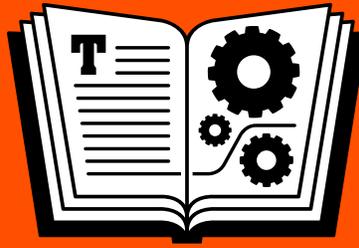


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TAKE CONTROL OF

# UPGRADING TO EL CAPITAN

*by* JOE KISSELL

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# Read Me First

Welcome to *Take Control of Upgrading to El Capitan*, version 1.1, published in September 2015 by TidBITS Publishing Inc. This book was written by Joe Kissell and edited by Tonya Engst.

Upgrading your Mac to a new operating system can be a daunting prospect, but with some expert advice, you'll be running OS X 10.11 El Capitan in no time. This book eliminates the uncertainty and the confusion, guiding you through every step of the process.

If you want to share this ebook with a friend, we ask that you do so as you would with a physical book: "lend" it for a quick look, but ask your friend to buy a copy for careful reading or reference.

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## Basics

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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 ebook [\*Read Me First: A Take Control Crash Course\*](#), available for free on the Web or as a standalone ebook in PDF, EPUB, and the Kindle's Mobipocket format.

**Note:** If you've read version 1.0 of this ebook and are wondering what's new and how to best kick off your upgrade, please look ahead a few pages at [Welcome Back, Version 1.0 Readers](#).

# Introduction

It used to be that upgrades to Mac OS X were rare, exciting, and expensive. Two or three years might pass between major releases, and then, with great fanfare, Apple would roll out the next major version (and charge customers as much as \$129 for the privilege of upgrading). Years from now, when I explain to my kids that we used to pay *money* for operating system upgrades on *physical discs* in *boxes*, they'll think that's as crazy and old-fashioned as rotary phones and 8-track tapes.

Nowadays, we expect that every October (give or take a month), Apple will release a new, free version of OS X. We also assume that the new version will fix some bugs, add a handful of cool features, irritate some of us with gratuitous interface changes or lost functionality, and be named after a California landmark. And we'll install it, as we always do, with a few clicks in the App Store app.

Likewise, the OS X installer has been remarkably consistent for the past few versions. Sure, there are minor changes—mostly tied to the evolving capabilities of iCloud—but for the most part, the El Capitan installer looks and acts pretty much the way the Yosemite, Mavericks, and Mountain Lion installers did. The upgrade process will be simple and painless for most users.

However, if you've never upgraded your Mac's operating system (or haven't done so in a long time), you may be uncertain about what the process involves or anxious about making a mistake. This book offers clear, step-by-step instructions that will keep you out of trouble and explain all the choices you'll have to make.

And even experienced Mac users may want to take extra precautions, since moving to a new full version of the operating system makes major changes to your system. The El Capitan installer has no “undo” or “downgrade” command to reverse the upgrade process if something should go wrong, and without careful planning (which includes making just the right sort of backup ahead of time), you could be stuck with a nonfunctional Mac. I walk you through the preliminary procedures

necessary to ensure a safe transition to El Capitan—or a way to go back to your previous operating system if all else fails.

Backups also factor into a *clean* install—that is, putting El Capitan on an empty volume, as opposed to upgrading an existing copy of Mac OS X in place. Most people don't need a clean install, but it can solve certain problems, and some people just like the extra tidiness it provides. Nevertheless, you'll undoubtedly want most, if not all, of your old files under El Capitan, so if you decide on a clean install, I explain how to do it as well as how to put back the stuff you want to keep.

I also explain why Apple's minimum system requirements don't tell the whole story about what you need to run El Capitan successfully, offer advice on avoiding software incompatibilities, show you how to recover disk space if you don't have enough to upgrade your system, and explore several other issues that can complicate the process.

If you've upgraded Mac OS X numerous times, keep excellent backups, have up-to-date hardware and software, and consider yourself technically proficient, then really...you don't need this book. But if you count yourself among those feeling anxiety, confusion, or uncertainty about upgrading to El Capitan, you've come to the right place. In this book, I spell everything out in detail. Follow my steps carefully, and you'll have nothing to worry about.

If anything significant turns up that I didn't cover in this ebook, I'll mention it on this book's blog, update the text of the ebook, or both. To check for an updated copy of this ebook (or any other significant changes), click the link in [Ebook Extras](#).

# El Capitan Upgrade Quick Start

I've carefully arranged this book in logical order—I strongly recommend performing these steps in the order that I present them. You need not learn every last detail, but I hope you'll at least skim the whole thing. Here's a brief overview of the steps you should take.

**Tip:** Does your “upgrade” involve moving from a Windows PC or from an older Mac to a new Mac? Read [Migrate to a New Mac](#) right away!

## ***Start on the right foot:***

- Discover what you have to look forward to when you upgrade to El Capitan. Read [Take In the Scenic View](#).
- Are you still using 10.8 Mountain Lion or earlier? If so, you'll need additional information to put you on a level field with users of 10.10 Yosemite. Learn about software compatibility issues, FileVault, how El Capitan is distributed, and changes you can expect in the installer. See [Catch Up with OS X Changes](#).

## ***Prepare to upgrade:***

- Make sure your computer can run El Capitan. See [Check Your Mac for Compatibility](#).
- Back up before you go forward! See [Back Up Your Disk](#).
- Make sure key software is up to date, remove clutter that could interfere with the upgrade, and test your hardware for errors. See [Clean Up Your Mac](#).
- Learn how encryption and partitioning can affect the way you install and use El Capitan, and what changes you might need to make to ensure a smooth transition. Read [Make Sure Your Disk Is Ready](#).
- Decide which overall upgrade strategy is best for you. See [Decide on an Installation Method](#).

### ***Perform the upgrade:***

Follow the strategy you selected earlier to run the El Capitan installer, choosing all the optimal settings and options for your computer and tastes, and making sure all your personal data is still in place afterward. You'll do one of the following:

- [Upgrade Using Plan A: In-place Upgrade](#)
- [Upgrade Using Plan B: Clean Install](#)

### ***After the upgrade:***

- [Perform Post-installation Tasks](#), such as responding to login requests, installing updates to OS X, and tweaking preferences. You'll also deal with any surprises that may occur along the way.
- Optionally [Configure Additional Features](#) such as FileVault and Time Machine.
- Problems? If your computer isn't working properly after the upgrade, don't panic. See [Troubleshoot Upgrade Problems](#).

