
System Preferences (3)

By **Graham K. Rogers**

This is part three of my overview of System Preferences in OS X, 10.5, Leopard. Several of the sections were first printed in the [Bangkok Post](#), Database section. I am now releasing these in PDF format.

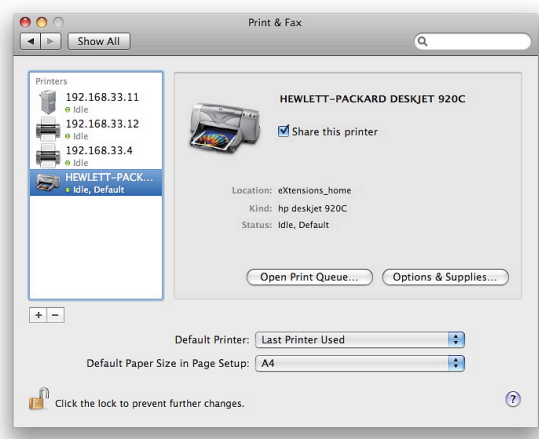


I have ended up with a brief and somewhat personalised overview of the preferences intended to help new users (particularly) understand what is available in OS X: this is aimed therefore, in part, at those moving (or trying to move) from Windows where things are different. While preparing for the PDF format I have updated the information where necessary (for example in Sharing and the change from .Mac to Mobile Me); added parts that were missing (Keyboard & Mouse, QuickTime); revised links, so this can be used as a way to access online pages; and corrected spelling errors (I may have missed a few of course).

Before trying anything new, such as changing settings or turning features on or off, users are urged to back up all data. I take no responsibility for any havoc you might wreak on your own computer.

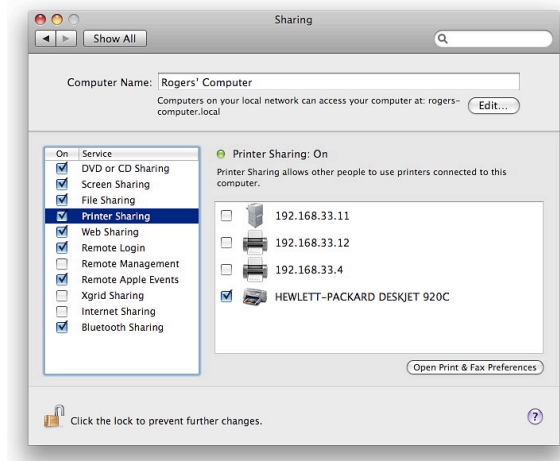
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The **Print Preferences** panel allows users to control the setting up and use of printers attached to the computer or that the computer may access via a network. Printing is an important function that we ask of our computers and Mac users have a fair amount of help here.



Printer Preferences

Clicking on the printer icon in System Preferences reveals a three-part panel. On the left, any installed printers are shown. When one is highlighted, details appear in the main panel, where there is also a box to check if the printer is to be shared with other users on the same local network (LAN). This works in conjunction with the Shared printer box in Sharing Preferences.

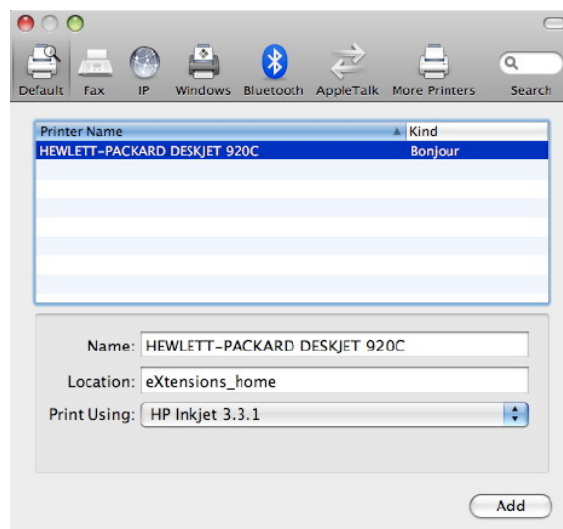


Printer Sharing

Also in the information panel are buttons allowing us to open the Print Queue and "Options and Supplies" which activate printer software giving more information about any printer.

In the bottom panel are five important controls: a button to select the default printer; a button to change paper size (with Macs the default is usually US Letter); a lock icon to prevent changes (an Admin password is needed); and a small button with a question mark. Clicking this brings up help pages, including access on Apple's site (when online).

The most important controls in the bottom panel are the plus (+) and minus (-) signs for adding or deleting printers. When we select Add, a further panel is shown with seven icons: Default, Fax, IP, Windows, Bluetooth, AppleTalk and More Printers, which is used in conjunction with the other connection methods.

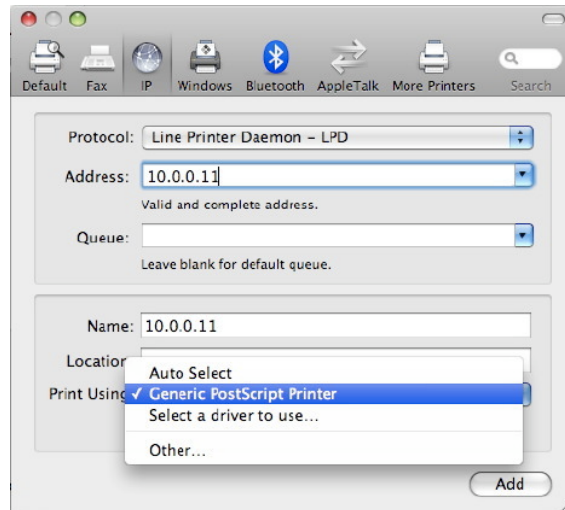


Default Printer

With a USB printer connected and on, the Default window should display any printer recognised (this is not always instant) which can be added in a matter of seconds. If printer sharing is on, a printer connected to another computer on the same LAN can also be discovered and added. An Airport Extreme base Station has a USB port and a printer can be connected via this and added to the printer list in the same way.

