

## ***ExtremeZ-IP Frequently Asked Questions (FAQ)***

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## **1. Does ExtremeZ-IP Run on Windows 2000?**

Yes. Versions 1.1.3 and higher of ExtremeZ-IP run on Windows 2000 by default. In fact, ExtremeZ-IP runs great on both the Server version of Windows 2000 and the Workstation version of Windows 2000 (Professional).

## **2. Since Windows 2000 has built-in support for AFP over TCP, should I get Windows 2000 instead of ExtremeZ-IP?**

No. There are several reasons why ExtremeZ-IP is a better solution for serving Macintosh users than SFM on Windows 2000.

**Performance:** ExtremeZ-IP offers improved performance. Specifically, sustained write operations can be three times faster or more than Windows 2000's SFM. ExtremeZ-IP is optimized and tuned specifically for high-performance file sharing. In fact, Extreme Z-IP takes better advantage of the improved networking on Windows 2000 than Microsoft's own solution. ExtremeZ-IP actually runs significantly faster on Windows 2000 than it does on Windows NT 4.0.

**Cost:** Not only is ExtremeZ-IP faster than Windows 2000 with AFP over TCP/IP but considering the cost to your organization of migrating to Windows 2000, ExtremeZ-IP can cost much less. Furthermore, the return on your investment in ExtremeZ-IP is typically 40 days or less. Compare that to the return on investment you would achieve with a migration to Windows 2000.

**Timely integration:** Group Logic is committed to timely integration of new Macintosh technologies. ExtremeZ-IP already supports the Service Location Protocol, which allows Mac OS 9 computers to find AFP/TCP servers on IP-only networks using the Network Browser, Apple's replacement for the old Chooser tool. ExtremeZ-IP also supports Apple's standard mechanism for providing long passwords and encrypted password support – no additional UAM software is needed on the Macintosh client. Windows 2000 does not have either of these features. Moving forward, Group Logic will be dedicated to quickly adding support for new Macintosh and Windows technologies as they become available.

**Support:** Finally, Group Logic is a smaller company that is more directly in contact with its customers. We provide more direct support and are keenly committed to ExtremeZ-IP users. Macintosh users are a small fraction of Microsoft's Windows 2000 business, and many Mac users report that Microsoft's support for users of SFM has reflected this minority status. ExtremeZ-IP users have a direct line to the engineers who work on the software, and they know that if any problems arise, they will get a speedy resolution.

**3. My organization is definitely going to Windows 2000 (or already has). Now that we have an OS with built-in support for AFP over TCP, do we need ExtremeZ-IP?**

Yes. For the same [reasons](#) that folks get ExtremeZ-IP before or instead of Windows 2000, current Windows 2000 users find that ExtremeZ-IP delivers value far in excess of the investment.

In addition, bear in mind that AFT over TCP/IP is only on Windows 2000 Server and NOT on Windows 2000 Professional (workstation). ExtremeZ-IP provides AFP over TCP/IP on all NT (INTEL and ALPHA) Servers as

well as workstations on NT4 and Windows 2000.

**4. Can ExtremeZ-IP share the same volumes as Services for Macintosh?**

ExtremeZ-IP does not normally allow sharing of the same volumes as Services for Macintosh at the same time. There are several technical reasons why this limitation exists:

First, both ExtremeZ-IP and Services for Macintosh store Finder information in the “:AFP\_AfpInfo” stream of files and directories on NTFS disks. There are situations in which Services for Macintosh does not pick up on changes made by other applications, such as ExtremeZ-IP, to this stream. As a result, Services for Macintosh may not show users the same type and creator information about files. This problem can be made worse later, when a Services for Macintosh user causes the type and creator information to be re-written to disk (such as when an SFM user changes a file’s backup time). At this point, SFM would write the incorrect type/creator information to disk, and ExtremeZ-IP would notice the change — from that point on, the correct type and creator information could be lost. Group Logic has tested ExtremeZ-IP running in conjunction with Services for Macintosh, and under normal circumstances, these problems do not occur. However, under certain conditions, the problems may happen. Furthermore, under extremely unusual conditions, there is the potential for serious damage to type and creator information. Because of this potential for damage, Group Logic has chosen to disable simultaneous sharing of volumes with SFM.

An additional sharing issue pertains to the network trash folder. If SFM cannot create the network trash folder, it will generate an error message and not allow the volume to be shared over AppleTalk. Because ExtremeZ-IP also creates this folder, Services for Macintosh will generate the error message for any simultaneously shared volume if ExtremeZ-IP is started first. If, however, you start ExtremeZ-IP AFTER SFM, ExtremeZ-IP will recognize the presence of the network trash folder and simply use that copy.

