

**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:

Signature	The first line of any mtree file must begin with “#mtree”. If a file contains any full path entries, the first line should begin with “#mtree v2.0”, otherwise, the first line should begin with “#mtree v1.0”.
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>contents</b>	The full pathname of a file that holds the contents of this file.														
<b>flags</b>	The file flags as a symbolic name. See <code>chflags(1)</code> for information on these names. If no flags are to be set the string “none” may be used to override the current default.														
<b>gid</b>	The file group as a numeric value.														
<b>gname</b>	The file group as a symbolic name.														
<b>ignore</b>	Ignore any file hierarchy below this file.														
<b>link</b>	The target of the symbolic link when <code>type=link</code> .														
<b>md5</b>	The MD5 message digest of the file.														
<b>md5digest</b>	A synonym for <b>md5</b> .														
<b>mode</b>	The current file’s permissions as a numeric (octal) or symbolic value.														
<b>nlink</b>	The number of hard links the file is expected to have.														
<b>nochange</b>	Make sure this file or directory exists but otherwise ignore all attributes.														
<b>ripemd160digest</b>	The RIPEMD160 message digest of the file.														
<b>rmd160</b>	A synonym for <b>ripemd160digest</b> .														
<b>rmd160digest</b>	A synonym for <b>ripemd160digest</b> .														
<b>sha1</b>	The FIPS 160-1 (“SHA-1”) message digest of the file.														
<b>shaldigest</b>	A synonym for <b>sha1</b> .														
<b>sha256</b>	The FIPS 180-2 (“SHA-256”) message digest of the file.														
<b>sha256digest</b>	A synonym for <b>sha256</b> .														
<b>size</b>	The size, in bytes, of the file.														
<b>time</b>	The last modification time of the file.														
<b>type</b>	The type of the file; may be set to any one of the following: <table> <tr> <td><b>block</b></td><td>block special device</td></tr> <tr> <td><b>char</b></td><td>character special device</td></tr> <tr> <td><b>dir</b></td><td>directory</td></tr> <tr> <td><b>fifo</b></td><td>fifo</td></tr> <tr> <td><b>file</b></td><td>regular file</td></tr> <tr> <td><b>link</b></td><td>symbolic link</td></tr> <tr> <td><b>socket</b></td><td>socket</td></tr> </table>	<b>block</b>	block special device	<b>char</b>	character special device	<b>dir</b>	directory	<b>fifo</b>	fifo	<b>file</b>	regular file	<b>link</b>	symbolic link	<b>socket</b>	socket
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<b>file</b>	regular file														
<b>link</b>	symbolic link														
<b>socket</b>	socket														
<b>uid</b>	The file owner as a numeric value.														
<b>uname</b>	The file owner as a symbolic name.														

**SEE ALSO**

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

**BUGS**

The FreeBSD implementation of `mtree` does not currently support the **mtree** 2.0 format. The requirement for a “#mtree” signature line is new and not yet widely implemented.

**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.