



Linux Ubuntu 26.04 Manual Pages on command 'objcopy.1'

\$ man objcopy.1

OBJCOPY(1)

GNU Development Tools

OBJCOPY(1)

NAME

objcopy - copy and translate object files

SYNOPSIS

objcopy [-F bfdname]--target=bfdname]

[-I bfdname]--input-target=bfdname]

[-O bfdname]--output-target=bfdname]

[-B bfdarch]--binary-architecture=bfdarch]

[-S]--strip-all]

[-g]--strip-debug]

[--strip-unneeded]

[-K symbolname]--keep-symbol=symbolname]

[--keep-file-symbols]

[--keep-section-symbols]

[-N symbolname]--strip-symbol=symbolname]

[--strip-unneeded-symbol=symbolname]

[-G symbolname]--keep-global-symbol=symbolname]

[--localize-hidden]

[-L symbolname]--localize-symbol=symbolname]

[--globalize-symbol=symbolname]

[--globalize-symbols=filename]

[-W symbolname]--weaken-symbol=symbolname]

[-w]--wildcard]

`[-x|--discard-all]`
`[-X|--discard-locals]`
`[-b byte|--byte=byte]`
`[-i [breadth]--interleave[=breadth]]`
`[--interleave-width=width]`
`[-j sectionpattern]--only-section=sectionpattern]`
`[-R sectionpattern]--remove-section=sectionpattern]`
`[--keep-section=sectionpattern]`
`[--remove-relocations=sectionpattern]`
`[--strip-section-headers]`
`[-p|--preserve-dates]`
`[-D|--enable-deterministic-archives]`
`[-U|--disable-deterministic-archives]`
`[--debugging]`
`[--gap-fill=val]`
`[--pad-to=address]`
`[--set-start=val]`
`[--adjust-start=incr]`
`[--change-addresses=incr]`
`[--change-section-address sectionpattern{=,+,-}val]`
`[--change-section-lma sectionpattern{=,+,-}val]`
`[--change-section-vma sectionpattern{=,+,-}val]`
`[--change-warnings] [--no-change-warnings]`
`[--set-section-flags sectionpattern=flags]`
`[--set-section-alignment sectionpattern=align]`
`[--add-section sectionname=filename]`
`[--dump-section sectionname=filename]`
`[--update-section sectionname=filename]`
`[--rename-section oldname=newname[,flags]]`
`[--long-section-names {enable,disable,keep}]`
`[--change-leading-char] [--remove-leading-char]`
`[--reverse-bytes=num]`
`[--srec-len=ival] [--srec-forceS3]`

[--redefine-sym old=new]
[--redefine-syms=filename]
[--weaken]
[--keep-symbols=filename]
[--strip-symbols=filename]
[--strip-unneeded-symbols=filename]
[--keep-global-symbols=filename]
[--localize-symbols=filename]
[--weaken-symbols=filename]
[--binary-symbol-prefixstring]
[--add-symbol name=[section:]value[,flags]]
[--alt-machine-code=index]
[--prefix-symbols=string]
[--prefix-sections=string]
[--prefix-alloc-sections=string]
[--add-gnu-debuglink=path-to-file]
[--only-keep-debug]
[--strip-dwo]
[--extract-dwo]
[--extract-symbol]
[--writable-text]
[--readonly-text]
[--pure]
[--impure]
[--file-alignment=num]
[--heap=reserve[,commit]]
[--image-base=address]
[--section-alignment=num]
[--stack=reserve[,commit]]
[--subsystem=which:major.minor]
[--compress-debug-sections]
[--decompress-debug-sections]
[--elf-stt-common=val]

`--merge-notes`

`--no-merge-notes`

`--verilog-data-width=val`

`-v|--verbose`

`-V|--version`

`--help` `--info`

`infile` `[outfile]`

DESCRIPTION

The GNU objcopy utility copies the contents of an object file to another. objcopy uses the GNU BFD Library to read and write the object files. It can write the destination object file in a format different from that of the source object file. The exact behavior of objcopy is controlled by command-line options. Note that objcopy should be able to copy a fully linked file between any two formats. However, copying a relocatable object file between any two formats may not work as expected.

objcopy creates temporary files to do its translations and deletes them afterward. objcopy uses BFD to do all its translation work; it has access to all the formats described in BFD and thus is able to recognize most formats without being told explicitly.

objcopy can be used to generate S-records by using an output target of srec (e.g., use `-O srec`).

objcopy can be used to generate a raw binary file by using an output target of binary (e.g., use `-O binary`). When objcopy generates a raw binary file, it will essentially produce a memory dump of the contents of the input object file. All symbols and relocation information will be discarded. The memory dump will start at the load address of the lowest section copied into the output file.

