

Drive Image®

Troubleshooting

This document provides solutions to problems that you may encounter while using Drive Image. Included are the following:

- Freeing Conventional Memory to Run Drive Image
- Resolving Check Errors
- Resolving Partition Table Errors
- Partition Tables and Viruses
- Error Messages and Solutions

Freeing Conventional Memory to Run Drive Image

The Drive Image executable running under DOS requires a minimum of 400KB of memory in the first 640KB of the computer's address space (conventional memory). If you try to run Drive Image from DOS and find you do not have enough free conventional memory, you can free enough additional memory in a number of ways.

Running MEMMAKER

MEMMAKER is a program that automatically configures your computer to save conventional memory (while still loading all of the device drivers and other programs you usually load when booting DOS). MEMMAKER frees conventional memory by moving as many programs as possible out of conventional memory into high memory. Run MEMMAKER by typing MEMMAKER at a DOS prompt. Follow the on-screen instructions.

MEMMAKER is only available with DOS versions prior to DOS 6.0. {MEMMAKER is not available with Windows 95.

Using the F8 Key to Keep Programs From Loading

If running MEMMAKER does not free enough conventional memory, you can free more by pressing <F8> right after booting your computer (while DOS is booting). If you press <F8>, when DOS reads the commands from the CONFIG.SYS and AUTOEXEC.BAT files on your hard drive, DOS will ask you if you want it to execute each command. When you see commands that load device drivers or TSR programs that you will not need to run Drive Image, answer N (no) to tell DOS not to execute that command (not load that software into memory). This will conserve conventional memory.

Using an Operating System Boot Diskette

If running MEMMAKER and using <F8> does not free enough conventional memory, you can create a boot diskette that allows you to boot using a very minimal amount of conventional memory.

You can create a boot diskette for any version of DOS by performing the following:

- 1** Place in your diskette drive (A:) any diskette that does not contain information you want to keep.
- 2** Go to a DOS prompt, type `FORMAT drive: /S` (where drive is the drive letter of the diskette drive).
- 3** Press <Enter>.

After the diskette is formatted and the operating system files are transferred, you will be able to boot the computer from the diskette. If you restart your computer with the diskette in the diskette drive, your computer boots using a minimal amount of conventional memory. After you boot from the diskette, you can run Drive Image from either the diskette or your hard drive.

If you want to run create and restore images across a network, you will need to create a network boot diskette. See Creating DOS Boot Disks in Appendix A.

Creating a CONFIG.SYS File on the Boot Diskette

If making an ordinary boot diskette doesn't free enough conventional memory, you can create a customized boot diskette that will free even more conventional memory. (With the customized diskette, you will free more conventional memory by loading some of the DOS operating system into high memory.) To customize the diskette, you must create a CONFIG.SYS file in the root directory (C:\). To create a CONFIG.SYS in the root directory, perform the following:

- 1** At the DOS prompt, type drive: (where drive is the drive letter of the diskette drive), then press <Enter>.

Verify that you have changed to the diskette drive (you see the drive:\> prompt).

- 2** Type `EDIT CONFIG.SYS`, then press <Enter>.

This starts the DOS editor. (You will see a blank screen if no CONFIG.SYS currently exists.)

- 3** In the editor, type the following:

```
DEVICE=C:\DOS\HIMEM.SYS
DEVICE=EMM386.EXE
DOS=HIGH,UMB
```

IMPORTANT! All lines must be entered in the order shown. Windows users, substitute `DEVICE=C:\WINDOWS\HIMEM.SYS`.

- 4** Click **File** ► **Save** to save the file.
- 5** Click **File** ► **Exit** to exit the editor.

You can now reboot your computer from the customized boot diskette. When DOS loads, much of it is loaded into high memory, saving a maximum amount of conventional memory.

Deleting Operating System Compression Files

If you use DOS 6.22 and your system doesn't have any compressed drives (for example, DriveSpace, DoubleSpace, or Stacker), you can delete the operating system compression files DRVSPACE.BIN or DBLSPACE.BIN from any boot diskette you create. This frees more conventional memory because DOS 6.22 loads the contents of these files into memory, regardless of what's in the CONFIG.SYS or AUTOEXEC.BAT. These files are hidden system files, so if you wish to delete them you will have to perform the following:

- 1 From the DOS prompt, type *drive*: (where *drive* is the drive letter of the diskette drive).
- 2 Type `ATTRIB -R -H -S * .BIN`.
- 3 Type `DEL * .BIN`.