**5. I have shared volumes with ExtremeZ-IP, but when I connect from the Macintosh, I do not see the volumes listed, or they are grayed-out.**

If the volume is not listed, open ExtremeZ-IP Administrator on the NT machine, and view the Volumes window. The list of volumes includes status information about the various windows:

If the volume’s status is “Indexing”, it will not appear in the list when a Macintosh connects. In this case, you should allow ExtremeZ-IP

sufficient time to finish indexing the volume.

If the volume's status indicates an error, you should open the Windows NT Event Viewer, and select the "Application" section. There should be an indication of what kind of error occurred. Correct the error condition, and either restart ExtremeZ-IP, or delete and re-create the volume.

If the volume's status is "Online", you should verify that you have permission to access the volume — if you have selected the "Hide Inaccessible Volumes" option in the ExtremeZ-IP Settings panel, you will not see volumes to which you do not have at least read permission.

If the volume is listed but grayed out, verify that you have permission to access the shared file/folder.

To verify your permissions, select the directory in Windows NT Explorer, select "Properties" from the File menu, and then select the "Security" tab. Click the "Permissions" button to view and modify the NT access control list.

## **6. How does ExtremeZ-IP utilize my system's memory? How does ExtremeZ-IP make use of the CPU?**

ExtremeZ-IP uses memory and CPU to provide high-performance response to Macintosh clients.

ExtremeZ-IP uses memory to increase performance in two key ways. First, ExtremeZ-IP keeps an in memory "picture" or "index" of the catalog of files and folders on each shared volume. When Macintosh users request information about files and folders (for example, if a file or folder is "read-only", or the type and creator of a file), ExtremeZ-IP can provide this information without loading it from disk. This results in much better performance for Macintosh users. However, if you have a large number of files and folders, ExtremeZ-IP's memory requirements will increase. ExtremeZ-IP uses page-able memory for this information, so it is not limited to a small number of files (as is the case with SFM on Windows NT 4.0).

Second, ExtremeZ-IP uses memory-mapped files for many of the read and write operations performed by client Macintoshes. In particular, Finder copies will use memory-mapped I/O to increase performance. During the time the particular read or write operation is in progress, physical memory on the machine may drop and CPU usage may increase, but it should return to normal levels after the operation is completed.

ExtremeZ-IP is written to take advantage of all CPUs in a multiprocessor NT system. Since ExtremeZ-IP's key goal is high performance, it is written to take advantage of high-performance hardware such as dual and

quad-processor systems with large amounts of memory.

**7. Does ExtremeZ-IP support passwords longer than 8 characters?  
Does ExtremeZ-IP support encrypted passwords?**

ExtremeZ-IP supports both long passwords and encrypted passwords via the DHX UAM (user authentication module). The DHX UAM is software from Apple that allows the AppleShare login dialog to accept long passwords (up to 64-characters), and exchange the password with the server in an encrypted protocol. The DHX UAM is included with the AppleShare Client 3.8.3, available from Apple, and is also built-in to Mac OS 9. In general, you should be using the latest version of the AppleShare Client available for your version of the Mac OS. More information about AppleShare Client versions can be found on Apple's website.

AppleShare Client 3.8.6 Info <http://til.info.apple.com/techinfo.nsf/artnum/n58523>

AppleShare Client 3.8.3 Info <http://til.info.apple.com/techinfo.nsf/artnum/n58360>

DHX Info  
<http://til.info.apple.com/techinfo.nsf/artnum/n58373>

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**8. Is it possible to change my password from the Macintosh when using ExtremeZ-IP on my server? Are there any issues I should be concerned about?**

You can change your password from a Macintosh using ExtremeZ-IP on your server. When you log on to the server in the Chooser, Network Browser, or via an alias, you can click the "Change Password..." button. You will be given a chance to enter your old password and your new password (twice) and then the change password request will be sent to the server. ExtremeZ-IP will ask the NT system to change your password. The user and password can be a domain member (for more information about how to specify a particular NT domain, see the documentation for ExtremeZ-IP).

There are a number of issues with changing passwords.

In AppleShare clients up to and including AppleShare Client 3.8.3, you can only change your password using the "Clear Text" authentication module. If your server is configured to not allow "Clear Text" passwords,

then you will not be able to change passwords. As a workaround, you must either enable "Clear Text" passwords or upgrade your AppleShare client.

