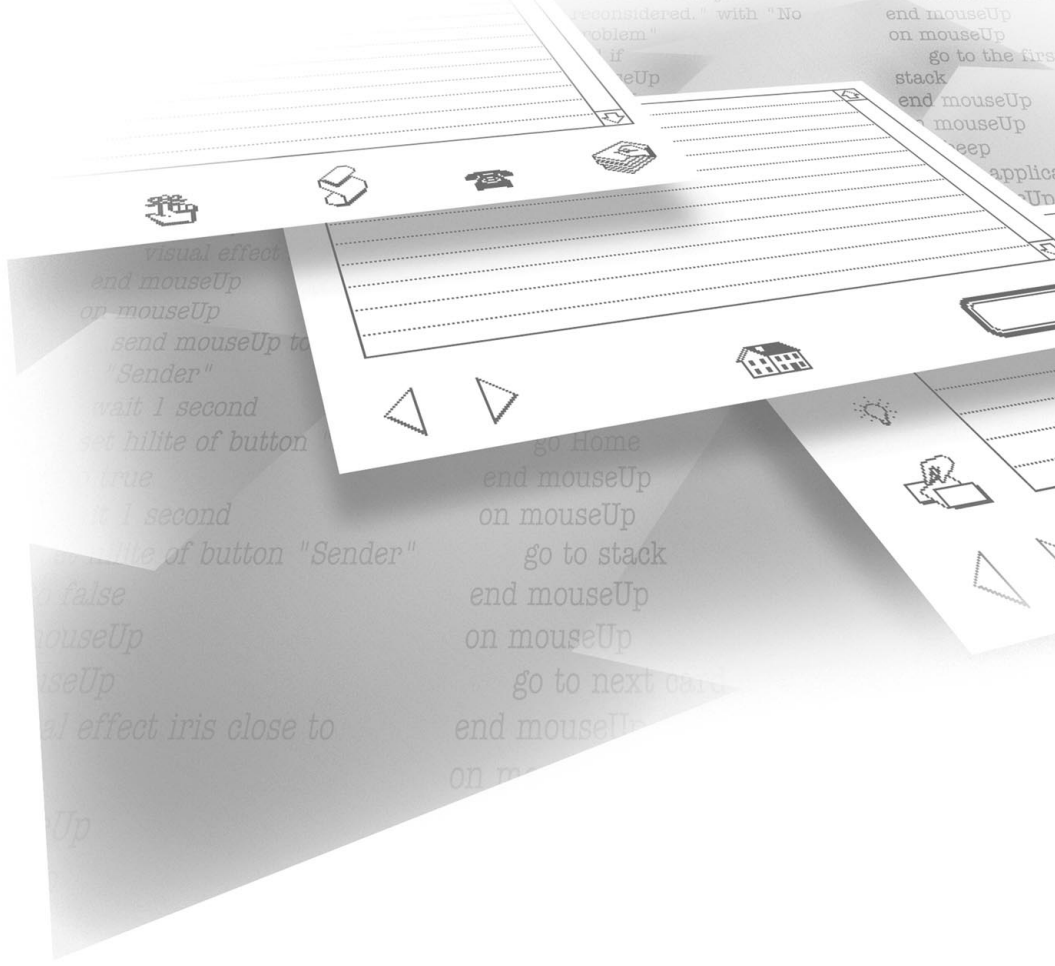

HyperCard Reference

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Index

Welcome

The HyperCard® application is a software construction tool. You use it to create your own way of doing things on your computer. This book is a reference to everything you need to know to use HyperCard, including how to use and create “smart” documents called *stacks*. Stacks can do many of the things that ordinary application programs can do, and more—you can decide for yourself how you want your stacks to work without knowing a word of programming.

If you do know something about programming, or if you’re just curious, you can learn about the HyperTalk® programming language that’s built into HyperCard. For details, see the *HyperCard Script Language Guide* included in this package.

HyperCard Documentation

HyperCard contains the following documentation:

- *HyperCard Reference* (the book you are reading now) is a reference to consult as you work with HyperCard. It also contains brief tutorials on working with HyperCard and on building scripts with HyperTalk.
- *HyperCard Script Language Guide* is a book that gives detailed reference information about scripts and the HyperTalk language. It's written for people with some programming or scripting experience.
- *HyperCard Quick Reference Guide* is a booklet that gives many keyboard shortcuts for HyperCard and HyperTalk operations, and presents a summary of HyperTalk messages, keywords, and commands.
- *New Features* is a stack that describes the features added to this version of HyperCard.
- *Hypercard Help* is a stack that answers your questions as you're using HyperCard.
- *HyperTalk Reference* is a stack that provides easy access to information about HyperTalk for people who use HyperCard's programming language.
- *AppleEvents Primer* is a stack that demonstrates how to exchange information between applications in an Apple events-aware environment (such as System 7).
- *QuickTime Tools* is a stack that provides tools and external commands for using QuickTime to produce multimedia presentations.
- *HyperCard AppleScript Reference* is a stack that describes the basics of using AppleScript with HyperCard, and includes explanations of AppleScript statements as well as demonstration scripts.
- *AppleScript Samples* is a folder of stacks that present examples of AppleScript in HyperCard.

What You Need to Know

This book assumes that you know how to use your Macintosh. You should know how to:

- use the mouse and keyboard
- choose from a menu
- use command keys
- copy files and disks
- open disks, folders, applications, and documents
- do simple text editing
- use the directory dialog box to locate files

If you're not sure how to do any of the tasks listed, go through the documentation that came with your computer before you do anything else.

How to use this book

This book is designed to help you find answers to your questions quickly. It is organized according to tasks. Use the table of contents or the index to locate instructions for specific tasks. You can also use the index to find information about individual topics and commands.

Descriptions of specific tasks often include numbered steps. Each step is made up of a short instruction in boldface type, often followed by further explanation in plain type. Depending on your level of expertise with the Macintosh, you can speed through some or all of the instructions by reading just the boldface steps.

The book contains the following chapters:

- Chapter 1, “Using HyperCard,” describes how to use HyperCard stacks—“smart” documents created with HyperCard. This chapter also explains how to use stacks stored on file servers and compact discs.
- Chapter 2, “Learning HyperCard Basics,” is a tutorial on the most common HyperCard features. While it won’t make you a HyperCard expert, it will give you practice using basic stack-building tools and techniques.
- Chapter 3, “A Taste of HyperTalk,” is a tutorial on HyperCard’s built-in scripting language. If you find that you enjoy writing scripts and you want to learn more, you can use the *HyperCard Script Language Guide*, also included in this package.
- Chapter 4, “Creating and Modifying Stacks,” provides information about building stacks. This chapter includes specific instructions for working with a stack as a whole.
- Chapter 5, “Working with Cards and Backgrounds,” explains how to create and modify individual cards and backgrounds.
- Chapter 6, “Working with Buttons,” explains how to create and modify buttons and use them to link related pieces of information.
- Chapter 7, “Working with Text and Fields,” explains how to create and modify fields (the places you create to hold text), how to enter text into fields, and how to format text.
- Chapter 8, “Working with Graphics,” describes HyperCard Paint tools and commands, and shows you how to use them to create graphics.
- Chapter 9, “Printing,” explains how to print the information in a stack.

Where to Get HyperCard Stacks

A HyperCard stack can be as simple as a collection of information, or as complex as any application program. You can use the stacks that come with HyperCard, create stacks yourself, or get stacks from a variety of other sources:

- You can find HyperCard stacks for sale at your local computer software store.
- You can check with your local user group to find out the meeting time of the HyperCard special interest group. Members often share their stacks with each other.
- You can subscribe to online electronic information services such as CompuServe, GEnie, America Online, and The Well (to name a few), which have HyperCard special interest groups. These groups have stacks you can get free, except for the service's time charges.

About user groups

Computer user groups can be a great source of information about HyperCard and about your computer. Members of user groups meet to share ideas, discuss problems, and exchange software and information. By attending user group meetings, you can learn more about HyperCard and see how others are using it.

Ask your authorized Apple dealer for the name of the user group nearest you, or call (800) 538-9696.

Chapter 1

Using HyperCard

This chapter begins with a brief summary of what HyperCard is and what you can do with it. The remainder of the chapter describes what you need to know to effectively use HyperCard *stacks* (the name for documents that you create with HyperCard), including how to:

- use the Home stack
- open, explore, and close stacks
- use HyperCard on a file server and on a CD-ROM

To do the tasks described in this chapter, you need to have your *user level* set to Typing or higher. The user level determines what HyperCard tools and capabilities are available to you. HyperCard comes with the user level preset to Typing. Unless someone has changed the setting, you don't have to be concerned with it for the moment.

For a tutorial on many of the features described in this chapter, turn to Chapter 2, "Learning HyperCard Basics."

What Is HyperCard?

You use HyperCard to create your own way of doing things on your computer. HyperCard is unlike most application programs, which are designed to perform one task (such as word processing or creating graphics). You can use HyperCard for many different tasks. Here are a few examples:

- Gather information and organize it in any way you like.
- Browse through information you've assembled yourself, or information gathered by someone else. Follow links to topics you want to know more about, skip over things you're not interested in, and search for specific facts or text.
- Create HyperCard stacks that meet your own specific needs—for example, stacks to keep track of your expenses, help you learn a new language, organize a collection of electronic clip art, or present information stored on a videodisc.
- Customize your computer work space so that, for example, with a single mouse click, you can log onto another computer, launch an application hidden away in a folder, or send a message to a friend.

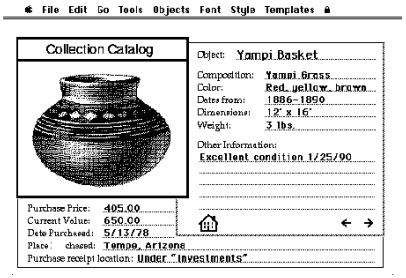
Using *HyperTalk*, HyperCard's English-like script language, you can gain even more control over your HyperCard environment whether or not you have prior programming experience. You can tap the power of HyperTalk without knowing anything about how it works. For example, without writing a word of HyperTalk, you can link a button to a stack, automatically creating a script that tells the button to take you to that stack. And HyperCard comes with ready-made scripts you can copy and paste.

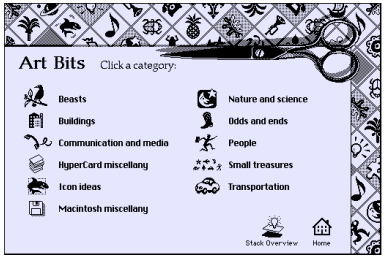
The more you learn about HyperCard, the more uses you'll see for it. HyperCard provides you with a creative environment that's limited only by your imagination.

Cards and stacks

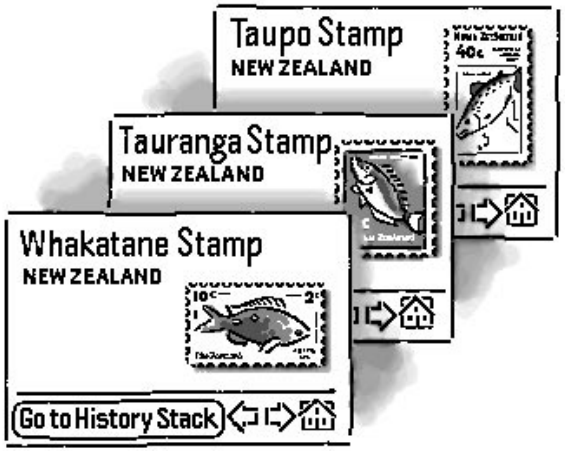
In HyperCard, information appears on *cards*. A HyperCard card is much like a paper index card on which you jot notes or any other kind of information. The card is the fundamental unit of information in HyperCard.

A card can contain both text and pictures.





Cards are grouped together into stacks. The cards within a stack are usually related to one another, or based on a common theme. They usually have the same look and contain similar information.



Every stack has a name. An icon for each stack appears in the Finder:

You can learn a lot about the power of HyperCard just by exploring the stacks that come with it. These stacks provide good examples of the kinds of things HyperCard can do. You can get additional stacks from electronic bulletin boards and from user groups.

HyperCard includes tools for modifying and creating stacks. With these tools, you create and manipulate the building blocks that make up stacks. You can arrange the information on cards in any way you like. And you can tie together related information by creating *links* so that a single click takes you immediately to the information you want, whether it's in the same stack or a different one.

Starting HyperCard

Before you start HyperCard, make sure you have a backup copy of each disk that comes with it; write-protect these backup disks. It's particularly important to do this with HyperCard, because HyperCard automatically saves any changes you make to stacks without asking. (There is no way to turn off this feature.) Keep a backup copy of each stack that comes with HyperCard so that you can always retrieve the original.

Starting from the Home stack

The Home stack serves as a home base whenever you use HyperCard, and it's a good place to start exploring. It includes a visual directory of other HyperCard stacks and provides easy access to them.

There are two ways to start HyperCard so that it opens the Home stack:

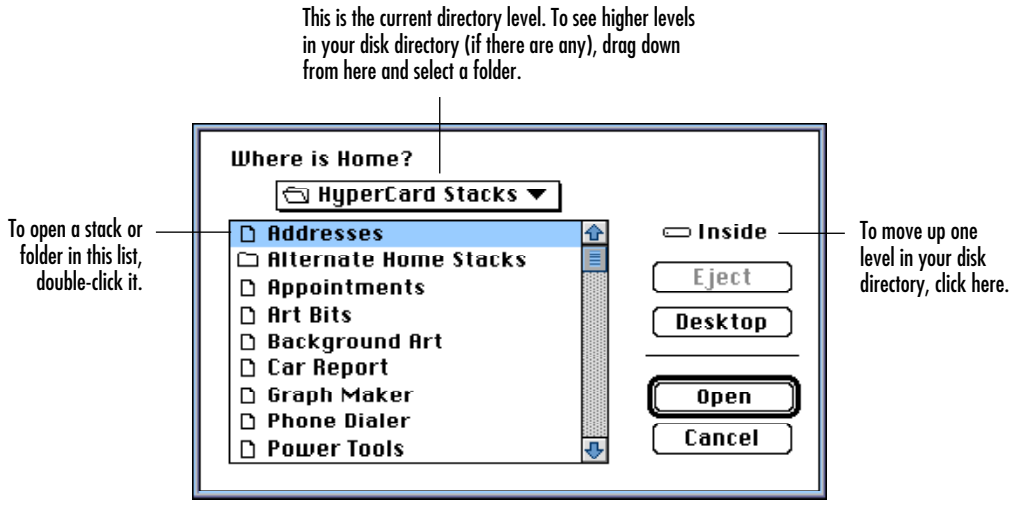
In the Finder, double-click the HyperCard icon …

… or double-click the Home icon.

You may have to close windows or open folders to find the HyperCard icon or the Home icon.

❖ *Where is Home?* HyperCard does its best to find the Home stack. When you start HyperCard, it looks for a stack named “Home” in the System Folder, in the folder that contains HyperCard, and in any folder named HyperCard Stacks that’s at the same directory level as HyperCard. Then it looks on the top level of your disk directory—that is, on the current disk among the files that aren’t in any folders. If it can’t find Home in any of these places, HyperCard displays the directory dialog box and asks where Home is.

You can designate any stack to be the Home stack, even if the stack’s name isn’t “Home.” If HyperCard can’t find a stack named “Home” when you start it, the directory dialog box appears. Click the stack’s name that you want to act as temporary home. ❖



For more information about using the directory dialog box, see the documentation that came with your computer.

Starting with a stack other than Home

You can start HyperCard so that it opens to a particular stack other than Home. Just double-click the icon of that stack, or select it and choose Open from the File menu.

- *Padlock (🔒) in the menu bar:* Sometimes you see a padlock in the menu bar to the right of the rightmost HyperCard menu title. The padlock means the stack is locked so you can't make changes to it. The sections "Opening a Write-Protected Stack" and "Opening a Stack Built in an Earlier Version of HyperCard" later in this chapter give information about working with such stacks. ❖

Home Stack

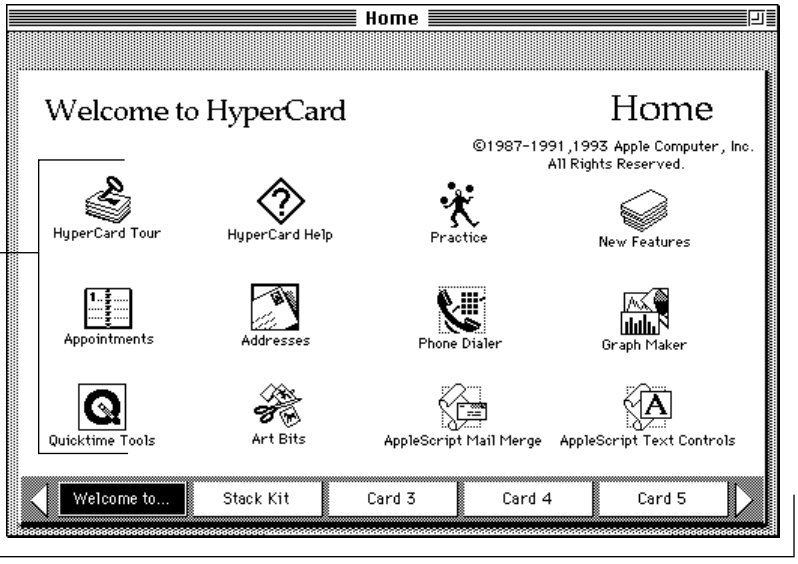
Home is the HyperCard central stack. You can return to it easily from any other stack at any time. Most people use the Home stack as their base of operations, a jumping-off point for their work in HyperCard. This section describes the Home stack that comes with HyperCard.

The cards in the Home stack contain information vital to HyperCard performance:

- The first cards in the Home stack, called the Home cards, are designed to hold buttons that take you to stacks.
- The Search Paths cards tell HyperCard where to find stacks, applications, and documents that you use frequently.
- The Preferences card customizes the way you interact with HyperCard.

Home cards

The first cards in the Home stack contain buttons that take you to all the stacks that come with HyperCard, from collections of electronic art to special stack building tools.



These buttons go to stacks that come with HyperCard.

These buttons move through the cards in the Home stack.

There are also blank Home cards. As you become more comfortable with HyperCard, you can add buttons to these cards, or to new ones that you create, to link your Home cards to your favorite cards, stacks, and applications. Collectively, the Home cards provide a visual directory for your stacks.

➤ *See also:* “Customizing Your Home Stack” in Chapter 4.

User levels and options

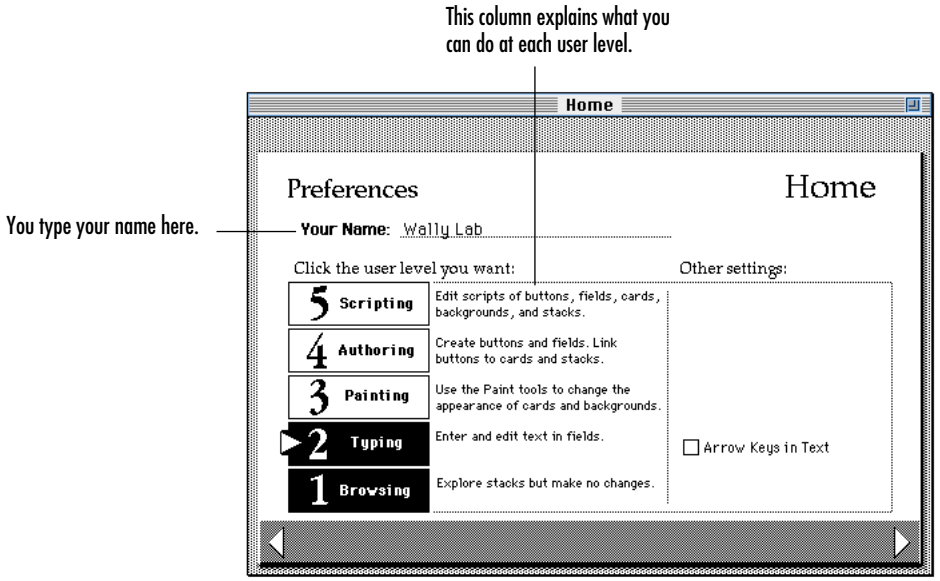
You adjust the settings on the Preferences card to customize the way you interact with HyperCard. To go to the Preferences card:

1. Go to the Home stack (if you're not already there) by doing one of the following:
   - Choose Home from the Go menu.
   - Press ⌘-H.
2. Choose Last from the Go menu.

   Preferences is the last card in the Home stack.

Setting your user level

On the Preferences card, click the user level that matches what you want to do in HyperCard:

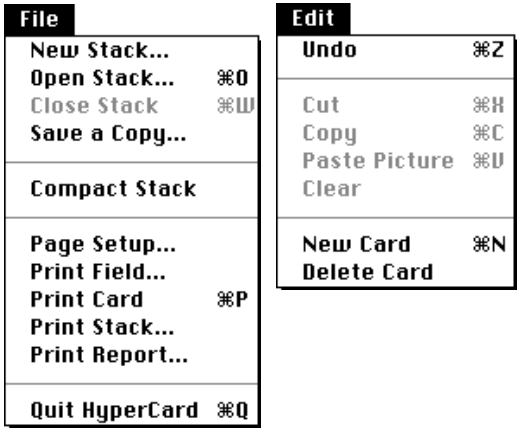


Each level gives you all the features from the previous levels, plus additional capabilities. For example, the features available at the Browsing level are also available at the Typing level; the features available at the Browsing and Typing levels are also available at the Painting level; and so on.

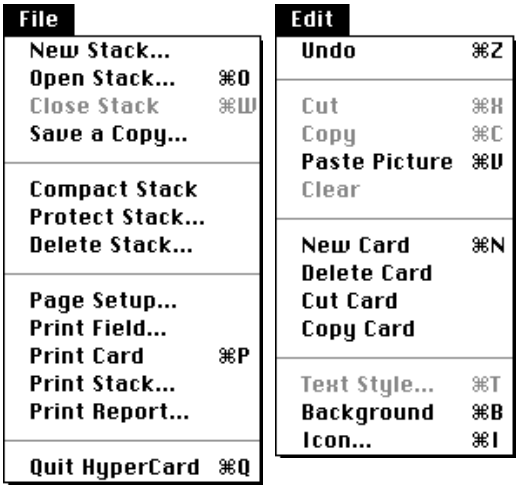
The higher the user level you choose, the more you can do with HyperCard. Unless a stack has been specially protected (using methods you'll read about later), you can change your user level at any time.

User level		What you can do
1	**Browsing**	Open, close, and browse through stacks, search for text, click buttons, move between stacks, save copies of stacks, and print the information in stacks.
2	**Typing**	In addition to all of the things you can do at the Browsing level, you can type, edit, and add styles to text in existing fields, set the Arrow Keys in Text option on the Preferences card (explained in the "Arrow Keys in Text Option" later in this chapter), add and delete cards, and compact stacks.
3	**Painting**	In addition to all of the things you can do at the Typing level, you can set stack protection, edit icons from the Edit menu, delete stacks, create graphics with the Paint tools in the Tools menu, edit graphics and patterns using the Paint and Options menus (which appear when a Paint tool is selected), move between the background layer and the card layer, and use the Power Keys (explained in "Power Keys Option" later in this chapter).
4	**Authoring**	In addition to all of the things you can do at the Painting level, you can create, modify, and delete buttons, links, fields, cards, backgrounds, and stacks using the Button tool, the Field tool, and commands in the Objects menu.
5	**Scripting**	In addition to all of the things you can do at the Authoring level, you can write, edit, and debug scripts, and use the Blind Typing option (explained in "Blind Typing Option" later in this chapter).

File and Edit menus when your user level is Browsing or Typing



File and Edit menus when your user level is Painting, Authoring, or Scripting



❖ *User preferences and stack protection:* The tools and commands you have at your disposal while you're using a specific stack are determined by both the user level you set on your Preferences card and the stack's user level set in the Protect Stack dialog box. When a stack is set to a different user level than the one set on the Preferences card, HyperCard uses the lower setting (the one closer to Browsing). For information on setting and changing a stack's user level, see "Protecting Your Stack" in Chapter 4. ❖

Arrow Keys in Text option

When you click any user level button on the Preferences card except Browsing, a checkbox labeled Arrow Keys in Text appears. You turn this option on or off by clicking it.

When this option is turned off, the arrow keys on the keyboard move you through cards in a stack. When this option is turned on and the insertion point is blinking in a field or in the *Message box* (a place where you give instructions to HyperCard), the arrow keys move the insertion point through text just as they do in word processors.

☐ Arrow Keys in Text

Go to the previous card in the current stack.

Go to the next card in the current stack.

Go back through cards you've seen.

Go forward through cards you've reviewed.

☒ Arrow Keys in Text

Move the insertion point left over text.

Move the insertion point right over text.

Move the insertion point down through lines in a field, or to the end of the line in the Message box.

Move the insertion point up through lines in a field, or to the beginning of the line in the Message box.

When Arrow Keys in Text is turned on, you can use the arrow keys to move through a stack as long as the insertion point is not in a field or in the Message box. If it's in either of those places, you can still use the arrow keys to navigate through cards by pressing the Option key in combination with the arrow key you want to use:

To go to the previous card in the current stack	
To go to the next card in the current stack	
To go back through cards you've seen	
To go forward through cards you've reviewed	

➤ *See also:* "Moving Around in a Stack" in this chapter.

Power Keys option

When you select Painting (or a higher user level) on the Preferences card, a checkbox labeled Power Keys appears. Checking this box turns on the Power Keys option. With it, you can use specific keys on the keyboard instead of using menu commands to make changes to graphics.

➤ *See also:* "Using Power Keys" in Chapter 8.

Blind Typing Option

When you select Scripting on the Preferences card, a checkbox labeled Blind Typing appears. When this option is turned on, you can type into the Message box even when it's hidden (as long as the insertion point isn't in a field). Entering commands through the Message box sends instructions to HyperCard.

You select or deselect the Blind Typing option by checking it. When the Blind Typing option is turned off, you can type into the Message box only when you see it on the screen; HyperCard beeps (or the menu bar flashes) if you try to type into the Message box when it's hidden.

How HyperCard finds stacks

When you tell HyperCard to open a document, an application, or a stack (by clicking an icon on one of the Home cards, for example), HyperCard searches for the file by first looking in the folder that contains the current stack. Then it checks the Search Paths cards in the Home stack to see where else to look for the requested file.

To see one of the Search Paths cards:

1. Go to the Home stack (if you're not already there) by doing one of the following:
   - Choose Home from the Go menu.
   - Press ⌘-H.
2. Do one of the following:
   - Click the Right Arrow icon at the bottom of the screen several times.
   - Choose Search Paths from the Home menu.

The Home stack has three Search Paths cards. One tells HyperCard in which folders to look for stacks, another tells it where to look for applications, and a third tells it where to look for documents. These cards contain lists of *search paths* (pathways through the folders on your disk) that HyperCard should follow to retrieve a stack, application, or document.

If you ask HyperCard for a file it can't find (that is, one whose search path isn't recorded on the appropriate Search Paths card), it displays a directory dialog box and asks you where the file is. Once you've located the file, HyperCard notes the disk, folder, and any subfolder in which the file resides, and records it on the appropriate Search Paths card in the Home stack. The next time you ask for that file, HyperCard knows where to look for it without having to ask you. (HyperCard asks again, however, if you've renamed the file or changed the name of the disk or folder that contains it.)

You can also add search paths to these cards yourself. For example, if you move a stack into a folder named Old Stacks within the HyperCard Stacks folder, you can type the following line on the stacks' Search Path card:

```
:HyperCard Stacks:Old Stacks:
```

Include no spaces between the last character in a folder's name, the colon, and the first character in the name of the enclosed folder. When you rename a disk, folder, or file, you can change its name on the appropriate Search Paths card. Or, if you prefer not to deal directly with these cards, you can always use the directory dialog box to help HyperCard locate the files you need.

- *Occasional housecleaning:* HyperCard keeps a record of each search path until you erase it. Erasing a search path you no longer use frees that space on the Search Paths card and helps HyperCard operate more efficiently. To erase a search path, drag to select it and choose Clear Text from the Edit menu.

Opening and Closing Stacks

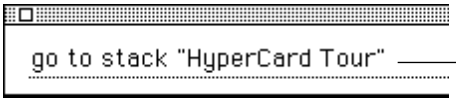
HyperCard provides several ways to open and close a stack.

Opening a stack

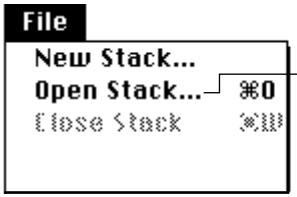
Use any of these methods to open a stack:

Double-click the stack's icon in the Finder.

Click a button that's linked to the stack (if there is such a button).

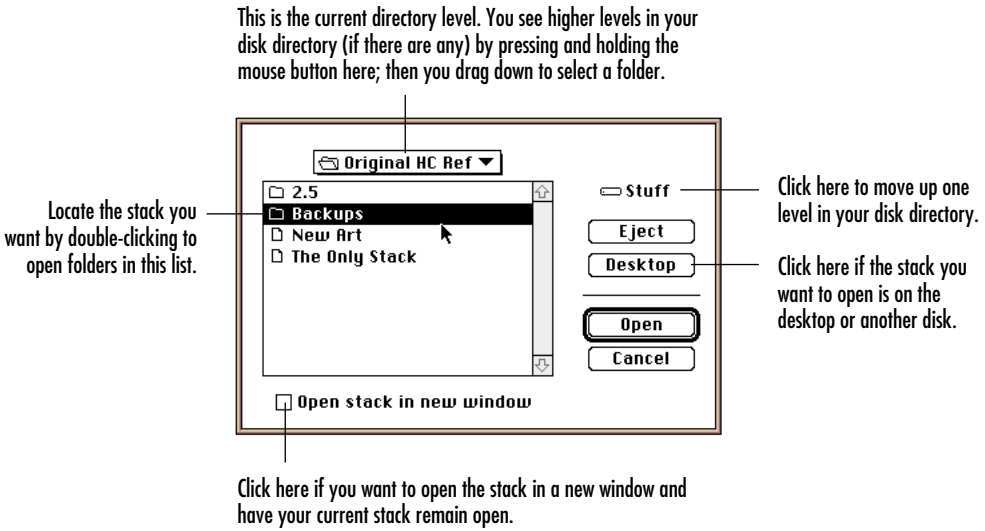


Choose Message from the Go menu to open the Message box, type `go to stack` and the stack's name (in quotation marks), and press Return or Enter.



Choose Open Stack from the File menu and open the stack.

When you choose the Open Stack command, HyperCard displays a directory dialog box and waits for you to tell it which stack to open:



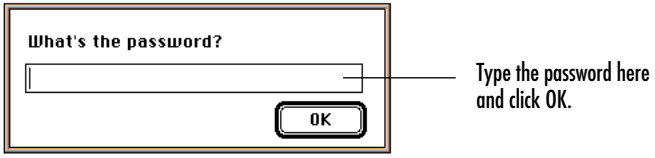
If you check "Open stack in new window," HyperCard opens the stack in a new window and leaves your current stack open in another window. If the option "Open stack in new window" is turned off (that is, there's no mark in the checkbox), HyperCard opens the stack in the current window.

❖ *Shortcut for opening a stack in a new window:* Press ⌘-Shift-O, or hold down the Shift key while you choose Open Stack from the File menu. The directory dialog box appears with the "Open stack in new window" option already selected. (This shortcut doesn't work when the insertion point is blinking in a field.) ❖

When you click a button or type into the Message box to open a stack, HyperCard looks for the stack using the strategy described in “How HyperCard Finds Stacks” earlier in this chapter. If it can’t find the stack, HyperCard displays the directory dialog box and asks you to tell it where the stack is.

Opening a stack protected with a password

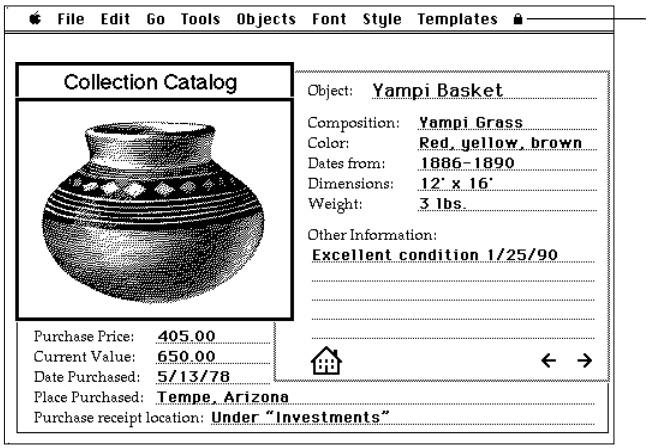
Some stacks can only be opened if you know the password. When you tell HyperCard to open a stack that’s set for restricted access, you see the following dialog box:



To open the stack, you must enter the password correctly, character for character. (Capitalization doesn’t matter.) If you launch HyperCard by trying to open the protected stack and the password you enter isn’t correct, HyperCard opens the Home stack instead. If HyperCard is already running and you give the wrong password when you try to open the protected stack, you stay at the current card.

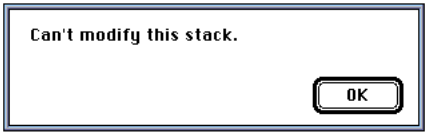
Opening a write-protected stack

When you open a stack that's *write-protected*, a small padlock ( ) appears in the menu bar:



The small padlock tells you that the stack is write-protected, so you can't make any changes to it.

You can read and copy information from a write-protected stack, but if you try to make any changes to it, the following dialog box appears:



An example of a write-protected stack is one for which Can't Modify Stack is selected in the Protect Stack dialog box.

Opening a stack built in an earlier version of HyperCard

When you open a stack that was created in a version of HyperCard earlier than 2.0, a small padlock ( ) appears in the menu bar. You can use such a stack, but you can't make any changes to it (including typing into fields) until you convert it to the new HyperCard file format.

If you try to make any changes to an unconverted stack, you see a dialog box telling you that you must first convert the stack.

❖ *A converted stack can't be unconverted.* Once you convert a stack to the new HyperCard file format, it can't be "unconverted" and you can't use it with an earlier version of HyperCard. If you want to use the stack with an earlier version of HyperCard, make a copy of the stack before you convert it. (Choose Save a Copy from the File menu to make a copy of the stack.) ❖

To convert a stack:

1. Make a copy of the stack in its unconverted form.

   This is an optional, although prudent, step.

2. Choose Convert Stack from the File menu.

   Convert Stack takes the place of another command in the File menu, Compact Stack, when you're working in an unconverted stack.

3. Click OK to convert the stack when the confirmation dialog box appears.

Once HyperCard has converted the stack, the padlock disappears from the menu bar and you can make any changes you want.

Opening more than one stack at a time

The number of windows you can have open at the same time depends on the amount of RAM you have allocated to HyperCard—five windows for each 200K. This window count includes all windows that HyperCard uses—stacks, the Tool palette, external windows, and so on. The more memory that's available for HyperCard, the more stacks you can have open at the same time.

If you try to open more stacks than you have memory for, a dialog box appears telling you so.

Here's how to open another stack without closing the current stack:

1. Choose Open Stack from the File menu.

   The directory dialog box appears.

2. Check the "Open stack in new window" option to select it.

3. In the directory dialog box, locate and open the additional stack you want to use.

When the stack opens, it appears in a new window, and previously opened stacks remain open.

Once you open all the stacks you want to see, you can resize their windows and move them around. "Moving and Resizing the Card Window" later in this chapter tells you how.

You move between open stacks by choosing Next Window from the Go menu, by pressing ⌘-L, or by clicking in the window of the stack you want to go to.

Closing a stack

There are several ways to close a stack:

- When you have more than one stack open, activate the window of the stack you want to close by clicking it; then choose Close Stack from the File menu. You can also click the window's close box or press ⌘-W.
- If you have only one stack open, you can either open another stack with the "Open stack in a new window" option unchecked, or quit HyperCard. See "Opening a Stack" earlier in this chapter for instructions.
- No matter how many stacks are open, you can close them all by choosing Quit HyperCard from the File menu. As the stacks close, HyperCard saves any changes you've made to them.

❖ *Before you close a stack:* It's a good idea to choose Compact Stack from the File menu before you close a stack that you've changed in any way. This rearranges the current stack on the disk, removing any unused space so that it fits into the smallest possible space. The Compact Stack command is available when your user level is Painting or higher. ❖

❖ *Note:* When you're working with a stack that was created in a version of HyperCard earlier than 2.0, the Compact Stack command is replaced by Convert Stack. You must convert such a stack before you can compact it. "Opening a Stack Built in an Earlier Version of HyperCard" earlier in this chapter gives instructions for converting a stack. ❖

Looking through stacks

One of the best ways to learn about HyperCard is to explore stacks, including the stacks that come with HyperCard.

Many stacks have a button you click to learn about the stack. It usually looks like one of these:

Clicking any of these buttons gets information about the stack.

Displaying the menu bar

You may encounter stacks in which the menu bar is hidden. To see the hidden menu bar, press ⌘-spacebar. (To hide the menu bar again, press ⌘-spacebar again.)

If pressing ⌘-spacebar doesn't make the menu bar appear, a special HyperTalk script is probably in effect keeping the menu bar hidden.

Stack menus

Stack developers can use HyperTalk commands to customize the menus that appear with a stack, so it's likely that you'll encounter stacks that have one or more of their own menus. Because menus can be customized, you may also encounter stacks in which some of the standard HyperCard menus are missing or contain different commands.

Customizing menus requires a knowledge of HyperTalk. For information about customizing menus, see the *HyperCard Script Language Guide* and the HyperTalk Reference Stack.

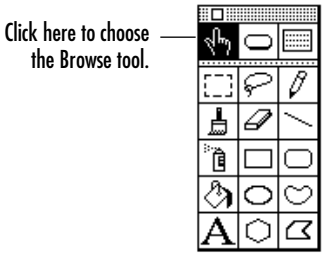
Moving around in a stack

Moving around in HyperCard stacks—moving from card to card, going to other stacks, and so on—is called *browsing*.

There are several ways to browse through stacks:

- Choose commands from the Go menu or type their ⌘-key equivalents.
- Click icons on the navigator palette (described later in this chapter).
- Press arrow keys on the keyboard.
- Enter commands through the Message box.
- Use the Find command to search for specific text.

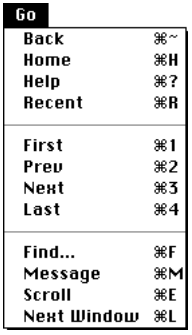
Sometimes you can browse by clicking buttons designed for that purpose. To do so, you must first choose the Browse tool.



❖ *Can't see the Tools menu?* If you can't see the menu bar, you can make it appear by pressing ⌘-spacebar. If you can see the menu bar but not the Tools menu, you can make the Tools menu appear by changing your user level to Painting, Authoring, or Scripting. (For instructions, see "User Levels and Options" earlier in this chapter.) ❖

Using commands in the Go menu

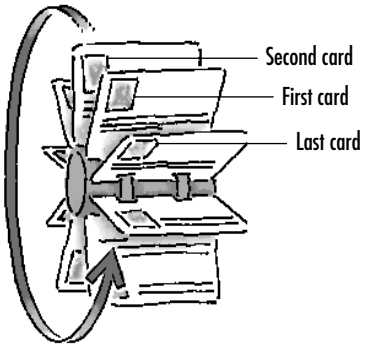
You use the commands in the Go menu to look through cards in the current stack, look for specific text, go to another stack, or go back through cards and stacks you've already seen.



Command	⌘-key equivalent	Use it to do this
Back	⌘-~	Go back to the last card you saw.
Home	⌘-H	Go to the Home stack.
Help	⌘-?	Go to the HyperCard Help stack.
Recent	⌘-R	Review up to the last 42 cards you saw.
First	⌘-1	Go to the first card in the current stack.
Prev	⌘-2	Go to the previous card in the current stack.
Next	⌘-3	Go to the next card in the current stack.
Last	⌘-4	Go to the last card in the current stack.
Find	⌘-F	Search for specific text.
Message	⌘-M	Navigate through commands you type into the Message box.
Scroll	⌘-E	Resize card windows and scroll around on large cards.
Next Window	⌘-L	Move from one open stack to another.

❖ *Prev versus Back:* The Prev command takes you to the previous card in the current stack; Back takes you to the card you last looked at, which may be in another stack. ❖

The cards in a stack are arranged as if they were looped on a ring. When you're looking at the last card in the stack, choosing Next from the Go menu takes you back to the first card in the stack. When you're looking at the first card, the Prev command takes you to the last card of the stack.



A stack is structured like a circular card file.

Using the navigator palette

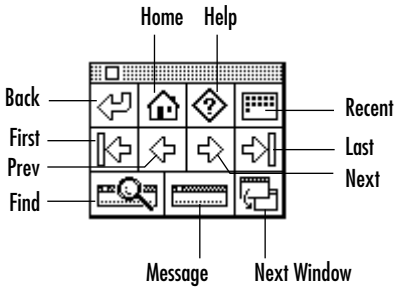
The navigator palette contains icons that are equivalent to commands in the Go menu. You can click these icons to move around in HyperCard stacks. You can also leave the navigator palette open while you work, so you have easy access to all navigator commands.

To make the navigator palette appear, follow these steps:

1. Open the Message box by doing one of the following:
   - Choose Message from the Go menu.
   - Press ⌘-M.
2. Type `palette "navigator"`.

3. Press Return or Enter.

The navigator palette appears. Clicking an icon in the navigator palette does the same thing as choosing the corresponding command from the Go menu:



To make the navigator palette disappear, click its close box.

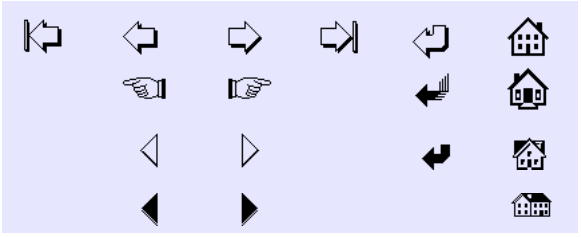
Clicking buttons to move around

A stack can have many different kinds of buttons. Some buttons take you to another place in the stack (or to another stack) when you click them. Others can play sounds, make messages appear, or create visual effects. (To make a button do something, you first choose the Browse tool.)


Browse Tool

❖ *Where are the buttons?* Sometimes it's not obvious which items on the screen are buttons. To find the buttons on a card, select the Button, Browse, or Field tool; then hold down the ⌘ and Option keys at the same time. Gray rectangles appear around the buttons. ❖

Clicking buttons is one of the most effective ways to explore a stack. Here are some buttons you'll often see for moving around in stacks:



- *Click only once.* One click is usually enough to make a HyperCard button work. When you double-click a HyperCard button, sometimes HyperCard remembers the second click until another card appears. Then you may find that you've accidentally clicked a button you didn't mean to click. ❖

Clicking text to move around

In some stacks, you can click text in fields to make things happen. For example, you can click text to see a glossary definition or additional information on a topic, hear a sound, or see something else happen on your screen. Clicking text can do the same kinds of things that clicking buttons can do.

Stacks that take advantage of this feature usually let you know what to do.

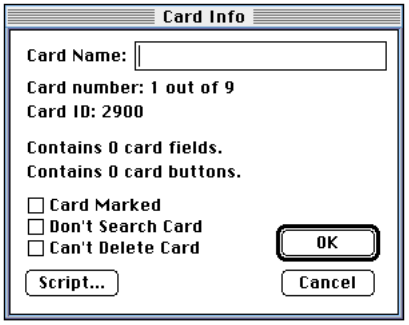
Using the arrow keys to move around

You might be able to move from card to card by pressing the arrow keys, depending on the setting for the Text option on the Home stack's Preferences card. See "Arrow Keys in Text Option" earlier in this chapter for details.

Going to a specific card

If you know the name, number, or ID of a specific card in a stack, you can go to the card directly by using the Go command in the Message box. (You use the Message box to send instructions to HyperCard.)

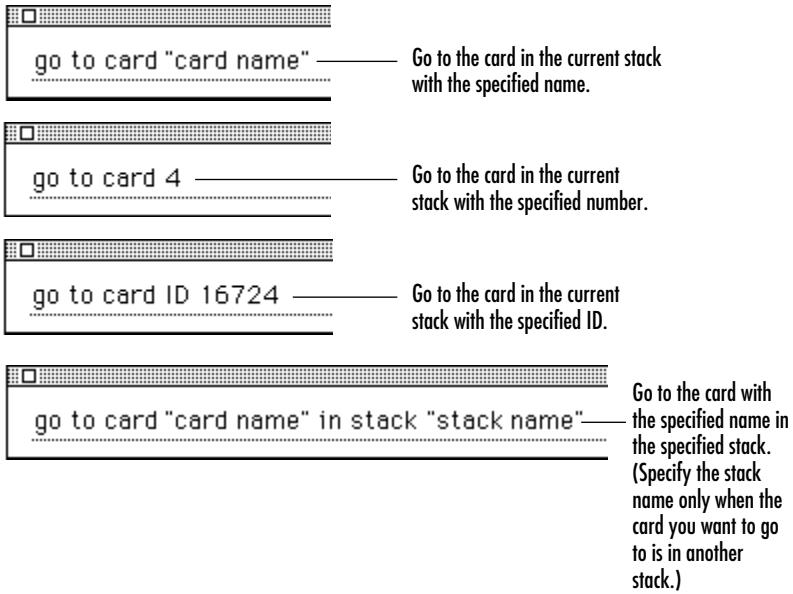
You find the name, number, or ID of the current card by choosing Card Info from the Objects menu. (To see the Objects menu, you must have your user level set to Authoring or Scripting. “User Levels and Options” earlier in this chapter gives instructions for changing your user level.)



To get to a specific card from any other card in the same stack (or from another stack, such as the Home stack), follow these steps:

1. Open the Message box (if it isn’t already open) by choosing Message from the Go menu.

2. Type any of the following, substituting the name, number, or ID of the card you want to go to:



3. Press Return or Enter.

To hide the Message box, click its close box or press ⌘-M.

Seeing all cards in a stack

You can get a quick look at a stack by flipping through all of its cards quickly. Follow these steps:

1. Choose Message from the Go menu (or press ⌘-M).
2. Type `show all cards` and press Return.

   HyperCard shows you all the stack's cards quickly, one after the other. To stop flipping through the cards, either press the mouse button or press ⌘-. (⌘-period).

To hide the Message box, click its close box or press ⌘-M.

Some stacks have a button you can click to see all cards. It usually looks like this:

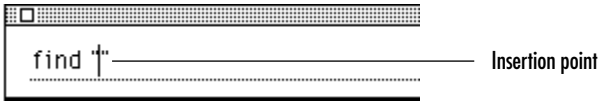
Looking for specific text

You can also move around in a stack by searching for specific text. This makes it easy to find just the information you need in a stack, no matter how large the stack is. You can search an entire stack for the text you want, or search only in a specific field.

Finding text anywhere in a stack

1. Choose Find from the Go menu (or press ⌘-F).

   HyperCard displays the Message box with the Find command in it:



2. Type the text you want to find.

   Make sure you type the text you want to find between the quotation marks that appear after the word “Find” in the Message box.

   Unless you add the word “international” before the quotation marks (as in `find international "schøél"`), HyperCard pays no attention to diacritical marks during a search: “apple,” “Apple,” and “ÅPPLË” are all considered the same.

   Another way to enter text in the Message box is to hold down the ⌘ key while you click a word in a field. If you ⌘-drag across several words, you can place up to one line of text in the Message box.

3. **Press the Return key or the Enter key.**

   HyperCard displays the first card containing a word or words that begin with the specified text. (It looks for the first card that contains everything between the quotation marks, even if the words are in a different order or in different fields.) HyperCard puts a box around the first word that starts with the text you're looking for.

   If HyperCard can't find the text, it beeps, or the menu bar flashes once. If this happens, check the text in the Message box for typos and spelling errors.

4. **If you want to find the next occurrence of the same text, press Return or Enter again.**

   You can repeat this step as many times as you like to find additional occurrences of the same text.

To stop a search in progress, press ⌘-**.** (⌘-period). To search for the same text again press Return or Enter. To search for different text, type the text you want to find, then press Return or Enter.

❖ *To speed your search:* If you're looking for specific text in a very large stack, it's best to give HyperCard a large enough portion of the target text to distinguish it from other text in the stack. This prevents HyperCard from displaying cards that don't have the complete text you're trying to find. HyperCard also finds text faster when you specify the target text in strings of three characters (or multiples of three), not counting spaces. ❖

When you're through with the Message box, you can put it away by clicking its Close box. The next time you choose Find, the Message box reappears with the last text you typed between the quotation marks. (This "last Find text saved" feature clears when you quit HyperCard.)

Some text isn't searched

HyperCard doesn't look for text:

- in fields for which the option Don't Search is checked in the Field Info dialog box (described in "Excluding a Field from Text Searches" in Chapter 7)
- in background fields that belong to backgrounds for which either the Don't Search Background in the Bkgnd Info dialog box or the Shared Text option in the Field Info dialog box is checked (described in "Excluding Background Fields from Text Searches" in Chapter 5)
- in card or background fields on cards that have Don't Search Card checked in the Card Info dialog box
- that isn't in a field, such as text that names a card or button
- created with the Paint Text tool (described in Chapter 8, "Working with Graphics")

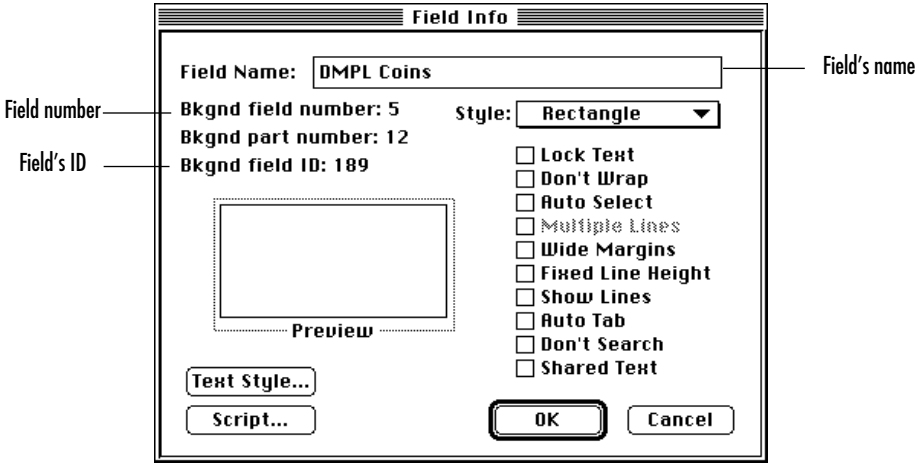
Finding text in a specific field

If you want to search for text only in a specific field, you need to know the name, number, or ID of the field.

To find out a field's name, number, or ID, follow these steps:

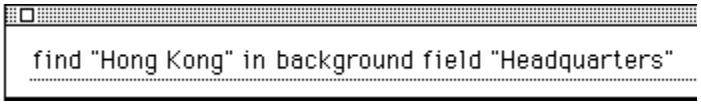
1. Be sure your user level is set to Authoring or Scripting.
2. Choose the Field tool () from the Tools menu.
3. Click the field to select it.

4. Choose Field Info from the Objects menu (or double-click the field).



To search for text only in a specific background field, follow these steps:

1. Choose Find from the Go menu (or press ⌘-F).
2. Type the text you want to find.
3. Click after the last quotation mark in the Message box.
4. Type a space, and then type `in background field` and the name (in quotation marks), number, or ID of the field in which you want to search.



5. **Press the Return key or the Enter key.**

   HyperCard displays the first card containing a word (or words) in the specified background field that begins with the specified text, and puts a box around that word.

   When HyperCard can't find the text, it beeps or flashes once. If this happens, check the text in the Message box for typos and spelling errors.

6. **To find the next occurrence of the same text, press Return or Enter again.**

   You can repeat this step as many times as you like to see additional occurrences of the same text.

To stop a search in progress, press ⌘-. (⌘-period).

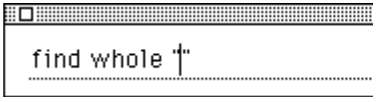
❖ *Some fields are not searched.* HyperCard doesn't look for text under certain conditions. For a list of circumstances, see "Some Text Isn't Searched" earlier in this chapter. ❖

Finding a whole word or phrase

To search for a specific whole word or phrase anywhere in a stack, follow these steps:

1. **Press ⌘-Shift-F.**

   The Message box appears with the Find Whole command in it:



2. Type the word or phrase you want to find.
3. Press the Return key or the Enter key.

For the Find Whole command to find a match, all the characters must be in the same field on a card, and they must be in the same consecutive order as they appear between the quotation marks. For example, this command tells HyperCard to find cards that have the phrase “Apple Corp” on them:

```
find whole "Apple Corp"
```

It doesn’t find “Apple Corporation” or “This Corporation is Apple.” (The Find command without Whole finds matches for all three cases.)

Find Whole won’t stop on cards that have only partial matches. For example, this command doesn’t find “Edward”:

```
find whole "Ed"
```

To stop a search in progress, press ⌘-. (⌘-period).

As with Find, you can use Find Whole to search for text in a specific background field (as previously described in “Finding Text in a Specific Field”). The HyperTalk Reference stack and *HyperCard Script Language Guide* describe other ways to search for text in stacks.

Moving and resizing the card window

Each HyperCard stack opens in a window. A HyperCard window always displays only one card at a time. This section explains how to change the size of a card window and move it around on the screen.

A HyperCard window is different from a standard Macintosh window in that it has neither scroll bars nor a visible size box.

Moving a card window

You move a HyperCard window around on the screen the same way you move any Macintosh window—by dragging its title bar.

Resizing a card window

You can easily change the size of a card window. Resizing the card window doesn't change the size of the card; it only changes how much of the card you can see. If you make the card window smaller than the card, you see only part of the card. You can see the entire card, if your screen is large enough, by making the card window the same size as the card. (The next section, "Viewing Large Cards," explains how to view cards that are larger than your screen.)

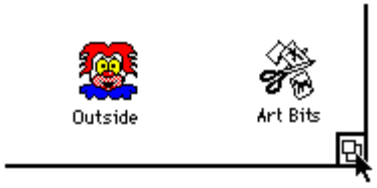
To change the size of the card window, you can either resize the card window directly or resize it via the Scroll window.

To resize a card window directly, follow these steps:

1. Press ⌘-Shift-E.

   A size box appears in the lower-right corner of the window.

2. Drag the size box to resize the window:



When you release the mouse button, the size box disappears. If you want to resize the window several times in succession, ⌘-drag the size box until the window is the size you want it.

❖ *Note:* You can't make the card window larger than the card itself. ❖

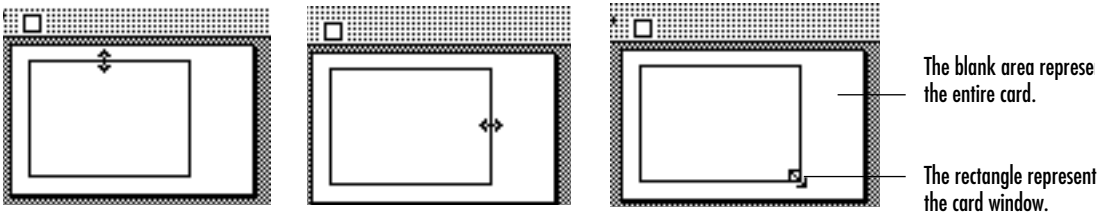
To resize a card window by using the Scroll window, follow these steps:

1. Choose Scroll from the Go menu (or press ⌘-E).

   The Scroll window appears.

2. Drag from any edge or corner of the rectangle (or the blank region, if there's no rectangle) inside the Scroll window.

When you move the pointer over the edges and corners of the rectangle, it becomes a double-headed arrow. Drag with the double-headed arrow to resize the card window.



Resizing the card window vertically

Resizing the card window horizontally

Resizing the card window diagonally

When you resize this rectangle, the card window is resized.

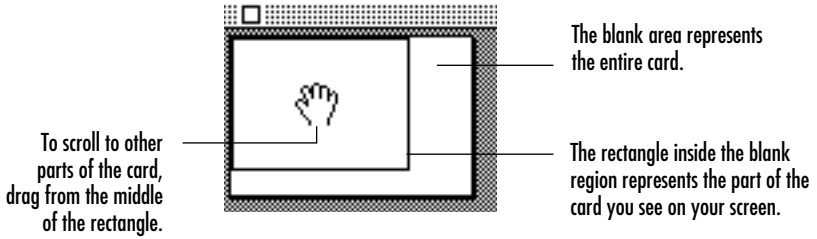
To make the card window the same size as the card, you can either double-click inside the Scroll window, or click the zoom box of the card window. (If the card is larger than your screen, the card window becomes about the same size as the screen.)

To hide the Scroll window, click its close box or press ⌘-E.

Viewing large cards

When you open a stack whose cards are larger than the screen, you see only a portion of a card at a time. To look at other parts of the card, use either of the following techniques:

- Press ⌘-Shift-E. The pointer turns into a hand when it's over the card; use it to drag the card around in the card window. When you release the mouse button, the hand disappears. To move around on the card several times in succession, press and hold the ⌘ key until you're finished.
- Open the Scroll window by choosing Scroll from the Go menu, or by pressing ⌘-E. Use the Scroll window to scroll to other parts of the card.



To limit the scrolling to either horizontal or vertical movement, hold down the Shift key while you drag.

To hide the Scroll window, click its close box or press ⌘-E.

❖ *Keep the card window smaller than the screen.* When you use a stack whose cards are larger than the screen, it's a good idea to keep the card window small enough to fit on your screen. If you make the card window larger than the screen, you can't scroll around to see all parts of the card. ❖

Moving from one stack to another

You can move easily from one stack to another. If the stack you want to go to is already open, click that stack's window. Or, you can choose Next Window from the Go menu (or press ⌘-L) until the stack's window becomes active—that is, until the window is visible and narrow horizontal lines appear in its title bar.

Whether or not the stack is already open, you can get to it by doing any of the following:

- Choose Message from the Go menu, type `go "stack name",` and press Return. (Replace *stack name* with the name of the stack.)
- Choose Open Stack from the File menu and use the directory dialog box to locate and open the stack.
- Click a button in the current stack or in the Home stack that's linked to the stack you want to go to (if there is such a button).

Looking through cards you've seen

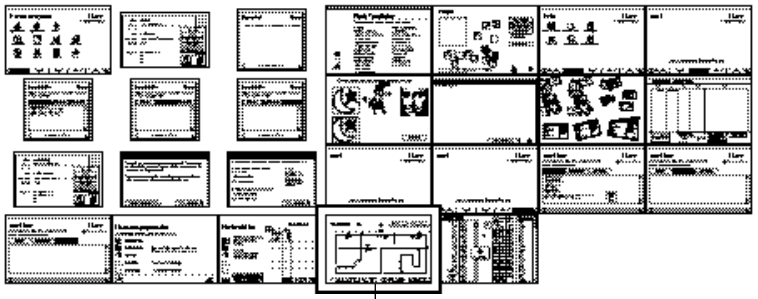
As you go from card to card and stack to stack, HyperCard automatically keeps a record of where you've been.

When you want to back up and review the cards you've seen, you can choose Back from the Go menu, or press the tilde (~) or Esc key, to go to the last card you saw, no matter what stack it's in. To continue retracing your steps, choose Back (or press the tilde or Esc key) again. You can review up to the last 100 cards you viewed, in reverse order.

❖ *If the tilde key doesn't take you back:* Chances are you have one of the Paint tools selected. While you're working with the Paint tools, press ⌘-tilde to go back to the last card you saw. (Pressing the tilde key alone while using a Paint tool undoes your last action.) ❖

After you review the cards, you can press the up arrow to come forward again through the reviewed cards (or press Option–up arrow, if Arrow Keys in Text is checked on your Preferences card).

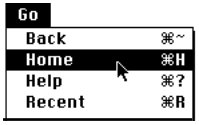
Choose Recent from the Go menu to see miniature versions of the cards you've seen most recently (up to the last 42 cards you've looked at). A card miniature appears just once, even if you've gone to the card more than once. (If your computer's memory is low, you may only see one card miniature.) Click a miniature to go to the card it represents.



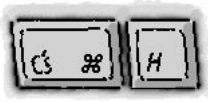
A box surrounds the card you're currently on. (Click it to cancel the Recent command.)

Returning Home

No matter where you are in HyperCard, you can always get back to the Home stack. Here are four ways to do it:



Choose Home from the Go menu.



Press ⌘-H.

Click any button with the house icon, or another button that's linked to the Home stack.

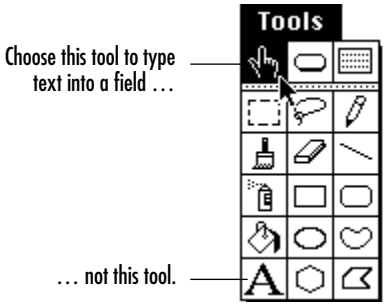
Choose Message from the Go menu, type `go "Home"`, and press Return.

Entering Text

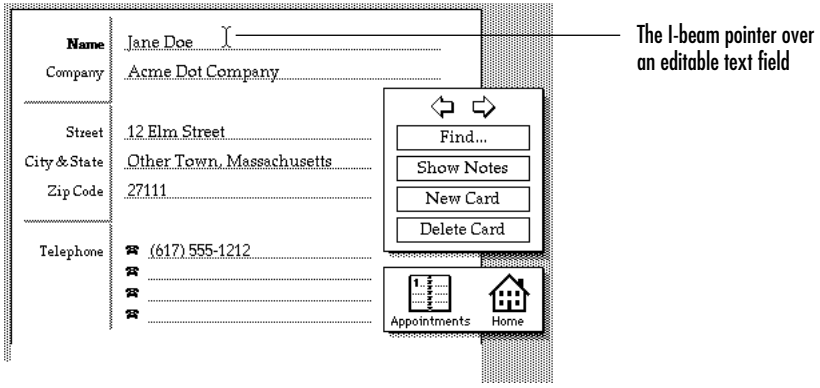
The most common way to add text to a card is by typing into fields.

❖ *Check your user level:* To type and edit text in stacks, you must have your user level set to Typing (2) or higher. ❖

To type text into fields, make sure that the Browse tool (✋) is selected:



With your user level set to Typing (or higher), the Browse tool becomes an I-beam (𝙸) when you move it over a field you can type into:



To enter text into a field, move the I-beam over the field, click, and start typing.

You edit field text in HyperCard the same way you edit any Macintosh text. You can click anywhere in the field and begin typing, or drag to select text for copying, moving, deleting, or replacing.

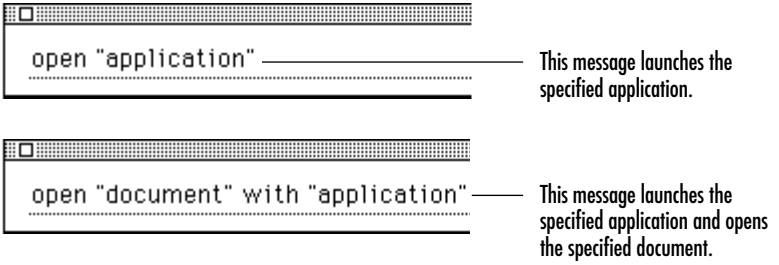
To fix typing mistakes while you're editing text in a field, you can do any of the following:

- Choose Undo from the Edit menu to undo your last text editing operation (including a text style change).
- Press the Delete or Backspace key to delete characters to the left of the insertion point, one character at a time.
- Drag the I-beam over the incorrect text to select it, and then retype or delete it.

Opening Applications

You can launch an application from HyperCard by following these steps:

1. To open the Message box (if it isn't already open), choose Message from the Go menu (or press ⌘-M).
2. Type one of the following messages into the Message box, substituting the names of the application and document you want to open:



3. Press Return or Enter.

   HyperCard may display the directory dialog box and ask you where one of these files is.

❖ *If nothing happens:* If you try to open an application and nothing happens, it's probably because there's not enough memory. If you have other applications open, try quitting one or more of them to free enough memory. ❖

When you quit the application you've opened, HyperCard takes you back to the card from which you launched the application.

If you try to open a document with an application that's already open, the application comes to the front, displaying its current document. If you want to open a document other than the current one, you have to open it from within the application; it doesn't open automatically.

You may encounter stacks with buttons that launch applications. When you launch an application by clicking one of these buttons on a card, HyperCard takes you back to the same card after you quit the application.

Getting Help

You can get help anytime you're using HyperCard. You can use Balloon Help, and you can use the HyperCard Help or HyperTalk Reference stacks. HyperCard Help covers all areas of HyperCard through the Authoring level. HyperTalk Reference provides reference and conceptual information about HyperTalk.

To get to the HyperCard Help stack, do any one of the following:

- Choose Help from the Go menu.
- Press ⌘-?.
- Type `help` into the Message box and press Return or Enter.
- Click the HyperCard Help icon on the first card of the Home stack.

To get to the HyperTalk Reference stack, do one of the following:

- Type `HyperTalk` into the Message box and press Return or Enter.
- Click the HyperTalk Reference icon on the second card of the Home stack.

Using a Stack on a File Server

If your Macintosh is part of a network that includes AppleShare file servers, you can use HyperCard stacks stored on file server volumes. Note the following:

- As with any file on a file server, you must have the appropriate access privileges to use the stack. For information about access privileges, consult your network administrator.
- If the stack is on a locked medium—a locked disk, a CD-ROM, or a locked folder on the file server—or if it's locked in the Finder (that is, if its Locked option is selected in the Get Info dialog box), any number of network users can use the stack at the same time. No one, however, can make changes to the stack.
- When a stack is unlocked on a file server, only one person can use it at a time. As the sole user, you can make changes to the stack, but no one else on the server can use it until you log off.

Using a Stack on a CD-ROM

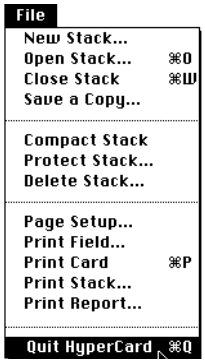
You can use any HyperCard stacks you have on a CD-ROM just as you would other stacks. But changes you make to a stack aren't saved. If you want your changes saved, copy the stack to an unlocked disk and open the stack from there.

Running HyperCard from a CD-ROM (or from any other locked medium), or using a Home stack on a locked disk, can have some limitations:

- If your Home stack is on a locked disk, HyperCard can't update the Search Paths cards when you tell it where to find stacks. So each time you want to go to a new stack, HyperCard has to ask for directions.
- When you're running HyperCard from a locked disk under the Finder in System 6 and you launch an application, HyperCard returns you to the first card of the Home stack when you quit the application instead of to the card from which you launched the application. This is because HyperCard can't mark your place when you leave, as it does if it were on an unlocked disk.

Quitting HyperCard

To quit HyperCard, choose Quit HyperCard from the File menu, or press ⌘-Q. HyperCard doesn't ask whether you want to save changes, because it saves your information automatically as you work.



Chapter 2

Learning HyperCard Basics

This chapter gives you step-by-step exercises for many of HyperCard's features. It's designed to provide you with active experiences as opposed to passive information. You should read it sitting in front of your computer, doing each exercise as you come to it.

The exercises build upon one another, so you should do them in order. While you still can learn a lot about HyperCard by skipping through the chapter, you'll learn most by doing all the exercises in the order that they're presented.

If you've already installed HyperCard, you're ready to get going. If you haven't, follow the instructions on the box that HyperCard came in, and then return to this chapter.

Starting Up and Taking the Tour

The best way to learn HyperCard is to start using it. In this exercise, you'll open HyperCard and take the HyperCard tour. The HyperCard tour presents basic information and gives you some immediate experience.

