



ISO 9660 is the original file system standard for CD data discs and was first published in 1988. It is sometimes referred to as CDFS (Compact Disc File System), not to be confused with the virtual Linux file system (CDFs). The standard was developed to enable multiple computer operating systems to read files on a disc. Three “levels of interchange” are described in the standard. Level 1 provides compatibility with the largest number of operating systems but is also the most restrictive in terms of file and directory name rules. Directory and filenames are limited to eight characters, with a three-character extension for filenames, which is in accordance with MS-DOS’s restrictive file naming rules. Original file and directory names that exceed eight characters will appear abbreviated with a “~”. Characters for filenames can also only contain uppercase letters, digits, or an underscore. Levels 2 and 3 have the same limitations of character type for filenames but allow for 30 characters in directory and filenames.

Joliet is an extension to the original ISO 9660 standard and was developed in 1995 by Microsoft for Windows 95 and later Windows operating systems. Joliet supports longer filenames, up to 64 characters, as well as spaces and Unicode characters (this includes diacritics and non-Latin script). Joliet is backwards compatible because filenames are saved in a supplementary volume descriptor that is ignored by ISO 9660. Thus you will see both ISO 9660 and Joliet directory and filenames listed in separate trees on the disc.

UDF (Universal Disk Format) is a file system standard that was introduced in 1995 and has since replaced ISO 9660. It is widely used on DVDs. A major advantage of UDF is that it can be used for packet writing technology – basically files can be created, modified, or deleted on a disc like on your local computer hard drive without burning an entire disc. Files can be dragged and dropped or copy and pasted to the CD using UDF-compatible applications. UDF can also support filenames up to 255 characters. Older optical drives and operating systems are unable to read UDF formatted discs and may display filenames in the Joliet format. Discs with UDF often contain ISO 9660 to allow for backwards compatibility.

HFS (Hierarchical File System) is a Macintosh file system released in 1985. The character limit for filenames is 31. PCs are unable to read HFS formatted discs, although it is possible using Isobuster or FTK Imager. You will sometimes see hybrid discs with both HFS and ISO 9660/Joliet so that the discs are readable on PCs and Macs. HFS should be exported if it is important to maintain compatibility with MacOS.

References

<http://www.avpreserve.com/wp-content/uploads/2014/04/OpticalMediaPreservation.pdf>

<https://books.google.com/books?id=iw7yCQAAQBAJ&printsec=frontcover#v=onepage&q&f=false>