

# Dive into Git

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# Git is What

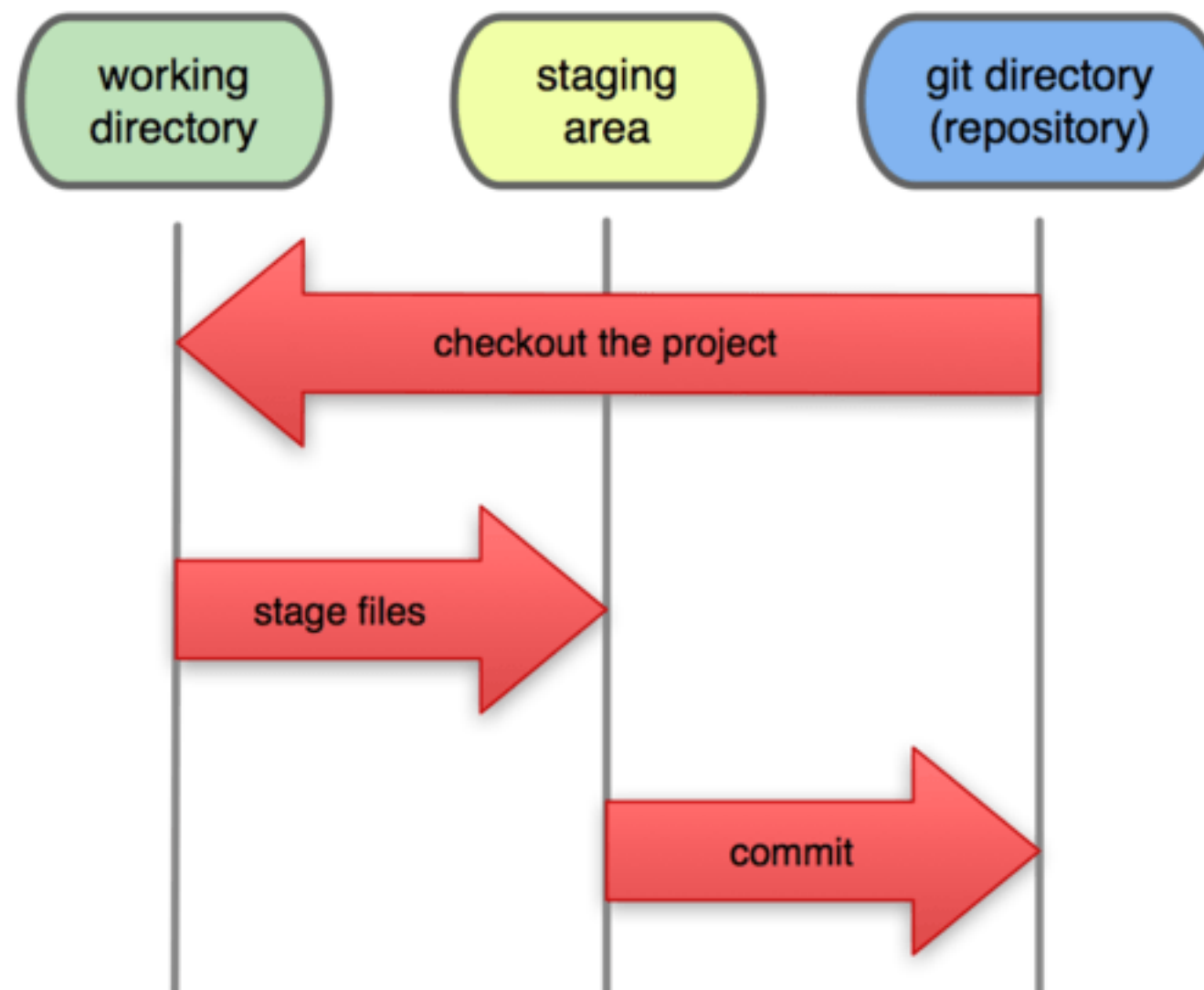
- Three states
- Snapshot based filesystem
- Distributed