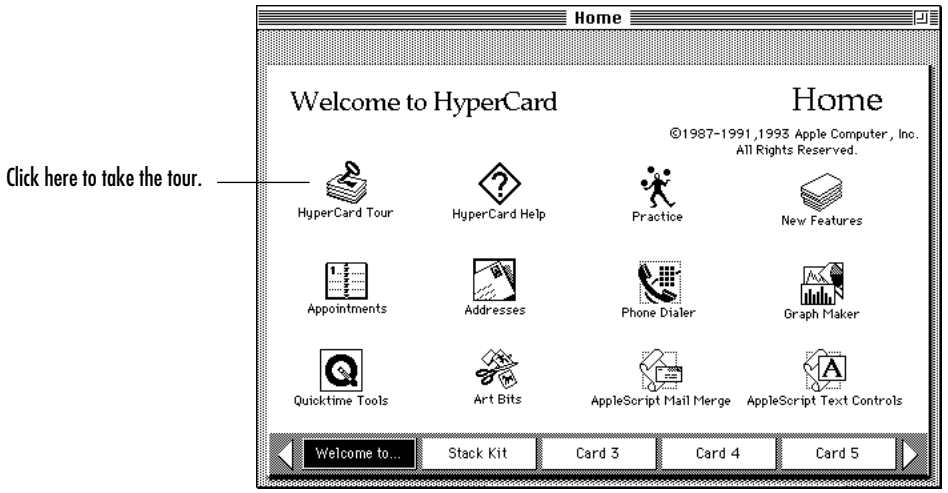
1. Double-click your hard disk's icon to open it (if it's not open already).
2. Open the HyperCard folder (if it's not open already).

   You may have to use the scroll bars before you can see the folder.

3. Double-click the HyperCard icon to open it.

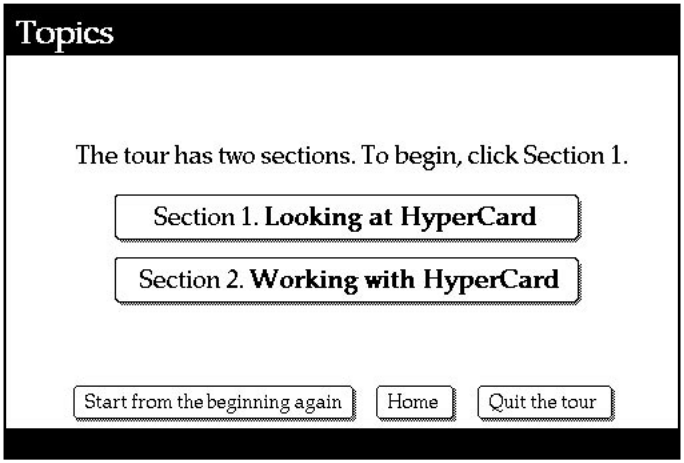
   The Home stack opens and you see the first card.

4. Click the HyperCard tour to open it.



When the opening card for the tour appears, click the card to continue. Another card appears with information for you to read.

5. Follow the instructions that appear on each card to move through the tour.



If you like, you can leave the tour at the end of the first section by clicking the Topics button and then clicking the Home button. (In fact, you can use this method to leave the tour at any time.)

6. At the end of the tour, click the Home button.

Opening HyperCard Files

Each HyperCard file is called a stack, and each stack contains one or more cards. You can open stacks either by using the Open Stack command (which is like the Open command in other programs) or by clicking buttons.

Opening stacks by clicking buttons

In this exercise, you'll click a button to open the Practice stack and then click another one to return to the Home stack.

1. To open the Practice stack, click the Practice button on the first card of the Home stack.

   Notice that you click the button just once.

   After you click, HyperCard closes the Home stack and opens the Practice stack. You see the first card of the Practice stack with John Chapman's name on it.

2. Without clicking the mouse button, roll the mouse around to see the different pointer shapes.

   The pointer changes shape depending on which part of the screen it's over.

Browse tool pointer is over a card (but not over editable text).

Arrow pointer is over any area outside the card.

I-beam pointer is over text you can edit.

3. Click the Home button to return to the Home stack.

   The Home button is linked to the Home stack. By clicking the button, you close the Practice stack and open the Home stack again. (When you open a new stack, the old one will often close.)

Opening stacks using the Open Stack command

In the last exercise, you opened the Practice stack by clicking a button. In this exercise, you'll open it again, this time using the Open Stack command. (Either way, the result is the same.)

1. Pull down the File menu and choose Open Stack.

   The Open Stack command works like the Open command in many other programs. (Notice that the shortcut for Open Stack is ⌘-O.)

   After you choose the Open Stack command, you see the directory dialog box.

2. Double-click HyperCard Stacks.

   You're looking for the Practice stack, which is within the HyperCard Stacks folder, so you need to open that folder's icon to find the stack.

3. Double-click Practice.

   If necessary, use the scroll bar to find the word "Practice."

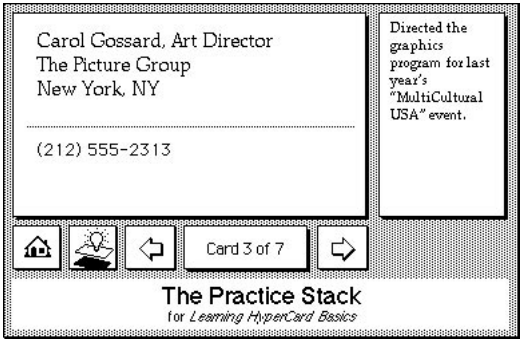
   After you double-click, HyperCard closes the Home stack, opens the Practice stack, and displays its first card, just as in the last exercise.

Looking at Cards

You've learned a couple of ways to open stacks. But so far, you've seen only the first card of each stack. In this section, you'll learn how to browse through the cards in a stack.

1. **Click the Practice stack's right arrow button once, and then again.**

   Each time you click the right arrow button, you move to the next card in the stack. Two clicks take you to the third card of the stack. This stack has seven cards in it.

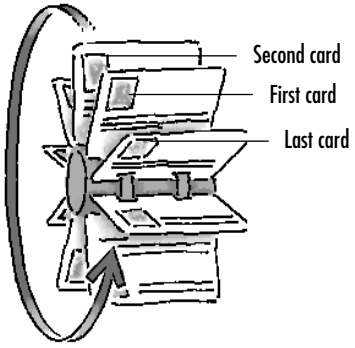


2. **Click the left arrow button twice to go back to the first card, which has John's address on it.**

   Each time you click the left arrow button, you go to the previous card.

3. **Click the left arrow button one more time.**

   When you're on the first card and then go back a card, you move to the last card in the stack—in this case, the card for Zuzana Mrkova. The cards in a HyperCard stack are arranged in a circular fashion, so the first card in a stack and the last card in a stack are next to each other.



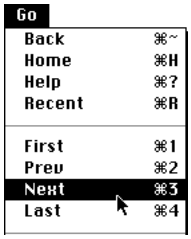
4. **Click the right arrow button once to return to the first card.**

   You see John's card again.

Now you know the basics of how to get around in HyperCard. You use buttons or the Open Stack command to move from one stack to another, and you use arrow buttons to move forward and backward through a stack.

Knowing only that much, you can browse through almost any stack you have. But if you learn how to use the Go menu, you'll find it easier to move around in HyperCard.

Using the Go Menu



The Go menu contains commands for navigating through stacks and moving from one stack to another. In this exercise, you'll gain experience using six of the commands you'll use most often from the Go menu.

1. **Choose Next from the Go menu.**

   The Next command takes you to the next card in the stack, just like the right arrow button did in the previous exercise.

2. **Choose Prev from the Go menu.**

   The Prev command, like the left arrow button, takes you to the card in the stack immediately before the one you are looking at. (Prev is short for previous.)

3. **Choose Last from the Go menu.**

   As you might expect, the Last command takes you to the last card of whatever stack you are viewing (in this case, Zuzana's card).

4. **Choose First from the Go menu.**

   The First command takes you to the first card of the stack, and you see John's card again.

5. **Choose Home from the Go menu.**

   The Home command, like the Home button, takes you back to the Home stack. Whenever you get lost, you can return Home by choosing this command.

6. **Choose Back from the Go menu.**

   You return to John's card.

   The Back command returns you to the last card you looked at, even if the card was in an entirely different stack.

7. **Choose the Back command once again.**

   You go to Zuzana's card.

   The Back command retraces your steps through the cards you just viewed, one card at a time.

8. **Choose the Home command.**

   You end up back at the Home stack.

Typing

In most stacks, you can do much more than just look at the cards. The exercises in this section show you how to include your own information by adding and editing text.

If you've used a Macintosh word processor—or any other program that involves typing—you already know most of what you need to know. The main differences you'll notice when working with text in HyperCard are that you can't use tabs to indent or line up columns, and you can't always use the arrow keys to move through text.

Entering text

You can type text only in certain areas on a card. Each card is like a form with rectangular areas where you can fill in information. In HyperCard, each of these areas is called a field.

The Practice stack has three fields in which you can type:

In this exercise, you'll fill in the Notes field for Ginny's card.

1. **Use the arrow buttons to find the card for Ginny Sae Kwa.**

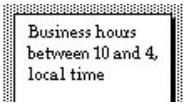
   Click the right or left arrow buttons to find Ginny's card (the sixth card in the stack).

2. **To indicate where you want to type, click the upper-left corner of the Notes field.**

   Your pointer changes to the I-beam pointer when it's over a field. When you click, the vertical bar that marks the insertion point blinks at the beginning of the field.

   If you click too far down in the field, use the Delete or Backspace key to get back to the top of the field. If you click in the wrong field altogether, just try again.

3. **Type a note.**



   Something like "Business hours between 10 and 4, local time" will do.

   Don't press the Return key as you type. The text automatically wraps to the next line.

❖ *No need to save:* Unlike most applications where you explicitly need to take some action to save what you create, HyperCard automatically saves your work as you go along. ❖

Editing text

You edit text in HyperCard fields the same way you edit any text on your Macintosh. In this exercise, you'll use the standard techniques to copy, paste, and bold text.

1. **Use the arrow keys to find Wally Lab's card.**

   Wally's card is the fifth card in the stack.

2. **Select the second line of the address by dragging through it.**

3. **Choose Cut Text from the Edit menu (or press ⌘-X).**

   The text is removed from the card and placed on the invisible Clipboard.

Wally Lab
1257 Woofer Road
Baseboard Rechewing Group
San Francisco, CA 94131

4. Click once just before "San Francisco."
5. Choose Paste Text from the Edit menu (or press ⌘-V).

   The line you previously cut is pasted in.
6. Go to John's card by choosing First from the Go menu.
7. Select the word "product" in the Notes field by double-clicking it.

   After you double-click, the word is highlighted.
8. Choose Bold from the Style menu.

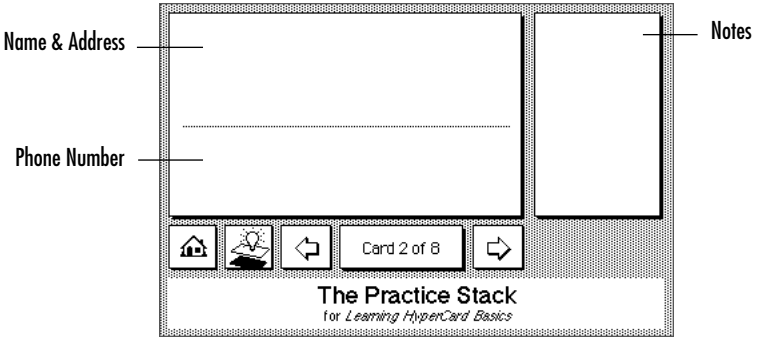
   The word becomes bold.

Adding a New Card

You can add new cards to your stack whenever you like.

1. Starting from John's card (Card 1) in the Practice stack, choose New Card from the Edit menu.

   HyperCard creates a new, blank card, places it after the card you were looking at, and displays the new card.



2. Click the upper-left corner of the Name & Address field and type your name and address.

   Press Return after the first and second lines.

3. Click in the upper-left corner of the Phone Number field and type your phone number.
4. Press the Tab key on the keyboard to move to the next field.

   The insertion point begins to blink in the upper-left corner of the Notes field.

   To stop typing in one field and begin typing in another, you can use the mouse to move the insertion point (as you did before), or you can use the Tab key (as you did this time).
5. Add a note without pressing the Return key.

   The text breaks at appropriate spaces even though you don't press the Return key.

Manipulating Windows

So far, you've only had one HyperCard window open at a time. Whenever you opened a new stack, the old one closed. In this section, you'll learn how to display more than one stack at a time, how to arrange them on your screen, and how to close them.

When you use a button to open a stack, you don't have a choice about whether to close the old stack (the person who creates the button makes that choice). When you use the Open Stack command, however, the choice is yours.

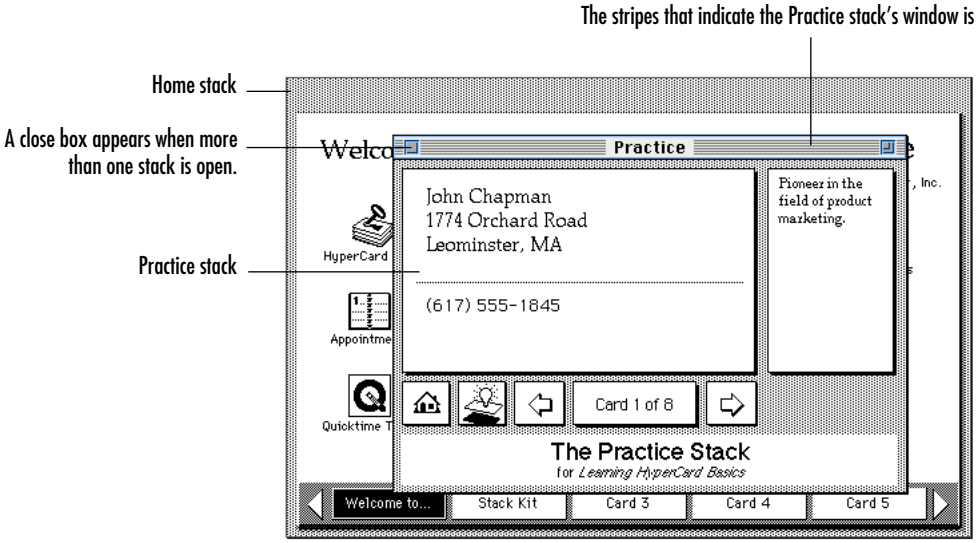
1. Go Home by clicking the Home button or choosing Home from the Go menu.
2. Choose Open Stack from the File menu.

   The Directory dialog box appears.
3. Click the "Open stack in new window" checkbox to select it.

An X in the checkbox instructs HyperCard to place the stack in a new window, keeping the current window (and the current stack) open.

4. Double-click the name “HyperCard Stacks” to open the folder.
5. Double-click the name “Practice” to open the stack.

   You’ll see both stacks open at the same time.



6. Move the Practice stack’s window to the bottom of your screen by dragging it by its title bar.
7. Make the Home stack’s window active by clicking anywhere in the part of it you can see.

   When you click the Home stack’s window, it moves in front of the Practice stack’s window.

   Only one window can be active at a time. A window must be active before you can do anything to it, such as type or click buttons.

8. Choose Close Stack from the File menu.

   The active window, in this case the Home stack’s window, closes. No longer hidden by the Home stack, the Practice stack is visible once again.

   You can also close a stack by clicking its close box at the upper-left corner of the title bar. (You only see a close box when more than one stack is open at a time.)

Saving Stacks

Unlike most Macintosh software, HyperCard automatically saves changes as you make them. In this exercise, you'll see that there is no Save command in the File menu.

1. Pull down the File menu but don't choose any commands.

2. Release the File menu.

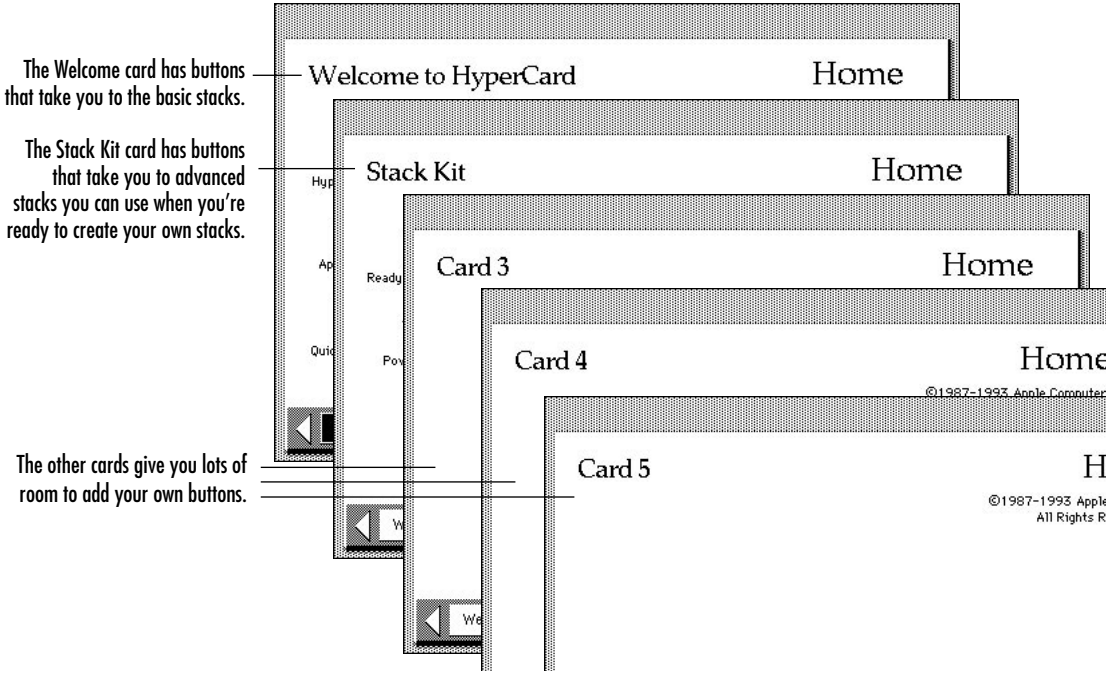
The Home Stack

The Home stack will usually be your starting place when you start up HyperCard. Take the time to get to know it. In this section, you'll learn about two important parts of the Home Stack—the Home cards, which contain a collection of buttons that take you to your favorite stacks, and the Preferences card, which you use to adjust some HyperCard settings.

First, you need to go to the Home stack by choosing Home from the Go menu.

The Home cards

When you open the Home stack, you see the first of five Home cards, called Welcome to HyperCard. Each Home card has buttons that can quickly take you to any of your favorite stacks.



1. **Go to the Stack Kit card by clicking its button at the bottom of the first Home card.**

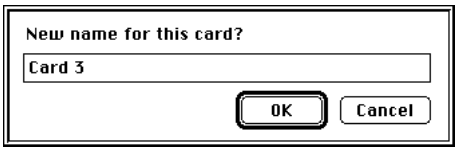
   The Stack Kit card appears. Clicking any of the icons on this card takes you to a different stack—each one filled with different elements you can use to construct your own stack.

2. **Go to the Home card called Card 5 by clicking its button.**

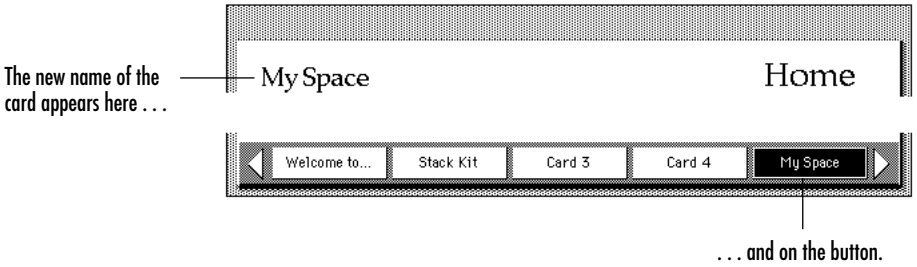
   Like Card 3 and Card 4, Card 5 gives you ample room to add your own buttons. (You can add buttons to the first two Home cards as well.)

3. Choose Rename This Card from the Home menu.

   A dialog box appears for you to type the new name.



4. Type the name My Space (or any other name that you like) and click OK.



5. Click the "Welcome to..." button at the bottom of the card to return to the Home card.

The Preferences card

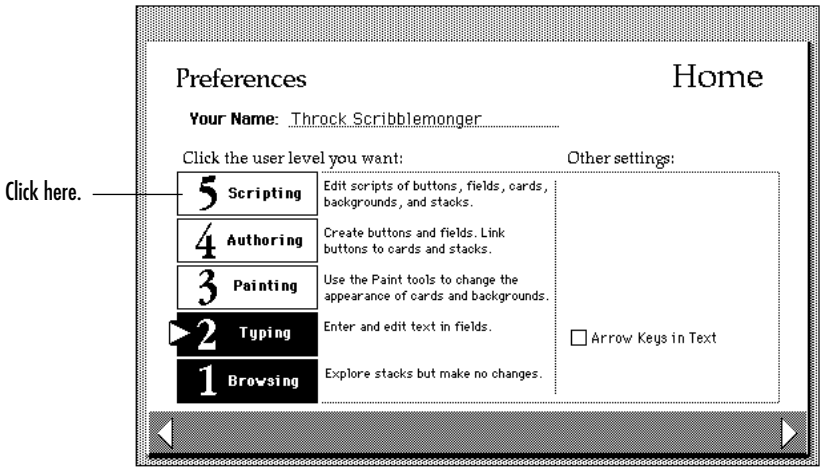
HyperCard has five user levels. You use the Preferences card in the Home stack to choose the user level where you want to work. When you first install it, HyperCard is set up to work at the second level: Typing. At the Typing level, you can look at cards and type on them, but you can't draw graphics on cards or modify buttons or fields.

In this exercise, you'll select the highest user level, called Scripting, so that you can see and use all the menus and commands HyperCard has to offer. (You'll need to be at this highest level so that you can do the exercises in the next chapter.) You'll also add your name to the Preferences card.

1. **Choose Preferences from the Home menu.**

   You move to the Preferences card.

2. **Click the button for the Scripting level.**



When you move to the Scripting level, HyperCard adds two extra menus to the menu bar: the Tools menu and the Objects menu. It also adds commands to some of the other menus.

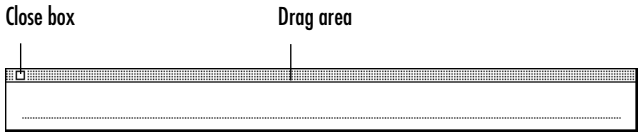
▲ ***Important:*** When you set your user level to Scripting, you can use certain commands that temporarily disable the Browse tool. If you lose the Browse tool and can't type text or click buttons, you can choose the Browse tool from the Tools menu at any time. ▲

3. **Click the blank after "Your Name:" at the top of the card and type your name.**
4. **Choose First from the Go menu to return to the first card of the Home stack.**

By changing the Preferences card in this exercise, you've gained access to all the commands and features HyperCard has to offer. When you finish this chapter, you can come back to this card and change your user level again if you like. Leave it at this level if you intend to go on to Chapter 3 to learn about scripting.

The Message Box

The Message box is a special window in HyperCard. It looks like this:



It has room for one line of text. You can type commands called messages, and HyperCard can type replies.

Controlling the Message box

Here's how to display the Message box, move it, and hide it:

1. **Choose Message from the Go menu.**

   HyperCard opens the Message box.

2. **Drag the Message box.**

   You move the Message box by placing the pointer on the bar at the top of the box and dragging it where you want it to go, just as you drag any window.

3. **Close the Message box by clicking its close box.**

   Because the close box is small, make sure you've got the tip of the arrow in the close box before you click.

Using the Message box

In this exercise, you'll type some messages into the Message box. When the Message box is visible and the insertion point isn't blinking in one of the fields on the card, anything you type goes into the Message box.

1. **Click the Practice button on the first Home card to go to the Practice stack.**

2. **Choose Message from the Go menu to open the Message box again.**

   Don't worry if there's text in the Message box. It will disappear as soon as you start typing.

3. **Type the words `the date` and then press Return.**

   If you make a mistake while typing in the Message box, you can correct it using the Delete or Backspace key.

   HyperCard puts today's date into the Message box.

❖ *Note:* If the date is wrong, your Macintosh has the wrong date in its internal calendar. Correct the date in the Control Panel. (For details, see the documentation that came with your computer.) ❖

4. **Type `12+5` and press Return.**

   The date in the Message box disappears when you start typing, and HyperCard places the correct answer, 17, in the Message box.

5. **Type `flash 3` and press Return.**

   This message makes the card flash three times.

6. **Type `go home` and press Return.**

   You go back to the Home card.

7. **Type `go back` and press Return.**

   HyperCard returns you to the Practice stack.

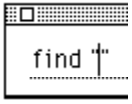
8. **Type *`userName`* and press Return.**

   HyperCard replaces what you typed with your name—just as you entered it on the Preferences card. (Be sure that *`userName`* is all one word.)

You've just learned your first words of HyperTalk. If you want to learn more about this powerful, easy-to-learn programming language, do the exercises in the next chapter when you've finished with this one.

Finding Text

Many HyperCard stacks contain hundreds of cards. Even so, you can find a particular card quickly by using the Find command.



1. With John's card in the Practice stack on the screen, choose Find from the Go menu.

   HyperCard opens the Message box (if it was closed), types the Find command, and places the insertion point between two quotation marks. (This is exactly the same as if you typed the command yourself.)

2. Type the word `Gossard`.

   The word appears between the quotation marks.

3. Press the Return key.

   As soon as you press the Return key, HyperCard searches the Practice stack for the word "Gossard." (You can find text in only one stack at a time. HyperCard searches only the stack that's active when you enter the Find message.)

HyperCard finds a card with the word "Gossard" on it, displays the card, and puts a box around the word.

4. Choose Find from the Go menu again (or press ⌘-F).

   When you choose the Find command again, it enters the last word you looked for and highlights it.

5. Type `selma`.

   As soon as you start typing, the old word "Gossard" disappears.

6. **Press the Return key.**

   When you press the Return key, HyperCard finds the next card in the stack with the word “Selma” on it (in this case, Kevin’s card).

7. **Press the Return key again without typing anything.**

   Each time you press Return, HyperCard finds the next use of the word “Selma.”

8. **Close the Message box by doing one of the following:**

   - Click its close box.
   - Choose Message from the Go menu again.

Copying and Pasting a Picture

In this exercise, you’ll copy a picture of a pencil from the Art Bits stack to Wally’s card.

Copying the picture

Start by finding the right picture and copying it:

1. **Choose Home from the Go menu.**

   Click the “Welcome to...” button if the Welcome card is not displayed.

2. **Go to the Art Bits stack by clicking its button.**
3. **Go to the “Odds and ends” section by clicking its button.**

   It’s the second one down in the right column.

4. **Choose the Lasso tool from the Tools menu.**

   You use the Lasso tool to select an irregularly shaped object without including any of the extra white space around it.

5. **Use the Lasso tool to select the picture of the pencil.**

   To select with the Lasso tool, drag a line around the pencil. If the navigation palette is in your way, you can move it by dragging its top bar.

After you release the mouse button, the pencil is surrounded by a moving dashed line (sometimes called “marching ants”) to indicate that it’s selected. If you make a mistake, click once anywhere else on the card and try again.

6. **Choose Copy Picture from the Edit menu.**

   A copy of the picture is placed on the invisible Clipboard. The original remains on the card.

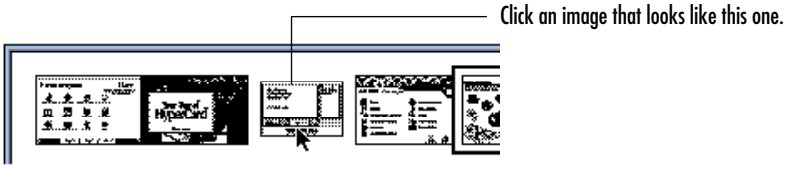
   If the art disappears from the card, you probably chose Cut Picture instead of Copy Picture. Choose Undo from the Edit menu and try again.

Pasting the picture

Now you’ll return to the Practice stack (using a new method to get there), find Wally’s card, and paste the picture:

1. **Go back to the Practice stack by using the Recent command from the Go menu.**

   Click an image in the Recent dialog box that looks like a card from the Practice stack. (Your Recent dialog box may look different.)



   The Recent dialog box keeps track of up to the last 42 cards that you visited.

2. **Move to Wally’s card by using the Find command.**

3. **Choose Paste Picture from the Edit menu.**

   The picture appears and is selected.

   If you accidentally click the card, you’ll deselect the picture. If this happens, use the Lasso tool to select it again.

4. **Choose Flip Horizontal from the Paint menu.**

   The picture “flips” to face the other way.

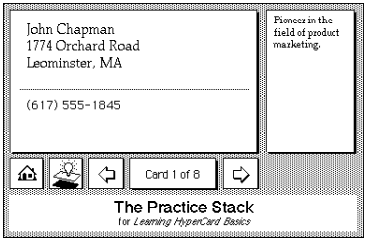
5. Move the picture to a different position by dragging it.
6. When the pencil is where you want it, choose the Browse tool from the Tools menu to complete the exercise.

Choosing the Browse tool sets the pencil in place and allows you to click buttons (which you will do in the next exercise).

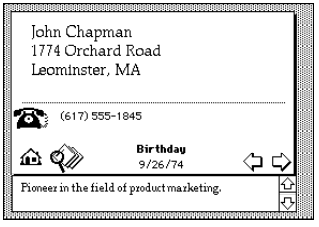
Redesigning a Stack

Once you're comfortable exploring stacks created by other people, you can change existing stacks and create new ones to meet your own needs. This process is called *authoring*.

In this section, you'll make changes to the Practice stack and rearrange it to fit in a smaller window.



Before



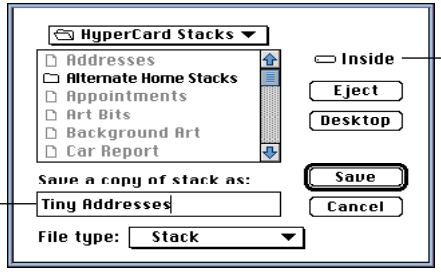
After

To start, you need to make a copy of the stack so that you don't change the original one, and create a button on the Home stack to take you to the copy.

Saving a copy

Whenever you make major changes to a stack, you should first make a copy of the stack in case you make a mistake that's difficult to correct.

1. Go to the Practice stack.
2. Choose Save a Copy from the File menu.
3. Name the stack `Tiny Addresses` and click Save.



You now have two copies of the same file on your disk—Practice and Tiny Addresses. You're still looking at the Practice stack, which is the original; but you want to work with the copy.

Adding a new button to the Home stack

To make it easier to open your new stack, you'll create a new button on the first card of the Home stack that takes you to the new stack.

1. Do one of the following to go Home:
   - Click the Home button.
   - Choose Home from the Go menu.
   - Press ⌘-H.

2. **Choose the New Link to Stack command from the Home menu in the Home stack.**

   A directory dialog box appears.

   You use the New Link to Stack command, available only in the Home stack, to create new buttons that take you to stacks.

3. **Find and double-click the name "Tiny Addresses."**

   You may have to use the scroll bar to find it. The new button appears, flashing, in the middle of the card.

4. **Drag the new button to a convenient place on the card.**

   As soon as you release the mouse button, the new button becomes fixed in place.

❖ *Note:* If you make a mistake, delete the button and redo the exercise. Luckily, that's easy to do: Choose the Button tool from the Tools menu and click the new button once; choose the Clear Button from the Edit menu; then choose the Browse tool. Now you're ready to try again. ❖

5. **Try the new button.**

   Click the new Tiny Addresses button. The stack appears with the Home stack still on the screen. Look at the title bar of the stack you just opened to make sure you opened the right one (it should say Tiny Addresses).

Working with the background

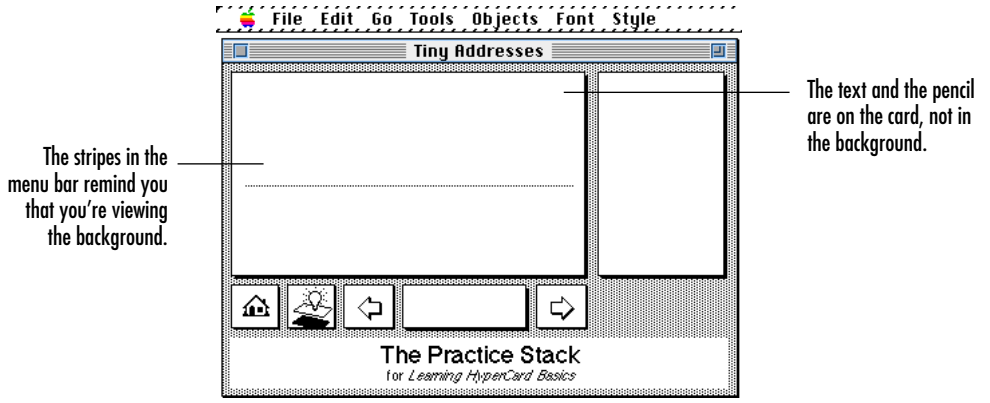
A *background* holds the elements that a number of cards have in common. Most of the changes you'll make to the Tiny Addresses stack have to do with these common elements, so you'll be working with the background a lot.

1. **With the Browse tool active, click the right arrow button until you see Wally's card (the one with the pencil on it).**

   As you move through the cards, notice what the cards have in common.

   The cards in this stack have more similarities than differences. In fact, about all that changes from card to card is the text. The rest—the three buttons, the arrangement of the fields, and the gray paint—stays the same. That's the idea of a background. A background is what all the cards have in common.

2. Choose Background from the Edit menu.



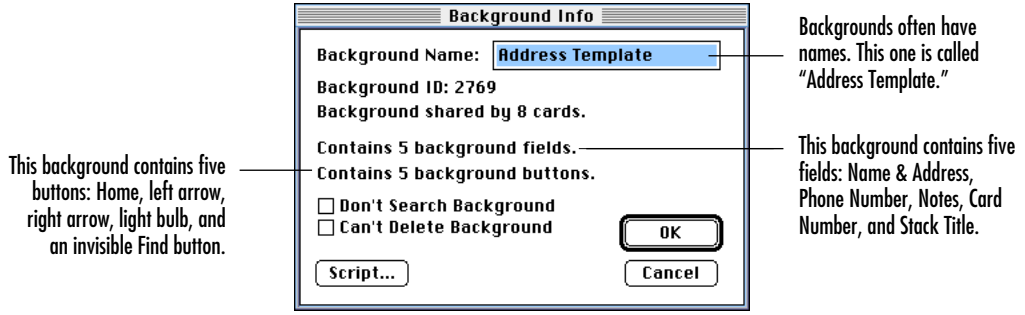
When you choose the Background command, HyperCard hides the card and shows just the background. The menu bar becomes striped.

3. Choose Background from the Edit menu again (or press ⌘-B).

Choosing the command a second time shows the card again. The stripes disappear from the menu bar.

4. Choose Bkgnd Info from the Objects menu.

HyperCard displays a dialog box with information about the background you're viewing.



This background is shared by eight cards, one for each of the addresses.

5. Click Cancel.

So what you see when you look at a card is a composite of two layers: the background layer (which contains the elements shared by all the cards) and the foreground or card layer (which contains only the elements unique to each card).

Deleting a Background button

You'll start by deleting the light bulb button. In general, the way you delete things is to select them and then press the Delete or Backspace key.

1. Choose the Button tool from the Tools menu.

   To modify buttons, you must use the Button tool. While you use the Button tool, the pointer will be arrow-shaped and you won't be able to type in fields or make buttons do what they're programmed to do.

2. Click the light bulb button once to select it.

   When a button is selected, it's framed by a moving dashed line.

   Notice that the button doesn't do what it normally does—it doesn't give you an overview of the stack. Instead, clicking a button with the Button tool selects it.

3. Press the Delete or Backspace key.

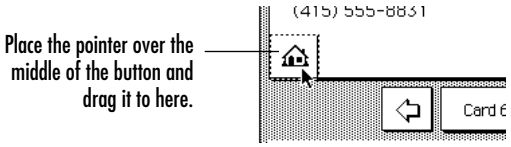
   The button disappears.

❖ *Working with background objects from the card layer:* This button was in the background; so why didn't you first have to choose the Background command to delete it? You could do that, but HyperCard lets you to edit existing buttons and fields without first choosing the Background command. ❖

Moving and changing the Home button

Next you'll move the Home button onto the white part of the card and change its size and style.

1. With the Button tool active, drag the Home button to its new location.



2. Drag the button's corner to make it smaller.

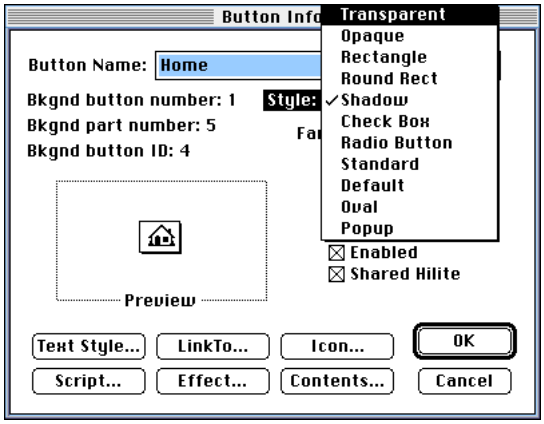
   Remember the general rule that to move something you drag its middle; to change its shape, you drag its corner. ("Middle to move; corner to change.")

3. Choose Button Info from the Objects menu.

   The button's Info dialog box appears.

❖ *Note:* If the Button Info command is dimmed, it means the button is no longer selected. Click the button once to select it. ❖

4. Choose Transparent from the Style pop-up menu to change the button's style; then click OK.

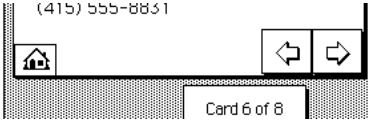


Changing the style changes the appearance of the button. In this case, the shadowed box is removed.

Rearranging the arrow buttons

Now you'll move the two arrow buttons to their new locations, make them smaller, and change their style to Transparent.

1. Drag each arrow button to its new location.



2. Make the arrow buttons smaller.

3. Double-click the left arrow button to open its Info dialog box.

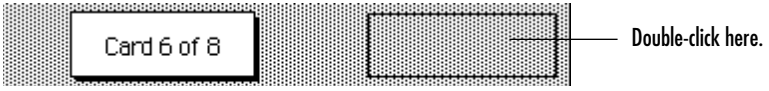
   Double-clicking a button with the Button tool is a shortcut for selecting it and choosing the Button Info command.

4. Choose Transparent from the Style pop-up menu and then click OK.
5. Open the right arrow's Info dialog box, set its style to Transparent, and then click OK.

Modifying the Find button

In this exercise, you'll assign the invisible Find button an icon and move it into place.

1. With the Button tool active, press ⌘-option to see the Find button's outline.

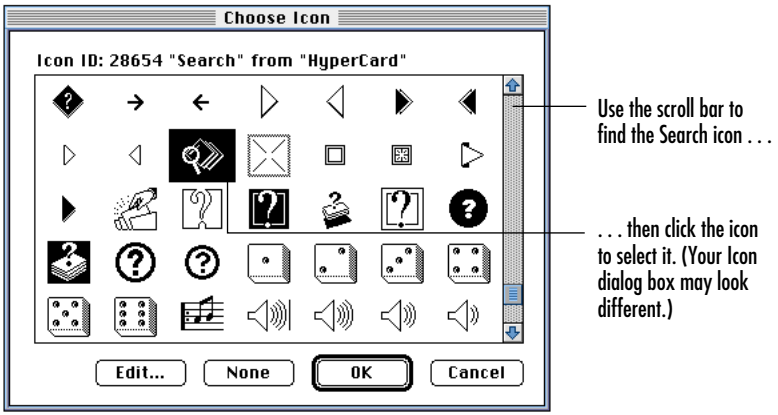


   You'll see the outlines of all the buttons on the card.

2. Double-click the invisible Find button to open its Info dialog box.
3. Click the Icon button in the Info dialog box.

   The Icon Chooser window appears.

4. Select the appropriate icon.



5. Click OK.

The icon appears on the button.

6. Move the button into place and resize it.

Copying a button from another stack

One easy way to enhance your stack is to borrow work done by others. In this section, you'll turn your stack into an automatic dialer by copying a button from another stack.

Start by finding and copying the button:

1. Choose the Browse tool ( ) from the Tools menu.
2. Go Home.
3. Go to the Stack Kit card by clicking the Stack Kit button at the bottom of the Home card.
4. When the Stack Kit card appears, click Readymade Buttons.

The Readymade Buttons stack contains buttons you can use in your stack.

5. Click "Do various things" to get to the card with the Dial button on it.
6. With the Button tool active, click the Dial button once to select it.
7. Choose Copy Button from the Edit menu.

Now use the following steps to return to the Tiny Addresses stack, paste the button, and move it into place:

1. Use the Recent command to return to the Tiny Addresses stack.

   Choose Recent from the Go menu and click any miniature picture that looks like it's from the Tiny Addresses stack.

❖ *Check the stack:* Your Tiny Addresses stack still looks a lot like the original Practice stack. Check the title bar to be sure you're in the correct stack. If not, try the Recent command again. ❖

2. Choose Background from the Edit menu (or press ⌘-B).

   Make sure you see the stripes in the menu bar.

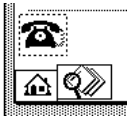
   Because this button should be shared by all the cards in the stack, you need to paste it into the background.

3. Choose Paste Button from the Edit menu.

   The button appears in the background.

4. Double-click the button to open its Info dialog box.
5. Click the Show Name checkbox to deselect it, and then click OK.

   When you click the Show Name checkbox, the X disappears from the box. This tells HyperCard not to place the button's name under the icon.



6. Move the button into place and resize it.
7. Choose Background again from the Edit menu (or press ⌘-B).

   You leave the background layer, and the stripes disappear from the menu bar.

8. Choose the Browse tool from the Tools menu to see how it all looks.

   The new Dial button partially obscures the phone number, but you'll fix that in a later exercise.

Deleting fields

You don't need a card number field, so you'll delete it in this exercise. Deleting HyperCard fields is similar to deleting HyperCard buttons: You select the object and then press the Delete or Backspace key.

1. Choose the Field tool from the Tools menu.
2. Click the Card Number field once to select it.

As a shortcut, HyperCard lets you select and manipulate background fields even when you're not in the background.

3. Press Delete or Backspace.
4. When the Confirmation box appears, click Delete to confirm your decision.

When you delete a background field, you also delete all the text typed into it for every card in the stack that shares the same background. Because deleting a background field by mistake can be a catastrophe, HyperCard asks if you're sure.

You also need to delete the field at the bottom of the card—the one with the stack's title in it.

5. With the Field tool active, click the Stack Title field once.
6. Press Delete or Backspace.
7. Click Delete to confirm your decision.

Modifying the Phone Number field

You need to make the Phone Number field smaller to compensate for the space that the Telephone icon takes up. To keep things in scale, you also need to reduce the field's font size.

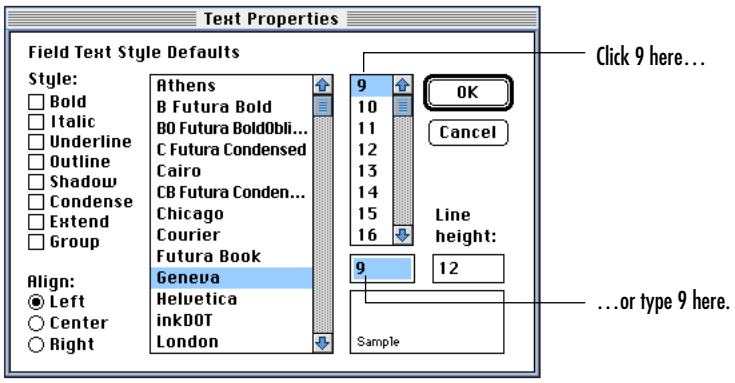
1. With the Field tool active, double-click the Phone Number field to open its Info dialog box.

This is the same as selecting the field and choosing Field Info from the Objects menu.

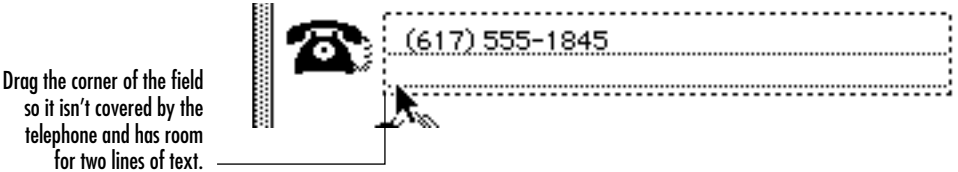
2. Click the Text Style button.

   The Text Style dialog box appears.

3. Set the text size to 9 and then click OK.



4. Drag the lower-left corner of the Phone Number field up and to the right until the field is the correct size.



Creating a Birth Date field

To gain experience working with new fields, you'll add a field in which you can type people's birthdays. In the next two exercises, you'll create the field and test it by filling in some dates.

In this first exercise you create the field:

1. **Choose Background from the Edit menu.**

   To have the birthday field show on all the cards, you need to create it in the background. You can confirm you're working in the background by seeing if the menu bar is striped.

2. **Choose New Field from the Objects menu.**

   HyperCard places a new field in the middle of the window.

3. **Double-click the new field to open its Info dialog box.**

4. **Choose Transparent from the Style pop-up menu to set the field's style.**

5. **Type `Birth Date` to name the field.**

6. **Click Text Style.**

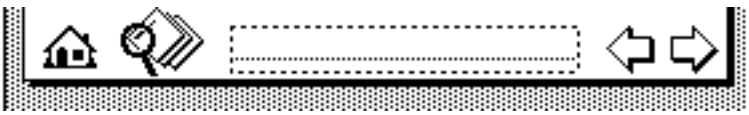
   The Text Style dialog box appears.

7. **Set the text style for the field to 9-point Geneva, aligned Center, and click OK.**

   The Text Style dialog box closes and you return to the background level.

8. **Resize the field and move it into position.**

   Resize it so that you can see just one dotted line at the base of the field, plus a little empty space.



In this second exercise you type some dates into your new field to test it:

1. With the Browse tool active, choose Background from the Edit menu (or press ⌘-B) to move back to the card level.

   The stripes in the menu bar disappear.

2. Choose First from the Go menu to go to the first card in the stack.

   You return to John Chapman's card.

3. Click once in your new field to set the insertion point (or press the Tab key until the field is highlighted).

4. Type `9/26/74`.

5. Click the right arrow button to move to the next card.

   Note that the date you typed into the Birth Date field isn't there. This is because, even though the field that you created appears on every card, what you type into a field appears only on the card where you typed it.

   If you want, click the left arrow button to move back to the first card to see that the date you typed is still there; then click the right arrow button to come back to the second card.

6. Click the Birth Date field and type `1/3/58`.

Now that you know your field is working properly, you're ready to create a label for it.

Creating the label for the Birth Date field

In the next two exercises, you will add the word "Birthday" above the field that contains the birth date, and make it appear on every card.

When you need to have the same text appear on every card in a background, you can either paint it or use a *shared text* field, a kind of field where the same text appears in that field on every card in the background. In this case, you'll make the label a shared text field.

Instead of creating the field from scratch, you'll make a duplicate of the Birth Date field and modify the duplicate as necessary.

1. Choose the Field tool from the Tools menu.
2. Press and hold the Option and Shift keys while you drag the Birth Date field up.

Dragging the field while you hold down the Option key creates an exact duplicate of the field. Dragging the field while you hold down the Shift key restricts your movement of the field to either straight up and down or straight left and right. Dragging the field while you hold down both keys produces both effects.

❖ *Note:* Be careful not to create extra fields. Every time you click the field with the Option key down, you create another field. Delete any extra fields by selecting them and then pressing the Delete or Backspace key. ❖

3. Double-click the new field to open its Info dialog box.
4. Type `Birthday Label` to name the field.
5. Check Shared Text.

   When you check Shared Text, the Don't Search option is automatically checked as well.
6. Click Text Style.
7. Click Bold and then click OK.

Putting text in a shared text field

You enter and edit text in a shared text field by using the Browse tool in the background.

1. Choose Background from the Edit menu.

   You should see stripes in the menu bar.

2. Choose the Browse tool.

   You need the Browse tool to type in the field.

3. Press the Tab key once.

   The insertion point will blink in the shared text field.

4. Type `Birthday`.

5. Choose Background from the Edit menu to return to the card layer.

   The stripes disappear from the menu bar and you see all the card text.

Look at a few cards to make sure the text is in fact shared. Click the left and right arrow buttons to move forward and back.

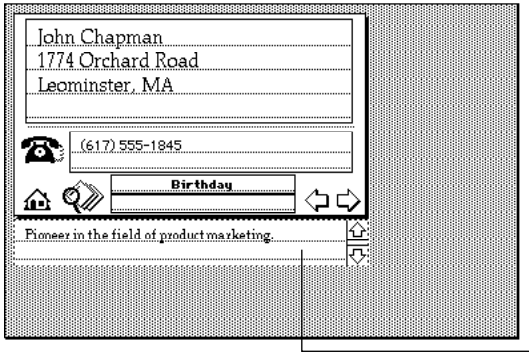
Rearranging the Notes field

The last change you have to make to the fields is to move the Notes field (the one running along the right edge of the card) and turn it into a scrolling field.

1. Choose the Field tool from the Tools menu.
2. Double-click the Notes field to open its Info dialog box.
3. Choose Scrolling from the Style pop-up menu and then click OK to change the field's style.

   A scroll bar appears in the field.

4. Adjust the Notes field's size and move it.



Change the field's size so it is just tall enough to show the two arrows of the scroll bar . . .

. . . then move it just below the white part of the card and make it the same width.

5. Choose the Browse tool.
6. Flip through the cards in the stack to see how your changes look.

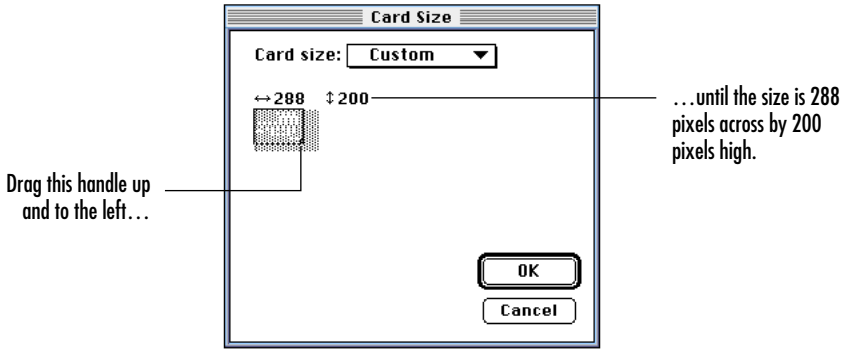
Finishing touches

Now that you've created and arranged the fields and buttons, all that remains is to make the stack smaller.

1. Choose Stack Info from the Objects menu.
2. Click the Resize button.

   The Resize dialog box opens.

3. Adjust the size of the stack.



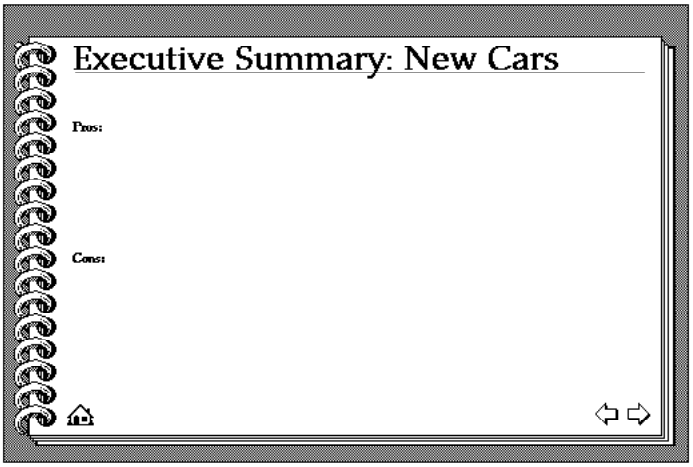
4. Click OK.

The stack is resized. Your final stack should look like this:

If the size isn't right, you can repeat this exercise to readjust it.

Starting from Scratch

In this, the final part of your tutorial, you'll create a stack from scratch. Your stack will be used to review new cars for possible purchase. Here's what it will look like when you're finished:



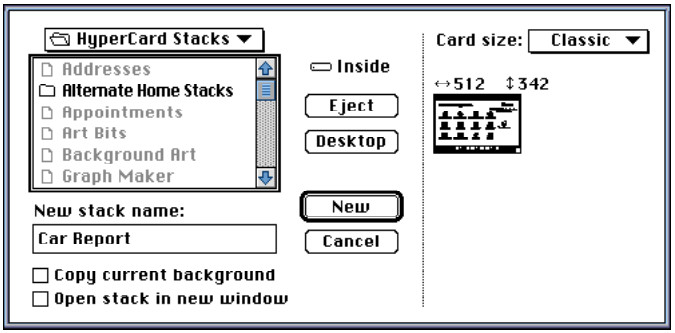
The first step is to create a new stack:

1. Go Home.
2. Choose New Stack from the File menu.

   The New Stack dialog box appears.
3. Double-click the name "HyperCard Stacks" to open that folder.

   When you create the stack, it will go into the HyperCard Stacks folder.

4. Name the stack Car Report, and set the card size to fit on a Classic 9″ screen.



Make sure that the two option boxes at the bottom of the dialog box are unchecked.

5. Click New to create the stack.

The new stack's window opens, absolutely blank.

Next you'll lay out a background that contains three elements: art, buttons, and fields.

Copying the background art

The background art for this stack is supposed to look like a spiral notebook. You could use the Paint tools to draw your own; but to make things easier, you'll go to the Background Art stack and copy the art from there.

1. Click the Background Art button on the Home stack's Stack Kit card.

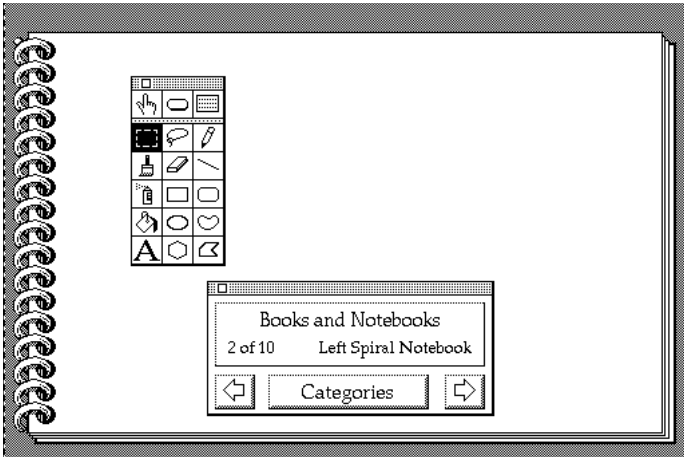
The Background Art stack opens.

2. Click the "Books and notebooks" category.

You move to the Books & Notebooks section. A navigation palette appears over the card.

3. Click the right arrow of the palette once to see the second card.
4. Press Option-Tab to convert the Tools menu to a palette.

   You can do things with the Tools menu turned into a palette that you can't otherwise do. Place the Tools palette wherever you like.
5. Double-click the Selection tool in the Tools palette to select all the art.



   A moving dashed line surrounds the card, telling you that the art is selected.
6. Choose Copy Picture from the Edit menu (or press ⌘-C).

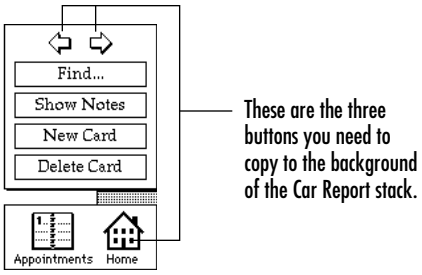
   Next you'll return to your new stack using the Open Stack command.
7. Choose Open Stack from the File menu and double-click the name "Car Report."
8. Choose Background from the Edit menu (or press ⌘-B).

   Confirm that you're working in the background by seeing if the menu bar is striped.
9. Choose Paste Picture from the Edit menu (or press ⌘-V).

   You've finished the background art.

Copying the background buttons

In this section, you'll put three buttons—Home, left arrow, and right arrow—into the background. You'll copy them from the Addresses stack.



Copying the left arrow

You'll start by opening the Addresses stack in a second window; then you'll copy and paste the left arrow button by switching back and forth between the two windows.

1. **Choose the Open Stack command from the File menu.**
2. **Click the "Open stack in new window" checkbox to select it.**

   Checking this box tells HyperCard to open the stack in a new window without closing the Car Report stack's window.

   You may not be able to see both of them, but you now have two windows open.
3. **Choose the Button tool from the Tools menu.**
4. **Click the left arrow button once to select it.**

   A moving dashed line surrounds the selected button.
5. **Choose Copy Button from the Edit menu.**

6. Choose Next Window from the bottom of the Go menu to activate the Car Report stack's window.

   Alternatively, if part of the Car Report stack's window is visible, you can click it to make it active. Each time you choose the Next Window command, HyperCard activates the window that's behind the window you're currently viewing.

7. Choose Paste Button from the Edit menu (or press ⌘-V).

   The button appears. You'll move it into place in a later exercise.

Copying the right arrow button

You'll now copy the right arrow button from the Addresses stack to the Car Report stack.

1. Press ⌘-L to go back to the Addresses window.

   This is the shortcut for the Next Window command.

2. Click the right arrow button once to select it.
3. Press ⌘-C to copy the button.
4. Press ⌘-L to return to the Car Report window.
5. Press ⌘-V to paste the button.

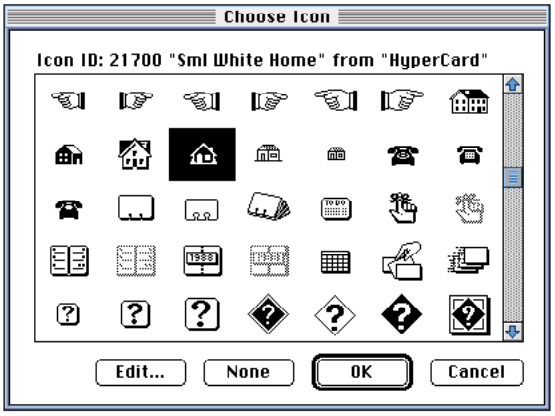
Copying and customizing the Home button

To copy the Address stack's Home button and paste it into your new stack, use the same process as you used for the right and left arrow buttons.

To fit the Home button into your design, you'll have to hide its name and change its icon:

1. Double-click the Home button to open its Info dialog box.
2. Click Show Name to turn that option off, then click the Icon button.

3. Change the icon to a smaller one.



Arranging the buttons

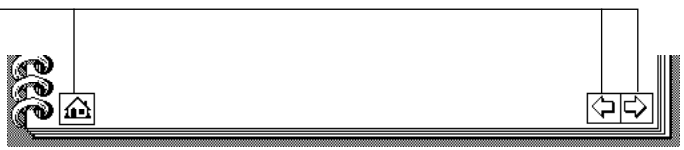
Now you need to move the buttons to where they belong.

1. Use the Button tool to make the Home button smaller.

   Drag its corner to make the button just a little bigger than the icon in its center.

2. Move the buttons into position.

Move the buttons to these locations. Be sure to drag them by their middles, not their corners.



Creating the background fields

In this section, you'll create six background fields for your new stack. Three will be shared text fields—a large one for the stack's title and two small ones for the labels "Pros" and "Cons." The other three fields are for the name of the car, the list of pros, and the list of cons.

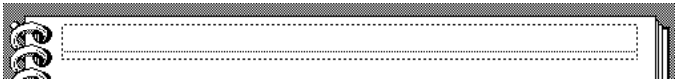
Creating the stack's title field

In this exercise, you'll create a large shared text field for the stack's title.

1. Working in the background, choose New Field from the Objects menu.

   The new field appears in the middle of the window.

2. Double-click the new field to opens its Info dialog box.
3. Set the style to Transparent.
4. Click the Shared Text checkbox to select it.
5. Set the text style for the field to 24-point Palatino Bold; then click OK.
6. Resize the new field and move it into place at the top of the card.



Adding the title field text

In this exercise, you'll fill in the shared text for the title field and draw a line below it.

1. While in the background, choose the Browse tool.
2. Press the Tab key once to find the field.

   The insertion point blinks in the field.

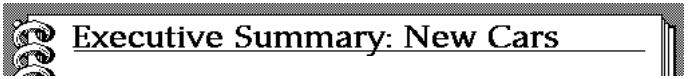
3. Type `Executive Summary: New Cars`.

4. **Choose the Line tool from the Tools menu.**

   When you choose the Line tool, the pointer changes to a crosshair.

5. **Hold down the Shift key and draw a line under the title.**

   Shift-dragging makes it easier to draw a horizontal line.



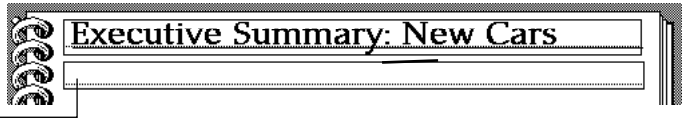
Creating a Car Name field

In this exercise, you'll create the field for the car's name.

1. **With the Browse tool active in the background layer, choose New Field from the Objects menu.**

   The new field appears.

2. **Double-click the new field to open its Info dialog box.**
3. **Set the field's style to Transparent.**
4. **Set the text style for the field to 18-point Palatino Bold.**
5. **Resize the new field and move it into place.**

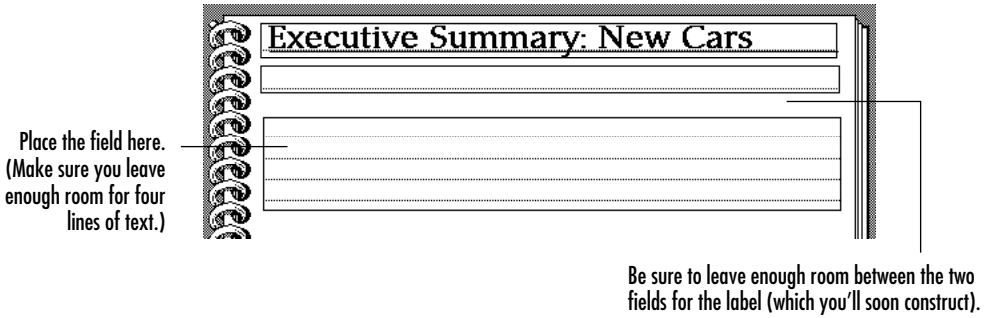


Adjust the size of the field and place it here.

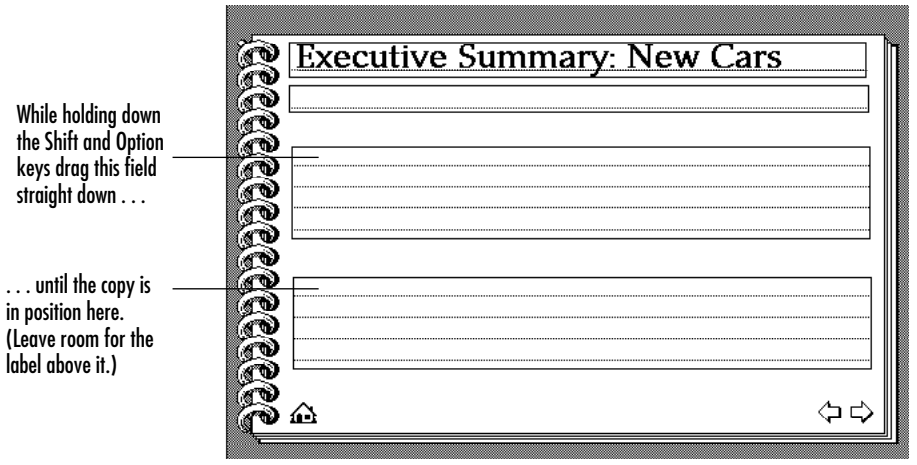
Adding Pros and Cons fields

In this exercise, you'll create the field for the list of pros and then duplicate it to create the field for the list of cons.

1. While in the background, use the Browse tool to choose New Field from the Objects menu.
2. Set the field style to Transparent.
3. Set the font to 14-point Palatino and click OK.
4. Resize the new field and move it into place.



5. Shift-Option-drag the field to duplicate it.



❖ *Note:* If you duplicate the field successfully but don't get it in quite the right place, delete the new field and try again. You can delete a field by clicking it once and pressing the Delete or Backspace key. ❖

Creating Pros and Cons labels

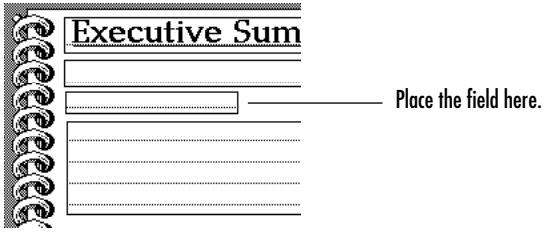
In this exercise, you'll create the field for the Pros label and duplicate it to create the field for the Cons label.

1. With the Browse tool active in the background, choose New Field from the Objects menu.

   The new field appears.

2. Double-click the new field to open its Info dialog box.
3. Set the field's style to Transparent.
4. Click the Shared Text box to select it.
5. Set the text style for the field to 10-point Palatino Bold and click OK.

6. Position the new field like this:



7. Shift-Option-drag the field to duplicate it and position it above the bottom field.

Adding label text

Finally, you'll add labels to the fields you just created.

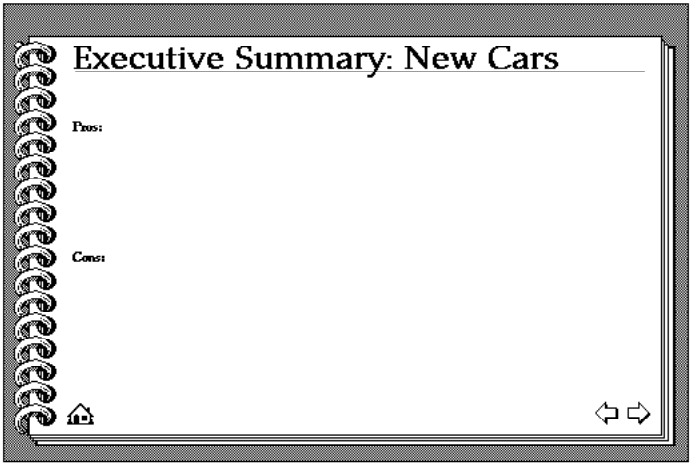
1. Still in the background, choose the Browse tool.
2. Press the Tab key twice and type `Pros:`.
3. Press the Tab key again and type `Cons:`.
4. Choose Background from the Edit menu to view your work.

   The stripes disappear from the menu bar.

Checking your work

You've completed the background and should be ready to start using the stack. Before going on, use the following exercise to do a quick check and make sure there are no mistakes.

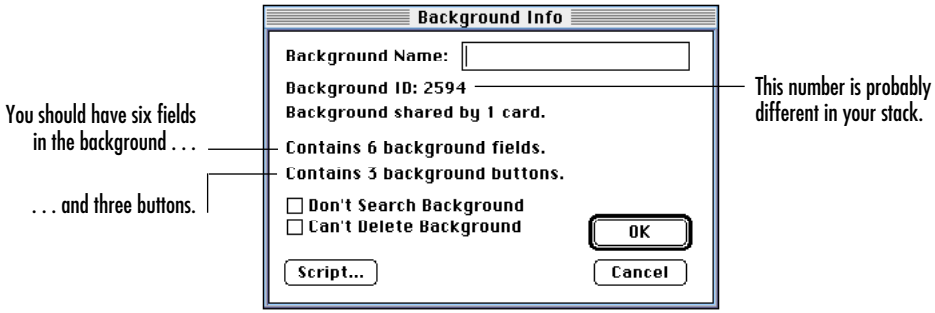
1. Check your card to see if it looks like this:



❖ *Something amiss?* If your card doesn't look quite right, review the exercises on background art, background buttons, and background fields. ❖

2. Choose Bkgnd Info from the Objects menu.

Your Info dialog box should look like this:



The six fields are for (1) the title of the stack, (2) the name of the car, (3) the label “Pros,” (4) the list of pros, (5) the label “Cons,” and (6) the list of cons. The three buttons are left arrow, right arrow, and Home.

❖ *Button or field count off?* If you have too few buttons or fields on the background, you may have either skipped a step or, more likely, accidentally created them on the card instead of the background. Choose the Card Info command from the Objects menu, and if the dialog box lists any buttons or fields, that’s probably what you did.

If you have too many fields, you probably duplicated an extra copy. Choose the Field tool and click the extra field to select it. Then press the Delete or Backspace key to delete it. ❖

3. Click Cancel to close the Bkgnd Info dialog box.

Using the stack

You use the Car Report stack just as you would use any other. In this exercise, you'll enter text for the cards and do one final stack test.

