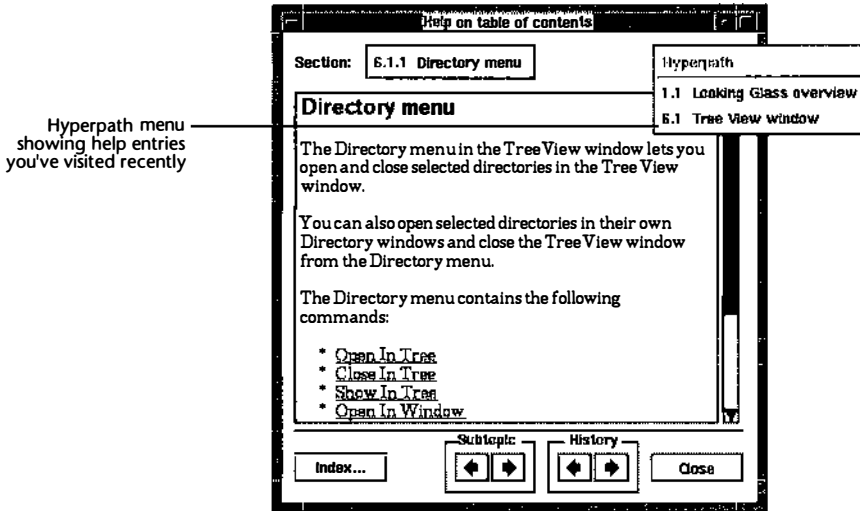
The entry you selected is displayed in the Help window and the entry you jumped from becomes part of the hyperpath.

Using the Hyperpath menu

You can see the entries you jumped from by using the Hyperpath menu at the top of the Help window. If you use this menu to go back to one of the entries you jumped from, all of the entries that followed it in the menu disappear from the Hyperpath menu. The Hyperpath menu will then reflect any new places you jump from. You can use the History arrows to retrace your steps back to the hyperpath jumps that disappeared from the menu.

NOTE:

If you've only walked through the entries in a subtopic and haven't jumped to any entries outside the subtopic, the Hyperpath menu is dimmed.



1. Click Hyperpath.

The menu opens, displaying all of the help entries in your hyperpath in the order that you jumped from them. The entry you visited most recently is displayed at the bottom of the menu.

2. Select an entry you want to return to.

The entry you selected is displayed in the Help window.

All of the entries below the one you selected in the hyperpath are removed from the Hyperpath menu. The menu now contains only the entries that you visited before the one you selected.

Detouring using the History window

You can detour from walking or jumping through entries by opening a new Help window from the History window. The help system History window is similar to other history lists in Looking Glass in that it lets you quickly select a help entry that you've visited. The most recently visited entry is always at the top of the list.

When you select a help entry from the History window, a new Help window is opened. You can then navigate through the new Help window by walking or jumping.

For information on opening the History window, refer to "A brief tour of the help system" earlier in this chapter.

To open a new Help window from the History window:

1. Select an entry from the list that you want to return to.**2. Click Show.**

A new Help window opens, displaying the entry you selected.

Working with Directory windows

4

In this chapter, we'll introduce you to Looking Glass Directory windows and tell you how to perform these basic operations:

- Opening directories in new Directory windows
- Closing Directory windows
- Changing the directory displayed in the current Directory window
- Moving a Directory window to the foreground on your workspace
- Stacking Directory windows on your workspace

You'll also learn how to customize the display of directories and files in Directory windows by:

- Setting display formats
- Choosing whether to show or hide hidden files
- Adjusting the amount of space used to display the directory and file sections in a Directory window
- Sorting directories by a category such as name, time the file was last changed, or file type
- Grouping selected directories and files
- Positioning icons in a Directory window
- Assigning colors to directory and file icons



The new Directory window opens, displaying the contents of the directory you double-clicked.

If you want to change the action associated with double-clicking, use the Operational Preferences command in the System menu. For more information about the Operational Preferences command, refer to “Changing operational preferences” in Chapter 12, “Changing Looking Glass preferences.”

Opening Directory windows using the Open command

The Open command in the File menu of a Directory window is the most efficient way to open more than one directory at a time when those directories are displayed in the same Directory window.

- 1. In a Directory window, select the directories you want to open.**
- 2. Choose Open from the File menu in the Directory window.**

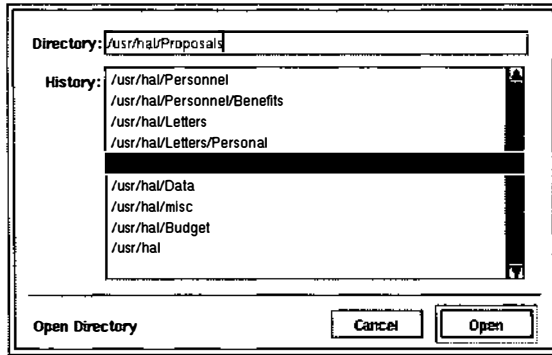
A Directory window opens for each directory you selected.

Opening Directory windows using the Open Directory command

The Open Directory command in the Windows menu of the Global window opens a dialog containing a history list of recently visited directories. Use this command to select a directory that is not accessible in the workspace.

- 1. Choose Open Directory from the Windows menu in the Global window.**

The Open Directory dialog is displayed:



In this dialog, you specify the directory you want to open in the new Directory window.

2. To specify the directory you want to open:

- Select a directory from the history list
or
- Enter the pathname of a directory in the Directory field (as a shortcut, you can leave this field blank to change to your home directory)

3. Click Open.

A Directory window opens for the directory you selected.

Closing Directory windows

1. Choose Close from the File menu in the Directory window you want to close.

The Directory window closes.

Changing the directory displayed in the current Directory window

There are two ways to change the directory displayed in a Directory window:

- Double-click a directory
- Use the Change Directory command

Changing directories by double-clicking

1. **Control+double-click the icon or name of the directory you want to display.**

The directory you double-clicked is displayed in the current Directory window.

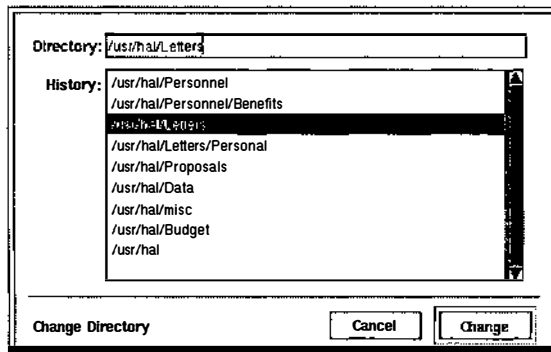
If you want to display the contents of a directory in a new Directory window, refer to "Opening Directory windows" earlier in this chapter.

If you want to change the action associated with the Change Directory command, refer to "Changing operational preferences" in Chapter 12, "Changing Looking Glass preferences."

Changing directories using the Change Directory command

1. **Choose Change Directory from the File menu in a Directory window.**

The Change Directory dialog is displayed:



In this dialog, you specify the directory you want to change to.

2. To specify the directory you want to change to:

- Select a directory from the history list
or
- Enter the pathname of the new directory in the Directory field (as a shortcut, you can leave this field blank to change to your home directory)

3. Click Change.

The new directory is displayed in the current Directory window.

Moving Directory windows

If you have several Directory windows open on your workspace, you can use the Windows menu in the Global window to move a window from the back of the group to the front. You can also use the Windows menu to stack all of the Directory windows neatly on the workspace.

Moving a Directory window to the foreground

The Windows menu in the Global window lists the names of all the directories that are currently open on your workspace. You can choose the name of one of these directories to move it in front of the other windows.

- 1. Choose the name of the directory you want to move to the front from the Windows menu in the Global window.**

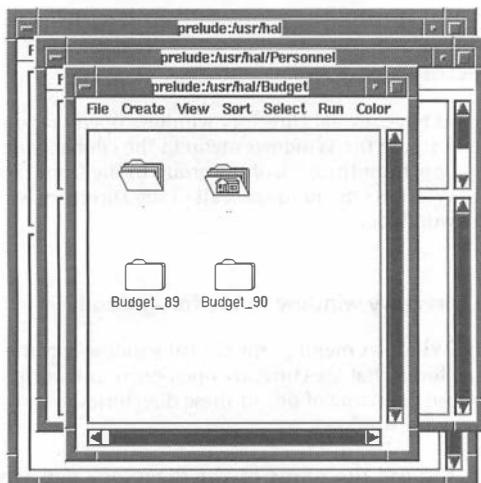
The directory you chose is moved in front of the other windows on the workspace.

Stacking Directory windows

At your request, Looking Glass stacks any open Directory windows neatly on the left side of the screen.

1. **Choose Stack from the Windows menu in the Global window.**

Your open Directory windows are neatly stacked on your workspace. Here is an example of stacked windows:



Changing display formats in Directory windows

In Directory windows, there are three ways to display directories and files:

- Name view
- Icon view
- Wide view

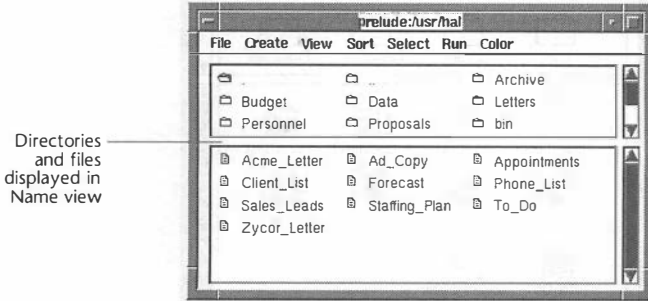
View by name

When directories and files are displayed in Name view, a miniature icon next to each name indicates whether the object is a directory or file.

1. **Choose Name from the View menu in a Directory window.**

The directories and files in the current Directory window are displayed by name.

Here is an example of directories and files that are displayed by name:



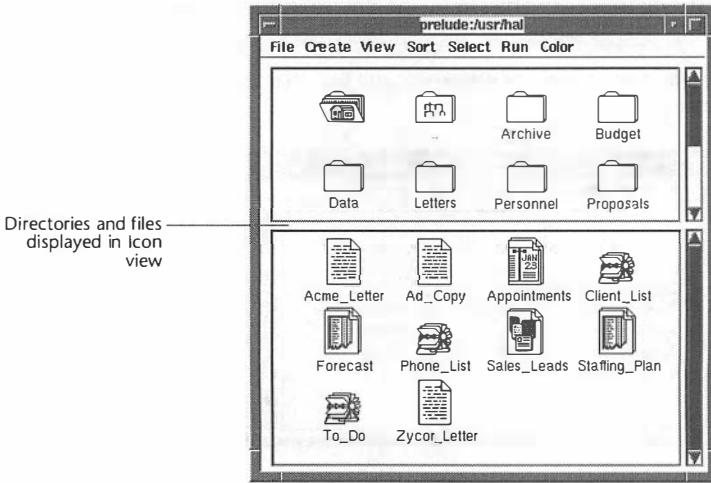
View by icon

When directories and files are displayed in Icon view, a full-size icon is displayed for each object in a Directory window. The name appears below the icon.

1. **Choose Icon from the View menu in a Directory window.**

The directories and files in the current Directory window are displayed by Icon.

Here is an example of directories and files that are displayed by icon:



Wide view

When directories and files are displayed in Wide view, the following information can be displayed:

- Name
- Access privileges
- Owner and Group
- Number of links
- Size (in bytes)
- Inode number
- Time and date of last update
- File type
- Link content

A miniature icon next to each name indicates whether the object is a directory or file.

1. **Choose Wide from the View menu in a Directory window.**

The directories and files are displayed in a wide format that gives you information about each directory and file.

Here is an example of directories and files that are displayed in Wide view:

Directories and files in Wide view (Links, Inode, and Link Content not shown)

Name	Owner	Group	Other	Owner	Group	Size	Modification Time	Type
.	rwk	f-x	f-x	hal	dsgrp	1024	15:05 Nov 15 1990	Directory
..	rwk	f-x	f-x	root	system	512	18:21 Nov 13 1990	Directory
Archive	rwk	f-x	f-x	hal	dsgrp	512	18:56 Jul 26 1990	Directory
Budget	rwk	f-x	f-x	hal	dsgrp	512	11:50 Nov 14 1990	Directory
Data	rwk	f-x	f-x	hal	dsgrp	512	21:31 Nov 13 1990	Directory
Letters	rwk	f-x	f-x	hal	dsgrp	512	19:03 Nov 13 1990	Directory
Acme_Letter	rw-	f--	f--	hal	dsgrp	339	12:53 Mar 14 1990	Text file
Ad_Copy	rw-	f--	f--	hal	dsgrp	4827	11:32 Apr 28 1990	Text file
Appointments	rw-	f--	f--	hal	dsgrp	234	13:15 Nov 2 1990	Desktop calendar doc
Client_List	rw-	f--	f--	hal	dsgrp	18179	11:37 Sep 25 1990	Card file
Forecast	rw-	f--	f--	hal	dsgrp	4648	13:38 Dec 20 1989	Spreadsheet data file
Phone_List	rw-	f--	f--	hal	dsgrp	3016	12:48 Aug 5 1988	Card file
Sales_Leads	rw-	f--	f--	hal	dsgrp	54397	12:58 Feb 28 1990	Database data file
Staffing_Plan	rw-	f--	f--	hal	dsgrp	1825	13:01 Jun 28 1990	Spreadsheet data file
To_Do	rw-	f--	f--	hal	dsgrp	154	13:13 Nov 2 1990	Card file

You may have to resize a Directory window or adjust the column headings to see the information you want in Wide view.

The following table describes how to adjust the display of information in Wide view.

To:	Do this:
Increase or decrease the width of a column	Drag the edge of the column heading left or right
Move a column from one position to another	Drag the column heading to a new position on the title line
Remove a category from the display	Drag the column heading (all except the Name column heading) down off the title line
Eliminate unused space between all categories	Double-click anywhere in the title line
Sort by a category	Double-click the column heading

For information about changing the default views for Looking Glass Directory windows, refer to “Specifying the default display format for new Directory windows” in Chapter 12, “Changing Looking Glass preferences.”

Choosing whether to show or hide hidden files

Hidden files are directories and files whose names begin with “.” (with the exception of the current and parent directories). The “.” prefix is often used in naming system configuration files or data files that users rarely need to view.

Use the Show Hidden Files check box in the View menu to show or hide the hidden files in the active Directory window. If this check box is selected, hidden files are displayed; if the check box is not selected, hidden files are hidden.

1. **Select or unselect the Show Hidden Files check box in the View menu in the Directory window.**

If you selected the check box, hidden files are displayed; if you unselected the check box, hidden files are hidden.

If you want to change whether hidden files are displayed by default, refer to “Specifying whether hidden files are displayed in Directory windows” in Chapter 12, “Changing Looking Glass preferences.”

Setting display formats

There are two display formats that you can use in Name and Icon views:

- Positionable
- Non-positionable

When you select Positionable, the splitter is removed and the directories and files are displayed together in the Directory window.

When you select Non-positionable, the Directory window is divided into two sections: one for directories and one for files. The directories and files are aligned on a permanent grid in each section.

Changing to Positionable format

Looking Glass lets you remove the splitter and reposition your directories and files anywhere you want. You can use the Positionable format in the Name and Icon views.

- 1. Select the Positionable check box in the View menu in the Directory window.**

The splitter is removed and your directories and files are displayed together.

- 2. Drag the directories and files anywhere in the Directory window.**

After you have moved directories and files to new positions in the Directory window, you can return them to the grid with the splitter by selecting Positionable again.

Changing to Non-positionable format

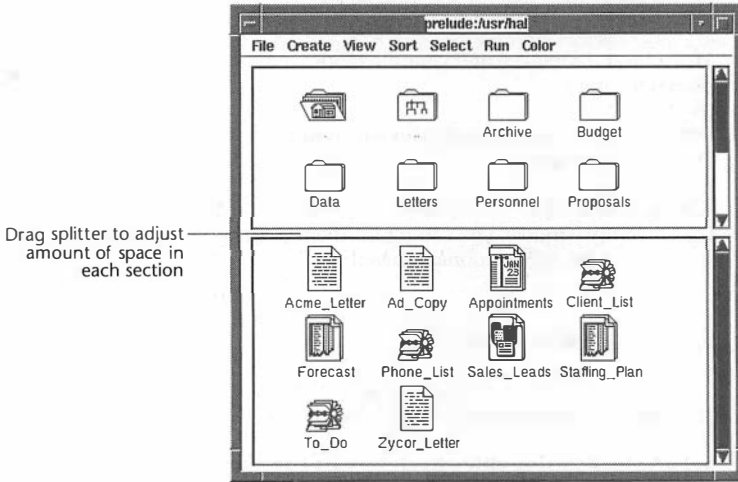
If a Directory window is in Positionable format, you can change it to Non-positionable format, which divides the window with a splitter.

- 1. Select the Positionable check box in the View menu in the Directory window.**

The Directory window is displayed with the splitter separating the directories and files.

Moving the splitter

The splitter that divides Directory windows lets you adjust the amount of space given to the directory and file sections of the window. The splitter is only present in Name, Icon, and Wide views when a Directory window is in Non-positionable format.



You can change the default position of the splitter in new Directory windows with the Display Preferences command in the System menu. For information about the Display Preferences command, refer to "Changing display preferences" in Chapter 12, "Changing Looking Glass preferences."

1. **Put the pointer on the splitter in a Directory window.**
2. **Drag the splitter up or down.**

The splitter moves to the new position and the amount of space is adjusted.

Cleaning up repositioned directories and files

You can align any directories or files that you've repositioned according to your cleanup preferences using the Clean Up commands from the Sort menu. For more information about setting your cleanup preferences, refer to Chapter 12, "Changing Looking Glass preferences."

You can only use the Clean Up commands in Positionable format. You can clean up all directories and files in Name or Icon view. You can also select specific directories or files to clean up.

Cleaning up using the Clean Up command

1. **Select Clean Up from the Sort menu in the Directory window you want to clean up.**

All the directories and files are arranged in neat rows and columns on an invisible grid, filling in the Directory window from left to right and top to bottom.

Cleaning up using the Clean Up Selection command

1. **Select the directories or files you want to clean up.**
2. **Choose Clean Up Selection from the Sort menu in the Directory window you want to clean up.**

The directories and files you selected are moved to the nearest available space on the grid—not necessarily filling in the Directory window from left to right and top to bottom.

The directories and files you selected are repositioned according to the pattern you specified in your cleanup preferences.

Sorting directories and files

In Looking Glass, you can sort directories and files in a Directory window according to a specific category and in a particular order. You can sort in any view in the Non-positionable format.

When your directories and files are displayed in Icon or Name view in a split Directory window, you can sort by either of the following categories in ascending or descending order:

- File or directory name
- Icon color

When your directories and files are displayed in Wide view, you can sort by any of the following categories in ascending or descending order:

- File or directory name
- Owner name
- Group name
- Size
- Time and date the directory or file was last changed
- File type

NOTE:

You can sort by any category in Wide view by double-clicking on the column heading.

If any of these categories have been removed from the Wide view display, you can't sort by that category.

1. Choose a sorting category from the Sort menu in a Directory window.

The directories and files in the current Directory window are sorted and redisplayed.

NOTE:

Your current Directory window must contain at least two items in addition to your "." and ".." directories in order to sort.

2. Choose Ascending or Descending from the Sort menu in a Directory window to change the sort order.

When either Ascending or Descending is selected, they appear selected in the menu (a checkmark, a filled-in square, or some other mark appears in front of the command in the menu).

Grouping selected directories and files

Sometimes it is useful to group all selected directories or files in a Directory window. The Group Selected Objects command groups any selected directories or files first, then lists the rest of the directories and files. You can group directories and files in any view in the Non-positionable format.

1. Select the directories and files you want displayed if they are not already selected.

2. Choose Group Selected Objects from the Sort menu in a Directory window.

The selected directories or files are listed together.

Assigning colors to directories and files

If you have a color display, you can assign colors to directories and files. When you assign a color to a directory or file, it appears in that color in Directory windows and the Desktop Panel until you change it. Assigned colors are stored on a per-user basis, so the colors you assign aren't seen by other users.

1. Select the directory or file to which you want to assign a color.

2. Choose a color from the Color menu in a Directory window.

The selected directory or file is displayed in the color you chose.

Retyping a directory

When Looking Glass first visits a directory, it looks at the files and directories in it to determine their "type" based on a set of rules defined at your site. When Looking Glass visits a directory it has already been in, it only examines files that were added since the last visit.

Typing a file correctly is very important because Looking Glass uses the type information in several ways, including:

- To display the correct icon when files are viewed by icon
- To carry out the correct action when files are activated
- To determine whether files are "printable" and to print them correctly
- To determine whether a program needs to be run in a terminal emulator window

There may be occasions when you want Looking Glass to “retype” a directory. For example, you would want to retype a directory if new file typing rules have been defined in your system, and you think that you may have some files in a directory that may be typed more effectively based on the new rules.

- 1. Open the directory you want to retype in the current Directory window.**
- 2. Choose Retype Directory from the File menu.**

The directory is retyped.

Managing directories and files

5

In this chapter, you'll learn how to manage the directories and files in your Directory windows.

You'll learn how to:

- Create new directories and files
- Create links for directories and files
- Find and display directories and files in Directory windows
- Select directories and files in the active Directory window
- Group selected directories and files
- Move files
- Copy files
- Remove directories and files
- Print files

Creating directories and files

Use the Create menu in a Directory window to create directories, files, FIFOs, and devices.

NOTE:

If the Directory, File, FIFO, and Device commands are dimmed in the Create menu, you do not have write permission for the current directory. For more information about access permissions, refer to Chapter 7, "Accessing information about directories and files."

Creating directories

1. Choose Directory from the Create menu in a Directory window.

The new directory is named Directory1 and its name is selected. Each new directory you create is consecutively numbered until you rename it.

2. To rename the new directory, type the new name while it is still selected.

Creating files or FIFOs

1. Choose File or FIFO from the Create menu in a Directory window.

If you created a new file, the new file is named File1 and its name is selected. Each new file you create is consecutively numbered until you rename it.

If you created a new FIFO, the new file is named FIFO1 and it is selected. Each new FIFO you create is consecutively numbered until you rename it.

2. To rename the new file or FIFO, type the new name while it is still selected.

Creating devices

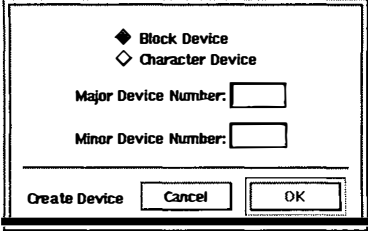
Creating a device is not an everyday activity for most users. On most systems, only the super-user is allowed to create devices.

NOTE:

If you create a device, you must make sure the device driver it references is properly installed in the operating system kernel.

1. Choose Device from the Create menu in a Directory window.

The Device dialog is displayed:



◆ Block Device
◇ Character Device

Major Device Number:

Minor Device Number:

Create Device Cancel OK

2. Select the Block or Character button in the Device Type section.

3. Enter the major device number in decimal notation in the Major Device field.

4. Enter the minor device number in decimal notation in the Minor Device field.

5. Click OK.

The new device is named Device1 and its name is selected. Each new device you create is consecutively numbered until you rename it.

6. To rename the new device, type the new name while it is still selected.

Changing the name of an existing directory or file

There are two ways to change the name of a directory or file using Looking Glass:

- Edit the name in a Directory window
- Use the Information command

The following section tells you how to change the name of a directory or file in a Directory window. To find out how to use the Information command to change a directory or file's name, refer to Chapter 7, "Accessing information about directories and files."

1. Select the name of the directory or file you want to change.

A box appears around the directory or file name and the name is highlighted.

2. Edit the name just as you would any text field.

Looking Glass allows you to change the name of all directories and files in your directory except the "." (current) and ".." (parent) directories.

NOTE:

If you make a mistake, delete the entire name and press Return. The old name is restored.

Creating links

A link allows you to access a directory or file from more than one location in your file system.

Links are simply a way of providing access to directories or files by giving them additional names (called *linked references*): either the simple directory or file name, the full pathname, or a relative pathname. You use a different type of link depending on how you want to reference that directory or file.

NOTE:

Another way to quickly access a directory or file is to put it on the Desktop Panel.

Links take up very little disk space—much less than an actual copy of a directory or file. Therefore, it's sometimes better to create a link rather than make another copy of a directory or file.

Here are some examples of things you can do using links:

- Make a directory or file appear in more than one directory under the same name
- Make a directory or file appear in more than one directory under different names

There are two types of links you can create with Looking Glass:

- Hard
- Symbolic

A *hard link* is simply a new name for an already existing file. Hard links cannot be created for directories.

For hard links, the link names may be in different directories, but they must be on the same file system. A *file system* is a set of directories and files that can be mounted (connected) or unmounted (disconnected).

Creating a hard link is like copying a file without physically duplicating it. When you make a change to a file through one hard link, you'll see the change when you access it through any of its other hard links. Hard links can only be created for files.

For example, let's say you've created a link called `/usr/joe/test1` to a file called `/usr/joe/testfiles/file1`. If you accessed your file by using the link (`test1`) and made a change to the file, you would see the change when you open the original file (`/usr/joe/testfiles/file1`).

Because creating a hard link is like copying a file, you haven't removed a file from your system until you've removed all of its hard link names. One way to find out how many hard links a file has is to use the Information command in the File menu of any Directory window. For more information on the Information command, refer to "Viewing information for one directory or file at a time" in Chapter 7, "Accessing information about directories and files." Another way to find out how many hard links a file has is to use the Wide view option in the Directory window of the file under the Links column.

Unlike a hard link, a *symbolic link* can be made across file systems and can reference directories as well as files. When you create a symbolic link, a file is created that contains the pathname of an actual directory or file. Like a hard link, when you make a change to a file through one symbolic link, you'll see the change when you access it through any of its other symbolic links or the original name.

A key distinction between hard and symbolic links is that a hard link is a reference to a physical file and a symbolic link is a reference to a directory or file name.

Because a symbolic link only points to a directory or file name and is not an actual file system reference, when you remove the original directory or file you also make all of its symbolic links invalid. The link is still there, but since it points to nothing, the link will cause errors if you try to use it. The symbolic link becomes available again if you put a file with the same name in the same location. This is different from a hard link, where you have to remove each hard link even if you've removed the original directory or file name that the hard link refers to.

There are two types of symbolic links:

- Absolute
- Relative

An *absolute* symbolic link is a full pathname that leads to the original directory or file. Because it explicitly refers to each directory in the pathname, you would create an absolute symbolic link if you intend to keep the original directory or file in the same location in the directory structure. However, you are able to move the linked reference because its location doesn't determine the reference. If you remove, move, or change the name of the original directory or file, you won't be able to access that directory or file because the pathname is invalid.

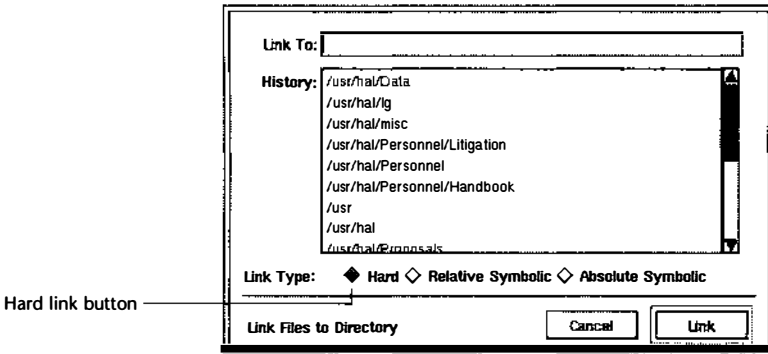
A *relative* symbolic link is a relative pathname that leads to the original directory or file. The location of the linked reference is used to determine the location of the original directory or file, so one can't move relative to the other without making the link invalid. Relative symbolic links allow you to move the portion of the directory structure containing the original directory or file and the linked reference within the file system.

For more information about the types of links supported by your system, refer to your system documentation.

Creating a hard link

1. Select the files that you want to create a link for.
2. Choose **Link** from the **File** menu in the **Directory** window.

The Link dialog is displayed:



3. To specify where the linked reference will appear and what it will be named:

- Select the directory that you want the linked reference to appear in from the history list
or
- In the **Link To** field, enter the full or relative pathname of the directory you want the link to appear in or the full or relative pathname of the link
or
- Press **Return** to create the link in your home directory

If you selected several files, you can only specify a directory path (not a filename).

