

Appendix: Automator and AppleScript

If you use your Mac long enough, you're bound to start repeating certain jobs over and over again—renaming files, for example, or importing music files into iTunes. A Windows geek would simply accept this tedium as a cost of using the computer, and move on. But you, time-starved Mac fan, know there has to be an easier way.

In fact, there are two.

- **Automator** is a program that lets you teach your Mac what to do, step by step, by assembling a series of visual building blocks called *actions*. Drag actions into the right order, click a big Run button, and your Mac faithfully runs through the list of steps you've given it (Figure 1, top).

You have a list of preprogrammed actions at your fingertips, so you never have to do any coding or learn any programming language. So creating the little software robots (called *workflows*) is exceptionally easy.

On the other hand, your selection of building blocks is limited to what other programmers have already written, so Automator workflows are limited in what they can do. You can't automate a complex newspaper layout using Automator alone, for example, because nobody has written the building-block actions necessary to control all the stages of newspaper production.

Apple made some big changes to Automator in 10.5, including revamping the interface to make it more modern, more usable—and more logical. It also added a helpful Starting Points menu, variables, and a bunch of new actions (including Watch Me Do, Loop, and RSS actions, for example).

For novices, the most exciting new feature of all might be the new Watch Me mode. It lets you just *do* what you want Automator to learn, as Automator watches and

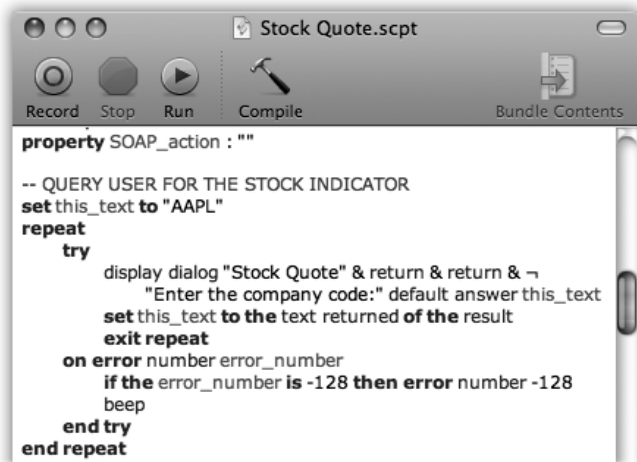
memorizes each keystroke, mouse click, and menu selection. Later, Automator can replay those steps faithfully, like a true-blue macro program.

- **AppleScript** is the other, much older way of automating your Mac. You type out English-like commands in a text file called a *script*, one command per line, and click Run to have your Mac carry out the result (Figure 1, bottom).

Figure 1:
The two faces of Mac automation.

Top: Automator uses a visual, step-by-step metaphor for automation; the down-pointing arrows indicate how each building block "feeds" its result into the next action. You can usually tell what an Automator workflow does at a glance.

Bottom: Script Editor (the program you use to write and edit AppleScript code) is geekier. There's a good amount of programmerese here, and you have to know basic AppleScript syntax before you can begin to understand this script—let alone write your own.



AppleScript is a power user’s dream come true, but it’s a programming language. If you want to automate even a simple custom job like converting music files to MP3s, you have to get your hands dirty hunting for the AppleScript command that does exactly what you want—and that can be a real pain.

Note: One reason AppleScript is so powerful is that it’s been cultivating a following for over a decade. Already, AppleScript commands are available in the software programs from hundreds of companies.

As Automator ages, more and more companies are packaging Automator actions with their programs, too. Microsoft Office for Mac 2008, for example, will include its own set of Automator actions that will let you automate the various Office programs.

Introducing Automator

Automator, like most programs on your Mac, sits waiting in your Applications folder. Double-click Automator’s icon to open it for the first time (Figure 2).

Figure 2: Automator’s icon is a computer-generated robot image named Otto. (Get it? Otto Matic? Stop, you’re killing us!) The icon is supposed to evoke an image of Automator as a servile program, executing your every desire without question. Any similarity to the malevolent androids of *I, Robot* is purely coincidental.



Navigating the Screen

As shown in Figure 3, Automator looks confusing. But once you learn what the different sections do, the layout makes a lot of sense. Here’s a run-down of Automator’s various parts.

Starting Points menu

When you first launch Automator, you're greeted with a new, ultra-simple Starting Points menu. It's an easy launching pad for certain kinds of common workflows—those that work with Files & Folders, Music & Audio, Photos & Images, or Text.

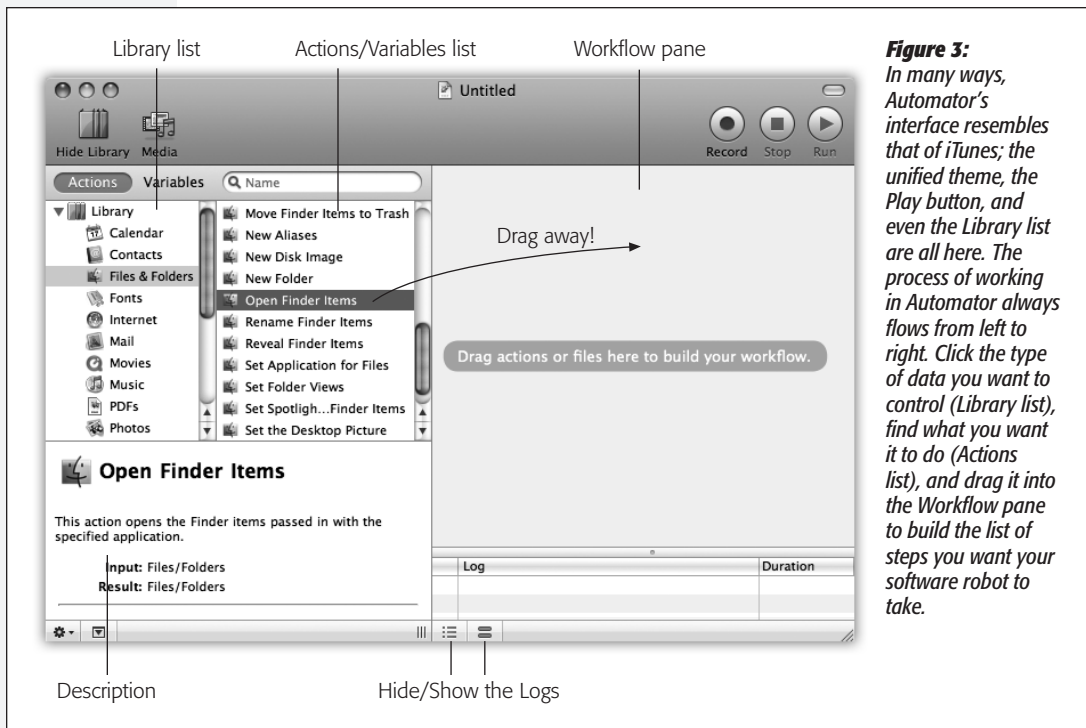


Figure 3: In many ways, Automator's interface resembles that of iTunes; the unified theme, the Play button, and even the Library list are all here. The process of working in Automator always flows from left to right. Click the type of data you want to control (Library list), find what you want it to do (Actions list), and drag it into the Workflow pane to build the list of steps you want your software robot to take.

When you click the appropriate icon, make selections from the two pop-up menus beneath it, and click Choose, Automator sets up the *beginning* of your workflow automatically. Your workflow isn't complete, not by a long shot; all you've done so far is to say, "Work with this kind of file, and specify which ones." You still have to say what you want *done* with those files.

Still, you've gotten started.

Of course, if you're a workflow wiz and don't want a jump-start on your project because you're *just that good*, selecting Custom gives you a clean, action-free document to work with. But even if you are an automating expert, the Starting Points menu is almost always useful. It still saves you those few extra clicks—selecting your base actions, dragging them to the Workflow pane, setting their preferences, and so on—necessary to get your workflow started.

Besides, you don't have to tell anyone you used it.

Tip: You can disable the Starting Points menu entirely by clicking Automator→Disable Starting Points.

Toolbar

At the top of the Automator window, the toolbar offers five fairly self-explanatory buttons. From left to right (Figure 3):

- **Hide Library.** This button hides the entire left Library pane of Automator, where all of the prefab building-block steps are listed. You wind up with one big Workflow pane.
- **Media.** Click to open the standard Media Browser box that pops up all over Mac OS X. You can drag your music, photos, or movies from the Media Browser directly into the Workflow pane, *or* into an action itself (one with a matching data type, of course), to use that media in your workflow.

Tip: Media from the Media Browser isn't all you can add to Automator. You can also drag files—text documents, media, folders, and so on—straight from the Finder into your workflow, saving you the hassle of having to *search* for them in Automator.

- **Record.** Click to enter Watch Me mode, where Automator memorizes the steps that you perform manually.
- **Stop, Run.** These buttons control playback of the workflow you're building.

Tip: To save screen space, you can hide the entire Automator toolbar by choosing View→Toolbar, or by clicking the capsule-shaped button in the upper-right corner of the window. (You can bring the toolbar back by choosing View→Show Toolbar or clicking the pill button again.)

While the toolbar is hidden (and even when it's visible), you can still start and stop playback by choosing Workflow→Run (⌘-R) and Workflow→Stop (⌘-period).

Library pane

The Library pane is the entire left section of the Automator window. It includes the Search box, Library list, Description field, and the list of Actions or Variables list. All of these are described below.

Tip: You can resize either of Automator's left-side columns (Library and Actions) by dragging the vertical divider lines between them.

Search box


Like Mac OS X's other Search boxes, this one works in real time—it displays matching actions or variables as you type.

If you start by selecting a folder in the Library list at the left, you're telling Automator, "Search only within this folder of actions or variables." If you want to search for actions that can process files in the Finder, for example, click Files & Folders in the Library list, and then type *file* in the Search box.

Tip: You can -click to select several folders and then search all of them simultaneously.

Or, to search *all* of Automator's folders, click Library at the top of the Library list before searching. (That's the best way to find an action or variable if you're not sure what folder it's in.)