Resolving Check Errors

Drive Image checks the integrity of a partition thoroughly prior to creating an image file or copying a partition. These checks are substantially the same as those made by the operating system's CHKDSK, SCANDISK, or AUTOCHK utility.

- 1 If you receive a Check error message for any partition, after backing up your hard drive, do the following:

Operating System	Instructions
Windows 95, Windows 98, or MS-DOS 6.x	Run SCANDISK on the affected partition.
Windows NT	Run CHKDSK without the /F switch on the affected partition. Note that the DOS CHKDSK does not detect problems with Extended Attributes.

- 2 The check utility program usually shows the same problems as Drive Image. If that is the case, run the utility again with the /F switch to fix the problem.

If the check utility does not show the same errors that Drive Image shows, contact PowerQuest technical support. See *Appendix D* of the Drive Image user guide for contact information.

- 3 After running the utility with the /F switch, run it again without using the /F switch to make sure the partition is free of errors.

Under OS/2, you should perform this procedure twice before proceeding.

- 4 If Drive Image still reports a problem, reformat the partition and restore your files from the backup copy to correct the error.

Check Errors Encountered After Restoring an Image

Drive Image also checks a partition after restoring it. If this check fails, report the problem to PowerQuest technical support. While data loss is possible, in this case it is not typical. The problem is usually a minor file system error that CHKDSK /F can correct without data loss. For more extensive errors, you may need to restore your files from a backup copy.

Resolving Partition Table Errors

To resolve partition table errors, you must create new, error-free partition tables.

In some cases, PowerQuest technical support can help you fix partition table errors without data loss. Check with them first before proceeding with the following steps.

Creating New Partition Tables

- 1 Make sure you have no viruses.

See "Partition Tables and Viruses" on page 6.

- 2 Back up the data on the affected partitions.

- 3 Delete the partitions.

You may need to use the FDISK program from a recent DOS version because earlier versions of DOS may refuse to delete HPFS or hidden partitions.

Under OS/2, the OS/2 FDISK program may recognize the partition's corruption and refuse to modify it. In this case, use the FDISK program from a recent DOS version.

- 4 Recreate the partitions.

- 5 Restore the contents of the partitions.

Partition Tables and Viruses

If partition changes made under one operating system are not reflected under the other, and vice versa, it is possible that a master boot record (MBR) virus is present.

Use a virus check utility that can detect the latest viruses. If a virus is found, data loss is likely. If a virus is found, perform the following:

- 1 Before removing the virus, run ScanDisk, CHKDSK, or ffck under each of the operating systems to evaluate the integrity of the partition.
- 2 Back up the files from any partition that passes the Check operation.
- 3 After backing up the files from all operating systems, remove the virus.
- 4 Run a thorough ScanDisk, CHKDSK, or ffck under each of the operating systems again.
- 5 Delete and recreate any partitions that fail the check.
- 6 Reinstall the operating systems.
- 7 Restore the backup files as necessary.

Error Messages and Solutions

For a complete list of error messages and solutions, please visit the PowerQuest Knowledge Base at www.powerquest.com/support/primeun/id817.html.

Miscellaneous Errors (3–38)

#3 Not enough memory

The DOS Drive Image executable running under DOS requires a minimum of 400KB of memory in the first 640KB of the computer's address space (conventional memory) and 8MB of total memory. If you don't have enough conventional memory, see "Freeing Conventional Memory to Run Drive Image" on page 2 for possible solutions.

The boot diskette (disk 1 of 2 Drive Image rescue disks) includes EMM386.EXE to help load network drivers in high memory. However, because this file limits extended memory to 32 MB, you may see error #3 when you run Drive Image from the rescue disks and work with large FAT32 and NTFS partitions. If you do not need EMM386.EXE, you can delete it from the bootable floppy to avoid this

error. If you delete the EMM386.EXE file, you must also REM or delete the following line in the CONFIG.SYS file on the boot floppy:
DEVICE=EMM386 . EXE.

