

TAKE CONTROL OF

AUTOMATING YOUR MAC

A friendly guide to
finding (or creating)
time-saving shortcuts.

by **JOE KISSELL**

\$15

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Read Me First

Welcome to *Take Control of Automating Your Mac*, version 1.1, published in March 2015 by TidBITS Publishing Inc. This book was written by Joe Kissell and edited by Scholle McFarland.

This book explores many ways to work faster, increase your efficiency, and have more fun using your Mac by automating common activities. Many of these techniques require no extra software, and nearly all of them are suitable for ordinary users without special technical skills.

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Basics

To review background information that might help you understand this book better, such as finding System Preferences and working with files in the Finder, read Tonya Engst's free [Read Me First: A Take Control Crash Course](#), available on the Web or as a standalone ebook in PDF, EPUB, and the Kindle's Mobipocket format.

What's New in Version 1.1

Version 1.1 of this book brings it up to date with all the automation-related changes in OS X 10.10 Yosemite, and adds a few tips and other clarifications. Highlights include:

- Added [Dictation Commands \(Yosemite and Later\)](#). Speakable Items, the corresponding feature in Mavericks and earlier, is still covered in [Speakable Items \(Mavericks and Earlier\)](#).
- Included a tip about using Character Viewer in [Use OS X's Text Replacement](#).
- Covered the new and improved Spotlight features in Yosemite in [Use Spotlight as a Launcher](#).
- Bid a sad farewell to PTHPasteboard Pro in [Use an OS X Clipboard Utility](#), and listed several alternatives instead.
- Updated [Restore Data with Time Machine](#) to reflect Time Machine's revised interface in Yosemite.
- Updated [Create a Duplicate with Carbon Copy Cloner](#) to reflect Carbon Copy Cloner 4's revised interface.
- Included iCloud Drive among the options in [Automate Mac-to-Mac Syncing](#).
- Added a sidebar, [AppleScript, Meet JavaScript](#), to discuss JavaScript's inclusion as a system-wide scripting language in Yosemite.

- Revised [Write a Simple AppleScript](#) to show the new Script Editor app in Yosemite.
- Replaced the erstwhile batch renaming script (no longer needed, since Yosemite's Finder has that feature now) with a random number generator in [Try Another Script](#).
- Likewise, replaced the batch renaming Keyboard Maestro macro with one that converts file formats in [Macro #2: Convert Formats](#).

Introduction

If you'll forgive the cliché, life is too short. I have long-term goals and dreams that need my attention. And every single day, I have work to do, a family to take care of, books to read, and TV shows to watch. I don't have time to waste on tedious tasks that my expensive, modern Mac is perfectly capable of doing for me.

This book is about taking back your time by *automating* your Mac, which sounds like a fancy and high-tech undertaking. But in fact, all I mean by “automating” is finding shortcuts—ways to do the same thing, only more quickly and easily, with fewer manual steps. That might be as simple as learning a keyboard shortcut for a common command, or scheduling a task to run at a certain time. You can do more advanced things, too, like using macro utilities or writing AppleScripts, but you may be surprised to find that some of the most powerful and effective automation techniques require the least effort and skill to set up. In many cases, you won't even need extra software.

I want to emphasize that you do *not* have to be a programmer or computer geek to do most of this stuff. I do mention a few techniques that require above-average technical chops, but I've written this book for ordinary—smart but non-technical—readers. On the other hand, if you *are* a computer geek, I hope you'll find some ideas here that you can use to make your work even more efficient than it already was.

Tip: If you *are* interested in learning about programming but don't know where to start, try [Hour of Code](#).

Let me share a personal story. There's a certain bookkeeping task that used to take me about 5 minutes a day (I'll say more about it in [Control Your Mac with Keyboard Maestro](#)). After doing this a few hundred times, I decided that I couldn't stand it any longer. So I spent a full day working up a very snazzy macro that combined Keyboard Maestro with AppleScript to do the whole task without any intervention at all.

Now, you may be thinking, “That’s madness! What kind of idiot would spend a whole day automating something that takes just 5 minutes?” Well, this idiot did it *to save time*. If I spent 8 hours perfecting my macro, that’s equivalent to 5 minutes a day for about 3 months. Which means that after 3 months of using the macro, I get 5 extra minutes every single day to spend with my kids—more than 30 hours over the course of a year. All of a sudden, that sounds pretty smart!

That’s an extreme example—rarely would I spend so much time automating a single task—but it nicely illustrates my objective. I invest a bit of up-front setup time to shave off a few seconds here, a few minutes there, from tasks that I perform over and over. My work becomes less frustrating, and I’m freed up to concentrate on more interesting and creative tasks. Whether I get more work done in the same amount of time or the same amount of work done in less time, the result is the same—higher productivity and greater happiness.

Many of the topics I discuss are *deep*, and I can only scratch the surface in a book like this. For example, my colleague Matt Neuburg wrote a 592-page [book](#) on AppleScript, but I spend less than a chapter on it. Other Take Control authors have written about [LaunchBar](#) and [TextExpander](#), which I cover only briefly. And I (or someone) could write hundreds of pages about Keyboard Maestro, Visual Basic for Applications, Nisus Writer Pro macros, and numerous other topics. Automation is a virtually endless subject, but I’m sure you don’t want to read thousands of pages about it!

Instead, I want to do just three things with this book:

- Show you lots of automation tools and techniques for your Mac.
- Offer concrete examples you can use as is or adapt to your needs.
- Inspire you with extensive lists of further possibilities.