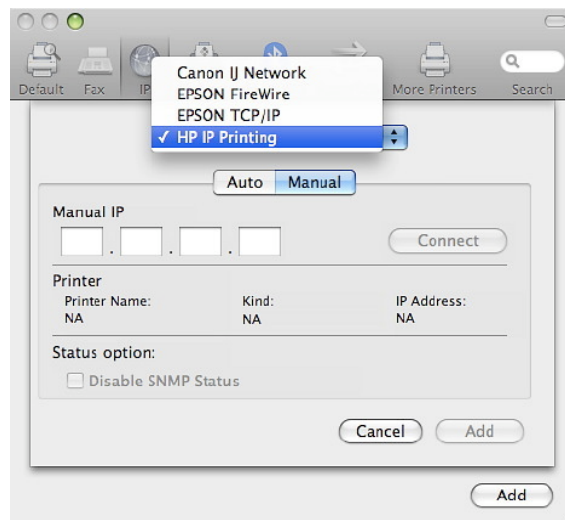
The identification and configuration of such printers uses technology called Bonjour (previously Rendezvous). There is also a (free) [Bonjour utility for Windows](#). The Fax installation utility depends on a suitable device being connected to the computer.

Another common method of connecting a printer, particularly in an office environment, uses the IP (internet protocol) icon. Finding the IP number may need the co-operation of someone responsible for maintaining the printer.



Line Printer Daemon

There are three connection methods. The Internet Printing Protocol (IPP) first needs entering of a valid IP number and selection of a printer from a menu. Again, there are choices: Auto (the system may find the printer itself); Generic, which is useful for printers when a driver cannot be found; Select a Driver, which gives access to the list of drivers with OS X, from 3300 to Zebra (a label printer). If none of these work, there is always "Other" which accesses the Finder so that a downloaded driver may be used.



More Printers

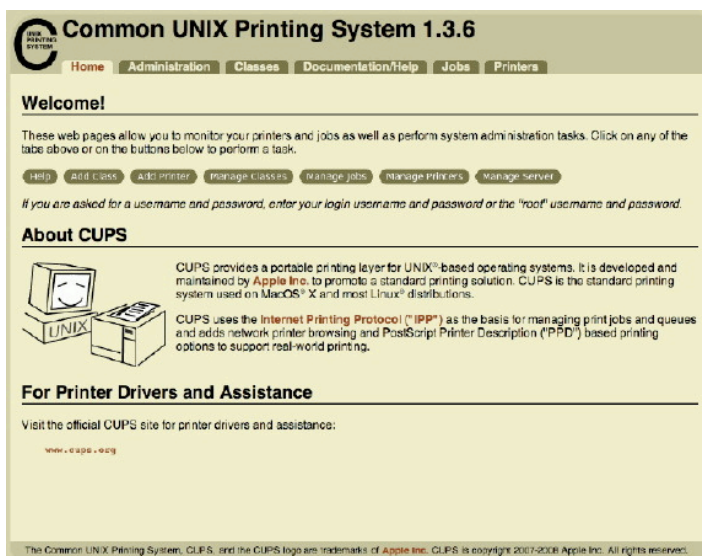
Line Printer Daemon is similar to the IPP method although this may integrate better with OS X. A search on Wikipedia tells us that this is "also known as the Berkeley printing system [and] is a set of programs that provide printer spooling and network print server functionality for UNIX-like systems." OS X uses BSD.

The other IP connection method shown is HP Direct Socket, which may be needed when a printer from Hewlett-Packard is used. I have found, however, that installing a printer connected to a network may need some switching between the three choices, depending on the printer. With IP printing and the other methods (Default, AppleTalk), clicking on the "More Printers" section gives specific Canon, Epson (Firewire and IP) and HP parameters.

The next method, Windows, is beyond me (of course) and clicking on this brings up a Finder-like panel,

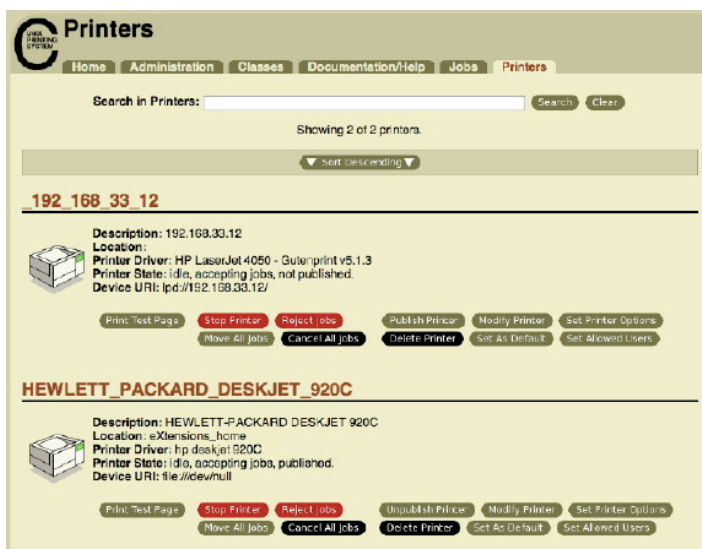
with "workgroup" as the starting place. This eventually connects to any printer installed on a PC on the same network. I have no experience of this. Nor have I experience of working with Bluetooth printers, although the installation panel is similar to the Default: when a printer is on and connects (it must first be paired with the computer) it can be identified and added.

AppleTalk is a networking method that is used with some printers, although I have not seen this for a while. Using this selection, brings up a panel similar to the Windows method, with "Local Zone" instead of Workgroup.



CUPS Main Page

Not only are many printer drivers included along with the operating system, but Macs also have the former UNIX utility, CUPS (Common UNIX Printing Service) installed and printers can be managed in this way. For access to this, type the numbers 127.0.0.1:631 into a browser.

