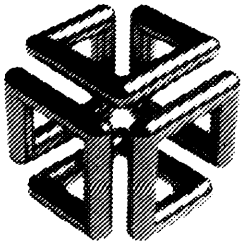


SiliconGraphics
Computer Systems

Iris I Essentials

Desktop Training
Iris Overview Course Notes

Beta 2: 6/20/95

Desktop Productivity & Distributed Learning

Chapter 1: About this class

Welcome—this class and its curriculum have been prepared specifically for your needs. In order for you to be successful in this and subsequent classes, you should be aware of the following information.

Class Objective

The focal point of this class is to impart critical concepts to you so that you understand not only what steps you must take to achieve a particular task, but how these steps fit into the overall process of using your SGI workstation. Understanding these concepts and the overall process will help you to accomplish your own goals without relying on step-by-step instructions each time you wish to get something done.

Class Guidelines

- At the beginning of class you will be asked a few questions:
  1. What do you do for SGI and how long have you been with the company?
  2. What experience do you have with Mac/DOS/Windows/UNIX)?
  3. Have you attended IRIS Essentials previously?
- Short breaks are taken roughly once an hour.
- There are no stupid questions.
- Raise your hand when your screen and the instructor's screen don't match.
- Please be patient—your fellow students may enter the class with different experience than you have and all students must complete a given exercise before the instructor can address the next topic.

Class Components

Where applicable, subsequent chapters in this text will contain the following components:

1. Concepts
2. Methods
3. Exercises
4. Q & A

Special Note

This text is currently under development and it is likely that you are holding an alpha or beta version of this document. You may notice certain editorial tags in angle brackets:

- <screen> = screen shot not yet available
- <under revision> = text is incomplete, due to revision

In addition, there may be sections that require additional editorial commentary. Your feedback regarding any portion of this text is encouraged.

Chapter 2: Introduction

This chapter introduces the topics, terms, and concepts that will be utilized throughout this class and will form the foundation of your knowledge about the use of your SGI workstation.

Class Topics

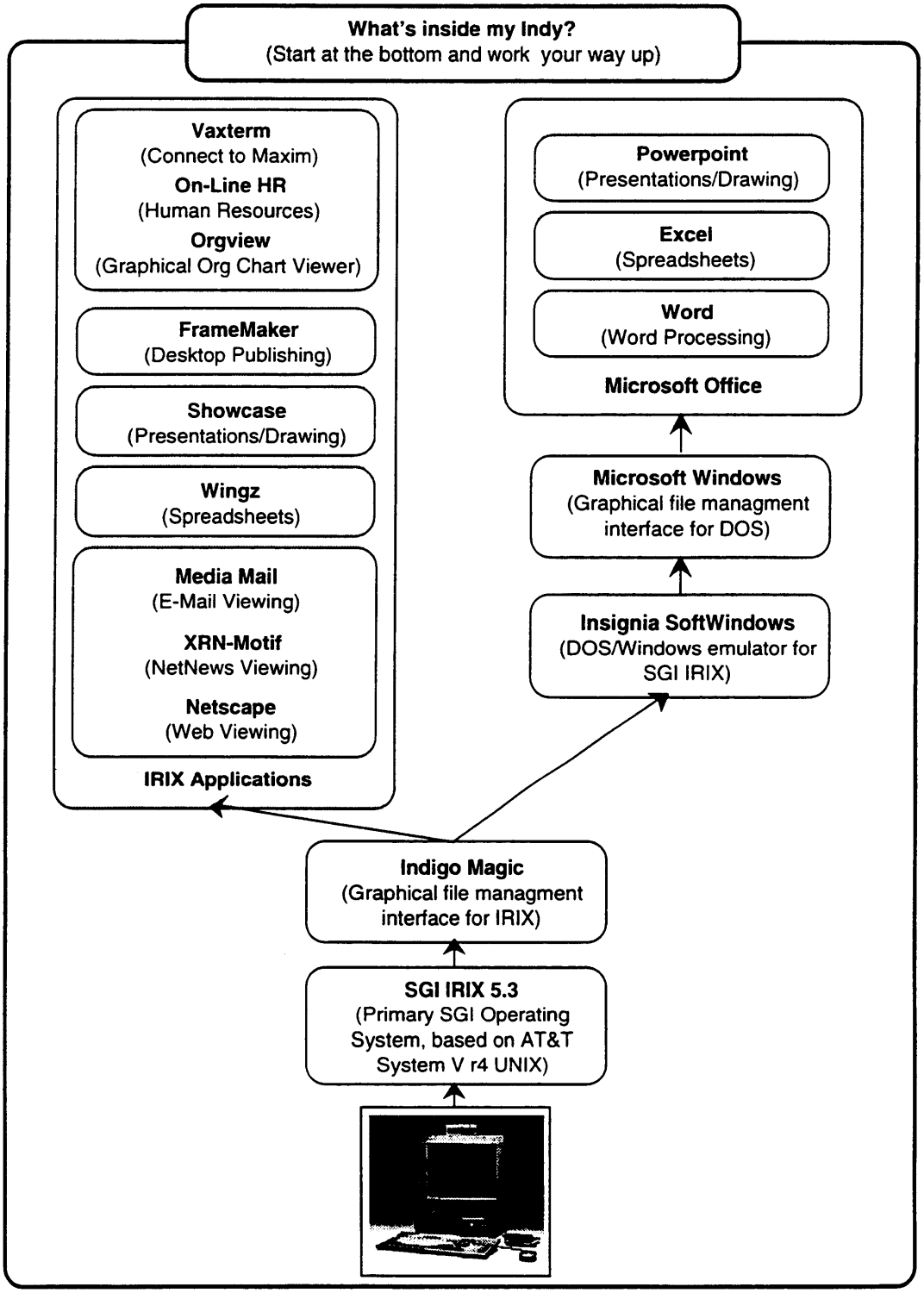
The "SGI Operating System Overview" will introduce:

- SGI IRIX 5.3 Operating System
- Indigo Magic File Management

This curriculum is intended for both the beginner and intermediate student. Prior experience with either the Macintosh or Windows Operating Systems is helpful.

SGI Subject Map

The illustration on the following page is designed to assist you in understanding how the topics of this class fit together with the other programs and operating systems installed on your SGI workstation. Each of the components in the illustration represents a program or an operating system for which training is available. A short description of each component may be found in Appendix A.


What's inside my Indy?
(Start at the bottom and work your way up)
Vaxterm
(Connect to Maxim)
On-Line HR
(Human Resources)
Orgview
(Graphical Org Chart Viewer)
FrameMaker
(Desktop Publishing)
Showcase
(Presentations/Drawing)
Wingz
(Spreadsheets)
Media Mail
(E-Mail Viewing)
XRN-Motif
(NetNews Viewing)
Netscape
(Web Viewing)
IRIX Applications
Powerpoint
(Presentations/Drawing)
Excel
(Spreadsheets)
Word
(Word Processing)
Microsoft Office
Microsoft Windows
(Graphical file managment interface for DOS)
Insignia SoftWindows
(DOS/Windows emulator for SGI IRIX)
Indigo Magic
(Graphical file managment interface for IRIX)
SGI IRIX 5.3
(Primary SGI Operating System, based on AT&T System V r4 UNIX)

What is an Operating System?

An "operating system", OS for short, is a fundamental program that all computers require. There are many different operating systems. The predominant operating systems of the last several years are Apple Macintosh, Microsoft Windows, and UNIX. Some operating systems use a command-line interface, and some use a graphical interface. An operating system is responsible for controlling a majority of your computer's activities. The major activities controlled by an operating system are listed below:

- Input Management (keyboard & mouse)
- File Management (creation, organization, & deletion)
- Application Launching/Program Starting
- Peripheral Management (disk drives, scanners, & modems)
- Output Management (screen display & printing)

What is a User Interface?

A user interface encompasses each part of the computer that the user interacts with. In its simplest sense, a user interface consists of three elements:

- Controls
- User Actions
- Feedback

Before we discuss the types of user interface available for computers, let's begin with a more simplistic real-world example:

> The Toaster: A toaster has a fairly simple interface consisting of the opening into the toasting area, the activator switch, and the toast setting dial. The possible user actions for a toaster include: adjusting the toast setting dial, inserting toast, activating the toaster, deactivating the toaster, and removing the toast. The feedback from the toaster requires little user interpretation; the user receives: underdone toast, just-right toast, or burnt toast.

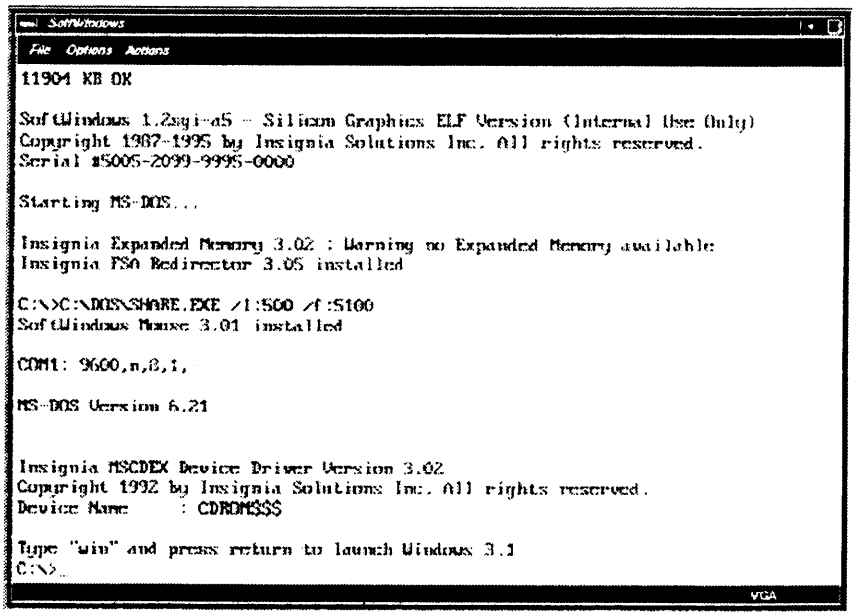
Types of User Interface

There are two primary types of user interface in common use: the command-line interface and the graphical user interface. We will be using both in class today.

Command-line interface

A command-line interface will display a standard series of characters often followed by a punctuation mark. This series of characters is known as the "prompt". The command-line interface displays this prompt to tell you that the computer is waiting for you to type in a command. To use this interface you type the desired command on the line containing the prompt and press the return key to activate the command.

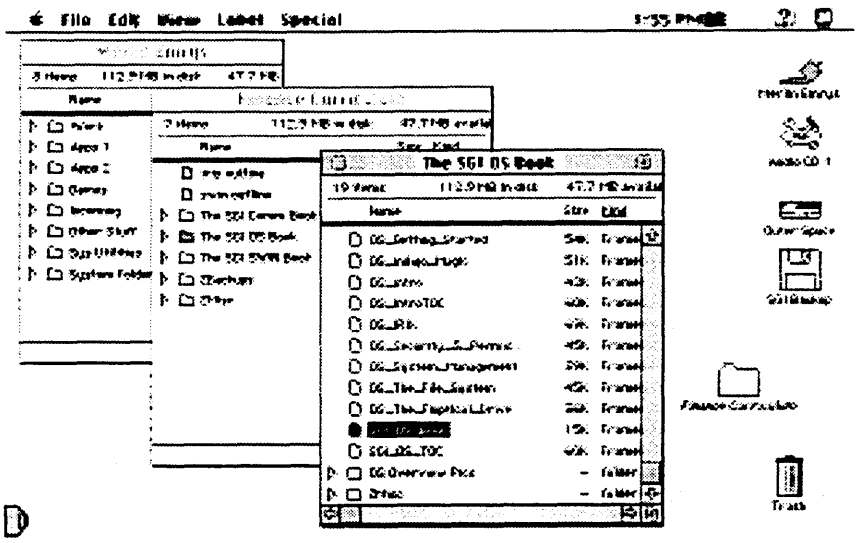
One of the earliest, popular command-line operating systems is Microsoft DOS. The illustration below shows an instance of the typical DOS prompt. The prompt is the "C:\>" at the bottom of the window.



Graphical user interface

An operating system that uses a "graphical user interface" or GUI for short, is designed to provide an easy-to-understand visual representation of the elements that make up your computer. This visual representation makes it possible for you to use the mouse to control your computer. Using a mouse to control your computer greatly simplifies many everyday computer tasks.

The Mac OS, developed by Apple in 1983 (with large contributions by Xerox), was the first commercially successful graphical user interface-based operating system. An illustration of a typical Mac desktop (Mac OS) follows:



What is IRIX?

IRIX is a command-line operating system and is the primary operating system of an SGI workstation. It bears a slight resemblance to DOS (DOS on steroids). Like DOS: you type in one line commands, press the return key, and wait for a result.

The current version of IRIX is 5.3, and its technical description is:

> SGI's version of AT&T's UNIX System V (release 4) operating system with the BSD and X windows extensions.

IRIX and a set of basic commands will be introduced in Chapter 4.

What is Indigo Magic?

Indigo Magic is a graphical user interface designed by SGI to simplify file management. Indigo Magic works in conjunction with IRIX. Its key benefits include:

- Magic is based on concepts similar to the Mac OS
- Magic allows use of the mouse to select objects and issue commands
- Magic is more easily understood by new users than IRIX.

Magic will be introduced in Chapter 6.

Exercise 2-1:Matching Terms

The following exercises requires that you match a set of terms in the left column with the proper definition found in the right column.

TABLE 1. Match Terms to Definitions

Terms	Definitions
1: OS	a: A GUI file management interface for IRIX.
2: IRIX	b: An abbreviation for "Graphical User Interface".
3: Command-line interface	c: A standard series of characters often followed by a punctuation mark.
4: Prompt	d: A text-based interface that uses commands typed at a prompt.
5: GUI	e: The primary operating system of an SGI workstation.
6: Indigo Magic	f: An abbreviation for "Operating System".

Q & A

Q: I am still not clear on how SGI IRIX and Indigo Magic are connected. Would you clarify this for me?

A: In much the same way MS DOS is the primary operating system for IBM-Compatible personal computers, UNIX (the parent of IRIX) is the primary operating system of high-end workstations like your Indy. Both DOS and IRIX are cryptic command-line interfaces. In order to simplify DOS, Microsoft built the Windows file management system and stuck it on top of DOS. Similarly, SGI stuck the Magic file management system on top of IRIX to make it easier for the user to interact with his or her workstation. The way in which the Mac operating system differs from the previous example is that the primary operating system and the Mac file management system are not separate software programs, they are integrated.

Q: Why "Indigo" Magic?

A: The Magic file management software was first developed for the Indigo series of SGI workstations.

Chapter 3: Getting Started

This chapter will discuss the login process, the concept of multiple users, basic mouse use, and the use of windows.

Logging In

When you first sit down at your SGI workstation, you may have to log in. Logging in is the process of identifying yourself to your workstation in order to gain access to your applications and files. You must provide your user account name and your password.

User Accounts

It is possible for one SGI workstation to have many user accounts and to hold information for these various users. It is also possible for multiple users to be logged in to a single SGI workstation simultaneously. In order to tell different users apart and to keep their work separate, all user accounts have unique names. Typically the name is some combination of the user's first and last name to make the account name easy to remember for E-Mail purposes, for example:

Jerry Pape = jpape
Shawn Wilson = shawnw
Drew Banks = dbanks

User Account Privilege Levels

In addition to having a user name attached to the user account, each account has a privilege level. There are three privilege levels. Each level provides a different level of access to both the file system and the system administration programs. The three privilege levels are:

Super User: This type of user account, also known as "root", has special status allowing complete access to the entire file system and all system management programs. By providing access to the entire file system, this privilege level also allows access to the files of other users, when an SGI workstation is being used by multiple users. The concept of super user status is dealt with more completely in later chapters.

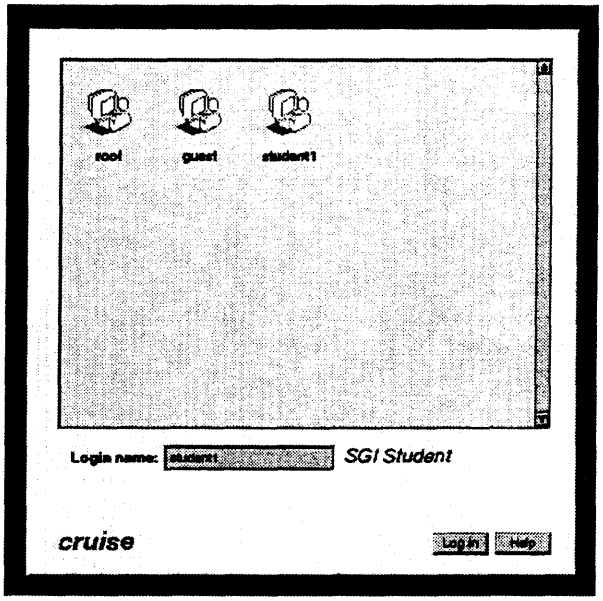
Privileged User: This is the type of user account that you will be logging into most of the time. It provides general access to your file system and access to some graphical system management programs.

"guest"

Regular User: This type of user account is primarily used by individuals, other than the primary user, who must share the primary user's workstation. It provides general access to the file system and limited access to system administration programs.

How to log in

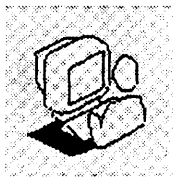
When you first sit down at an SGI workstation in the classroom you will see a picture that looks like this:



1. The name in the bottom left corner of your screen is the name of the workstation you are using. The pictures like the one in the sidebar are user accounts you can log in to. Please write down your machine name and username below.

