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Macintosh Computers: Excessive Disk Activity at Startup (5/96)

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TOPIC -----

Following a system freeze, why does my Macintosh computer take so long to reach the "Welcome to Macintosh" screen in the startup process?

DISCUSSION -----

In general, the startup process will likely take longer on Macintosh computers with a lot of RAM and hard drive storage space. At startup, both the memory and the integrity of the hard drives are checked. The memory check validates and determines how much memory is present. So, a computer with 256 MB of memory will take somewhat longer to startup than a 16 MB computer. Additionally, the status of the "file system dirty" flag is checked to determine the integrity of the hard drives.

The "file system dirty" flag is set in the file system disk structures when a disk or partition is opened and mounted. This flag indicates that some active disk structures are RAM resident, that files open for output are present, and that data needs to be flushed to the drive when the volume is closed and dismounted. In the normal shutdown process, the Finder flushes all RAM-resident disk structures to the disk, closes and dismounts the volume, and resets the "file system dirty" flag.

The major difference between a normal and abnormal restart (after a system freeze) is the validation of the integrity of the disk file system. If this flag has not been reset, then it is assumed that a proper close and dismount by the Finder did not occur. The state of the file system data structures are in doubt because there may have been open files for output when the crash occurred. At this point, the drive is checked to ensure the integrity of the disk file structures. This process takes longer if you have a larger hard drive and/or have a lot of files on the hard drive. The normal startup process is faster because the volume integrity is assured and no recovery checking is necessary.

All SCSI drives attached to the computer are checked in this manner. For the startup volume, this process happens before "Welcome to Macintosh". For the other volumes, this process happens as the Finder launches. Thus, you are likely to see a further delay, accompanied by intensive disk activity, as the Finder launches.

So, to avoid losing or corrupting files, Apple recommends that you shutdown the computer by selecting Shutdown from the Special or Apple menus.

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