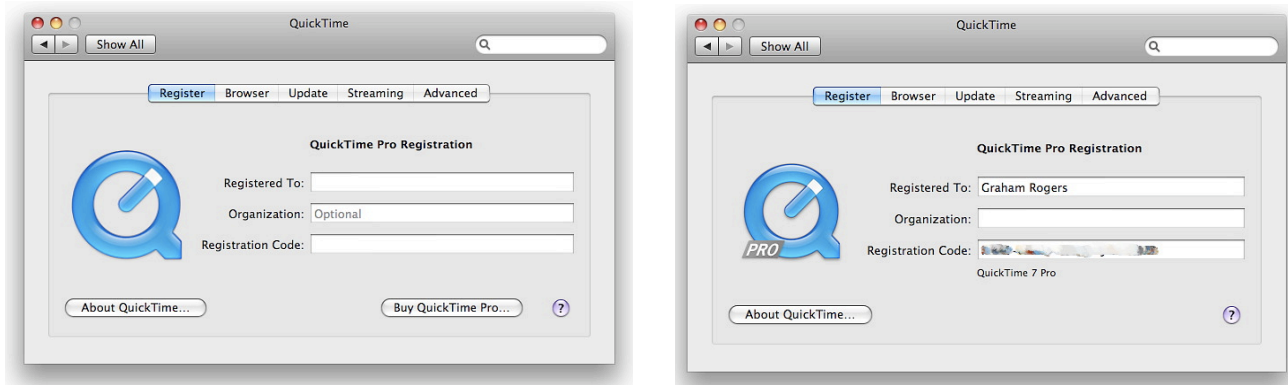


CUPS Installed Printers

Most of us will use System Preferences (CUPS is a handy confirmation) and the printers' own installed utilities. Printer preferences also covers fax-capable devices which need a phone line and modem as well as suitable software.

QuickTime is integral to OS X and the way it handles many media files. It appears as an application as well as having a preference pane; and it works tightly with the Core Graphics and other components of Leopard. The preferences panel for QuickTime has five buttons: Register; Browser; Update; Streaming; and Advanced.

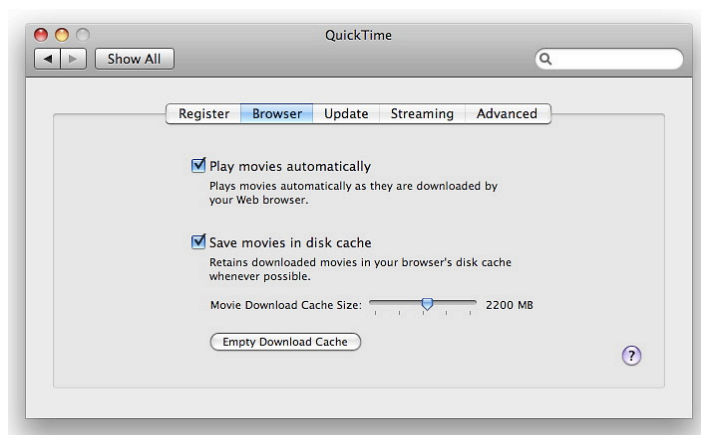
The first pane, Registration, will display different information depending on if the user has the unregistered version, or has paid to upgrade to QuickTime Pro. A basic panel with blank spaces for name, company and registration number is displayed, with a button below for a direct connection to the Apple shop for purchase. The connection to the Apple site depends on the country one is in. [Thai users can effect this via the Apple shops in [Singapore](#) or [Hong Kong](#).] When the information is sent to the user, it is entered in the panel and a click completes the online registration.



Quick Time

Once registered the *purchase* button disappears and the user's registration information is displayed. The QuickTime logo changes and has a *PRO* label attached. Only one button is now shown, "About QuickTime." A panel will drop down with logos (and URLs) of QuickTime and of other companies' plug-ins or technology that is used, like [Roland](#), [Dolby](#) or [Sorensen Media](#).

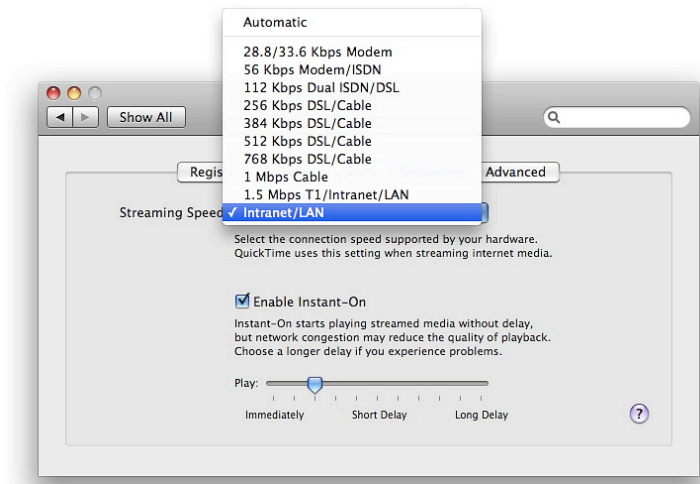
The second pane which deals with the way movies are handled is marked Browser, and this has two check boxes. The first allows a movie to be played automatically; while the second is to save movies in disk cache. A slider below this allows the user to select the size of the cache for movie downloads. On a computer with 2G RAM the cache size is from 100MB to 4000MB. A button at the bottom of the panel is to allow a user to empty the cache.



Quick Time Browser

The Update panel has a single button: Install. This will find and install new third party QuickTime software, such as plug-ins. It connects via a browser to the [QuickTime Resources](#) pages where several extras are offered should a user need them.

The Streaming panel controls, among other things the speed at which QuickTime movie data is received by the user's computer. The default setting, is Automatic, and there are ten other connections speeds/methods listed for the type of connection that may be used. A check box allows Instant On playing of streamed media but because of the intermittent nature of some internet connections, especially when intercontinental links are involved, the Preference provides a slider bar to delay the start of a downloaded file, should the user wish.