   Machine Name: _____

   User Name: _____



2. Using your mouse, point at the small picture on your screen that looks like the one to the left of this paragraph with the text "student" and some number beneath it and double click the left mouse button.
3. In the classroom, the "student#" accounts have no passwords, but on your own system you will have to enter a password[1].

Important Note

The instructions above are provided specifically for the workstations in the SGI classroom. When logging in to the workstation in your office/cube, you would instead see a picture with your username beneath it. This is the picture that you would double click on to log in to your workstation.

1. If the workstation in your office/cube does not require a password, contact the ISAC as indicated in chapter 11 of this text to obtain information on setting a password.

Basic Mouse Use

A mouse is a pointing device that allows you to select objects on your workstation and give commands that affect the selected objects. There are three fundamental mouse actions:

Mouse Actions

Point: Move mouse such that the arrow on the screen points to the desired object.

Click: Press and release one of the three mouse buttons.

Drag: Point at the desired object, press and hold a mouse button, move pointer to desired location, & release mouse button.

Mouse Buttons

Additionally, there are three action buttons on an SGI mouse. Please fill in the blanks below as instructed by the teacher.

Left Mouse Button: _____

Middle Mouse Button: _____

Right Mouse Button: _____

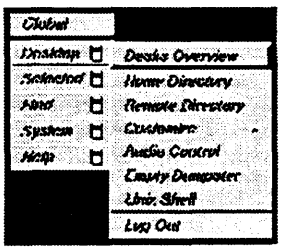
Special Note

Within this text, when actions requiring a mouse button are indicated and no mouse button is specified, the left mouse button is the default.

IRIX Windows

Windows organize and display information. As with most interfaces, there are many different methods for performing the following operations. The most basic of these methods, along with a map of important window controls, is shown below.

Generating an IRIX Shell Window



1. Move pointer to the "Desktop" menu on the Toolchest (pictured in the sidebar).
2. Drag right and down to the "UNIX Shell" choice.
3. Release the mouse button.

Window Map

The following illustration will help you find your way around the standard SGI window.

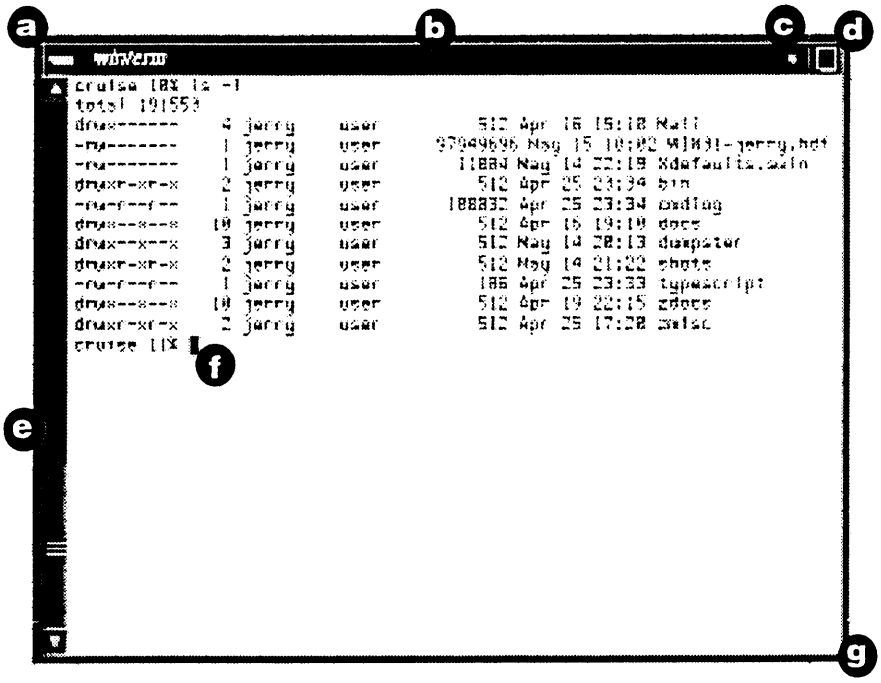


TABLE 2. Key To Window Illustration

	Name	How to use
a	Window Menu & Close Box	Click and drag to use menu or double click to close.
b	Titlebar	Drag to move window.
c	Minimize Box	Click to minimize window.
d	Maximize Box	Click to maximize window
e	Scrollbar	Click on arrows or drag box to scroll text.
f	IRIX Prompt	Type command and press return.
g	Resize Corner	Drag to resize window.

Moving

To move a window:

1. Place pointer in titlebar.
2. Drag window with left mouse button.

Resizing

To resize a window:

1. Place pointer in resize corner. The pointer will change shape when on the corner.
2. Drag the resize corner with left mouse button to desired location.

Minimizing

Minimizing shrinks a window down to a small icon that appears in the upper left portion of your screen. This is also known as "stowing" a window. Minimizing is used to reduce desktop clutter, while still allowing the programs or commands executed in a window to run.

To minimize a window:

1. Put pointer in the minimize box.
2. Click left mouse button and an icon like the one in the sidebar will appear in the upper-left portion of your desktop.

Restoring

Restoring reverses the minimizing process.

To restore a minimized/stowed icon:

1. Put pointer on the desired icon
2. Click left mouse button

Maximizing

Maximizing simply makes a window as large as your screen will allow. This is not used very often.

To maximize a window:

1. Put pointer in box in maximize box.
2. Click left mouse button

Closing

To close a window:

1. Put pointer in the close box.
2. Double click left mouse button

Minimizing vs. Closing

It is important to note whenever you open a window, your Indy allocates system resources (RAM and CPU time) to that window and the commands you execute in it. Minimizing a

window is an aesthetic action, it simply shrinks the visible window—it does not free up system resources. Only closing a window or quitting a program will release the system resources allocated to a window or program.

Raising and Lowering

Raising and lowering are used to change the layering of the currently open windows. This is similar to clicking on a window in the Mac OS to bring it to the top.

To raise a window toward the top:

1. Click the window's titlebar

To lower a window away from the top:

1. Hold the control key down
2. Click the left mouse button while pointing at the titlebar

Manipulating a window without a titlebar

Occasionally, you will encounter a window without a titlebar (the clock program generates such a window). To manipulate this type of window:

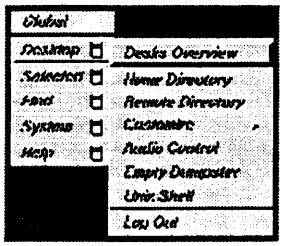
1. Point at an edge of the window
2. Click with the right mouse button
3. Choose a command from pop-up menu
4. Manipulate window

Point-to-focus

This is a confusing and unique concept of the SGI OS. Mac and Windows users will be somewhat surprised by this. It will take some time to get used to.

In order to enter data into an open window, you must "Point-To-Focus" by leaving the pointer somewhere in the window you wish to enter data in. In the event that you do not leave the pointer in the window you want to enter data in and you start typing, you will achieve a state known as "typing to nowhere fast".

Exercise 3-1: Windowing



- If a shell window is not visible, open a new shell
  1. Move pointer to the "Desktop" menu on the Toolchest (pictured in the sidebar).
  2. Drag right and down to the "UNIX Shell" choice.
  3. Release the mouse button.
- Move a window in a circle on your screen
  1. Drag the "winterm" window by its titlebar in a circle.
- Resize a window
  1. Drag the resize corner of the "winterm" window up and to the left, until the window is half its previous size.
- Minimize a window
  1. Left-click in the minimize box for the "winterm" window.
- Restore a shell window to standard size.
  1. Left-click on the minimized icon titled "winterm". This will restore the winterm window to its standard size.
- Restore the console
  1. Left-click on the minimized console icon in the upper left portion of your screen.

     If there is no minimized console icon or open console window, choose "Start A New Console" from the "System" menu on the Toolchest.
- Work with layering
  1. Move the console window so that it covers the lower half of the shell window.
  2. Raise the shell window to the top by left-clicking on its titlebar.
  3. Lower the shell window to the bottom by holding the control key down while left-clicking its titlebar.
  4. Raise the shell window to the top by left-clicking on its titlebar.
- Demonstrate point-to-focus
  1. Put pointer in an empty area of the desktop near, but not on, the dumpster.
  2. Type "date" and return.

     Note that nothing appears in the shell window.
  3. Put the pointer in the shell window.
  4. Type "date" and return.
  5. Put the pointer in the console window, without bringing it to the top.
  6. Type "date" and return.

     As you can see, in the SGI OS, the active status of a window is not related to its layer. Instead, the active status of an SGI OS window is determined by the position of the pointer within the window.
- Minimize & Close
  1. Minimize the console by left-clicking on the minimize button.
  2. Close the shell by left-double-clicking on the close box.

Q & A

Q: Why does the SGI OS use point-to-focus?

A: The SGI OS is built on a multitasking operating system known as UNIX. Because many tasks can be executed simultaneously and in multiple windows, unlike the Mac or Windows OS where only the topmost window is active, the point-to-focus method was developed to insure that an SGI user specifies the window to which his or her actions are to be directed.

Q: Are there other ways to perform the previously mentioned window manipulations?

A: Yes, as with most GUI operating systems, there are several ways to accomplish the same goals. For example, you can drag the titlebar of a window to move it or you may use the alternative method provided by selecting the "move" choice from the window menu. There are also a number of keyboard shortcuts listed adjacent to the menu choices.

Q: I have noticed that when I click on a menu and release the mouse button the menu stays down. What is this all about?

A: The behavior you are experiencing is similar to the way that Microsoft Windows menus behave and is a standard part of the SGI interface.

Chapter 4: IRIX

This chapter will introduce the SGI IRIX operating system, the console and shell windows, and a set of fundamental IRIX commands.

Introduction to IRIX

As previously mentioned, IRIX is a command-line operating system, based on AT&T's UNIX operating system.

- You may remember archaic DOS commands like "C:", "Dir", "Del", or "Copy"
- Within this document "IRIX" and "UNIX" will be used interchangeably
- Superficially, UNIX is similar to the ancient MS-DOS operating system. Below the surface, UNIX is to DOS, what the Space Shuttle is to a hangglider.

Advantages of UNIX

- It is the most widely accepted workstation operating system.
- It provides true multi-tasking.

Disadvantages of UNIX

- You must be very careful with UNIX, there is no undo, no safety net.
- It is not very user-friendly.
- For these reasons and many others, SGI developed the Magic Interface to help users avoid some of the common pitfalls of beginning UNIX use (Magic will be discussed in chapter 6).

Irix Interface Elements

There are two basic interface elements to the IRIX OS: the console window and any number of shell windows.

Console

You should always have a console running because the console is the primary display area for status and error messages generated by the UNIX commands that you execute.

Starting a console

While the console can also accept your typed commands, it is really intended to be more of a "mouth" out of which UNIX tells you what is going on, or warns you of a problem.

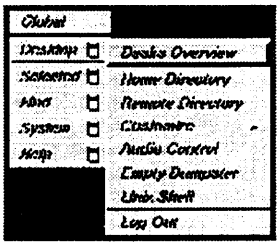
If no console is running, you can start a new one by choosing "Start a new console" from the Toolchest-System menu or by executing "startconsole &" from any shell window.

Shell windows

Shell windows are the "ears" of UNIX. A shell is where UNIX "listens" for your typed commands. You enter your typed commands into a shell window, and UNIX will issue a response, either by returning output to the shell window in which you typed the command or by opening a new window and displaying the results therein.

Opening a new shell

To open a new shell if a shell icon or a stowed shell icon is not visible:



1. Move pointer to the "Desktop" menu on the Toolchest (pictured in the sidebar).
2. Drag right and down to the "UNIX Shell" choice.
3. Release the mouse button.

You can open more than one shell at a time and issue different commands or programs in each shell. This is what is meant, in part, by the term "multi-tasking"—more than one command can be executing simultaneously.

Anatomy of a UNIX Command

Each UNIX command can consist of three primary components: the command, its options, and its arguments.

The Command

The command itself is usually a very short abbreviation of the command's purpose. For example:

mv = move
cp = copy
rm = remove

The Options

If options are available for a command, then they must follow the command, and the first option must be preceded with a space and a "-" (minus sign). Most UNIX commands offer a variety of options. Typically, these options can be used individually or combined. When speaking of a command with options you would say:

"ls -l" is pronounced "el es minus el"
"cp -r" is pronounced "see pee minus are"

The Arguments

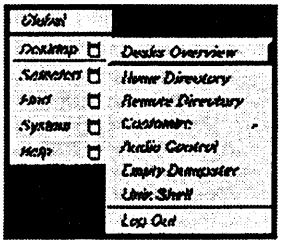
Arguments are typically the file or files upon which you wish the command to operate. Arguments must be separated from the options by a space.

Summary

To summarize, the command, its options, and its arguments must be separated by spaces, and the first option must be preceded by a minus sign, for example:

"ls -l letters" = output a long listing of the "letters" directory

Exercise 4-1: Using basic UNIX commands



Below is a series of tables. These tables contain frequently used UNIX commands, grouped by a descriptive category.

- If a shell window is not visible, open a new shell:
  1. Move pointer to the "Desktop" menu on the Toolchest (pictured in the sidebar).
  2. Drag right and down to the "UNIX Shell" choice.
  3. Release the mouse button.
- The instructor will lead you through the following commands:
  1. Type in each command carefully
  2. Press return
  3. Observe the results
  4. Write down what the command did in the "Result" column of each table.

Where am I?

These commands will help you orient yourself when you sit down at an unfamiliar workstation. The results of these commands will usually be required by the IS Assistance Center staff when you call for help.

Command	Options	Arguments	Result
hostname			
whoami			
pwd			

What is in here?

These commands will display the contents of your file system.

Command	Options	Arguments	Result
ls			
ls	-l		
ls	-l	[dirpath][a]	
cd			
cd		[dirpath]	

a. The concept of [dirpath] will be explained, in detail, in Chapter 5.

What is under the hood?

These commands tell you about the hardware and software components that make up your SGI workstation.

Command	Options	Arguments	Result
hinv			
versions			
df	-k		

What is running?

These commands deal with the various tasks running on your SGI workstation at any time. These tasks are known as processes. You must be exceptionally careful when terminating active processes—DO NOT KILL WHAT YOU CANNOT IDENTIFY!

Command	Options	Arguments	Result
ps			
ps	-e		
kill	-9	[pid][a]	

a. A [pid] is the "process id number" associated with each currently executing command, and listed in the output of the ps command.

Becoming superuser

These commands are frequently necessary when performing system administration functions. The only indicator that you have successfully entered superuser status will be the change of the last character of your shell prompt from a "%" to a "#". Employ caution when using your workstation while you have superuser status.

Command	Options	Arguments	Result
su			
exit			

Q & A

Q: Why do I have to know all of these cryptic UNIX commands, if I can just use Indigo Magic instead?

A: UNIX is like the engine of your car and Magic is like the steering wheel. As with your automobile, you would rather be behind the wheel than under the hood. But at some point under the hood you will go, and it is far better to know what is under the hood before you have to go there than it is to find out the hard way.

Q: Are there any particularly dangerous commands I should be careful of?

A: Yes. You should take particular care when using the remove files command, "rm", in conjunction with the "*" wildcard character. Use of the wildcard character makes it exceptionally easy to remove whole sections of your file system accidentally. You should also exercise extreme caution when manipulating files while in superuser mode.

Q: What can I do if I have forgotten the UNIX command I need?

A: If you can remember the general purpose of the command, you can do the following:

1. If you don't have an open shell, restore or open a shell.
2. Type "apropos" a space, the purpose of the command, and a return.
3. For example "apropos printer" will output a list of all the commands that have the word "printer" in their description.
4. If the instructions above do not work as indicated, please call the ISAC and ask them to set up your "apropos" database.

Q: I forgot the options available for a particular UNIX command, what can I do?

A: You can call up the built in UNIX manual by following these steps:

1. If you don't have an open shell, restore or open a shell.
2. Type "man", a space, the name of the command, and a return.
3. For example "man ls" will output detailed information about the "ls" command.
4. Page through the output by pressing the space bar each time you see "more" in the bottom left corner of the shell window.

Chapter 5: The File System

This chapter will introduce basic file system concepts which will be applied after the appropriate methods have been introduced in chapter 6.

What is a hard disk?

A Hard Disk is a hardware component typically found inside your workstation. All of the information stored in your workstation is kept on the Hard Disk. A Hard Disk utilizes technology that is similar to audio cassette recording to read digital information from and write digital information to a series of rotating platters, coated in a magnetic material. The Hard Disk in your workstation contains your file system.

What is a file system?

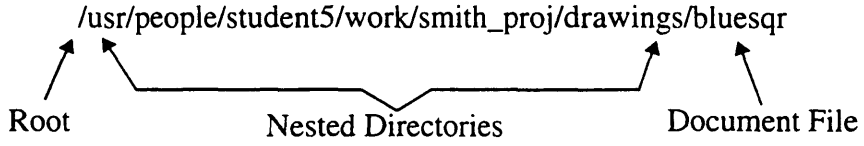
A file system is the technical term used to describe the most important part of your computer. The file system holds all of the operating system files that are required to make your computer work, the applications that you will use to create word processing, spreadsheet, and graphical documents, and the documents that you generate with the aforementioned applications.

What is a path?

Think of giving someone directions to your house or the store. You can do this easily because you know the neighborhood, and because you know how to give directions to the appropriate destination. You might call such directions a path. Similarly, when navigating your way around the SGI file system, you are using paths to get from one part of the file system to another. To use your computer well, you must understand its paths, as well as you do those of your own neighborhood.