Your search results appear in the Actions/Variables list, ranked by relevance to your search terms. You can begin dragging actions directly into the Workflow pane at the right side to build a workflow, as described shortly.

Click the  button in the Search box to return to the complete list of actions or variables.

Library

Above the Library list, two buttons appear that govern what's displayed in the Library pane:

- **Actions.** When you click Actions, the Library lists all the features and data on your Mac that Automator actions can control: Files & Folders, Music, Photos, Text, and so on. When you click a folder, the Actions list on the right shows you every action related to that type of data. For example, when you click Photos in the left-side list, the right-side list of actions offers steps like Flip Images, Crop Images, and so on.

When you find an action you want to use in your workflow, you drag it to the right into the large Workflow pane.

- **Variables.** New to Automator in Leopard, *variables* are memorized info chunks that you can reuse in an Automator workflow, exactly as in real programming languages. The Variables list is divided into categories like Date & Time (today's date, today's month, etc.), Locations (the paths to various folders on your Mac), User (your name, phone number, etc.), and so on.

To see *all* the available Automator actions or variables on your Mac, click Library in the Library list.

Later in this chapter, you'll see how it's useful to incorporate these information tidbits into your workflows.

Note: Variables whose icons look like a boxed V are variables that you can *change*. For example, you can change the formatting of the "Current time" variable by double-clicking it.

Variables with  icons are predefined and unchangeable.

Description field

When you click an action or variable in the list, the Description box provides some terse, superficial information on how to use it. You might see what the action does, what kind of data it expects to receive from the previous action (*input*), and what the action sends on to the following action (*result*).

If the variable is editable (it has a V icon), you get to see what parts of it you can change.

Tip: To save space, you can hide the Description field by clicking the ▼ button on the bottom edge of the window. Click it again to bring the Description field back.

⚙ **button**

The ⚙ button in the lower-left corner of the window is a pop-up menu. Its four commands let you create and delete customizable collections called *groups* and *smart groups*. They behave exactly like playlists and smart playlists in iTunes:

- **Groups.** Groups are customizable folders you add to the Library list. To add an action or variable to a group, drag it from the list onto the Group folder.
- **Smart Groups.** Smart groups, new in Leopard, are constantly updated with actions that match the criteria you set for that smart group. (They're available only for actions, not variables.)

For example, you can create a smart group that lists only actions that work with iPhoto, or actions with Input Types that contain the word “image.” Add more criteria by clicking the + button.

Tip: Automator's Library list comes with three factory-installed smart groups: Most Relevant, which displays all the actions relevant to the action you have selected in the Workflow pane; Most Used, which displays the actions you've used the most in your workflows; and Recently Added, which displays actions added by newly installed applications, for example, or actions you downloaded and added yourself.

Workflow pane

The Workflow pane is Automator's kitchen. It's where you put your actions in whatever order you want, set any action-specific preferences, and fry them all up in a pan.

But the Workflow pane is also where you see how the information from one action gets piped into another, creating a stream of information. That's how the Workflow pane differentiates Automator from the dozens of non-visual, programming-based automation tools out there. Figure 4 shows what a piece of a workflow might look like in the Workflow pane.

When you drag an action out of the Actions list into the Workflow pane, any surrounding actions scoot aside to make room.

Tip: If you double-click an action in the Actions list, Automator inserts it at the *bottom* of the Workflow pane. (Pressing Enter when an action is highlighted does the same thing.)

Log viewer

Under the Workflow pane on the left are two tiny buttons, identified in Figure 3. They hide and show two useful pop-up panels that contain *logs* (mini-reports):

- The **Workflow log** shows the results of your workflow: which actions ran successfully, which failed (if any), what each action did, and so on. See page 270.
- The **Variables log** (Figure 5) shows all the variables used in your workflow. When you run the workflow, the Value list shows you what information was stored in each variable after the workflow finishes.

Tip: You can also hide or show the logs using the relevant commands in the View menu. Option-⌘-L hides or shows the Workflow log. (Unfortunately, the Variables log isn't blessed with a keyboard shortcut.)

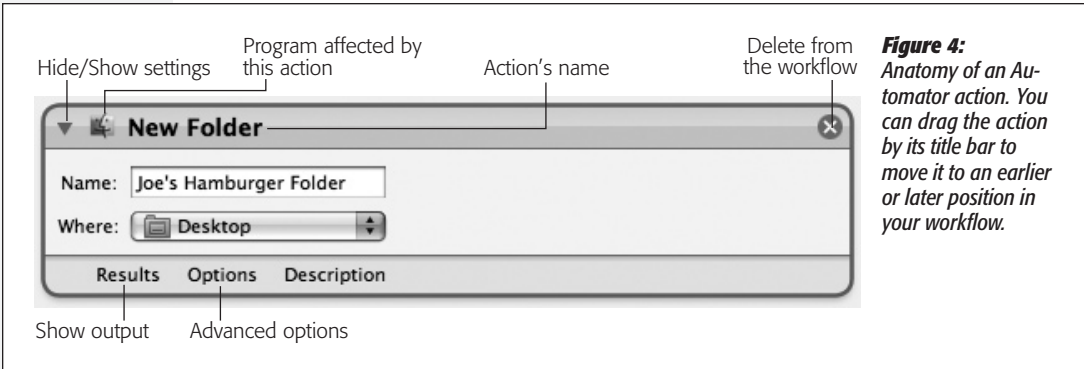


Figure 4: Anatomy of an Automator action. You can drag the action by its title bar to move it to an earlier or later position in your workflow.

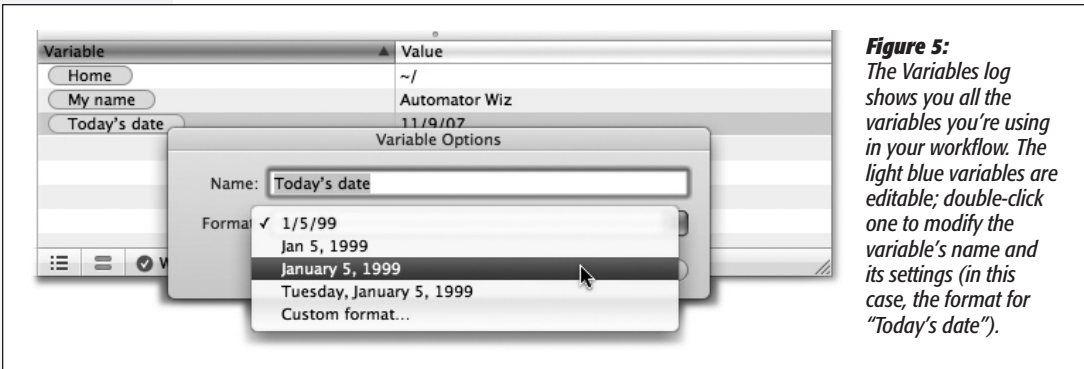


Figure 5: The Variables log shows you all the variables you're using in your workflow. The light blue variables are editable; double-click one to modify the variable's name and its settings (in this case, the format for "Today's date").

Opening Existing Workflows

Automator comes with three prebuilt workflows that show off Automator's capabilities. Find them by clicking Help→Open Examples Folder; open one of these workflows for inspection by double-clicking it.

Tip: In Leopard, you don't actually have to *open* an Automator document to see how it's set up. Simply select a workflow in the Finder and hit Space bar to activate Quick Look (page 58), which gives you a preview of the entire workflow—actions and all.

Note, though, that this only works with workflows saved in *Leopard's* Automator. Since Apple's own example workflows were created in the older 10.4 version, QuickLook won't properly display them until they're *resaved* in Leopard.

To many people's surprise, the included workflows are quite useful:

- **Copy Unread Mail to iPod Notes** copies any new Mail messages into your iPod's text-notes folder. Later, when you're on the train to work, you can pull out your iPod and read whatever mail you didn't get to at home.
- **Import .Mac Photo Album into iPhoto** works only if you have a .Mac account (page 687). It slurps the photos from a photo album you've previously posted on your .Mac site (say, while you were on vacation) and copies them into iPhoto. From there, you can view a full-screen slideshow of the images, or even edit them and post them *back* onto your .Mac site.
- **Process Images** applies the same extreme Photo Booth-like special visual effect to whatever photos you specify in the workflow. No, people haven't exactly been clamoring for an automated way to create mirror-image camera shots, but this workflow does show you the basics of batch-processing photos. You can use it as a template for building your own "Convert to JPEG" or "Scale to 640 x 480 pixels" workflow, for example.

Tip: Apple provides two great Automator examples at their Automator Web site, www.automator.us. "Welcome to the Party!" for example, cleverly demos two new features of Automator—variables and the Loop action—by showing you how to create a workflow that takes photos of your friends and turns them into a cool, party-ready screen saver.

Editing a Workflow

Before you build your own workflows, it's a good idea to understand how actions work together to process information. Here's a guided tour of the Process Images workflow described in the previous paragraphs (Figure 6), which will give you deeper insight into building your *own* workflows.