The AppleShare client 3.8.5 (which ships with Mac OS 9) has several bugs that cause it to crash during login and change password operations. Apple has briefly documented these issues and fixed them in the 3.8.6 version of the software. This version is available from Apple's download page. It is also included in the Mac OS 9.0.4 update.

However, the AppleShare client 3.8.6 still does not correctly handle password changing when using the encrypted logins. Group Logic has worked with Apple to investigate the issue. Apple currently has an open bug (#2437239) to track the issue. Group Logic has also tested a pre-release version of AppleShare client 3.8.7, which fixes the issue. However, Apple has not indicated when, if ever, they will release this fixed version of the AppleShare client. Until they do, the only workaround is to turn OFF the "Allow Encrypted" option in ExtremeZ-IP and turn ON the "Allow Clear Text" option. You can then change your password (although you will be limited to 8 character passwords), and then return your server to its original configuration. In other words, you only need to configure the server this way temporarily while a user changes his or her password.

**Technical Information:** The following section describes the main problem with the AppleShare client 3.8.6 with respect to changing passwords. It is very technical in nature. It is not necessary to understand this information in order to change passwords. It is only presented for sake of completeness.

Password changing was not in the original version of AFP; it was not added until Apple released version 2.0 of the protocol. Additionally, Apple has never publicly documented how a multi-step password changing process works. The DHX UAM is the first password changing mechanism from Apple that actually requires a multi-step sequence to change the password. It requires multiple steps in order to provide security. For more information on how DHX works securely, see Apple's DHX UAM documentation or Schneier's "Applied Cryptography".

When the user's password has expired, the client does not expect an error to be returned from initial login command — instead, the server must report that the client is successfully logged in, but must then return the `afpPasswordHasExpired` error to any subsequent command until the user changes the password.

When the client issues the final packet in the change password sequence, it is supposed to send an encrypted buffer containing the user's old password and new password. Both passwords are SUPPOSED to be padded with zeros up to 64-bytes. However, in the AppleShare client 3.8.6, the passwords are only padded to 8 bytes, and the remaining 56 bytes contain garbage. Consequently, the supplied passwords are not correct, and the change password operation fails. The error is reported back to the client, and it disconnects from the server.

**9. When I logon to an ExtremeZ-IP server, I can't add my password to the keychain because the option is disabled. Why?**

Look in the "ExtremeZ-IP Administrator" program and make sure the "Allow Workstations To Save Password" button is checked. If this is not checked, workstations will not be able to save their passwords to their keychains because the "Add to Keychain" option will be disabled.

**10. How does ExtremeZ-IP map the Windows NT security model to Macintosh-style folder permissions?**

Mapping Windows NT access-control lists to Macintosh-style permissions is a complicated problem for ExtremeZ-IP. Windows NT uses access-control lists to define what rights a user has to a given file or directory. For example, Windows NT might define the following security information for a directory:

Owner:	Administrators
Group:	Domain Users
Access-Control List:	
Administrators:	Full Control
rob:	Full Control
Domain Users:	Change
Authenticated Users:	Read+Write
Everyone:	Read

Macintosh permissions, on the other hand, only include permissions for the owner, the group, and "world" (very similar to UNIX-style permissions). The Macintosh also has a mechanism for specifying what permissions the "current user" has (i.e., the user making the "get permissions" request to the server), and whether or not the given user has AFP "owner" access to the directory. For example, a Macintosh user who is a member of the "Domain Users" group would view permissions on the above directory as follows:

Owner:	Administrators
Group:	Domain Users
Owner Permissions:	READ + WRITE + SEARCH
Group Permissions:	READ + WRITE + SEARCH
World Permissions:	READ + SEARCH
User Permissions:	READ + WRITE + SEARCH

User Is Owner: NO

Similarly, a Macintosh user who is a member of the "Administrators" group would give:

Owner: Administrators  
Group: Domain Users  
Owner Permissions: READ + WRITE + SEARCH  
Group Permissions: READ + WRITE + SEARCH  
World Permissions: READ + SEARCH  
User Permissions: READ + WRITE + SEARCH  
User Is Owner: YES

ExtremeZ-IP maps NT's security model by building Macintosh-style permissions on the fly. When ExtremeZ-IP encounters a directory, it determines the owner and group from NT's security information. Next, it determines the current rights of the owner, group and EVERYONE accounts to the folder. Note that it is not possible for the Macintosh to determine what special permissions a user who is specified in the access control list has (such as "rob" or "Authenticated Users" in the above example).

