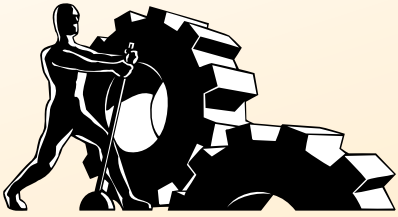


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Read Me First

Welcome to *Take Control of Upgrading to Snow Leopard*, version 1.1, published in September 2009 by TidBITS Publishing Inc. This book was written by Joe Kissell and edited by Tonya Engst.

Upgrading to a new version of Mac OS X can be a daunting prospect, but with some expert advice, you'll be running Mac OS X 10.6 Snow Leopard in no time. This book eliminates the uncertainty and the confusion, guiding you through every step of the process.

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UPDATES

We may offer free minor updates to this book. To read any available new information, click the Check for Updates link on the [cover](#), or click [here](#). On the resulting Web page, you can also sign up to be notified of major updates via email. If you own only the print version of the book or have some other version where the Check for Updates link doesn't work, contact us at tc-comments@tidbits.com to obtain the PDF.

BASICS

In reading this book, you may get stuck if you don't know certain basic facts about the settings on your Macintosh or if you don't understand Take Control syntax for things like working with menus or finding items in the Finder. Please note the following:

- **Menus:** Where I describe choosing a command from a menu in the menu bar, I use an abbreviated description. For example, the

abbreviated description for the menu command that creates a new folder in the Finder is “File > New Folder.”

- **Finding System Preferences:** I sometimes refer to settings in System Preferences that you may want to adjust. To open System Preferences, click its icon in the Dock or choose ** > System Preferences**. When the System Preferences window opens, click the icon of the pane whose settings you want to adjust. I refer to these panes with an abbreviated notation such as “the Network preference pane.”
- **Path syntax:** This book occasionally uses a *path* to show the location of a file or folder in your file system. For example, Snow Leopard stores most utilities, such as Terminal, in the Utilities folder. The path to Terminal is: [/Applications/Utilities/Terminal](#).

The slash at the beginning of the path tells you to start from the root level of the disk. You will also encounter paths that begin with `~` (tilde), which is a shortcut for the current user’s home folder. For example, if the person currently logged in has the user name `joe` and wants to install fonts that only he can access, he would install the fonts in his [~/Library/Fonts](#) folder, which is just another way of writing [/Users/joe/Library/Fonts](#).

- **Volumes and partitions:** I follow Apple’s terminology in referring to any disk *or partition on a disk* as a volume. So if a hard disk has not been partitioned, it has just one volume. If a disk has been partitioned, each partition is a volume.

WHAT’S NEW IN THIS VERSION

Version 1.1 covers new information that has emerged since Snow Leopard’s release, and clarifies or corrects several other items. Major changes include the following:

- A note about [Updating Backup Software for Snow Leopard](#) (p. 30)
- A sidebar about [PGP Desktop and Whole Disk Encryption](#) (p. 31)
- A list of [Things You Need Not Do](#) before upgrading (p. 44)
- Clarification of the way restarts are handled during installation (see [Go for a Walk](#), p. 51)

- Additional information about the Machine option when transferring data from a bootable duplicate (see [Transfer Your Old Data](#), p. 57)
- Instructions on dealing with a rarely appearing Previous System folder (see [The Previous System Folder](#), p. 67)
- Information about how to upgrade CrashPlan, if you use it (see the fourth bullet item in [Other Surprises](#), p. 70)
- A list of Web sites with information about Snow Leopard software (in)compatibilities and a tip about the latest version of 1Password (see [Software That May Not Work](#), p. 71)

Printing Only the Changed Pages

If you already printed version 1.0 on your own printer and you want to reprint only the changed pages in version 1.1, here is some advice:

- If you want fully functional page-number cross references throughout the book, unfortunately you'll have to reprint almost the entire thing—everything up through page 73, plus page 80.
- If you don't mind having some page-number cross references slightly off, reprint only the introductory pages and the pages with notable informational changes. These are pages 1–9, 12–14, 30–31, 44, 51, and 67–73.