# Create repo

- `git init` => create `.git/` in current directory
- `git clone`
  - `git clone git://github.com/justmao945/mallory`
  - `git clone git@github.com:justmao945/mallory`
  - `git clone https://github.com/justmao945/mallory`
  - clone is not copy

# Workflow

## Local Operations



# Workflow

- git add
  - git add -A
  - git mv, git rm, git rm —cached
  - .gitignore, .gitkeep
- git status
- git commit
- git checkout
- git push

```

> git init
Initialized empty Git repository in /Users/jianjun/Source/git-demo/add/.git/
jianjun@mbp:~/S/g/add|HEAD✓
> la
total 0
drwxr-xr-x  3 jianjun  staff   102B Jul  2 11:03 .
drwxr-xr-x  3 jianjun  staff   102B Jul  2 11:03 ..
drwxr-xr-x 10 jianjun  staff   340B Jul  2 11:03 .git
jianjun@mbp:~/S/g/add|HEAD✓
> ls .git/
HEAD      branches  config    description hooks      info       objects    refs
jianjun@mbp:~/S/g/add|HEAD✓
> touch hello
jianjun@mbp:~/S/g/add|HEAD$?
> git status
On branch master

Initial commit

Untracked files:
  (use "git add <file>..." to include in what will be committed)

        hello

nothing added to commit but untracked files present (use "git add" to track)
jianjun@mbp:~/S/g/add|HEAD$?
> git add -A hello
jianjun@mbp:~/S/g/add|HEAD$+
> git sta
stash (Stash away changes)  status (Show the working tree status)
jianjun@mbp:~/S/g/add|HEAD$+
> git status
On branch master

Initial commit

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)

        new file:   hello

```

```

jianjun@mbp:~/S/g/add|HEAD$+
> git commit -m "add hello"
[master (root-commit) 270e80c] add hello
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 hello
jianjun@mbp:~/S/g/add|master✓
> git status
On branch master
nothing to commit, working directory clean
jianjun@mbp:~/S/g/add|master✓
> echo "hello world" > hello
jianjun@mbp:~/S/g/add|master$*
> git status
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working directory)

        modified:   hello

no changes added to commit (use "git add" and/or "git commit -a")
jianjun@mbp:~/S/g/add|master$*
> git commit -m "update hello"
On branch master
Changes not staged for commit:
        modified:   hello

no changes added to commit
jianjun@mbp:~/S/g/add|master$*

```

```
jianjun@mbp:~/S/g/add|master$*
> git lg
* 270e80c - (87 minutes ago) add hello - jianjun (HEAD, master)
jianjun@mbp:~/S/g/add|master$*
> git diff
diff --git a/hello b/hello
index e69de29..3b18e51 100644
--- a/hello
+++ b/hello
@@ -0,0 +1 @@
+hello world
jianjun@mbp:~/S/g/add|master$*
> git diff --cached
jianjun@mbp:~/S/g/add|master$*
> git push
fatal: No configured push destination.
Either specify the URL from the command-line or configure a remote repository using

    git remote add <name> <url>

and then push using the remote name

    git push <name>

jianjun@mbp:~/S/g/add|master$*
```



```

jianjun@mbp:~/S/g/add|master$*
> cd ..
jianjun@mbp:~/S/git-demo
> ls
add
jianjun@mbp:~/S/git-demo
> mkdir git-demo-srv
jianjun@mbp:~/S/git-demo
> cd git-demo-srv/
jianjun@mbp:~/S/g/git-demo-srv
> git init --bare
Initialized empty Git repository in /Users/jianjun/Source/git-demo/git-demo-srv/
jianjun@mbp:~/S/g/git-demo-srv|HEAD✓
> cd ../
../add/  ../git-demo-srv/
jianjun@mbp:~/S/g/git-demo-srv|HEAD✓
> cd ../add/
jianjun@mbp:~/S/g/add|master$*
> git remote add origin /Users/jianjun/Source/git-demo/git-demo-srv/
jianjun@mbp:~/S/g/add|master$*
> ls ../git-demo-srv/
HEAD      branches  config    description  hooks      info        objects    refs
jianjun@mbp:~/S/g/add|master$*
> git push
fatal: The current branch master has no upstream branch.
To push the current branch and set the remote as upstream, use

    git push --set-upstream origin master

jianjun@mbp:~/S/g/add|master$*
> git push -u origin master
Counting objects: 3, done.
Writing objects: 100% (3/3), 203 bytes | 0 bytes/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To /Users/jianjun/Source/git-demo/git-demo-srv/
 * [new branch]      master -> master
Branch master set up to track remote branch master from origin.

