

**NAME**

gold – The GNU ELF linker

**SYNOPSIS**

**ld.gold** [*options*] *file...*

**OPTIONS**

- help** Report usage information
- v, --version** Report version information
- V** Report version and target information
- add-needed** Not supported
- no-add-needed** Do not copy DT\_NEEDED tags from shared libraries (default)
- allow-multiple-definition** Allow multiple definitions of symbols
- no-allow-multiple-definition** Do not allow multiple definitions (default)
- allow-shlib-undefined** Allow unresolved references in shared libraries
- no-allow-shlib-undefined** Do not allow unresolved references in shared libraries (default)
- apply-dynamic-relocs** Apply link-time values for dynamic relocations (default)
- no-apply-dynamic-relocs** (aarch64 only) Do not apply link-time values for dynamic relocations
- as-needed** Use DT\_NEEDED only for shared libraries that are used
- no-as-needed** Use DT\_NEEDED for all shared libraries (default)
- assert** [*ignored*] Ignored
- b** [*elf,binary*], **--format** [*elf,binary*] Set input format
- be8** Output BE8 format image
- build-id** [=STYLE] Generate build ID note
- build-id-chunk-size-for-treehash** SIZE  
Chunk size for '--build-id=tree'
- build-id-min-file-size-for-treehash** SIZE  
Minimum output file size for '--build-id=tree' to work differently than '--build-id=sha1'
- Bdynamic** **-l** searches for shared libraries (default)
- Bstatic** **-l** does not search for shared libraries
- dy** alias for **-Bdynamic** (default)
- dn** alias for **-Bstatic**

- Bgroup**  
Use group name lookup rules for shared library
- Bshareable**  
Generate shared library (alias for **-G/-shared**)
- Bsymbolic**  
Bind defined symbols locally
- Bsymbolic-functions**  
Bind defined function symbols locally
- check-sections**  
Check segment addresses for overlaps (default)
- no-check-sections**  
Do not check segment addresses for overlaps
- compress-debug-sections** [none,zlib,zlib-gnu,zlib-gabi]  
Compress .debug\_\* sections in the output file
- copy-dt-needed-entries**  
Not supported
- no-copy-dt-needed-entries** Do not copy DT\_NEEDED tags from shared libraries (default)
- cref** Output cross reference table
- no-cref**  
Do not output cross reference table (default)
- ctors-in-init-array**  
Use DT\_INIT\_ARRAY for all constructors (default)
- no-ctors-in-init-array**  
Handle constructors as directed by compiler
- d, --define-common**  
Define common symbols
- no-define-common**  
Do not define common symbols in relocatable output (default)
- dc** Alias for **-d**
- dp** Alias for **-d**
- debug** [all,files,script,task][,...]  
Turn on debugging
- defsym** SYMBOL=EXPRESSION  
Define a symbol
- demangle** [=STYLE]  
Demangle C++ symbols in log messages
- no-demangle**  
Do not demangle C++ symbols in log messages
- detect-odr-violations**  
Look for violations of the C++ One Definition Rule
- no-detect-odr-violations**  
Do not look for violations of the C++ One Definition Rule (default)
- dynamic-list-data**  
Add data symbols to dynamic symbols