#8 Could not allocate/deallocate DOS real mode memory

The DOS Drive Image executable running under DOS requires some memory in the first 1 MB of the computer's address space. (Drive Image uses a DOS extender.) If not enough memory is available, Drive Image cannot access the hard drive. If you don't have enough conventional memory, see "Freeing Conventional Memory to Run Drive Image" on pag e2 for possible solutions.

#23 Unsupported version of operating system

The operating system versions that are required to run Drive Image are listed in System Requirements in the Introduction page XX).

#34 This beta or evaluation version is no longer safe to use

PowerQuest occasionally releases beta versions and evaluation versions of Drive Image. Both versions are not as safe as released versions; therefore, PowerQuest builds an expiration date into each version. After a predetermined test period, the beta or evaluation version will no longer function.

#36 DPMI Server error

Drive Image DOS executables use a DOS extender. This error indicates a failure during a call made from Drive Image through the DOS extender (to DOS or to the BIOS). The DOS extender may be in conflict with other programs that use extended memory. DOS would load the conflicting programs from your CONFIG.SYS or AUTOEXEC.BAT file during the normal boot sequence.

You may be able to resolve this problem by pressing <F8> while booting DOS. After DOS boots and starts to read the commands from your CONFIG.SYS and AUTOEXEC.BAT files, DOS will ask if you want to execute each command. When you see commands that load device drivers or TSR programs that you think might be conflicting with the Drive Image DOS extender, answer N (no) to tell DOS not to execute that command (not to load that software into memory). You will often be able to find a program configuration that will enable Drive Image (the DOS extender) to run without error.

Disk Access Errors (40–56)

Errors 40-56 indicate that Drive Image cannot access your hard disk; these errors are often reflect hardware problems. Some problems have simple solutions; for other problems, the only solution is to replace the hard drive. When possible, Drive Image detects errors before any changes have been made, so you can back up your data before replacing the hard drive.

#49 Write fault

#50 Read fault

Drive Image is unable to read or write from a specific sector on the hard drive. There are a number of possible causes of this error:

- If your PC beeps or displays a black box in the middle of the screen, virus protection is enabled in your computer's BIOS. Disable virus or boot sector protection in the BIOS.
- A virus protection application (which may be a TSR or DLL program) is in use. Disable the application before using Drive Image.
- There is a bad sector on the hard drive. (This is usually the case with only older hard drives.) Run a thorough SCANDISK on the hard drive to perform a surface scan to verify the existence of bad sectors. If your drive has bad sectors, we recommend you replace it. You may be able to use Drive Image, or you may need to back up your files using another method.
- You have set up disk mirroring with PC-Tools. Disable disk mirroring.
- Your caching controller card is not set up properly.

Partition Table Errors (100–199)

Errors in the 100-199 number range are partition table errors. For general information about solving this type of error, see “Resolving Partition Table Errors” on pag e5.

#100 Partition table is bad

The master boot record (MBR) can contain, at most, one extended partition, and each extended partition boot record (EPBR) can contain, at most, one link to another EPBR. This error occurs when a partition table violates the foregoing rule. Since any modifications Drive Image makes may decrease the amount of data that is recoverable from the hard drive, Drive Image will not recognize any of the hard drive's partitions. You must create new, error-free partition tables to resolve your problem. See “Partition Tables and Viruses” on page 6.

#104 No sectors in partition

No partition should contain zero sectors. Delete the partition before using Drive Image.

#105 Partition starts on wrong boundary

The hard-disk partition table contains erroneous values. Drive Image expects FAT, NTFS, and HPFS partitions to begin and end on the boundaries used by FDISK. If they do not, the disk may be partially corrupted. In this circumstance, if Drive Image were to make any modifications it might cause the loss of data. Therefore, Drive Image will refuse to recognize any of the hard drive's partitions. To resolve this problem, see "Resolving Partition Table Errors" on page 5.

#106 Partition doesn't start with sector one

See error #105.

#107 Partition begins after end of disk

This error can occur when you are running Drive Image on a hard drive that uses more than 1,024 cylinders. Under DOS, Drive Image is restricted by the BIOS 1,024 cylinder limit. If any partitions extend beyond the limit, Drive Image cannot safely operate on the hard drive.