4. Select **Hard** to create a hard link.

If you try to create a hard link with the same name as a file that currently exists in the directory you want to put the hard link in, a message box is displayed asking if you want to overwrite the existing file.

5. Click **Link**.

The link is created in the directory you chose. If you are creating links for several files at one time, a status dialog is displayed.

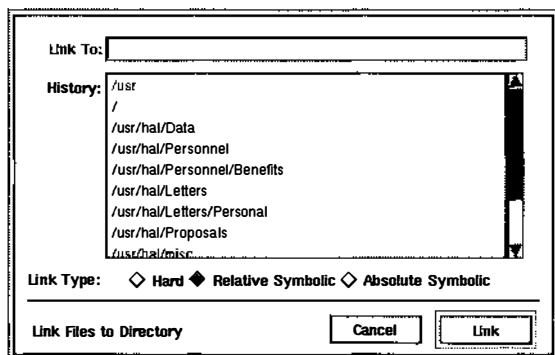
If a status dialog is displayed, you can cancel the unfinished part of the operation by clicking Cancel in the status dialog.

Creating a symbolic link

If the Relative Symbolic and Absolute Symbolic buttons do not appear in the Link dialog, your system does not support symbolic links.

1. **Select the directories or files that you want to create a link for.**
2. **Choose Link from the File menu in the Directory window.**

The Link dialog is displayed:



3. To specify where the linked reference will appear:

- Select the directory that you want the linked reference to appear in from the history list
or
- In the Link To field, enter the full or relative pathname of the directory you want the link to appear in or the full or relative pathname of the file that the link references
or
- Press **Return** to create the link in your home directory

If you selected several files or one or more directories, you can only specify a directory path (not a filename).

4. Select the appropriate button for the type of link you want to create:

- If you entered a relative pathname, select Relative Symbolic to create a relative symbolic link
or
- If you entered a full pathname, select Absolute Symbolic to create an absolute symbolic link

If you try to create a symbolic link with the same name as a file that currently exists in the directory you want to put the symbolic link in, a message box is displayed asking if you want to overwrite the existing file.

5. Click Link.

The link is created in the directory you chose.

If you are creating links for several directories or files at one time, a status dialog is displayed.

If a status dialog is displayed, you can cancel the unfinished part of the operation by clicking Cancel in the status dialog box.

You can set the access permissions for symbolic links, but not for hard links. For information about setting access permissions, refer to “Changing access permissions” in Chapter 7, “Accessing information about directories and files.”

Finding directories and files

Use the Find command to search your file system for a specific directory or file. The Find command is available from three menus in Looking Glass:

- The Show menu in the Global window
- The Select menu in a Directory window
- The Show menu in the Tree View window

In the Find dialog, you specify a name or a pattern (using special characters) that you want Looking Glass to search for. Looking Glass lists the directories and files that it finds. You can then use the Show button in the Find dialog to display them.

To learn how to select directories or files that you already know the location of, refer to "Selecting directories and files" in this chapter.

Finding all names that match a pattern

1. Choose Find from:

- The Show menu in the Global window
or
- The Select menu in a Directory window
or
- The Show menu in the Tree View window

The Find dialog is displayed:



In this dialog, you specify a name or pattern to match the directories or files you want to find.

The following table describes the special characters you can use to specify a directory or file:

Use this character:	To specify a pattern that includes:
?	A single, variable character For example, <code>memo?</code> finds all names that begin with <code>memo</code> followed by exactly one character (like <code>memo1</code> or <code>memoX</code> , but not <code>memo</code> , <code>memo10</code> , or <code>memoXY</code>).
[]	One character from a set of characters For example, <code>Wor[dkm]</code> finds names that begin with <code>Wor</code> and end in <code>d</code> , <code>k</code> , or <code>m</code> (<code>Word</code> , <code>Work</code> , <code>Worm</code>).
*	Zero or more variable characters For example, <code>*.c</code> finds any names with the <code>.c</code> extension (<code>Paper.c</code> , <code>PROG.c</code> , <code>Classworkprog.c</code>).

You cannot prefix a pattern with the `?` or the `*` character to match names that begin with a `."` (dot).

2. In the Name Pattern field, enter the name of the directories or files you want to find or a pattern that will match the names you want.

3. Select the check boxes for the items (directories, files, devices, FIFOs, etc.) that you want to find.

4. Verify the path in the Search Within field.

If you need to change the path, edit it.

When you choose the Find command from the Global window, this field defaults to the root directory (`/`).

When you choose Find from a Directory window, this field defaults to the pathname of the directory displayed in the currently active Directory window.

When you choose the Find command from the Tree View window, you can either type a name in this field or leave it blank and select a directory in the Tree View window.

5. Select:

- **Search Subdirectories** to have Looking Glass search all subdirectories of the path in the Search Within field. If you unselect this check box, Looking Glass will search only the specified directory.
- **Search Tree View Selections** to have Looking Glass search directories selected in the Tree View window. If you select this check box with no directories selected in the Tree View window, the Tree View window moves to the foreground so you can select the directories that you want Looking Glass to search.

6. Click Find.

Looking Glass begins searching your file system. The subdirectories it's searching are displayed in the Searching field.

At this point, you can wait for the operation to finish, or you can continue your work in another window. When the search is complete, Looking Glass beeps.

7. Click:

- **Stop** to stop the find operation.
- **Continue** to continue a find operation after you have stopped it.
- **Find** to restart a find operation from the beginning after you have stopped it. When you restart a find operation, the directories and files that were found are removed from the list.
- **Close** to quit the find operation after you have stopped it.

Displaying a directory or file located with the Find command

To view directories and files displayed in the list below the Searching field:

- Double-click the name of a directory or file you want to display
- Select the name of the directory or file you want, then click **Show**

A Directory window is displayed (or brought to the foreground) with the selected directory or file highlighted.

Selecting directories and files

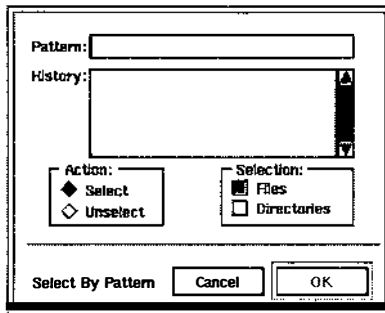
If you know that the directory or file you're looking for is in the active Directory window, you can find and highlight it using the Select menu.

With this menu, you can select all the directories or files in the active Directory window or you can select directories and files in the active Directory window that match a name or pattern (using special characters).

Selecting names in a Directory window that match a name or pattern

1. Choose **Select By Pattern** from the **Select** menu in a **Directory** window.

The Select By Pattern dialog is displayed:



In this dialog, you specify a name or pattern to match the directories or files you want to select.

Use this character: To specify a pattern that includes:

? A single, variable character

For example, memo? finds all names that begin with memo followed by exactly one character (like memo1 or memoX, but not memo, memo10, or memoXY).

[] One character from a set of characters

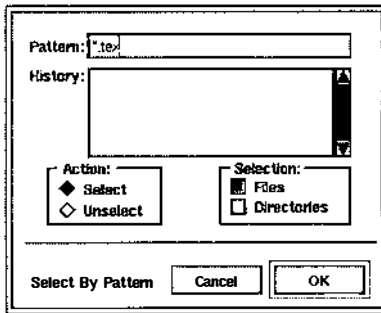
For example, Wor[dkm] finds names that begin with Wor and end in d, k, or m (Word, Work, Worm).

***** Zero or more variable characters

For example, *.c finds any names with the .c extension (Paper.c, PROG.c, Classworkprog.c).

You cannot prefix a pattern with the ? or the * character to match names that begin with a "." (dot).

2. In the Pattern field, enter the name of the directory or file you want to select or a pattern for the names you want to select.



3. In the Action section, choose:

- **Select** to select the objects that match the pattern you specified
- or*
- **Unselect** to unselect the objects that match the pattern you specified

If you want to unselect a group of directories and files, make sure the Unselect button is selected.

4. In the Selection section, make sure the check boxes for the objects you want are selected:

- Select **Files** to select files that match the pattern
- Select **Directories** to select directories that match the pattern
- Select both check boxes to select directories and files that match the pattern

5. Click OK.

Any directories and files that match the pattern are selected or unselected in the current Directory window.

NOTE:

If any directories or files are already selected, they remain selected when you use the Select By Pattern command.

Selecting all files or all directories in a Directory window**1. Choose Select All Files or Select All Directories from the Select menu in a Directory window.**

All files or all directories are selected in the current Directory window.

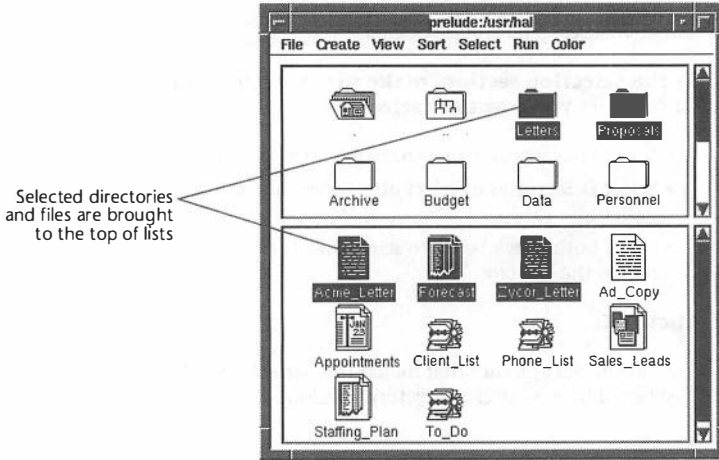
Grouping selected directories and files

Sometimes it is useful to group all selected directories or files in a Directory window. The Group Selected Objects command groups any selected directories or files first, then lists the rest of the directories and files. This command is only available when the Directory window contains the splitter (in other words, when Positionable is not selected in the View menu).

1. If the directories and files you want displayed first are not already selected, select them.

2. Choose Group Selected Objects from the Sort menu in the Directory window.

The selected directories or files are listed together.



Moving and copying files

In Looking Glass, you can move and copy files by using mouse actions or the Move and Copy commands from the File menu.

Moving files

There are two ways to move a file from one directory to another:

- Drag the file to its new location
- Use the Move command

Moving files by dragging

If the directory you want to move a file into is displayed on your workspace, you can drag the file to its new location.

1. Select the files you want to move.

2. Drag the selected files to:

- The file section of a Directory window
or
- The name or icon of a directory in a Directory window or the Desktop Panel

If you move large files or several files at one time, a status dialog displays the progress of the move operation.

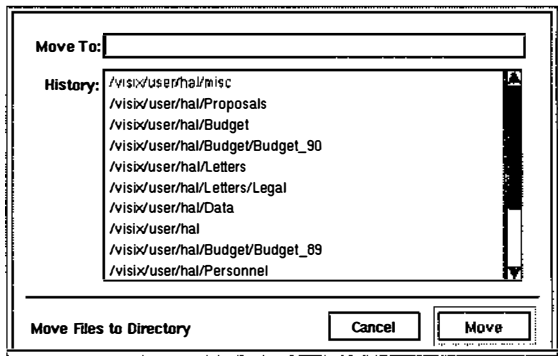
If a status dialog is displayed, you can cancel the unfinished part of the move operation by clicking Cancel in the dialog.

Moving files with the Move command

1. Select the files you want to move.

2. Choose Move from the File menu in the Directory window.

The Move dialog is displayed:



3. To specify the directory you want to move files to:

- Select a directory from the history list
or
- In the Move To field, enter a new filename or the path-name of a directory
or
- Press **Return** to move the files to your home directory

4. Click Move.

If you move large files or several files at one time, a status dialog displays the progress of the move operation.

If a status dialog is displayed, you can cancel the unfinished part of the move operation by clicking Cancel in the dialog.

Copying files

There are two ways to copy files in Looking Glass:

- Drag them
- Use the Copy command

Copying files by dragging

If the directory you want to copy a file into is displayed on your workspace, you can drag the file to the new location to put a copy of it there.

1. Select the files you want to copy.

2. Hold down the Control key.

3. Drag the files to:

- The file section of a Directory window
or
- The name or icon of a directory in a Directory window or the Desktop Panel

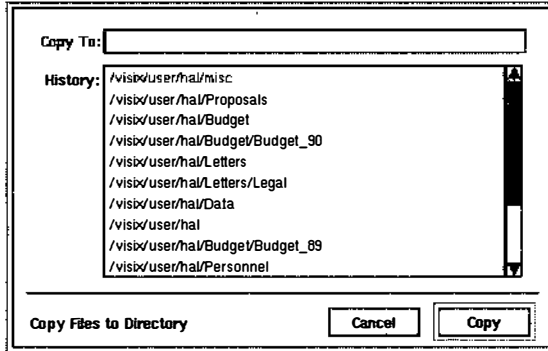
If you copy large files or several files at one time, a status dialog displays the progress of the copy operation.

If a status dialog is displayed, you can cancel the unfinished part of the copy operation by clicking Cancel in the dialog.

Copying files with the Copy command

1. **Select the files you want to copy.**
2. **Choose Copy from the File menu in the Directory window.**

The Copy dialog is displayed:



In this dialog, you specify the directory or file that you want to copy to.

3. To specify the directory or file you want to copy to:

- Select a directory from the history list
or
- In the Copy To field, enter a new filename or the path-name of a directory
or
- Press **Return** to copy the selected directories and files to your home directory

4. Click Copy.

If you copy large files or several files at one time, a status dialog displays the progress of the copy operation.

If a status dialog is displayed, you can cancel the unfinished part of the copy operation by clicking Cancel in the dialog.

Removing directories and files

In Looking Glass, you can delete directories and files from your system with the Remove command from the File menu.

WARNING:

When you remove a file, it is deleted permanently. When you remove a directory, the directory and all of the files and subdirectories it contains are deleted permanently.

If you accidentally remove something, see your system administrator—it may be recoverable from a backup.

1. Select the directories and files you want to remove.

2. Choose Remove from the File menu in the Directory window.

One or more confirmation dialogs may be displayed.

If you select directories and files, Looking Glass displays a dialog asking you if you really want to remove both directories and files. Other dialogs may be displayed, depending on the level of confirmation selected in your removal preferences. For more information about setting removal preferences, refer to “Setting removal preferences” in Chapter 12, “Changing Looking Glass preferences.”

3. In a confirmation dialog, click:

- Yes to confirm the removal
- or*
- No to cancel the removal

If you remove large directories and files or several directories and files at one time, a status dialog displays the progress of the remove operation.

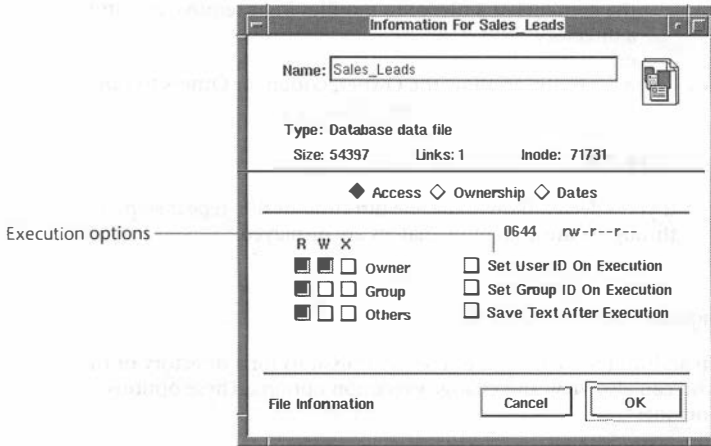
If a status dialog is displayed, you can cancel the unfinished part of the remove operation by clicking Cancel in the dialog.

2. Choose Information from the File menu in the Directory window.

An Information dialog is displayed for each selected directory and file.

3. Select Access.

The execution options are displayed with the access information:



4. Select:

- **Set User ID On Execution** if you want other users to be able to execute the file with the owner's access permissions
or
- **Set Group ID On Execution** if you want other users to be able to execute the file with the access permissions of the owner's group
or
- **Save Text After Execution** if you want the file's executable text image saved to the swap area on the disk after execution

5. Click OK.

If you selected more than one directory or file, repeat steps 3 through 5 until no more dialogs are displayed.

The Link Protection button is selected by default. Select the Reference Protection button if you want to view access information for the actual directory or file (the directory or file the link references).

4. Select:

- **R** (read) to allow the Owner, Group, or Others to view the contents of the directory or file
or
- **W** (write) to allow the Owner, Group, or Others to change the contents of a file, or to put files in or remove files from a directory
or
- **X** (execute) to allow the Owner, Group, or Others to run a file as a command or open a directory

5. Click **OK**.

If you selected more than one directory or file, repeat steps 3 through 5 until no more dialogs are displayed.

Changing execution options

In addition to viewing the access permissions for a directory or file, you can also view and change execution options. These options include:

- The Set User ID On Execution and Set Group ID On Execution options, which allow other users to execute a program with the access permissions of the program's owner or group. These permissions should be used with extreme care because they may give other users control over your files.
- The Save Text After Execution option, which causes an executable binary file's text image to be saved to the swap area on the disk to speed loading for future invocations of the program. This attribute (sometimes referred to as the "sticky bit") has different roles depending on the system you are using.

While these options may only seem meaningful for executable files, they can also affect directories on some systems.

1. In a Directory window, select the directories and files for which you want to change the execution options.

WARNING:

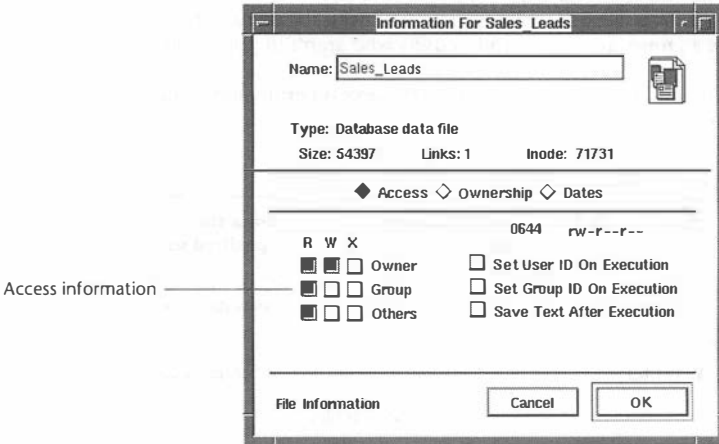
You should only assign execute permission for files that can be used as commands. If you assign execute permission for an ordinary file, there is always the chance that someone will try to "run" it as a command. Because the file is "executable," the shell will interpret its contents as commands.

- 1. In a Directory window, select the directories and files for which you want to change access permissions.**
- 2. Choose Information from the File menu in the Directory window.**

An Information dialog is displayed for each selected directory and file.

3. Select Access.

The access information appears on the left in the third section as follows:



If the directory or file is a symbolic link, two buttons are displayed below the access information: the Link Protection button and the Reference Protection button. These buttons let you choose whether to view and set the protection for the link or for the directory or file it references. For more information about links, refer to "Creating links for directories and files" in Chapter 5, "Managing directories and files."

3. Edit the Name field.**4. Click OK.**

If you selected more than one directory or file, repeat steps 3 and 4 until no more dialogs are displayed.

Changing access permissions

The access permissions of a directory or file determine who can read, write, or execute it.

You may want to change access permissions for a directory or file:

- To prevent it from being accidentally or maliciously removed
- To keep it private
- To share it with other users

You can change access permissions for any directory or file you own. You can assign access permissions to the owner, the members of a group, and others (other users who aren't in your group).

The following table summarizes the access permissions you can assign to directories and files:

If you assign this permission:	For a directory, specified users can:	For a file, specified users can:
R (read)	View its contents	View its contents
W (write)	Put directories or files in it Remove directories or files from it	Change its contents
X (execute)	Search the directory	Run it as a command

The fourth section contains the OK and Cancel buttons for the dialog.

3. Click the appropriate button in the second section to view a different category of information in the third section of the dialog.

4. Click OK when you're finished viewing the information.

The following paragraphs tell you how to change information displayed in the Information dialog.

Changing information for one directory or file at a time

This section provides instructions for changing information for one directory or file at a time using the Information command. You can change the following information:

- Name of the directory or file
- Access permissions (also called protection mode)
- Ownership and group reference
- Date and time the directory or file was last accessed or changed
- Link information (symbolic links only)
- Reference protection (symbolic links only)
- Device type (devices only)
- Major and minor device numbers (devices only)

Changing the directory or file name

You can use the Information dialog to change the names of directories and files.

NOTE:

You can also change the names of directories and files by selecting the name in a Directory window. When the name is selected, edit the name.

1. Select the directories and files whose names you want to change.

2. Choose Information from the File menu in the Directory window.

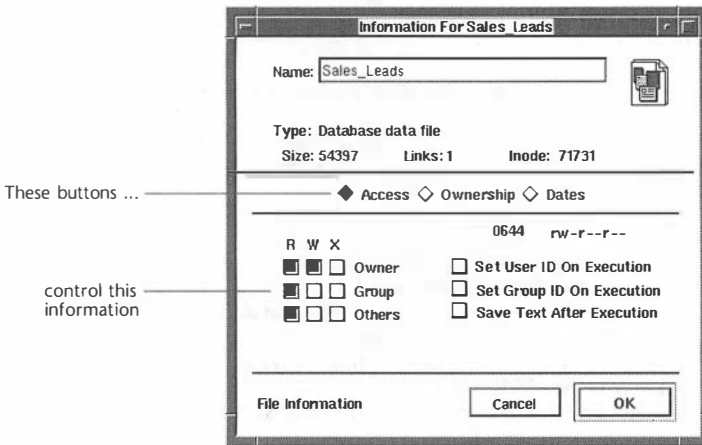
An Information dialog is displayed for each selected directory and file.

1. In a Directory window, select the directories and files for which you want to view information.

2. Choose Information from the File menu in the Directory window.

An Information dialog is displayed for each selected directory and file.

Here is an example of an Information dialog:



NOTE:

Device type and device number are only displayed in the Information dialog if the file is a device.

Notice that the dialog is divided into four sections. The first and third sections contain information about the selected directory or file. The second section contains a group of radio buttons that control the category of information shown in the third section:

- The Access button displays access permissions (this is the default)
- The Ownership button displays the owner and group reference
- The Dates button displays the status change, access, and modification dates
- If you're viewing a device file, the Device button displays information about devices

Accessing information for one directory or file at a time

You can use the Information command in a Directory window to open a dialog that contains information about any selected directory or file.

With the Information dialog, you can view the following information about a single directory or file:

- Name
- Type
- Size (in bytes)
- Number of links to the directory or file
- Inode number (a number used by the operating system to identify the file)
- Access permissions (also called protection mode)
- Ownership and group reference
- Date and time the directory or file was created
- Date and time the status of the directory or file was changed
- Date and time the directory or file was last accessed or changed
- Link information (symbolic links only)
- Reference protection (symbolic links only)
- Device type (devices only)
- Major and minor device numbers (devices only)

You can also change the following using the Information dialog:

- Name
- Access permissions (also called protection mode)
- Ownership and group reference
- Date and time the directory or file was last accessed or changed
- Link information (symbolic links only)
- Reference protection (symbolic links only)
- Device type (devices only)
- Major and minor device numbers (devices only)

Viewing information for one directory or file at a time

Use the Information command to view information about selected directories and files in a Directory window. This section explains how to access the dialog and how to use it to view information.

Accessing information about directories and files

7

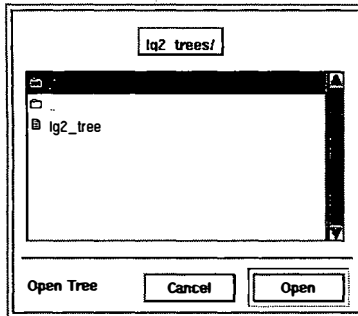
In Chapter 4, “Working with Directory windows,” you learned how to display very detailed information about directories and files in a Directory window using the Wide option from the View menu. You learned that you can change the name of a directory or file displayed in a Directory window.

In this chapter, you’ll learn how to view and change other information about a single directory or file or a group of directories or files.

You’ll learn how to use the Information command to view and change information one directory or file at a time. If you select a group of directories and files at one time, an Information dialog is displayed for each directory and file.

You’ll learn how to use the Change Properties command to change information for a group of directories and files in one operation. One Change Properties dialog is displayed for all selected directories and files.

The Merge In Saved Tree dialog is displayed containing the names of previously saved layout files:



2. Use the option menu and the list to find the name of the layout you want to open, then select it.
3. Click Open.

The layout you chose opens in the Tree View window. The new layout is merged with any layout already in the Tree View window.

You can now save this combined layout under a new name. For information about saving layouts in Tree View, refer to the “Saving Trees” section earlier in this chapter.

Closing the Tree View window

Use the Close Tree View command from the Directory menu to close the Tree View window.

1. Choose Close Tree View from the Directory menu in the Tree View window.

The Tree View window closes.

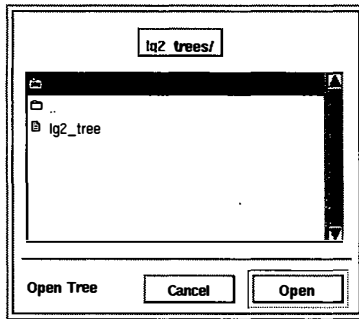
When you close the Tree View window, Looking Glass saves the layout in the file `lg_current_tree`. The next time you open the Tree View window, that layout is displayed.

Opening existing Trees

You can open layouts that you've saved using the Save Tree As command.

1. Choose **Open Saved Tree** from the **Tree** menu in the **Tree View** window.

The Open Saved Tree dialog is displayed containing the names of layout files:



2. Use the option menu and the list to find the name of the layout you want to open, then select it.

3. Click **Open**.

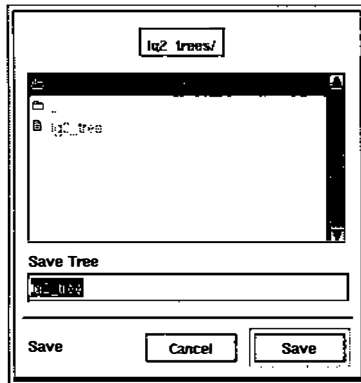
The layout you chose opens in the Tree View window. The new layout replaces any open layout.

Merging Trees

With the Merge In Saved Tree command, you can open two or more existing layouts in the Tree View window and save the new, merged layout.

1. Choose **Merge In Saved Tree** from the **Tree** menu in the **Tree View** window.

The Save Tree As dialog is displayed asking you to name your layout:



3. To name the Tree View layout:

- Type the full or relative pathname for the layout.
or
- Use the option menu and the list to select the directory you want to save the layout in, then enter the name of the layout.
or
- In the Save Tree field, enter the full or relative pathname of the directory in which you want to save the Tree View, followed by a slash (/). Press **Tab** or **Return** to view the contents of that directory. Then type the name of the layout in the Save Tree field.

4. Click Save.

When you save a Tree View, Looking Glass saves everything in the layout, including which directories are open in the Tree View window, whether the Sorted check box is selected, which directories are visible in the window, and the directories that are selected.

Finding directories and files in Tree View

Use the Find command to search specific directories for subdirectories or files.

In the Find dialog, you specify a name or a pattern (using special characters) that you want Looking Glass to search for in Tree View. Looking Glass lists the directories and files that it finds. You can then use the Show button in the Find dialog to display them.

To learn how to select directories that you already know the location of in Tree View, refer to “Selecting directories” earlier in this chapter.

When you use the Find command in Tree View, Looking Glass only searches directories selected in the Tree View window. If you don’t select any directories in the Tree View window, Looking Glass won’t perform the search.

For a description of the Find command and procedures for using it, refer to “Finding directories and files” in Chapter 5, “Managing directories and files.”

Storing Tree layouts

You can name and save any layout in the Tree View window. This makes it easy to open a specific group of directories that you have already opened in Tree View. With Tree View, you can:

- Save layouts
- Open an existing layout
- Merge layouts

Saving Trees

You can save and name new Tree View layouts for future use.

- 1. Open the directories that you want to save as part of your layout.**
- 2. Choose Save Tree As from the Tree menu in the Tree View window.**

displayed with only directory names. Any selected directories that were closed previously are opened in the panel with full pathnames in their title bars.

Organizing Tree View

When you open subdirectories in the Tree View window, the subdirectories are displayed underneath their parent directories. Subdirectories are arranged from left to right in the order in which they were opened, with the most recently opened subdirectory displayed on the far left.

