Take Control of Sharing Files in Panther

by Glenn Fleishman

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Introduction

In the late 1980s, when only a few million academics and governmental types had easy access to a very slow Internet and even most business users couldn't afford pricey Ethernet gear, we *hoi polloi* had two ways to share files: sneakernet and snail mail. The algorithm for sneakernet was to insert a floppy disk, copy files to the floppy, eject the floppy, walk (in sneakers) across the room, insert the floppy, and copy files from the floppy. A little tedious, but it got the job done.

For distances beyond the reach of sneakernet, the algorithm changed. Instead of walking across the room, you inserted the floppy in a padded envelope and walked it to the post office or called FedEx.

Even today, sneakernet and snail mail are useful for transferring huge quantities of data—imagine the gigabits you can "transmit" when you send a bunch of hard drives by overnight mail or walk a DVD-R across a room—but most people share files through multiple accounts on the same computer, over local area networks comprised of wired Ethernet and wireless Wi-Fi links, or over the Internet using dial-up modems, broadband connections, and high-speed dedicated lines.

In *Take Control of Sharing Files in Panther*, I help you identify the right computer setup for exchanging files among users in your situation, with a particular emphasis on users working on networked computers. I focus on Mac OS X 10.3 Panther as the hub of these activities, but the principles are the same on all platforms, and many specifics are identical or quite similar in Mac OS X 10.2 Jaguar.

I also explain how to connect to a Mac running Panther from Windows XP and from the Mac OS (Mac OS 9, Mac OS X 10.2 and Mac OS X 10.3).

NOTE To keep this ebook focused on file sharing, we broke out two related topics into full-length titles of their own:

Take Control of Users & Accounts in Panther examines setting up and managing users on a Mac running Panther.
http://www.tidbits.com/takecontrol/panther/users.html

Take Control of Permissions in Panther, due out in 2004, will have a more technical focus and look at using the Terminal to configure and troubleshoot file permissions.
http://www.tidbits.com/takecontrol/panther/permissions.html

READING AND PRINTING TIPS

We designed this ebook to be read online or printed. Here are a few tips to help you get the most out of your reading experience.

Online reading tips:

(We're still learning the tricks for Panther's Preview application, which in our testing works quite well with Take Control ebooks, so these tips are primarily for Adobe Acrobat and Adobe Reader.)

- In Adobe Acrobat 5, the Take Control default settings on the View menu are Fit in Window and Continuous. For most people with larger monitors, those should be fine. To focus only on reading, in Acrobat 5, choose View > Full Screen, or in Acrobat 6, choose Window > Full Screen View. (Press Esc to leave full screen mode.)
- Increase the size of the text by clicking the window's Zoom button to make the window as wide as possible, then choose View > Fit Width.
- To scroll using keyboard shortcuts, you must first click the main text area. The Page Up and Page Down keys may be the easiest (and they scroll by screen when you view less than a full page). The Left and Right arrow keys scroll to the previous and next page starts.
- Blue text indicates links. You can click any item in the Table of Contents to jump to that section. Cross-references are also links, as are URLs and email addresses.

- Work with the Bookmarks tab showing so you can always see and jump to any main topic by clicking the associated bookmark.
- You may experience a display problem wherein the top border on tip and screenshot layouts does not appear. The borders should print properly and may show properly at a different view percentage. They also appear correctly in Apple's Preview.

Printing tips:

- In the unlikely event that Adobe Acrobat or Adobe Reader cannot successfully print this PDF, try Apple's Preview; several readers have solved printing problems by using Preview.
- If you prefer a tighter layout that uses fewer pages, check your printer options for a 2-up feature that prints two ebook pages on one piece of paper. For instance, your Print dialog may have an unlabeled pop-up menu that offers a Layout option. Choose Layout, then choose 2 from the Pages per Sheet pop-up menu. You also may wish to choose Single Hairline from the Border menu.
- When printing on a color inkjet printer, to avoid using up a lot of color ink (primarily on the yellow boxes we use for tips and figures), look for an option to print entirely in black-and-white.