```

```
jianjun@mbp:~/S/g/add|master$*
> mkdir ../git-demo-upstream
jianjun@mbp:~/S/g/add|master$*
> cd ../git-demo-upstream/
jianjun@mbp:~/S/g/git-demo-upstream
> git init --bare
Initialized empty Git repository in /Users/jianjun/Source/git-demo/git-demo-upstream/
jianjun@mbp:~/S/g/git-demo-upstream|HEAD✓
> cd ../add/
jianjun@mbp:~/S/g/add|master$*
> git remote add upstream /Users/jianjun/Source/git-demo/git-demo-upstream
jianjun@mbp:~/S/g/add|master$*
> git push upstream ms
master (Branch) origin/master (Branch)
jianjun@mbp:~/S/g/add|master$*
> git push upstream master
Counting objects: 3, done.
Writing objects: 100% (3/3), 203 bytes | 0 bytes/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To /Users/jianjun/Source/git-demo/git-demo-upstream
 * [new branch]      master -> master
jianjun@mbp:~/S/g/add|master$*
> git remote
origin
upstream
jianjun@mbp:~/S/g/add|master$*
> cat .git/config
[core]
    repositoryformatversion = 0
    filemode = true
    bare = false
    logallrefupdates = true
    ignorecase = true
    precomposeunicode = true
[remote "origin"]
    url = /Users/jianjun/Source/git-demo/git-demo-srv/
    fetch = +refs/heads/*:refs/remotes/origin/*
[branch "master"]
    remote = origin
    merge = refs/heads/master
[remote "upstream"]
    url = /Users/jianjun/Source/git-demo/git-demo-upstream
    fetch = +refs/heads/*:refs/remotes/upstream/*
```

```
jianjun@mbp:~/S/g/add|master$*
> cd ../git-demo-srv/
jianjun@mbp:~/S/g/git-demo-srv|master✓
> git lg
* 270e80c - (2 hours ago) add hello - jianjun (HEAD, master)
jianjun@mbp:~/S/g/git-demo-srv|master✓
> cd ../git-demo-upstream/
jianjun@mbp:~/S/g/git-demo-upstream|master✓
> git lg
* 270e80c - (2 hours ago) add hello - jianjun (HEAD, master)
```

# undo

- `git commit —amend`
- `git reset [HEAD] <file>`
  - `git reset — <file>`
  - `git reset —soft <commit>` (only changes HEAD)
  - `git reset —hard <commit>` (changes HEAD and Index)
- `git revert`, the safe way to change pushed commits

```
jianjun@mbp:~/S/g/add|master$*
```

```
> git status
```

On branch master

Your branch is up-to-date with 'origin/master'.

Changes not staged for commit:

(use "git add <file>..." to update what will be committed)

(use "git checkout -- <file>..." to discard changes in working directory)

```
    modified:   hello
```

no changes added to commit (use "git add" and/or "git commit -a")

```
jianjun@mbp:~/S/g/add|master$*
```

```
> git add hello
```

```
jianjun@mbp:~/S/g/add|master$*
```

```
> git status
```

On branch master

Your branch is up-to-date with 'origin/master'.

