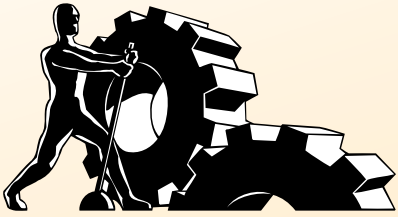


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Table of Contents

Read Me First

Updates and More	4
Basics	5
What's New in This Edition	6

Introduction

Quick Start to Screen Sharing

What's New in Lion

Learn the Basics of Screen Sharing

Uses of Screen Sharing	12
Options for Screen Sharing	14
Security behind Screen Sharing	19
Picking the Right Method	20

Share via iChat

Get Set Up	22
Start Screen Sharing via iChat	24
Controlling and Being Controlled.....	27
Use iChat Theater.....	30

Prepare to Share

Set Up Screen Sharing	38
Make a Screen Sharing Connection	42
Use the Screen Sharing Application.....	46

Share via Bonjour

Share via a Direct Network Connection

Connect via the Finder	55
Connect via the Screen Sharing Program	56

Share via Back to My Mac

How It Works.....	59
-------------------	----

MobileMe, iCloud, and Apple ID	60
Turn On Back to My Mac	61
Connect with Back to My Mac	65
Disable Back to My Mac	67
Share via Skype	
Set Up Skype	69
Share Your Screen in Skype	72
Sharing Screens in iOS	
iTeleport (Formerly Jaadu VNC)	78
LogMeIn (Formerly Ignition).....	83
Troubleshooting	
iChat Connection Problems	90
Bonjour and Direct Connection Problems	91
Back to My Mac Connection Problems	91
Firewall Blocks Access	92
Ask the Doctor: What Can iChat Do?	93
Solving Sleep.....	94
About This Book	
Ebook Extras	99
About the Author.....	99
Author’s Acknowledgments	100
Shameless Plug	100
About the Publisher.....	100
Copyright and Fine Print	
Featured Titles	

Read Me First

Welcome to *Take Control of Screen Sharing in Lion*, version 1.0, published in January 2012 by TidBITS Publishing Inc. This book was written by Glenn Fleishman, and it was edited by Tonya Engst. Dan Frakes served as technical advisor.

This book will help you master sharing a remote computer screen from Mac OS X 10.7 Lion (with details for 10.6 Snow Leopard and 10.5 Leopard) and teach you how to get a reliable connection with the greatest versatility. It also explains the use of an iPhone, iPad, or iPod touch for remote access to a screen.

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Updates and More

You can access extras related to this book on the Web (use the link in [Ebook Extras](#), near the end; it’s available only to purchasers). On the ebook’s Take Control Extras page, you can:

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Basics

In reading this book, you may get stuck if you don't know certain fundamental facts 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:** When 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 opens a new connection in Screen Sharing is File > Connection.
- **Finding System Preferences panes:** 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 from the Apple  menu. When the System Preferences window opens, click the icon of the pane whose settings you want to adjust. I may refer to these panes using an abbreviated notation such as “the Network preference pane.”
- **Path syntax:** I occasionally use a *path* to show the location of a file or folder in your file system. Path text is formatted in special type. For example, Mac OS X stores most utilities in the Utilities folder. The path to the inside of the Utilities folder is: `/Applications/Utilities/`.
- **Screen sharing:** *Screen sharing* is a technology, an application, and a service in Lion. When I refer to the Screen Sharing program, I capitalize its name; the same is true of the Screen Sharing service in the Sharing system preference pane. When I write about screen sharing as a concept or a feature in Lion (or other systems), I use lowercase to show that I'm discussing it generically.
- **Big cats:** I frequently mention features specific to a particular version of Mac OS X, which Apple usually refers to by their “big cat” code names:
 - Lion: Mac OS X 10.7
 - Snow Leopard: Mac OS X 10.6
 - Leopard: Mac OS X 10.5
 - Tiger: Mac OS X 10.4

What's New in This Edition

This edition of my *Take Control of Screen Sharing...* ebook still talks about sharing screens in Mac OS X 10.5 Leopard and 10.6 Snow Leopard, but it's more keenly focused on 10.7 Lion and the introduction of Apple's iCloud online service, which has replaced Apple's MobileMe service.