This error can also occur if a partition erroneously extends beyond the physical end of the hard drive. This may happen if the hard drive has been used on a different computer or with a different hard-disk controller or if BIOS settings have been changed. Be advised that the physical geometry of the hard drive may differ from the logical geometry assigned to the hard drive by the operating system.

#108 Partition doesn't end at end of cylinder

See error #105.

#109 Partition ends after end of disk

See error #107.

#110 Partition table number of sectors is inconsistent

The hard-disk partition table contains two inconsistent descriptions of the number of sectors on the hard drive. This error is serious if both DOS and another operating system use the hard drive. Because DOS uses one description and other operating systems may use the other, data loss is likely once the partition is almost full. To resolve this error, see "Resolving Partition Table Errors" on page 5.

#111 Logical partition starts outside Extended

The hard-disk partition table contains erroneous values. All logical partitions must be totally contained within the extended partition. To resolve this error, see “Resolving Partition Table Errors” on page 5.

#112 Logical partition ends outside Extended

See error #111.

#113 Partitions overlap

The hard-disk partition table contains erroneous values. If data partitions overlap, writing to one may destroy data in another.

This error is sometimes the result of an OS/2 FDISK bug. If free space exists within the extended partition, OS/2's FDISK program allows a primary partition to be created that overlaps the extended partition. A logical partition is subsequently created in the space occupied by the overlapping primary partition.

If a primary partition overlaps the end of the extended partition, but does not overlap any logical partitions within the extended partition, the problem can be remedied by patching the partition table. Only qualified individuals should attempt this repair! An incorrect patch could destroy all data on the hard drive! In most instances, you should resolve the problem as explained in ‘Resolving Partition Table Errors’ on page 5.

#116 Partition table Begin and Start inconsistent

The hard-disk partition table contains two inconsistent descriptions of the partition's starting sector. This error can occur if the operating system reports a hard-disk geometry that is different than the geometry in use when the partition table was written. Possible causes of the hard-disk geometry changing are:

- Different operating systems (for example, DOS and OS/2) report different hard-disk geometries.
- You boot from a diskette that loads a different driver than is loaded when you boot from the hard drive.
- Upgrading the operating system (for example, from OS/2 2.x to OS/2 Warp) causes a different driver to be used.
- The hard drive or controller has been changed.
- The BIOS has been upgraded.
- The BIOS LBA setting has been changed.
- There is a partition table virus present on the hard drive.

In most instances, you should resolve the problem as explained in “Resolving Partition Table Errors” on page 5. You can also use a virus scanning program to remove any partition table virus. Data loss is possible if the number of heads or sectors per track has changed since you first created your partitions.

#120 The logical drive chain is incompatible

This error occurs under some OSs when logical partitions are not chained together in the expected order. DOS, OS/2, Windows 95, and Windows NT require that logical partitions be chained together in ascending order. Some other operating systems do not require this. For example, some versions of the Linux FDISK utility chain logical partitions together in the order they are created.

WARNING! This error message identifies a dangerous situation; using the DOS FDISK in this situation can cause loss of one or more partitions.

For solutions to this problem, see the instructions in “Resolving Partition Table Errors” on page 5.

If you decide to back up your data and recreate your partitions, you may have to use the same partitioning program that you used to create the partitions to delete them.

#121 The first sector of the drive cannot be read

The first sector of the hard drive (cylinder 0, head 0, sector 1) contains the master boot record (MBR) and the primary partition table. Drive Image cannot make changes to this hard drive because an error occurred when it read the first sector. See error #50 for information on resolving this error.

#122 A bad sector was found in the current or new partition area

The partition cannot be moved safely because there is a bad sector in the new or current partition area. When you see this error message, the move operation will be aborted before any corruption can occur. Try moving the partition to a different place. If your hard drive has bad sectors, we recommend that you replace the hard drive.

Check Errors (500–599)

Check errors occur when Drive Image checks the integrity of a partition. For useful general information about resolving these errors, see “Resolving Check Errors” on page 4.