In general, reporting permissions to the Mac this way works well. Problems arise, however, when the Macintosh user wishes to change the permissions on the NT side. Because NT's security model is richer than the Macintosh mechanism, it is not technically possible to generate NT security information "on the fly" the way we generate Macintosh information from NT information -- in other words, the reverse process of the mapping described above does not produce a complete solution.

Consequently, ExtremeZ-IP attempts to preserve as much functionality for the Macintosh user as possible, while at the same time enforcing NT's security model and preserving most of NT's security information.

When the Macintosh user changes the permissions of a folder, it provides a new owner, new group, and/or new owner, group and world permissions. ExtremeZ-IP takes this information and builds NT security information as follows. First, if the owner is changing, it removes the old owner and removes any entries in the access-control list for the old owner's account. Next, it repeats this process for the group. Then it removes any entries in the access-control list for the EVERYONE account. Now, ExtremeZ-IP assigns the owner and group, if they have changed. Next, ExtremeZ-IP builds the access-control list by adding up the rights the Macintosh has provided. However, Windows NT's set of rights (READ + WRITE + SEARCH/EXECUTE + DELETE + CHANGE PERMISSION + TAKE OWNERSHIP) is larger than the simple Macintosh set of rights (READ+WRITE+SEARCH). ExtremeZ-IP therefore maps this information using the following rules:

- If the owner is being assigned READ+WRITE+SEARCH, the owner is assigned "Full Control" in the access-control list.
- If the group is being assigned READ+WRITE+SEARCH and the group previously already had these rights, their rights are preserved as they were. If the group did not have these rights, they are given "Change" permissions. Using this technique, a Macintosh user

cannot assign CHANGE PERMISSION + TAKE OWNERSHIP rights to a group. However, if the NT administrator has already assigned those permissions to the group, they will be preserved.

- If the EVERYONE group is assigned READ+WRITE+SEARCH, and the EVERYONE group already had these rights, then their rights are preserved as they were. If the group did not have these rights, then they are given "Change" permissions. Using this technique, a Macintosh user cannot assign CHANGE PERMISSION + TAKE OWNERSHIP rights to EVERYONE. However, if the NT administrator has already assigned those permissions to EVERYONE, they will be preserved.

It is also worth discussing how the Macintosh "owner" permission works. Essentially, if the Macintosh has "owner" rights, the Macintosh believes it can:

- Update/change the permissions of a directory
- Specify and save the Finder view for a directory

ExtremeZ-IP maps the Macintosh "owner" permission for a directory to someone having the CHANGE PERMISSION and the TAKE OWNERSHIP rights. If a user has these permissions, then they will be reported as the owner of the folder to the Macintosh.

Finally, we should discuss what happens when a Macintosh client creates a folder on the ExtremeZ-IP volume. The following happens as soon as the directory is created, BEFORE THE MACINTOSH SEES THE RESULTING DIRECTORY:

The created folder is assigned the OWNER and GROUP from the thread's token. A token is generally created when you log-in to a server, and contains information about your security rights on the NT machine. The token has several components, including an OWNER, PRIMARY GROUP, USER, GROUP LIST, and default ACL.

After the directory is created, however, the Macintosh client attempts to mimic some of the settings of the parent directory. It therefore assigns the containing folder's group to the folder and then assigns the same rights for the group and EVERYONE accounts. This can cause problems, for example, if the primary group of the user is not the group of the folder.

Finally, it should be noted that Windows NT allows permissions on files as well as directories. The Macintosh has no mechanism for examining these permissions. However, these permissions are enforced by ExtremeZ-IP.

(Note that it is hard to determine the OWNER and GROUP for a token. Since it is only possible to have a token after you log-in, the server cannot tell an administrator what security attributes a given user would have unless the administrator provides a password. Similarly, NT does not provide any good mechanism for viewing the GROUP of a particular file or directory. Group Logic has developed some utilities that can assist administrators with these tasks. Contact [extremezip@grouplogic.com](mailto:extremezip@grouplogic.com) for more information.)

**11. Is there a way to make ExtremeZ-IP ignore Macintosh requests to change folder permissions? I'd like to stop all Macintosh users from changing permissions, and I will make sure to enforce permissions using normal Windows NT techniques on the NT side.**

Yes. Beginning with ExtremeZ-IP 1.1.3, there is a registry value you can add, which will tell ExtremeZ-IP to ignore all requests by Macintosh users to change permissions. In the registry key

HKEY\_LOCAL\_MACHINE

SYSTEM

CurrentControlSet

Services

ExtremeZ-IP

Parameters

Create a new DWORD value called "IgnoreMacSetPermissions", and give this a non-zero value. Macintosh users, if they are the AFP "owner", will still be able to access the "change permissions" dialog boxes in the Finder but their changes will not be made to the folders on disk.