Highlights of the most important changes in this edition include:

- I've added new information about screen sharing in Lion. For an overview, read [What's New in Lion](#), a few pages ahead.
- [Share via Back to My Mac](#) now talks about using Back to My Mac with iCloud, instead of with MobileMe as it did previously. Also, for simplicity's sake, this book has incorporated all the relevant parts of the formerly separate *Take Control of Back to My Mac*. (You may download the Snow Leopard version of that ebook at no charge—see [Ebook Extras](#).)
- [Share via Skype](#) has been updated to cover version 5, a major revision to the software that has removed some screen-sharing features.
- I removed most of the information about VNC (Virtual Network Computer) technology as it is no longer required as an alternative to far simpler and more powerful choices.
- I deleted the appendix about port mapping because the screen-sharing technology discussed in this book no longer requires such a complicated setup.
- Because the Take Control series has begun producing EPUBs in-house, the EPUB version of this edition has an improved layout and looks more like a Take Control ebook.

Introduction

Over 20 years ago, working from my desktop computer, I manipulated and saw the screen of a system that was in a server room. It was magical. I could work with the server just as if I were sitting in front of it, using its programs and moving objects on its desktop—via a 2,400 bps modem!

That sense of wonder still pervades me when I use screen sharing today. Instead of using dial-up software, or even a 10 Mbps (fast!) local Ethernet network, I use broadband feeds over the Internet to reach computers across town or 3,000 miles away.

Screen sharing, the general name for this technology, gives you access to applications and data stored on another computer, even though your keyboard and mouse aren't connected to that computer. It lets you see a remote computer screen in real time, and it may also allow you to control the remote computer.

In Mac OS X 10.4 Tiger and earlier versions of Mac OS X, screen sharing was something you had to install or spend significant time figuring out how to use. Apple made screen sharing part of the system, available on tap, in 10.5 Leopard. Improvements appeared in 10.6 Snow Leopard, and the technology reached a new level of utility in 10.7 Lion.

In Lion, screen sharing comes in several forms, and in this book I explain how to use each of them. In some cases, you must have an account and a password on the machine you want to access remotely. However, one particular method—screen sharing over iChat—requires just a buddy who gives you permission, at the time of access, to view or control his or her screen.

I also explain how to use screen sharing via Skype, and the role of Back to My Mac with screen sharing.

Quick Start to Screen Sharing

To learn how to set up your Macintosh or iOS device to view or control the screen of another computer, you'll benefit from reading [Learn the Basics of Screen Sharing](#) carefully, in order to best match your situation to your needs. After that, focus on the material that describes the type—or types—of screen sharing that you want to do. However, if you have specific questions, each chapter also stands on its own.

I start by explaining how screen sharing works, then provide details on Lion's Screen Sharing app, which is used by all of Lion's options for remote access, whether via iChat, Back to My Mac, or Bonjour. Skype is covered separately. A chapter about troubleshooting connections comes at the end.

Learn background info to configure like a pro:

- To quickly find out about what's different with screen sharing in Lion, read [What's New in Lion](#), a page or so ahead.
- Discover the many [Uses of Screen Sharing](#).
- Determine the screen-sharing technique that best matches your situation in [Options for Screen Sharing](#), and get details and reassurance in [Security behind Screen Sharing](#).

For iChat:

- Set up ad hoc screen sharing with [Share via iChat](#). You can share media or give a presentation with [Use iChat Theater](#).

For other forms of built-in Mac OS X screen sharing:

- Get started with the directions for how to [Set Up Screen Sharing](#).
- Get a handle on how to [Use the Screen Sharing Application](#).
- Make a screen-sharing connection: read [Share via Bonjour](#), [Share via a Direct Network Connection](#), or [Share via Back to My Mac](#).