When generating an S-record or a raw binary file, it may be helpful to use `-S` to remove sections containing debugging information. In some cases `-R` will be useful to remove sections which contain information that is not needed by the binary file.

Note---objcopy is not able to change the endianness of its input files. If the input format has an endianness (some formats do not), objcopy can only copy the inputs into file formats that have the same endianness or which have no endianness (e.g., srec). (However, see the `--reverse-bytes` option.)

OPTIONS

`infile`

outfile

The input and output files, respectively. If you do not specify outfile, objcopy creates a temporary file and destructively renames the result with the name of infile.

-I bfdname

--input-target=bfdname

Consider the source file's object format to be bfdname, rather than attempting to deduce it.

-O bfdname

--output-target=bfdname

Write the output file using the object format bfdname.

-F bfdname

--target=bfdname

Use bfdname as the object format for both the input and the output file; i.e., simply transfer data from source to destination with no translation.

-B bfdarch

--binary-architecture=bfdarch

Useful when transforming a architecture-less input file into an object file. In this case the output architecture can be set to bfdarch. This option will be ignored if the input file has a known bfdarch. You can access this binary data inside a program by referencing the special symbols that are created by the conversion process. These symbols are called `_binary_objfile_start`, `_binary_objfile_end` and `_binary_objfile_size`. e.g. you can transform a picture file into an object file and then access it in your code using these symbols.

-j sectionpattern

--only-section=sectionpattern

Copy only the indicated sections from the input file to the output file. This option may be given more than once. Note that using this option inappropriately may make the output file unusable. Wildcard characters are accepted in sectionpattern.

If the first character of sectionpattern is the exclamation point (!) then matching sections will not be copied, even if earlier use of --only-section on the same command line would otherwise copy it. For example:

```
--only-section=.text.* --only-section=!text.foo
```

will copy all sections matching '.text.*' but not the section 'text.foo'.

`-R sectionpattern`

`--remove-section=sectionpattern`

Remove any section matching `sectionpattern` from the output file. This option may be given more than once. Note that using this option inappropriately may make the output file unusable. Wildcard characters are accepted in `sectionpattern`. Using both the `-j` and `-R` options together results in undefined behaviour.

If the first character of `sectionpattern` is the exclamation point (!) then matching sections will not be removed even if an earlier use of `--remove-section` on the same command line would otherwise remove it. For example:

```
--remove-section=.text.* --remove-section=!text.foo
```

will remove all sections matching the pattern `'.text.*'`, but will not remove the section `'text.foo'`.

`--keep-section=sectionpattern`

When removing sections from the output file, keep sections that match `sectionpattern`.

`--remove-relocations=sectionpattern`

Remove non-dynamic relocations from the output file for any section matching `sectionpattern`. This option may be given more than once. Note that using this option inappropriately may make the output file unusable, and attempting to remove a dynamic relocation section such as `.rela.plt` from an executable or shared library with `--remove-relocations=.plt` will not work. Wildcard characters are accepted in `sectionpattern`. For example:

```
--remove-relocations=.text.*
```

will remove the relocations for all sections matching the pattern `'.text.*'`.

If the first character of `sectionpattern` is the exclamation point (!) then matching sections will not have their relocation removed even if an earlier use of `--remove-relocations` on the same command line would otherwise cause the relocations to be removed. For example:

```
--remove-relocations=.text.* --remove-relocations=!text.foo
```

will remove all relocations for sections matching the pattern `'.text.*'`, but will not remove relocations for the section `'text.foo'`.

`--strip-section-headers`

Strip section header This option is specific to ELF files. Implies `--strip-all` and

`--merge-notes`.