FUTURE UPDATES TidBITS Electronic Publishing may publish minor updates to this ebook to account for errata, software updates, new information, or other reasons. Such updates will be offered at no extra charge; notification will go to the email address you gave at the time of purchase. Most likely, we will charge only for editions which reflect a major change in the underlying software; in this case, for Apple's next operating system after Panther.

Sharing Files Quick Start

This ebook contains many details, not all of which may be relevant to your situation. You do *not* need to read every word before sharing files, but you should be familiar with the overall process first.

Prepare to share files:

- Before you think about the big world of sharing files on a network, you may wish to review techniques for sharing files among users on a single Macintosh. See Share Files on the Same Mac.
- Learn how file sharing is different from using disks to copy files from computer to computer or using email attachments to move files around. See What is File Sharing?
- Review reasons to share files, and see which match your situation. See Reasons for File Sharing.
- Decide on the hardware or online service that you'll use as your file sharing server; see Hardware You Need to Serve Files.
- Determine which file sharing technique makes sense for your goals, budget, and expertise. See Decide on a File Sharing Technique.
- Take steps to manage security risks by becoming informed about what you expose when you share files over the Internet. If you need to implement security measures, such as a firewall, now is the time to do so. See Avoid File Sharing Risks.

Start sharing files:

- Turn on file sharing using AppleShare, Samba, Web sharing, FTP, and/or WebDAV. If desired, get a few tips about turning on Unix's NFS. See Turn On File Sharing and Appendix A: Share with SharePoints.
- Start sharing photos and music; see Share Digital Media Files.

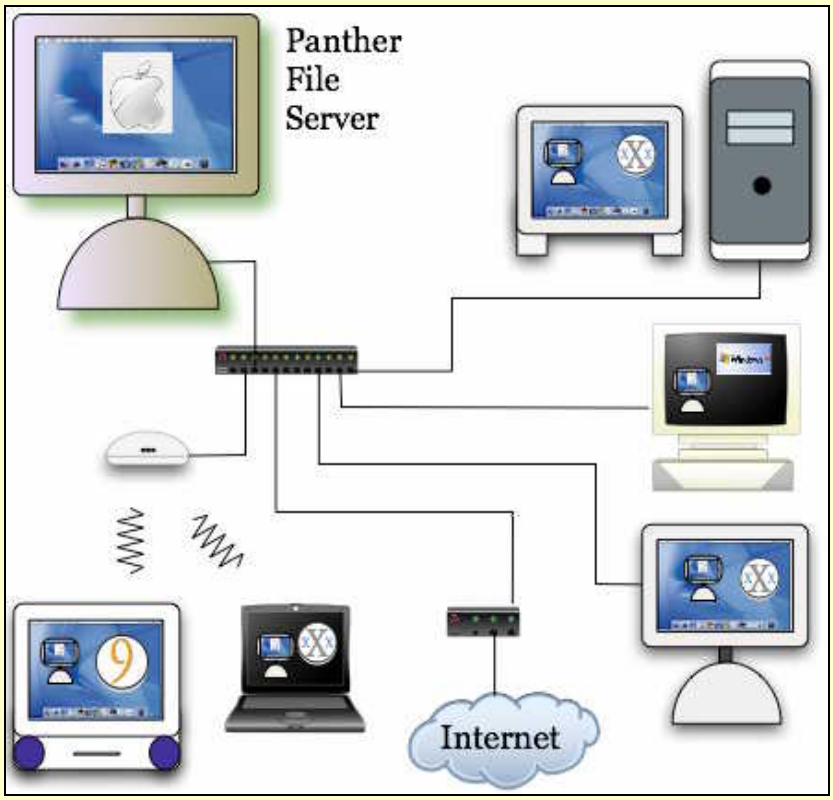
Access shared files:

- Access shared files from Panther, Jaguar, Mac OS 9, and Windows XP. See Access Shared Files.

What is File Sharing?

File sharing means storing a set of files on a central computer, called a *file server*, and making it possible for any number of people to retrieve those files over any type of computer network, just as if those files were located on their own hard disks (**Figure 1**).

Figure 1



Many different machines can access a file server, whether they're connected directly via Ethernet, over wireless AirPort (Wi-Fi), or via the Internet.