All the techniques in this book work with OS X 10.9 Mavericks and later. Many also work with older versions of Mac OS X—perhaps with minor modifications. I haven’t spelled out those differences or compatibility issues, but in general, the older your version of Mac OS X, the less likely you’ll find that everything works as described.

Automation Quick Start

There are dozens, if not hundreds, of ways to automate your Mac. This book explores many of the most interesting options. Feel free to dip in wherever you like and jump around to techniques that interest you; however, I suggest that you first read the [Introduction](#) and [Develop an Automator's Mindset](#). And, if you're interested in ways of automating your Mac that require no extra software, pay special attention to the second chapter, [Use Built-in Automation Features](#).

Automation 101:

- **Strategy:** Learn what you can automate and figure out where you can save time and effort in [Develop an Automator's Mindset](#).
- **Built-in features:** Discover the many ways you can make your Mac more efficient using nothing more than what Apple supplies in OS X; see [Use Built-in Automation Features](#).

Tip: At this point, you can explore any specific automation category in the next group of chapters, or skip ahead to [Learn about higher-level automation tools](#) such as Automator, AppleScript, and Keyboard Maestro.

Discover what you can automate:

- **Input devices:** Get the most out of your mouse, trackball, trackpad, or other input device; see [Automate Your Input Devices](#).
- **Text expansion:** Insert commonly used words, phrases, variables, and even elaborate fill-in-the-blanks reports just by typing a few characters; see [Automate Text Expansion](#).
- **Finder:** Launch apps, open files and folders, play music, look up definitions, perform calculations, and much more with just a few keystrokes; see [Automate the Finder](#).

- **Clipboard:** Cut, copy, and paste like a pro using multiple clipboards, clipboard histories, and tools to manipulate what's on your clipboard; see [Supercharge Your Clipboard](#).
- **Apps:** Use the capabilities built into major apps like Word, Excel, Nisus Writer Pro, and FileMaker Pro to automate repetitive or complex actions; see [Automate Individual Apps](#).
- **Email:** Eliminate spam, file messages instantly, send out automatic replies, and more as you [Automate Email](#).
- **Cloud services:** Connect cloud services to each other, create agents that watch the Web for information that interests you, and even control your Mac remotely; see [Automate the Web](#).
- **Backup and sync:** Keep your data safely backed up—and, if you like, in sync across more than one Mac; see [Automate Backup and Syncing](#).

Learn about higher-level automation tools:

- **Apple automation technologies:** Get to know Apple's heavier-duty automation tools—services, Automator, AppleScript, and shell scripts—in [Use OS X Automation Technologies](#).
- **Macro utilities:** Create sequences of steps you can replay with a click or a keystroke to do nearly anything you could do yourself with a mouse and keyboard; see [Use a Macro Utility](#).

Develop an Automator's Mindset

I think of myself as a relatively lazy person. I mean, yes, this is my 45th Take Control book in less than 11 years. And yes, I've written numerous other books, too, not to mention hundreds of articles for Macworld and TidBITS. And sure, I run a company and speak all over the world and have a wife and two young kids. Apart from those minor exceptions and maybe a dozen others, I'm pretty much a layabout.

But, there's more than one way to think about laziness. When it comes to your Mac, a *good* form of laziness is not wanting to spend unnecessary time doing something that's tedious or repetitive. A *bad* form of laziness is not bothering to figure out how to save yourself that effort later on.

I frequently interrupt my work to spend a half hour figuring out how best to automate a task that might take me a minute to do manually. But if I save a minute several times every day, that half hour pays for itself in no time. And from then on, I'm more efficient and happier. Even if a certain automation technique saves only a second or two, those seconds add up in a big way over time.

Note: To get a visual sense of how much time you might save over the long run, see the xkcd comic [Is It Worth the Time?](#)

But saving time isn't the only reason to automate activities on your Mac. You'll also make your work more consistent and accurate. Automation can prevent small errors that would otherwise trip you up, and save you the annoyance of looking up forgotten details.

As you read about automation methods, I want you to accept the fact that you'll have to spend (not "waste") time learning, experimenting, and setting things up, and that this work is going to be a temporary drag on your productivity. Don't worry about it. The end result will

Use Built-in Automation Features

Although it may not be apparent at first glance, OS X contains *dozens* of built-in automation features, just waiting for you to make use of them. In fact, later in this book, I'll discuss numerous ways to take advantage of built-in features, such as:

- [Use Trackpad and Magic Mouse Gestures](#)
- [Use OS X's Text Replacement](#)
- [Use Spotlight as a Launcher](#)
- [Use OS X Automation Technologies \(Services, Automator, AppleScript, and shell scripts\)](#)
- [Manage Incoming Apple Mail with Rules](#)
- [Search Faster with Smart Mailboxes](#)
- [Log In Faster with iCloud Keychain and Safari Autofill](#)
- [Run Backups Automatically with Time Machine](#)

But in this chapter, I want to introduce you to a core set of built-in automation capabilities that don't fit logically within another topic—or that don't go as far as the more capable third-party tools that I discuss later in this book. Most of these involve things you can do in the Finder or in System Preferences, and they're among the easiest ways to start automating your Mac.

Find Files Faster with Finder Tags

Mavericks added *tags* to the Finder. A tag is a text label you create yourself—a word or phrase that tells you something about what’s in a file. For example, you might use the word *recipe* as a tag and apply it to any document that contains a recipe. That would enable you to quickly locate recipes later, even if none of them contain the actual word “recipe” in their title or contents.