**12 Does ExtremeZ-IP support connections over AppleTalk?**

ExtremeZ-IP does not currently allow connections over AppleTalk — only TCP/IP. Most of our customer desire the faster performance of TCP/IP,

and also wish to limit the presence of the AppleTalk protocol on their network. However, we are considering the addition of AppleTalk connections in a future version.

**13. My OPI or RIP product (such as Color Central, RAMPAGE, etc) appears to require Services for Macintosh. Is there a workaround to allow these products to work with ExtremeZ-IP?**

Many of these products, including both ColorCentral and RAMPAGE, use the Services for Macintosh registry keys that identify the list of Mac shares.

These programs typically need to map the Macintosh's perception of a file's location to its actual location on the Windows NT machine in order to perform certain kinds of processing. So, for example, if you are sharing "d:\OPISHARE" as the Macintosh volume "OPI Share", then the Macintosh path to a file might be "OPI Share:Job Folder:Job File.JPG", whereas the Windows path would be "d:\OPISHARE\Job Folder\Job File.JPG." The OPI server software might need to use this information to process the file on the Windows server side.

Some of these programs may also use these volumes to watch for certain file names (such as Macintosh file names that contain '\*', '?', or '/') characters) and rename them to something more acceptable.

ExtremeZ-IP does not store the list of volumes in the same location as MACFILE (SFM), primarily because it would break MACFILE to do so. However, ExtremeZ-IP does store the list of volumes (and other registry keys) in exactly the same format as MACFILE registry keys. So in order to get Color Central to do work, you simply have to copy the data in the registry.

Specifically, you should copy each entry from:

```
HKEY_LOCAL_MACHINE
  System
    CurrentControlSet
      Services
        MACFILE
          Parameters
            Volumes
```

To this location:

```
HKEY_LOCAL_MACHINE
  System
    CurrentControlSet
      Services
        ExtremeZ-IP
          Parameters
            Volumes
```

By far, the simplest way to accomplish this task is to run Services for Macintosh temporarily, create each of your volumes, then shutdown Services for Macintosh by setting it to disabled in the Services control panel (do NOT uninstall Services for Macintosh). Next, run ExtremeZ-IP and set up the list of volumes exactly the same way.

Note that ColorCentral 3.6 has direct support for ExtremeZ-IP via a special path mapping plug-in that is described in the Color Central manual. You can contact ScenicSoft for more information on this configuration. However, the above mechanism also works with ColorCentral 3.6.

Group Logic has tested Color Central with ExtremeZ-IP. Group Logic has also worked with RAMPAGE to test their OPI server with ExtremeZ-IP. If you have an additional OPI or other server that may need compatibility with Services for Macintosh contact Group Logic.

**14. When I try to mount two ExtremeZ-IP volumes using the Mac OS 9's Network Browser, my Mac hangs. I am using AppleShare Client 3.8.5.**

AppleShare Client 3.8.5 has a number of problems with the DHX UAM, which is the part of the client that provides support for encrypted passwords. There are several crashes that can occur. If you were running MacsBug on your machines, you would have seen the Mac crash with an error instead of just hanging as it did.

Fortunately, these issues appear to be fixed in AppleShare Client 3.8.6, which is available from Apple. The client is available from Apple at:

<http://asu.info.apple.com/swupdates.nsf/artnum/n11544>

The README can be found here:

<http://til.info.apple.com/techinfo.nsf/artnum/n58523>

Apple's documentation claims that it fixes a problem crashing when connecting to a Mac OS X Server. However, what really is happening is that there it has problems using DHX. Since not many servers support DHX (in fact, ExtremeZ-IP and Mac OS X Server are probably the only two commercial servers), Apple's documentation does not give the entire story. We actually worked with Apple's AppleShare client engineer right after Mac OS 9 came out to identify some of these issues; Apple had not thoroughly tested the functionality with their own servers, while we found it with ours.

**15. Now that I've migrated from SFM to ExtremeZ-IP, my Mac clients fail to auto-mount volumes. What's wrong?**

The first thing to check is to look in the "ExtremeZ-IP Administrator" program and see if the "Allow Workstations To Save Password" button is checked. If this is not checked, workstations will not be able to log in at start up correctly. Turn this option on, then remount the servers from the clients and set up the auto-mounting again.