### ***Go beyond the basics:***

- Moving from an older Mac or from a Windows PC to a new Mac that already has El Capitan installed? Find the details on how to make the process painless in [Migrate to a New Mac](#).

# Welcome Back, Version 1.0 Readers

If you've read version 1.0 of this ebook already, you're way ahead of the game. Here's what you need to know now.

As long as you've already followed all the steps in version 1.0 of this ebook up through [Make Sure Your Disk Is Ready](#), there's no need to revisit those chapters; you're ready to pick up with the new material. However, I do want to mention that as I expected, the El Capitan license is similar to that of Yosemite. It authorizes you

*to download, install, use and run for personal, non-commercial use, one (1) copy of the Apple Software directly on each Apple-branded computer running OS X Yosemite, OS X Mavericks, OS X Mountain Lion, OS X Lion or OS X Snow Leopard (“Mac Computer”) that you own or control...*

(Terms for educational and commercial use differ. Also, you may run El Capitan in a virtual machine, with some limitations.)

That's all you need to know for now. You can skip directly to [Make Final Preparations](#) and proceed with the remaining installation steps!

**Note:** If you were testing the public beta of El Capitan with the SuperDuper Sandbox feature, be sure to also read [Upgrading from a SuperDuper Sandbox](#).

# Take In the Scenic View

Since you've bought this book, I assume you've already decided to upgrade to El Capitan and don't need convincing that it's worth your time and effort. However, I would like to call attention to some of the biggest changes in El Capitan that you can look forward to.

Apple has a list of new El Capitan features on [this Web page](#). You may notice that there are fewer big, splashy new features than usual. That's because El Capitan is more concerned with bug fixes, security improvements, and performance enhancements than fundamental changes to the look, feel, and operation of OS X. In that respect, the upgrade from Yosemite to El Capitan is somewhat like the upgrade from Leopard to Snow Leopard, or from Lion to Mountain Lion.

I'm delighted to have better performance, longer battery life, and (let's hope) fewer bugs. The new Split View (which lets you run two apps in "full screen" mode side-by-side), improvements to Mission Control, new trackpad gestures, better Data Detectors in Mail, and improved support for Chinese and Japanese aren't particularly interesting to me, although I'm sure they are to some people. What I find most interesting are the improved versions of the following apps:

- **Spotlight:** Yosemite gave Spotlight a fantastic new interface and additional search-related features; El Capitan goes still further. Spotlight can now tell you about the weather, transit information, sports scores, and many other topics, and you can search using natural language. Spotlight can also find files and email messages in a more convenient way than was possible before.
- **Notes:** I've never paid much attention to Notes, because there are about a zillion other ways to sync notes and other snippets of information across my devices. Now, however, Notes is starting to look more like Evernote, with the capability of collecting, editing, and syncing additional types of information—checklists, photos, videos, Web pages, map locations, URLs, and more. I don't know if it will replace my current system, but it certainly has potential.

- **Photos:** Apple's new Photos app got off to a rocky start earlier this year. But in El Capitan, Apple has added support for third-party image editors and extensions, improved organization and performance, and streamlined labeling photos with locations and faces. (For a complete treatment of Photos, I'd like to recommend Jason Snell's [\*Photos for Mac: A Take Control Crash Course\*](#).)
- **Safari:** Now I can tell which of my dozens of tabs is making noise and mute it with one click. Yay! I can keep often-used sites at my fingertips with Pinned Sites. And I can show my family funny cat videos from random Web pages on our TV using AirPlay, without having to share my entire screen.
- **Maps:** Finally, public transit maps in Maps! (Only a few cities are included initially, with more planned for the future.) Maps can also give more complex, multi-mode directions that are sensitive to my desired departure or arrival time.

If you're upgrading not from 10.10 Yosemite but from an older version, you have even more to look forward to:

- Yosemite added Continuity features that enable Macs and iOS devices to work together more seamlessly, a significantly redesigned Spotlight, iCloud Drive, an expanded Notification Center, and several improvements to Mail.
- Mavericks improved support for multiple displays, added both tags and tabs to the Finder, added the iBooks and Maps apps, and introduced interactive notifications, all while improving performance on several fronts.
- Mountain Lion introduced Messages, Notification Center, Dictation, and Power Nap (among many others).
- Lion added features such as iCloud support, Versions and Auto Save, FileVault 2, Launchpad, Mission Control, full-screen apps, and multi-touch gestures.

El Capitan inherits (and in many cases improves) the above-listed features.

# Catch Up with OS X Changes

If you're already running 10.9 Mavericks or 10.10 Yosemite, skip to the next chapter, [Check Your Mac for Compatibility](#)—there's nothing to see here. But if your Mac is still using an older version of Mac OS X, you need to know about some changes that have occurred in the past few releases that you may not be fully prepared for. This is especially important for anyone still running 10.6 Snow Leopard, 10.5 Leopard, or 10.4 Tiger, because 10.7 Lion did away with a great deal of older technology that many users relied on.

The older the version of Mac OS X you're upgrading from, the more changes you'll notice in El Capitan—and the greater the likelihood that you'll encounter compatibility problems with old hardware and software. You may have to abandon software you've used for many years, adopt new habits, or reorient your thinking about how a Mac works. Before you jump in, you should understand what awaits you—and what steps you'll have to follow to ensure a smooth transition.

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## Learn What You'll Have to Live Without

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By now, you've probably heard about some of the older technologies that are no longer included with the latest versions of OS X. In case you haven't, let me fill you in briefly—forewarned is forearmed.

### Messages Theater

As of 10.9 Mavericks, the Messages app no longer has a Theater mode. Prior to Mavericks, Messages (and its predecessor iChat) let you drag a PDF or Keynote presentation into an AIM video chat window and then either drop it in the top of the window to send it to the other person or drop it in the bottom of the window for Theater mode. In this mode, the other person sees your document or presentation (which you can flip through remotely), with live video of your face in a smaller panel off to the side. I've used this countless times for remote user group presentations, but when Mavericks appeared, it was gone.