For third-party and other ways to share a screen:

- Use Skype to share your screen with another Skype user, allowing remote viewing but not control, all for free. See [Share via Skype](#).
- Turn your iPhone, iPod touch, or iPad into a remote-control appliance using one of several software packages. See [Sharing Screens in iOS](#).

Solve problems:

- Find answers to common problems in:
 - ▶ [iChat Connection Problems](#)
 - ▶ [Bonjour and Direct Connection Problems](#)
 - ▶ [Back to My Mac Connection Problems](#)
- Solve problems that come up if a [Firewall Blocks Access](#) or that relate to waking a sleeping computer (see [Solving Sleep](#)).

What's New in Lion

If you were already comfortable using the Screen Sharing application in an earlier version of Mac OS X, you'll be happy to know that Apple added new features to the Screen Sharing application in Lion:

- Lion allows associating one or more Apple IDs with a Mac OS X user account (except the special Guest account) for remote access, as well as for file sharing and resetting the account's password. For details, read [Let Users in via Apple ID Accounts](#) and [Make a Screen Sharing Connection](#).
- Lion lets you use screen sharing to log in to an inactive account—one that's not currently logged in—on another computer, almost like remote access to Fast User Switching, without affecting the current logged-in user (whether active or not) on that machine. This is explained in [Log In as Another User](#).
- [Full-Screen Mode](#), a new option for applications in Lion, lets you put remote screen-sharing sessions into their own Desktop spaces, making it simple to switch among screens without cluttering your main windows.
- Lion adds the option to observe happenings on a remote screen without controlling it. To learn more, flip ahead to [Control/Observe](#).

Another feature new to Lion is iCloud, the successor to Apple's MobileMe online service. Although there are differences between the two services, iCloud includes its own, essentially identical, version of Back to My Mac. (Apple plans to discontinue all MobileMe services, including its version of Back to My Mac, at the end of June 2012. To learn about the transition from MobileMe to iCloud for Back to My Mac, flip ahead to [MobileMe, iCloud, and Apple ID](#).)

Learn the Basics of Screen Sharing

Screen sharing literally gives you a window into a remote computer, allowing you to see and interact with that computer as if you were sitting in front of it, including taking full control. The remote screen appears within a window (whether in a Web browser or in a stand-alone remote-control program) or fills your local screen.

Sharing a screen becomes useful in four general cases:

- **Using remote programs and data:** You can run a program on a different computer without transferring the program, or any related files or data, to your local computer or handheld device.
- **Technical support:** Screen sharing is great for providing remote tech support, whether for your job or when helping far-flung friends and relatives who rely on you for Mac support. (See the case study, a page or so ahead, for an example.)
- **Server access:** If you are in charge of a server that is in an inconvenient location or that has an inconvenient setup, you can use screen sharing to run it. For instance, you can control a *headless server*, one that doesn't have an attached monitor.
- **Offloading computational tasks:** If you have a computer dedicated to long or CPU-intensive processes such as encoding video, you can use screen sharing to check on the progress.

One of my typical uses is digging up an old email message when I'm away from my office computer. Rather than syncing my huge database of email between my office Mac and my laptop or iOS devices—doing so would involve transferring too much data back and forth—screen sharing lets me keep the email on my main machine (my cake) and still be able to search it from anywhere (eat it, too).

Screen sharing as a concept is not new; however, the solutions included with Mac OS X, starting with 10.5 Leopard, tend to be easier to set up and use than many other approaches.

Share via iChat

Apple's addition of screen sharing to iChat a few years ago was a boon for anyone who has ever tried to help someone use a computer without being in the same room as that computer.

I cover iChat early in this ebook and separately from the other forms of Mac OS X screen sharing because although it has some elements in common with these other methods, it lacks all of the controls and has significant differences. iChat screen sharing tends to require more explanation to make it work for you.