File sharing differs from emailing one or more people a file. When you email a document, the recipients are passive: they check their email routinely, and the document arrives. The burden of distribution falls on you.

File sharing eliminates the necessity of pushing a file to others. You place the file on a server whenever you like, and all the people who need to retrieve it can do so whenever they like without coordination. The burden of distribution falls on the recipients, who choose the time and method by which they retrieve the file.

NOTE If the word *server* makes you think of large computers locked in closets, think again. In fact, a server is just a program running on a computer. A server allows other individual computers to connect to itself for a particular task. When I talk about a server, I always mean a server program running on any computer. Panther has literally dozens of server programs available, and several relate to sharing (or *serving*) files.

File sharing also solves the problem of coordinating a group of people working together on a document. If you don't use file sharing and simply send a draft of the document via email, each recipient must work on her own copy of the file; when you receive all the files back, you must merge all the comments and changes. With appropriate coordination using file sharing, the shared file can be a single master copy, eliminating the need for manual incorporation of changes.

A few methods of file sharing go even further to enhance collaboration, either allowing people to check files out from a repository and locking them against other users' modifications, or storing multiple older copies of a document, which lets you compare the current draft against older ones or restore an older copy.

With file sharing set up, users gain access to files in two basic ways. In the first method, a user has an account which comprises a user name and a password. The user must login to his or her account by providing this user name and password through some interface to the server program, generally a dialog box with spaces for those two details. After *authenticating*, or proving his or her identity, the user has access to the shared files. You can set up one account (one user name and password) to share among an entire group of users or you can set up multiple accounts with one assigned for each user or purpose.

In the second method, users have guest access in which they don't need to authenticate themselves: no details are required, or, if they are required, users may enter anything they want. Their identity is not confirmed. With guest access, anyone who can see your server on the network and usually on the Internet can access the server. In some situations, guest access may require that the guest knows just a special account name, like guest or anonymous, with either no password, a password of guest, or an email address that isn't checked as to whether it's legitimate or not.

Reasons for File Sharing

Now that you know the basics of what file sharing is and the advantages it offers, you can start taking control of sharing files by considering what you want to accomplish by sharing files, and with whom you need to exchanges files. In this section, I break out reasons for file sharing into a few large categories.

Note Knowing what you want to accomplish may help you determine what hardware or bandwidth you need, covered in Hardware You Need to Serve Files. Also, it may influence your choice of a file sharing technique, discussed in Decide on a File Sharing Technique.

Coordinate Group Projects

When you and at least one other person need to collaborate on a common set of files, you can set up a central location to store the files. Optionally, this central location can track whether a file has been checked out for use.

Note Almost always, a file server helps reduce the time, cost, and effort needed for routine exchanges. For one-off exchanges, you might be better served by sending or receiving files via techniques not covered in this ebook, such as email, iChat file transfer, CD-R, or USB RAM drive.

Create a Central Archive

Many groups have a common set of files that grows over time, but these files are rarely changed once they are added. In this case, many people may need to add to the archive without needing permission to delete or re-organize files, while many of the same or an entirely different set of people may need access to read the archive.

Avoid Relying on Email

Even if you're just trying to exchange one file with one other person, a file server can help you step around the problems of Internet email in the modern age. For instance, because of viruses and worms, many companies and some ISPs ban all or certain kinds of attachments,

even from or to Mac users who can't be infected but can accidentally transmit attacks by forwarding attachments.

In other cases, you or your recipient might not be able to receive attachments larger than a certain size or might pay extra to store a mailbox with a large attachment. And for people behind relatively slow Internet connections, being able to choose when to start long downloads rather than having them delay other email is a boon.

In any of these circumstances, a file server can help you and your users bypass the hassle of email.

Distribute by Download

File sharing includes simple downloads: perhaps you need to distribute a software product, a book in electronic form, or other data to a large group of people. That group could include users with accounts and passwords on the file server or anyone at all.

Share Media Files

File sharing is useful even to consumers with a couple of Macs at home. Many people want to share a collection of music or photos among a few computers; all that's necessary is to set up file sharing and to configure iTunes and iPhoto properly, or—if appropriate—to use the built-in sharing features in these programs. See Share Digital Media Files to learn more.

