

**NAME**

**mtree** — format of mtree dir hierarchy files

**DESCRIPTION**

The **mtree** format is a textual format that describes a collection of filesystem objects. Such files are typically used to create or verify directory hierarchies.

**General Format**

An **mtree** file consists of a series of lines, each providing information about a single filesystem object. Leading whitespace is always ignored.

When encoding file or pathnames, any backslash character or character outside of the 95 printable ASCII characters must be encoded as a backslash followed by three octal digits. When reading mtree files, any appearance of a backslash followed by three octal digits should be converted into the corresponding character.

Each line is interpreted independently as one of the following types:

Blank	Blank lines are ignored.
Comment	Lines beginning with # are ignored.
Special	Lines beginning with / are special commands that influence the interpretation of later lines.
Relative	If the first whitespace-delimited word has no / characters, it is the name of a file in the current directory. Any relative entry that describes a directory changes the current directory.
dot-dot	As a special case, a relative entry with the filename . . changes the current directory to the parent directory. Options on dot-dot entries are always ignored.
Full	If the first whitespace-delimited word has a / character after the first character, it is the pathname of a file relative to the starting directory. There can be multiple full entries describing the same file.

Some tools that process **mtree** files may require that multiple lines describing the same file occur consecutively. It is not permitted for the same file to be mentioned using both a relative and a full file specification.

**Special commands**

Two special commands are currently defined:

<b>/set</b>	This command defines default values for one or more keywords. It is followed on the same line by one or more whitespace-separated keyword definitions. These definitions apply to all following files that do not specify a value for that keyword.
<b>/unset</b>	This command removes any default value set by a previous <b>/set</b> command. It is followed on the same line by one or more keywords separated by whitespace.

**Keywords**

After the filename, a full or relative entry consists of zero or more whitespace-separated keyword definitions. Each such definition consists of a key from the following list immediately followed by an '=' sign and a value. Software programs reading mtree files should warn about unrecognized keywords.

Currently supported keywords are as follows:

<b>cksum</b>	The checksum of the file using the default algorithm specified by the <code>cksum(1)</code> utility.
<b>device</b>	The device number for <b>block</b> or <b>char</b> file types. The value must be one of the following forms:

*format,major,minor[,subunit]*

A device with *major*, *minor* and optional *subunit* fields. Their meaning is specified by the operating's system *format*. See below for valid formats.

*number*

Opaque number (as stored on the file system).

The following values for *format* are recognized: **native**, **386bsd**, **4bsd**, **bsdos**, **freebsd**, **hpux**, **isc**, **linux**, **netbsd**, **osf1**, **sco**, **solaris**, **sunos**, **svr3**, **svr4**, and **ultrix**.

See `mknod(8)` for more details.

- contents** The full pathname of a file that holds the contents of this file.
- flags** The file flags as a symbolic name. See `chflags(1)` for information on these names. If no flags are to be set the string "none" may be used to override the current default.
- gid** The file group as a numeric value.
- gname** The file group as a symbolic name.
- ignore** Ignore any file hierarchy below this file.
- inode** The inode number.
- link** The target of the symbolic link when `type=link`.
- md5** The MD5 message digest of the file.
- md5digest**  
A synonym for **md5**.
- mode** The current file's permissions as a numeric (octal) or symbolic value.
- nlink** The number of hard links the file is expected to have.
- nochange** Make sure this file or directory exists but otherwise ignore all attributes.
- optional** The file is optional; do not complain about the file if it is not in the file hierarchy.
- resdevice**  
The "resident" device number of the file, e.g. the ID of the device that contains the file. Its format is the same as the one for **device**.
- ripemd160digest**  
The RIPEMD160 message digest of the file.
- rmd160** A synonym for **ripemd160digest**.
- rmd160digest**  
A synonym for **ripemd160digest**.
- sha1** The FIPS 160-1 ("SHA-1") message digest of the file.
- shaldigest**  
A synonym for **sha1**.
- sha256** The FIPS 180-2 ("SHA-256") message digest of the file.
- sha256digest**  
A synonym for **sha256**.

- sha384** The FIPS 180-2 (“SHA-384”) message digest of the file.
- sha384digest**  
A synonym for **sha384**.
- sha512** The FIPS 180-2 (“SHA-512”) message digest of the file.
- sha512digest**  
A synonym for **sha512**.
- size** The size, in bytes, of the file.
- time** The last modification time of the file.
- type** The type of the file; may be set to any one of the following:
- block** block special device
  - char** character special device
  - dir** directory
  - fifo** fifo
  - file** regular file
  - link** symbolic link
  - socket** socket
- uid** The file owner as a numeric value.
- uname** The file owner as a symbolic name.

**SEE ALSO**

`cksum(1)`, `find(1)`, `mtree(8)`

**BUGS****HISTORY**

The **mtree** utility appeared in 4.3BSD-Reno. The MD5 digest capability was added in FreeBSD 2.1, in response to the widespread use of programs which can spoof `cksum(1)`. The SHA-1 and RIPEMD160 digests were added in FreeBSD 4.0, as new attacks have demonstrated weaknesses in MD5. The SHA-256 digest was added in FreeBSD 6.0. Support for file flags was added in FreeBSD 4.0, and mostly comes from NetBSD. The “full” entry format was added by NetBSD.