ShareWay IP Standard Edition
User's Guide

Introduction

 Open Door Networks' ShareWay IP product line brings TCP/IP accessibility to any AppleShare-compatible (AFP) server. With ShareWay IP, regardless of whether you're running Apple's personal file sharing, AppleShare, or an AFP server on a non-Macintosh OS, you can make that server available over your organization's intranet, or over the Internet itself.

By enabling TCP/IP access to AFP servers, ShareWay IP makes it possible to:

- Make personal file sharing on any Macintosh accessible from anywhere on your intranet -- even from sections not running AppleTalk -- or over the Internet.
- Make older AppleShare servers or non-Macintosh AFP services, such as those on Windows NT, Novell Netware or Unix accessible from anywhere on your intranet, or over the Internet.
- Begin to turn off the AppleTalk protocol on your intranet without losing the benefits of traditional AppleTalk services.

ShareWay IP is available in three editions:

- ShareWay IP Personal Edition is for use with the Mac OS's built-in personal file sharing.
- ShareWay IP Standard Edition can target any single AFP (AppleTalk Filing Protocol) server.
- ShareWay IP Professional Edition can target multiple servers from a single Macintosh, providing efficient resource utilization and allowing centralized administration of IP access to AFP servers.

This User's Guide provides details of the Standard Edition of ShareWay IP. Separate User's Guides are available for the **Personal Edition** and **Professional Edition**. The choice of which edition to use for your specific situation is **discussed in depth** at Open Door's Web site.

What's New in ShareWay IP 3.0

- **Security enhancements** - Connection attempts to ShareWay IP can be allowed or denied for specific users and for guests. Using this mechanism in conjunction with an AFP server's security mechanisms, different levels of security can be implemented for AppleTalk and IP.
- **Connected user information** - ShareWay IP displays a list of IP-connected users, including user name and user IP address. For IP connections, this list is often more informative than the targeted AFP server's display, which usually shows both AppleTalk and IP connections without distinguishing between them.
- **Configurable TCP port number** - The TCP port number used by ShareWay IP can be changed as desired.

- **Online Help** - Integrated Apple Help makes online help available through the Help Center (OS 8.5 and later) and through ShareWay's Help menu (OS 8.6 and later).

What's New for Mac OS 9 Users

Mac OS 9 ships with a version of ShareWay IP that is used to implement its IP file sharing feature. For users upgrading to ShareWay IP 3.0 from the Mac OS 9 version, ShareWay's added functionality includes

- All the items described above in **What's New in ShareWay IP 3.0**.
- **Real-time connection logging** - ShareWay IP can log connection attempts, providing a detailed record of server accesses and further enhancing security.

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Getting Started

System Requirements

- 68030 or better, or a Power PC, on the ShareWay IP Macintosh.
- Mac OS 7.5.5 or later on the ShareWay Macintosh.

  Mac OS 8.5 or later on the ShareWay Macintosh if SLP registration is desired.
- 1 MB RAM on the ShareWay Macintosh
- Open Transport 1.1.2 or later on the ShareWay Macintosh.
- AppleShare Client 3.7 or later on the client machine for AppleShare access over TCP/IP.
- A TCP/IP network, or Internet connectivity, between the ShareWay IP and client machines. ShareWay IP's TCP/IP connection must be over Ethernet, any AppleTalk network supporting TCP/IP using MacIP, or TCP over dial-up using PPP.
- An AppleTalk network between the server and ShareWay IP machines, if the server and ShareWay IP are on different machines.
- Any AFP 2.1 or later server (includes Mac OS personal file sharing, AppleShare 3 or 4, Macintosh Services for Windows NT Server, etc.)

  NOTE: When ShareWay IP Standard is used on a Mac OS 9 machine, Mac OS 9's file sharing over IP cannot also be used on that machine. To make both the ShareWay Macintosh and another target machine accessible over IP, the Pro edition of ShareWay must be used. The choice of which edition to use for your specific situation is **discussed in depth** at Open Door's Web site.

Pre-Installation

ShareWay IP Standard can be installed in one of two configurations:

- ShareWay IP is on the same Macintosh as the AFP server. In this case the machine need not be connected to an AppleTalk network, only to a TCP/IP network. See Figure 1 below.

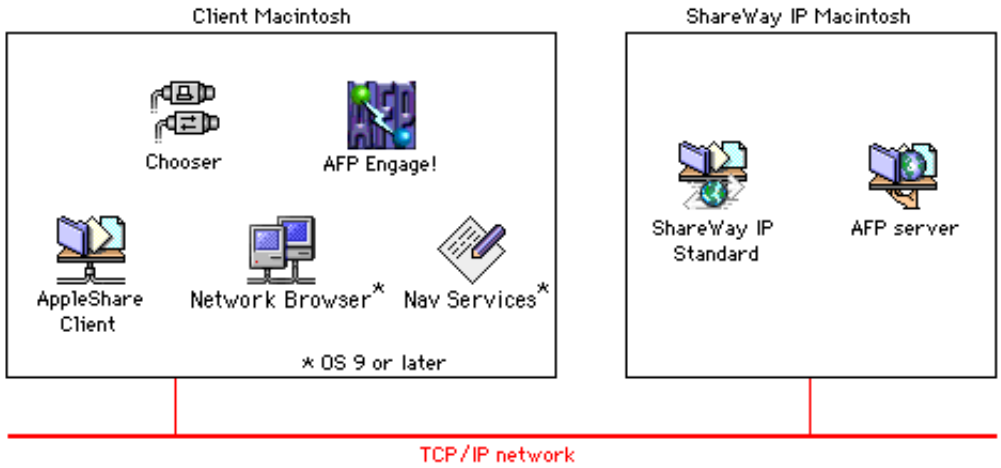

Figure 1. ShareWay IP and server on same Macintosh

- ShareWay IP is on a different machine than the AFP server. The two machines must be on either the same AppleTalk network or interconnected AppleTalk networks. In addition, the ShareWay IP machine must also be on a TCP/IP network. This three-machine configuration is required for support of non-Macintosh servers, since ShareWay IP cannot be run on the server machine in this case. See Figure 2 below.

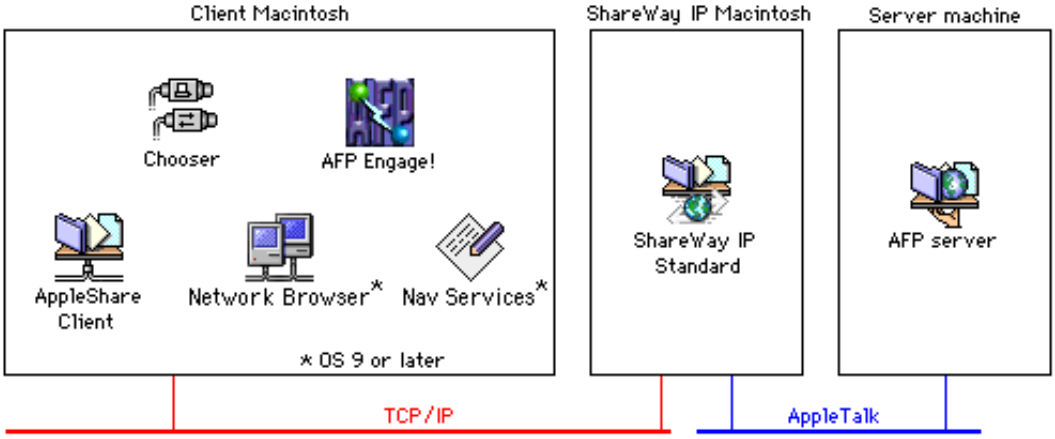

Figure 2. ShareWay IP Standard and server on different machines

In addition to overall configuration, Figures 1 and 2 above show several methods of accessing target servers, including Open Door's **AFP Engage!**, the Mac OS's Network Browser and Chooser, and applications using Navigation Services. For details, see **Connecting to ShareWay IP**. If you wish to take advantage of ShareWay IP's SLP registration functionality (OS 8.5 and later), so that ShareWay can be found dynamically through AFP Engage!, the Network Browser, Navigation Services, or any other SLP browser, be sure the SLP plug-in is in the System's Extensions folder on both the ShareWay and client machines.

ShareWay IP Standard includes two versions of the ShareWay application, a traditional foreground version called "ShareWay IP", and a background-only version called "ShareWay IP Background". The background-only version has the same functionality as the foreground version, but with no user interface. There are advantages and disadvantages to using each version, summarized below in Table 1.

ShareWay IP Personal	**ShareWay IP Personal Background**
Displays users connected to ShareWay,	No user interface. The File Sharing Control Panel's Activity

and their IP addresses	Monitor displays all users connected to file sharing, although it does not distinguish AppleTalk connections from IP.
Users can accidentally quit ShareWay, or reconfigure ShareWay's security features.	Cannot be accidentally quit, and administration can be controlled.
Security and logging reconfiguration can be done without disconnecting current users.	Any reconfiguration (security, logging, port number or serial number) requires launching the foreground version, which will disconnect all current users.
In Mac OS 9's Multiple Users environment, all connected ShareWay clients are disconnected when a user logs off.	In Mac OS 9's Multiple Users environment, users can log off without disconnecting ShareWay clients.

Table 1. Comparison of ShareWay IP Foreground and Background Versions

Installing ShareWay IP

Once you have decided which Macintosh to install ShareWay IP on, install the software and documentation by simply double-clicking the installer file and following the instructions.

Setup

Before beginning ShareWay IP setup, take the following initial steps:

1. If you are running Mac OS 9 on the ShareWay machine, open the File Sharing Control Panel and uncheck "Enable File Sharing clients to connect over TCP/IP" if it is checked. Close the File Sharing Control Panel.
2. Using the AppleTalk control panel on each machine, confirm that AppleTalk is active and configured for the correct network, on the ShareWay IP machine and the server machine (if different).
   NOTE: Even if you are running ShareWay IP on the same machine as the server, ShareWay IP requires that AppleTalk be active on that machine. If there is no physical AppleTalk network connected, you can choose any AppleTalk interface, including Remote Only (available if ARA is installed).
3. Using the TCP/IP control panel on the ShareWay IP machine, confirm that the machine's TCP/IP is active and configured for the correct network.
4. Make sure the AFP server is running.
5. Make sure that the client machines' TCP/IP is active and configured.

Begin setup by launching the ShareWay IP application (foreground version). You will be prompted to enter a serial number. If you do not enter a valid serial number, your copy of ShareWay IP will only run until 10 days from the date you first ran it. To enter a serial number, click "Enter Serial Number...", enter the serial number and click OK. To use ShareWay IP as a temporary eval version, just click OK. See **Serial Numbers** in the next chapter for details on serial numbers.

The status window appears as shown in Figure 3.