Secondly, there may be an issue with respect to the AppleShare Client you are using. While the AppleShare Client 3.8.3 has encrypted password support via the DHX UAM plug-in, this version does not support auto-mounting with encrypted passwords. If this is what is happening, then you have two options. One is to upgrade to AppleShare Client 3.8.6 and use its auto-mount features. It works differently and better than previous versions. You can find it at:

<http://til.info.apple.com/techinfo.nsf/artnum/n58523> <http://asu.info.apple.com/swupdates.nsf/artnum/n11544>

If you need to continue using 3.8.3 (because your Mac OS version is incompatible with the 3.8.6 release for instance), then you could also turn off the "Allow Encrypted Password" checkbox in the Administrator program.

In addition, Standard Additions 1.4 in MacOS 9 was not updated to accommodate certain changes in AFP Client behavior regarding NAM negotiation. As a result, the mountvolume command would not work with secure logins to certain servers, such as MacOS X Server and WindowsNT. To fix this problem, upgrade to Standard Additions 1.4.2 or later. See technote for Mac OS 9.0.4 for more information.

**16. I have been using the "mount volume" command to mount AppleTalk-based AFP server volumes. This command doesn't seem to work with ExtremeZ-IP servers. What's wrong?**

The original "mount volume" scripting addition works only for AppleTalk volumes. This command used the following syntax:

```
mount volume "" on server " " in AppleTalk zone ""
```

incomplete

Since ExtremeZ-IP volumes are not available via AppleTalk, this command does not work. Indeed, this command will never mount an AFP

volume using TCP/IP -- even for servers that support AppleTalk and TCP/IP connections; the end result will be an AppleTalk-based (and hence slower) connection.

In Mac OS 8.5, Apple improved the "mount volume" command to allow for mounting TCP/IP-based servers. This new command takes an AFP URL instead of the above syntax. Suppose you wanted to mount the volume "Common" on the file server "MyServer.MyCompany.COM". You would then use the following command:

```
mount volume "afp://myserver.mycompany.com/Common/"
```

If your server doesn't have a DNS name you can still use the IP address - if your server's IP address is 192.168.1.15 and the volume was called "Shared Files", you could use

```
mount volume "afp://192.168.1.15/Shared Files/"
```

Incidentally, Leonard Rosenthol originally developed this support. He has a downloadable version of this scripting addition and additional documentation. Additionally, his scripting addition works on Mac OS versions prior to Mac OS 8.5, so if you need support for older Mac OS versions, you should use his version, available at:

<http://www.lazerware.com/software.html>

**17. Can ExtremeZ-IP work with files that are bigger than 2GB? I am using Mac OS 9.**

At the present time, it is not possible to work with files greater than 2GB with any server at all, even with Mac OS 9.

While Apple did include support for large files in Mac OS 9, they did not revise the AFP protocol to support these large files (or any other features for that matter). The current AFP protocol version still has a 32-bit offset in the FPRead command, and there's no way to get around it.

We hope that Apple is going to address this limitation later this year with AFP 3.0 — we will include AFP 3.0 support as soon as it is available. Until that time, however, we can't support it.

**18. I would like to configure ExtremeZ-IP to listen on a port other than the default. Is this possible?**

You can configure ExtremeZ-IP to listen on a port other than the default.

The default setting is port 548.

In order to use a different port, you need to create a new value in the registry. Create this new value in the key:

```
HKEY_LOCAL_MACHINE
  System
    CurrentControlSet
      Services
        ExtremeZ-IP
          Parameters
```

The key should be a DWORD value called "AFPTCPPort". For the value, use the number of the port you want to use — valid values are 1 through 65535. Hopefully this will work around your firewall issues. You will need to restart ExtremeZ-IP after you enter this value for it to take effect.

In order for the client to connect, they will need to click the "Server IP Address..." in the Chooser and enter ":" -- for example, "192.168.1.1:20000". If the client machine is on the local AppleTalk network, they can simply select the item in the Chooser and it should work. Note that the Network Browser in Mac OS 9 does not work correctly for machines that do not use the default port. We hope that Apple will fix this before too long.

**19. I am using Mac OS 8.1 and when I view files on my ExtremeZ-IP server, the file sizes are way off. What's wrong?**

This problem is a known bug with Mac OS 8.1 and AppleShare Client 3.8. It's actually the result of an undocumented portion of the AFP protocol.