-S

--strip-all

Do not copy relocation and symbol information from the source file. Also deletes debug sections.

-g

--strip-debug

Do not copy debugging symbols or sections from the source file.

--strip-unneeded

Remove all symbols that are not needed for relocation processing in addition to debugging symbols and sections stripped by --strip-debug.

-K symbolname

--keep-symbol=symbolname

When stripping symbols, keep symbol symbolname even if it would normally be stripped.

This option may be given more than once.

-N symbolname

--strip-symbol=symbolname

Do not copy symbol symbolname from the source file. This option may be given more than once.

--strip-unneeded-symbol=symbolname

Do not copy symbol symbolname from the source file unless it is needed by a relocation.

This option may be given more than once.

-G symbolname

--keep-global-symbol=symbolname

Keep only symbol symbolname global. Make all other symbols local to the file, so that they are not visible externally. This option may be given more than once. Note: this option cannot be used in conjunction with the --globalize-symbol or --globalize-symbols options.

--localize-hidden

In an ELF object, mark all symbols that have hidden or internal visibility as local.

This option applies on top of symbol-specific localization options such as -L.

-L symbolname

--localize-symbol=symbolname

Convert a global or weak symbol called symbolname into a local symbol, so that it is not

visible externally. This option may be given more than once. Note - unique symbols are not converted.

`-W symbolname`

`--weaken-symbol=symbolname`

Make symbol `symbolname` weak. This option may be given more than once.

`--binary-symbol-prefix=string`

When used with `--input-target=binary`, sets `string` as the base name for the symbols generated for the input file. These symbols are:

`<string>_start`

`<string>_end`

`<string>_size`

By default, the binary input handler derives the `prefix symbol name` from a mangled version of the input file name and `_binary` prefix. This option allows specifying it explicitly.

`--globalize-symbol=symbolname`

Give symbol `symbolname` global scoping so that it is visible outside of the file in which it is defined. This option may be given more than once. Note: this option cannot be used in conjunction with the `-G` or `--keep-global-symbol` options.

`-w`

`--wildcard`

Permit regular expressions in `symbolnames` used in other command line options. The question mark (?), asterisk (*), backslash (\) and square brackets ([]) operators can be used anywhere in the symbol name. If the first character of the symbol name is the exclamation point (!) then the sense of the switch is reversed for that symbol. For example:

`-w -W !foo -W fo*`

would cause `objcopy` to weaken all symbols that start with "fo" except for the symbol "foo".

`-X`

`--discard-all`

Do not copy non-global symbols from the source file.

`-X`

`--discard-locals`

Do not copy compiler-generated local symbols. (These usually start with L or ..)

-b byte

--byte=byte

If interleaving has been enabled via the --interleave option then start the range of bytes to keep at the byte. byte can be in the range from 0 to breadth-1, where breadth is the value given by the --interleave option.

-i [breadth]

--interleave[=breadth]

Only copy a range out of every breadth bytes. (Header data is not affected). Select which byte in the range begins the copy with the --byte option. Select the width of the range with the --interleave-width option.

This option is useful for creating files to program ROM. It is typically used with an "srec" output target. Note that objcopy will complain if you do not specify the --byte option as well.

The default interleave breadth is 4, so with --byte set to 0, objcopy would copy the first byte out of every four bytes from the input to the output.

--interleave-width=width

When used with the --interleave option, copy width bytes at a time. The start of the range of bytes to be copied is set by the --byte option, and the extent of the range is set with the --interleave option.

The default value for this option is 1. The value of width plus the byte value set by the --byte option must not exceed the interleave breadth set by the --interleave option.

This option can be used to create images for two 16-bit flashes interleaved in a 32-bit bus by passing -b 0 -i 4 --interleave-width=2 and -b 2 -i 4 --interleave-width=2 to two objcopy commands. If the input was '12345678' then the outputs would be '1256' and '3478' respectively.

-p

--preserve-dates

Set the access and modification dates of the output file to be the same as those of the input file.

This option also copies the date stored in a PE format file's header, unless the SOURCE_DATE_EPOCH environment variable is defined. If it is defined then this variable will be used as the date stored in the header, interpreted as the number of seconds

since the Unix epoch.