#500 Subdirectory is corrupted

This error message reveals the name of the corrupted subdirectory. Back up the contents of that directory and its subdirectories. You can then delete the corrupted subdirectory.

#501 Cross-linked files were found

ScanDisk or CHKDSK should be able to find these errors and correct them.

#506 Not enough free space on partition to shrink

Some free space (which is dependent on the hard drive's current contents) is required to resize a partition smaller. Delete unneeded and duplicate files in the partition, then attempt the operation again.

#508 As specified, the operation does not change the partition

You have entered a value that is the same as or (when rounded to the required cylinder boundary) rounds to the same as the partition's present value. Enter a larger change.

#509 A bad sector was detected in the current or new FS area

In order to perform the resize operation that you requested, Drive Image attempted to expand the file system area. However, the program found a bad sector in the new area. Try moving the partition before you resize it. No corruption will occur when you encounter this error.

#510 The version of the file system is not supported

An updated version of Drive Image is required to operate on this new version of the file system. Visit www.powerquest.com/updates for information about updated versions of Drive Image.

HPFS Check Errors (1000–1500)

Check errors occur when Drive Image checks the integrity of a partition. For useful general information about resolving these errors, see “Resolving Check Errors” on page 4.

#1015 System sector not marked unavailable

This error may indicate that there are open files on the hard drive. Shut down and restart OS/2, booting from diskettes. If this does not resolve the problem, run OS/2's CHKDSK program. This error message may also indicate that a file is listed with a file length of zero. OS/2's CHKDSK program will not fix this problem. As a last resort, delete the offending file.

#1027 Could not account for all sectors

This error may be resolved in one or more of the following ways:

- If you are working with an HPFS386 partition, check the technical support area of PowerQuest's web site (www.powerquest.com) for more information.
- If CHKDSK has created any FOUND.000 or *.CHK files, delete them.
- If the error message indicates the name of the offending file, delete it.
- Turn off the disk-mirroring option in PC-Tools.
- If none of the above solutions works, back up the partition, delete it, recreate it, and restore the data.

#1045 Stac volume detected delete—Stac volume before converting

This error message occurs when you attempt to convert a partition to HPFS, and the existing partition contains a STAC volume. Stacker cannot access a STAC volume that is on an HPFS partition. Delete the STAC volume from the partition before converting to HPFS.

NTFS Check Errors (1500–1699)

Errors 1500-1699 are NTFS-specific error messages. In this context, “attribute” does not mean read-only, hidden, system, and so on. Rather, “attribute” means one of a file’s data streams. Check errors occur when Drive Image checks the integrity of a partition. For useful general information about resolving these errors, see “Resolving Check Errors” on page 4.

#1501 Wrong version of NTFS

The partition was created using a version of the NTFS file format that Drive Image cannot work with.

#1503 Bad NTFS cluster size

The NTFS cluster size must be 512, 1,024, 2,048, or 4,096 bytes.

#1512 Restart record mismatch

The two restart entries in the journal file are different. This may happen if Windows NT is not properly shut down. To fix this problem, restart Windows NT and shut it down using the Shut Down command.

#1516 Partition improperly dismounted

The partition dirty flag is set in a restart record in the journal file. This error may have been caused by a power failure or system crash while the Windows NT operating system was writing the partition. Reboot Windows NT and execute CHKDSK /F to repair the damage.

#1527 Bad update sequence number

A buffer contains mismatched update sequence numbers. This error may have been caused by a power failure or system crash while the Windows NT operating system was writing to the partition. Reboot Windows NT and execute CHKDSK /F to repair the damage.

#1529 Information mismatch in directory entry

A file attribute stored in a file record is different from the attribute stored in its directory entry. If this error is in a system file (file 0-10), Windows NT's CHKDSK program will not fix it, but Windows NT will rebuild the root directory on the partition the next time the operating system is started.

#1538 Can't find contiguous space to move

The partition does not contain enough contiguous free space to hold the new copy of a file that must be contiguous. You will normally encounter this error when you use the Resize option to resize a partition smaller.

#1539 File size mismatch

The size of a system file (file 0-10) recorded in its file record does not match either the size recorded in its directory entry in the root directory or the size of its data stream.

#1544 External attribute list in external attribute

An external file record has an external attribute list.