Messages still permits screen sharing (as do Skype, Google Hangouts, and other video chat tools), but the capability to show a presentation alongside video of oneself (without having to take that presentation full screen) was unusual, and although there are other ways to achieve a similar effect, none of them offers the Keynote integration I relied on so heavily in Messages Theater. For details, including alternatives you might consider, see my Macworld article [Replacing Messages Theater](#).

## Web Sharing

Although OS X still contains the necessary software to host a Web site, the Sharing System Preferences pane stopped including Web Sharing controls in 10.9 Mountain Lion. If you still want to use your Mac as a Web server—without installing El Capitan Server—read Adam Engst’s TidBITS article [How to Bring Web Sharing Back to Mountain Lion](#) (which still applies to El Capitan).

## RSS Support

The Mountain Lion versions of Apple Mail and Safari both removed their earlier support for RSS feeds. Safari in Yosemite brought back RSS support in a somewhat different form; but if you find it inadequate, you can use a third-party RSS client, such as [Vienna](#), to read RSS feeds. Mail still has no RSS support.

**Note:** In Mountain Lion, iCal was renamed Calendar and Address Book was renamed Contacts. In addition, a new Notes app appeared (replacing the Notes feature previously in Mail) and a Reminders app appeared (replacing the Reminders feature in iCal).

## Rosetta

Starting with 10.7 Lion, Apple removed Rosetta, the software that enabled older, PowerPC apps to run on Intel-based Macs. As a result, upgrading to El Capitan entails living without software that requires Rosetta.

# Check Your Mac for Compatibility

All currently shipping Macs, as well as models introduced within the past 8 years or so, can run El Capitan. Remarkably (given Apple's history), this is the third consecutive OS X upgrade for which the system requirements are *unchanged* since the previous version. That means if your Mac can run 10.8 Mountain Lion, 10.9 Mavericks, or 10.10 Yosemite, it can run El Capitan.

There's one small qualification, in that certain features introduced in Yosemite, such as Handoff and AirDrop between a Mac and an iOS device, require a recent version of Bluetooth—see [Bluetooth 4.0 LE](#) for an explanation.

If you're *not* already using Mountain Lion or later, the next several pages will help you verify that your hardware is fully compatible with El Capitan. And, if you're not already running 10.6.8 Snow Leopard or later, you'll want to read [App Store Compatibility](#) in order to access the El Capitan installer.

I also talk about how this could be a good time to add RAM or complete a firmware update, and I look at special considerations regarding [Free Disk Space](#), [A Magic Input Device](#), and [An Apple ID](#).

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## Model Support

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Macs that can run El Capitan—again, the same models that Yosemite, Mavericks, and Mountain Lion supported—include the following:

- iMac (Mid 2007 or newer)
- MacBook (13-inch Aluminum, Late 2008 or newer; 13-inch Early 2009 or newer; or Retina, 12-inch, Early 2015 or newer)
- MacBook Air (Late 2008 or newer)

- MacBook Pro (13-inch, Mid-2009 or newer; 15-inch, Mid/Late 2007 or newer; or 17-inch, Late 2007 or newer)
- Mac mini (Early 2009 or newer)
- Mac Pro (Early 2008 or newer)
- Xserve (Early 2009)

That’s helpful—but only if you know which model of Mac you have! If your Mac is running Lion or later, this is easy to check. You can either choose Apple  > About This Mac and (if needed) then click More Info, or open System Information (in [/Applications/Utilities](#)) and choose Window > About This Mac. Either way, you’ll see something like **Figure 1**; the Overview pane spells out your Mac’s model using Apple’s current terminology.



**Figure 1:** This window on Macs running Lion or later gives you the exact marketing name of your Mac model. (The layout varies depending on your version of Mac OS X; this screenshot shows the window as it appears in Yosemite.)

However, if your Mac is running Snow Leopard or earlier, nowhere on your Mac itself or in Mac OS X can you *see* these designations (like “Late 2008”). You just have to *know*. And furthermore, those dates refer to when the model was *introduced*, not necessarily when you

# Back Up Your Disk

If you've read pretty much any book I've written about the Mac, you know I consider a solid backup plan to be essential for every Mac user. I hope you already perform backups regularly, and if you don't, this is a perfect time to start.

Regardless of what you do normally (such as using Time Machine or CrashPlan), I want to state emphatically that before upgrading to El Capitan, you must create a specific type of backup called a *bootable duplicate*. That's an exact copy of everything on your startup volume, stored on another disk in such a way that you could start up your Mac from that other disk and it would behave precisely as it does when you boot from your regular startup volume.

Even though the El Capitan installer doesn't force you to make this type of backup, it's not something you can skip if it's inconvenient or if you're pretty sure you won't have problems. In my professional opinion, creating a duplicate is a mandatory, integral part of the upgrade process. In this chapter I tell you both why and how to do this. (If you run Windows on your Mac with Boot Camp, as opposed to virtualization software, you should also [Back Up Windows Volumes](#).)

**Note:** I say "volume" here rather than "disk" because your startup volume could be an SSD (solid-state drive). Some Mac models use what Apple calls "solid-state storage," which is different from an SSD only in its physical configuration. I'll use the term "SSD" to refer to any type of solid-state storage.

After you duplicate your startup volume, I'm going to tell you to do some spring cleaning (see [Clean Up Your Mac](#)), and then I'm going to tell you to update your duplicate. I wanted to warn you about this upfront so you know it isn't a mistake or capricious advice—it's for your own good. You need a great backup before you delete any files (in case you accidentally delete something you need), but you also need a freshly updated backup right before installing El Capitan.

Let me also point out that whatever the virtues of Time Machine, it's no substitute for a bootable duplicate, as I explain in the sidebar [But I Really Don't Want to Make a Duplicate!](#).