-D

--enable-deterministic-archives

Operate in deterministic mode. When copying archive members and writing the archive index, use zero for UIDs, GIDs, timestamps, and use consistent file modes for all files.

If binutils was configured with --enable-deterministic-archives, then this mode is on by default. It can be disabled with the -U option, below.

-U

--disable-deterministic-archives

Do not operate in deterministic mode. This is the inverse of the -D option, above: when copying archive members and writing the archive index, use their actual UID, GID, timestamp, and file mode values.

This is the default unless binutils was configured with --enable-deterministic-archives.

--debugging

Convert debugging information, if possible. This is not the default because only certain debugging formats are supported, and the conversion process can be time consuming.

--gap-fill val

Fill gaps between sections with val. This operation applies to the load address (LMA) of the sections. It is done by increasing the size of the section with the lower address, and filling in the extra space created with val.

--pad-to address

Pad the output file up to the load address address. This is done by increasing the size of the last section. The extra space is filled in with the value specified by --gap-fill (default zero).

--set-start val

Set the start address (also known as the entry address) of the new file to val. Not all object file formats support setting the start address.

--change-start incr

--adjust-start incr

Change the start address (also known as the entry address) by adding incr. Not all object file formats support setting the start address.

--change-addresses incr

`--adjust-vma incr`

Change the VMA and LMA addresses of all sections, as well as the start address, by adding `incr`. Some object file formats do not permit section addresses to be changed arbitrarily. Note that this does not relocate the sections; if the program expects sections to be loaded at a certain address, and this option is used to change the sections such that they are loaded at a different address, the program may fail.

`--change-section-address sectionpattern{=,+,-}val`

`--adjust-section-vma sectionpattern{=,+,-}val`

Set or change both the VMA address and the LMA address of any section matching `sectionpattern`. If `=` is used, the section address is set to `val`. Otherwise, `val` is added to or subtracted from the section address. See the comments under `--change-addresses`, above. If `sectionpattern` does not match any sections in the input file, a warning will be issued, unless `--no-change-warnings` is used.

`--change-section-lma sectionpattern{=,+,-}val`

Set or change the LMA address of any sections matching `sectionpattern`. The LMA address is the address where the section will be loaded into memory at program load time. Normally this is the same as the VMA address, which is the address of the section at program run time, but on some systems, especially those where a program is held in ROM, the two can be different. If `=` is used, the section address is set to `val`. Otherwise, `val` is added to or subtracted from the section address. See the comments under `--change-addresses`, above. If `sectionpattern` does not match any sections in the input file, a warning will be issued, unless `--no-change-warnings` is used.

`--change-section-vma sectionpattern{=,+,-}val`

Set or change the VMA address of any section matching `sectionpattern`. The VMA address is the address where the section will be located once the program has started executing. Normally this is the same as the LMA address, which is the address where the section will be loaded into memory, but on some systems, especially those where a program is held in ROM, the two can be different. If `=` is used, the section address is set to `val`. Otherwise, `val` is added to or subtracted from the section address. See the comments under `--change-addresses`, above. If `sectionpattern` does not match any sections in the input file, a warning will be issued, unless `--no-change-warnings` is used.

Note - changing the VMA of sections in a fully linked binary can be dangerous since there may be code that expects the sections to be located at their old address.

`--change-warnings`

`--adjust-warnings`

If `--change-section-address` or `--change-section-lma` or `--change-section-vma` is used, and the section pattern does not match any sections, issue a warning. This is the default.

`--no-change-warnings`

`--no-adjust-warnings`

Do not issue a warning if `--change-section-address` or `--adjust-section-lma` or `--adjust-section-vma` is used, even if the section pattern does not match any sections.

`--set-section-flags sectionpattern=flags`

Set the flags for any sections matching `sectionpattern`. The flags argument is a comma separated string of flag names. The recognized names are `alloc`, `contents`, `load`, `noload`, `readonly`, `code`, `data`, `rom`, `exclude`, `share`, `debug`, and `large`. You can set the `contents` flag for a section which does not have contents, but it is not meaningful to clear the `contents` flag of a section which does have contents--just remove the section instead.