1. Ask for Confirmation.

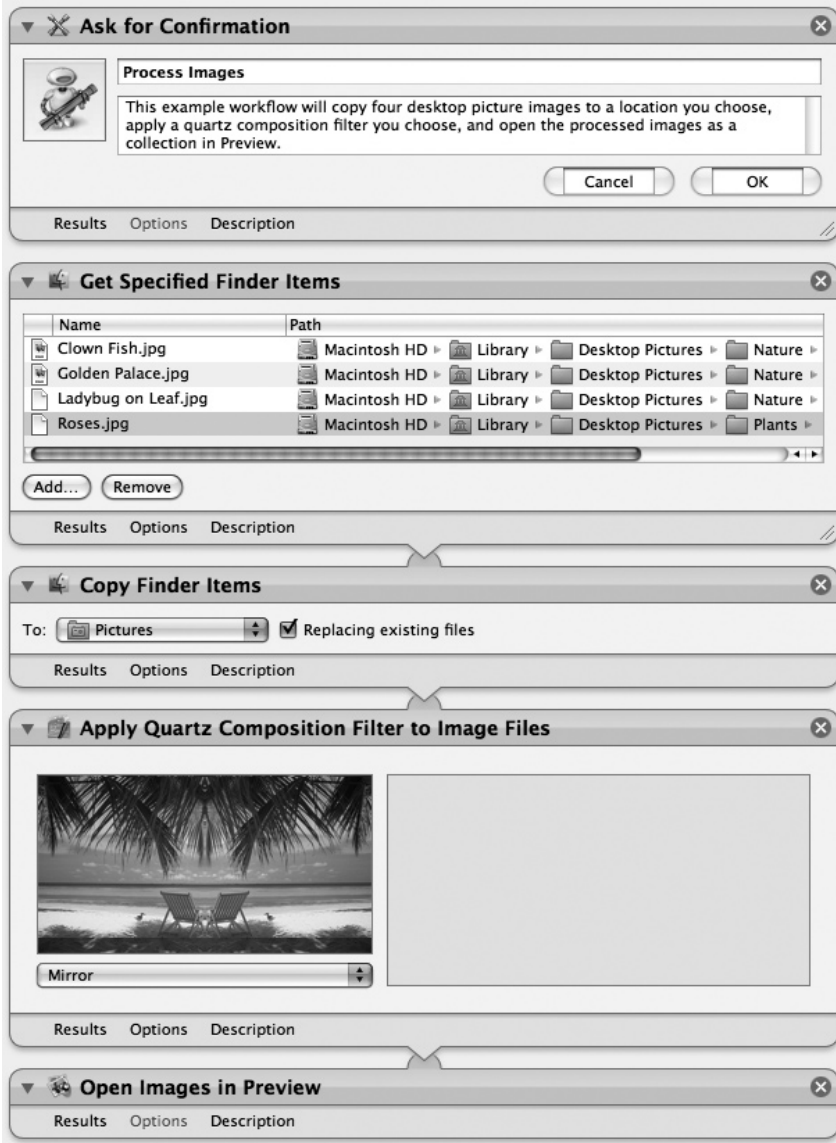
This common action, available in the Utilities folder, produces a dialog box that tells the innocent bystander what's about to happen (Figure 7). It's a good idea to begin each of your *own* workflows with a box like this, to remind yourself (or your minimum-wage minions) what the workflow actually does.

In this case, the message informs your audience that the workflow is about to open a folder full of pictures, apply some wacko effects to them, and then open them up in Preview to display the results.

Tip: If you want the dialog box to appear with a bright warning sign—to inform you, for example, that you’re about to erase your entire hard drive—click the robot icon in the upper-left corner of the Ask for Confirmation action. Automator swaps in a robot-with-yellow-triangle icon.

Keep in mind, too, that the entire Ask for Confirmation action is 100 percent customizable. Not only can you change the text that appears in the dialog box—you can even change the names of the Cancel and OK buttons.

Figure 6: The Process Images workflow consists of only five actions. (The first action, which just displays an explanatory dialog box, shouldn’t even count.) Still, this simple action does in 10 seconds what would take most humans at least 5 minutes: applying the same photo effect to several images.



2. Get Specified Finder Items.

The next step in the Process Images workflow comes from the Files & Folders folder. It lets you specify which files you want your workflow to operate on. You can use the Add and Remove buttons to edit the list—to add your own images to be mirrored, for example—or you can drag files straight from the Finder into this list.

When this action is finished, it passes on a list of files and/or folders to the next action, ready for further processing.

Note: This example workflow always operates on the same set of four files. But if you were to substitute the Files & Folders→Ask for Finder Items action instead, Automator would prompt you for the files to process *each time* you ran the workflow, which is a heck of a lot more useful than applying the same filter over and over again to the same four images.

Also, you'll notice that two of the images in the list—"Ladybug on Leaf.jpg" and "Roses.jpg"—have blank-document icons. That's because those images were around in 10.4, which is why they're included in the example—but Apple *removed* them from 10.5, and forgot to take them out of the workflow for Leopard. So when you run the workflow, only *two* images, not four, will be processed.

Figure 7:

A dialog box created by the Ask for Confirmation action. Feel free to edit the action with your own text; the stuff that Apple provides is pretty dry.



3. Copy Finder Items.

This is a very important Files & Folders action: it makes a *copy* of the specified files and folders (in this case, the ones you identified in Step 2) so you don't gum up the originals. You can change where you want the copies stored by editing the "To" pop-up menu in the action. The menu lists obvious locations like Pictures and Desktop, or you can choose Other to select any folder you like.

Note: The "Replacing existing files" checkbox simply tells Automator that, if there are old files in the Pictures folder with the same names as your new files, you want to delete the old files automatically.

If you click Options in the action, you'll see that the "Show this action when the workflow runs" checkbox is turned on. That means Automator asks where to store the copies when you *run* the workflow, so that the destination can be different each time. Otherwise, the files will automatically be copied to whatever folder you select in the pop-up menu right now.

4. Apply Quartz Composition Filter to Image Files.

This action (listed in the Photos folder) processes the newly duplicated images from Step 3; in this case, it applies a mirror filter to them. The action then passes the newly-mirrored images onto Step 5. If you prefer, you can choose a different filter from the pop-up menu—to make the image look like a comic-book drawing, for example, instead of applying the mirror filter.

Note: The Quartz Composition Filter, a piece of Mac OS X's Quartz display technology, can modify images and photos in real time. Photo Booth uses this technology, which is why many of Photo Booth's effects are also in the action's Filter pop-up menu. (See <http://developer.apple.com/graphicsimaging/quartz> for the incredibly nerdy details on Quartz.)

Since “Show this action when the workflow runs” under Options is turned on, Automator will present this action to you when you run the workflow. That is, you'll have the chance to choose a different filter each time this workflow runs.

(By the way, the image of the beach is intended to demonstrate the filter's effect; it's not actually one of your photos.)

Tip: The big box on the right side of the action isn't there because Apple had nothing to fill the space. Certain filters have settings you can modify, which appear in that box. The Glow filter, for example, lets you specify *how much* glow you want applied to the image(s).

5. Open Images in Preview.

This final action, which also comes from the Photos folder, takes the post-filter images from Step 4 and opens them in Preview (page 383). From there, you can flip, resize, or resave the images.

Try running the workflow by clicking Run. The bottom of the Workflow pane tells you which step of the workflow is running at the moment. As each action finishes, a green check mark appears in its lower-left corner.

Note: If something goes wrong while your workflow is running (or if you click Cancel in a dialog box), your workflow stops in its tracks. To identify the offending step, look for the red X in an action's lower-left corner, or check the Log.

Unfortunately, if your workflow shuts down in the middle, you can't restart it from there. When you click Run the next time, the workflow plays from the beginning.

Building Your Own Workflow

You could spend all day playing with the workflows Apple gives you, making minor tweaks and seeing how they affect the workflow's progress. You could even download more preassembled workflows from www.automatorworld.com, macscripter.net, or Apple's own www.automator.us, if you were so inclined.

Still, those options don't give you the kind of hands-on experience you need if you ever want to automate your Mac on your own.

That's why the following pages walk you through building three different Automator workflows from scratch. Along the way, you'll learn several tricks that you'll find handy when you start building your own workflows.

Tip: If you're feeling lazy, you can download the completed workflow projects from this book's "Missing CD" page at www.missingmanuals.com.

Emailing an iTunes Song

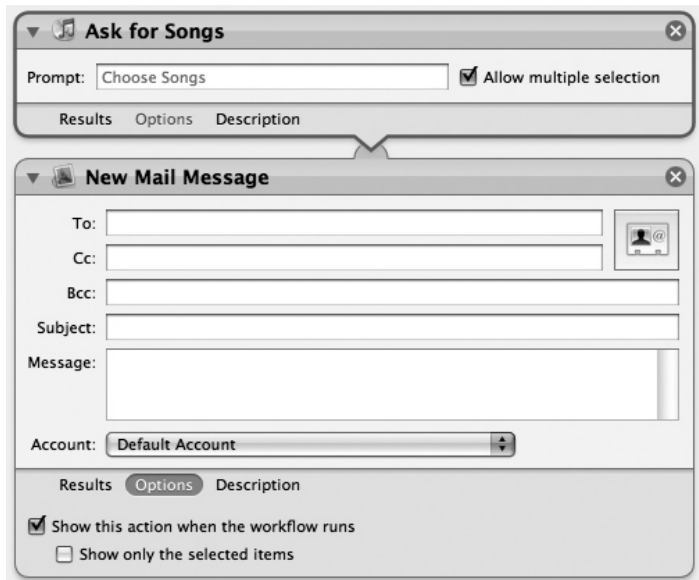
So you're listening to a song in iTunes, and you're seized by an overwhelming urge to email it to someone. Maybe you think your mom would like to hear the new Britney Spears hit (hey, she's *your* mom), or that your brother would be interested in your latest GarageBand opus (he probably isn't).

The traditional process for emailing a song is a *huge* pain: locating the song in iTunes, Control-clicking it, choosing Show in Finder from the shortcut menu, creating a new message in Mail, addressing it, typing out a subject and short body message, dragging the song file from the Finder into the email message, and, finally, clicking Send. Life's too short.

Automator can *greatly* simplify this process. With a simple two-action workflow, you can locate a song from your iTunes Library, set up all the email information you want in a dialog box, and have Automator attach the song file automatically. Figure 8 shows what the final workflow looks like.

Figure 8:

Your new workflow lets you pick a song in your iTunes Library (top), and then attach the song to a new email message. This action is a heck of a lot easier than trying to do all the steps manually.



Note: Your recipient may not be able to play the song if it came from the iTunes music store. Those songs are copy-protected, and play back on a maximum of five computers. (MP3 files, GarageBand compositions, and songs you've ripped from your own CDs, of course, have no such restrictions.)

Here's how to build the workflow:

1. Open a new Automator workflow window.

Either choose File→New or press ⌘-N.