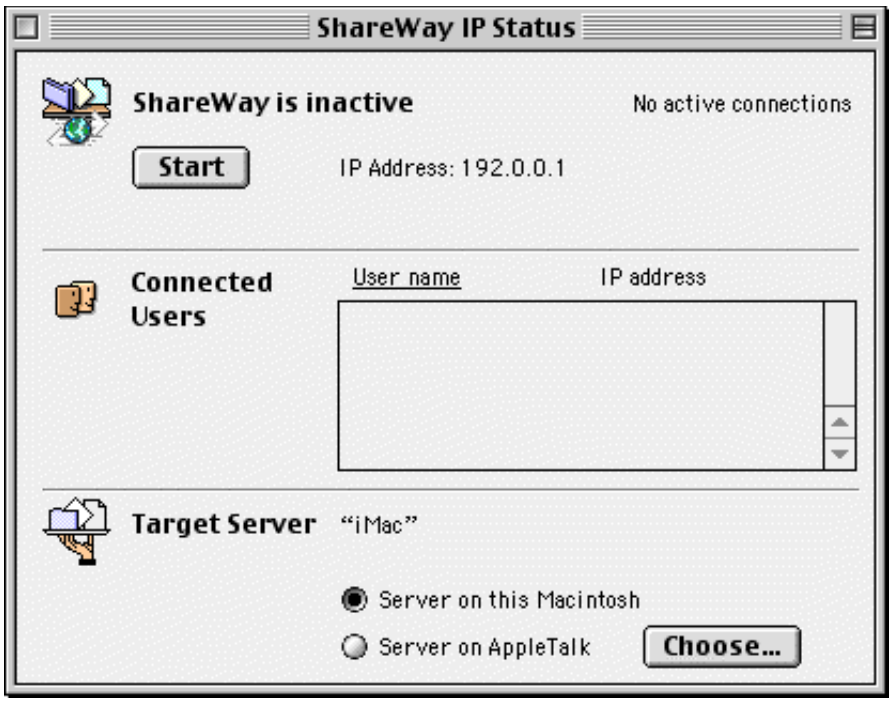

Figure 3. ShareWay IP Standard status window, ShareWay IP inactive

Note that when ShareWay IP is first launched, it is inactive. Before starting it for the first time, you must specify a target server -- the server with which ShareWay IP will communicate. This is done in the Target Server section. There are two basic choices:

- **Server on this Macintosh** - This is the default. ShareWay IP will communicate with the AFP server on the same Macintosh as itself. This Macintosh does not have to be connected to an AppleTalk network, but AppleTalk must be active.

- **Server on AppleTalk** - ShareWay IP will communicate with an AFP server on the AppleTalk network or an interconnected AppleTalk network. To select a server, click the "Choose..." button. A window appears as shown below in Figure 4. If zones appear in the list on the left, select a zone. Then select a server from the list on the right and click "OK", or double-click a server. The target server must be available on AppleTalk before it will appear in the list.

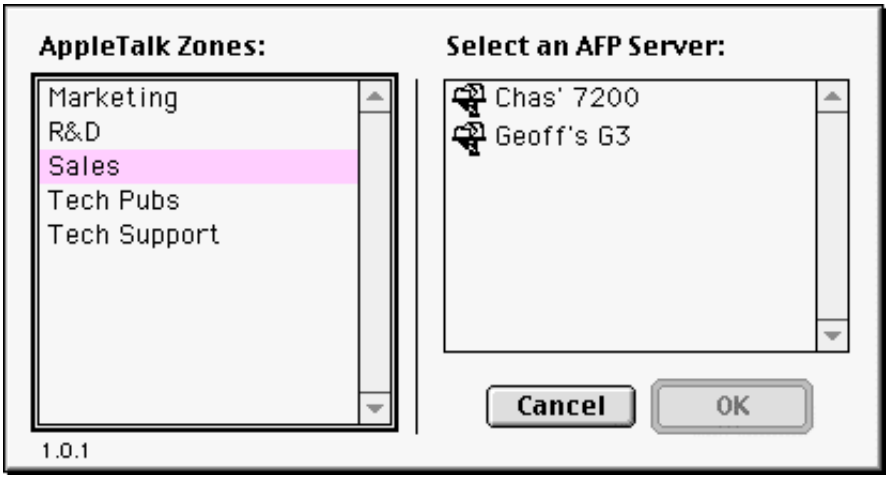

Figure 4. Selecting a Server on an AppleTalk Network

Note that ShareWay IP Standard Edition can communicate with only one AFP server at a time. When you have selected a target server, you can start ShareWay IP by clicking the "Start" button. The server will not be accessible over TCP/IP until ShareWay IP has been started, and will be made inaccessible again by clicking the "Stop" button, quitting ShareWay IP, or shutting down the Macintosh where ShareWay IP is

installed. ShareWay IP's status (active or inactive) is saved between sessions.

In addition to entering a serial number, setup may also include

- **Making security settings**
- **Turning logging on or off**
- **Changing ShareWay's TCP port number**

When you are done configuring ShareWay IP, confirm in the status window that ShareWay is active. If it is not, click the Start button. If you intend to use the background version, quit the foreground version and launch the background version.

Starting ShareWay IP At Boot Time

To have ShareWay IP start automatically at boot time, put an alias to ShareWay IP (either the foreground or background version, as desired) in the Startup Items folder. ShareWay will launch in the same state it was in when it was last quit or when the machine was last shut down. ShareWay's state includes the choice of target server, whether logging is on or off, and whether ShareWay is active or not (in the case of the foreground version).

Note: If ShareWay's target server is on the ShareWay Macintosh, it may take a few minutes after restarting for the server to become available through ShareWay IP, due to startup time of the AFP server itself.

Accessing the Targeted Server through ShareWay IP

Clients using Mac OS 9 can locate and connect to ShareWay servers through an intuitive point-and-click interface by using

- the Network Browser
- applications which use Navigation Services
- **AFP Engage!**'s browse window

All clients, regardless of their Mac OS version, can use

- the Chooser's "Server IP Address..." button
- AFP URLs and **AFP Engage!**
- aliases

A single-user license for AFP Engage! 2.0 is included with each license for ShareWay IP Standard. Details of connecting to ShareWay IP are covered in **Connecting to ShareWay IP**.

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Using ShareWay IP

Using ShareWay IP Standard under Mac OS 9

Mac OS 9 includes built-in file sharing over IP, based on a special bundled version of ShareWay IP. This built-in IP file sharing is enabled and disabled through the File Sharing Control Panel. When using ShareWay IP Standard with Mac OS 9, there are two points to keep in mind:

- Mac OS 9's IP file sharing must be turned off while ShareWay IP Standard is being run.
- When ShareWay IP Standard has been installed as documented in this manual, the File Sharing Control Panel has no effect on ShareWay IP Standard.

It is therefore recommended (as described in the **Setup** section) that the "Enable File Sharing clients to connect over TCP/IP" checkbox in the File Sharing Control Panel be unchecked before first launching ShareWay IP Standard, and that the checkbox remain unchecked while ShareWay IP Standard is in use.

When ShareWay IP Standard is used, Mac OS 9's file sharing over IP cannot also be used on that machine. To make both the ShareWay Macintosh and another target machine accessible over IP, the Pro edition of ShareWay must be used. The choice of which edition to use for your specific situation is **discussed in depth** at Open Door's Web site.

The Status Window

ShareWay IP's status window is shown below in Figure 1.

Figure 1. Status Window

ShareWay IP's status window displays important information:

- ShareWay's status (active or inactive).
- ShareWay's IP address - This is the IP address that is used to access the target server through ShareWay IP. Note that when ShareWay is active, its AFP URL will be displayed immediately below its IP address, including its hostname (if any) from a reverse DNS lookup.
- The number of active connections through ShareWay to the target server, if any.
- A list of users connected through ShareWay, including the user's login name and IP address. The list can be sorted by either column by clicking on the column's heading.
- The name of the target server.
- The AppleTalk zone, if any, of the target server.

This window will display a 'not available' warning next to the server name if ShareWay IP has not been able to contact the target server. ShareWay IP periodically checks the availability of the target server, updating the 'not available' display as appropriate. ShareWay might display 'not available' if:

- The target server is off, or starting up
- ShareWay is currently stopped and the target server was unavailable when ShareWay was last on

This window may also show that the IP address is not available. This would happen if:

- TCP/IP is not properly configured
- The IP address is obtained dynamically (for example through a DHCP server, a MacIP server, or a PPP server). The status will update to show the IP address when it's obtained.
- ShareWay is currently stopped and the IP address was unavailable when ShareWay was last on

Changing the Target Server

If the status window is not showing, choose "Show ShareWay Status" from the File menu. If ShareWay IP is active, you will need to stop it before selecting another target server. Once ShareWay IP is stopped, the status window appears as shown in Figure 1 above.

There are two basic choices for target servers:

- **Server on this Macintosh** - ShareWay IP will communicate with the AFP server on the same Macintosh as ShareWay IP. This Macintosh does not have to be connected to an AppleTalk network, but AppleTalk must be active.

- **Server on AppleTalk** - ShareWay IP will communicate with an AFP server on the AppleTalk network or an interconnected AppleTalk network. To select a server, click the "Choose..." button. A window appears as shown below in Figure 2. If zones appear in the list on the left, select a zone. Then select a server from the list on the right and click "OK", or double-click a server.

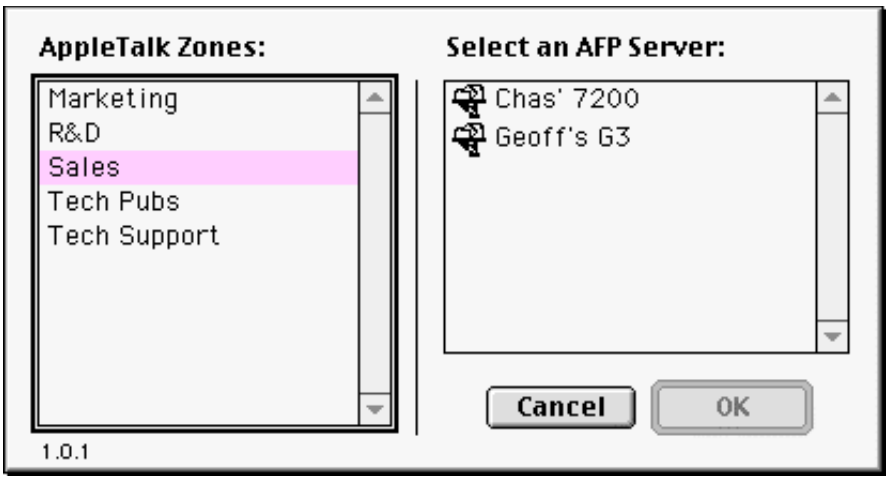

Figure 2. Selecting a Server on an AppleTalk Network

Note that ShareWay IP Standard Edition can communicate with only one AFP server at a time. When you have selected a target server, you can start ShareWay IP by clicking the "Start" button. The server will not be accessible over TCP/IP until ShareWay IP has been started, and will be made inaccessible again by clicking the "Stop" button, quitting ShareWay IP, or shutting down the Macintosh where ShareWay IP is installed. If users are connected to ShareWay IP's targeted server when you attempt to stop or quit ShareWay IP, you will be warned that there are users connected and asked to confirm your choice.