Quick Time Streaming

The Advanced pane may be more or less useful depending on requirements, installed components, and the way data is streamed. Users may find it safer to avoid this unless they are fully aware of their advanced needs or are under the guidance of someone familiar with the technologies used here.

The first button concerns the installed synthesizer, which by default is the QuickTime Synthesizer. There are no other options unless the relevant software has been installed. The Transport Set-up button is used to decide on the method of data streaming. The default is Automatic. The button also reveals "Custom" which links to a set-up panel. The choices are UDP (User Datagram protocol) and HTTP (Hyper Text Transfer Protocol - the standard for web use). The user then has a choice for the RTSP (Real Time streaming Protocol) port. The normal ports are 554 (default) or 7070. A user can also select "Other" and specify a port to be used.



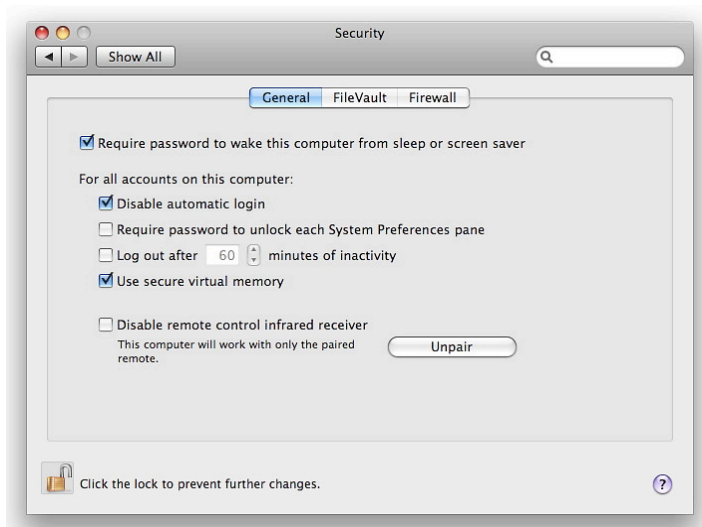
Quick Time: Advanced

A Kiosk Mode option is available for viewing movies by using a check box: this shows any movie in a browser with no controls available: useful in an office situation or at a show booth where many people may have access to the computer. A final check box for legacy encoders allows movies to be exported using older codecs.

At the bottom of the panel are two buttons: MIME settings and Media keys. MIME, OR Multipurpose

Internet Mail Extensions allows different media formats to be used in mail. Selecting this reveals a panel which has a number of available media types. Two buttons here are for Use defaults, or Cancel. Again, this is one that ought to be left alone unless a user has total familiarity with what is required. Media keys authorise access to secured media files and this button reveals a panel in which details may be entered, edited or deleted. When actions are complete (or no action is taken), a user pressed the OK button.

Security is a high priority for all users. While Mac users claim that OS X is more secure than alternative operating systems, there is no reason for complacency. The Security Preferences section is there to be used. It works with other parts of System Preferences (like Accounts and Sharing) for a safer environment if used properly. The Security Preference pane has three sections: General, File Vault, and Firewall.

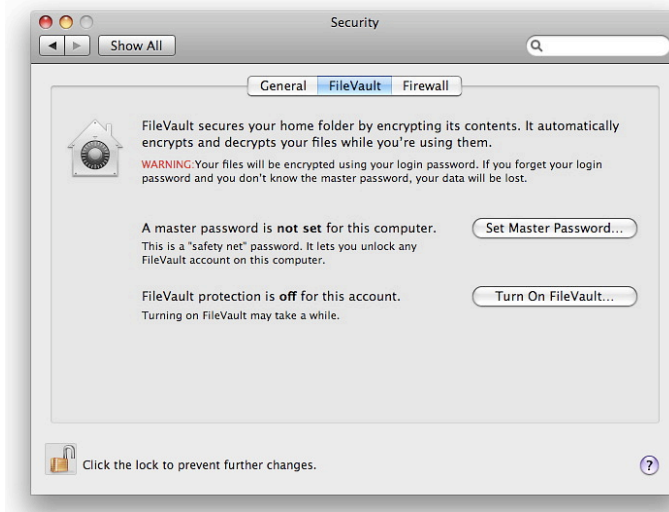


Security Preferences: General

In the General panel is a check box for a password if the computer is in sleep mode or the screen-saver active. This is a simple and effective first line of defence. I use this in conjunction with Active Screen Corners: moving the cursor to (in my case) the bottom right of the screen turns on the screen-saver and the computer is safe from prying eyes. The only way to circumvent this (if, for example, the computer is stolen) is to restart the computer. The second check box prevents automatic log-in. Used with the screen-saver lock, Firmware Password Utility and tracking software, this may help us recover a stolen computer. OS X allows a multi-user environment, although some prefer a single user account. A check box locking each preference pane will prevent other users changing the OS settings.

If essential tasks are not running, activating the next check box will automatically log the user out after a certain time. The time can be selected in a small panel. The default is 60 minutes. Secure virtual memory is used to ensure that any data, such as passwords, in virtual memory is erased. Finally, in this panel, is a box to disable the infrared receiver used by the remote control. This prevents others using another remote control and accessing media (music, photos, movies). For additional security, the remote device itself can be paired with the computer, also ensuring that others do not have access.

