



Linux Ubuntu 26.04 Manual Pages on command 'git-submodule.1'

\$ man git-submodule.1

GIT-SUBMODULE(1)

Git Manual

GIT-SUBMODULE(1)

NAME

git-submodule - Initialize, update or inspect submodules

SYNOPSIS

```
git submodule [--quiet] [--cached]

git submodule [--quiet] add [<options>] [--] <repository> [<path>]

git submodule [--quiet] status [--cached] [--recursive] [--] [<path>...]

git submodule [--quiet] init [--] [<path>...]

git submodule [--quiet] deinit [-f|--force] [--all|--] [<path>...]

git submodule [--quiet] update [<options>] [--] [<path>...]

git submodule [--quiet] set-branch [<options>] [--] <path>

git submodule [--quiet] set-url [--] <path> <newurl>

git submodule [--quiet] summary [<options>] [--] [<path>...]

git submodule [--quiet] foreach [--recursive] <command>

git submodule [--quiet] sync [--recursive] [--] [<path>...]

git submodule [--quiet] absorbgitdirs [--] [<path>...]
```

DESCRIPTION

Inspects, updates and manages submodules.

For more information about submodules, see gitmodules(7).

COMMANDS

With no arguments, shows the status of existing submodules. Several subcommands are available to perform operations on the submodules.

add [-b <branch>] [-f|--force] [--name <name>] [--reference <repository>] [--ref-format

`<format>] [--depth <depth>] [--] <repository> [<path>]`

Add the given repository as a submodule at the given path to the changeset to be committed next to the current project: the current project is termed the "superproject". `<repository>` is the URL of the new submodule's origin repository. This may be either an absolute URL, or (if it begins with `./` or `../`), the location relative to the superproject's default remote repository (Please note that to specify a repository `foo.git` which is located right next to a superproject `bar.git`, you'll have to use `../foo.git` instead of `./foo.git` - as one might expect when following the rules for relative URLs - because the evaluation of relative URLs in Git is identical to that of relative directories).

The default remote is the remote of the remote-tracking branch of the current branch. If no such remote-tracking branch exists or the HEAD is detached, "origin" is assumed to be the default remote. If the superproject doesn't have a default remote configured the superproject is its own authoritative upstream and the current working directory is used instead.

The optional argument `<path>` is the relative location for the cloned submodule to exist in the superproject. If `<path>` is not given, the canonical part of the source repository is used ("repo" for `"/path/to/repo.git"` and "foo" for `"host.xz:foo/.git"`). If `<path>` exists and is already a valid Git repository, then it is staged for commit without cloning. The `<path>` is also used as the submodule's logical name in its configuration entries unless `--name` is used to specify a logical name.

The given URL is recorded into `.gitmodules` for use by subsequent users cloning the superproject. If the URL is given relative to the superproject's repository, the presumption is the superproject and submodule repositories will be kept together in the same relative location, and only the superproject's URL needs to be provided. `git-submodule` will correctly locate the submodule using the relative URL in `.gitmodules`. If `--ref-format <format>` is specified, the ref storage format of newly cloned submodules will be set accordingly.

`status [--cached] [--recursive] [--] [<path>...]`

Show the status of the submodules. This will print the SHA-1 of the currently checked out commit for each submodule, along with the submodule path and the output of `git describe` for the SHA-1. Each SHA-1 will possibly be prefixed with `-` if the submodule is not initialized, `+` if the currently checked out submodule commit does not match the

SHA-1 found in the index of the containing repository and U if the submodule has merge conflicts.

If `--cached` is specified, this command will instead print the SHA-1 recorded in the superproject for each submodule.

If `--recursive` is specified, this command will recurse into nested submodules, and show their status as well.

If you are only interested in changes of the currently initialized submodules with respect to the commit recorded in the index or the HEAD, `git-status(1)` and `git-diff(1)` will provide that information too (and can also report changes to a submodule's work tree).

`init [--] [<path>...]`

Initialize the submodules recorded in the index (which were added and committed elsewhere) by setting `submodule.$name.url` in `.git/config`, using the same setting from `.gitmodules` as a template. If the URL is relative, it will be resolved using the default remote. If there is no default remote, the current repository will be assumed to be upstream.

Optional `<path>` arguments limit which submodules will be initialized. If no path is specified and `submodule.active` has been configured, submodules configured to be active will be initialized, otherwise all submodules are initialized.