1. Choose the Browse tool.
2. Press Tab to start typing in the first field.
3. Type the name of the car: `Phantasmo Operetta`
4. Press Tab to move to the Pro field and type this text (press Option-8 to get the bullet character):
   - `Sleek aerodynamic design`
   - `Rotating ten-way velour seats`
   - `Can do up to 110 M.P.H.`
5. Press Tab again to move to the bottom field and type this text:
   - `People who drive these get more speeding tickets.`
   - `Repairs are phenomenally expensive.`
6. Choose New Card from the Edit menu and fill in the fields for the card.

   Enter whatever information you'd like into each field.
7. Create a third card and enter text for it.
8. Click the arrow buttons to test them.

Getting HyperCard Help

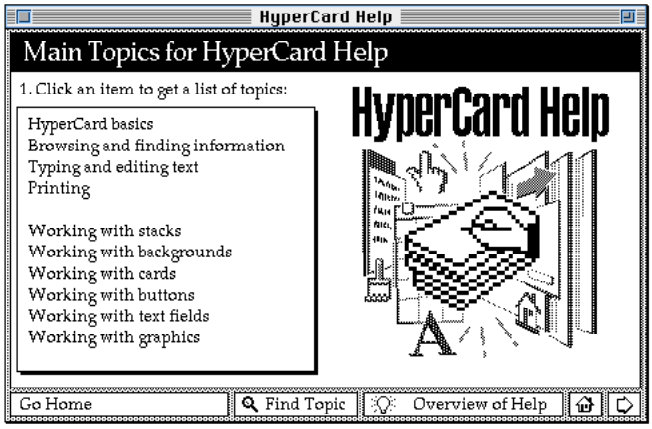
If you have a question about how to do something in HyperCard, you can often get the answer from the HyperCard Help stack. HyperCard Help gives you two ways to find answers: by looking through its list of topics or by searching for words.

Using the list of topics

Suppose you want to learn how to change the size of HyperCard windows. You could look through the list of topics as described in this exercise:

1. Choose Help from the Go menu (or press ⌘-?).

   HyperCard opens the HyperCard Help stack. If HyperCard has enough memory, it leaves the original stack you were looking at open as well.

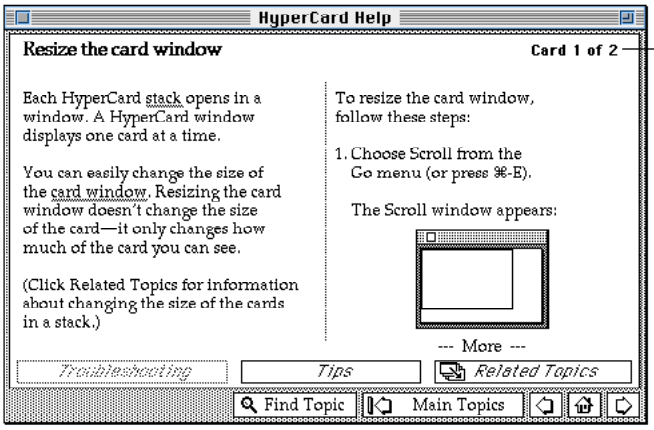


2. Click "Browsing and finding information" in the list of topics.

   Clicking a main topic shows you a list of related topics from which to choose.

3. Click "Resize the card window" in the list of topics.

   You go to a card with information about the topic.



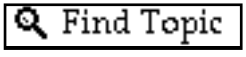
This means there are two cards describing this subject.

4. Click the Main Topics button to return to the first card in the Help system.

   You return to the Main Topics card.

Using the Find Topic feature

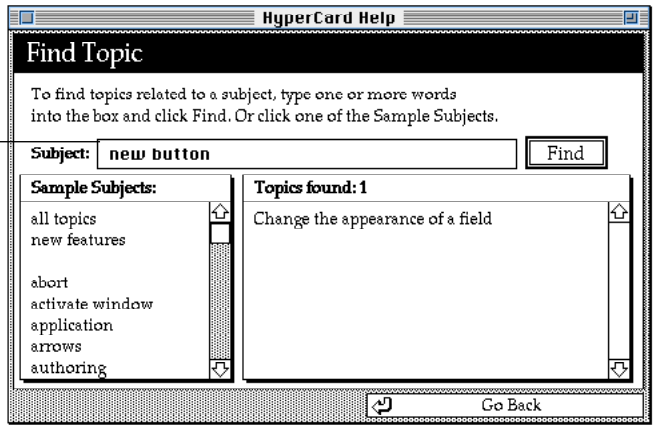
If you're not sure what topic to look under, you may want to use the Find Topic feature. For this exercise, suppose you want to learn how to create a new button for the Home stack:



1. Click the Find Topic button at the bottom of the card.

   The Find Topic card appears.

2. Type `new button`.



3. Click the Find button.

   The Help stack displays a list of topics relating to new buttons.

4. Click "Add a button to your Home stack" to choose the topic.

   The Help stack displays information about adding new buttons to your Home stack.

5. Exit Help by doing one of the following:

   - If the Help stack's window has a close box, click it.
   - If the Help stack's window does not have a close box, choose Home from the Go menu.

Congratulations!

You now have experience with most of HyperCard's basic features, and a few advanced ones as well. You can go on to plan and create stacks on your own, using ready-made buttons, fields, and graphics from the sample stacks to help you do it. Experiment with the Paint tools to create your own graphics or to modify existing ones.

Take the HyperTalk tutorial in the next chapter to learn how to write your own scripts. Then use the HyperTalk Reference stack when you need help constructing more complex programs.

❖ *Cleaning up:* If you want, you can remove the button you created on the Home card for this tutorial. When you quit HyperCard, remove the files you created by dragging them to the Trash. ❖

Chapter 3

A Taste of HyperTalk

This chapter is made up of exercises that show you how to use HyperTalk, the language that's built into HyperCard. With HyperTalk, you can write your own instructions, called scripts, for HyperCard to carry out. You don't need any previous programming experience to write scripts. If you can read this paragraph, you can write a script.

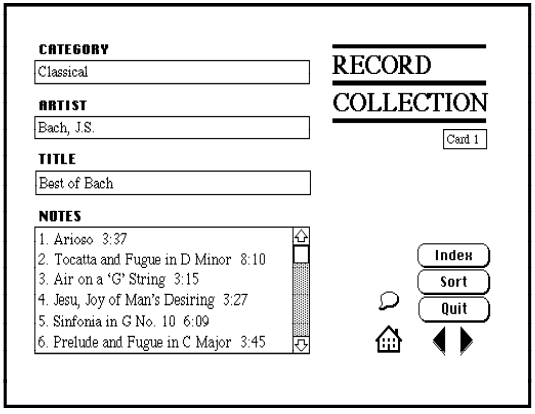
You can create, customize, and personalize HyperCard stacks without learning how to write scripts; but scripting with HyperTalk gives you even more control over your computer.

To get the most out of this chapter, you should already have read Chapter 1 and gone through all the exercises covered in Chapter 2. Specifically, you should know how to use buttons to get around in stacks and how to use the HyperCard menus and tools. You should have browsed through some stacks, looked through part of the HyperCard Help stack, and started using a stack for your own purposes—for example, you might have used the Addresses stack to store some information.

Each exercise builds on what you've done in previous exercises, so it's important that you start with the first exercise and work through them all sequentially.

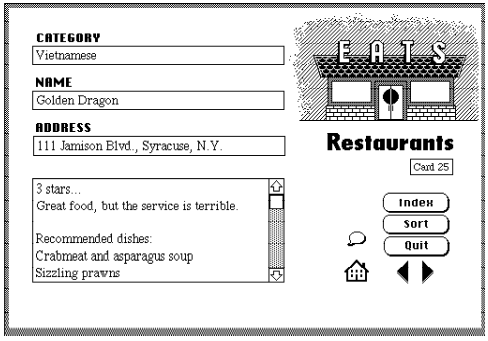
What You Will Build

In this chapter, you'll learn scripting by creating a stack named "Collection" from scratch and writing scripts for it. If you work through all the exercises in order, you'll end up with a stack you can use to catalog a collection of record albums, cassettes, or compact discs. Here's a sample card from a completed version of the Collection stack:



More importantly, you'll learn basic scripting concepts and techniques as you build the Collection stack. By the time you're finished, you'll know enough to create scripted stacks for your own purposes.

For example, you'll be able to modify the Collection stack as you see fit—to keep track of books, baseball cards, computer software, your favorite restaurants, the inventory for a business, or anything else you might want to catalog. You'll also be able to change the stacks that come with HyperCard to suit your own needs.



❖ *Shortcuts abound.* You used menu commands to perform most tasks in Chapter 2's tutorial, but in this chapter, you'll use many shortcuts. Shortcuts save you a tremendous amount of time, especially if you write a lot of scripts. ❖

Getting Started

This chapter is meant to be used with HyperCard running.

1. **Start HyperCard.**

   If you already have HyperCard running, go to the Home stack.

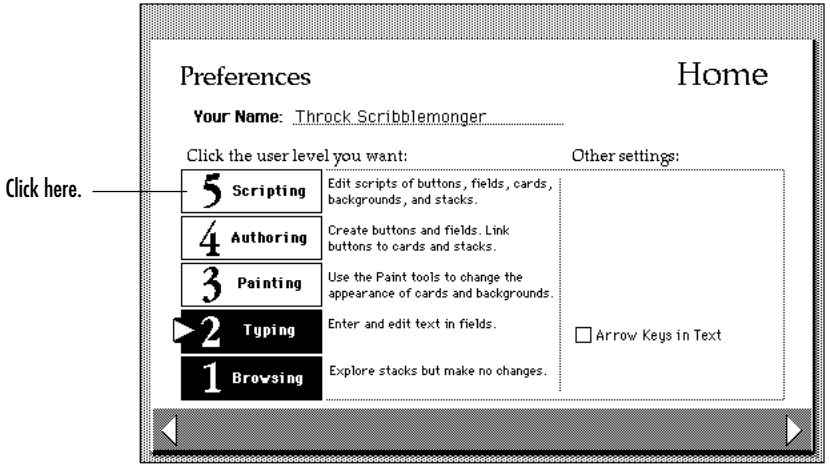
2. **Click the left arrow button or choose Preferences from the Home menu.**

   The Preferences card appears.

3. **Click the Scripting button on the Preferences card.**

   For now, leave the checkbox options Blind Typing, Power Keys, and Arrow Keys in Text unchecked.

When the user level is set to Authoring or Scripting, a new menu title, Objects, appears in the menu bar. As you saw in Chapter 2, you use commands in this menu to get information about and change properties of HyperCard objects—buttons, fields, cards, backgrounds, and stacks. (You'll learn more about objects later.) The user level must be set to Scripting before you can look at, write, or change these objects' scripts.



Creating the Collection Stack

Now that you set the user level to Scripting, the next task is to create a stack. Follow these steps:

1. **Choose New Stack from the File menu.**

   A dialog box appears for you to name the stack and specify its background and size.

2. **Name your stack "Collection."**

   If you make a typing mistake, use the Delete or Backspace key to erase it and retype.

3. Navigate to the same folder that holds the Home stack.
4. Click New (or press Return).

   You should see a completely blank card on your screen with the menu bar at the top. This card is the first—and right now the only—card of your Collection stack.

When you create a new stack, you automatically get three things: the stack itself, a background, and the first card. If you were to select the "Copy current background" option in the New Stack dialog box, you would also get the background pictures, fields, or buttons of the card you were on when you chose the New Stack command. Otherwise, as in this case, you have a blank card to work with.

Creating Background Buttons

In the next few exercises, you'll add buttons to the background of the Collection stack.

A quick background review

As you saw in Chapter 2, each card in a stack is a composite of two layers—a foreground layer (called the card layer) and a background layer. You see the elements of both layers when you look at a card, as if the card layer were a transparent layer in front of the background layer. Each layer can contain its own buttons, fields, and graphics.

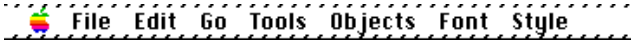
You can think of the background in HyperCard as a kind of "holding area" for general elements. Each card with the same background has the same buttons, fields, and graphics in its background layer. If you put a button in the background, for example, you'll have that button constantly available throughout a number of cards—you don't need to re-create it on every card. At this point, the Collection stack has only one background, so all the cards you create will share that background.

Creating a Home button

In this exercise, you'll create a Home button (that is, a button that takes you to the Home stack when you click it).

1. **Choose Background from the Edit menu (or press ⌘-B).**

   Stripes appear in the menu bar, indicating that you're working in the background.



2. **Choose the Button tool from the Tools menu.**

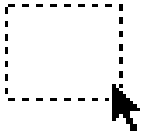
   The pointing hand (Browse tool) on the screen changes to an arrow pointer.

   If you prefer, press Option-Tab to create a Tools palette on the screen.

❖ *Tabbing to the Button tool:* You can also choose the Button tool by pressing ⌘-Tab-Tab. ❖

3. **With the pointer anywhere on the card, ⌘-drag (hold down the ⌘ key and drag) to create a small button about half an inch square.**

4. **Release the mouse button and the ⌘ key when the new button is about the right size.**



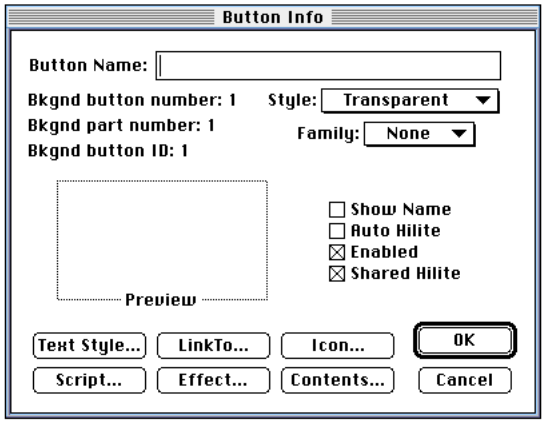
   Don't worry too much about the size; you can always resize a button.

   The new button is automatically selected—you can tell by the moving dashed line around its edges. While it's selected, you can stretch or shrink the button by dragging a corner.

5. **Move the button to the lower-right corner of the background.**

   To move the button, position the pointer near the button's center and drag. Because the button is in the background, it will appear in this position on every card in the stack that shares this background.

6. Double-click the button to see its Button Info dialog box.



A blinking vertical bar marks the insertion point in the Button Name box, ready for you to type a name.

7. Type Home to name the button (but don't press Return).

8. Click the Auto Hilite checkbox to select it.

The Auto Hilite option makes the button flash when it's clicked. Leave the Show Name checkbox deselected. You'll assign an icon to this button and you won't need the button's name to show.

9. Click Icon.

Another dialog box appears in which you can select an icon for the button.

10. Choose one of the house icons.

Scroll through the window until you find the house icons and click the one you want.

11. Click OK.

The dialog boxes disappear. Your new button now has the house icon on it.

Writing the Home button's script

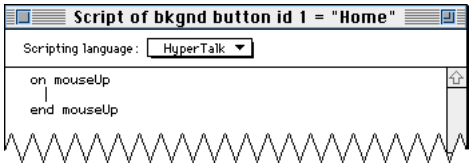
Next you'll write a script for your new Home button. You create and change scripts in a special window called the *script editor*. To see the script for the new Home button, make sure the Button tool is selected and follow these steps:

1. **Double-click your Home button.**

   The Button Info dialog box appears.

2. **Click the Script button (or ⌘-Option-click it).**

   The script editor for the Home button appears. There are two lines of text already in the window, with the insertion point blinking on an empty line between them.



   The title bar at the top of the script editor identifies this script as the script of the background button with the ID number 1 and the name Home—your new button.

   You see a new set of menus in the script editor. Pull them down and look at their contents now if you want (to learn more about these menus, see the *HyperCard Script Language Guide).*

3. **Type** `go to stack "Home"`.

   If you make a mistake, use the Backspace (Delete) key to erase the mistake and finish typing the script correctly.

   The script editor automatically indents lines within scripts. This indenting helps you check your scripts. `On` and `end` should always line up at the left-most edge of the script editor window when you finish typing a script; if they don't line up, press the Tab key to check the script's formatting. If they still don't line up, you may have left out something important; check the script again.

- *Capitalization doesn't matter.* It doesn't matter how you capitalize HyperTalk words. Words that are formed from two words (such as `mouseUp`) are usually typed in small letters with a capital in the middle to make them more readable. ❖

4. Press Enter.

   The script editor disappears, and you're looking at the Collection stack again. By pressing Enter, you save any changes you made to the script and return to the stack you're working on. If you click the close box in the upper-left corner of the script editor, HyperCard asks if you want to save changes to the script before closing the script editor.

Trying out the Home button

Now see if the Home button works the way it's supposed to:

1. Press ⌘-B to return to the card layer.

   The stripes in the menu bar should disappear. If they don't, press ⌘-B again.

2. Choose the Browse tool from the Tools menu (or press ⌘-Tab).
3. Click the Home button.

   The Home stack appears.

If something else happens, such as the appearance of a dialog box saying "Can't understand...," you may have made a typing mistake. Click Script in the error dialog box to check the script. Make sure everything is correct; then press Enter and try out the Home button again.

How the script works

The script you wrote describes what should happen when someone clicks the Home button.

Whenever you move the mouse, your computer and HyperCard software track the movement electronically. You see the movement as a change in the position of the pointer on the screen. When you press and release the mouse button, the mouse sends a signal to the computer. The same thing is true when you press different keys on the keyboard. The HyperCard software interprets these signals from the system and translates them into HyperTalk *system messages*.

`MouseUp` is a system message that means the mouse button has been released; an on-screen HyperCard button receives this message when someone clicks it. Whether something happens when the on-screen button receives the `mouseUp` message depends on whether the button's script contains any instructions that react to that message.

The first line of your script, `on mouseUp`, signals HyperCard that instructions for the `mouseUp` message exist. The next line, `go to stack "Home"`, tells HyperCard to go to the Home stack.

The word `go` is a HyperTalk command; it means what you might expect. The command `go` must be followed by a destination—a description of a stack or a card. In this case, you used the name of the stack `Home`.

Each line in a script is called a HyperCard *statement*, and represents a single instruction. In a more complicated script, the instructions signaled by `mouseUp` could consist of many statements. The last line of your script, `end mouseUp`, indicates the end of the instructions for the `mouseUp` message.

Translated into English, the instructions in your script say: "When someone clicks this button, go to the Home stack."

Adding a button to the Home stack

In this section, you'll create a button in the Home stack that takes you directly to your Collection stack.

Creating the button

Make sure you're looking at the Home stack and follow these steps:

1. Choose the Button tool.
2. ⌘-drag to create a new button.

   Make the button about an inch wide and half an inch high. Move it to any open space on the card.

❖ *You can rearrange the Home stack.* If you need room, you can move any of the buttons in the Home stack just by clicking them with the Button tool and dragging them to a new location. ❖

3. Double-click the button to see its Info dialog box.
4. Name the button "Collection."
5. Click Show Name and Auto Hilite to select them.

   When Show Name is selected, the button's name appears with the button.

6. Click Icon.

   The Icon Chooser dialog box appears.

7. Choose the stack icon.
8. Option-click OK.

   Only the Icon Chooser dialog box closes; you end up back in the Button Info dialog box. As you can see in the Preview window, your new button now has the stack icon on it along with the name of the button.

Writing the script

Now you're ready to write the script.

1. From the Button Info dialog box, click the Script button to see the script editor.

   If you aren't in the Button Info dialog box already, ⌘-Option-click the button.

2. Type `go to stack "Collection"`.

   The completed script should look like this:

   ```
   on mouseUp
    go to stack "Collection"
   end mouseUp
   ```

3. Press Enter.

   The Home stack appears with the Collection button in place.

4. Try out the new button by clicking it with the Browse tool.

   If the Collection stack appears, congratulations! If something else happened, you may have misspelled a word or left out a space in the button's script. If you got a directory dialog box asking where the stack is, you may have typed the stack's name incorrectly or saved the stack in a folder that HyperCard doesn't know about yet.

The words `go to stack "Collection"` tell HyperCard to go to the Collection stack. HyperTalk is a flexible language; any of these statements would also have worked in the button's script:

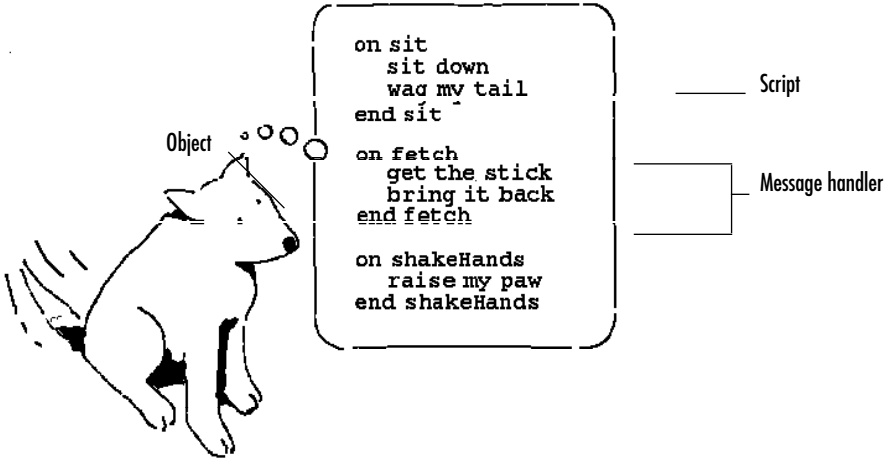
```
go "Collection"
go to "Collection"
go to card 1 of stack "Collection"
```

Message handlers

As you've seen, when an object receives a message, it can act on the message according to instructions in the object's script. More specifically, the object acts according to instructions in the *message handler*.

A message handler is a set of instructions to be carried out when a particular object receives a particular message. It's called a handler because it "handles" the message. Message handlers always begin with the word `on` and end with the word `end`, and both words are followed by the name of whatever message the handler deals with—for example, `on mouseUp`. Each of the scripts you have written so far contain only one message handler, but an object's script can contain a number of handlers, each one handling a different message. The word script refers to all the handlers for a given object.

Writing a script for a HyperCard object is like training a dog. The dog is like a HyperCard object, and a spoken command is like a message. Each of the dog's tricks—the response of a particular dog to a particular command—is like a message handler. And the sum of all the dog's tricks represents the script for the dog. When the dog receives a message (for example, "fetch"), the dog searches through its script for the appropriate handler and then acts according to the instructions in that handler.



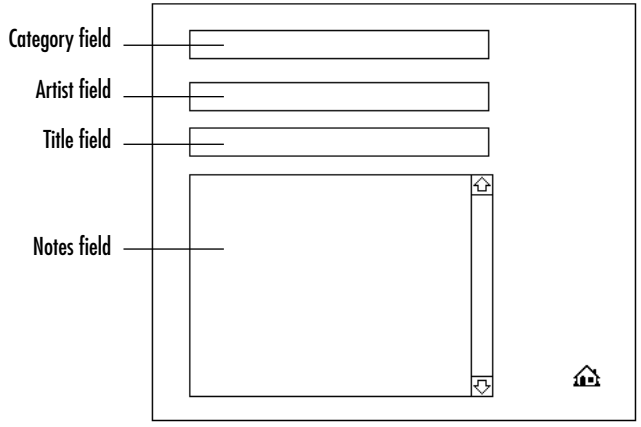
❖ *“On” and “End” are keywords.* The words on and end belong to a special group of HyperTalk words called *keywords*. Keywords are used to control which statements are executed in a script. ❖

Putting Information into Your Stack

So far the Collection stack consists of a single card with a Home button. In this section, you’ll add fields to the background of the stack, type some text into the fields, and add some cards to the stack.

Adding fields to the background

First you’ll add four fields to the background. When you’re finished, the background will look like this:



When you place these fields in the background, they’ll appear on every card in your stack. (Your stack has only one background.) The text contained in the fields can be different on every card.

Creating the Category field

You can always get a new field by choosing New Field from the Objects menu. But in this chapter you'll use a keyboard shortcut to make fields. Follow these steps:

1. Press ⌘-B to work in the background.

   Stripes appear in the menu bar.

2. Choose the Field tool from the Tools menu (or press ⌘-Tab-Tab-Tab).

   The pointing hand changes to an arrow pointer.

3. ⌘-drag to create a new field one line high and about three inches wide.

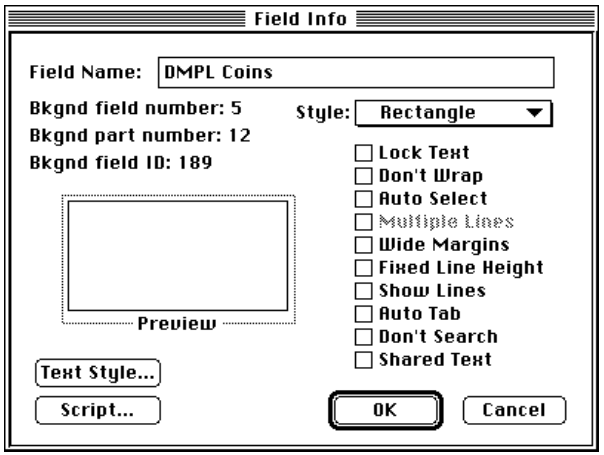
   This method for creating a field is like the one you used to create your Home button. Release the mouse button and the ⌘ key when the field is the size you want. The new field is automatically selected, as indicated by the "marching ants" around it. While it's selected, you can stretch or shrink the field by dragging a corner.

4. Move the field to the top of the background (like the Category field in the previous figure).

   To move the field, position the pointer near the center of the field and drag. Because the field is in the background, it will appear in this position on every card in the stack.

5. **Double-click the field to see its Field Info dialog box.**

   HyperCard fields have a variety of styles and options from which to choose. You customize a field's appearance and actions through the Field Info dialog box.



   A blinking vertical bar marks the insertion point in the Field Name box, ready for you to type a name.

6. **Type `Category` to name the field (but don't press Return).**

   If you press Return prematurely, double-click the field again to get back to the Field Info dialog box.

7. **Choose Rectangle from the Style pop-up menu to set the field's style.**

8. **Click the Text Style button.**

   The Text Style dialog box appears.

9. **Select a font and size.**

   Select a font that's easy to read, such as Times 14.

10. **Click OK.**

    The Text Style dialog box closes, and you return to the background.

Creating the Artist, Title, and Notes fields

Now you need to add three more fields to the background. This time you'll use a shortcut that you practiced in Chapter 2 to create each field. Make sure you're still in the background and that the Field tool is still selected; then follow these steps:

1. **While holding down the Option and Shift keys, position the pointer near the center of the Category field and drag down.**

   You should see an exact duplicate of the Category field move down the screen, leaving the original Category field in place.

   Dragging the field while you hold down the Option key creates an exact duplicate of the field. Dragging the field while you hold down the Shift key restricts your movement of the field to either straight up and down or straight left and right. Dragging the field while you hold down both keys produces both effects simultaneously. (Both of these shortcuts also work for buttons.)

   Now all you need to do is change the name, and you'll have a new field with the same size and other characteristics as the Category field.

2. **Double-click the new field to see its Field Info dialog box, and name the field Artist.**

   Except for its name, numbers, and ID, the Artist field will have all the same characteristics as the Category field.

3. **Using the same shortcut, Option-Shift-drag the Artist field to create a third background field, and name it Title.**

4. **Option-Shift-drag the Title field to create a fourth background field.**

5. **Enlarge the last field by dragging a corner until it's a few inches high.**

6. **Name the last field Notes and change its style to Scrolling.**

Typing into the fields

Now that you've created all the fields for your stack, you're ready to type some text into them. Type in information about your own records, tapes, or compact discs.

To type text into the fields, follow these steps:

1. **Press ⌘-B to return to the card layer.**

   You see the first and only card in the stack. Make sure there are no stripes in the menu bar.

2. **Choose the Browse tool.**

3. **Click inside the Category field and type the recording category.**

   Type "Rock," "Jazz," "Classical," "Country," or any other category you want to use. Don't press Return.

4. **Press the Tab key to move the insertion point to the next field.**

   The insertion point appears in the Artist field.

5. **Type the name of the artist featured on the recording.**

   Type the name as you would like it to be sorted alphabetically (a feature you'll soon add). For example, "Johann Sebastian Bach" should be entered as "Bach, Johann Sebastian."

6. **Press the Tab key to move to the Title field; then type the title of the recording.**

7. **Press the Tab key to move to the Notes field and type the names of songs or any other information you want to keep about the recording.**

Adding more cards to the stack

Now add at least two more cards to the stack. Follow these steps:

1. **Choose New Card from the Edit menu (or press ⌘-N).**

❖ *Disappearing fields:* If a field disappears when you create a new card, you probably placed the field in the card layer rather than the background layer. To move a field from the card layer to the background: Click the field with the Field tool to select it; then press ⌘-X to cut the field, press ⌘-B to go to the background, and press ⌘-shift-V to paste the field into the background with its text intact. ❖

2. **Type information about another recording into the fields on the new card.**

3. **Repeat steps 1 and 2 to add as many cards as you want to your stack.**

   Make sure you have at least three cards before you go on to the next exercise.

Buttons for Traveling

In this section, you'll create two buttons that move forward and backward between cards in your stack.

Creating Next and Previous buttons

To make the Next and Previous buttons, you'll use the same steps you followed when you made the Home button:

1. Press ⌘-B to work in the background.

   Stripes appear in the menu bar.

2. Choose the Button tool.

3. ⌘-drag to create two new transparent buttons.

   Make each new button about the same size as the Home button.

4. Position the two new buttons side-by-side, to the right of the Home button.

   Drag each button by its center to move it.

Customizing the button on the right

Make the button on the right into a Next button:

1. With the Button tool still selected, double-click the button on the right.

   The Button Info dialog box appears.

2. Name the button Next.

3. Click Icon to see the available icons.

4. Choose any icon that points to the right.

   You can choose any size arrow or pointing finger. Click the one you want.

5. Click OK.

   The dialog boxes disappear. You should see the icon you chose on the button.

Customizing the button on the left

Make the button on the left a Previous button:

1. With the Button tool still selected, double-click the button on the left.

   The Button Info dialog box appears.

2. Name the button Previous.

3. Click Icon to see the available icons.

4. Choose an icon that points to the left.

   Use the same kind of arrow or pointing finger that you chose for the first button, but pointing the opposite way.

5. Click OK.

   The two buttons now have matching icons pointing away from each other.

Writing the scripts

You want the Next button (the button on the right) to take you to the next card in the stack, and you want the Previous button (the button on the left) to take you to the previous card. Follow these steps to put your instructions into the buttons' scripts:

1. With the Button tool still selected, double-click the Next button.

   The Button Info dialog box appears.

2. Click the Script button.

   The script editor appears.

3. Type `go to next card.`

   The completed script should look like this:

```
on mouseUp
 go to next card
end mouseUp
```

4. Press Enter.

   The script editor disappears.

Now repeat the steps for the Previous button using a slightly different instruction:

1. Double-click the Previous button to see its Info dialog box.
2. Click Script.
3. Type `go to previous card.`

   The script should look like this:

   ```
   on mouseUp
    go to previous card
   end mouseUp
   ```

4. Press Enter.

You have completed the scripts for both buttons. Now try them out:

1. Press ⌘-B to return to the card layer.
2. Choose the Browse tool and click the Next button.

   You should go to the next card in the stack.

❖ *Disappearing buttons:* If a button disappears when you go from one card to another, you probably placed the button in the card layer rather than the background layer. To move a button from the card layer to the background: Click the button with the Button tool to select it; then press ⌘-X to cut the button, press ⌘-B to go to the background, and press ⌘-V to paste the button in the background. Return to the card layer when you're finished. ❖

3. Click the Previous button.

   You should go to the previous card.

You can use the Next and Previous buttons to move through all the cards in the Collection stack. (Cards in a stack are arranged in a circle, so the first card is the next one after the last card.)

Moving to adjacent cards isn't the only possibility, of course; you can create other buttons to take you to any card of any stack you want by specifying in a script where you want to go.

Adding visual effects

Visual effects make the movement from one card to another more obvious and interesting. In this section, you'll learn two ways to add visual effects to buttons.

Adding a visual effect to the Next button

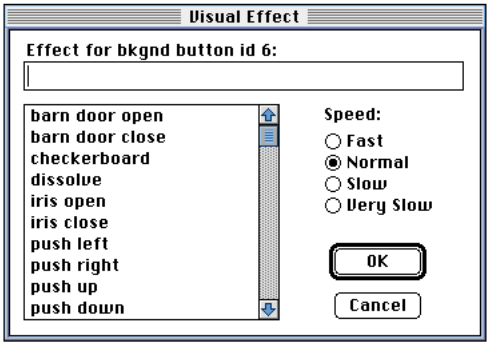
First you'll use a dialog box to add a visual effect to the Next button. Follow these steps:

1. **Choose the Button tool and double-click the Next button.**

   The Button Info dialog box appears.

2. **Click the Effect button.**

   The Effect dialog box appears.



   You use this dialog box to choose which visual effect you want to display, as well as how fast you want the effect to take place. The scrolling field contains an alphabetical list of all the visual effects you can choose; the buttons to the right list the available speeds.

3. **Select "push left" from the list of visual effects.**

   The phrase `visual effect push left` appears at the top of the dialog box.

4. **Click the Fast button to select it.**

   The line at the top of the dialog box should now say

   ```
   visual effect push left fast
   ```

5. **Click OK to close the dialog box.**
6. **Click the Next button with the Browse tool.**

   Watch the screen to see how the visual effect works: The next card appears to slide in from the right, pushing the current card off the screen.

Actually, you have added a `visual effect` command to the script for the Next button. You can see for yourself by opening the button's script. It should look like this:

```
on mouseUp
 visual effect push left fast
 go to next card
end mouseUp
```

Press Enter when you finish looking at the script to put the script editor away.

Adding a visual effect to the Previous button

Using the Effect dialog box is one way of adding a visual effect to a script. Another way is to type the command yourself:

1. **Choose the Button tool and double-click the Previous button.**

   The Button Info dialog box appears.

2. **Click Script.**

   The script editor appears showing the button's script.

3. **Click before `go` to set the insertion point.**

   Now you're ready to type the statement that creates a visual effect.

4. **Type `visual effect push right fast` and press Return.**

   The script should now look like this:

   ```
   on mouseUp
    visual effect push right fast
    go to next card
   end mouseUp
   ```

5. **Press Enter.**

   The script editor disappears.

6. **Choose the Browse tool and click the Previous button.**

❖ *Pushing backwards:* Notice that you use `push left` for the right arrow and `push right` for the left arrow to simulate page turning. ❖

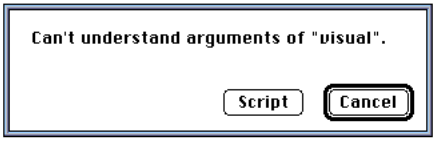
The syntax of the visual command

All languages—for people and computers—have rules of *syntax*. Syntax is the way in which words are combined to form meaningful statements. For example, in English the statement "Go to the store" makes sense because it follows the rules of English syntax. However, the statement "The go store to" doesn't make sense because it doesn't use proper English syntax.

HyperTalk syntax is much like English syntax, which makes HyperTalk an easy language for English speakers to use. It's not always true, however, that a statement that makes sense in English will make sense in HyperTalk. For example, HyperCard wouldn't know what to make of this:

```
visual effect slow dissolve to black
```

As far as HyperCard is concerned, the command makes no sense because the words are in the wrong order. (The correct order is `visual effect dissolve slow to black`.) You would see a "Can't understand" dialog box:



Clicking Script in a "Can't understand" dialog box opens the script editor and places the insertion point at the beginning of the statement HyperCard can't understand. You can then correct any errors in syntax or spelling and try your script again.

The syntax of a HyperTalk statement describes the general underlying structure that a statement must follow. In order for HyperCard to understand a statement, the statement must contain the correct elements in the correct order. Certain conventions are used everywhere in the HyperCard world to show the syntax of HyperTalk statements. For example, here's the syntax of the visual command:

```
visual [effect] effectName [speed] [to image]
```

In the exercises in this book, syntax elements `in this kind of type` are entered exactly as they appear.

Elements *in italics* are placeholders. In an actual statement, you would replace *`effectName`* with the name of an actual visual effect, such as `zoom out`.

Syntax elements enclosed within brackets `[ ]` are optional. You don't include the brackets in an actual command. There are other syntax symbols; you'll see them as you go along.

Knowing a command's syntax is as important as knowing what it does. Luckily, you don't have to memorize syntax. The *HyperCard Quick Reference Guide* lists the syntax of every HyperTalk command, and the HyperTalk Reference stack describes the syntax of each command in detail.

Skimming cards

In this section, you'll modify the scripts for the Next and Previous buttons so that you can quickly skim through a number of cards by holding down the mouse button.

Modifying the Next button's script

First modify the script for the Next button. You'll use a shortcut for seeing a button's script.

1. Choose the Browse tool and then hold down the ⌘ and Option keys.

   Pressing these two keys lets you see the outline of all buttons on the card.

2. **While holding down ⌘ and Option, click the Next button.**

   The script editor appears showing the button's script. Release the keys after the script editor appears.

   You use the ⌘-Option-click shortcut to go directly to a button's script without switching to the Button tool first—a handy feature when you're doing a lot of scripting.

❖ *Editing background scripts from the card:* Even though you had to switch to the background when you created this button, you don't have to switch to the background to change its script. ❖

3. **Select `mouseUp` in the first line of the script.**

   Drag across the word to select it, or double-click the word.

4. **Type `mouseStillDown`.**

   You're changing the handler from a `mouseUp` handler to a `mouseStillDown` handler. The `mouseUp` message is sent only once—when the mouse button is released. The `mouseStillDown` message is sent continuously as long as the mouse button is held down.

5. **Change `mouseUp` in the last line to `mouseStillDown`.**

   The script for the Next button should now look like this:

```
on mouseStillDown
 visual effect push left fast
 go to next card
end mouseStillDown
```

   In English, the script says, "As long as the mouse button is pressed, display a visual effect and go to the next card."

6. **Press Enter.**

   Now see how the Next button behaves.

7. Click the Next button—being sure to release the mouse button immediately.

   You go to the next card, just as you did before.

8. Press the Next button, this time holding it down for several seconds.

   You skim through a number of cards.

As long as you hold down the mouse button, HyperCard repeatedly sends `mouseStillDown` messages to the button. The handler starting with `on mouseStillDown` executes again and again until you release the mouse button.

Modifying the Previous button's script

Now you'll modify the Previous button. This time you'll use one of the commands in the Script menu.

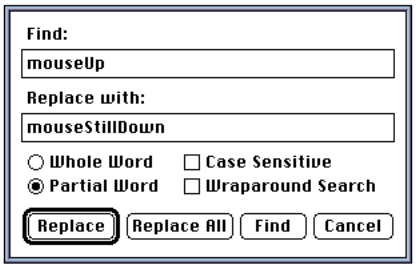
1. ⌘-Option-click the Previous button.

   The script for the Previous button appears.

2. Choose Replace from the Script menu.

   The Replace dialog box appears. You can use this dialog box to find and replace text within a script. In this case, you're going to replace all instances of the word `mouseUp` with the word `mouseStillDown`.

3. In the box labeled "Find," type `mouseUp` (don't press Return).
4. In the box labeled "Replace with," type `mouseStillDown` (again, don't press Return).



5. Click Replace All.

   HyperCard replaces all instances of `mouseUp` in the script with `mouseStillDown`.

   The script should now look like this:

```
on mouseStillDown
 visual effect push right fast
 go to previous card
end mouseStillDown
```

6. Press Enter.

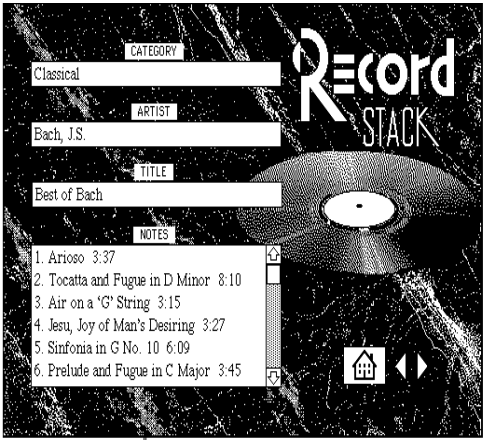
You can now use the Previous button to skim backward through the cards in your stack.

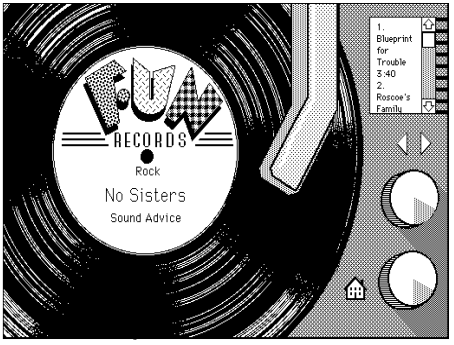
Adding graphics

If you'd like to give your stack a distinctive look, you can take some time now to design graphics for the background. Well-designed graphics can make your stack easier to use and visually more appealing.

You can create graphics with the Paint tools (described in Chapter 8), or you can copy clip art from the Art Bits stack. You may also want to change the fonts in the background fields or the position of the fields and buttons. (You'll be adding more buttons to the background later, so be sure to leave space for them.)

You can leave your stack as it is, copy one of the designs suggested in the next figure, or have fun creating a design of your own. When you're satisfied with the way your stack looks, you can go on with this tutorial.





Fields and Other Containers

A *container* is a place in the computer's memory where you can put a value, such as a number or some text. You can also get values out of containers to use elsewhere as needed.

In this section, you'll learn about three different kinds of containers: the Message box, fields, and variables. You'll also learn how handlers can work with values in containers. You'll add some more features to your Collection stack, and you'll increase your vocabulary of HyperTalk commands.

Putting values into containers

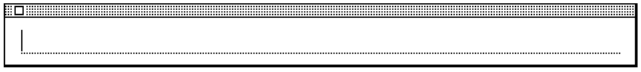
You use the `put` command to put a value into a container. In the first exercise, you'll practice using the `put` command to put values into the Message box. Later in this chapter, you'll use the `put` command in scripts.

Putting values into the Message box

First open the Message box:

1. **Press ⌘-M to open the Message box.**

   The vertical bar that marks the insertion point blinks inside the Message box, ready for you to type.



   If for any reason you previously typed something into the box, the earlier entry will still be there. When you start typing, whatever you type will replace the old text.

2. **Type `put "Hello" into the message box` and press Return.**

   The word Hello appears in the Message box.

   The `put` command does what you would expect—it puts a value where you want it to go. In its most basic form, the syntax of the `put` command is

   `put` *`expression`* `[into` *`container`*`]`

The placeholder *expression* is a word or phrase that specifies a value. For example, the expression `2 + 2` specifies the value `4`.

The placeholder *container* can be a button, a field, a variable, or the Message box. If you don't specify a container, the value is put into the Message box.

❖ *The insertion point is not necessary*. After you press Return, you can start typing a new message into the Message box right away, even though you can't see the blinking vertical bar. Whatever you type will replace the old text. ❖

3. **Type `put 2 + 2` and press Return.**

   The number `4` appears in the Message box.

   Including quotation marks around text characters tells HyperTalk to interpret literally whatever is inside. It treats whatever is inside the quotation marks as a string of text characters.

   If you don't include quotation marks, HyperTalk evaluates the expression—that is, it replaces the expression with the value of the expression. For example, it replaces `2 + 2` with `4`.

4. **Type `put "It is now" && the time` and press Return.**

   A text string giving the current time appears in the Message box, for example:

   ```
   It is now 12:00 PM
   ```

   The double ampersand (&&) joins two pieces of text together with a space in between. In this case, it joins `It is now` with the current system time. If you wanted to join two pieces of text together without a space, you would use a single ampersand.

5. **Click the close box in the upper-left corner (or press ⌘-M) to close the Message box.**

Now that you've seen how the `put` command works, you'll use it in a script.

Fields as containers

Fields are objects. They can receive and send messages and have scripts. Fields are also containers that can hold text and numbers.

Earlier in this chapter, you put text into fields by typing in the fields. In this section, you'll write a script that puts text into a field.

First you need to create a background field named Label. This field will display the number of each card in your stack, so you can easily tell where you are in the stack.

Creating the Label field

To create the field, follow these steps:

1. Press ⌘-B to work in the background.

   Stripes appear in the menu bar.

2. Choose the Field tool.

3. ⌘-drag to create a field one line high and about half an inch long.

   Move the field to any available space in the background by dragging its center.

4. Double-click the field to see its Info dialog box.

5. Name the field Label and set the field's characteristics.

   Choose Rectangle in the pop-up Style menu for the field's style. Choose any text style you'd like.

6. Click OK.

Writing a script for the stack

You could label all cards in your stack by going to each one and typing its number into the Label field. But you can also write a script telling HyperCard to do it for you. The field should contain a text string with two pieces: the word "Card" and the number of the current card.

To write the script, follow these steps:

1. Choose Stack Info from the Objects menu.

   The Info dialog box for the stack appears.

2. Click the Script button.

   The script editor for the stack appears. The line at the top of the script editor (that is, the window's title) identifies it as the stack script.

3. Type the following script:

```
on openCard
  put "Card" && the number of this card into background field
"Label"
end openCard
```

   In English, the script says, "When a card opens, put the word 'card' and the number of the card into the background field named Label."

4. Press Enter.

5. Press ⌘-B to return to the card layer.

To test your script, choose the Browse tool, then click the Next button several times. Each time you go to another card, you should see the word Card in the Label field followed by the number of the current card.

❖ *If something else happened:* Check the script for spelling errors and make sure the `openCard` handler is in the stack script. Also make sure that the Label field is in the background, and that its name matches the name you used in your script. ❖

How the script works

Just as HyperCard sends the system message `mouseUp` every time you click the mouse button, it sends the message `openCard` every time you go to a different card in the stack. When you open any card in the Collection stack, the `openCard` message handler executes and puts the number of the current card into the Label field. Because the `openCard` handler is in the script for the stack, it affects every card in the stack—not just a particular card.

The advantage of using a script to label cards is that you won't have to worry about labeling the cards yourself, even if you add or delete cards. HyperCard will take care of it for you.

❖ *Dealing with long statements:* The script editor doesn't wrap long lines (although it does let you scroll to see text that extends beyond the window). In order to fit a long statement into the script editor window, you must manually break the statement into more than one line. You do this by pressing Option-Return at the end of a line. This inserts a "soft" return character (¬) into your script. Although the statement appears on more than one line, HyperCard treats it as a single statement. Ordinarily, a HyperCard statement must be on a single line ending with a carriage return. ❖

Creating a pop-up field

Now it's time to give yourself a pat on the back; you'll create a field that displays the credits for your stack. You'll also create a button that makes the field appear, and you'll write a script that makes the field disappear when you click it.

Creating the Credits field

You can start from any card in the Collection stack. Create the field by following these steps:

1. Press ⌘-B to work in the background.
2. Create a new field.

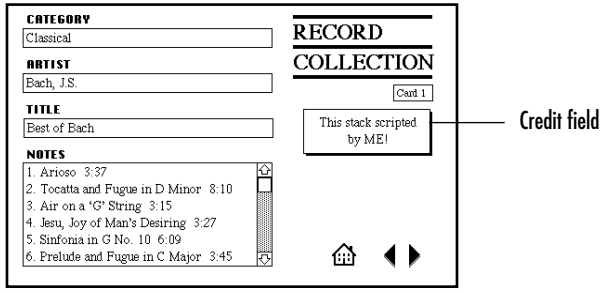
   Use any method you want. Make the field about two inches long and an inch high. It's okay if the field covers other fields or buttons.
3. Double-click the field to see its Info dialog box.
4. Name the field "Credits."
5. Click Shared Text.

   As you learned in Chapter 2, background fields with shared text contain the same text on every card.

6. Set the field's style to Shadow.
7. Choose a text style for the field (or use the default text style, 12-point Geneva Plain).
8. Click OK.

   Now you'll type your message into the field. Because it's a background field with shared text, the message you type will appear on every card in the stack.

9. Choose the Browse tool.
10. Click inside the Credits field to set the insertion point; then type the credits for your stack.



Creating an About button

Next you'll create a button that makes the Credits field appear. Make sure you're still working in the background, and follow these steps:

1. Choose the Button tool and create a new button about half an inch square.

   Drag the button to any available space in the background.

2. Name the button "About."
3. Select Auto Hilite.

4. Select a cartoon balloon icon from the Icon dialog box.

   A cartoon balloon icon identifies an "About this stack" button.

5. Click OK.
6. Size the button around the balloon icon.

Now you'll write the script for the About button:

1. ⌘-Option-click the About button.

   The script editor appears.

2. Type `show bg field "Credits"`.

   The completed script should look like this:

   ```
   on mouseUp
     show bg field "Credits"
   end mouseUp
   ```

   The letters `bg` are an abbreviation for the word `background`.

3. Press Enter.

You must use `card or cd` in front of `field` to specify a card field. If you leave out `card`, HyperCard assumes you mean a background field. Conversely, you must use `background, bkgnd`, or `bg` in front of `button` to specify a background button. Otherwise, HyperCard assumes you mean a card button. To avoid confusion, it's a good idea to always use `card` or `background` (or a suitable abbreviation) when referring to fields and buttons.

Writing a script for the Credits field

Next you'll write a script that makes the Credits field disappear when you click it.

1. Choose the Field tool and double-click the Credits field to see its Info dialog box.
2. Click Script.

   The script editor for the Credits field appears.

3. Type the following script:

   ```
   on mouseDown
     hide me
   end mouseDown
   ```

   `mouseDown` is a system message that's sent as soon as the mouse button is pressed.

   The HyperTalk word `me` refers to the object in whose script the word appears. In this case, `me` refers to the Credits field.

4. Press Enter.

Trying out the scripts

Now see how the About button and Credits field work:

1. Press ⌘-B to return to the card layer.
2. Choose the Browse tool and click the Credits field.

   The field disappears.
3. Click the About button.

   The Credits field reappears.

❖ *If something else happened:* Make sure the script for the About button is spelled correctly. Also make sure that the name of the Credits field is spelled correctly. If the Credits field still won't appear when it's supposed to, open the Message box and type `show last bg field.` The last background field that you created—the Credits field—appears. Then check the spelling of `Credits` in the Field Info dialog box. ❖

4. Click the Credits field to make it disappear.

How the scripts work

When you click the About button, the `mouseUp` handler in the button's script executes. The statement `show bg field "Credits"` makes the Credits field visible.

When you press the mouse button down on the Credits field, the `mouseDown` handler in the field's script executes. The statement `hide me` makes the Credits field disappear.

You can send messages to a field by clicking it, only if the field is locked or is a background field with shared text. Otherwise, clicking the field merely places the insertion point inside the field.

You can use the `hide` command to make certain elements invisible, including: a field, a button, a window (such as the Message box), the menu bar, the title bar, the background picture (graphics in the background), or the card picture (graphics on the card that aren't in the background). The `show` command does just the opposite; you use `show` to reveal hidden elements.

Variables

A *variable* is a named invisible container that can have any value you choose to put into it. You can never see a variable; but you can know, set, and change its contents. In this section, you'll create a button that uses a variable in its script.

Creating a Sort button

In this exercise, you'll create a button that sorts all the cards in your stack alphabetically. When a user clicks the Sort button, a dialog box will appear that asks the question "Sort by what?" and presents three possible replies: Category, Title, or Artist. When the user chooses, HyperCard will sort the cards in the stack according to the contents of the chosen field.

Follow these steps to create the Sort button:

1. Press ⌘-B to work in the background.
2. Choose New Button from the Objects menu.

   A new button appears. When you choose the New Button command, you automatically switch to the Button tool, and the new button is automatically selected.
3. Drag the button to any available space in the background.
4. Name the button "Sort."
5. Select Auto Hilite.

   The Show Name option is already checked. You'll show the name of this button rather than assign an icon to it.
6. Click Script to see the script editor.

7. Type the following script:

```
on mouseUp
  answer "Sort by what?" with "Category" or "Title" or
"Artist"
  put It into sortReply
  sort by background field sortReply
end mouseUp
```

8. Press Enter.

Now try the Sort button to see how it works:

1. Press ⌘-B to return to the card layer.
2. Choose the Browse tool and click the Sort button.

   A dialog box appears:

3. Click Artist.

   HyperCard reorders the cards in the stack alphabetically according to the contents of the Artist field. Browse through your stack with the arrow buttons to see that the names of the artists are in alphabetical order.

If you would rather sort your cards by category or title, you can use the Sort button to do that, too.

How the script works

The `answer` command asks the user of your stack a question, and presents up to three possible replies in the form of buttons in a dialog box. In this case, it asks the question `Sort by what?` and presents three possible replies: `Category`, `Title`, and `Artist`. The `answer` command always highlights the last reply, so it's a good idea to list the safest or "most correct" answer last.

When someone clicks a reply in the dialog box, that reply is put into a special HyperTalk variable named *it*. For example, when you click `Artist`, the value `Artist` is put into *it*.

The next statement in the script, `put` *it* `into` *sortReply*, puts the contents of *it* into another variable, which you've named *sortReply*. The names of variables can be almost anything you choose, but it's a good idea to name them something that describes what's contained in them.

If you clicked `Artist`, the variable *sortReply* would then contain the value `Artist`. Therefore, the statement

```
sort by background field sortReply
```

is evaluated as

```
sort by background field Artist
```

and HyperCard sorts all the cards in your stack according to the contents of the Artist field.

- *Local versus global:* The variables discussed here are *local variables*; that is, they and their values exist only within the handler in which they're created. As soon as the handler ends, they go out of existence. HyperCard also has *global variables*, whose values are available to all handlers everywhere. You declare a variable to be a global variable by using the `global` keyword. For more information about global variables and the `global` keyword, see the HyperTalk Reference stack or *the HyperCard Script Language Guide*. ❖

Putting comments into the handler

The following version of the handler for the Sort button shows comments that describe the action of the handler's statements. *Comments* are text lines typed into a script that are not part of the instructions. In HyperTalk, a comment must be preceded by two hyphens (--); the double hyphens indicate to HyperCard that the text following is a comment and should be ignored.

You don't have to type these comments into your script; they are shown only as an example.

```
-- This button sorts the stack according to a field chosen
by the user
on mouseUp
  answer "Sort by what?" with "Category" or "Title" or
"Artist"
  -- The user's response is now in the variable it
  put it into sortReply   -- Response is now in sortReply
  sort by background field sortReply  -- Sorts the stack
end mouseUp
```

As you see, comments can appear either at the beginning of a line or following a statement.

Although HyperCard ignores comments, other people writing scripts generally appreciate them. Adding comments to your scripts is an excellent way to document what they do. Comments not only help other scripters understand what you've done, but also help you remember when you look at old scripts long after you wrote them.

Scripts That Make Decisions

In this section, you'll learn how to control which statements are executed in a handler, as well as the order in which they're executed. You'll create some buttons for your Collection stack and write scripts that use the HyperTalk words `if` and `repeat`.

If structures

In English, we use the word "if" to talk about an action that depends on a certain condition. For example, we might say "If I'm hungry, then I'll eat dinner." If the condition "I'm hungry" is true, then the action "I'll eat dinner" will be performed.

In HyperTalk, the word `if` is used in much the same way. `if` and `then` are HyperTalk keywords that work together in arrangements called `if` structures. You use `if` structures to test conditions and to specify different actions, depending on the results.

There are several varieties of `if` structures; the most basic version is

```
if condition then
  action
end if
```

The placeholder *`condition`* stands for the thing being tested. It's an expression that HyperCard can evaluate as either true or false. The placeholder *action* stands for the instruction lines that follow if the condition is true. The last line, `end if`, signals the end of the structure.

Here's how the English example would look if it could be written in HyperTalk:

```
if I'm hungry then
  I'll eat dinner
end if
```

In English, the word "then" is often implied; in HyperTalk, you must always include it.

Creating a Quit button

In this exercise, you'll create a button that uses an `if` structure in its script. When a user clicks the button, a dialog box will appear asking the user whether he or she wants to quit HyperCard. The dialog box will display two options: OK and Cancel. If the user clicks OK, he or she quits HyperCard. If the user clicks Cancel, the dialog box disappears and nothing else happens.

Follow these steps to create the Quit button:

1. Press ⌘-B to work in the background.
2. Choose New Button from the Objects menu and move the new button to any available space in the background.
3. Name the button "Quit."
4. Select Auto Hilite.
5. Click Script to see the script editor.

6. Type the following script:

```
on mouseUp
  answer "Quit HyperCard?" with "OK" or "Cancel"
  if it is "OK" then
    doMenu "Quit HyperCard"
  end if
end mouseUp
```

The contents of the `if` structure are automatically indented. The statements beginning with `if` and `end if` should always line up. If they don't line up, you may have misspelled a word or left something out.

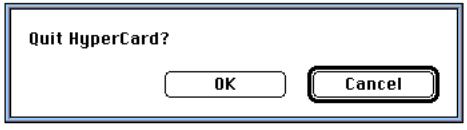
7. Press Enter.

Trying out the Quit button

Now try the Quit button to see how it works:

1. Press ⌘-B to return to the card layer.
2. Choose the Browse tool and click the Quit button.

This dialog box appears:



3. Click Cancel.

The text string `Cancel` is put into the variable `it`.

Because the condition `it is "OK"` is not true, HyperCard doesn't execute the action specified within the `if` structure. The dialog box disappears, and nothing else happens. Now you have to test what happens if the condition is true.

4. Click the Quit button again.

The dialog box appears again.

5. Click OK.

   The text string `OK` goes into the variable `it`.

   The condition `it is "OK"` is true, so HyperCard executes the statement within the `if` structure—and you quit HyperCard.

You use the `doMenu` command to execute any of the HyperCard menu commands from within a script. In this case, it executed the Quit HyperCard command. (Be sure to put quotes around the name of the menu command when you use `doMenu`.)

To continue with this chapter, you must start up HyperCard again and return to the Collection stack.

Adding an action

An `if` structure can specify not only an action to be taken when a condition is true, but also an alternative action to be taken when the condition is false. An `if` structure of this type has the general form

```
if condition then
  action
else
  anotherAction
end if
```

The placeholder *`anotherAction`* stands for an alternative instruction line or lines. An example in English might be something like this: “If I’m hungry, then I’ll eat dinner; otherwise [else] I’ll go to the movies.” Here’s how it would look if it could be written in HyperTalk:

```
if I'm hungry then
  I'll eat dinner
else
  I'll go to the movies
end if
```

Modifying the Quit button's script

In this exercise, you'll add two statements to the script for the Quit button. You'll add an `else` statement and a statement that specifies an alternative action for when a user clicks Cancel.

1. Open the script for the Quit button.
2. Click before `end if` to position the insertion point at the beginning of the next-to-last line.
3. Type the following lines (pressing Return after each line):

   ```
   else
   answer "Glad you reconsidered." with "No problem"
   ```

   The lines automatically indent. When you press Return for the final time, `end mouseUp` should line up at the left-most margin.

   Here's the completed script (the two new statements are shown in boldface type):

   ```
   on mouseUp
     answer "Quit HyperCard?" with "OK" or "Cancel"
     if it is "OK" then
       doMenu "Quit HyperCard"
     else
       answer "Glad you reconsidered" with "No problem"
     end if
   end mouseUp
   ```

4. Press Enter.
5. Try the Quit button.

   When you click the Quit button with the Browse tool, you get the dialog box just as before. Clicking Cancel (the choice represented by `else`) makes another dialog box appear with a friendly comment and reply button—just for fun. (No further instructions are specified for the "No problem" button.)

Decisions within decisions

It's possible to specify more than two separate actions by nesting `if` structures inside other `if` structures. Here's how an English example might look if it could be written in HyperTalk:

```
if I'm hungry then
  if there's some food in the house then
    I'll cook
  else
    I'll order a pizza
else
  if there's a good movie at the theater then
    I'll go to the movies
  else
    I'll watch television
end if
```

You can experiment with this option on your own, after you finish this chapter.

Repeat structures

The `repeat` keyword tells HyperCard to perform a command or series of commands over and over again. Suppose you wanted to create a sequence in which your stack moved through a series of five cards, with a one-second pause between cards. You could write the instructions this way:

```
wait 1 second
go to next card
wait 1 second
go to next card
wait 1 second
go to next card
wait 1 second
go to next card
wait 1 second
go to next card
```

Or you could write a `repeat` structure, like this:

```
repeat 5 times
  wait 1 second
  go to next card
end repeat
```

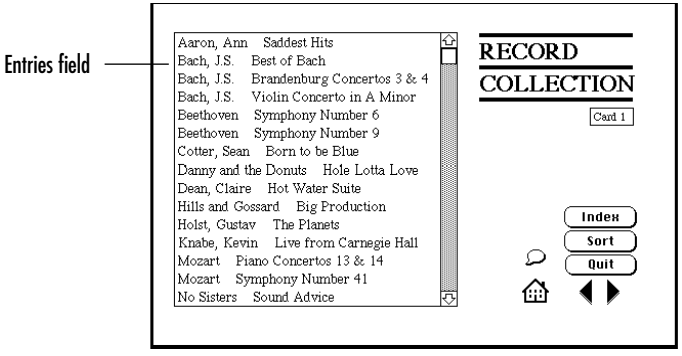
A `repeat` structure makes HyperCard go around in a "loop," repeating steps until a particular endpoint occurs. Being able to use `repeat` structures saves you from having to retype statements.

A `repeat` structure comes in several varieties. The first line of a `repeat` structure can have any of these general forms:

```
repeat [for] number [times]
repeat with variable = startingValue to endingValue
repeat with variable = startingValue down to endingValue
repeat until condition
repeat while condition
repeat [forever]
```

The statement or list of statements that you want to have repeated can follow any of these first lines. You must include `end repeat` to indicate the end of the list.

In this section, you'll create a button that uses a `repeat` structure to generate an index of your stack. Each index entry will include the name of the recording artist and the title of the record.



Later in this chapter, you'll write a script that lets you go to a card by simply clicking an index entry.

Creating the Index card

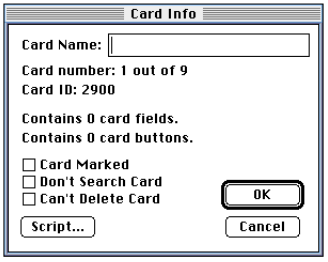
First you need to add a new card to your stack. Make sure you're looking at the Collection stack, and follow these steps:

1. **Choose New Card from the Edit menu (or press ⌘-N).**

   A new card appears.

2. **Choose Card Info from the Objects menu.**

   The Card Info dialog box appears:



3. **Name the card "Index."**
4. **Click OK.**

Creating the Entries field

Now you'll add a field to the Index card to display the list of index entries. Make sure you aren't in the background, and follow these steps:

1. **Choose the Field tool.**
2. **⌘-drag to create a large field (like the scrolling field in the figure).**

   Make the field large enough to include the Category, Artist, Title, and Notes fields.

3. **Double-click the field to see its Info dialog box.**

   Notice that the field is a card field, not a background field. The field appears only on this card.

4. Name the field "Entries."
5. Set the field's style to Scrolling.
6. Click OK.

Creating the Index button

Now you'll create the button that automatically generates the index.

1. Press ⌘-B to work in the background.

   You want the Index button to appear on every card in your stack, so make sure you see stripes in the menu bar.

2. Choose New Button from the Objects menu and move the new button to any available space in the background.
3. Name the button "Index."
4. Select Auto Hilite.

Writing a script that goes through all the cards

You'll write the script for the Index button in several stages. First you'll use a `repeat` structure to go through all the cards in the Collection stack.

Follow these steps:

1. Click Script in the Index button's Info dialog box.

   The script editor for the Index button appears.

2. Type the following script:

```
on mouseUp
  repeat with countVar = 1 to the number of cards
    go to card countVar
  end repeat
end mouseUp
```

   The contents of a `repeat` structure are automatically indented. The `repeat` and `end repeat` statements should always line up.

3. Press Enter.
4. Return to the card layer and click the Index button with the Browse tool to test it.

   HyperCard goes to the first card in the stack, then to the second, then to the third, and so on—until it reaches the last card in the stack.

How the script works

The handler uses a `repeat` structure to go through all the cards in the stack. The `repeat` statement uses the `repeat with` form, which has this syntax:

```
repeat with variable = startingNumber to endingNumber
```

In this case, you've named the variable `countVar`. The starting number is 1 and the ending number is the number of cards in the stack.

The first time through the loop, `countVar` equals 1. Therefore, HyperCard evaluates the statement

```
go to card countVar
```

as

```
go to card 1
```

The next time through the loop, `countVar` equals 2, so HyperCard goes to card 2 of the stack. The process continues and HyperCard goes to card 3, and 4, and so on—until `countVar` equals the number of cards in your stack. At that point, the loop finishes and the handler moves on to the next statement, which is `end mouseUp`.

Adding statements that generate the index

Now you'll add statements to the script that put information into the index. As you go to each card, you'll put the contents of the Artist and Title fields into a variable. Each time the handler goes to another card, it will put the entry for that card after what is already in the variable. In this way, the variable will accumulate all of the index entries. Finally, the handler will put the contents of the variable into the Entries field.

Follow these steps:

1. Open the script for the Index button.
2. Insert the statements shown in bold in the following script:

```
on mouseUp
  put empty into indexVar
  repeat with countVar = 1 to the number of cards
    go to card countVar
    put bg field "Artist" & " " & bg field "Title" & Return
after indexVar
  end repeat
  go to card "Index"
  put indexVar into card field "Entries"
end mouseUp
```

   Make sure everything is spelled correctly and that the statements are in the right order.

3. Press Enter.
4. Try out the Index button.

   You go to the first card in the stack, then the second, and so on until you reach the end of the stack. Then you go back to the Index card, where a list of recordings appears inside the Entries field.

❖ *If something else happened:* Check your spelling and try the script again. Make sure that the names of the Index card and Entries field are spelled correctly and match the names you used in your script. ❖

Each index entry consists of the contents of the Artist field, followed by several spaces and the contents of the Title field.

Because you put a Return character at the end of each entry, all the entries begin on new lines. Some entries may take up more than one line. Entries take up more than one line if they are long and wrap onto a second line or if you entered Return characters when you entered text into the Artist and Title fields.

Some aesthetic and efficiency touches

The index includes an entry for every card in your stack—including the Index card itself. Because the Index card has nothing in its Artist and Title fields, the entry for the Index card is a blank line. If you have any blank cards in your Collection stack, they also appear as blank lines in the index.

Now you'll add an `if` structure to the script that checks each card to see if something has been typed into the Artist field. If the Artist field is blank, the index won't include that card.

You'll also add a `lock screen` command at the beginning of the handler to freeze the screen while HyperCard goes from card to card "behind the scenes." This will be less distracting than having to watch all those cards flashing by, and it will take considerably less time to generate the index.

Follow these steps:

1. Open the script for the Index button.
2. Type the statements shown in bold in the following script:

```
on mouseUp
  lock screen
  put empty into indexVar
  repeat with countVar = 1 to the number of cards
    go to card countVar
    if bg field "Artist" is not empty then
      put bg field "Artist" & "   " & bg field "Title" &
Return after indexVar
    end if
  end repeat
  go to card "Index"
  put indexVar into card field "Entries"
  unlock screen
end mouseUp
```

   The `put` statement should indent and the `if` statement should line up with the `end if` statement.

3. Press Enter.

4. Try the Index button.

   After a pause, the Index card appears with the list of recordings in the Entries field. The list should contain only cards for which you typed something into the Artist field.

As you probably guessed, the `lock screen` command locks the screen. When you lock the screen, the screen image won't change until either an `unlock screen` command is executed or all handlers have finished executing. Because HyperCard doesn't have to redraw the screen every time the script goes to another card in your stack, it can compile the index more quickly.

Adding a keyboard shortcut

Every time you click the Index button, HyperCard recompiles the index for your stack. This process can be time-consuming, especially if your stack contains many cards. Now you'll modify the Index button's script so that by holding down the Option key as you click the button, you go directly to the Index card, without compiling the index.