Decide on a File Sharing Technique

You can divide networked file sharing into roughly four categories:

- File services built into major operating system platforms, such as Mac OS and Windows. If you want to jump ahead, you can find more details abut file services in AppleShare, SMB (Server Message Block) or Samba, and NFS (Network Filesystem).
- FTP (File Transfer Protocol), a universally supported method of exchanging files that dates back to the Internet's earliest days. See FTP (File Transfer Protocol).
- Web downloads (and uploads!). See Web.
- Proprietary methods that require a subscription or special client and server software not included with any operating system. Methods noted in this ebook are iDisk, IP over FireWire, Timbuktu Pro, BitTorrent, Adobe Version Cue, and Creo Tokens.

Keep reading in this section to learn which approach is appropriate for your needs. See **Table 1** for a quick overview of the methods.

Table 1: Pros and Cons of File Sharing Methods for Panther Users

Sharing Type	Advantages	Disadvantages
AppleShare	• Found on all Macs. • Free. • Straightforward to use.	• Requires SharePoints (for-fee) or Mac OS X Server ($499 or $999) for any real configuration. • Requires extra for-fee software if other platforms need access.
SMB (Server Message Block) or Samba	• Found on all Windows systems. • Supported under Mac OS X. • Free. • More complex than Apple-Share, requires SharePoints (for-fee) or Terminal editing (free) to add volumes or set parameters.	• Requires extra software if access is needed by Unix (free) or Mac OS 9 machines (for-fee). • Mac users may find it baffling to talk Windows users through connecting to their volumes.

Avoid File Sharing Risks

Before you dig into the details of how to share your files, you should consider the risks of file sharing and possibly take action to avoid them. And, no, I'm not talking about the storm troopers of the Recording Industry Association of America bursting into your bedroom—that's only a concern if you're using peer-to-peer file sharing networks to share works for which you don't own the copyright.

Rather, you risk having unintended others accessing your files or abusing your storage space. This can happen even if you share files only over your local network; unless you set up a firewall or other protection, you may unintentionally leave your files available to outsiders.

Problems with Open Servers

Our Windows brethren have long been aware of the problem of accidentally running an open file server, because before Windows XP, Microsoft's default configuration made it easy to turn on file sharing without any protection. On the first cable modem networks, which work essentially like large Ethernet networks, people could troll through their neighbors' unprotected files with abandon. Whoops.

The Internet is so large and so fast, and full of so many jokers, that it's become something like a large local network. If you purposely or accidentally expose more than you intended, it's likely that some automated evil—a scanning program that looks for open file server connections—will suck down your data. Less maliciously, however, search engines like Google follow all links from public Web pages, and many Word, PDF, and other documents entered Google's maw unintentionally merely by being left in an obscure but linked location of a Web site.

Worse, if your computer is hijacked (taken over) by crackers, it could become a depository for *warez*, which is the slang name for pirated software. A number of years ago, I ran an FTP site with a few files in it, but I made a mistake and misconfigured it to allow both read and write access to anyone. A huge spike in bandwidth led me to discover hundreds of megabytes of pirated materials uploaded by others. Even though you probably wouldn't face legal action for your negligence

(though that's not a guarantee these days), you could lose time and money cleaning up the problem, and your ISP might sever your Internet connection for violation of their acceptable use policies.

If you think unintentionally hosting pirated software is bad, it could be worse. Your server could also become a repository of child pornography. Some countries, including the United States, have presumptive guilt. Mere possession can get you thrown in jail, fined, or otherwise sanctioned, and require a long process to clear your name. Several mainstream newspaper articles noted recently that a large percentage of spam and pornography is served from hijacked computers.

There's one more scenario that stinks: if anyone can write files to a drop box on your server (even if no one can read those files once uploaded), a malicious jerk could upload hundreds of megabytes of crud, saturating your available bandwidth and filling your server's hard disk and making the machine unreachable until you clean up the unwanted files. This sort of vandalism may sound unlikely, but with all the hijacked computers in the world, it's all too easy, and it does happen.