NOTE: ShareWay IP can be run on the same machine as an AppleShare 4 server with AppleTalk multihoming enabled. As in other configurations, ShareWay will connect to the server using the primary AppleTalk interface.

The Background Version

The ShareWay IP background application provides the functionality of ShareWay IP as a faceless, background-only application. As a background application, ShareWay IP will not show up in the application menu or "About this Computer" window, and cannot be accidentally quit by the user. The background application has no user interface, so configuration must be done through the foreground version of the product. Any errors encountered by the background application will be posted as alerts, after which the background application will quit.

Administration of the Background Version

Changes to the background version's configuration are made through the foreground version. When the foreground version is launched with the background version already running, you will be asked to confirm that you want the background version to quit. If you choose Quit, the background version will quit and the foreground version will launch, allowing you to make the desired changes. When all changes are made, quit the foreground version and relaunch the background version.

Changes include:

- **Enter a serial number**
- **Make security settings**
- **Turn logging on or off**
- **Change ShareWay's TCP port number**

To simply quit the background version, run the foreground version, confirm that you want to quit the

background version, and then quit the foreground version. Alternatively, the background version can be quit by sending it a "quit" Apple Event.

Logging

ShareWay IP has the option of logging significant events relating to ShareWay IP, such as:

- Starting and stopping ShareWay IP
- Clients connecting to/disconnecting from ShareWay IP
- Unsuccessful connection attempts to ShareWay IP, due either to user error or to ShareWay's or the target server's security restrictions
- Turning logging on and off
- Network errors

To turn ShareWay's logging feature on (or off), choose "Turn Logging On" (or "Turn Logging Off") from the File menu.

When logging is enabled, a file called "ShareWay IP Log" is written to the ShareWay Macintosh's Preferences folder. ShareWay IP always appends to an existing log file. ShareWay IP's log file can be analyzed in real-time by Open Door's **LogDoor Real-time Server Monitor**. LogDoor provides an up-to-the-minute view of accesses to your server, which may be important for both security and management reasons. See **ShareWay IP Log File** for details of the log file format.

Changing ShareWay's TCP Port Number

Under certain circumstances it may be desirable to change ShareWay IP's TCP port number from its default of 548. For example, if an installation has a firewall which blocks port 548, it may be easier, for administrative reasons, to change ShareWay's port number than to change the firewall. It is also possible that another application on the ShareWay machine might use port 548.

Note that changing ShareWay's TCP port number requires clients to specify the new port number when accessing the ShareWay machine, if they are entering the URL directly. Suppose, for example, that ShareWay IP on a given machine had an AFP URL of afp://192.0.0.1/; if ShareWay was changed to use TCP port 8548, its AFP URL would become afp://192.0.0.1:8548/. If ShareWay's **Service Location Protocol** feature is utilized, the correct port number will be determined automatically, and need not be entered by the client.

To bring up ShareWay's TCP Port dialog, stop ShareWay if it is not already stopped and select "Set Port Number..." from the File menu. The dialog appears as shown below in Figure 2.

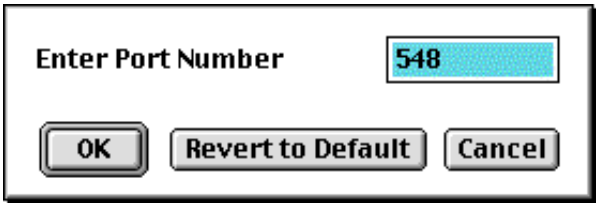

Figure 2. Port Number Dialog

ShareWay's port number is initially set to 548, the default for AFP. To change ShareWay's port number to another value, just enter the value (between 1 and 65535) and click OK. To prevent port number conflicts, it is recommended that alternate port numbers be 8548 or above. To revert to ShareWay's default value,

click "Revert to Default" and then click OK.

Number of Users Supported

ShareWay IP Standard supports up to 20 simultaneous users. If you need to support more than 20 simultaneous users, you should use ShareWay IP Professional Edition. ShareWay IP Standard could adversely affect its machine's performance if a large number of users connects simultaneously, depending on the traffic they generate. If you expect heavy usage of ShareWay, you may want to run it on a separate machine.

Serial Numbers

ShareWay IP uses a serial number mechanism to easily convert evaluation versions of the software to paid-for versions and to prevent unauthorized duplication of the software. It is available as an evaluation version that will stop working 10 days after the date it is first run. Until expiration, the eval version has all the functionality of a full working version. An eval version of ShareWay can be converted to a permanent working version by giving it a valid serial number.

Background version - Serial numbers for the background version are entered through the foreground version. For details, see **Administration of the Background Version** above.

Foreground version - When an unexpired eval of the ShareWay IP foreground version is launched, a dialog appears with the options "Enter Serial Number..." and "OK". Clicking OK lets you run the software as an eval. Clicking "Enter Serial Number..." brings up a dialog which allows you to enter a serial number and convert the software into a permanent working version. Enter the serial number you were provided when you paid for the product, and click OK.

When an expired eval version is launched, a dialog appears with the options "Enter Serial Number..." and "Quit". To convert an expired version into a full working version, click "Enter Serial Number...", enter a serial number and click OK.

The "Enter Serial Number..." dialog can also be brought up while the product is running. Stop ShareWay IP, choose "Enter Serial Number..." from the File menu, and proceed as described above.

If more than one copy of ShareWay IP is used, each copy must have a unique serial number. A ShareWay serial number is registered on the network (and checked for duplicates) when ShareWay is started, not when the serial number is first entered.

Serial numbers for previous versions of ShareWay IP will not work with ShareWay IP 3.0. You must purchase an upgrade to ShareWay IP 3.0 to obtain a valid 3.0 serial number. To purchase a serial number for an eval copy, or to obtain a lost serial number, contact **Open Door Networks**.

Online Help

With OS 8.5 and later, online help for ShareWay IP is available in two ways:

- From the Help Center item in the Finder's Help menu (OS 8.5 and later) - Select "Help Center" from the Finder's Help menu, and then click on "ShareWay IP Help".
- As an item in ShareWay IP's Help menu (OS 8.6 and later) - With ShareWay running, select

"ShareWay IP Help" from ShareWay's Help menu, or use its keyboard shortcut of cmd-?.

Either method will invoke ShareWay's online help, which is structured much like this user guide. Note that when running the background-only version of ShareWay, online help is only available through the Finder's Help menu's Help Center, since the background application has no menus.

Mac OS 9 and Multiple Users

When running ShareWay IP in Mac OS 9's Multiple Users environment, all users share the same preferences file and log file. These files are stored in the System Folder's Preferences folder.

If a user is set up as a Normal User, they will be able to change ShareWay IP's configuration, and those changes will affect all other users. It is therefore recommended that all users be set up as Limited Users, and denied access to the foreground version of ShareWay IP. In this way, only the Owner will be able to configure ShareWay IP.

In the Multiple Users environment, it is recommended that you use the background version of ShareWay IP. The foreground version will quit whenever a user logs off the ShareWay machine, causing all of ShareWay's connected clients to be disconnected. The background version will keep running when a user logs off, providing continuity for ShareWay's connected clients.

ShareWay IP's status window displays important information:

- ShareWay's status (active or inactive).
- ShareWay's IP address - This is the IP address that is used to access the target server through ShareWay IP. Note that when ShareWay is active, its AFP URL will be displayed immediately below its IP address, including its hostname (if any) from a reverse DNS lookup.
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- ShareWay is currently stopped and the target server was unavailable when ShareWay was last on

This window may also show that the IP address is not available. This would happen if:

- TCP/IP is not properly configured
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Changing the Target Server

If the status window is not showing, choose "Show ShareWay Status" from the File menu. If ShareWay IP is active, you will need to stop it before selecting another target server. Once ShareWay IP is stopped, the status window appears as shown in Figure 1 above.

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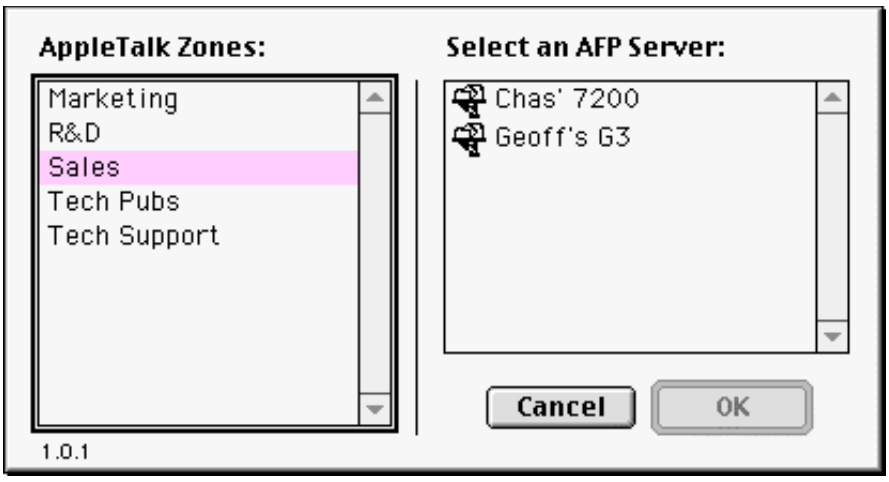

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Under certain circumstances it may be desirable to change ShareWay IP's TCP port number from its default of 548. For example, if an installation has a firewall which blocks port 548, it may be easier, for administrative reasons, to change ShareWay's port number than to change the firewall. It is also possible that another application on the ShareWay machine might use port 548.

Note that changing ShareWay's TCP port number requires clients to specify the new port number when accessing the ShareWay machine, if they are entering the URL directly. Suppose, for example, that ShareWay IP on a given machine had an AFP URL of afp://192.0.0.1/; if ShareWay was changed to use TCP port 8548, its AFP URL would become afp://192.0.0.1:8548/. If ShareWay's **Service Location Protocol** feature is utilized, the correct port number will be determined automatically, and need not be entered by the client.

To bring up ShareWay's TCP Port dialog, stop ShareWay if it is not already stopped and select "Set Port Number..." from the File menu. The dialog appears as shown below in Figure 2.

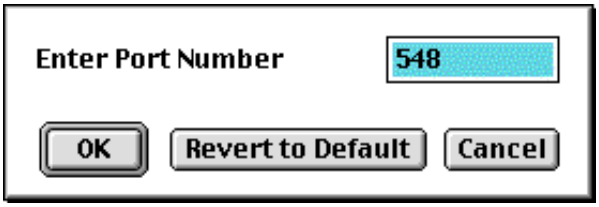

Figure 2. Port Number Dialog

ShareWay's port number is initially set to 548, the default for AFP. To change ShareWay's port number to another value, just enter the value (between 1 and 65535) and click OK. To prevent port number conflicts, it is recommended that alternate port numbers be 8548 or above. To revert to ShareWay's default value,

click "Revert to Default" and then click OK.