**--dynamic-list-cpp-new**  
Add C++ operator new/delete to dynamic symbols

**--dynamic-list-cpp-typeinfo** Add C++ typeid to dynamic symbols

**--dynamic-list FILE**  
Read a list of dynamic symbols

**--emit-stub-syms**  
(PowerPC only) Label linker stubs with a symbol (default)

**--no-emit-stub-syms**  
(PowerPC only) Do not label linker stubs with a symbol

**-e ADDRESS, --entry ADDRESS** Set program start address

**--eh-frame-hdr**  
Create exception frame header

**--no-eh-frame-hdr**  
Do not create exception frame header (default)

**--enable-new-dtags**  
Enable use of DT\_RUNPATH (default)

**--disable-new-dtags**  
Disable use of DT\_RUNPATH

**--no-enum-size-warning**  
(ARM only) Do not warn about objects with incompatible enum sizes

**--exclude-libs lib,lib ...**  
Exclude libraries from automatic export

**-E, --export-dynamic**  
Export all dynamic symbols

**--no-export-dynamic**  
Do not export all dynamic symbols (default)

**--export-dynamic-symbol SYMBOL**  
Export SYMBOL to dynamic symbol table

**-EB** Link big-endian objects.

**-EL** Link little-endian objects.

**-f SHLIB, --auxiliary SHLIB** Auxiliary filter for shared object symbol table

**-F SHLIB, --filter SHLIB**  
Filter for shared object symbol table

**--fatal-warnings**  
Treat warnings as errors

**--no-fatal-warnings**  
Do not treat warnings as errors (default)

**-fini SYMBOL**  
Call SYMBOL at unload-time

**--fix-arm1176**  
(ARM only) Fix binaries for ARM1176 erratum (default)

**--no-fix-arm1176**  
(ARM only) Do not fix binaries for ARM1176 erratum

**--fix-cortex-a8**  
(ARM only) Fix binaries for Cortex-A8 erratum

**--no-fix-cortex-a8**  
(ARM only) Do not fix binaries for Cortex-A8 erratum (default)

**--fix-cortex-a53-843419**  
(AArch64 only) Fix Cortex-A53 erratum 843419

**--no-fix-cortex-a53-843419**  
(AArch64 only) Do not fix Cortex-A53 erratum 843419 (default)

**--fix-cortex-a53-835769**  
(AArch64 only) Fix Cortex-A53 erratum 835769

**--no-fix-cortex-a53-835769**  
(AArch64 only) Do not fix Cortex-A53 erratum 835769 (default)

**--fix-v4bx**  
(ARM only) Rewrite BX rn as MOV pc, rn for ARMv4

**--fix-v4bx-interworking**  
(ARM only) Rewrite BX rn branch to ARMv4 interworking veneer

**-fuse-ld** [gold,bfd]  
Ignored for GCC linker option compatibility

**-g** Ignored

**--gc-sections**  
Remove unused sections

**--no-gc-sections**  
Don't remove unused sections (default)

**--gdb-index**  
Generate .gdb\_index section

**--no-gdb-index**  
Do not generate .gdb\_index section (default)

**--gnu-unique**  
Enable STB\_GNU\_UNIQUE symbol binding (default)

**--no-gnu-unique**  
Disable STB\_GNU\_UNIQUE symbol binding

**-G, -shared**  
Generate shared library

**-h** FILENAME, **-soname** FILENAME  
Set shared library name

**--hash-bucket-empty-fraction** FRACTION  
Min fraction of empty buckets in dynamic hash

**--hash-style** [sysv,gnu,both]  
Dynamic hash style

**-i** Alias for **-r**

**--icf** [none,all,safe]  
Identical Code Folding. '---icf=safe' Folds ctors, dtors and functions whose pointers are definitely not taken

**--icf-iterations** COUNT  
Number of iterations of ICF (default 3)

- incremental**  
Do an incremental link if possible; otherwise, do a full link and prepare output for incremental linking
- no-incremental**  
Do a full link (default)
- incremental-full**  
Do a full link and prepare output for incremental linking
- incremental-update**  
Do an incremental link; exit if not possible
- incremental-base** FILE  
Set base file for incremental linking (default is output file)
- incremental-changed**  
Assume files changed
- incremental-unchanged**  
Assume files didn't change
- incremental-unknown**  
Use timestamps to check files (default)
- incremental-startup-unchanged**  
Assume startup files unchanged (files preceding this option)
- incremental-patch** PERCENT  
Amount of extra space to allocate for patches (default 10)
- init** SYMBOL  
Call SYMBOL at load-time
- I** PROGRAM, **--dynamic-linker** PROGRAM  
Set dynamic linker path
- just-symbols** FILE  
Read only symbol values from FILE
- keep-files-mapped**  
Keep files mapped across passes (default)
- no-keep-files-mapped**  
Release mapped files after each pass
- keep-unique** SYMBOL  
Do not fold this symbol during ICF
- l** LIBNAME, **--library** LIBNAME  
Search for library LIBNAME
- ld-generated-unwind-info**  
Generate unwind information for PLT (default)
- no-ld-generated-unwind-info**  
Do not generate unwind information for PLT
- L** DIR, **--library-path** DIR  
Add directory to search path
- long-plt**  
(ARM only) Generate long PLT entries
- no-long-plt**  
(ARM only) Do not generate long PLT entries (default)