Recommendations for Avoiding Risks

I recommend that before you turn any type of file sharing on, you think carefully about who needs access, and what kind of access they need. You may also wish to set up a firewall, as discussed at the end of this section.

TIP If you've never configured a file server before, you might not know that you can control the extent to which other users (or even yourself, when logged in as a user) can work with files stored on the server. For instance, you can let users just read files and browse folders; or just upload files without then seeing that they uploaded; or read, write, delete, and otherwise totally control a volume.

Turn On File Sharing

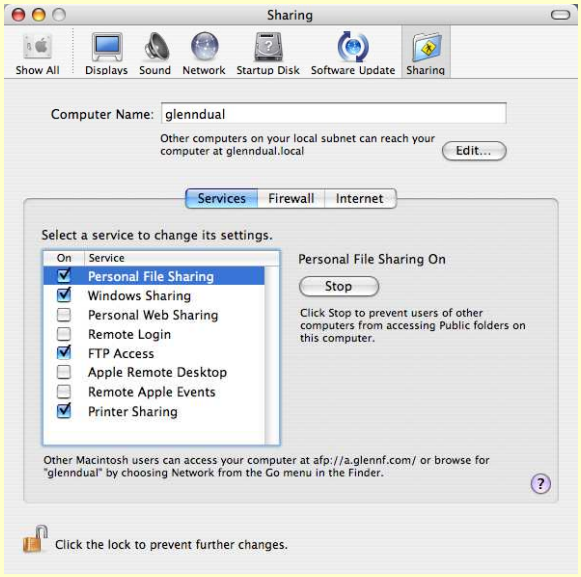
Simply turning on file sharing in Panther requires only a few clicks in the Services tab of the Sharing preference pane. Although this section explains how to use the Services tab, you may wish to review the details about the service you are about to turn on first. You can turn on four file sharing services from the Services tab:

- Personal File Sharing, which is AppleShare (see Share Files with AppleShare for details)
- Windows Sharing, which is Samba (see Share Files with Samba for more information)
- Personal Web Sharing, which turns on the local Web server (see Share Files over the Web or Share Files with WebDAV for more)
- FTP Access, which is just what it says (see Share Files with FTP to learn important configuration information)

NFS requires additional configuration, which I give some pointers about in Share Files with NFS.

Working in the Services tab (**Figure 4**), you manage each service by either checking or unchecking the box to the left of the service name, or by selecting the service's name and clicking the Start or Stop button on the right side of the pane.

Figure 4



To turn a service on, select a stopped service and click Start at the right, or click the checkbox to the left of the service. To turn the service off, select it and click Stop at the right or uncheck the checkbox to the left.

Most of this ebook discusses sharing any type of files using file sharing services. However, no ebook about sharing files on a Macintosh would be complete without explaining how to share iPhoto and iTunes libraries.

Decide How to Share Music in iTunes

The first step in making iTunes share music is to decide whether to use the built-in iTunes sharing feature or to use file sharing. Here's what you need to know about each:

Built-in iTunes sharing feature

iTunes has a built-in feature to share music which is easy to set up (see Use iTunes Built-in Sharing), but limited in a number of ways:

- Music is available only when iTunes is running on the machine that's sharing the music. If you turn that machine off, it crashes, or someone needs all its processing power for Photoshop or other tasks, you can't listen to its music.
- This method does not work for sharing music among users of the same Macintosh.
- A user's repository of music is available to others only when her account is logged in and active. (In the case of Fast User Switching, a user could be logged in, but her account could be inactive.)
- Because Apple is playing nice with the recording industry, all you can do with shared music is play it from within iTunes. You can't add it to your own playlists, set ratings, or edit the tags that identify each MP3 file. That's appropriate in some situations, but in cases where you're sharing your own music among your own Macs, such as on a home network, it's needlessly limiting and technologically overrules U.S. law and court decisions on fair use.
- iTunes sharing relies on Rendezvous, a technology for automatically announcing network resources over a local network. But unlike Apple's general use of Rendezvous in which any resource is available to any other on the same physical network, iTunes restricts its sharing to machines on the same range of Internet protocol (IP) addresses. Even simple home networks could have

two or more ranges of private or translated addresses, which eliminates iTunes sharing among users of them. (A typical scenario: a wired gateway and a wireless gateway feed out two different private network ranges.) A general-purpose file server has no such limitation, and might be appropriate for more complicated networks.