Not all flags are meaningful for all object file formats. In particular the `share` flag is only meaningful for COFF format files and not for ELF format files. The ELF x86-64 specific flag `large` corresponds to `SHF_X86_64_LARGE`.

`--set-section-alignment sectionpattern=align`

Set the alignment for any sections matching `sectionpattern`. `align` specifies the alignment in bytes and must be a power of two, i.e. 1, 2, 4, 8....

Note - setting a section's alignment will not automatically align its LMA or VMA addresses. If those need to be changed as well then the `--change-section-lma` and/or `--change-section-vma` options should be used. Also note that changing VMAs can cause problems in fully linked binaries where there may be code that expects the contents of the sections to be located at their old address.

`--add-section sectionname=filename`

Add a new section named `sectionname` while copying the file. The contents of the new section are taken from the file `filename`. The size of the section will be the size of the file. This option only works on file formats which can support sections with arbitrary names. Note - it may be necessary to use the `--set-section-flags` option to set the attributes of the newly created section.

`--dump-section sectionname=filename`

Place the contents of section named `sectionname` into the file `filename`, overwriting any

contents that may have been there previously. This option is the inverse of `--add-section`. This option is similar to the `--only-section` option except that it does not create a formatted file, it just dumps the contents as raw binary data, without applying any relocations. The option can be specified more than once.

`--update-section sectionname=filename`

Replace the existing contents of a section named `sectionname` with the contents of file `filename`. The size of the section will be adjusted to the size of the file. The section flags for `sectionname` will be unchanged. For ELF format files the section to segment mapping will also remain unchanged, something which is not possible using `--remove-section` followed by `--add-section`. The option can be specified more than once. Note - it is possible to use `--rename-section` and `--update-section` to both update and rename a section from one command line. In this case, pass the original section name to `--update-section`, and the original and new section names to `--rename-section`.

`--add-symbol name=[section:]value[,flags]`

Add a new symbol named `name` while copying the file. This option may be specified multiple times. If the section is given, the symbol will be associated with and relative to that section, otherwise it will be an ABS symbol. Specifying an undefined section will result in a fatal error. There is no check for the value, it will be taken as specified. Symbol flags can be specified and not all flags will be meaningful for all object file formats. By default, the symbol will be global. The special flag `'before=othersym'` will insert the new symbol in front of the specified `othersym`, otherwise the symbol(s) will be added at the end of the symbol table in the order they appear.

`--rename-section oldname=newname[,flags]`

Rename a section from `oldname` to `newname`, optionally changing the section's flags to flags in the process. This has the advantage over using a linker script to perform the rename in that the output stays as an object file and does not become a linked executable. This option accepts the same set of flags as the `--set-section-flags` option.

This option is particularly helpful when the input format is binary, since this will always create a section called `.data`. If for example, you wanted instead to create a section called `.rodata` containing binary data you could use the following command line to achieve it:

```
objcopy -I binary -O <output_format> -B <architecture> \  
--rename-section .data=.rodata,alloc,load,readonly,data,contents \  
<input_binary_file> <output_object_file>
```

--long-section-names {enable,disable,keep}

Controls the handling of long section names when processing "COFF" and "PE-COFF" object formats. The default behaviour, keep, is to preserve long section names if any are present in the input file. The enable and disable options forcibly enable or disable the use of long section names in the output object; when disable is in effect, any long section names in the input object will be truncated. The enable option will only emit long section names if any are present in the inputs; this is mostly the same as keep, but it is left undefined whether the enable option might force the creation of an empty string table in the output file.

--change-leading-char

Some object file formats use special characters at the start of symbols. The most common such character is underscore, which compilers often add before every symbol. This option tells objcopy to change the leading character of every symbol when it converts between object file formats. If the object file formats use the same leading character, this option has no effect. Otherwise, it will add a character, or remove a character, or change a character, as appropriate.

--remove-leading-char

If the first character of a global symbol is a special symbol leading character used by the object file format, remove the character. The most common symbol leading character is underscore. This option will remove a leading underscore from all global symbols. This can be useful if you want to link together objects of different file formats with different conventions for symbol names. This is different from --change-leading-char because it always changes the symbol name when appropriate, regardless of the object file format of the output file.