**-m EMULATION**  
Set GNU linker emulation; obsolete

**--map-whole-files**  
Map whole files to memory (default)

**--no-map-whole-files**  
Map relevant file parts to memory

**--merge-exidx-entries**  
(ARM only) Merge exidx entries in debuginfo (default)

**--no-merge-exidx-entries**  
(ARM only) Do not merge exidx entries in debuginfo

**--mmap-output-file**  
Map the output file for writing (default)

**--no-mmap-output-file**  
Do not map the output file for writing

**-M, --print-map**  
Write map file on standard output

**-Map MAPFILENAME**  
Write map file

**-n, --nmagic**  
Do not page align data

**-N, --omagic**  
Do not page align data, do not make text readonly

**--no-omagic**  
Page align data, make text readonly (default)

**--no-keep-memory**  
Use less memory and more disk I/O (included only for compatibility with GNU ld)

**--no-undefined**  
Report undefined symbols (even with **---shared**)

**--noinhibit-exec**  
Create an output file even if errors occur

**-nostdlib**  
Only search directories specified on the command line

**-o FILE, --output FILE**  
Set output file name

**--oformat [binary]**  
Set output format

**-O LEVEL, --optimize LEVEL**  
Optimize output file size

**--orphan-handling [place,discard,warn,error]**  
Orphan section handling

**-p** Ignored for ARM compatibility

**-pie** Create a position independent executable

**-no-pie**  
Do not create a position independent executable (default)

- pic-executable**  
Create a position independent executable
- no-pic-executable**  
Do not create a position independent executable (default)
- pic-veneer**  
Force PIC sequences for ARM/Thumb interworking veneers
- no-pipeline-knowledge**  
(ARM only) Ignore for backward compatibility (default)
- plt-align [=P2ALIGN]**  
(PowerPC only) Align PLT call stubs to fit cache lines
- plt-localentry**  
(PowerPC64 only) Optimize calls to ELFv2 localentry:0 functions
- no-plt-localentry**  
(PowerPC64 only) Don't optimize ELFv2 calls (default)
- plt-static-chain**  
(PowerPC64 only) PLT call stubs should load r11
- no-plt-static-chain**  
(PowerPC64 only) PLT call stubs should not load r11 (default)
- plt-thread-safe**  
(PowerPC64 only) PLT call stubs with load-load barrier
- no-plt-thread-safe**  
(PowerPC64 only) PLT call stubs without barrier (default)
- plugin PLUGIN**  
Load a plugin library
- plugin-opt OPTION**  
Pass an option to the plugin
- posix-fallocate**  
Use posix\_fallocate to reserve space in the output file (default)
- no-posix-fallocate**  
Use fallocate or ftruncate to reserve space
- preread-archive-symbols**  
Preread archive symbols when multi-threaded
- print-gc-sections**  
List removed unused sections on stderr
- no-print-gc-sections**  
Do not list removed unused sections (default)
- print-icf-sections**  
List folded identical sections on stderr
- no-print-icf-sections**  
Do not list folded identical sections (default)
- print-output-format**  
Print default output format
- print-symbol-counts FILENAME**  
Print symbols defined and used for each input

**--push-state**  
Save the state of flags related to input files

**--pop-state**  
Restore the state of flags related to input files

**-q, --emit-relocs**  
Generate relocations in output

**-Qy** Ignored for SVR4 compatibility

**-r, --relocatable**  
Generate relocatable output

**--relax**  
Relax branches on certain targets

**--no-relax**  
Do not relax branches (default)

**--retain-symbols-file FILE**  
keep only symbols listed in this file

**--rosegment**  
Put read-only non-executable sections in their own segment

**--rosegment-gap OFFSET**  
Set offset between executable and read-only segments

**-R DIR**  
Add DIR to runtime search path

**-rpath DIR**  
Add DIR to runtime search path

**--rpath-link DIR**  
Add DIR to link time shared library search path

**-s, --strip-all**  
Strip all symbols

**-S, --strip-debug**  
Strip debugging information

**--strip-debug-non-line**  
Emit only debug line number information

**--strip-debug-gdb**  
Strip debug symbols that are unused by gdb (at least versions <= 7.4)

**--strip-lto-sections**  
Strip LTO intermediate code sections (default)

**--section-ordering-file FILENAME**  
Layout sections in the order specified

**--section-start SECTION=ADDRESS**  
Set address of section

**--secure-plt**  
(PowerPC only) Use new-style PLT (default)

**--sort-common [= {ascending,descending}]**  
Sort common symbols by alignment

**--sort-section [none,name]**  
Sort sections by name. '---no-text-reorder' will override '--sort-section=name' for .text



