NAME

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

SYNOPSIS

mkisofs [**−a**] [**−abstract** *FILE*] [**−biblio** *FILE*] [**−b** *boot_image*] [**−c** *boot_catalog*] [**−copyright** *FILE*] [**−A** *application_id*] [**−f**] [**−d**] [**−D**] [**−hide** *glob*] [**−hide-joliet** *glob*] [**−J**] [**−l**] [**−L**] [**−log-file** *log_file*] [**-no-split-symlink-components**] [**-no-split-symlink-fields**] [**−p** *preparer*] [**−print-size**] [**−P** *publisher*] [**−quiet**] [**−r**] [**−R**] [**−sysid** *ID*] [**−T**] [**−v**] [**−V** *volid*] [**−volset** *ID*] [**−volset-size** #] [**−volset-seqno** #] [**−x** *path*] [**−z**] [**−m** *glob*] **−o** *filename pathspec [pathspec]*

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 the Phillips/IMS/Kodak, HP and Yamaha drives that have been manufactured before 1997. 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 Note that cdwrite has not been actively maintained since 1995.

The **cdrecord** utility is another utility capable of burning an actual disc. The latest version of **cdrecord** is available from ftp://ftp.fokus.gmd.de/pub/unix/cdrecord Cdrecord is under constant development.

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. Multiple paths can be specified, and **mkisofs** will merge the files found in all of the specified path components to form the cdrom image.

It is possible to graft the paths at points other than the root directory, and it is possible to graft files or directories onto the cdrom image with names different than what they have in the source filesystem. This is easiest to illustrate with a couple of examples. Let’s start by assuming that a local file ../old.lis exists, and you wish to include it in the cdrom image.

foo/bar/=../old.lis

will include the file old.lis in the cdrom image at /foo/bar/old.lis, while

foo/bar/xxx=../old.lis

will include the file old.lis in the cdrom image at /foo/bar/xxx. The same sort of syntax can be used with directories as well. **mkisofs will create any directories required such that the graft** points exist on the cdrom image - the directories do not need to appear in one of the paths. Any directories that are created on the fly like this will have permissions 0555 and appear to be owned by the person running mkisofs. If you wish other permissions or owners of the intermediate directories, the easiest solution is to create real directories in the path such that mkisofs doesn't have to invent them.

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).

−abstract *FILE*
: Specifies the abstract file name. This parameter can also be set in the file **.mkisofsrc** with ABST=filename. If specified in both places, the command line version is used.

−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.

−biblio *FILE*
: Specifies the bibliographic file name. This parameter can also be set in the file **.mkisofsrc** with BIBLO=filename. 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 *last_sess_start,next_sess_start*
: This option is needed when **mkisofs** is used to create the image of a second session or a higher level session for a multi session disk. The option **−C** takes a pair of two numbers separated by a comma. The first number is the sector number of the first sector in the last session of the disk that should be appended to. The second number is the starting sector number of the new session. The expected pair of numbers may be retrieved by calling **cdrecord -msinfo ...** the **−C** option may only be uses in conjunction with the **−M** option.

−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.

−copyright *FILE*
: Specifies the Copyright file name. This parameter can also be set in the file **.mkisofsrc** with

COPY=filename. If specified in both places, the command line version is used.

−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.

−hide *glob*
Hide *glob* from being seen on the ISO9660 or Rock Ridge directory. *glob* is a shell wild-card-style pattern that must match any part of the filename or path. Multiple globs may be hidden (up to 1000). If *glob* matches a directory, then the contents of that directory will be hidden. All the hidden files will still be written to the output CD image file. Should be used with the **−hide-joliet** option.

−hide-joliet *glob*
Hide *glob* from being seen on the Joliet directory. *glob* is a shell wild-card-style pattern that must match any part of the filename or path. Multiple globs may be hidden (up to 1000). If *glob* matches a directory, then the contents of that directory will be hidden. All the hidden files will still be written to the output CD image file. Should be used with the **−hide** option.

−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.

−J Generate Joliet directory records in addition to regular iso9660 file names. This is primarily useful when the discs are to be used on Windows-NT or Windows-95 machines. The Joliet filenames are specified in Unicode and each path component can be up to 64 Unicode characters long.

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

−log-file *log_file*
Redirect all error, warning and informational messages to *log_file* instead of the standard error.

−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.

NOTE: The −m and −x option description should both be updated, they are wrong. Both now work identical and use filename globbing. A file is exluded if either the last component matches or the whole path matches.

−M *path*
or

−M *device*
Specifies path to existing iso9660 image to be merged. The alternate form takes a SCSI device

specifier that uses the same syntax as the **dev=** parameter of **cdrecord.** 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. This option may only be used in conjunction with the **−C** option.

−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.

−no-split-symlink-components
Don't split the SL components, but begin a new Continuation Area (CE) instead. This may waste some space, but the SunOS 4.1.4 cdrom driver has a bug in reading split SL components (link_size = component_size instead of link_size += component_size).

−no-split-symlink-fields
Don't split the SL fields, but begin a new Continuation Area (CE) instead. This may waste some space, but the SunOS 4.1.4 and Solaris 2.5.1 cdrom driver have a bug in reading split SL fields (a '/' can be dropped).

−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.

−print-size
Print estimated filesystem size and exit. This option is needed for Disk At Once mode and with some CD-R drives when piping directly into **cdrecord.** In this case it is needed to know the size of the filesustem before the actual CD-creation is done. The option −print-size allows to get this size from a "dry-run" before the CD is actually written.

−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.

−sysid *ID*
Specifies the system ID. This parameter can also be set in the file **.mkisofsrc** with

SYSI=system_id. If specified in both places, the command line version is used.

−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. Note that if you assign a volume ID, this is the name that will be used as the mount point used by the Solaris volume management system and the name that is assigned to the disc on a Windows or Mac platform.

−volset *ID*
Specifies the volset ID. This parameter can also be set in the file **.mkisofsrc** with VOLS=volset_id. If specified in both places, the command line version is used.

−volset-size #
Sets the volume set size to #. The volume set size is the number of CD's that are in a CD set. The **−volset-size** option may be used to create CD's that are part of e.g. a Operation System installation set of CD's. The option **−volset-size** must be specified before **−volset-seqno** on each command line.

−volset-seqno #
Sets the volume set sequence number to #. The volume set sequence number is the index number of the current CD in a CD set. The option **−volset-size** must be specified before **−volset-seqno** on each command line.

−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

NOTE: The −m and −x option description should both be updated, they are wrong. Both now work identical and use filename globbing. A file is exluded if either the last component matches or the whole path matches.

−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. May be overridden using the

−**copyright** command line option.

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. May be overridden using the −**abstract** command line option.

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. May be overridden using the −**bilio** command line option.

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. May be overridden using the −**sysid** command line option.

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 128 characters of information. May be overridden using the −**volset** command line option.

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

Some sort of gui interface.

AVAILABILITY

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