Follow these steps:

1. Open the script for the Index button and insert the statements shown in bold in the following script:

```
on mouseUp
  if the optionKey is down then
    go to card "Index"
  else
    lock screen
    put empty into indexVar
    repeat with countVar = 1 to the number of cards
      go to card countVar
      if bg field "Artist" is not empty then
        put bg field "Artist" & "    " & bg field "Title" &
Return after indexVar
      end if
    end repeat
    go to card "Index"
    put indexVar into card field "Entries"
    unlock screen
  end if
end mouseUp
```

2. Press Enter.
3. Go to any card other than the Index card.
4. Option-click the Index button with the Browse tool.

   You go directly to the Index card without recompiling the index.

When you click the Index button, HyperCard tests the condition `the optionKey is down`. If you are simultaneously pressing the Option key, you go directly to the Index card. Otherwise, HyperCard compiles the index.

Setting properties

The *properties* of a HyperCard object are characteristics of the object that you can set. For example, every button has a `name` property that specifies the name of the button, a `hilite` property that specifies whether the button is highlighted, a `location` property that specifies where the button appears on the screen, and so on.

The characteristics of the overall HyperCard environment are called *global properties*. For example, the `userLevel` is a global property that determines the current user level.

Usually, you set properties by choosing options in the object's Info dialog box or on the User Preferences card of the Home stack. You can also set properties by using the `set` command.

The syntax of the `set` command is

```
set [the] property [of object] to expression
```

The placeholder *`property`* is a HyperCard property. (A complete list of properties appears in the *HyperCard Script Language Guide*.) What the *`expression`* is depends on the property.

Here are some examples of the `set` command with comments describing what each command does:

```
set the hilite of bg button "Quit" to true -— highlights the
"Quit" button
set the textFont of bg button "Quit" to "Times" -— changes
font to "Times"
set the userLevel to 5 -— sets user level to scripting
set the cursor to "watch" -— changes the cursor to a
wristwatch
```

Now you'll add a `set` command to the script for the Index button.

Changing the cursor

When someone clicks the Index button, there's a momentary delay while HyperCard compiles the index for the stack. In this section, you'll write a command that displays the busy cursor or "spinning beach ball" while the index is being generated. By displaying the busy cursor, you let the user of your stack know that HyperCard is still working even though the screen isn't changing.

Follow these steps:

1. Open the script for the Index button.
2. Insert the statement shown in bold in the following script:

```
on mouseUp
  if the optionKey is down then
    go to card "Index"
  else
    lock screen
    put empty into indexVar
    repeat with countVar = 1 to the number of cards
      set the cursor to busy
      go to card countVar
      if bg field "Artist" is not empty then
        put bg field "Artist" & "    " & bg field "Title" &
Return after indexVar
      end if
    end repeat
    go to card "Index"
```

```
    put indexVar into card field "Entries"
    unlock screen
  end if
end mouseUp
```

3. Press Enter.
4. Click the Index button with the Browse tool. (Don't hold down the Option key.)

   The pointing finger (Browse tool) cursor changes to the busy cursor. The cursor spins for a moment, the Index card appears, and the cursor changes back to the Browse tool.

The global property `cursor` determines which cursor is displayed on the screen. As soon as all handlers have finished executing, the cursor changes back to the cursor for the current tool—in this case, the Browse tool.

❖ *How the beach ball spins:* To make the busy cursor spin, the `set the cursor to busy` command must be inside a `repeat` structure. ❖

Using functions

HyperTalk contains both commands and functions. A *command* (such as `go` or `put`) carries out an action, whereas a *function* returns a value of some sort. For example, `the time` is a HyperCard function that returns the current time set in your computer. You can use names of functions in commands to get values without having to figure out how to write the formula as part of your handler.

❖ *Creating your own functions:* In addition to using the HyperTalk built-in functions, you can make up functions of your own. For instructions on how to write your own functions, see the HyperTalk Reference stack or the *HyperCard Script Language Guide*. ❖

Going from an index entry to a card

In this exercise, you'll write a script for the Entries field. The script will use a HyperTalk function named `the clickLine` to determine which line a user has clicked in the Entries field and, based on that information, find the appropriate card. You'll write this script in stages to get a better idea of how it works. You'll begin by writing a script that tells you which line of the Entries field has been clicked.

Go to the Index card (if you're not already there) and follow these steps:

1. **Choose the Field tool.**
2. **Double-click the Entries field to see its Info dialog box.**
3. **Click the Lock Text and Don't Search options to select them.**

   Selecting the Lock Text option locks the field so you can't type in it. When a field is locked, clicking the field with the Browse tool doesn't place the insertion point in the field; instead, it sends a `mouseUp` message to the field.

   Selecting Don't Search tells HyperCard not to search this field when you execute a `find` command. If you're searching for a particular record, you would want to find the card for that record, not its index entry.

4. **Click the Script button and type the following script for the Entries field:**

   ```
   on mouseUp
     put the clickLine
   end mouseUp
   ```

5. **Press Enter to close the script editor.**
6. **Try out the script by clicking any index entry with the Browse tool.**

   A description of the line you clicked appears in the Message box. For example, if you clicked the second line, the message would say:

   ```
   line 2 of card field 1
   ```

❖ *If something else happened:* Check your spelling and try the script again. Also make sure that the Entries field is locked. ❖

Because the Entries field is locked, clicking the field sends a `mouseUp` message to the field, causing the `mouseUp` handler in the field's script to execute.

The function `the clickLine` returns a description of the line that you click in a field. The statement `put the clickLine` puts that description into the Message box.

The script now knows which line you clicked. But what does that line contain? You need a further modification to the script.

1. **Open the script for the Entries field and insert the boldface words in the following script:**

```
on mouseUp
  put the value of the clickLine
end mouseUp
```

2. **Press Enter to close the script editor.**
3. **Click an index entry with the Browse tool.**

   The contents of the line you clicked should appear in the Message box.

The function `the value of` returns the value of any expression. In this case, it returns a text string consisting of the contents of the line you clicked—that is, the index entry for that line.

Now that your handler knows which recording you're interested in, the final step is to find the right card. You'll use the HyperCard `find` command to do that.

1. **Open the script for the Entries field, select `put`, and change it to `find`.**

   The completed script should look like this:

```
on mouseUp
  find the value of the clickLine
end mouseUp
```

2. **Try out the script by clicking an index entry with the Browse tool.**

   If you went to the correct card, congratulations! You're doing great.

The `find` command tells HyperCard to search through the fields in the stack for a specific string of text. In this case, it searches for the index entry that you clicked. Because you selected the "Don't Search" option for the Entries field, it won't search the Entries field.

❖ *If something else happened:* Check your spelling and try the script again. Make sure that the Lock Text and Don't Search options are selected in the Entries field's Info dialog box. ❖

Handling Messages

All the scripts you've written so far contain only one message handler; but scripts often contain more than one handler.

In this section, you'll write new handlers and explore the way messages travel between objects. And you'll add another feature to your Collection stack—a button that plays sounds when you click it.

How messages travel

HyperCard can send system messages to a button, a field, or the current card. For example, if you click a button, HyperCard sends a `mouseUp` message to the button. If you click a locked field, HyperCard sends `mouseUp` to the field. If you click anywhere else on a card, HyperCard sends `mouseUp` directly to the card.

A message can travel from one HyperCard object to another—until it is handled. For example, when someone clicks a button, a `mouseUp` message is sent to the button. If the button's script doesn't have a handler for `mouseUp`, the message is passed to the current card, then to the background, then to the stack, then to the Home stack, and finally to HyperCard itself. This sequence is called the message-passing order (and sometimes the message-passing path).

You can place handlers at different levels. Where you place a handler has an effect on its availability. For example, when you wrote the handler to label all cards of the Collection stack, you placed it in the stack script; that placement meant that the handler was available for every card in the stack. If you had placed the handler in the script for one of the cards, it would have been available only to that card; no other cards would have been labeled.

Messages can come from the system; from your actions with the mouse, keyboard, or Message box; or even from handlers themselves. In this section, you'll see how messages move around in HyperCard. First you'll make a button and write a message handler for the button's script. Later you'll move the handler to different levels in the message-passing order and observe the difference in the handler's action.

Creating a Sound button

In this exercise, you'll create a button that plays sounds when you click it. Follow these steps:

1. Press ⌘-B to work in the background.
2. Choose New Button from the Objects menu and move the new button to any available space in the background.
3. Name the button "Sound."
4. Select Auto Hilite.
5. Click Script.

   The script editor appears.

6. Type the following handler in the Sound button's script:

   ```
   on mouseUp
     play "boing"
   end mouseUp
   ```

   The `play` command lets you play sounds from within scripts.

❖ *Alternative for hearing-impaired people:* If you can't hear well, type this line in place of or in addition to the play statement to see the effect of the handler:

```
flash 3
```

It makes the entire screen image flash rapidly three times when the button is clicked. The white parts of the card switch to black and the black parts to white; then they change back again. ❖

7. Press Enter.
8. Press ⌘-B to return to the card layer.
9. Click the Sound button with the Browse tool.

   You hear a "boing" sound.

❖ *If something else happened:* Check the script's spelling and make sure you've included quotation marks in the right places. If the script is correct, make sure you have the Speaker Volume in the Control Panel set to a value greater than zero. ❖

When you click the button, a `mouseUp` message is sent to the button. This makes the `mouseUp` handler execute, and you hear the "boing."

Moving the handler to the card level

Where you place a handler in HyperCard affects its action. A handler at the top level (namely, in a button script or a field script) can respond only to a message received by that button or field. The same handler further down in the message-passing order—that is, at the card, background, or stack level—can respond to a message sent by any objects higher up, unless those objects intercept the message with their own handlers.

What the message-passing order means to you is that you can control whether your handlers act locally—only for a particular button, for example—or more globally, for an entire card, background, or stack.

In this exercise, you'll move the `mouseUp` handler of the Sound button to a different level in the message-passing order to experience the change in its response. First notice that the handler works only if you click the Sound button. If you click anywhere else on the card, you won't hear anything.

The next step is to move the handler to the script for one particular card. You'll cut the `mouseUp` handler from the Sound button's script and paste it into the script for the Index card that you created earlier. Follow these steps:

1. Go to the Index card of the Command stack.
2. ⌘-Option-click the Sound button with the Browse tool.

   You see the script for the Sound button.
3. Drag the mouse across the entire `mouseUp` handler to select it (or press ⌘-A).
4. Choose Cut from the Edit menu to cut the handler and place it on the Clipboard.

   The script editor should now have nothing in it. If you still see the handler there, try steps 2 and 3 again.

❖ *Empty scripts:* Every object has a script, even if there's nothing in it. Scripts with nothing in them are called empty scripts. ❖

5. **Press Enter to close the now-empty script for the Sound button.**

   Now you'll open the script for the Index card.

6. **Choose Card Info from the Objects menu.**

   The Card Info dialog box appears.

7. **Click Script.**

   The script for the Index card appears.

8. **Choose Paste from the Edit menu to paste the handler into the script for the Index card.**

   The `mouseUp` handler appears in the script for the Index card.

9. **Press Enter to close the script for the Index card.**

Trying out the card script

Now test the effects of moving the handler to the card level:

1. **Click the Sound button with the Browse tool.**

   The boing plays just as it did before. The `mouseUp` message passes through the empty button script and goes on to the card script.

❖ *A partial script is visible:* "Empty" button scripts still show `on mouseUp` and `end mouseUp` lines. HyperCard supplies these to make it easier to write scripts in buttons; but if there's nothing else in the script besides these two lines, the script is treated as if it were empty. ❖

2. **Click anywhere else on the card (except on a button or field).**

   The boing plays because whenever you click the card, `mouseUp` goes directly to the card which now contains the handler for `mouseUp` in its script.

3. **Click an entry in the index.**

   You go to the card for the entry you clicked, as usual—and you don't hear the "boing." The reason you don't hear the boing when you click the Entries field is that the field has a `mouseUp` handler in its script. The `mouseUp` message is intercepted by the field script, so the `mouseUp` handler in the card script doesn't execute.

   Now that you are on a card other than the Index card, notice what happens when you click the card.

4. **Click anywhere on the card (except on a button or field with a `mouseUp` handler).**

   Nothing happens because there's no `mouseUp` handler in this card's script.

Moving the handler to the background level

Now you'll take the handler out of the card script and move it to the background script:

1. **Go to the Index card.**
2. **Choose Card Info from the Objects menu.**

   The Card Info dialog box appears.

3. **Click Script to see the script editor.**

   The script for the Index card appears.

❖ *Keyboard shortcut*: You can press ⌘-Option-C to see the script editor of the current card without having to go through the card's Info dialog box. ❖

4. **Drag the mouse across the entire handler to select it (or press ⌘-A).**
5. **Choose Cut from the Edit menu to cut the script and place it on the Clipboard.**

   The card script should now be empty.

6. **Press Enter to close the card script.**
7. **Choose Bkgnd Info from the Objects menu.**

   The Background Info dialog box appears.

8. **Click Script.**

   The script for the current background appears.

❖ *Keyboard shortcut:* You can press ⌘-Option-B to see the script for the current background without going through the background's Info box. ❖

9. **Choose Paste from the Edit menu to paste the handler into the background script.**
10. **Press Enter to close the background script.**

Trying out the background script

Now test the effects of moving the handler to the background level:

1. **Click the Sound button with the Browse tool.**

   You hear the boing. The `mouseUp` message passes through the empty button script and empty card script to the background script, which now contains the handler.

2. **Click anywhere else on the card (except on a button or field with a `mouseUp` handler).**

   The `mouseUp` message passes to the background script, and the boing plays.

3. **Go to any other card in the stack and click anywhere on the card (except on a button or field with a `mouseUp` handler).**

   You should still hear the boing. The handler is now available to any card sharing the background.

If you moved the handler to the stack level, the same thing would happen because the Collection stack has only one background; but if a stack has more than one background, only a handler at the stack level or above (for example, in the stack script of the Home stack) would be available to all cards of all backgrounds.

Handlers calling handlers

All the handlers you've written so far respond to system messages sent by HyperCard (such as `mouseUp` and `openCard`). HyperCard sends system messages in response to events such as mouse clicks, keyboard actions, and the creation or deletion of objects. But there are other ways for handlers to "get the message."

Each time HyperCard executes a statement within a handler, it sends that statement as a message. A message sent from one handler can make another handler execute. It's as though the handlers are talking to each other—with one handler telling the other to begin executing.

In this exercise, you'll write a handler that "calls" another handler. First you'll write a handler that sends a message, then you'll write a handler that responds to that message.

Writing the "calling" handler

You'll write a script for the Sound button so that a message named `playSound` is sent whenever someone clicks the button. Later you'll change the `mouseUp` handler in the background script so that it responds to the `playSound` message. Follow these steps:

1. Open the script for the Sound button.
2. Type `playSound`.

   The completed script should look like this:

   ```
   on mouseUp
     playSound
   end mouseUp
   ```

   In English, the script says, "When someone clicks this button, send a message named `playSound`."

   The message name `playSound` is just a made-up word. You could use any other word (except a HyperTalk keyword); this name seems appropriate because it describes the action of the handler.

- *Alternative for hearing-impaired people:* If you are using the `flash 3` alternative instead of the boing, you could use a different name, such as `razzleDazzle` (but don't use `flash`). Be sure, however, that you use your alternative name in the steps that follow. ❖

3. Press Enter.
4. Click the Sound button with the Browse tool.

   You see a "Can't understand" dialog box. HyperCard can't understand the `playSound` message because it can't find a `playSound` handler anywhere. In other words, there is no handler that begins with the statement `on playSound`.

5. Click Cancel to close the "Can't understand" dialog box.

- *About the Debug button:* Clicking the Debug button opens the script editor window and puts a box around the statement HyperCard can't understand. It also adds a new menu, named the Debugger menu, which is sometimes helpful in figuring out where mistakes or "bugs" are in a script. ❖

Writing the "called" handler

Now you'll create a handler that responds to the `playSound` message that's sent when someone clicks the Sound button. You could write a handler from scratch, but in this case, you'll simply change the `mouseUp` handler in the background script to a `playSound` handler.

1. Choose Bkgnd Info from the Objects menu.
2. Click the Script button.

   The script for the background appears.

3. Select `mouseUp` in the first line of the handler.

   Drag across the word as you would when selecting any text, or just double-click the word.

4. Replace it by typing `playSound`.

5. **Select `mouseUp` in the last line of the handler and replace it by typing `playSound`.**

   The completed handler looks like this:

   ```
   on playSound
     play "boing"
   end playSound
   ```

   The name used after `on` must match the name after `end`.

   You've now changed the handler from a `mouseUp` handler to a `playSound` handler. It now responds to the message `playSound` instead of the message `mouseUp`.

6. **Press Enter.**

   You've created a handler that sends a message named `playSound`, as well as a handler that responds to `playSound`. Now see how the two handlers work together.

7. **Click the Sound button with the Browse tool.**

   When the Sound button receives `mouseUp`, its handler in turn sends the message `playSound`. That message goes through the message-passing order until it's intercepted by the `playSound` handler in the background script. The `playSound` handler executes, and you hear the boing.

First, HyperCard sends a `mouseUp` message to the Sound button.Then, the Sound button sends a `playSound` message. Finally, the `playSound` message is handled by the background script.

Clicking anywhere else on the card won't cause the sound to play, because the background handler isn't a `mouseUp` handler any more.

You've essentially defined a new command, which is named `playSound`. The `playSound` command plays a "boing." That's really all there is to defining your own commands. Think of what you want a command to do, think of a name for it, and write a handler that uses the name after `on` and `end`, with the appropriate HyperTalk statements in between. To make the command work, send the command's name as a message to the object that has the handler in its script.

❖ *Use unique names.* Avoid using the name of an existing HyperTalk command or function as the name of a command you create. (See the *HyperCard Script Language Guide* for details on naming commands.) ❖

Intercepting a message

When HyperCard sends a statement within a handler as a message, the message goes first to the object that contains the handler being executed. (For example, when the Sound button sends a `playSound` message, the message first goes to the button itself.) If the object's script doesn't have a handler for the message, the message travels next to the current card. If the script for the current card doesn't have an appropriate handler, the message continues through the message-passing order.

Once a message is handled, it does not continue passing through the message-passing order. Therefore, it's possible for an object at the start of the message-passing order to intercept a message before the message can travel to objects at the end.

In this section, you'll write a `playSound` handler for the script of the Index card. This card-level handler will make the Sound button play a different sound when you're on the Index card.

Follow these steps to write the script:

1. Go to the Index card.
2. Choose Card Info from the Objects menu; then click the Script button to see the card's script (or press ⌘-Option-C).
3. Type the following handler:

```
on playSound
  play "harpsichord" "c"
end playSound
```

   This handler plays one note using the harpsichord sound.

4. Press Enter.

5. **Click the Sound button with the Browse tool.**

   The `playSound` handler in the card script executes, and you hear the harpsichord note.

6. **Go to any other card in the stack and click the Sound button.**

   The `playSound` handler in the background script executes, and you hear the boing.

How the handlers work

When you click the Sound button, the button's `mouseUp` handler sends a `playSound` message. Because there is no `playSound` handler in the button's script, the message passes to the script for the current card.

When the Index card is the current card, the `playSound` handler in the card script handles the `playSound` message. The card script intercepts the message before it can pass to the background script.

First, HyperCard sends a `mouseUp` message to the Sound button.Then the Sound button sends a `playSound` message. Finally, the `playSound` message is handled by the Index card's script. (The `playSound` message does not pass to the background.)

When the Index card is not the current card and there is no `playSound` handler in the script for the current card, the `playSound` message continues passing from object to object in the message-passing order until it gets to the `playSound` handler in the background script.

By writing a different `playSound` handler for the script of each card, you can play a different sound on each card in your Collection stack.

Calling handlers from the Message box

Whenever you type something into the Message box and press Enter, the contents of the Message box are sent as a message to the current card. In this section, you'll use the Message box to call the `playSound` handler. Follow these steps:

1. Open the Message box.
2. Type `playSound` and press Return.

   A `playSound` message is sent from the Message box to the current card. If you're still on the Index card, the message is handled by the `playSound` handler in the card script, and you hear the harpsichord note. If you're on another card, the `playSound` message travels to the background script, and you hear the boing.

You can use the Message box this way when you want to test how a particular handler works. All you do is type the name of the handler and press Return.

Handlers as building blocks

Getting things done in HyperTalk is no different from getting things done in everyday life. When you want to perform a complex procedure, you can divide the procedure into smaller, more easily manageable parts. These smaller parts of a complex procedure are called *subprocedures*.

For example, suppose you want to cook spaghetti with meat sauce. You might divide the main procedure, "cook spaghetti," into three subprocedures: "cook pasta," "cook sauce," and "add sauce to pasta." If you could describe the procedure of making spaghetti as a HyperTalk script, it would look something like this:

```
on makeSpaghetti
  cookPasta
  cookSauce
  addSauceToPasta
end makeSpaghetti
```

The handler for the main procedure (`makeSpaghetti`) calls handlers for three subprocedures (`cookPasta`, `cookSauce`, and `addSauceToPasta`).

HyperCard handlers can be used as subprocedures in much the same way. Understanding how handlers can call other handlers will be a big help to you as you learn to write longer, more complex scripts.

You're on your way!

If you completed all the activities in this chapter as well as in Chapter 2, you have a great start on authoring stacks. To learn more, *do* more!

Look again at the stacks that come with HyperCard, especially Readymade Buttons. See what you can learn by observing how the scripts work and how you might modify the scripts to suit your own way of doing things.

Most of all, enjoy the creative environment that HyperCard provides. Experiment. Build your own stacks for your own purposes, learning more about HyperCard and HyperTalk as you need to.

When you need help, turn to the HyperCard Help and HyperTalk Reference stacks, or use this manual as well as the *HyperCard Script Language Guide*. But your most valuable knowledge of stack-building is likely to come from your own rich experience.

Chapter 4

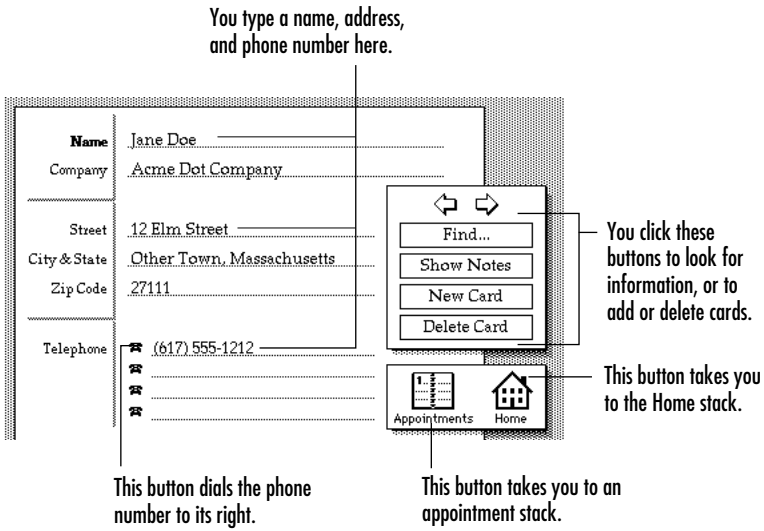
Creating and Modifying Stacks

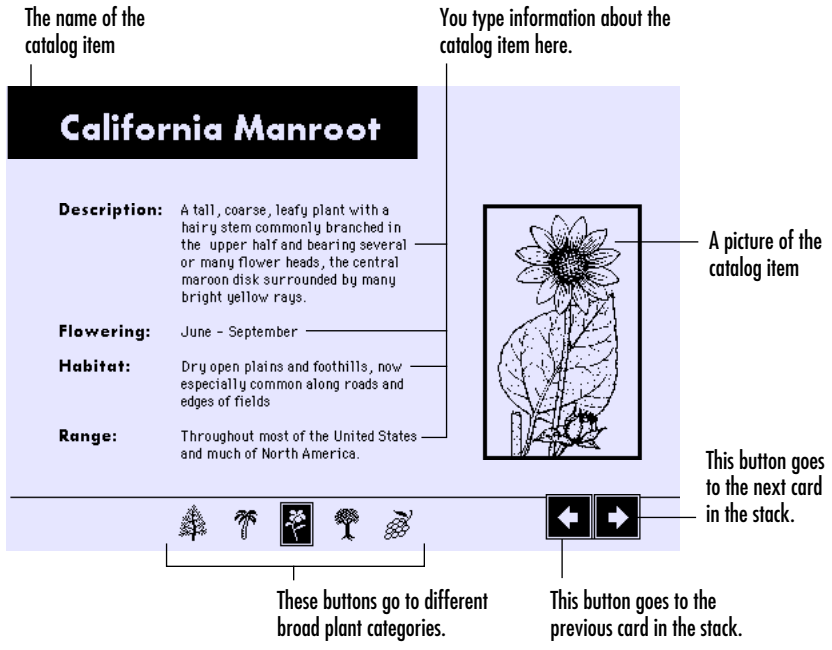
This chapter provides examples of the kinds of stacks you can create, tips for modifying existing stacks, and instructions for creating new stacks. This chapter also describes how to customize the Home stack that comes with HyperCard.

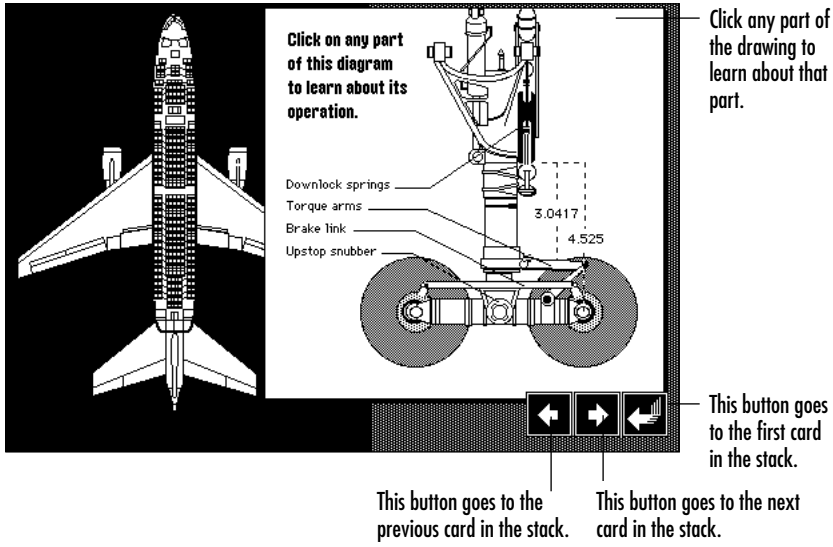
To do the tasks in this chapter, you must have your user level set to Scripting. For instructions on setting your user level, see “User Levels and Options” in Chapter 1.

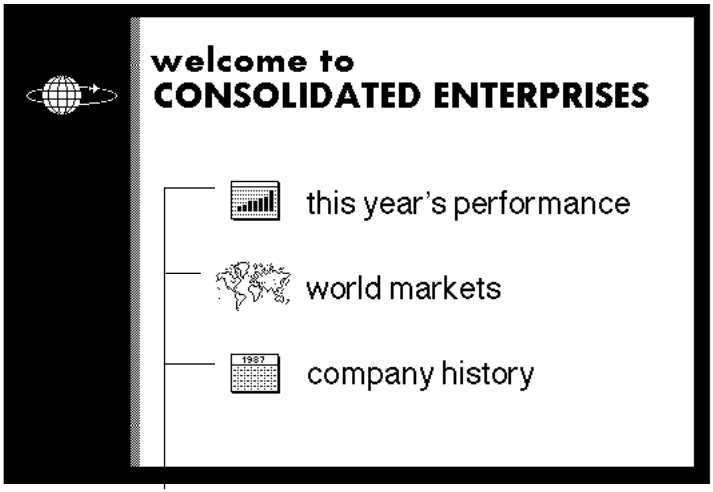
Using HyperCard tools, you can combine text, graphics, and numbers according to your own specific needs; and you can add buttons to link related pieces of information.

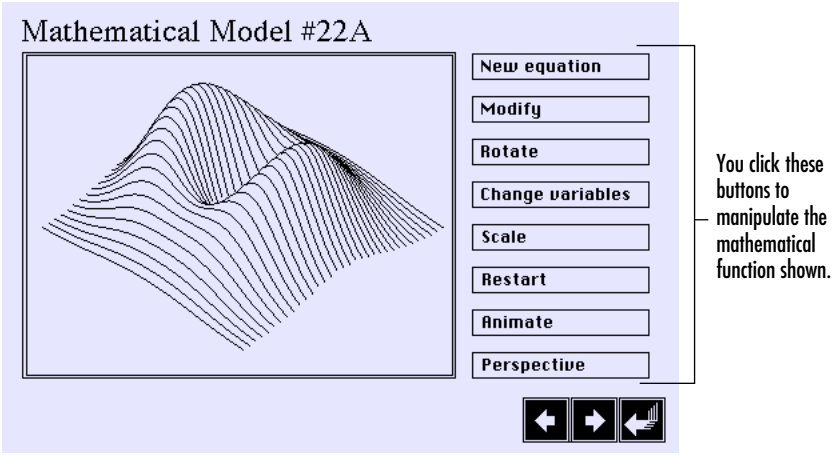
The next several figures show some typical cards. These cards give you an idea of the kinds of stacks you can build.




The name of the catalog item
You type information about the catalog item here.
California Manroot
Description:
A tall, coarse, leafy plant with a hairy stem commonly branched in the upper half and bearing several or many flower heads, the central maroon disk surrounded by many bright yellow rays.
Flowering:
June - September
Habitat:
Dry open plains and foothills, now especially common along roads and edges of fields
Range:
Throughout most of the United States and much of North America.
A picture of the catalog item
This button goes to the next card in the stack.
These buttons go to different broad plant categories.
This button goes to the previous card in the stack.


Click on any part of this diagram to learn about its operation.
Downlock springs
Torque arms
Brake link
Upstop snubber
3.0417
4.525
Click any part of the drawing to learn about that part.
This button goes to the first card in the stack.
This button goes to the previous card in the stack.
This button goes to the next card in the stack.





The stacks that come with HyperCard are examples of the kinds of stacks you can create. You can explore these stacks to find out how they work, using the techniques described in “Examining a Stack” later in this chapter.

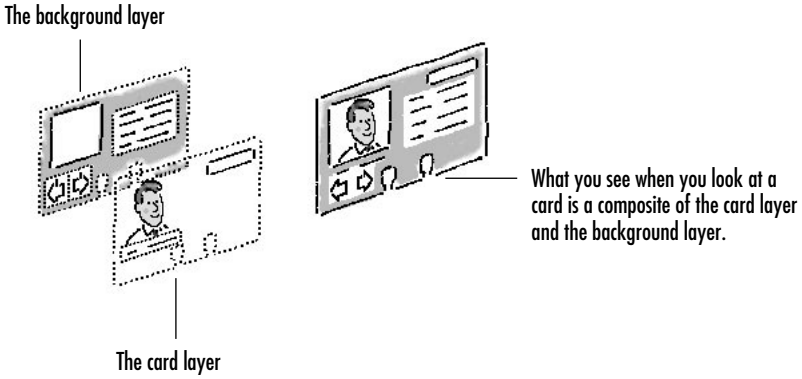
The way a stack works depends on its scripts. Scripts contain instructions that tell the parts of the stack what to do. The instructions are written in HyperTalk, HyperCard's English-like programming language.

But you don't need to know HyperTalk to create scripts. For example, without writing a word of HyperTalk, you can link a button to another card and make a specific visual effect happen when you click the button. The button will contain a script that tells HyperCard which card to go to and what kind of visual effect to display in the process. You don't have to know anything about how the script works to make the button act the way you want it to.

To learn how HyperTalk scripts work, see Chapter 3 of this book or read through the *HyperCard Script Language Guide.*

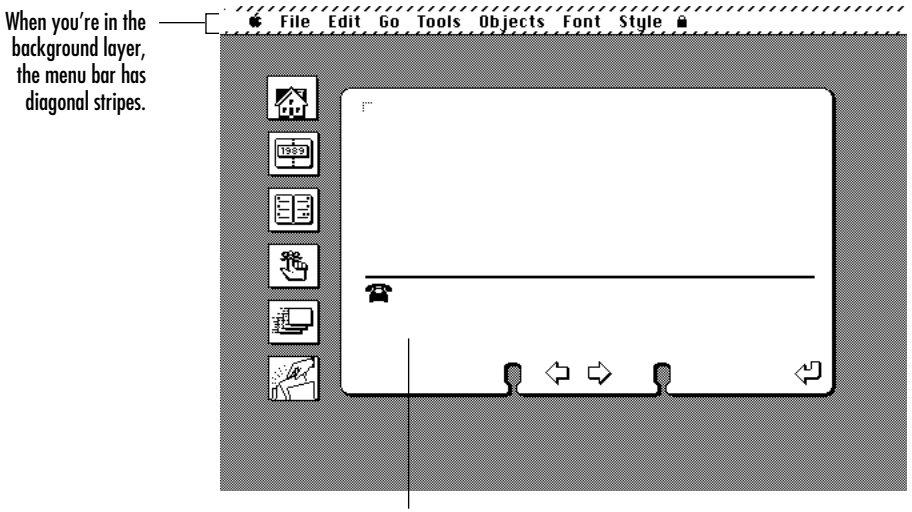
Card Layer Versus Background Layer

When you look at a card, you see a composite of two layers—a foreground layer, called the card layer, and a background layer. Both layers can contain text, buttons, and graphics.

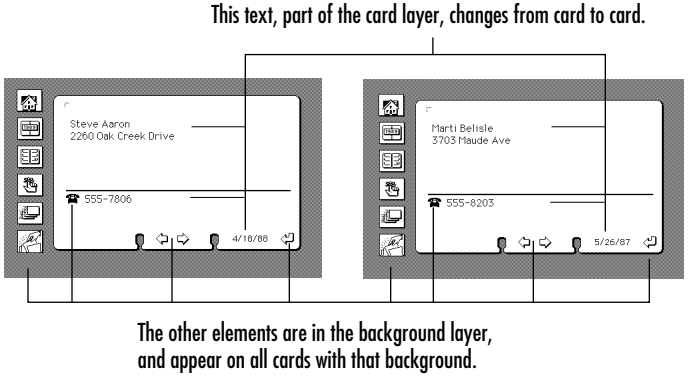


Millions of cards can share the same background. Each background serves as a template for the cards that share it. The elements in a background (that is, the buttons, text, and graphics) appear in the same location on all the cards associated with that background. If you want a button, field, or graphic to appear on a number of cards, you put it in the background layer. Together, the elements in a background provide a unifying appearance to the cards that share that background.

You can see just the elements that are in the current background by pressing ⌘-B; this brings you to the background layer. (Pressing ⌘-B has the same effect as choosing Background from the Edit menu.) Pressing ⌘-B repeatedly moves you back and forth (that is, it toggles) between the card layer and the background layer.



The elements in the card layer appear only on that card:



What buttons, fields, and graphics do for your stacks

The elements you add to the cards and backgrounds of a stack determine what people can do with the stack:

- You can add buttons, “hot spots” you click to make things happen. Buttons often link related information. When you click a button that’s linked to another card or stack, that card or stack appears. The ability to link information with buttons creates all kinds of interesting possibilities, including stacks that teach, stacks of interactive fiction, and user-controlled presentations that can include QuickTime movies.

  Buttons can also play sounds, launch applications, perform calculations, play animated sequences, control videodisc players, and much more.

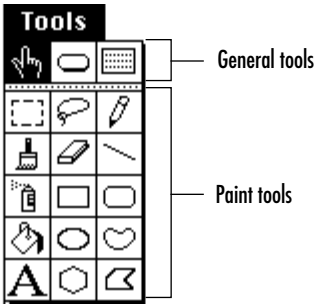
- You can create text fields to put text on cards and backgrounds. You can set the style, size, and font of the text in a field. You edit the text in a field just as you would in any Macintosh word-processing program. You can also search for specific text in fields.
- You can add pictures, charts, drawings, and other graphics to enhance the visual appeal of a stack and to help communicate the stack's purpose. Draw them yourself, copy them from the stacks that come with HyperCard, scan them in, or import them from files created in other graphic applications.

HyperCard comes with stacks that contain ready-made elements (buttons, fields, and graphics) that you can copy and paste into your stacks. The ready-made buttons and fields contain pre-programmed scripts that can make your stacks more useful. You don't need to know HyperTalk to make these elements work; you just need to understand what they do, so that you can use them appropriately in your stacks.

You can combine buttons, fields, and graphics in any number of ways to create a stack that looks and works the way you want it to. Chapters 6, 7, and 8 give detailed instructions for adding buttons, fields, and graphics.

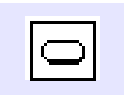
Using HyperCard Tools

To create and work with buttons, text, and graphics in stacks, you use the tools in the Tools menu. You can have only one tool selected at a time, and one tool is always selected while you're using HyperCard.

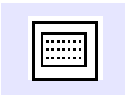


The Tools menu appears when your user level is set to Painting or higher. It contains General tools and Paint tools. General tools are for browsing, text editing, and working with buttons and fields. Paint tools are for creating and editing pictures. If you've used a Macintosh paint program, you know how Paint tools work. In most cases, you choose a Paint tool, and then drag to make it work.

Browse tool browses through stacks and edits text.



Button tool works with buttons.



Field tool works with fields.

Select tool selects graphics.

Lasso selects non-rectangular graphics.

Pencil draws thin free-form lines.

Brush paints with the current pattern.

Eraser erases the part of a graphic you drag it over.

Line tool draws straight lines.

Spray tool spritzes paint onto the screen in the current pattern.

Rectangle tool draws rectangles.

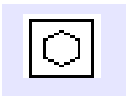
Rounded Rectangle tool draws rectangles with rounded corners.

Bucket fills enclosed areas and solid black areas with the current pattern.

Oval tool draws ovals and circles.

Curve tool draws free-form lines and shapes.

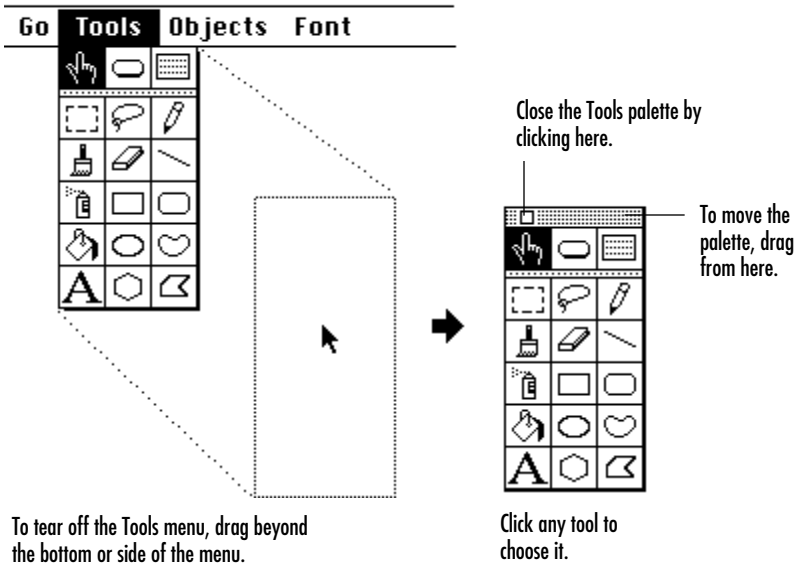
Paint Text tool types text that's part of a graphic.



Regular Polygon tool creates polygons with regular sides.

Polygon tool creates polygons with irregular sides.

You can “tear off” the Tools menu (as shown in the following figure) to create a movable Tools palette. To do so, drag down past the bottom of the menu.



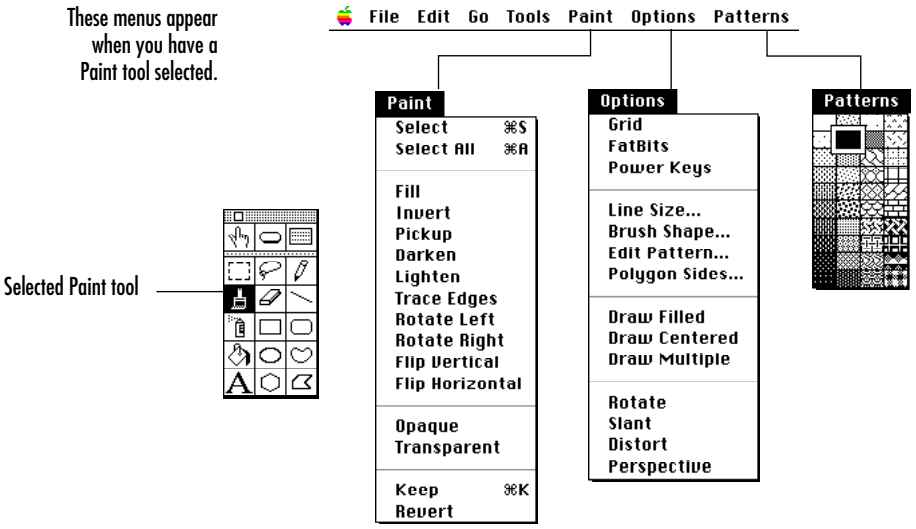
The Tools palette remains visible on your screen until you click its close box, or until you press Option-Tab to make the palette disappear.

❖ *A shortcut:* You can make the Tools palette appear or disappear quickly by pressing Option-Tab. ❖

To choose any tool in the Tools palette, click it. The tool you choose will be highlighted and, depending on the tool, the shape of the pointer may change.

Even if you have the Tools palette open, you can still choose a tool from the Tools menu in the menu bar; the palette reflects your menu choice. It’s a good idea to leave the Tools palette open while you’re working on a stack so you can see which tool is active.

When you choose one of the Paint tools, you see three new menus—Paint, Options, and Patterns. (These menus are described in Chapter 8.) The Objects, Font, and Style menus disappear while you're using a Paint tool. They reappear—and the Paint, Options, and Patterns menus go away—when you choose any of the General tools.

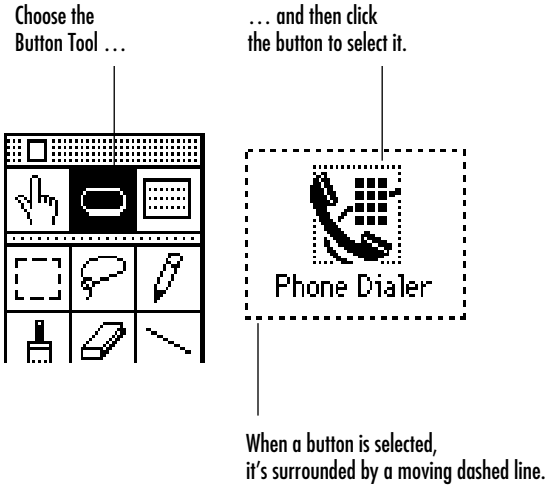


Chapters 6, 7, and 8 give specific instructions for using HyperCard tools to create buttons, fields, and graphics, respectively.

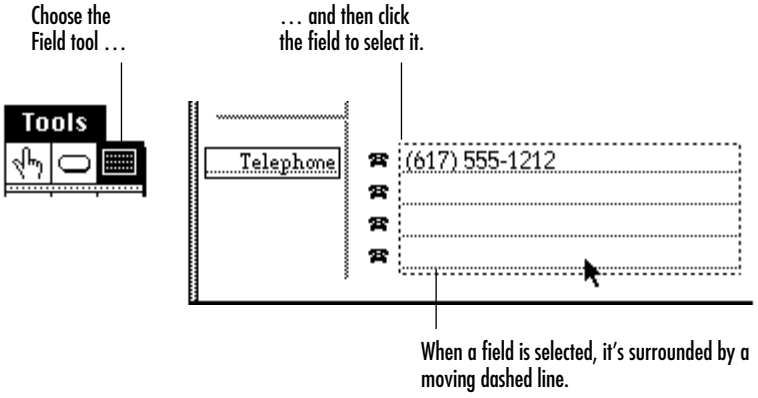
Selecting buttons, fields, and graphics

To select and work with the different HyperCard elements (that is, buttons, fields, and graphics), you need to use different tools.

To select a button, choose the Button tool (▭) from the Tools menu and click the button you want to work with. Whether the button is in the background layer or the card layer, you can select it from the card layer.

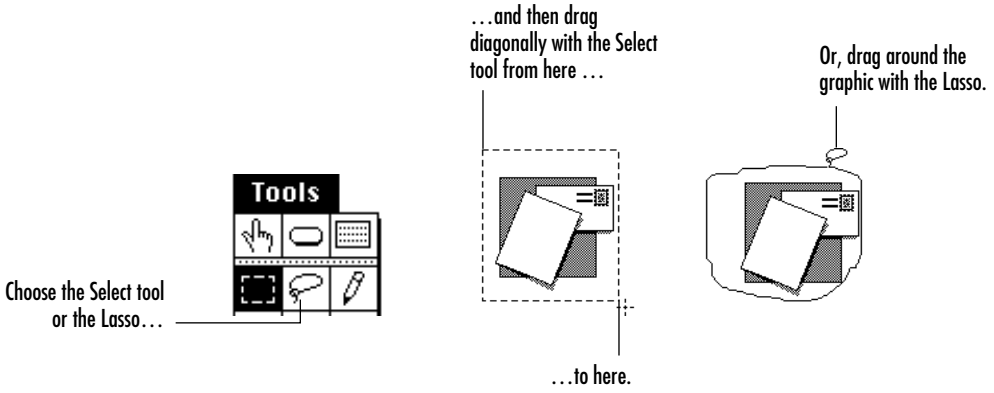


To select a field, choose the Field tool (▤) from the Tools menu and click the field you want to work with:



Whether the field is in the background layer or the card layer, you can select it from the card layer.

There are many different ways to select a graphic. Generally, you choose either the Select tool ( ) or the Lasso ( ) from the Tools menu and drag to select the graphic:



Working with graphics is different from working with buttons and fields; you must be on the same layer as a graphic to select it. (For complete details, see “Selecting a Graphic” in Chapter 8.)

Planning a Stack

Before you begin building a stack, you should have a clear idea of who will use the stack and what you want the stack to do. Knowing your audience and the scope of your stack can help you make decisions about the design of your stack, both before you start and while you’re building it.

Find out what your users already know, how much experience they have with computers and HyperCard, and their reading level and attention span.

An understanding of the stack's users can help you decide how to present the information in the stack, how much text and how many graphics to use, and how to structure the stack. For example, a stack for teaching children geography skills may require lots of pictures, a simple and consistent way to move through information, and frequent reinforcement. Before you begin building a stack, it's a good idea to draw a map showing the structure of the stack, which cards are linked together, and how users move through the stack. If the map looks confusing, the resulting stack will probably be confusing and difficult to use. In such a case, you should consider simplifying the stack's structure.

Depending on your stack's subject matter, you can choose from a variety of presentation methods including a slide show, a tutorial, a game, and an animated QuickTime movie.

❖ *Keep your stack simple.* Adding lots of buttons and links in your stack doesn't necessarily make information more accessible; users can get lost or confused easily in a stack that has too many links. ❖

Stack-Building Process

Building a stack involves: (1) deciding how to present and structure information; and (2) carrying out your design decisions by creating cards, backgrounds, buttons, text fields, graphics, and links between related pieces of information. You'll probably spend most of your stack-building time integrating text and graphics, and making the stack easy to search.

Evaluating a stack

As you build a stack, you need to evaluate it frequently to make sure it still does what you've designed it to do. To evaluate a stack, use it yourself to carry out a specific task or set of tasks. See if you can accomplish the tasks for which the stack is designed without getting lost or feeling confused.

If the stack is meant to be used by others, show it to people who are similar to your users in background and level of computer experience. Give them specific tasks to perform, and watch and listen carefully without interfering while they try the stack.

As you evaluate the stack and watch others use it, keep the following questions in mind:

- Can you easily see what the stack is for and how to use it? The text, buttons, and visual images in the stack should communicate a lot about the stack's purpose. They should be understandable and consistent in appearance and behavior and should clarify the purpose of the stack. If the stack is confusing, think about ways in which the text, buttons, and visual images can be improved to create a clearer visual message. The stack should also give the user appropriate feedback. For example, most buttons should highlight when they're clicked.
- Is it easy to get around in the stack? Make sure that, as you use the stack, you can tell where you are, how you got there, how to get back where you came from, where to go next, and how to leave. If it's easy to get lost or trapped in the stack, consider reducing the number of links, or simplifying or clarifying the navigation scheme (for example, by using a standard set of navigation buttons in the same place on each card).
- Do the features work correctly? Test the buttons to see if they take you where they're supposed to in all circumstances. Make sure each field is visible and unlocked if the user needs to see it and type into it, or locked if the user just needs to read or click text in the field. The stack should prevent the user from losing information and make it clear when an action cannot be reversed.
- Does the stack require a particular user level? The features available to a user vary with the user level (as explained in "User Levels and Options" in Chapter 1). Try using the stack at every user level. If it has any features that require a certain user level, make sure the stack either sets the appropriate user level (through the stack script) or tells the user to set the appropriate user level. (The HyperTalk Reference stack describes how to set the user level through a script.)
- Is the stack aesthetically pleasing? Stacks that are well designed have a strong aesthetic appeal that makes them pleasant to work with. Because HyperCard presents you with so many graphic and textual options, there's always the danger of going too far. For example, having too many different styles of text can confuse your users and make your stack a lot harder to work with. While the flexibility of HyperCard gives you the power to create masterpieces, it also gives you the power to generate chaos.

Be sure to get feedback

Periodic evaluation and feedback from typical users are important parts of shaping a stack. Begin evaluating a stack early in its development. HyperCard makes it easy to build a prototype of your stack; use the prototype to gather preliminary feedback from users. Be prepared to make changes to the stack to fix problems and incorporate ideas that come out of your evaluation and user testing.

When you finish building a stack, put it through a final test, checking all of the points listed previously in "Evaluating a Stack."

Modifying an Existing Stack

Modifying stacks created by other people is a great way to learn about HyperCard, and it is a terrific method of tailoring stacks to your needs. There are lots of ways to customize an existing stack. You can add text and pictures and create new links between pieces of information, make new cards and new backgrounds, or change any of the elements of a stack in any way you like. You can even delete any elements you don't want.

Responsibilities of change

If you want to modify stacks created by other people, you should be aware of the following considerations:

- Each *object* in a stack (that is, each button, field, card, and background, as well as the stack itself) can have a script attached to it. Scripts contain instructions that tell the different objects in a stack what to do. The scripts that belong to the different objects in a stack often interact with other objects and their scripts. When you delete any object that contains a script, or move it to another part of the stack, the script goes with it. If other scripts rely on that object or its script (or vice versa), you may find that your stack behaves unexpectedly after you move the object. For example, you may see messages that begin with "Never heard of …" or "Can't understand…".

If you see such messages (or other strange behavior) in a stack you're modifying, the stack's scripts probably refer to objects that you've changed in some way. If you're familiar with HyperTalk, try fixing or rewriting the scripts. Otherwise, consider modifying a different stack or creating a stack of your own. (If you want to learn HyperTalk, begin by going through the tutorial in Chapter 3 of this book.)

- As you modify a stack, HyperCard saves your changes automatically without asking. There's no way to turn this feature off. Make a backup copy of a stack before you begin changing it so that you can get back to the original if you need to. It's also a good idea to save a copy of your modified stack periodically while you're working on it. That way, if you make a mistake that "breaks" the stack, you can go back to a recent version rather than starting all over again.
- Some stacks are protected from change. A small padlock ( ) appears in the menu bar when you're in a protected stack. In some cases, you can remove a stack's protection by unchecking the Locked option in the stack's Get Info dialog box in the Finder or by using the Protect Stack command in the File menu. ("Protecting Your Stack" later in this chapter tells you how.) In stacks that have a password, however, you cannot change the stack's protection setting unless you know that password.

Examining a stack

Before you begin modifying a stack, you can find out what makes it work by examining its parts. The Objects menu contains commands to help you: Button Info, Field Info, Card Info, Bkgnd Info, and Stack Info. Each of these commands presents a dialog box that shows the characteristics of the selected object including its name, number, and attribute settings. You can also use an object's dialog box to change many of its attributes and to look at its script.

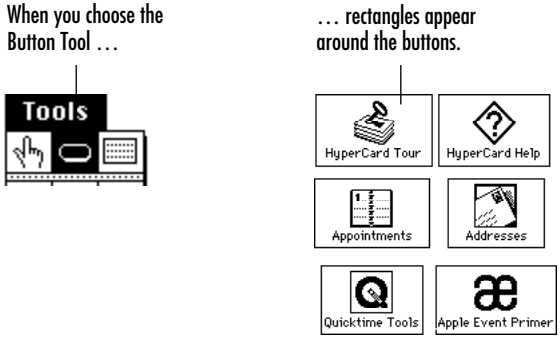
❖ *To look at scripts:* You must have your user level set to Scripting. "User Levels and Options" in Chapter 1 explains how to change your user level. ❖

Button information

To locate and learn about the buttons in a stack, follow these steps:

1. Choose the Button tool (⬭) from the Tools menu.

   Rectangles appear around the buttons that don't already have an outline:

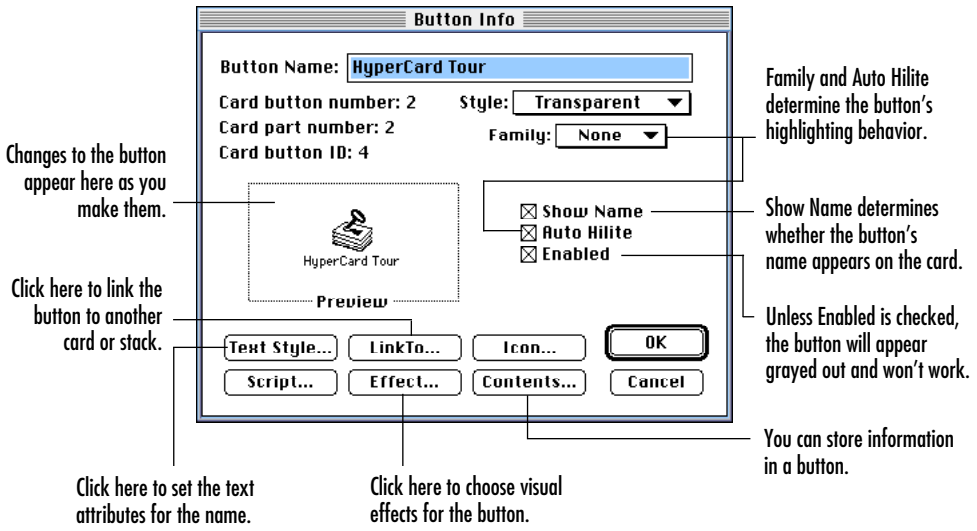


2. Click the button you want information about.

   Clicking the button selects it.

3. Choose Button Info from the Objects menu.

You can also double-click the button in step 2, and skip this step. The Button Info dialog box appears:

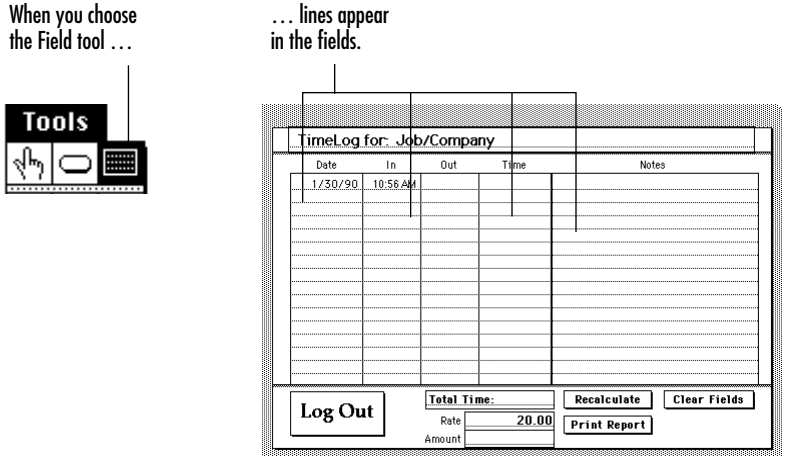


Field information

To locate and learn about the fields in a stack, follow these steps:

1. Choose the Field tool (▤) from the Tools menu.

   Lines appear in all the fields except the scrolling fields:

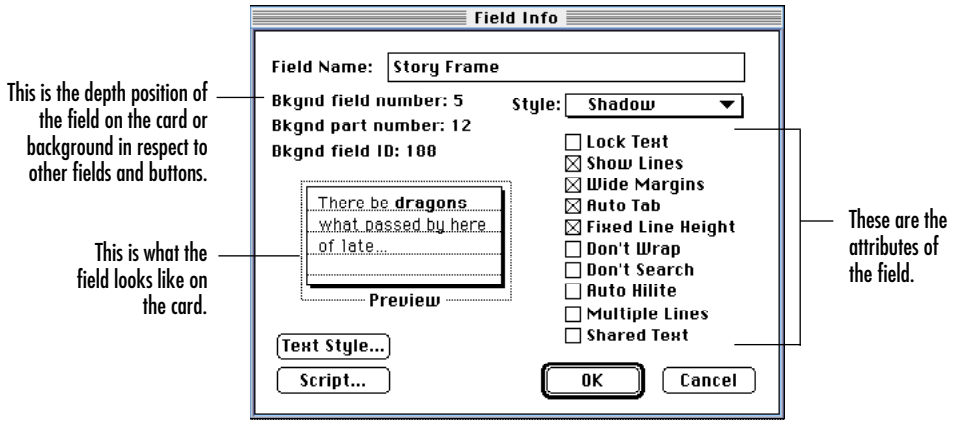


2. Click the field you want information about.

   Clicking the field selects it.

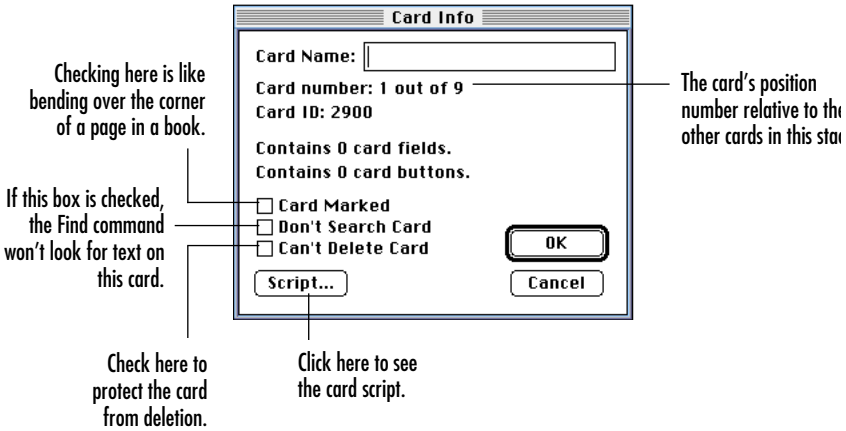
3. Choose Field Info from the Objects menu.

   You can also double-click the field in step 2, and skip this step. The Field Info dialog box appears.:



Card information

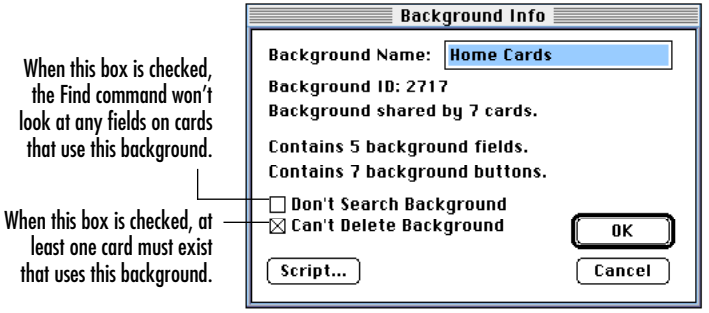
To get information about the current card, choose Card Info from the Objects menu. The Card Info dialog box appears:



Background information

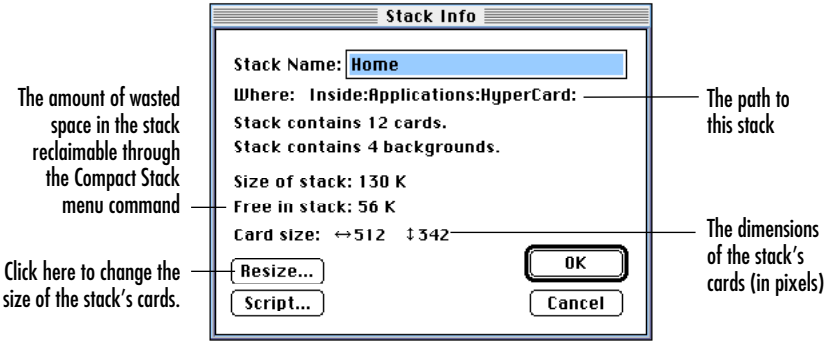
You can see what's in the background layer of the current card (such as background fields, background buttons, and background graphics) by choosing Background from the Edit menu, or by pressing ⌘-B.

To get information about the current background whether or not you're in the background layer, choose Bkgnd Info from the Objects menu. The Bkgnd Info dialog box appears:



Stack information

To get information about the current stack, choose Stack Info from the Objects menu. The Stack Info dialog box appears:



Making changes to a stack created with an earlier version

When you open a stack created with a version of HyperCard earlier than 2.0, a small padlock ( ) appears in the menu bar. You can use such a stack, but you cannot make changes to it until you convert it to the new HyperCard file format. (For instructions on converting a stack, see “Opening a Stack Built in an Earlier Version of HyperCard” in Chapter 1.)

Undoing Your Mistakes

While you’re working on a stack, you can usually undo your last stack-editing action by immediately choosing Undo from the Edit menu (or by pressing ⌘-Z). Choose Undo when you make a mistake, or when you change your mind about your last action. (You must choose Undo before doing anything else.)

To undo typing mistakes while you’re editing text in a field, do any of the following:

- Choose Undo from the Edit menu. This undoes your last text-editing operation (including a text style change).
- Press Delete or Backspace to delete characters to the left of the insertion point, one character at a time.
- Drag the I-beam over the incorrect text to select it, and then retype or delete it.

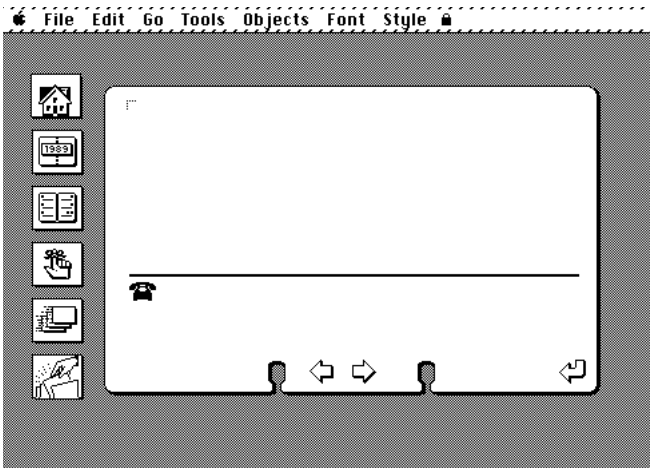
When you’re using one of the Paint tools, pressing the tilde (~) or Escape key is the same as choosing Undo.

Modeling Your Stack After an Existing One

You can model a new stack after a card or stack you like by copying its background. When you copy a background from an existing stack, you get the basic design of the original stack (its *template*) but not any of its data except for the contents of buttons and the shared text of fields (if any). The stack called Stack Templates, which come with HyperCard, contains some backgrounds you can copy and use in your stacks. (For specific instructions on creating a new stack that uses a background from an existing stack, see “Creating a New Stack” later in this chapter.)

Before you decide whether to copy the background of an existing card or stack, you can look at the background by going to that card or stack and choosing Background from the Edit menu (or pressing ⌘-B). This takes you to the background layer and shows you just the buttons, fields, and graphics that are in the background. Pressing ⌘-B repeatedly moves you back and forth between the card layer and the background layer.

❖ *Stripes in the menu bar?* To make sure you're looking at the background, check the menu bar. When you're in the background layer, diagonal stripes appear in the menu bar. ❖

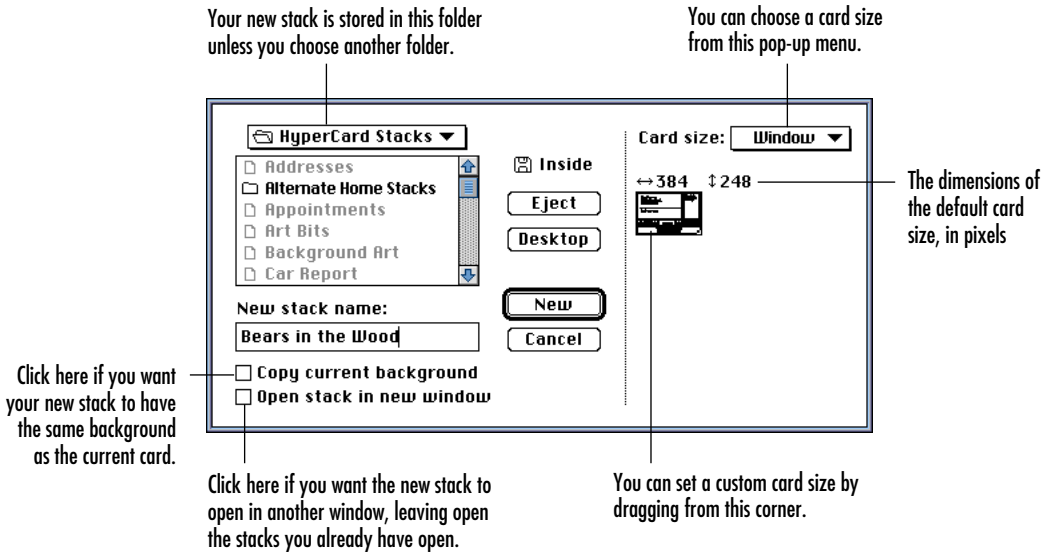


Creating a New Stack

When you're ready to create a new stack, begin by following these steps:

1. **To give your new stack the same background as an existing card or stack, go to that card or stack.**

   The previous section, "Modeling Your Stack After an Existing One," discusses why you may want to copy a background from another stack.



2. **Choose New Stack from the File menu.**

   The New Stack dialog box appears.

3. **Choose from the options in the New Stack dialog box.**

   If you want your new stack to have the same background as the current card, check the “Copy current background” option to select it.

   If you select the option “Copy current background,” your new stack has all the same background elements as the card you were looking at when you chose New Stack. Otherwise, it’s blank.

   If you choose a card size that’s larger than your screen, HyperCard shows as much of a card as it can; it displays the stack starting from the upper-left corner. (For information on working with cards larger than your screen, see “Working with Large Cards” in Chapter 5.)

4. Type a name for your new stack.
5. Click New.

   If you've selected the option "Open stack in new window," your new stack opens in a new window. Otherwise, HyperCard opens the new stack in the active window.

Copying parts from other stacks

Copying parts from other stacks can make stack building easier and save you a lot of time. If you see a button that does something you like, you can copy it and paste it into your stack. Some of the stacks that come with HyperCard (Readymade Buttons, Readymade Fields, Art Bits, and Stack Templates) contain ready-made parts for you to use. These parts are designed to work independently in a variety of stacks; they don't depend on your stack's having any particular characteristics.

When you copy a button, field, card, or background from another stack, its script and its attributes come with it. Scripts contain instructions that tell the parts of a stack what to do. In most cases, you want the script, because it makes the object work. (For more information about HyperCard objects, see "Examining a Stack" earlier in this chapter.)

Be careful about interactions

The scripts that belong to the different objects in a stack often interact with other objects and scripts. An object you copy from another stack may have a script that relies on objects in its original stack. Copying such an object can cause your stack to act strangely. For example, you may see messages that begin with "Never heard of …" or "Can't understand…".

If you're familiar with HyperTalk, you can fix or rewrite the object's script. Otherwise, consider deleting the script (as described next), copying a different object, or creating the object yourself.

Fixing strange behavior

If you copy a button or a field from another stack and your stack begins acting strangely, it's best to delete the copied object and find or create another one unless you can fix the object's script.

If you copy a card or background that causes trouble in your stack, and you can't fix the scripts, first try deleting the buttons and fields on the card or background, one at a time. If the problem persists, delete the script of the card and/or background by following these steps:

1. **Open the script.**

   To open the script of the current card, press ⌘-Option-C. To open the background script, press ⌘-Option-B.

2. **Select all the text in the script by pressing ⌘-A.**
3. **Press Delete or Backspace to delete the script.**
4. **Press Enter to close the script.**

   A dialog box may appear asking you to confirm changes to the script. Click Yes (or press Enter).