Any file can have more than one tag. So you might apply the tags *recipe*, *dessert*, *French*, and *vegetarian* to your recipe for crème brûlée. Other files would have different combinations of tags, and as you search by tags, only those that match the combination you specify would show up.

You can use tags instead of, or in addition to, hierarchical filing in nested folders. You might have tax-related documents scattered in dozens of folders on your disk, but if they’re all tagged with *tax info*, you can instantly see them all in one place. (The Finder also allows you to associate a color with your text labels to make them easier to identify quickly.)

If you apply tags to files you create or download, that makes it quicker and easier for you to find them later—either manually or as part of a smart folder (see [Create and Use Smart Containers](#)). Ergo: a shortcut!

To apply a tag:

1. Select one or more files in the Finder.
2. Choose File > Tags, and then, in the popover that appears (see **Figure 1**), do one of the following:
 - ▶ To add a new tag, type a word or phrase. Press Return; this creates the tag and applies it to the file(s).
 - ▶ To add an existing tag that isn’t one of the default options, start typing its name. OS X will attempt to autocomplete the name with matches from your existing list, and you can also use the Up and Down Arrow keys to select the right one. Then press Return.

Automate Your Input Devices

We've talked about your keyboard already, and we return to it in several future chapters. But I want to take a moment to talk about other input devices, such as the one you use to move your pointer, as well as game controllers and other special-use input devices.

Remember when every Mac came with a one-button mouse? Now multi-touch trackpads and Magic Mice (with no visible buttons) are *de rigueur*, but it's still easy to find third-party mice, trackballs, and other input devices with numerous configurable buttons, wheels, and other controls. Even Apple's minimalist pointing devices can be configured to do special things with gestures and combinations of modifier keys and clicks.

Every extra button or control on an input device can be put to some good use. Although you need not use anything other than a simple keyboard and a pointing device with a single button, you may—depending on your needs, tasks, and disposition—find it easier and quicker to do certain tasks via a dedicated button or knob than with an obscure menu command or keyboard shortcut.

Would you indulge me in a brief story?

I used to manage software development for Kensington, a computer accessories company. One of our products was a four-button trackball called Expert Mouse (or, in some variants, Turbo Mouse). I shared a large office called the Mouse Lab with three other people—Cris, Debra, and Don. One afternoon when we all should have been busy with more productive tasks, we made up a game that, while goofy, illustrates the kind of thing you can do with a bit of clever automation and a few extra buttons on your input device.

We each started by making rules in Outlook (our email program) to play unique sounds whenever we received an email message from one another. For example, when I received a message from Don, my

computer went Zing! but when Debra sent me a message, it went Pop! Everyone had a custom sound for each other person in the room.

Next, we configured MouseWorks (the software, since superseded by [TrackballWorks](#), used to control our trackballs) so that each of the three extra buttons—besides the one used for a regular click—sent one of the others a blank email message.

Is your head spinning yet? Well, here's the result of our labors. I click button #2 on my trackball and Don's computer makes a Crack! sound. Don clicks button #3 on his trackball and Debra's computer makes a Ping! sound. Cris clicks button #4 on his trackball and my computer makes an Oof! sound. And so on. So we spent half the day zapping each other with our trackball buttons. You had to be there, I guess, but it was hilarious, like a virtual pillow fight.

That's not a *useful* example of automating input devices, I admit. But perhaps it will inspire you to think up customizations that will make you more productive.

Use Trackpad and Magic Mouse Gestures

If you have a Mac laptop with a built-in trackpad, or a stand-alone Magic Trackpad, you have at your disposal a device that supports not just moving the pointer and clicking, but also scrolling, switching apps, displaying contextual menus, zooming, and numerous other actions by way of gestures such as swiping, pinching, and tapping (with one or more fingers). Apple's Magic Mouse also has a multitouch-capable top surface with support for many (but not quite all) of the same actions.

You must configure your trackpad or mouse with the gestures you want to use—that's the easy part. The harder part is training your fingers to perform these gestures until they become second nature.

To set up your multitouch trackpad or Magic Mouse:

1. Open the Trackpad (**Figure 13**) or Mouse pane of System Preferences, depending on which device you're using.

Automate Text Expansion

Even if you're a great typist, you can save time and increase your accuracy by using software that watches what you type and dynamically replaces abbreviations you've previously specified with longer chunks of text. (And if you're *not* a great typist, such software can increase your effective typing speed!)

I mentioned earlier that whenever I type `dtpo`, my Mac automatically expands that into DEVONthink Pro Office. That's just one of dozens of abbreviations I use in my own work. I also use `TCo` to produce Take Control of, `syp` to produce System Preferences, and so on. The longer and more complex the text in question, the more useful automatic text expansion becomes.

Text expansion isn't just for names and short phrases. You can use it for addresses, phone numbers, URLs, boilerplate text for common email replies, HTML code snippets, and so on. Depending on which software you use for text expansion, your snippets might also include styles (such as bold and italic), graphics, the current date or time, variables, AppleScripts or shell scripts, the contents of the clipboard, and more.

The great thing about text expansion is that you don't have to do anything special to use it—you simply type. You don't need modifier keys like Command or Control, and you don't need to hunt for menu commands. And it can be used nearly anywhere.