Shared music folder

This approach involves storing all your tunes in a central location, perhaps even a file server that doesn't run iTunes. File sharing is harder to set up than the built-in iTunes sharing feature, but it is the only way to go if you want to share music among multiple accounts on the same Macintosh. It also works for sharing music across a network. (See Set Up a Shared Music Folder, later, to learn how to set up file sharing.)

Relying on a shared music folder has the advantage of letting people share the same music while still creating and maintaining their own playlists, since the playlist information stays with each user. On the downside, every time someone rips a new CD or purchases new music online, each user must import the songs manually by dragging them into iTunes. The silver lining in that cloud is that each user can pick and choose which of the shared albums to import.

TIP Sharing music over a network requires just a few hundred Kbps per user, so it should work fine even if you're on a slow AirPort network (about 5 Mbps of throughput) or 10Base-T Ethernet (about 8 Mbps).

Share Photos in iPhoto

Sharing photos in iPhoto is more complex than sharing music in iTunes because iPhoto is more particular about where its files live, and because all users need read-and-write access for importing and editing purposes. Sharing photos was particularly difficult until the release of iPhoto 4, which added Rendezvous photo sharing that works exactly like the comparable feature in iTunes. However, many people may not want to pay for iPhoto 4 (part of the iLife '04 package and free with new Macs), and for others, iPhoto 4's method of sharing files may not be ideal.

NOTE You cannot share between iPhoto 2 and iPhoto 4; iPhoto 4 updates your iPhoto Library folder the first time you launch it.

You must choose between two basic approaches to sharing photos in iPhoto: what I term the "shared iPhoto Library folder" approach, which works for iPhoto 2 or 4, or the iPhoto Sharing approach, an option introduced in iPhoto 4 that does not work with iPhoto 2. Which should you choose?

- Use the shared iPhoto Library folder approach to share photos among users on the same Mac or if you want to ensure that all networked users can import, view, organize, and output the same set of photos. The shared iPhoto Library method is best for people who want to mix all their photos and work on them together. It's also the only option for people running iPhoto 2.
- Use the iPhoto Sharing approach if you want multiple users on a network to be able to view each other's photos and perform limited output. You can print shared photos, view them in a slideshow, send them to others in email, order prints of them from Apple, upload them to HomePage in your .Mac account, and use them as .Mac slides. However, you cannot add someone else's shared photo to albums, edit it in any way, use it in iPhoto books, use it as your Desktop picture or for your screensaver, create an iDVD slideshow with it, or burn it to CD. To accomplish any of those tasks, you must first copy the shared photo to your Mac first, after which it's just like any other photo on your Mac. iPhoto Sharing is ideal for situations where each person in a family might have his or her own

Access Shared Files

Now that you've had the chance to read about every conceivable way to share files, you can learn about the complementary action: accessing those shared files. Let's walk through mounting volumes or browsing for files on each of the major operating system versions, starting with Panther.

Panther's New Paradigm (Seriously)

Panther 10.3.0 through 10.3.2 creates a split in the way that you mount shared file servers compared to earlier versions of Mac OS X—and even System 6 through Mac OS 9.2! Under Jaguar and all previous releases, all file servers were *hard mounted*. A hard-mounted file server appears as an icon on the Desktop (assuming you have that option turned on in the Panther Finder's Preferences window), and is for most purposes exactly like a local hard disk. But with hard-mounted servers, if the server becomes unavailable—your network connection goes down, the server crashes—your Finder can lock up for quite some time, even under Panther, until it decides to release the missing server.

Note In Jaguar, you reached the Network browser from the Finder by choosing Go > Connect to Server. In Panther, you can access the Network browser simply by clicking Network at the top of the sidebar in any Finder window.