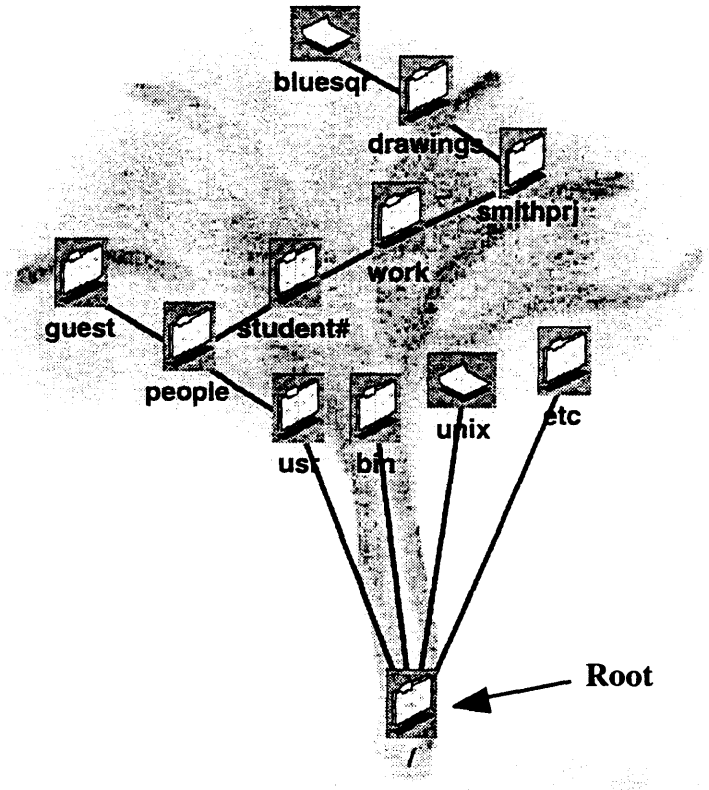
A Path

A path is a list of directions that tell the operating system how to locate the file or files you wish to work with. This list always begins with the "/" symbol, continues with a series of directory names each separated by "/", and ends with the name of an operating system file, an application, or a document file. Like so:



Why Root?

"Root" is a colloquial term that refers to the binary tree structure of the file system. The "root" is similar to the hard disk icon in the Mac OS—you cannot go any higher in the file structure. This may be better understood, if you examine the illustration below.



What is a directory?

A directory is a file system container which can contain operating system files, applications, or documents.

Operating System Files

Operating system files are the building blocks of the IRIX OS and Magic. These files are organized in a complex series of directories that occupies approximately 350 megabytes of space within your file system.

Applications/Programs

Applications, also known as programs, are the executable files that allow you to create word processing, spreadsheet, or graphics documents. For a summary of the types of applications available to you, see Appendix A.

Documents/Data

Document files are perhaps the most important files on your workstation. These files are the work you have accomplished with your computer.

What is the Home Directory?

Each time you login to your workstation, you will automatically have your current working directory set to your Home Directory. The Home Directory acts as a convenient starting point within your file system. A typical home directory path would be:

/usr/people/user account

In today's class the instructor will tell you what your Home Directory is, please write this down:

Home Directory: _____

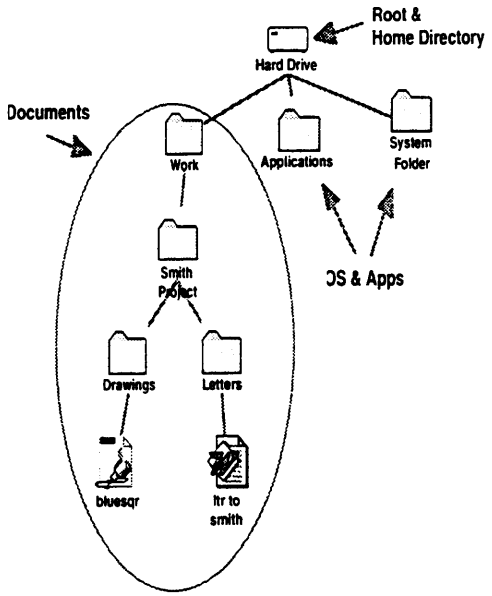
Special Note

The path to your HOME directory can be abbreviated with the following symbol "~". Substituting "~" for the complete pathname to your Home Directory can save you time.

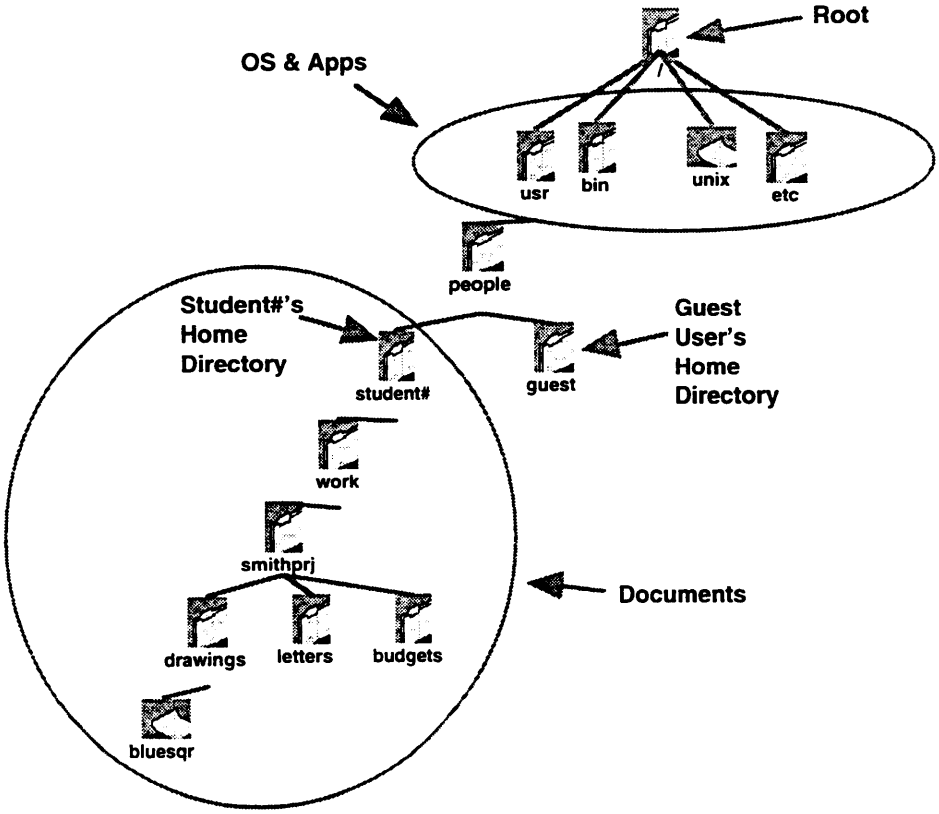
Why is the Home Directory Special?

It is important to note that unlike the Mac OS, your Home Directory in UNIX is not at the root of the file system. Instead, the Home Directory is located fairly far down the tree-structure of your file system. This means that in the SGI OS there are many directories above your Home Directory. Most of these higher directories contain crucial Operating System files, and possibly the files of other users. Be very careful when moving higher in the file system than your Home Directory. Consider the following illustrations:

Mac File Hierarchy



SGI File Hierarchy



Organizing your file system

Earlier in this text the primary components of your file system were discussed. Another aspect of these components is relevant to this topic. Organization is perhaps the most important aspect of your file system. An improperly organized file system can create a substantial amount of difficulty in the workplace. On the other hand, a properly organized file system makes document location and backup more convenient. While this may seem obvious, it is often difficult to determine how to implement real-world organizational methods within a computer file system.

Organization of the document files you generate everyday is your key concern. Common sense is the primary guideline for file system organization. One of the best general organizational methods is the "project" method.

The following example of the "project" method is might be used by a remodelling contractor. Imagine that you are the contractor engaged by Mr. Smith to remodel his kitchen.

Special Note

An exercise using the detailed steps for the following methods is included in chapter 6.

The "Project" Method

The first step toward an organized file system is to make sure that you have a directory titled "work" within your home directory resulting in the following path:

/usr/people/student#/work

You would then create a new directory within the "work" directory for each new project that you start. You might for example be working on the Smith project. In this case you would create a directory called "smithprj" within the "work" directory resulting in the following path:

/usr/people/student#/work/smithprj

The next step is to identify the different types of information that will be involved in the Smith project. Let us suppose that you have three types of information that relate to the Smith project: letters, budgets, and drawings. As your work on the Smith project progresses you would create additional directories within the "smithprj" directory to organize these three types of information resulting in the following paths:

/usr/people/student#/work/smithprj/letters
/usr/people/student#/work/smithprj/budgets
/usr/people/student#/work/smithprj/drawings

As you can see, these new directories could be called "letters", "budgets", and "drawings". Once established in this way, the "project" method makes it easy to find previously created documents, but there is one catch.

The Catch

In order to take full advantage of this method of file organization, you must do one very important thing—when saving a newly created document, you must save it into the proper directory. If for example, you had just created a drawing of the new kitchen floorplan for the Smith project, when you saved this drawing for the first time you would have to specify the directory in which to save it. Most SGI applications like Showcase or Wingz will

suggest your Home Directory as the default directory in which to save the drawing. Your Home Directory is an inappropriate place to save the drawing. In the non-computer world, this would be like throwing all the files you created for the Smith project on top of the file cabinet instead of in the proper folder within the proper drawer. The proper place to save the drawing would be indicated by the following path:

/usr/people/student#/work/smithprj/drawings

The Benefits

It is very important that you decide upon a file management method early and stick with it. The benefits of using a consistent system of organization are substantial. In particular, you will find that it is much easier to backup your work because you can usually copy your entire "work" directory to a single floppy disk. In the event that your "work" directory is too large to be copied to a single floppy disk, then you can copy each individual project directory to its own floppy disk. Unless you are working with very large databases or writing a book like the one you are reading right now, your project directories will usually be small enough to fit on a single floppy disk.

Exercise 5-1:File Management

Because you have not yet been introduced to the Indigo Magic file management interface, there are no exercises for this chapter. As mentioned earlier in this chapter, the relevant exercises will be introduced at the proper place in chapter 6.

Q & A

Q: I did not use a file management method with my previous computer system. Why should I start using one now?

A: It is likely that the computer system that you came from was a Mac or a Windows-based operating system. In such systems the typical hard disk is not larger than 250 megs. The SGI workstation that you are or will be working with will have a minimum of a 1 gigabyte hard drive. This is anywhere from 4 to 10 time hard disk space you had in your previous system. Because of this increase in scale, the possibility for disorganization increases proportionally. Simply put—with this much space, if you don't organize it now it will take you a very long time to do it later.

Q: I have recently been hired and am inheriting the position and workstation of a previous employee. I am afraid that the person before me wasn't very organized. What can I do?

A: The first thing you should do is make a new directory called "organize" and move all of your predecessor's files into it. You should then set up your "work" directory and the project directories within it. Lastly, you should move the directories and files from the "organize" directory into the properly organized sections of your "work" directory. Remember, do not delete any of your predecessor's files without making a backup first. If you do not know how to backup these files, contact a divisional IS staff member for assistance.

Chapter 6: Indigo Magic & The Selected Menu

This chapter will introduce the Indigo Magic graphical file management interface and the "Selected" menu of the Toolchest. Most of your file management operations will be performed using Indigo Magic and the Selected menu.

Introduction to Indigo Magic

Indigo Magic is a graphical file management interface designed to simplify your everyday file management tasks by insulating you from the complexities and unfriendliness of certain aspects of the IRIX OS. Indigo Magic shares many common elements and actions with the Mac OS. For a critical list of areas where the two operating systems are dissimilar please refer to Appendix C.

Indigo Magic Interface Elements

Indigo Magic consists of four major elements:

- The Desktop
- The Desktop Icons
- The Directory Viewing Windows
- The Toolchest

The Magic Desktop

The Magic Desktop is the first thing you see when you log in to your SGI workstation. It is the catch-all for the other interface elements. The Icons, Directory Viewing Windows, and the Toolchest all reside on top of the desktop.

It is important to note that unlike the Mac operating system, the icons that appear on the Magic Desktop are not actual files, but are links to files. These links are similar to "alias" files in the Mac operating system. Links are discussed in greater detail under "Copy vs. Linked Copy" later in this chapter.

The desktop and its elements appear below.

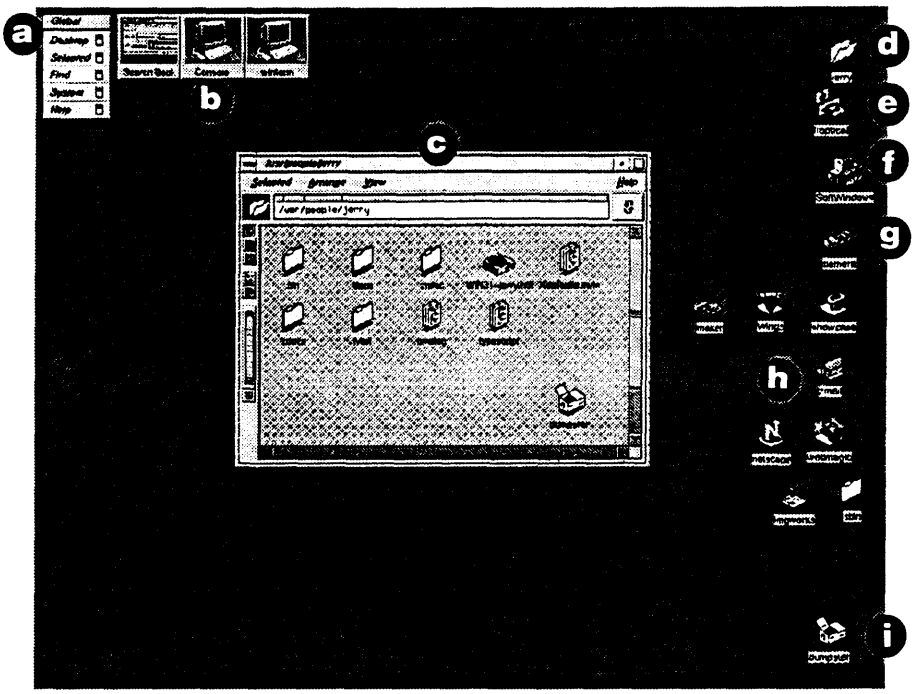


TABLE 3. Key To Desktop Illustration

	Name	Description
a	Toolchest	The Toolchest is similar to the Mac menubar. Frequently accessed commands can be found in the sub-menus of the Toolchest.
b	Minimized Application Icons	These icons represent currently running, but stowed, application windows.
c	Directory View Window	A Directory View Window of the Home Directory.
d	Home Directory Icon	A quick-access icon that opens a Directory View Window of the Home Directory.
e	Floptical Icon	This icon represents the status of the floptical drive and will open a Directory View Window of any disk inserted in the drive.
f	SoftWindows Icon	This icon will launch SoftWindows.
g	IndyCam Icon	This icon represents your IndyCam.

TABLE 3. Key To Desktop Illustration (Continued)

	Name	Description
h	Application icons.	Several other common application icons.
i	The Dumpster	The place to dump unwanted files. Similar to the Mac trashcan.

Desktop Icons

These icons represent links to critical files, directories and peripherals such as your Home Directory, local printer, or your IndyCam.

The Magic Directory Viewing Windows

The Magic Directory viewing windows are the key part of your interaction with the SGI file management system. These windows have many similarities with a Mac OS folder window. In the SGI OS these windows allow you to view and manipulate your file system in a visual way.

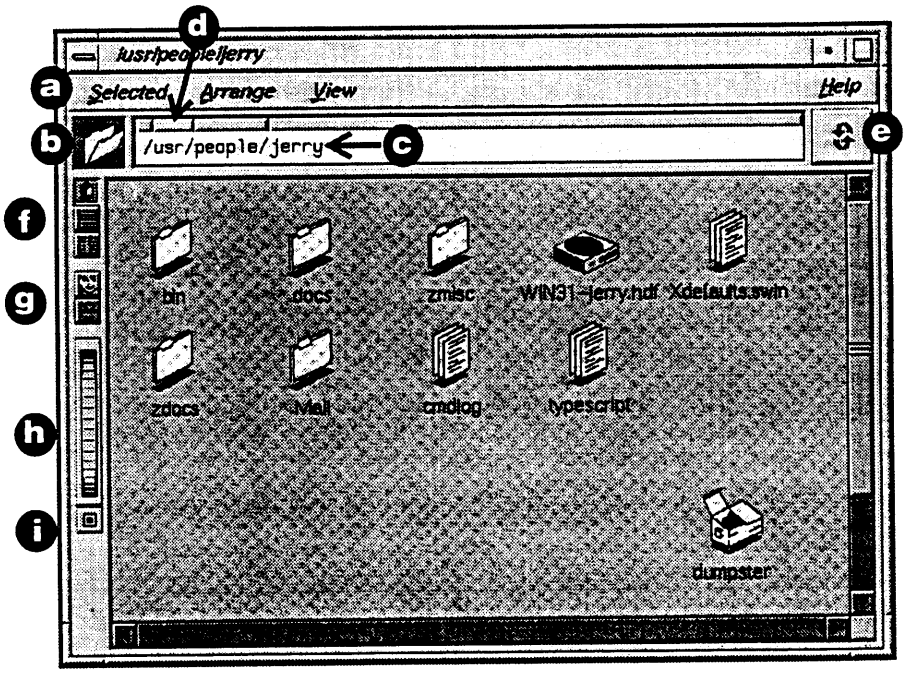
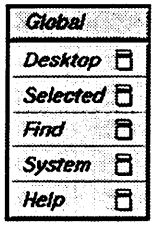


TABLE 4. Key To Directory View Window Illustration

	Name	Description
a	Menu Bar	Selected—this menu provides commands that affect the currently selected files or directories. Arrange—the menu provides commands that set the sort order for the files and folders displayed in the window. View—this menu provides commands that set the viewing style of the current window. Help—the menu provides access to the Help topics specific to this window.
b	Drop Pocket	Dragging a folder to the drop pocket adds that folder to the current path and displays the contents of the dragged folder in the current directory view window.
c	Path	The path of the directory currently displayed in the directory view window.
d	Path Segments	The small grey segments above each part of the path can be clicked on to view directories above the current directory.
e	Recycler	A pop-up menu providing quick access to the most recently viewed directories.
f	View Buttons	Top—displays the contents of the current directory as a collection of large icons. Middle—displays the contents of the current directory as a sorted list of small icons.[a] Bottom—displays the contents of the current directory as columns of small icons.
g	Gallery & Shelf Buttons	Top—replaces the standard file icon with a snapshot of the file's graphic content. Bottom—opens the quick-access shelf. The shelf is used for storing icons of frequently used files found in a particular directory.
h	Sizer	Moving the sizer up or down resizes the icons displayed in the window.
i	Default Size	Resets the size of the icons in the window to the default size set in the Desktop customization panel.

a. Sorting is controlled by selections on the "Arrange" menu.