2. In the Starting Points menu, click Music & Audio. From the “Get content from” pop-up menu, choose “my iTunes Library.” Then, from the second pop-up menu, choose “Ask for songs and playlists when my workflow runs.”

Since you're not looking for music files in the Finder or on the Web, you want Automator to look specifically at your iTunes Library.

The second pop-up menu gives you a bunch of options for *how* and *when* you want to specify which song(s) to use in the workflow. These options are pretty self-explanatory: You can either *select* or *search* for songs, and you can either do so right now or when you run the workflow. Since you'll probably want to use this workflow more than once, and for different songs, you want the ability to select a song every time the workflow runs.

When you click Choose, Automator creates a workflow and automatically adds the Asks for Songs action, which matches the options you selected in the Starting Points menu. It lets you pick out one song (or more, if “Allow multiple selection” is on) from your iTunes Library (Figure 9, top). Whichever songs you pick will be attached to your new email.

Note: Whatever you type into the Prompt box will appear as a message in the song-selection dialog box. You can make it say, for example, “Pick a song, any song!”

3. In the Library list, click Mail.

(Make sure the Actions button is clicked above the list.) You've just narrowed down the list of available actions to those that pertain to Apple's email program.

4. From the Actions list, drag the action called New Mail Message into the Workflow pane.

This action lets you specify the recipient, subject, and content of your new email message. (You can even add an email address straight from your Address Book. Just click the address-card button in the upper-right corner.)

On the other hand, your workflow won't do you much good if you can only send email to the same person every time. Therefore, to make the workflow more general, you'd be wise to click the Options button and turn on “Show this action when the workflow runs.” That way, you can specify a different recipient—and subject, and email account, and so on—each time you run the workflow (Figure 9, middle).

If you look at the description for this action, you'll see that the Input accepts "(Files/Folders, Text)." It explains that if a file is passed from the previous action, it will automatically be attached to the email. Since the Ask for Songs action *does*

Figure 9:

Top: The dialog box of the Ask for Songs action. You can search for songs using the field at the bottom, pick one of your playlists using the menu at the top, and even sample a song by clicking the Play button

Middle: The dialog box of the New Mail Message action. If you have more than one email account, you can select the one you'd like to send the message from in the pop-up menu at the bottom of this window.

Bottom: The result: an email message with your text, subject, recipient, and attachment. Just click Send and your message is on its way. (You could also have used the Send Outgoing Messages action at the end of your workflow to do this step automatically.)



pass a file to the action under it—in this case, the song file you select—Automator will conveniently attach it to the email, without needing another action.

5. Choose File→Save (⌘-S), give your workflow a name, and save it somewhere easy to find.

Tip: And if you *really* find this workflow useful, save it as a standard, double-clickable application and stash it in your Dock. Details on page 273.

That’s all there is to it. Click the Run button to test out your new workflow!

Burning an iPhoto Picture CD

iPhoto is a fantastic program for organizing digital photos. It even has its own photo-backup feature, which burns selected albums’ photos to a blank CD or DVD.

However, iPhoto’s backup feature burns a disc that maintains iPhoto’s complex and user-hostile Library folder structure. That’s great if you expect one day to restore the backup to *iPhoto*, because the backup maintains all your keywords, ratings, albums, comments, and other iPhoto data.

Figure 10:
Top: The first action presents a dialog box telling you what this workflow does.

Middle: The second action lets you select from your iPhoto Library the images you want to back up.

Bottom: The last action, in a single step, burns those images onto a CD or DVD. It works regardless of whether your Mac has an internal or external burner. Try that simplicity on a PC!



But it's not so great if you want to hand the CD or DVD to anyone who *doesn't* use iPhoto (like a Mac OS 9 person or a Windows person), because they'll have a devil of a time figuring out where all the photos are in the convoluted Library folder structure.

If you build an Automator workflow to back up your photos instead, you (a) can burn a disc containing *only* the photos in one simple folder; (b) have more control over which photos are backed up; and (c) learn even more tricks for automating sophisticated operations. Figure 10 shows what the final workflow looks like.

Here's how to put it together:

1. Create a new Automator workflow (⌘-N).

The Starting Points screen appears.

2. Click Photos & Images. From the “Get content from” pop-up menu, choose “my iPhoto Library.” From the second pop-up menu, choose “Ask for photos and albums when my workflow runs.” Click Choose.

Your newly hatched workflow, when it runs, will begin by asking you which photos you want to back up when you run the workflow.

Tip: What you really want is to round up only the latest batch of photos—since your last backup, for example. Fortunately, one of the actions in the Photos folder is called Find iPhoto Items, and it lets you specify a time period like “Within the last 2 weeks.” It would be perfect for this workflow—if it weren't so buggy. (For example, it finds *multiple* copies of each photo.)

For best results, then, create a Smart Album in iPhoto that lets you filter photos based on certain criteria—all your photos taken in the past two months, for example. When you run the workflow, you can choose that album to back up, so that you get only the most recent shots.

3. In the Library list, click the Utilities folder. Drag the Ask for Confirmation action into the Workflow pane, *above* the Ask for Photos action. Fill in the text as shown at the top of Figure 10.

You want to drag it *above* the Ask for Photos action so it's the first thing that happens when you run your workflow. Now you've just directed Automator to begin its work by displaying a dialog box (Figure 11).

Figure 11:

The explanatory dialog box from the iPhoto Backup workflow. Making the dialog box appear is optional, but it's helpful if you come back to your workflow in a few months and forget what it's supposed to do.



4. Drag the “Burn a Disc” action to the bottom of the Workflow pane.

This action takes the images you selected in the Ask for Songs action and burns them to a CD or DVD.

5. In the Disc Name field of the Burn a Disc action, type “iPhoto Backup from ” (that’s a space after “from”).

The workflow will complete this phrase later.

6. Click Variables above the Library list.

Those variables are about to come in handy. You’re going to complete the phrase “iPhoto Backup from” with whatever the date of the backup is.

7. Click the Date & Time folder in the Library list. Drag the “Today’s date” variable into the Disc Name field after “from.”

The CD or DVD’s name will be something like “iPhoto Backup from 4/9/08,” making it easy for you to see *when* you made the backup disk. The date automatically changes whenever you run the workflow.

When you click Run, your workflow springs into action. If there isn’t a blank CD or DVD in your Mac, Automator asks for one.

Skip to page 273 to see how to save the result as a double-clickable icon on your desktop.

Converting and Renaming Images

This workflow is the most complicated of these examples, but also the one that saves you the most time. It processes any set of graphics files by converting them to the space-saving JPEG format, shrinking them to reasonable pixel dimensions for sending by email or posting on the Web, saving them in a new folder, and renaming them. If you often need to put pictures on your Web site, or you just like to email pictures to friends, this workflow can be a godsend.

1. Create a new Automator document (⌘-N). In the Starting Points menu, click Photos & Images. In the “Get content from” pop-up menu, select “my Mac.” Then select “Ask for image files when my workflow runs,” and click Choose.

How will you tell Automator which photos to convert? Earlier in this chapter, you read about the Get Specified Finder Items action in one of Apple’s sample workflows. Trouble is, that action requires that you tell Automator which images to convert *ahead of time*. It doesn’t let you choose the images *as* your workflow is running, which would be far more useful.

No, if you want to be asked which photos to process when your little program runs, you need the Ask for Finder Items action, which Automator automatically adds to your workflow when you specify your starting point settings.

Note: Make sure that the Type pop-up menu says Files. (You can't really select a *folder* to convert to an image.)

The “Start at” pop-up menu lets you specify what disk location the Open dialog box will present when it first opens. You can save yourself (or whoever will be enjoying your workflow) some time by setting it to the folder that will most likely contain the photos to be processed.

Fill in the Prompt box with whatever message you want to appear in the Open dialog box. Something like, “Please choose the photos you’d like to have converted” would work fine.

Finally, it’s a good idea to turn *on* Allow Multiple Selection, so that you can pick several images to convert at once.

2. In the Library list, click Files & Folders. Double-click the Copy Finder Items action.

(Double-clicking an action adds it to the bottom of the workflow pane without you having to drag it.)

This action copies the files you specified in the previous step into a new folder—a safety step that leaves your original images untouched. You can specify any folder you’d like in the “To” pop-up menu, but the Pictures folder is probably the best place to store your newly-copied images.

3. Double-click the Rename Finder Items action.

It, too, flies to the bottom of the workflow.

Now, from the pop-up menu at the top of this action, choose Add Text. Then, in the Add field, type “(small).” (Put a space before the opening parenthesis.) Finally, make sure that the pop-up menu on the right says “after name.”

Why go through all this? First, by appending a standard suffix onto each image file’s name, you’ll have a standardized naming system: “Joe’s Great Dane (small),” “Mary’s Labrador (small),” and so on. Second, the suffix tells you, at a glance, that the image has been scaled down. Finally, and most usefully, having “(small)” in each of your image’s names makes it easy to find all the images you’ve converted; all you have to do is use Spotlight (Chapter 3) to search for files with “(small)” in their names.

Of course, this action hasn’t *actually* converted the images to a smaller size yet. That’s the work of the next action you’ll add.

4. In the Library list, click Photos. Double-click the Scale Images action. In the warning dialog box, click Don’t Add.

Whenever you add a “destructive”—or file-changing—action to your workflow, Automator warns you that you’re going to be changing files, and offers to add a Copy Finder Items action so you don’t screw up your originals. But in this case,

you've *already* copied the images you want to convert in Step 2, so you don't need to do it again.

In the action's pop-up menu, choose By Percentage, and type 50 in the text field. That's how you tell Automator, "I want you to shrink each of my images by half."

Note: Automator will shrink each image's height *and* width by 50%, so technically, you're making your new images a *quarter* the area of the originals. If you truly want your new images to be half the *area* of the originals, use 70.71 for the scaling percentage. (That's 50 times the square root of two, if you're scoring at home.)

5. In the Library list, go back to Files & Folders. Double-click the Filter Finder Items action.

Change the first pop-up menu to File Type and the second to "is not." In the third menu, choose "JPEG Image File." Click the + button and set the same criteria again—except this time, in the third pop-up menu, choose JPEG 2000 Image File.