This chapter also discusses an extension of screen sharing with iChat called iChat Theater. iChat Theater doesn't allow another party to view your screen, but it does allow you to push the display of photos or documents from your Desktop.

Get Set Up

To use screen sharing with iChat, you have several prerequisites:

- **Account:** To connect for screen sharing, *each* party must have a compatible account, and those accounts must both be of the same type from the groups below:
 - An Apple ID ending in @me.com or @mac.com, or an AOL Instant Messenger (AIM) account. (These accounts use AIM's infrastructure.) MobileMe and iCloud accounts ending in @me.com or @mac.com are also Apple IDs.

If you don't have an account, sign up for a free Apple ID at <https://appleid.apple.com/cgi-bin/WebObjects/MyAppleId.woa/wa/createAppleId?createacctype=lite&userid=dmac> that ends with @mac.com. Despite the fact that Apple's main Apple ID page (at <https://appleid.apple.com/>) says you can use iChat with any Apple ID, it works only with @me.com and @mac.com addresses.

- A Google Talk account.

Prepare to Share

Three forms of screen sharing connections—Bonjour, direct, and Back to My Mac—all use Mac OS X’s Screen Sharing program and thus share the same underlying basic controls. ([Share via iChat](#) is covered independently in the previous chapter.) The differences have to do with *how* each form connects.

In this chapter, you will prepare to use the standard screen-sharing feature in Mac OS X by turning on and setting up the Screen Sharing *service* and by learning your way around in the Screen Sharing *application*. In subsequent chapters, I explain the specifics of connecting and managing each method.

The Screen Sharing program, hidden in `/System/Library/CoreServices`, handles screen sharing, but typically you don’t launch it directly. When you click the Share Screen button in the Finder to connect via Bonjour to a local computer or via Back to My Mac to a remote machine, Mac OS X launches Screen Sharing. However, it’s possible to launch the program manually, as described in [Share via a Direct Network Connection](#).

Note: iChat screen sharing doesn’t use the Screen Sharing program directly, but it does employ many of the same underlying system components.

Set Up Screen Sharing

To best share your screen, you should know how to do three things—turn on your computer’s Screen Sharing service, employ two techniques for limiting which users may view and control your screen, and use the Screen Sharing menu. I cover each of these in turn.

Turn On Screen Sharing

Because Screen Sharing is a Mac OS X service, you turn it on in System Preferences:

1. In the Sharing system preference pane, make sure the Screen Sharing item’s box is checked.

Share via Bonjour

Apple's Bonjour technology advertises services like screen sharing by providing the names of available machines, making it easy for you to start a screen-sharing session.

(See [Share via iChat](#) for details on enabling Bonjour with iChat.)

To access a remote shared screen via Bonjour, open a Finder window and select a server (a remote computer) in the Shared section of the sidebar; if screen sharing is an option, the Share Screen button appears near the upper right (**Figure 26**).



Figure 26: Click the Share Screen button for this Bonjour-networked computer—notice the name *Rex Ben Lynn Glenn* in the Shared list at the left.

If you don't see a computer in the Shared section but think it should be there, read [If a Computer Doesn't Appear in the Sidebar](#), later.

Click the Share Screen button, and—if prompted—choose the form of credential and, if one is required, enter it (see [Pick the Right Login Credentials](#)). If you've previously stored account information in the keychain, you aren't prompted: the remote computer's screen is given over to your control without a prompt.

Share via a Direct Network Connection

You can make a direct connection to a computer in order to start a screen-sharing session. Direct connections can be made over a local network or the Internet using either the remote computer's IP address or the remote computer's host name along with the appropriate password.

Connect via the Finder

You can launch Screen Sharing with a direct connection from the Finder by following these steps:

1. Choose Go > Connect to Server.
2. Enter `vnc://` followed by the host name if one exists (like dynamic-macpro.glennf.com), the IP address on the local or remote network, or the Bonjour name (like Glenns-Computer.local). Then, click Connect.