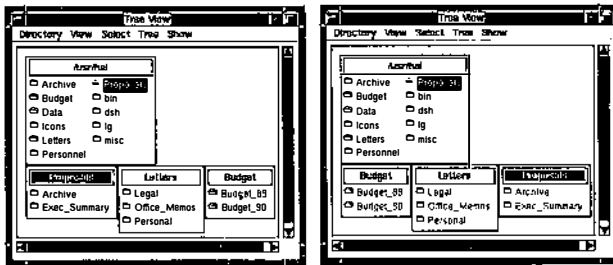
Using the Sorted check box

Use the Sorted check box to rearrange all open subdirectories alphabetically underneath their parent directories in the Tree View window. When the Sorted check box is selected, all subdirectories you open in the future will be displayed underneath their parent directories in alphabetical order.

1. Choose Sorted from the View menu in the Tree View window.

The subdirectories are arranged alphabetically, from left to right, underneath their parent directory.

Here is a Tree View window before and after sorting:



Before sorting

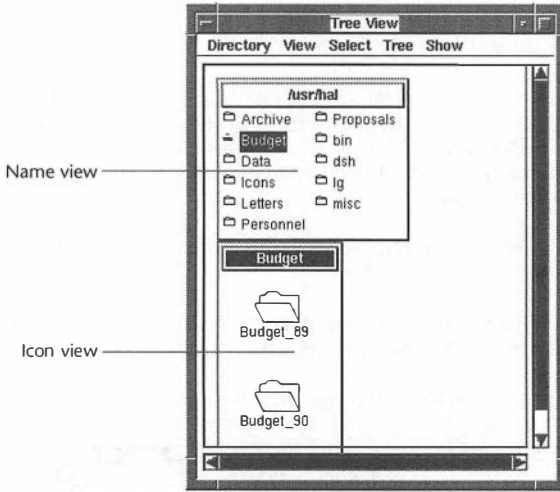
After sorting

Any selected directories that were closed previously are opened in the panel in the view you chose.

NOTE:

A shortcut for switching views on a directory panel is to Shift+double-click the folder icon or the title bar of the directory that you want to change the view for. The directory panel changes to the other view.

Here is an example of a Tree View window with one directory panel displayed in each view:



Changing the way names are displayed in title bars

Use the Full Pathname check box to choose whether to show the directory name or the full pathname in directory panel title bars.

1. Select:

- The icons or names of subdirectories on directory panels
or
- The title bars of directory panels

2. Choose Full Pathname from the View menu.

Any selected directories whose title bars contained only directory names are displayed with full pathnames. Any selected directories whose title bars contained full pathnames are

In this dialog, you specify the directory that you want to open a Directory window for.

2. To specify the directory you want to open a Directory window for:

- Select a directory from the history list
or
- Enter the pathname of a directory in the Directory field
or
- Press **Return** to open your home directory

3. Click Open.

A Directory window opens, displaying the contents of the directory you selected.

Changing the display format of directory panels

You can view the subdirectories on a directory panel by name or by icon. A directory panel is displayed by name the first time it is opened.

In addition, you can display either the directory name or the full pathname in individual directory panel title bars. By default, only the directory name is shown in the title bar the first time a directory is opened.

Changing the view of directory panels

1. Select:

- The icons or names of subdirectories on directory panels
or
- The title bars of directory panels

2. Choose:

- **Name** from the View menu in the Tree View window
or
- **Icon** from the View menu in the Tree View window

The selected directories are displayed in Name or Icon view.

Opening Directory windows from Tree View

In addition to opening directory panels that display the contents of directories, you can also open Directory windows.

You can select directories in Tree View and then use the Open In Window command to open Directory windows for them. Or, you can open the Open Directory dialog by choosing this command without selecting any directories. Use this dialog to specify the name of the directory you want to open in a Directory window.

NOTE:

A shortcut for opening a Directory window from Tree View is to Control+double-click the folder icon of the directory that you want to open a Directory window for.

To open Directory windows for selected directories:

1. Select:

- The icons or names of subdirectories on directory panels
or
- The title bars of directory panels

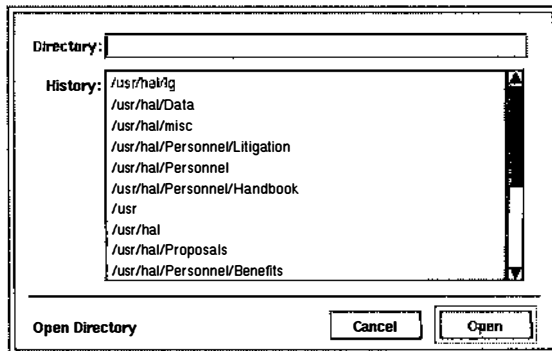
2. Choose Open In Window from the Directory menu.

Directory windows open for the directories you selected.

To open a Directory window using the Open Directory dialog:

1. Choose Open In Window from the Directory menu.

The Open Directory dialog is displayed:



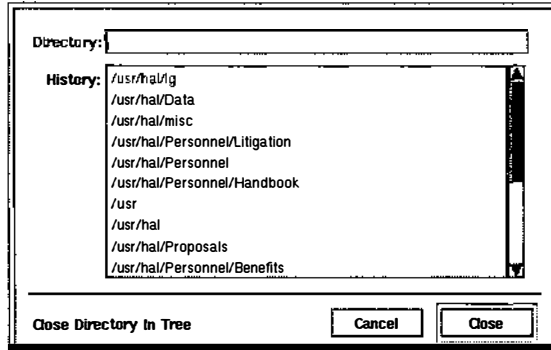
NOTE:

When you close a directory, all of its open children and descendants also close.

To close a directory using the Close Directory In Tree dialog:

1. Choose Close In Tree from the Directory menu.

The Close Directory In Tree dialog is displayed:



In this dialog, you specify the directory that you want to close.

2. To specify the directory you want to close:

- Select a directory from the history list
- or*
- Enter the pathname of a directory in the Directory field
- or*
- Press **Return** to close your home directory

3. Click Close.

The directory closes.

NOTE:

When you close a directory, all of its open children and descendants also close.

2. To specify the directory you want to show:

- Select a directory from the history list
- or*
- Enter the pathname of a directory in the Directory field
- or*
- Press **Return** to see your home directory

3. Click **Show**.

If the directory was already open, it is automatically selected and scrolled into view.

If the directory was closed, it opens, displaying any subdirectories it contains. Any of the directory's ancestors that were closed open as well. The opened directory is automatically selected and scrolled into view.

Closing directories

Use the Close In Tree command from the Directory menu to close an open directory.

You can select a directory in Tree View and then use this command to close it. Or, you can choose this command without selecting any directories to display the Close Directory In Tree dialog. Use this dialog to specify the name of the directory you want to close in Tree View.

NOTE:

A shortcut for closing a directory in Tree View is to double-click the open folder icon of the directory that you want to close.

To close selected directories:

1. **Select:**

- The icon or name of an unopened subdirectory on a directory panel
- or*
- The title bar of a directory panel

2. **Choose Close In Tree from the Directory menu.**

The directory closes.

To show a selected directory:

1. Select:

- The icon or name of a subdirectory on a directory panel
or
- The title bar of a directory panel

2. Choose Show In Tree from the Directory menu in the Tree View window.

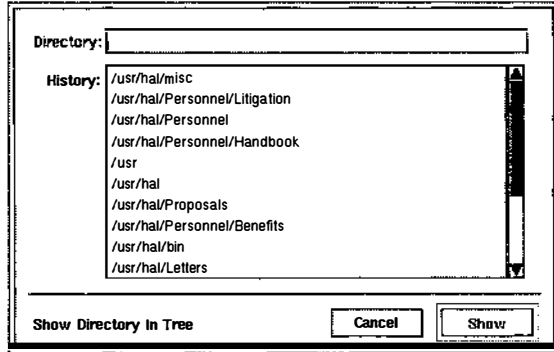
If the directory was already open, it is automatically selected and scrolled into view.

If the directory was closed, it opens, displaying any subdirectories it contains. Any of the directory's ancestors that were closed will open as well. The opened directory is automatically selected and scrolled into view.

To show a directory using the Show Directory In Tree dialog:

1. Choose Show In Tree from the Directory menu in the Tree View window.

The Show Directory In Tree dialog is displayed:



In this dialog, you specify the directory that you want to bring into view.

2. To specify the directory you want to open:

- Select a directory from the history list
or
- Enter the pathname of a directory in the Directory field
or
- Press **Return** to open your home directory

3. Click Open.

The directory opens, displaying any subdirectories it contains. All of the directory's ancestors that were not already opened open as well.

The directory may be displayed out of sight in the Tree View window. You may have to use the scroll bar to bring it into view.

NOTE:

If the folder icon for a directory opens, but the directory doesn't open anywhere in the Tree View window, the directory doesn't contain any subdirectories.

Showing directories

Use the Show In Tree command from the Directory menu to bring an open, but hidden, directory into view.

Choose this command without selecting any directories to open the Show Directory In Tree dialog and specify the name of the directory you want to show in Tree View.

You can also click a corner of a directory that's half-hidden to select it. If the directory is open when you choose the Show In Tree command, Looking Glass shows the directory. If the directory is closed when you choose the command, Looking Glass opens it.

You can only bring one directory into view at a time. If you select more than one directory and then choose Show In Tree, Looking Glass will only show you the first directory. You must choose Show In Tree again to see the next directory.

To open selected directories:

1. Select:

- The icon or name of a subdirectory on a directory panel
or
- The title bar of a directory panel

2. Choose Open In Tree from the Directory menu in the Tree View window.

All selected directories open, displaying any subdirectories they contain.

Directories may be displayed out of sight in the Tree View window. You may have to use the scroll bar to bring hidden directories into view.

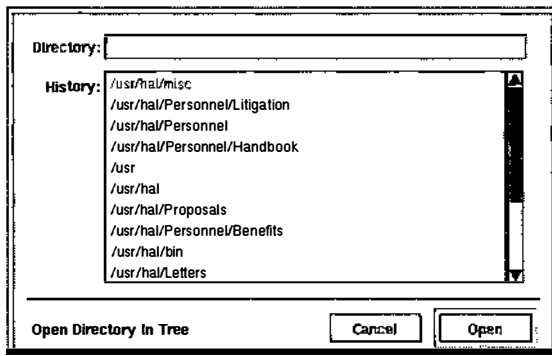
NOTE:

If the folder icon for a directory opens, but the directory doesn't open anywhere in the Tree View window, the directory doesn't contain any subdirectories.

To open a directory using the Open Directory In Tree dialog:

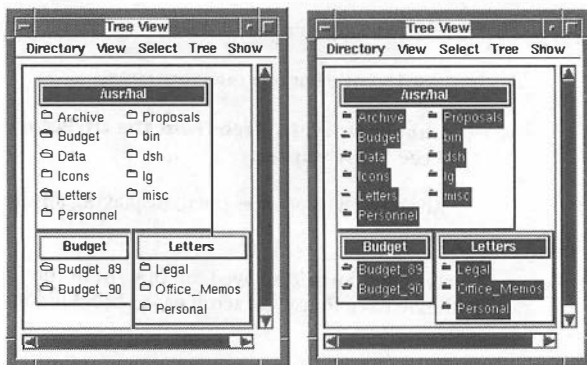
1. Choose Open In Tree from the Directory menu in the Tree View window.

The Open Directory In Tree dialog is displayed:



In this dialog, you specify the directory that you want to open.

Here is a Tree View window before and after using the Subtrees command:



Before using the Subtrees command

After using the Subtrees command

You can unselect all selected directories by clicking anywhere in the Tree View window. When you click in the window, all subdirectories that were selected become unhighlighted.

NOTE:

If you used the All Directories command, you can use the All Unselected Directories command in the Select menu to quickly unselect all selected directories.

Opening directories

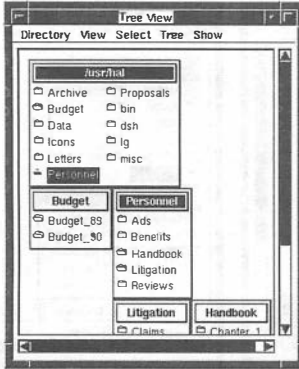
Use the Open In Tree command from the Directory menu to open directories in the Tree View window.

You can select one or more directories in Tree View and then use this command to open them. Or, you can choose this command without selecting any directories and the Open Directory In Tree dialog will appear. Use this dialog to specify the name of the directory you want to open in Tree View.

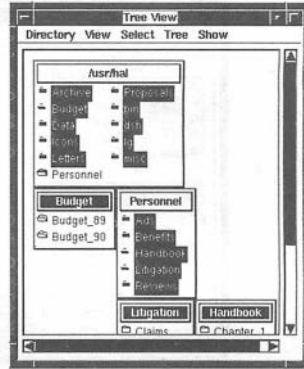
NOTE:

A shortcut for opening a directory in Tree View is to double-click the closed folder icon of the directory that you want to open.

Here is a Tree View window before and after using the Subdirectories command:



Before using Subdirectories command



After using Subdirectories command

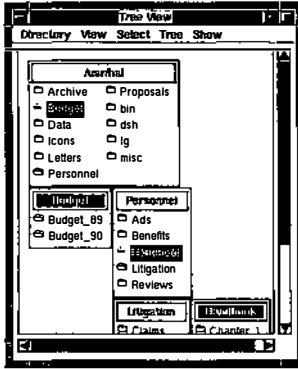
Selecting descendants

Use the Subtrees command in Tree View when you have one or more directories selected and you want to select all of their descendants.

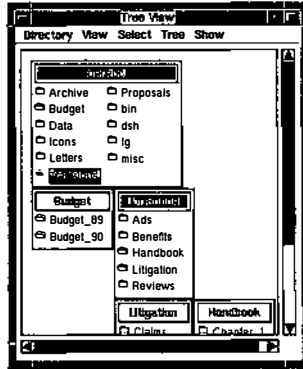
1. **Choose the Subtrees command from the Select menu in the Tree View window.**

All descendants of the selected directories are highlighted. All directories that were selected remain highlighted.

Here is a Tree View window before and after using the Parent Directories command:



Before using Parent Directories command



After using Parent Directories command

Selecting children

Use the Subdirectories command in Tree View when you have one or more directories selected and you want to select their children.

1. **Choose the Subdirectories command from the Select menu in the Tree View window.**

All children of the selected directories are highlighted. All directories and subdirectories that were selected, but weren't children of other selected directories, are unhighlighted.

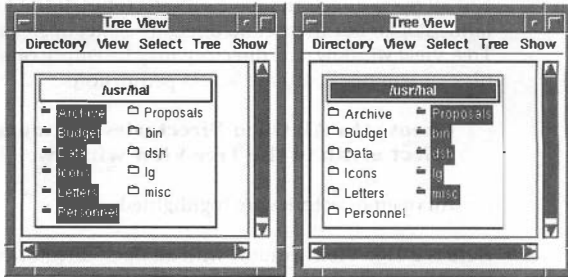
Selecting all unselected directories

Use the All Unselected Directories command in Tree View to select all directories that aren't selected and unselect those that are selected.

1. **Choose the All Unselected Directories command from the Select menu in the Tree View window.**

All directories and subdirectories that were previously unselected are highlighted. All directories and subdirectories that were selected are unhighlighted.

Here is a Tree View window before and after using the All Unselected Directories command:



Before using All Unselected Subdirectories command

After using All Unselected Subdirectories command

Selecting parents

Use the Parent Directories command in Tree View when you want to select the parents of all selected directories.

1. **Choose the Parent Directories command from the Select menu in the Tree View window.**

The parents of all selected directories are highlighted. All directories that were highlighted, but weren't parents of selected directories, are unhighlighted.

Selecting all directories

When you use the All Directories command in Tree View, Looking Glass selects all open or closed directories and subdirectories displayed in the Tree View window.

1. **Choose the All Directories command from the Select menu in the Tree View window.**

All directories are highlighted.

Selecting all open directories

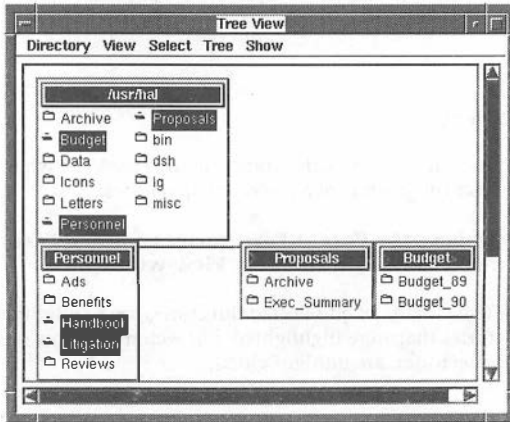
Use the All Open Directories command in Tree View to select all directories that are open. Open directory icons are folders that are fanned open.

Not all open directories have subdirectories. If the folder icon is fanned open but there is no directory panel open anywhere in the Tree View window, the directory may be empty or contain only files, or you may not have access permission.

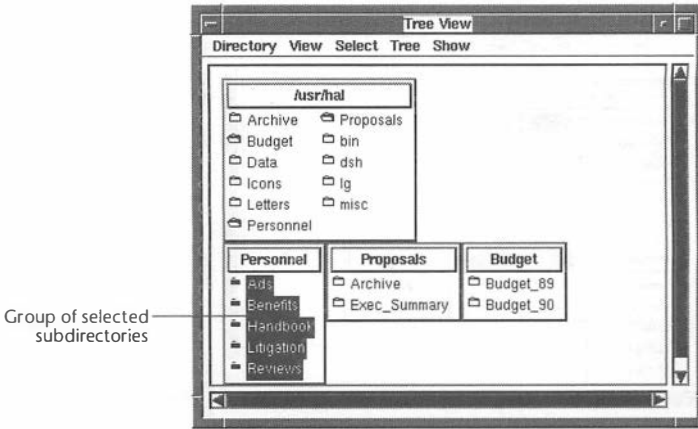
1. **Choose the All Open Directories command from the Select menu in the Tree View window.**

All open directories are highlighted.

Here is a Tree View window with all open directories and subdirectories selected:



Here is an example of a group of subdirectories that have been selected:



When all of the subdirectories you want to select are enclosed in the rectangle, release the mouse button.

The directories are highlighted.

Extending a selection by Shift-dragging

After you have selected a group of directories, you can extend the selection. This means that the newly selected directories are added to the directories already selected.

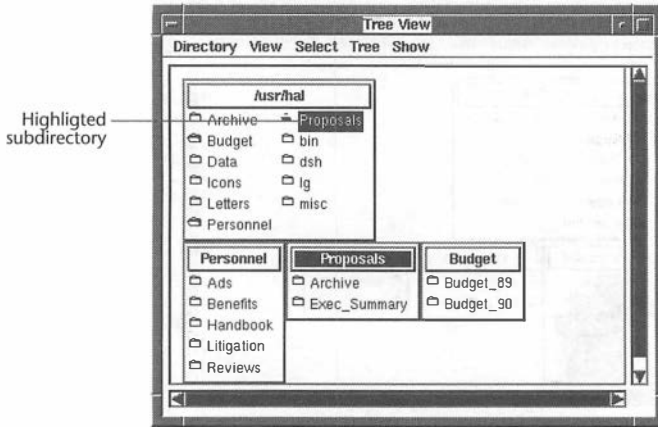
1. **Hold down the Shift key and drag diagonally across the subdirectories that you want to add to the selection.**

As you move the pointer, the subdirectories are enclosed in a selection rectangle.

NOTE:

Any directories in the selection rectangle that were previously selected become unhighlighted.

The subdirectory is highlighted. If the subdirectory is open, its corresponding title bar is also highlighted.



Selecting a group of subdirectories

There are three ways to select a group of directories in Tree View:

- By Shift-clicking
- By dragging
- By Shift-dragging

Selecting several directories by Shift-clicking

1. **Shift-click the directories you want to select.**

The directories are highlighted.

Selecting a group of directories by dragging

1. **Drag diagonally across the subdirectories you want to select.**

As you move the pointer, the subdirectories are enclosed in a selection rectangle.

Notice in the example that directory panels are connected by horizontal lines that show that they are siblings; in other words, they belong to the same parent directory. If you open several directory panels that don't all fit in the Tree View window, you can click any visible part of a directory panel or on the horizontal line connecting the panels to bring a whole panel immediately into view.

Clicking is the fastest way to bring directory panels into view that are only partially out of sight in the Tree View window. You can also use the scroll bars in the Tree View window to bring hidden directory panels into view.

Selecting directories

In Tree View, you select directories that you want to open in directory panels or Directory windows or that you want to search using the Find command. You can select:

- A single directory
- A group of directories
- All directories and subdirectories
- All open directories
- All unselected directories
- The parent directories of selected child directories
- The child directories of selected parent directories
- All descendants of selected directories

You can also unselect all selected directories.

Selecting a single subdirectory

You can select a single directory by simply clicking on the icon or name of a subdirectory on a directory panel or the title bar of a directory panel.

You can open many directory panels at once to see all or part of the structure of a file system.

Tree View is like a family tree, in that it shows the relationships among the directories in a file system. In this chapter, we use the terms *parents* and *children*, *ancestors* and *descendants* to describe the relationships between directories.

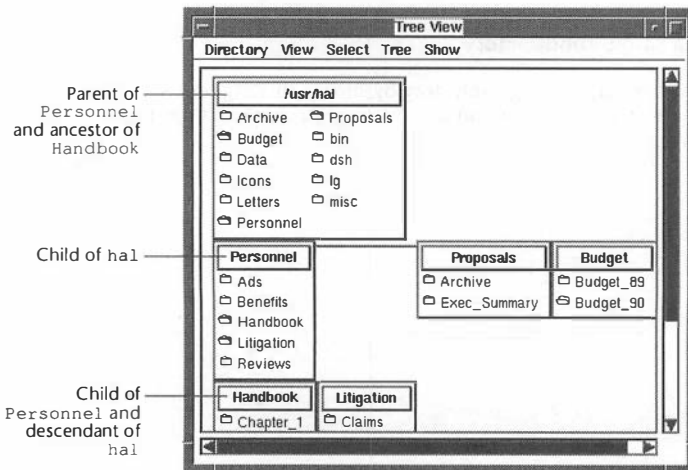
The terms *parent* and *child* refer to the directories that are immediately above and below a directory in the file system. The terms *ancestor* and *descendant* refer to directories that are above and below a directory but are separated by at least one level of directories.

For example, the `/usr/hal` directory is the parent of its immediate subdirectory `/usr/hal/Personnel`. In turn, `Personnel` is a child of `hal`. A directory can have many children, but only one parent.

The subdirectory `/usr/hal/Personnel/Handbook` is a child of `/usr/hal/Personnel` and therefore a descendant of `/usr/hal`. This means that `/usr/hal` is an ancestor of the subdirectories of `/usr/hal/Personnel`.

Understanding these relationships is important because performing an action on a parent directory (such as opening or closing it) may affect the display or selection of its ancestor and descendant subdirectories.

Here is an example of the relationships between directories in a file system:



Opening the Tree View window

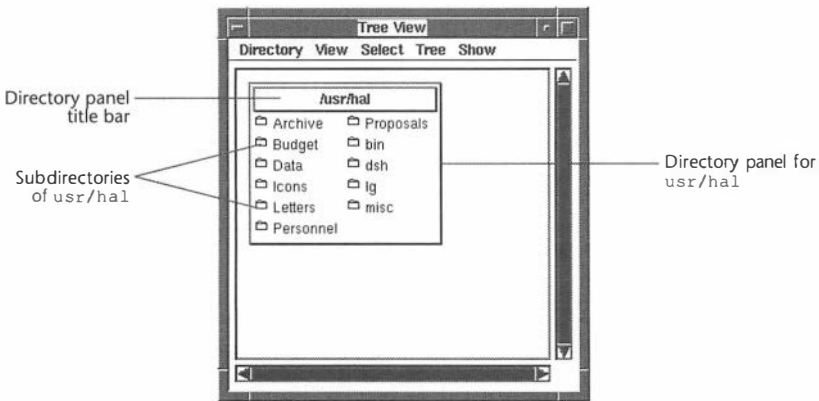
You can use the Tree View window to browse a file system as well as select directories that are located in different areas of the file system.

NOTE:

Unlike Directory windows, the Tree View window only shows directories. To view the files in a directory, you can open a Directory window for any selected directory from the Tree View window.

1. **Choose Tree View from the Show menu in the Global window.**

The Tree View window is displayed:



The first time you open the Tree View window, your home directory and its subdirectories are displayed.

After your first visit to the Tree View window, Looking Glass remembers the layout of directories when you close the window. Looking Glass restores that layout when you open the window again.

Viewing directories

When you open a directory, its subdirectories are displayed in a rectangular area in the Tree View window called a *directory panel*.

Viewing your file system with Tree View

6

In this chapter, you'll learn how to view a condensed version of a file system using the Tree View window. With the Tree View window, you'll be able to:

- View and select directories
- Display subdirectories in Name or Icon view
- Sort open directories alphabetically by name
- Open individual Directory windows for selected directories
- Select directories for searching with the Find command

Once you've opened several directories, you can name and save that particular Tree, open any of your saved Trees, or merge a saved Tree with your current one.

Printing files

You can print files with the Print command from the File menu.

- 1. Select the files you want to print.**

- 2. Choose Print from the File menu in the Directory window.**

Looking Glass prints the files. If you select a file that is not printable, Looking Glass displays a dialog telling you that it won't be printed.

When Looking Glass prints a file, it uses two commands: one to format the file and one to spool it to the printer. You can specify the print formatter and spooler commands as part of your execution preferences. For information about execution preferences, refer to Chapter 12, "Changing Looking Glass preferences."

The formatter command processes the file for printing—it may paginate the document or put in headers. The spooler receives the data produced by the formatter command and sends it to the printer.

When you choose the Print command from the File menu, Looking Glass checks to see if the file is printable. If it is, Looking Glass checks to see if a special formatting command is defined for that type of file. If there is one, Looking Glass uses it. If there is no special command, Looking Glass uses the command from the user's execution preferences.

The output of the formatting step is then sent to the spooler command specified in the user's execution preferences.

Changing ownership and group reference

Every directory and file has an owner and a group reference. You are the owner of the directories and files you create. If you own a directory or file, you control:

- Who owns it
- Which group it is associated with
- Who can view it
- Who can change it
- Who can execute it (if it's a program)

NOTE:

If you give ownership of a directory or file to another user, you cannot regain ownership unless the new owner or the super-user reassigns ownership to you.

On some systems, you cannot change a file's owner or group reference.

When you specify the group reference for a directory or file, you identify a group of users that you (or the owner of the directory or file) can specify a separate set of access permissions for.

If your system allows you to give ownership of a directory or file to another user or change the group reference, use the Information command to make these changes one directory or file at a time.

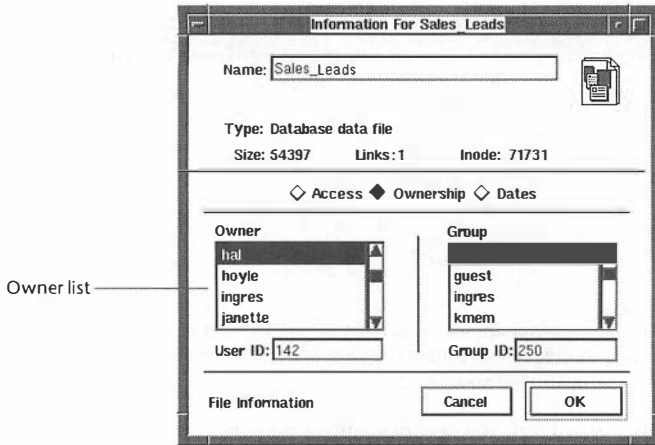
1. In a Directory window, select the directories and files for which you want to change the ownership or group reference.

2. Choose Information from the File menu in the Directory window.

An Information dialog is displayed for each selected directory and file.

3. Select Ownership.

The ownership and group reference information is displayed in the third section of the dialog. The Owner list contains an alphabetical list of the users in your system. The Group list contains an alphabetical list of the groups in your system.



4. To specify the new owner or group:

- Select the name of the new owner from the Owner list or the new group from the Group list
or
- Enter the ID number of the owner or group in the text box below the list

5. Click OK.

If you selected more than one directory or file, repeat steps 3 through 5 until no more dialogs are displayed.

Changing date and time information

Your operating system stores the date and time that each directory or file in the system was last accessed and modified. It also stores the date and time that the status of each directory or file was changed. You can change the dates and times that a single directory or file was modified or accessed, but you can't change its status change date and time.