You've just set up a filter that will screen out all the JPEG images you're processing in this workflow. You'll see why in the next step.

6. Again, click Photos in the Library list. Click the Change Type of Images action, hold the Shift key, and drag it to the bottom of the Workflow pane.

Holding Shift tells Automator, "Yes, I *know* I'm adding a destructive action, and *no*, I don't want to add the Copy Finder Items action again—and thanks for not asking." (If you drag the action to the workflow *without* holding Shift, Automator will again present the warning dialog box, again offer to add the Copy Finder Items action, and you'll again have to click Don't Add.)

From the action's To Type pop-up menu, choose JPEG.

In Step 4, you scaled down the images' dimensions; in this step, you're converting their file format to one that takes up less space. Your final images will be significantly smaller than the originals, consuming as little as one-tenth the disk space (depending on the quality of the originals), which makes them perfect for emailing or posting on the Web.

As it turns out, the Change Type of Images action *fails* if it tries to convert a JPEG to a JPEG, which is why you filtered out the JPEGs in the previous step. This way, the action works only on the non-JPEG images when the workflow runs.

Tip: Most of the actions in this example offer an Options panel at the bottom. When you click the Options button, you see an option called "Show this action when the workflow runs."

If you turn on this checkbox, the workflow, when run, will pause at this juncture and *ask* what to do. For example, instead of using this action to churn out JPEGs, the workflow could ask you what file format you want. In Step 5, it could ask you how much to scale down the images' dimensions. And so on.

7. Click Files & Folders in the Library list. Double-click the Find Finder Items action.

Since you filtered out all the JPEG files in an earlier step, how are you going to gather up *all* the images you processed with this workflow? As mentioned in Step 3, one of the advantages of appending “(small)” to the images’ names is that it’s easy to find them using Spotlight—or, in Automator’s case, the Find Finder Items action.

In Find Finder Items, make sure the first Whose pop-up menu is set to Name, and the second is set to “contains.” Type (*small*) in the text box. This’ll do a simple Spotlight search for all the files on your computer with “(small)” in their names.

To make sure you find only the images you processed (and not stray files that happen to have “(small)” in their names), click the + button to add another set of criteria. In the second row of options, select “kind” from the first pop-up menu, “is” from the second, and Image from the third.

Tip: If you’ve run this workflow before, this action would find *every* image you ever processed—a mild inconvenience if you want to examine only the *last* set of images you selected.

You can narrow it down by clicking the + to add another set of criteria that finds, for example, only the files you’ve created today.

8. Go back to the Photos folder in the Library list, and drag the Open Images in Preview action to your workflow.

This action is optional. It makes Preview open at the end of the conversion process and present the newly-shrunk images for your inspection. This step also gives you an indication—besides the standard *choo* sound that Automator makes—that your workflow has successfully completed its mission.

Note: To show all the processed images in the *Finder* instead of in Preview—so you can drag them to an email, for example—simply replace the Open Images in Preview action with the Files & Folders→Reveal Finder Items action.

Save your new workflow for later use, and read on for some neat tricks you can do with it.

Doing More with Automator

The beauty of Automator is that it’s not a static, this-or-nothing program: it’s a versatile, *expandable* tool with ever-increasing potential. There are two particular ways to increase Automator’s power beyond using the factory-installed actions: adding more actions yourself, and using the new Watch Me Do feature.

Getting More Action(s)

Automator comes with dozens of actions, but you're bound—eventually—to find yourself wishing that there were a few more. Perhaps you'd like some Automator actions to control non-Apple programs like Photoshop, or you'd just like to have a few extra actions to control Mac OS X itself.

Fortunately, Automator can handle actions written by non-Apple programmers, too. Just visit any of the Web sites devoted to Automator actions (like www.automator-world.com, www.macscripter.net, or www.automator.us), and download any actions you'd like.

If the action's programmers did their jobs right, you can just download the action, run the installer, and sit back and watch as Mac OS X unpacks, copies, and installs the action automatically. The next time you open Automator, the new action will be listed in the correct folder.

If, on the other hand, the action's programmer did not create a self-installing action, you may have to manually double-click the .dmg, .sit, or .zip file that you downloaded. Inside the folder or disk image that results, you should find a file ending in .action. Drag that file into either your Home→Library→Automator folder (to install the action for use under only your account) or your Library→Automator folder (to install the

FREQUENTLY ASKED QUESTION

Checking a Workflow's Progress

Some of these actions take their sweet time. Is there some progress bar that will tell me how far along my workflow is?

Actually, Automator provides two ways to check on the status of your workflow: the simple way (call it “the Indicator”) and the Workflow log.

The Indicator lies in the lower-left corner of the Automator window, next to the Log buttons. When your workflow is running, a little status message appears here to tell you exactly which action is running at the moment. You can use that information, along with some common sense, to figure out how close your workflow is to being finished. If the workflow has run its course, the Indicator says, “Workflow completed.”

Log	Duration
Find Finder Items completed	2.752 seconds
Conversion from Files/Folders (com.apple.cocoa.path)...	0.008 seconds
Reveal Finder Items completed	0.884 seconds
Workflow completed	3.644 seconds

Workflow completed

(You can also identify whatever action is running at this moment, thanks to the spinning-sprocket indicator in its lower-left corner. But if you have a tall stack of actions, you might not be able to see the action that's currently running. The list doesn't automatically scroll.)

The Workflow log is even more powerful. Activate it by clicking the list-like button in the bottom-right corner of

the Workflow pane (or by hitting Option-⌘-L). It tells you when each action begins and ends, and it also displays geeky data-conversion information (like when Mac OS X is turning “image files” into plain-vanilla Finder files). And unlike the Indicator, the Workflow log keeps its information around even after your workflow is finished—so you can see how long your entire workflow took to run, for example.

action for all users on your Mac). In either case, if this is the first time you're installing an Automator action by hand, you may have to create the folder yourself.

Once in Automator, you can use your new actions just as you'd use the ones that came bundled with your Mac: dragging and dropping them in whatever order you want, customizing their settings, and so on.

Before you run any new actions, though, look at the Description field to discover the actions' inputs and outputs. With that information in hand, you'll never accidentally connect, say, your new Sauté Vegetables action to an unrelated action like Burn a Disc.

And finally, if you're interested in writing your own Automator actions (warning: programming experience necessary), visit <http://developer.apple.com/documentation/AppleApplications/Conceptual/AutomatorConcepts/Automator.html> for an introduction.

Watch Me Mode

Sometimes, you'll run into a task that Automator can't accomplish with *any* action, no matter how nicely you ask: opening multiple folders of bookmarks in several Safari windows, for example, or automating some no-name program that doesn't know anything about Automator and doesn't come with any actions.

Enter Watch Me Do. In this mode, new in Leopard, you click a Record button. The Automator window disappears, and a black "Automator: Recording" window takes its place. From now until you hit the Stop button, every mouse click and keystroke is *recorded*, step by step, into Automator. Later, you can survey the list of steps you took and clean them up.

When you run the workflow, your mouse actually moves to reproduce your clicks, and the Mac actually types the same keystrokes you did. It's like watching a ghost control your computer, or maybe a really annoying little brother who won't stop mimicking you.

You can even manipulate the individual steps—delete one, for example, edit the playback speed, or change how long it takes before the step "times out" (gives up).

It's far easier to create workflows using Watch Me Do than having to drag the correct actions into the correct sequence; you're leaving even more of the programming to Automator.

Unfortunately, there are drawbacks to Watch Me Do, too:

- The conditions on the screen when you run the action must be *identical* to the way they were when you recorded. If some window isn't the same size, or in the same position, or if some button isn't where it used to be, the workflow derails.
- Watch Me Do relies on the Mac's accessibility features—the same ones that form the guts of VoiceOver and other tools for the handicapped—and different programs have been "accessibilitized" to wildly varying degrees. You can record and play

back steps that involve System Preferences with amazing success, for example. But operating other programs can be hopeless.

That's why Watch Me Do may seem incredibly flaky. For best results, use keystrokes and keyboard shortcuts as much as possible.

Here's an example.

Change your Startup Disk

If you use Boot Camp to run Windows on your Mac (Chapter 8), you may find yourself having to open the Startup Disk pane of System Preferences with alarming frequency. And unfortunately, there's no Change Startup Disk action in Automator to make that job less repetitive.

Fortunately, Watch Me Do *can* automate the process, so you can switch your startup disk with one click on an Automator-created application on your desktop or Dock. Creating the workflow is simple:


1. **Create a new workflow (⌘-N). Select Custom from the Starting Points menu, and click Choose.**

Since you're just going to work with Watch Me Do, you want a clean, action-free workflow.

2. **Click the Record button.**

The Automator window disappears, and the black Recording window pops up. Everything you do is being recorded right into Automator.

3. **Click System Preferences in the Dock.**

If System Preferences isn't in your Dock, put it there before beginning the recording. (It's in your Applications folder.) Choosing its name from the  menu generally doesn't work, thanks to some typical Watch Me flakiness.

4. **In System Preferences, click Startup Disk, and then click either your Windows partition or your Mac partition.**

Later, you can create a second workflow to choose your other disk, if you want.

5. **Click Restart. In the confirmation box, click Restart again.**

Don't worry; you're not actually going to restart right now. Instead, Automator pops to the front, nagging you about the fact that it has an open document with unsaved changes—that is, the workflow you're in the middle of making!

6. **Click Cancel.**

Now Mac OS X tells you that Automator canceled the restart you had asked for. Which, of course, you already know.