**Tip:** Upgrading or not, every Mac user should have a thorough backup strategy; you can learn how to minimize downtime and thoroughly protect your important information by reading my comprehensive book [Backing Up Your Mac: A Joe On Tech Guide](#).

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## Why You Need a Duplicate

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As I said, the particular type of backup you want at this moment—regardless of any other backups you may have—is a bootable duplicate, which is a clone or mirror image of everything on your startup volume. You can't make a bootable duplicate in the Finder by dragging and dropping files onto another disk, and backup programs like Time Machine and CrashPlan (though they're both fantastic for what they do) can't make them either. You must use a backup program that's designed specifically for making a bootable duplicate.

Everyone should create a bootable duplicate and update it regularly (at least once a week) as part of a solid backup regimen. In day-to-day use, duplicates are important because they let you get back to work almost instantly in the event of a major disk error or even a complete failure of your hard drive or SSD. You simply plug in the backup drive, reboot while holding the Option key, and select the external drive, and you're back up and running. You can then use the backup disk to repair your internal startup volume and restore your files—or if the drive is too far gone, replace it at your leisure.

However, aside from that “nice-to-have” reason for making a duplicate, you truly need one when it comes time to upgrade your operating system. Despite Apple's valiant efforts at idiot-proofing the installer, something could go wrong—either during the upgrade or afterward—that deletes important files, leaves your disk unusable, or results in your needing to revert to your previous version of Mac OS X. Bootable duplicates let you recover from these situations handily.

# Clean Up Your Mac

Over time, most computers accumulate clutter, including outdated software, forgotten downloads, and obsolete files. Not only can this clutter make files harder to find, it can also cause problems when you upgrade to El Capitan—incompatibilities may show up, or you may run out of disk space, for example.

In this chapter, I suggest that you install some software updates and delete files you don't need anymore. I also show you how to check both your RAM and your disk for errors that could cause problems when installing or running El Capitan.

Because you'll be making so many changes, you should first make a complete backup—so if you skipped [Back Up Your Disk](#), go back and follow those steps now. After you've cleaned up your Mac, restarted, and verified that everything is working properly, you should update your backup so that it'll be closer to the state of your disk when you upgrade to El Capitan.

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## Update Your Third-party Software

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Every major upgrade to Mac OS X results in software compatibility problems, where some apps work poorly or won't launch. Most of us will have to update at least a few apps to make them work correctly under El Capitan. If history is any indication, some incompatible apps won't be updated right away, and a few might never be. But many developers work hard to ensure that their software is ready for each new version of Mac OS X, and “El Capitan-compatible” software updates have already been appearing for months.

**Tip:** [RoaringApps](#) maintains a wiki listing hundreds of Mac and iOS apps and the current status of their compatibility with various operating system versions, as reported by users. Although this list is neither exhaustive nor definitive, it provides a quick way to check on the apps most important to you.

The El Capitan installer looks for, and disables, certain types of incompatible software—but there’s no guarantee it will find everything. Given the choice, you’re usually better off upgrading third-party software *before* you install a new version of your operating system. In cases where low-level incompatibilities exist, especially with things like drivers, preference panes, kernel extensions, and startup items, you can save yourself grief by preventing, rather than fixing, the problem.

Apple built an update mechanism into the App Store, so any apps you downloaded from the App Store can also be updated there—and App Store updates are free. To check for and apply App Store updates:

1. Choose Apple  > Software Update (in Mavericks or earlier) or Apple  > App Store (in Yosemite), which opens the App Store app and checks for updates. If any are available, the Updates icon in the toolbar (as well as the App Store’s Dock icon) displays a badge showing the number of updates.
2. Click Updates in the toolbar to display a list of available updates.
3. To update a single app, click the Update button next to it. Or, to update all the listed apps at once, click Update All.
4. If prompted to do so, enter your Apple ID and password, and click Sign In.

The App Store downloads and installs the updates automatically.

**Note:** Even though updates from the App Store are free, some developers release entirely new apps (which require an additional purchase) to replace older apps, and which version you use depends on the version of OS X you’re running.

Software that doesn’t come from the App Store must use a separate update mechanism. Happily, most modern apps contain some sort of update feature. Unhappily, they don’t all work the same way. Some check for updates every time they’re launched, or on a fixed schedule, while others check only on demand; of those that do check automatically, not all have this feature turned on initially. Some programs can download *and* install new versions of themselves automatically, while

# Make Sure Your Disk Is Ready

Two El Capitan features that first appeared in Lion—FileVault 2 and OS X Recovery—have special requirements when it comes to the state of your disk at the time you upgrade. In certain situations, especially if you’re upgrading from Snow Leopard or earlier, you may need to make changes to your disk before you can upgrade.

As I explain in a moment, you can postpone changes like disabling encryption until just before you’re ready to run the El Capitan installer; I mention this in case you’re reading ahead but planning to perform the upgrade later. But bear in mind that making these changes to your disk may be time-consuming, so take that into account when scheduling time to install El Capitan.

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## Consider Disabling Encryption

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If you’re upgrading from Snow Leopard or earlier and you have Legacy FileVault enabled, I strongly suggest turning it off (in System Preferences > Security) and then, once you’ve upgraded to El Capitan, you can enable FileVault 2 (in System Preferences > Security & Privacy > FileVault). If you don’t, you’ll continue using Legacy FileVault (even though it’s normally not part of El Capitan), which is unsafe and generally a bad idea, as I explained in [Meet FileVault 2](#).

**Note:** If your Mac is already running 10.7 Lion or later and has FileVault enabled, you need *not* disable it. Lion and later use FileVault 2, just like El Capitan, and it shouldn’t cause you any upgrade problems. To get the complete scoop on FileVault 2, read my book [Take Control of FileVault](#).

If you're using third-party software to encrypt your whole disk—I'm thinking of products like [Check Point Full Disk Encryption](#) and [Symantec Endpoint Encryption](#)—check with the developer *before* you upgrade to El Capitan to confirm that the version you're already using is compatible. If not, or if you're unsure, the safest course of action is to disable the encryption before upgrading. Thereafter, you can either re-encrypt your disk with the same product or switch to FileVault 2.