One catch, however, is that you must be careful when choosing abbreviations—since text expands as you type, you might end up making a lame mistake if you're not paying attention. For example, I thought I'd use `km` as an abbreviation for Keyboard Maestro, but then I tried typing a distance in kilometers and got a surprising result! So be sure to use abbreviations that will never occur on their own, or even as part of another word. One technique many people use to solve this problem is to double the first or last letter, as in `kmm` for Keyboard Maestro.

Note: Although I say “text expansion,” the very same feature can be used for simple replacements, even if the replacement isn’t longer. For example, if you frequently mistype “the” as “teh,” you could use text expansion to replace the latter with the former—or you can correct “MacWorld” to “Macworld” and “PhotoShop” to “Photoshop.”

Use OS X’s Text Replacement

OS X includes its own rather rudimentary text-expansion capability, known as text replacement.

To configure text replacement:

1. Go to System Preferences > Keyboard > Text (**Figure 14**).

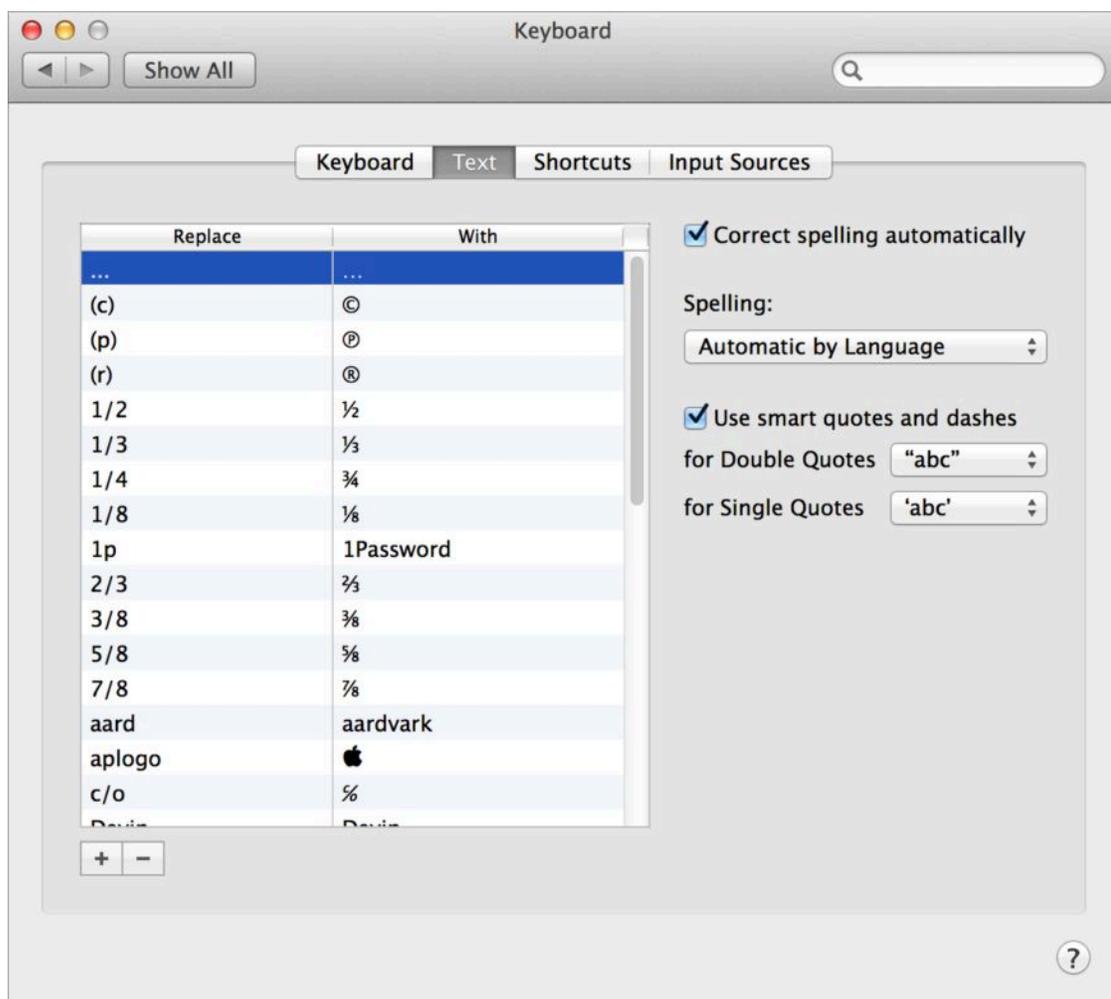


Figure 14: Set up OS X text replacements here. This image shows the window after numerous replacements have been added.

Automate the Finder

The Finder is a special app that runs all the time and lets you navigate all the files, folders, and apps on your Mac. You use the Finder to organize, tag, and locate files; connect to other devices on your network; mount and unmount servers and external drives; and perform numerous other activities that involve files, folders, and volumes.

The Finder is also the main place people go to open apps that don't appear in the Dock. When you want to launch an application, you might open a Finder window, click Applications in the sidebar, scroll to the app you want, and double-click it. Similarly, if you want to open a document in its default app, you might dig through any number of nested folders in the Finder and then double-click that document.

Since you use the Finder so much, it offers prime opportunities for automation. For example, it's possible to launch apps and open documents without clicking and scrolling through any windows. In a second or less, while keeping both hands on the keyboard, you can open an app or document without even knowing where it's located.

In this chapter, I discuss how to get started automating the Finder using OS X's built-in Spotlight tool, and then I move on to more powerful third-party utilities that let you do even more.

