$Id: mkisofs.8,v 1.5 1997/04/10 02:45:50 eric Rel $

NAME

mkisofs − create a iso9660 filesystem with optional Rock Ridge attributes.

SYNOPSIS

mkisofs [**−a**] [**−b** *boot_image*] [**−c** *boot_catalog*] [**−A** *application_id*] [**−f**] [**−d**] [**−D**] [**−i** *include-list*] [**−l**] [**−L**] [**−L**] [**−p** *preparer*] [**−P** *publisher*] [**−r**] [**−R**] [**−T**] [**−v**] [**−V**] [**−V** *volid*] [**−x** *path*] [**−z**] [**−m** *glob*] **−o** *filename path*

DESCRIPTION

mkisofs is effectively a pre-mastering program to generate the iso9660 filesystem - it takes a snapshot of a given directory tree, and generates a binary image which will correspond to an iso9660 filesystem when written to a block device.

mkisofs is also capable of generating the System Use Sharing Protocol records specified by the Rock Ridge Interchange Protocol. This is used to further describe the files in the iso9660 filesystem to a unix host, and provides information such as longer filenames, uid/gid, posix permissions, and block and character devices.

Each file written to the iso9660 filesystem must have a filename in the 8.3 format (8 characters, period, 3 characters, all upper case), even if Rock Ridge is in use. This filename is used on systems that are not able to make use of the Rock Ridge extensions (such as MS-DOS), and each filename in each directory must be different from the other filenames in the same directory. **mkisofs** generally tries to form correct names by forcing the unix filename to upper case and truncating as required, but often times this yields unsatisfactory results when there are cases where the truncated names are not all unique. **mkisofs** assigns weightings to each filename, and if two names that are otherwise the same are found the name with the lower priority is renamed to have a 3 digit number as an extension (where the number is guaranteed to be unique). An example of this would be the files foo.bar and foo.bar.~1~ - the file foo.bar.~1~ would be written as FOO.000;1 and the file foo.bar would be written as FOO.BAR;1

Note that **mkisofs** is not designed to communicate with the writer directly. Most writers have proprietary command sets which vary from one manufacturer to another, and you need a specialized tool to actually burn the disk. The **cdwrite** utility is one such tool that runs under Linux and performs this task. The latest version of **cdwrite** is capable of communicating with Phillips/IMS/Kodak, HP and Yamaha drives. Most writers come with some version of DOS software that allows a direct image copy of an iso9660 image to the writer. The current version of **cdwrite** is available from sunsite.unc.edu: /utils/disk-management/cdwrite-2.0.tar.gz

Also you should know that most cd writers are very particular about timing. Once you start to burn a disc, you cannot let their buffer empty before you are done, or you will end up with a corrupt disc. Thus it is critical that you be able to maintain an uninterrupted data stream to the writer for the entire time that the disc is being written.

path is the path of the directory tree to be copied into the iso9660 filesystem.

OPTIONS

−a Include all files on the iso9660 filesystem. Normally files that contain the characters '~' or '#' will not be included (these are typically backup files for editors under unix).

−A application_id
Specifies a text string that will be written into the volume header. This should describe the application that will be on the disc. There is space on the disc for 128 characters of information. This parameter can also be set in the file *.mkisofsrc* with APPI=id. If specified in both places, the command line version is used.

−b boot_image
Specifies the path and filename of the boot image to be used when making an "El Torito" bootable CD. The pathname must be relative to the source path specified to **mkisofs.** This option is required to make a bootable CD. The boot image must be exactly the size of either a 1.2, 1.44, or a 2.88 meg floppy, and **mkisofs** will use this size when creating the output iso9660 filesystem. It is assumed that the first 512 byte sector should be read from the boot image (it is essentially emulating a normal floppy drive). This will work, for example, if the boot image is a LILO based boot floppy.

−c boot_catalog
Specifies the path and filename of the boot catalog to be used when making an "El Torito" bootable CD. The pathname must be relative to the source path specified to **mkisofs.** This option is required to make a bootable CD. This file will be created by **mkisofs** in the source filesystem,

so be sure the specified filename does not conflict with an existing file, as it will be quietly overwritten! Usually a name like "boot.catalog" is chosen.

−d Omit trailing period from files that do not have a period. This violates the ISO9660 standard, but it happens to work on many systems. Use with caution.

−D Do not use deep directory relocation, and instead just pack them in the way we see them. This violates the ISO9660 standard, but it works on many systems. Use with caution.

−f Follow symbolic links when generating the filesystem. When this option is not in use, symbolic links will be entered using Rock Ridge if enabled, otherwise the file will be ignored.

−i include-list
Use the specified file as a list of files to add to the directory tree. This is useful for quickly repacking a CD while adding files to it. The format of this file is path1/file=path2 where path1 is the directory in the ISO9660 file system where file should appear and path2 is the where to find the file. NOTE: This option doesn't work well, and needs to be compltely redone so that integration with the rest of mkisofs is handled in a cleaner fashion.

−l Allow full 32 character filenames. Normally the ISO9660 filename will be in an 8.3 format which is compatible with MS-DOS, even though the ISO9660 standard allows filenames of up to 32 characters. If you use this option, the disc may be difficult to use on a MS-DOS system, but this comes in handy on some other systems (such as the Amiga). Use with caution.

−L Allow filenames to begin with a period. Usually, a leading dot is replaced with an underscore in order to maintain MS-DOS compatibility.

−m glob
Exclude *glob* from being written to CDROM. *glob* is a shell wild-card-style pattern that must match part of the filename (not the path as with option **-x**). Technically *glob* is matched against the *d->d_name* part of the directory entry. Multiple globs may be excluded (up to 1000). Example:

mkisofs −o rom −m '*.o' −m core −m foobar

would exclude all files ending in ".o", called "core" or "foobar" to be copied to CDROM. Note that if you had a directory called "foobar" it too (and of course all its descendants) would be excluded.