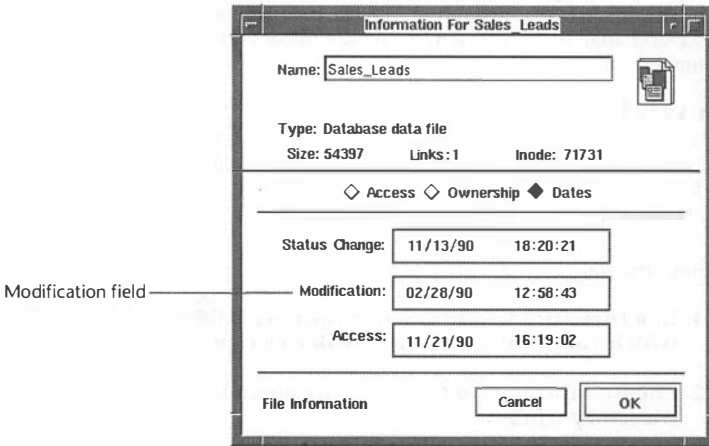
1. In a Directory window, select the directories and files for which you want to change date and time information.

2. Choose Information from the File menu in the Directory window.

An Information dialog is displayed for each selected directory and file.

3. Select Dates.

The date and time information is displayed in the third section of the dialog.



4. Select the part of the date or time you want to change in the Modification or Access field.

When you select a part of the date or time, it is highlighted and plus and minus boxes are displayed to the right of the date or time.

5. Click the plus (+) or minus (-) box to change the number of the date or time.

or

Enter a new date or time.

6. Select the next part of the date or time you want to change.

Repeat steps 2 through 6 until you have made the changes you wanted to make.

%. **Click OK.**

If you selected more than one directory or file, repeat steps 3 through 7 until no more dialogs are displayed.

Changing device information

The Information command from the File menu allows the super-user to change the type of device and the major and minor device numbers for device files.

WARNING:

If you are not sure of the changes you want to make to the device, do not attempt these changes. For more information about changing devices, refer to your system documentation.

Changing the device type

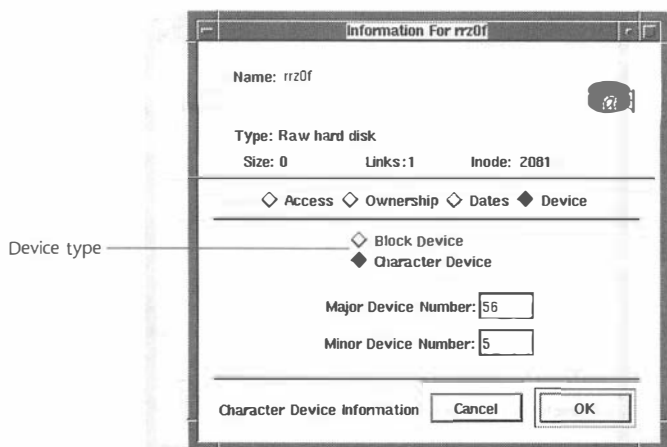
- 1. In a Directory window, select the device files for which you want to change the device type.**
- 2. Choose Information from the File menu in the Directory window.**

An Information dialog is displayed for each selected file.

- 3. Select Device.**

This button is displayed only when the selected file is a device.

When you select this button, device information is displayed in the third section of the dialog.



4. Select either Block Device or Character Device.

5. Click OK.

If you selected more than one file, repeat steps 3 through 5 until no more dialogs are displayed.

Changing major and minor device numbers

1. In a Directory window, select the device files for which you want to change the device numbers.

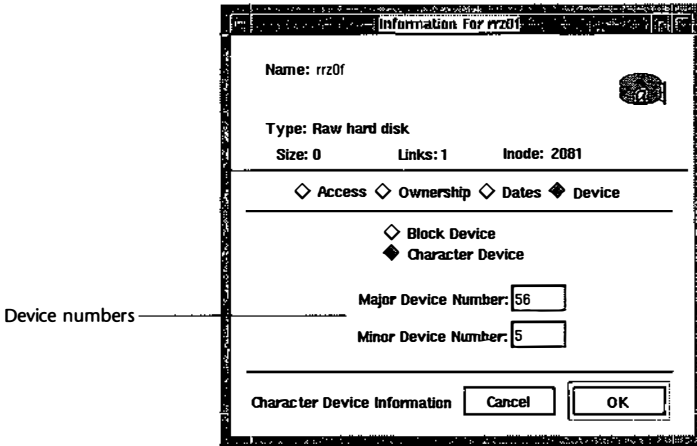
2. Choose Information from the File menu in the Directory window.

An Information dialog is displayed for each selected file.

3. Select Device.

This button is displayed only when the selected file is a device.

When you select this button, device information is displayed in the third section of the dialog.



- 4. Enter the major device number in decimal notation in the Major Device Number field.**
- 5. Enter the minor device number in decimal notation in the Minor Device Number field.**
- 6. Click OK.**

If you selected more than one file, repeat steps 3 through 6 until no more dialogs are displayed.

Changing information for a group of directories and files in one operation

You can use the Change Properties command in a Directory window to change information for a group of directories or files in one operation. For example, you may have selected 20 files in a Directory window that you want to assign certain access permissions to. With the Information command, you would have to change the same information in 20 dialogs.

With the Change Properties command, you can change the following information for a group of selected directories and files in one operation:

- Ownership and group reference
- Access permissions (also called protection mode)
- Execution options
- Date and time the directories or files were last modified or accessed

Changing ownership and group reference

If your system allows you to give ownership of directories and files to another user or to change group reference, use the Change Properties command to make these changes for a group of directories and files in one operation. For an explanation of ownership and group reference, refer to “Changing information for one directory or file at a time” earlier in this chapter.

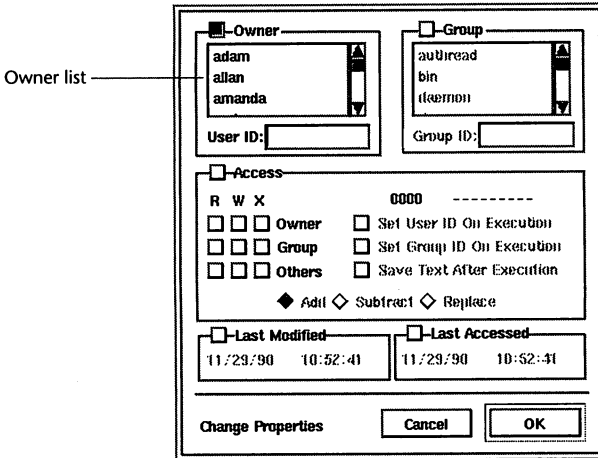
- 1. In a Directory window, select the group of directories and files for which you want to change ownership and group reference.**
- 2. Choose Change Properties from the File menu in the Directory window.**

The Change Properties dialog is displayed.

Notice that the dialog contains four major sections and a row of buttons at the bottom. Ownership and group reference information is displayed in the first section, access permission and execution option information is displayed in the second section, and date and time information is displayed in the third section.

- 3. Select either Owner or Group.**

When you select the check box, the list becomes active. This is an alphabetical list of the users or the groups in your system.



4. To specify the new owner or group:

- Select the name of the new owner or group from the list
or
- Enter the ID number of the owner or group in the text box below the list

5. Click OK.

If you change the ownership or group reference for a group of directories and files at one time, a status dialog displays the progress of the operation.

If a status dialog is displayed, you can cancel the unfinished part of the change by clicking Cancel in the status dialog.

Changing access permissions

Use the Change Properties command to change access permissions for a group of directories and files in one operation. For an explanation of access permissions, refer to "Changing information for one directory or file at a time" earlier in this chapter.

When you change access permissions with the Change Properties command, you can add, remove, or replace the new permissions you specify.

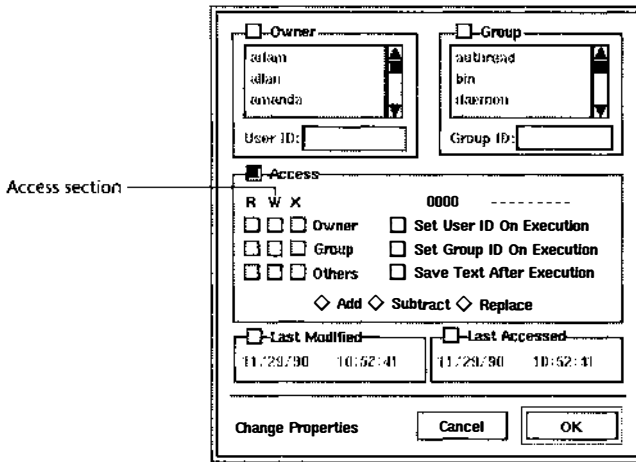
1. In a Directory window, select the group of directories and files for which you want to change access permissions.

2. Choose Change Properties from the File menu in the Directory window.

The Change Properties dialog is displayed.

3. Select Access.

When you select the check box, the Access section is activated.



4. Select:

- R (read) to allow the Owner, Group, or Others to view the contents of a directory or file
or
- W (write) to allow the Owner, Group, or Others to change the contents of a file, or to add or remove files from a directory
or
- X (execute) to allow the Owner, Group, or Others to run a file as a command or open a directory

5. Select:

- **Add** to add the new permissions you specify to the permissions that are already in place
or
- **Subtract** to remove the permissions you specify from the permissions that are already in place
or
- **Replace** to replace the permissions that are already in place with the new permissions you specify

6. Click OK.

If you change access permissions for a group of directories and files at one time, a status dialog displays the progress of the operation.

If a status dialog is displayed, you can cancel the unfinished part of the change by clicking Cancel in the status dialog.

Changing execution options

Looking Glass allows you to set several options for directories and files that can have an effect at execution time. Use the Change Properties command to change the execution options for a group of directories and files at one time. For an explanation of execution options, refer to "Changing information for one directory or file at a time" earlier in this chapter.

NOTE:

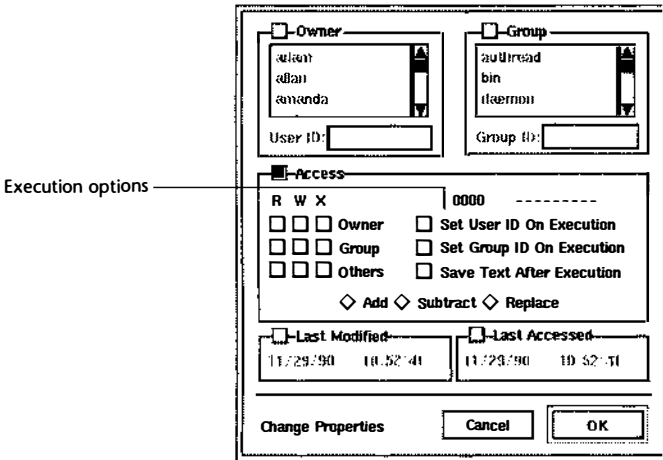
Before using any of the options, refer to your system documentation.

- 1. In a Directory window, select the group of directories and files for which you want to change execution options.**
- 2. Choose Change Properties from the File menu in the Directory window.**

The Change Properties dialog is displayed.

3. Select Access.

The execution options are displayed.



4. Select:

- **Set User ID On Execution** if you want other users to be able to execute the files with the owner's access permissions
or
- **Set Group ID On Execution** if you want other users to be able to execute the files with the access permissions of the owner's group
or
- **Save Text After Execution** if you want the files' executable text images saved to the swap area on the disk after execution

5. Click OK.

Changing date and time information

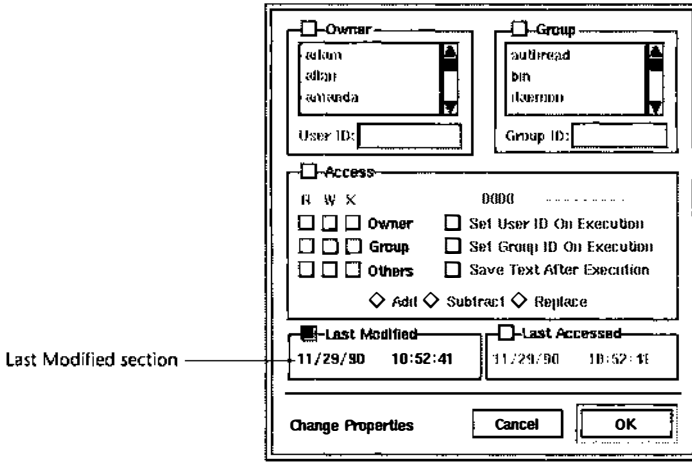
With the Change Properties command, you can change the dates and times that a group of directories and files were last modified or accessed.

Changing the modification date

1. In a Directory window, select the group of directories and files whose modification date you want to change.
2. Choose Change Properties from the File menu in the Directory window.

The Change Properties dialog is displayed.

3. Select Last Modified.



4. Select the part of the date or time you want to change.

When you select a part of the date or time, it is highlighted and plus and minus boxes are displayed to the right of the date or time.

5. Click the plus (+) or minus (-) box to change the number of the date or time.

or

Enter a new date or time.

6. Select the next part of the date or time you want to change.

Repeat steps 2 through 6 until you have made the changes you wanted to make.

7. **Click OK.**

If you change dates and times for a group of directories and files at one time, a status dialog displays the progress of the operation.

If a status dialog is displayed, you can cancel the unfinished part of the change by clicking Cancel in the status dialog.

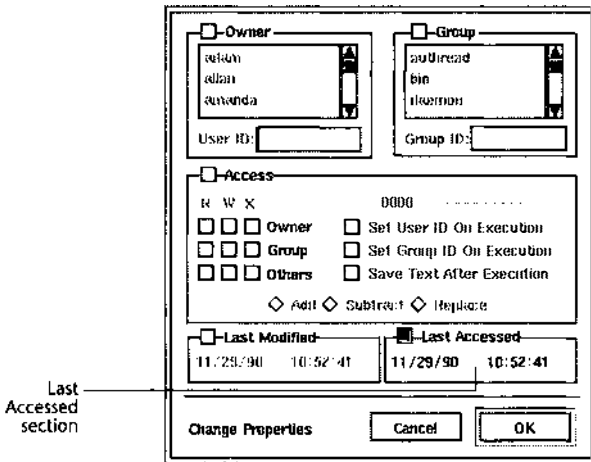
Changing the access date

1. In a Directory window, select the group of directories and files whose access date you want to change.

2. Choose Change Properties from the File menu in the Directory window.

The Change Properties dialog is displayed.

3. Select Last Accessed.



4. Select the part of the date or time you want to change.

When you select a part of the date or time, it is highlighted and plus and minus boxes are displayed to the right of the date or time.

5. Click the plus (+) or minus (-) box to change the number of the date or time.

or

Enter a new date or time.

6. Select the next part of the date or time you want to change.

Repeat steps 2 through 6 until you have made the changes you wanted to make.

 Click OK.

If you change dates and times for a group of directories and files at one time, a status dialog displays the progress of the operation.

If a status dialog is displayed, you can cancel the unfinished part of the change by clicking Cancel in the status dialog.

Running programs

In this chapter, you'll learn how to use Looking Glass to run and terminate programs from:

- Directory windows and the Desktop Panel
- Command Line dialogs
- Terminal emulator windows

Activating files

When you *activate* a file, Looking Glass decides what type of file it is and runs the correct program. When Looking Glass runs a program, the program's icon and process ID are displayed in the Global window.

You can usually terminate a program started from Looking Glass with the Request Job Termination or Force Job Termination commands from the Jobs menu in the Global window.

For information on defining the action taken when you activate a file, refer to Chapter 13, "Defining file types."

There are two ways to activate a file in Looking Glass:

- Double-click the file
- Use the Open command

Activating files by double-clicking

1. **In a Directory window or the Desktop Panel, double-click the file you want to activate.**

If there are no actions associated with the file, Looking Glass displays a dialog telling you that.

If there are actions associated with the file, the file is activated and Looking Glass displays the icon for the program associated with the file in the Global window.

Activating files using the Open command

1. **In a Directory window or the Desktop Panel, select the files you want to activate.**
2. **Choose Open from the File menu in the Directory window.**

If there are no actions associated with a file, Looking Glass displays a dialog telling you that.

If there are actions associated with the files, the files are activated and Looking Glass displays the icons for the programs associated with the files in the Global window.

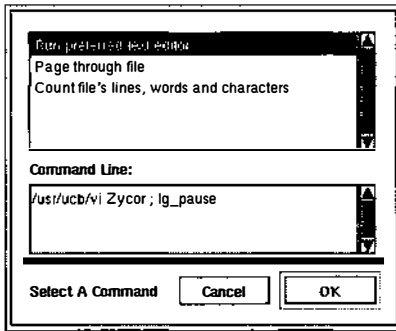
Displaying and choosing actions for a file

Some files have more than one action associated with them. The action that occurs when you double-click a file is called its *primary action*. Looking Glass lets you display all the possible actions for a file and choose one. If you're not sure what a file's primary action is, you should view the possible actions before activating it. Choosing an action from the list of possible actions will have no lasting effect—the primary action for the file will not be changed.

1. Control+double-click the file.

If there are no actions associated with the file, Looking Glass displays a dialog telling you that.

If there are actions associated with the file, Looking Glass displays the Select A Command dialog:



The top part of the dialog contains descriptions of all of the possible actions for the file. A description of the primary action for the file is listed first and highlighted.

The bottom part of the dialog displays the command associated with the highlighted action.

You may need to scroll through the list of actions to view all of the commands.

2. Select an action to view the command associated with it. (Don't double-click an action unless you want to execute it.)

3. To choose the action you want:

- Double-click an action in the list
- or*
- Select an action from the list and click OK

The dialog closes and the file is activated with the selected action.

Terminating jobs

When you run a program from Looking Glass, you will normally exit it from within the program itself using the appropriate command. However, sometimes a program will “hang” or malfunction so that you can't terminate it normally. If this happens, Looking Glass gives you a simple way to terminate the program.

NOTE:

Make sure that when you terminate a program, it's really hung, not simply waiting.

Job is a general term for a running program. There are two ways to terminate most jobs launched from Looking Glass:

- The Request Job Termination command
- The Force Job Termination command

The Request Job Termination command sends a message to the job asking it to stop. This command gives the program a chance to clean up and exit. The Force Job Termination command forces the job to terminate as soon as possible.

If you try to terminate a job with the Request Job Termination command and it does not stop, use the Force Job Termination command. If you have difficulty stopping a job with the Force Job Termination command, see your system administrator.

1. In the Global window, select the icons for the jobs you want to stop.

2. Choose Request Job Termination or Force Job Termination from the Jobs menu in the Global window.

The jobs are stopped and the icons are removed from the Global window.

If a job refuses to terminate, a dialog is displayed telling you that.

Using the Command Line dialog

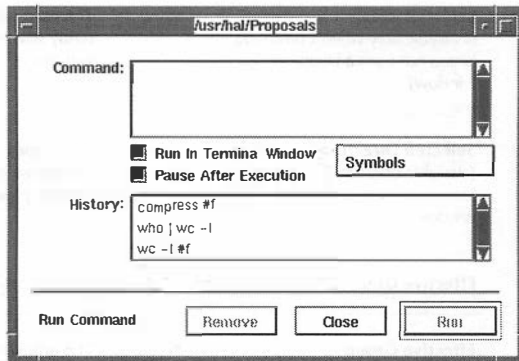
The Command Line feature simplifies the task of running operating system commands from a shell by:

- Providing a text field in which you can enter and edit commands
- Automatically inserting directory and file names selected in the current Directory window (available only when run from a Directory window)
- Substituting the current directory name and effective user and group names
- Storing your most recently used commands in a history list

Running commands

1. Choose Command Line from the Run menu in any Directory window or the Global window.

The Command Line dialog opens:



If you select Command Line from a Directory window, the current directory reference is the directory displayed in the Directory window.

If you select Command Line from the Global window, the current directory reference is your home directory.

2. Type your command in the Command text box, or select a command you have already run from the history list.

If you select a command from the history list, you can edit it before running it.

Your command can contain any text or symbols allowed by your operating system shell, including environment variables. In addition, you can embed Looking Glass special symbols in the command, either by typing the symbol or by putting the text insertion cursor where you want the symbol and selecting the corresponding option from the Symbols menu.

The following table describes the values in the special Symbols menu:

This option:	Inserts this symbol:	With this value:
Selected Files (available only when Command Line is run from a Directory window)	#f	The names of all the files currently selected in the Directory window
Selected Directories (available only when Command Line is run from a Directory window)	#d	The names of all the directories currently selected in the Directory window
Effective User	#u	The current user name
Effective Group	#g	The group name associated with the Looking Glass process
Current Directory	#c	The full pathname of the current directory

If you want the program to run in a terminal emulator window, click the Run In Terminal Window button.

If you want to be sure you'll be able to read the output when the program finishes, click the Pause After Execution button.

NOTE:

If you select the Pause After Execution button and the command isn't running in a terminal emulator window, you may have to use the Request Job Termination command in the Global window to stop the program.

3. Click Run to execute the command.

Here is an example demonstrating the use of special symbols in the Command Line dialog. Let's say you want to use the standard system utility `wc` to count the number of lines in three text files named `report1`, `report2`, and `report3`. To do this from a standard command-line shell, you would need to type:

```
wc -l report1 report2 report3
```

(The `-l` argument tells the `wc` command to count lines.)

Using the special symbol `#f` (the Selected Files option in the Symbols menu), you would select the files in a Directory window and then type:

```
wc -l #f
```

in the Command field of the Command Line dialog. When you run the command, the `#f` symbol in this command line is replaced by the names of the selected files, resulting in the command `wc -l report1 report2 report3`. This saves you the trouble of typing the filenames.

Once you have run the command this way, it is stored in the history list with the `#f` in the text of the command, not the specific filenames. To run the same command again on a different set of files, you would only need to select those files and then select the command again from the history list.

For more information on using commands and utilities available on your system, refer to your system documentation or see your system administrator.

Removing commands from the history list

You can remove any command from the history list in the Command Line dialog.

- 1. Choose Command Line from the Run menu in any Directory window or the Global window.**

The Command Line dialog opens.

- 2. Select the command you want to remove in the history list.**

- 3. Click Remove.**

The command is removed from the history list.

Displaying a terminal window

Looking Glass lets you use a command-line shell in a terminal emulator window. Once you have displayed a terminal emulator window, you can enter shell commands to run programs, just as if you were logged in at a character-based terminal. Looking Glass doesn't limit the number of terminal emulator windows you can have open.

- 1. Choose Terminal Emulator from the Run menu in any Directory window or the Global window.**

A terminal emulator window is displayed on your workspace.

If you display a terminal emulator window from a Directory window, the current directory is the one displayed in the Directory window.

If you display a terminal emulator window from the Global window, the current directory is your home directory.

With the Execution Preferences command from the System menu, you can specify both the terminal emulator program and your command-line shell.

For more information about specifying your default terminal emulator program or a shell, refer to "Execution preferences" in Chapter 12, "Changing Looking Glass preferences."

In Chapter 1, “Getting started with Looking Glass,” we introduced the concept of the Looking Glass workspace—a place to put the programs, files, and directories you use most often. No two Looking Glass workspaces are exactly the same because each reflects the work and preferences of an individual user. When you quit, Looking Glass remembers how you left your workspace and restores it the next time you start Looking Glass. We use the term *layout* to refer to the arrangement of your workspace, including the size and location of any open Looking Glass windows and the contents of the Desktop Panel.

In this chapter, you’ll learn how to:

- Save a layout
- Open a layout
- Remove a layout
- Change a saved layout

We’ll also show you how to use the Desktop Panel to help organize your work. You’ll learn how to:

- Open and close the Desktop Panel
- Put directories and files on the Desktop Panel
- Remove directories and files from the Desktop Panel
- View directories and files by their name or icon on the Desktop Panel
- View the full pathname of directories and files on the Desktop Panel
- Open directories and files from the Desktop Panel
- Show directories and files on the Desktop Panel in Directory windows
- Print files from the Desktop Panel
- Move directories and files around on the Desktop Panel
- Clean up the Desktop Panel

Working with layouts

Looking Glass lets you organize your workspace many different ways and then name and save each layout. Saving a layout makes it easy to switch from one activity to another without having to rearrange windows.

For example, you might save a layout for working on budgets that includes the Desktop Panel with your spreadsheet program and any documents you're currently working on and a Directory window displaying the directory in which you keep business plans. You could create a separate layout for working on correspondence, and switch easily between the two.

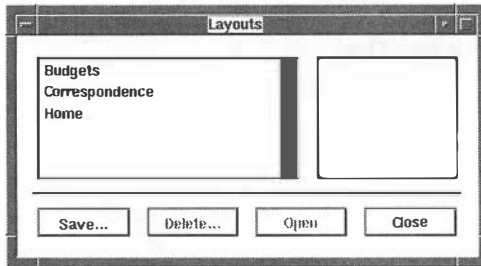
Saving a layout

When you save a layout, you can only include windows that are controlled by Looking Glass. You can't save terminal emulator windows or other external program windows as part of your layout.

Saving a new layout

- 1. Organize your workspace the way you want it.**
- 2. Choose Layouts from the Layout menu in the Global window.**

The Layouts dialog is displayed:



- 3. Click Save.**

A dialog appears asking you to name the layout you're saving.

- 4. Type the name of your new layout in the Save Layout As field.**

5. Click OK to save your new layout.

The preview area on the right displays a thumbnail sketch of your workspace layout. The black areas represent the Global window and the Desktop Panel; the medium gray areas represent Directory windows; and the light gray areas indicate the positions of all other Looking Glass windows.

Opening a layout

There are two ways to open a layout:

- Directly from the Layout menu
- From the Layouts dialog

Opening a layout directly from the Layout menu**1. Open the Layout menu in the Global window.**

The list of saved layouts is displayed beneath the Layouts command.

2. Select the layout you want to open.

Your workspace changes to the layout you selected.

Opening a layout from the Layouts dialog**1. Choose Layouts from the Layout menu in the Global window.**

The Layouts dialog is displayed. The layouts you can open are displayed in the list on the left side of the dialog.

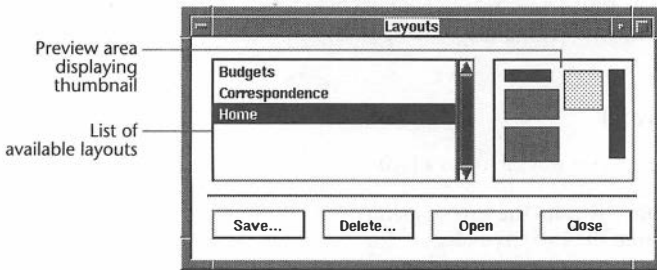
2. To open the layout you want:

- Double-click the name of the layout
or
- Select the name of the layout, then click **Open**

Your workspace changes to the layout you selected.

When you click the name of a layout, a thumbnail sketch of the layout is displayed in the preview area on the right.

Here is a typical layout thumbnail:



Removing a layout

- 1. Choose Layouts from the Layout menu in the Global window.**

The Layouts dialog is displayed.

- 2. Select the layout you want to delete from the list.**

- 3. Click Delete.**

A dialog is displayed, asking you to confirm your selection.

- 4. Click Yes.**

Changing a saved layout

- 1. Select the layout you want to change from the Layout menu in the Global window.**

If you're already using the workspace layout you want to change, go to the next step.

- 2. Organize your workspace the way you want it.**

3. Choose Layouts from the Layout menu in the Global window.**4. Click Save.**

A Save dialog appears, asking you to name the layout you're saving.

5. Type the name of the layout you're changing exactly as it appears in the menu.**6. Click OK.**

A dialog is displayed asking if you want to replace the existing layout.

7. Click OK.

Your new layout is saved under the old name.

Working with the Desktop Panel

The Desktop Panel is a place to put icons for the directories and files you use most often. The directories and files you put on the panel are not removed from their actual location—they are just displayed there so you can access them easily.

You can open directories and files on the Desktop Panel the same way you can in Directory windows. When you open a file from the Desktop Panel, the application's icon appears in the Global window. For more information about activating files, refer to Chapter 8, "Running programs."