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## Consider Re-partitioning Your Disk

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Every hard disk and SSD that Apple puts ins a Mac is initially configured as a single large volume called Macintosh HD (not counting the hidden Recovery HD partition on Macs that came with Lion or later).

You can use Disk Utility or any of several third-party tools (not discussed here) to divide your disk into two or more smaller volumes or *partitions*, each of which appears as a separate disk. If you use Boot Camp, you also have a separate partition for Windows.

**Note:** Don't confuse separate disks (for example, an SSD and a hard disk) with multiple partitions of a single disk. This section is only about splitting a single disk into partitions.

I suggested earlier that partitioning may be a good idea for the *external* disk that holds your bootable duplicate and other backups, and that's true. However:

- If you've already partitioned your startup disk (except for adding a Boot Camp volume), you may in some cases find it worthwhile to return it to a single partition *before* upgrading to El Capitan.
- Conversely, a *tiny* minority of users may benefit from switching their startup disks from a single partition to multiple partitions—again, before upgrading to El Capitan.

These facts may sound contradictory, but they represent two entirely different situations, as I explain next. Either way, it pays to figure out your partitioning needs before you download the El Capitan installer.

# Decide on an Installation Method

The El Capitan installer doesn't ask you to pick an installation method, as was the case for early versions of Mac OS X. However, you still have some choices. You can approach the process in either of two ways:

- **Plan A: In-place Upgrade:** This easy, default method is appropriate for most people (including anyone [Upgrading from the El Capitan Beta](#)), with some qualifications.
- **Plan B: Clean Install:** Although the installer no longer offers an option that lets you start fresh by erasing your disk, you can accomplish the same thing in a slightly roundabout way.

Most users should start with Plan A and then if (and only if) they encounter problems, move on to Plan B. A few people may want to skip Plan A and go directly to Plan B. In almost every case, the end result will be virtually identical, regardless of which path you take.

In the pages that follow, I describe the differences between these two plans and help you choose which way to go. Then, in later chapters, I give you step-by-step instructions for each plan.

## Upgrading a New Mac

If your "upgrade" involves not only upgrading a new (or new to you) Mac to El Capitan but also moving your files to the new Mac from an old computer, you should generally choose [Plan B: Clean Install](#) so that you can get a fresh start on the new Mac. At the end of the Plan B installation, Setup Assistant will run, letting you transfer the files from your old Mac or PC to your new Mac.

However, if the new Mac contains software that you can't replace after erasing the disk in Plan B, you can do [Plan A: In-place Upgrade](#) and then run Migration Assistant immediately after rebooting in El Capitan. See [Migrate from Another Mac](#).

## Upgrading from the El Capitan Beta

Many people have already downloaded and installed the public beta of El Capitan. As a result, there's another possibility to consider—upgrading from the beta version of El Capitan to the final version.

You can still choose from Plans A and B—nothing changes there, because it's possible to do either an in-place upgrade from the beta to the final version or a clean install of the final version that migrates data from the beta.

However, if you installed the El Capitan beta on a separate volume—not your ordinary startup volume—my advice is to restart from your main Yosemite volume, create a bootable duplicate of your startup volume, and then choose Plan A or Plan B as though you'd never used the beta at all. Once you're sure everything is present and functional, you can erase your El Capitan beta volume.

Note that if you used SuperDuper's sandbox feature to install the El Capitan beta on an external drive while keeping your user data (and perhaps your apps) on your Yosemite volume, you can still upgrade your Yosemite volume to El Capitan (again, using Plan A or Plan B). Doing so will break the sandbox—not that it's likely to matter much. To learn how to handle this situation, see [Upgrading from a SuperDuper Sandbox](#).

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## Plan A: In-place Upgrade

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As has been true since Snow Leopard, the El Capitan installer offers a single upgrade method that attempts to make the transition simple by leaving almost all your files, apps, and settings in place. You run the installer as you would any other app, and it replaces all the components of your old Mac OS X installation with their El Capitan equivalents, while deleting those that are obsolete—just as the App Store app does when it installs minor updates.

In the past, one of the main reasons to avoid the default upgrade method was that some of the existing software left behind could conflict with the new version of Mac OS X you're installing, resulting in errors, crashes, or even the inability to start your Mac. But starting

# Make Final Preparations

Now that you know which basic installation technique you're going to use, you're nearly ready to proceed. Your next major step (which could take hours, or even longer) is to obtain the El Capitan installer; then I'll recommend a few other quick, last-minute tasks before you dive in.

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## Turn Off Anti-malware Software

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In general, anti-malware software doesn't interfere with purchases and upgrades from the App Store. However, when Apple released Mountain Lion in 2012, users reported that the Ad Banner Filter in Intego's VirusBarrier software sometimes interfered with the process of downloading the installer. Something similar could happen again, and other anti-malware apps could also conceivably prevent El Capitan from downloading properly. So, the easiest course of action is to turn off any anti-malware or ad-blocking software you may have until you have successfully downloaded El Capitan, and then turn it back on.

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## Obtain the Installer

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Depending on your situation, obtaining the El Capitan installer may be a trivial matter of a few clicks, or it may be an involved ordeal. Let's start with the easiest case first.

## Download El Capitan on the Destination Mac

If you're running 10.6.8 Snow Leopard or later and have a broadband Internet connection that can handle a 6+ GB download, obtaining El Capitan is easy—it's just like downloading any other app:

1. Click the App Store icon in your Dock, click Featured, and locate OS X 10.11 El Capitan (which should be displayed prominently). Or, click [this link](#) to open the App Store and go directly to the El Capitan installer.

2. Click Download.
3. Enter your Apple ID and password, and click Sign In.

The El Capitan installer downloads to your [/Applications](#) folder—a process that could take anywhere from minutes to days, depending on the bandwidth of your broadband connection. In 10.7 Lion and later, the installer’s icon appears in Launchpad once the download begins and a progress bar on the icon fills as the download proceeds.

### Estimating Your Download Time

For an estimate of your download time, use a speed test Web site, such as [Speedtest.net](http://Speedtest.net), to determine the effective download bandwidth of your Internet connection. Then enter the size of the El Capitan download (6.08 GB) and your bandwidth into a site like [Download Calculator](#) to find out how long your download should take.