AFP 2.2, which is the first version to really support AFP over TCP, does not specify a call for the client to get the allocation block size. When the Finder calculates how much space is used by a file (or, specifically, a file fork) it determines how many blocks the file would use. If, for instance, the block size is reported as 32K and you have a file that takes up 1 byte, the Finder will report the size as 32K, because that's how much space on the disk is actually being used.

Anyway, before Mac OS 8.1 — specifically, before the HFS+ file system — the block size was always calculated by dividing the size of the disk by a certain value. That's why HFS (before HFS+) was so bad for large disks — small files wasted LOTS of space. Well, the Mac used this same technique for AFP volumes as well.

But in Mac OS 8.1, the behavior changed. Suddenly, it was possible to have disks with much smaller block sizes. But only after Apple released the OS did they realize that AFP volumes had this problem. So they

placed an undocumented call into the AFP protocol for determining the block size. We implemented support for it in ExtremeZ-IP.

After Mac OS 8.1 came out, Apple released a new client. While AppleShare Client 3.8.1 probably fixes this problem, it MAY be that the bug is in Mac OS 8.1 itself. Later versions of Mac OS do the right thing.

Upgrades to later Mac operating systems are probably worth it – Mac OS 8.6 and Mac OS 9 are our versions of choice.

**20. I've installed ExtremeZ-IP but so far it has not doubled the throughput. What can I do to get the most performance out of my environment?**

If you are not seeing double the throughput with using ExtremeZ-IP (as compared to not using ExtremeZ-IP) the problem is probably related to your network. Let's look at some of those possibilities, because there are many different things that can affect performance on your network.

First, make sure you have the latest version of ExtremeZ-IP. Each release of ExtremeZ-IP has added additional performance enhancements, so it is important to be using the latest. Earlier versions had specific performance problems under certain memory configurations. The latest version corrects all such issues.

For optimum performance, your machines should be plugged in to a network switch instead of a hub, if possible. Being connected to a switch allows the machine to send and receive data simultaneously; this capability is referred to as "full duplex". If it is only possible to run one of your machines at full duplex, then it is recommended that you run the server at full duplex, since it will make a difference for all of the connected users.

There are also some problems with various Ethernet drivers on both Macintosh and Windows NT. It is important to use the latest Ethernet driver for your specific OS. In particular, older versions of Asante drivers, Apple drivers, and NetGear drivers have some problems. All of these should be addressed by installing the latest fixes from the manufacturer.

Even the latest available drivers have some problems under certain circumstances. In particular, the Apple built-in Ethernet drivers on certain machines do not always correctly auto-negotiate. Apple has a tool available on their support Web site for manually forcing an adapter into full-duplex mode. Contact Group Logic if you need information about this tool. Other manufacturers may have similar utilities for their cards; check with the vendor of your particular hardware.

Finally, there are other ways to improve your network performance. If possible, use 100-Base-T (Fast Ethernet) or better – the speed differences between AppleTalk and TCP/IP are much more dramatic on faster networks. Properly configuring your network with a combination of hubs and switches is also important – you want to keep slower machines on isolated network segments so that their performance does not drag down everyone.

**21. I have multiple network cards (NICs) in my machine. Will ExtremeZ-IP take advantage of them? How does ExtremeZ-IP work with multiple IP interfaces?**

ExtremeZ-IP will make use of all NICs that are configured for TCP/IP, including Remote Access Service (RAS) connections. When a Macintosh client connects in the Chooser (using AppleTalk), the server responds with all available IP addresses. The client chooses an address from this list. Typically, the client will choose an address that is on the same subnet, but if none is, it will choose the first in the list. If you run into problems with specific clients, you may need to connect by entering the IP address of the machine instead.

**22. Does ExtremeZ-IP limit a volume to 65,000 files or folders?**

No. ExtremeZ-IP has no such limitation and neither does the Macintosh client. ExtremeZ-IP has been successfully used on machines with up to a million files.

Note that the Macintosh Finder may experience performance slow-downs when opening folders with large numbers of items. Various Macintosh troubleshooting sites have documented problems with the Finder that can be alleviated by keeping the number of items in any given folder below around 200 items. Still, ExtremeZ-IP does not have any limitation.

**23. Sometimes when I set the view for a particular folder (List/Icons/Buttons) in the Macintosh Finder, it doesn't remember the view the next time I log on. How can I set the view so that it will be remembered? How does this affect other users who might view the folder?**

All AFP Servers, including AppleShare on Mac OS, Services for

Macintosh on Windows NT, and ExtremeZ-IP on Windows NT allow the AFP "owner" of the folder to set its view state.