In this section, we tell you how to:

- Open and close the Desktop Panel
- Put directories and files on the Desktop Panel
- Remove directories and files from the Desktop Panel
- View directories and files by their name or icon on the Desktop Panel
- View the full pathname of directories and files on the Desktop Panel
- Open directories and files from the Desktop Panel
- Show directories and files on the Desktop Panel in Directory windows

- Print files from the Desktop Panel
- Move directories and files around on the Desktop Panel
- Clean up the Desktop Panel

In addition to these actions, you can also move the Desktop Panel to another position on the workspace and resize it. For information about moving the Desktop Panel to another position on the workspace and resizing it, refer to “Moving windows” and “Resizing windows” in Chapter 2, “How you interact with Looking Glass.”

If a directory or file is dimmed on the Desktop Panel, it means that Looking Glass cannot locate it.

Opening and closing the Desktop Panel

When you start Looking Glass for the first time, the Desktop Panel opens on the right side of your screen. You can open and close the Desktop Panel from the Show menu in the Global window. You can also close the Desktop Panel from the File menu on the Desktop Panel. The Desktop Panel check box in the Show menu is selected or unselected, indicating whether or not the panel is displayed.

Opening or closing the Desktop Panel from the Global window

1. **Choose Desktop Panel from the Show menu in the Global window.**

If the Desktop Panel was open, it closes.

If the panel was closed, it opens.

Closing the Desktop Panel from the Desktop Panel

1. **Choose Close from the File menu on the Desktop Panel.**

The Desktop Panel closes.

Putting directories and files on the Desktop Panel

There are two ways to put any directory or file from a Directory window on the Desktop Panel:

- Drag the directory or file to the Desktop Panel
- Use the Put On Desktop Panel command

Displaying a directory or file on the Desktop Panel by dragging

1. **Drag the directory or file to the Desktop Panel.**

The directory or file appears on the panel.

Displaying a directory or file on the Desktop Panel with the Put On Desktop Panel command

1. **Select the directory or file in a Directory window that you want to put on the Desktop Panel.**
2. **Choose Put On Desktop Panel from the File menu in the Directory window.**

The directory or file appears on the panel.

Removing directories and files from the Desktop Panel

1. **Select the directory or file on the Desktop Panel you want to remove.**
2. **Choose Take Off Desktop Panel from the File menu on the Desktop Panel.**

The directory or file no longer appears on the Desktop Panel.

Removing a directory or file using the Looking Glass Remove command also removes the directory or file from the Desktop Panel.

NOTE:

Directories and files that are dimmed on the Desktop Panel can't be located by Looking Glass. This usually occurs when a directory or file has been moved or removed by a program other than Looking Glass, or resides in a file system that is not currently mounted or has been mounted at a different location.

Viewing directories and files by name or icon

1. **Choose Name or Icon from the View menu on the Desktop Panel.**

All of the directories and files on the Desktop Panel are displayed by name or icon.

Viewing the full pathname of directories and files

1. **Choose Show Full Pathname from the View menu on the Desktop Panel.**

All of the directories and files on the Desktop Panel are displayed with their full pathnames.

NOTE:

If you move a file into a directory in a Directory window, the file's pathname changes in the Desktop Panel to reflect the new directory.

Opening directories and files from the Desktop Panel

You can open directories and files on the Desktop Panel the same way you can in Directory windows. The Open command opens a Directory window for the directory you selected, or activates the file you selected.

1. **Select the directories and files on the Desktop Panel you want to open.**

2. **To open the directories and files:**

- Double-click each directory or file you want to open
or
- Choose **Open** from the File menu

If you selected a directory, it is displayed in a Directory window.

If you selected a file, it is activated.

Showing directories and files from the Desktop Panel

The Show command displays a directory or file in a Directory window.

- 1. Select the directory or file on the Desktop Panel you want to show.**
- 2. Choose Show from the File menu on the Desktop Panel.**

A Directory window opens with the directory or file selected.

Printing files from the Desktop Panel

- 1. Select the files on the Desktop Panel you want to print.**
- 2. Choose Print from the File menu on the Desktop Panel.**

Looking Glass prints the files. If you select a file that is not printable, Looking Glass displays a dialog telling you that it will not be printed. For more information about printing files, refer to "Printing files" in Chapter 5, "Managing directories and files."

Moving directories and files around the Desktop Panel

- 1. Drag the directory or file to its new position on the Desktop Panel.**

The directory or file moves to its new position.

Cleaning up the Desktop Panel

You can clean up the Desktop Panel by using the Clean Up and Clean Up Selection commands to neatly line up directories and files.

Cleaning up the Desktop Panel with the Clean Up command

- 1. Choose Clean Up from the View menu on the Desktop Panel.**

All the directories and files are arranged in neat rows and columns on an invisible grid, filling in the Desktop Panel from left to right and top to bottom.

Cleaning up the Desktop Panel with the Clean Up Selection command

- 1. Select the directories and files on the Desktop Panel you want to clean up.**
- 2. Choose Clean Up Selection from the View menu on the Desktop Panel.**

The directories and files you selected are moved to the nearest available space on the grid—not necessarily filling in the Desktop Panel from left to right and top to bottom.

The Visix Icon Editor is a standalone application that you can launch from the Looking Glass Global window or run as a separate program outside of Looking Glass.

In this chapter you'll learn how to use the Icon Editor to:

- View icons in a Gallery window
- Create your own icon gallery
- Edit icons in Gallery windows
- Save icons
- Change the display order of icons in Gallery windows
- Import bitmap files
- Export icons as bitmap files
- Rename icons
- Create icons and masks in Editing windows
- Edit icons and masks in Editing windows
- Install new icons
- Merge icon galleries

For a general discussion of icons, refer to “Looking Glass icons,” in Chapter 1, “Getting started in Looking Glass.”

Starting the Icon Editor

There are two ways to start the Icon Editor:

- Use Looking Glass
- Use a command line

Starting the Icon Editor from Looking Glass

There are two ways to start the Icon Editor from Looking Glass:



- Double-click the Icon Editor (*vice*) program icon shown on the left (the *vice* program is normally installed in the directory `/usr/bin`)
or
- Use the Icon Editor command from the Run menu in the Global window

Starting the Icon Editor by double-clicking

1. **Double-click the Icon Editor program icon.**

The Icon Editor program icon appears in the Global window, followed by:

- The Icon Editor window, which displays the name of a new icon gallery, `Untitled1`
- A Gallery window named `Untitled1`

Starting the Icon Editor using the Icon Editor command

1. **Choose Icon Editor from the Run menu in the Global window.**

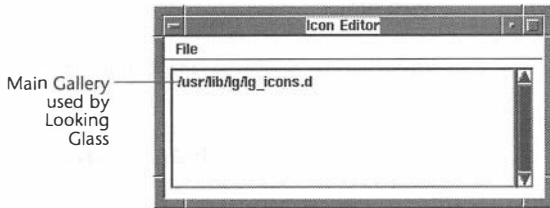
The Icon Editor program icon appears in the Global window, followed by:

- The Icon Editor window, which displays the name of the Main Gallery used by Looking Glass, `lg_icons.d`
- A Gallery window named `lg_icons.d`

The Icon Editor window is always displayed when the Icon Editor program is running. You can use the File menu in the Icon Editor

window to open and create icon galleries as well as quit the Icon Editor program.

Here is an example of an Icon Editor window:



Starting the Icon Editor from a command line

1. **At the command-line prompt, type:**

```
vice
```

The following windows are displayed:

- The Icon Editor window, which displays the name of a new icon gallery, `Untitled1`
- A Gallery window named `Untitled1`

Specifying command-line arguments at startup

When you start the Icon Editor from a command line, you can also specify arguments that control how the Icon Editor operates.

The following table describes the arguments you can specify at startup:

This argument:	Does this:
<i>filenames</i>	Opens the icon galleries you specify at startup automatically.
-frame	Tells the Icon Editor to put a frame around its windows. Use this argument for window managers that do not supply frames for windows.
-bordercolor <i>color</i> or -color <i>color</i>	Lets you to specify a color for window borders. This argument only takes effect when the -frame argument is also used.
-lookandfeel <i>style</i> or -laf <i>style</i>	Lets you to specify a look-and-feel style. Specify <i>3d</i> or <i>2d style</i> . <i>3d</i> is OSF/Motif compliant.
-font <i>font</i> or -fn <i>font</i>	Lets you to specify a font for plain (nonbold) text. You can use any font available on your system.
-boldfont <i>font</i> or -fb <i>font</i>	Lets you to specify a font for bold text. You can use any font available on your system.
-mono	Forces a monochrome display on a color monitor.

This argument:	Does this:
-foreground <i>color</i> or -fg <i>color</i>	Lets you to specify a color for the user interface elements that are in the foreground. Use a color from the system's color database or specify a color's Red, Green, Blue (RGB) value in hexadecimal notation.
-background <i>color</i> or -bg <i>color</i>	Lets you to specify a color for the user interface elements that are in the background. Use a color from the system's color database or specify a color's Red, Green, Blue (RGB) value in hexadecimal notation.
-topshadow <i>color</i> or -ts <i>color</i>	Lets you to specify a color for the top shadow of the user interface elements. Use a color from the system's color database or specify a color's Red, Green, Blue (RGB) value in hexadecimal notation.
-bottomshadow <i>color</i> or -bs <i>color</i>	Lets you to specify a color for the bottom shadow of the user interface elements. Use a color from the system's color database or specify a color's Red, Green, Blue (RGB) value in hexadecimal notation.
-display <i>machine</i>	Lets you to specify the hardware display name for the machine whose display will be used by the Icon Editor. This option is only valid under the X Window System. The machine name supplied will be used to set the DISPLAY environment variable.

Quitting the Icon Editor

There are two ways to quit the Icon Editor:

- Use the Quit command from the File menu in the Icon Editor window
- Use the Quit command from the File menu in a Gallery window

1. To quit the Icon Editor, choose:

- **Quit** from the File menu in the Icon Editor window
or
- **Quit** from the File menu in a Gallery window

If any icon galleries are open with unsaved changes, the Icon Editor displays a dialog for each unsaved icon gallery asking if you want to save the changes.

For information on saving an icon gallery, refer to the “Saving an icon gallery under a new name” section later in this chapter.

Working with Gallery windows

Looking Glass icons are stored in files called icon galleries. When you create a new Gallery window, or open an existing one, its name appears in the Icon Editor window. You can create as many icon galleries as you want, but Looking Glass only uses the icons in the Main Gallery, whose full pathname is usually `/usr/lib/lg/lg_icons.d`.

Typically, any user can view and copy the icons in the Main Gallery, but only the super-user or system administrator can make changes to them. This is important to protect the working set of icons shared by all users on your system. If you don't have write permission for the Main Gallery, you can't save any changes you make to the icons in this gallery. You can, however, copy icons from the Main Gallery into an icon gallery you've created, where you can edit and save them. You can put new or modified icons into the Main Gallery with the help of your system administrator.

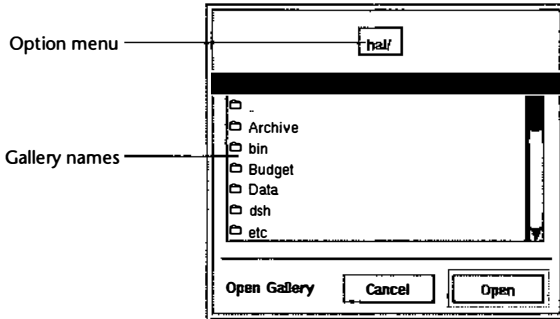
Opening an existing icon gallery

When you open an icon gallery, the icons and their names are displayed in a Gallery window.

1. To open an existing icon gallery, choose:

- **Open Gallery** from the File menu in the Icon Editor window
or
- **Open** from the File menu in a Gallery window

The Open Gallery dialog is displayed:



Only icon galleries and directories are available in this dialog; other files are dimmed.

2. To select an icon gallery:

- Use the scroll bar to find an icon gallery and click the one you want to open
or
- Type the first few letters of the icon gallery name

The name of the first icon gallery beginning with the letters you typed is highlighted. The Icon Editor gives you two seconds between keystrokes as you type the name of the icon gallery. For example, to find an icon gallery named "Sample icons," you would have up to two seconds after typing the letter "s" to type "a" for the name "Sample icons" to be found. If you take longer than two seconds to type the letter "a," the Icon Editor starts the search again and finds the first icon gallery or directory that begins with the letter "a."

You can change the directory you're currently in by clicking the option menu above the icon gallery list and selecting a parent directory, or double-clicking one of the directories in the dialog.

3. **Click Open.**

The icon gallery opens in a Gallery window. Its full pathname is displayed in the title bar and in the Icon Editor window.

By default, the icons in a Gallery window are displayed alphabetically by name. You can change the display order of the icons with the Sort menu. For information about changing the order of icons, refer to the “Changing the display order of icons in a Gallery window” section later in this chapter.

Creating a new icon gallery

There are two ways to create a new icon gallery:

- Use the New Gallery command in the File menu in the Icon Editor window
- Use the New command in the File menu in a Gallery window

1. **To create a new icon gallery, choose:**

- **New Gallery** from the File menu in the Icon Editor window
or
- **New** from the File menu in an icon gallery

A new Gallery window is displayed.

If you started the Icon Editor from the Global window in Looking Glass, the new icon gallery is named `Untitled1`. The name appears in the title bar of the Gallery window and in the Icon Editor window. Each new icon gallery you create is consecutively numbered.

If you started the Icon Editor by double-clicking the Icon Editor program icon, or from a command line, the new icon gallery is named `Untitled2` (`Untitled1` automatically opens when you start). Each new Gallery window you create is consecutively numbered.

When you save an icon gallery for the first time, you can change its name from `Untitledn` to another name. After the first time you save an icon gallery, use the Save As command to change its name. For information about saving icon galleries, refer to the “Saving your work” section later in this chapter.

Now that you've created a new icon gallery, you can create new icons, or cut and paste icons from other icon galleries. For more information about creating new icons, refer to the "Creating a new icon" section later in this chapter.

For more information on cutting, copying, and pasting icons, refer to the "Working with icons in Gallery windows" section later in this chapter.

Saving your work

A checkmark appears next to an icon's name when the icon has been created, edited, or renamed since the last time the icon gallery was saved. You must save the icon gallery to save the changed icon.

There are two ways to save an icon gallery:

- Use the Save command from the File menu in the Icon Editor window or the Gallery window to save an icon gallery under its current name
- Use the Save As command from the File menu in the Icon Editor window or Gallery window to save an icon gallery under a new name

Saving an icon gallery under its current name

- 1. Choose Save from the File menu in the Gallery window.**

The icon gallery is saved with the new, edited, or renamed icons.

Saving an icon gallery under a new name

- 1. Choose Save As from the File menu in the Gallery window.**

The Save As dialog is displayed.

2. To change the name:

- Enter the full or relative pathname for the icon gallery in the Gallery Name field
or
- Use the option menu and the list to select the directory you want to save the icon gallery in, then enter the new name for the icon gallery
or
- In the Gallery Name field, enter the full or relative pathname of the directory in which you want to save the icon gallery, followed by a slash (/). Press the **Tab** or **Return** key to view the contents of that directory. Then type the name of the icon gallery in the Gallery Name field.

3. Click Save.

For information about closing Gallery windows or quitting the Icon Editor, refer to the “Closing a Gallery window” section later in this chapter, or “Quitting the Icon Editor” earlier in this chapter.

Reverting to the last saved version of an icon gallery

You can use the Revert command to discard any changes made to an icon gallery since the last time it was saved. The Revert command is only available when you have made changes to an icon gallery since last saving it; otherwise, the command is dimmed.

1. Choose Revert from the File menu in a Gallery window.

The Icon Editor displays a dialog asking if you want to discard changes to the icon gallery.

2. Click Yes.

The changes are discarded.

NOTE:

Revert and Undo are similar commands with two differences: Revert discards a set of changes and restores the most recently saved version of an icon gallery or icon. Undo only reverses the last action performed, and is only available from the Edit menu in an Editing window.

Selecting icons in a Gallery window

If you know the name of the icon you want to find, or the letter it begins with, you can narrow your search or select it by typing the first few letters of the icon's name.

The name of the first icon in the gallery beginning with the letters you typed is highlighted. The Icon Editor gives you two seconds between keystrokes as you type the name of the icon. For example, to find an icon named "SAMPLE_ICON," you would have up to two seconds after typing the letter "s" to type "a" for the name "SAMPLE_ICON" to be found. If you take longer than two seconds to type the letter "a," the Icon Editor starts the search again and finds the first icon that begins with the letter "a."

1. To select icons in a Gallery window:

- Click an icon to select it
or
- Type the first few letters of the icon's name to narrow your search or find the exact icon you want to select
or
- Use the scroll bar to find the icons and Shift+click each icon you want to select
or
- Click an icon and drag up or down the icon gallery to select a group of icons
or
- Choose **Select All** from the Edit menu to select all the icons in the Gallery window

The icons are selected. Clicking a selected icon unselects it.

Changing the display order of icons in a Gallery window

There are three ways you can display icons in a Gallery window:

- Alphabetically by name
- With selected icons at the top of the list
- With modified icons at the top of the list

When you open an icon gallery, the icons are displayed alphabetically by name. You can group selected icons or modified icons alphabetically at the top of the list by choosing Group Selected or Group Modified.

As you work with the Icon Editor, a checkmark appears next to any icons that have been created, edited, or renamed, but not saved.

1. **From the Sort menu in a Gallery window, choose:**

- **By Name** to display all the icons alphabetically
- **Group Selected** to group selected icons alphabetically at the top of the list
- **Group Modified** to group modified icons alphabetically at the top of the list

The icons are displayed in the order you chose.

Working with icons in Gallery windows

You can use the Edit menu in a Gallery window to cut, copy, and paste icons; clear, duplicate, and select all icons within the same Gallery window; or move icons between different Gallery windows.

The images you cut or copy are stored on the *clipboard*, a temporary holding area. Because you can only perform one cut or copy action at a time, you will lose the images stored on the clipboard when you cut or copy a new image to the clipboard.

1. Select the icons you want to modify.

2. **From the Edit menu, choose:**

- **Cut** to remove the icons from the Gallery window and place them on the clipboard
- **Copy** to place a copy of the icons on the clipboard
- **Paste** to place the icons from the clipboard into the current Gallery window
- **Duplicate** to copy the icons and their masks in the same Gallery window
- **Clear** to remove the icons without placing them on the clipboard
- **Select All** to select all of the icons in a Gallery window

Some menu commands have equivalent accelerator keys. For more information about accelerator keys, refer to "Using accelerator keys" in Chapter 2, "How you interact with Looking Glass."

The following table shows the commands and their equivalent accelerator keys used to edit icons in the Gallery window:

Window	Command	Menu	Accelerator key
Gallery window	New	File	Control+N
	Open	File	Control+O
	Close	File	Control+W
	Save	File	Control+S
	Quit	File	Control+Q
	Cut	Edit	Control+X
	Copy	Edit	Control+C
	Paste	Edit	Control+V
	Duplicate	Edit	Control+D
	Clear	Edit	Control+B
	Select All	Edit	Control+A
	Create	Icon	Control+K
	Edit	Icon	Control+E

Importing bitmap files

You can import a bitmap file used by another program into an icon gallery and edit it just as you would any icon. Importing a bitmap is a quick way to “create” a new icon without having to draw it from scratch. Almost any image, including original artwork and photographs, can be scanned as bitmap files and imported into an icon gallery for further editing.

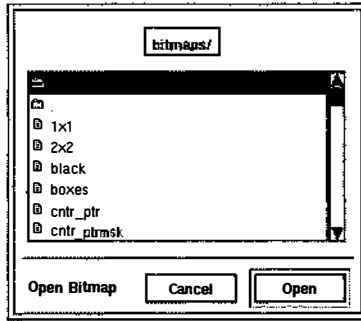
Because Looking Glass icons are based on a 40-by-40 pixel grid, you can only import bitmaps that are 40-by-40 or smaller. If the bitmap is larger than 40-by-40, you must choose a 40-by-40 area to edit.

A bitmap file doesn’t include a mask; you must create the mask after the bitmap is imported as an icon.

1. Open the icon gallery you want to import the bitmap file into.

2. Choose Import from the Icon menu.

The Open Bitmap dialog is displayed:



3. To select the bitmap file you want to import:

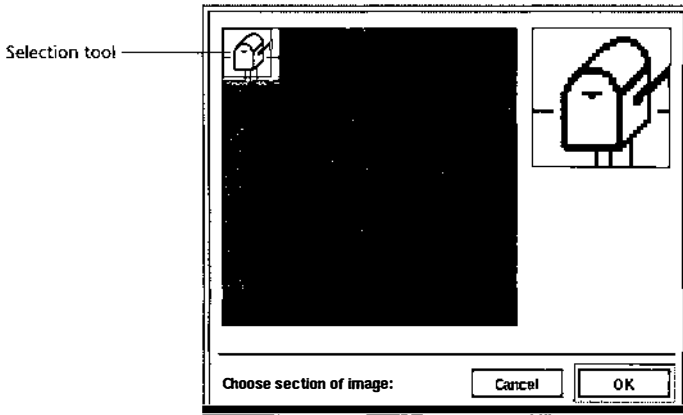
- Use the scroll bar to find a bitmap file and click the one you want to open
or
- Type the first few letters of the bitmap filename

The name of the first bitmap file beginning with the letters you typed is highlighted. The Icon Editor gives you two seconds between keystrokes as you type the name of the bitmap file. For example, to find a bitmap file named "Sample bitmap," you would have up to two seconds after typing the letter "s" to type "a" for the name "Sample bitmap" to be found. If you take longer than two seconds to type the letter "a," the Icon Editor starts the search again and finds the first bitmap file that begins with the letter "a."

You can change the directory you're currently in by clicking the option menu above the bitmap file list and selecting a parent directory, or double-clicking one of the directories in the dialog.

4. Click Open.

If the bitmap is larger than 40-by-40, the Bitmap Selection dialog is displayed:



If the Bitmap Selection dialog is displayed, use the Selection tool to select a 40-by-40 section of the bitmap, then click OK.

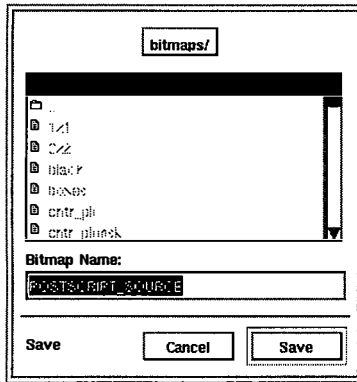
The bitmap file is imported into your icon gallery. You can now edit and save it just like any other icon.

Exporting icons as bitmap files

When you export an icon, you create a bitmap file that can be read by any application that uses the standard bitmap file format supported by your windowing system. An icon's mask is not exported along with the icon.

- 1. In a Gallery window, select the icon you want to export.**
- 2. Choose Export from the Icon menu.**

The Save dialog is displayed:



3. To open the directory you want to save your icon in:

- Use the option menu and scroll bar to open a directory to save your icon in. Selecting a directory in the option menu opens the directory in the list below. Double-click a directory in the list to open it.
or
- In the Bitmap Name field, type the name or pathname of the icon you want to export.

4. Click Save.

The icon is exported to the directory you selected.

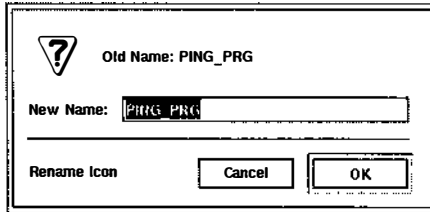
Changing the name of an icon

Use the Rename command to rename any icons.

- 1. In a Gallery window, select the icon whose name you want to change.**

2. Choose Rename from the Icon menu.

The Rename Icon dialog is displayed:

**3. Enter a new name for the icon in the New Name field.****4. Click OK.**

A checkmark appears next to the renamed icon in the Gallery window. The checkmark indicates that the icon has been changed since the last time the icon gallery was saved. For information about saving an icon gallery, refer to the “Saving your work” section earlier in this chapter.

Closing a Gallery window

When you close a Gallery window, its name is removed from the list of open galleries in the Icon Editor window.

1. Choose Close from the File menu in the Gallery window that you want to close.

If you haven’t made changes to the icon gallery since the last time it was saved, the Gallery window closes.

If you have made changes to the icon gallery since the last time it was saved, the Icon Editor displays a Save dialog. In this dialog, you specify where to save the new icon gallery.

For information on saving an icon gallery, refer to the “Saving your work” section earlier in this chapter.

Working with Editing windows

You can use Editing windows to edit icons that you've cut or copied from existing Gallery windows, or to create new icons. For information on Gallery windows, refer to "Working with Gallery windows" earlier in this chapter.

NOTE:

If you're creating a new icon in an existing icon gallery, make sure that you have write permission for that icon gallery. For more information about access permissions, refer to Chapter 7, "Accessing information about directories and files."

Creating a new icon

You can create a new icon and begin editing immediately, or you can store several new icons in an icon gallery until you are ready to edit them. The icons can then be pasted into the Main Gallery, or merged with the Main Gallery using the `icon_merge` utility.

1. **Choose Create from the Icon menu in a Gallery window.**

A new, generic icon is displayed in the Gallery window. It is named `Icon1`, and it is highlighted. Each new icon you create is consecutively numbered.

A checkmark appears next to the name of the icon in the Gallery window, indicating that the icon has been created or changed since the icon gallery was last saved.

After you create a new icon, you can edit it. For information about editing icons, refer to the "Using commands from the Edit menu" section later in this chapter.

You can also change the name of the icon (refer to the "Changing the name of an icon" section earlier in this chapter). If you don't rename it, the icon will be saved as `Icon1`.

Opening an Editing window

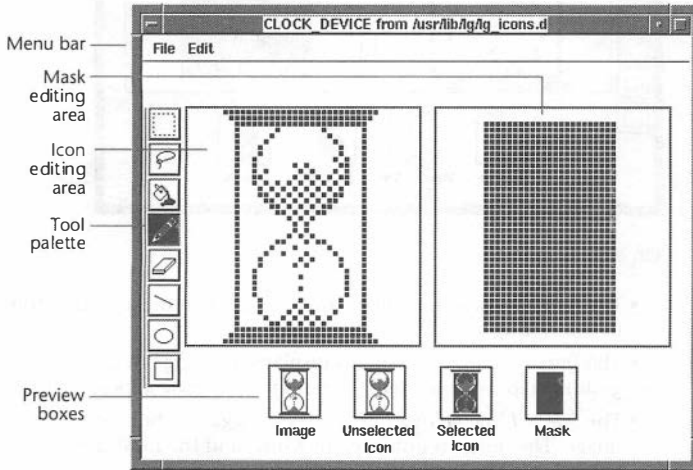
When you edit icons, you start by opening an Editing window. The Editing window is where you will work on any icons you have created or edited before, including any icons that you have cut or copied from other galleries.

1. To open the Editing window for the icon:

- Double-click the icon
- or*
- Select the icon, then choose Edit from the Icon menu

Each icon is edited in its own Editing window. Each Editing window has a menu bar, a tool palette, two editing areas, and four preview boxes.

Here is a typical Editing window:

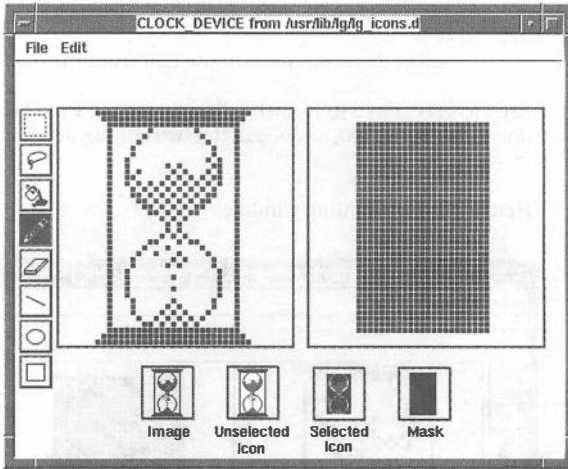


The information shown in the preview boxes varies depending on whether you are using a monochrome or color monitor. The above illustration shows an icon displayed on a monochrome monitor.

On a monochrome monitor:

- The *Image preview box* reflects any changes you make to the icon in the icon editing area.
- The *Unselected Icon preview box* displays the same image as the Image preview box. It shows what the unselected icon will look like in Looking Glass.
- The *Selected Icon preview box* displays how the icon will look when it is selected.
- The *Mask preview box* reflects any changes you make to the mask in the mask editing area.