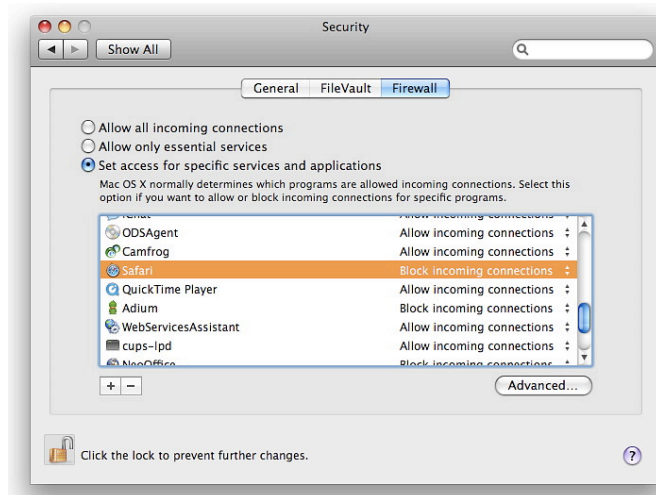
The second panel in Security Preferences focuses on what Apple calls FileVault. The icon (a house with a safe dial superimposed) signifies the ability to lock the users Home folder by way of encryption. If users have this activated, files are decrypted and encrypted while working. A user enters the account as normal, using the password.



Security Preferences: File Vault

There are two parts to this feature: the file vault protection itself, which needs a considerable amount of hard disk space for the file swapping that will occur; and the Master Password. Apple calls this a "safety net" as it will allow unlocking of any File Vault account. If this master password is lost, then you can kiss good-bye to your data: not even Apple can help. [An extended discussion of File vault](#) by F. J. de Kermadec can be found at the O'Reilly, MacDev Center.

Anyone who does not use a firewall these days is asking for trouble. There were significant changes to the firewall in OS X Leopard. It is now application-focussed rather than port-focussed. It allows a program the correct access instead of specifying port numbers. There are three settings: Allow all incoming connections; Allow only essential services; and Set access.

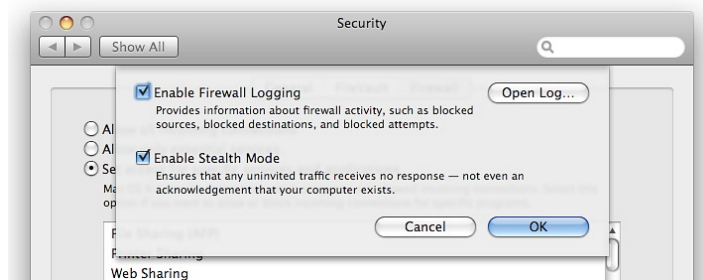


Security Preferences: Firewall

The first is too open for proper security. The second is too harsh limiting operations to only a small list of allowed connections. Updating from 10.4 will default to this setting. The third option is right for most users although may need a little fine-tuning to optimise operations. As new applications are installed, they will access the internet and many will need incoming connections to be allowed. Examples are Safari and Firefox. It is safe to block some applications. I prevent Skype from making incoming connections but I am still able to call out. It is easy to change this if required with a click in the panel that lists the applications and their status. We can also add an application if it does not make an automatic request. For outgoing connections, a 3rd party utility like Little Snitch is essential.

The Firewall panel also has a button marked Advanced. This reveals a further panel with two additional

settings. The first enables firewall logging; and the log, if we ever take the time to read it, can reveal some interesting or disturbing information. I see this morning that CAT, a local ISP and my web-host have all probed my Mac. The log may only be accessed by an Admin user.



Security Preferences: Firewall (Advanced)

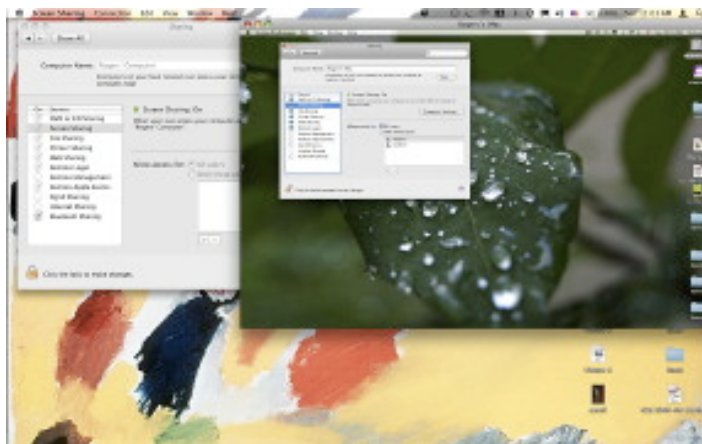
The other check box in the Advanced panel allows activation of Stealth mode, so that any outside probing that occurs (such as that shown in the logs) will have no response: the computer will not even appear to exist.

Sharing Preferences works with Security (and other) Preferences to enable specific connection methods to be used and to activate the necessary ports when needed: we join networks and link to devices, like printers or Bluetooth phones. There are eleven different ways to share in the preference panel.

The top item in the list, which was added this year just after the [Mac Book Air](#) was released, is "DVD or CD Sharing". A disk in a computer can be used by someone on another networked computer. There is a check-box to ensure that this facility is used with permission. Although this worked well with the [MacBookAir](#) when [I reviewed it](#), at that time it would not work with other computers. An update released in October 2008, [Migration and DVD Sharing Update](#), fixed this and the feature now works (when installed) for all Macs.

Screen Sharing is a form of virtual network computing (VNC). I can work on another computer on my home network that has this activated. Remote Internet access is possible, although this means some careful manipulation of settings if a router intervenes because of the different IP numbers allocated by an ISP and the router.

Connections are made by clicking on the Share Screen button in the Finder panel (or using the IP number of the computer with a VNC prefix in the "Go" menu), I can work on the target computer as if it were my own: exactly as if I am sitting in front of that computer.