In either case, after you print the above-listed pages, use your ingenuity to insert them into your printout, since a few new pages have been inserted into the manuscript, and a few page breaks have shifted.

Please note that even without the new pages, you should be able to safely and successfully update to Snow Leopard, and you can quickly review the changes here in the PDF (by clicking the blue links on this page and the previous page) in order to determine if any of them apply to your specific situation.

Introduction

I learned to drive on a car with a manual transmission, so it always seemed normal to me to be in charge of exactly when the car shifted into which gear. The first time I sat in a car with an automatic transmission, I was so confused and befuddled that I had to call my mother for instructions! It may have been simpler to operate, but I didn't know how to deal with the lack of control I was used to.

The Snow Leopard installer reminds me a bit of my first experience driving an automatic. Apple has gone to great lengths to make it less complex and easier to use, but in so doing they've also removed the option to make certain decisions many of us have grown used to over the course of several major releases of Mac OS X. They've also added a few options we never had to think about before. Although the installer usually does the right thing automatically, it's still not entirely fool-proof, and if you're not careful, you can lose important data.

Apart from the specifics of running the installer, upgrading to a new version of Mac OS X means changing a ton of important files and fundamentally altering the way your Mac works. You might encounter hardware or software incompatibilities, be confused about where certain features have gone, or wonder why Snow Leopard is asking a lot of questions that it should already know how to answer. For all these reasons and more, I've written this guide to walk you through every step of the process—before, during, and after the upgrade itself.

I've previously written Take Control books about upgrading to Panther, Tiger, and Leopard, and although this current book borrows a few pieces from those earlier works, it's essentially a brand new document, reflecting the entirely new way Snow Leopard deals with software installation. So I urge you to set aside any assumptions or biases you may have formed by reading earlier *Upgrading* books and approach Snow Leopard with fresh eyes.

Soon after any new release of Mac OS X, there's a flurry of updated software and information about solving problems. To learn the latest news—and to see whether there's an updated copy of this book—click Check for Updates on the [cover](#).

Snow Leopard Upgrade Quick Start

This book contains a lot of details, not all of which you need to know. But before upgrading, you should be familiar with the overall process. And, regardless of the order in which you read this book, you should perform the listed tasks in the order given—for example, back up your files before cleaning out cruft. Here's a brief overview of the steps you should take.

Prepare to upgrade:

- Find out what's new in the Snow Leopard installer. See [Explore Snow Leopard Installer Changes](#) (p. 10).
- Make sure your computer can run Snow Leopard. See [Check Your Hardware for Compatibility](#) (p. 15).
- Back up before you go forward! See [Back Up Your Disk](#) (p. 18).
- Get rid of clutter that could interfere with the upgrade, make sure key software is up to date, and test your hardware for errors. See [Clean Up Your Mac](#) (p. 28).
- Read [Partitioning: Just Say No](#) (p. 38) to learn why dividing your disk into multiple volumes will probably hinder rather than help you.
- Decide which upgrade strategy is best for you. See [Understand and Prepare for the Upgrade Process](#) (p. 40).
- [Make a Copy of This Book](#) (p. 45)—or a partial copy—so that you'll have it handy while you upgrade.

If you decide on Plan A (automatic upgrade):

- Work through the steps in [Upgrade Using Plan A: Automatic Upgrade](#) (p. 47).

If you decide on Plan B (erase and install):

- Work through the steps in [Upgrade Using Plan B: Erase and Install](#) (p. 54). In the process, you'll [Erase Your Disk](#) (p. 55), perform the

upgrade itself, and then [Use Setup Assistant](#) (p. 57) to transfer files from your backup drive.

After the upgrade:

- [Update Apple Software](#) (p. 63), including Mac OS X, important applications, and Boot Camp drivers.
- Get your new system configured, and avoid unpleasant surprises. See [Set Up Your Snow Leopard Environment](#) (p. 66).
- Problems? If your computer isn't working properly after the upgrade, don't panic; instead follow the steps in [Troubleshoot Upgrade Problems](#) (p. 77).
- If you have an otherwise unsolvable problem, then as a last resort you can return to your previous operating system. See [How to Downgrade](#) (p. 81).