The following illustration shows an icon displayed on a color monitor:



On a color monitor:

- The *Image preview box* reflects any changes you make to the icon in the editing area.
- The *Unselected Icon preview box* displays the image in the foreground color with the mask behind it. The mask appears white.
- The *Selected Icon preview box* displays a negative, or reversed, image. The image is displayed in white, and the mask appears behind it in the foreground color.
- The *Mask preview box* reflects any changes you make to the mask in the mask editing area.

When you edit an icon, you should also edit its mask so it will best highlight the icon. You can change all or part of the mask. A mask most closely resembles the icon it was created for when the icon is drawn as a closed-path image. A closed path is made of pixels that connect to form a closed shape. A circle is one example of a closed path image. If you create a mask for a circular icon, it appears as a filled-in circle in the mask editing area. However, a mask does not necessarily have to follow the icon design.

In the examples above, the hourglass image is formed by "on" pixels. Notice that the mask doesn't follow the hourglass design; instead, it is a closed-path rectangle filled in with "on" pixels.

Examine the four preview boxes at the bottom of the Editing window to become familiar with the relationship between the icon and its mask. For more information on masks, refer to the “Creating a mask” section later in this chapter.

You can *edit* any icon from any icon gallery for which you have read permission; however, you can only *save* the changes you make if you have write permission for the icon gallery.

If you want to edit and save changes for the icons that came with Looking Glass, it’s a good idea to make a “working copy” of the icons that you want to edit. Copy the icons you want to edit and paste them into a new icon gallery. This way, you can retain the original icons in the Main Gallery, and edit and save the copies. For information about cutting, copying, and pasting icons, refer to the “Using commands from the Edit menu” section later in this chapter.

Some menu commands have equivalent accelerator keys. For more information about accelerator keys, refer to “Using accelerator keys” in Chapter 2, “How you interact with Looking Glass.”

The following table shows the commands and their equivalent accelerator keys used to edit icons in the Editing window:

Window	Command	Menu	Accelerator key
Editing window	Close	File	Control+W
	Undo	Edit	Control+Z
	Cut	Edit	Control+X
	Copy	Edit	Control+C
	Paste	Edit	Control+V
	Clear	Edit	Control+B
	Mask Selection	Edit	Control+M

Each editing area in the Editing window is a 40-by-40 grid of squares. Each square corresponds to a pixel on a screen. Pixels are the individual dots that form images on a computer screen. Images in the editing areas are created when the dots are either “on” or “off” (displayed or not displayed). When you create or edit an icon, you are determining which pixels will be on and off within a 40-by-40 pixel area.

The editing area on the left of the Editing window displays the pixels that form the icon; the editing area on the right displays the pixels that form the icon's mask. For information on creating a mask, refer to the "Creating a mask" section later in this chapter.

Any changes made to the icon and its mask are shown in their actual size in the preview boxes below the editing areas. For more information about preview boxes, refer to the "Creating a mask" section later in this chapter.

Use the tools from the tool palette and commands from the menu bar to edit the icon and its mask.

Using the tool palette

The following tools are displayed in the tool palette on the left side of the Editing window.



Use the *Selection tool* to select a rectangular area of an icon when cutting and copying, or when creating a mask for the icon. Dragging the mouse selects a rectangular area of the icon. When you release the mouse button, the area within the rectangle is selected. You can select any area within the 40-by-40 grid. The area you select is highlighted, and is ready to be cut, copied or masked. You can also erase the selected area by pressing the Backspace or Delete key. The Selection tool can also be used to select and move part of the icon to another area of the 40-by-40 grid. Because both "on" and "off" pixels are selected, the highlighted area appears "solid" and blocks out all the other pixels in the grid. To select the entire editing area, click in one of the editing areas and then double-click the Selection tool in the tool palette.



Use the *Lasso tool* to select any part of an icon. To select part of an icon, click the Lasso tool, and then drag around the area you want to select. When you release the mouse button, the selection path is automatically closed, and the selected area is highlighted. The Lasso tool can also be used to select and move part of the icon to another area of the 40-by-40 grid. Because only the "on" pixels are selected, the highlighted area appears "transparent" and does not block out any other pixels in the grid. To select the entire editing area, click in one of the editing areas and then double-click the Lasso tool in the tool palette.



Use the *Fill tool* to fill in any closed-in area of an icon. When you select the Fill tool, the pointer changes to a paint can cursor. Click in the area of the icon you want filled in. You can include any of the four sides of the 40-by-40 grid to complete your closed-path shape.



Use the *Pencil tool* to draw or erase one pixel at a time by clicking the mouse, or draw a continuous line by dragging the mouse. The pointer changes to a pencil when the Pencil tool is selected. Pressing the Shift key before you start to drag constrains the line horizontally or vertically, depending on the direction you started to drag the mouse. The Pencil tool is best for detail work on the icon where you need pinpoint control.



Use the *Eraser tool* to erase the image you drag over in the editing area. The pointer changes to a square when the Eraser tool is selected. Pressing the Shift key before you start to drag constrains the eraser horizontally or vertically, depending on the direction you started to drag the mouse. To erase the entire editing area, click in one of the editing areas, and then double-click the Eraser tool in the tool palette. It is especially helpful when you want to erase a large area of an icon. (The Pencil tool is recommended for erasing smaller areas.)



Use the *Line tool* to draw straight lines one pixel wide. The pointer changes to a crosshair cursor when the Line tool is selected. Pressing the Shift key when you first start to drag constrains the line horizontally, vertically, or to a 45-degree angle, depending on the direction you started to drag the mouse.



Use the *Ellipse tool* to draw an ellipse as you drag the mouse in the editing area. The pointer changes to a crosshair cursor when the Ellipse tool is selected. Pressing the Shift key when you first start to drag constrains the ellipse to a circle.



Use the *Rectangle tool* to draw a rectangle as you drag the mouse in the editing area. The pointer changes to a crosshair cursor when the Rectangle tool is selected. Pressing the Shift key when you first start to drag constrains the rectangle to a square.

1. Click the tool you want to use.

2. Move the pointer to the editing area for the icon or mask.

The pointer changes to the appropriate shape for the tool you selected. You can now use the tool.

3. Click or drag the mouse to make the changes you want.

As you edit the icon, you can see what your changes look like in the preview boxes below the editing areas.

You can use the Undo command from the Edit menu to undo the last action performed.

Using commands from the Edit menu

You can use the Edit menu in an Editing window to cut, copy, and paste icons, as well as clear icons, undo the last action performed, and create a mask for icons.

1. Use the Selection tool or Lasso tool to select the whole icon or part of the icon.

NOTE:

Don't use the Selection or Lasso tool if you want to use the Undo or Paste command.

2. From the Edit menu, choose:

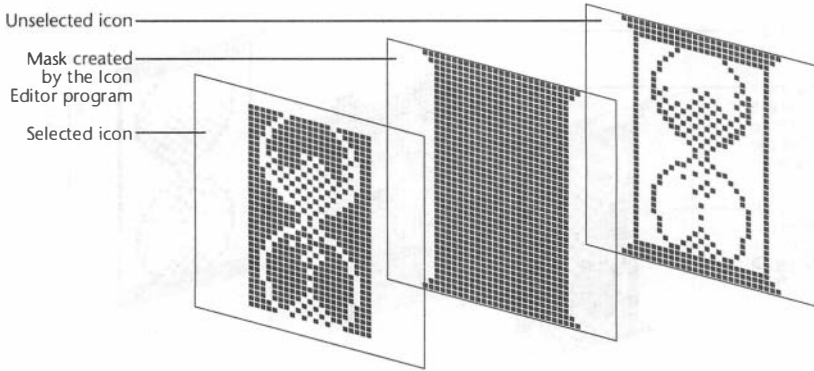
- **Undo** to reverse the last action performed
- **Cut** to remove the icon or part of the icon from the editing area to the clipboard
- **Copy** to copy the icon or the selected part of the icon to the clipboard
- **Paste** to place the icon or part of the icon from the clipboard to the editing area (cutting or copying an object to the clipboard replaces any previously placed object)
- **Clear** to remove the icon or part of the icon without saving it on the clipboard
- **Mask Selection** to create a mask for the icon or part of the icon you selected

The images you cut or copy are stored on the clipboard, a temporary holding area. Because you can only perform one cut or copy action at a time, you lose the images stored on the clipboard when you cut or copy a new image to the clipboard.

Creating a mask

A mask is used to give an icon its highlighted appearance when it is selected. A selected icon generally appears as the negative, or reverse image, of an icon. It's important for an icon to have a mask so you can tell the difference between selected and unselected icons as you work.

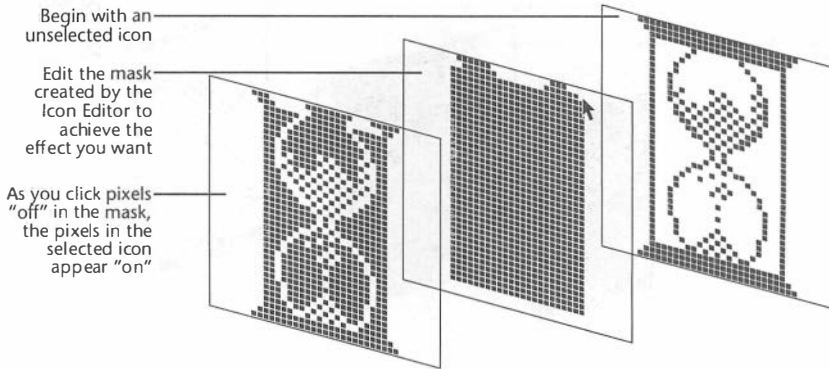
The following illustration shows a side view of an icon separated into three layers. The unselected icon, or the bottom layer, is represented by the picture on the right. If you select the entire icon and choose Mask Selection from the Edit menu, the Icon Editor program creates the mask, represented by the middle layer. The selected icon is shown in the top layer, represented by the picture on the left.



If you examine the top and bottom of the hourglass, you'll notice the "on" pixels in the unselected icon and the "on" pixels in the mask have cancelled each other out, and are "off" in the selected icon, so there is no top or bottom to the hourglass icon.

Similarly, the hourglass design in the unselected icon is formed by "on" pixels. The unselected icon layer is masked by "on" pixels in the mask layer, so the design is reversed in the selected icon layer.

If you want the top and bottom base of the hourglass to appear in the selected icon, you'll need to edit the mask layer created by the Icon Editor program. The following illustration shows the mask being edited so that the hourglass icon will have a top and bottom base. You can use the Pencil tool from the tool palette to turn the mask pixels "off." As you turn off the mask pixels that make up the bases, the pixels that are "on" in the unselected layer are "unmasked" and the bases will appear in the selected icon.



An unselected icon looks a little different on a color monitor. Pixels that are "on" in the unselected icon and "on" in the mask are "on" in the selected icon, rather than "off," as it is displayed on a monochrome monitor. The Icon Editor program creates a white mask, so that when the icon is selected, the image appears white and the mask appears in the foreground color.

Changing all or part of the mask

- 1. Use the Selection Tool to select all or part of the icon.**
- 2. Choose Mask Selection from the Edit menu.**

The Icon Editor examines the part of the icon you selected and makes its best guess at what the mask should look like. After the mask is created, you can edit it to achieve the effect you want. You can edit the mask the same way that you edit icons, and view your changes in the preview boxes at the bottom of the Editing window.

After you edit an icon, a checkmark appears next to the icon's name in the Gallery window. The checkmark disappears when you save the Gallery window.

Closing the current Editing window

1. Choose **Close** from the **File** menu in the Editing window you want to close.

2. **Click:**

- **Yes** to close the Editing window and save the changes you made to the icon
- **No** to close the Editing window without saving the changes you made to the icon
- **Cancel** to cancel the Close command and leave the Editing window open

Saving the changes to the icon and mask

1. Click in the Gallery window where you want to save the icon and mask.

2. Choose **Save** from the **File** menu.

The checkmark next to the icon disappears and the changes to the icon and mask are saved.

Installing new icons

Before Looking Glass can use a new icon to represent directories or files on your system, you must first perform two steps.

To be accessible to Looking Glass, the icon must be in the Main Gallery, `lg_icons.d`. For instructions on putting new icons into the Main Gallery, refer to the "Merging icon galleries" section later in this chapter. If the new icon is going to replace an existing icon, make sure it has the same name as the existing icon so that the existing icon is overwritten by the new one. In this case, no modification of the file typing rulebase is necessary, and Looking Glass uses the new icon correctly.

If the new icon isn't going to replace an existing icon with the same name, you must modify the file typing rulebase. A file typing rule must be created that tells Looking Glass how to identify the type of directory or file the icon is going to represent, and what actions to perform when files of that type are activated. For information about assigning an icon to a file type, refer to Chapter 13, "Defining file types," or see your system administrator.

Merging icon galleries

Looking Glass uses the contents of a single icon gallery, `lg_icons.d`, as its icon source. To maintain the integrity of the icons shared by all Looking Glass users, this Main Gallery should be owned by the super-user and protected from changes by other users. Users should create or modify icons in galleries that they own. When users are ready to put new or changed icons into the Main Gallery, the system administrator can help them gain temporary access to the Main Gallery or to a copy of the Main Gallery.

There are two ways to put new or changed icons into an icon gallery:

- Use the Icon Editor's copy and paste commands
- Use the `icon_merge` utility

For information on the first method, using the copy and paste commands, refer to "Working with Gallery windows" earlier in this chapter.

Using the `icon_merge` utility

The `icon_merge` utility merges one or more icon galleries into a single gallery. The output file contains all uniquely named icons from each of the input icon files, as well as any icons that were already in the output file. If you are not experienced using operating system utilities, ask your system administrator for assistance.

Here is the syntax of the `icon_merge` utility:

```
icon_merge [-v] [-n] inputfile ... [-o outputfile]
```

The `-v` flag tells `icon_merge` to report on its status as it opens and merges each icon file.

The `-n` flag tells `icon_merge` to exit immediately if a duplicate icon name is encountered. If this flag is not specified, `icon_merge` retains the first icon with a given name and discards duplicates without notification.

inputfile specifies the file or files that are to be merged. Any number of files can be merged.

outputfile specifies the file into which the merged output is to be placed. It can be an existing icon gallery. The `-o` flag must precede any output file specification. If *outputfile* is not specified, the output is placed in a file named `icons.out`.

The `icon_merge` utility issues appropriate exit codes. These codes allow you to run the program from a shell script and take action based on the outcome of the merge operation.

The following table lists the exit codes issued by `icon_merge`:

Return code	Meaning
0	All input files were successfully merged into the output file, and the output file was successfully written.
1	The command line used to invoke <code>icon_merge</code> was incorrect.
2	The merge failed because of a duplicate icon (the <code>-n</code> flag was given).
3	The merge failed because an input file could not be read.
4	The output file could not be written. The original version of the output file has been restored.
5	The dialog manager could not be initialized. You may need to set the value of your <code>DISPLAY</code> environment variable.
6	<code>icon_merge</code> failed as the result of an unknown problem.

Changing environment variables

11

In this chapter, you'll learn how to use the Environment Variables command from the Show menu to view, edit, add, and remove environment variables.

What are environment variables?

Environment variables provide a short-hand way to insert data into a command line or directory path and to pass information between programs.

Standard environment variables contain information about your operating environment, such as the pathname of your home directory (HOME) and your search path (PATH). You can't change or delete the name of some standard environment variables, but you can change their contents. The variables whose names you can't change or delete include:

- HOME
- PATH
- TERM

You can also use environment variables with the command-line feature in Looking Glass. For more information about the command-line feature, refer to "Using the Looking Glass command line" in Chapter 8, "Running programs."

To use an environment variable in a Looking Glass text field or in another shell, enter a dollar sign (\$) and the variable name. Looking Glass, or another shell, will substitute the value of the variable at the point where the variable appears in the field.

Looking Glass automatically exports environment variables so that any program run by Looking Glass will inherit the current list of variables.

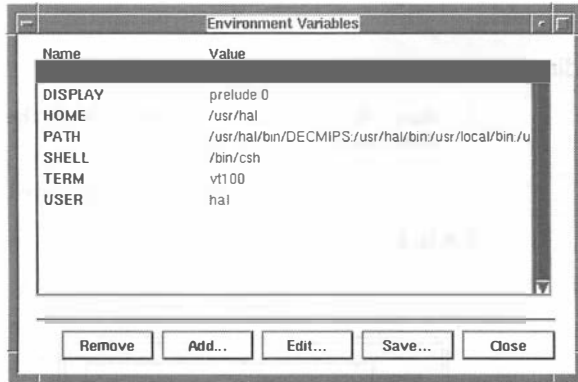
NOTE:

Looking Glass uses the environment variable LG_FEATURE_SET to determine whether certain file typing rules will be used. For more information about LG_FEATURE_SET, refer to Chapter 13, "Defining file types."

Editing environment variables

1. Choose Environment Variables from the Show menu in the Global window.

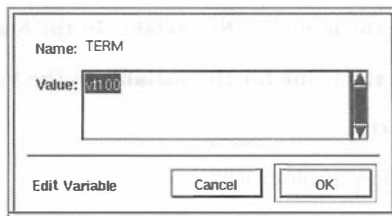
The Environment Variables dialog is displayed:



2. Select the variable you want to edit.

3. Click Edit.

The Edit Variable dialog is displayed:



4. Edit the Name and/or Value fields.

5. Click OK.

The Edit Variable dialog closes.

 **Click:**

- **Add** to add a new environment variable
- **Remove** to delete an environment variable
- **Edit** to edit an environment variable
- **Save**, and then **Yes**, to save the changes you made
- **Close** to leave the dialog

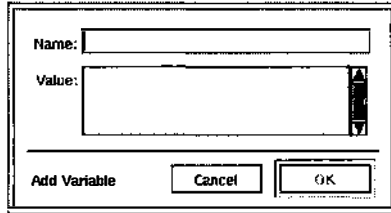
Adding environment variables

1. Choose Environment Variables from the Show menu in the Global window.

The Environment Variables dialog is displayed.

2. Click Add.

The Add Variable dialog is displayed:



3. Enter the name of the variable in the Name field.

4. Enter the value for the variable in the Value field.

5. Click OK.

The Add Variable dialog closes.

 **Click:**

- **Add** to add a new environment variable
- **Remove** to delete an environment variable
- **Edit** to edit an environment variable
- **Save**, and then **Yes**, to save the changes you made
- **Close** to leave the dialog

Removing environment variables

1. Choose Environment Variables from the Show menu in the Global window.

The Environment Variable dialog is displayed.

2. Select the variable you want to remove.

3. Click Remove.

The variable is deleted.

NOTE:

When you remove an environment variable created by Looking Glass and save your changes, it is permanently removed. However, your external shell also defines environment variables that Looking Glass adds to its own list of variables at startup time. When you remove an environment variable created by your external shell using Looking Glass and save your changes, the variable is only removed from Looking Glass's list of variables. It will appear again the next time you start Looking Glass if it is defined by your external shell.

4. Click:

- **Add** to add a new environment variable
- **Remove** to delete an environment variable
- **Edit** to edit an environment variable
- **Save**, and then **Yes**, to save the changes you made
- **Close** to leave the dialog

Changing Looking Glass preferences

This chapter tells you how to set and change your Looking Glass preferences. Preferences are options that control the operation of Looking Glass—use them to specify your personal preferences for the way Looking Glass does certain things.

With the System menu in the Global window, you can:

- Use the Color Preferences command to change the color of all Looking Glass user interface elements
- Use the Removal Preferences command to tell Looking Glass when to ask for confirmation before you delete a directory or file
- Use the Execution Preferences command to specify which program to use for displaying terminal emulator windows, which text and data editors to use, which external shell to use, and how to format and spool a file to be printed
- Use the Creation Preferences command to define a creation mask and define default access permissions for new directories and files
- Use the Cleanup Preferences command to change the grid on which directories and files are aligned when you use the Cleanup command in Directory windows
- Use the Display Preferences command to change the default characteristics of new Directory windows, including their size, display format, and the arrangement of directories and files
- Use the Operational Preferences command to control the size of the copy buffer, the limit for file size, the double-click speed, and the action Looking Glass performs when you double-click a directory

NOTE:

You may need help from your system administrator to set some preferences correctly.

Changing color preferences

If you have a color monitor, you can change the colors of user interface elements with the Color Preferences command from the System menu in the Global window. If you don't have a color monitor, the Color Preferences command is dimmed.

With the Color Preferences command, you can change the color used to display the following elements:

- Background
- Foreground
- Top shadow
- Bottom shadow

Background is the “canvas” that objects are drawn on. For example, the workspace area behind directories and files displayed in Looking Glass.

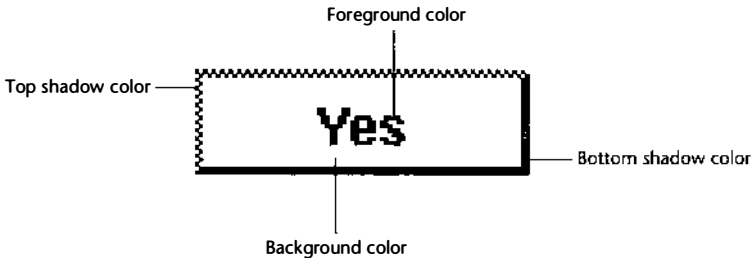
Foreground is what is drawn on the “canvas.” For example, text, icons, buttons, and check boxes.

Top shadow is the shadow that appears on the top and left edges of three-dimensional objects.

Bottom shadow is the shadow that appears on the bottom and right edges of three-dimensional objects.

If you are using the two-dimensional look and feel, the top shadow and bottom shadow elements are not used.

Here is an example of background, foreground, top shadow, and bottom shadow elements:



The following paragraphs give you some guidelines for setting your color preferences.

If you are using the two-dimensional look and feel for Looking Glass, the foreground color should stand out well against the background color.

If you are using the three-dimensional look and feel for Looking Glass, the top shadow color should be the lightest color. It is a good idea to use a color similar to the background. For example, if you set the background to a blue hue, the top shadow should have a blue hue, but should be a much lighter shade. The bottom shadow color should be the darkest color. It should also be similar to the background, but should be a much darker shade. The foreground color should stand out well against the background color.

There are three ways to specify colors in Looking Glass:

- The Name method, where you choose a color from a list
- The Hue, Saturation, Brightness (HSB) method, where you adjust the hue, saturation, and brightness values to specify a color
- The Red, Green, Blue (RGB) method, where you adjust the red, green, and blue values to specify a color

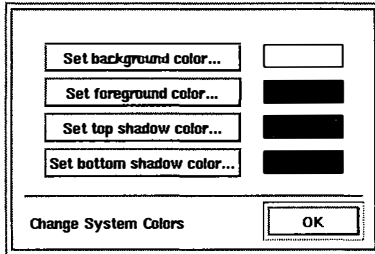
HINT:

A fast way to choose a color is to use the Name method to pick the basic color and then use the RGB or HSB option to adjust the color.

Accessing the Color Preferences dialog

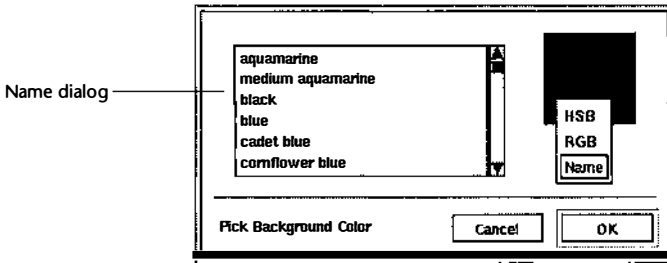
- 1. Choose Color Preferences from the System menu in the Global window.**

The Color Preferences dialog opens. This dialog displays the colors that Looking Glass currently uses for the four user interface elements:



2. Select the button for the user interface element you want to change or adjust.

The Name, HSB, or RGB or dialog is displayed:



The color readout box in the upper right corner of the dialog shows the color currently used for the selected element. When you adjust the color, the top half of this box changes to show the new color; the bottom half displays the original color.

Use one of the three methods to change the color of the selected element.

Using the Name method

1. Choose Name from the option menu (below the color readout box).

A scrolling list of colors appears on the left side of the dialog.

2. Select a color.

The top half of the color readout box changes to show the selected color. You can return to the original color by clicking the bottom half of the color readout box.

3. Click OK.

Using the HSB method

1. Choose HSB from the option menu (below the color readout box).**2. To define the new color, drag the:**

- **Hue** slide arrow to set the base color
- **Saturation** slide arrow to set the amount of the base color displayed
- **Brightness** slide arrow to make the color lighter or darker

The top half of the color readout box displays the changes you make. You can return the slider arrows to their original positions by clicking the bottom half of the color readout box.

3. Click OK.

Using the RGB method

1. Choose RGB from the option menu (below the color readout box).**2. To define the new color, drag the:**

- **Red** slide arrow to set the amount of red in the color
- **Green** slide arrow to set the amount of green in the color
- **Blue** slide arrow to set the amount of blue in the color

The top half of the color readout box displays the changes you make. You can return the slider arrows to their original positions by clicking the bottom half of the color readout box.

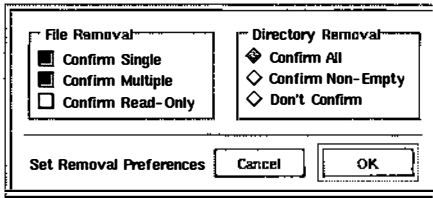
3. Click OK.

Changing removal preferences

Use the Removal Preferences command from the System menu in the Global window to tell Looking Glass when to ask you for confirmation before removing directories and files.

There are two categories of removal options: one for files and one for directories.

When you select the Removal Preferences command from the System menu in the Global window, the Removal Preferences dialog is displayed:



1. Choose Removal Preferences from the System menu in the Global window.

2. Select:

- **Confirm Single** if you want Looking Glass to ask you for confirmation before it removes each file
- **Confirm Multiple** if you want Looking Glass to ask you for confirmation before it removes more than one file
- **Confirm Read-Only** if you want Looking Glass to ask you for confirmation before it removes files with read-only protection
- **Confirm All** if you want Looking Glass to ask you for confirmation before it removes each directory
- **Confirm Non-Empty** if you want Looking Glass to ask you for confirmation before it removes each directory that contains subdirectories or files
- **Don't Confirm** if you never want Looking Glass to ask you for confirmation before it removes a directory

3. Click OK.

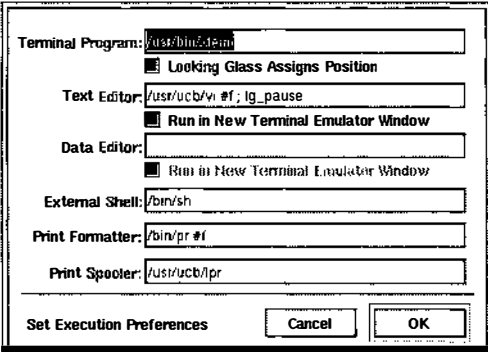
Changing execution preferences

Use the Execution Preferences command from the System menu in the Global window to specify programs (along with any needed arguments) that Looking Glass executes when you run certain programs.

You can change the programs used for:

- A terminal emulator
- Editing a text file
- Editing a non-text (“data”) file
- Functions handled by an external shell
- Formatting and printing text files

When you select the Execution Preferences command from the System menu in the Global window, the Execution Preferences dialog is displayed:



Terminal Program:

Looking Glass Assigns Position

Text Editor:

Run in New Terminal Emulator Window

Data Editor:

Run in New Terminal Emulator Window

External Shell:

Print Formatter:

Print Spooler:

Set Execution Preferences

Specifying a terminal emulator

The Terminal Program field in the Execution Preferences dialog allows you to specify the pathname of the program you want Looking Glass to execute when you select Terminal Emulator from the Run menu, and when you use commands that must be run in a terminal emulator.

You can also have Looking Glass determine the position of terminal emulator windows on the workspace by selecting the Looking Glass Assigns Position check box (below the Terminal Program field). If the check box isn't selected, the window manager determines the position.

To specify a terminal program:

1. Choose Execution Preferences from the System menu in the Global window.

2. Edit the Terminal Program field.

Include any arguments you would use if you were invoking the program from a shell command prompt.

3. Select the Looking Glass Assigns Position check box if you want Looking Glass to determine the position of the terminal emulator window.

If you want to determine the position of the window yourself, make sure the check box is not selected.

4. Click OK.

Specifying text and data editors

The Text Editor and Data Editor fields in the Execution Preferences dialog display the pathnames and arguments for the programs you want Looking Glass to execute when you double-click a text or data file.

If you want to change your text or data editor, make sure you know the syntax used to invoke the program. If you enter just the pathname of the editor, Looking Glass assumes it takes a filename as its only argument.