Tip: As you're working in the Finder, don't forget about OS X's Quick Look feature. Just press Space with a file selected to see a full-size preview instantly without having to open an app—many common formats are supported. Quick Look also works in most launcher apps.

Use Spotlight as a Launcher

Spotlight, OS X's file indexing and search feature, has always been an excellent way to *launch* apps (and open files) too. You can activate Spotlight with a click on the Spotlight  menu or a keyboard shortcut,

type a few letters of the app you're searching for, and press Return to launch it as soon as it's highlighted.

In Yosemite, Apple improved Spotlight in numerous ways that make it a better launcher, as well as an all-purpose tool for searching the Web, performing calculations, and controlling other aspects of your Mac's operation. In fact, Apple not-too-subtly changed Spotlight's appearance and behavior to more closely resemble third-party launchers such as Alfred and LaunchBar, discussed just ahead (see [Use a Third-party Launcher](#)).

Spotlight isn't perfect, by any means, but once you get the hang of it, it's a pretty good way to find stuff.

To use Spotlight as a launcher:

1. Press Command-Space or click the magnifying glass  icon in your menu bar to display the Spotlight window.
2. Begin typing an app's name (**Figure 15** shows what you'll see in Yosemite, while **Figure 16** shows Spotlight in Mavericks). If the app's name is made up of multiple words, you can type the first letter of each (such as **ka** for Keychain Access); you can also type InterCapped letters, as in **bc** for BusyCal. Wait while Spotlight searches. As it finds matching items, it lists apps at the top.

Supercharge Your Clipboard

Cut, copy, paste. You've probably done those things thousands of times without even thinking about your *clipboard*, the temporary storage space OS X uses to hold whatever you've cut or copied. OS X's built-in clipboard is boring, but numerous utilities can supplement or replace it with powerful new capabilities that will save you time and effort.

With one of these utilities installed, you'll never again have to worry about your Mac crashing right after you've cut or copied something but before you paste it. You'll also be able to see and use things you copied to your clipboard hours or days ago; change the clipboard contents between the time you copy it and the time you paste it; and more.

Learn What a Clipboard Utility Can Do

You might think you can do just fine without a clipboard utility, but remember: people used to think that about cars and microwave ovens, too! Here are some of the groovy tricks you'll be able to perform:

- **Access your clipboard history:** By default, every time you cut or copy something to the clipboard, whatever was there before disappears. By contrast, every utility mentioned in this chapter maintains a clipboard *history*, which is to say you can view a list of dozens or hundreds of previous clipboard items and paste any of them at will. (I especially like using a keyboard shortcut, such as Command-Control-V, to paste the just-previous item from my clipboard history—that way, I can easily copy two different things and then paste them both consecutively.)
- **Juggle multiple clipboards:** What if you had not just a single clipboard (with a historical record of its contents) but two, five, or a dozen clipboards—each with its own name? If you need to copy things independently of each other and refer to them by name or category, multiple clipboards may be just the thing.

- **Store and reuse clippings:** Normally, your Mac's clipboard is cleared when you shut down or restart. Most clipboard utilities preserve not only your current clipboard but also your clipboard history across restarts. Some even let you manually save and name clippings for future reuse.
- **Edit a clipboard's contents:** Say you've copied something you intend to paste multiple times—but you find an error in the copied text. Some clipboard utilities let you edit what's on the clipboard *before* you paste it, so that every pasted copy will be correct.
- **Filter a clipboard's contents:** Perhaps you've copied styled text but want to paste it as plain text. Or maybe you want to do something far more elaborate—perform find/replace operations or mathematical calculations on the copied text, add to it or trim it, change its case, or manipulate it in some other way. All this is possible with a utility that can filter a clipboard's contents.

Still can't quite imagine how you'd use a clipboard utility? Let me give you some concrete examples of how I do:

- Copy the title of an article on the Web, copy its URL, and then paste the two in sequence without having to switch back to a browser
- Cut paragraphs or bullet points from several different locations in a book, and then paste them all together at a new spot
- Copy the URL for a product at Amazon and paste it with my affiliate link baked right in
- Copy raw HTML code but paste it with Markdown formatting, or vice-versa
- Copy a large chunk of text and paste it with any duplicate lines removed

The last three items in this list are examples of filtering, which saves a tremendous amount of tedious work.

Automate Individual Apps

In the previous chapter, I told you about system-wide automation technologies built into OS X. Although these technologies (particularly AppleScript and Automator) can also automate the actions of individual apps, there's often a better—or, at least, more thorough—way of doing that within an app itself. That's the topic of this chapter: using apps' built-in automation capabilities.

Due to the breadth and depth of in-app automation features, I can only provide an overview, basic instructions, and a few examples. You'll be able to accomplish some basic tasks and discover how to learn more.

I begin with Microsoft Office, partly because of its popularity and partly because of its extensive built-in programming language. I then move to Nisus Writer Pro, the very app I'm using to type these words, to illustrate a few different forms of automation that should be useful to anyone who works with words. Then I briefly discuss Google Apps Script, a macro language for Google Apps, and list the automation capabilities of several other popular apps.

Tip: If you want to automate Apple's iWork apps (Pages, Numbers, Keynote), you'll need to use either AppleScript or Automator. You can learn more about AppleScript for iWork at [iWork & Automation: Productivity Enhanced](#), part of the Mac OS X Automation site.