#1545 File attributes out of order

The attributes in a file must appear in order of increasing numeric type.

#1546 Attribute neither resident nor nonresident

The attribute resident flag has a value other than resident or nonresident.

#1547 Wrong run limits

A run has more clusters than the difference between its highest and lowest cluster.

#1548 File table has fewer than 16 entries

The file table must have at least 16 entries.

#1549 File table has more than 4 billion entries

The file table must have fewer than 4 billion entries.

#1644 Bad system file sequence number

A system file has a bad sequence number. System files must have a sequence number from 0 to 10. A partition with this problem may pass a run of Windows NT's CHKDSK program, but Windows NT will not mount the partition the next time the operating system is started.

#1647 Error in root directory index

There is an error in the root directory's index. Running Windows NT's CHKDSK program will not fix this problem, but the Windows NT operating system will automatically rebuild the root directory on the partition the next time it is started.

#1654 File system smaller than partition

This is an informational message only that indicates there may be wasted space on your hard disk. However, your data is not in danger, and you do not need to do anything to correct the error.

Miscellaneous Drive Image Error Messages**#1701 Err disk not empty**

Used in scripting. The DELETE ALL command failed to delete all the partitions on the drive.

#1800 Err partition not open

Attempted operation on a partition in an improperly opened image file.

#1801 Err partition not found

Did not find requested partition in image file.

#1802 Err corrupt bundle

Image file header information is not valid.

#1803 Err bundle read only

Attempted to delete or write to a partition in the image file which was opened in Read Only mode.

#1804 Err no bitmap Image

File contains no partition bitmap.

#1805 Err write failed

Error encountered while writing image to file. This error usually occurs when Drive Image runs out of space in the partition to which it is writing an image file.

#1806 Err out of memory

Out of Memory.

#1807 Err compression

Error encountered while compressing or decompressing image file data.

#1808 Err buffer too small

Buffer too small to read in partition bitmap.

#1809 Err no more free space

No more free space available to process remaining partitions.

#1810 Err open failed

Could not open image file.

#1811 Err read failed

Could not read from image file.

#1900 Err invalid drive number

Used in scripting. The script contains an invalid drive number.

FAT Check Errors (2000–2099)

Check errors occur when Drive Image checks the integrity of a partition. For useful general information about resolving these errors, see “Resolving Check Errors” on page 4.

#2001 FAT copies are not identical

Run SCANDISK to fix this error. This problem may also be caused by a virus. Run a virus checker and remove the virus if possible.

#2005 One or more lost clusters were found

Run SCANDISK or CHKDSK to fix this error.

#2012 Formatted FAT file system too big for partition

This error can be caused by the following circumstances:

- The number of sectors in the partition is larger than 65,536, and the bsHugeSects field of the boot sector (“Big total number of sectors” in Norton’s DISKEDIT utility) shows that there are more sectors in the partition than the partition table shows.
- The number of sectors in the partition is less than 65,536, and the bsSects field of the boot sector (“Total sectors on disk” in Norton’s DISKEDIT utility) shows that there are more sectors in the partition than the partition table shows.

This situation can result in data loss when the FAT file system tries to use space outside the partition that does not exist or that belongs to another partition. Since file data may exist outside the partition boundary, you cannot fix the problem by simply patching the boot sector.

To correct the error, back up all data on the partition, delete the partition, recreate the partition, and restore the data. Alternately, it has been reported that you can use Norton Disk Doctor to fix this problem.

#2013 A component of FAT geometry is bad

This error can be caused by the following circumstances:

- The number of clusters on the hard drive is greater than the FAT limits allow. This can result from bad values in the boot sector for the number of sectors, FATs, root entries, reserved sectors, and sectors per cluster.
- The number of sectors in the FAT is not large enough to hold the number of clusters present on the hard drive.

A qualified consultant may be able to fix the hard drive by performing simple patches. Alternately, you can back up the data on the partition, delete the partition, recreate the partition, and restore the files.

#2024 The OS/2 Extended Attribute file is corrupt

This error is caused by any program that mistakenly writes to or overwrites the OS/2 Extended Attribute file. If this error occurs, you should back up your data, delete the partition, recreate the partition, and restore your data.