The Finder launches the Screen Sharing program using the address you provided.

3. If you haven't stored a password for the remote system, a login dialog appears. Use any of the options available, such as an Apple ID or entering a username and password; for the latter, you can optionally store the password in a keychain by checking the "Remember..." box (see [Pick the Right Login Credentials](#)). Click Connect.

While a remote system is being controlled, a Screen Sharing status menu appears on the menu bar to let a user know that someone is watching (see [Use the Screen Sharing Menu](#)). Flip back to [Use the Screen Sharing Application](#) for advice on what to do next.

Tip: Click the plus **+** button in the Connect to Server dialog to add the `vnc://` connection to the Favorite Servers bookmark list.

Share via Back to My Mac

Back to My Mac is one of the most powerful remote-services features ever built into in an operating system. Introduced in Leopard, Back to My Mac lets you easily connect two computers, even ones separated by the Internet and intermediate network hardware, and then share files or a screen between them without entering additional passwords.

In this book and chapter, I focus just on screen sharing. But Back to My Mac can be used for any Bonjour service, like remote administration of an AirPort base station with the MobileMe version of Back to My Mac, although most other services are too obscure for most people.

Back to My Mac requires an active iCloud or MobileMe account.

How It Works

Back to My Mac uses either iCloud or MobileMe as glue to bind together different Macs on the Internet. To use it, you must set up each Mac with the same iCloud or MobileMe account. Then, each computer uses the service to store connection information where the other Macs can access it.

Here's the how the service works:

- **The router:** If the computer is connected to the Internet via a router that assigns network addresses, Back to My Mac asks the router for configuration information. There are requirements for how the router and your network are configured, but most setups should meet those. If you can't get Back to My Mac to work, see [Back to My Mac Connection Problems](#).
- **Back to My Mac sends information to an Apple service:** Back to My Mac tells MobileMe or iCloud where the computer is located and how to reach it on the network or via the Internet (including any information necessary to access the computer through the router). This information is stored on Apple's servers in your account.

Share via Skype

Skype is best known as a way to make free “phone calls”—actually voice over IP or VoIP calls—between two or more people who each have the software installed on a computer. It also enables video chatting. But Skype is much, much more, as the one-time division of eBay—now owned by Microsoft—has continually added more features.

Screen sharing was tacked on a few years ago, and it’s seen modest improvements over time. You can only push your screen to a buddy for remote viewing, but not offer her control of the screen. This feature works only with people who have agreed to let you have access to them, the definition of a *contact* in Skype’s parlance.

The standout feature of the Skype software is how it works across networks that otherwise seem to lock out remote access. In my testing with colleagues, Skype seems to work nearly always for voice or video calls where iChat is blocked due to network configuration.

Skype is also free: the software and registration cost nothing; you pay only for add-on services, like placing phone calls out to the public switched telephone network. Windows, Linux, and Mac systems running Skype can share and access each other’s screens.

Set Up Skype

Before you can share a screen with Skype, you need to install the software, set up an account, and add the person who you want to share with as a contact. If you’ve already done all that, skip to [Share Your Screen in Skype](#).

Follow these steps to get set up with Skype:

1. Download Skype for Mac from <http://www.skype.com/intl/en-us/get-skype/on-your-computer/macosex/>.
2. Mount the downloaded disk image if it doesn’t mount automatically. (In Safari or Firefox, double-click the downloaded file in the downloads list, and click Continue if prompted.)

Sharing Screens in iOS

If you had told me in 2006 that I would regularly use a handheld communicator to control a remote computer, I would've assumed that you were talking about an expensive tablet PC (few of which ever sold), or I'd tell you that maybe in 2010 or so there would be the right combination of software, hardware, and network robustness to make that work. I was off by a few years.