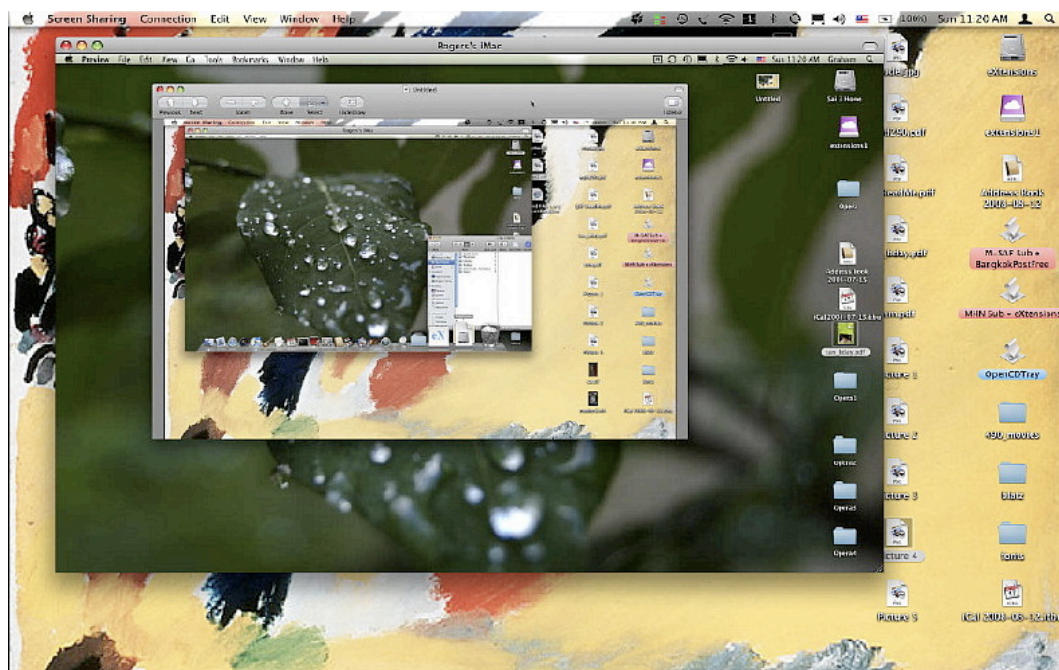


Screen Sharing

The purpose here is to assist another user by working on the computer: demonstration or diagnosis. Anyone who has tried to advise someone on the telephone about what to move, what to open, what to trash, will realise how hampered we are by the lack of visual input. Moving the cursor for the other user, opening the correct panels, is more effective. I discovered a lighter side when examining this. A friend was working on an adjacent PC and thought that a ghost was making the windows move across the screen.

This preference does not allow files to be dragged from the target screen to the desktop or vice versa. However, it is possible to send the contents of the Clipboard. That data could be pasted into a file on the remote computer (by the demonstrator) and displayed. An example might be an image of settings to allow comparison by the second user: a picture is worth a thousand words.

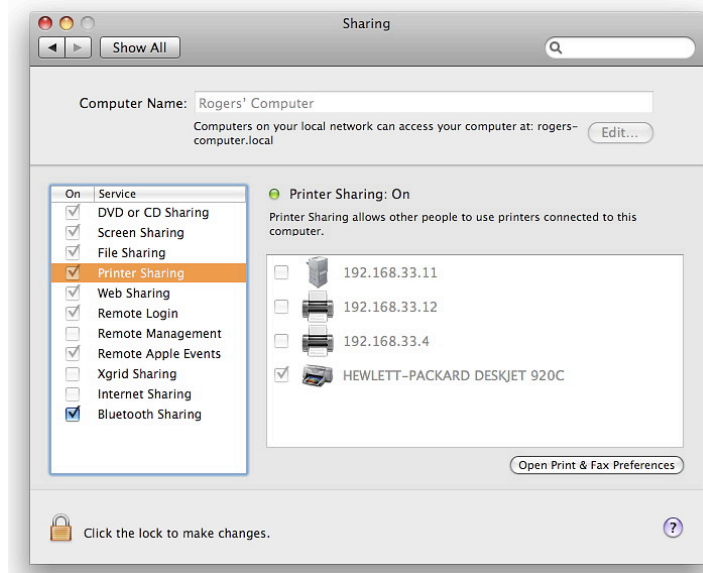
Screen Sharing connects to the active user's screen, which means it could be abused. There are settings for requiring passwords and a panel in which all or specific users can be granted access. To stop the connection we use either the Screen Sharing menu and Quit, or "Disconnect" in the Finder menu. See also *Remote Management* (below)



Screen Sharing: Desktop in a Desktop

File Sharing activates what Apple calls the "Public Folder". Files placed in here can be seen by all users on the network. The Public Folder also contains a Drop Box in which users place files. The contents will not be visible. This is to prevent another user examining private communications that use this method: once in, only the account owner can use the file.

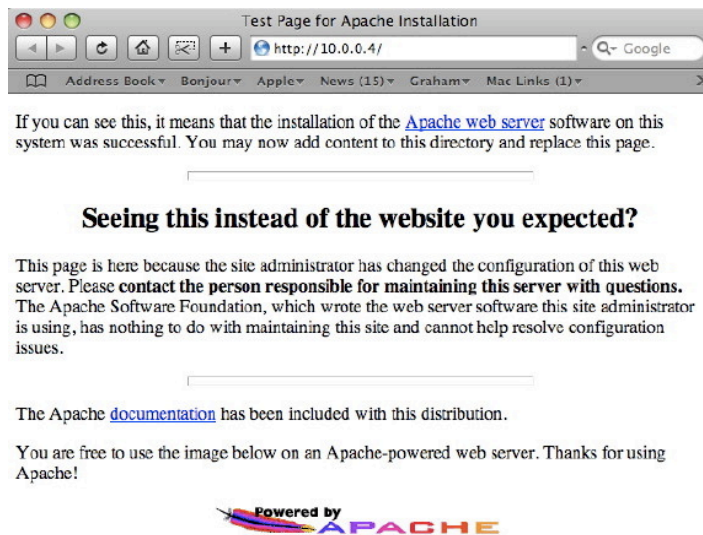
While my home office is upstairs, I tend to work downstairs which is cooler, but I do not want the fuss of carrying a printer down when I am working, nor the clutter of a second printer. Printer Sharing allows me to have a single printer, for example attached to my iMac using USB and to print via the LAN. The panel for this also allows quick access to Printer Preferences.