Automate Microsoft Office

Microsoft Office—which on the Mac comprises Word, Excel, PowerPoint, Outlook, and OneNote as its main components—is one of the world's best-known software packages. Microsoft long ago added a programming language to the suite called Visual Basic for Applications (VBA), which enables users to write macros that automate Office apps, optionally embed those macros in documents, and run them (with some limitations) on either OS X or Windows. Microsoft removed VBA

from Office 2008 for Mac, but brought it back again in Office 2011. Presumably, VBA will be in future versions too. (Microsoft Office also has excellent AppleScript support, which is an alternative way to accomplish many of the same tasks.)

Note: In Office 2011 for Mac, only Word, Excel, and PowerPoint support VBA.

What can you do with an Office macro? The sky's the limit, but here are a few simple examples, any of which could be done with a single click or keystroke:

- Perform a frequently used find-and-replace operation
- Format spreadsheet cells according to their contents
- Number all the instances of a certain phrase in a document
- Reformat a table
- Remove all the hyperlinks in a workbook
- Change all the tab stops in the current paragraph style
- Merge cells from two columns into a third column
- Resize all the graphics in a document

If you use Office extensively—and especially if you share documents with Windows users—it might be worth the effort to learn a bit of VBA since (unlike AppleScript) its macros work on both Windows PCs and Macs. But let me be frank: it's not great for beginners. VBA was designed for programmers, not for ordinary users. It won't do you any good beyond Office apps, and unlike AppleScript, VBA would never be called "English-like." If you don't know much about programming already, there's a significant learning curve.

However, there's a sneaky way to get your foot in the door—to write a VBA macro without knowing any VBA at all. Office lets you *record* macros—that is, turn on recording, do some stuff while Office watches, and then turn off recording. Office then attempts to make a VBA macro

Automate Email

Probably 90 percent of the time I spend using my Mac involves one of three apps: a word processor (I am an author, after all), a Web browser, and an email client. I send and receive large quantities of email, and I use email far more frequently than phone calls or instant messaging—maybe even more than speaking. It's my main means of communication.

Because my incoming and outgoing email volume is so high, I can't bear to spend any more time or effort than is absolutely necessary on filing or searching for messages. So I've thought long and hard about how to automate as much of that process as possible—while still ensuring that important messages never slip through the cracks.

One of my key strategies is to use *rules* (sometimes referred to as filters) to process messages as they come in. Each rule looks for certain *conditions* (criteria such as a sender, subject, or words in the message body), and then takes one or more *actions* whenever a match is found. For example, the rule might move the message into a certain mailbox, send an automatic reply, or delete the message.

If you're trying to keep your Inbox under control, rules are one of the most powerful tools available. Because I presort my email with rules, tons of messages that don't require immediate attention never reach my Inbox at all; instead, they're safely shunted to other mailboxes where I can review them at my convenience. Creating a good set of rules requires a bit of thought and effort, but once you've done that, those rules operate invisibly in the background.

Rules are a very powerful organizational aid, but making them is just one aspect of automating email. You may also want to simplify the manual filing of messages that aren't picked up by rules, add plug-ins that automate various other email actions, or use smart mailboxes as search shortcuts. I cover all those activities in this chapter.

Use Server-based Rules

Rules can operate either in your email client (such as Apple Mail) or directly on your incoming mail server. The huge advantage to server-based rules is that they can presort messages before you see them, even if your Mac email client isn't running. That greatly reduces the amount of mail you need to deal with on your iPhone or iPad.

I recommend starting with server-based rules if possible and then using rules in your email client for the actions you can't accomplish on the server, like running user-defined AppleScripts on matching messages or moving messages to mailboxes in other accounts.

Check with your email provider to see whether it offers server-side rules or filters, and if so, what the procedure is to configure them. Here's how to get started with iCloud and Gmail:

- **iCloud:** Log in to your account at [iCloud.com](https://www.icloud.com). Click Mail, and then click the gear  icon in the lower-left corner and choose Rules from the pop-up menu. Click Add a Rule to configure your first rule.
- **Gmail:** Log in to your Gmail account (using [this link](#) or whichever URL you normally use for a Google Apps account with a custom domain). From the gear  pop-up menu at the top of the page, choose Settings, and then click Filters. Click Create a New Filter to begin setting up a custom filter.

Although the details vary from one provider to the next, rules always contain one or more conditions (things to search for) and then, when there's a match, perform one or more actions. For example, look for any message from a certain address (say, a company's PR department) and file it in a Newsletters mailbox.

If your email provider doesn't offer server-based rules, or if its conditions or actions don't meet your needs, you can move on to rules in your email client. If Mail is your preferred client, that's just one of the ways you can automate your email.

Automate the Web

You might not think of Web browsing as an activity that requires automation. You follow links, you read articles, watch cat videos, maybe make the occasional purchase, but that's all inherently manual, right? After all, I don't want my Mac to read Facebook posts for me or play games behind my back.

But in fact, the Web offers numerous opportunities for shortcuts and simplification. For example, every time you're asked to supply a username and password, a credit card number, or a mailing address, your Mac can do that for you—no typing (or memorizing) required.

Here's another example: you keep checking a certain Web page—or maybe a specific portion of a page—for changes. Maybe you're waiting for an announcement, a sale, or a product update, or maybe you're looking for news stories about your neighborhood. Repeatedly checking a page for changes (whether once a day or several times a minute) is exactly the sort of labor-saving task computers are good at.

And then, looking more generally at cloud services that have a Web presence, there are tons of opportunities for connecting things. Perhaps you want to post photos to Facebook after they appear in a shared Dropbox folder. Or save links from your favorite tweets to Instapaper. Or see an alert in the evening if tomorrow's weather forecast calls for rain. All sorts of things that can occur in one cloud service can trigger events in other cloud services—an area ripe for automation.