7. **Click OK. Click Stop in the Recording window.**

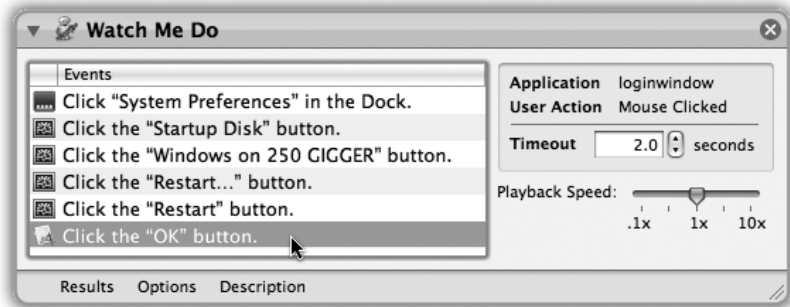
The Automator window reopens with a new Watch Me Do action in your workflow (Figure 12). The Events list shows you everything you did, step by step—right down to the clicking of the OK button in step 7. And *that* step should *not* be part of the workflow.

8. Click the final step in the workflow action (which says “Click the ‘OK’ button”) and press Delete.

When you run the workflow, you’ll see your cursor magically move from one step to the next, all by itself (well, with a *little* help from Automator). It repeats every hesitation, misstep, and pause in your original mouse motion. Fortunately, you can speed up a particular step by up to 10X using the Speed slider (also shown in Figure 12).

Figure 12:

After you’ve recorded a Watch Me workflow, the steps you took appear here. You can drag them up or down to rearrange them; click one and press Delete to eliminate it; or adjust the Playback Speed slider. For now, delete the unnecessary “Click OK” step.



All in all, the mantra to use when dealing with Automator and Watch Me Do is simple: If you can perform a task with a specific action, *use the action*. Use the Watch Me mode sparingly.

Workflows as Programs and Plug-ins

Building an Automator workflow is a satisfying intellectual exercise and a delicious talent to acquire. But if the point of all the effort is to create a timesaving, step-saving software robot, there seems to be something missing. Are you really going to open the Automator *program* just to run a workflow you’ve written?

Nope. You can save a workflow as a regular, double-clickable application, if you like, or embed it in shortcut menus all over your Mac.

Saving a Workflow as an Application

If you just choose File→Save, you create an Automator Workflow file (with filename extension *.workflow*). That’s the format of most ready-to-use workflows you’ll find online, too.

In the Save As dialog box, however, there’s another choice for saving your workflows: as an application (Figure 13).

A workflow saved as an application has all the benefits associated with normal Mac OS X programs. You can double-click its Finder icon to launch it, drag it to the Dock for one-click launching, or—with the addition of file-launching shareware like LaunchBar or iKey—even associate a key combination with it so that you can run your workflow with a quick press of a function key.

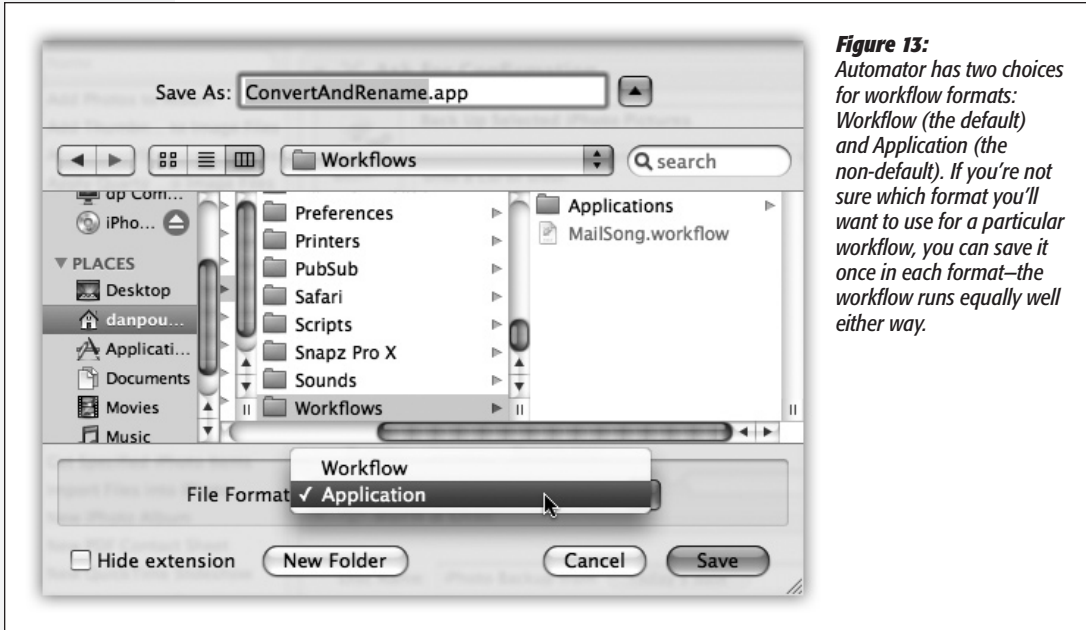


Figure 13: Automator has two choices for workflow formats: Workflow (the default) and Application (the non-default). If you're not sure which format you'll want to use for a particular workflow, you can save it once in each format—the workflow runs equally well either way.

So why wouldn't you just save your workflows as applications *all* the time? First, workflow applications are *much* larger than workflow documents—as much as 20 times larger. That's a big deal if you plan to distribute your workflows online or via email.

Also, when a workflow application runs, it doesn't give you access to the Workflow log—a big downside if you want to monitor the progress of your workflow in minute detail. Instead, you get a dinky action indicator in the menu bar, as shown in Figure 14.

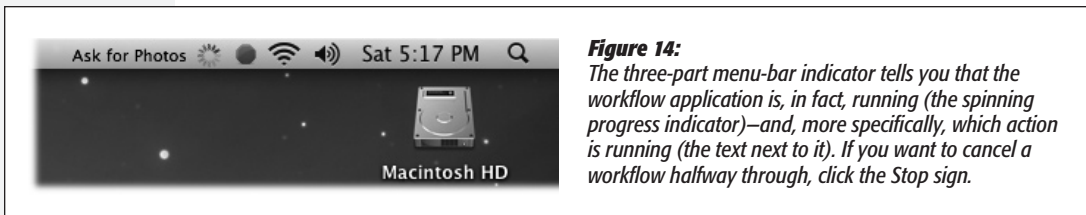


Figure 14: The three-part menu-bar indicator tells you that the workflow application is, in fact, running (the spinning progress indicator)—and, more specifically, which action is running (the text next to it). If you want to cancel a workflow halfway through, click the Stop sign.

Finally, it's a pain to edit a workflow application if something goes wrong; you have to open the whole thing in Automator and resave it.

In any case, if you decide to save a workflow as an application, choose File→Save As, and then select Application from the pop-up menu at the bottom.

Workflows as Plug-ins

There's one more trick up Automator's sleeve, the best of the bunch: You can turn your workflow into a *plug-in* that can show up in any of several logical places all over the Mac, right where you want it. For example, workflows can show up in shortcut menus in the Finder, appear in the Script menu of your menu bar, serve as an iCal alarm that runs automatically at a specified time, appear in the Print dialog box to process a document you've just finished, and more.

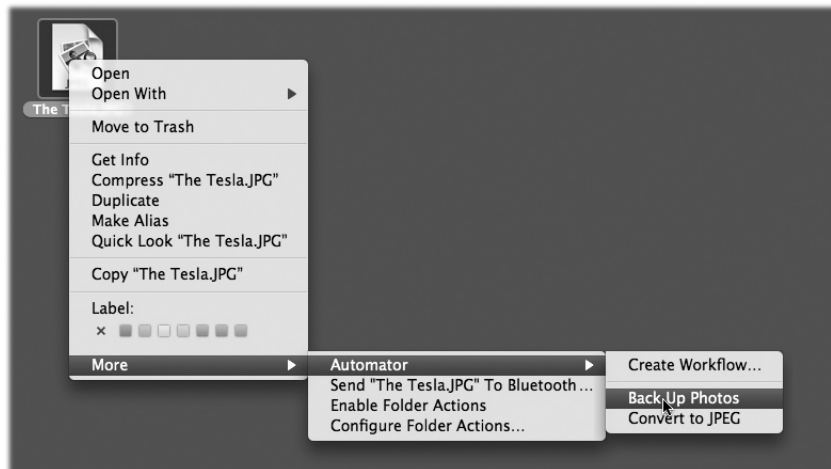
You'll see all of these options when you choose File→Save As Plug-in. In the pop-up menu in the resulting dialog box, you'll see these options:

- **Finder.** When you save a workflow as a Finder plug-in, a new item, named Automator, appears in the Finder's shortcut menu under More—the one that appears when you Control-click (or right-click) an icon or empty space in the Finder, as shown in Figure 15.

This feature is most useful for Automator workflows that are designed to work with the currently-selected Finder item—for example, if you replace the Ask for Finder Items action with the Get Selected Finder Items action in the “Converting and Renaming Images” example earlier in this chapter. This would resize and convert to JPEG any image files you have selected in the Finder—provided you save the workflow as a Finder plug-in.

Figure 15:

The Automator submenu is broken into two parts. Above the divider bar, Create Workflow is just a quick way to jump to Automator and open a new workflow window. Below the divider bar is where the real power lies. Here, you can run any of the workflows you've saved as Finder plug-ins, simply by clicking their names.



- **Folder Actions** are workflows that run when you *do* something to a folder in the Finder—opening it, say, or adding files to it. Folder Actions are extremely powerful for image processing, network backup jobs, and much more, but they're also

extremely complicated. For an explanation of the ins and outs, read this chapter's bonus AppleScript appendix (on this book's "Missing CD" page at www.missingmanuals.com).

- **iCal Alarm** is a powerful plug-in format that lets you schedule workflows to run at specific times. When you save a workflow in this format, iCal opens and creates a new event named after your plug-in; you're supposed to drag and edit this event to whatever time and day you want the workflow to run. (You can even use iCal's "repeat" pop-up menu to have the workflow run every day, week, and so on.)

This is truly a fantastic tool. If you have a workflow that plays an iTunes song, for example, you can easily build an alarm clock using nothing more than iCal alarms.