Printer Sharing

I use this feature less these days as the updated Apple Airport (wifi) router has a USB port and the printer can now be connected to that: a more direct form of USB/network printing.

Web Sharing is a feature that I have been using since I first switched fully to OS X. When the box for this panel is checked, it turns on the Apache Web Server and immediately the Mac can be a web host. To put the Mac on the internet, of course, requires a static IP number or some other way to configure this as an ISP usually provides a dynamic (changing) IP number. I use this to create a mirror of my website, with all the directory levels, images and other files, so I can check the links before I upload them to the server.



Apache Web Server Page

By default, the home page for each user is in a folder named "Sites" in the Home level. When first activated, the index page has information about Apache. Other users on the computer or the network can access the web pages, so this can be used in an office to create an internal website.

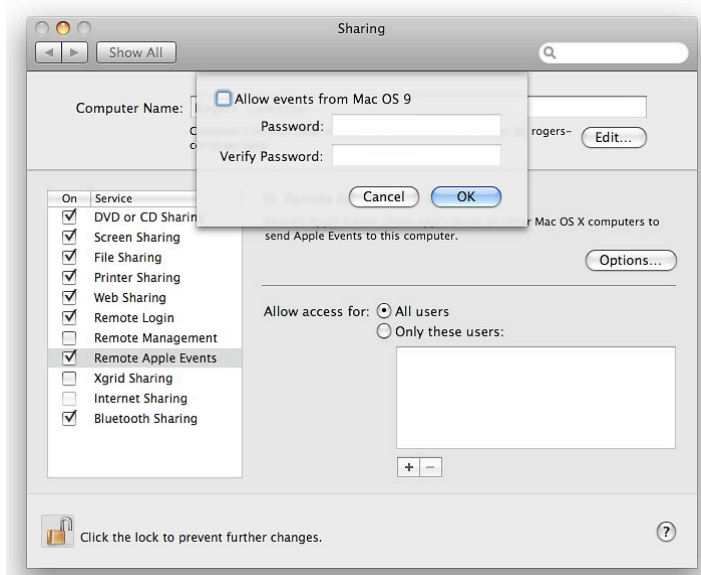
Remote Login works with the Finder and a user can log in to the computer from another on the network. There are overlaps here with other types of sharing. The Finder "Go" menu uses several ways to connect

quickly to folders on the users' computer or to remote devices using "Connect to Server" (*Command + K*).

This reveals a panel in which we can browse for another computer or enter an IP number with the prefix of AFP or SMB (for Windows). SSH with the user name may also be used. With recent changes to the operating system, it is now easier to use "Shared Devices" in the Finder menu.

Remote Management worked in conjunction with the Apple program, [Remote Desktop](#) in earlier versions of OS X. This helps those running a network of Macs, such as a school Lab, to control the functions of those computers from a master computer. A number of these functions have now been superseded by the Screen Sharing function which was outlined above. However, when Remote Management is selected, a panel now appears (or can be opened by pressing the Options button) allowing a user to select certain functions. This will then be used rather than Screen Sharing and a note appears if Screen Sharing is selected to this effect.

Remote Apple Events is not a way to track announcements from Steve Jobs about new products (doubtless there will be some soon), but, according to the preference pane, Allows applications on other Macs to send Apple Events to the user's computer.



Remote Apple Events

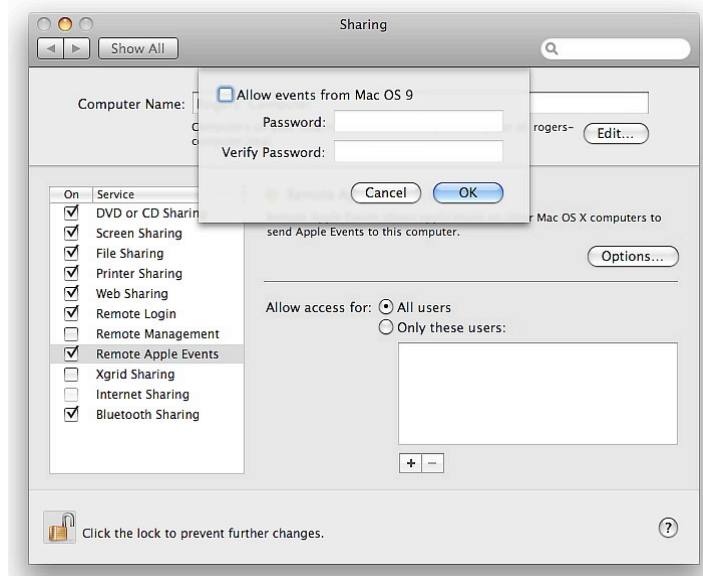
Events can be initiated by programs or Apple Scripts and are a way to use the resources of one computer from another, such as shutting down or opening a file. A simple example from the past is the command to print which now has a specific Sharing panel. This type of feature would be more common in an office where several Macs are used and the sharing of data and resources is integrated into operations.

When the feature called Xgrid sharing first appeared the potential was clear to many people. In one click, according to Apple, this would turn an "ad hoc group" of Mac systems into a supercomputer. It is slightly more complex than that, but I know someone in Singapore who created a cluster with three Mac minis.

There had already been distributed computing across the internet: for example [the SETI project](#). Last week, [in Nature](#), it was reported that another such project involving 30,000 computers had successfully simulated part of [a complex protein structure](#).