Log In Faster with iCloud Keychain and Safari Autofill

Let's begin with an easy way to automate filling out all those pesky Web forms, without the need for any extra software.

Note: This topic is adapted from my book [Take Control of iCloud](#).

The Mac version of Safari (like nearly all Web browsers) can automatically fill in your contact information (name, address, phone number, and so on), as well as usernames and passwords, on Web forms. Safari uses OS X's system-wide keychain mechanism to securely store the portions of this data that aren't already in your Contacts app.

iCloud Keychain, a feature introduced in Mavericks and iOS 7, extends this capability. It lets you *sync* a keychain across your Apple devices securely via the cloud. The biggest benefit is that Safari for iOS can now autofill usernames and passwords that you stored in a keychain on your Mac (and vice-versa). But iCloud Keychain also includes:

- A strong password generator built into Safari (on both platforms)
- The capability to store, sync, and enter credit card information (except the CVV number from the back of the card) in Web forms
- Support for multiple sets of credentials per site
- A new way to view and remove passwords within Safari

In addition, if you turn on iCloud Keychain, it will automatically sync the settings for the accounts listed in the Internet Accounts pane of System Preferences on your Mac (including email accounts, Twitter, Facebook, and LinkedIn) amongst your other Macs. This account syncing does *not* extend to iOS devices.

Enable and Configure iCloud Keychain

The short version of setting up iCloud Keychain is: go to System Preferences > iCloud, select the Keychain checkbox, and enter your Apple ID password. Repeat on your other devices. However, unlike most iCloud features, flipping a single switch isn't all there is to it here; the initial setup process is actually more involved. Also, the steps you follow with whichever device you set up first will be different from the steps for setting up all subsequent devices.

If you haven't already set up iCloud Keychain—or if you suspect you might have less-than-optimal settings—I encourage you to read my Macworld article [How to use iCloud Keychain](#), which spells out the steps and options in detail.

Automate Backup and Syncing

Anyone who has followed my writing for Macworld, TidBITS, or Take Control over the last decade is undoubtedly aware of my passion for good backups. I've written several books and lots of articles on the topic (including [Take Control of Backing Up Your Mac](#)), and I preach about the importance of backups at every opportunity.

In this book, I'm not going to try to convince you to back up your Mac; I'll take for granted that you already know that's a good idea. Instead, I want to focus on *automating* backups. Believe it or not, there are still people who back up important files by dragging them to another disk once a day. Still others use backup software to do the job, but they back up only when they remember to run that software.

My feeling is that if you don't have hands-off backups, you're doing it wrong. Backups should happen all by themselves—whether once a week or multiple times an hour—without any intervention. Not only does it require extra effort to launch a backup app and click a button, it's an interruption—one you might put off if you're too busy, or forget about at a crucial moment right before losing data!

In this chapter, I discuss three backup scenarios: using Time Machine, using a third-party tool that creates versioned backups, and creating bootable duplicates. You may not use all of these methods, but whichever one(s) you use, they should be automated.

I also talk briefly about automating syncing between Macs. Although that doesn't count as backup in my book, many of the same assumptions apply—and you may even be able to use the same software for both backups and syncing.

Run Backups Automatically with Time Machine

Time Machine is the backup capability that Apple built into OS X. It's not necessarily the best backup tool, but it's reasonably good. Most importantly, it's extremely easy to set up, making it the path of least resistance for many users.

Time Machine ordinarily runs once an hour, backing up whatever has changed or been added since the previous hourly run. This happens in the background, with barely any visible clue. So, if you've set up Time Machine already, and you've kept the default options, there's nothing more to see here—move along to the next topic.

If you haven't already set up Time Machine and would like to—or if you configured it but turned off automatic backups—keep reading.

Configure Time Machine

To activate Time Machine, all you need to do is tell it what destination to use:

1. Open the Time Machine pane of System Preferences.
2. Click Select Backup Disk.

A dialog appears (**Figure 28**), listing all volumes eligible to be a destination disk (including external hard drives and Time Capsules) and the amount of free space on each.

Use OS X Automation Technologies

In this chapter, I want to talk about a particular subset of technologies that go considerably deeper than things like keyboard shortcuts or text expansion. The four topics I cover here—Automator, AppleScript, services, and shell scripts—aren't so much tools as *platforms* built into OS X you can use to create your own tools. As such, they're more complex, but also far more powerful.

I've arranged the topics in this chapter in order of what I consider least to most intimidating. Services are plug-ins that add features for working with text, graphics, and more to almost any app. Automator lets you construct multi-step operations called workflows using graphical building blocks rather than code. AppleScript is a language you can use to write programs that do all sorts of useful tasks on your Mac—but it's a step or two up from Automator in difficulty. And shell scripts run in the Terminal command-line utility, performing tasks using OS X's Unix underpinnings.

Worried that this all sounds too complicated? Don't be. I want to make sure you understand this crucial concept up front:

You can use a service, Automator workflow, AppleScript, or shell script without knowing how to create one.

In fact, that's precisely what I recommend. For each of the technologies in this chapter, I suggest the following process:

1. Learn how to locate, install, and use scripts/tools written by other people.
2. Once you're comfortable using them, try modifying them slightly. That's one of the easiest ways to learn how they work while also customizing them to better meet your needs.