--reverse-bytes=num

Reverse the bytes in a section with output contents. A section length must be evenly divisible by the value given in order for the swap to be able to take place. Reversing takes place before the interleaving is performed.

This option is used typically in generating ROM images for problematic target systems.

For example, on some target boards, the 32-bit words fetched from 8-bit ROMs are re-

assembled in little-endian byte order regardless of the CPU byte order. Depending on the programming model, the endianness of the ROM may need to be modified.

Consider a simple file with a section containing the following eight bytes: 12345678.

Using `--reverse-bytes=2` for the above example, the bytes in the output file would be ordered 21436587.

Using `--reverse-bytes=4` for the above example, the bytes in the output file would be ordered 43218765.

By using `--reverse-bytes=2` for the above example, followed by `--reverse-bytes=4` on the output file, the bytes in the second output file would be ordered 34127856.

`--srec-len=ival`

Meaningful only for srec output. Set the maximum length of the Srecords being produced to ival. This length covers both address, data and crc fields.

`--srec-forceS3`

Meaningful only for srec output. Avoid generation of S1/S2 records, creating S3-only record format.

`--redefine-sym old=new`

Change the name of a symbol old, to new. This can be useful when one is trying link two things together for which you have no source, and there are name collisions.

`--redefine-syms=filename`

Apply `--redefine-sym` to each symbol pair "old new" listed in the file filename.

filename is simply a flat file, with one symbol pair per line. Line comments may be introduced by the hash character. This option may be given more than once.

`--weaken`

Change all global symbols in the file to be weak. This can be useful when building an object which will be linked against other objects using the `-R` option to the linker.

This option is only effective when using an object file format which supports weak symbols.

`--keep-symbols=filename`

Apply `--keep-symbol` option to each symbol listed in the file filename. filename is simply a flat file, with one symbol name per line. Line comments may be introduced by the hash character. This option may be given more than once.

`--strip-symbols=filename`

Apply `--strip-symbol` option to each symbol listed in the file filename. filename is

simply a flat file, with one symbol name per line. Line comments may be introduced by the hash character. This option may be given more than once.

`--strip-unneeded-symbols=filename`

Apply `--strip-unneeded-symbol` option to each symbol listed in the file `filename`.

`filename` is simply a flat file, with one symbol name per line. Line comments may be introduced by the hash character. This option may be given more than once.

`--keep-global-symbols=filename`

Apply `--keep-global-symbol` option to each symbol listed in the file `filename`. `filename`

is simply a flat file, with one symbol name per line. Line comments may be introduced by the hash character. This option may be given more than once.

`--localize-symbols=filename`

Apply `--localize-symbol` option to each symbol listed in the file `filename`. `filename` is

simply a flat file, with one symbol name per line. Line comments may be introduced by the hash character. This option may be given more than once.

`--globalize-symbols=filename`

Apply `--globalize-symbol` option to each symbol listed in the file `filename`. `filename` is

simply a flat file, with one symbol name per line. Line comments may be introduced by the hash character. This option may be given more than once. Note: this option cannot be used in conjunction with the `-G` or `--keep-global-symbol` options.

`--weaken-symbols=filename`

Apply `--weaken-symbol` option to each symbol listed in the file `filename`. `filename` is

simply a flat file, with one symbol name per line. Line comments may be introduced by the hash character. This option may be given more than once.

`--alt-machine-code=index`

If the output architecture has alternate machine codes, use the `indexth` code instead of the default one. This is useful in case a machine is assigned an official code and the tool-chain adopts the new code, but other applications still depend on the original code being used. For ELF based architectures if the index alternative does not exist then the value is treated as an absolute number to be stored in the `e_machine` field of the ELF header.

`--writable-text`

Mark the output text as writable. This option isn't meaningful for all object file formats.

`--readonly-text`

Make the output text write protected. This option isn't meaningful for all object file formats.

`--pure`

Mark the output file as demand paged. This option isn't meaningful for all object file formats.

`--impure`

Mark the output file as impure. This option isn't meaningful for all object file formats.