**--spare-dynamic-tags** COUNT  
Dynamic tag slots to reserve (default 5)

**--stub-group-size** SIZE  
(ARM, PowerPC only) The maximum distance from instructions in a group of sections to their stubs. Negative values mean stubs are always after the group. 1 means use default size

**--stub-group-multi**  
(PowerPC only) Allow a group of stubs to serve multiple output sections (default)

**--no-stub-group-multi**  
(PowerPC only) Each output section has its own stubs

**--split-stack-adjust-size** SIZE  
Stack size when **-fsplit-stack** function calls non-split

**-static** Do not link against shared libraries

**--start-lib**  
Start a library

**--end-lib**  
End a library

**--stats** Print resource usage statistics

**--sysroot** DIR  
Set target system root directory

**-t, --trace**  
Print the name of each input file

**--target1-abs**  
(ARM only) Force R\_ARM\_TARGET1 type to R\_ARM\_ABS32

**--target1-rel**  
(ARM only) Force R\_ARM\_TARGET1 type to R\_ARM\_REL32

**--target2** [rel, abs, got-rel]  
(ARM only) Set R\_ARM\_TARGET2 relocation type

**--text-reorder**  
Enable text section reordering for GCC section names (default)

**--no-text-reorder**  
Disable text section reordering for GCC section names

**--threads**  
Run the linker multi-threaded

**--no-threads**  
Do not run the linker multi-threaded (default)

**--thread-count** COUNT  
Number of threads to use

**--thread-count-initial** COUNT  
Number of threads to use in initial pass

**--thread-count-middle** COUNT  
Number of threads to use in middle pass

**--thread-count-final** COUNT  
Number of threads to use in final pass

**--tls-optimize**  
(PowerPC/64 only) Optimize GD/LD/IE code to IE/LE (default)

**--no-tls-optimize**  
(PowerPC/64 only) Don't try to optimize TLS accesses

**--tls-get-addr-optimize**  
(PowerPC/64 only) Use a special `__tls_get_addr` call (default)

**--no-tls-get-addr-optimize**  
(PowerPC/64 only) Don't use a special `__tls_get_addr` call

**--toc-optimize**  
(PowerPC64 only) Optimize TOC code sequences (default)

**--no-toc-optimize**  
(PowerPC64 only) Don't optimize TOC code sequences

**--toc-sort**  
(PowerPC64 only) Sort TOC and GOT sections (default)

**--no-toc-sort**  
(PowerPC64 only) Don't sort TOC and GOT sections

**-T FILE, --script FILE**  
Read linker script

**-Tbss ADDRESS**  
Set the address of the bss segment

**-Tdata ADDRESS**  
Set the address of the data segment

**-Ttext ADDRESS**  
Set the address of the text segment

**-Ttext-segment ADDRESS**  
Set the address of the text segment

**-Trodata-segment ADDRESS**  
Set the address of the rodata segment

**-u SYMBOL, --undefined SYMBOL**  
Create undefined reference to SYMBOL

**--unresolved-symbols ignore-all,report-all,ignore-in-object-files,ignore-in-shared-libs**  
How to handle unresolved symbols