Apple helped build the multi-computer [system at Virginia Tech](#), originally with some 1,100 G5 Macs,

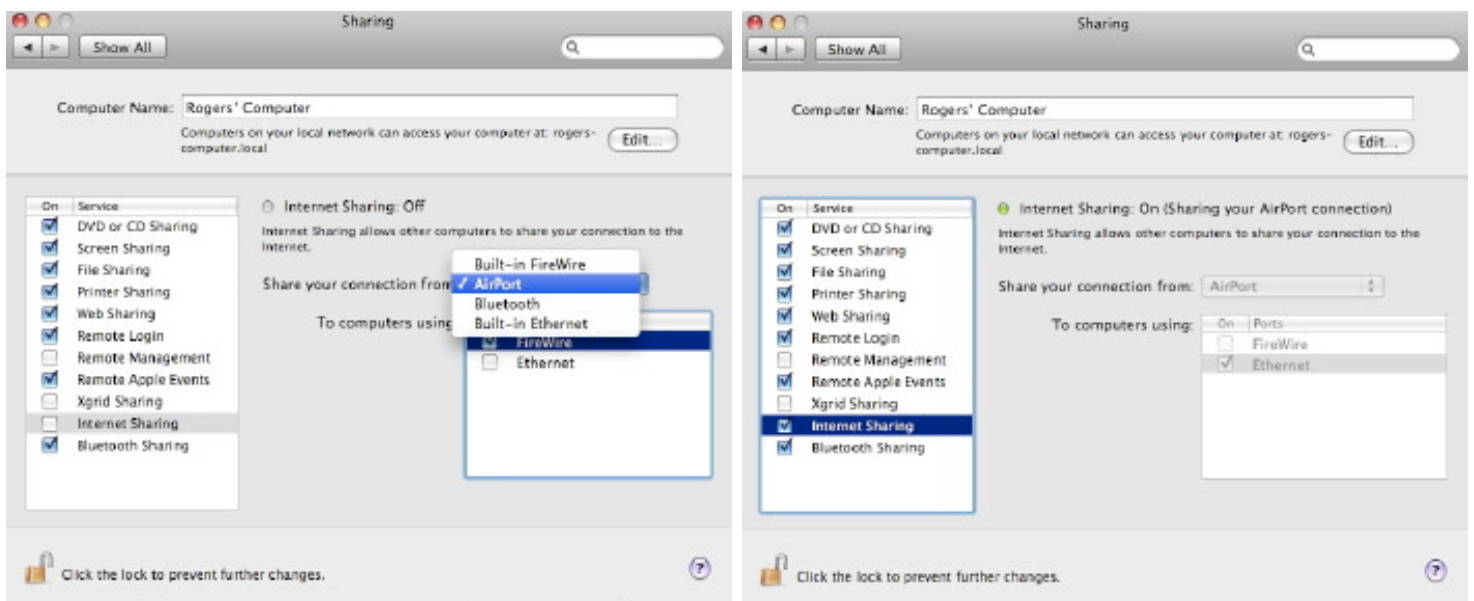
but now using [324 8-core, 2.8GHz Macs](#) which will have a theoretical speed of 29 teraflops. The idea of setting up such a multi-computer system (albeit somewhat smaller) on a home network had been unreachable until Xgrid Sharing.



XGrid Sharing

It links computers, turning them into a cluster and distributes tasks to the processors in a way that calculations are combined: computer teamwork. Turning this part of Sharing on will allow the computers to share resources. What it still requires, however, is someone with the skills to write the software to control the tasking.

Internet Sharing can be useful if a home has limited networking resources: for example a router with a single port, or a computer with no wifi. Input to a computer can be from one of four sources: Airport (wifi), Bluetooth, Ethernet or (oddly) Firewire, previously an OUTPUT method. That incoming signal can be routed to another computer, via Ethernet or Airport. Input and output methods must be different on the master computer.



Internet Sharing

This takes advantage of other Sharing methods when it is possible to connect directly with an Ethernet

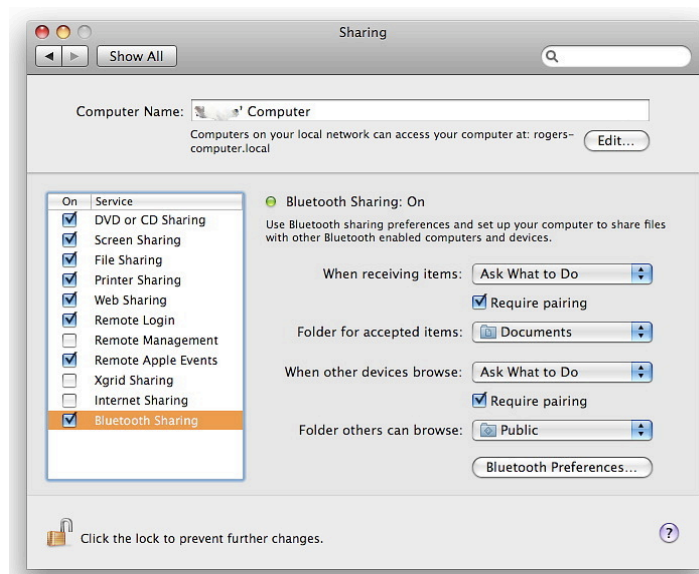
cable and OS X will allocate IP numbers. Similarly, using the Airport menu, we can create a computer-to-computer network easily. Doing this at the same time that a wifi network is running, however, will disconnect the computer from the Internet.



Creating an Airport Network

A possible scenario is that a computer with no wifi can be connected to a machine that has a wifi antenna (data in) using a direct Ethernet cable. Also, in the past, when I was testing a computer with wifi, but had no spare cable in the room I was using, I could connect my computer to the router with an Ethernet cable and then create a wifi network on that Mac that the second computer could link to. This is also possible with an incoming connection via a Bluetooth mobile phone (e.g. Bluetooth in, Ethernet out) although there are speed penalties.

Bluetooth Sharing covers the downloading or uploading of files from devices equipped with this feature. There are several options about actions to be taken (Ask, Accept, Never) and check-boxes that require devices be paired. There are also options for folders to receive files and folders that others may browse. A button at the bottom of the panel links to the Bluetooth preferences panel.



Bluetooth Sharing