The Magic Toolchest



The Toolchest is a fundamental part of your SGI OS. The Toolchest is a floating palette of menus. It is similar to the menubar found in the Finder of the Mac OS. The primary choices available from the Toolchest menus are discussed below. The Toolchest consists of five to six menus:

1. Desktop
2. Selected
3. Find
4. System
5. Applications
6. Help

Important Note

The most important commands on each of these menus will be discussed in this chapter. Please note that the menus and commands will not be discussed in the order in which they appear on the Toolchest.

- If you have no Toolchest open, you can restart the Toolchest by executing "toolchest &" from any open shell window.
- If you have no toolchest and no open shell windows, you must depress right mouse button in an empty area of the desktop to log out and log in again, thereby restoring the Toolchest.

The Selected Menu

Selected Menu

Most of the choices available on this menu are also available on both the Selected menu found in each directory view window.

Special Note

The Selected menu can also be accessed by depressing the right mouse button on an empty area of the desktop.

Open Icon: Will open the selected file. If the file is an application, opening it will launch the application. If the file is a document, opening it will attempt launch the document's parent application and open the selected document within that application.

Make Copy: Makes a duplicate copy of the selected file

Make Linked Copy: Makes a linked copy of the selected file. A linked copy is not a copy of the selected file, but is simply a pointer to the selected file. A linked copy is similar to an "alias" file in the Mac OS.

Remove: Removes the selected file in one of two ways, based on the setting of the "remove option" in the "Desktop" customization panel. If the "remove to dumpster" option is "on" then items removed with this menu choice are moved to the dumpster, otherwise items are deleted from the disk.

Print: Will attempt to print a file. Certain types of files will only print from within the parent application.

New Directory: Creates a new directory in the active Magic window.

File Permissions: Allows you to set the specific file permissions for the selected file or folder. This topic will be dealt with in detail in chapter 8.

Get Info: Provides detailed information about the selected file

Find An Icon: Is the same as the "Find An Icon" command on the Find menu.

Put Away Icon: Removes a copy of the selected file's icon from the desktop. This does not delete the file, it only removes the icon from the desktop.

Hide Path: hides the next immediate segment of the selected file's path.

Show Path: Shows the next immediate segment of the selected file's path.

Empty Dumpster: Empties the dumpster, and is only available from this menu if the Dumpster is currently selected.

Other Toolchest Menus

Desktop Menu

The choices available on this menu work with critical desktop components including your Home Directory, UNIX Shells, and the Dumpster.

Home Directory: This command displays the Magic view of your home directory.

Remote Directory: Allows you to move files from one workstation to another, across the network, iconically. This will not work if you do not have an account and proper permissions on the remote machine. See chapter 8 for more on permissions.

Customize: The customization options that will be most significant to you early on are dealt with in chapter 9.

Empty Dumpster: This command is similar to emptying the trash in the Mac OS. Once it's gone, it's gone!

UNIX Shell: As you have seen, this command opens a new UNIX shell to receive your commands and return results.

Log Out: What you do when you are done for the day.

Find Menu

The "Find" menu choices are discussed in greater detail in the exercise toward the end of this chapter.

An Icon: Finds the icon for a particular file. You can place the found icon on the Desktop for quick access or double-click it to open the file.

Search For: Of the several "Search For" options, only the Search For Files option is currently functional. This option will be discussed later in this chapter. The other options do not work properly under IRIX 5.3.

System Menu

The options available on the System Menu are used to change your system configuration. The key options are detailed in chapter 10.

Applications Menu

On your personal Indy, as well as those in the classroom, you may find an additional menu choice titled "Applications". This choice will provide quick access to your most frequently used applications.

Help Menu

Desktop Help: A step ahead of man pages, but a less robust help system than the Insight Online Books.

Online Books: Are accessed via the Insight Viewer. These books are comprehensive collections of all SGI user and technical data. Be sure to have ISAC setup access to the complete library of Insight Online Books. An exercise at the end of this chapter details the use of Online Books.

Man Pages: A nicer way to look at the trusted, old UNIX online manual pages.

Release Notes: A good place to look for changes that may affect you.

Exercise 6-1:Manipulating Magic Windows

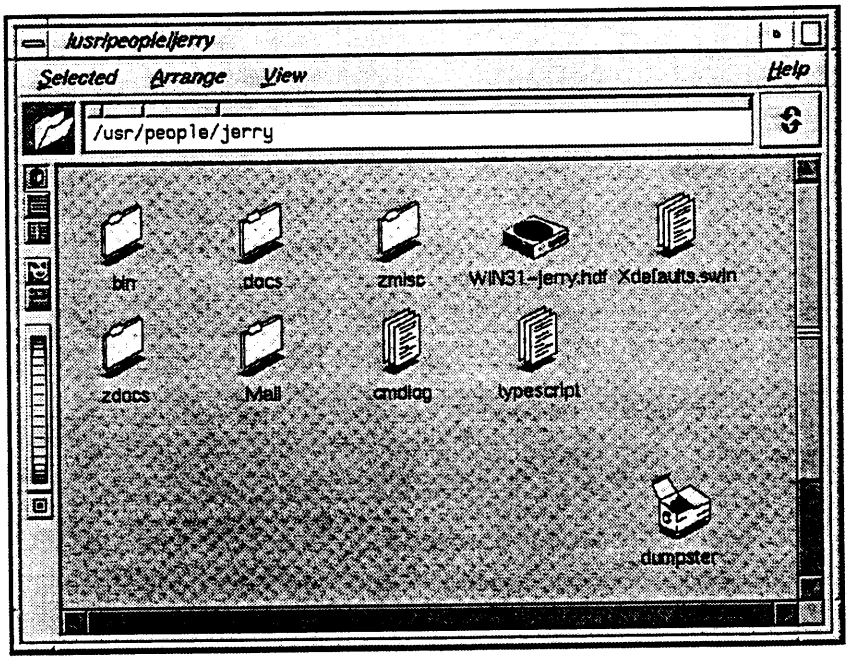
Opening Directory Windows

This exercise will familiarize you with the basic window manipulations.

1. Find the icon of your Home Directory on the Desktop. This icon should look like a folder have you username beneath it (illust. in sidebar).
2. Open this icon by double clicking on it.

   If there is no icon of your Home Directory on the Desktop then choose "Home Directory" from the "Desktop" menu of the Toolchest.

   You should see a window similar to the one below:



3. Find the icon of the "frame" directory within the Home Directory window. This icon should look like a folder with "frame" beneath it.
4. Open this icon by double clicking on it.
5. Find the icon of the "basic" directory within the "frame" window.
6. Open this icon by double clicking on it.
7. Find the icon of the "exercises" directory within the "basic" window.
8. Open this icon by double clicking on it.

Using the view and arrange menus

You should note that the viewing buttons along the left side of a directory view window correspond to several of the choices available from the "view" menu at the top of the window.

1. Choose the icon, list, and column options from the "view" menu in succession.
2. Try the green buttons along the left side of the window.
3. Choose "list" view from the "view" menu.
4. Try the options on the "arrange" menu to sort the contents of a window while in "list" view mode.

Closing Windows

1. Close all of the open windows except your Home Directory window by double-clicking in the close box for each window.

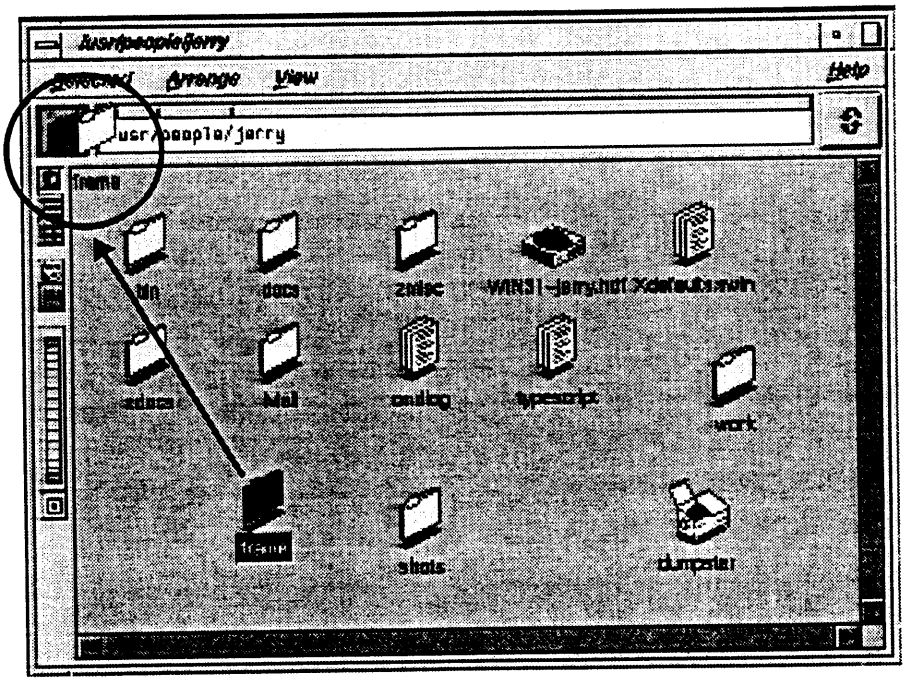
Using the Drop Pocket

While opening and closing directories by double-clicking on them is similar to the Mac OS. Indigo Magic provides an additional way to view the contents of your file system. This method allows you to view the contents of various directories without opening multiple directory windows.

1. Make sure that the only open window on your Desktop is your Home Directory.

   If your Home Directory is not open, choose "Home Directory" from the "Desktop" menu of the Toolchest.

2. Drag the "frame" directory to the Drop Pocket of the Home Directory window.



   Note that the window has changed to reveal the contents of the "frame" directory and the path in the pink area now ends with "frame".

3. Drag the "basic" directory to the Drop Pocket of the "frame" window.

Note that the window has changed to reveal the contents of the "basic" directory and the path in the pink area now ends with "basic".

4. Drag the "exercises" directory to the Drop Pocket of the "basic" window.

   Note that the window has changed to reveal the contents of the "exercises" directory and the path in the pink area now ends with "exercises".

   As you can see, using a different method you have now reached the same directory you had previously viewed earlier in this exercise.

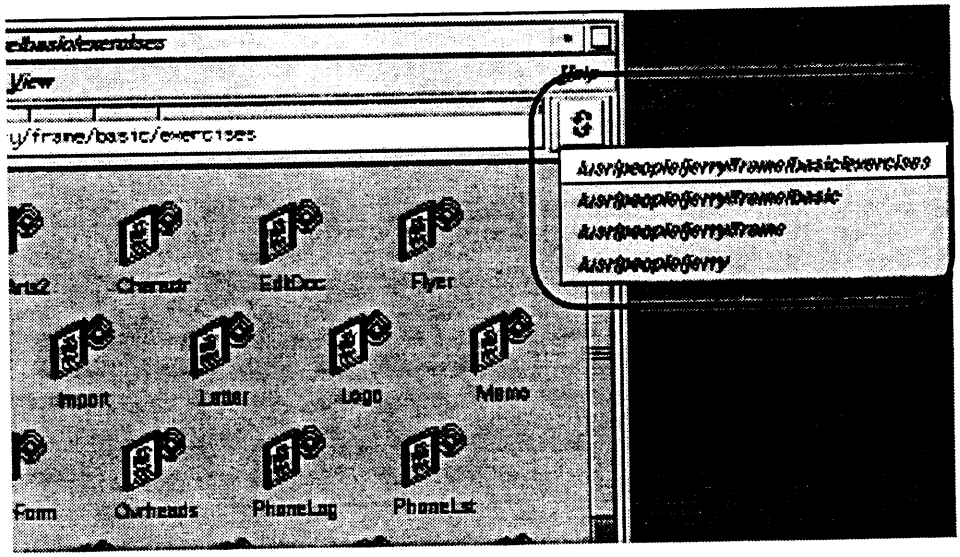
Using Path Segments and the Recycler

To return to a previous directory, you can use one of two methods:

Path Segments: Click on the Path Segment above the directory you wish to view in the path bar.

By using the Drop Pocket in conjunction with the Path Segments, you can move up and down within the hierarchy of your files system with little effort.

Recycler: Choose the desired directory from the Recycler. The following illustration shows a view of the Recycler that will be similar to yours.



Additionally, if you know precisely where you wish to go within your file system, you can always type the path directly into the Path Bar and view the desired directory immediately.

1. Click on the Path Segment above your user name (student#).

   You will return to your Home Directory

2. Click on the Recycler

   You will see a list of the various paths you have recently viewed. You could have chosen your Home Directory path from the Recycler instead of using the Path Segment.

3. Release the Recycler

Exercise 6-2:Selection Skills

The ability to select objects is crucial to your success in the Magic environment. This exercise will introduce the concept of multiple selection.

As you know, selecting a single object is easy. You simply point at the object and click on it with the left mouse button. The object that you clicked upon will change color to indicate that it has been selected. To deselect an object, select some other object or click in an empty area of the desktop (this is known as selecting nothing).

You may not be aware that you can select more than one object at a time by using one of two methods:

Shift-Clicking: To select more than one object simultaneously with this method, simply click on the first object and then, while holding the "shift" key down on the keyboard, click on the next desired object. When you have selected all the objects you wish to select you may release the "shift" key. This is also known as extending a selection.

Drag-Selecting: To select more than one object simultaneously with this method, put your pointer in an empty area of the window near the upper-left corner of the upper-left object you wish to select. Depress the left mouse button and while holding the button, drag the mouse down and to the right. This will begin a selection rectangle. Continue dragging until the selection rectangle encompasses all of the objects you wish to select. Release the mouse button and all of the objects that were touched or enclosed by the selection rectangle will become selected.

1. Open or Restore your Home Directory Window
2. Try Shift-Clicking several of the icons that you see in the window.
3. Click in a blank area of the Home Directory Window to deselect everything
4. Try Drag-Selecting several of the icons that you see in the window.

Exercise 6-3: Using the Selected Menu

Once you have selected an object you can utilize the options presented on the "Selected" menu. This exercise will make use of many of the options on the "Selected" menu. Our objective will be to establish an organized file system using the "project" method described in the previous chapter.

Special Note

Before proceeding make sure that you **do not** already have a directory entitled "work" within your Home Directory. If you do have such a directory tell your instructor at this time.

Creating Nested Directories

In order to keep your file system organized, it is usually a good idea to establish the proper directory structure early on.

1. If you Home Directory is not already open then open it.
2. Close all windows except for your Home Directory.
3. Choose the "New Directory" choice from the "Selected" menu at the top of the Home Directory window.

   This will create a new directory entitled "empty.dir" within your Home Directory.
4. Press the backspace key
5. Type "work" and press the return key.
6. Double-click on the "work" directory you have just created to open it.
7. Choose the "New Directory" choice from the "Selected" menu at the top of the "work" directory window.

   This will create a new directory entitled "empty.dir" within your "work" directory.
8. Press the backspace key
9. Type "smithprj" and press the return key.
10. Double-click on the "smithprj" directory you have just created to open it.
11. Choose the "New Directory" choice from the "Selected" menu at the top of the "smithprj" directory window.

    This will create a new directory entitled "empty.dir" within your "smithprj" directory.
12. Press the backspace key
13. Type "drawings" and press the return key.
14. Double-click on the "drawings" directory you have just created to open it.
15. Close all but the "drawings" directory.
16. Minimize the "drawings" directory.