Number of Users Supported

ShareWay IP Standard supports up to 20 simultaneous users. If you need to support more than 20 simultaneous users, you should use ShareWay IP Professional Edition. ShareWay IP Standard could adversely affect its machine's performance if a large number of users connects simultaneously, depending on the traffic they generate. If you expect heavy usage of ShareWay, you may want to run it on a separate machine.

Serial Numbers

ShareWay IP uses a serial number mechanism to easily convert evaluation versions of the software to paid-for versions and to prevent unauthorized duplication of the software. It is available as an evaluation version that will stop working 10 days after the date it is first run. Until expiration, the eval version has all the functionality of a full working version. An eval version of ShareWay can be converted to a permanent working version by giving it a valid serial number.

Background version - Serial numbers for the background version are entered through the foreground version. For details, see **Administration of the Background Version** above.

Foreground version - When an unexpired eval of the ShareWay IP foreground version is launched, a dialog appears with the options "Enter Serial Number..." and "OK". Clicking OK lets you run the software as an eval. Clicking "Enter Serial Number..." brings up a dialog which allows you to enter a serial number and convert the software into a permanent working version. Enter the serial number you were provided when you paid for the product, and click OK.

When an expired eval version is launched, a dialog appears with the options "Enter Serial Number..." and "Quit". To convert an expired version into a full working version, click "Enter Serial Number...", enter a serial number and click OK.

The "Enter Serial Number..." dialog can also be brought up while the product is running. Stop ShareWay IP, choose "Enter Serial Number..." from the File menu, and proceed as described above.

If more than one copy of ShareWay IP is used, each copy must have a unique serial number. A ShareWay serial number is registered on the network (and checked for duplicates) when ShareWay is started, not when the serial number is first entered.

Serial numbers for previous versions of ShareWay IP will not work with ShareWay IP 3.0. You must purchase an upgrade to ShareWay IP 3.0 to obtain a valid 3.0 serial number. To purchase a serial number for an eval copy, or to obtain a lost serial number, contact **Open Door Networks**.

Online Help

With OS 8.5 and later, online help for ShareWay IP is available in two ways:

- From the Help Center item in the Finder's Help menu (OS 8.5 and later) - Select "Help Center" from the Finder's Help menu, and then click on "ShareWay IP Help".
- As an item in ShareWay IP's Help menu (OS 8.6 and later) - With ShareWay running, select

"ShareWay IP Help" from ShareWay's Help menu, or use its keyboard shortcut of cmd-?.

Either method will invoke ShareWay's online help, which is structured much like this user guide. Note that when running the background-only version of ShareWay, online help is only available through the Finder's Help menu's Help Center, since the background application has no menus.

Mac OS 9 and Multiple Users

When running ShareWay IP in Mac OS 9's Multiple Users environment, all users share the same preferences file and log file. These files are stored in the System Folder's Preferences folder.

If a user is set up as a Normal User, they will be able to change ShareWay IP's configuration, and those changes will affect all other users. It is therefore recommended that all users be set up as Limited Users, and denied access to the foreground version of ShareWay IP. In this way, only the Owner will be able to configure ShareWay IP.

In the Multiple Users environment, it is recommended that you use the background version of ShareWay IP. The foreground version will quit whenever a user logs off the ShareWay machine, causing all of ShareWay's connected clients to be disconnected. The background version will keep running when a user logs off, providing continuity for ShareWay's connected clients.

ShareWay IP Standard Edition
User's Guide

Security

ShareWay IP significantly enhances the functionality of an AFP server by enabling access to the server over the Internet or an intranet. With this increased accessibility, however, come increased security risks. Without ShareWay IP, a server's exposure is limited to the AppleTalk network on which it resides. With ShareWay IP, exposure, through the Internet, can potentially include the whole world! ShareWay IP includes a number of security features, which, when combined with an AFP server's built-in security, can greatly mitigate these increased risks.

Limiting IP Access

ShareWay IP can control access over IP to a target server for guests and for specific users. The security provided by ShareWay IP works in conjunction with the security provided by the AFP server itself, allowing AppleTalk and IP to have different security settings.

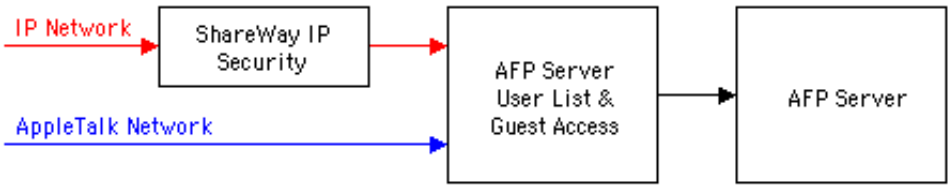

Figure 1. ShareWay IP Security

As shown in Figure 1, AppleTalk and IP security have the target server's security features in common. The target server enables or disables guest access and defines users and passwords. Starting with the security parameters defined by the target server, ShareWay IP can further limit access over IP. In particular, ShareWay can:

- deny guest access over IP even if the target server allows it over AppleTalk
- allow access over IP for only certain users configured through the target server
- deny access over IP to certain users configured through the target server

In particular, guest access can be allowed for AppleTalk and denied over IP. This might prove useful in installations where guest access has historically been turned on for AppleTalk, but would be too great a security risk over IP. Likewise, access over IP can be limited to one or more users without affecting access to the server over AppleTalk.

To bring up ShareWay IP's Security window, select "Show Security" from the File menu. The window appears as shown below in Figure 2.

Figure 2. Security Window

The upper pane controls guest access. Simply check or uncheck the box.

The lower pane controls access by user name. Using the radio buttons, IP access can be allowed for all users defined by the target server, or further restricted based on the user names in the list. To add a name to the list, enter it in the text box at the bottom of the pane and click "Add". To delete a name from the list, select it in the list and click "Delete". User names are case insensitive.

When a client who attempts to connect to the target server is denied access over IP, an error message will tell them that the user name is unknown, log on is disabled, or the password is incorrect -- the exact message depends on the version of AppleShare client they are using. If logging is enabled, such connection attempts are logged as failed logins, as though the client had entered a bad user name.

NOTE: You cannot use ShareWay's security to override security settings in the target server. Specifically, if in ShareWay you allow access to guests over IP, but have not configured guest access in the target server, guests will not be able to connect through IP. Likewise, if in ShareWay you allow access to a specific user over IP, but have not registered that user in the target server, that user will not be able to connect over IP.

Other Security Considerations

Since ShareWay IP makes the target server accessible over TCP/IP, potentially even over the Internet itself, the files on a target server may become accessible to a much larger number of people, making security an even more important issue. Consult the documentation on the target server for how to make it secure, using passwords, access privileges, and other techniques.

Connection log - ShareWay IP provides an optional connection log, which lists all access attempts to the target server, successful or otherwise. The connection log is particularly useful for identifying potential security issues. See **Logging** for details.

Other ShareWay machines - ShareWay IP helps you keep track of where it has been installed on your networks, and thus more easily address security issues:

- AppleTalk - While ShareWay IP is active, it registers on AppleTalk the machine name of the machine on which it is installed, using type "ShareWayIP". A network management utility which can search through an AppleTalk zone and display devices of a given type can be used to display all running copies of ShareWay IP, allowing you to keep track of who is using ShareWay.

- TCP/IP - With Mac OS 8.5 and later, while ShareWay IP is active it also registers on its TCP/IP network, using Service Location Protocol. Open Door's **AFP Engage! 2.0** can, in turn, use SLP to display ShareWay servers by machine name. The IP address listed by AFP Engage! will be the ShareWay machine's IP address. If you do not want the ShareWay IP server to show up in AFP Engage!'s Browse window, turn off the SLP plug-in, using the Extensions Manager Control Panel.

For further security, it may be desirable to install a firewall product on the ShareWay machine, such as Open Door's **DoorStop**. With DoorStop, access can be controlled to ShareWay based on the IP address of the client. Connections can be allowed or denied for single IP addresses or a range of IP addresses.

ShareWay IP Standard Edition
User's Guide

Connecting to ShareWay IP

Service Location Protocol

Mac OS 8.5 and later incorporate **Service Location Protocol** (SLP), an Internet-standard protocol which enables network services to be found dynamically on a TCP/IP network. ShareWay IP supports SLP by automatically registering a URL with SLP whenever ShareWay starts. ShareWay deregisters when ShareWay or the target server is stopped, or the ShareWay application is quit.

SLP-registered URLs can be used by clients to locate and initiate access to ShareWay servers, by using:

- Mac OS 9's Network Browser
- applications using Mac OS 9's Navigation Services
- Open Door's **AFP Engage!**

These SLP-based methods of access provide an intuitive point-and-click interface similar to the Chooser.

Using SLP

Clients can use SLP-based methods to access ShareWay if

- SLP is available on the ShareWay and client machines (OS 8.5 and later)
- SLP is enabled on both machines
- the versions of SLP on the two machines are compatible

SLP is available with OS 8.5 and later. To enable SLP, the SLP plug-in must be in the Extensions folder. Use the Extensions Manager Control Panel to confirm that the extension "SLPPlugin" is enabled.

The version of SLP implemented with Mac OS 9 (SLP v2) is not compatible with the SLP implemented with OS 8.6 and 8.5 (SLP v1), although the SLP plug-in from OS 9 can be installed on OS 8.6 if desired--simply drag it to the Extensions folder. The following configurations will work

- ShareWay and client machines running OS 9
- one machine running OS 9 and the other running OS 8.6 with SLP plug-in 1.1 installed
- both machines running OS 8.5 or 8.6

SLP-based Methods of Access

The following methods of locating and initiating access to ShareWay servers use SLP.

- **Network Browser (Mac OS 9) -** On a client Macintosh, launch the "Network Browser" application from the Apple menu. A list of neighborhoods will appear--open the neighborhood "Local Services" by clicking its disclosure triangle, and a list of ShareWay servers (and other AFP servers supporting SLP) will appear. To access a server, double-click it and log in.

Note: On OS 9, if the "Search domains" field of the TCP/IP Control Panel has been filled in on the ShareWay machine, the neighborhood that machine appears in will not be "Local Services", but rather the name in the "Search domains" field.

- **Navigation Services (Mac OS 9) -** In applications using the Navigation Services interface, Save and Open dialogs provide two means of connecting to ShareWay servers.
    - From the Shortcuts popup menu, choose "Network" and proceed as with the Network Browser above.
    - From the Shortcuts popup menu, choose "Connect to Server", enter the ShareWay machine's IP address or host name and log in.
- **AFP Engage!** - If Open Door's **AFP Engage!** is installed on a client machine, access to ShareWay IP can be initiated through the "Browse AFP Servers" window**.** This window provides a list of AFP servers registered with SLP. Accessing a ShareWay IP server is as easy as double-clicking a name in the list. A single-user license for AFP Engage! 2.0 is included with each license for ShareWay IP Standard.