−M path
Specifies path to existing iso9660 image to be merged. The output of **mkisofs** will be a new session which should get written to the end of the image specified in -M. Typically this requires multi-session capability for the recorder and cdrom drive that you are attempting to write this image to. Support for this is not yet 100% complete, because some handshaking is required between mkisofs and cdwrite in order to determine the next writable address on the cdrom.

−N Omit version numbers from ISO9660 file names. This may violate the ISO9660 standard, but no one really uses the version numbers anyway. Use with caution.

−o filename
is the name of the file to which the iso9660 filesystem image should be written. This can be a disk file, a tape drive, or it can correspond directly to the device name of the optical disc writer. If not specified, stdout is used. Note that the output can also be a block special device for a regular disk drive, in which case the disk partition can be mounted and examined to ensure that the premastering was done correctly.

−P publisher_id
Specifies a text string that will be written into the volume header. This should describe the publisher of the CDROM, usually with a mailing address and phone number. There is space on the disc for 128 characters of information. This parameter can also be set in the file *.mkisofsrc* with PUBL=. If specified in both places, the command line version is used.

−p preparer_id
Specifies a text string that will be written into the volume header. This should describe the preparer of the CDROM, usually with a mailing address and phone number. There is space on the disc for 128 characters of information. This parameter can also be set in the file *.mkisofsrc* with PREP=. If specified in both places, the command line version is used.

−R Generate SUSP and RR records using the Rock Ridge protocol to further describe the files on the iso9660 filesystem.

−r This is like the −R option, but file ownership and modes are set to more useful values. The uid and gid are set to zero, because they are usually only useful on the author's system, and not useful to the client. All the file read bits are set true, so that files and directories are globally readable on the client. If any execute bit is set for a file, set all of the execute bits, so that executables are globally executable on the client. If any search bit is set for a directory, set all of the search bits, so that directories are globally searchable on the client. All write bits are cleared, because the CD-Rom will be mounted read-only in any case. If any of the special mode bits are set, clear them, because file locks are not useful on a read-only file system, and set-id bits are not desirable for uid 0 or gid 0.

−T Generate a file TRANS.TBL in each directory on the CDROM, which can be used on non-Rock Ridge capable systems to help establish the correct file names. There is also information present in the file that indicates the major and minor numbers for block and character devices, and each symlink has the name of the link file given.

−V volid
Specifies the volume ID to be written into the master block. This parameter can also be set in the file *.mkisofsrc* with VOLI=id. If specified in both places, the command line version is used.

−v Verbose execution.

−x path
Exclude *path* from being written to CDROM. *path* must be the complete pathname that results from concatenating the pathname given as command line argument and the path relative to this directory. Multiple paths may be excluded (up to 1000). Example:

mkisofs −o cd −x /local/dir1 −x /local/dir2 /local

−z Generate special SUSP records for transparently compressed files. This is only of use and interest for hosts that support transparent decompression. This is an experimental feature, and no hosts yet support this, but there are ALPHA patches for Linux that can make use of this feature.

CONFIGURATION

mkisofs looks for the *.mkisofsrc* file, first in the current working directory, then in the user's home directory, and then in the directory in which the **mkisofs** binary is stored. This file is assumed to contain a series of lines of the form "TAG=value", and in this way you can specify certain options. The case of the tag is not significant. Some fields in the volume header are not settable on the command line, but can be altered through this facility. Comments may be placed in this file, using lines which start with a hash (#) character.

APPI The application identifier should describe the application that will be on the disc. There is space on the disc for 128 characters of information. May be overridden using the −A command line option.

COPY The copyright information, often the name of a file on the disc containing the copyright notice. There is space in the disc for 37 characters of information.

ABST The abstract information, often the name of a file on the disc containing an abstract. There is space in the disc for 37 characters of information.

BIBL The bibliographic information, often the name of a file on the disc containing a bibliography. There is space in the disc for 37 characters of information.

PREP This should describe the preparer of the CDROM, usually with a mailing address and phone number. There is space on the disc for 128 characters of information. May be overridden using the −p command line option.

PUBL This should describe the publisher of the CDROM, usually with a mailing address and phone number. There is space on the disc for 128 characters of information. May be overridden using the −P command line option.

SYSI The System Identifier. There is space on the disc for 32 characters of information.

VOLI The Volume Identifier. There is space on the disc for 32 characters of information. May be overridden using the −V command line option.

VOLS The Volume Set Name. There is space on the disc for 278 characters of information.

mkisofs can also be configured at compile time with defaults for many of these fields. See the file defaults.h.

AUTHOR

mkisofs is not based on the standard mk*fs tools for unix, because we must generate a complete copy of an existing filesystem on a disk in the iso9660 filesystem. The name mkisofs is probably a bit of a misnomer, since it not only creates the filesystem, but it also populates it as well.

Eric Youngdale <ericy@gnu.ai.mit.edu> or <eric@andante.jic.com> wrote both the Linux isofs9660 filesystem and the mkisofs utility, and is currently maintaining them. The copyright for the mkisofs utility is held by Yggdrasil Computing, Incorporated.

BUGS

Any files that have hard links to files not in the tree being copied to the iso9660 filessytem will have an incorrect file reference count.

There may be some other ones. Please, report them to the author.

FUTURE IMPROVEMENTS

Allow specification of multiple paths on the command line to be included in iso9660 filesystem. Can be tricky - directory entries in the root directory need to be properly sorted.

AVAILABILITY

mkisofs is available for anonymous ftp from tsx-11.mit.edu in /pub/linux/packages/mkisofs and many other mirror sites.