Creating a Showcase document

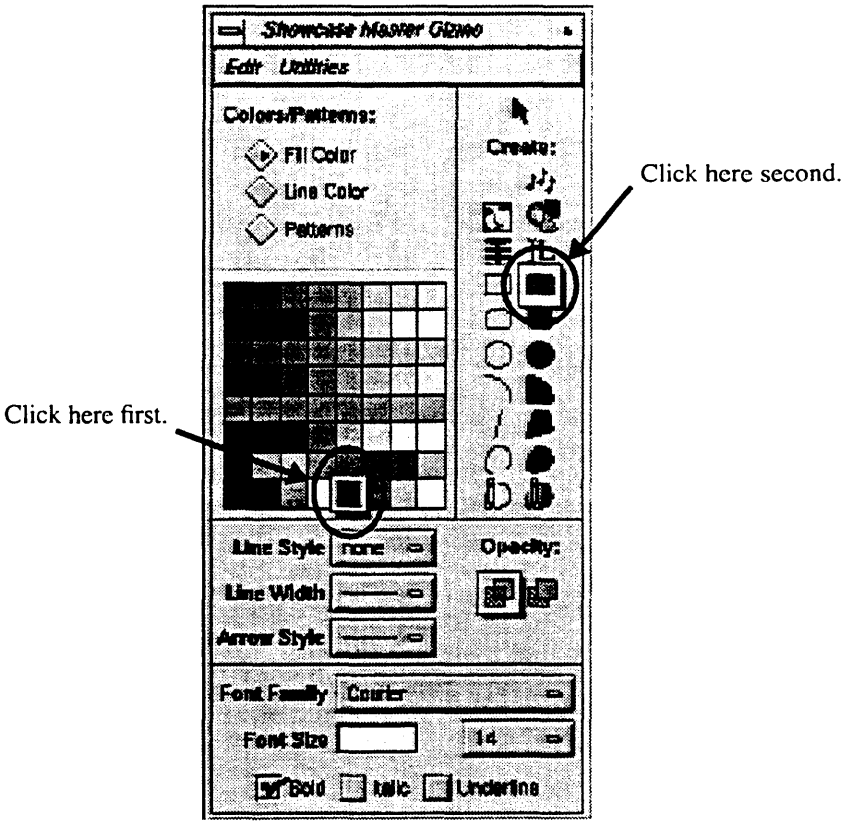
To demonstrate the additional options on the "Selected" menu, you will need to create a document file within Showcase and later save this file into the "drawings" directory you created previously.

1. Choose "Showcase" from the "Applications" menu on your Toolchest.

   If such a choice is not available, notify your instructor.

   The following instructions are intended only to generate a sample document for use in the subsequent exercise. This is not intended as anything more than a ten second excursion into Showcase. Should you require complete instruction about the many features of the Showcase application, please contact the Training and Development department to sign up for one of our many Showcase classes.

2. Click on the bright blue square indicated in the illustration below. This will set your fill color to bright blue.



3. Click on the "filled rectangle" tool also indicated in the drawing below.
4. Move your pointer to a point about 1/2 an inch from the top-left corner of the large white drawing area.
5. Press the left mouse button, and while holding the button, drag the mouse down and to the right until a square of approximately 3 x 3 inches is visible.
6. Release the mouse button and you should have a bright blue square.

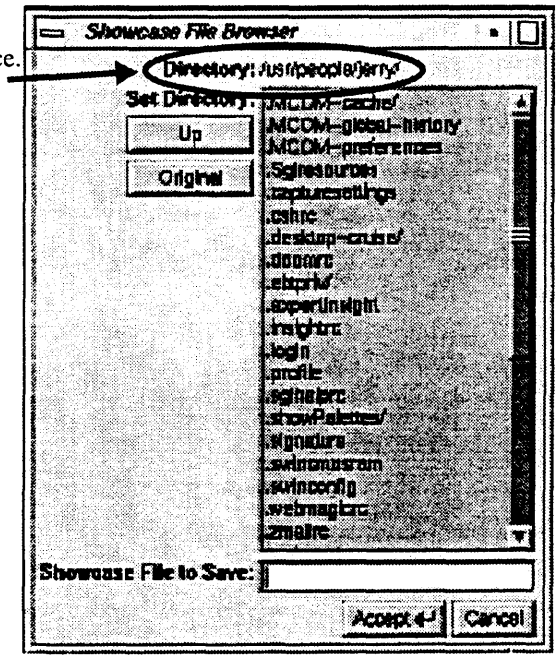
Saving a document in the right place

As mentioned in chapter 5, this is the tricky part. The Showcase application will suggest that you save this new document in your Home Directory. What you must do instead is direct Showcase to save the document in the "drawings" directory you created earlier.

1. Choose "Save" from the "File" menu in the window with the large blue square.

   You will now see the Showcase "Save" panel. It should look similar to the illustration below.

Not the right place.



   As you can see the default directory is your "Home Directory". This is not the proper place to save this document.

2. Scroll through the list in the "Save" panel until you find "work/".
3. Double-click on "work/" in the list.

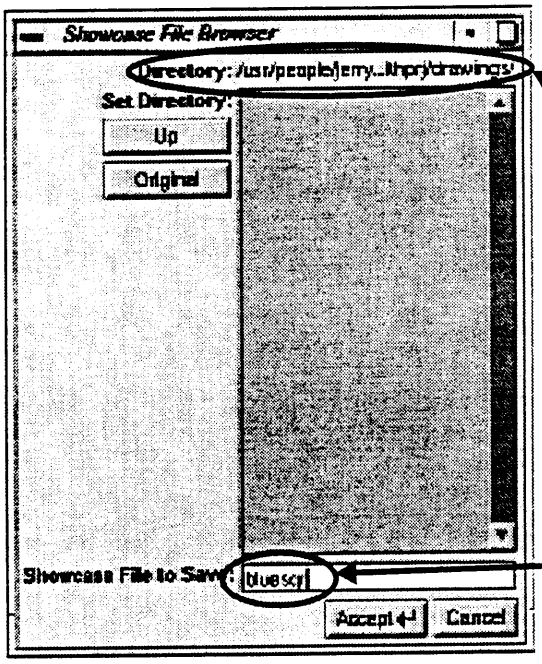
   This will take you into the "work" directory you created earlier.

4. Scroll through the list in the "Save" panel until you find "smithprj/".
5. Double-click on "smithprj/" in the list.

   This will take you into the "smithprj" directory you created earlier.

6. Scroll through the list in the "Save" panel until you find "drawings/".
7. Double-click on "drawings/" in the list.

   This will take you into the "drawings" directory you created earlier. You will now notice that the panel looks something like the illustration below.



You should also notice that the suggested directory noted in the illustration is now the correct place to save this document:

/usr/people/student#/work/smithprj/drawings

8. Put your pointer in the box titled "Showcase File to Save" at the bottom of the "Save" panel and click.
9. Type "bluesqr".
10. If your screen looks something like the one above then press return. Otherwise notify your instructor.

    Congratulations, you have just saved your first document into the appropriate place in your file system.
11. Choose "Quit" from the "File" menu at the top of the drawing area.

Working with document files

Now that you have a document file to work with we can work with some of the other options found on the "Selected" menu.

1. Restore the directory entitled "drawings" that you previously minimized in step 15 of the "Creating Nested Directories" exercise.

   Inside this directory you should see two document files: the "bluesqr" document and the "bluesqr.bak" document. The second document is a backup file created automatically by the Showcase application.

2. Select the "bluesqr" document by clicking on it once with the left mouse button.
3. Pull down the "Selected" menu within the "drawings" window.

Note that most of the choices on this menu are only available if you have an active selection.

4. Choose "Make Copy".

   This will generate an exact copy of the "bluesqr" document entitled "copy_of_bluesqr".

   You may need to move the new copy off of the original in order to perform the next step.

5. Select the "bluesqr" document again.

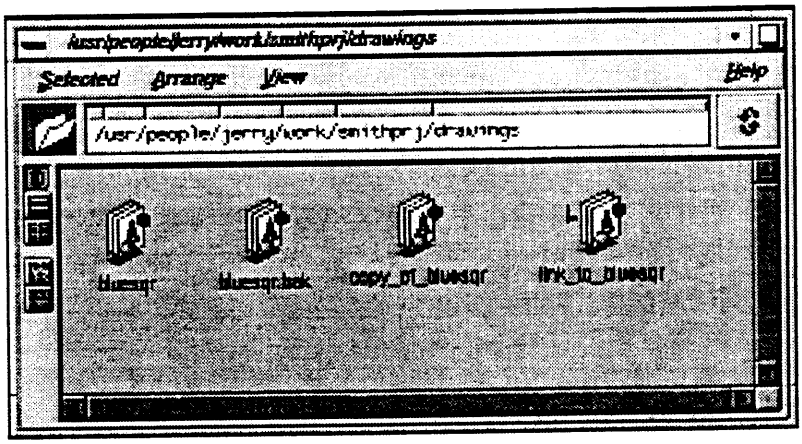
6. Pull down the "Selected" menu within the "drawings" window.

7. Choose "Make Linked Copy".

   This will generate a linked copy of the "bluesqr" document entitled "link_to_bluesqr".

   You may need to move the linked copy off of the original in order to perform the next step.

   The window will now look something like this.



Copy vs. Linked Copy

It is important to understand the difference between a copy and a linked copy. A copy of a file is just that, an exact duplicate of the file. This duplicate occupies the same amount of disk space as the original file it was copied from. Making copies of many files or directories can rapidly fill up your hard disk with unnecessary duplicates.

A linked copy is not really a copy. Instead, it is a pointer. It points to the original file. Consider the following example:

> In small libraries throughout the nation, it is difficult to obtain funds for expensive reference books. Often a library may have to make due with only a single copy of a reference book. The Oxford English Dictionary is such a book. This book contains approximately 2,800 pages. It would obviously be prohibitive to copy such a document, yet it would be useful to have additional copies of the book placed in various places within the library. The solution these small libraries utilize is straightforward. They put the dictionary in a particular place within the library such as the "West Wing" and then put small signs in other parts of the library that say "The Oxford English Dictionary may be found in the West Wing".

A linked copy works the same way as the small sign in the example above. It takes up very little space on your hard disk, yet allows you to access the original file by pointing to it from another location within your file system.

Removing Files

Removing files with the Magic file management system can work in one of two ways, based on the setting of a configuration option in the "Desktop" configuration panel. If the "Remove To Dumpster" option in the configuration panel is on, then any files removed with the "Remove" command from the "Selected" menu will be transferred to the "Dumpster". If the "Remove To Dumpster" option in the configuration panel is off, then any files removed with the "Remove" command from the "Selected" menu will be deleted from your hard disk.

The default configuration is to have the "Remove To Dumpster" option in the configuration panel on. This allows you a second chance—in the event that you accidentally remove a needed file, you can open the "Dumpster" and get it back. When your SGI workstation is configured in this way you must chose "Empty Dumpster" from the "Desktop" menu on the Toolchest in order to actually delete the files that are present in the "Dumpster"

1. Select the "bluesqr.bak", "link_to_bluesqr", and "copy_of_bluesqr" documents.
2. Pull down the "Selected" menu within the "drawings" window.
3. Choose "Remove".

   You will hear a large thud. This audio feedback indicates that your files have been tossed into the "Dumpster".
4. Choose "Empty Dumpster" from the "Desktop" menu of the Toolchest.

Congratulations, you have just completed the most difficult exercise in this book and learned how to perform a variety of file management operations necessary for the proper use of your SGI workstation.

Exercise 6-4: Finding Things

Of course, you will never lose anything in your highly organized file system, particularly after reading chapter 5, right?

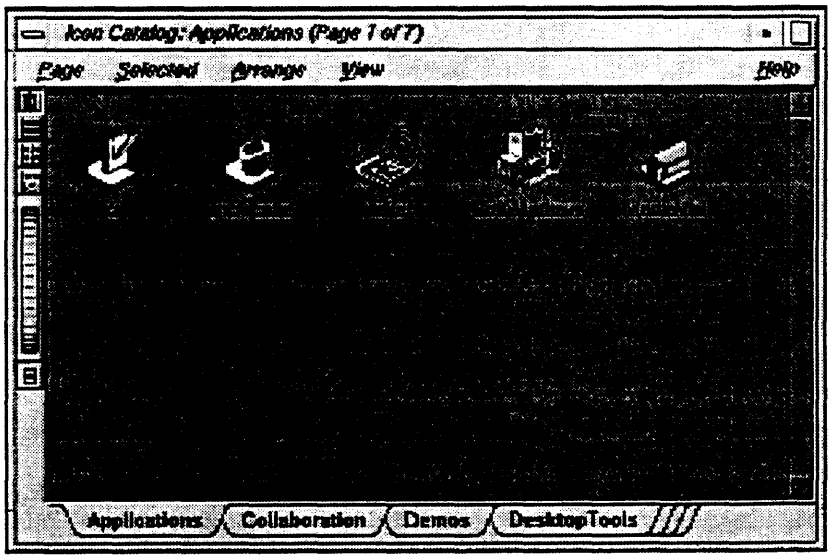
Well just in case, here's the how to find those accidentally misplaced files.

There are two utilities that you should be familiar with the Icon Finding Tools and the Search For dialog.

The Icon Finding Tools

The icon finding tools consist of two parts the Icon Catalog and the "Find An Icon" tool.

The Icon Catalog: Using the Icon Catalogs is a quick way to find the applications you need. The pages of the Icon Catalog show the icons for various categories of applications that have been installed on your SGI workstation. To access one of these applications simply double-click on its icon.



The "Find An Icon" Tool: In the event that you have misplaced an icon or do not wish to page through the icon catalogs, you can use the "Find An Icon" tool.

1. Choose "Find An Icon" from the "Find" menu on the Toolchest.

   A small dialog like the one below will appear.

2. Put your pointer in the text field of the dialog

3. Click the left mouse button
4. Type "netscape"

   If you have done this correctly, the "netscape" application icon should appear to the left of the text field.
5. Drag the "netscape" icon from the dialog onto your desktop.

The "Search For" Tools

There are several different "Search For" tools, though at this time, only the "Search For Files" tool functions properly.

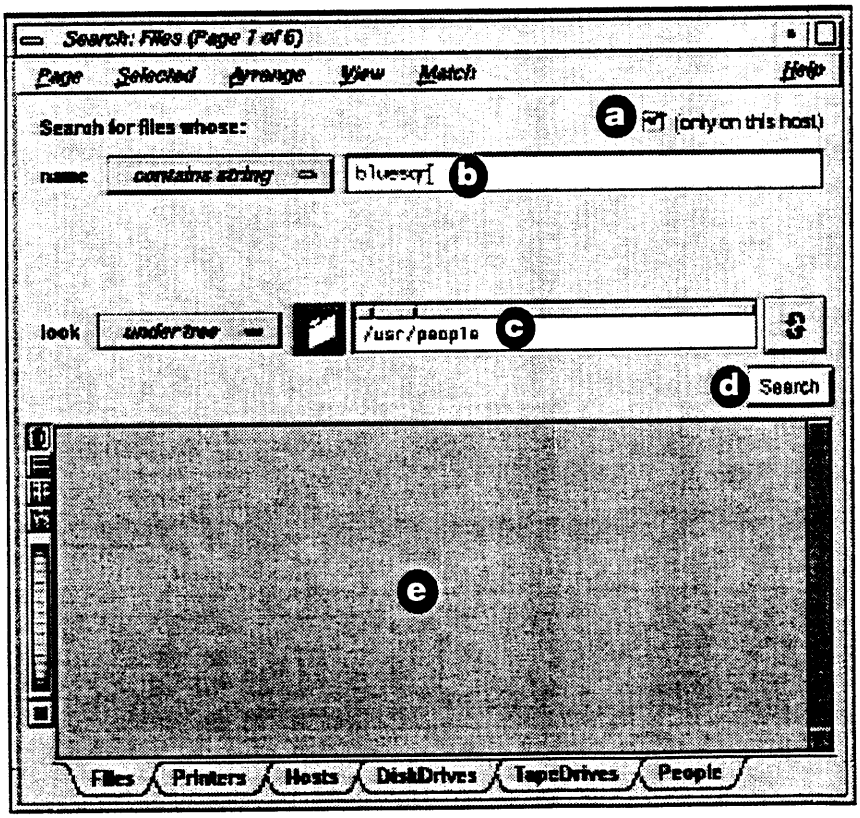


TABLE 5. Key To "Search For" Illustration

	Name	Description
a	Local Search Switch	Be certain that this switch is checked. Otherwise your search may extend to workstations other than your own.
b	Search File Name	Input either a portion of or the whole name of the file you are looking for.[a]

TABLE 5. Key To "Search For" Illustration (Continued)

	Name	Description
c	Search Path	This field tells the "Search For" tool where to begin searching. Typically you will put the path to your Home Directory here. If you wish to search your entire Hard Disk, you can put "/" in this field.
d	Search Button	This button starts a search.
e	Search Results	The files found by your search.

a. The * character can be used as a wildcard to substitute for any character. For example, searching for "Je*" would return Jerry, Jenny, Jeremiah, and Jethro.

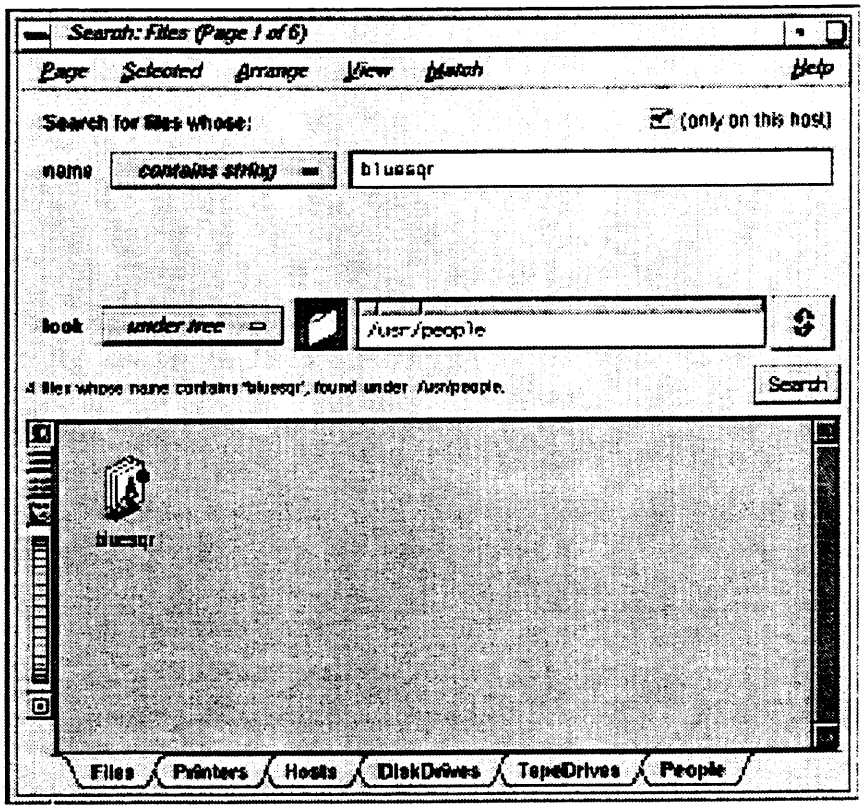
1. Choose "Files" from the "Search For" sub-menu of the "Find" menu of the Toolchest.
2. Make sure that the local search switch is checked.
3. Verify that the button to the right of name read "contains string".