Non-SLP Methods of Access

These methods of accessing ShareWay are available to all clients with AppleShare Client 3.7 or later.

- **AFP Engage!** - If Open Door's **AFP Engage!** is installed on a client machine, access to ShareWay IP can be initiated through AFP URLs of the form

  afp://username@ShareWayIPAddress/volumename/pathname

  - username@ - needed if guest access to the AFP server is disabled
  - ShareWayIPAddress - the IP address of ShareWay IP as displayed in its status window, or the ShareWay IP machine's hostname (plus TCP port number if not default)
  - volumename - the name of the volume on the ShareWay Macintosh
  - pathname - an optional path on that server

  For example, to connect as a guest with ShareWay using its default TCP port, the URL would look like: **afp://afp.opendoor.com/**. To connect as user "kingsford" and open the Applications folder on drive G3HD, with ShareWay using a TCP port number of 8548, the URL would look like: afp://kingsford@afp.opendoor.com:8548/G3HD/Applications/.
- **Chooser -** On any client Macintosh, select the Chooser from the Apple menu, and select the AppleShare icon. Click on the "Server IP Address..." button, and enter the IP address of ShareWay IP, as displayed in ShareWay IP's status window. If there is no "Server IP Address..." button, you are using an old version of AppleShare Client. When you click on the "Connect" button, ShareWay IP's server will be accessed and the standard AppleShare login process will be begun.

  NOTE: If the IP address used by the ShareWay Macintosh has been assigned a hostname, then ShareWay IP can be accessed using that name, as well as with the ShareWay Macintosh's IP address. The hostname assigned will generally be displayed in the AFP URL in the status window, when ShareWay is running.
- **Aliases -** Access to ShareWay IP can be initiated through an alias to that server. To create an alias, mount the server using one of the methods described above. When the server's icon is on your

desktop, create an alias to it from the Finder's File menu. To initiate future access to that server, just double-click the alias.

NOTE: There are a number of known problems with aliases connecting to AppleShare servers over TCP/IP. If you have trouble connecting to a server with an alias, try to connect again. After connecting successfully, create a new alias to the server to use in the future.

ShareWay IP Standard Edition
User's Guide

Log File Format

ShareWay IP's log file is written in an extended WebSTAR log format. WebSTAR log format is a standard tab-delimited text format which can be read by any word processor or spreadsheet application. This format can also be processed by a number of log analyzer applications, such as Open Door's **LogDoor** product.

Actions related to ShareWay IP are logged using the standard WebSTAR comment format:

!!ShareWay IP 3.0.1 START 08/30/99 16:10:16
!!ShareWay IP 3.0.1 STOP 08/30/99 16:10:21
!!ShareWay IP 3.0.1 ENABLE_LOGGING 08/30/99 16:10:01
!!ShareWay IP 3.0.1 DISABLE_LOGGING 08/30/99 16:10:08

Other operations are logged using the following tokens (which are included in the !!LOG_FORMAT line whenever ShareWay IP starts up or logging is enabled):

- DATE, TIME
  - same values as in WebSTAR logs
- RESULT
  - OK for normal login or logout
  - ERR! for failed login or abnormal logout
- HOSTNAME
  - the IP address of the client
- URL
  - not used in ShareWay IP, but included for compatibility with other Open Door log files
- USER
  - user name (guest is logged as blank)
- AFP_METHOD (new token)
  - FPLogin
  - FPLogout
- AFP_STATUS (new token)
  - Additional result code. Indicates Mac error code if available. See **AFP Error Codes** below.
- BYTES_SENT
  - FPLogout lines only. The total number of bytes transferred while the client was connected, counted from the time the user logged on (even if the user was already connected when logging was enabled). All bytes transferred during the session are included, not just the bytes read from or written to files.
- TIME_TAKEN
  - FPLogout lines only. The total time the user was connected, measured from the time the user logged in. Format is hh:mm:ss.

Note that when ShareWay IP stops or quits, all users who are currently logged in will be listed as logging out through an FPLogout line with error code -5027.

Sample log lines

!!LOG_FORMAT DATE TIME RESULT HOSTNAME URL USER AFP_METHOD AFP_STATUS BYTES_SENT TIME_TAKEN

08/30/99	16:19:20	OK	192.0.0.2	chas	FPLogin	0		
08/30/99	16:19:38	OK	192.0.0.2	chas	FPLogout	0	2444	00:00:18

AFP error codes

-1069	aspNoServers	No servers at that address
-5014	afpMiscError	Server closed session
-5016	afpNoServer	Server is not responding
-5019	afpParmErr	Miscellaneous parameter error (usually invalid user name or user denied access by ShareWay's security feature)
-5022	afpSessClosed	Session unexpectedly torn down
-5023	afpUserNotAuth	User authentication failed (usually, password is not correct)
-5027	afpServerGoingDown	ShareWay IP has stopped, or the ShareWay application has quit

ShareWay IP Standard Edition
User's Guide

How ShareWay IP Works

File Sharing

ShareWay IP implements only a very small part of the AppleTalk Filing Protocol (AFP). For the most part, ShareWay IP simply translates the underlying AppleTalk protocols used by most AFP servers into TCP/IP, the protocols used on the Internet. In technical terms, ShareWay IP translates ASP (AppleTalk Session Protocol) over AppleTalk to Apple's Data Stream Interface (DSI) over TCP/IP and vice versa. See Figure 1 below. DSI was introduced with **AppleShare IP** 5.0. For more information on DSI, refer to **AFP 2.2 Specification**, Apple Computer.

Like AppleShare IP, ShareWay IP uses TCP port number 548 to communicate with the AppleShare Client. If your network has a firewall between ShareWay IP and the Internet, and you wish ShareWay IP to be accessible from the Internet, remember to allow access to port 548 through that firewall. If you need ShareWay IP to run a port other than 548, use the **"TCP Port" dialog**.

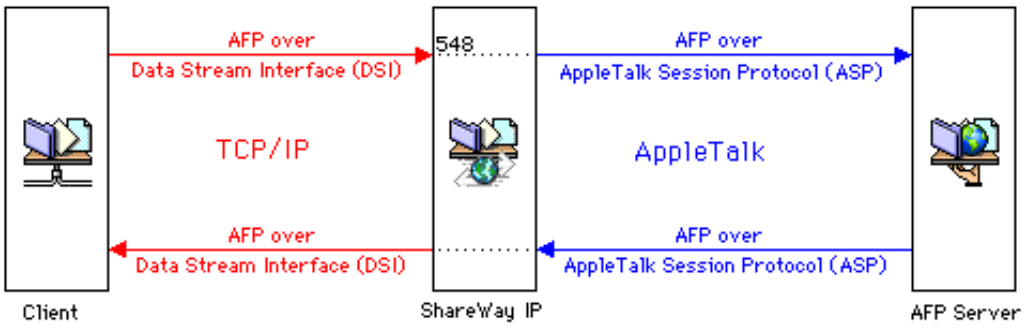

Figure 1. How ShareWay IP works

If ShareWay IP and the server are on the same Macintosh, the indicated communication between ShareWay IP and the server over AppleTalk is internal to the machine on which they are installed.

In addition to translating between AppleTalk and TCP/IP protocols, ShareWay IP also mimics other aspects of AFP servers. For instance, if it detects a loss of connectivity with either the client or the server, ShareWay IP will wait two minutes before terminating the session with the other end.

SLP Registration

Service Location Protocol (SLP) is an Internet-standard protocol which enables network services to make themselves known so they can be found dynamically on a TCP/IP network. It is similar in concept to servers registering with AppleTalk and the Chooser being able to locate them. SLP is implemented in Mac OS 8.5 and later as the SLP plug-in, located in the System's Extensions folder.

Running on Mac OS 8.5 and later, ShareWay IP 3.0 registers with the Mac OS using SLP. In particular, ShareWay registers a URL of the form:

afp://IP-address/?NAME=ShareWayMachineName&ZONE=ZoneName

IP-address is the IP address of the ShareWay IP machine

ShareWayMachineName is the ShareWay Macintosh's machine name

ZoneName (optional) is the name of the zone (if zones are present) of the ShareWay machine

Registration is automatic, and transparent to the user. ShareWay IP deregisters when ShareWay or the target server is stopped, or the ShareWay application is quit. Registered URLs are used by the Network Browser, applications using Navigation Services, and Open Door's **AFP Engage! 2.0** to dynamically find, display and initiate access to ShareWay IP servers, using a simple point-and-click interface. To prevent the ShareWay IP server from showing up in these windows, simply disable the SLP plug-in on that machine, using the Extensions Manager Control Panel.

For more information on the Service Location Protocol, see Open Door's **white paper** on the subject, and the **RFC**.

ShareWay IP

The solution for Macintosh file sharing over TCP/IP
The only solution for Personal File Sharing from Mac OS 7/8/9 to Tiger

Chosen by Apple Computer as the technology behind Mac OS 9's file sharing over TCP/IP
"The easiest way to survive the new TCP/IP world order." -- **MacWorld**
"AppleShare IP for the rest of us... a godsend for small workgroups" -- **Adam Engst, MacWeek**

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ShareWay IP is standard Macintosh file sharing, but using TCP/IP rather than AppleTalk. ShareWay IP runs with Mac OS 7, 8 or 9's built-in File Sharing to enable Macintosh file sharing over your home network, intranet or the Internet.

ShareWay IP is the only way to have Personal File Sharing on a pre-X system share files with Tiger (Mac OS X 10.4), since Tiger cannot access AppleShare files shared over AppleTalk.

Apple included a limited version of ShareWay IP with Mac OS 9. When you check the "File Sharing over TCP/IP" check box, under Mac OS 9, you are running a basic version of ShareWay IP. If you are running Mac OS 9, please consider adding the full version from us, which includes important security features and bug fixes.

If you run an OS older than Mac OS 9, you can still have its Internet file sharing features. ShareWay IP works all the way back to Mac OS 7.5.5, even if you're still running a 68K machine.

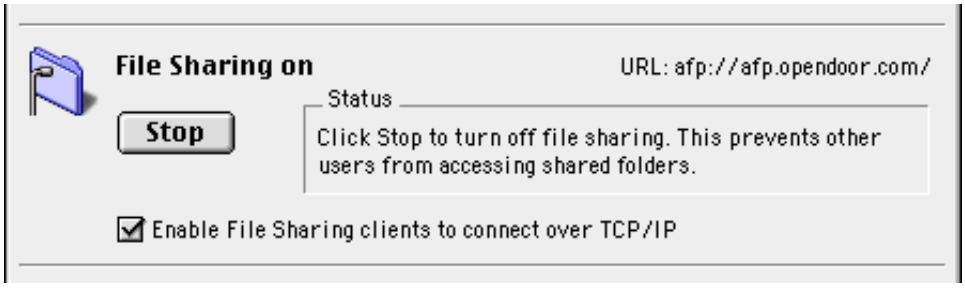
Additional editions of ShareWay IP are available for older AppleShare-compatible servers, like Windows NT. Check out ShareWay IP Standard and Professional Editions for your older server.

