NOTE: This Technical Note has been retired. Please see the Technical Notes page for current documentation.

Technical Note FL25
ISO 9660 (& High Sierra) CD-ROM Format

[Aug 01 1988]

CONTENTS

What's Wrong with my High Sierra Disc?

References

Downloadables

What's Wrong with my High Sierra Disc?

Generally, if a Macintosh has problems with a High Sierra disc, it's because the disc in question doesn't really conform to the High Sierra specification. There are actually two specifications of the High Sierra format:

The Paper 28 May 1986 Working Paper for Information Processing -- Volume and File Structure of Compact Read Only Optical Discs for Information Interchange (known as the "High Sierra" specification.) We'll call discs conforming to this standard "High Sierra" discs.

The Paper ISO 9660 -- Volume and File Structure of CDROM for Information Interchange (known as the "ISO 9660" specification.) We'll call discs conforming to this standard "ISO" discs.

The two formats are identical in content; some fields have moved around enough to make the two formats require separate processing. Most discs pressed before 1988 are in the High Sierra format. This was the de facto standard while the international standard was being established. It appears that most discs pressed in the future will be in the ISO format.

Both standards require that you store information used to access files in two formats; least significant byte first (lsb) order (i.e. the hex number $1234 is stored in memory as $34 $12) and most significant byte first (msb) order (i.e. the hex number $1234 is stored in memory as $12 $34.) The 6502, 8088, 80286, and 80386 CPUs use least significant byte first order; the 68000 and 68020 use most significant byte first order.

Some of the early systems which allowed you to create High Sierra or ISO discs contained errors in the build process such that the discs didn't fully conform to the standard. In most of the cases we've seen here at Apple, one of the fields in the Primary Volume Descriptor was incorrect.

Some typical bugs:

- The path table size doesn't agree between the lsb and msb fields.

- The path table pointed at by the lsb fields doesn't contain the same data as the path table pointed at by the msb fields.

- The Standard Identifier field doesn't contain "CDROM" (for High Sierra format) or "CD001" (for ISO format.)

- The Volume descriptor version is not equal to 1.

- The File Structure Version should be 1. We allow 0, since this is a minor bug, but the correct value should be 1.

If you have a disc that you believe is in High Sierra or ISO format and the Macintosh rejects it, try the following.

1. First check to see if the files Foreign File Access, High Sierra File Access, and ISO 9660 File Access are all in your system folder. If they aren't there, you need to install them, either by using our Installer or by dragging them from the floppy that comes with the Apple CD SC drive.

2. Acquire the Validator program from Macintosh Developer Technical Support, run the program, and it will tell you if it finds problems with the primary volume descriptor.

References

AppleCD SC Developers Guide

Back to top

Downloadables

 Acrobat version of this Note (K)   Download

Back to top