It will also copy the value of `submodule.$name.update`, if present in the `.gitmodules` file, to `.git/config`, but (1) this command does not alter existing information in `.git/config`, and (2) `submodule.$name.update` that is set to a custom command is not copied for security reasons.

You can then customize the submodule clone URLs in `.git/config` for your local setup and proceed to `git submodule update`; you can also just use `git submodule update --init` without the explicit init step if you do not intend to customize any submodule locations.

See the `add` subcommand for the definition of default remote.

`deinit [-f|--force] [--all|--] [<path>...]`

Unregister the given submodules, i.e. remove the whole `submodule.$name` section from `.git/config` together with their work tree. Further calls to `git submodule update`, `git submodule foreach` and `git submodule sync` will skip any unregistered submodules until they are initialized again, so use this command if you don't want to have a local

checkout of the submodule in your working tree anymore.

When the command is run without pathspec, it errors out, instead of deinit-ing everything, to prevent mistakes.

If --force is specified, the submodule's working tree will be removed even if it contains local modifications.

If you really want to remove a submodule from the repository and commit that use git-rm(1) instead. See gitmodules(7) for removal options.

```
update [--init] [--remote] [-N|--no-fetch] [--[no-]recommnd-shallow] [-f|--force]
[--checkout|--rebase|--merge] [--reference <repository>] [--ref-format <format>] [--depth
<depth>] [--recursive] [--jobs <n>] [--[no-]single-branch] [--filter <filter-spec>] [--]
[<path>...]
```

Update the registered submodules to match what the superproject expects by cloning missing submodules, fetching missing commits in submodules and updating the working tree of the submodules. The "updating" can be done in several ways depending on command line options and the value of submodule.<name>.update configuration variable. The command line option takes precedence over the configuration variable. If neither is given, a checkout is performed. (note: what is in .gitmodules file is irrelevant at this point; see git submodule init above for how .gitmodules is used). The update procedures supported both from the command line as well as through the submodule.<name>.update configuration are:

checkout

the commit recorded in the superproject will be checked out in the submodule on a detached HEAD.

If --force is specified, the submodule will be checked out (using git checkout --force), even if the commit specified in the index of the containing repository already matches the commit checked out in the submodule.

rebase

the current branch of the submodule will be rebased onto the commit recorded in the superproject.

merge

the commit recorded in the superproject will be merged into the current branch in the submodule.

The following update procedures have additional limitations:

custom command

mechanism for running arbitrary commands with the commit ID as an argument.

Specifically, if the submodule.<name>.update configuration variable is set to !custom command, the object name of the commit recorded in the superproject for the submodule is appended to the custom command string and executed. Note that this mechanism is not supported in the .gitmodules file or on the command line.

none

the submodule is not updated. This update procedure is not allowed on the command line.

If the submodule is not yet initialized, and you just want to use the setting as stored in .gitmodules, you can automatically initialize the submodule with the --init option.

If --recursive is specified, this command will recurse into the registered submodules, and update any nested submodules within.

If --ref-format <format> is specified, the ref storage format of newly cloned submodules will be set accordingly.

If --filter <filter-spec> is specified, the given partial clone filter will be applied to the submodule. See git-rev-list(1) for details on filter specifications.

set-branch (-b|--branch) <branch> [--] <path>, set-branch (-d|--default) [--] <path>

Sets the default remote tracking branch for the submodule. The --branch option allows the remote branch to be specified. The --default option removes the submodule.<name>.branch configuration key, which causes the tracking branch to default to the remote HEAD.

set-url [--] <path> <newurl>

Sets the URL of the specified submodule to <newurl>. Then, it will automatically synchronize the submodule's new remote URL configuration.

summary [--cached|--files] [(-n|--summary-limit) <n>] [commit] [--] [<path>...]

Show commit summary between the given commit (defaults to HEAD) and working tree/index.

For a submodule in question, a series of commits in the submodule between the given super project commit and the index or working tree (switched by --cached) are shown. If the option --files is given, show the series of commits in the submodule between the index of the super project and the working tree of the submodule (this option doesn't allow to use the --cached option or to provide an explicit commit).

Using the --submodule=log option with git-diff(1) will provide that information too.