Explore Snow Leopard Installer Changes

With each major release of Mac OS X, Apple makes improvements and changes to the installer. Usually these are relatively minor and self-explanatory, but the Snow Leopard installer is different in profound ways that may significantly change your approach to upgrading. Even if you're intimately familiar with the process for installing Leopard, you should be aware of the ways in which Snow Leopard differs. And, if you're not familiar with the Leopard installer, you should still read this section to get an idea of what to expect.

SINGLE INSTALLATION METHOD

The biggest news about the Snow Leopard installer, which some may find utterly shocking, is that it does away with both the Erase and Install installation method and the Archive and Install method. This change does make the installer much simpler and more user-friendly, but it also removes capabilities that many people once relied on to avoid or solve upgrading problems—and it means the advice I provide here is significantly different from what I offered in the past.

It's still possible to perform what amounts to an Erase and Install upgrade; it's just not a feature built into the installer itself. An Erase and Install upgrade is one where you give yourself a fresh start by erasing your disk before installing a new version of the operating system. See [Plan B: Erase and Install](#) for more about why you might prefer this method.


As for Archive and Install, some of its capabilities have found their way into the default automatic upgrade process (though without leaving all the clutter on your disk that Archive and Install did). In addition, the automatic upgrade is now much smarter than in previous versions of Mac OS X about avoiding incompatibilities, so I feel more comfortable recommending it for most people.

Check Your Hardware for Compatibility

All currently shipping Macs, and most models sold within the past 3 years or so, can run Snow Leopard. However, Apple's new system requirements exclude certain models. In particular, not every computer that can run Leopard can also run Snow Leopard. And even a relatively recent Mac may not have enough RAM or disk space, or may need a firmware update. In the next few pages I help you verify that your hardware fully supports Snow Leopard.

PROCESSOR SUPPORT

Snow Leopard is the first version of Mac OS X to require an Intel processor. That means it'll run on any Mac Pro, MacBook, MacBook Pro, or MacBook Air, plus iMac and Mac mini models released in 2006 or later. Earlier models—PowerBooks, iBooks, PowerMacs, eMacs, and pre-2006 iMacs and Mac minis—aren't invited to the party.

Gathering Intel-ligence: Not sure whether your Mac has an Intel processor? Choose  > About This Mac and look at what the Processor line says. If it includes "Intel," you're golden.

New Macs that ship after Snow Leopard is released will have Snow Leopard pre-installed (or at least included on a DVD in the box); if necessary, you can use the Migration Assistant to transfer files and settings from your old Mac.

Tip: Anyone who purchases a new or Apple Certified Refurbished Mac between June 8, 2009 and December 26, 2009 that does not include Snow Leopard can get a Snow Leopard DVD for the cost of shipping and handling; see Apple's Mac OS X Snow Leopard Up-to-Date Web page (<http://www.apple.com/macosx/uptodate/>) for complete details.

Back Up Your Disk

In the past, I've suggested, recommended, urged, and entreated readers to back up their Macs before upgrading Mac OS X. This time around, I want to state my case differently: you *must* create a bootable duplicate of your disk before upgrading to Snow Leopard.

I want to be crystal clear that this isn't an optional step, or something you can skip if it's inconvenient or if you're pretty sure you won't have problems. Creating a duplicate is no longer a recommendation; it's a mandatory, integral part of the upgrade process. In this section I tell you both why and how to do this.

After you back up your disk, I'm going to tell you to do some spring cleaning (read [Clean Up Your Mac](#)), and then I'm going to tell you to back up *again*. I wanted to warn you about this up front so you know it isn't a mistake or capricious advice—it's for your own good. You need a great backup before you go deleting any files (in case you accidentally delete something you need), but you also need a freshly updated backup right before installing Snow Leopard.

Let me also emphasize 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!](#) (p. 27).

WHY YOU NEED A DUPLICATE

Of the many ways in which you can back up your Mac, one way involves making an exact copy of everything on your disk onto 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 start from your main disk. That type of backup is called a *bootable duplicate*.

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 to do this sort of operation.

Clean Up Your Mac

Over time, most computers accumulate clutter, including outdated software, forgotten downloads, and files you no longer need. Not only can this clutter slow down your Mac and make it harder to find things, it can cause problems when you perform a major upgrade—incompatibilities may show up, or you may run out of disk space, for example.