❖ *Removing a script leaves an empty shell.* After you delete the buttons, fields, and scripts from a card or background, you're left with just the picture on that card or background. Any functions associated with the card or background are gone. ❖

Naming a stack

When you first create a stack, you type a name for it in the New Stack dialog box. This is the name that appears for the stack in the Stack Info dialog box and in the Finder.

HyperCard uses the stack name to identify the stack. You can use the stack name in the Message box to move to the stack. And, you use the stack name when you address the stack through scripts.

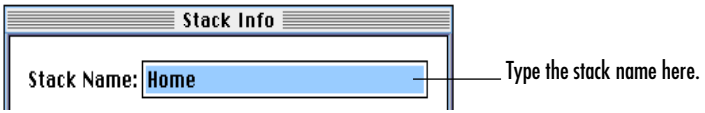
You can change a stack's name at any time. Here's one way:

1. **Make sure you have one of the General tools active.**

   The General tools are Browse (), Button (), and Field ().

2. **Choose Stack Info from the Objects menu.**

3. Type a new name for the stack.



4. Click OK.

❖ *Changing the stack name breaks links.* Changing the name of a stack breaks any links you've made between a card in another stack and a card in the renamed stack. (It may even break links within the renamed stack itself.) When you change the name of a stack, be sure to redo all the links to the stack. ("Linking Information" in Chapter 6 gives instructions for creating links.) ❖

You can also change a stack's name in the Finder. Change the name of the stack in the same way you would change the name of any file in the Finder. Changing the stack name in the Finder also changes it in the Stack Info dialog box.

❖ *Can't change the name in the Finder?* If you can't change the name of the stack in the Finder, the Locked option may be checked in the stack's Get Info dialog box. To fix it, open the Get Info dialog and uncheck that option. ❖

Changing the size of cards

You set the size of a stack's cards at the time you create the stack, using the New Stack dialog box. (All the cards in a stack are the same size.) The easiest way to set a stack's size is to use the default size that HyperCard presents. But as you develop the stack, you may decide you want to change the size of its cards either because your design goal has changed, or because the card size is difficult to work with.

It's easy to resize a stack's cards. But you may have to make other changes to the stack to accommodate the new card size. When you change the card size, HyperCard doesn't scale the elements on the cards to accommodate the new card size. Before you reduce the size of a stack's cards, it's a good idea to reposition or resize the elements first so that they fit on the smaller cards.

To resize a stack's cards, follow these steps:

1. Make sure you have one of the General tools active.

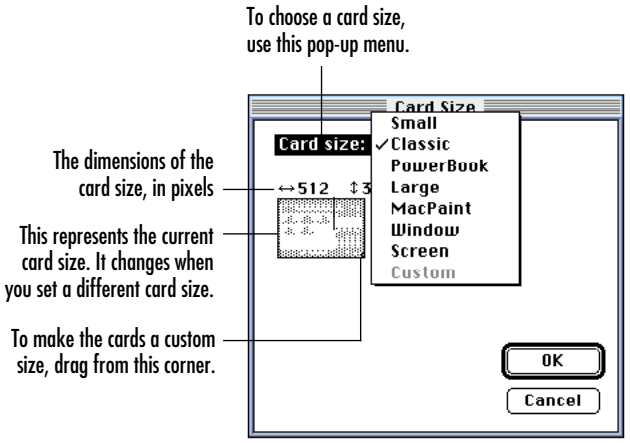
   The General tools are Browse (), Button (), and Field ().

2. Choose Stack Info from the Objects menu.

3. Click Resize.

   A dialog box for resizing the cards appears.

4. Choose a new card size:



5. Click OK.

   You see your new card size.

If some elements on the card are cropped or have disappeared from view, you can restore them by enlarging the card to its former size with the Resize dialog box.

❖ *Edited graphics sometimes become fixed:* If you reduce the size of a stack's cards and then edit the graphics on a card or background, the graphics that appear on the smaller card permanently replace the graphics that were on the larger card. You can't get the larger graphics back. ❖

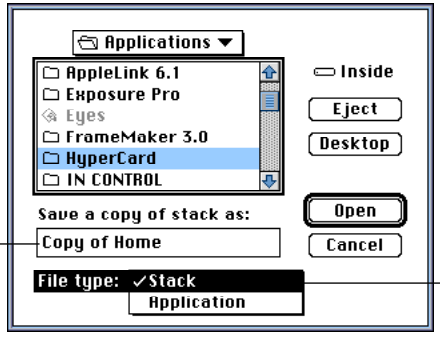
Saving a Copy of a Stack

It's a good idea to make a copy of an existing stack before you begin working with it, and to save a copy of the stack periodically as you make changes to it. HyperCard automatically saves your stack, along with all your mistakes, as you work. If you encounter a major catastrophe, you can recover from it more easily if you have a recent, working version of the stack.

Follow these steps to copy a stack from within HyperCard:

1. While the stack is open and active, choose Save A Copy from the File menu.

   The following dialog box appears:



2. Type a name for the stack copy if you want to give it a name different from the one shown.

3. **Be sure that Stack is selected in the File type pop-up menu at the bottom of the dialog box.**

   If you select Application, you'll create a stand-alone application that you won't be able to change. (See the next section, "Creating a Stand-Alone Application," for details.)

4. **Click Save.**

   HyperCard saves a copy of the stack, but it leaves you in the stack you're working on.

❖ *Copying a stack in the Finder:* You copy a stack in the Finder in the same way you duplicate any file in the Finder: Use Duplicate from the File menu. ❖

Creating a Stand-Alone Application

If you're running HyperCard under System 7, you can use the File type pop-up menu in the Save As dialog box to save a stack as a stand-alone application. Such an application runs without the need for HyperCard.

Users of the stand-alone application you create won't have access to HyperCard's authoring or scripting abilities. Furthermore, because you can use HyperTalk to remove menus and/or menu commands as you create the stack that becomes a stand-alone, you can restrict the kinds of changes a user can make to the application.

To create a stand-alone application, follow these steps:

1. **Create a stack as you normally would.**
2. **Choose Save a Copy from the File menu.**
3. **Type a new name for the stand-alone application.**

   Be sure to choose a different name from the stack so that you can make changes if you need to.

4. **Select Application in the File type pop-up menu at the bottom of the dialog box.**

5. Click Save.

   A new dialog box appears. Information you type into it appears in the stand-alone application's Get Info box in the Finder. Typing such information is optional.

6. Click OK to dismiss the dialog box and save the application.

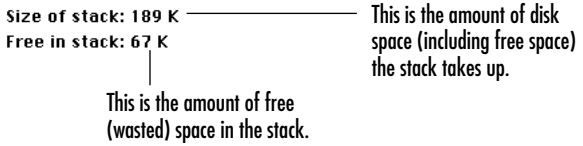
   HyperCard creates a stand-alone application based on your stack, but it leaves you in the stack you're working on.

❖ *Note:* You can also click More Choices. Doing so brings up a more complex dialog box of special interest to professional developers. If you are using System 7, turn on Show Balloons for contextual information about the fields and menus in the dialog box. (For detailed information, see "Create a Standalone Application" in the HyperCard Help stack.) ❖

To make changes to the new application, make your changes to the stack; then save another copy of the stand-alone application.

Reclaiming Free Space in a Stack

As you work on a stack, free space can accumulate. The more free space a stack has, the slower it runs and the more space it takes up on the disk. To check the amount of free space in a stack, make sure you have one of the General tools active, then choose Stack Info from the Objects menu.



You can get rid of free space in a stack by choosing Compact Stack from the File menu. (To use the Compact Stack command, you must have one of the General tools active.) When you choose Stack Info after compacting the stack, the "Free in stack" number in the Stack Info dialog box is 0 K (zero K), and the size of the stack is likely to be smaller than it was.

Protecting Your Stack

While you're building your stack, and/or when it is finished, you can keep others from using or changing it. There are several different kinds of protection for a stack:

- You can keep a personal stack private by preventing others from opening it.
- You can limit the way people use and change a stack.
- You can limit access to a stack's protection settings so that no one else can change them.
- You can prevent users from peeking at the buttons and fields in a stack.
- You can prevent users from stopping scripts that are running.

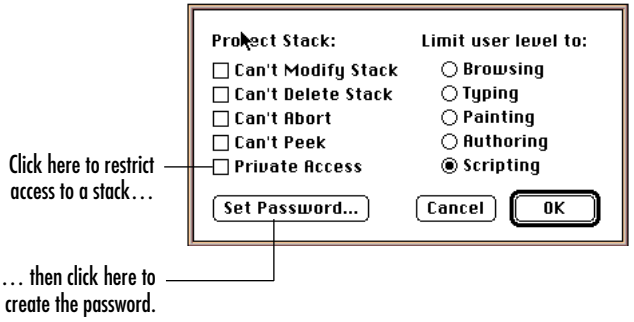
Restricting access to a stack

To restrict access to a stack so that no one can open it without the password, follow these steps:

1. **Choose Protect Stack from the File menu.**

   The Protect Stack dialog box appears.

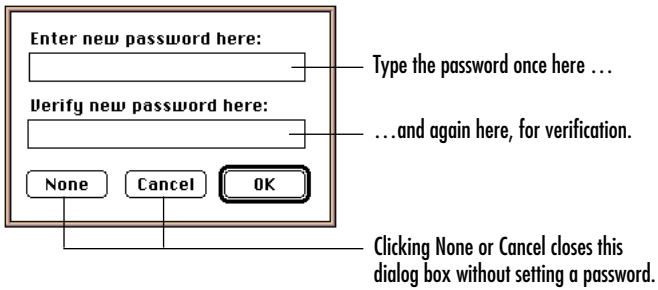
2. **Check the Private Access option.**



3. Click Set Password.

   The dialog box for setting a password appears.

4. Type a password.



5. Click OK.

The password protection you set for a stack doesn't take effect until you restart HyperCard.

❖ *You cannot retrieve a password.* Once you've restricted access to a stack and set a password, the stack cannot be opened without the password. There's no way to find out a password once it's been set, so make a note of the password or use a password you won't forget. ❖

When you type the password to open the stack, it must match character-for-character the one you set. (HyperCard pays no attention to case.)

➤ *See also:* "Removing a Password" later in this chapter.

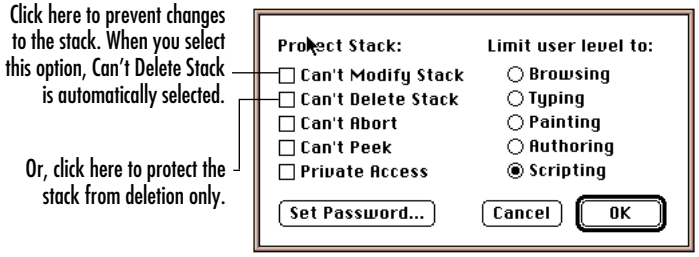
Protecting a stack from changes or deletion

To prevent others from changing or deleting the current stack, follow these steps:

1. Choose Protect Stack from the File menu.

   The Protect Stack dialog box appears.

2. Click Can't Modify Stack or Can't Delete Stack.



While the Can't Modify Stack option is turned on, no one can delete the stack or make any changes to it. Anyone can, however, copy anything from the stack, or copy the stack itself. While the Can't Delete Stack option is turned on, no one can delete the stack except by dragging it to the Trash.

Unless you set a password, anyone can open the Protect Stack dialog box and turn off these options.

3. To prevent others from changing your protection settings, click Set Password.

(This step is optional.)

You see the dialog box for setting a password.

4. Enter a password.

(This step is optional.)

Setting a password for the stack prevents unauthorized users from opening the Protect Stack dialog box, whether or not Private Access is selected. If you've selected Private Access as well as setting a password, you need to use the same password to open the stack itself.

5. Click OK.

After you've set a password, no one can change the settings in the Protect Stack dialog box without knowing the password unless you remove it (as explained in "Removing a Password" later in this chapter).

Unmodifiable stack padlock

When you're using a write-protected stack (that is, a stack for which the Can't Modify Stack option is selected in the Protect Stack dialog box), a padlock ( ) appears in the menu bar. The padlock means that you can't make any changes in the stack.

Opening a padlock

HyperCard automatically selects the Can't Modify Stack checkbox when the stack is on a write-protected medium (a locked disk, CD-ROM, or locked folder on a file server). To make changes to such a stack, you first have to figure out why it's locked. If the Can't Modify Stack checkbox is selected or the Locked checkbox is selected in the stack's Get Info dialog box (in the Finder), you have to deselect these options before you can make changes to the stack. In many cases, copying the stack to an unlocked disk makes the stack modifiable.

- *Some changes don't last.* Some stacks are designed so that, when the stack is locked, you can type into a field or paint a picture on a card or background; but the changes disappear as soon as you leave the current card. (See the `userModify` property in the *HyperCard Script Language Guide* for details.)

Limiting user level

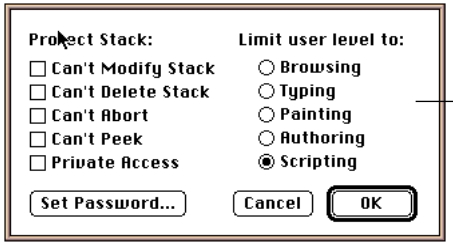
You can limit the way people use and change a stack by limiting the user level in the Protect Stack dialog box. Follow these steps:

1. Choose Protect Stack from the File menu.

   The Protect Stack dialog box appears.

2. Click a user level.

   Browsing is the lowest level.



   The options available at the different user levels are described in "User Levels and Options" in Chapter 1.

   Unless you set a password as explained in the following two steps, anyone can open the Protect Stack dialog box and change the user level.

3. To prevent others from changing the stack's user level setting, click Set Password.

   (This step is optional.)

   The dialog box for setting a password appears.

4. Enter a password.

   (This step is optional.)

   Setting a password for the stack prevents unauthorized users from opening the Protect Stack dialog box and changing the settings, whether or not Private Access is selected. If you've selected Private Access as well as setting a password, you need to use the same password to open the stack itself.

5. Click OK.

The tools and commands a user has access to while using the stack are determined by both the user level you set in the stack's Protect Stack dialog box and the user level selected on the Preferences card of the user's Home stack. When these two settings are different, HyperCard uses the lower setting. (*Lower* means "closer to Browsing.")

After you've set a password, no one can change the user level in the Protect Stack dialog box without knowing the password (unless you remove it, as explained in "Removing a Password" later in this chapter). You cannot find out a password once it's been set, so make a note of the password or use one you won't forget.

- *Showing the hidden Protect Stack command:* When the user level is set to Browsing or Typing (either in the Protect Stack dialog box or on the Preferences card in the Home stack), the Protect Stack command doesn't appear in the File menu; so you can't change any of the protection settings. To get the full File menu no matter what the user level is, press and hold the ⌘ key while you open the File menu. ❖

Preventing peeking at buttons and fields

When you create a stack to be used by many people, you can prevent others from peeking at the buttons and fields in the stack. Follow these steps:

1. Choose Protect Stack from the File menu.

   The Protect Stack dialog box appears.

2. Check the Can't Peek option to select it.
3. Click OK.

Preventing script interruption

When you display a stack in a public location (for example, at a trade show booth or during an automated demonstration), you can prevent others from stopping the stack's scripts with ⌘-. (⌘-period).

To prevent interruption of a stack's scripts, follow these steps:

1. Choose Protect Stack from the File menu.

   The Protect Stack dialog box appears.

2. Check the Can't Abort option to select it.

3. Click OK.

❖ *Can't Abort is dangerous*. Use this option with discretion. If this option is turned on, the only way to stop a script before it's finished running is either to press ⌘-Option-Esc (in System 7), or shut down the computer. ❖

Removing a password

Any password you set in the Protect Stack dialog box remains in effect for the stack until you explicitly remove it. To remove a password, follow these steps:

1. Choose Protect Stack from the File menu.

   A dialog box prompts you for the password.

2. Enter the password and click OK.

   The Protect Stack dialog box appears.

3. Click Set Password.

   The dialog box for setting a password appears.

4. Click None to remove the password.

   The Set Password dialog box disappears and the password protection is removed.

Setting user access for a stack on a file server

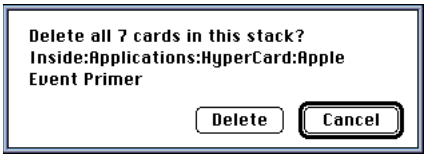
You can protect a stack available to users on an AppleShare file server via any of the methods described in the preceding sections. In addition, you should be aware of the following:

- As with any file on a file server, you can make the stack available to anyone who has access to the network, or only to people who are registered users of the file server. For information on setting file protection on a file server, consult your network administrator.
- For a stack to be available to multiple users through a file server, the stack must be either on a locked medium (such as a locked disk, CD-ROM, or locked folder on the file server) or locked in the Finder. Selecting the Can't Modify Stack option in the Protect Stack dialog box isn't enough to make a stack available to more than one user.
- Any number of network users can use a locked stack at the same time, but no one can make changes to the stack.
- When a stack is unlocked on a file server, only one person can use that stack at a time. That user can make changes to the stack unless one of the protection options has been set in the Protect Stack dialog box.

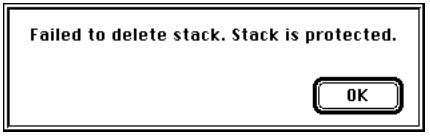
Deleting a stack

When you delete a stack, you remove all the stack's cards, backgrounds, and scripts. Delete a stack only when you have no further use for it.

To delete the current stack, use the Delete Stack command from the File menu. (This command is available when one of the General tools is selected at the Painting, Authoring, or Scripting user level.) Unless the stack is protected from deletion, you see a dialog box similar to this one:



If the stack is protected from deletion, you see the following dialog box:



When you delete a stack with the Delete Stack command, it's as though you dragged the stack to the Trash in the Finder and chose Empty Trash. If you delete the only open stack, HyperCard returns you to the Home stack.

Customizing Your Home Stack

You can tailor your Home stack to the way you work and to the tasks you perform. With a few modifications, your Home stack can even serve as the control center for all your work on the Macintosh. Your Home stack becomes a launching pad for the applications, utilities, documents, and stacks you use regularly.

You can organize your Home cards as you see fit. For example, you can put all the buttons you use on one card; or you can put buttons that open applications on one card, and buttons that open stacks on another. Or you can rename the cards according to the categories you find most useful, and keep buttons on all five cards. You can rearrange the order of the Home cards and change the way each card looks.

The first two cards in the Home stack have buttons that take you to the stacks that come with HyperCard. The buttons on the first card open the stacks that introduce you to HyperCard, including the HyperTalk reference stack, and some stacks that help you with various office tasks. However, you can set up the Home stack any way that you like.

As you become more comfortable with HyperCard, you can make the Home cards even more useful by adding buttons that are linked to your favorite stacks, applications, and documents. You can also create buttons that go to other cards in the Home stack itself—either to ones that already exist, or to cards that you add. (See Chapter 6, “Working with Buttons,” for information on creating new buttons.)

Changing the appearance of Home cards

Besides adding buttons to your Home cards, you can also change the appearance of the Home cards by adding text and pictures.

When you add text or a picture to the background layer of a Home card, it appears on all the Home cards in that background. (The Home stack has several backgrounds.) When you add text or a picture to the card layer of a Home card, it appears only on that card. (For instructions on adding text to a card or background, see Chapter 7. For instructions on adding pictures, see Chapter 8.)

Using the Home stack as a control center

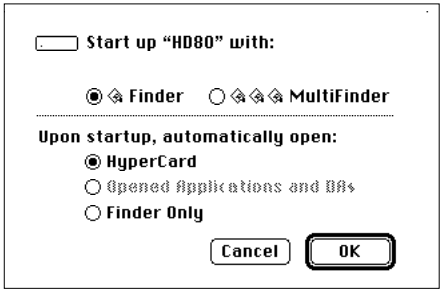
Once you've added buttons to your Home stack for all the stacks, applications, and documents you use frequently, you can use your Home stack as a starting point, or control center, for all your work on the Macintosh.

To use the Home stack as your control center, you tell your computer to launch HyperCard at startup time. The way you do this is determined by the type of system you have (6.x or 7).

To quick-start HyperCard under System 6.x, follow these steps:

1. Go to the Finder.
2. Click the HyperCard icon once to select it.
3. Choose Set Startup from the Special menu.

   A setup dialog box appears:



4. Click OK.

Now when you start your computer, HyperCard will launch automatically and the Home stack will open.

To quick-start HyperCard under System 7, follow these steps:

1. Find the HyperCard icon.
2. Create an alias for HyperCard.
3. Go to the Finder.
4. Find the Startup Items folder in the System Folder.
5. Drag the HyperCard alias to the Startup Items folder.

Now when you start your computer, HyperCard will launch automatically and the Home stack will open.

Chapter 5

Working with Cards and Backgrounds

When you build HyperCard stacks, you perform many tasks that involve creating and manipulating cards and backgrounds. You can add cards to a stack, rearrange the cards in a stack, or copy a background from one stack to another.

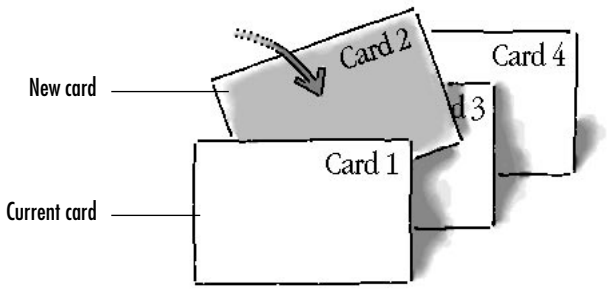
This chapter gives specific instructions for working with cards and backgrounds. To do the tasks in this chapter, you must have your user level set to Authoring or higher. For instructions on setting your user level, see “User Levels and Options” in Chapter 1.

Working with Cards

A card is a rectangular area that can hold buttons, fields, and graphics. All cards in a stack are the same size. Each card is a composite of two layers—a foreground layer, called the card layer, and a background layer. You see the elements of both layers when you look at a card, as if the card were a transparent layer in front of the background. Each layer can contain its own buttons, fields, and graphics.

Adding a new card to a stack

When you add a new card to a stack, HyperCard always puts the new card right after the current card. The new card automatically acquires the background of the current card. If you want to add a new card with a blank background, you need to add a new background. (“Creating a New Background,” later in this chapter, gives instructions.)



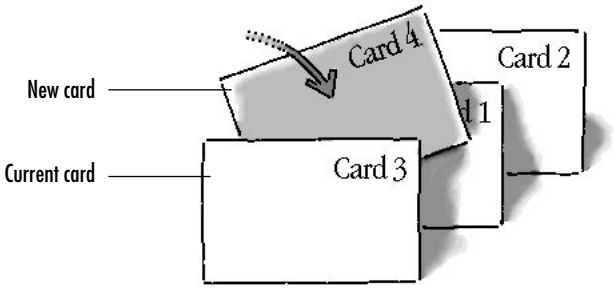
To add a new card to the current stack, follow these steps:

1. Go to the card you want the new card to follow.

   If you want to add a new card at the end of the stack, go to the last card in the stack by choosing Last from the Go menu (or by pressing ⌘-4 or ⌘-right arrow).

2. **Choose New Card from the Edit menu (or press ⌘-N).**

   The new card is inserted immediately after the card you were looking at when you chose New Card, with the same background as that card. The new card appears on your screen.

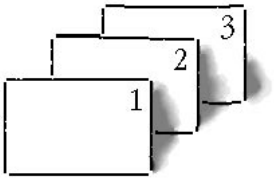


Creating a new first card

If you want to create a new card as the first card in the stack, follow these steps:

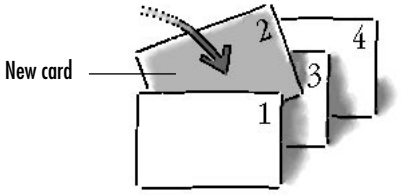
1. **Choose First from the Go menu (or press ⌘-1).**

   The first card in the stack appears on the screen.

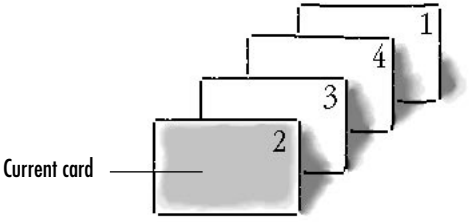


2. Choose New Card from the Edit menu (or press ⌘-N).

   The new card is added after the first card and has the same background as the first card.

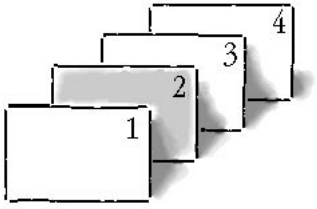


   The new card appears on the screen.



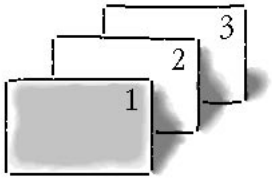
3. Choose First from the Go menu again.

   The first card in the stack appears on the screen again.



4. Choose Cut Card from the Edit menu.

   This removes the first card in the stack and puts a copy of it onto the Clipboard. The card that was second in the stack is now first.

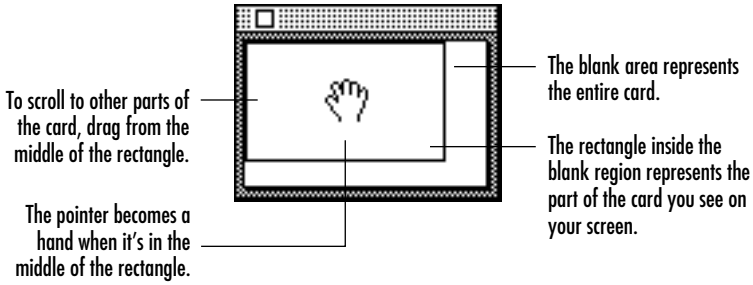


❖ *Putting the original first card back into the stack:* To put the former first card back into the stack, go to the card you want the cut card to follow and choose Paste Card from the Edit menu. The pasted card is added immediately after the card you were looking at when you chose Paste Card. ❖

Working with large cards

When you're working with a stack whose cards are larger than the screen, you can see only a portion of a card at a time. To look at other parts of a card that is larger than the screen, you can use either of the following techniques:

- Press ⌘-Shift-E and then drag the card around using the hand pointer (☟). The pointer turns into the hand when it is over the card. When you release the mouse button, the hand disappears. To move around the card several times in succession, press and hold the ⌘ key until you're finished.
- Open the Scroll window by choosing Scroll from the Go menu, or by pressing ⌘-E. Then use the Scroll window to scroll to other parts of the card.



❖ *You can work with small windows as well.* You can also use either of these techniques to view any card when the window is smaller than the card. ("Moving and Resizing the Card Window" in Chapter 1 explains how to resize the card window.) ❖

To limit the scrolling to either horizontal or vertical movement, hold down the Shift key while you drag.

To hide the Scroll window, click its close box or press ⌘-E.

❖ *Keep the card window no larger than the screen.* When you're working with a stack whose cards are larger than the screen, keep the card window small enough to fit on the screen. If you make the card window larger than the screen, you can't scroll around to see all the parts of the card. (See "Changing the Size of Cards" in Chapter 4 for instructions on making the cards smaller.) ❖

Copying a card

You can copy a card into another stack or to another location in the same stack. When you copy a card, you copy everything associated with it including its background, graphics, fields, text, buttons, and scripts.

Here's how to make a copy of a card:

1. **Go to the card you want to copy.**
2. **Choose Copy Card from the Edit menu.**

   This puts a copy of the current card on the Clipboard.
3. **Go to the card you want the copied card to follow.**

   It can be in the current stack or in any other stack.
4. **Choose Paste Card from the Edit menu (or press ⌘-V).**

   The card is pasted immediately after the card you were looking at when you chose Paste Card. The copied card becomes the current card.

If you've copied the card from a stack whose cards are a different size, HyperCard resizes the card so that it's the same size as the other cards in the current stack.

The copied card acquires the name of the original card (if the original card has a name). This means that, if the copy and the original are in the same stack, you have two cards in the stack with the same name. You should rename one of them so that each card in your stack has a unique name. ("Naming a Card" later in this chapter gives instructions.)

❖ *Copying a card copies its scripts.* When you copy a card from one place to

another, you copy the card's script and any scripts associated with the card's buttons, fields, and background. Because scripts sometimes rely on the characteristics of a particular stack, you can encounter problems (such as unfamiliar messages) after you copy a card. See "Copying Parts from Other Stacks" in Chapter 4 for the details. ❖

Moving a card

You can move a card to a different stack or to a different place within the same stack. When you move a card, you also move everything associated with it including its background, graphics, fields, text (and text attributes), buttons, and scripts.

To move a card, follow these steps:

1. Go to the card you want to move.
2. Choose Cut Card from the Edit menu.

   This removes the current card and puts a copy of it onto the Clipboard.
3. Go to the card you want the cut card to follow.

   It can be in the current stack or in any other stack.
4. Choose Paste Card from the Edit menu (or press ⌘-V).

   The pasted card is placed immediately after the card you were looking at when you chose Paste Card. The pasted card appears on the screen.

   If you move the card from a stack whose cards are a different size, HyperCard resizes the card so that it's the same size as the other cards in the current stack.

❖ *Moving a card moves its scripts.* When you move a card from one place to

another, you move the card's script and any scripts associated with the card's buttons, fields, and background. Because scripts sometimes rely on the characteristics of a particular stack, you may encounter problems (such as unfamiliar messages) after you move a card. See "Copying Parts from Other Stacks" in Chapter 2 for instructions on how to correct the problem. ❖

Making a card the first card in the stack

Moving a card to the first position in the stack requires several steps. First you have to make the card the second one in the stack, and then you have to move the first card out of the way.

To move a card to the beginning of the stack, follow these steps:

1. Go to the card whose position you want to change.
2. Choose Cut Card from the Edit menu.

   This removes the current card and puts a copy of it onto the Clipboard.
3. Choose First from the Go menu (or press ⌘-1).

   The first card in the stack appears.
4. Choose Paste Card from the Edit menu (or press ⌘-V).

   The pasted card appears on the screen. It's now the second card in the stack.
5. Choose First from the Go menu again.

   The first card in the stack appears again.

6. Choose Cut Card from the Edit menu.

   This removes the first card from the stack and puts a copy of it onto the Clipboard. The card that was second in the stack is now first.

7. Choose Paste Card from the Edit menu.

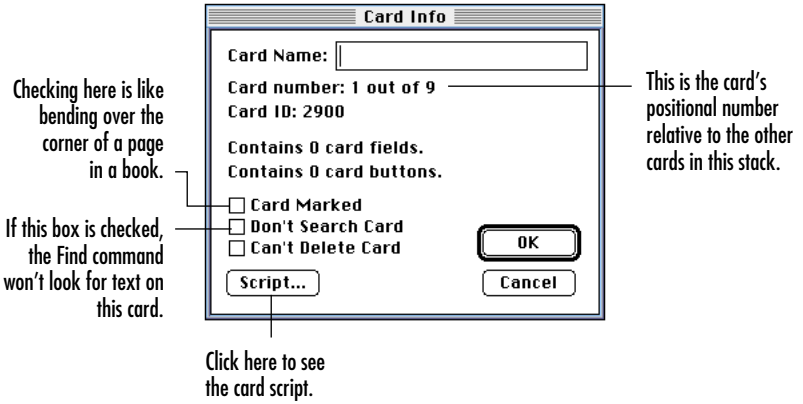
   The original first card is now the second card in the stack.

Getting information about a card

Using the Card Info command, you can get information about the current card and change some of its properties. Follow these steps to get information about a card:

1. Make sure you have one of the General tools selected.
2. Choose Card Info from the Objects menu.

   A dialog box like the one in the following figure appears:



3. When you're finished, click OK.

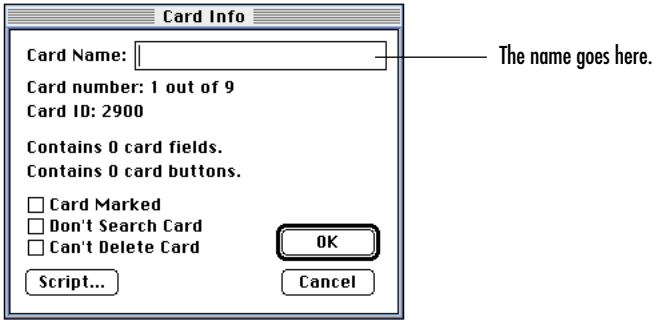
❖ *Another way to open the Card Info dialog box:* While any General tool is selected, press ⌘-M to open the Message box; then type `c` and press Return. (This shortcut works only if your Home stack is the one that comes with HyperCard.) ❖

Naming a card

Generally, a card doesn't have a name until you give it one. The card name is one way HyperCard identifies a card. You can use the card name in the Message box to bring the card into view. And you can use the card name to refer to the card in scripts.

To name a card or change its name, follow these steps:

1. Make sure you have one of the General tools selected.
2. Choose Card Info from the Objects menu.
3. Type the name you want to use for this card.



4. Click OK.

❖ *Use letters, not numbers.* It's not a good idea to use a numeral as a card name because one of the ways that HyperCard keeps track of cards in a stack is by positional numbers. HyperCard may, for example, look for card number 12 (the twelfth card in the stack) when you try to go to the card

named “12.” ❖

Marking a card

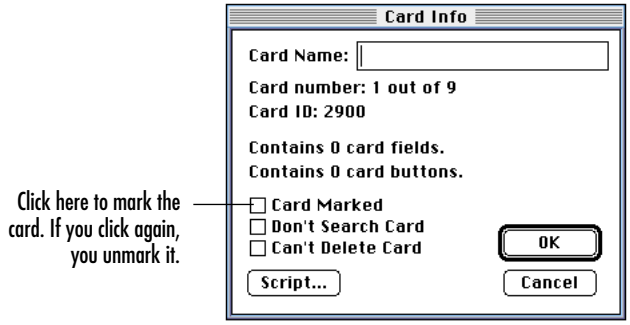
You can mark specific cards in a stack and perform operations on them. For example, you can print all the marked cards, scan all the marked cards, or go from one marked card to the next. You can mark any of the cards in a stack, whether or not they’re adjacent to one another.

Marking a card with the Get Info dialog box

One way to mark a card is by setting the appropriate option in the card’s Get Info dialog box.

1. Go to the card you want to mark.
2. Make sure you have one of the General tools selected.
3. Choose Card Info from the Objects menu.

4. Check the option labeled Card Marked to select it.



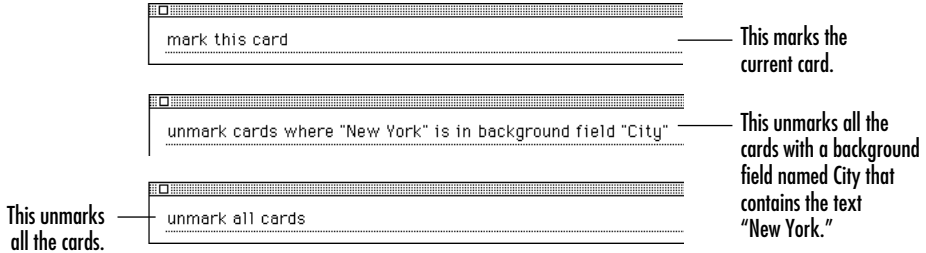
5. Click OK.

To unmark a card, click Card Marked to deselect it.

Marking a card with the Message box

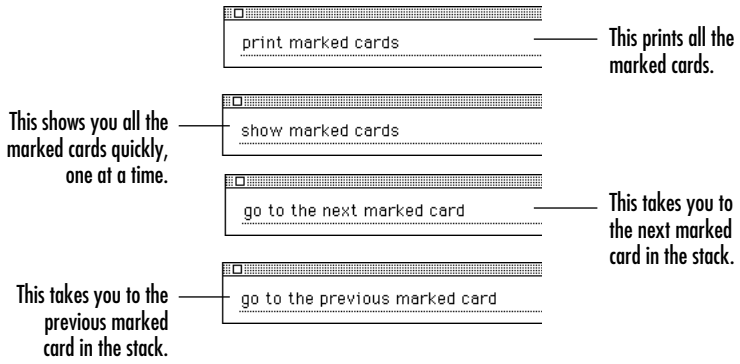
You can also mark and unmark cards by typing in the Message box. Here's how:

1. Choose Message from the Go menu (or press ⌘-M) to open the Message box (if it isn't already open).
2. Type any of the following messages, substituting the text and the field name, number, or ID you want to use in your criteria for marking cards:



3. **Press Return or Enter.**

   Once you have a set of cards marked, you can perform operations on them by typing messages into the Message box.

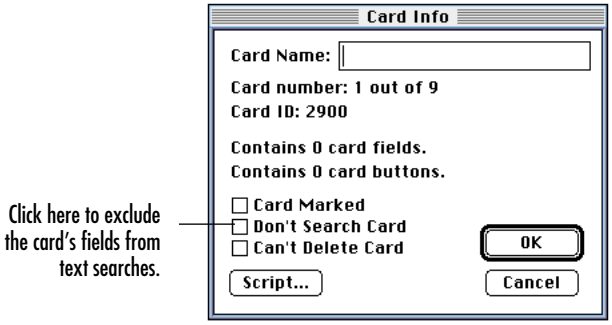


Excluding fields from text searches

You use the Find command (in the Go menu) to search for specific text in the fields of a stack. (“Looking for Specific Text” in Chapter 1 explains how to search for text.) When you’re searching for specific text in a large stack, you can speed your search by excluding any fields that you know do not contain the text you’re looking for.

To prevent HyperCard from searching in the card fields and/or background fields that appear on any particular card, follow these steps:

1. Go to the card whose fields you want to exclude from text searches.
2. Make sure you have one of the General tools selected.
3. Choose Card Info from the Objects menu.
4. Check the Don't Search Card option to select it.



5. Click OK.

   HyperCard no longer searches in the fields that appear on this card (either on the card layer or on the background layer).

When you want HyperCard to search in the fields that appear on this card again, click Don't Search Card to deselect it.

Deleting a card

To remove the current card from the stack, choose Delete Card from the Edit menu (or press ⌘-Delete or ⌘-Backspace). The current card disappears, and you see the next card in the stack.

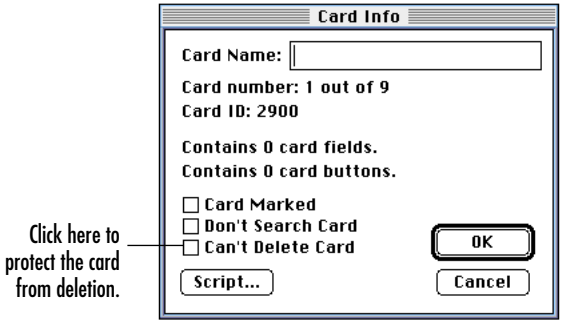
❖ *Immediate Undo can restore a deleted card.* If you delete a card by mistake, you can bring it back by choosing Undo from the Edit menu before you do anything else. ❖

You can't delete the only card in a stack. If there's only one card in the stack and you want to delete it, choose Delete Stack from the File menu.

Protecting a card from deletion

To protect a card from deletion, follow these steps:

1. Go to the card you want to protect.
2. Make sure you have one of the General tools selected.
3. Choose Card Info from the Objects menu.
4. Check the Can't Delete Card option to select it.



5. Click OK.

   You can't remove the card from the stack while the Can't Delete Card option is turned on. You can, however, delete the entire stack, taking the protected card with it.

If you want to delete just the card, first remove its protection by clicking Can't Delete Card in the Card Info dialog box to deselect it.

❖ *Preventing changes to a card:* To prevent changes to a card, you must protect the entire stack from modification. ❖

If you try to delete a protected card, you'll see the following dialog box:

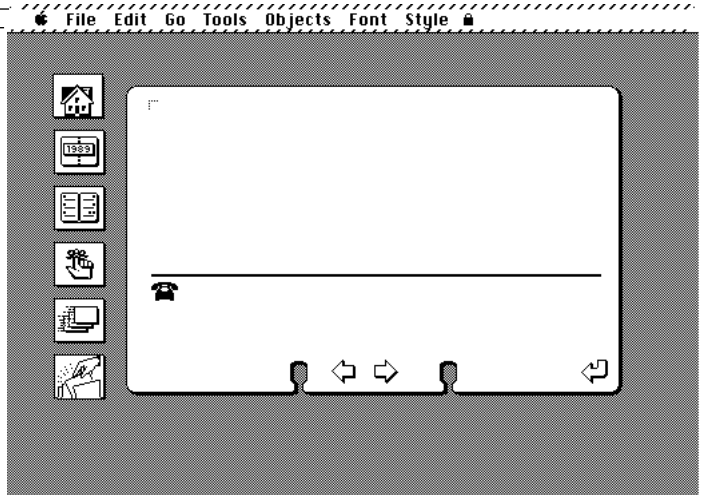
Working with Backgrounds

A background serves as a template for a stack or for a related group of cards within a stack. Whatever's in a background is common to all cards associated with that background. You place buttons, fields, and graphics in the background when you want them to appear on all the cards that share the background.

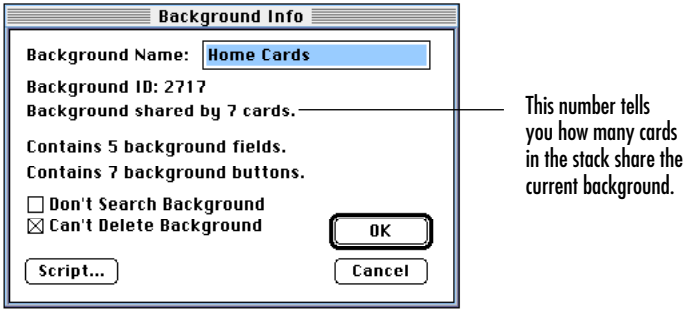
There can be millions of backgrounds in a stack. Every card in a stack could have its own background, although that would defeat the purpose of backgrounds. Together, the elements in a background help communicate the purpose of the stack, or that section of the stack, by giving a similar appearance and function to the cards that share the background. This makes it much easier for other people to figure out what the stack is for and how to use it, and much easier for you to create and modify the stack. You can make changes to many cards at once just by changing elements in their common background.

To see the background layer of the current card, choose Background from the Edit menu (or press ⌘-B). When you choose Background, you toggle back and forth between the card layer and the background layer.

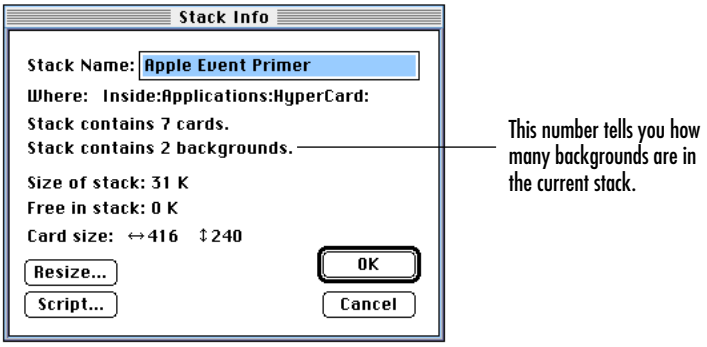
When you're in the background layer, the menu bar is striped, and a check mark appears to the left of the Background command in the Edit menu.



To see how many cards share the current background, choose Bkgnd Info from the Objects menu.



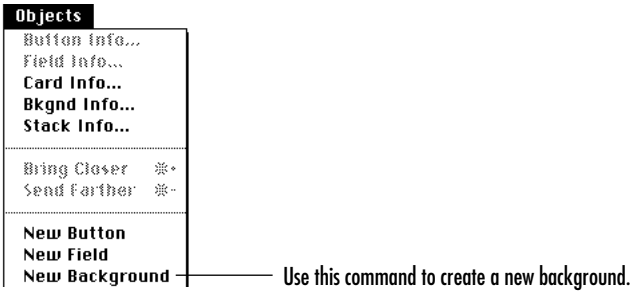
To see how many backgrounds there are in the current stack, choose Stack Info from the Objects menu.



For information about adding buttons, fields, and graphics to a background, see Chapters 6, 7, and 8.

Creating a new background

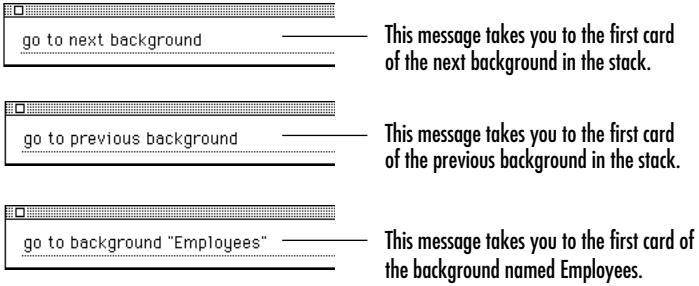
When you want some (but not all) of the cards in a stack to have a similar appearance or to contain the same elements, you can create a new background to be shared by just those cards. To add a new background to a stack, choose New Background from the Objects menu. This adds to your stack a new, empty card with a blank background, and moves you to the background layer of that card. The new card (and, consequently, the new background) is added immediately after the card you're looking at when you choose New Background.



Moving between backgrounds

When you're in a stack that has more than one background, you can move between the different backgrounds by following these steps:

1. Open the Message box.
2. Type any of the following:



3. Press Return or Enter.

   You go immediately to the first card with the specified background.

   If there's no such background in the current stack, you see a dialog box telling you so.

For information on naming a background, see "Naming a Background" later in this chapter.

Copying a background

You can copy a background from one stack to another or from one place to another in the same stack. To copy an existing background, you copy a card that has that background. (When you copy a card, you copy everything associated with it, including its background.)

To copy a background, follow these steps:

1. Go to a card that has the background you want to copy.

2. **Choose New Card from the Edit menu (or press ⌘-N).**

   You choose New Card to get a card without any card buttons or fields on it (you're interested only in the card's background).

3. **Choose Cut Card from the Edit menu.**

4. **Move to the card you want the new background to follow.**

   It can be in the current stack or in another stack.

5. **Choose Paste Card from the Edit menu.**

   The pasted card becomes the current card.

6. **To make another card with this background, immediately choose New Card from the Edit menu.**

   This creates a new card with the same background as the current card (the card you just pasted). This new card contains only the background elements of the copied card (that is, the background buttons, fields, graphics, and script). You can create as many cards with this background as you like by repeating this step.

❖ *Copying a background copies its scripts.* When you copy a background from one place to another, you copy the background's script and any scripts associated with the buttons and fields that are in that background. Because scripts sometimes rely on the characteristics of a particular stack, you may encounter problems (such as unfamiliar messages) after you copy a background. See "Copying Parts from Other Stacks" in Chapter 4 for instructions on how to remedy this problem. ❖

Making multiple copies of the same background

You can get copies of identical backgrounds into a stack by following these steps:

1. **Go to a card whose background you want to duplicate.**

2. **Choose Copy Card from the Edit menu.**

3. **Change any characteristic of the current background.**

   For example, change the background's name.

4. Choose Paste Card from the Edit menu.

   The copied card goes into the stack with a new background.

5. If you want, restore the change you made to the original background.

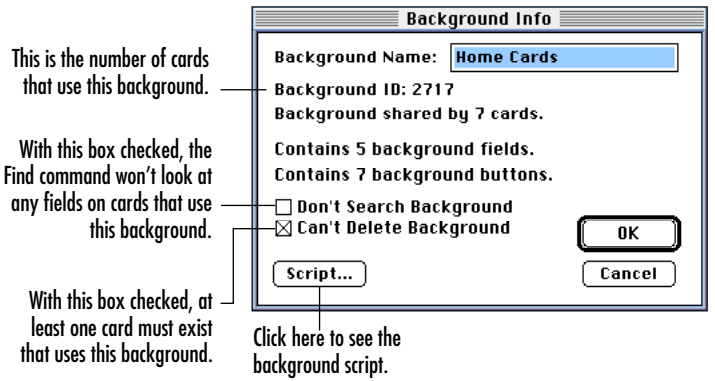
   The two backgrounds are now exactly the same, except for the IDs.

Getting information about a background

Using the Bkgnd Info command, you can get information about the current background and/or change some of its properties. Here's how:

1. Make sure you have one of the General tools selected.
2. Choose Bkgnd Info from the Objects menu.

   A dialog box like the one in the next figure appears.



3. When you're finished, click OK.

Naming a background

Generally, a background doesn't have a name unless you give it one. A background's name is one way HyperCard identifies the background. You can use the background name in the Message box to bring the first card with that background into view. And you can use a background's name to address the background through scripts.

To name a background or change its name, follow these steps:

1. Make sure you have one of the General tools selected.
2. Choose Bkgnd Info from the Objects menu.
3. Type the background's name.
4. Click OK.

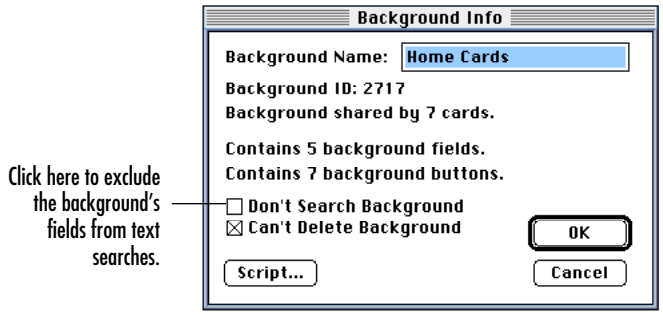
Excluding background fields from text searches

You use the Find command (in the Go menu) to search for specific text in the fields of a stack. ("Looking for Specific Text" in Chapter 1 explains how to search for text.) When you're searching for specific text in a large stack, you can speed your search by excluding any fields that you know do not contain the text you're looking for.

To prevent HyperCard from searching in all of the background fields that belong to any particular background, follow these steps:

1. Go to a card with the background whose fields you want to exclude from text searches.
2. Make sure you have one of the General tools selected.
3. Choose Bkgnd Info from the Objects menu.

4. Check the Don't Search Background option to select it:



5. Click OK.

❖ *No background fields searched:* Setting the Don't Search Background option prevents HyperCard from searching in any fields on the current background. To prevent HyperCard from searching in background fields only on specific cards, follow the steps in "Excluding Background Fields from Text Searches" earlier in this chapter. ❖

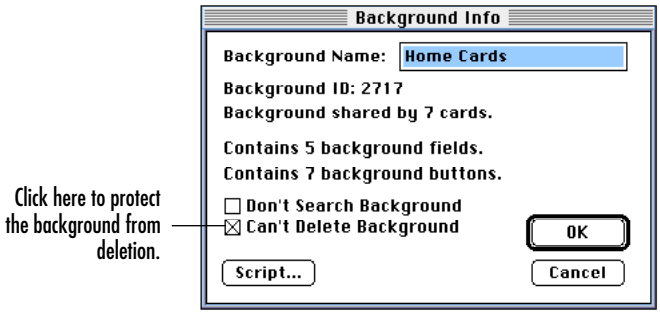
Protecting a background

When you protect a background from deletion, you tell HyperCard not to allow the removal of the final card that has that background.

To protect a background from deletion, follow these steps:

1. Go to a card that has the background you want to protect.
2. Make sure you have one of the General tools selected.
3. Choose Bkgnd Info from the Objects menu.

4. Check the Can't Delete Background option to select it.



5. Click OK.

   As long as the Can't Delete Background option is turned on, you can't remove the last card with that background from the stack. (You can, however, delete the stack, taking the protected background with it.)

To remove the background's protection, click Can't Delete Background in the Bkgnd Info dialog box to deselect it.

❖ *Preventing changes to a background:* You can protect a background from deletion, but you can't prevent changes to a background unless you protect the entire stack from modification. ❖

Deleting a background

You can't delete a background directly. To remove a background from a stack, you must delete every card that uses that background. Follow these steps:

1. **Go to a card that has the background you want to delete.**
2. **Choose Delete Card from the Edit menu (or press ⌘-Delete or ⌘-Backspace).**

   The card disappears unless it's protected. If the card is protected, you see a dialog box telling you so. See "Protecting a Card from Deletion" elsewhere in this chapter for instructions on removing card protection.

   If you delete a card by mistake, you can bring it back by choosing Undo from the Edit menu before you do anything else.
3. **Repeat steps 1 and 2 until you've removed from the stack every card that has the background you want to delete.**

When Can't Delete Background is selected in the Bkgnd Info dialog box, you can't delete the final card with this background. You can, however, delete the stack, including the protected background. "Protecting a Background" earlier in this chapter gives information on setting and removing a background's protection.

Chapter 6

Working with Buttons

Buttons are “hot spots” you click to make things happen in stacks. A button can take you to another card, show you a picture, launch an application, or play a QuickTime movie.

This chapter explains how to do the following:

- create and modify buttons
- use the ready-made buttons that come with HyperCard
- use buttons to link information

To do all the tasks in this chapter, you must have your user level set to Scripting. (“User Levels and Options” in Chapter 1 tells you how to set your user level.)

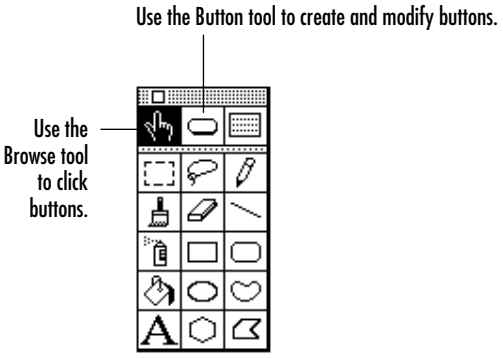
Button Basics

You use buttons to link any piece of information—a card, an idea, a picture, an address—to any other piece of information in any way you like. But buttons have powers beyond linking—they can play sounds, dial a phone, or produce visual effects.

Behind every button is a script—you click the button, and HyperCard carries out the HyperTalk commands in the script. You can create a link without writing the script that makes it work; HyperCard provides a mechanism to do it for you. You can also copy buttons with pre-programmed scripts from other stacks, including the Readymade Buttons stack that comes with HyperCard.

Tools for working with buttons

To work with buttons, you need the Button tool and the Browse tool.



To make it easy to alternate among the tools, you can “tear off” the Tools menu to create a movable Tools palette: Drag down through the menu past its bottom edge.

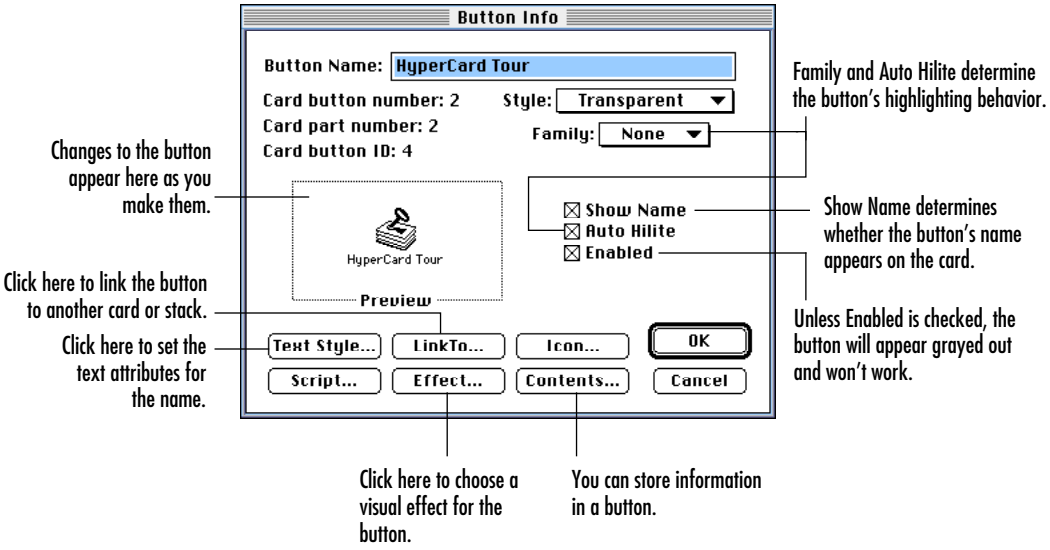
You can use the following ⌘-key shortcuts to choose the tools you need for working with buttons:

To do this…	…press this
Create a movable Tools palette	Option-Tab
Choose the Browse tool	⌘-Tab
Choose the Button tool	⌘-Tab-Tab

For a more thorough explanation of these tools, see “Using HyperCard Tools” in Chapter 4.

Button Info dialog box

You use the Button Info dialog box to get information about a button and to set button characteristics.



To get to the Button Info dialog box:

1. Choose the Button tool (▭) from the Tools menu.
2. Click once on the button you want to work with.
3. Choose Button Info from the Objects menu.

   Or, double-click the button you want to work with in step 2 and skip step 3.

Where should the button go?

Whenever you add a button to a stack, you need to decide whether you want it in the card layer or the background layer. To decide where to put the button, consider where you want it to appear:

- If you want the button to appear on only one card, put it in the card layer.
- If you want the button to appear on every card in a stack, create a stack with a single background and put the button in the background layer.
- If you want the button to appear on some of the cards in the stack (but not all of them), create a different background for those cards and put the button in that background only. “Creating a New Background” in Chapter 5 explains how to add a background to a stack.

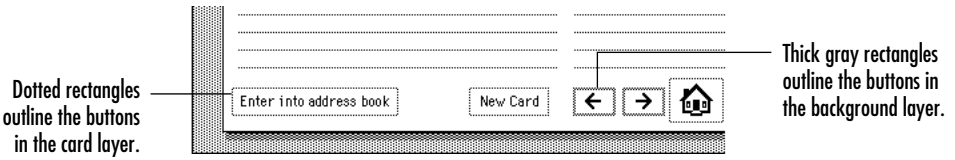
A background button appears in the same location on all cards that share the background. To add a button to a background, you must be in the background layer; to add a button to a card, you must be in the card layer.

❖ *Wrong layer?* The most common mistake in adding a button is putting it in the card layer when you want it in the background layer. To find out whether the button is in the background layer, press ⌘-B to see just the background elements. If you put a button in the card layer by mistake, see “Moving a Button from the Card to the Background” later in this chapter. ❖

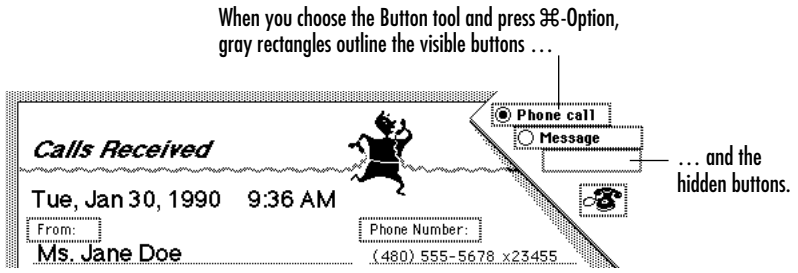
Locating buttons

Many of the buttons in stacks are easy to locate right away. But some buttons are harder to find, particularly transparent ones. You can locate the buttons on the current card and background using any of the following methods:

- While the Browse tool is selected, you can “peek” at the buttons by pressing and holding the ⌘ and Option keys. Gray rectangles appear around the buttons:



- When you choose the Button tool from the Tools menu, rectangles appear around the buttons that don’t already have an outline:



Using Readymade Buttons

HyperCard comes with a stack called Readymade Buttons that contains buttons you can copy and paste. These buttons have pre-programmed scripts that can add power and versatility to your stacks.

The Readymade Buttons stack includes buttons for launching applications, playing sounds, making pictures disappear and reappear, creating pop-up fields, and much more. It also includes special tools for creating custom-made buttons. These buttons are designed to work in virtually any stack. They don't depend on your stack's structure in any way.

Buttons that open stacks that come with HyperCard:

Buttons that hide and show the card picture:

Buttons that open applications:

A button that plays a sound:

A button that lets you search for text in a stack:

A button that dials the phone:

A button that takes you to the HyperCard Help stack:

A button that creates a pop-up field, and opens and closes the field after it's created:

Copying ready-made buttons can make stack building easier and save you a lot of time. If you see a button in any stack that does something you like, copy it and paste it into your stack.

Follow these steps to copy a ready-made button:

1. Open the Readymade Buttons stack.
2. Go to the card that has the button you want to copy.
3. Choose the Button tool (▭) from the Tools menu.
4. Click the button you want to copy.

   A moving dashed line surrounds the selected button.
5. Choose Copy Button from the Edit menu.

   This puts a copy of the selected button (including its script) on the Clipboard.
6. Go to the card or background where you want to put the copied button.

   Use the arrow keys or commands in the Go menu to navigate between cards while the Button tool is selected. If you're not sure whether to put the button in the card layer or the background layer, see "Where Should the Button Go?" earlier in this chapter.
7. Choose Paste Button from the Edit menu.

   This takes a copy of the button that's on the Clipboard, puts it onto the current card or background, and selects it.
8. While the button is still selected, drag it to where you want it on the card.

   If you place a button on the card layer and you really want it on the background layer, see "Moving a Button from the Card to the Background" later in this chapter.
9. Choose the Browse tool and click the button to test it.

You can look at the HyperTalk commands that make the button work by opening the button's script (see "Opening a Button's Script" later in this chapter). You can also change how a ready-made button looks (see "Changing the Appearance of a Button" later in this chapter).

Creating a Button

Buttons come in many different styles and sizes. You can bring a button to life by linking it to another card or writing a script for it.

Creating a transparent button

You can create a blank, transparent button very quickly.

1. Choose the Button tool (⬭) from the Tools menu.
2. Move the pointer anywhere on the card where you want the new button to appear.
3. Press and hold down the ⌘ key while you drag diagonally.

   The button is automatically selected when you create it.

A newly created transparent button is, by definition, invisible (except for the dotted line surrounding it when it's selected) and doesn't do anything. You need to create a use for it and give it some visible substance, either by writing a script for it or by using some of the options in the Button Info dialog box.

Naming a button

You can give a button a name if you want to display text on it, or if you want to address the button by name through scripts or the Message box. Follow these steps to name a button:

1. Choose the Button tool (⬭) from the Tools menu.
2. Click the button you want to name.
3. Choose Button Info from the Objects menu (or double-click the button).

   The Button Info dialog box appears.
4. Type a name for the button.

   It's best to give the button a name that communicates its purpose.
5. Check the Show Name option to have the button name appear on the button.

Making a button unclickable

Sometimes it's useful to create a button that you want to appear on a card, but that you don't want to be clickable yet. For example, you may want a button to be clickable only after a user has selected text in a field or has made a specific menu choice.

To make a button unclickable, you turn off the Enabled checkbox in the Button Info dialog box. Follow these steps:

1. Choose the Button tool (▭) from the Tools menu.
2. Click the button you want to disable to select it.
3. Choose Button Info from the Objects menu (or double-click the button).

   The Button Info dialog box appears.
4. Click the Enabled checkbox so that there is no "X" in it.

   The button appears dimmed in the Button Preview window. It is unclickable until you turn Enabled back on again.

❖ *A disabled button needs a re-enabling script.* Disabling a button isn't very useful unless you intend to enable it again. In most cases, you'll need to use a script to do it—for example, using an `if…then` command to enable the button when some condition is met. The HyperTalk Reference stack shows you how to do this. ❖

Changing the Appearance of a Button

Once you create or copy a button, you can change its appearance by resizing it, changing its style, making it highlight when it's clicked, showing or hiding its name, or even dimming its name so that it's unclickable. This section explains how to make a button look the way you want it to. Another section later in this chapter, "Working with Icons," tells how to add, customize, and remove icons from buttons.

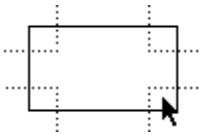
❖ *You can change background buttons from the card layer.* You can change the appearance of both card buttons and background buttons while you're working in the card layer. You don't have to be in the background layer to modify background buttons. ❖

Changing the size of a button

To resize a button, follow these steps:

1. Choose the Button tool (▭) from the Tools menu.
2. Click the button you want to resize to select it.

   A moving dashed line surrounds the selected button.
3. Drag from any corner of the button.



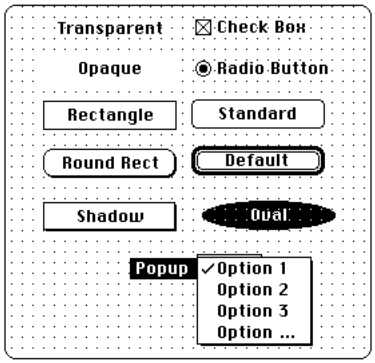
To resize the button in one dimension only, either horizontally or vertically, hold down the Shift key while you drag from a corner.

❖ *Creating a standard-size button:* If you hold down the Shift key while you resize a rounded rectangle or standard button, HyperCard automatically makes the button a standard height (the same height as the buttons produced by the New Button command). ❖

Choosing a button's style

A button can have any one of many styles. The following figure shows some examples:

Button styles

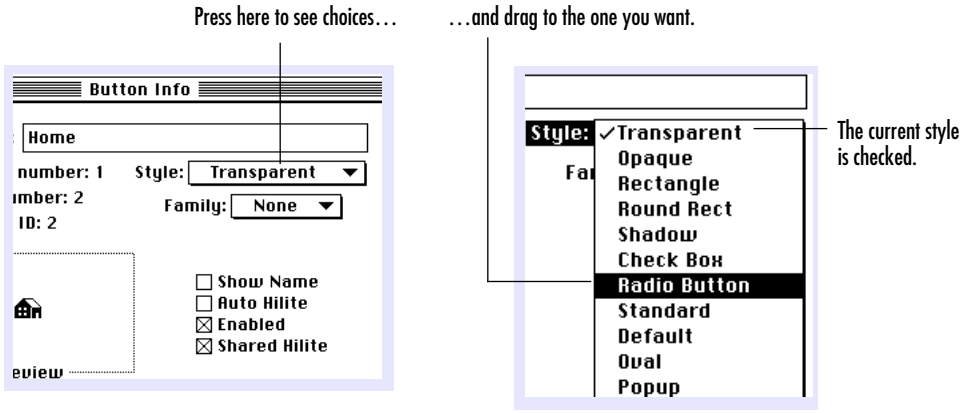


Use the following steps to set any style.

1. Choose the Button tool ( ) from the Tools menu.
2. Click the button to select it.
3. Choose Button Info from the Objects menu.

   The Button Info dialog box appears.

4. Open the Style pop-up menu.



5. Drag down to select the style you want to use.

   If you drag down far enough, the menu scrolls to show more choices. A model of the button appears in a window in the dialog box.

6. Click OK.

About pop-up buttons

When you use any button style except pop-up, clicking the button causes a single action—for example, you go to a different card, dial a telephone, or open an application. But pop-up buttons present a range of choices.

Pop-up buttons are like collapsed menus you can put anywhere. You can see examples of pop-up buttons in any Field Info or Button Info dialog box**.** The Style pop-up menu is actually a pop-up button.

The name of the button appears at the button's side (assuming that the Show Name option is checked), with the currently selected item showing in the collapsed window.

When you set a button's style to pop-up in the Button Info dialog box, an editable field called Title Width appears. Into this field you type a width (in pixels) for the button name area. As soon as you type a width, you see the effect of your entry reflected in the Button Preview window.

To add a list of menu items for the button, click the Contents button in the Button Info dialog box and type a new line for each item. Click OK when you're finished.

To use pop-up buttons effectively, you need to write scripts for them. You use conditional statements to decide what will happen when a user selects a particular item. (For more information, see the HyperTalk Reference stack.)

Changing the look of button text

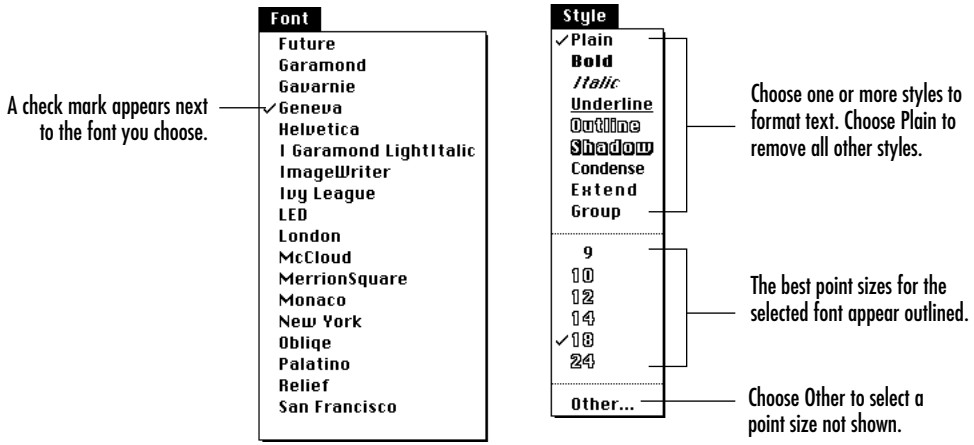
You can change the font, style, or size of the name that's displayed on a button by choosing commands from the Font and Style menus and by selecting options in the Text Style dialog box.