**--verbose**  
Alias for **--debug=files**

**--version-script FILE**  
Read version script

**--warn-common**  
Warn about duplicate common symbols

**--no-warn-common**  
Do not warn about duplicate common symbols (default)

**--warn-constructors**  
Ignored

**--no-warn-constructors**  
Ignored

**--warn-drop-version**  
Warn when discarding version information

**--no-warn-drop-version**  
Do not warn when discarding version information (default)

**--warn-execstack**  
Warn if the stack is executable

**--no-warn-execstack**  
Do not warn if the stack is executable (default)

**--no-warn-mismatch**  
Don't warn about mismatched input files

**--warn-multiple-gp**  
Ignored

**--warn-search-mismatch**  
Warn when skipping an incompatible library (default)

**--no-warn-search-mismatch**  
Don't warn when skipping an incompatible library

**--warn-shared-textrel**  
Warn if text segment is not shareable

**--no-warn-shared-textrel**  
Do not warn if text segment is not shareable (default)

**--warn-unresolved-symbols**  
Report unresolved symbols as warnings

**--error-unresolved-symbols**  
Report unresolved symbols as errors (default)

**-z build**  
Dummy z option

**--no-wchar-size-warning**  
(ARM only) Do not warn about objects with incompatible wchar\_t sizes

**--weak-unresolved-symbols**  
Convert unresolved symbols to weak references

**--whole-archive**  
Include all archive contents

**--no-whole-archive**  
Include only needed archive contents (default)

**--wrap SYMBOL**  
Use wrapper functions for SYMBOL

**-x, --discard-all**  
Delete all local symbols

**-X, --discard-locals**  
Delete all temporary local symbols

**--discard-none**  
Keep all local symbols

**-y SYMBOL, --trace-symbol SYMBOL**  
Trace references to symbol

**--undefined-version**  
Allow unused version in script (default)

**--no-undefined-version**  
Do not allow unused version in script

**-Y PATH**  
Default search path for Solaris compatibility

**-(, --start-group**  
Start a library search group

**), --end-group**  
End a library search group

**-z bndplt**  
(x86-64 only) Generate a BND PLT for Intel MPX

**-z nobndplt**  
Generate a regular PLT (default)

**-z combrelloc**  
Sort dynamic relocs (default)

**-z nocombreloc**  
Do not sort dynamic relocs

**-z common-page-size=SIZE**  
Set common page size to SIZE

**-z defs** Report undefined symbols (even with **--shared**)

**-z execstack**  
Mark output as requiring executable stack

**-z global**  
Make symbols in DSO available for subsequently loaded objects

**-z initfirst**  
Mark DSO to be initialized first at runtime

**-z interpose**  
Mark object to interpose all DSOs but executable

**-z lazy** Mark object for lazy runtime binding (default)

**-z loadfltr**  
Mark object requiring immediate process

**-z max-page-size=SIZE**  
Set maximum page size to SIZE

**-z muldefs**  
Allow multiple definitions of symbols

**-z nocopyreloc**  
Do not create copy relocs

**-z nodefaultlib**  
Mark object not to use default search paths

**-z nodelete**  
Mark DSO non-deletable at runtime

**-z nodlopen**  
Mark DSO not available to dlopen

**-z nodump**  
Mark DSO not available to dldump

**-z noexecstack**  
 Mark output as not requiring executable stack

**-z now** Mark object for immediate function binding

**-z origin**  
 Mark DSO to indicate that needs immediate \$ORIGIN processing at runtime

**-z relro**  
 Where possible mark variables read-only after relocation (default)

**-z norelro**  
 Don't mark variables read-only after relocation

**-z stack-size=SIZE**  
 Set PT\_GNU\_STACK segment p\_memsz to SIZE

**-z text** Do not permit relocations in read-only segments

**-z notext**  
 Permit relocations in read-only segments (default)

**-z textoff**  
 Permit relocations in read-only segments (default)

**-z text-unlikely-segment**  
 Move .text.unlikely sections to a separate segment.

**-z notext-unlikely-segment**  
 Do not move .text.unlikely sections to a separate segment. (default)

**-z keep-text-section-prefix** Keep .text.hot, .text.startup, .text.exit and .text.unlikely as separate sections in the final binary.

**-z nokeep-text-section-prefix**  
 Merge all .text.\* prefix sections. (default)

debian/tmp/usr/bin/ld.gold: supported targets: elf32-iamcu elf32-i386 elf32-i386-freebsd  
 elf32-i386-nacl elf32-x86-64 elf32-x86-64-freebsd elf32-x86-64-nacl elf64-x86-64  
 elf64-x86-64-freebsd elf64-x86-64-nacl debian/tmp/usr/bin/ld.gold: supported emulations: elf\_iamcu  
 elf\_i386 elf\_i386\_nacl elf32\_x86\_64 elf32\_x86\_64\_nacl elf\_x86\_64 elf\_x86\_64\_nacl

## REPORTING BUGS

Report bugs to <<http://www.sourceware.org/bugzilla/>>

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