3. When you have time to tinker, start to create your own scripts/tools, using the resources I recommend (and with other people's work as a guide).

Use Services for System-wide Shortcuts

In OS X, a *service* is a special, context-sensitive program that can operate almost anywhere. You can find services on the Services submenu of the application menu (that is, the menu with the current app's name). Or, right-click (Control-click) something and choose a service from the very bottom of the contextual menu. (Services appear on a Services *submenu* of the contextual menu if more than four of them are active and applicable to whatever you selected.)

If you look at this menu in different apps, and with different things selected, you'll notice that your choices change. For example, you'll see one set of commands when you select a file in the Finder, a different set when you select text in Mail, and yet another set when you have a graphic open in Preview. That's because each service is designed to operate only on certain kinds of data, or in certain contexts. The idea is to show you only the commands that are relevant to what you're currently doing.

Services, like Automator workflows and AppleScripts (discussed later in this chapter), can perform complex tasks for you with only one click. So they're fantastic automation tools that every Mac user should be aware of. As we'll see in a moment, you can use a combination of built-in services, third-party services, and services you create yourself to automate a wide variety of activities.

Before you do anything else, you should configure the services on your Mac to your taste. Not all the services installed on your Mac are necessarily active (only active services appear in the Services submenu); you can enable or disable services as you wish. In addition, you can assign a keyboard shortcut to any service to avoid hunting for it in a hard-to-reach submenu.

Use a Macro Utility

Earlier, in [Use OS X Automation Technologies](#), I discussed AppleScript and Automator, two tools that can control numerous other apps and tie multiple actions together into easy-to-run shortcuts. Both of those technologies are powerful, free, and included with OS X. But AppleScript's learning curve precludes casual use, while it's limited by the capabilities various apps choose to expose. Automator is far easier for a beginner to use, but it, too, has a fairly constrained palette of capabilities—and not all the tasks you might wish to automate fit its “workflow” mold. Meanwhile, apps like Excel and Nisus Writer Pro have fantastic automation capabilities built in, but they're largely confined to activities within those apps.

So we come to a category of automation tools that—at the risk of overstating my case—transcends these limitations. If you just want to get the job done—not necessarily in the most programmatically elegant way but in a fast, reliable, and flexible way—you want a macro utility. It's the sort of tool I reach for most often for general-purpose automation tasks.

Like other kinds of tools covered in this book, the idea of a macro utility is straightforward. You pick an action, or a series of actions, from a list; these form the macro's task. Then you pick one or more events to trigger that action—a keyboard shortcut, a button click, a change in network settings, or whatnot. That's it: you have a macro.

What's interesting about the utilities discussed in this chapter is that the lists of potential actions they offer as building blocks for macros are long and diverse. Some of these actions, similar to AppleScript verbs and Automator actions, directly control a particular app (iTunes, Safari, the Finder) or send instructions to OS X (shut down, change display brightness, switch users). Others manipulate behind-the-scenes resources (clipboards, variables, strings) or manage the flow of steps (if/then/else conditionals, loops, subroutines). Still others “play” the visible interface, simulating button presses, menu commands, keystrokes, and mouse movements.

Put all this together and you have a toolkit that—with a bit of cleverness and patient testing—can automate almost any repetitive Mac task that doesn't require creativity or human intuition. Just a handful of examples, all of which can be done with a single click or keystroke:

- Remap keys on your keyboard to perform different functions
- Show the screen of a shared Mac
- Force a “stuck” Trash to empty
- Add keyboard shortcuts to menu commands in apps that don't support OS X's built-in shortcuts
- Create an ad hoc Wi-Fi network
- Open an entire set of apps and documents
- Resize and reposition all your windows so they don't overlap
- Modify text or formatting according to predefined patterns
- Email the URL of the Web page you're currently viewing to someone else
- Rotate, flip, resize, or crop all the images in a folder

Having sung the praises of macro utilities generally, I must level with you. For all practical purposes, we're talking about one utility: Keyboard Maestro. Sure, I'll mention a few others (in [Use Another Macro Utility](#)), and I don't mean to diss them, but the main shortcoming of competitors like iKey and QuicKeys is that they aren't being actively maintained or developed. They have excellent features, but they lack the latest bells and whistles, and don't engender confidence that they'll work in tomorrow's version of OS X. If you want a great macro utility—and trust me, you do—Keyboard Maestro is where it's at.

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Joe Kissell is a Senior Editor of TidBITS, a Web site and email newsletter about Apple and the Internet, and the author of numerous books about technology, including [Take Control of Your Passwords](#) and [Take Control of Dropbox](#). He is also a Senior Contributor to Macworld, was the winner of a 2009 Neal award for Best How-to Article, and has appeared on the MacTech 25 list (the 25 people voted most influential in the Mac community) since 2007. Joe has worked in the software industry since the early 1990s, including positions managing software development for Nisus Software and Kensington Technology Group.

When not writing or speaking, Joe likes to travel, walk, cook, eat, and dream (in both senses of the word). He lives in San Diego with his wife, Morgen Jahnke; their sons, Soren and Devin; and their cat, Zora. To contact Joe about this book, [send him email](#) and *please* include [Take Control of Automating Your Mac](#) in the subject.

Shameless Plug

Although I currently write and speak about technology as my day job, I have a great many other interests. To find out what I'm up to, visit [JoeKissell.com](#) or sign up for [joeMail](#), my free, low-volume, no-spam mailing list. You can also follow me on Twitter ([@joekissell](#)).

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