To set the look of a button's name using the Font and Style menus, follow these steps:

1. Choose the Button tool (▭) from the Tools menu.
2. Click the button you want to change to select it.

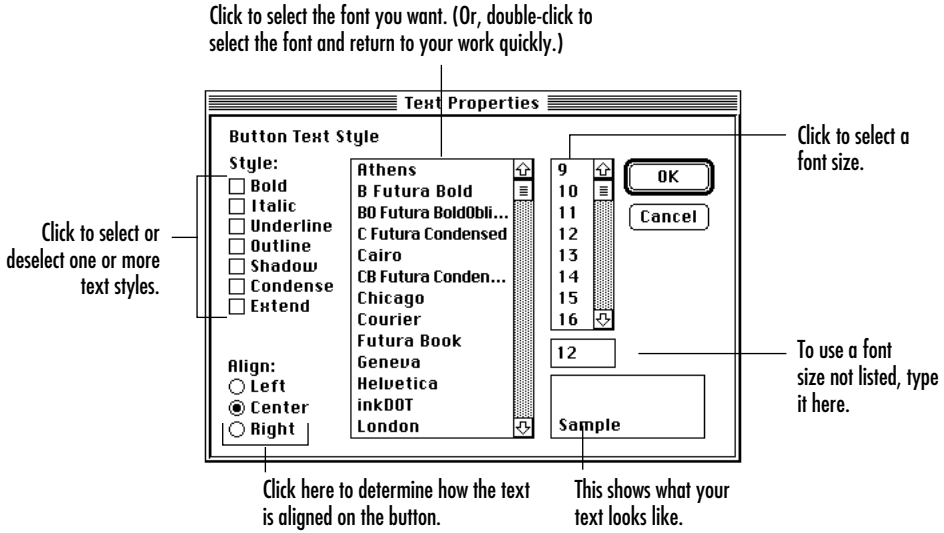
   A moving dashed line surrounds the selected button.

3. Choose from the Font and Style menus to set the font, style, and size of the button's text.



The button's name is displayed in the font, style, and size you've chosen.

If you prefer, you can use the Text Style dialog box to set the button's text look. To do so, select the button and choose Text Style from the Edit menu. You can also click the Text Style button in the Button Info dialog box.



❖ *Note:* You can't change the style of text that's displayed on a button with an icon. ❖

Highlighting

Highlighting inverts certain buttons when you click them. In HyperCard, you control what the highlight looks like, whether or not a button highlights when you press it, and whether it highlights on all cards in a given background or just on specific cards.

Making a button highlight when it's clicked

You can design a button so that it highlights momentarily when you click it. Such a button provides visual feedback that you clicked it.

To create a momentary highlight, follow these steps:

1. Choose the Button tool (▭) from the Tools menu.
2. Double-click the button.

   The Button Info dialog box appears.
3. In the Button Info dialog box, check the Auto Hilite option.
4. Click OK.

Auto Hilite works as described for a button of any style, except for a checkbox or radio button. When Auto Hilite is in effect for a checkbox or radio button, clicking the button once highlights it and leaves it highlighted. Clicking the button again removes the highlight.

With the Auto Hilite option turned off, you receive no visual feedback when you click a button. Pop-up buttons, however, always behave as if Auto Hilite is turned on.

Making a button appear highlighted on certain cards

Normally when you click a background button for which Auto Hilite is turned on in the Button Info dialog box, the button becomes highlighted on every card with that background. A background button for which Auto Hilite is turned off never becomes highlighted when you click it.

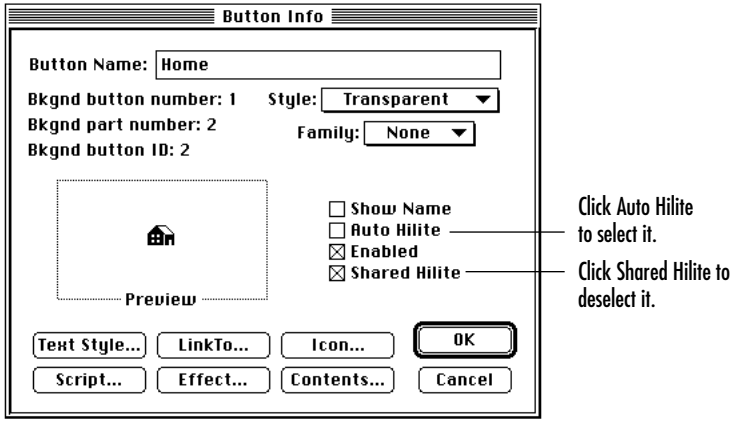
Background buttons have an additional option called Shared Hilite. When Shared Hilite is turned off, the highlight of the button can vary from card to card—the button may appear highlighted on some cards, and not on others. You can use this effect to signify that something is true for some cards but not for others. Checkboxes and radio buttons are particularly good for this purpose.

To allow a background button's highlight to vary from card to card, follow these steps:

1. Choose the Button tool (▭) from the Tools menu.
2. Click the button whose highlight you want to vary from card to card.
3. Choose Button Info from the Objects menu.

   The Button Info dialog box appears.
4. Click the Shared Hilite checkbox to deselect it.

   When a background button is first created, this option is turned on.
5. Click the Auto Hilite checkbox to select it, if it isn't already selected.



6. Click OK.

Now, if you want the button to appear highlighted on any particular card, you have to go to that card and click the button.

Creating a family of buttons

You create a family of buttons when you want to make sure that a user selects only one out of a series of options. A button family is a group of two or more buttons that share the same family number in the Button Info dialog box. When one button in a family is highlighted, all the other buttons in that family are unhighlighted.

You can create up to 15 families on each card, and up to 15 families on each background. To create a family of buttons, follow these steps:

1. Move to the card or background where you want to create the button family.
2. Choose New Button from the Objects menu.

   A new button appears selected on the current card or background.
3. With the new button still selected, choose Button Info from the Objects menu.

   The Button Info dialog box appears.
4. Select a style for the button from the Style menu.

   You can use any style, but radio buttons are typically used for families.
5. Select a family number from the Family menu.

   Unless you want to add this button to an existing family, choose a number not already in use for a family in this domain.
6. Make other selections in the Button Info dialog box as appropriate to your needs.
7. Click OK.
8. Drag the button where you want it to be.
9. Repeat steps 2 to 8 for each button in this family.

   Be sure to use the same family number for each button in this family. For aesthetic reasons, you should also use the same button style (typically the radio button style) for each button in the family.

When you add a button to a family (that is, give it a family setting of anything except “none”), its Auto Hilite option is automatically turned on.

Family-making timesaver

If the only difference between buttons in a family is the button name, you can save time by following these steps:

1. Follow steps 1 to 7 in the previous procedure.
2. Option-drag the new button where you want it to be.

   This creates and drags an exact copy of the button.
3. Repeat step 2 as many times as necessary.
4. When you have created enough buttons, double-click each button to bring up its Button Info dialog box and rename the button.

You can add or remove a button from a family at any time.

❖ *Prime the highlight pump.* When you first assign existing buttons to a family, some of the buttons may already be highlighted. Click any button in the family to set the initial highlight and to turn off all other highlights. ❖

Working with Icons

Displaying an icon on a button is one good way to indicate visually what the button does. An icon you assign to a button becomes part of the button. When you select the button and drag it around on the card, the icon moves with it.

Assigning, changing, or removing an icon

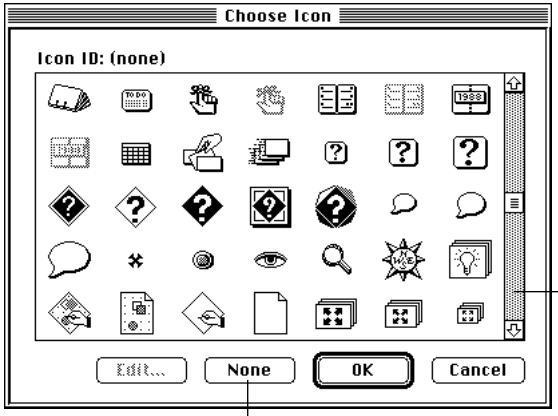
To assign a new icon to a button, change a button's icon, or remove a button's icon, follow these steps:

1. Choose the Button tool (▭) from the Tools menu.
2. Double-click the button you want to work with.

   The Button Info dialog box appears.
3. In the Button Info dialog box, click Icon.

   The Icon Chooser dialog box appears.

4. Select an icon for the button, or remove the icon.



5. Click OK.

   Your button displays the icon you've chosen.

Combining text with an icon

You can add text to a button that already has an icon. Follow these steps:

1. Choose the Button tool (▭) from the Tools menu.
2. Double-click the button.

   The Button Info dialog box appears.

3. Type the text you want to add to the button in the Button Name field.
4. Make sure the Show Name option is checked.
5. Click OK.

   The text appears along with the icon on your button. To see all the text, you may have to enlarge the button:

❖ *Note:* You can't change the style of text on a button with an icon. ❖

Creating a new icon

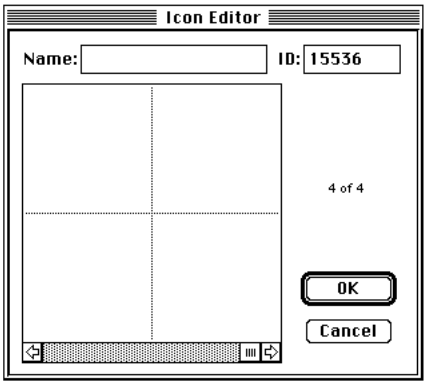
Using the HyperCard Icon Editor, you can modify the icon displayed on a button, create an icon of your own, add icons to your stacks, and copy and move icons between stacks. To create a new icon, follow these steps:

1. Choose Icon from the Edit menu (or press ⌘-I).

   The Icon Editor opens. If you haven't created an icon, and no icons are attached to this stack, the New Icon dialog box appears and you can skip the next step.

2. **Choose New Icon from the File menu (or press ⌘-N).**

   Any icon already in the Icon Editor clears, preparing for you to draw a new icon.



3. **Draw the icon using the icon tools and the commands in the Icon Editor menus.**

   See “Icon Editor Menus and Tools” later in this chapter for instructions.

4. **Give the icon a name and/or an ID, if you want.**

   HyperCard assigns a unique ID to each icon if you don’t provide one.

5. **When the icon looks the way you want it, click OK to save the icon in your stack (or choose New Button from the Edit menu if you decide you want to assign the new icon to a button now).**

   The Icon Editor closes and your card appears. Your new icon is saved in the current stack. You can see it in the Icon Chooser dialog box (and assign it to other buttons) whenever this stack is open.

   If you’ve chosen the New Button command, a selected button with the new icon appears in the center of the card.

Modifying a button's icon

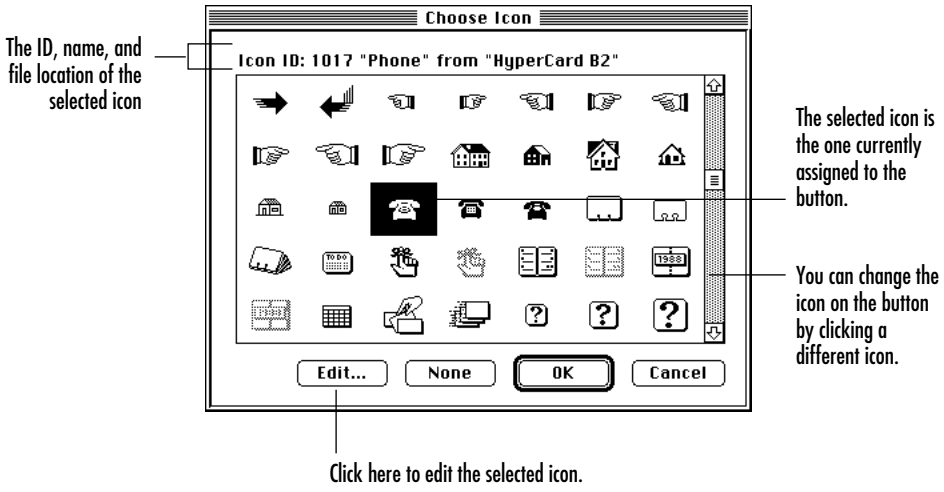
To modify the icon of an existing button, follow these steps:

1. Choose the Button tool (▭) from the Tools menu.
2. Click the button to select it.
3. Choose Button Info from the Objects menu (or double-click the button).

   The Button Info dialog box appears.

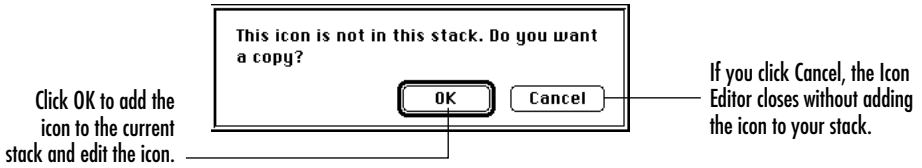
4. Click Icon.

   The Icon Chooser dialog box displays icons that are part of HyperCard, your Home stack, and any stacks or other files you have open that have icons assigned to them:

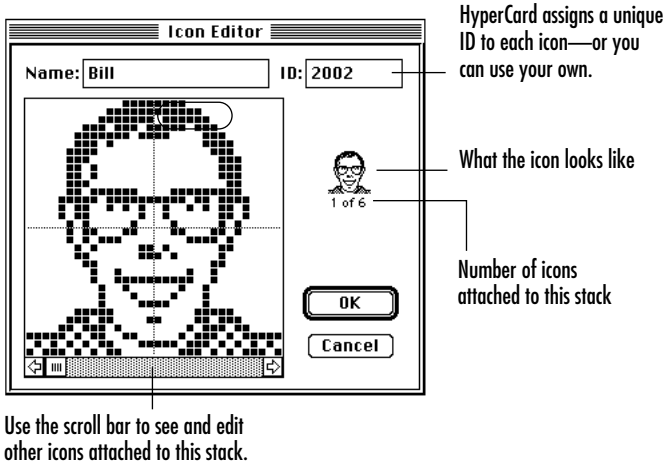


5. Click Edit.

If the selected icon isn't part of the current stack, the following dialog box appears:



If the icon isn't already part of the current stack, HyperCard makes a copy of the icon and adds it to the current stack. The Icon Editor opens:



6. Edit the icon using the icon tools and the commands in the Icon Editor menus.

See "Icon Editor Menus and Tools" later in this chapter.

7. **Give the icon a name and an ID.**

   HyperCard assigns a unique ID to each icon if you don't provide one.

8. **When the icon looks the way you want it to, either click the scroll bar to go to another icon or click OK.**

   If you click the scroll bar in the Icon Editor to go to another icon after editing the current one, HyperCard asks whether you want to save your changes.

   The only icons you see when you move around in the Icon Editor are those attached to the current stack. If the icon you've been working on was copied from another stack, the changes you make affect only the copy of the icon in the current stack. The original remains intact in the stack it came from (or in the HyperCard file, if it's part of HyperCard).

   When you click OK, the Icon Editor closes, and the edited icon appears on the button. This icon is now part of your stack. You can see it in the Icon dialog box (and assign it to other buttons) whenever this stack is the current one.

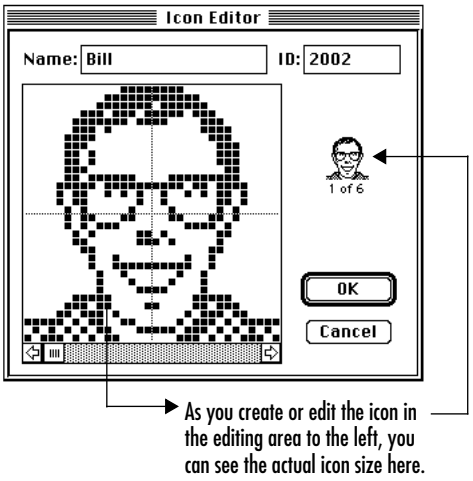
❖ *Quick Icon Editor access:* To open the Icon Editor quickly, choose the Button tool from the Tools menu, click the button whose icon you want to modify, and press ⌘-I. ❖

❖ *About ID's:* An ID is a unique identification number that HyperCard attaches to objects (backgrounds, cards, fields, buttons—but not stacks) and icons. HyperCard assigns the ID when the object or icon is created. An ID remains unchanged for the life of an object; however, you can change the ID of an icon. In most cases, the ID of an object or icon is of interest only to advanced HyperTalk scripters. ❖

Icon Editor menus and tools

This section describes the menu items in the Icon Editor and the Icon Editor tools for modifying an icon's appearance.

As you make changes to an icon in the Icon Editor, they're reflected in the small picture to the right of the magnified icon.



Icon tools

The Icon Editor has three tools for working with icons: Pencil, Select, and Hand. A tool appears when you roll the mouse over the icon editing area and hold down a key as described in the following table.

Use this tool…	…by holding down this key…	…to perform this function
Pencil	(none)	Turn a pixel on or off in the icon window (drag to turn on or off more than one pixel).
Select	Command	Select some or all of the image in the icon window; then cut or paste.
Hand	Option	Move the current image around in the icon window. The image is clipped at the borders of the icon editing area.

Shift-drag with any of the tools to limit vertical or horizontal movement.

Icon Editor menus

When the Icon Editor opens, the menu bar displays the following menus: File, Edit, Icon, and Special. You use the commands in these menus for manipulating icons and moving from one icon to another in the Icon Editor.

File menu

The following table describes the commands in the File menu.

Command	Keyboard shortcut	What the command does
New Icon	⌘-N	Creates a new (blank) icon in Icon Editor dialog box, first presenting the chance to save any unsaved changes to the current icon; clears the Icon Editor window; assigns a default ID to the new icon.
Close Icon Editor	⌘-W	Closes Icon Editor, presenting the chance to save any unsaved changes to the current icon.
Duplicate Icon	⌘-D	Duplicates the current icon, first presenting the chance to save any unsaved changes to the current icon.
Quit HyperCard	⌘-Q	Quits HyperCard, first presenting the chance to save any unsaved changes to the current icon.

Edit menu

The Edit menu has the usual edit commands (Undo, Cut, Copy, Paste, Clear). The last command, New Button, creates a new button on the current card or background (if Background is the currently selected layer) using the image of the icon currently in the Icon Editor. The Icon Editor closes, and you end up back at the current card or background with the new button selected.

Icon menu

The following table describes the commands in the Icon menu.

Command	Keyboard shortcut	What the command does
Erase	Power key E*	Erases the whole image of the current icon.
Pickup	⌘-P	Turns the pointer into a “snapshot” tool, a small box that you can move anywhere on the screen. When you click, the image under the box appears in the Icon Editor.
Keep	⌘-K	Saves any changes you’ve made to the icon without leaving the Icon Editor.
Revert	Power key R*	Reverts to the last saved image of the icon, discarding any changes you’ve made since.
First	⌘-1 or ⌘-←	Goes to the first icon in the current stack.
Prev	⌘-2 or ←	Goes to the previous icon in the current stack.
Next	⌘-3 or ↑	Goes to the next icon in the current stack.
Last	⌘-4 or ⌘-↑	Goes to the last icon in the current stack.
Find	⌘-F	Searches for a specific icon by name or ID.

* Power keys work when you have the Power Keys option selected on the Preferences card in your Home stack. Striking a single key does the work of choosing a specific menu command.

Special menu

The following table describes the commands in the Special menu.

Command	Keyboard shortcut	What the command does
Flip Horizontal	Power key H*	Flips the icon horizontally around an imaginary center axis.
Flip Vertical	Power key V	Flips the icon vertically around an imaginary center axis.
Frame	Power key F	Draws a border around the entire icon.
Gray	Power key G	Dims the icon.
Invert	Power key I	Makes the icon appear in inverse—black squares become white, and white squares become black.
Mirror Horizontal	Power key M	Makes the right half of the icon a mirror image of the left half.
Mirror Vertical	Power key X	Makes the bottom half of the icon a mirror image of the top half.
(not in menu)	Power key [	Rotates the icon 90° counterclockwise.
Rotate 90°	Power key]	Rotates the icon 90° clockwise.
Shadow	Power key S	Draws a shadow to the right and bottom of the image.

* Power keys work when you have the Power Keys option selected on the Preferences card in your Home stack. Striking a single key does the work of choosing a specific menu command.

Working with a selected part of an icon

When an area of the icon is selected, the commands in the Special menu work only on the selected area, as do the commands Undo, Cut, Copy, Paste, and Clear in the Edit menu. Power key O (the letter O, not zero) makes the selection opaque (hiding whatever it's over when it appears on a card), and Power key T makes it transparent (letting "white" areas show whatever is beneath when the icon appears on a card).

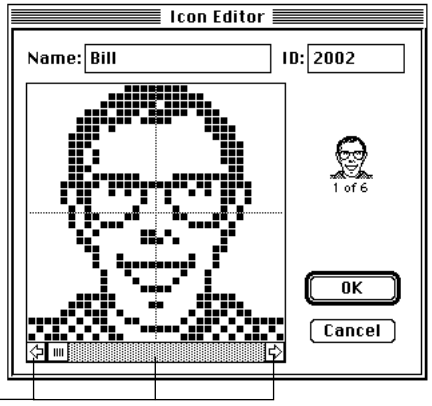
If you Option-drag a selected area, you create a copy of the selection.

Duplicating an icon in the current stack

To create an icon that looks similar to an icon you already have, start by duplicating the one you have. You can duplicate an icon in the current stack or copy it to another stack using the Icon Editor.

To duplicate and modify an icon in the current stack, follow these steps:

1. Choose Icon from the Edit menu (or press ⌘-I).
2. Do one of the following:
   - Scroll through the icons to find the one you want to duplicate.



Click the arrows or the scroll bar to scroll through the icons, one at a time.

   - Choose Find from the Icon menu to search for the icon by name or ID.
3. Choose Duplicate Icon from the File menu.

   HyperCard creates a new icon in the current stack that's an exact copy of the original icon, except the ID of the copy is one number higher than the ID of the original (or the next available ID, if that one is taken). Initially, the icon has no name.
4. Edit the new icon.

   Use the methods described in "Icon Editor Menus and Tools" earlier in this chapter.
5. Click OK to leave the Icon Editor and save the icon.

Getting an icon from another stack

You can't see an icon in a stack, or assign it to a button, unless it's stored with that stack, with your Home stack, or with HyperCard itself. If you see an icon in another stack that you'd like to use in one of your stacks, you can copy or move it into your stack by following these steps:

1. Go to a stack that has the icon you want to copy or move.
2. Choose Icon from the Edit menu (or press ⌘-I).
3. Scroll through the icons to find the one you want (or choose Find from the Icon menu to search for the icon by name or ID).

❖ *Another way to get to the icon:* Select a button that has the icon on it (if there is one), and then press ⌘-I. The Icon Editor opens with that icon displayed in it. ❖

4. Choose Copy Icon from the Edit menu.

   This puts a copy of the current icon onto the Clipboard.

5. Click OK to close the Icon Editor.
6. Go to the stack where you want the icon.
7. Choose Icon from the Edit menu.
8. Choose Paste Icon from the Edit menu.

   The pasted icon appears in the Icon Editor.

   You can edit the new icon (as described in "Icon Editor Menus and Tools" earlier in this chapter), click OK to leave the Icon Editor and save the icon; or click Cancel to discard the pasted icon and leave the editor.

❖ *Be sure to attach icons to your stack.* An icon that you see in your stack might not be part of that stack—it could be part of your version of HyperCard or part of your Home stack. If an icon that you're using isn't part of the stack, other people may be unable to see it when they use your stack on their own systems. Icons that are attached to your stack appear in the Icon Editor. To attach an icon to your stack, select it in the Icon Chooser window; then click Edit. A dialog box appears if the icon is not already part of your stack, asking if you want to make it so. ❖

Deleting an icon from a stack

When you have icons in your stack that you no longer need, you can delete them to save disk space. Follow these steps:

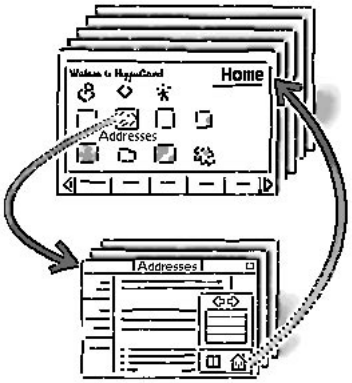
1. Choose Icon from the Edit menu to open the Icon Editor.
2. Scroll through the icons to find the one you want to delete (or choose Find from the Icon menu to search for the icon by name or ID).
3. Choose Clear Icon from the Edit menu.

   This removes the icon from the stack for good—the Undo command can't bring it back.
4. Click OK to close the Icon Editor.

Linking Information

To create a link between related pieces of information, you create a button and link it to another card or stack. When you click a button that's linked to another card, that card appears immediately.

Links are one way. To move back and forth between two cards, you need two links—one in each direction:



You can link a button to a card or stack using any of the following methods:

- Use the LinkTo box.
- Write a short script.
- Use the special linking tools in the Readymade Buttons stack.

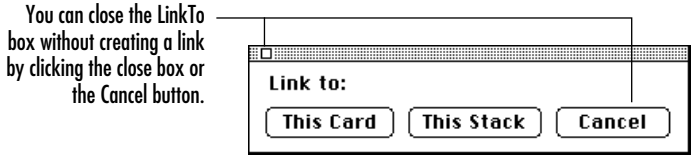
Using the LinkTo method

To use the LinkTo method for linking a button to any card or stack, follow these steps:

1. **Create a new button.**
2. **With the Button tool still selected, double-click the button you want to link .**

   The Button Info dialog box appears.
3. **In the Button Info dialog box, click LinkTo.**

   The LinkTo box appears:



❖ *LinkTo is not like standard dialog boxes.* The LinkTo box doesn't work like a standard Macintosh dialog box. You don't respond right away when you see the LinkTo box; you first use the HyperCard navigation methods (such as the Go menu commands) to locate the card or stack to which you want your button linked. ❖

4. **Before you click a button in the LinkTo box, go to the card you want to link the button to.**

   The LinkTo box doesn't disappear—it stays on the screen while you move from card to card. If the LinkTo box gets in your way, you can drag it by its title bar to another location.

5. **When you're looking at the card or stack you want to link the button to, click the option in the LinkTo box that reflects where you want the button to take you.**

   Click the This Card option if you want to link the button to the current card. Click the This Stack option to link the button to the first card in the current stack (no matter which card you're looking at).

   After you click one of these options, HyperCard returns you to the card that contains the button you've just linked with the button still selected.

6. **To test your new link, choose the Browse tool from the Tools menu and click the button.**

   You should end up on the card you've just linked to. If not, repeat the LinkTo procedure or try the scripting procedure described in the next section, "Scripting a Link."

❖ *LinkTo replaces the previous link.* If you use the LinkTo method to link a button that already has a link, the new link replaces the previous one. ❖

Scripting a link

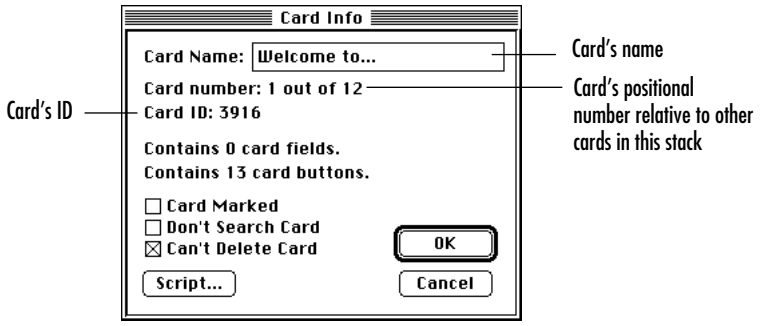
As an alternative to using the LinkTo box, you can write a script that links a button to another card or stack. To do this, you must have your user level set to Scripting, as explained in "User Levels and Options" in Chapter 1.

Follow these steps to script a link:

1. **If you're linking the button to a specific card, find out the card's name, number, or ID.**

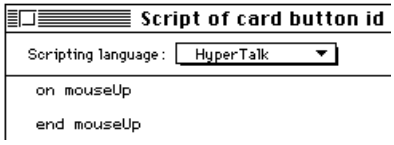
   To find this information, go to the card and choose Card Info from the Objects menu.

The Card Info dialog box appears. Make a note of the card's name, number, or ID:



2. Go to the card that contains the button for which you're creating a link.
3. Press and hold the ⌘ and Option keys while you click the button once.

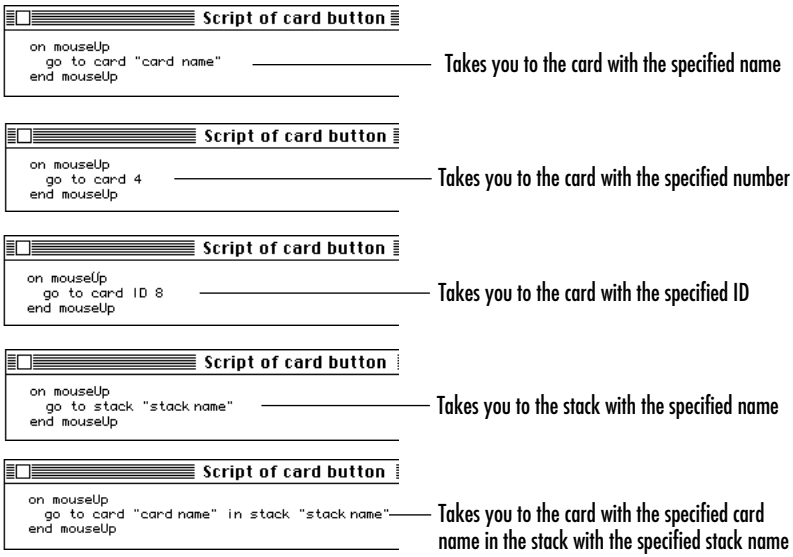
   The button's script opens. It should look like this:



4. If you didn't create this button especially for this task, and if there's any text in the script other than the figure, don't go any further.

   The additional text indicates that the button is designed for another purpose. Unless you're familiar with HyperTalk, it's best to close the script by clicking its close box, and then create or find another button to link.

5. If the script looks like the figure, type any of the following, substituting the card name, card number, card ID, or stack name for the card or stack you want to link the button to:



6. Press Enter.
7. To test your new link, choose the Browse tool from the Tools menu (if it isn't already selected) and click the button.

   You should end up on the card you wrote the script for. If not, check your script for typos and make sure the card name, number, or ID matches the one you typed in the script.

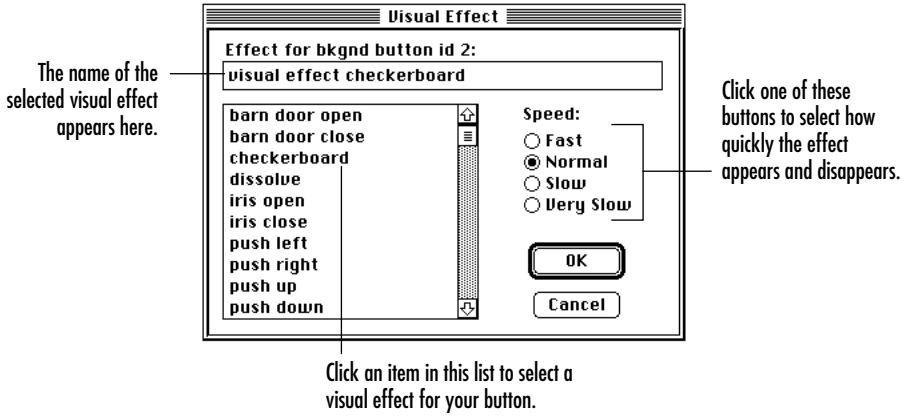
Adding a visual effect

You can add visual effects to HyperCard buttons to make movement between cards and stacks more noticeable and visually interesting. For example, you can add a visual effect that produces an image of a venetian blind closing as you move from one card to another. Or, you can add a visual effect that makes one card seem to fade away gradually as the next one appears.

To add a visual effect to a button, follow these steps:

1. Choose the Button tool (▭) from the Tools menu.
2. Double-click the button.

   The Button Info dialog box appears.
3. In the Button Info dialog box, click Effect.
4. Choose a visual effect for the button:



5. Click OK.

To test the new visual effect, choose the Browse tool from the Tools menu and click the button. You see the visual effect as you go to the card that the button's linked to.

- *Visual effects happen on links:* You don't see the visual effect unless the button is linked to a card or stack. "Linking Information" earlier in this chapter explains how to link a button to a card or stack. ❖

To see what all the visual effects do, repeat this procedure to assign different visual effects to buttons.

- *Visual effects on multiple monitors:* If you're using more than one monitor with your computer, the visual effect won't show if the card window spans across monitors. ❖

Copying a Button

You can duplicate a button on the same card, or copy a button to another card, background, or stack. When you copy a button, you also copy its attributes—its style, name, icon, script, and so on.

Copying a button on the same card

To duplicate a button on the same card or background, follow these steps:

1. Choose the Button tool (▭) from the Tools menu.
2. Click the button you want to copy to select it.

   You can select the button from the card layer, whether it's a card button or a background button. A moving dashed line surrounds the selected button.
3. Option-drag the button.

   As you drag, you create an exact duplicate of the button. If the original is a background button, the duplicate is a background button. If the original is a card button, the duplicate is a card button.

   To limit its movement to a horizontal or vertical direction only, Shift-drag the button.

Copying a button to another card or background

To copy a button to another card or background, follow these steps:

1. Choose the Button tool (▭) from the Tools menu.
2. Click the button you want to copy to select it.
3. Choose Copy Button from the Edit menu.

   You can also press ⌘-C. A copy of the selected button (including its script) goes on the Clipboard, replacing whatever was on the Clipboard before.
4. Go to the card or background where you want the button to appear.

   Use the arrow keys or commands in the Go menu to navigate between cards.
5. Choose Paste Button from the Edit menu.

   You can also press ⌘-V. The copy of the button on the Clipboard goes onto the current card or background, with the button selected.

   If you copied a background button to the card layer of the same card, the copy is pasted directly over the original. To see the original, you have to drag the copy away.
6. While it's still selected, drag the button to where you want it.

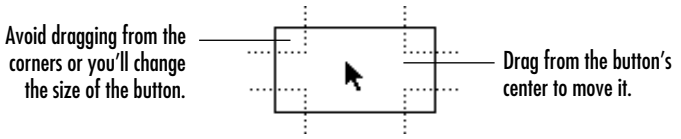
After you copy a button from another card or stack, test the button to make sure it works properly. To test the button, choose the Browse tool and click the button. If clicking the button produces a message that begins with "Can't Understand …" or "Never heard of …", see "Copying Parts from Other Stacks" in Chapter 4 for advice on how to proceed.

Moving a Button Around on a Card or Background

You can move a button wherever you like on the card or background. To reposition a button on the card or background, follow these steps:

1. Choose the Button tool (▭) from the Tools menu.
2. Click the button you want to move to select it.

   Whether the button is in the card layer or the background layer, you can select it from the card layer. A moving dashed line surrounds the selected button.
3. Drag either from the middle of the button or from one of its edges (not a corner):

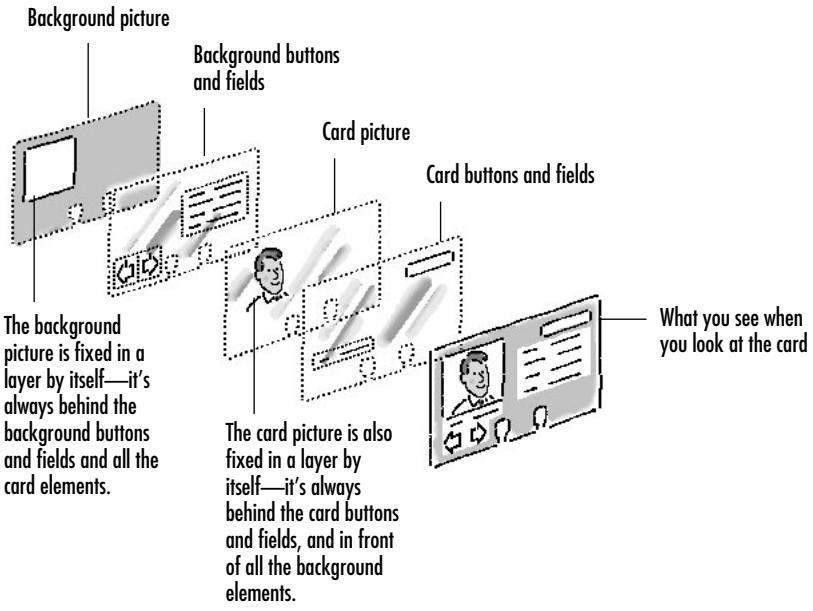


To limit its movement to a horizontal or vertical direction only, Shift-drag the button. You can select and move only one button at a time.

❖ *Check the button on all cards:* After you reposition a background button, look through the cards on which the button appears to make sure it isn't obscured by any card objects. ❖

Moving elements from layer to layer

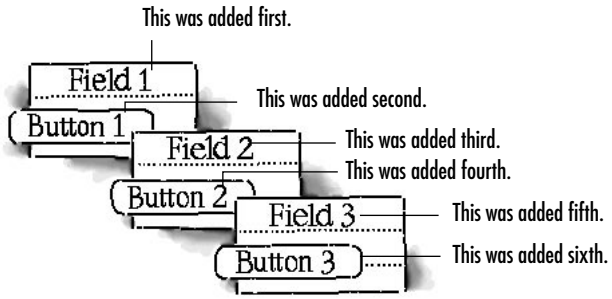
HyperCard puts different kinds of elements into different layers. Together, all these layers make up the card you see.



Background buttons and fields collectively go on a different layer than do card buttons and fields. Within each of these layers, HyperCard places each new button or field you add (whether you've created it or copied it) on its own sublayer in front of the button or field that you added immediately before it. "In front of" means closer to you.

Button numbers and field numbers

HyperCard assigns numbers to the buttons and fields as you add them. The first field you add is field number 1, the second is field number 2, and so on. Likewise, the first button you add is button number 1, the second is button number 2, and so on. The numbers reflect how far away the elements are from you—the farther away an element is, the lower its number. These numbers appear in the Button Info and Field Info dialog boxes as the card or background *button number* or *field number*.



Part numbers

Although HyperCard numbers the buttons and fields separately, it places each new element immediately in front of the previous element (within the same layer), whether it's a button or field. HyperCard also assigns a *part number* to each button and field. The element's part number appears in its Info dialog box.

While the button or field number refers to the position of that element (closer or farther away from the front) within the set of other elements of its kind on a given card or background, the part number refers to the position of that element within the combined set of both buttons and fields on a given card or background. For example, if the ordering of buttons and fields within a card is card field 1, card field 2, card button 1, and card field 3, the part number of card button 1 is 3.

Overlapping parts

HyperCard numbers the card buttons and fields separately from the background buttons and fields. The card elements are always in front of all the background elements.

This layering of buttons and fields becomes evident when the elements overlap. Elements that are closer to you can obscure elements that are farther away. If this happens, you can either move the elements apart so they don't overlap, or you can try either of the following:

- Reorder the buttons and fields. You can move any button or field closer or farther, within its layer.
- Make some of the elements transparent, so you can see other elements through them. Buttons, fields, and graphics can all be made transparent or opaque.

The following sections describe these solutions.

Reordering elements

Overlapping buttons and fields can cause visual and functional problems in your stack. For example, a button covered by a field (or by another button) can't respond when you try to click it. To solve the problem of overlapping buttons and fields, you can reorder them to bring the ones you need to see and use into full view.

❖ *Card objects are always in front of background objects:* The buttons and fields in the card layer are always in front of the background buttons and fields. Although you can reorder the background buttons and fields relative to one another, you can never move them closer to you than any of the card elements. You can, however, make card elements transparent so you can see through them to the background elements, as explained in the next section. ❖

❖ *Button techniques work with fields:* While the techniques mentioned in this section are phrased in terms of buttons, they work equally well for fields. ❖

To move a button closer or farther (relative to the other buttons and fields in the same layer), follow these steps:

1. Choose the Button tool (▭) from the Tools menu.
2. Click the button you want to move closer or farther to select it.

   A moving dashed line surrounds the selected button.
3. Choose Bring Closer from the Objects menu to move the button forward one position, or choose Send Farther to move it back one position.

   Each time you move a button back one position relative to another button in the same layer, its button number and part numbers in the Button Info dialog box decrease by one. Each time you move a button forward one position relative to another button in the same domain (card or background), its button and part numbers increase by one.
4. Repeat step 3 until the button is where you want it.
5. Choose the Browse tool (✋) to deselect the button.

You can move the selected button all the way forward (giving it the highest part number, equal to the sum of all the buttons and fields in its domain) or all the way backward (giving it a part number of 1) using these ⌘-key shortcuts:

To do this …	Press
Send the button to the back.	⌘-Shift- – (minus)
Bring the button to the front.	⌘-Shift- + (plus)

As you reorder buttons, the numbers of all the affected buttons change to reflect their new positions. Each button's part and button numbers (shown in the Button Info dialog box) reflect its front-to-back position, relative to the other elements in the same layer. (The button farthest away is button number 1, and its part number will be the lowest of all the buttons in that layer. The closer a button is to the front relative to other elements in the same layer, the higher its number.)

❖ *You can use scripts to reorder buttons:* Sometimes it's useful to reorder fields and buttons while a stack is running. In such a case—especially if your stack will be used by people who don't know all of HyperCard's subtleties—you must write a script to do it. For example, to make sure that button "Home" is front-most, you can use a line of code like this:

```
set the partNumber of card button "Home" ¬
to the number of parts
```

See the *HyperCard Script Language Guide* for details. ❖

❖ *The button and part numbers change, not the button ID:* A button's ID remains constant, no matter where the button is relative to other buttons and fields. ❖

Making a button opaque or transparent

To see background or card elements through a button that covers them, you can make the button transparent. Conversely, to give a button more prominence, you can make it opaque.

Follow these steps to make a button opaque or transparent:

1. Choose the Button tool (▭) from the Tools menu.
2. Click the button you want to change to select it.
3. Choose Button Info from the Objects menu.
4. Choose the appropriate button style from the Style pop-up menu to make the button opaque or transparent.
5. Click OK.

❖ *Most button styles are opaque:* In one way or another, most button styles don't let what's beneath them show through. The only truly transparent styles are the styles Transparent and Oval. ❖

Moving a Button Around in the Stack

You'll often find after you've created a button that it's in the wrong place—it's on the card layer when it should be on the background, it's in the background when it should be on the card layer, or it's on the wrong card altogether. This section shows you how to move a button around within the current stack.

Moving a button from the card to the background

It's easy to put a button in the card layer by mistake when you intend to put it in the background. If this happens, you can move the button from the card layer to the background layer (of the same card) by following these steps:

1. **Choose the Button tool (▭) from the Tools menu.**
2. **Click the button you want to move to select it.**

   A moving dashed line surrounds the selected button.
3. **Choose Cut Button from the Edit menu.**

   This removes the button from the card and puts it on the Clipboard.
4. **Go to the background layer.**

   Choose Background from the Edit menu.
5. **Choose Paste Button from the Edit menu.**

   This takes a copy of the button on the Clipboard, puts it in the current background, and selects it. The pasted button appears in the same position from which it was cut.
6. **While it's still selected, drag the button to where you want it.**

   Because you can't see the elements in the card layer while you work in the background, you may be unable to tell whether you're putting the button in the right place. If this happens, you can choose Background from the Edit menu again to go back to the card layer, and then select and drag the button from the card layer.

Moving a button from the background to the card

Follow these steps to move a button from the background layer to the card layer of the same card:

1. Choose the Button tool (▭) from the Tools menu.
2. Click the button you want to move to select it.

   A moving dashed line surrounds the selected button.
3. Choose Cut Button from the Edit menu.

   This removes the button from the background and puts it on the Clipboard.
4. If you're in the background layer, go to the card layer by choosing Background from the Edit menu.

   If you're already in the card layer, skip this step.
5. Choose Paste Button from the Edit menu.

   This takes a copy of the button on the Clipboard, puts it on the current card, and selects it. The pasted button appears in the same position from which it was cut.
6. While it's still selected, drag the button to where you want it.

Moving a button to another card or background

You can move a button to another card in the same stack, or to a card in another stack. When you move a button, its attributes—it's style, name, icon, scripts, and so on—move with it.

Follow these steps to move a button to another card or background:

1. Choose the Button tool (▭) from the Tools menu.
2. Click the button you want to move to select it.

   A moving dashed line surrounds the selected button.

3. **Choose Cut Button from the Edit menu.**

   This removes the selected button from the current card and puts it on the Clipboard.

4. **Go to the card or background where you want to put the button.**

   Keeping the Button tool active, use the arrow keys or commands in the Go menu to navigate between cards.

5. **Choose Paste Button from the Edit menu.**

   This takes a copy of the button on the Clipboard, puts it on the current card or background, and selects it.

6. **While the button is still selected, drag it to where you want it on the card.**

After you move a button from another card or stack, test the button to make sure it works properly. To test the button, choose the Browse tool and click the button. If clicking the button produces a message that begins with "Can't understand …" or "Never heard of …", see "Copying Parts from Other Stacks" in Chapter 4 for advice on how to proceed.

Opening a Button's Script

Looking at the script of a button is a good way to learn how the button works. To look at a button's script, you must have your user level set to Scripting. Here are four ways to open a button's script:

- With the Browse tool or Button tool selected, press and hold the ⌘ key and the Option key while you click the button.
- With the Button tool selected, press and hold the Shift key while you double-click the button.
- Choose the Button tool from the Tools menu, click the button to select it, and hold down the Shift key while you choose Button Info from the Objects menu.
- Choose the Button tool from the Tools menu, double-click the button to open the Button Info dialog box, and then click Script.

To close a script, click its close box or press Enter. (For details about HyperCard scripts, read the *HyperCard Script Language Guide*.)

Deleting a Button

You can remove a button from a stack by following these steps:

1. Choose the Button tool (▭) from the Tools menu.
2. Click the button you want to delete to select it.
3. Choose Clear Button from the Edit menu, or press Delete or Backspace.

To retrieve a button you have just deleted, choose Undo from the Edit menu (or press ⌘-Z).

Chapter 7

Working with Text and Fields

Text is a major component of most HyperCard stacks, particularly stacks designed for managing large amounts of information.

Most of the stack text is in *fields*—rectangular areas on a card where you can type and edit text easily. This chapter gives instructions for working with text in fields.

To do all the tasks in this chapter, you must have your user level set to Scripting. (“User Levels and Options” in Chapter 1 tells you how to set your user level.)

Adding Visible Text

HyperCard has three types of visible text:

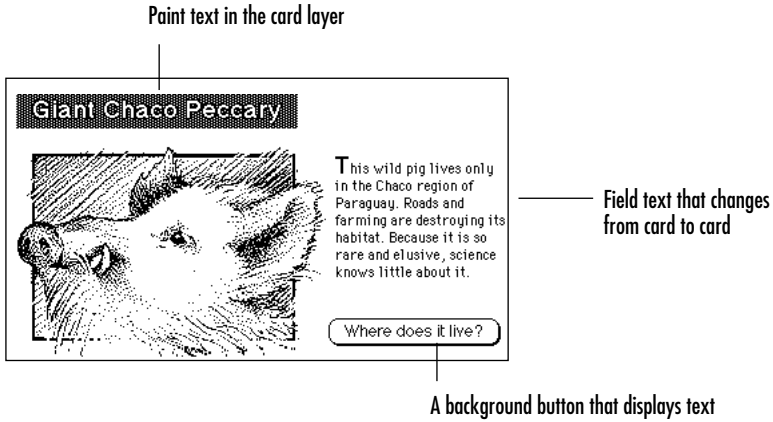
- text stored in a field
- text attached to a button
- paint text

For most purposes, it's best to use fields to add text to a stack. Field text is easy to edit; you can select any part of the text in a field and change it, move it, copy it, or delete it. You can also move field text around on a card by selecting and dragging the field. And you can search for specific text in fields.

You can use the Shared Text option to create a background field that displays the same text on every card, which means you can create text labels made up of editable text.

You can also use buttons to add text labels to a card or background. A button can't show much text, but button text is easy to move around on the card because it moves when you move the button.

Paint text can't be edited. Once you finish typing paint text, it "dries." To change it, you have to erase it and retype it. Paint text is useful for adding a permanent label to a graphic. And you can create special effects with paint text using commands in the Options menu which appears whenever a Paint tool is selected. (Chapter 8 describes paint text.)



Deciding Where a Field Belongs

To create a place for text, you add a field to a card or background. Whenever you add a field, you need to decide whether you want to put it in the card layer or the background layer. To decide where to put the field, consider where you want the field to appear, and where you want its text to appear:

- If you want the field and its text to appear only on one card, put the field in the card layer.
- If you want the field to appear on every card in the stack, or in a major section of the stack, but you want to type different text into the field on each card, put the field in the background layer.
- If you want the field to appear on every card in the stack, or in a major section of the stack, and you want it to display the same text on each card, put the field in the background layer and turn on the Shared Text option in the Field Info dialog box.
- If you want a field to appear on some of the cards in the stack, but not all of them, create a different background for those cards and put the field in that background only. (“Creating a New Background” in Chapter 5 explains how to add a background to a stack.)

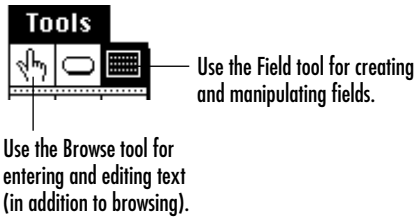
A background field appears in the same location on all the cards that share the background.

To add a field to a background, you must be in the background layer; to add a field to a card, you must be in the card layer. To go to the background layer, press ⌘-B. When you're in the background layer, stripes appear in the menu bar. If you press ⌘-B repeatedly, you move back and forth between the card layer and the background layer.

❖ *Wrong layer?* The most common mistake in adding a field is putting it in the card layer when you want it in the background layer. (To find out whether the field is in the background layer, press ⌘-B to see just the background elements.) If you put a field in the card layer by mistake, see "Moving a Field from the Card to the Background" later in this chapter. ❖

Tools for Working with Fields

To work with fields and field text, you need both the Field tool and the Browse tool:



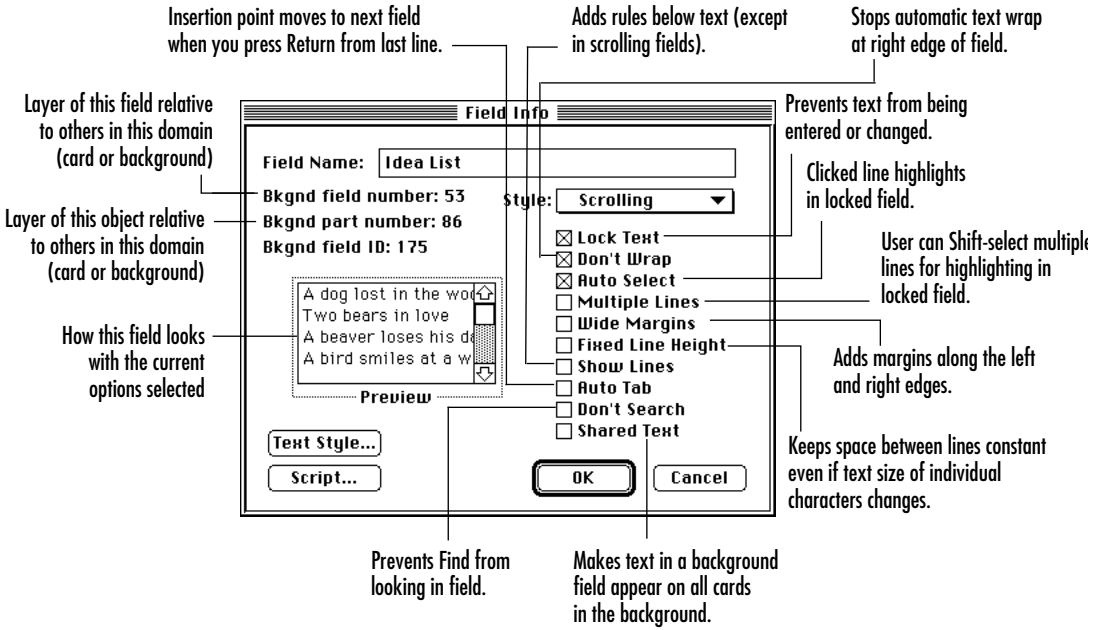
To make it easy to alternate between the tools, you can "tear off" the Tools menu to create a movable Tools palette. To do it, drag down past the bottom of the menu or beyond either side.

You can use the following ⌘-key shortcuts to choose the tools you need for working with fields:

To do this…	…press this
Tear off Tools menu	Option-Tab
Select Browse tool	⌘-Tab
Select Field tool	⌘-Tab-Tab-Tab

Field Info dialog box

You use the Field Info dialog box to get information about a field and to set field characteristics.



To get to the Field Info dialog box:

1. Choose the Field tool on the Tools menu.
2. Click the field you want to work with once.
3. Choose Field Info from the Objects menu.

   You can also double-click the field you want to work with in step 2 and skip step 3.

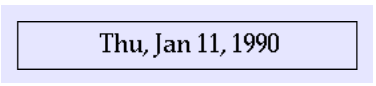
Copying ready-made fields

HyperCard comes with a special stack called Readymade Fields that contains fields you can copy and paste into your stacks. These fields have pre-programmed scripts that add power and versatility to your stacks.

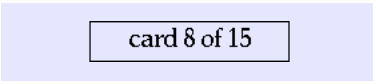
The Readymade Fields stack includes fields that automatically display the date, time, current card number, or calendar months. This stack also has fields that expand or shrink when you click them, fields that perform calculations on values you type into them, fields that sort their text alphabetically, fields that perform metric conversions, and much more.

You don't need to know HyperTalk to make these fields work. You just need to understand what they do, so that you can use them appropriately in your stacks. These fields are designed to work in virtually any stack. They don't depend on your stack's structure in any way.

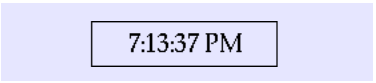
A field that always displays the current date:



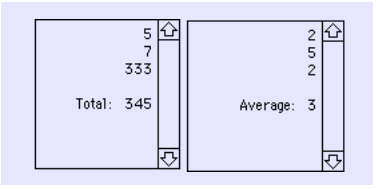
A field that always displays the current card number:



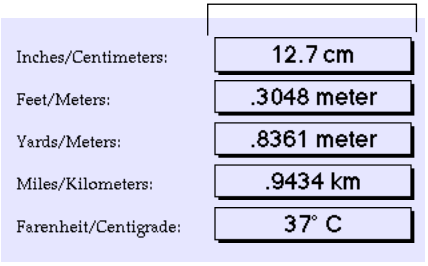
A field that always displays the current time:



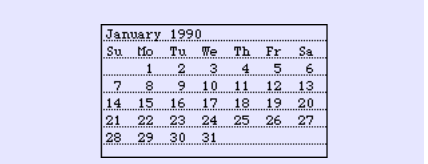
Fields that can perform calculations on numbers you type in them:



Fields that convert measurements you type in them:



A field that always displays the current month's calendar when you click it:



Copying ready-made fields makes stack building easier and saves you time. Follow these steps to copy one of the ready-made fields:

1. **Open the Readymade Fields stack.**
2. **Go to the card that has the field you want to copy.**
3. **Choose the Field tool from the Tools menu (or click it on the Tools palette).**

   The pointer changes to an arrow ( ).
4. **Click the field you want to copy to select it.**

   A moving dashed line surrounds the selected field.
5. **Choose Copy Field from the Edit menu.**
6. **Go to the card or background where you want to put the copied field.**

   Keeping the Field tool active, use the arrow keys or commands in the Go menu to navigate between cards.

   If you're not sure whether to put the field in the card layer or the background layer, see "Deciding Where a Field Belongs" earlier in this chapter.
7. **Choose Paste Field from the Edit menu.**

   This takes a copy of the field from the Clipboard, puts it on the current card or background, and selects it.
8. **While the field is still selected, drag it to where you want it on the card.**

If you want to enter text into the field after you copy it, choose the Browse tool; then click in the field and type.

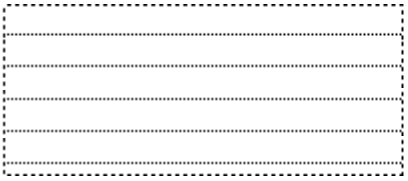
❖ *Can't type into the field?* Make sure you're working in the card layer. If you see stripes in the menu bar (indicating that you're working in the background layer), press ⌘-B to return to the card layer. ❖

Creating a field

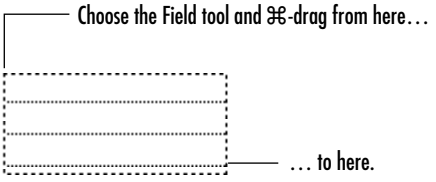
To create a new field, follow these steps:

1. Go to the card or background where you want to put the field.
2. Make sure you have one of the General tools selected.
3. Choose New Field from the Objects menu.

   This automatically selects the Field tool and creates a new rectangular field. The field appears in the center of the card window and is selected, so you can move it or resize it easily.



❖ *Another method:* You can create a new transparent field by choosing the Field tool and then ⌘-dragging diagonally. ❖



You can have as many fields on a card or a background as can fit. Fields can overlap to any depth.

Entering and Editing Text in a Field

Entering and editing text in a HyperCard field is just like working with any other Macintosh text. You can click anywhere in the field and begin typing; delete text with the Delete or Backspace key; and drag to select text for copying, cutting, or editing. You can also copy text to and from a field by way of the Clipboard to and from other fields and applications.

❖ *Where's the field?* A transparent, empty field is invisible when the Field tool isn't selected. This makes it difficult to locate the field when you're ready to enter text into it. One way to locate the field is to move the Browse tool around; the pointer turns into an I-beam when it's over an editable field. Another way to locate a transparent field is to press Tab repeatedly, which moves you through each editable field on the current card and background, one field at a time. If the field has text in it, the text is highlighted; otherwise, the insertion point shows in that field. ❖

To enter and edit field text, follow these steps:

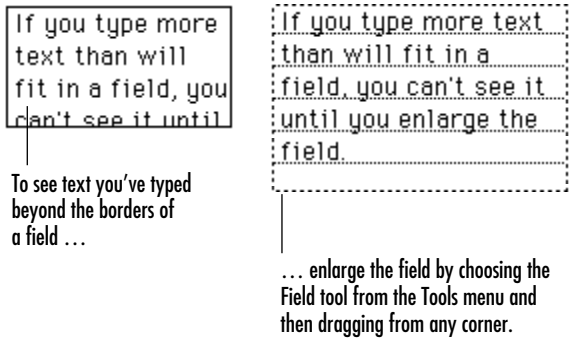
1. Choose the Browse tool from the Tools menu.
2. Move the Browse tool over the field you want to edit.

   The Browse tool pointer turns into an I-beam when it's over an editable field. If you don't see the I-beam pointer, read the next section, "Where's the I-Beam Pointer?"
3. Click inside the field to position the insertion point where you want to enter or edit text.

   You can also select text you want to replace. If you click in an empty field, the insertion point appears at the left edge of the line you click.

4. Start typing.

   If you type more text than can fit in a field, the remaining text goes off the bottom of the field. But this text isn't lost, it's just hidden from view. To see the hidden text, make the field bigger.



Where's the I-beam pointer?

Sometimes the Browse tool doesn't turn into an I-beam (I) when you move it over a field that you want to edit. Here are some typical instances when that happens, and what you can do about it:

- The field is locked. To unlock the field, follow the instructions in "Locking and Unlocking a Field" later in this chapter.
- The Shared Text option is turned on in the Field Info dialog box and you're working in the card layer rather than the background layer. Press ⌘-B to go to the background layer. (See "Making Field Text Appear on Every Card" later in this chapter for more information about the Shared Text option.)
- The Shared Text option is *not* turned on in the Field Info dialog box, and you're working in the background layer rather than the card layer. Press ⌘-B to return to the card layer.
- Your user level is set to Browsing. For instructions on changing the user level, see "User Levels and Options" in Chapter 1.
- The text you're trying to edit is either paint text or button text, not field text. To see whether it's field text, choose the Field tool from the Tools menu and click the text. If the area becomes selected (surrounded by a moving dashed line), it's field text; otherwise, it's not. See Chapter 6 for information about changing the text on a button, or Chapter 8 for information on changing paint text.

Preventing text wrap in a field

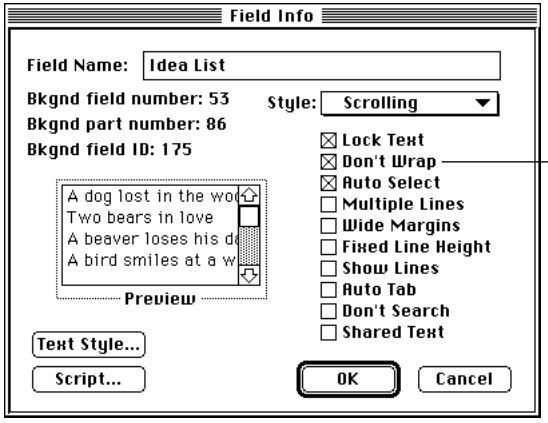
Normally when you type into a field, your text wraps when it reaches the right side of the field—that is, words that don't fit completely on the line move to the next line. You can customize a field so that its text doesn't wrap. When you use this feature, you don't see the text you type beyond the right side of the field unless you press Return as you type to move from line to line.

To prevent text from wrapping in a field, follow these steps:

1. Choose the Field tool from the Tools menu.
2. Click the field to select it.
3. Choose Field Info from the Objects menu (or double-click the field).

   The Field Info dialog box appears.

4. Click the Don't Wrap checkbox to select it.



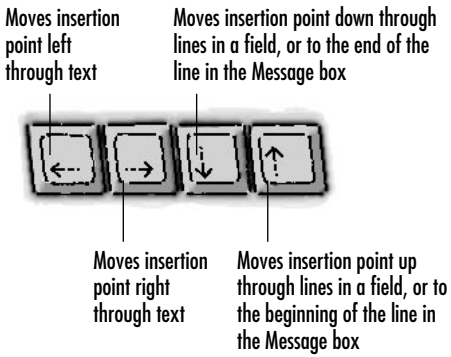
5. Click OK.

Text won't wrap as you type in the field, and it disappears from view if you type beyond the right edge. Any text you type beyond the right side of the field is still there; it's just hidden. You can see it by turning off Don't Wrap or by enlarging the field.

When you turn on Don't Wrap for a field that already has text in it, HyperCard continues to put text on the first line of the field, extending beyond the right edge of the field, if necessary, until it comes to a Return character. The text that was below the first line disappears from view, but it's still in the field. You can see it again by turning off Don't Wrap.

Using arrow keys to move through text

Normally, the arrow keys move you through cards. But when the Arrow Keys in Text option is selected on the Preferences card in your Home stack, you can use the arrow keys to move the insertion point through text while you're typing in fields. This makes text editing easier.

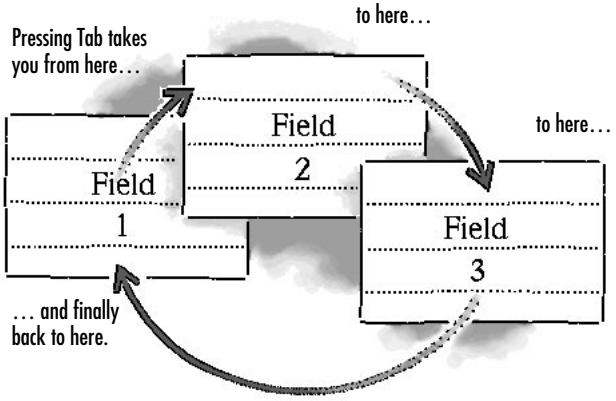


When Arrow Keys in Text is turned on and the insertion point is blinking in a field or the Message box, you use the Option key with the arrow keys to move through cards in a stack.

➤ *See also:* "Arrow Keys in Text Option" in Chapter 1.

Moving from one field to another

While you're entering text into fields, you can move from one editable field to the next by pressing Tab. When you press Tab, you go to the field with the next higher field number. Field numbers are assigned to fields in the order you add them. The first field you add is field 1, the second is field 2, and so on. If the insertion point is in field 3 and you press Tab, the insertion point moves to field number 4; if there are only three fields, the insertion point moves from field 3 to field 1.

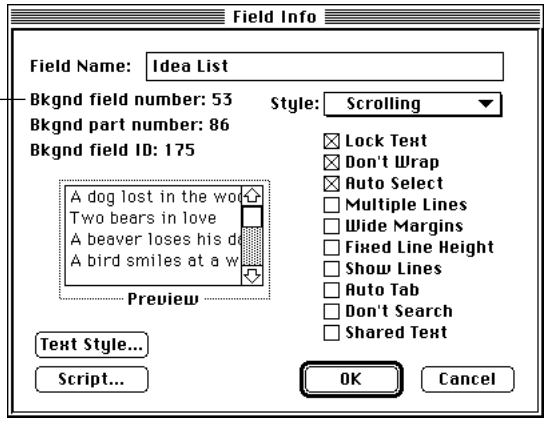


Pressing Shift-Tab moves you backwards through the fields. Locked fields are excluded; you can't Tab to a locked field.

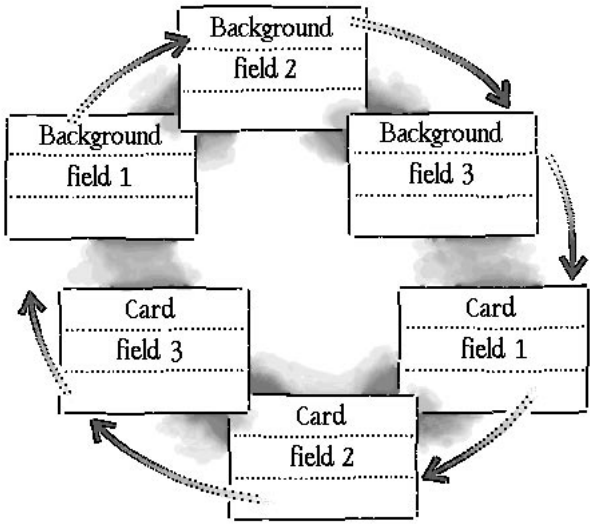
▲ **Warning:** When you tab to a field that already contains text, all the text is selected. Typing at this point erases all the old text in the field and replaces it with what you type. To preserve the old text and add new text to it, click in the field where you want to type. If you accidentally erase all the old text, immediately choose Undo from the Edit menu. ▲

A field's number (which determines the field's position in the tabbing order) appears in the Field Info dialog box. Choose the Field tool from the Tools menu and double-click the field to see the Field Info dialog box.

This number determines the field's position in the tabbing order.



If you have both card fields and background fields on the card, pressing Tab takes you from one field to the next, according to the sequence in the next figure.



If the Auto Tab option is turned on in the Field Info dialog box, you can go to the next field by pressing Return (instead of Tab) when the insertion point is in the last visible line of the field.

To turn on the Auto Tab option for a field, follow these steps:

1. Choose the Field tool from the Tools menu.
2. Double-click the field.
3. Click Auto Tab to select it.
4. Click OK.

❖ *Note:* Auto Tab doesn't work for a scrolling field. ❖

Undoing your typing

To undo typing mistakes while you're editing field text, you can do any of the following:

- Erase text to the left of the insertion point, one character at a time, by pressing Delete or Backspace.
- Drag to select the incorrect text and retype it, or press Delete or Backspace to erase it.
- Choose Undo from the Edit menu (or press ⌘-Z). Undo undoes your last text editing (or stack editing) operation.

Choosing the Look of Field Text

You can determine the look of field text in two ways:

- You can set the default text format including the font, size, style, alignment, and line spacing for the field as a whole.
- You can set the font, size, and style for individual characters, words, or phrases in the field.