   This setting causes the search utility to behave like the Mac "Find File" command, allowing you to find files with only a portion of the file name.
4. Type "bluesqr" into the search file name.
5. Make sure that the search path reads "/usr/people".
6. Click the search button.

   The sounds that you hear are an audio feedback mechanism that allows you to continue working without paying attention to the progress of your search request. There are three sounds that you may hear:

   - The searching sound: thumpa, thumpa, thumpa-like marbles in a wooden box.
   - The item found sound: knock-like banging two coconuts together.
   - The finished sound: shwink-like a paper cutter or a pair of scissors.

   The search result will look something like this.



You may see more than one found file. You can drag the icons that appear in the Search Results to other directories or onto the desktop. You can also use the Selected menu to perform other actions on the found files such as opening, copying, changing permissions, or removing.

7. Close the search window.

Exercise 6-5: Using the Online Books

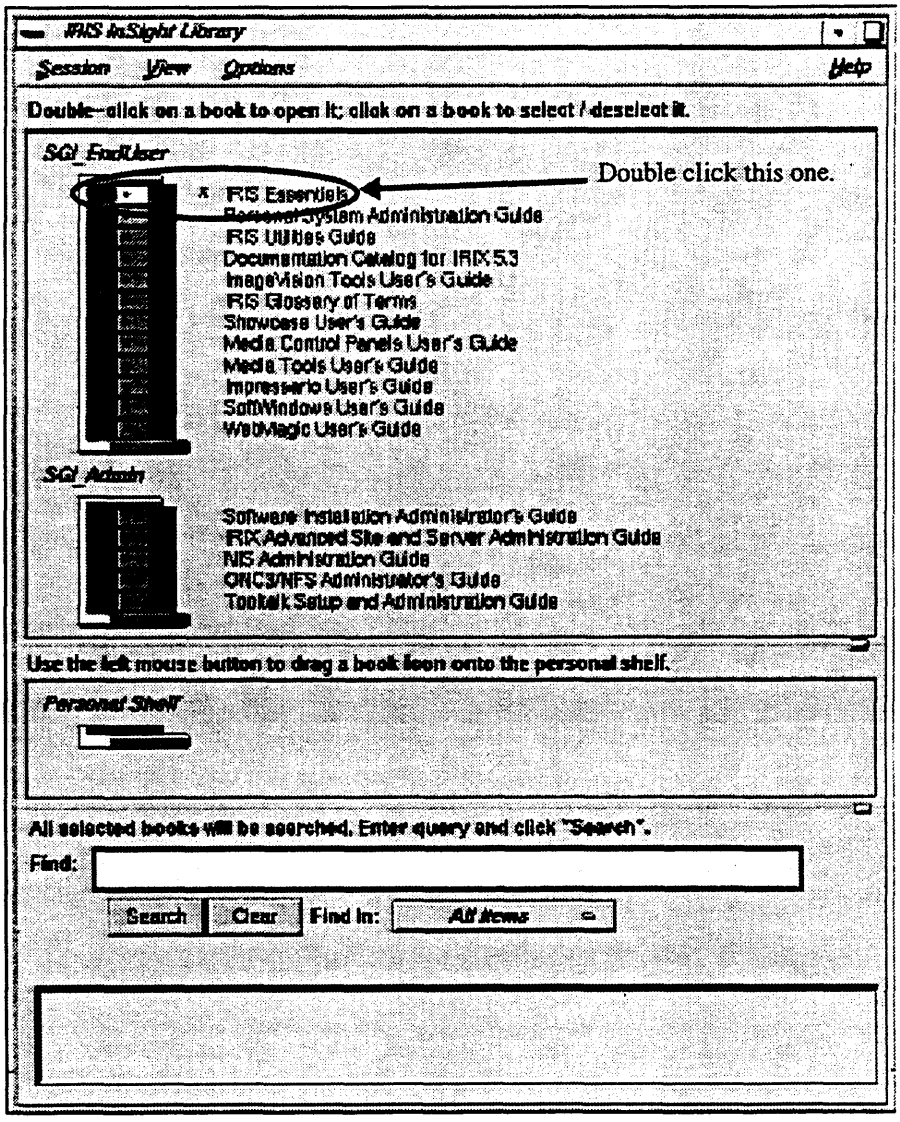
The various Online Books are a crucial part of your SGI operating system. They are constantly available to explain both general and specific questions that you might have about the day-to-day operation of your SGI workstation.

Finding Things in Online Books

In this exercise you will learn how to look up important terms such as "root" in the Online Book entitled "Iris Essentials".

1. Choose "Online Books" from the Help menu.

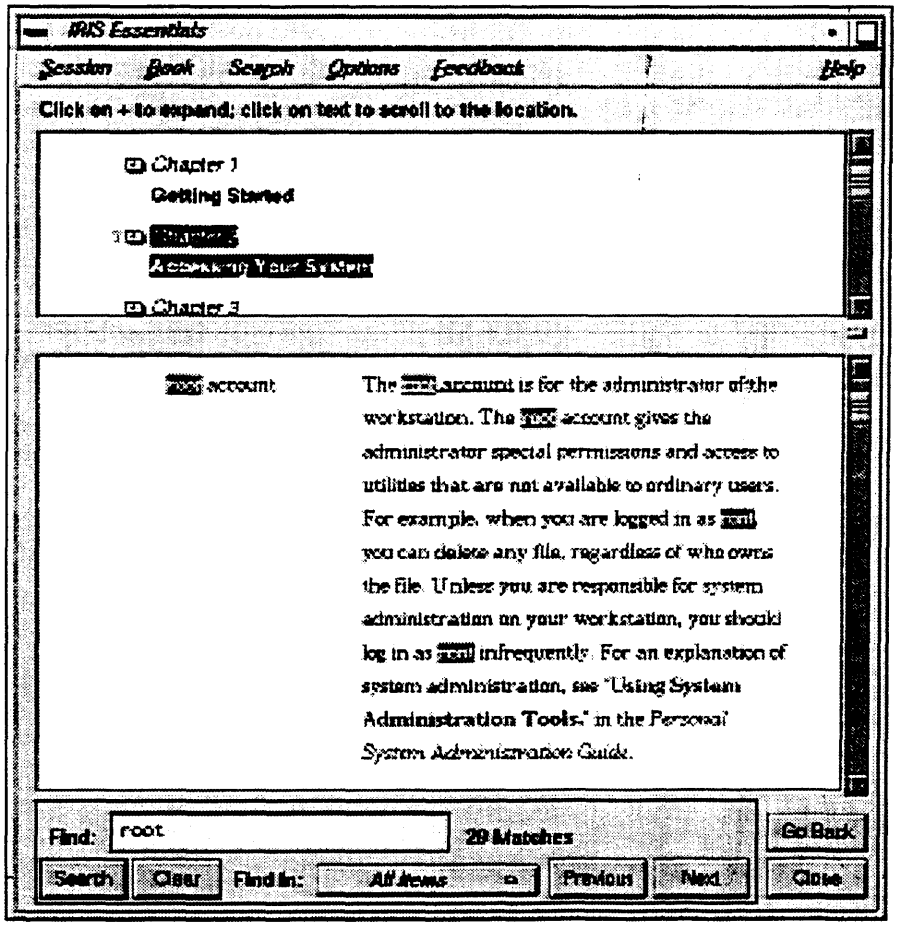
   You will see the following.



2. Double click on the "Iris Essentials" Online Book.

3. Click in the "find" field at the bottom of the window.
4. type "root" into the "find" field and press return.

   This will show you all of the occurrences of the word "root" within the "Iris Essentials" Online Book.



Nearly all of SGI printed documentation has been converted to the Online Book format. Be sure to take a few moments to familiarize yourself with this helpful utility when you return to your own workstation.

Chapter 7: The Floptical Drive

If your workstation is equipped with a floptical drive, this chapter will help you to understand its usage.

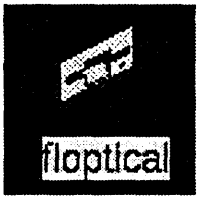
What is the Floptical Drive?

The floptical drive is a multiple-media disk storage device. It will read and write high-density floppy disks from the Mac, PC, or SGI environments. It will also read and write high-capacity floptical cartridges. Superficially, these floptical cartridges look like floppy disks, but hold fourteen times more information than floppies. Unfortunately, floptical cartridges were not commercially successful and have become largely unique to SGI.

Why is this important?

Understanding how to use the floptical drive will provide you with the ability to move your most critical data files from your Indy to any number of floppy disks. You can retain possession of these floppy disks as backups, thereby allowing you to sleep better at night. In addition to these important benefits, the floptical drive will allow you to transfer files to and from a Mac or PC.

Basic Floptical Operations



- How do I know if I have a floptical drive installed in my SGI workstation?

  1. If you have a floptical drive installed in your SGI workstation, you will see an icon on the desktop that looks similar to the one pictured at the left.

- How do I know if there is a disk in my floptical drive?

  1. When a floppy is loaded, the floptical icon on the desktop will show a floppy disk in the slot and either a small, black Apple logo or a PC "A:" prompt to indicate a Mac or DOS disk respectively.

- How do I insert a disk in the floptical drive?

  1. Place the floppy in you right hand with the metal circle on the back of the floppy facing the floor.

  2. Point the metal shutter toward your left hand.

  3. With the disk in this orientation, insert it into the floptical slot at the top, right, front edge of your Indy workstation (directions for other workstations will vary).

  4. Push the floppy into the slot until it clicks into place.

- How do I format a disk in the floptical drive?

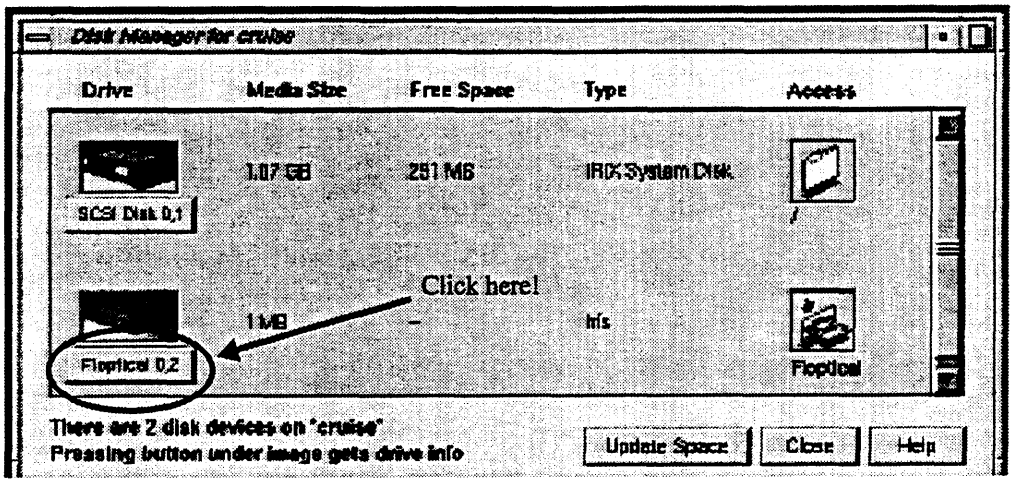
  1. Insert the floppy as instructed above.

  2. Choose "Disk Manager" from the "System" menu on the Toolchest.

3. Click on the "Floptical" button beneath the picture of the Floptical drive.

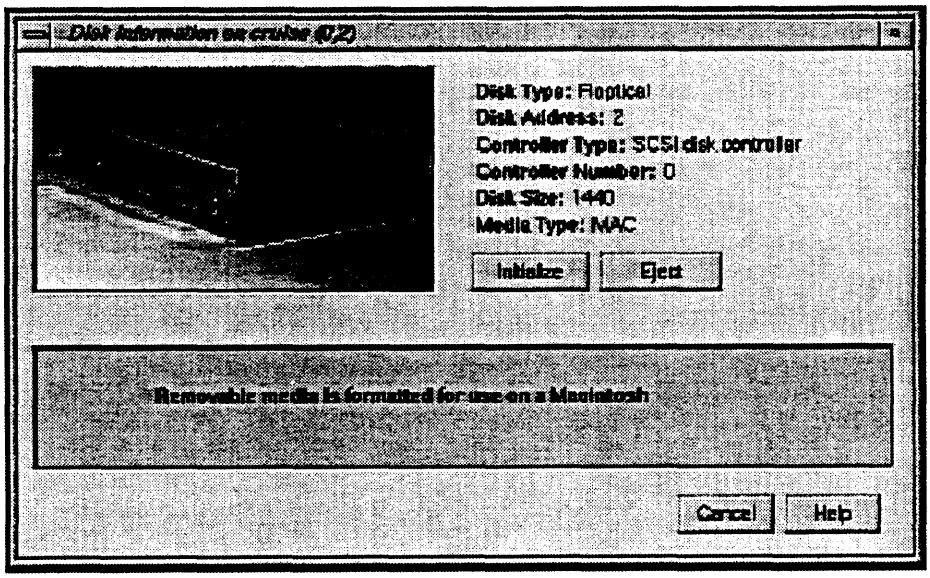
4. The following illustrations may help with this process.

5. The Disk Manager displays the current status of your disk drives. The button beneath the picture of each drive will bring up the disk manager panel for that specific drive.



6. Click on the "Initialize" button and choose the appropriate format.

7. The illustration below shows the disk manager panel for a floptical drive. This panel allows you to format floppy and floptical disks. It also provides another way to eject a floppy or floptical.



- How do I move files from a floppy disk to my Indy?

  1. Insert the a floppy as instructed above.

  2. Double-click on the floptical icon to open the directory view window for the floppy.

  3. Open the desired directory view window to display the directory into which you wish to move the files from the floppy.

4. Move and resize both directory view windows so that you can clearly see each of them simultaneously.

5. Select and drag the desired files or folders from the floppy directory view window to the Indy directory view window.

- How do I move files from my Indy to a floppy disk?

  1. Insert the a floppy as instructed above.

  2. Open the desired directory view window to display the files of directories that you wish to move to the floppy.

  3. Double-click on the floptical icon to open the directory view window for the floppy.

  4. Move and resize both directory view windows so that you can clearly see each of them simultaneously.

  5. Select and drag the desired files or folders from the Indy directory view window to the floppy directory view window.

- How do I eject a disk in the floptical drive?

  1. Click on the floptical icon to select it.

  2. Right-click anywhere on the desktop to display the Selected Menu.

  3. Choose "Eject Floptical" from the Selected Menu.

Exercise 7-1:Moving Files

If disks are available in the classroom, the instructor will lead you through a series of basic floppy disk exercises.

If disks are not available in the classroom, then you will want to step through the methods described previously in the chapter at your personal workstation.

Q & A

Q: Sometimes I eject a floppy and the floptical icon on my desktop indicates that the floppy is still in the drive. What do I do?

A: Call ISAC at 3-HELP for further assistance.

Q: Can I use 800K Mac floppies in my floptical drive.

A: No, you cannot. Be certain to have any critical information moved from 800K Mac floppies to high-density 1.4Meg Mac floppies.

Q: Why can't I just drag files onto the floptical icon, instead of opening the directory view window first?

A: Because the SGI OS does not support this type of action.

Q: When I copy files from a Mac floppy disk to my SGI workstation, in addition to the files I wished to copy I also get a some hidden directories and files. What are these additional files and what should I do with them?

A: These hidden directories and files are typically named ".HSResource" & ".HSancillary" and are known as ancillary files. They are hidden because they begin with a period. They represent information that was needed by the Mac file system to describe your Mac files. In the SGI OS they have no purpose, and may cause confusion in the SoftWindows environment. After copying the files from the floppy disk to your SGI you can simply delete these ancillary files from your hard disk.

Q: Were you really serious about the "sleep better" thing earlier in the chapter?

A: If you would prefer I could tell you data loss stories that would give you nightmares instead.

Chapter 8: Security & Permissions

Security and permissions are very important in the SGI environment. Unlike the Macintosh OS which is a fundamentally closed file system, the SGI OS, as part of its UNIX mainframe heritage, is founded on a multi-user, network model and is an open, fundamentally insecure file system.

Specifically, in the Mac OS, other networked Mac users could only examine the files you gave them permission to see. In contrast, in the SGI OS, other networked SGI users can look at nearly all of your files unless you take steps to prevent them from doing so.

Workstation Access

As discussed in chapter 1, in order to access information on an SGI workstation a user must have two components:

- An valid user account.
- Specific access permissions to the file system.

File Access Permissions

The concept of file access permissions is a little more complicated. Every file and directory has three permission categories and each of these areas has three attributes:

Permission Categories

user: The creator/owner of the file

group: members of a preconfigured group. Group permissions are a feature of the old multi-user days, and are not used often at SGI.

other: Any user with a valid user account other than the creator/owner or a group member.