- **Image Capture** is a program for importing photos from a camera or scanner (page 373). If you save a workflow as an Image Capture plug-in, you can choose to run the workflow whenever you import new photos—so you can easily shrink the new images to a smaller size, for example.
- **Print Workflows** show up as menu items inside the Print dialog box's PDF menu (page 546). If you save a workflow as a Print Workflow plug-in, you can easily run the workflow on a document you're about to print—applying a ColorSync filter to the document to compensate for slight discolorations, for example.
- The **Script Menu**, described in Figure 16, is a convenient list of AppleScripts. But if you save a workflow using this option, it, too, appears in the Script menu (at the bottom). That's a convenient way to run your favorite workflows any time you want, from within any program.

Now, go forth and automate!

Tip: You can find extra Automator resources, including useful workflows and actions, at sites like www.automatorworld.com, www.automatoractions.com, and, of course, www.apple.com/automator.

Getting Started with AppleScript

AppleScript is a powerful computer language that's been around since the days of Mac OS 7. Despite its maturity, however, AppleScript is often criticized by seasoned Mac programmers for being too simple, too easy to learn, and too much like English.

Of course, those are precisely the traits you *want* in a computer language—assuming, of course, that you want to use a computer language at all. If you're an everyday Mac fan—as opposed to some computer-science Ph.D.—AppleScript is by far the easiest programming language to use for automating your Mac.

You can think of AppleScript programs (called *scripts*) as software robots. A simple AppleScript might perform some daily task, like backing up your Documents folder. A more complex script can be pages long. In professional printing and publishing, where AppleScript has an army of hard-core fans, a script might connect to a photographer's

hard drive elsewhere on the Internet, download a photo from a predetermined folder, color-correct it in Photoshop, import it into a specified page-layout document, print a proof copy, and send a notification email to the editor—automatically.

Even if you're not aware of it, you use the technology that underlies AppleScript all the time. Behind the scenes, numerous components of your Mac communicate with each other by sending *Apple Events*, which are messages bearing instructions or data that your programs send to each other. When you use the Show Original command for an alias, or the Get Info command for a file or folder, an Apple Event tells the Finder how to respond.

AppleScript has several important advantages over Automator—not least of which is its even greater power. Still, AppleScript is a *very* deep subject—so deep, in fact, that you'd need an entire book to do it justice. This chapter is an appetizer; a book like *AppleScript: The Missing Manual* is the seven-course meal.

Tip: You can also download an entire chapter about AppleScript—the chapter that appeared in the previous edition of this book—from this book's "Missing CD" page at www.missingmanuals.com.

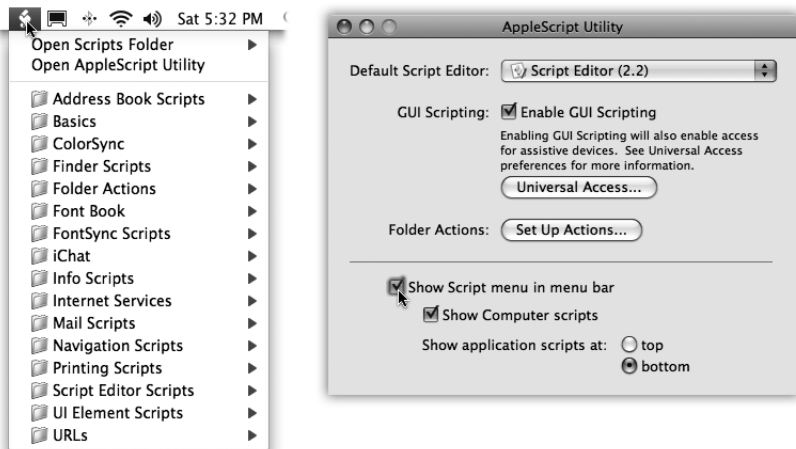
The Script Menu

You don't have to *create* AppleScripts to get mileage out of this technology. Mac OS X comes with several dozen prewritten scripts that are genuinely useful—and all you have to do is choose their names from a menu. "Playing back" an AppleScript in this way requires about as much technical skill as pressing an elevator button.

To sample some of these cool starter scripts, you should first add the Script menu to your menu bar (see Figure 16, right).

Figure 16:
Left: Leopard's starter scripts appear in categories.

Right: To make the Script Menu appear, open Applications → AppleScript → AppleScript Utility; turn on "Show Script Menu in menu bar." AppleScript Utility puts all of the AppleScript options in one place.



The Script Menu provides 16 premade categories, which incorporate over 100 scripts; just choose a script's name to make it run. Here's a summary of the most useful and fun scripts.

Tip: If you press the Shift key as you choose a script's name from the Script menu, Mac OS X takes you directly to that script's location in the Finder (for example, your Home→Library→Scripts folder). Better yet, if you press *Option* as you choose its name, you open the script in Script Editor for inspection or editing.

Address Book Scripts

In this submenu, you'll find **Import Addresses**, which is designed to move your names and addresses into Mac OS X's Address Book program from Entourage, Outlook Express, Palm Desktop, Eudora, Claris Emailer, or Netscape. If you've got a lot of friends, use this script; you'll be glad that you won't have to re-enter all their names, phone numbers, and email addresses. (The accompanying Address Importers subfolder offers scripts to import from three specific programs.)

Basics

This submenu offers three small, handy scripts related to AppleScript: **AppleScript Help** (which opens the Help Viewer and searches for the word *AppleScript*); **AppleScript Web site** (which opens the AppleScript Web page in your Web browser); and **Open Script Editor** (opens the Script Editor program, the program you use to read and write AppleScripts).

ColorSync

In this folder, you'll find a bunch of ColorSync script *droplets* (scripts that run when you drop something on their icons) primarily designed for graphic artists, Web site designers, publishers, and so on.

In some cases, choosing a script's name from the menu produces a terse help message, and then an Open dialog box for choosing the graphics file you want to process.

Others have an immediate effect. The "Mimic PC monitor" script, for example, adjusts the colors of your screen so they closely resemble the slightly different hues of a Windows PC monitor. That's a blessing if you're working on a photo or Web page,

POWER USERS' CLINIC

Secrets of the Script Menu

The Script menu reflects the contents of two different Scripts folders: the one in your Home→Library Scripts folder, and the one in your main Library folder. The ones in your Home folder are listed below the second line in the Script menu.

These scripts aren't just for running. They're also ideal for

opening up in Script Editor (just by double-clicking) and analyzing line by line, to learn how they work. Once you understand the syntax, you can then copy bits of the code to modify and use in your own scripts. (Script Editor is a program in your Applications→AppleScript folder; you can use it to type up your own scripts.)

and you want to preview how it will look to the unwashed masses. (To restore the original colors, visit the Color tab of the Displays pane of System Preferences.)

Finder Scripts

All of these scripts have to do with the Finder: manipulating files and windows, for example. A few of the most useful:

- **Add to File Names, Add to Folder Names.** These scripts tack on a prefix or suffix to the name of every file or folder in the frontmost Finder window (or, if no windows are open, on the desktop). You could use this script to add the word *draft* or *final* or *old* to all of the files in a certain folder.
- **Replace Text in Item Names** lets you do a search-and-replace of text bits inside file names, folder names, or both. When one publisher rejects your 45-chapter book proposal, you could use this script to change all 45 chapter files from, for example, “A History of Mouse Pads—A Proposal for Random House, Chapter 1” to “A History of Mouse Pads—A Proposal for Simon & Schuster, Chapter 1.”
- **Trim File Names, Trim Folder Names.** If you made a mistake in using the Add to File Names script, you can always use the Trim File Names script to undo the damage. This one *removes* file extensions, suffixes, or prefixes of your choosing.

For example, suppose you’ve just made a lot of new folders at once. Mac OS X calls them “untitled folder,” “untitled folder 2,” and so on. But what if you’d rather have them just called “folder 1,” “folder 2,” and so on? Run the Trim Folder Names script; when the dialog box asks you what you want trimmed, type *untitled* and click OK.

Folder Actions

You probably won’t use these scripts much, since Control-clicking a folder (or inside its window) offers the same access to *folder actions* (page 275).

Font Book

These scripts are intended to be demonstrations of how you might automate certain font-oriented tasks.

FontSync Scripts

FontSync is a noble Apple attempt to solve an old problem for desktop publishers. You finish designing some beautiful newsletter, take it to the local printing shop for printing on a high-quality press, and then have to throw out the entire batch—all because the fonts didn’t come out right. The printing shop didn’t have exactly the same fonts you had when you prepared the document. Or, worse, it did have the same font—but from a different font company, with the same name but slightly different type characteristics.

FontSync can give you early warning for such disasters. When you run the Create FontSync Profile script, several minutes elapse—and then the Mac generates a FontSync Profile document. This file contains staggering amounts of information about

the design, spacing, and curlicues of every font installed in your system. When you hand that profile over to your print shop, they can drop it onto the accompanying script, called Match FontSync Profile. It tells them precisely what fonts are different on their Macs and yours.

The wishful-thinking aspect of this technology is, of course, that it assumes a lot: that your print shop uses a Mac; that the print shop knows how to use FontSync; and that you remember to create the profile and submit it.

iChat

iChat in 10.5 was given a major overhaul, and Apple added tons of fun (if not always *useful*) features. Among them: You can now run AppleScripts as Alerts when a certain buddy Event takes place. For example, you can auto-accept chat invitations from certain buddies, or even auto-answer them with a canned greeting. You can even control one Mac's music playback by typing commands into the iChat window of another one, elsewhere in the house.

Info Scripts

These two scripts offer minor usefulness. **Current Date & Time** displays the current date and time in a dialog box, complete with a Clipboard button that copies the information, ready for pasting. **Font Sampler** creates a handy printable cheat sheet, suitable for posting on your wall, that includes every one of your fonts illustrated in a sentence. (It's less useful now that Font Book has similar printout-generating commands built right in.)

Internet Services

Two scripts in this submenu merit special mention. **Current Temperature by Zipcode** gives you the temperature outside your house—in Fahrenheit *and* Celsius. It's just one more reason to stay inside all day.

Stock Quote fetches a 20-minute delayed stock quote for the company of your choice. It's not as good as getting real-time quotes, but hey, it's free.