The default text format options you choose for the field apply to the whole field. All text you type in the field has these attributes unless you style it individually.

Setting default attributes for field text

To choose the default text attributes for a field, follow these steps:

1. Choose the Field tool from the Tools menu.
2. Select the field by clicking it.
3. Choose Field Info from the Objects menu (or double-click the field).

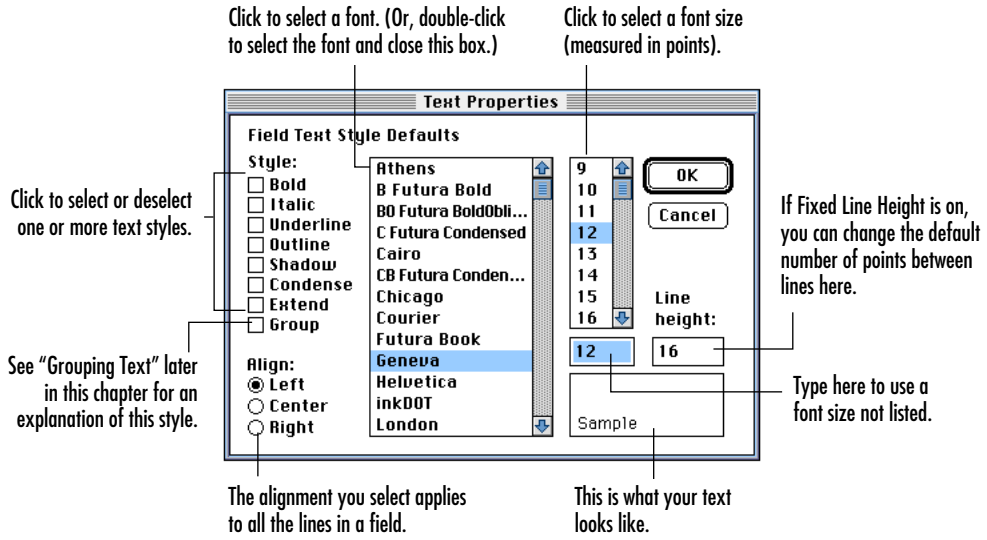
   The Field Info dialog box appears.
4. Click Text Style.

   The Text Style dialog box appears.

❖ *Alternate method:* You can also open the Text Style dialog box by clicking

to select the field with the Field tool, and then choosing Text Style from the Edit menu (or pressing ⌘-T). ❖

5. Choose from the options in the Text Style dialog box to set the default text format for the field.



6. When you're finished, click OK.

   The text in the field appears in the new default format, and any new text you type into the field acquires the same format.

❖ *Losing text tops?* If you set one font size for a field and change it to a larger size later, the tops of the characters can disappear. To fix this, turn off the Fixed Line Height option in the Field Info dialog box. Doing so lets the line height of the field vary to accommodate the size of your text. ❖

To set just the font, size, and style for a field, click the field with the Field tool chosen and make choices from the Font and Style menus.

❖ *Preset size, style, and font:* Text for new HyperCard fields is preset to 12-point plain Geneva left-aligned. ❖

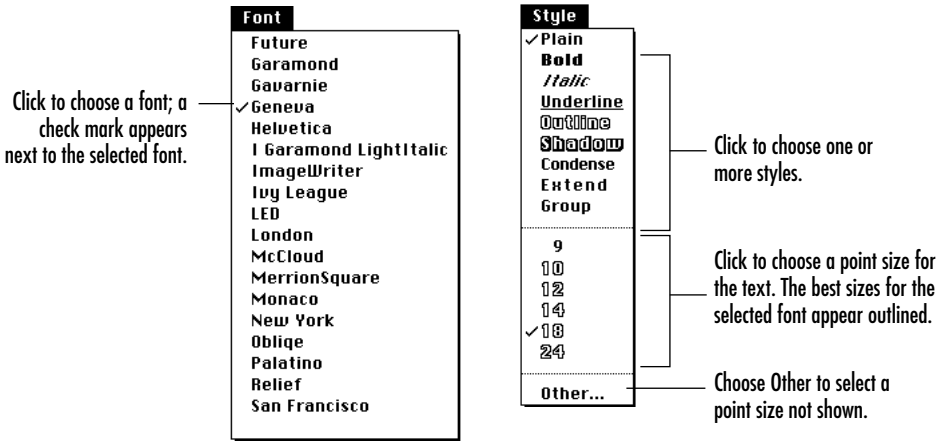
Setting attributes for individual pieces of text

You can change the attributes for individual characters in a field, overriding the field's default settings for those characters. Here's how:

1. Choose the Browse tool from the Tools menu.
2. Drag with the I-beam pointer to select the text you want to change.

   If you don't see the I-beam pointer, consult "Where's the I-beam Pointer?" earlier in this chapter.
3. Choose Text Style from the Edit menu and make the changes you want.

   Alternatively, you can make choices from the Font and Style menus.



You can use the following ⌘-key shortcuts while you're working with individual pieces of field text:

To do this …	…press this
Select all the text in the field	⌘-A
* Bold the selected text	⌘-Shift-B
* Condense the selected text	⌘-Shift-C
Restore the selected text to the field's default text format	⌘-Shift-D
Restore the field to its previous contents, undoing all recent changes	⌘-Shift-Z
* Extend the selected text	⌘-Shift-X
Change the selected text to the next font (alphabetically)	⌘-Shift-F or ⌘-Shift-[
Change the selected text to the previous font (alphabetically)	⌘-Shift-]
* Group the selected text	⌘-Shift-G
* Italicize the selected text	⌘-Shift-I
* Outline the selected text	⌘-Shift-O
* Underline the selected text	⌘-Shift-U
Make the selected text a smaller font size	⌘-Shift-<
Make the selected text a larger font size	⌘-Shift->
Decrease the field's line height	⌘-Shift- – (minus)
Increase the field's line height	⌘-Shift- + (plus)

* If the style is already in effect, pressing the ⌘-key combination undoes it.

❖ *Varying text sizes:* If you set varying text sizes within a field and you want the field's line height to adjust to the different sizes, make sure the Fixed Line Height option is turned off. When you click Fixed Line Height to deselect it, the Show Lines option in the Field Info dialog box automatically turns off if it's turned on. ❖

Restoring text to the default format

You can restore reformatted text to the default text format for the field (as set in the Text Style dialog box). Follow these steps:

1. Choose the Browse tool from the Tools menu.
2. Drag with the I-beam pointer to select the text you want to change.

   If you don't see the I-beam pointer, see "Where's the I-beam Pointer?" earlier in this chapter.
3. Press ⌘-Shift-D.

   The selected text is restored to the default attributes for the field.

Making field text appear on every card

Use the Shared Text option in the Field Info dialog box to create a background field that displays the same text on every card. This option appears only in the Field Info dialog box for background fields.

To get the same field text to appear on every card, follow these steps:

1. Create a field in the background.

   See "Creating a Field" earlier in this chapter for instructions.
2. Double-click the field.

   The Field Info dialog box appears.

3. Click the Shared Text checkbox to select it.
4. Click OK.
5. Choose the Browse tool from the Tools menu.
6. Go to the background layer (if you're not already there) by pressing ⌘-B.
7. Click in the field and type the text you want to display on every card.

   When you finish, return to the card layer.
8. Choose Background from the Edit menu, or press ⌘-B.

When the Shared Text option is turned on for a field, you can enter or edit text in the field only while you're in the background layer. If you're in the card layer, you won't see the I-beam pointer when you move the Browse tool over a field for which the Shared Text option is turned on.

When you turn off Shared Text, the text you've entered in the background layer becomes hidden (although it's still there), and you can edit the field only from the card layer.

Two sets of text

You can think of background fields as potentially having two different sets of text; the Shared Text setting determines which set of text you see:

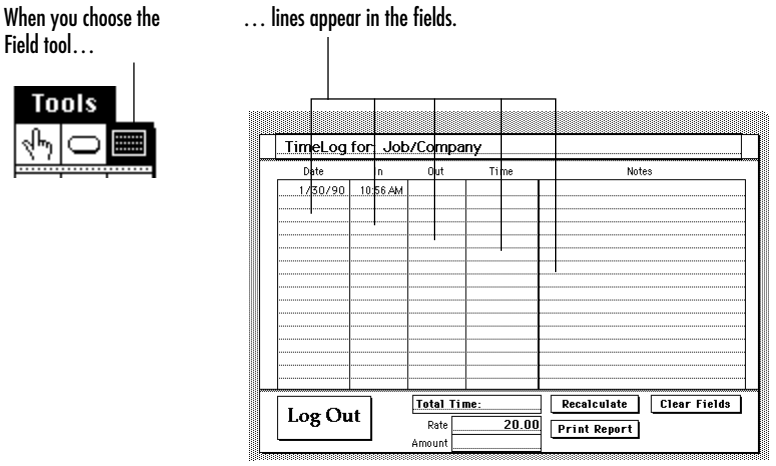
- When you turn on Shared Text, any text you've entered in the background layer appears, and text you've entered in the card layer disappears.
- When you turn off Shared Text, any text you've entered in the background layer disappears, and text you've entered in the card layer appears.

❖ *Shared text isn't searched.* If the Shared Text option is turned on for a field, the Don't Search option is turned on automatically. This means that HyperCard doesn't search in the field when you ask it to look for specific text. ❖

Locating Fields

Many of the fields in stacks are easy to locate right away, but some are harder to find. You can use either of the following methods to locate all the fields on the current card and background:

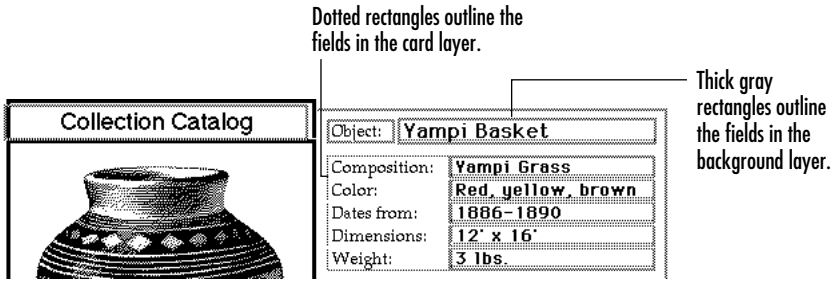
- Choose the Field tool from the Tools menu. Lines appear in all the fields (except scrolling fields, which have a visible scroll bar).



- While the Browse tool is selected, you can look at both the buttons and fields by pressing and holding the ⌘, Shift, and Option keys. Gray rectangles appear around the buttons and fields. Then, while you're still holding down the ⌘ and Option keys, release the Shift key—the dotted rectangles around the fields disappear. Pressing and releasing the Shift key repeatedly while holding down the ⌘ and Option keys makes the field rectangles appear and disappear.

Changing the Appearance of a Field

Once you've created or copied a field, you can change its appearance by resizing it, changing its style, adding margins, or displaying lines in it. This section explains how to make a field look the way you want it to.



❖ *Note:* You can change the appearance of both card fields and background fields while you're in the card layer. You don't have to be in the background layer to modify background fields. ❖

➤ *See also:* "Choosing the Look of Field Text" earlier in this chapter.

Changing the size of a field

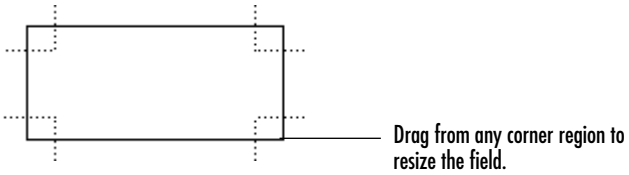
You can change the size of a field whether or not it has text in it. When you change a field's size, any text in it wraps appropriately to conform to the new size (assuming that the Don't Wrap option is turned off in the Field Info dialog box).

To resize a field, follow these steps:

1. Choose the Field tool from the Tools menu.
2. Click the field you want to resize to select it.

   A moving dashed line surrounds the selected field.

3. Drag from any corner of the field:



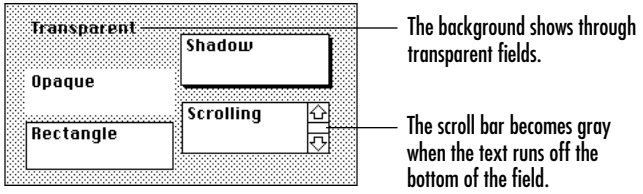
To resize the field in one dimension only, either horizontally or vertically, Shift-drag from a corner.

If you shrink a field so that there's not enough room for all the text, the text at the bottom of the field disappears from view. But the text is still there—if you enlarge the field (or you scroll the text in the case of a scrolling field), the text becomes visible again.

❖ *Check all cards.* After you resize a background field, look through any cards affected by the field change to make sure the text looks all right. ❖

Choosing a field's style

A field can have any one of five styles: transparent, opaque, rectangle, shadow, or scrolling. (The style of a field has no bearing on the style of its text.)

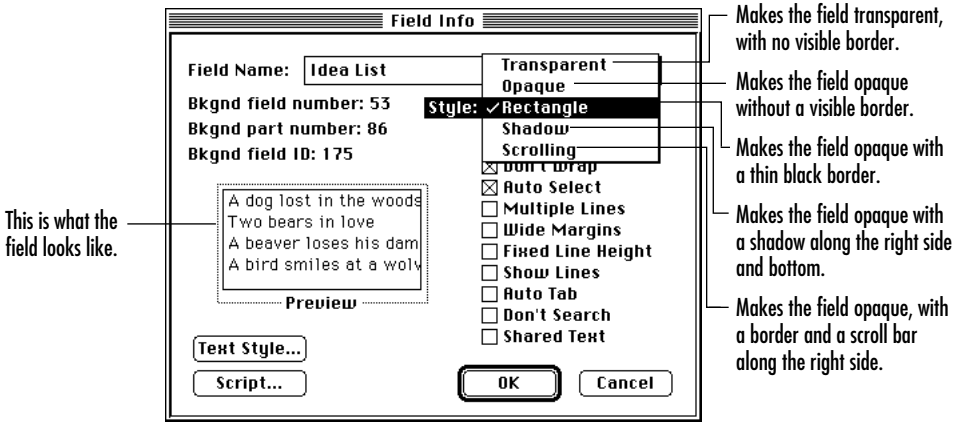


To set the style for a field, follow these steps:

1. Choose the Field tool from the Tools menu.
2. Click the field to select it.
3. Choose Field Info from the Objects menu (or double-click the field).

   The Field Info dialog box appears.
4. Press the Style pop-up menu and drag to the style you want to use.

   A model of the field appears in a window in the dialog box.



5. Click OK.

❖ *About scrolling:* Choosing the Scrolling option adds a vertical scroll bar to the selected field. You view text in a field with a scroll bar the same way you view text in any scrollable window. (For details about scrolling in windows, see the documentation that came with your computer.) ❖

You can use this procedure to change any field's style, even after you type text into the field. The text remains unaffected.

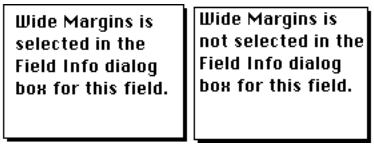
Adding margins

Adding margins to a field makes the text easier to read. When you add margins to a field, you get extra space on the right and left sides of the text in the field. As a result, text may take up more vertical space.

To add margins to a field, follow these steps:

1. Choose the Field tool from the Tools menu.
2. Click the field to select it.
3. Choose Field Info from the Objects menu (or double-click the field).

   The Field Info dialog box appears.
4. Click the Wide Margins checkbox to select it.
5. Click OK.



Displaying lines in a field

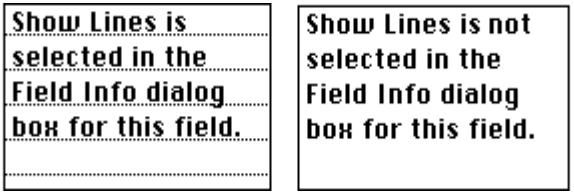
You can display lines in all field styles except scrolling fields. Lines are especially useful for making a transparent field visible so you can see where to type in it.

To display lines in a field, follow these steps:

1. Choose the Field tool from the Tools menu.
2. Click the field to select it.
3. Choose Field Info from the Objects menu (or double-click the field).

   The Field Info dialog box appears.
4. Click the Show Lines checkbox to select it.

5. Click OK.



Highlighting clicked lines

You can automatically highlight the line that a user clicks in a field, treating the clicked line as a selection from a list. For example, you can put a list of books in a field; and when the user clicks the name of a book, the name highlights, and (assuming you have included the appropriate scripts) the stack shows a summary of that book's most important elements in another field.

A field whose lines automatically highlight is called a *list field*. To create a list field, follow these steps:

1. Choose the Field tool from the Tools menu.
2. Click the field to select it.
3. Choose Field Info from the Objects menu or (double-click the field).

   The Field Info dialog box appears.
4. Click the field's Lock Text checkbox to select it.
5. Click the field's Auto Select box to select it.

   The field's Don't Wrap option is automatically checked.
6. To let the user highlight multiple lines, click the Multiple Lines checkbox to select it.
7. Click OK.

The user selects a single line by clicking it, or if Multiple Lines is also selected in the Field Info dialog box, a range of lines by dragging or Shift-clicking.

❖ *Scripting information:* The number of the selected line(s) is returned in the

selectedLine function. ❖

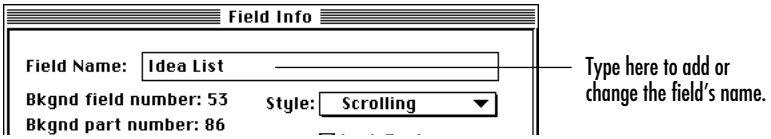
Naming a Field

Each field can have a name associated with it. You use field names mostly for referring to fields through scripts or the Message box. A field name can have up to 254 characters in it, and you can use any character in a field's name.

Follow these steps to name a field:

1. Choose the Field tool from the Tools menu.
2. Click the field you want to name to select it.
3. Choose Field Info from the Objects menu (or double-click the field).

   The Field Info dialog box appears.
4. Type a name for the field.



5. Click OK.

❖ *Script writers take note:* If you change the name of a field, be sure to change its name everywhere you refer to it in a script, too. For example, if you rename a field "Wrigley" and you use the old name "Chester" in a script, the script doesn't work properly; it can't find the field it needs. ❖

Copying a Field

You can duplicate a field on the same card, or copy it to another card, background, or stack. When you copy a field, you also copy its attributes (that is, its name, style, script, text format settings, and so on). You can copy a field either with or without its text contents.

Copying a field on the same card

Follow these steps to duplicate a field on the same card:

1. Choose the Field tool from the Tools menu.
2. Click the field you want to copy to select it.

   Whether the field is in the card layer or the background layer, you can select it from the card layer. A moving dashed line surrounds the selected field.
3. Option-drag the field.

   As you drag, you create an exact duplicate of the field. If the original is a background field, the duplicate is a background field. If the original is a card field, the duplicate is a card field.

   To limit the new field's movement to a horizontal or vertical direction only, Shift-drag from the middle of the field.

❖ *Option-drag can't duplicate text.* To duplicate a field with its text intact, you must copy and then Shift-paste the field. See the next section for detailed instructions. ❖

Copying a field to another card or background

To copy a field to another card or background, follow these steps:

1. Choose the Field tool from the Tools menu.
2. Click the field you want to copy to select it.
3. Choose Copy Field from the Edit menu.

   This makes a copy of the selected field (including its script) and puts it on the Clipboard.
4. Go to the card or background where you want to put the field.

   Use the arrow keys or commands in the Go menu to navigate between cards while the Field tool is selected.

5. **Choose Paste Field from the Edit menu.**

   This takes a copy of the field that's on the Clipboard, puts it on the current card or background, and selects it.

   If you copy the field and its text from the card layer to the background layer, you can't see the text until you return to the card layer at the end of this procedure.

   If you copy a background field to the card layer of the same card, the copy is pasted directly over the original. To see the original, drag the copy away.

❖ *Note:* To paste the field with its text intact, press and hold the Shift key as you paste. ❖

6. **While it's still selected, drag the field to where you want it.**

   If you copied the field and its text from the card layer to the background layer and the text isn't visible, return to the card layer to see the text.

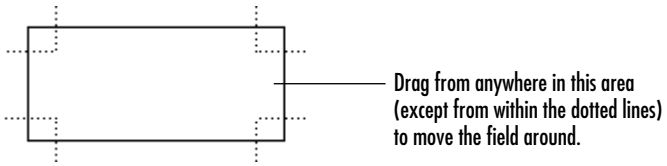
Moving a Field Around on a Card or Background

You can place a field wherever you like on the card or background. To reposition a field on the card or background, follow these steps:

1. **Choose the Field tool from the Tools menu.**
2. **Click the field you want to move to select it.**

   Whether the field is in the card layer or the background layer, you can select it from the card layer. A moving dashed line surrounds the selected field.

3. **Drag from the middle of the field, or from one of its edges (not a corner).**



   To limit the field's movement to horizontal or vertical directions only, Shift-drag from the middle of the field.

4. **Click anywhere outside the field to deselect it (or choose the Browse tool).**

   You can select and move only one field at a time.

❖ *Check for obscurities:* After you reposition a background field, look through the cards in that background to make sure the moved field hasn't become obscured. Because all objects on the background layer are behind objects on the card layer, a background field can become partially or totally covered by a button or field on the card. ❖

When elements overlap

HyperCard puts different kinds of elements into different layers. Together, all these layers make up the card you see. This layering of buttons and fields becomes evident when the elements overlap. Elements that are closer to you can obscure elements that are farther away. If this happens, you can either move the elements apart so they don't overlap, or you can try either of the following:

- Reorder the fields and buttons. You can move any field or button closer or farther, within its layer.
- Make some of the elements transparent, so you can see other elements through them. (Buttons, fields, and graphics can all be made transparent or opaque.)

For a detailed discussion of overlapping elements and of reordering, see "Moving Elements from Layer to Layer" in Chapter 6. While that discussion focuses on buttons, what applies to buttons applies equally well to fields.

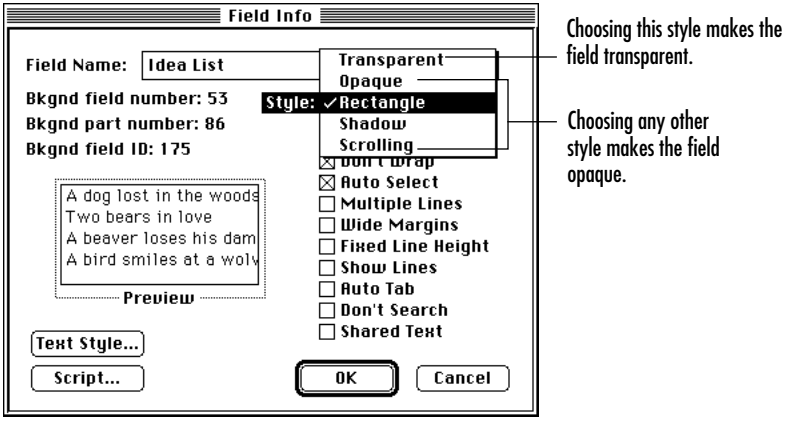
Changing the opacity of a field

To see background or card elements through a field that covers them, make the field transparent. Conversely, to give a field more prominence, make it opaque.

Follow these steps to make a field opaque or transparent:

1. Choose the Field tool from the Tools menu.
2. Click the field you want to change to select it.
3. Choose Field Info from the Objects menu (or double-click the field).

   The Field Info dialog box appears.
4. Choose an appropriate field style to make the field opaque or transparent.



5. Click OK.

Moving a Field Around in the Stack

You'll sometimes find after you create a field that the field is in the wrong place. It's on the card layer when it should be on the background, it's in the background when it should be on the card layer, or it's on the wrong card altogether. This section shows you how to move a field around within the current stack.

Moving a field from the card to the background

It's easy to put a field in the card layer by mistake when you intend to put it in the background. If this happens, you can move the field from the card layer to the background layer (of the same card) by following these steps:

1. Choose the Field tool from the Tools menu.
2. Click the field you want to move to select it.

   A moving dashed line surrounds the selected field.
3. Choose Cut Field from the Edit menu.

   This removes the field from the card and puts it on the Clipboard.
4. Choose Background from the Edit menu to the background layer.
5. Choose Paste Field from the Edit menu.

   This takes a copy from the field on the Clipboard, puts it in the current background, and selects it. The pasted field appears at the same position from which it was cut. If you pasted the text along with the field, you can't see the text until you return to the card layer at the end of this procedure.

❖ *Note:* To paste the field with its text intact, press and hold the Shift key as you paste. ❖

6. While it's still selected, drag the field to where you want it.

   Because you can't see the elements in the card layer while you're working in the background, you may not be able to tell whether you're putting the field in the right place. If this happens, you can press ⌘-B to go back to the card layer, and then select and drag the field from the card layer.
7. Choose Background from the Edit menu to return to the card layer.

   Now you'll see any pasted text.

Moving a field from the background to the card

Follow these steps to move a field from the background layer to the card layer of the same card:

1. Choose the Field tool from the Tools menu.
2. Click the field you want to move to select it.

   A moving dashed line surrounds the selected field.
3. Choose Cut Field from the Edit menu.

   A dialog box appears, asking you to confirm the deletion.
4. Click Delete in the dialog box to remove the field from the background and put it on the Clipboard.
5. If you're in the background layer, go to the card layer by pressing ⌘-B.

   If you're already in the card layer, skip this step.
6. Choose Paste Field from the Edit menu.

   This takes the cut field from the Clipboard, puts it on the current card, and selects it. The pasted field appears at the same position from which it was cut.

❖ *Note:* To paste the field with its text intact, press and hold the Shift key as you paste. ❖

7. While it's still selected, drag the field to where you want it.

Moving a field to another card or background

You can move a field to another card in the same stack, or to a card in another stack. When you move a field, its attributes (that is, its style, name, scripts, and so on) move with it. You can move a field either with or without its text.

Follow these steps to move a field to another card or background:

1. Choose the Field tool from the Tools menu.
2. Click the field you want to move to select it.

   A moving dashed line surrounds the selected field.
3. Choose Cut Field from the Edit menu.

If the field is a background field, a dialog box appears asking you to confirm the deletion.

4. **Go to the card or background where you want to put the field.**

   Use the arrow keys or commands in the Go menu to navigate between cards while the Field tool is selected.

5. **Choose Paste Field from the Edit menu.**

   This takes the cut field from the Clipboard, puts it on the current card or background, and selects it. The pasted field appears at the same position from which it was cut. If you moved the field and its text from the card layer to the background layer, you can't see the text until you return to the card layer (at the end of this procedure).

❖ *Note:* To paste the field with its text intact, press and hold the Shift key as you paste. ❖

6. **While the field is still selected, drag it to where you want it.**

   If you moved a field and its text from the card layer to the background layer and the text isn't visible, choose Background from the Edit menu to return to the card layer and see the text.

Locking and Unlocking a Field

You can lock a field to prevent changes to its text. To lock a field, follow these steps:

1. **Choose the Field tool from the Tools menu.**
2. **Click the field to select it.**
3. **Choose Field Info from the Objects menu (or double-click the field).**

   The Field Info dialog box appears.

4. **Check the Lock Text option to turn it on.**
5. **Click OK.**

   When the Browse tool passes over a locked field, the tool doesn't change to the I-beam pointer. This lets you know that you can't edit the field.

❖ *Lock Text doesn't stop scripting.* Even though the Lock Text option of a field is turned on, the text in the field can be changed through a script or through a HyperTalk command entered through the Message box. ❖

Grouping Text

When a field is locked, each individual word of text in the field has the potential to behave much like a button. By writing a script, you can make something happen when a user clicks a word in the field.

You can also make any group of words or characters in a field respond in the same way to a single click in any part of that group of text. What happens when you click text, whether or not it's grouped, depends on the scripts in the stack.

To group text so that it responds to a click as a single unit, first make sure the field is unlocked (as described in the previous section, "Locking and Unlocking a Field"). Then follow these steps:

1. Choose the Browse tool from the Tools menu.
2. Drag with the I-beam pointer to select the text you want to group.

   If you don't see the I-beam pointer, see "Where's the I-beam Pointer?" earlier in this chapter.
3. Choose Group from the Style menu (or press ⌘-Shift-G).

To make grouped text responsive to clicks, you must write a script. (See the HyperTalk Reference stack and *HyperCard Script Language Guide* for more information.)

Excluding a Field from Text Searches

You can prevent HyperCard from searching in any particular field during text searches. Follow these steps:

1. Choose the Field tool from the Tools menu.
2. Click the field to select it.
3. Choose Field Info from the Objects menu.

4. **Check the Don't Search option to turn it on.**

   Unchecking the Don't Search option turns it off.

5. **Click OK.**

➤ *See also:* "Excluding Fields from Text Searches" and "Excluding Background Fields from Text Searches" in Chapter 5.

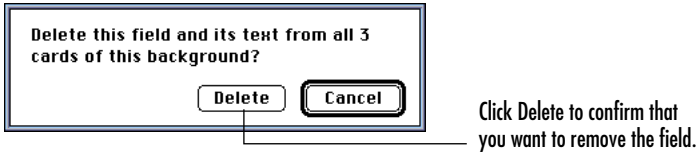
Deleting a Field

You can delete a field whether or not it has text in it. When you delete a field, any text in the field is deleted as well.

Follow these steps to delete a field:

1. **Choose the Field tool from the Tools menu.**
2. **Click the field you want to delete to select it.**
3. **Choose Clear Field from the Edit menu (or press Delete or Backspace).**

   If the field is a background field, a dialog box appears asking you to confirm the deletion.



To retrieve a field that you've deleted, immediately choose Undo from the Edit menu (or press ⌘-Z).

Chapter 8

Working with Graphics

This chapter describes the graphic elements you can create or manipulate with the Paint tools. Such elements include lines, shapes, patterns, pictures, and paint text.

This chapter explains how to do the following:

- create and edit black-and-white graphics
- copy graphics from another stack or from the same stack
- import graphics created by HyperCard or by other applications
- use the many HyperCard tools for working with graphics

To do the tasks in this chapter, you must have your user level set at least to Painting. (The section “User Levels and Options” in Chapter 1 explains how to set your user level.)

Adding Graphics to a Card or Background

Each card can have its own unique graphics in the card layer, plus background graphics it shares with other cards. Whenever you add a graphic element to a stack, you need to decide whether you want it in the card layer or the background layer:

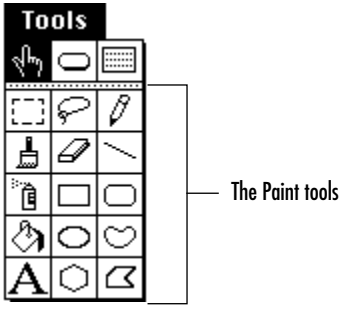
- If you want the graphic to appear on every card in the stack, put it in the background layer. A background graphic appears in the same location on all the cards that share the background.
- If you want the graphic to appear on only one card, add it to the card layer.
- If you want the graphic to appear on some of the cards in the stack (but not all of them), consider creating a different background for those cards and putting the graphic in that background only. (“Creating a New Background” in Chapter 5 explains how to add a background to a stack.)

To add a graphic to a background, you must be in the background layer; to add a graphic to a card, you must be in the card layer.

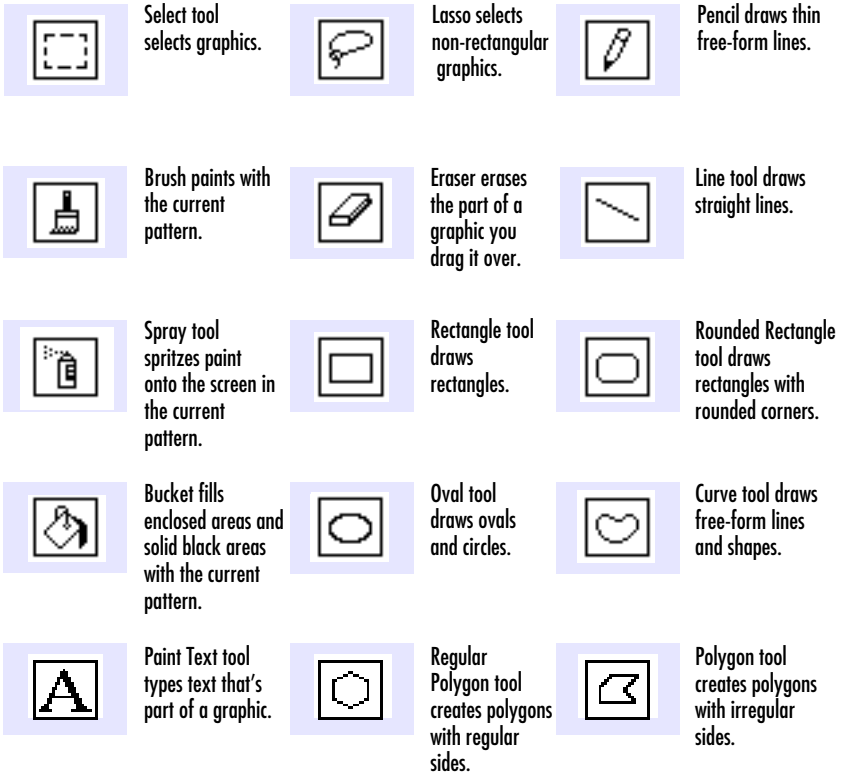
To go to the background layer, press ⌘-B. When you’re in the background layer, stripes appear in the menu bar. If you press ⌘-B repeatedly, you move back and forth between the card layer and the background layer.

Tools for Working with Graphics

To create and work with graphics, you use the Paint tools in the Tools menu.



The functions of the Paint tools are described briefly in the figure that follows. Detailed instructions for using these tools appear throughout this chapter.



To make it easy to alternate between the tools, you can "tear off" the Tools menu to create a movable Tools palette. To do this, drag down past the bottom of the menu or beyond either side. (You can also press Option-Tab.) While you have the Tools palette open, you can select a tool by clicking it on the palette.

Graphics commands and menus

When a Paint tool is active, the File menu contains the Import Paint command; use it to bring graphics created by other applications into HyperCard.

When you choose one of the Paint tools, two new menus appear: Paint and Options. The Objects, Font, and Style menus disappear temporarily while you're working with the Paint tools. Use the commands in these menus to create and manipulate graphics.

➤ *See also:* "Using HyperCard Tools" in Chapter 4.

Selecting a Graphic

Before you can modify, move, or copy a graphic, you must first select it. There are many different ways to select a graphic. The method you use depends on the shape and size of the particular graphic elements you want to select. This section explains all the methods for selecting graphics.

To select a graphic, you must be working in the same layer as the graphic. If the graphic is in the background layer, you can only select it from the background layer. If it's in the card layer, you can only select it from the card layer. If you try to select a graphic and it doesn't become selected, chances are the graphic is in the background layer and you're working in the card layer. (It's also possible that the element you're trying to select is actually a button or field. Chapters 6 and 7 explain how to select buttons and fields.)

Once you select a graphic, it stays selected until you choose a tool or click outside the selection.

❖ *Graphics are selected differently than are icons.* An icon is part of a button. To select it, you have to select the button that displays it. If you're not sure whether a particular element is a graphic, choose the Button tool (▭) from the Tools menu, click the element, and drag it. If a moving dashed line appears around the element and you can move it by dragging, it's a button. Chapter 6 gives instructions for working with buttons. ❖

Selecting a rectangular area

To select a rectangular graphic element or a rectangular area of a paint picture, follow these steps:

1. **Go to the card or background that contains the graphic element or the area you want to select.**

   Pressing ⌘-B takes you to the background layer. (When you're in the background layer, stripes appear in the menu bar.) If you press ⌘-B repeatedly, you move back and forth between the card layer and the background layer. If you don't see the graphic you want while you're in the background layer, the graphic is in the card layer.

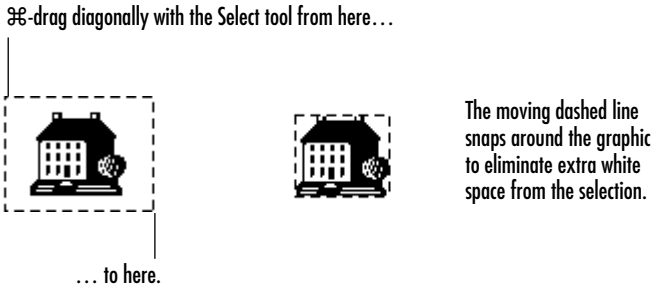
2. **Choose the Select tool (⬚) from the Tools menu.**

   You can also click it on the Tools palette. The pointer changes to a crosshair (+).

3. **Move the crosshair pointer to one corner of the area you want to select.**

4. **Drag diagonally to the opposite corner of the area.**

   A moving dashed line surrounds the selected area.



❖ *For a tighter selection:* To eliminate extra white space from the selection, press the ⌘ key while you drag; when you release the mouse button, the moving dashed line snaps in to select the smallest rectangular area surrounding the graphic. ❖

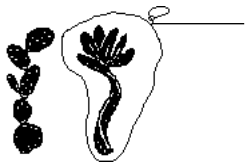
If the area you select is too much or not enough, you can deselect the graphic by clicking the card outside the selection.

Selecting a nonrectangular area

To select a nonrectangular graphic element or a nonrectangular area of a picture, follow these steps:

1. Go to the card or background that contains the graphic element or the area you want to select.
2. Choose the Lasso ( ) from the Tools menu (or click it on the Tools palette).

   The pointer turns into a lasso.
3. Drag around the graphic you want to select.



You don't need to drag completely around the graphic; HyperCard completes the selection by drawing a straight line between the point where you start dragging and the point where you stop.

When you release the mouse button, the edges of the selected graphic shimmer. If there was any filled space surrounding the graphic on the same layer, it's eliminated from the selection.

❖ *If you want to include the surrounding fill space:* To lasso a graphic without eliminating the surrounding fill space, Option-drag with the Lasso tool. This selects exactly the area you drag around. ❖

If you select too much or not enough, you can deselect the graphic by clicking the card outside the selection.

Selecting an individual graphic element

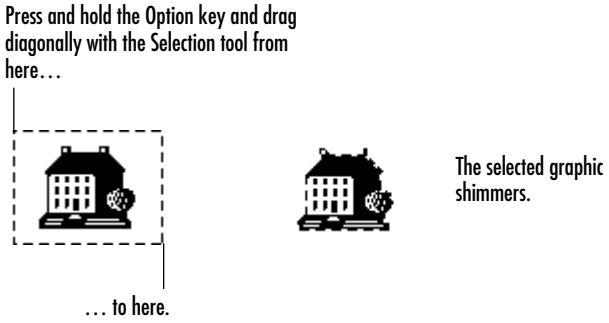
There are several ways to select a single graphic element without any of the fill space that surrounds it, including the method described in the preceding section, “Selecting a Nonrectangular Area.” This section describes two additional methods.

Use the following technique when you want to select a specific graphic element quickly and exclude the surrounding fill space, or if your hand isn’t steady enough to use the Lasso with precision:

1. Go to the card or background that contains the graphic you want to select.
2. Choose the Select tool (⬚) from the Tools menu (or click it on the Tools palette).

   The pointer changes to a crosshair (+).
3. Move the crosshair pointer to one corner of the graphic.
4. Option-drag diagonally to the opposite corner of the graphic.

   You can also choose Select from the Paint menu (or press ⌘-S) after you drag to the opposite corner (instead of before you drag). This automatically chooses the Lasso and selects the graphic.



If the area you select is too much or not enough, click the card outside the selection to deselect the graphic.

You can use the following technique to select a graphic element that has no breaks in it—that is, one composed entirely of connected black dots or surrounded by an unbroken line. This technique is useful for selecting small, solid graphic elements.

1. Go to the card or background that contains the graphic you want to select.
2. Choose the Lasso from the Tools menu.
3. Move the Lasso's tip into the graphic.
4. Press the ⌘ key while you click the graphic.

Select the graphic by ⌘-clicking it with the tip of the Lasso.

The edges of the selected graphic shimmer.

Immediately after you draw a single graphic element (and before you click anywhere), you can select the element you just created by choosing Select from the Paint menu. The Select command selects only the graphic element you created since the last time you pressed the mouse button. If you haven't just created a new graphic, the Select command selects all the graphics in the layer in which you're working.

This technique is particularly useful if you have just drawn a shape very close to or actually touching another shape, and you need to move the new shape. You can even draw a new shape on top of an old one, choose Select, and then drag the new shape away without changing the old shape. You can also use the Select command to select an area you just erased.

If the Power Keys option is turned on (and the Message box is hidden), you can press S instead of choosing Select. See "Using Power Keys" later in this chapter for more information.

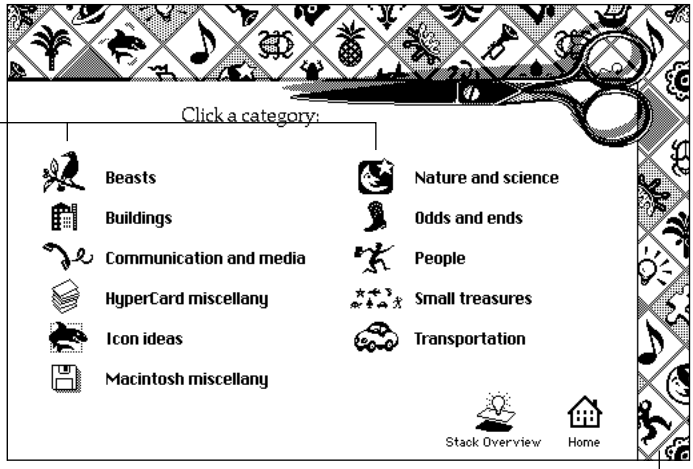
Selecting all graphic elements on a card or background

When your card or background picture is made up of several individual graphic elements, you can select them all at once to make changes to them, copy them, or move them.

Select all the graphic elements in the current card layer or background layer (excluding the white space between them) by using one of these methods:

- Choose Select from the Paint menu, or press ⌘-S.
- Double-click the Lasso on the Tools palette.
- If the Power Keys option is turned on (and the Message box is hidden), press S.

When you're in the card layer and you choose Select from the Paint menu, all the card graphics become selected…



… but the background graphics don't.

Selecting the entire card picture or background picture

When you want to copy, delete, or change the entire card picture or background picture, you can select the whole picture in one rectangular selection the size of the card.

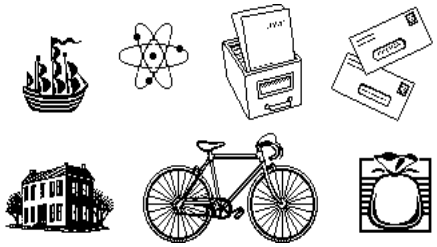
Select the entire picture by using one of these methods:

- Choose Select All from the Paint menu, or press ⌘-A.
- Double-click the Select tool on the Tools palette.
- Choose the Lasso from the Tools menu, and then press the ⌘ key while you click the card or background.
- If the Power Keys option is turned on (and the Message box is hidden), press A. (See “Using Power Keys” later in this chapter for more information.)
- Choose the Select tool from the Tools menu and drag diagonally from one corner of the card or background to the opposite corner.

A moving dashed line surrounds the selected card or background picture. To deselect the picture, click the card or background anywhere, or choose a tool from the Tools menu.

Copying Graphics That Come with HyperCard

The easiest way to get art into your stacks is to copy graphics that already exist. Copying graphics can simplify the stack-building process. HyperCard comes with several stacks that contain graphics you can copy and paste into your stacks. The Art Bits stack, for example, is filled with all kinds of illustrations. Here are some examples:



When you see a graphic you like in one of these stacks, copy it and paste it into your stack. Follow these steps:

1. Open the stack that contains the art.
2. Go to the card that has the graphic you want to copy.
3. Select the graphic you want.

   For instructions on selecting a graphic, see “Selecting a Graphic” earlier in this chapter.
4. Choose Copy Picture from the Edit menu.
5. Go to the card or background where you want to put the graphic.

   You can use the arrow keys or commands in the Go menu to navigate between cards while you have the Select tool or Lasso selected.
6. Choose Paste Picture from the Edit menu.

   This takes a copy of the graphic from the Clipboard, puts it on the current card or background, and selects it.

7. **While the graphic is still selected, drag it to where you want it on the card.**

   The graphic is opaque right after you paste it. To see through the graphic to the elements behind it, select it (if it isn't already selected) and choose Transparent from the Paint menu.

➤ *See also:* "Changing the Appearance of a Graphic" later in this chapter.

Undoing Your Mistakes

If you make a mistake while you're working with the Paint tools and commands, you can undo your last operation by choosing Undo from the Edit menu (or pressing ⌘-Z, Esc, or the tilde) before you do anything else.

You can erase a mistake by choosing the Eraser from the Tools menu and dragging over the graphic. You must be working in the background layer to erase a background graphic and in the card layer to erase a card graphic.

To erase in a straight horizontal or vertical line, press Shift while you drag. To erase the entire graphic from the current layer, double-click the Eraser on the Tools palette.

➤ *See also:* "Reverting to the Last Version of a Graphic" later in this chapter.

Painting with Brush, Bucket, and Spray Tools

Three of the tools in the Tools menu are analogous to everyday painting implements. These tools work much like the implements they represent:

- Brush () works like a paint brush.
- Spray tool () works like a can of spray paint.
- Bucket () works like a bucket full of paint.

You use these tools with the patterns in the Patterns menu. This section explains how.

Painting with the Brush tool

The Brush works like a paint brush; it leaves a swath of “paint” in its path. You can use the Brush to paint an area with any pattern. The HyperCard default pattern is solid black.

Follow these steps to paint with the Brush:

1. Go to the card or background where you want the paint.
2. Choose the Brush (🖌) from the Tools menu (or click it on the Tools palette).

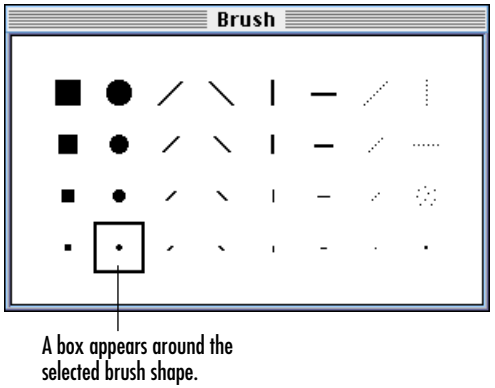
   The pointer changes to the current Brush shape.
3. Drag where you want to paint.

   Paint appears in the current pattern where you drag. To paint in a straight horizontal or vertical line, Shift-drag.

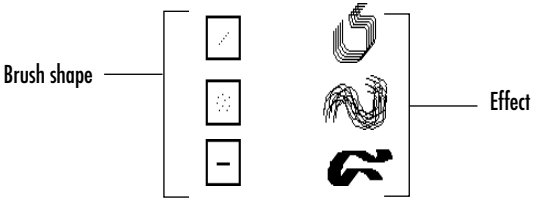
❖ *To erase with the Brush:* ⌘-drag with the Brush to erase any existing paint in the path. ❖

If you want to paint with a different pattern, choose the pattern you want from the Patterns menu before you drag with the Brush.

If you want to paint with a different brush shape, choose Brush Shape from the Options menu, or double-click the Brush on the Tools palette. The Brush Shape dialog box appears:



The different brush shapes create different effects when you paint. The following figure shows some examples:



Painting with the Spray tool

The Spray tool spritzes paint onto the screen in the selected pattern.

Follow these steps to paint with the Spray tool:

1. Go to the card or background where you want the paint.
2. Choose the Spray tool ( ) from the Tools menu (or click it on the Tools palette).

   The pointer changes to the Spray tool pointer ( ).
3. Drag where you want to paint.

   Spray paint appears in the current pattern where you drag. The more you spray back and forth over the same area, the more the pattern becomes apparent. Some patterns don't show up until you thoroughly covered an area.

   Shift-drag to spray in a straight horizontal or vertical line.

❖ *To erase with the Spray tool:* ⌘-drag with the Spray tool to erase any existing paint. ❖

If you want to spray with a different pattern, choose from the Patterns menu before you drag.

Filling an area with a pattern

You fill any area on a card or background with a pattern by using either the Bucket (in the Tools menu) or the Fill command (in the Paint menu). Before you fill an area, you choose the pattern you want to fill it with.

This section describes two different methods for filling an area. The method you use depends on whether the area you want to fill is completely enclosed.

❖ *Filling shapes:* If you know before creating a shape that you want to fill it with a pattern, you can fill the shape automatically as you draw it. For instructions, see "Drawing a Shape Filled with a Pattern" later in this chapter. ❖

Filling an enclosed area

When you want to fill an area that's completely enclosed (that is, completely surrounded by an outline), follow these steps:

1. **Go to the card or background that contains the enclosed area you want to fill.**

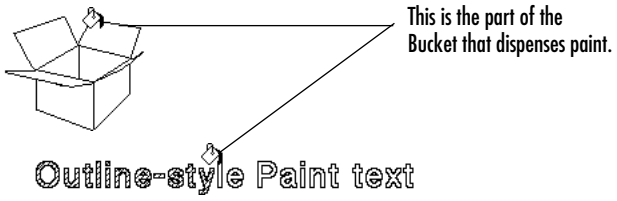
   If the outline enclosing the area is in the background layer, go to the background layer. If it's in the card layer, make sure you're in the card layer. If the outline is composed of several different graphic elements, they must all be in one layer.

2. **Choose the pattern you want from the Patterns menu.**

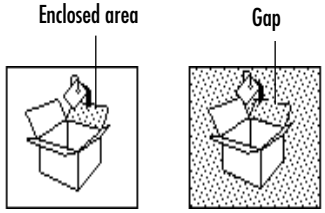
3. **Choose the Bucket ( ) from the Tools menu.**

   Or click it on the Tools palette. The pointer changes to the Bucket.

4. **Move the Bucket pointer so that the tip of the stream pouring from it is within the enclosed space you want to fill, and then click:**



If there are any gaps in the outline that encloses the area you want to fill, paint spills out and fills the surrounding area, too. If this happens, immediately choose Undo from the Edit menu, or press ⌘-Z, Esc, or the tilde. Then check carefully for gaps in the outline before using the Bucket again; repair the gaps using the Pencil, Line, or other appropriate tool.



❖ *To check for gaps:* Use FatBits from the Options menu to make checking for gaps easier. For details, see "Magnifying a Graphic for Editing" later in this chapter. ❖

Filling an unenclosed area

To fill an area that isn't completely enclosed by an outline or other graphics, follow these steps:

1. Go to the card or background that contains the area you want to fill.
2. Choose the pattern you want from the Patterns menu.
3. Select the graphic element or the area you want to fill.

   If you want to fill a specific graphic element, you can select it with either the Select tool or the Lasso as explained in "Selecting an Individual Graphic Element" earlier in this chapter. If you want to fill a blank area, select it with the Select tool as explained in "Selecting a Rectangular Area."

4. **Choose Fill from the Paint menu.**

   The selected area fills with the current pattern.

Select the graphic you want to fill…

… and choose Fill from the Paint menu.

If the Power Keys option is turned on, you can press F instead of choosing Fill.

Creating Your Own Patterns

You can change any pattern in the Patterns menu or replace it with a pattern of your own creation. When you change or create a pattern, the new pattern is saved with the stack you're working in. To change or create a pattern, follow these steps:

1. **Choose any graphics tool.**

   A title for the Patterns menu appears on the menu bar.

2. **Click the pattern you want to replace on the Patterns menu or Patterns palette.**

   To create a Patterns palette, press Shift-Tab.

3. **Choose Edit Pattern from the Options menu.**

   Or you can double-click the pattern on the Patterns palette in step 2 and skip this step. The pattern editor appears with the pattern you selected.

4. **Edit the pattern.**

   Clicking a black square makes it go away; clicking where there is no square makes one appear.

5. Click OK to save the new pattern.

   The new pattern takes the place of the one that was selected in the Patterns menu.

Changes you make to a pattern affect only graphics drawn with that pattern in the future; graphics previously drawn with the old pattern retain the old pattern.

Using a pattern that appears on the card

You can replace a pattern in the Patterns menu with a pattern that appears anywhere on the card. Follow these steps:

1. Choose any graphics tool.

   A title for the Patterns menu appears on the menu bar.

2. Click the pattern you want to replace on the Patterns menu or Patterns palette.

   To create a Patterns palette, press Shift-Tab.

3. Choose Edit Pattern from the Options menu.

   Or you can double-click the pattern on the Patterns palette in step 2 and skip this step.

   The pattern editor appears holding the pattern you selected.

4. Click the card to select the pattern you want to add to the palette.

   The pattern you click replaces the pattern in the Edit Pattern dialog box.

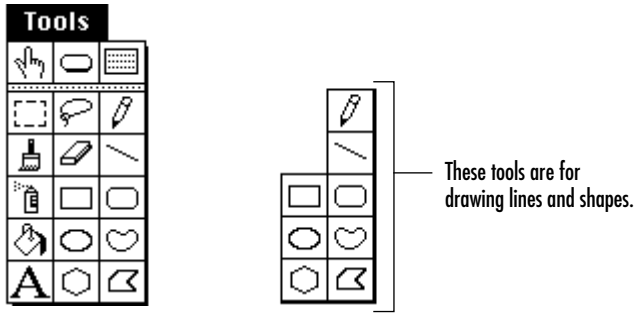
   A pattern's definition area is 8 pixels by 8 pixels. The place where you click is considered to be the center of the new pattern. So the pattern is defined as everything in a 4-pixel radius (or so) around the click point.

5. Click OK to save the pattern.

   The new pattern replaces the one selected.

Drawing Lines and Shapes

The Tools menu provides tools for drawing lines and shapes— including circles, ovals, rectangles, polygons, and free-form shapes. This section explains how to create lines and shapes with these tools.



➤ *See also:* "Drawing Shapes with Patterns and Different Line Widths" later in this chapter.

Drawing a line or free-form shape

To draw a straight line or a free-form line or shape, follow these steps:

1. Go to the card or background where you want the line or shape.
2. Choose the tool you want to use from the Tools menu.

   If you want to draw a straight line, choose the Line tool (╲). To draw a free-form line or shape, choose the Curve tool (⌓). The pointer changes to a crosshair (+).

3. Drag where you want to draw the line or shape.

If you're using the Line tool, Shift-drag to draw a straight line at a 15° angle from horizontal, or at an angle that's a multiple of 15°. To change the angle of a straight line while you're drawing it, change the direction of the mouse as you drag.

When you use the Line tool, you can draw a straight line from its center point by first turning on the Draw Centered option. To turn on Draw Centered, choose it from the Options menu. (A check mark appears next to it in the menu when this option is on.) To turn off Draw Centered, choose it again.

If the Power Keys option is turned on and the Message box is hidden, you can also press C to turn Draw Centered on or off. ("Using Power Keys" later in this chapter explains the Power Keys option.)

Drawing circles, ovals, and rectangles

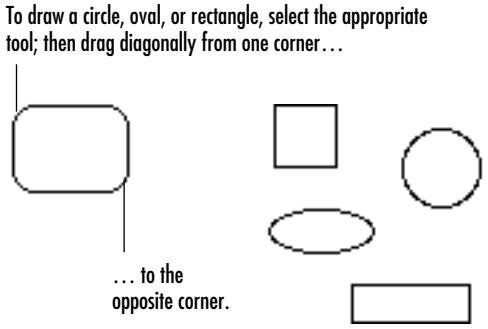
To draw a circle, oval, or rectangle, follow these steps:

1. Go to the card or background where you want the shape.
2. Choose a tool from the Tools menu.

   To draw an oval or circle, choose the Oval tool (⬭). To draw a rectangle or square, choose either the Rectangle tool (▭) or the Rounded Rectangle tool (▭) from the Tools menu. The Rounded Rectangle tool draws rectangles and squares with rounded corners.

   The pointer changes to a crosshair (+).

3. Drag diagonally to draw the shape.



Shift-drag to draw a perfect circle or square.

To move the shape around on the card while you're drawing it, press ⌘ before you release the mouse button. You can release the ⌘ key to continue creating the shape, and then press the ⌘ key again to move the shape. Once you release the mouse button, you have to select the shape before you can move it ("Selecting a Graphic" earlier in this chapter explains how).

To draw a shape from the center outwards, first turn on the Draw Centered option by choosing it from the Options menu. When Draw Centered is turned on, a check mark appears next to it in the menu. To turn off Draw Centered, choose it again.

If the Power Keys option is turned on and the Message box is hidden, you can also press C to turn Draw Centered on or off. ("Using Power Keys" later in this chapter explains the Power Keys option.)

Drawing a regular polygon

To draw a regular polygon (one whose sides are all the same length), follow these steps:

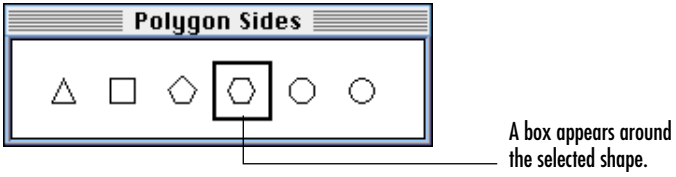
1. Go to the card or background where you want the polygon.
2. Choose the Regular Polygon tool (⬡) from the Tools menu.

   The pointer changes to a crosshair (+).
3. If you want to select the number of sides for your polygon, choose Polygon Sides from the Options menu (or double-click the Regular Polygon tool on the Tools palette).

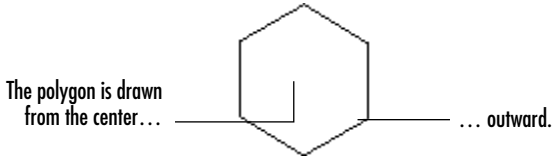
   The Polygon Sides dialog box appears.

   This step and the next step are optional. If you don't select the number of sides before you draw the polygon, it's either a square (the default shape) or the last shape you selected in the Polygon Sides dialog box.
4. Click the shape that corresponds to the polygon you want to draw.

The shape you select remains in effect until you change it by selecting a different shape.



5. Drag diagonally to draw the polygon.



To move the polygon around on the card while you're drawing it, press ⌘ before you release the mouse button. You can release the ⌘ key to continue creating the polygon, and then press the ⌘ key again to move the shape, as long as you continue to press the mouse button. Once you release the mouse button, you need to select the shape before you can move it ("Selecting a Graphic" earlier in this chapter explains how).

To rotate the polygon while you're drawing it, drag with a circular motion. If you press Shift while you drag with a circular motion, the polygon rotates only in 15° increments, which makes it easier to position at exactly the angle you want.

With the Regular Polygon tool, the shape is always drawn from the center outwards, whether or not Draw Centered is checked in the Options menu.

Drawing an irregular polygon

To draw a polygon whose sides aren't necessarily the same length, follow these steps:

1. Go to the card or background where you want the polygon.
2. Choose the Polygon tool ( ) from the Tools menu.

   The pointer changes to a crosshair (+).
3. Click at the point where you want to begin the first side of the polygon.

   The Polygon tool works differently from the other tools; you don't hold down the mouse button to draw.

4. **Without holding down the mouse button, move the crosshair pointer to draw one side of the polygon.**

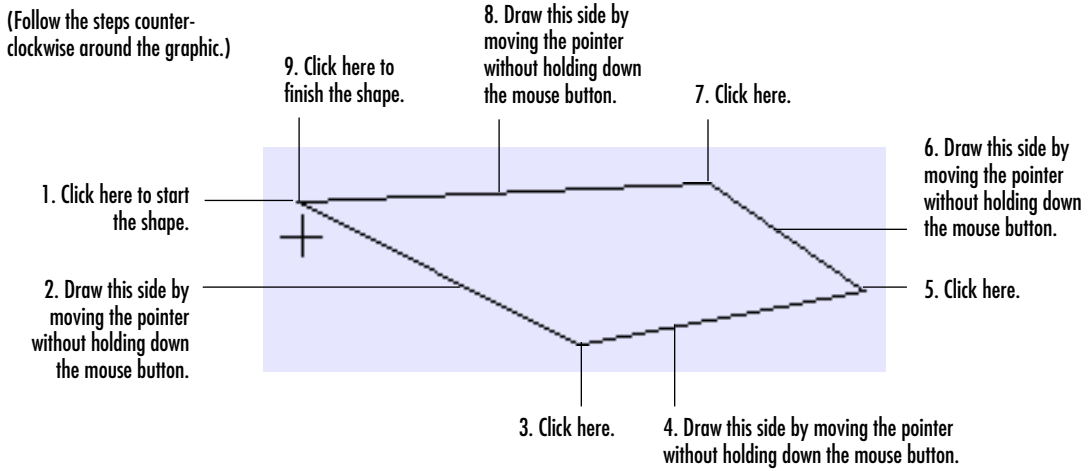
   You can draw the side of the polygon at a 15° angle from horizontal, or at an angle that's a multiple of 15°, by pressing the Shift key as you move the mouse. To change the angle of the side while you're drawing it, change the direction of the mouse as you drag.

5. **When the side of the polygon is the length you want it, click to fix it in place.**

6. **Repeat steps 4 and 5 for each additional side of the polygon.**

7. **To finish the shape, click the starting point.**

   Alternatively, you can double-click or press ⌘-Z at any point to stop drawing, whether or not the shape is complete. Pressing ⌘-Z also deletes the line that was drawn since you last clicked.



Drawing with the Pencil

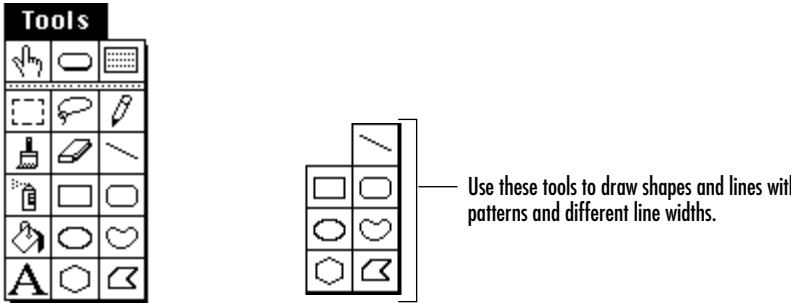
You can use the Pencil to create free-form lines and shapes and touch up graphics.

To draw with the Pencil, choose it from the Tools menu and drag where you want to draw. Shift-drag to draw a straight horizontal or vertical line with the Pencil.

Use the Pencil only for thin lines. The Pencil can only draw thin solid lines, and shapes and pictures composed of thin solid lines. It can't draw thick lines, nor can it draw shapes or lines that have patterns. Use the Line tool for thick and patterned lines.

Drawing Shapes with Patterns and Different Line Widths

This section explains how to create lines and shapes that have patterns, and lines and shape borders in varying line widths.



Drawing a shape filled with a pattern

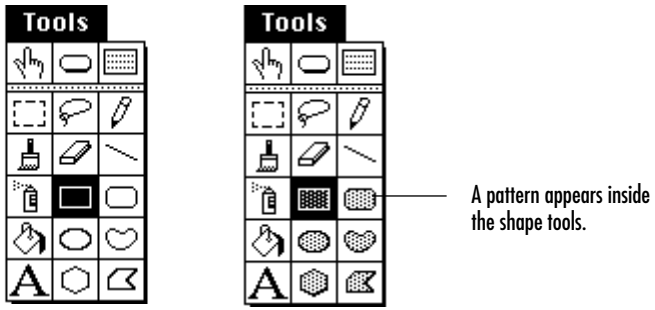
When you know before creating a shape that you'll want it filled with a pattern, you can fill the shape automatically as you draw it. Follow these steps:

1. Choose the pattern you want the shape to have from the Patterns menu.
2. Choose Draw Filled from the Options menu to turn it on.

   When Draw Filled is turned on, a check mark appears next to it in the menu. Choosing Draw Filled again turns it off.

❖ *A shortcut:* You can also turn Draw Filled on or off by double-clicking any of the shape tools on the Tools palette (except the Regular Polygon tool). ❖

The Tools menu looks different when Draw Filled is turned on:



The Tools menu when Draw Filled is turned off

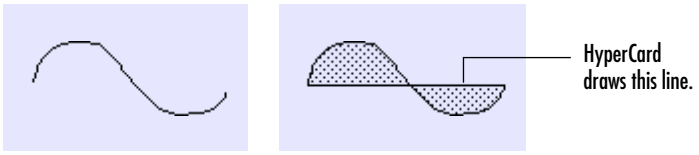
The Tools menu when Draw Filled is turned on

3. Draw the shape.

   Choose the tool for the shape you want to draw from the Tools menu, and then drag to draw the shape. (See "Drawing Lines and Shapes" earlier in this chapter for more detailed instructions.)

   When you finish drawing the shape, it automatically fills with the selected pattern.

- *Draw Filled with the Curve tool and Polygon tool:* If Draw Filled is turned on while you're using the Curve tool or the Polygon tool, HyperCard draws a straight line connecting your starting and ending points when you finish drawing; then it fills the shape with the selected pattern.



Using the Curve tool with Draw Filled turned off

Using the Curve tool with Draw Filled turned on

- *Filled shapes without borders:* To draw a filled, borderless shape, turn on Draw Filled; then hold down the Option key while you draw the shape.

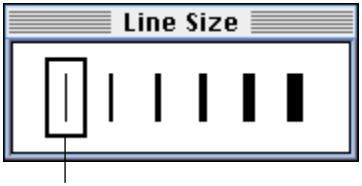
Drawing with different line widths

Before you draw a line or shape, you can select the thickness of the line or the shape's border. Follow these steps:

1. Choose Line Size from the Options menu (or double-click the Line tool on the Tools palette).

   The Line Size dialog box appears.

2. To select a line thickness, click it:



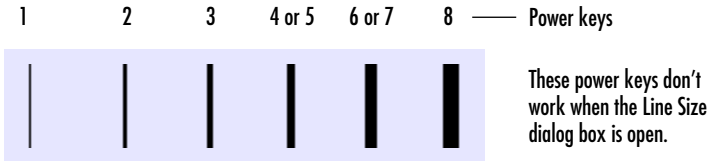
Click the line that represents the line width you want.

A box appears around the selected line width.

3. **Draw the line or shape.**

   Choose the tool for the line or shape from the Tools menu, and then drag to draw the shape. (See "Drawing Lines and Shapes" earlier in this chapter for more detailed instructions.)

❖ *A shortcut for selecting line widths:* When the Power Keys option is turned on (and the Message box is hidden), you can type a number from 1 to 8 to select a line width while any Paint tool is selected. (See "Using Power Keys" later in this chapter for more information.) ❖



Moving a Graphic Around on a Card or Background

You can place a graphic wherever you like on a card or background. To reposition a graphic on a card or background, follow these steps:

1. **Go to the card or background that has the graphic you want to move.**
2. **Select the graphic.**

   "Selecting a Graphic" earlier in this chapter tells how to do it.

3. **Position the pointer over the selected graphic so that it changes to the arrow pointer.**
4. **Drag the selected graphic.**

   Shift-drag to move the graphic straight horizontally or vertically.

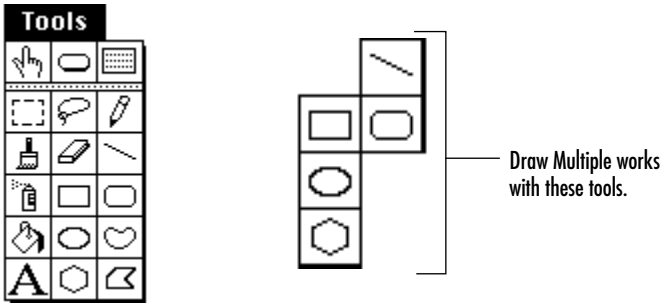
❖ *Can't drag the graphic?* If you think you selected a graphic but you can't drag it, you may be trying to move a background graphic from the card layer. Press ⌘-B and try again. If you still can't drag it, it's either a button or a field. Chapters 6 and 7 explain how to move buttons and fields. ❖

Creating Special Graphic Effects

You can use the Paint tools in combination with one or more of the commands in the Options menu to create a variety of special effects. This section shows examples of the effects you can create.

Drawing in multiples

You can draw multiple lines or shapes using the Draw Multiple option in the Options menu.