`foreach [--recursive] <command>`

Evaluates an arbitrary shell command in each checked out submodule. The command has access to the variables `$name`, `$sm_path`, `$displaypath`, `$sha1` and `$toplevel`: `$name` is the name of the relevant submodule section in `.gitmodules`, `$sm_path` is the path of the submodule as recorded in the immediate superproject, `$displaypath` contains the relative path from the current working directory to the submodules root directory, `$sha1` is the commit as recorded in the immediate superproject, and `$toplevel` is the absolute path to the top-level of the immediate superproject. Note that to avoid conflicts with `$PATH` on Windows, the `$path` variable is now a deprecated synonym of `$sm_path` variable. Any submodules defined in the superproject but not checked out are ignored by this command. Unless given `--quiet`, `foreach` prints the name of each submodule before evaluating the command. If `--recursive` is given, submodules are traversed recursively (i.e. the given shell command is evaluated in nested submodules as well). A non-zero return from the command in any submodule causes the processing to terminate. This can be overridden by adding `|| :` to the end of the command.

As an example, the command below will show the path and currently checked out commit for each submodule:

```
git submodule foreach 'echo $sm_path `git rev-parse HEAD`'
```

`sync [--recursive] [--] [<path>...]`

Synchronizes submodules' remote URL configuration setting to the value specified in `.gitmodules`. It will only affect those submodules which already have a URL entry in `.git/config` (that is the case when they are initialized or freshly added). This is useful when submodule URLs change upstream and you need to update your local repositories accordingly.

`git submodule sync` synchronizes all submodules while `git submodule sync -- A` synchronizes submodule "A" only.

If `--recursive` is specified, this command will recurse into the registered submodules, and sync any nested submodules within.

`absorbgitdirs`

If a git directory of a submodule is inside the submodule, move the git directory of the submodule into its superproject's `$GIT_DIR/modules` path and then connect the git directory and its working directory by setting the `core.worktree` and adding a `.git` file pointing to the git directory embedded in the superprojects git directory.

A repository that was cloned independently and later added as a submodule or old setups have the submodules git directory inside the submodule instead of embedded into the superprojects git directory.

This command is recursive by default.

OPTIONS

`-q, --quiet`

Only print error messages.

`--progress`

This option is only valid for add and update commands. Progress status is reported on the standard error stream by default when it is attached to a terminal, unless `-q` is specified. This flag forces progress status even if the standard error stream is not directed to a terminal.

`--all`

This option is only valid for the deinit command. Unregister all submodules in the working tree.

`-b <branch>, --branch <branch>`

Branch of repository to add as submodule. The name of the branch is recorded as `submodule.<name>.branch` in `.gitmodules` for update `--remote`. A special value of `.` is used to indicate that the name of the branch in the submodule should be the same name as the current branch in the current repository. If the option is not specified, it defaults to the remote HEAD.

`-f, --force`

This option is only valid for add, deinit and update commands. When running add, allow adding an otherwise ignored submodule path. This option is also used to bypass a check that the submodule's name is not already in use. By default, `git submodule add` will fail if the proposed name (which is derived from the path) is already registered for another submodule in the repository. Using `--force` allows the command to proceed by automatically generating a unique name by appending a number to the conflicting name (e.g., if a submodule named `child` exists, it will try `child1`, and so on). When running `deinit` the submodule working trees will be removed even if they contain local changes. When running `update` (only effective with the checkout procedure), throw away local changes in submodules when switching to a different commit; and always run a checkout operation in the submodule, even if the commit listed in the index of the containing

repository matches the commit checked out in the submodule.

`--cached`

This option is only valid for status and summary commands. These commands typically use the commit found in the submodule HEAD, but with this option, the commit stored in the index is used instead.

`--files`

This option is only valid for the summary command. This command compares the commit in the index with that in the submodule HEAD when this option is used.

`-n, --summary-limit`

This option is only valid for the summary command. Limit the summary size (number of commits shown in total). Giving 0 will disable the summary; a negative number means unlimited (the default). This limit only applies to modified submodules. The size is always limited to 1 for added/deleted/typechanged submodules.

`--remote`

This option is only valid for the update command. Instead of using the superproject's recorded SHA-1 to update the submodule, use the status of the submodule's remote-tracking branch. The remote used is branch's remote (branch.<name>.remote), defaulting to origin. The remote branch used defaults to the remote HEAD, but the branch name may be overridden by setting the submodule.<name>.branch option in either .gitmodules or .git/config (with .git/config taking precedence).