`--prefix-symbols=string`

Prefix all symbols in the output file with string.

`--prefix-sections=string`

Prefix all section names in the output file with string.

`--prefix-alloc-sections=string`

Prefix all the names of all allocated sections in the output file with string.

`--add-gnu-debuglink=path-to-file`

Creates a `.gnu_debuglink` section which contains a reference to path-to-file and adds it to the output file. Note: the file at path-to-file must exist. Part of the process of adding the `.gnu_debuglink` section involves embedding a checksum of the contents of the debug info file into the section.

If the debug info file is built in one location but it is going to be installed at a later time into a different location then do not use the path to the installed location.

The `--add-gnu-debuglink` option will fail because the installed file does not exist yet.

Instead put the debug info file in the current directory and use the `--add-gnu-debuglink` option without any directory components, like this:

```
objcopy --add-gnu-debuglink=foo.debug
```

At debug time, the debugger will attempt to look for the separate debug info file in a set of known locations. The exact set of these locations varies depending upon the distribution being used, but it typically includes:

- ? The same directory as the executable.
- ? A sub-directory of the directory containing the executable called `.debug`.
- ? A global debug directory such as `/usr/lib/debug`.

As long as the debug info file has been installed into one of these locations before the

debugger is run everything should work correctly.

`--keep-section-symbols`

When stripping a file, perhaps with `--strip-debug` or `--strip-unneeded`, retain any symbols specifying section names, which would otherwise get stripped.

`--keep-file-symbols`

When stripping a file, perhaps with `--strip-debug` or `--strip-unneeded`, retain any symbols specifying source file names, which would otherwise get stripped.

`--only-keep-debug`

Strip a file, removing contents of any sections that would not be stripped by `--strip-debug` and leaving the debugging sections intact. In ELF files, this preserves all note sections in the output.

Note - the section headers of the stripped sections are preserved, including their sizes, but the contents of the section are discarded. The section headers are preserved so that other tools can match up the debuginfo file with the real executable, even if that executable has been relocated to a different address space.

The intention is that this option will be used in conjunction with `--add-gnu-debuglink` to create a two part executable. One a stripped binary which will occupy less space in RAM and in a distribution and the second a debugging information file which is only needed if debugging abilities are required. The suggested procedure to create these files is as follows:

1. Link the executable as normal. Assuming that it is called "foo" then...
2. Run `"objcopy --only-keep-debug foo foo.dbg"` to create a file containing the debugging info.
3. Run `"objcopy --strip-debug foo"` to create a stripped executable.
4. Run `"objcopy --add-gnu-debuglink=foo.dbg foo"` to add a link to the debugging info into the stripped executable.

Note---the choice of ".dbg" as an extension for the debug info file is arbitrary. Also the "--only-keep-debug" step is optional. You could instead do this:

1. Link the executable as normal.
2. Copy "foo" to "foo.full".
3. Run `"objcopy --strip-debug foo"`.
4. Run `"objcopy --add-gnu-debuglink=foo.full foo"`.

i.e., the file pointed to by the `--add-gnu-debuglink` can be the full executable. It

does not have to be a file created by the `--only-keep-debug` switch.

Note---this switch is only intended for use on fully linked files. It does not make sense to use it on object files where the debugging information may be incomplete. Besides the `gnu_debuglink` feature currently only supports the presence of one filename containing debugging information, not multiple filenames on a one-per-object-file basis.

`--strip-dwo`

Remove the contents of all DWARF `.dwo` sections, leaving the remaining debugging sections and all symbols intact. This option is intended for use by the compiler as part of the `-gsplit-dwarf` option, which splits debug information between the `.o` file and a separate `.dwo` file. The compiler generates all debug information in the same file, then uses the `--extract-dwo` option to copy the `.dwo` sections to the `.dwo` file, then the `--strip-dwo` option to remove those sections from the original `.o` file.

`--extract-dwo`

Extract the contents of all DWARF `.dwo` sections. See the `--strip-dwo` option for more information.

`--file-alignment num`

Specify the file alignment. Sections in the file will always begin at file offsets which are multiples of this number. This defaults to 512. [This option is specific to PE targets.]