After it downloads, the installer launches automatically.

But we’re not ready to install El Capitan quite yet, so choose Install OS X > Quit Install OS X to quit the installer for the time being; we’ll return shortly!

### The App Store and Multiple Macs

If you have more than one Mac—each running Snow Leopard or later and signed in to the App Store with the same Apple ID—then once you download El Capitan on one, it will show up in the Purchased view on the others too.

If you have bandwidth (and time) to spare, you can click Install on each Mac to download the El Capitan installer. (If your Macs use *different* Apple IDs in the App Store, you can choose Store > Sign Out, choose Store > Sign In, enter the other Apple ID, re-download El Capitan, and then repeat the procedure to sign in under the original account.)

But why go to that bother? It’s faster and easier to copy the installer from [/Applications](#) on the first Mac to the others using Mac OS X’s built-in File Sharing feature (hint: look in System Preferences > Sharing) or another method of your choice.

# Upgrade Using Plan A: In-place Upgrade

Now that you've gone through all the preliminary steps, it's time to begin the upgrade. For most people, Plan A—essentially letting the installer do what it wants to do—is the logical choice. And remember, if it doesn't work out for any reason, you can always move on later to [Upgrade Using Plan B: Clean Install](#). Nevertheless, because you may encounter some questions or confusion during the process, I detail exactly what steps to take from start to finish.

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## Start the Installer

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Unlike Mac OS X installers of old, the El Capitan installer requires no separate startup disc; you simply run an application and it does its thing. However, if you haven't already done so:

- If you are installing onto a laptop, connect its AC adapter to a power source. (If you forget to do this, the installer will prompt you.)
- Quit all open applications. (The installer attempts to do this for you—and prompts you if it can't—but you might as well take care of this beforehand.)

**Note:** Not to belabor the point, but now that we're two clicks away from installing El Capitan, be sure you have an up-to-date bootable duplicate of your startup disk. If not, go no further until you've read and followed the instructions in [Back Up Your Disk](#).

To begin the process, double-click the Install OS X El Capitan icon in your `/Applications` folder or wherever else you put it. (If you're using Lion or later, you can instead click it in Launchpad.) A window appears with just one button: Continue. Click it!

The Software License Agreement appears next; click Agree, and then click Agree again in the confirmation dialog to proceed.

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## Select a Destination

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The next screen asks you confirm which volume you want to install El Capitan onto. In most cases, it displays its best guess—typically your startup volume (**Figure 8**)—but in some situations you may see multiple disks here, in which case you should select the one you want. To install El Capitan onto a volume that’s not shown, click Show All Disks to display all available options and then make your selection.



**Figure 8:** If the installer’s best guess as to your desired destination isn’t right and the one you want isn’t visible, click Show All Disks.

If the installer can’t use a volume as the destination for any reason, that volume is dimmed; click it for an explanation. Note that you can’t install El Capitan onto:

- A disk that uses a partition map scheme other than GUID Partition Table (see [Prepare Your External Drive](#))
- A volume formatted using anything other than Mac OS Extended (Journaled), with or without case-sensitivity or encryption; you’re prompted to reformat it using Disk Utility

# Upgrade Using Plan B: Clean Install

If you prefer a cleaner installation of El Capitan than what an in-place upgrade provides—specifically, one that gets rid of any disk errors and gives you a chance to weed out some types of user-created data—Plan B is what you should follow instead of Plan A. It’s also the right choice if you tried Plan A and encountered problems.

Much of Plan B is just like Plan A, so I refer to earlier discussions for some details. The differences come at the beginning (erasing your disk manually) and the end (using Setup Assistant to configure numerous settings and, optionally, transfer data from your bootable duplicate).

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## Start Up from Your Bootable Duplicate

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Unlike Plan A’s in-place upgrade, Plan B requires a bootable duplicate of a *Snow Leopard*, *Lion*, *Mountain Lion*, *Mavericks*, or *Yosemite* volume, which accomplishes three things:

- You must erase the destination volume first. But you can’t erase the volume Mac OS X is currently running from, so you must start up from another volume.
- You’ll need access to the El Capitan installer too, of course, so it’ll be easiest if the volume you start up from contains the installer.
- Once El Capitan is installed, you’ll need your bootable duplicate (the one you created in [Back Up Your Disk](#), remember?) connected in order to transfer your old data.

To start up from your duplicate:

1. Make sure the disk containing your duplicate is physically connected to your Mac (via Thunderbolt, USB, FireWire, or eSATA).

2. Choose Apple  > Restart.
3. Press and hold the Option key until a list of available startup volumes appears on screen.
4. Use the arrow keys to select your duplicate, and then press Return to boot from it.

Now that you've booted from what is about to be your *old* copy of Mac OS X, you can erase your main disk and install El Capitan onto it.

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## Erase Your Disk

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Having started up from your duplicate, to erase your destination volume in preparation for El Capitan, follow these steps:

1. Open Disk Utility (on your duplicate, in [/Applications/Utilities](#)).
2. In the list on the left, select the volume you want to erase. Volume names (there may be one or more per disk) are shown indented under the disk name, so be sure to select one of the indented icons.

**Choose carefully!** Triple-check to be sure that the volume you're erasing is the one where you want to install El Capitan, and that it's the one you have a backup copy of on your bootable duplicate!

3. Click the Erase button to open the Erase view for the selected volume.
4. Make sure Format is set to Mac OS Extended (Journaled), and click Erase.
5. In the confirmation dialog, click Erase again. Disk Utility erases the disk, which takes just a few seconds.
6. Choose Disk Utility > Quit Disk Utility.

You're now ready to install El Capitan on the empty volume.

# Perform Post-installation Tasks

If everything has gone as expected, your Mac is now successfully running El Capitan. (If things haven't gone as expected, flip forward to [Troubleshoot Upgrade Problems](#).) But there are still a few tasks left to do before you get to work—or play—with your new operating system. In this chapter I cover some important initial setup and configuration activities you should get out of the way right now.

