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AppleShare: System 7.5 Server Large Volume Concerns (2/97)

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TOPIC -----

How serious is the problem of negative file sizes when accessing a shared System 7.5 volume over 2 GB in size? I am aware of the negative file size issue, are there any other serious complications?

DISCUSSION -----

- Here is what we have discovered about accessing AppleShare volumes that are larger than 2 GB via Macintosh computers running system 7.1 or 7.0.1. The AppleShare extension that is included with 7.1 or 7.0.1 causes the Finder to display incorrect file size and disk space usage information. Some copy operations failed and others did not. The behavior is inconsistent and it is hard to predict when a failure will occur.

System 7.5 and the workstation installer disk (included with the Workgroup Servers) install version 3.5 of the AppleShare extension. With this version of the extension installed, Macintosh computers running System 7.1 or 7.0.1 report the correct file sizes and disk usage information. However, some copy operations will fail, others succeed and the behavior is again inconsistent. Some copy operations fail during pre-flight (checking to see if there is enough free space) and some fail during the actual copy. This is due to the Finder's handling of numbers larger than 2 GB.

The problem is two fold and is simply a matter of using signed or unsigned numbers. The Hierarchical File System (HFS) used a signed long integer to represent volume size. This resulted in a maximum volume size of 2 GB because the range of values for a signed long integer is -2 GB to 2 GB. An unsigned long integer has a range of values from 0 to 4 GB. All that was needed was to change which type of integer was used in the code. Both the Finder and the AppleShare extension used signed numbers. The AppleShare extension version 3.5 and the System 7.5 Finder now use unsigned numbers for the volume size.

The answer to your question is there are some problems using pre-7.5 systems to access large AppleShare volumes. There does not seem to be any data corruption, but writing data to the AppleShare volume will sometimes fail. Installing

version 3.5 of the AppleShare extension on pre-7.5 systems solves some of the problems, but the only true solution is to use System 7.5 or later on all the clients that want to access volumes larger than 2 GB.

Also in order for the AppleShare server to accurately display Finder information for volumes larger than 2GB, the AppleShare Custom Settings application must be active on the server. This application is on Apple's Software Update locations in the Unsupported directory as "AS Custom Settings 1.0".

- There is no way to keep systems using pre-7.5 system software from accessing 4 GB AppleShare volumes.
- Apple HD SC Setup 7.3.5 will format volumes up to 4 GB but is only supported on Apple drives. However, Apple does not currently sell a 4 GB drive.

Article Change History:

- 25 Feb 1997 - Added AppleShare Custom Settings application information.
- 18 Aug 1995 - Reviewed for technical accuracy. Corrected minor typo.
- 15 Feb 1995 - Reviewed for accuracy and changed keyword.

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