In this section, 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 Snow Leopard.

Because you'll be making so many changes, you shouldn't perform these steps until after you've made 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 Snow Leopard.

UPDATE YOUR THIRD-PARTY SOFTWARE

Every major upgrade to Mac OS X results in software compatibility problems, where some applications work poorly or don't launch at all. Even in the best cases, most of us will have to update a few applications to get them to work correctly under Snow Leopard.

If history is any indication, some incompatible applications 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 “Snow Leopard-compatible” software updates have already been appearing for months.

Given the choice, you're usually better off upgrading third-party software *before* you install a new version of Mac OS X. In cases where low-level incompatibilities exist, especially with things like drivers,

Partitioning: Just Say No

All Macs ship with a hard disk configured as a single large volume. You can divide your disk into two or more smaller volumes or *partitions*, each of which appears as a separate disk. But please don't!

I said earlier that partitioning may be a good idea for the external disk that holds your bootable duplicate, and that's true. But it's not such a good idea for your main internal drive. In this section I explain why (and whether you might be an exception to the rule).

If you *were* going to partition your disk, this would be the opportune time—after backing up but before installing the new operating system. But 99.9 percent of readers really shouldn't. In previous *Upgrading* books I didn't try hard enough to talk readers out of partitioning, so let me give it another try here.

Strictly speaking, the only Mac users who *must* partition a disk are those running Windows under Boot Camp. If you're one of those people, you already have a Mac volume and a Windows volume on your disk; you should skip the rest of this section because attempting to further partition your disk is risky, and can result in such unpleasant problems as not being able to boot Windows.

For everyone else, Snow Leopard's design assumes that all your Mac OS X applications, documents, media files, and so on reside on the same volume. Plus, Snow Leopard itself and many applications like to have plenty of "breathing room," which they normally assume will be on the startup volume. So by partitioning your disk you may be setting yourself up for extra work to make everything function correctly.

More to the point, partitioning provides little practical benefit compared to the aggravations it can cause. If you partition your disk and later realize you need more space on one partition and less on another, it's a hassle to resize them. In the best case, it's time-consuming, and in the worst case you must back up all your volumes, erase your entire disk, partition it again, and then restore all the files. Do this once and you'll never want to do it again!

Understand and Prepare for the Upgrade Process

In my books about upgrading to earlier versions of Mac OS X, this was the point where I'd describe the three methods the installer could use (Upgrade Mac OS X, Archive and Install, and Erase and Install) and explain which method was best in which circumstances. Since all those options have now disappeared, I'm recasting the decision you have to make into a simple binary choice:

- **Plan A: Automatic Upgrade:** This is now the appropriate method for most people, with some caveats.
- **Plan B: Erase and Install:** Although the installer no longer offers a radio button labeled Erase and Install, you can accomplish the same thing in a slightly more 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. Afterward, I move on to give you step-by-step instructions for each plan.

PLAN A: AUTOMATIC UPGRADE

The Snow Leopard installer's single upgrade method attempts to make the transition as simple as possible by leaving almost all your files, applications, and settings in place. The installer simply replaces all the components of your old Mac OS X installation with their Snow Leopard equivalents, and it deletes those that are obsolete.

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 after the

Upgrade Using Plan A: Automatic 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 [Plan B: Erase and Install](#). Nevertheless, because you may encounter some questions or confusion during the process, I detail exactly what steps to take from start to finish.

BACK UP

I've mentioned this a few times already, but it never hurts to repeat it. You *must* back up your Mac—by which I mean creating a bootable duplicate onto another disk—before proceeding. It's the mandatory first step in Plan A! If you haven't already done this, go no further until you've read and followed the instructions in [Back Up Your Disk](#).

START THE INSTALLER

***Something's in the Air:** If you're upgrading a MacBook Air without an external SuperDrive, you must follow a different procedure [here](#). Skip ahead to the sidebar [Using Remote Disc](#) (p. 53), and then pick up with [Select a Destination](#), next page.*

Insert the Snow Leopard DVD and double-click the Install Mac OS X icon. A window appears with just two buttons: Utilities and Continue. For now, click Continue.