Mail Scripts

Most of the scripts in this submenu do nuts-and-bolts things like counting messages in your mailboxes or setting up a new email account. The one that's the most fun, though, is **Crazy Message Text** (Figure 17).

Navigation Scripts

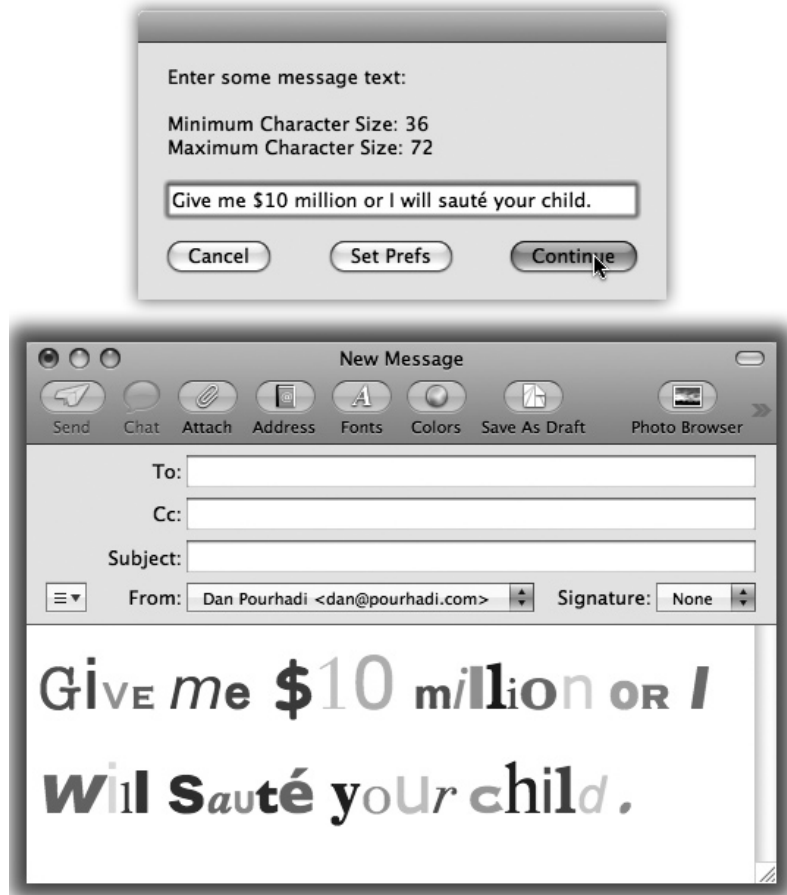
This subfolder's scripts let you jump to special folders in the Finder, right from the menu bar within any program. If the folder you want to open doesn't have its own dedicated script, choose from the listing in **Open Special Folder**.

Tip: If you're game to edit this script in Script Editor, you can modify it to let you choose and open more than one folder simultaneously (by **⌘**-clicking them, for example). Just type *multiple selections allowed true* right after the text *Choose folder to open:* (which appears at the end of a line about a third of the way down the script). Save your changes.

Figure 17:

Top: Enter your text in the Crazy Message Text dialog box. You can customize the range of font sizes in the message by clicking Set Prefs.

Bottom: Once you click Continue, you end up with a randomly-formatted jumble of text, perfect for avoiding handwriting detection. This script offers a great way to send electronic greeting cards, birthday wishes, or ransom notes.



Printing Scripts

These scripts are designed to illustrate the power of AppleScript when it comes to printing and generating PostScript or PDF documents.

One of them, Print Window, plugs a long-standing hole in Mac OS X. It's designed to print a textual list of what's in any folder you choose. (It's a tad buggy, however.)

Script Editor Scripts

As the **About these scripts** command tells you, these 48 canned scripts can help you write faster and more accurate scripts, because the code chunks are free of typos and syntax errors. As you progress, you can add your *own* code-building scripts here, customized for the kind of scripts you like to build, to make you even more productive. (While writing your script in Script Editor, you insert one of these code chunks by Control-clicking and choosing from the shortcut menu.)

UI Element Scripts

Much of the time, scripts perform their magic quietly in the background, out of sight. But if you're trying to automate a program that doesn't respond to the usual AppleScript commands, your scripts can now "operate" them manually by making your Mac think you've clicked menu commands, clicked buttons, and so on.

Note: This feature, called UI (user-interface) scripting, doesn't work until you first open the Universal Access panel of System Preferences and make sure that "Enable access for assistive devices" is turned on.

You wouldn't want to run the scripts in the UI Element Scripts folder just as they are; they're simply samples that show you the correct syntax.

URLs

This final set of scripts provides quick links to common Web sites. All, that is, except **Download Weather Map**, which fetches an up-to-the-minute weather map of the continental United States, saves it on your desktop as *weathermap.jpg*, and then opens it in Preview for your inspection.

Tip: You can add scripts, files, and even Internet location files to the Script Menu, so you can easily launch them all from the menu bar. Anything you drop into the Library→Scripts folder automatically shows up in the Script menu.

On the other hand, if you start adding a lot of your own stuff to the Script menu, you might wish that all Apple's own sample scripts *didn't* appear there. No problem. Open AppleScript Utility and turn off "Show Computer scripts."

Working with Existing AppleScripts

As you'll quickly realize from using the Script menu, your Mac is teeming with dozens of free, built-in scripts. The best part, though, is that you can see—and even change—how they work, to help you learn more about how to write your *own* AppleScripts. You can even copy sections from Apple's scripts wholesale and use them in your own scripts.

The first step in working with a script, of course, is opening it up. The easiest way is to open the Script menu, point to the category you want, and then Option-click a script's name to open it.

When you're just learning AppleScript, you might as well start by looking at a simple script. Open, for example, the New Application Window script (in the category called Navigation Scripts), by Option-clicking its name. Script Editor opens the file in a new window (Figure 18).

Figure 18:

If you've never seen an AppleScript before, you may be surprised at how simple it looks. As you can probably guess from the commands in the window, this script simply opens the Applications folder in the Finder.



Here's how the script works:

- **tell application “Finder”** tells Mac OS X which program is supposed to obey the following commands.
- **activate** brings the Finder to the foreground, much as you would by clicking its Dock icon.
- **open folder “Applications” of the startup disk** tells the Finder to open a new window, displaying the Applications folder on your main hard drive.
- **end tell** directs the Finder to go about its regular business, ignoring further AppleScript commands.

To test the script, click the Run button, or press ⌘-R.

Tip: You can also edit this script to suit your needs. Try replacing “Applications” with “Users,” for example, to make the script open the Users folder instead.

Writing Your Own Scripts

Mac OS X comes stocked with dozens of programs—everything but the kitchen sink. All right, everything but the kitchen sink and a *metronome*. How are you ever going to play the piano in even rhythm without a steady clicking sound provided by your Mac? Sure, sure, you can use GarageBand's metronome in a pinch, but that's like using an industrial pile driver to kill an ant.

Instead, you can use AppleScript to do the job for you. Open a new document in Script Editor (File→New, or ⌘-N), and type this:

```
display dialog "Welcome to the AppleScript Metronome"  
set bpm to the text returned of (display dialog ↵  
"How many beats per minute?" default answer 60)  
set pauseBetweenBeeps to (60 / bpm)  
repeat  
beep  
delay pauseBetweenBeeps  
end repeat
```

Note: Don't actually type the ↵ character. That's programmerese for, "This is really all supposed to be on the same line, but I ran out of space on the page."

When you run this script, you'll see a dialog box that asks how many beats per minute you want the metronome to tick. Whatever number you type (for example, *120*) gets stored in a variable—a temporary holding tank within the script—that you've named *bpm*.

Next, the script calculates how long it must pause between beeps, and puts that fraction of a second into the "pauseBetweenBeeps." If you told the script to beep 120 times per minute, for example, "pauseBetweenBeeps" would be 0.5, since the script would have to pause half a second between beeps.

Finally, the script creates an endlessly repeating loop: beeping, pausing for the proper period, and then repeating.

Click Run to test out your script, and click Stop when you've had enough beeping.

DAVE'S FAVES

One-Click Attachments from the Desktop

Here's a little Automator trick that can be a lifesaver for anyone who must frequently send documents by email. (It simulates the Send To command in the shortcut menus of Windows machines—which is very, very handy.)

In Automator, build a workflow consisting of only two steps: Get Selected Finder Items (in the Finder category) and New Mail Message (in the Mail category).

If you're always sending files to the same person—your boss, say—you can even specify the address, right there in the Automator workflow pane. You can even set up the subject line and message ahead of time, if your job is really that repetitive.

Now choose File→Save As Plug-In. Name it *Email This*, or something.

From now on, you can email a document in the Finder just by Control-clicking it and, from the shortcut menu, choosing Automator→Email This.

Boom: Mac OS X fires up Mail and creates an outgoing message with the file already attached.

Bonus tip: If you insert another Automator step in between the other two—a Create Archive action (from the Finder category), your shortcut menu will compress the file or folder as a .zip file before emailing it!

Tip: To make your script even cooler, turn on the System Preferences→Universal Access→Hearing→“Flash the screen when an alert sound occurs” checkbox. Now when you run your script, you’ll get both an audible beep *and* a visual flash. If you’re recording music, just mute your Mac; you’ll keep the visual metronome but you won’t hear the beeps anymore.

AppleScript vs. Automator

AppleScript has hundreds and hundreds of uses: automating layout workflows that are too complicated for Automator, controlling programs that Automator doesn’t recognize, and programming things that Automator can’t handle.

Yet if all you do is look at AppleScript as a second choice to Automator, you’re missing out on a lot of power. Truth is, AppleScript lets you do more than Automator will probably let you do in the next 10 *years*; it’s just a lot geekier.

In the end, stick with Automator for simple things. If you need to use AppleScript to automate some aspect of your Mac, though, take pride; you’re stepping up to a true power tool. (You can even combine the two, building AppleScripts right into your Automator workflows, thanks to the Run AppleScript action.)

Happy automating!