Permission Attributes

read: read access to this file is granted, allowing only reading or copying

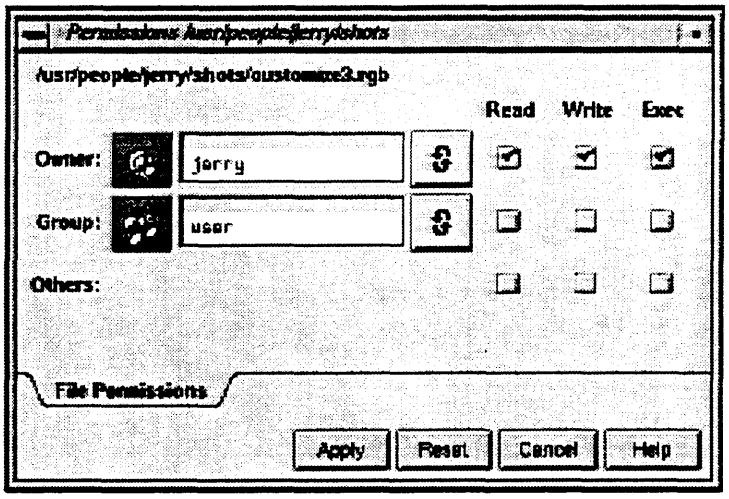
write: write access is granted, allowing changes and also erasure

execute: execute access is granted, if the file is an application, or a command, it can be launched or executed. This attribute also controls whether a file can be listed in a directory window, or searched for with file finding tools.

Setting Permissions

To set permissions for a file or directory:

1. Select the desired file or directory.
2. Choose "Permissions" from the "Selected" menu on the Toolchest (Illust. below)
3. Set the permissions according to the advice in the rest of this chapter.



Superuser & Permissions

Earlier in this text the concept of different user account types was introduced. The file access permissions discussed in this chapter apply to both privileged and regular user account types, but not to the superuser account type. The permissions settings have no effect on the superuser—the superuser can access and modify any file anywhere on the system. For this reason it is important to have a password for the superuser account.

SGI default workstation setup

The largest security hole that may affect an SGI staff member is the default SGI workstation setup. This setup introduces two security exposures:

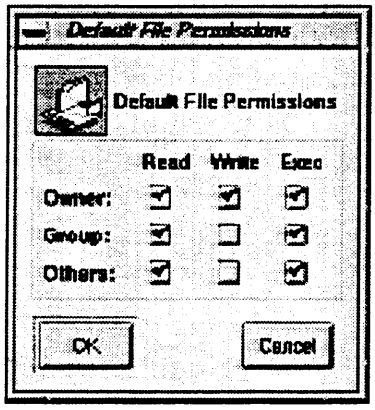
1. A "guest" user account that anyone can use to gain remote access to your system.
2. A default file permission setting that allows any SGI employee logged in via the aforementioned "guest" account to read and copy most of your files.

The universal "guest" account

Nearly all SGI workstations have a "guest" account that requires no password for access to the guest account home directory, /usr/people/guest. While this may not seem to be a problem at first glance, when coupled with the default file permissions on most SGI workstations, it allows users to look at most, if not all of your files via this account.

Default File Permissions

The illustration below shows the default file permissions applied to any new files you create within the Magic Desktop environment.



All files created when the default permissions are set in this way allow the owner/user of the file to read, write, and execute file; group members to read and execute the file; and other users to read and execute the file. In particular, other users who access your workstation via the "guest" account are permitted to read and/or execute the file.

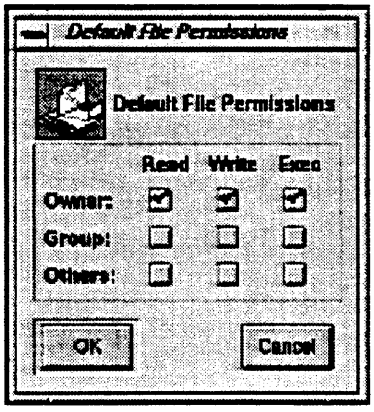
It is likely that upon returning to your own workstation you will find that most, if not all, of your files have file access permissions that are similar to these.

Recommended Security Practices

While your divisional IS staff will undoubtedly have specific policy regarding system security, the following general advice will help counter the security hole opened by the SGI default workstation setup.

Patch up the holes

- Change your default file permissions:
  1. Choose "Desktop" from the Toolchest.
  2. Drag to the "Customize" submenu.
  3. Drag to "Desktop" submenu.
  4. Click on the "Default File Permissions" button and set as illustrated below.



By changing your settings to those above, every file you create thereafter[1] will be accessible only to you. Of course, this means that if you intend for a file or directory to be accessible to another user, you must manually set the permissions for that file or directory.

- Verify that your E-Mail directory and files do not have file permission settings that allow access to anyone other than yourself.
- Instead of retroactively trying to adjust the file permissions of all the files you created prior to being informed of the information in this chapter, simply create a new directory called "private" (within your Home Directory) that has file permissions set for your access only. Move all your sensitive files into this new directory.
- Do not move applications, operating system files, or network access files (E-Mail or shared directories) into the "private" directory. This is particularly important if you are sharing your workstation with another SGI staff member. Placing such files in the "private" directory may render them unusable by those sharing your workstation.

Maintain the guest account

- Removing the guest account may seem to be the easiest solution, but you should keep your guest account. It is one of the most common ways to properly share files at SGI. If you take the other steps suggested in this chapter, the security hole posed by the guest account will be minimized.
- Put files to be shared by other SGI staff into the guest account home directory (/usr/people/guest) only. Do not place these shared files anywhere else on your system. Once you have changed your default file permissions as indicated above, you will have to set the file permissions on any file you put into this directory manually.

Secure Your Passwords

- Do not reveal your regular or superuser/root passwords to anyone other than your divisional IS staff, the IS Assistance center staff, or other technically-qualified IS representative.
- Change both your root password and your regular password occasionally. Do not make them the same.

1. Except those files created with a shell command. Setting default permissions for these files is a complicated process. If you feel you need to address this issue, consult the IS Assistance Center.

Q & A

Q: Jeez, why is security such a big issue? Are bad things happening here?

A: Security in the computer technology industry is always a big deal. No, bad things are not happening around here. The advice provided herein is modeled on the idea that you would not want everyone reading your U.S. Mail and the same should be true for your E-Mail or any other files you consider your private business.

Q: I am not really sure about this stuff. I came from the Mac world, where it was just me and my little Mac. Where can I get more help?

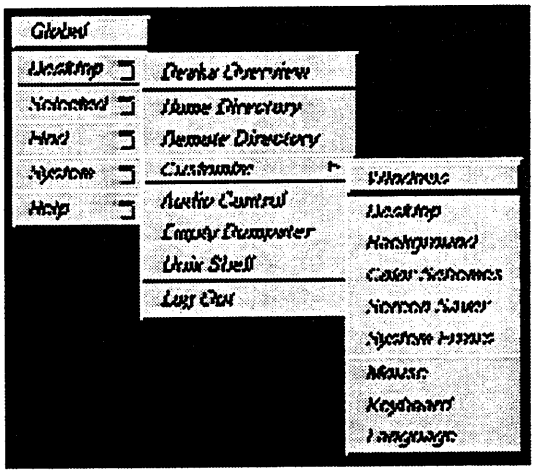
A: As always, consult your divisional IS staff or contact the IS Assistance Center at 3-HELP.

Chapter 9: Basic Desktop Customizations

This chapter will discuss certain system customizations that you may be inclined to modify early in your use of your SGI workstation.

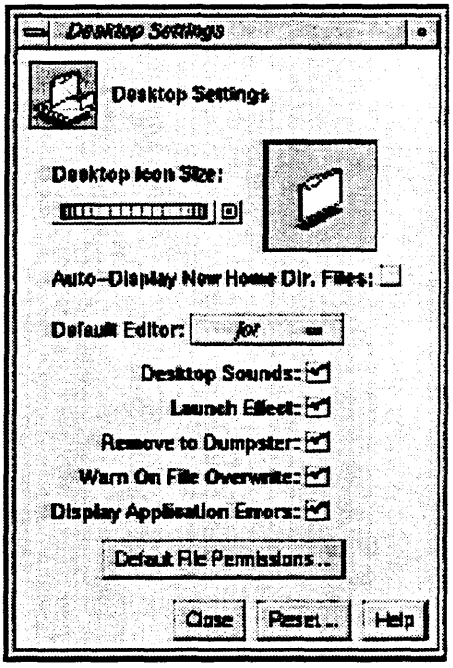
Common Customizations

The following are recommended settings for certain SGI workstation customizations. These customizations are available from the Customize sub-menu of the "Desktop" menu of the Toolchest, as illustrated below.



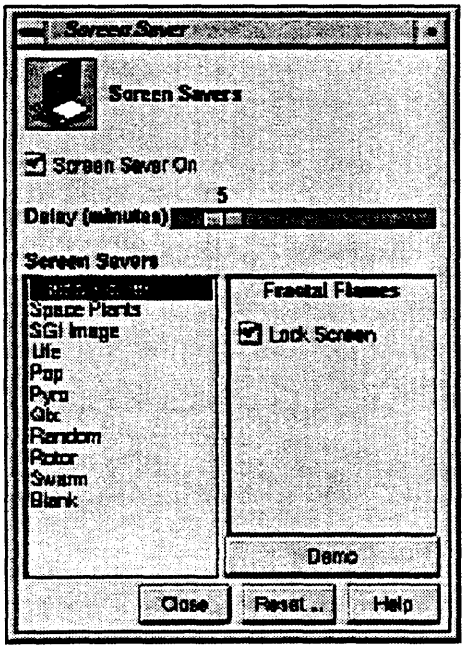
Desktop

The desktop customization should be set as illustrated below. Additionally, the Default File Permissions should be set as specified in chapter 8.



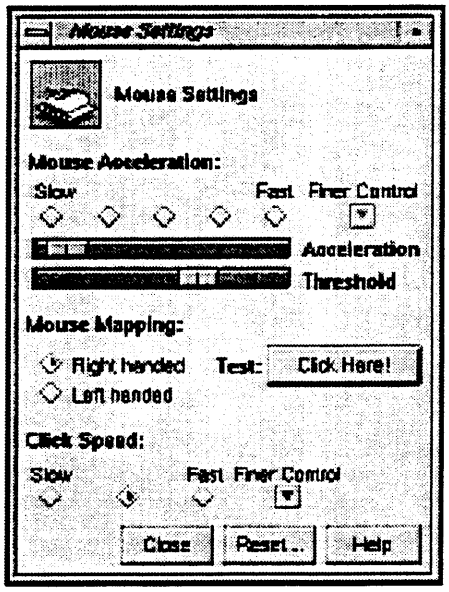
Screen Saver

While you may choose whatever screen saver you like, it is recommended for security reasons that you choose one of the several screen savers that includes the "lock screen" feature as illustrated below. By choosing one of these screen savers and turning the "lock screen" feature on you will have to enter a password to return to the desktop after the screen saver has become activated.



Mouse

You can modify the responsiveness of your mouse and mouse buttons with this customization panel. Left-handers can also reverse the left and right buttons to accommodate use of the mouse on the left side of their workstations.



Chapter 10: System Management

Certain System Administration tasks are important for day-to-day operation of your SGI workstation. Most of these tasks require you to select options from the System menu on your Toolchest. The following descriptions will assist you in understanding these tasks.

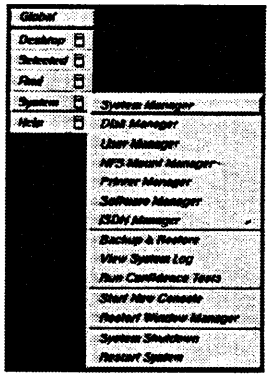
> NOTE: Many of these tasks cannot be performed without root access. For reasons of system integrity, we do not provide root passwords for the workstations in the SGI classroom.

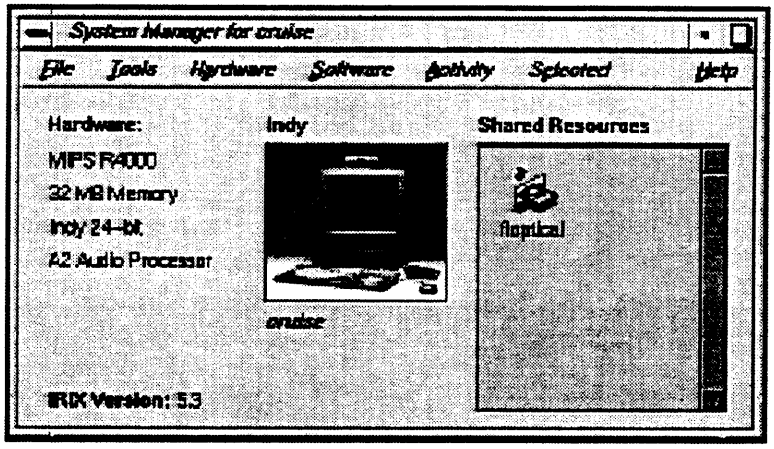
System Menu Items

The following system management items may be useful to you in the near future. A picture of the System Menu choices appears in the sidebar.

System Manager

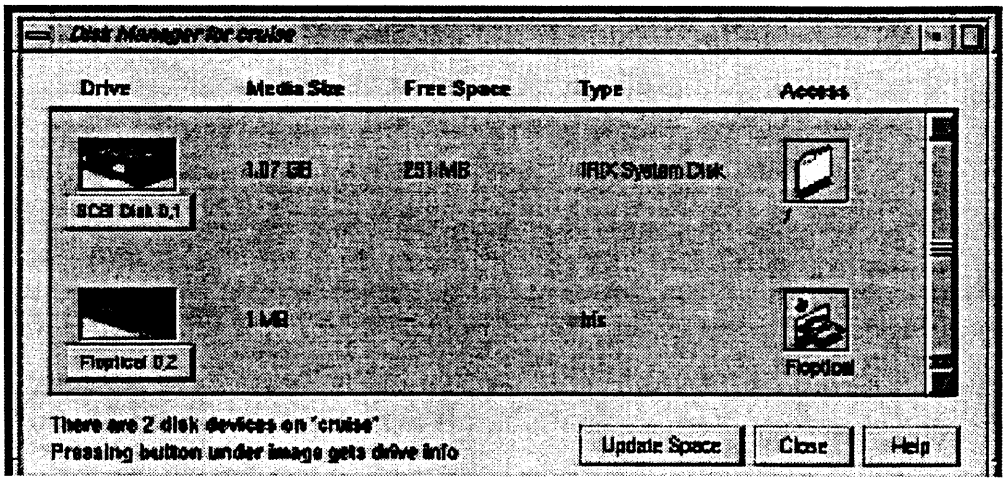
The System Manager provides information about your current system configuration. This is essentially a graphical version of the IRIX "hinv" command introduced in chapter 4.



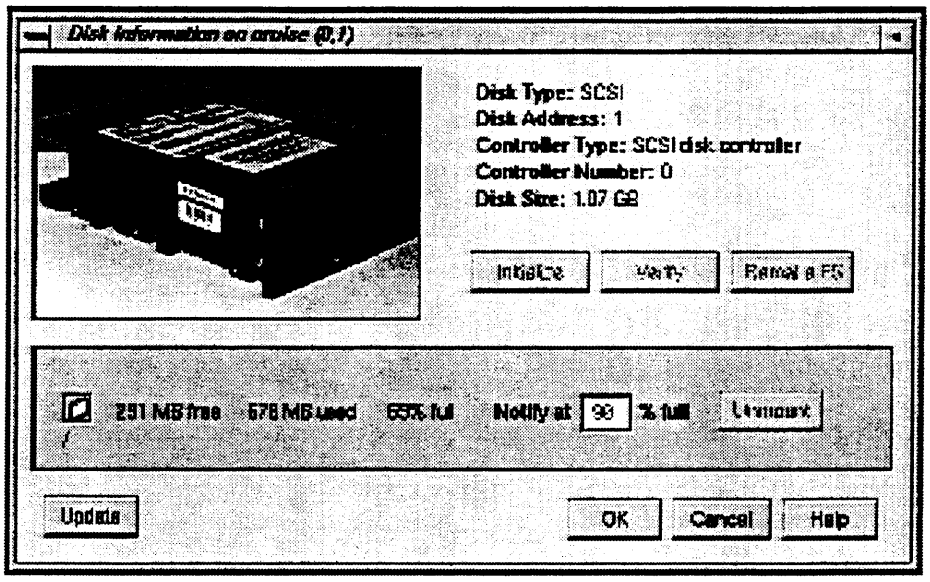


Disk Manager

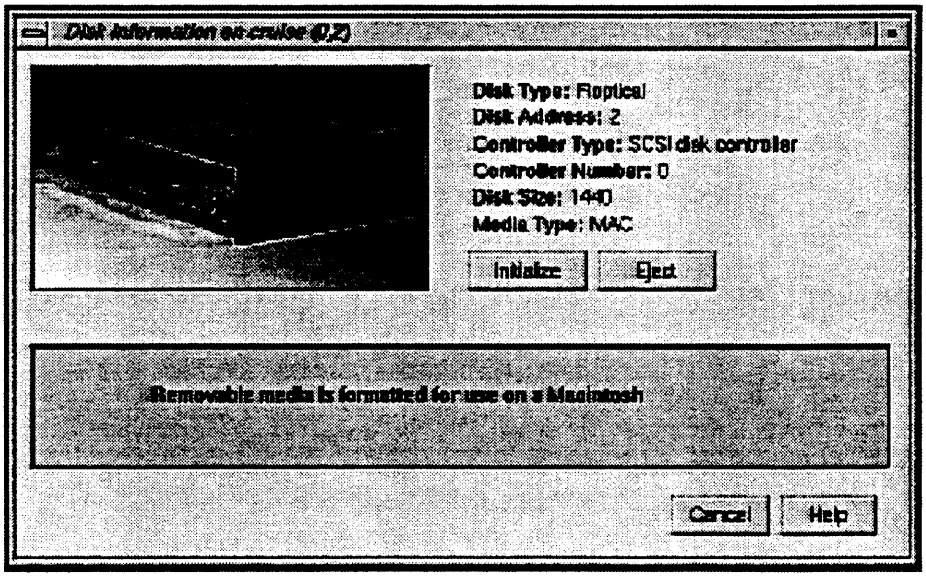
The Disk Manager displays the current status of your disk drives. The button beneath the picture of each drive will bring up the disk manager panel for that specific drive.