`--heap reserve`

`--heap reserve,commit`

Specify the number of bytes of memory to reserve (and optionally commit) to be used as heap for this program. [This option is specific to PE targets.]

`--image-base value`

Use `value` as the base address of your program or dll. This is the lowest memory location that will be used when your program or dll is loaded. To reduce the need to relocate and improve performance of your dlls, each should have a unique base address and not overlap any other dlls. The default is `0x400000` for executables, and `0x10000000` for dlls. [This option is specific to PE targets.]

`--section-alignment num`

[This option is specific to PE targets.]

Sets the section alignment field in the PE header - if one is present in the binary.

Sections in memory will always begin at addresses which are a multiple of this number.

Defaults to 0x1000.

Note - if a section's LMA or VMA addresses are no longer aligned, and those addresses have not been set via the --set-section-lma or --set-section-vma options, and the file has been fully relocated then a warning message will be issued. It will then be up to the user to decide if the LMA and VMA need updating.

--stack reserve

--stack reserve,commit

Specify the number of bytes of memory to reserve (and optionally commit) to be used as stack for this program. [This option is specific to PE targets.]

--subsystem which

--subsystem which:major

--subsystem which:major.minor

Specifies the subsystem under which your program will execute. The legal values for which are "native", "windows", "console", "posix", "efi-app", "efi-bsd", "efi-rtd", "sal-rtd", and "xbox". You may optionally set the subsystem version also. Numeric values are also accepted for which. [This option is specific to PE targets.]

--extract-symbol

Keep the file's section flags and symbols but remove all section data. Specifically, this option:

- ? Removes the contents of all sections.
- ? Sets the size of every section to zero.
- ? Sets the file's start address to zero.

This option is used to build a .sym file for a VxWorks kernel. It can also be a useful way of reducing the size of a --just-symbols linker input file.

--compress-debug-sections

Compress DWARF debug sections using zlib with SHF_COMPRESSED from the ELF ABI. Note - if compression would actually make a section larger, then it is not compressed.

--compress-debug-sections=none

--compress-debug-sections=zlib

--compress-debug-sections=zlib-gnu

--compress-debug-sections=zlib-gabi

--compress-debug-sections=zstd

For ELF files, these options control how DWARF debug sections are compressed.

--compress-debug-sections=none is equivalent to --decompress-debug-sections.

--compress-debug-sections=zlib and --compress-debug-sections=zlib-gabi are equivalent to

--compress-debug-sections. --compress-debug-sections=zlib-gnu compresses DWARF debug sections using the obsoleted zlib-gnu format. The debug sections are renamed to begin with .zdebug. --compress-debug-sections=zstd compresses DWARF debug sections using zstd. Note - if compression would actually make a section larger, then it is not compressed nor renamed.

--decompress-debug-sections

Decompress DWARF debug sections. For a .zdebug section, the original name is restored.

--elf-stt-common=yes

--elf-stt-common=no

For ELF files, these options control whether common symbols should be converted to the "STT_COMMON" or "STT_OBJECT" type. --elf-stt-common=yes converts common symbol type to "STT_COMMON". --elf-stt-common=no converts common symbol type to "STT_OBJECT".

--merge-notes

--no-merge-notes

For ELF files, attempt (or do not attempt) to reduce the size of any SHT_NOTE type sections by removing duplicate notes.

-V

--version

Show the version number of objcopy.

--verilog-data-width=bytes

For Verilog output, this options controls the number of bytes converted for each output data element. The input target controls the endianness of the conversion.

-v

--verbose

Verbose output: list all object files modified. In the case of archives, objcopy -V lists all members of the archive.

--help

Show a summary of the options to objcopy.

--info

Display a list showing all architectures and object formats available.

@file

Read command-line options from file. The options read are inserted in place of the original @file option. If file does not exist, or cannot be read, then the option will be treated literally, and not removed.

Options in file are separated by whitespace. A whitespace character may be included in an option by surrounding the entire option in either single or double quotes. Any character (including a backslash) may be included by prefixing the character to be included with a backslash. The file may itself contain additional @file options; any such options will be processed recursively.

SEE ALSO

ld(1), objdump(1), and the Info entries for binutils.

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OBJCOPY(1)