This works for any of the supported update procedures (`--checkout`, `--rebase`, etc.). The only change is the source of the target SHA-1. For example, `submodule update --remote --merge` will merge upstream submodule changes into the submodules, while `submodule update --merge` will merge superproject gitlink changes into the submodules.

In order to ensure a current tracking branch state, `update --remote` fetches the submodule's remote repository before calculating the SHA-1. If you don't want to fetch, you should use `submodule update --remote --no-fetch`.

Use this option to integrate changes from the upstream subproject with your submodule's current HEAD. Alternatively, you can run `git pull` from the submodule, which is equivalent except for the remote branch name: `update --remote` uses the default upstream repository and submodule.<name>.branch, while `git pull` uses the submodule's branch.<name>.merge. Prefer submodule.<name>.branch if you want to distribute the default upstream branch with the superproject and branch.<name>.merge if you want a more

native feel while working in the submodule itself.

`-N, --no-fetch`

This option is only valid for the update command. Don't fetch new objects from the remote site.

`--checkout`

This option is only valid for the update command. Checkout the commit recorded in the superproject on a detached HEAD in the submodule. This is the default behavior, the main use of this option is to override `submodule.$name.update` when set to a value other than `checkout`. If the key `submodule.$name.update` is either not explicitly set or set to `checkout`, this option is implicit.

`--merge`

This option is only valid for the update command. Merge the commit recorded in the superproject into the current branch of the submodule. If this option is given, the submodule's HEAD will not be detached. If a merge failure prevents this process, you will have to resolve the resulting conflicts within the submodule with the usual conflict resolution tools. If the key `submodule.$name.update` is set to `merge`, this option is implicit.

`--rebase`

This option is only valid for the update command. Rebase the current branch onto the commit recorded in the superproject. If this option is given, the submodule's HEAD will not be detached. If a merge failure prevents this process, you will have to resolve these failures with `git-rebase(1)`. If the key `submodule.$name.update` is set to `rebase`, this option is implicit.

`--init`

This option is only valid for the update command. Initialize all submodules for which "git submodule init" has not been called so far before updating.

`--name`

This option is only valid for the add command. It sets the submodule's name to the given string instead of defaulting to its path. The name must be valid as a directory name and may not end with a `/`.

`--reference <repository>`

This option is only valid for add and update commands. These commands sometimes need to clone a remote repository. In this case, this option will be passed to the `git-clone(1)`

command.

NOTE: Do not use this option unless you have read the note for `git-clone(1)`'s

`--reference`, `--shared`, and `--dissociate` options carefully.

`--dissociate`

This option is only valid for add and update commands. These commands sometimes need to clone a remote repository. In this case, this option will be passed to the `git-clone(1)` command.

NOTE: see the NOTE for the `--reference` option.

`--recursive`

This option is only valid for `foreach`, `update`, `status` and `sync` commands. Traverse submodules recursively. The operation is performed not only in the submodules of the current repo, but also in any nested submodules inside those submodules (and so on).

`--depth`

This option is valid for add and update commands. Create a shallow clone with a history truncated to the specified number of revisions. See `git-clone(1)`

`--recommend-shallow`, `--no-recommend-shallow`

This option is only valid for the `update` command. The initial clone of a submodule will use the recommended submodule.<name>.shallow as provided by the `.gitmodules` file by default. To ignore the suggestions use `--no-recommend-shallow`.

`-j <n>`, `--jobs <n>`

This option is only valid for the `update` command. Clone new submodules in parallel with as many jobs. Defaults to the `submodule.fetchJobs` option.

`--single-branch`, `--no-single-branch`

This option is only valid for the `update` command. Clone only one branch during update: HEAD or one specified by `--branch`.

`<path>...`

Paths to submodule(s). When specified this will restrict the command to only operate on the submodules found at the specified paths. (This argument is required with `add`).

FILES

When initializing submodules, a `.gitmodules` file in the top-level directory of the containing repository is used to find the url of each submodule. This file should be formatted in the same way as `$GIT_DIR/config`. The key to each submodule url is "submodule.\$name.url". See `gitmodules(5)` for details.

SEE ALSO

gitmodules(5), gitmodules(7).

GIT

Part of the git(1) suite

Git 2.53.0

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