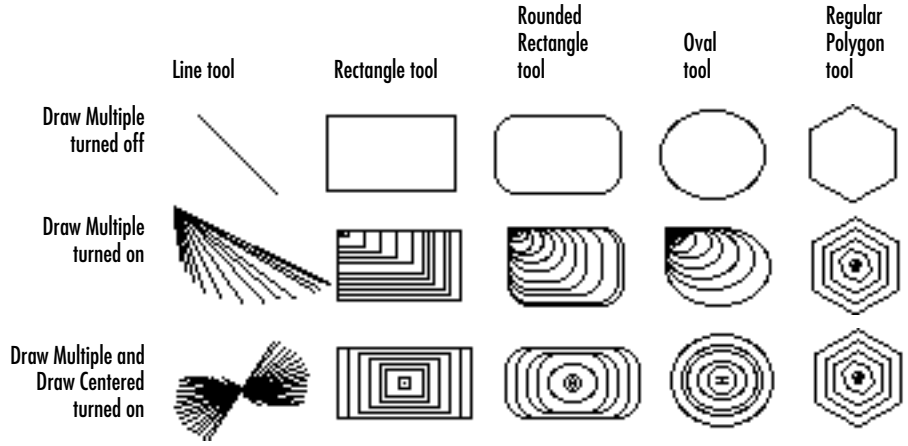
To draw multiple lines or shapes in a single stroke, follow these steps:

1. **Choose Draw Multiple from the Options menu to turn it on.**

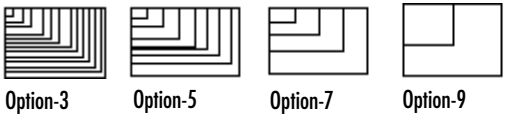
   When Draw Multiple is turned on, a check mark appears next to it in the Options menu. Choosing Draw Multiple again turns it off.

2. **Draw a line or shape.**

   Choose the tool for the line or shape you want from the Tools menu, and then drag to draw the shape. (See “Drawing Lines and Shapes” earlier in this chapter for more detailed instructions.)



To control the spacing between the multiple images, press the Option key in combination with a number from 1 to 9 before you drag. The higher the number you type, the farther apart the images are.



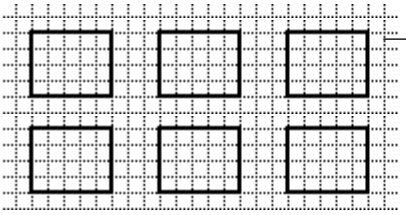
If the Power Keys option is turned on (and the Message box is hidden), you can press M to turn Draw Multiple on or off. (See “Using Power Keys” later in this chapter for more information.)

Aligning graphics

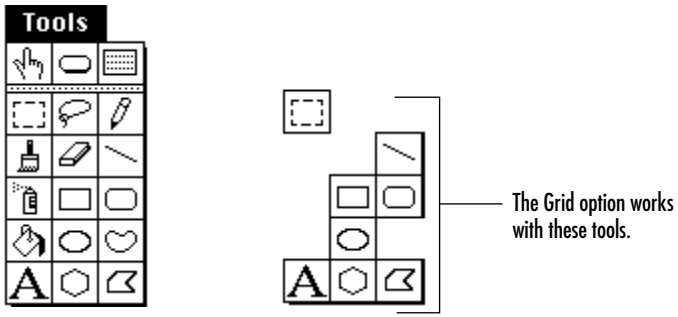
You can use the HyperCard Grid option to help you line up graphic elements and position them more precisely. To turn on the Grid option, choose it from the Options menu. When Grid is turned on, a check mark appears next to it in the menu. Choosing Grid again turns it off.

When Grid is turned on, the movement of the pointer is constrained to an invisible grid whose lines are 8 pixels apart (just under one-eighth of an inch). As you draw graphics with the Line tool and shape tools, or drag graphics to move them around, they'll be aligned to this invisible grid. The grid also constrains the movement of the Select tool as you select graphics and the movement of the I-beam as you try to position the insertion point to type Paint text.

❖ *Grid works best with Grid-created graphics.* The Grid option is most helpful for aligning graphics that were created with the Grid option turned on. If you create graphics with Grid turned off and then turn Grid on, HyperCard has a difficult time aligning the graphics because their sizes and positions don't conform to the grid's intervals. ❖



If the grid were visible, it would look like this. The graphics you create while the Grid option is turned on are aligned to the grid.



You can create some interesting visual images when several options in the Options menu are turned on at the same time. And you can add to the variety by holding down various modifier keys while you draw with different options turned on. Experiment with different combinations to see what happens.

If the Power Keys option is turned on (and the Message Box is hidden), you can press G to turn Grid on or off. (See "Using Power Keys" later in this chapter for more information.)

Adding Paint Text

Paint text is text you create with the Paint Text tool. It looks like the text you type in fields, but you use the Paint tools to create, move, copy, and change paint text.

Paint text is especially useful when you need to include text as part of a picture (for example, as a picture title or labels) or whenever you want text to behave more like a picture than text. You can select both a picture and paint text at once with the same tool and use the same commands on them. And you can create special effects with paint text by using commands in the Paint and Options menus (for example, Rotate, Slant, Distort, and Perspective).

To add paint text to a card or background, follow these steps:

1. Go to the card or background where you want the Paint text.
2. Choose the Paint Text tool (A) from the Tools menu.

   The pointer changes to an I-beam (I).

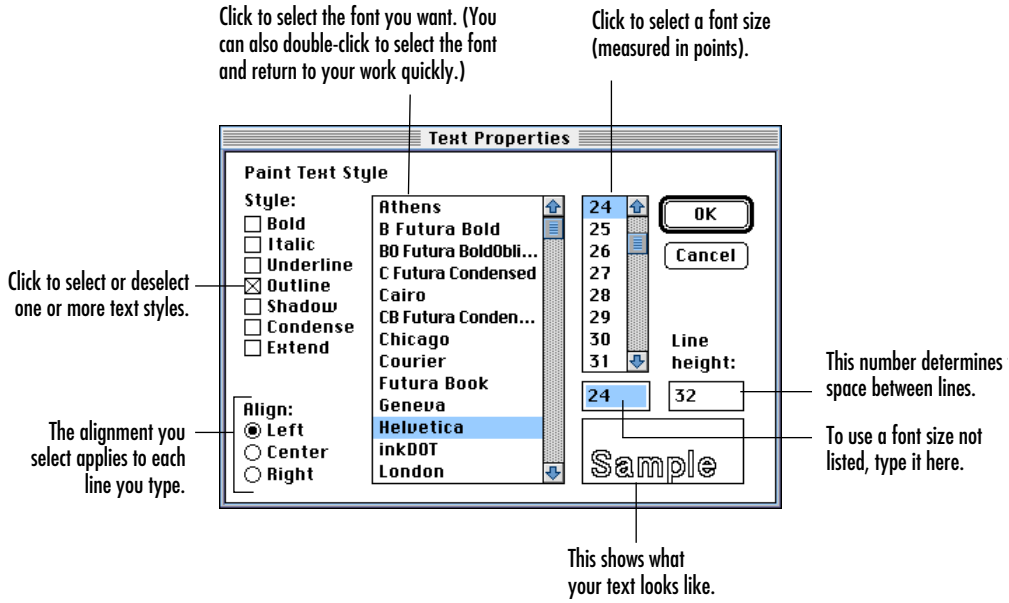
3. To select a font and style for the text, do one of the following:

   - Choose Text Style from the Edit menu
   - Press ⌘-T.
   - Double-click the Paint Text tool in the Tools palette.

   You see the Text Style dialog box.

   The preset format for paint text is 12-point plain Geneva left-aligned with a line height of 16 points.

4. Choose from the options in the Text Style dialog box.



The choices you make in this dialog box stay in effect until you change them, or until you restart HyperCard. The preset format is restored when you restart HyperCard.

5. Click where you want to position the insertion point and begin typing.

   While you're typing, you can press Delete or Backspace to delete one character to the left of the insertion point. And you can press Return to start a new line of text.

   As long as the insertion point is still blinking, you can change the font, style, and size of the text you're typing by choosing Text Style from the Edit menu and changing the settings in the Text Style dialog box. All the text you typed since you last clicked or since you last pressed Enter is changed to the new font, style, and size.

As soon as you click anywhere, choose another tool, choose Keep from the Paint menu, switch into or out of the background, or move to another card, the text becomes part of the picture (its attributes become fixed). To change the text or its attributes, you have to erase it and start again.

❖ *Quick text pickup tip:* To select paint text that you just finished typing, press ⌘-S immediately, before you click anywhere. ❖

❖ *Paint text is not searchable.* You can't use the Find command to search for paint text. To HyperCard, paint text is just another graphic. If you think that you'll want to search later for what you're typing now, create a field and enter the text in the field using the Browse tool. ❖

Turning field text into paint text

You can turn existing field text into paint text, if you decide that you'd like to make it part of a picture. Follow these steps:

1. Choose the Browse tool from the Tools menu.

   The pointer becomes an I-beam (I) when you move it over the field. (If you don't see the I-beam, see "Where's the I-beam Pointer?" in Chapter 7.)

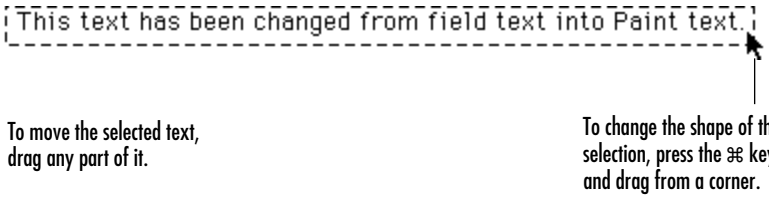
2. Drag with the I-beam to select the field text you want to change.

3. Choose Copy Text from the Edit menu.

   Or, if want to remove the text from the field, choose Cut Text from the Edit menu.

4. Choose any Paint tool from the Tools menu.
5. Go to the card or background where you want the text.
6. Choose Paste Text from the Edit menu.

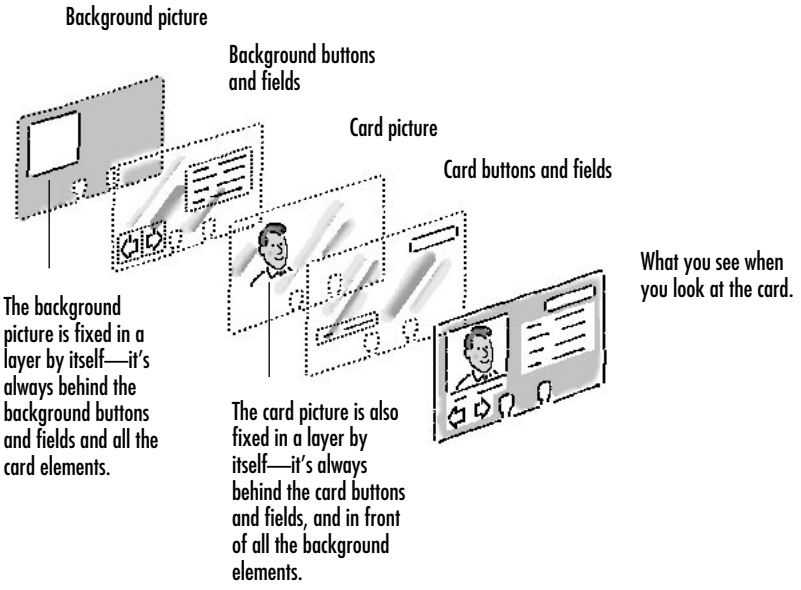
   The text appears in the center of the card, surrounded by a moving dashed line:



While the text is still selected, you can format it by choosing Text Style from the Edit menu and changing the settings in the Text Style dialog box. The text becomes part of the picture after you click outside the selected area.

When Elements Overlap

HyperCard puts different kinds of elements into different layers, as shown in the following figure. Together, all these layers make up the card you see.



The graphics in the card layer (referred to collectively as the card picture) are behind all the buttons and fields in the card layer, but they're in front of all the elements in the background layer. This means graphics in the card layer can obscure the background elements, but they can be obscured by the buttons and fields in the card layer.

Graphics can also obscure one another. Graphics in the background layer (referred to collectively as the background picture) can get lost behind graphics in the card layer, and a graphic that you created recently can cover graphics that were drawn earlier in the same layer.

When elements overlap so that some graphics obscure, or are obscured by, other elements, you can either rearrange the elements so they don't overlap, or you can make some of the elements transparent so you can see other elements through them. "Moving a Graphic Around on a Card or Background" earlier in this chapter explains how to reposition graphics on the card or background. The next section explains how to make graphics opaque or transparent. (Chapters 6 and 7 give instructions for rearranging buttons and fields and making them opaque or transparent.)

Making a graphic opaque or transparent

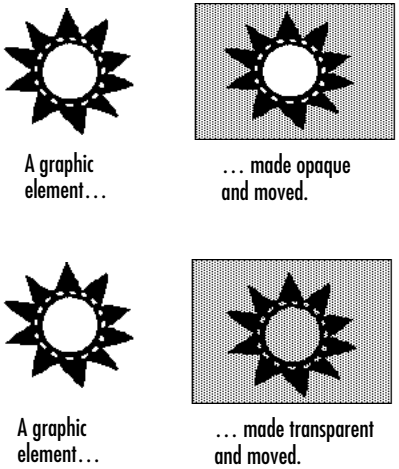
To see elements that are obscured by a graphic, make the graphic transparent. Conversely, to make a graphic more prominent, make it opaque.

Follow these steps to make a graphic opaque or transparent:

1. Select the graphic.

   "Selecting a Graphic" earlier in this chapter gives instructions.

2. Choose Transparent or Opaque (as appropriate) from the Paint menu.



When you first create or paste a graphic, it's opaque; that is, it covers the graphics beneath it. You can make the new graphic transparent by choosing Transparent immediately after you create it (before you click anywhere) or, if you pasted it, by choosing Transparent while it's still selected. Transparent affects just the graphic you created since the last time you pressed the mouse button if nothing else is selected.

If the Power Keys option is turned on, you can press O to make the selected graphic opaque, or press T to make it transparent. ("Using Power Keys" later in this chapter explains the Power Keys option.)

Changing the Appearance of a Graphic

HyperCard includes many commands and options for changing the look of an existing graphic, including commands that edit a picture pixel by pixel and commands that flip a graphic upside down or backwards. This section describes all the ways you can modify graphics and Paint text.

➤ *See also:*
- "Using Power Keys" in this chapter
- "Using Modifier Keys with Paint Tools" in this chapter
- "Double-Clicking Paint Tools" in this chapter

Magnifying a graphic for editing

You can zoom in on a section of a picture to do close-in finish work and edit your picture one pixel (dot) at a time. Follow these steps:

1. **Select the part of the picture you want to work on.**

   "Selecting a Graphic" earlier in this chapter gives instructions.

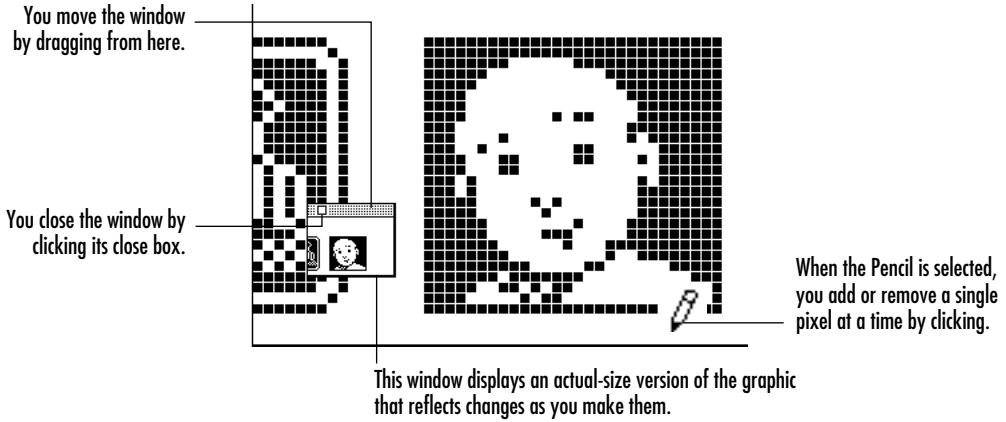
2. **Do one of the following:**

   - Choose FatBits from the Options menu.
   - Double-click the Pencil on the Tools palette.
   - Choose the Pencil tool; then press the ⌘ key while you click the part of the graphic you want to edit.

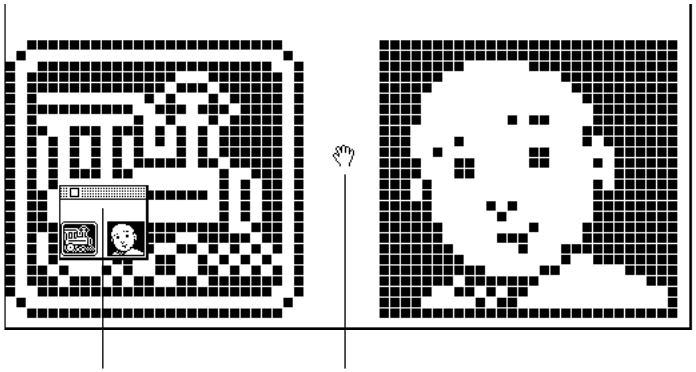
HyperCard zooms in on the part of the graphic you selected (or ⌘-clicked with the Pencil) and magnifies it. If nothing is selected and you haven't ⌘-clicked anything with the Pencil, HyperCard zooms in on the graphic you were just working with (or on the center of the card if you weren't working on a graphic).

3. Edit the graphic.

   You can use any of the Paint tools to modify the graphic; they all work at the magnified scale.



If you want to edit a different part of the picture, Option-drag the magnified graphic with the hand pointer.



As you drag the card with the hand pointer, this window shows the actual-size version of the part of the card you're looking at.

To see a different section of the card, press Option while you drag the card with the hand pointer.

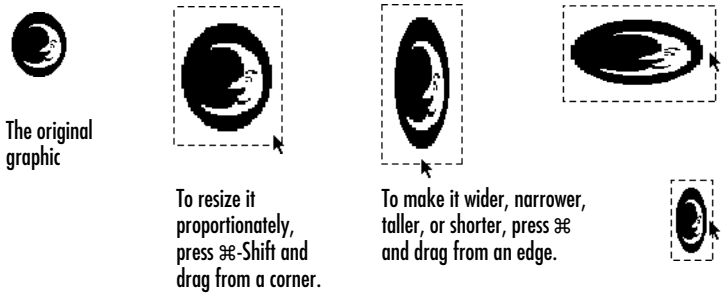
4. When you're finished editing the graphic, turn off FatBits by doing any of the following:

   - Choose FatBits from the Options menu.
   - Click in the little window that shows the actual-size version of the graphic.
   - Double-click the Pencil on the Tools palette.
   - Press Option-F.
   - With the Pencil selected, ⌘-click the magnified picture.
   - Choose the Browse tool (), the Button tool (), or the Field tool () from the Tools menu.

Changing the size of a graphic

To resize a graphic, follow these steps:

1. Select the graphic.
2. ⌘-drag from a corner or an edge of the selected graphic.



❖ *Can't drag the graphic?* If you think you selected a graphic but you can't drag it, you may be trying to resize a background graphic from the card layer. Press ⌘-B and try again. If you still can't drag it, it's either a button or a field. (Chapters 6 and 7 explain how to move buttons and fields.) ❖

Changing the pattern of a graphic

There are three ways to change the pattern of a graphic:

- Use the Fill command to fill the graphic with a different pattern.
- Use the Bucket to "pour" a different pattern into the graphic.
- Use the Pickup command to give the graphic the same pattern as another graphic on the card.

Using the Fill command to change a graphic's pattern

Using the Fill command is the most reliable way to change the pattern of a graphic. To change the pattern of a graphic using the Fill command, follow these steps:

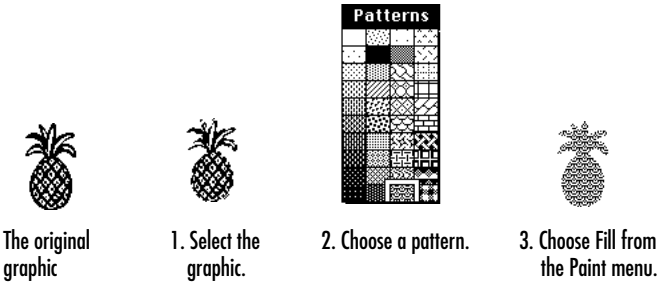
1. Select the graphic.

   "Selecting a Graphic" earlier in this chapter gives instructions.

2. Choose the Fill pattern you want from the Patterns menu.

3. Choose Fill from the Paint menu.

   The selected graphic acquires the selected pattern.



If you just created a graphic element and you haven't clicked anywhere, the Fill command works on the new element (that is, just the element you created since you last pressed the mouse button).

If the Power Keys option is turned on, you can press F instead of choosing Fill. See "Using Power Keys" later in this chapter for more information.

Using the Bucket to change a graphic's pattern

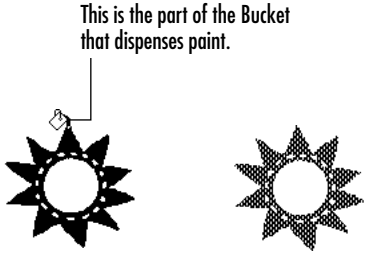
Using the Bucket to change the pattern of a graphic works best when you want to fill a solid dark area with a lighter pattern. If you try to use this technique to fill a lightly patterned area with a darker pattern, the results are unpredictable; the pattern may change, but not necessarily to the one that you selected. If you try to use this technique to fill a dark non-solid area with a lighter pattern, you may not see any change at all.

❖ *Make sure the area is enclosed.* Use the Bucket to change a graphic's pattern only if the graphic is completely enclosed. Otherwise, paint can spill out and fill the surrounding area. ❖

To change a graphic's pattern with the Bucket, follow these steps:

1. Go to the card or background that contains the graphic.
2. Choose the Fill pattern you want from the Patterns menu.
3. Choose the Bucket (🪣) from the Tools menu.

   You can also click it on the Tools palette. The pointer changes to a bucket.
4. Move the Bucket so that the tip of the stream pouring from it is within the graphic, and then click.



If paint spills out into the surrounding area, immediately choose Undo from the Edit menu, or press Esc or the tilde.

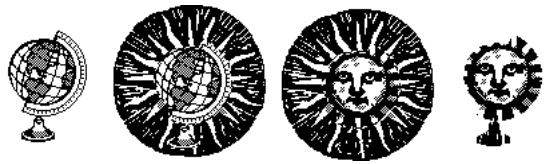
Using the Pickup command to change a graphic's pattern

To give a graphic the same pattern as another image on the card, follow these steps:

1. Select the graphic you want to change.
2. Drag the selected graphic over the part of the card that has the pattern you want to give the graphic.
3. While the graphic is still selected, choose Pickup from the Paint menu (or if the Power Keys option is turned on, press P).

   The selected graphic picks up the pattern of the image behind it, whether or not that image is a pattern.

   Leave the graphic selected. Don't click outside the selection.
4. Drag the selected graphic away.



1. Select the graphic. (Its edges will shimmer.)
2. Move the selected graphic over the pattern you want to give it.
3. Choose Pickup from the Paint menu.
4. Drag the graphic away.

❖ *If the pattern doesn't change:* If you selected a graphic in the card layer and it doesn't acquire the pattern behind it when you choose Pickup, or if the graphic disappears, the pattern is probably in the background layer. A graphic can only pick up a pattern in the same layer. If there's no pattern behind the graphic in the same layer, the graphic turns white. ❖

Inverting a graphic

To invert a graphic so that white becomes black and black becomes white, follow these steps:

1. Select the graphic.

   "Selecting a Graphic" earlier in this chapter gives instructions.

2. Choose Invert from the Paint menu.

1. Select the graphic.

2. Choose Invert from the Paint menu.

If you just created a graphic element and you haven't clicked anywhere, the Invert command works on the new element (that is, just the element you created since you last pressed the mouse button).

If the Power Keys option is turned on, you can press I instead of choosing Invert. ("Using Power Keys" later in this chapter explains the Power Keys option.)

Making a graphic darker or lighter

To darken or lighten a graphic, follow these steps:

1. Select the graphic.
2. Choose Darken from the Paint menu to make the graphic darker, or choose Lighten to lighten it.

   Choosing the Darken command darkens the selected graphic by randomly turning white pixels black. Choosing the Lighten command randomly turns black pixels white. If you choose either of these commands repeatedly, more pixels are changed each time.

The original graphic

1. Select the graphic.

2. Choose Darken from the Paint menu.

The original graphic

1. Select the graphic.

2. Choose Lighten from the Paint menu.

If you just created a graphic element and you haven't clicked anywhere, the Darken and Lighten commands work on the new element (that is, just the element you created since you last pressed the mouse button).

If the Power Keys option is turned on, you can press D instead of choosing Darken, or L instead of choosing Lighten. Pressing and holding D makes the selected graphic darker and darker; pressing and holding L makes it lighter and lighter. (See "Using Power Keys" later in this chapter for more information.)

Outlining a graphic

To add an outline to a graphic, follow these steps:

1. Select the graphic.
2. Choose Trace Edges from the Paint menu.

   An outline appears around the parts of the selected graphic that were originally black. Each time you choose Trace Edges, another outline is added.

The original graphic | Trace Edges once | Trace Edges twice | Trace Edges three times

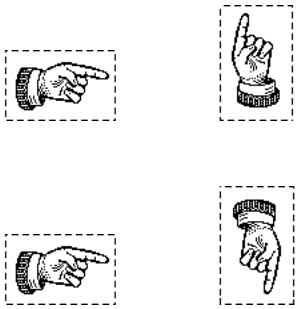
   If you just created a graphic element and you haven't clicked anywhere, the Trace Edges command works on the new element (that is, just the element you created since you last pressed the mouse button).

If the Power Keys option is turned on, you can press E instead of choosing Trace Edges. Pressing and holding E keeps adding outlines. (See "Using Power Keys" later in this chapter for more information.)

Rotating a graphic 90°

To rotate a graphic 90°, follow these steps:

1. Select the graphic.
2. Choose Rotate Left from the Paint menu to rotate the selected graphic 90° to the left, or choose Rotate Right to rotate it 90° to the right.



If you just created a graphic element and you haven't clicked anywhere, the Rotate Left and Rotate Right commands work on the new element (that is, just the element you created since you last pressed the mouse button).

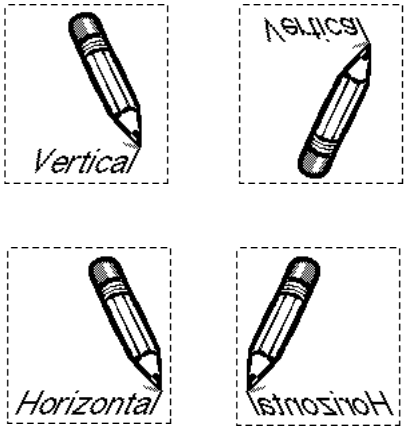
If the Power Keys option is turned on, you can press [(the left bracket key) instead of choosing Rotate Left, or] (the right bracket key) instead of choosing Rotate Left. If you press and hold one of these power keys, the graphic keeps rotating. (See "Using Power Keys" later in this chapter for more information.)

"Slanting, Rotating, or Distorting a Graphic" later in this chapter explains how to rotate a graphic in increments smaller than 90°.

Flipping a graphic vertically or horizontally

To flip a graphic vertically or horizontally, follow these steps:

1. Select the graphic.
2. Choose Flip Vertical from the Paint menu to flip the selected graphic vertically, or choose Flip Horizontal to flip it horizontally.



If you just created a graphic element and you haven't clicked anywhere, the Flip Vertical and Flip Horizontal commands work on the new element (that is, just the element you created since you last pressed the mouse button).

If the Power Keys option is turned on, you can type V instead of choosing Flip Vertical, or type H instead of choosing Flip Horizontal. If you press and hold one of these power keys, the graphic keeps flipping. ("Using Power Keys" later in this chapter explains the Power Keys option.)

Slanting, rotating, or distorting a graphic

You can slant or add perspective to a graphic, or rotate or distort it. Follow these steps:

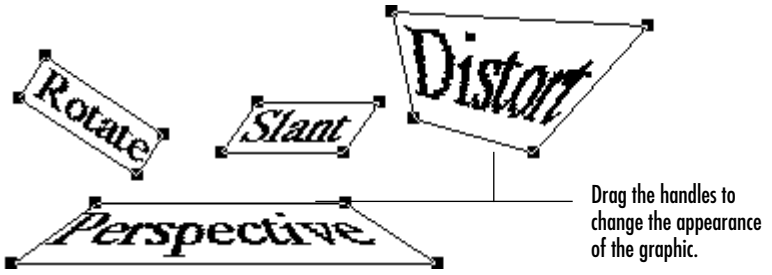
1. **Select a rectangular area with the Select tool (⬚).**

   You must select the area as described in "Selecting a Rectangular Area" earlier in this chapter. (A Lasso selection doesn't work.)

2. **From the Options menu, choose Rotate, Slant, Distort, or Perspective.**

   Choose the command that describes the effect you want to create with the graphic. A rectangle with handles appears around the selected graphic.

3. **Drag the handles to change the graphic's appearance.**



   The handles remain around the graphic until you click outside it. You can drag the handles as many times as you like to create the effect you want.

4. **When you're finished, click outside the graphic.**

These commands work with all graphics, including Paint text. Experiment with them to see what kinds of effects you can create. You can return a graphic to its original state by choosing Undo or by pressing ⌘-Z, Esc, or the tilde, no matter how many times you dragged its handles.

Using Power Keys

When the Power Keys option is turned on, you can perform an operation on a graphic by pressing a key instead of making a menu choice.

To turn on Power Keys, check the Power Keys box on the Preferences card in the Home stack. The Power Keys option is available at the Painting and higher user levels. You can also turn on the Power Keys option by choosing it from the Options menu, visible whenever a Paint tool is selected.

You'll find examples of the use of the power keys in earlier sections of this chapter. All the power keys and their effects are listed in the following table:

Command	Power key	Menu
Black pattern	B	Patterns
Darken	D	Paint
Draw Centered (on/off)	C	Options
Draw Multiple (on/off)	M	Options
Fill	F	Paint
Flip Horizontal	H	Paint
Flip Vertical	V	Paint
Grid (on/off)	G	Options
Invert	I	Paint
Lighten	L	Paint
Opaque	O	Paint
Pickup	P	Paint
Revert	R	Paint
Rotate Left	[	Paint
Rotate Right	]	Paint
Select	S	Paint
Select All	A	Paint
Trace Edges	E	Paint
Transparent	T	Paint
White pattern	W	Patterns

❖ *The Paint Text tool turns off power keys.* When you're using the Paint Text tool, the power keys are temporarily disabled. ❖

Using Modifier Keys with Paint Tools

When you hold down modifier keys (Command, Shift, or Option) while you drag with different Paint tools, you alter the effects of some of the tools. The following table lists the effects. (Paint tools that aren't affected by the modifier keys aren't listed.)

	Modifier key		
Tool	**Command**	**Shift**	**Option**
Select	Selects tightly	Moves selection horizontally or vertically	Duplicates selection
Lasso	Lassos everything	Moves selection horizontally or vertically	Duplicates selection
Line	No effect	Draws at 15° angles	Draws with pattern
Eraser	Erases in white	Erases straight horizontally or vertically	No effect
Pencil	Enters/leaves FatBits	Draws straight horizontally or vertically	No effect
Rectangle	No effect	Draws a square	Creates a patterned border
Curve	No effect	No effect	Creates a patterned border
Brush	Erases what you paint over	Paints straight horizontally or vertically	No effect
Spray	Erases what you spray over	Sprays straight horizontally or vertically	No effect
Rounded Rectangle	No effect	Draws square with round corners	Creates a patterned border
Polygon	No effect	Draws at 15° angles	Creates a patterned border
Oval	No effect	Draws a circle	Creates a patterned border
Regular Polygon	No effect	Rotates in 15° increments	Creates a patterned border

Double-Clicking Paint Tools

You can double-click certain Paint tools on the Tools palette as a shortcut for choosing menu commands. The following table shows the effects of double-clicking Paint tools.

Double-click this…	…to do this
Brush	Bring up Brush Shape dialog box
Bucket	Hide/show Patterns menu
Curve tool	Turn on/off Draw Filled option
Eraser	Erase entire picture
Lasso	Lasso every element on current card/background
Line tool	Bring up Line Size dialog box
Oval tool	Turn on/off Draw Filled option
Paint Text tool	Bring up Text Style dialog box
Pencil	Turn on/off FatBits
Polygon tool	Turn on/off Draw Filled option
Regular Polygon tool	Bring up Polygon Sides dialog box
Rectangle tool	Turn on/off Draw Filled option
Rounded Rectangle tool	Turn on/off Draw Filled option
Select tool	Select entire picture

Saving the Graphics on a Card or Background

While you're working on the graphics of a particular card or background, the changes you make to the graphics are stored in a temporary location; they're not automatically saved to your disk, as are your other changes. HyperCard assumes that you may decide to throw away your graphics changes, so it doesn't save them automatically along with everything else. This gives you the freedom to experiment with the Paint tools and then get back your original graphics.

To save all the graphics on the current card or background use one of the following methods:

- Choose Keep from the Paint menu (or press ⌘-K).
- Switch to or from the background layer by pressing ⌘-B.
- Go to another card or stack.
- Quit HyperCard.

Reverting to the Last Version of a Graphic

While you're working with graphics, you can retrieve the last saved version of the graphics on the current card or background by choosing Revert from the Paint menu. Choosing Revert restores the graphics you had on the current card or background before you last saved them with one of the methods described in the preceding section, "Saving the Graphics on a Card or Background."

❖ *Revert is different from Undo.* Revert undoes all the changes you made to the graphics on the current card or background since they were last saved, whereas Undo undoes only the most recent unsaved change. ❖

You can also restore a portion of the last saved version of the picture on the current card or background by selecting the part you want to restore and choosing Revert. "Selecting a Graphic" earlier in this chapter includes instructions for selecting part of a picture.

The Revert command is most useful when you're creating graphics in stages. Once you complete a stage and it's just the way you want it, you can "freeze" it with the Keep command. Then you can begin work on the next stage, confident that your last stage is saved and that you can start over from that point, if necessary.

If the Power Keys option is turned on (and the Message box is hidden), you can press R instead of choosing Revert. "Using Power Keys" earlier in this chapter explains the Power Keys option.

Copying a Graphic

This section explains how to duplicate a graphic on the same card and how to copy a graphic to another card, background, or stack.

Copying a graphic on the same card

To make a duplicate of a graphic on the same card or background, follow these steps:

1. Go to the card or background that has the graphic you want to duplicate.
2. Select the graphic.
3. Position the pointer over the selected graphic so that the pointer changes to an arrow.
4. Option-drag the selected graphic.

   As you drag, you create an exact duplicate of the graphic. Shift-drag to move the copy straight horizontally or vertically.

❖ *Can't drag the graphic?* If you think you selected a graphic but you can't drag it, you may be trying to duplicate a background graphic from the card layer. Press ⌘-B and try again. If you still can't drag it, it's either a button or a field. Chapters 4 and 5 explain how to move buttons and fields. ❖

⌘-Option-drag to make multiple copies of the graphic. A trail of copies follows the pointer. You can preset the spacing between each image in the trail by pressing Option along with a number from 1 to 9 before you drag. The larger the number you type, the greater the spacing between the copies.

Option-1 pressed before dragging

Option-7 pressed before dragging

To copy a graphic to a different card or background, follow these steps:

1. Go to the card or background that has the graphic you want to copy.
2. Select the graphic.
3. Choose Copy Picture from the Edit menu.
4. Go to the card or background where you want to put the graphic.

   You can use the arrow keys, the navigator palette, or commands in the Go menu to move between cards while you have the Select tool or the Lasso selected.

5. Choose Paste Picture from the Edit menu.

   This takes a copy of the graphic from the Clipboard, puts it on the current card or background, and selects it. The graphic is pasted in the same position it was copied from. If there's a button or field in the same location, the pasted graphic is hidden behind it as explained in "When Elements Overlap" earlier in this chapter. Try moving the button or field to see the graphic.

6. If you want to reposition the graphic, drag it to where you want it while it's still selected.

   A graphic is opaque right after you paste it. To see through the graphic to the elements behind it, select it and choose Transparent from the Paint menu.

Moving a Graphic from the Card to the Background

It's easy to put a graphic in the card layer by mistake when you intend to put it in the background. If this happens, you can move the graphic from the card layer to the background layer of the same card by following these steps:

1. Go to the card that has the graphic you want to copy.

   You must be in the card layer to move a card graphic. If you see stripes appear in the menu bar, you're in the background layer. Press ⌘-B to go to the card layer.

2. Select the graphic.

3. Choose Cut Picture from the Edit menu.
4. Go to the background layer.
5. Choose Paste Picture from the Edit menu.

   This takes a copy of the graphic from the Clipboard, puts it in the current background, and selects it. The graphic is pasted in the same position it was copied from. If there's a button or field in the same location on the background layer, the pasted graphic is hidden behind it as explained in "When Elements Overlap" earlier in this chapter. Try moving the button or field to see the graphic.
6. If you want to reposition the graphic, drag it to where you want it while it's still selected.

Moving a Graphic to Another Card or Background

To move a graphic to a different card or background, follow these steps:

1. Go to the card or background that has the graphic you want to move.
2. Select the graphic.
3. Choose Cut Picture from the Edit menu.
4. Go to the card or background where you want to put the graphic.

   Use the arrow keys or commands in the Go menu to navigate between cards while the Select tool or the Lasso is selected.
5. Choose Paste Picture from the Edit menu.

   This takes a copy of the graphic from the Clipboard, puts it on the current card or background, and selects it. The graphic is pasted in the same position it was copied from. If there's a button or field in the same location, the pasted graphic is hidden behind it as explained in "When Elements Overlap" earlier in this chapter. Try moving the button or field to see the graphic.
6. If you want to reposition the graphic, drag it to where you want it while it's still selected.

A graphic is opaque right after you paste it. To see through the graphic to the elements behind it, select it and choose Transparent from the Paint menu.

Importing a Graphic

You can bring any MacPaint-format picture into HyperCard by following these steps:

1. **Make sure you have one of the Paint tools selected.**
2. **Choose Import Paint from the File menu.**

   A directory dialog box appears.
3. **Use the directory dialog box to locate and open the file with the picture you want to use.**

   HyperCard pastes the imported picture onto the current card or background, starting with the upper-left corner of the imported picture.

❖ *Preparing to import a picture:* Before you import a picture, make sure the part of the picture you want to paste is in the document's upper-left corner; or make sure the card you want to paste it on is large enough to accommodate the picture, including any blank space that's in the upper-left corner of the picture. "Changing the Size of Cards" in Chapter 4 explains how to adjust the card size. ❖

Once you import a picture, you can work with it just as if you'd created it in HyperCard.

❖ *Bringing in graphics via the Clipboard:* You can bring any picture into HyperCard via the Clipboard. Copy the picture to the Clipboard first; then paste it into HyperCard using the Paste Picture command in the Edit menu. ❖

Exporting a Snapshot of a Card and/or Background

You can take a snapshot of the current card and background or of just the current background and save it as a MacPaint document. To do it, use the Export Paint command in the File menu. (This command is available only when a Paint tool is selected.) Follow these steps:

1. **Move to the card you want to capture as a snapshot.**

   Or, to get a shot of just the background, move to the appropriate background layer.

2. **Choose Export Paint from the File menu.**

   A directory dialog box for saving a file appears.

3. **Use the directory dialog box to specify where you want the file saved and type a name for the file.**

4. **Click OK.**

   Export Paint creates a MacPaint document that contains the image of the current card and/or background and saves it on a disk under the name you give it. The image of the full-sized graphic gets saved, even if you're using FatBits.

HyperCard exports only a picture of the card and/or background. The saved picture has none of the functional attributes of the card—for example, the scripts aren't saved with the picture. If you have a palette, the Message box, the FatBits window, or the Scroll window open on the screen, their images aren't included with the exported picture.

Creating a Miniature Picture of a Card

You can create a miniature picture of a card, like the miniatures you see when you choose Recent from the Go menu. Follow these steps:

1. **Go to the card you want to capture as a miniature picture.**
2. **Choose Copy Card from the Edit menu.**
3. **Go to the card or background where you want to put the miniature picture.**
4. **Press and hold the Shift key while you choose Paste Card from the Edit menu (or press ⌘-Shift-V).**

   The miniature appears selected in the center of the card window.

   This is just a picture of a card—none of the normal card attributes or scripts from the original card are pasted with the miniature.

Deleting a Graphic

To delete a graphic, you can use any of the following techniques:

- To delete a new graphic just after you add it (before you click anywhere else), press Delete, Backspace, or Clear, or choose Clear Picture from the Edit menu. This is not reversible; you can't bring back a graphic that was deleted immediately after it was added.
- To delete any graphic, first select it using one of the techniques described in "Selecting a Graphic" earlier in this chapter. Then press the Delete, Backspace, or Clear key, or choose Clear Picture from the Edit menu. If you delete a selected graphic by mistake, you can bring it back by immediately choosing Undo from the Edit menu or pressing ⌘-Z, Esc, or the tilde.
- To erase any graphic, choose the Eraser () from the Tools menu and drag over the graphic. (To erase a background graphic, you must be working in the background layer. To erase a card graphic, you have to be in the card layer.) Shift-drag to erase in a straight horizontal or vertical line.

❖ *The background revealed:* If you see a picture appearing under the Eraser as you drag it over a card picture, you're exposing a part of the background that was covered by an opaque card picture. If you don't want the background elements to show, you can cover them by ⌘-dragging with the Eraser. (This "erases" with white paint.) Of course, you can go to the background layer and delete the elements, but first check to make sure they aren't needed on the other cards that share the background. ❖

- To erase the entire picture on the current card or background, double-click the Eraser on the Tools palette. This wipes out the picture on the current card or background, and then selects the tool you were using just before you double-clicked the Eraser. This technique is useful for cleaning up your screen after you've been experimenting with the Paint tools. (If you double-click the Eraser by accident, choose Undo from the Edit menu immediately, or press ⌘-Z, Esc, or the tilde.)

Chapter 9

Printing

This chapter explains how to print information in a stack. You can print a single card, specific cards in a stack, an entire stack, the contents of a field, or a report that displays the contents of specific fields. You can also create different report templates for a stack and copy and paste report templates from one stack to another.

If you're familiar with HyperTalk, you have even more printing options—for example, you can print a specific rectangular area of a card, a range of consecutive cards, or a document from another application. The HyperTalk Reference stack describes these options.

You can do most of the tasks described in this chapter no matter what your user level is set to. The text tells you if a specific user level is called for.

Preparing to Print

Before you can print with HyperCard, you must have the appropriate printer driver (also called printing resource) for your printer in your System Folder. You must also make sure that your printer's icon is selected in the Chooser desk accessory. The documentation that came with your computer describes how to install printer drivers and how to use the Chooser.

Once you have the appropriate printer driver installed and selected, you can give HyperCard information about your paper and printing preferences by using the Page Setup command before you print.

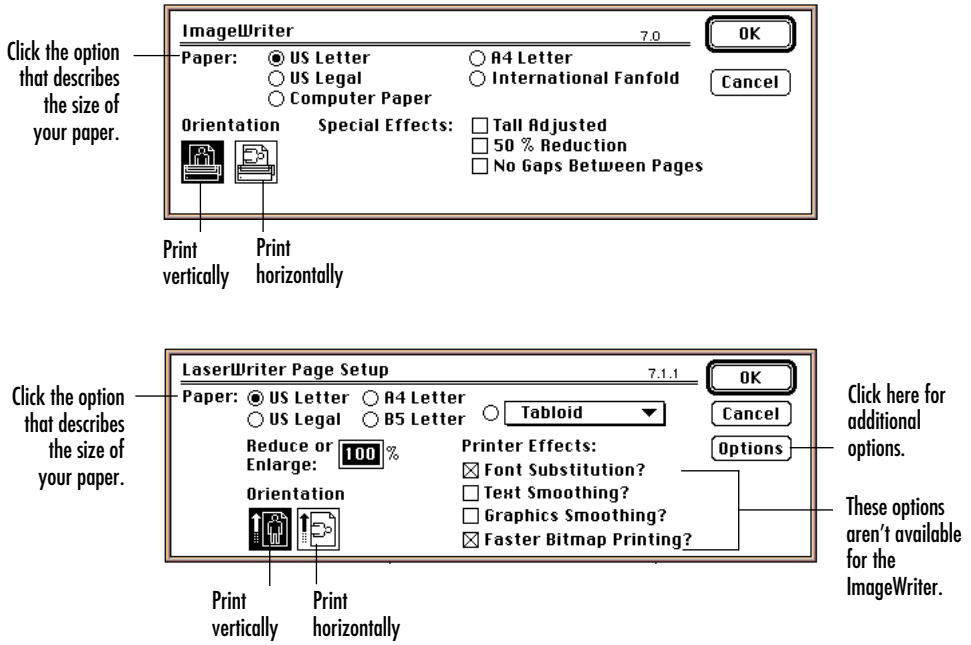
- *Use Page Setup if something changes.* If the settings in the Page Setup dialog box reflect your paper size and printing preferences, you don't need to use the Page Setup command until you want to change the settings. You do, however, need to use Page Setup whenever you change the printer that you're using (for example, when you change from an ImageWriter to a LaserWriter). ❖

To change the settings in the Page Setup dialog box, follow these steps:

1. Make sure you have one of the General tools selected.
2. Choose Page Setup from the File menu.

   The Page Setup dialog box appears. The options in this dialog box vary, depending on what kind of printer and which version of system software you have.

3. Select the options you want in the Page Setup dialog box:



4. Click OK.

   The options you select in the Page Setup dialog box are saved with the current stack. They're in effect when you print the stack (or any part of it) using the Print Field, Print Card, Print Stack, or Print Report commands.

You can change the Page Setup settings at any time by repeating this procedure.

Printing a Single Card

To print a single card in a stack, follow these steps:

1. Go to the card you want to print.
2. Make sure you have one of the General tools selected.
3. Choose Print Card from the File menu (or press ⌘-P).

   HyperCard prints the current card according to the settings you selected in the Page Setup dialog box.

❖ *Displaying the Print dialog box:* To display the Print dialog box, hold down the Shift key when you choose Print Card. That way, you can select options such as “print quality” and “number of copies.” ❖

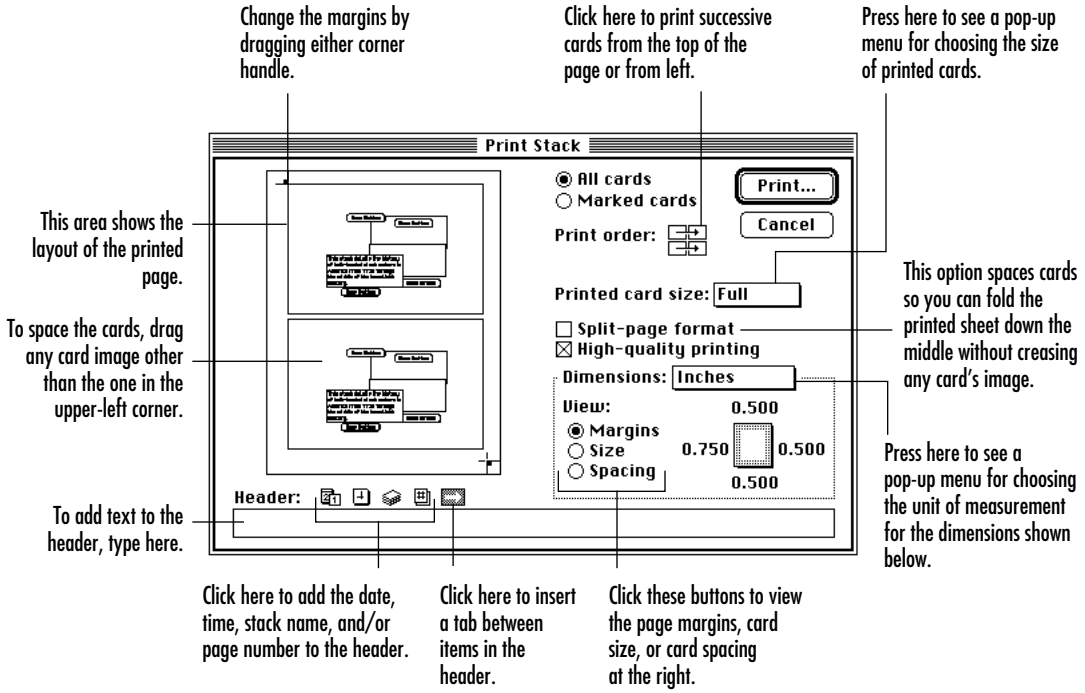
Printing an Entire Stack

To print all the cards in the current stack, follow these steps:

1. Make sure you have one of the General tools selected.
2. Choose Print Stack from the File menu.

   The Print Stack dialog box appears.

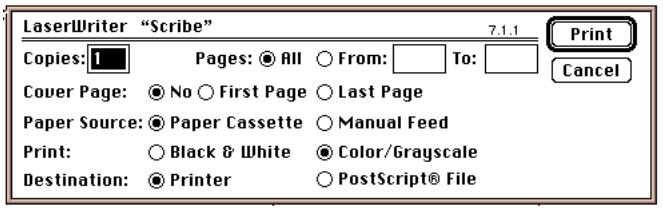
3. Select the options you want in the Print Stack dialog box:

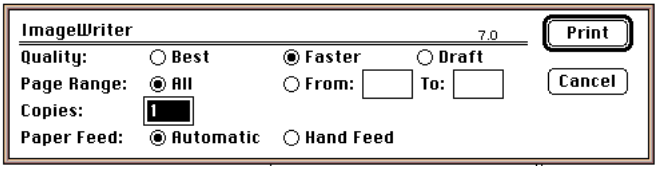


❖ *If you have a LaserWriter:* When the Precision Bitmap Alignment (4% reduction) option is selected in the LaserWriter Page Setup dialog box, the measurements you see for Margins, Size, and Spacing in the Print Stack dialog box are slightly larger than they appear on the printed page. ❖

4. **Click Print.**

   The Print dialog box appears. The options in this dialog box vary, depending on what kind of printer and which version of system software you have. For information about these options, see the documentation that came with your computer.





5. **Select the options you want in the Print dialog box, and click OK.**

   HyperCard prints the cards in the current stack according to the settings you selected in the Page Setup dialog box, the Print Stack dialog box, and the Print dialog box.

Once you print a stack, HyperCard remembers the format and header you used for that stack. The next time you print the same stack with the Print Stack command, HyperCard displays the same format and header in the Print Stack dialog box.

Printing Specific Cards

To print specific cards in the current stack (instead of printing the entire stack), follow these steps:

1. Mark the cards you want to print.

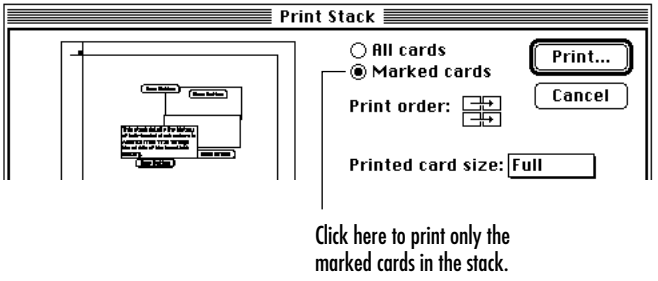
   To mark a card, check the Card Marked option in that card's Card Info dialog box. Your user level must be set to 4 or higher on the User Preferences card of the Home stack to see the Objects menu.

   You can also mark cards using HyperTalk commands. For more information refer to the *HyperCard Script Language Guide.*

2. Make sure you have one of the General tools selected.
3. Choose Print Stack from the File menu.

   The Print Stack dialog box appears.

4. Select the options you want in the Print Stack dialog box.
5. Click "Marked cards" as shown here:



6. Click Print.

   The Print dialog box appears. The options in this dialog box vary, depending on what kind of printer and which version of system software you have. The documentation that came with your computer describes these options.

7. **Select the options you want in the Print dialog box and click OK.**

   HyperCard prints the marked cards in the current stack according to the settings you've selected in the Page Setup dialog box, the Print Stack dialog box, and the Print dialog box.

Once you print specific cards in a stack, HyperCard remembers the format and header you used for that stack. The next time you print the same stack with the Print Stack command, the same format and header appear in the Print Stack dialog box. However, you need to tell HyperCard each time you want to print only the marked cards in a stack by clicking "Marked cards" in the Print Stack dialog box; otherwise, it assumes you want to print all the cards in the stack.

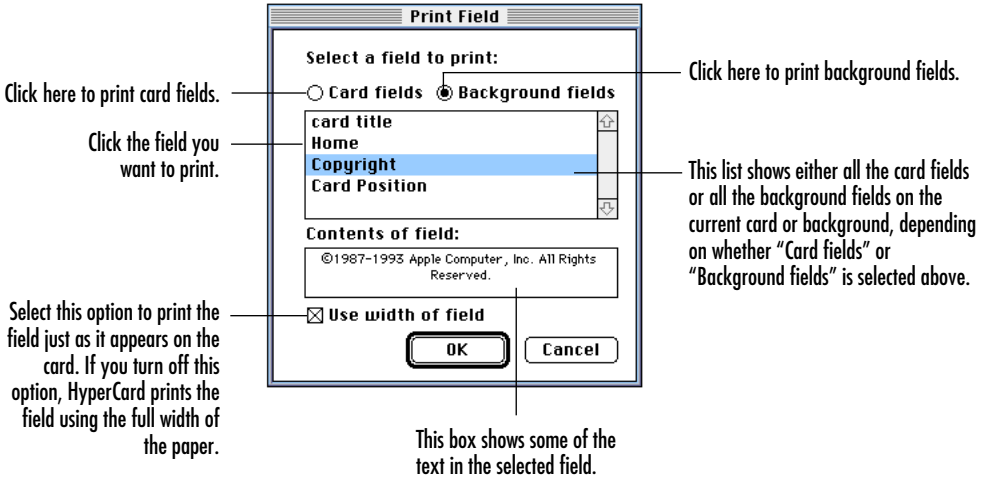
Printing the Text in a Specific Field

To print the text that appears in a specific field on a particular card or background, follow these steps:

1. **Go to the card that has the text you want to print.**
2. **Make sure you have one of the General tools selected.**
3. **Choose Print Field from the File menu.**

   The Print Field dialog box appears. To specify print quality and other options, hold down the Shift key as you choose Print Field. The standard Print dialog box appears after you finish step 5.

4. Select the field whose text you want to print:



5. Click OK.

   HyperCard prints the text in the specified field according to the settings you've selected in the Page Setup dialog box and the Print Field dialog box. If you're printing a background field that contains different text on every card, HyperCard prints only the text that appears in the field on the current card.

Printing a Report

You can prepare custom reports that display the field text in a stack in any way you like. You can create and save up to 16 report templates for a stack. You could, for example, create a table-style report template, a template for printing the results of calculations, and a template for printing labels—all for the same stack. You can also copy and paste report templates from one stack to another.

You can control the appearance and placement of each element in a report—including the font, size, and style of the text. You can also choose to invert a report item, and to build a frame around it. Reports, however, contain no graphics.

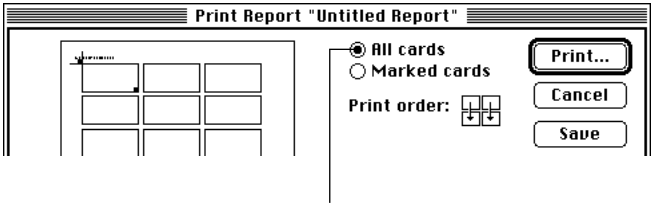
To print a report from the current stack, follow these steps:

1. Make sure you have one of the General tools selected.
2. Choose Print Report from the File menu.

   The Print Report dialog box appears.
3. If you've created a report template you want to use, choose it from the Reports menu.

   HyperCard dims the File menu and displays a special Edit menu plus a Reports menu. To create your own report template now, click Cancel and go to the next section, "Creating a Report Template."
4. Click "Marked cards" if you want your report to include only text from the marked cards in the stack.

   Or, if you want to print text from all the cards in the stack, skip this step. "All cards" is the preset option. When it's selected, text from all the cards prints.



❖ *If you have a LaserWriter:* When the Precision Bitmap Alignment (4% reduction) option is selected in the LaserWriter Page Setup dialog box, the measurements you see for Margins, Size, and Spacing in the Print Report dialog box are slightly larger than on the printed page. It's a good idea to turn off the Precision Bitmap Alignment option before you print a report. ❖

5. Click Print.

   The Print dialog box appears.

6. **Select the options you want in the Print dialog box and click OK.**

   HyperCard prints text from the cards in the current stack according to what you decided in step 4, the settings in the current report template, and the settings in the Page Setup and Print dialog boxes.

❖ *Mailing labels:* If you want to print mailing labels on a LaserWriter, be sure to use *only* labels made especially for LaserWriters or photocopiers. ❖

Creating a Report Template

To create a report template for the current stack, follow these steps:

1. **Make sure you have one of the General tools selected.**
2. **Choose Print Report from the File menu.**

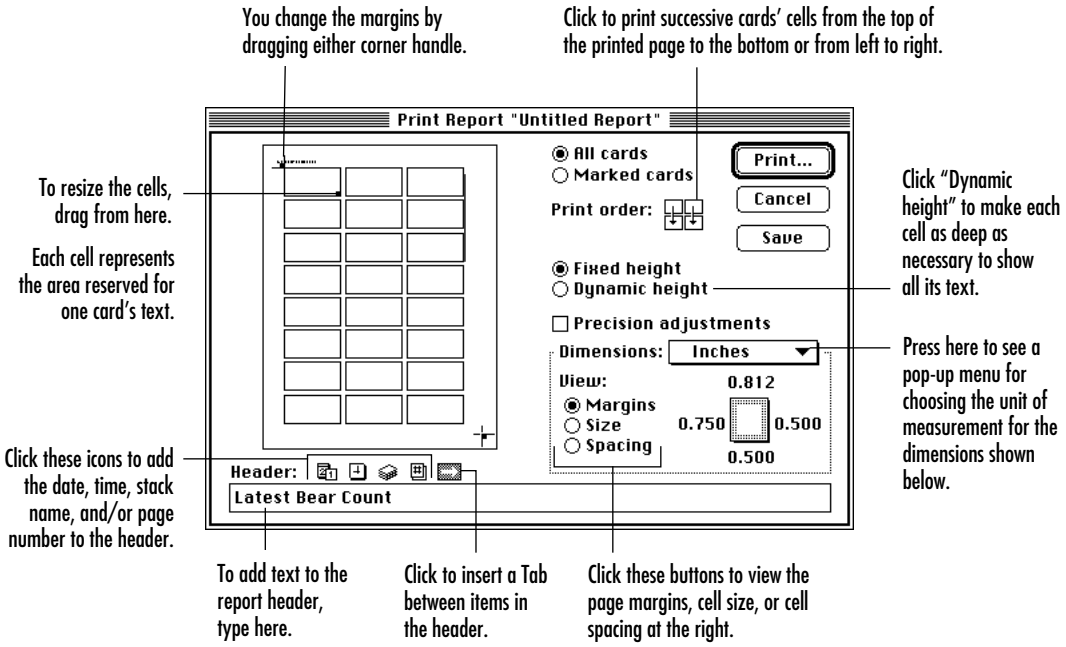
   The Print Report dialog box appears, and the menu bar changes.

3. **Choose New Report from the Reports menu.**

   A dialog box appears so that you can name your report template. HyperCard automatically inserts “Untitled Report” into the Report Name box. To enter a new name, just type it. You don’t need to select “Untitled Report” first.

   If you don’t give your report template a new name, your report template is named “Untitled Report” even if an existing report already has that name.

4. In the Print Report dialog box, set up the layout for your report:



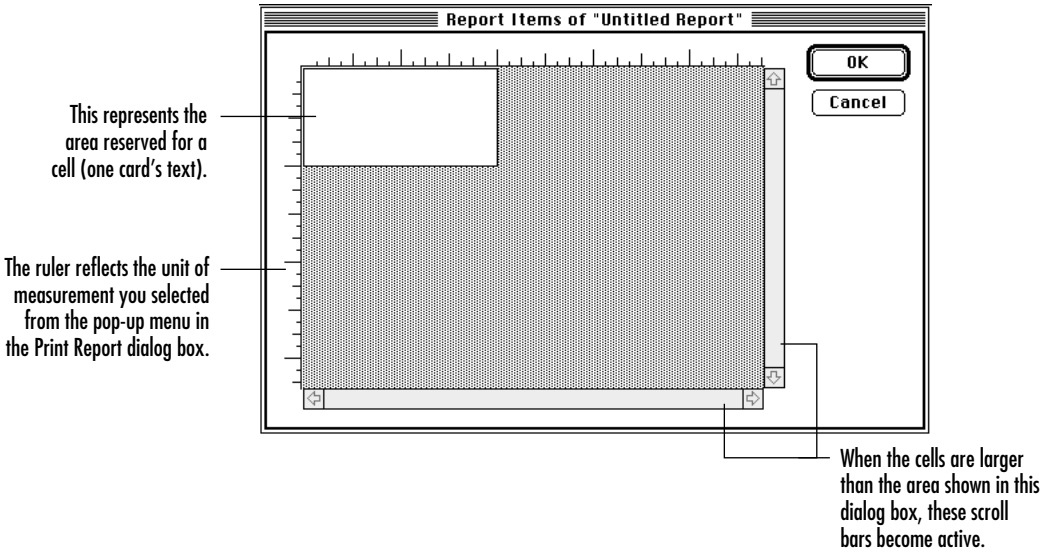
For more exact control over margins, cell size, and cell spacing, select Precision adjustments. That way, measurements change in increments of single pixels.

If you can't decide on a layout now, go on to step 5. You'll have another chance later in this procedure to use this dialog box to set up or adjust the layout.

5. Do one of the following:

- Choose Report Items from the Edit menu.
- Press ⌘-E.
- Double-click any cell in the Print Report dialog box.

The Report Items dialog box appears with a new menu bar. You use this dialog box to specify what text you want in your report by adding report items. The report items you specify print for each card.



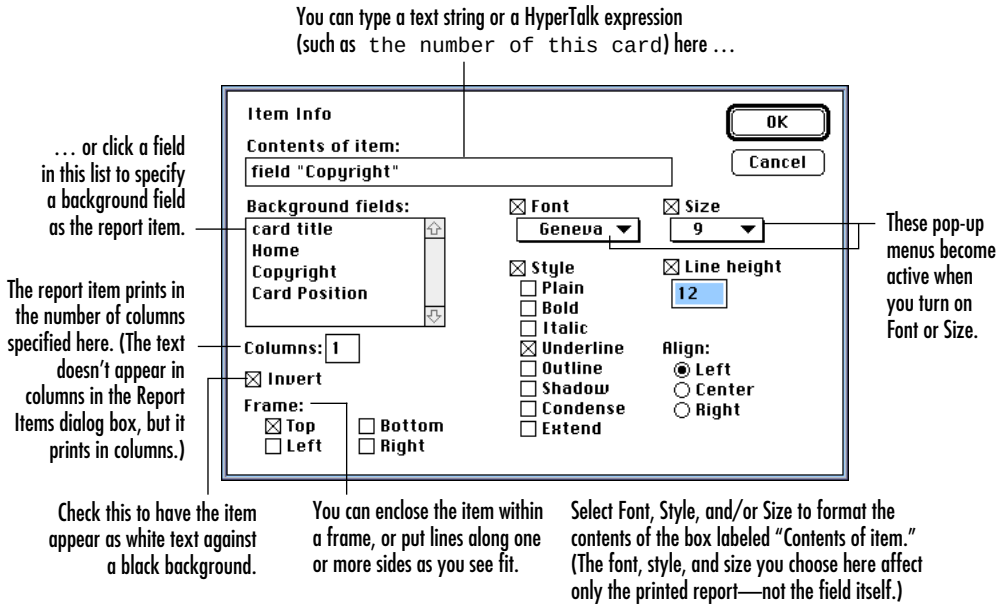
6. **Choose New Item from the Items menu to add an item to the report (or press ⌘-N).**

   A small rectangle appears, outlined by a moving dashed line to indicate that it's selected. This rectangle represents one item of your report.

7. **While the item is still selected, choose Item Info from the Items menu (or double-click the item).**

   The Item Info dialog box appears.

8. Specify the contents of the item:



If you want the item to be the contents of a card field, you must specify the card field (by its name, number, or ID). To do so, type a HyperTalk description of the card field into the box labeled "Contents of item." For example, you could type any of the following to specify a card field:

```
card field "Name"
card field 5
card field ID 7
```

You can also define an item to be any text you want by simply typing the text between quotation marks in the “Contents of item” box. Or you can define the item to be a particular word or words from a field—or any text or value you can describe with HyperTalk—by typing the appropriate HyperTalk expression into the “Contents of item” box. Here are some examples:

```
"This text appears in every cell."

word 2 of background field "Name"

first line of background field "Name"

word 1 to 5 of background field "Job"

the number of this card
```

See the HyperTalk Reference stack or the *HyperCard Script Language Guide* for more information about HyperTalk expressions.

❖ *For non-scripters:* The “Contents of item” box is an advanced feature. You can either type some text between quotation marks into this box, or skip it entirely and click a field name from the “Background fields” list that appears below it. ❖

9. **Select whatever options you want.**

   You can set the font, size, style, and alignment for the text of the item, as well as the number of columns the item prints in. You can also choose to have this item appear in inverted text (white text on a black field), as well as within a frame of from one to four sides.

10. **Click OK.**

    You return to the Report Items dialog box. The small rectangle, still selected, contains the text you specified in the Item Info dialog box. If you specified fields, the text comes from the specified fields on the current card.

    To resize the item, drag it from any corner. To move it, drag it from the middle. To nudge a selected report item one pixel at a time, press the arrow keys.

You can cut, copy, and paste items to and from the Report Items dialog box using commands in the Edit menu. You can also duplicate an item by Option-dragging it.

11. **Repeat steps 6 through 10 to add more items to your report.**
12. **When you've added all the items you want, click OK to return to the Print Report dialog box.**

    Refine your layout in the Print Report dialog box if necessary.

13. **Do one of the following:**
    - Click Print to print a report now.

      Follow the steps in the section called "Printing a Report" earlier in this chapter.
    - Click Cancel if you choose not to print.
14. **Click Save to save the changes to your report template.**

Copying or Moving a Report Template to Another Stack

If you have a report template for one stack that you think would work well in another stack, you can copy or move it by following these steps:

1. **Go to the stack that has the template you want to copy or move.**
2. **Make sure you have one of the General tools selected.**
3. **Choose Print Report from the File menu.**
4. **From the Reports menu, choose the report template you want to copy or move.**
5. **Do one of the following:**
    - Choose Copy Report from the Edit menu to copy the report template.
    - Choose Cut Report if you want to move it.

6. Click Cancel to close the Print Report dialog box.
7. Go to the stack to which you want to add the report template.
8. Choose Print Report from the File menu.
9. Choose Paste Report from the Edit menu.

   The layout of the pasted report template appears in the Print Report dialog box and its name appears in the Reports menu.
10. Do one of the following:
    - Click Print if you want to print a report using this template now.
    - Click Save if you want to use this template later.

You may have to redefine the report items (for example, change the field names in the Item Info dialog box for each item) so that the template works in the new stack. Follow the instructions in the preceding section, “Creating a Report Template,” for defining report items.

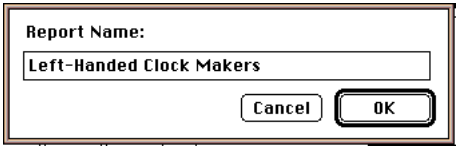
❖ *Scripting information:* To copy a template from one stack to another, use the command
`copy template templateName to stack stackName.` ❖

Renaming a Report Template

To rename a report template, follow these steps:

1. Go to the stack that has the template you want to rename.
2. Make sure you have one of the General tools selected.
3. Choose Print Report from the File menu.
4. Choose the report template you want to rename from the Reports menu.
5. Choose Report Name from the Edit menu.

   A dialog box like the following appears:



6. After you've typed a new name for the template, click OK.

Deleting a Report Template

To delete a report template from a stack, follow these steps:

1. Go to the stack that has the template you want to delete.
2. Make sure you have one of the General tools selected.
3. Choose Print Report from the File menu.
4. Choose Delete Report from the Edit menu.

   A confirmation dialog box appears for deleting the report template.
5. Click OK to delete the report template.

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