You can still hard mount servers under Panther, but Panther also offers an interesting, but flakey, new option for servers on a local network, long available in Unix: *soft mounting*. A soft-mounted server is more like a folder. Instead of it showing on the Desktop, you browse to it using the Network browser. If the server or your network becomes unavailable, Panther doesn't complain or pause even when you try to access the unavailable server, of course—it's just not there any more. When the server becomes reachable once again, you can browse that folder and find the server's contents in it.

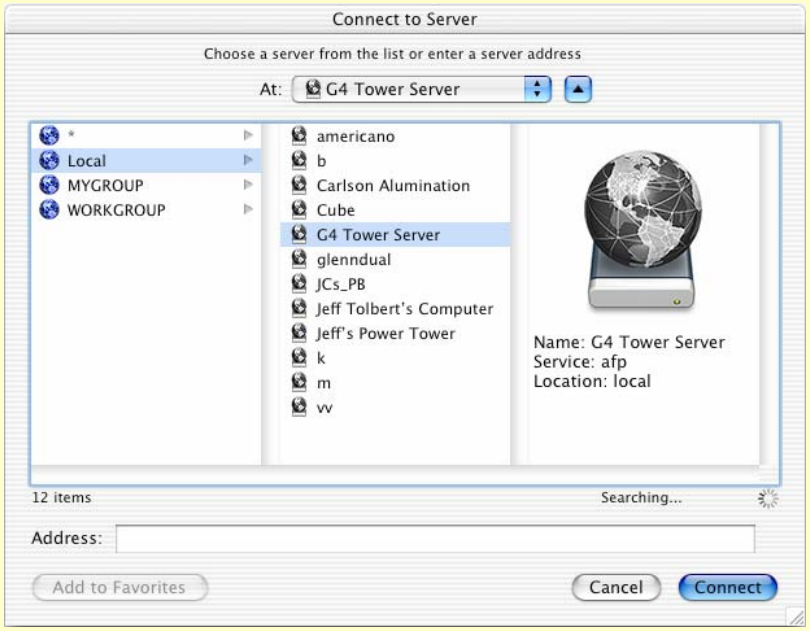
Note The contents of hard- and soft-mounted servers appear and work the same; only the mounting process and reconnection behavior varies.

Access Shared Volumes with Jaguar

Jaguar and Panther access shared files similarly even though their interfaces are slightly different. The main difference is the appearance of the Connect to Server dialog in the Finder.

Panther splits browsing and connecting to a server into two separate areas; Jaguar presents these actions in the same place, and both browsing and connecting result in icons for hard-mounted servers appearing on the Desktop. To mount a server, from the Finder, choose Go > Connect to Server (**Figure 24**).

FIGURE 24



The Connect to Server dialog in Jaguar.

If a desired server doesn't appear in the server list, you must enter an appropriate URL for it in the Address field. See Hard Mount via the Finder, earlier, to learn more about what you can enter here. Jaguar supports all the schema types listed for Panther through direct entry or browsing in the Connect to Server dialog.

About the Author

Glenn Fleishman has written for hire since 1994, starting with *Aldus Magazine*. He currently contributes regularly to *Macworld*, *InfoWorld*, *PC World*, *The New York Times*, and *The Seattle Times*. He's the regular Macintosh columnist for *The Seattle Times*, and a contributing editor at *TidBITS* and *InfoWorld*.

Glenn spends much of his time writing about wireless networking. He co-wrote two editions of *The Wireless Networking Starter Kit* with Adam Engst (Peachpit Press, 2003 and 2004). He edits the daily Web log Wi-Fi Networking News (http://www.wifinetnews.com/) and is the senior editor of Jiwire (http://www.jiwire.com/).

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Take Control of Panther: The Series

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Adam and Tonya are well-known in the Macintosh world as writers, editors, and speakers, and they have written innumerable online and print publications. They are also parents to Tristan, who is 5 and thinks ebooks about trains, ships, and dinosaurs would be cool.

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...and the many friends and relatives that helped in large and small ways by providing technical expertise, dinner, childcare, and so on, especially Jen Engst who took care of Tristan for almost a week and Linus Upson who risked infection from the flu and shared his favorite blanket.