Note: I discuss the Utilities button fairly early in the instructions for [Upgrade Using Plan B: Erase and Install](#).

The Software License Agreement appears next; click Agree to proceed with the installation.

Upgrade Using Plan B: Erase and Install

If you want the possibility of a cleaner installation of Snow Leopard than what an automatic upgrade provides—specifically, getting rid of any disk errors and having 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 serious problems.

Much of Plan B—which is to say the choices you make during installation itself—is just like Plan A, so I refer you back to earlier discussions for some of the details. The differences come at the beginning (erasing your disk manually first) and the end (using Setup Assistant to configure numerous settings on your Mac and, optionally, transferring data from your bootable duplicate).

BACK UP

You are about to erase your entire hard drive! All your data will be *gone*. So don't even think about touching that installer DVD until you've read and followed the instructions in [Back Up Your Disk](#). (If you're following Plan B because you went through the steps in Plan A and had problems, you already have a duplicate, and need not create another.)

Since the installer won't be preserving most of your data as it would during an automatic upgrade, you might want to make two separate bootable duplicates if time and resources permit. (Or, if you have a single duplicate but also a separate backup using Time Machine or some other backup mechanism, that should be more than adequate.) And be sure to confirm that your duplicate(s) work!

Update Apple Software

One of the first things you should do after installing Snow Leopard is to make sure you've updated Mac OS X itself (and any other crucial Apple software) to the latest version.

Shortly after your Macintosh starts up under Snow Leopard for the first time, Software Update should run automatically; if it finds updated software, it displays an alert like the one shown in **Figure 5**. If Software Update does not run, choose Software Update from the **Apple** menu. Software Update checks if a newer version of Mac OS X (or any of the software installed with it) is available—and if so, offers to download and install it.

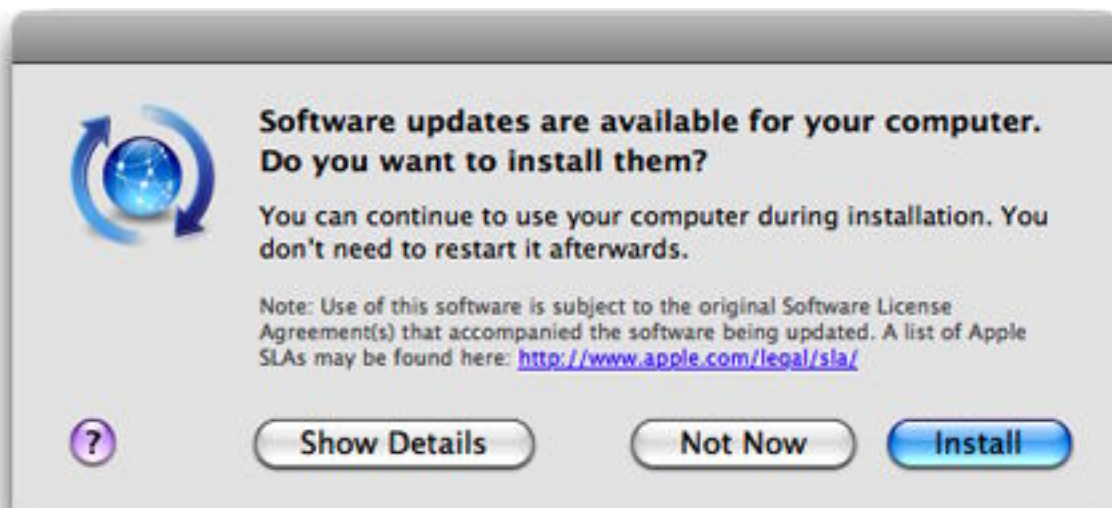


Figure 5: The Software Update alert asks you to put too much trust in Apple.

As in Leopard, Software Update doesn't come right out and tell you what's new unless you run it manually; when it finds updates on its own, it expects you to click Install and let it update whatever software it's decided you need. I couldn't disagree more strongly with this design decision, because informing users about changes to their system is a crucial part of maintaining security. So I recommend that you review every update, before installing it, by clicking Show Details to get a complete list of what's new.