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## Respond to Immediate Questions

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I've performed dozens of test installations of El Capitan, using many combinations of starting points, configurations, and upgrade paths. In some cases, after installing, I saw a normal Desktop and nothing more. In other situations—especially when I upgraded older versions of Mac OS X, had a lot of third-party software, or wasn't previously logged in to iCloud—I was immediately confronted with a large stack of overlapping dialogs and notifications asking me to agree to various things, enter my password, and configure certain features.

Since so many variables come into play, I can't tell you how many such alerts you may face, but odds are you'll encounter at least a few—and you'll want to get them out of the way quickly. Let's look at some of the most common questions that you may see immediately.

### Location Access for Calendar

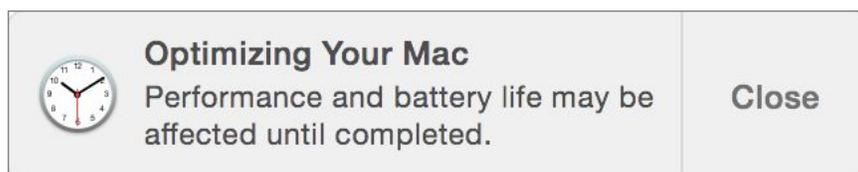
Shortly after Setup Assistant finishes, you may see an alert saying that Calendar would like to use your current location. Calendar wants this information so it can look up addresses for meetings you've scheduled and traffic conditions between there and your current location, in order to alert you when you should leave to arrive on time. Click Allow to enable this feature, or Don't Allow to skip it.

## Password Prompts

You may see one or more requests for your user account password or Apple ID password. For example, certain apps may once again need an administrator’s authorization to make changes to your data, and various apps that use your Apple ID (including iTunes and iBooks) may need you to sign in again.

## Optimization Notification

In some cases—especially after in-place upgrades on disks with lots of data—a notification appears in the upper-right corner of the screen (**Figure 11**) that says “Optimizing Your Mac. Performance and battery life may be affected until completed.”



**Figure 11:** This alert is a sign that your Mac’s operation will be slower than normal for a while.

Clicking the Close button dismisses the message but doesn’t stop the optimization. The biggest part of this process is Spotlight re-indexing your disk, which you can postpone—see [Wrangle Spotlight](#), ahead.

## Time Machine Prompt

If you didn’t already have Time Machine configured but you do have an external disk connected to your Mac, you may see a prompt asking if you want to use that volume for Time Machine backups. Click Decide Later; you can [Decide How to Use Time Machine](#) later in this book.

## New Account Notifications

In some situations, after the El Capitan upgrade, you may see a notification like the one in **Figure 12**. This appears to mean that, in the process of syncing your accounts via iCloud with your other Macs, OS X found one or more accounts that were either missing from this Mac or had different settings. To add (or update) the accounts, click

# Configure Additional Features

Continuing with the theme of post-installation tasks from the previous chapter, there are a few more things you may want to configure, if you haven't already dealt with them in the version of Mac OS X you're upgrading from. Because they are a bit time-consuming and aren't urgent—you can certainly put them off for a few days or a week while you get to know El Capitan—I've set them apart here in this chapter.

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## Set Up User Accounts

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Because you've successfully booted under El Capitan, your Mac already has basic account settings in place. However, you may want to review your account configurations, and possibly disable guest access, if you didn't already do so under your previous version of Mac OS X. In addition, this is an excellent time to do several types of account house-keeping.

## Decide on Administrator Status

Each Mac needs at least one account with *administrator* privileges—that is, a user with the power to make nearly any change to the computer (including adding and deleting other users, installing apps, upgrading OS X, and setting parental controls), although that power is a bit more limited in El Capitan than it previously was, due to System Integrity Protection (see [Other Noteworthy Changes](#)).

When you set up a new Mac for the first time, or perform a clean installation of OS X without transferring any existing accounts from a backup or another computer, Setup Assistant walks you through the creation of an initial administrator account. So, if your Mac has just one account, it must by definition be an administrator account.

That's as it should be, but because administrator accounts have so much power, they can get you in trouble. While logged in as an administrator—or by entering an administrator's username and password

in response to an authentication dialog—you could inadvertently delete files that would keep your Mac from working properly, install malware that could damage your system, or do any of numerous other things you might later regret. So, many Mac experts recommend using a standard (*non-administrator*) account for day-to-day computer use, and using the credentials for your administrator account only infrequently—when you’re installing software or doing other tasks that require access to the depths of your system.

Let me be candid: even though I have frequently recommended this tactic, it’s not something I do myself. My main, everyday user account has administrator privileges. That makes things simpler for me (just one set of credentials that I can use everywhere). And because I’m an expert user, I know how to avoid the sorts of mistakes that might cause problems for someone using an administrator account—and besides, I have *great* backups that I can fall back on if I do anything truly dimwitted. (It does happen.)

Therefore, I won’t insist dogmatically that you make your main account a standard account. But I do suggest that you consider it. If you have anything less than complete confidence that you can either avoid or recover from any mistake you might make by accidentally exercising administrative privileges, a standard account might be what you want.

**Tip:** If you don’t set up your main account as a standard account, you may want to have a second administrator account to use in an emergency; see [Consider Setting up a Spare Admin Account](#), ahead.

If your main account is now an administrator account but you want to make it a standard account, you can create a new administrator account (for occasional use only) and then remove the administrative privileges from your main account. To do so, follow these steps:

1. In El Capitan, go to System Preferences > Users & Groups.
2. Click the lock  icon in the lower left of the window, enter your existing administrator username and password, and click Unlock.
3. Click the plus  button to add a new account.

# Troubleshoot Upgrade Problems

Even if you diligently followed all the instructions in this book, you might encounter problems while upgrading. I can't anticipate every difficulty you may have (or provide solutions in every case), but here are some of the most likely issues and how to deal with them.

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## Can't Run the El Capitan Installer...