Since Apple began allowing third-party developers to write software for the iPhone and iPod touch in 2008, there has been strong demand for apps that let you view or control a computer's screen from an iPhone, iPad, or iPod touch (but not vice-versa). In this chapter, I discuss two remote access apps that work on all iOS devices:

- In [iTeleport \(Formerly Jaadu VNC\)](#), I look at how this app provides remote access and control with the Virtual Network Computer (VNC) protocol that's a standard across many platforms and built into Mac OS X.
- In [LogMeIn \(Formerly Ignition\)](#), I discuss how this app employs LogMeIn's proprietary system for remote access and control.

Both apps offer comparable basic feature sets and performance, and each app does a reasonable job, especially if the iOS device is connected to an external Bluetooth keyboard or keyboard dock.

I've left my laptop behind on multiple trips since starting to use these programs, not only with my iPad, but also with my iPhone. If you are trying to decide which one to purchase, I suggest you read this entire chapter to get a feel for which one is right for you.

Mocha VNC?

Another frequently purchased remote-access program for iOS is [Mocha VNC](#), a universal app by MochaSoft. It has similar functionality to iTeleport but costs \$5.99 instead of iTeleport's \$24.99 or \$39.99 for the paid version of LogMeIn. Even though they cost more, I prefer both iTeleport and Ignition because they allow access to computers without publicly reachable Internet addresses, and they work easily with, or include by default, strong encryption.

Troubleshooting

Screen sharing is generally a reliable technology that works whenever both sides of a connection are configured correctly. When problems emerge, they tend to be related to your connection method. I've come up with three main types of connection problems, which I cover first.

I finish with a look at firewall problems in [Firewall Blocks Access](#) and sleep-related problems in [Solving Sleep](#).

iChat Connection Problems

Because iChat requires two parties to each actively agree to share a screen—it's not passive on one end and active on the other—you should have fewer inexplicable problems with screen sharing via iChat and iChat Theater than you would with other forms of screen sharing. If you are having problems, however, run through the following list to find a solution:

- Can you see your buddy in your iChat Buddies List? (Choose Window > iChat Buddies.) If not, make sure they're online.
- If you can initiate the process of sharing your screen or sharing your buddy's screen, but the process fails, then check whether your buddy's computer is running a firewall. See [Firewall Blocks Access](#), later in this chapter.
- Is your network connection fast enough to support screen sharing or iChat Theater? See [Ask the Doctor: What Can iChat Do?](#)

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About the Author



Glenn Fleishman is a technology journalist based in Seattle, where he lives with his wife and two sons. He started explaining technology to people who wanted to know how to use it (not how it worked) back in the 1980s, and has written professionally since 1994. He is a senior

contributor at *Macworld*, and a featured contributor to the Babbage blog for the *Economist* each week, as well as appearing regularly in its print edition. At *TidBITS*, he's responsible for much of the Web and publishing infrastructure, while also acting as a contributing editor. Glenn is also a columnist for the *Seattle Times* on all things Mac related, and he appears regularly on national public radio programs.

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Shameless Plug

I'm also the author or co-author of several other Take Control books, most recently [Take Control of iOS 5 Networking & Security](#), [Take Control of Your 802.11n AirPort Network](#), and [Take Control of Your Wi-Fi Security](#).

About the Publisher



Publishers Adam and Tonya Engst have been creating Apple-related content since they started the online newsletter *TidBITS*, in 1990. In *TidBITS*, you can find the latest Apple news, plus read reviews,

opinions, and more (<http://tidbits.com/>). Adam and Tonya are known in the Apple 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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Take Control of Upgrading to Lion (Joe Kissell): Find friendly advice that prepares you for a successful installation of Mac OS X 10.7 Lion, plus learn how to best run the installer while avoiding problems.

Take Control of Using Lion (Matt Neuburg): Learn to use 10.7 Lion effectively, whether you embrace all of Lion's new features or strike a balance between old and new.

Take Control of Your 802.11n AirPort Network (Glenn Fleishman): Make your AirPort network fly—get help with buying the best gear, set up, security, and more.

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