Set Up Your Snow Leopard Environment

You should be aware of a few things that you'll probably want to know right after installing Snow Leopard.

THE INCOMPATIBLE SOFTWARE FOLDER

On a rare occasion, you may see a notice at the end of the Snow Leopard upgrade process informing you that the installer has found software that might cause problems and has therefore been moved aside (**Figure 6**).

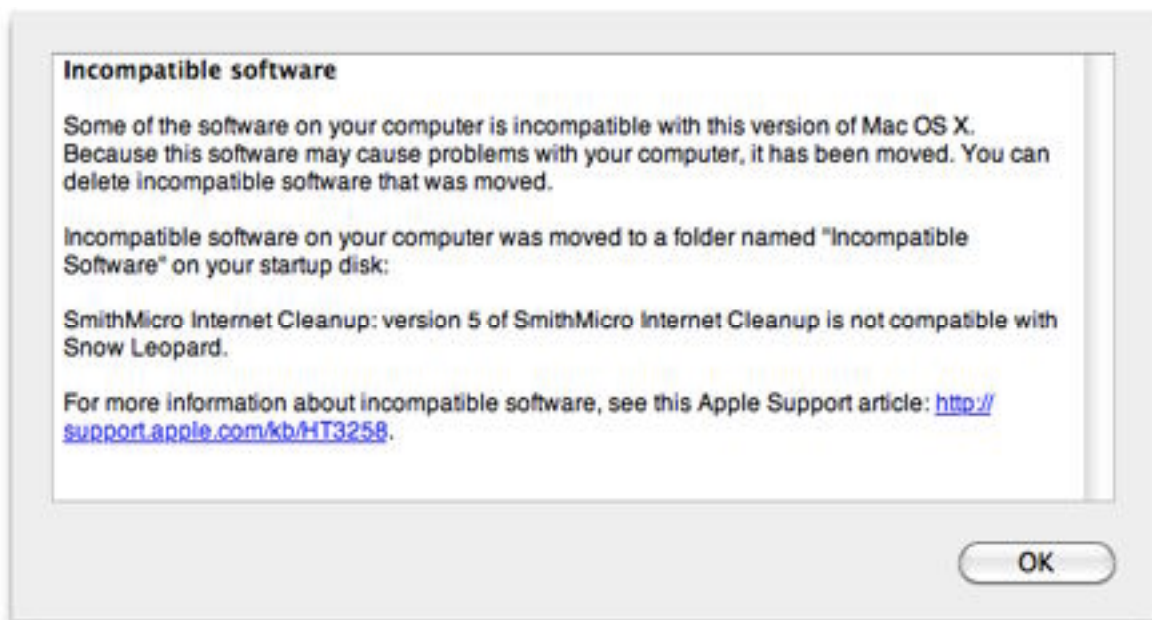


Figure 6: If the Snow Leopard installer disables incompatible software, it informs you in a dialog like this one.

This notice appears only for extensions and other low-level background software that would otherwise run automatically when you start your Mac. (For other incompatible software, continue reading.)

As the notice says, the items in question are moved to a folder called Incompatible Software that's stored at the top level of your hard disk. Whatever you do, don't try to re-enable this software manually!

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.

MAC WON'T START UP FROM THE DVD...

After launching the installer and restarting, if your computer will not boot from the DVD to complete the installation, do this:

1. Shut down your computer and wait for a few seconds. If the DVD was ejected, make sure it is free of smudges, scratches, and fingerprints, and reinsert it.
2. Press the Power button, and immediately hold down the C key to force the computer to boot from the DVD. If this doesn't work...

Firm advice: *If you've set a firmware password on your Mac, pressing the C key won't work. You must instead press the Option key, enter your firmware password when prompted, and then select your DVD. This process should also enable you to start from the DVD. But if not, proceed with...*

3. Restart your computer, this time holding the Option key. Icons representing each valid startup volume will appear on the screen. Click the icon for the installation DVD, and then click the right arrow. If this doesn't work...
4. Shut down your computer, and then remove *all* peripherals, network cables, and anything else attached to your computer except the Apple-supplied keyboard, mouse, and display. (You may also need to remove any third-party video and PCI card(s) and even, in rare cases, extra RAM modules.) Then go back to Step 2 (and Step 3 if necessary). If this doesn't work...

