

git-submodule

JF

Why submodule?

- Parent Git want to use one specific commit of other git trees for integration
- Keep track on other git trees, but don't want to include the content
- Samples can be:
 - gbs → git-buildpackage
 - gbs → obs-build
 - mic → yum/urlgrabber
 - IRIS → some 3rd party libs
 - BOSS/JJ → py-redis

Git vs. SVN

- Git tree is a whole, which cannot be split
- SVN tree can be checkout partly
- So the submodule models of them are two different directions.

Core Concept

- Submodules are tracked by "commit id", like a pointer, not branches, not refs
- git uses a so-called "gitlink" obj to record the submodule info
- The pointers are "static", will not be auto-updated, unless superproject change it explicitly

Basic commands

- `git submodule add`
- `... status`
- `... init`
- `... sync`
- `... foreach`
- `... summary`
- `... deinit`

Case: Add

1. `$ cd gbs/`
2. `$ git submodule add https://github.com/openSUSE/obs-build
backend/build`
3. `$ git commit`

Case: Update Submodule

1. `$ cd gbs/backend/build/`
2. `$ [changes] → git commit`
3. `$ cd gbs/`
4. `$ git commit -a`

Case: Clone a Git with submodules

1. `$ git clone gbs newgbs`
2. * `$ git submodule status`
3. `$ git submodule init`
4. `$ git submodule update`

Case: Remove

1. `$ cd gbs`
2. `$ git rm backend/build`
3. `$ rm -rf backend/build`
4. `$ vim .gitmodules (or git rm .gitmodules)`
5. `$ vim .git/config`
6. `$ git commit`

Meta Files and Path

- SUPER-GIT/.gitmodules
- SUPER-GIT/.git/config
- SUPER-GIT/.git/modules/dir-a/dir-b/submod
- SUPER-GIT/dir-a/dir-b/submod/
- SUPER-GIT/dir-a/dir-b/submod/.git
 - "gitdir: ../../../../.git/modules/dir-a/dir-b/submod"

Case: Add (More)

1. \$ cd gbs/
2. \$ git submodule add <https://github.com/opensuse/obs-build-backend/build>
 - A. gbs/.gitmodules: updated(created)
 - B. gbs/.git/config: updated
 - C. gbs/backend/build: cloned
 - D. New special object staged
3. \$ git commit

Limitations

- Submodules cannot resolve all the project splitting requests
- Current git-module model is only one choice from many possible solutions
- Other 3rd-party tools, like 'git-subtree' and 'repo', can do other things