Mac OS X users: Please check out our new **DoorStop X firewall** and our **Who's There? Firewall Advisor**.

ShareWay IP Editions

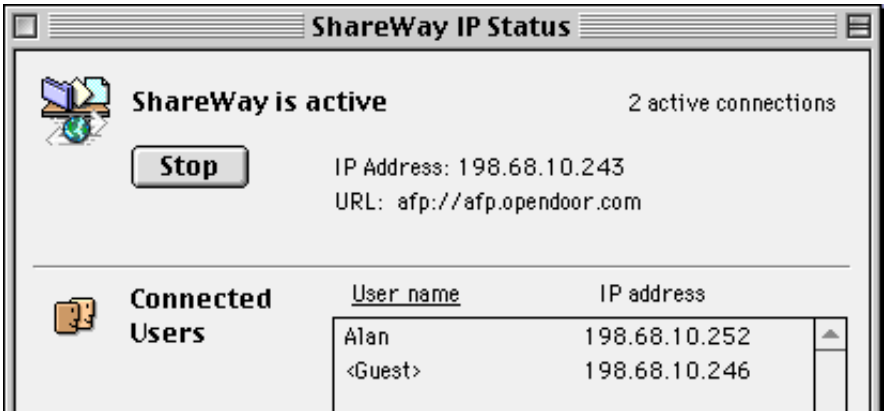
ShareWay IP is available in a number of editions. Which edition to use depends on the type and number of Macintosh file sharing servers you want to support:

- **Mac OS 9 bundled version**. Apple includes a basic version of ShareWay IP with Mac OS 9, to implement the "File Sharing over TCP/IP" feature.

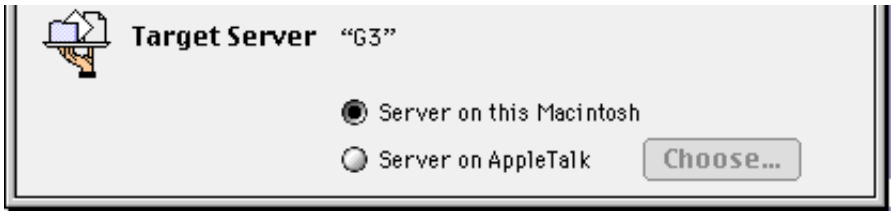


- **Mac OS 9 upgrade**. If you are running Mac OS 9, you should consider the ShareWay IP upgrade for Mac OS 9, which installs ShareWay IP Personal 3.0, providing enhanced security and other features.

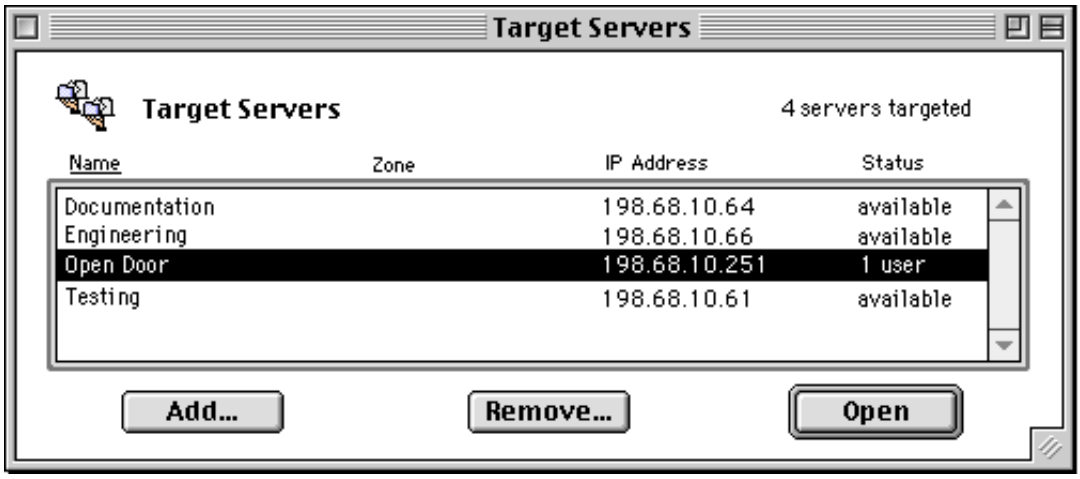
- **Personal Edition**. If you are not running Mac OS 9, but want to provide your Mac with Mac OS 9's File Sharing over TCP/IP features, for instance to share files with Tiger (Mac OS X 10.4), you simply need to install a copy of ShareWay IP Personal Edition.



- **Standard Edition**. If you are running a single, older version of AppleShare server, or a single AFP server on Windows NT or Novell Netware, you can install ShareWay IP Standard Edition to add IP file sharing to that server.



- **Professional Edition**. If you are running multiple AFP servers, and want to add IP file sharing capabilities and adminster them all from a central location, you can install ShareWay IP Professional Edition.



A detailed analysis of which edition of ShareWay IP to use in which situation is available **here**.

ShareWay IP

 **Macintosh file sharing over the Internet or your intranet.** Macintosh users have come to expect the ease of use and simplicity of the Mac's built-in file sharing through AppleShare. As Macintosh networks move from AppleTalk to Internet protocols (TCP/IP), and as more and more Macs get on the Internet, ShareWay IP lets Mac users keep sharing files the same way they always have.

 **Chosen by Apple for Mac OS 9.** When Apple wanted to add Internet file sharing capabilities to Mac OS 9, they chose ShareWay IP as the way to do it. By working directly with Apple, we've made sure that basic ShareWay functionality is available to all Mac OS 9 users through seamless integration with the OS.

ShareWay IP is the only way to have Personal File Sharing on a pre-X system share files with Tiger (Mac OS X 10.4), since Tiger cannot access AppleShare files shared over AppleTalk.

Major Mac OS 9 upgrade available. Mac OS 9's Internet File Sharing can be easily upgraded to an advanced version of ShareWay IP which includes logging, advanced security, and other features.

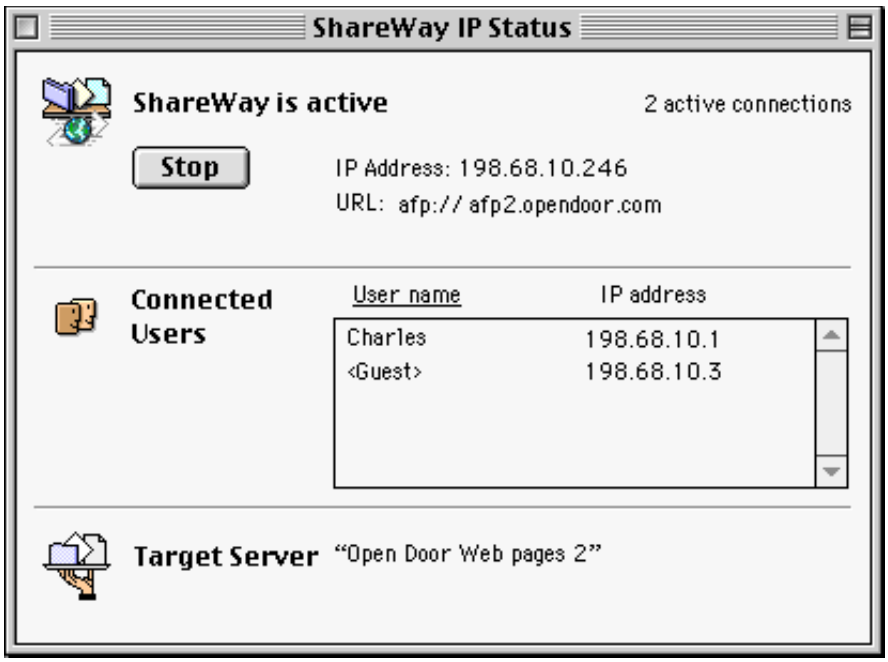
Works on all Macs back to System 7.5.5. Even if you don't install Mac OS 9, you can get all the same Internet File Sharing features simply by installing ShareWay IP. Even on 68K Macs.

The ease of use you'd expect from Macintosh file sharing. ShareWay IP maintains all the easy to use features Apple built into Macintosh file sharing, such as drag-and-drop access, aliases, view-by options and Sherlock searching. ShareWay IP even lets users browse for servers just as with the Chooser.

The power you'd expect from the Internet. By using Internet protocols for file sharing, ShareWay IP greatly extends the reach of your server by enabling it to share files across your entire intranet and, through the Internet, around the world.

 **The security features you need in the Internet era.** The extended reach of the Internet requires additional security measures. ShareWay IP includes security features beyond those built into Macintosh file sharing.

No AppleTalk required! As Macintosh networks move away from AppleTalk and towards TCP/IP, ShareWay IP is a key part of any migration solution.



Multiple versions available. ShareWay IP is available in multiple versions to support different server environments:

- ShareWay IP Personal Edition works with the Mac OS's built-in file sharing.
- ShareWay IP Standard Edition supports any single AFP (AppleShare-compatible) server, including older versions of AppleShare server, Windows NT and Novell Netware.
- ShareWay IP Professional Edition supports multiple AFP servers and provides advanced server management features.

A must-have upgrade for Mac OS 9 users. Users of Mac OS 9 can upgrade the built-in version of ShareWay IP to include such important features as:

- A real-time connection log - keep track of who's connecting to the server and when
- Enhanced security - prevent Guests and specific registered users from connecting over the Internet
- An IP-specific user interface, listing who's connected over the Internet and their IP addresses.
- The ability to change ShareWay's port number, to work better with certain firewalls.

Multiple options for access. Macs running ShareWay IP can be accessed through a number of different options, including:

- Entering the Mac's IP address in the Chooser.
- Using Open Door's **AFP Engage!** (included) to dynamically browse for and click on the Mac or to access the Mac by its URL.
- Through Mac OS 9's Network Browser.
- When opening or saving a file under Mac OS 9, through the standard Navigation Services dialog box.
- Through double-clicking a previously-created alias to the Mac.

Features and Benefits

- Supports Mac OS personal file sharing. Makes sharing files over the Internet or your intranet as easy as sharing files over AppleTalk. Adds Mac OS 9's IP file sharing capabilities to pre-OS 9 Macs.

- Share files from Mac OS 7, 8 and 9 systems with Tiger (Mac OS X 10.4) systems.

- AppleTalk-like dynamic server browsing*. Easily browse and access servers on your intranet without having to remember and type in IP addresses.
- Advanced security options. Supplement the security of the Mac OS through additional security features.
- Mac OS 9 upgrade available. Enhance Mac OS 9's basic IP file sharing capabilities while maintaining direct OS integration.
- Supports AppleShare 3 and 4 and non-Macintosh AFP servers. Include older versions of AppleShare and Windows NT, Novell Netware and Unix AFP servers in your intranet strategy.
- Multiple server support. ShareWay IP Professional Edition supports a large number of AFP servers from a single Macintosh, simplifying administration and leveraging your investment.
- Part of an integrated migration solution. Combines with other Open Door products to help maintain the services, security and ease-of-use of your Macintosh network as you move from AppleTalk to Internet protocols.