How to Downgrade

As wonderful as Snow Leopard is, you might find it necessary to downgrade to your old system at some point if:

- An essential application does not work under Snow Leopard.
- You encounter frequent crashes or compatibility problems.
- Drivers for your third-party hardware are not available, and replacing that hardware is not an option.

Reverting to an older system is never pleasant, but if you followed the instructions for backing up your old system, it can be relatively straightforward.

If, before upgrading to Snow Leopard, you created a bootable duplicate of your old system on another volume (as discussed under [Back Up Your Disk](#)), follow these steps:

1. If you modified any documents while working in Snow Leopard, be sure to save a copy of those documents onto another volume before restoring your cloned system.
2. Start up your Mac from a volume *other than* the one containing Snow Leopard. This can be the hard disk or partition where your duplicate system exists, a startup CD or DVD, or any other volume with a valid Mac OS X system.
3. Launch your backup program (such as SuperDuper or Carbon Copy Cloner). Following the program's instructions for making a bootable duplicate, choose the volume where the duplicate exists as the source. For the destination (or target), choose the volume containing Snow Leopard.
4. Start the backup.
5. When the backup finishes, choose the newly restored volume in the Startup Disk preference pane and restart.

Your computer should now be running your previous system again.

About This Book

Thank you for purchasing this Take Control book. We hope you find it both useful and enjoyable to read. We welcome your comments at tc-comments@tidbits.com. Keep reading in this section to learn more about the author, the Take Control series, and the publisher.

ABOUT THE AUTHOR

Joe Kissell is Senior Editor of *TidBITS*, a Web site and email newsletter about the Macintosh and the Internet, and the author of numerous print and electronic books about Macintosh software, including *Take Control of Mac OS X Backups* and *Take Control of Maintaining Your Mac*. He is also a Senior Contributor to *Macworld* and was the winner of a 2009 Neal award for Best How-to Article. Joe has worked in the Mac software industry since the early 1990s, including positions managing software development for Nisus Software and Kensington Technology Group.



In his increasingly imaginary spare time, Joe likes to travel, cook, and practice t'ai chi. He lives in Paris with his wife, Morgen Jahnke, and their cat, Zora. To contact Joe about this book, send him email at jwk@me.com and include *Take Control of Upgrading to Snow Leopard* in the subject of your message so his spam filters won't intercept it.

AUTHOR'S ACKNOWLEDGMENTS

Numerous other Take Control authors, editors, and hangers-on offered suggestions and tips that made this a much better book. I also appreciate the helpful feedback I received from readers of my previous books on upgrading to Leopard, Tiger, and Panther. I incorporated many of their suggestions into this book as well.

This book has been brought to you by the letters S and L, and the number 6.

SHAMELESS PLUG

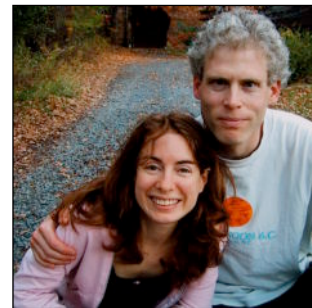
Although I write about computers as my day job, I have a great many other interests, which I write about on several Web sites, including Interesting Thing of the Day (<http://itotd.com/>) and my personal blog. You can find links to all my sites, a complete list of my publications, and more personal details about me at <http://joekissell.com/>.

ABOUT THE PUBLISHER

Publishers Adam and Tonya Engst have been creating Macintosh-related content since they started the online newsletter *TidBITS*, in 1990. In *TidBITS*, you can find the latest Macintosh news, plus read reviews, opinions, and more (<http://www.tidbits.com/>).

Adam and Tonya are known in the Mac world as writers, editors, and speakers. They are also parents to Tristan, who thinks ebooks about clipper ships and castles would be cool.

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PRODUCTION CREDITS

Take Control logo: Jeff Tolbert

Cover: Jon Hersh

Editor in Chief: Tonya Engst

Publisher and automation master: Adam Engst

Assistant: Julie Kulik

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