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If the El Capitan installer icon has a slash through it, or if you try to run it and it quits immediately, the three likely causes are:

- You're trying to run it on a Mac whose CPU is incompatible with El Capitan (see [Model Support](#) for full details). Solution: Buy a new Mac. (Sorry.)
- You're trying to run it on a Mac that is booted under Leopard or Tiger. Solution: Boot from a volume containing Snow Leopard or later (if you have one) or [Make a Bootable El Capitan Installer Volume](#).
- The installer didn't fully download, or the file was damaged. Solution: First delete the installer. Then open the Mac App Store app, click Purchased, and download El Capitan again.

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## Can't Select Installation Volume...

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If you run the El Capitan installer, click Show All Disks when asked to choose a destination, and find that the volume on which you want to install El Capitan isn't available, chances are excellent that if you click on the volume in question, the installer will tell you *why* it can't be used—for example, not enough disk space, wrong partition

map scheme, or wrong format—and, at the same time, tell you what you need to do to fix that problem.

One message that may not be crystal clear is “You can’t upgrade this version of OS X.” It means you’re trying to install El Capitan on a volume that already has Tiger or Leopard on it—in which case you’ll need to follow the instructions in the sidebar [Upgrading from Tiger or Leopard to El Capitan](#).

You may also see a message about an “unsupported partition structure,” which means the installer thinks the disk containing the volume where you want to put El Capitan isn’t partitioned in one of the officially sanctioned ways. (I’ve seen cases where the disk *appeared* to be partitioned correctly, but the installer didn’t believe it.) Check that you’re using a valid option in [Why to Avoid Extra Partitions](#)—but whether you are or not, repartitioning your disk as described in [Prepare Your External Drive](#) is the only reliable solution.

Come to mention it, repartitioning is, in fact, the best (if brute-force) way to eliminate almost every possible cause of an unselectable volume. If all else fails, try that.

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## Mac Won’t Start Up under El Capitan...

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Following installation—either on the first restart or a subsequent restart—if your machine will not start up under El Capitan (or if you experience a kernel panic upon the first restart), try these steps in order until you are able to start up normally:

1. **Disconnect non-essential USB devices:** USB devices have been known to interfere with the OS X startup sequence, so if your Mac gets stuck on a gray screen and won’t finish booting, try this:
  - a. Press and hold the power button for about 10 seconds until your Mac shuts down.
  - b. Disconnect all USB cables from your Mac *except* any that go to a keyboard, mouse, or other pointing device.

# Migrate to a New Mac

If you buy a new Mac and move over your old applications and data, that's not upgrading—it's migrating, because your new Mac already contains the latest (or nearly so) version of OS X. But, I get it: it feels like upgrading, because yesterday you were using a Mac running an old version of Mac OS X and by the end of the day today you want to be using a Mac running a new version. So, if you are, or are about to be, the proud owner of a new Mac and you want to know how to get your old files onto it, you've come to the right place.

In El Capitan, Apple's Migration Assistant utility can help you with not only upgrading from an old Mac to a new one but also from a Windows PC to a Mac. I talk about both options in this chapter.

## Using a Bootable Duplicate for Migration

For some Mac users, there's an easier way to migrate to a new Mac. First, create a bootable duplicate of your old Mac (described in [Create a Duplicate](#)). Connect the duplicate to your new Mac and boot from it (hold down Option on startup and select the duplicate). Now use your backup app (such as Carbon Copy Cloner or SuperDuper) to clone the duplicate onto the startup volume of your new Mac. Finally, reboot your new Mac from its internal drive. That's it—your new Mac has all the same apps, files, and other data as your old one.

As nifty as this approach is, it has two significant limitations:

- ✦ If the new Mac requires a version of OS X that's more recent than what's installed on your old Mac, the new Mac won't boot after this process. As long as you kept OS X scrupulously up to date on your old Mac, this problem is extremely unlikely, and if it occurs, you can fix it by booting while holding down Command-R and use OS X Recovery to reinstall OS X.
- ✦ Because the cloning process overwrites everything on the new Mac's startup volume, any preinstalled apps (or other documents you added or changed) will be deleted.

If those limitations don't apply to you, this approach can save you significant time.

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## Understand Migration Concepts

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Let me begin by taking a bit of the mystery out of this migration thing. Migration is a fancy word for *copying*—a familiar, ordinary, everyday task that shouldn't seem in any way daunting. Whenever you make a backup, you copy stuff from one place to another; same thing when you share files over a network. You have stuff on your old computer, and you're going to copy it onto your new one. No big deal.

Migration essentially involves two parts:

- Making a connection between the new Mac and the old computer so they can talk to each other. This can be a simple matter of having them on the same wireless or Ethernet network, or stretching a Thunderbolt or FireWire cable between them. If you can't do either of those things, you can often copy everything from the first computer's disk onto an intermediate external hard drive and plug that into the new Mac.
- Figuring out which stuff from the old computer needs to go where—and with which attributes (such as ownership and permissions) on the new Mac. This is trickier than it sounds, because some of your data may be hidden in databases or invisible folders, or may (as in the case of applications) consist of numerous components scattered around your disk.

Every Mac has a nifty utility (in `/Applications/Utilities`) called Migration Assistant, whose job is to copy stuff from the old computer to the new one. This tool knows where your old stuff is, where it should go, and how to copy it intact—even if locations and file formats have changed from your old computer to your new one. It handles the tricky bits so you don't have to worry about them. It even simplifies the process of making a connection, in that you don't need to mess with file sharing settings or mounting network volumes; at most you'll have to run a small app on the source computer and click a few buttons.

Earlier, I mentioned that all capabilities of Migration Assistant are also in the Setup Assistant that's part of the El Capitan installer. So, when you perform a clean install of El Capitan onto an empty volume

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## About the Author

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Joe Kissell is the author of more than 50 books about technology, including [\*Maintaining Your Mac: A Joe On Tech Guide\*](#) and [\*Take Control of Your Online Privacy\*](#). He is also a contributing editor to TidBITS and a senior contributor to Macworld, and he has appeared on the MacTech 25 list (the 25 people voted most influential in the Macintosh community) since 2007.

When not writing, Joe likes to travel, walk, cook, eat, and practice t'ai chi. 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 Upgrading to El Capitan](#) in the subject of your message.

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