Requirements:

- Any AFP 2.1 or later server (includes Mac OS personal file sharing, AppleShare 3 or 4, Macintosh Services for Windows NT Server, etc.)
- System 7.5.5 or later. System 7.6.1 or later and PowerPC for the Professional Edition. *Mac OS 8.5 or later for dynamic server browsing. Mac OS 8.6 recommended.
- Open Transport 1.1.2 or later.
- AppleShare Client 3.7 or later for access to the ShareWay machine.
- A TCP/IP network, or Internet connectivity.
- An AppleTalk network if support of non-Macintosh servers is desired.

Ordering information:

- Product details, pricing, users' guide and evaluation versions available at **http://www.opendoor.com/shareway/**
- Secure order form available at **http://www.opendoor.com/order.html**
- Orders accepted via Web, e-mail, and phone
- VISA, MasterCard, American Express
- Checks and corporate PO's by special request
- Volume and site licensing available
- Product distributed via the Web or Macintosh file sharing

Open Door Networks, Inc.

- **http://www.opendoor.com**
- **help@opendoor.com**
- (541)488-4127 (voice)
- mailing address: 110 S. Laurel St., Ashland, OR 97520

ShareWay IP Pricing

ShareWay IP is available in three editions: Personal, Standard and Professional. **For Personal File Sharing with Tiger** (or any version of Mac OS X), **you want the Personal Edition.** A number of purchasing options are available:

ShareWay IP Personal Edition 3.0 pricing - now half the previous price!

	Single license		5 licenses	
	Retail	Education	Retail	Education
ShareWay IP Personal 3.0	$39	$29	$149	$109

ShareWay IP Standard 3.0 and Professional 2.0 pricing

	Single license		5 licenses	
	Retail	Education	Retail	Education
ShareWay IP Standard 3.0	$249	$179	$899	$629
ShareWay IP Professional 2.0	$479	$349		
Pro 2.0 upgrade	$119	$99		

Higher volume and site licenses and upgrades are also available. Contact us directly if you're interested.

You can order ShareWay IP directly off our **order page.** Once paid for, ShareWay IP will be made available for download. Forms of payment include:

Credit card:

- VISA
- MasterCard
- American Express

Check (US Funds from a US Bank), sent to:

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Open Door Networks, Inc.
110 S. Laurel St.
Ashland, OR 97520
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Corporate PO by special request. Send PO to above address. Be sure to include your email address so we can send you a serial number.

Understanding and Enhancing Mac OS Internet Security

Open Door Networks, Inc.
November, 1999

Historical note (May, 2005): Open Door Networks has been in the **Macintosh security business since 1998**. This paper describes the state of Macintosh Internet security at the end of the Mac OS 9 era. Things have obviously changed quite a bit with Mac OS X, but this paper is kept here both for historical reference and for Macintosh users still using Mac OS 7, 8 and 9, especially with our **ShareWay IP** product. Much of this paper was incorporated into the first edition of the book **"Internet Security for Your Macintosh: A Guide for the Rest of Us"**.

Overview: As more Macs are connected to the Internet 24 hours a day, and as more Mac Internet services are added to the OS, the need to understand Macintosh Internet security options becomes much greater. This paper examines the Mac OS network security architecture and various enhancement options available through Open Door Networks products. It assumes that the reader is already familiar with the basics of Open Door's security products, such as the DoorStop firewall (**http://www.opendoor.com/doorstop/**) and Mac OS IP file sharing through ShareWay IP (**http://www.opendoor.com/shareway/**).

Overall network security architecture: Security is available at various levels throughout the Mac OS. The Mac's Internet security architecture needs to be understood in light of its overall network security architecture. There are two principal network protocols used on the Mac today: AppleTalk and TCP/IP. In general AppleTalk provides local services that are not available across the Internet: printing, sharing files with other machines on the same network, homegrown applications. TCP/IP provides more global services, including such Internet services as email and access to Web sites. With Mac OS 9, TCP/IP also provides services that have been traditionally available only over AppleTalk, including file sharing and program linking (Apple Events and AppleScript) over the Internet or an intranet.

Figure 1 below shows the Mac's overall network security architecture when Open Door products are included. The bottom layer shows the two principal protocols, AppleTalk and TCP/IP. Even though AppleTalk is a local protocol, and is not accessible through the Internet, security remains a concern in many environments. Since TCP/IP can make a machine accessible through the Internet and thus to the whole world, security is of even greater concern for that protocol.

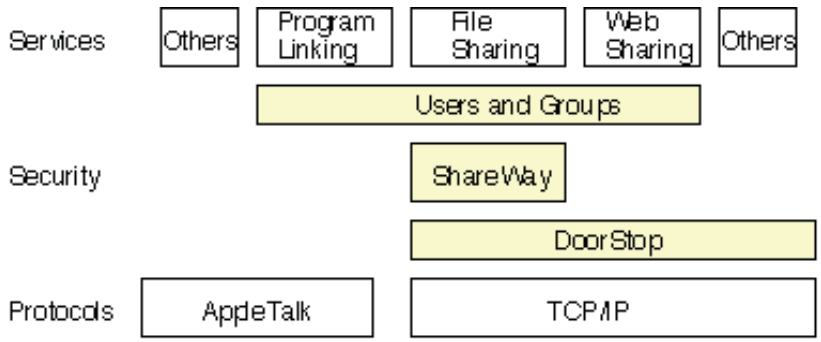

Figure 1. Macintosh Network Security Architecture

The Users and Groups file is the major network security component built into the Mac OS. The Users and Groups file (accessed through either the Users and Groups Control Panel, or, in Mac OS 9, the File Sharing Control Panel) lets a machine's owner set up user accounts and passwords for access to the Mac's built-in network services, and specify which accounts should have access to which services. These accounts are used to limit access to these services through either AppleTalk or TCP/IP. Access to "Guests"

(without passwords) can also be specified. Services that utilize Users and Groups security include Program Linking, File Sharing, Web Sharing and Remote Access (which lets users dial into a particular machine). Fine details of access are often configured through the Finder via the "Sharing" menu item.

Open Door Networks products add two levels of security to the Mac OS. These levels of security are only for TCP/IP services, not for AppleTalk. The DoorStop firewall provides added security for any service using the TCP protocol (TCP is the principal part of TCP/IP, and is used for most Internet services). ShareWay IP 3.0 provides added security specifically for Macintosh File Sharing when it is used over the Internet.

All the components of the Mac's network security architecture work together. For instance, as indicated in Figure 3 below, for someone to get access to File Sharing over the Internet, they must pass through the DoorStop, ShareWay and Users and Groups security layers. Since File Sharing can make a machine's whole hard disk available over the Internet, this high degree of protection may well be appropriate in many cases. Additionally, with multiple layers, greater degrees of flexibility in configuring security are possible. For example, access to guests can be granted over AppleTalk, but restricted over the Internet through either the ShareWay or DoorStop security levels.

In the sections below, we describe some details of the Mac OS Internet security architecture as it applies to the different Mac OS network services.

Program Linking: Program Linking is the technology that enables such Macintosh services as AppleScript and communication between applications through Apple Events. Until Mac OS 9, Program Linking only worked through AppleTalk. Nonetheless it utilized the Users and Groups file to specify which users should be able to "program link" to applications running on a particular machine, and whether guest access should be allowed. When Program Linking was extended to the Internet with Mac OS 9, Users and Groups security continued to apply to it as well.

Just as with File Sharing, however, the extension of Program Linking to the Internet introduces significant additional security risk. Anyone anywhere in the world can now, in theory, send commands to any application on a machine with Internet Program Linking enabled. Although Users and Groups support is necessary in such an environment, it may well not be sufficient. For instance passwords are often easy to guess or compromised in other ways. Open Door's DoorStop firewall provides an additional level of protection to Internet Program Linking on Mac OS 9. As indicated in Figure 2 below, access to Program Linking over TCP/IP must pass through both DoorStop's security check and the Users and Groups'. Since DoorStop security is based on the accessing machine's IP address, it is independent of the passwords required by Users and Groups.

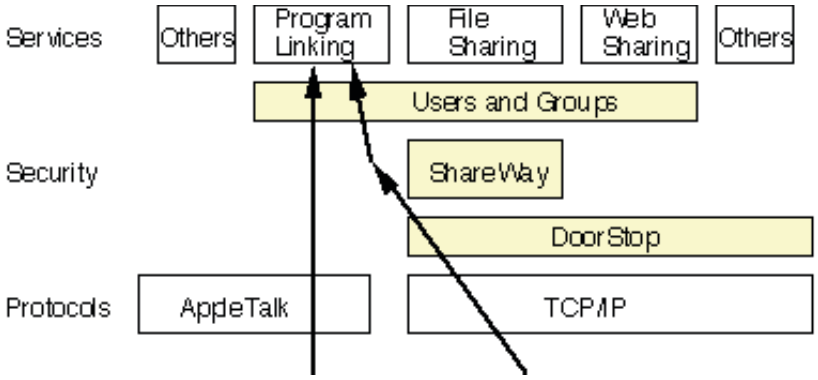

Figure 2. Security as it applies to Program Linking

Note that access to Program Linking through AppleTalk only goes through Users and Groups security. This reduced level of protection is appropriate since there is significantly reduced risk.

File Sharing: File Sharing has been included in the Mac OS since System 7. It is one of the Mac's easiest

to use and most popular features. Prior to the introduction of Open Door's ShareWay IP product in 1997, File Sharing was only available over AppleTalk. With the incorporation of ShareWay IP into Mac OS 9, it is now available through TCP/IP to every Mac OS 9 user as well as back to System 7.5.5 through ShareWay IP.

The ability to easily share files over the Internet is a very powerful feature. As with most features on the Internet, however, it also entails significant security risks. All of a sudden a machine's entire hard disk is potentially accessible throughout the world. Although Users and Groups continues to provide security over TCP/IP as well as AppleTalk, it is in many cases insufficient. In addition to the risks of password compromise, it is often the case that File Sharing users enable guest access to their files, since, prior to ShareWay IP, File Sharing was limited to their local network. Guest access in an Internet environment, however, is very risky and requires alternate security mechanisms.

Open Door Networks products provide two additional levels of security for Internet File Sharing. As with all TCP services, DoorStop provides IP address based security, enabling file sharing access to be granted only to limited sets of machines on the Internet. And ShareWay IP 3.0, available either standalone or as an upgrade for Mac OS 9's Internet File Sharing, enables an additional level of security based on user name, beyond that supplied by Users and Groups. ShareWay's security is similar to that provided by Users and Groups, however it applies to TCP/IP access only. With ShareWay IP 3.0, a machine's owner can turn off guest access through the Internet while maintaining it through AppleTalk (via Users and Groups), or provide a list of those specific users that are allowed access through the Internet (while maintaining a much broader list for AppleTalk through Users and Groups).