Currently, no AFP servers support different views for different users. This means that once the "owner" of a particular folder sets the view, it will be set for all users. The Macintosh Finder does occasionally cache view information, which means that if a user has the folder open when the owner changes the view on another machine, and the other user then closes and re-opens it quickly, the Finder may not show the updated view. However, after a short period of time or after the next login, the Finder should show the view that was set by the owner.

ExtremeZ-IP (and Services for Macintosh) interprets the AFP "owner" of a folder as anyone who has "Change Permission" and "Take Ownership" rights to the folder. If you are logged in with an account that has these rights to a folder, all users will see the View State that you set from that point on.

Sometimes, administrators set up ExtremeZ-IP volumes where the "Everyone" account has "Full Control". Because "Full Control" includes the "Take Ownership" and "Change Permission" rights, this means that any user who connects can change the view, and it will affect all other users. In order to keep this from happening, the folder's permissions should be changed, so that the "Everyone" group has only "Special Access", including "Read", "Write", "Execute" and "Delete" privileges. Give the "Administrators" (or some other account) "Full Control", and set the view from that account.

We are considering changing the behavior for the specific case in which "Everyone" has been given full control to instead allow only the "Administrators" group to change view states; this change might appear in a future version of ExtremeZ-IP. We currently have no plans to support "per-user" view settings, although Mac OS X may have some mechanism in place for supporting this when it is released next year.

- 24. When I tried to copy some files from one location to another on the server using the Macintosh Finder, I got an error message that said "FILENA~1.TXT" already existed. But when I look at the folder, I do not see that file. What's wrong?**

This has to do with the way ExtremeZ-IP (and Services for Macintosh) handles file names that are longer than the normal 31 characters allowed by the Macintosh. When ExtremeZ-IP encounters a file that has such a name, it uses the MS-DOS 8.3 name when it reports the name to the Macintosh. Therefore, a file with a long name of:  
AVeryVeryVeryVeryVeryLongName.TXT

and short name of:  
AVERYV~1.TXT

will show up on the Macintosh client as:  
AVERYV~1.TXT

(Windows NT automatically generates the short names of files for MS-DOS and Windows 3.1 clients; you can find more information about how this name is generated by consulting Microsoft's Windows NT documentation.)

As an example, suppose you have a folder that has two files in it:

AVeryVeryVeryVeryVeryVeryLongName.TXT	(AVERYV~1.TXT)
AVeryVeryLongName.TXT	(AVERYV~2.TXT)

When the Macintosh sees this folder, it will see the following:

AVeryVeryLongName.TXT  
AVERYV~1.TXT

Now, suppose the Macintosh attempts to "duplicate" this folder (by selecting the folder in the Finder and choosing "duplicate").

The Macintosh Finder will respond by issuing a set of commands to ExtremeZ-IP that include the following:

Copy file "AVeryVeryLongName.TXT" to the new directory  
Copy file "AVERYV~1.TXT" to the new directory

ExtremeZ-IP responds to these commands as follows. First, it copies the file "AVeryVeryLongName.TXT" to the new directory. However, when it does this, Windows NT automatically generates a new short name for the file. So at this point, the new directory now contains:

AVeryVeryLongName.TXT(AVERYV~1.TXT)

Next, ExtremeZ-IP attempts to copy the file "AVERYV~1.TXT" to the new location. However, when it tries to copy the file using the short name (since that is what the Macintosh told it to use), the resulting name already exists! Consequently, the Macintosh client gets an error.

The only complete work around for this problem is to try to limit your file names to 31 characters. A future version of the Macintosh client may allow for longer file names, and ExtremeZ-IP will provide such support at that time.

**25. After using the trial version of ExtremeZ-IP, I have decided to purchase the product. Do I need to do an "uninstall" of the trial**

**software?**

No. You don't have to do an uninstall. Group Logic typically emails to you, on the spot, the serial number and everything you need to keep all the settings that you have set with the trial. Specifically, you will load a released version on top of the trial or previous version, then key in the serial number and you'll be in great shape.

**26. What is the typical Return on Investment (ROI) with the ExtremeZ-IP software product?**

The return on investment is different for each environment; however, a typical site that has 1 NT INTEL Server and 10 Macs connected can expect to see ROI in 42 business days. Call or email to get the simple formula into which you can plug your information to calculate your specific Return on Investment (ROI).