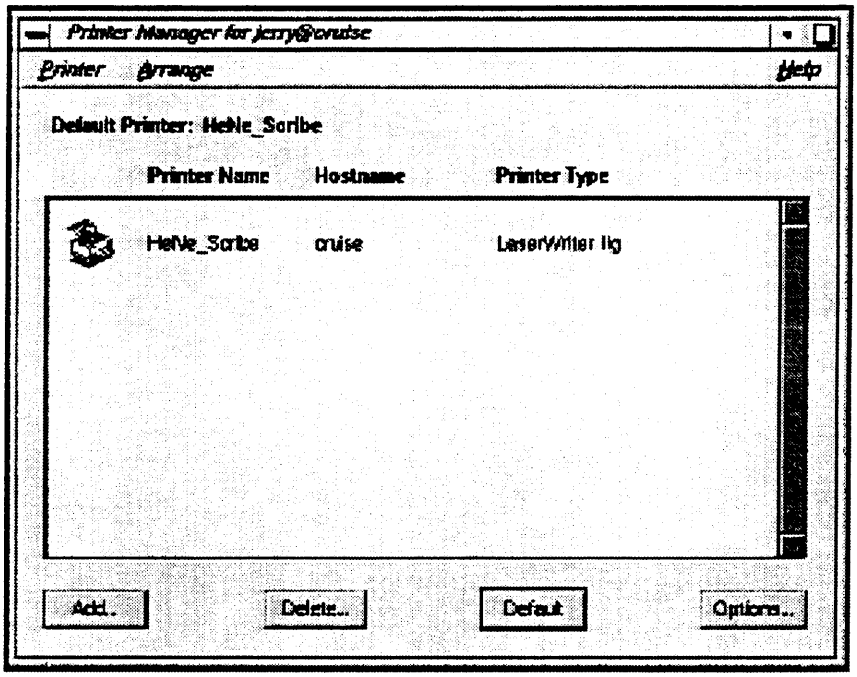
In the disk manager panel for the hard drive you will see a warning level setting. You may set this to warn you when the disk has reached a preset capacity. It it not recommended to set this warning threshold to a number higher than 90%.



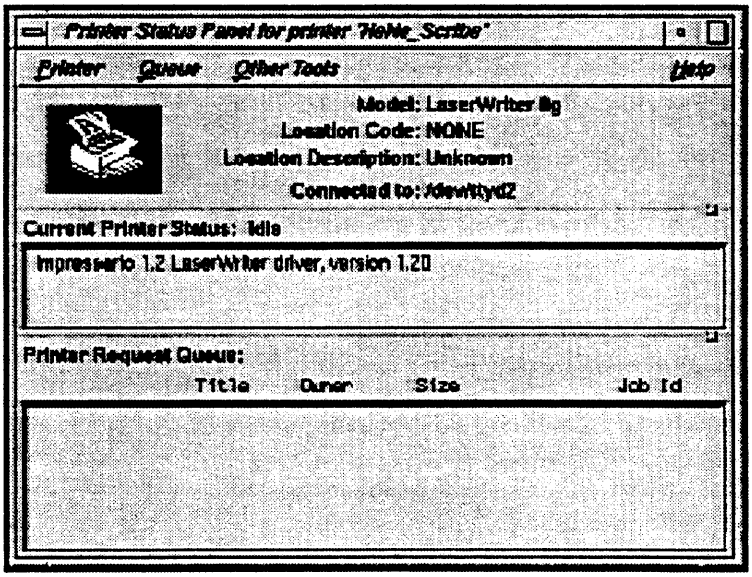
The illustration below shows the disk manager panel for a floptical drive. This panel allows you to format floppy and floptical disks. It also provides another way to eject a floppy or floptical.



Printer Manager: Allows you to configure and monitor the status of printers. Additionally, this panel allows you to add additional printers and to designate your default printer.



The icon for the printer named "HeNe_Scribe" (pictured in the sidebar) can be dragged to any area of your desktop and then opened (by double clicking) to view the current status of the printer and the queue of currently printing documents. The illustration below shows the print panel for the "HeNe_Scribe" printer. There are no pending print jobs for "HeNe_Scribe".



Backup & Restore: To go forward, you must backup.

<screen #2>

Restart System: It is a good idea restart do this at least once per week.

Q & A

Q: There appear to many other choices and commands available in the System Manager panel, what do these do?

A: For the most part, these additional controls simply provide another way to access that System Management tool that you would normally access via the "System" menu on the Toolchest. For more detail you may wish to consult your "Online Books" as demonstrated at the beginning of chapter 11.

Q: I have been told that a new network printer has been installed in my department, how can I use this new printer?

A: You have to do a little footwork first. You must:

1. Find out the name, location, and host of the new printer.
2. Click the "Add" button in the "Print Manager" dialog.
3. Input the information you previously acquired into the configuration dialog.

Q: How do I make a particular printer my default printer?

A: Select the printer of choice in the "Printer Manager" dialog and then click the "Default" button.

Q: I do not understand this backup thing, what should I do?

A: Contact your divisional IS staff and inquire about the backup policy and method utilized in your division.

Chapter 11: Obtaining Additional Help

Where to get additional help

Understanding where to get assistance, when needed, is essential. At SGI, there is a well-established procedure for gaining assistance with your workstation or application problems.

Escalation Chain

If you have a problem you may wish to ask your close colleagues for assistance. In the event that they cannot assist you, you can contact the Information Systems Assistance Center (ISAC), via the IS Help Line. The professional staff of the ISAC will attempt to walk you through the resolution of you problem over the phone. Should the problem be too complicated to be solved over the phone, an ISAC Staff member will forward a description of your problem to either your divisional System Administrator, or the Technical Assistance Center via the TechAssist Hotline (typically for hardware failure or related problems). To summarize:

Problem->Colleagues->ISAC->Sys Admin->TechAssist

IS Help Line

You can reach the IS Help Line from a campus phone at 3-HELP = 3-4357. Please have a complete description of your problem ready prior to calling for assistance.

Q & A

Q: Are there really human beings in the ISAC? I had heard that the company was using robots.

A: Yes, there are live human beings at the other end of 3-HELP. Imagine what it would be like if your job was to answer dozens of phone calls each day from people you did not know, asking you to solve problems you could not see over the telephone. Be kind, the stress level of working in the ISAC is probably on par with that of working in air traffic control.

Q: I had heard that there was a Computer-Based Training (CBT) program that introduces basic Magic operations. Is this true and if so where can I obtain this CBT?

A: Yes, there is a high-quality CBT on CD-ROM that covers basic Magic use. This CBT is available through the training department.

Q: Are there any books that cover IRIX or Magic that you recommend?

A: Other than this text and the on-line books, there are no texts that deal with Magic. For IRIX on the other hand, any recent reference guide to AT & T's UNIX OS would help.

Q: Where can I obtain these books?

A: In the Mountain View area your most likely booksellers would be the Stanford Bookstore (Campus Branch), Staceys (Palo Alto), or Computer Literacy Bookstore (Sunnyvale).

Chapter 12: Finishing Up

Logging Out

You logged in to gain access to the applications and files on your workstation. When you are finished working with your workstation, whether for the day, or for a few hours, you should "log out".

How To Log Out

1. Save your work in any open applications.
2. If you are using SoftWindows, exit SoftWindows.
3. Exit any other applications that you were using.
4. Chose "Log Out" from the "Desktop" menu of the Toolchest.
5. Answer "Yes" to the dialog that asks if it is OK to log out.

Q & A

Q: Why don't I shutdown my workstation instead of logging out?

A: Because unlike a personal computer, an SGI workstation has many operating system functions that are performed at regular intervals, 24 hours a day. Some of these functions include: the processing of E-Mail, scheduled backups, file transfer, and other network services. Additionally, if you were to shutdown your workstation, your colleagues would not be able to access files that are meant to be available to them.

Q: What is my workstation doing while I am not around?

A: As mentioned above, it is handling many network tasks. For users with complex computing needs such as: rendering, multimedia, or number-crunching. An SGI workstation can execute such programs overnight. By running these time-intensive programs at night, an SGI workstation can accomplish complex work while the user is away.

Q: Can other people access my workstation while I am logged out?

A: Yes, but only those individuals who have a valid user account and password.

Q: Isn't leaving my workstation on all the time a waste of energy?

A: To a certain extent. Computer companies including SGI are trying to develop better power conservation into their computers and monitors. At this time, certain SGI monitors will de-power most of their circuitry when left idle for a certain amount of time. Should your monitor not behave this way, you could easily turn only it off at the end of the day.

Appendix A: Topic Map Item Descriptions

IRIX -based Applications/Programs

There are many different IRIX-based applications/programs that you will work with everyday in the SGI environment. A brief overview of these applications, grouped by area of functionality, is included here for your convenience.

Communication

These applications take advantage of the SGI network and its gateway to the Internet to make a wide variety of information available to you. Each of these applications and the Internet will be introduced in the Communication portion of this class and the SoftWindows class.

MediaMail: The standard Electronic Mail program used at SGI. This powerful program not only allows you to send textual messages to your coworkers, but also allows you to send files and audio/video captures (on A/V capable workstations).

XRN-Motif: Motif, as it is commonly called, is a NetNews viewing program. It allows you to view NetNews categories. These categories may be thought of as public mail bins or bulletin boards, focused on particular topics, which anyone can read or submit a message to. There are several SGI-specific NetNews categories that will provide you with information about important company matters.

Netscape: Considered by many to be the hottest new Internet viewer, Netscape is rapidly achieving world-wide recognition as the most exciting way to view the vast array of Internet dataspaces, including Web servers. One of Netscape's primary uses at SGI is to view the internal Web server "Silicon Junction". Additionally, many SGI divisions have their own Web servers. These SGI Web servers contain information that can be accessed via Netscape to assist you in doing your job.

Presentation/Graphics

Showcase: A powerful drawing and presentation program with 2D and 3D capabilities. This program was created at SGI and has been used to create many of the graphical images you see everyday at SGI.

Spreadsheets

Wingz: A spreadsheet program, used at SGI for the last several years, that is likely to be replaced by Microsoft Excel very soon.

Desktop Publishing

FrameMaker: The industry-standard for desktop publishing of corporate documents. FrameMaker is particularly useful for creating documents that are frequently revised.

SoftWindows

SoftWindows is an emulation system, designed by Insignia, that enables an SGI workstation to run applications/programs that were originally created for IBM-PC compatible computers equipped with the Microsoft Windows interface.

What is an emulator?

An emulator is a type of translation software. In the case of SoftWindows for the SGI workstation, this translator allow the MIPS microprocessor to understand software that was originally developed for the Intel and Intel-compatible microprocessors found in IBM-compatible computers.

Advantages

By performing this translation, it enables you to act as though you have two different computers in one box, sitting on your desk, and thereby allows you to run both SGI software and PC-compatible DOS and Windows software from the same workstation.

Disadvantages

The current version of SoftWindows emulates an Intel 80286 microprocessor. This is an older model Intel processor that does not run PC-compatible software as fast as the 80486 or the Pentium processors of today, but the tremendous speed of your SGI workstation tends to alleviate some of this problem. Bear in mind that before the end of the year, a new, 80486-compatible version of SoftWindows will become available.

Microsoft Windows/DOS

There are two key components to the PC-compatible OS: MS DOS and MS Windows.

MS DOS

MS DOS is an ancient command-line operating system, filled with cryptic commands and a less-than-pleasant interface. You will be very unlikely to perform any substantial tasks in DOS.

MS Windows

Microsoft's attempt to emulate the Macintosh OS. This topic will be dealt with in detail, in the SGI SoftWindows Overview class.

Windows-based Applications/Programs

The most widely used applications in the PC and Mac worlds are the following Microsoft products:

MS Office

Microsoft Office is a program that helps you move between Word, Excel, and Powerpoint.

MS Word

Word—The be all & end all of word processing.

MS Excel

Excel is the most powerful spreadsheet available. Rumor has it that both a "housecleaning" and a "parenting" Wizard are in the works for the next release.

MS Powerpoint

An easy-to-use graphics/presentation program that will make easy work of your next big meeting.

Appendix B: Useful IRIX Commands

The following sections detail the various IRIX Shell commands that you have seen in class and some additional commands that you may be likely to need in the near future.

Uh oh, I forgot...

These commands will help you find commands and command options that you may have forgotten about.

Command	Options	Arguments	Result
apropos		purpose of desired command	Outputs all commands with given purpose
man		command	Outputs UNIX online manual page for given command.

Where am I?

These commands will help you orient yourself when you sit down at an unfamiliar workstation. The results of these commands will usually be required by the IS Assistance Center staff when you call for help.

Command	Options	Arguments	Result
hostname			returns the name of workstation you are using
whoami			returns your login name
pwd			returns the current working directory

What is in here?

These commands will display the contents of your file system.

Command	Options	Arguments	Result
ls			list current directory, brief
ls	-l		list current director, detailed
ls	-al		detailed list of current directory incl. invisible (dot) files
ls	-l	[dirpath]	list directory [dirpath], detailed
cd			change to home directory
cd		[dirpath]	change to directory [dirpath]

What is under the hood?

These commands tell you about the hardware and software components that make up you SGI workstation.

Command	Options	Arguments	Result
hinv			displays hardware inventory
versions			displays info about currently installed software
df	-k		how much disk space (in kilobytes) is being used

What is running?

These commands deal with the various tasks running on your SGI workstation at any time. These tasks are known as processes. You must be exceptionally careful when terminating active processes—DO NOT KILL WHAT YOU CANNOT IDENTIFY!

Command	Options	Arguments	Result
ps			display processes running under current shell.
ps	-e		display every process running on the workstation.
kill	-9	[pid[a]]	terminate process [pid] with prejudice

a. A [pid] is the "process id number" associated with each currently executing command, and listed in the output of the ps command.

Get a printout

These commands control printing from an IRIX Shell.

Command	Options	Arguments	Result
lp	-d [dest]	[filename]	prints file [filename] to printer [dest] and returns print job id.
cancel	[id]		cancels print job [id]
lpstat	-t		returns status of all available printers

The powers that be...

These commands are frequently necessary when performing system administration functions. Employ caution when performing any system use while you have superuser status.

Command	Options	Arguments	Result
su			assume superuser status (password required)
exit			leave superuser status

Good housekeeping

These commands are utilized to make directories, rename files, and delete them:

Command	Options	Arguments	Result
mkdir		[dirpath]	makes a new directory [dirpath]
mv		[old] [new]	changes an old filename to a new filename
rmdir		[dirpath]	will remove an empty directory
rm		[dirpath]	will remove a file with path [dirpath]
rm	-ri	[dirpath]	will interactively remove directories and the files contained in them.

Bag of tricks

This is a collection of useful miscellaneous commands.

Command	Options	Arguments	Result
clear			clears text from shell window
dirview			opens a Magic view of Home directory
ls -l> [file-name]			">" redirects output of ls -l into file [file-name]
ls -l | more			puts output of ls -l through the "more" text paging application to break output into discrete screenfulls of text.

Appendix C: Critical differences between Mac OS & SGI OS

The Mac hardware you are leaving behind has served its purpose well, but a new era of computing power is upon us. While the Mac OS has set the stage as the easiest operating system to use, Mac hardware performance doesn't hold a candle to an SGI workstation. Even so, there are prices to be paid for "more power'. The following items detail areas of critical difference between the two operating systems—CONSIDER THESE STRONG WORDS OF ADVICE!

1. As a Mac user you will immediately notice that the SGI pointing system is a bit odd. You now have three mouse buttons instead of one and they all do different things. Though, just as with the Mac, clicking many times because what you wanted did not happen the first time you clicked is not a good thing.
2. In addition to the more complicated mouse, an SGI system requires that you leave the mouse pointer within the window in which you wish to work. This is, in part, due to the nature of the multi-tasking IRIX OS. Just remember:
3. If you want to type in a window make sure your pointer is in it
4. Conversely, if your pointer is somewhere else and you type something you had intended for a different window, make sure that you did not unintentionally issue a catastrophic command to the wrong window.
5. Many things that were undoable in the Mac world aren't in the SGI world—SAVE OFTEN AND DO NOT DEPEND ON "UNDO" UNTIL YOU HAVE GAINED EXPERIENCE WITH SGI APPLICATIONS!
6. Multi-tasking, the ability to run many programs simultaneously, has its own risks and rewards. Absentmindedness can be a problem. Don't leave a dozen minimized applications running.
7. With greater power and capacity come a greater mantle of responsibility. Your new Indy has 5 to 6 times the RAM and hard disk storage capability of your old Mac. In addition to this mind-boggling concept, consider that the OS for an SGI workstation is also about 5 to 6 times as large as the Mac OS and that the SGI OS sits higher in the file structure than your Home Directory—DON'T POKE AROUND IN THE ATTIC, YOU MAY BRING THE ROOF DOWN AROUND YOUR EARS!
8. Lastly, your Indy is directly connected to the Internet. This connection changes the way you print and share files. Additionally, though very few people outside SGI can access your Indy through the firewall, there are issues of privacy and security that must be attended to—BE CERTAIN THAT YOU UNDERSTAND THE CONCEPT OF PERMISSIONS!