As indicated below in Figure 3, all three security mechanisms work together over TCP/IP to provide maximum security and flexibility. A user wishing to access File Sharing over the Internet must first pass through DoorStop security (based on their machine's IP address), then ShareWay security (based on their user name) and then Users and Groups security (again based on their user name, but applying more generally to both AppleTalk and TCP/IP).

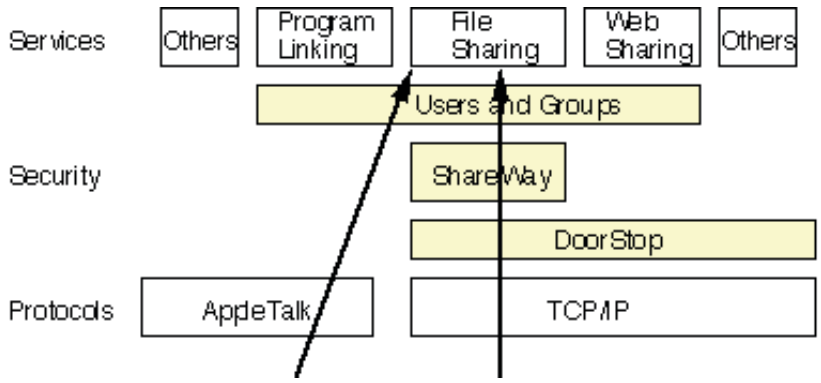

Figure 3. Security as it applies to File Sharing

Note that access to File Sharing through AppleTalk only goes through Users and Groups security. This reduced level of protection is again appropriate since there is significantly reduced risk.

Web Sharing and other TCP/IP services: The Mac OS also includes a built-in personal Web server, administered through the Web Sharing Control Panel. Access to this server is only through TCP/IP. The server can be protected through the Users and Groups Control Panel, or, as is often the case with Web sites, access can be granted to everyone. DoorStop can once again add an additional layer of protection if desired.

A number of other TCP/IP services can be added to those included with the Mac OS. **Timbuktu** remote control, **Retrospect** remote backup and **FileMaker** database are all popular services that are now available over TCP/IP as well as AppleTalk. Each of these services includes its own unique forms of security, generally based on user names and passwords (although not through Users and Groups, which is

only available to built-in Mac OS services). And each of these services exposes the Mac to additional security risk on the Internet. In the case of Timbuktu and Retrospect, this risk is quite significant. DoorStop adds security to any application which uses the TCP protocol, including each of those listed here.

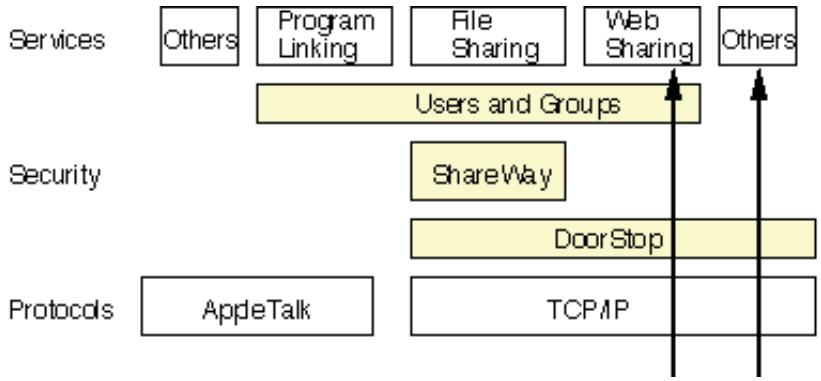

Figure 4. Security as it applies to Web Sharing and other TCP/IP services

Logging and monitoring: An often overlooked aspect of security is the ability to log and monitor access to the services being secured. Such ability was not critical when the Mac OS was accessible principally through AppleTalk. With the addition of common Internet accessibility, however, logging and monitoring of access becomes much more important. Access logs provide an audit trail of both successful accesses and unsuccessful access attempts, and enable both reactive and proactive measures. The Users and Groups security layer does not provide any logging ability, nor do most of the Macs built-in network services. Open Door's ShareWay IP 3.0 and DoorStop products add this important capability to the Mac OS.

In addition to the availability of raw access logs, it is often important that accesses to a machine's Internet services be monitored in real time. Logs often contain too much data to be constantly monitored. It is often important that the data be analyzed in real time, so that security concerns become more prominent and can be addressed in a timely manner. Open Door's **LogDoor Real-time Monitor** can analyze and summarize the ShareWay IP and DoorStop logs in such a way as to make security issues much more apparent. DoorStop can also post an alert whenever it denies and/or allows a connection request.

Enhanced security for Mac-based servers: This paper describes the Mac OS network security architecture and ways that Open Door Networks products can be used to enhance OS Internet security, from an end-user perspective. The Mac OS is also a popular environment for servers, such as AppleShare IP and WebSTAR. Open Door sells a high end version of DoorStop for such environments, which includes advanced configuration options. Open Door also sells integrated **security suites** for these servers, which include DoorStop Server Edition, LogDoor, additional security products and advanced security documentation, examples and template files. All Open Door server products have recently been upgraded to fully support Mac OS 9.

ShareWay IP Standard Edition
User's Guide

Troubleshooting

An error message indicates that ShareWay IP cannot run after the Start button is hit.

- A duplicate serial number was discovered on the network. You need to either find and stop the copy of ShareWay IP with the duplicate serial number, or obtain an additional serial number from Open Door Networks.

On a client Macintosh, when I select AppleShare in the Chooser, there is no "Server IP Address..." button.

- The "Server IP Address..." button will only appear if you are running AppleShare Client 3.7 or later.

On a client machine, I enter the IP address of ShareWay IP, but I get an error.

- Verify that there is TCP/IP connectivity between the client and ShareWay IP machines. Try pinging ShareWay IP from the client using a ping program.
- If there is a firewall between the client and ShareWay IP, or if DoorStop is running on the ShareWay machine, verify that it has made port 548 accessible.
- Verify that ShareWay IP is running and active.
- Make sure the client is connecting to the right port number, as indicated in the TCP Port Number dialog.

After ShareWay IP is started, the status window shows "IP Address: <not available>".

- The ShareWay IP machine's IP address is not available. Use the ShareWay IP machine's TCP/IP control panel to give that machine an IP Address.
- If TCP/IP is configured to use DHCP or MacIP, ShareWay IP may be obtaining the IP address dynamically from the DHCP or MacIP server. The status will update to show the IP address when it's obtained.
- If you are using PPP, ShareWay IP will only have a usable IP address if the PPP connection has been established.

When I try to connect to ShareWay, I get the message, "This file server will not allow any additional users to log on. Try again later."

- There may be too many users trying to connect to ShareWay IP. ShareWay IP Standard supports a maximum of 20 simultaneous users. If you need to support more, you should use ShareWay IP Professional Edition.
- There may be too many users trying to connect to the target server. For instance, personal file sharing only supports a maximum of 10 simultaneous users.

When I try to start ShareWay IP I get an error message that its port is already in use.

- You may be running more than one copy of ShareWay on the same machine, which is not supported.
- Some other service on the machine is using the port for which ShareWay IP has been configured. Either stop that service or change ShareWay's port number.

When I try to start ShareWay IP I get an error message that another copy of ShareWay IP is already running on the same machine.

- If you are running ShareWay under Mac OS 9, be sure that File Sharing over TCP/IP is disabled in the File Sharing Control Panel (see **Using ShareWay IP Standard under Mac OS 9**)
- Perhaps the background version of ShareWay IP is already running.

ShareWay IP displays an incorrect host name, or just an IP address, in the AFP URL field.

- There is no host (DNS) name assigned to the ShareWay IP machine.
- When a host name was assigned to the ShareWay IP machine, a "reverse DNS lookup" or "PTR" record was not assigned, or was assigned incorrectly. Contact your network administrator if you wish ShareWay IP to display the correct host name in the AFP URL.

When I enter my serial number to convert my eval copy to a full working copy, ShareWay says it's a duplicate serial number.

- Someone else on your network has already used the serial number you are attempting to use. Each copy of ShareWay IP on a given network must have a unique serial number.

When I enter my serial number to convert my eval copy to a full working copy, ShareWay says the serial number is invalid.

- ShareWay IP 3.0 will not accept serial numbers from previous versions. Be sure you are using the ShareWay IP 3.0 serial number you were supplied with.
- ShareWay IP Standard will not accept ShareWay IP Personal or Professional serial numbers.

I moved my full working copy of ShareWay IP to another machine.

OR

I reinstalled my System software, and it's now behaving like an eval copy again.

- You must reenter the serial number that was given to you when you purchased ShareWay IP. If you can't find your serial number, contact **Open Door Networks**.

The ShareWay machine is not visible in **AFP Engage!**'s "Browse AFP Servers" window (or in Mac OS 9's Network Browser ot Navigation Services).

- Be sure that the ShareWay IP machine is running Mac OS 8.5 or later
- Be sure the SLP plug-in is enabled through the extensions manager
- Be sure you are running ShareWay IP 2.0 or later
- Double-check the name of the server in the File Sharing control panel on the server machine
- Consult the AFP Engage! User's Guide for limitations with SLP

- Be sure both the client and the server are running the same version of the SLP plug-in (either 1.0.1 or 1.1).
- If the ShareWay machine has an entry in the "Search domains" field of the TCP/IP Control Panel, it will not show up in AFP Engage!. The ShareWay machine will, however, show up in the OS 9 Network Browser and Navigation Services, under a neighborhood named with the value entered in the "Search domains" field.

I am not sure if the background version of ShareWay IP is running on a particular machine.

- Run the foreground version of ShareWay IP on that machine. If the background version is running, the foreground version will indicate that fact.

I get an error saying that logging could not be enabled.

- Check to make sure that another application does not have the log file open, and that your disk is not full.

A user logs on to a ShareWay server, but does nothing and logs off some time later. The total bytes transferred for that user, as shown in the log file, seem much too high.

- The BYTES_SENT field in the log file includes all bytes sent over a session, not just bytes read from or written to files. Bytes sent as part of AFP's periodic housekeeping functions are also included.

Online help isn't available through the Macintosh Help Center.

- The folder "ShareWay IP Help" must be in the System's Help folder.
- The ShareWay machine must be running OS 8.5 or later.

Online help isn't available, or doesn't work correctly, through ShareWay IP's Help menu.

- The folder "ShareWay IP Help" must be in the System's Help folder.
- The file "ShareWay IP Guide" must remain in the same folder as the ShareWay application.
- The ShareWay machine must be running OS 8.6 or later.

A user who has been configured into the target server cannot log in over IP.

- Be sure the user is not being excluded through ShareWay IP's security.

A user who has been configured for IP access through ShareWay IP's security cannot log in

- The user must also be configured through the target server's security features.

Guests cannot log in over IP.

- Be sure guest access is enabled through both ShareWay IP's security and the target server.