For example:

If you enter:

```
/usr/bin/emacs
```

in this field, Looking Glass executes the command:

```
/usr/bin/emacs filename
```

when you double-click a text file (*filename* is the name of the file you double-clicked).

Some editors and word processors may require additional command-line arguments to edit a file. They may also need to have the filename in a specific position in the command line. If you want the editor called with command-line arguments, or if you want to run a shell script that runs your editor, you must insert the Looking Glass special symbol for selected files (`#f`) in the appropriate place in the command line.

For example:

If all of your text files are encrypted, you may want to use the editor `vi` with the `-x` argument. (This argument allows you to edit encrypted files.) In this case you would enter:

```
/usr/bin/vi -x #f
```

This causes Looking Glass to execute the `vi` editor with the `-x` argument. When you open a text file, its name is inserted where the `#f` sign appears in the command line.

If the text or data editor you use does not create its own window, it must be run in a new terminal emulator window. If you tell Looking Glass to run your editor in a terminal emulator window, we also recommend that you put the `lg_pause` command after the command that calls the editor (see the example below).

To tell Looking Glass to run your editor in a new terminal emulator window, select the Run In New Terminal Emulator Window check box, which is immediately below the Text Editor or Data Editor field in the Execution Preferences dialog.

If you want to read any exit messages from your editor or other program before its window disappears, put the `lg_pause` command after the command that calls the editor. The `lg_pause` command provided with Looking Glass prompts you to press the Return key before exiting the terminal emulator window. When you use `lg_pause`, you must specify the position of the filename in the command line using the Looking Glass special symbol for selected files (`#f`).

For example:

To use the editor `vi` as your text editor, select the Run in New Terminal Emulator Window check box and enter the following in the Text Editor field:

```
/usr/bin/vi #f ; lg_pause
```

Note the use of the semicolon between the command that runs the editor and `lg_pause`; this causes `lg_pause` to run after the editor has exited.

To run a shell script that runs your editor, enter the full pathname of your shell, the full pathname of the shell script it will execute, and #f.

For example:

```
/bin/sh /usr/hal/edscript #f
```

To specify a text or data editor:

- 1. Choose Execution Preferences from the System menu in the Global window.**

- 2. Edit either the Text Editor or Data Editor field.**

Include any necessary programs and arguments.

If the editor you specify does not create its own window, select the Run In New Terminal Emulator Window check box (below the Text Editor or Data Editor fields).

- 3. Click OK.**

Specifying an external shell

The External Shell field in the Execution Preferences dialog displays the pathname of the shell Looking Glass uses for any operation that requires an external shell, for many double-click actions, and for the Terminal Emulator command from the Run menu in the Global window.

If you want to change the shell, enter the full pathname of the shell in the External Shell field. We recommend that you use the Bourne Shell (sh), the C Shell (csh), or the Korn Shell (ksh).

- 1. Choose Execution Preferences from the System menu in the Global window.**

- 2. Edit the External Shell field.**

- 3. Click OK.**

Specifying commands for printing

When Looking Glass prints a file, it uses two commands: one to format the file and one to spool it to the printer. These two commands are displayed in the Print Formatter and Print Spooler fields in the Execution Preferences dialog.

The formatter command processes the file for printing—it may paginate the document or put in headers. The spooler command receives the data produced by the formatter command and sends it to the printer.

When you select the Print command from the File menu, Looking Glass checks to see if a special formatter command is defined for that type of file. If there is one, Looking Glass uses it. If there is no special command, Looking Glass uses the command specified by your execution preferences. For more information about file types, refer to Chapter 13, “Defining file types.”

The output of the formatter command is then sent to the spooler command specified by your execution preferences.

To determine the correct values for the Print Formatter and Print Spooler fields, take the full command string you would normally use to print files and split it at the pipe symbol. Put the first half of the command in the Print Formatter field. Looking Glass assumes that the filenames of the files to be printed are inserted at the end of the print command. If the filenames belong somewhere other than the end of the command, you need to insert the special symbol for selected files (`#f`) where the filename should be placed. Put the second half of the command in the Print Spooler field.

Looking Glass supplies the pipe symbol at execution time.

For example:

If you would normally print a file by entering on the command line:

```
pr filename | lp
```

you enter:

```
pr or pr #f in the Print Formatter Field and lp in the Print Spooler field.
```

To specify print commands:

- 1. Choose Execution Preferences from the System menu in the Global window.**

2. Edit the Print Formatter and Print Spooler fields.

3. Click OK.

Changing creation preferences

Use the Creation Preferences command from the System menu in the Global window to define a creation mask and default access permissions (protection modes) for new files and directories you create in Looking Glass.

A *creation mask* blocks out certain permissions for new files and directories. Creation masks are important for maintaining security. If you have used Looking Glass to set access permissions, you know that you select check boxes to allow permissions. The creation mask works in the opposite way—you select check boxes to exclude permissions.

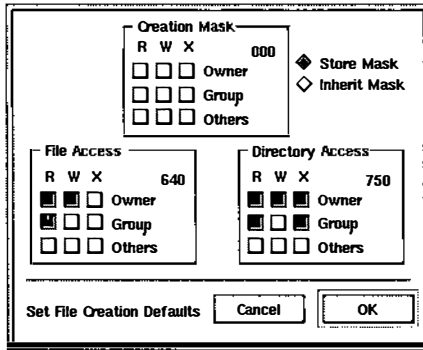
For example:

If you select the W (write) check box for Group when defining a creation mask, other members of your group will not be given write permission for new files you create.

When you define a creation mask, you also need to tell Looking Glass which creation mask to use when you start up Looking Glass: the mask already defined for that environment or a new mask that you want to define. You can use the Store Mask button or Inherit Mask button to do this.

Default access permissions are permissions you set that are automatically assigned to new files and directories you create. Therefore, any permissions that you block using the creation mask cannot become default access permissions.

When you select the Creation Preferences command from the System menu in the Global window, the Creation Preferences dialog is displayed:



Defining creation masks for new directories and files

1. Choose Creation Preferences from the System menu in the Global window.

2. To tell Looking Glass which creation mask you want to use, select:

- **Store Mask** to tell Looking Glass that you want to specify, store, and use your own creation mask
or
- **Inherit Mask** to tell Looking Glass to use the creation mask already defined for your environment the next time you log in

3. In the Creation Mask section, select the check boxes for the permissions you want to block out for new files and directories (see the table below).

As you select check boxes in the Creation Mask section, notice that the corresponding check boxes are removed from the Files and Directories sections.

For example:

If you select the X (execute) check box for Owner in the Creation mask section, the check box in the X column for Owner is removed from the Files and Directories sections.

The number displayed in the upper right corner of the creation mask area shows the selected creation mask in octal (base 8) notation.

4. Click OK.

The following table describes the permissions you can block out for new directories and files:

If you select this permission:	For directories:	For files:
R (read)	Their contents can't be viewed	Their contents can't be viewed
W (write)	Subdirectories and files can't be put into them Subdirectories and files can't be removed from them	Their contents can't be changed
X (execute)	They can't be opened	They can't be run as commands

Defining default access permissions for files and directories

- 1. Choose Creation Preferences from the System menu in the Global window.**
- 2. In the Files and Directories sections, select the check boxes for the permissions you want to assign for new files and directories (see the table below).**

Notice that the octal code changes as you select and unselect permissions.

- 3. Click OK.**

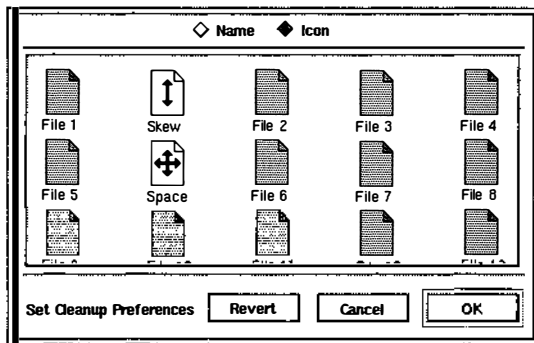
The following table describes the permissions you can assign to new directories and files:

If you select this permission:	For directories:	For files:
R (read)	Their contents can be viewed	Their contents can be viewed
W (write)	Subdirectories and files can be put into them Subdirectories and files can be removed from them	Their contents can be changed
X (execute)	They can be opened	They can be run as commands

Changing cleanup preferences

The Cleanup Preferences command lets you control the grid that directories and icons line up on when you use the Clean Up command in a Directory window.

When you select the Cleanup Preferences command from the System menu, the Cleanup Preferences dialog is displayed:



- 1. Choose Cleanup Preferences from the System menu in the Global window.**

2. Select:

- **Name** to change how directories and files will be displayed in Name view when cleaned up
- or*
- **Icon** to change how directories and files will be displayed in Icon view when cleaned up

The preview area contains small icons for Name view and large icons for Icon view. Notice that the top two icons in the second column are named Skew and Space. When you click one of these objects, your cursor turns into an arrow that shows you which direction you can move the object.

3. Drag:

- The **Skew** icon to move the entire column of objects up or down so that every other column is staggered
- The **Space** icon to move the objects closer together or farther apart in the grid

4. Click:

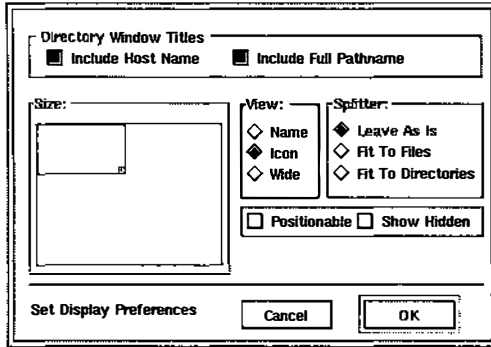
- **Revert** to change the grid in the preview area back to its original layout without closing the dialog
- or*
- **Cancel** to close the dialog without saving the changes
- or*
- **OK** to save the changes and close the dialog

Changing display preferences

You can change the following default display options:

- How Directory window titles are displayed
- The size of new Directory windows
- Whether hidden files are displayed in Directory windows
- The position of the splitter in new Directory windows
- The display format for new Directory windows
- How directories and files are arranged in Directory windows when you use the Clean Up command

When you select the Display Preferences command from the System menu in the Global window, the Display Preferences dialog is displayed:



Specifying how Directory window titles are displayed

Use the Directory Window Titles section of the Display Preferences dialog to specify how titles are displayed in Directory windows.

1. Choose Display Preferences from the System menu in the Global window.

2. In the Directory Window Defaults section of the dialog, select:

- **Include Host Name** to display the host name of the system you are logged into in the title bar of each Directory window
- **Include Full Pathname** to display the full pathname of the directory in the title bar of each Directory window

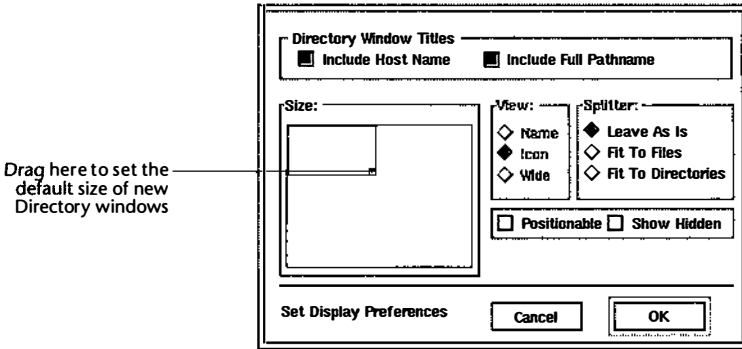
3. Click OK.

Specifying the size of new Directory windows

Use the Size section of the Display Preferences dialog to specify the default size of new Directory windows relative to your display. When a Directory window opens, it will appear at the size you specified.

1. Choose Display Preferences from the System menu in the Global window.

The Display Preferences dialog is displayed:



The rectangle on the left side of the dialog represents the size of a Directory window. The larger, outer rectangle represents the size of your screen.

2. In the Directory Window Defaults section, drag the small shaded box in the lower right corner of the box that represents a Directory window to set the default size of new Directory windows.

3. Click OK.

Specifying the display format for directories and files

Directories and files can be displayed in Directory windows by their name or icon or in a wide format. For more information about these views, refer to "Changing display formats in Directory windows" in Chapter 4, "Working with Directory windows."

Use the View section of the Display Preferences dialog to specify the default display format.

1. Choose Display Preferences from the System menu in the Global window.

2. Select:

- **Name** if you want directories and files displayed in alphabetical order by name
or
- **Icon** if you want to view directories and files by their icon
or
- **Wide** if you want to view directories and files in a wide, detailed format

3. Click OK.**Specifying whether directories and files are positionable**

When a Directory window is in the non-positionable format, it contains a splitter. The splitter is a horizontal bar that divides the window into two sections. The top section contains the subdirectories and the bottom section contains the files.

Use the Splitter section of the Display Preferences dialog to change the default so that Directory windows open without the splitter and the directories and files can be positioned anywhere in their windows.

1. Choose Display Preferences from the System menu in the Global window.**2. Select Positionable.****3. Click OK.****Specifying whether hidden files are displayed in Directory windows**

Hidden files are directories and files whose names begin with “.” (with the exception of the current and parent directories). These directories and files are not shown by default because the “.” prefix is often used in naming system configuration files or data files that users rarely need to view.

You can use the Display Preferences dialog to change the default so that hidden files are displayed automatically when a Directory window opens.

- 1. Choose Display Preferences from the System menu in the Global window.**
- 2. Select Show Hidden Files.**
- 3. Click OK.**

Specifying the default position of the splitter in Directory windows

Use the Splitter section of the Display Preferences dialog to specify the default position of the splitter in Directory windows.

- 1. Choose Display Preferences from the System menu in the Global window.**

If you want the splitter to automatically appear in your Directory windows, select Positionable in the Directory Window Defaults section of the dialog.

- 2. In the Directory Window Defaults section of the dialog, select:**

- **Leave As-Is** to position the splitter the same as it was in the Directory window that you opened the directory from.
or
- **Fit Splitter To Files** to position the splitter so that as many of your files are displayed as possible (this may make the file section of the window larger than the directory section)
or
- **Fit Splitter To Directories** to position the splitter so that as many of your directories are displayed as possible (this may make the directory section of the window larger than the file section)

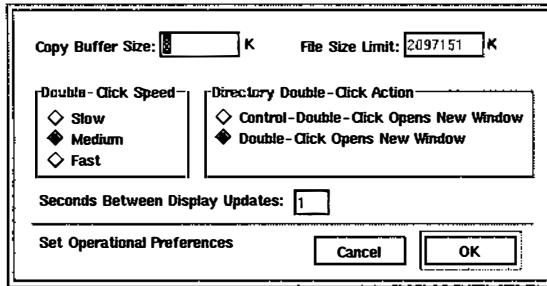
- 3. Click OK.**

Changing operational preferences

The Operational Preferences dialog allows you to control the following:

- The size of the Copy buffer
- The limit for file size
- The double-click speed
- The action Looking Glass performs when you double-click a directory

When you select the Operational Preferences command from the System menu, the Operational Preferences dialog is displayed:



Specifying the size of the Copy buffer

Use the Copy Buffer Size field in the Operational Preferences dialog to specify the size of the Copy buffer Looking Glass uses when it copies files in 1K (1024 byte) increments.

Looking Glass uses this memory to hold file contents between read and write operations to the disk. The larger the buffer size, the more efficiently Looking Glass can copy large files. Buffer size makes little difference when you copy small files. If you regularly move very large files, you should set this to a value between 4K and 16K.

1. **Choose Operational Preferences from the System menu in the Global window.**
2. **Enter a number for the size of the Copy buffer in the Copy Buffer Size field.**
3. **Click OK.**

Specifying the limit for file size

Use the File Size Limit field to change the file size limit in Looking Glass. The size must be in 1K (1024 bytes) increments. Users can reduce the file size limit, but only the super user can increase the file size limit.

1. **Choose Operational Preferences from the System menu in the Global window.**

2. Enter a number in the File Size Limit field.**3. Click OK.****Specifying a double-click speed**

Looking Glass lets you choose how fast or slow you double-click a mouse button. Looking Glass matches the time it takes you to double-click an object.

1. Choose Operational Preferences from the System menu in the Global window.**2. After the Double-Click Speed prompt, select:**

- **Slow** if you want to take a long amount of time between clicks
or
- **Medium** if you want to take a medium (or average) amount of time between clicks
or
- **Fast** if you want to take a very short amount of time between clicks

3. Click OK.**Specifying a directory double-click action**

By default, Looking Glass opens a new Directory window when you double-click a directory. In other words, a Directory window opens for each directory you double-click.

However, if you hold down the Control key and double-click a directory, Looking Glass displays the contents of that directory in the current Directory window (no new window is opened). In other words, the contents of the directory you double-click replaces the contents of the directory currently displayed in that Directory window.

With the Operational Preferences dialog, you can indicate which double-click action you prefer as your default. You can specify whether you want to double-click or Control+double-click to open a new Directory window for each new directory.

1. Choose Operational Preferences from the System menu in the Global window.

2. After the Directory Double-Click Action prompt, select:

- Control+Double-Click Opens New Window to tell Looking Glass to use the Control+double-click mouse action to open a new Directory window
- or*
- Double-Click Opens New Window to tell Looking Glass to use the double-click mouse action to open a new Directory window

 **Click OK.**

Specifying the number of seconds between display updates

Use the Seconds Between Display Updates field in the Display Preferences dialog to specify how frequently you want Looking Glass to update Directory windows to reflect the current status of the directory.

For example:

If you enter 1 in this field, Looking Glass examines the displayed directories every second to determine if changes have been made to the displayed directories and updates the appropriate windows.

1. Choose Display Preferences from the System menu in the Global window.

2. Enter the number of seconds in the Seconds Between Display Updates field of the dialog.

 **Click OK.**



Defining file types

In this chapter you'll learn:

- How file typing works
- The general capabilities of the File Typing Language
- How to define, compile, and install file typing rules

This chapter also contains a File Typing Language reference and an annotated file typing example.

How file typing works

Looking Glass's file typing mechanism consists of three basic components:

- A File Typing Language (FTL), which is used to define the rules by which file types are identified
- A File Typing Compiler (FTC), which compiles file typing rules written using the FTL
- A File System Server (FSS), which manages file system information and allows high-speed access to directories of any size

File type definitions are written in text files using the File Typing Language. They include statements that describe files, such as a particular format for a filename, a string of characters that must be found in a particular location in the file, or a location in the file system in which the directory or file must be found. In addition to the rules used to determine file types, file type definitions specify the icon to display for each directory or file and any actions associated with that type of file. These definitions are compiled by the File Typing Compiler to create a binary file named `LG_rulebase`. `LG_rulebase` is stored in the Looking Glass data directory (specified at installation) and is read into memory at startup.

As an optional step in the installation of Looking Glass, each directory and file is examined to determine its type. A small database file named `.lgdb` is placed in each directory examined with file typing information for each directory and file in the directory. When Looking Glass displays the contents of a directory, the File System Server looks for a `.lgdb` file. If the file isn't found, the directory is typed. If the user has write permission for the directory, a `.lgdb` file is created for use the next time a Looking Glass user opens the directory. If a `.lgdb` file is present, the File System Server compares the contents of the `.lgdb` file to the contents of the directory to determine whether any directories or files were added to the directory since the last time the `.lgdb` file was modified. If so, any newly added items are typed according to the current rulebase. If the current user has write permission for the `.lgdb` file (the normal situation), it is updated.

Overview of the File Typing Language

The following syntax diagram shows the general format of a file type definition:

```
DEFINE [TYPE | DIRECTORY]      <type name>
  ICON                          <icon name>
  FILE_DESCRIPTION              <text>
  <rule statement>
  <command section>
END
```

Each file type definition must include at least the following components:

- A DEFINE TYPE or DEFINE DIRECTORY statement
- An ICON statement
- A rule statement
- An END statement

The DEFINE TYPE or DEFINE DIRECTORY statement signals the beginning of a file type definition.

The ICON statement assigns a specific icon to the file type. The icon you assign represents the file type when viewed by icon in Looking Glass.

The rule statement describes how to recognize the file type based on a file's name and content.

Each definition may also have a command section. The command section provides a list of shell commands that are available to the user as double-click actions, as well as any special information about printing files of this type. If the command section is left out of a definition for a file, Looking Glass users who attempt to print or open a file of this file type are warned that the operation can't be completed.

The END statement signals the end of a file type definition.

While the components of a file type definition are very strictly defined, the format of the file typing source code is not. For example, from the compiler's point of view, the following two definitions are identical even though they are formatted differently:

Example 1:

```
DEFINE TYPE          EmptyFile
    ICON             EMPTY_FILE_ICON
    EMPTY
    COMMAND:TEXT_EDITOR
END
```

Example 2:

```
DEFINE
    TYPE EmptyFile
EMPTY
COMMAND:
    TEXT_EDITOR
ICON
    EMPTY_FILE_ICON
END
```

Building file type definitions

This section describes the process of building file type definitions for a file typing rulebase. The order in which the the various steps are performed is not critical; however, if you have never created or modified file type definitions before, we suggest that you perform the steps in the order presented here.

All of the keywords mentioned in this section are described in more detail in the "File Typing Language reference" section later in this chapter.

Selecting a source file for new file type definitions

Before creating a new file type definition, you need to select a source file to store the definition in. Five empty source files are provided with Looking Glass. These source files are normally stored in the directory `/usr/lib/lg/lg_ftc`. Each of the source files is intended for a specific category of file type definitions.

The following table lists the categories of definitions that you should put in each source file:

Store the file type definitions of:	In this source file:
Specific binary executable files	<code>prog.loc.ftc</code>
Specific types of data files	<code>data.loc.ftc</code>
Device files	<code>dev.loc.ftc</code>
General file types, such as text or empty files	<code>gen.loc.ftc</code>
Low-level file type classes such as shell scripts and devices	<code>class.loc.ftc</code>

It is important to put file type definitions in the appropriate source files to ensure accurate file typing. The source files are compiled in a specific order so that the more specific definitions (those in `prog.loc.ftc`) are put at the head of Looking Glass's rulebase, and the most general (such as those in `class.loc.ftc`) are put at the end.

When you have selected the appropriate file for the file type definition you are creating, you are ready to edit the file and begin creating a file type definition.

Assigning a name to a file type definition

Each file type definition must begin with a `DEFINE TYPE` or `DEFINE DIRECTORY` keyword that assigns a unique symbolic name to the file type definition.

For example:
`DEFINE TYPE SpreadSheet`

This statement signals the beginning of a definition for a file type called `SpreadSheet`.

Assigning an icon to a file type definition

Each file type definition must have an icon assigned to it using the `ICON` keyword. The assigned icon represents the file type when viewed by icon in Looking Glass. Icon names are created in the Icon Editor. For more information about the Icon Editor, refer to Chapter 10, “Working with the Icon Editor.”

The following statement identifies the icon `SPREADSHEET_DOC` to be displayed for files that match this file type definition:



```
ICON SPREADSHEET_DOC
```

If you assign an icon that doesn't exist, Looking Glass displays the generic document icon shown on the left.

Building file matching rules

The rule statement of a file type definition tells Looking Glass how to identify the file type. It is made up of some combination of `NAME`, `DIRECTORY`, and `CONTENT` statements, and intrinsic keywords. Intrinsic keywords identify file types that are recognized by Looking Glass without information specified in `NAME`, `DIRECTORY`, and `CONTENT` statements.

These are the intrinsic keywords that Looking Glass recognizes:

- `EMPTY`
- `TEXT`
- `BINARY_EXECUTABLE`
- `BLOCK_DEVICE`
- `CHARACTER_DEVICE`
- `FIFO`
- `SOCKET`
- `SYMBOLIC_LINK`

The following examples demonstrate the use of these components in constructing rules. For a detailed description of any statement, refer to the “File Typing Language reference” section later in this chapter.

Any rule component can be used by itself. For example, the following file type definition matches any text file:

```
DEFINE TYPE TextType
  ICON ASCII_TEXT
  TEXT
END
```

Rule components can also be combined with the AND and OR operators, as in this example of a file type definition for C programming language source files:

```
DEFINE TYPE      CSourceType
  ICON          C_SOURCE_ICON
  TEXT AND NAME "*" .c"
END
```

The AND in this definition's rule means that a matching file must satisfy both conditions: it must hold text, AND the last two characters of its name must be ".c". (If the AND were replaced with OR, the definition would match files that satisfied either condition; that is, all files that contain text or end in ".c".)

The order in which file type definitions are presented is very important. In general, definitions should be organized so that the definitions with the more specific rules are put at the top of the source file, and the definitions with most general rules are put at the end.

Remember that a file is compared to the rules of a definition until the first match is found. If the two preceding examples were defined in the order presented above (TextType first, CSourceType second), all C source files would mistakenly be classified as TextType files because the TextType definition would be matched first. If the order of the definitions were reversed, the rules would work as intended. Text files that failed to match the more stringent rules in CSourceType would "fall through" and match the TextType definition. Type definitions as general as the TextType example are useful, but they must be placed near the end of the rulebase so that they don't prevent files from matching more specific definitions.

The remaining major rule components are the CONTENT and DIRECTORY statements. Consider the following example:

```
DEFINE TYPE ManDocType
  ICON      UNIX_MAN_DOC
  FILE_DESCRIPTION
    "Unformatted manual page"
  TEXT AND DIRECTORY "*" /man*" AND CONTENT 0 TO
  2000 STRING "\n.TH " OR
  TEXT AND DIRECTORY "*" /man*" AND CONTENT 0 TO
  2000 STRING "\n.so "
END
```

This rule specifies that any files located in a directory whose name starts with "man" and that contain lines starting with ".TH " or ".so" in their first 2,000 characters are unformatted manual pages.

Organizing rules for maximum efficiency

Improperly organized rules can seriously degrade Looking Glass's performance. Keep these points in mind when deciding on the order of rules in the rule section of a file type definition:

- Intrinsic components are processed faster than NAME and DIRECTORY statements
- NAME and DIRECTORY statements are processed much faster than CONTENT statements
- Rule components are evaluated in the order they are presented in the file type definitions

Wherever a series of rule components are to be joined by OR or AND, try to put the fastest components first.

For example:

```
DIRECTORY "**/man*" AND CONTENT 0 TO 2000 STRING
"\n.so "
```

is faster than:

```
CONTENT 0 TO 2000 STRING "\n.so " AND DIRECTORY
"**/man*"
```

because Looking Glass only needs to examine files in directories whose names match the *"**/man*"* expression.

Building the command section

The command section of a file type definition defines the actions that associated with a file type and, in some cases, how to print it. Since directories cannot be assigned actions, this section is left out of type definitions for directories.

Actions are specified with the COMMAND statement.

Here is our CSource example extended to include several actions:

```
DEFINE TYPE      CSourceType
  ICON          C_SOURCE_ICON
  TEXT AND NAME *.c
  COMMAND:TEXT_EDITOR
```

```

COMMAND "echo Lines, words, and characters of #f
; wc #f"
COMMAND_DESCRIPTION
"Count file's lines, words, and characters"
COMMAND "make `basename #f .c`.o"
COMMAND_DESCRIPTION
"Generate object file with Make"
END

```

Each `COMMAND` statement specifies a different command that a user can invoke for a matching file. The `#f` symbol used in several of the commands is replaced at runtime with the name of the file that matched this file type definition.

When a user double-clicks the icon for this file, the first command in the definition is invoked. In our example, the first command invokes the user's default text editor, specified as part of the user's Looking Glass execution preferences.

If the user `Control+double-clicks` the icon for this file, a dialog is displayed listing all of the commands that can be used with a file. In the example above, the following three commands would be displayed:

- The command that invokes the text editor
- A command that counts the file's lines, words, and characters
- A command that generates an object file

When the user chooses a command from this list, the command is invoked (it is passed to the user's external shell).

The command section also contains any special instructions for printing the file type. Printing in Looking Glass is done in a two-step process using external programs: first the file is formatted, then the file is sent to a spooler for printing. The programs used by the Looking Glass Print command are specified in the user's execution preferences.

To specify that a file type is printable and should be printed by this "default" method, include the `ATTRIBUTE : PRINTABLE` statement in the file type definition. If you don't include this statement, Looking Glass will not print this file type. For more information about printing, refer to "Printing files" in Chapter 5, "Managing directories and files."

Some types of files require special treatment before printing. To specify a custom print formatting command for a file type, use the `COMMAND : PRINT` statement. In the following example, the `COMMAND : PRINT` statement is used to specify custom formatting for files that contain the operating system manual:

```

DEFINE TYPE    ManDocType
  ICON        UNIX_MAN_DOC
  FILE_DESCRIPTION
    "Unformatted manual page"
  TEXT AND DIRECTORY "*" /man*" AND CONTENT 0 TO
    2000 STRING "\n.TH " OR
  TEXT AND DIRECTORY "*" /man*" AND CONTENT 0 TO
    2000 STRING "\n.so "
  COMMAND : TEXT_EDITOR
  COMMAND : PRINT
    "nroff -man #f "
END

```

Manual pages are stored in the `troff` formatting language. The `COMMAND : PRINT` statement tells Looking Glass to replace the user's default formatting command with the `nroff -man #f` command for files of this type. The output of the formatting command is still sent to the print spooler specified in the user's execution preferences.

Because the `ATTRIBUTE : PRINTABLE` statement specifies printing in accordance with the user's print formatter preference and the `COMMAND : PRINT` statement specifies special formatting for the file type, these two statements cannot be used in the same file type definition.

Specifying the rule's `FEATURE_SET`

Looking Glass has the ability to ignore or use file type definitions based on the value of the environment variable `LG_FEATURE_SET`. Looking Glass reads the value of `LG_FEATURE_SET` at startup time to determine if certain file typing rules should be used. This allows you to create file type definitions that can be turned on or off on a per-user basis. You should use this capability to test new file type definitions in a restricted environment before you make them generally available.

Including the following statement in a file type definition causes Looking Glass to ignore it unless the user's `LG_FEATURE_SET` environment variable is set to "TEST":

```

FEATURE_SET TEST

```

Before testing the rule, set your own `LG_FEATURE_SET` environment variable to “TEST,” save your environment variables, and restart Looking Glass.

After you have tested the rule, return your `LG_FEATURE_SET` environment variable to its usual value (or delete it) and restart Looking Glass. To make the rule available to other users, remove or change the `FEATURE_SET` statement in the FTL source file and then recompile the rulebase. (Refer to the description of the `FEATURE_SET` keyword in the “File Typing Keyword reference” section later in this chapter.)

Ending a file type definition

End a file type definition with the `END` keyword.

Generating the Looking Glass rulebase

The `FTC` directory that stores source files also contains a file named `Makefile`, which is used by the `make` programmer’s facility when it generates a new rulebase.

To create a new `LG_rulebase` file:

- 1. Make sure you are in the `FTC` directory (normally `/usr/lib/lg/lg_ftc`).**
- 2. Type `make all` at the command line.**

The `make` program generates a series of commands to create a new `LG_rulebase` file. When the `make` program has finished, the rulebase is ready for installation.

Installing the Looking Glass rulebase

You are now ready to install a new Looking Glass rulebase containing any additions or changes you have made to the file typing source files.

The `FTC` directory contains two files named `icons.sym` and `records.sym`. These files are very important and should never be removed.

The `icons.sym` file is maintained by the FTC; it stores the information that tells Looking Glass what icon to display for a file. A copy of `icons.sym` must be installed with the `LG_rulebase` file.

The `records.sym` file stores the names of the various file type definitions (as specified in the `DEFINE` statement of each file type definition).

The `icons.sym` and `records.sym` files are maintained separately from the `LG_rulebase` files to accommodate networks with different types of computers that may share a common file system. To accommodate different operating environments, some machines may need their own `LG_rulebase` files based on a different set of file typing source files. To ensure that typing information stored in a directory's `.lgdb` database file by one machine can be used by another, the rulebase for each machine must be compiled in the presence of the same `icons.sym` and `records.sym` files.

To install `icons.sym` and `LG_rulebase`:

- 1. Make sure you are in the FTC directory (normally `/usr/lib/lg/lg_ftc`).**

- 2. Type `make install` at the command line.**

This invokes the `make` utility to copy `LG_rulebase` and `icons.sym` to Looking Glass's data directory.

Restarting Looking Glass

If you install a new set of file typing rules while Looking Glass is running, you must quit and restart Looking Glass so that the new `LG_rulebase` file is read. Refer to Chapter 1, "Getting started with Looking Glass" for instructions on quitting and starting Looking Glass.

As a final consideration, you should note that it may be necessary to use the Looking Glass `Retype Directory` command to receive accurate file typing of directories that contain files or directories affected by changes to the rulebase. For more information on the `Retype Directory` command, refer to "Retyping a Directory" in Chapter 4, "Working with Directory windows."

File Typing Language reference

This section provides detailed descriptions of all the components of the FTL. The following subjects are included:

- File Typing Language statements
- Typing rule statements
- Parsing and syntax guidelines
- File Typing Language syntax summary
- File Typing Compiler command-line arguments

File Typing Language statements

This section contains descriptions of the following keywords:

- APPEND_COMMANDS
- APPEND_RULES
- ATTRIBUTE : HIDDEN
- ATTRIBUTE : PRINTABLE
- COMMAND
- COMMAND : PRINT
- COMMAND : TEXT EDITOR and COMMAND : DATA EDITOR
- DEFINE DIRECTORY
- DEFINE TYPE
- END
- FEATURE_SET
- FILE_DESCRIPTION
- ICON
- INHERIT_COMMANDS
- REDEFINE DIRECTORY
- REDEFINE TYPE

Keywords are described in alphabetical order for easy reference. For each keyword, we provide a description of its purpose, a syntax diagram (if applicable), and additional usage information.

APPEND_COMMANDS

APPEND_COMMANDS {**HEAD** | **TAIL**} *Name Commands* **END**

Use the APPEND_COMMANDS statement to add new commands to an existing file type definition.

Name identifies the type definition to which the commands that are defined will be attached.

Commands is one or more new commands that will be added to the list of commands for the file type.

Either the HEAD or TAIL keyword must be used. Use HEAD to add the defined commands to the beginning of the type definition's command list. If you use HEAD, the first command defined after the APPEND_COMMANDS statement will become the default double-click action for the file type. Use TAIL to add the defined commands to the end of the type definition's command list.

The APPEND_COMMANDS statement is most often used for installing application programs that require typing modifications and installing updates to Looking Glass. It allows the compiler to modify an existing rulebase without modifying and recompiling source code. The compiler will issue an error message and exit if the type definition referenced by *Name* hasn't been defined.

APPEND_RULES

APPEND_RULES *Name Rules* **END**

Use the APPEND_RULES statement to append new rule components to an existing file type definition.

Name identifies the type definition to which the rules that are defined will be attached.

Rules is one or more new rules that will be effectively joined to the original with the OR keyword. For descriptions of the available statements, refer to "Typing rule statements," later in this chapter.

The APPEND_RULES statement is most often used for installing application programs that require typing modifications and installation of updates to Looking Glass. It allows the compiler to modify an existing rulebase without modifying and recompiling source code. The compiler will issue an error message and exit if the type definition referenced by *Name* hasn't been defined.

ATTRIBUTE : HIDDEN

Use the ATTRIBUTE : HIDDEN statement to tell Looking Glass that the file or directory type being defined is hidden. Users won't see files or directories of this type in Looking Glass Directory windows unless they explicitly choose to view hidden files.

ATTRIBUTE : PRINTABLE

Use the `ATTRIBUTE : PRINTABLE` statement to tell Looking Glass that the file type being defined can be printed with the default print formatting command (as defined in the user's execution preferences). This statement can't be used with any file type definition that uses the `COMMAND : PRINT` statement.

If the `ATTRIBUTE : PRINTABLE` statement is not specified for a file type definition, and if no print command is specified, Looking Glass won't print files that match this type.

COMMAND

```
COMMAND [ATTRIBUTE : Attribute] "CommandString"
[COMMAND_DESCRIPTION "CommandDescription"]
```

Use the `COMMAND` statement to define the commands that will be associated with a file type.

Any number of `COMMAND` statements can be included in a file type definition. The first command specified is the default double-click action that is assigned to the file. Any other commands you include in the file type definition can be viewed and selected in a dialog that is displayed when the user `Control+double-clicks` a file.

CommandString is the text of a shell command, enclosed in single or double quotes, that is executed when the user double-clicks on the file. The command string can provide a full pathname to an executable program, but this is not a requirement. (Looking Glass follows the user's search path—as specified in the `PATH` environment variable—to locate the program if a full pathname is not given.) Environment variables are allowed in the command string. Shell scripts can also be used, but should be preceded by the shell executable to make sure the correct shell executes the script. (If the shell is not specified explicitly, Looking Glass uses the shell specified in the user's execution preferences.)

For example:

```
COMMAND "/bin/sh $HOME/bin/myshellscrip #f"
```

The filename the user double-clicked is placed wherever the `#f` special symbol appears. To make the file run as a result of a double-click (for example, to run the Bourne Shell as a result of double-clicking on `/bin/sh`), the first argument in the `COMMAND` statement should be `./#f`. The `/"` is necessary to ensure proper execution if the file is in a directory that is not included in the user's search path. The special Looking Glass symbols `#u`, `#g`, and `#c` are also available,

for the user's name, the group name, and the current directory, respectively.

The optional `COMMAND_DESCRIPTION` statement describes an entry in the list of commands generated by a Control+double-click. It's a good idea to keep command descriptions concise.

CommandDescription is a description of the command, enclosed in double quotes ("), that appears when the user holds down the Control key and double-clicks a file.

Attribute is a statement that gives Looking Glass more information about how the command should be run. With each command statement, you can include one (and only one) of the following attribute statements:

This attribute:	Does this:
NATIVE	Tells Looking Glass that the command to be executed will run as a native window system application, and does not need a terminal emulator window
TTY	Tells Looking Glass that the command needs a scrolling tty window, and does not need a terminal emulator window (Many operating system utilities that print status information, such as <code>ps</code> and <code>who</code> , fit into this category.)
TERMINAL_WINDOW	Tells Looking Glass that the command needs a full-featured terminal emulator window (one that supports features such as cursor addressing) Full-screen editors like <code>vi</code> need this type of window. This is the default.
SINGLE_ARGUMENT	Tells Looking Glass that this particular command can only take one file at a time as an argument This attribute is used when the Open command from the Looking Glass File menu is selected to open several files of the same type. If <code>SINGLE_ARGUMENT</code> is specified, Looking Glass will execute the command for that type selected. By default, Looking Glass will open all files of the same type with a single command.

COMMAND : PRINT

```
COMMAND : PRINT [ATTRIBUTE : SINGLE_ARGUMENT]
"CommandText" [COMMAND_DESCRIPTION "Description"]
```

Use the **COMMAND : PRINT** statement to specify a special print formatter for files that match the file type. The special print formatter replaces the user's preferred print formatter when a file that matches the file type is printed. If no print command is specified, and if no **ATTRIBUTE : PRINTABLE** statement is specified for the file type definition, Looking Glass won't print files that match this type.

CommandText is the text of the print formatting command that is used when the file type is printed.

Description is the description that will be associated with the print command in the Select A Command dialog (displayed when user Control+double-clicks a file).

COMMAND : TEXT_EDITOR
 and
COMMAND : DATA_EDITOR

```
COMMAND : { TEXT_EDITOR | DATA_EDITOR }
```

The **COMMAND : TEXT_EDITOR** and **COMMAND : DATA_EDITOR** statements cause Looking Glass to insert the user's default text and data editors into the list of possible commands for files that match this type. (The pathnames and arguments for these executable programs are specified in the user's execution preferences.)

DEFINE DIRECTORY

```
DEFINE DIRECTORY Name ICON IconName {OPEN_ICON
OpenIconName} [FILE_DESCRIPTION Description] DIRECTORY
DirectoryName [DirectoryName...] [FEATURE_SET FeatureName
[FeatureName...]] END
```

Use the **DEFINE DIRECTORY** statement to assign one or more icons to a directory type. (Use the **DEFINE TYPE** statement, described below, to begin a file type definition.) The **DEFINE DIRECTORY** statement actually comprises a series of keyword clauses that make up a complete directory type definition. No commands can be associated with a directory type.

Name is the unique symbolic name for the directory type definition.

IconName is the name of the icon to be displayed for this directory type.

Use the optional `OPEN_ICON` keyword to specify a separate icon for the directory when it is open in a user's Looking Glass workspace. *OpenIconName* is the name of the icon used to represent the open directory. If the `OPEN_ICON` keyword is not used, Looking Glass will display the icon specified in *IconName*.

Use the optional `FILE_DESCRIPTION` keyword to provide a description of the directory type. *Description* is a description of the directory type that appears in the Type field when directories and files are displayed in Wide view in Looking Glass Directory windows and in the Information dialog. It is advisable to keep this description concise.

The `DIRECTORY` keyword defines the names of directories that match the directory type. *DirectoryName* is a string that is compared to the full pathname of the directory. It is usually a good idea to precede a full pathname with the "match all" character (*), because network file systems often include a mount directory that precedes the target. For example, `*/usr/bin` would match `/usr/bin`, as well as `/machineA/usr/bin`.

The `FEATURE_SET` keyword restricts use of a directory type definition to specific environments (such as specific user groups or operating systems). *FeatureName* specifies a series of one or more feature symbols. If a directory type is defined with one or more feature symbols, and none of the symbols are set in the running version of Looking Glass, the directory type is disabled (no directories will match it). For more information, refer to the general description of the `FEATURE_SET` statement below.

The `END` keyword signals the end of a directory type definition.

DEFINE TYPE

DEFINE TYPE *Name*

Use the `DEFINE TYPE` statement to begin a new file type definition. The `DEFINE TYPE` statement must be the first component of a file type definition. (Use the `DEFINE DIRECTORY` statement, described above, to begin a directory type definition.)

Name is the unique symbolic name for the file type definition. The compiler will not allow duplicate names.

END

END

The END statement indicates the end of a file type definition.

FEATURE_SET

FEATURE_SET *Name* [*Name ...*]

Use the FEATURE_SET statement to restrict use of a file type definition to specific environments (such as specific user groups or operating systems).

Name is a series of one or more feature symbols. If a file type is defined with one or more feature symbols, and none of the symbols are set in the running version of Looking Glass, the file type is disabled (no files will match it).

There are two ways to set feature symbols in Looking Glass:

- Certain feature symbols are intrinsically set in specific versions of Looking Glass to accommodate variations between hardware platforms and operating systems
- The value of the LG_FEATURE_SET environment variable is read during Looking Glass startup

If one or more of the feature symbols is set (either intrinsically or with the LG_FEATURE_SET environment variable), directories or files that meet the other criteria in the file type definition will match the file type. When no feature symbols are included in a file type definition, the file type is recognized in all environments.

For a list of the feature symbols that are set intrinsically for your version of Looking Glass, refer to the *Looking Glass Release Notes*.

FILE_DESCRIPTION

FILE_DESCRIPTION "*Description*"

Use the FILE_DESCRIPTION statement to create a text description of the type of file that will be identified by this record.

Description is the information that appears in the Type field when directories and files are displayed in Wide format in Looking Glass Directory windows and in the Information dialog. You should keep this description concise.

ICON

ICON *Name*

Use the ICON statement to assign an icon to a file type.

Name is the icon's symbolic name defined in the Looking Glass Icon Editor.

You can use the same ICON statement for more than one file type definition. For example, you may want to use the cartridge tape icon for more than one type of cartridge tape drive device file but vary other parts of the file type definitions.

INHERIT_COMMANDS

INHERIT_COMMANDS *Name* [*Name* ...]

Use the INHERIT_COMMANDS statement to add the commands assigned to other file types to the file type definition currently being defined.

Name is the unique symbolic name (or names) of the file types you want to inherit commands from (these are referred to as parents). Any command lists inherited from parents are added to the end of the current definition's command list.

Any **COMMAND : PRINT** or **ATTRIBUTE : PRINTABLE** statements that you put in the current definition override those inherited from parents. If you don't put these statements in the current definition, the print command or **ATTRIBUTE : PRINTABLE** statement is inherited from the first parent that has one of them in its file type definition.

Inheritance is performed by Looking Glass at the time the file is activated or when the possible actions for the file are displayed.

REDEFINE DIRECTORY

```
REDEFINE DIRECTORY Name [ICON IconName] [OPEN_ICON
OpenIconName] [FILE_DESCRIPTION Description] [DIRECTORY
DirectoryName [DirectoryName ...]] [FEATURE_SET
FeatureName [FeatureName ...]] END
```

Use the REDEFINE DIRECTORY statement to replace any or all of the components of an existing directory type record. *Name* is a symbolic directory type name that must already be defined. See the description of the DEFINE DIRECTORY statement, above, for descriptions of all of the other keyword clauses. Any item that follows REDEFINE DIRECTORY will replace the corresponding item in the referenced directory definition.

The REDEFINE DIRECTORY statement is most often used for installation of application programs that require file typing modifications and installation of updates to Looking Glass. It allows the compiler to modify an existing rulebase without modifying and recompiling source code.

REDEFINE TYPE

```
REDEFINE TYPE Name [ATTRIBUTE : HIDDEN] [ATTRIBUTE :
PRINTABLE] [COMMAND CommandStatement [CommandStatement
...]] [COMMAND : PRINT PrintStatement] [COMMAND :
{TEXT_EDITOR | DATA_EDITOR}] [FEATURE_SET FeatureName
[FeatureName ...]] [FILE_DESCRIPTION "Description"] [ICON
IconName] [INHERIT_COMMANDS Name [Name ...]] END
```

Use the REDEFINE TYPE statement to replace any or all of the components of an existing file type record. *Name* is a symbolic file type name that must already be defined.

Any item that follows a REDEFINE TYPE statement will replace the corresponding item in the referenced file type definition. This includes rule definitions and command definitions. (See APPEND_RULES and APPEND_COMMANDS, above, for an explanation of how to add rules and commands to existing file type records without changing the current lists.)

The REDEFINE TYPE statement is most often used for installation of application programs that require file typing modifications, and installation of updates to Looking Glass. It allows the compiler to modify an existing rulebase without modifying and recompiling source code.

Typing rule statements

Typing rule statements are single- or multipart statements that distinguish one file type definition from another. They are used to determine if a file matches the file type definition.

This section contains a general discussion of the technique for building typing rule statements, followed by a detailed description of the following statements:

- BINARY_DATA*
- BINARY_EXECUTABLE*
- BLOCK_DEVICE*
- CHARACTER_DEVICE*
- CONTENT
- DIRECTORY
- EMPTY*
- FIFO*
- NAME
- TEXT*
- SOCKET*
- SYMBOLIC_LINK*

The statements in this list marked with an asterisk are intrinsic typing rule statements. Intrinsic statements let you match file characteristics that are typed intrinsically by Looking Glass. These rules are often used with NAME, DIRECTORY, and CONTENT rules to narrow the search for file types.

Any typing rule statement can be used by itself to create a file-matching rule, or it can be combined with another statement to create a rule.

The typing rule statement in a file type definition is made up of some combination of NAME, DIRECTORY, and CONTENT statements and the intrinsic typing rule statements.

You can use the following operators to connect typing rule statements:

This operator:	Does this:	Use it:
NOT	Reverses the meaning of any statement	Before a statement
AND	Connects any statements to indicate that both (or all connecting) statements must be matched to match the file type	Between statements
OR	Connects statements to indicate that either the previous statement or the next statement must be matched to match the file type	Between statements

With these operators, you can combine file typing statements to create rules that will match files with unique or special characteristics in your system. Combining statements with operators also helps Looking Glass to weed out the files that won't match a file type more efficiently.

The following example shows a file typing statement that combines a TEXT and a NAME statement:

```
DEFINE TYPE      CSourceType
  ICON          C_SOURCE_ICON
  TEXT AND NAME "*.c"
END
```

The AND in this definition's rule means that a file must satisfy both conditions in order to match it. In other words, it must hold text *and* the last two characters of its name must be ".c".

If the AND were replaced with OR, the definition would match files that satisfied either condition—all text files *or* all files that end with ".c".

BINARY_DATA

Use the `BINARY_DATA` statement to match any file that contains more than 5 percent control characters or characters with the high bit set in the first two physical disk blocks. (Carriage returns, line-feeds, tabs, and backspaces are not counted as control characters.)

BINARY_EXECUTABLE

Use the `BINARY_EXECUTABLE` statement to match any file that is an executable binary file or command that is native to the system Looking Glass is running under.

BLOCK_DEVICE

Use the `BLOCK_DEVICE` statement to match any block special device file.

CHARACTER_DEVICE

Use the `CHARACTER_DEVICE` statement to match any character special device file.

CONTENT

```
CONTENT Offset [TO Offset]  
{STRING | BYTE | SHORT | LONG} [< | > | =]  
{"String" | NumericValue}
```

Use the `CONTENT` statement to match files that have a given value at a given offset or within a given range.

Offset is the position at which Looking Glass will begin searching for the *NumericValue*. This argument must be provided. If *Offset* is followed by the keyword `TO`, another *Offset* must be provided to define a range in which the search will be made. All bounded searches are carried out in a byte-by-byte fashion, including short and long integers.

String is the string Looking Glass will search for in the file; it must be enclosed in double quotes ("").

The value may be specified as a quoted string (indicated by the `STRING` keyword) or as an integer value (indicated by the `BYTE`, `SHORT`, and `LONG` keywords).

You can also use the following operators to compare the data in the file to a value:

Use this operator:	To define a file type where a <value> is:
=	Equal to the file data This is the default operator, and the only one that can be used with strings.
<	Less than the file data
>	Greater than the file data

Single-byte-replacement regular expression metacharacters can be used in a string value. The following table lists the metacharacters you can use:

Use this character:	To match:
?	Any character
[c,c, ...]	One of the characters in the series
[c1-c2]	One of the characters in the designated range

Integer values can be expressed in decimal, octal (with a leading 0), or hexadecimal notation (with a leading 0x).

DIRECTORY

DIRECTORY *Name* [*Name* ...]

Use the **DIRECTORY** statement to define the names of directories that a file must be in to match the file type, or to define directory names when creating a directory type. Directory names are treated as strings that are compared to the full pathname of the current directory.

Name is the pathname of a directory that a file must be in to match a file type or the full pathname of a directory when creating a directory type.

It is usually a good idea to precede a full pathname with the "match all" character (*), because network file systems often include a mount directory that precedes the target. For example, */usr/bin would match /usr/bin as well as /machineA/usr/bin.

DIRECTORY statements are most often used in conjunction with **CONTENT** and/or **NAME** statements. If the *Name* includes special characters, it must be placed in single or double quotes.

EMPTY

Use the **EMPTY** statement to match any empty file (in other words, files of zero length).

FIFO

Use the **FIFO** statement to match any FIFO (named pipe) files.

NAME

NAME *Name* [*Name* ...]

Use the **NAME** statement to define file or directory names that match a file type. Any number of names may be defined with the **NAME** statement; each name must be separated by at least one space.

Name is the name of a file that the file type will match.

Any Looking Glass regular expression metacharacter can be used if that the name expression is enclosed in double quotes ("").

Pathnames are not allowed. Use the `DIRECTORY` statement to indicate the file's position in the file system or to define directory names when creating a directory type.

SOCKET

Use the `SOCKET` statement to match any socket file. (On systems that don't support sockets or socket "files," this rule is ignored.)

SYMBOLIC_LINK

Use the `SYMBOLIC_LINK` statement to match any symbolic link. (On systems that don't support symbolic links, this rule is ignored.)

TEXT

Use the `TEXT` statement to match any file that contains less than 5 percent control characters or any characters with the high bit set in the first two physical blocks. (Carriage returns, linefeeds, tabs, and backspaces are not counted as control characters.)

Parsing and syntax guidelines

This section describes general parsing and syntax rules for the File Typing Compiler.

Comments

Comments are C language style, starting with `/*` and ending with `*/`.

Keywords

Keywords must be in upper case.

Looking Glass symbols

In **COMMAND** statements, the following Looking Glass symbols can be used:

This option:	Inserts this symbol:	With this value:
Selected Files (available only when Command Line is run from a Directory window)	#f	The names of all the files currently selected in the Directory window
Selected Directories (available only when Command Line is run from a Directory window)	#d	The names of all the directories currently selected in the Directory window
Effective User	#u	The current user name
Effective Group	#g	The group name associated with the Looking Glass process
Current Directory	#c	The full pathname of the current directory

Regular expressions

The standard set of Looking Glass regular expression metacharacters (Bourne Shell syntax) are allowed in the strings of **COMMAND**, **NAME**, and **DIRECTORY** statements. Metacharacters other than the asterisk (*) are also allowed in the strings of **CONTENT** rules.

Backslash as an escape character

Special characters such as # and “newline” can be escaped using the backslash (\) character. Escape characters inside comments are ignored. Special characters are not expanded if they are escaped.

For example:

```
COMMAND "\#E"
```

This command tells Looking Glass to try to execute “#f,” rather than the name of the matching file that is normally represented by the Looking Glass symbol #f.

The following table lists the special characters that are recognized:

This character sequence:	Indicates this character:
<code>\n</code>	Control+J (New Line)
<code>\t</code>	Control+I (Tab)
<code>\b</code>	Control+H (Backspace)
<code>\r</code>	Control+M (Carriage Return)
<code>\f</code>	Control+L (Form Feed)

Strings

Character strings may be enclosed in double or single quotes. (A string is terminated by the same quote character that started it.) Quotes within quotes are treated as part of the quoted string as long as they aren't the starting quote character.

A series of quoted strings is concatenated into a single quoted string, except in NAME, DIRECTORY, and FEATURE_SET statements.

For example:

```
COMMAND "echo " "one " "two " " "three "
```

is identical to:

```
COMMAND "echo one two three "
```

To include a control character in a quoted string, enter an escape character (\) followed by the three-digit octal value for the character.

For example:

`\001`

would be interpreted as an ASCII start-of-header (Control-A) character in the name.

White space

Extraneous white space (defined as newlines, blanks, and tabs) is ignored. Note that this is not true of blanks in quoted strings.

Tokens

A single token (including series of quoted strings) cannot be longer than 4095 characters.

File Typing Compiler reference

The following is a summary of the command-line interface to the File Typing Compiler (FTC):

```
./ftc {-l binaryInputFile | -c textInputFile}  
[-i iconSymbolFile] [-r recordSymbolFile]  
[-o binaryOutputFile]
```

At least one binary or text input file must be specified, preceded by `-l` or `-c`, respectively.

`."` may be used as the filename to designate standard input. Any number of input files may be specified, but each must be preceded by `-l` or `-c`.

An icon symbol table file may be specified with `-i`. The default is `icons.sym`.

A record symbol table file may be specified with `-r`. The default is `records.sym`.

A binary output file may be specified with `-o`. By default, no output is produced.

File Typing Language example

This is an example for running the mythical Syforbase database on any of its data files:

```

DEFINE TYPE          SyforbaseDatabase
ICON                 DATABASE_APP
FILE_DESCRIPTION     "Syforbase Database File"
/*
* Any file with a '.sfb' extension in
* '/usr/syforbase' directory matches.
*/
NAME "*.sfb" AND DIRECTORY "*" /usr/syforbase" OR
/*
* The following (long) value at byte 42 is in the
* standard Syforbase header for version 3.4 and
* later.
*/
CONTENT 42 long 075643 OR
/*
* Look for the standard 16-bit magic number
* 064007 and of course the obligatory copyright
* notice.
*/
CONTENT 0 short 064007
      AND CONTENT 48-150
      string "(c) Copyright 19??
      Syforbase"

COMMAND ATTRIBUTE:TERMINAL WINDOW
      "/usr/bin/syforbase -r #f"
COMMAND_DESCRIPTION
      "Read file with syforbase"

/*
* Place the error output from the maintenance
* program in a file in /tmp with the name of the
* database with a '_err' extension.
*/
COMMAND ATTRIBUTE : TTY
      "/usr/bin/sfx_fixdb #f 2> /tmp/#f_err ; "
      "echo Error output in `'/tmp/#f_err`" "
COMMAND_DESCRIPTION
      "Reconstruct file "

```

This example defines a file type definition that runs the `syforbase` database program if:

- The filename ends in “.sfb,” and the file resides in a directory named `syforbase`
or
- The first “sizeof(long)” bytes of the file from byte 42 contain the (long) value 075643 octal
or
- The first “sizeof(short)” bytes of the file contain the (short) value 0640 octal, and the string “(c) Copyright 19?? Syforbase” starts anywhere in byte positions 48 through 150 inclusive. (The question marks are regular expression metacharacters that match any two characters.)

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Notes

Notes

INTERACTIVE