Changes to be committed:

(use "git reset HEAD <file>..." to unstage)

```
    modified:   hello
```

```
jianjun@mbp:~/S/g/add|master$*
```

```
> git reset HEAD hello
```

Unstaged changes after reset:

```
M       hello
```

```
jianjun@mbp:~/S/g/add|master$*
```

```
> git status
```

On branch master

Your branch is up-to-date with 'origin/master'.

Changes not staged for commit:

(use "git add <file>..." to update what will be committed)

(use "git checkout -- <file>..." to discard changes in working directory)

```
    modified:   hello
```

no changes added to commit (use "git add" and/or "git commit -a")

```

jianjun@mbp:~/S/g/add|master$*
> git add hello
jianjun@mbp:~/S/g/add|master$*
> git commit -m "update hello"
[master 05b61c7] update hello
1 file changed, 1 insertion(+)
jianjun@mbp:~/S/g/add|master✓
> git lg
* 05b61c7 - (2 seconds ago) update hello - jianjun (HEAD, master)
* 270e80c - (2 hours ago) add hello - jianjun (upstream/master, origin/master)
jianjun@mbp:~/S/g/add|master✓
> git revert HEAD
[master 2570fe0] Revert "update hello"
1 file changed, 1 deletion(-)
jianjun@mbp:~/S/g/add|master✓
> git lg
* 2570fe0 - (5 seconds ago) Revert "update hello" - jianjun (HEAD, master)
* 05b61c7 - (13 seconds ago) update hello - jianjun
* 270e80c - (2 hours ago) add hello - jianjun (upstream/master, origin/master)
jianjun@mbp:~/S/g/add|master✓
> git lg -p -2
* 2570fe0 - (29 seconds ago) Revert "update hello" - jianjun (HEAD, master)|
| diff --git a/hello b/hello
| index 3b18e51..e69de29 100644
| --- a/hello
| +++ b/hello
| @@ -1,0,0 @@
| -hello world
|
* 05b61c7 - (37 seconds ago) update hello - jianjun|
| diff --git a/hello b/hello
| index e69de29..3b18e51 100644
| --- a/hello
| +++ b/hello
| @@ -0,0 +1 @@
| +hello world

```

# git reset vs git rm —cached

- `git rm --cached <file>` will completely remove the file's contents from the index. This means that on commit the file will be removed from the HEAD commit. (If the file was only added to the index and not yet tracked this is a "no-op".)
- `git reset -- <file>` resets the contents of the file in the index to be the same as the head commit. This means that on commit no changes will be committed to the file. This operation is not valid if there is no tracked version of the file in the HEAD commit.



```
jianjun@mbp:~/S/g/add|master$*
```

```
> ls
```

```
hello
```

```
jianjun@mbp:~/S/g/add|master$*
```

```
> git rm --cached hello
```

```
rm 'hello'
```

```
jianjun@mbp:~/S/g/add|master$*
```

```
> git status
```

```
On branch master
```

```
Your branch is ahead of 'origin/master' by 2 commits.
```

```
(use "git push" to publish your local commits)
```

```
Changes to be committed:
```

```
(use "git reset HEAD <file>..." to unstage)
```

```
deleted:    hello
```

```
Untracked files:
```

```
(use "git add <file>..." to include in what will be committed)
```

```
hello
```

```
jianjun@mbp:~/S/g/add|master$*
```

```
> git commit -m "delete hello"
```

```
[master 3fafdcd] delete hello
```

```
1 file changed, 2 deletions(-)
```

```
delete mode 100644 hello
```

```
jianjun@mbp:~/S/g/add|master$*
```

```
> git status
```

```
On branch master
```

```
Your branch is ahead of 'origin/master' by 3 commits.
```

```
(use "git push" to publish your local commits)
```

```
Untracked files:
```

```
(use "git add <file>..." to include in what will be committed)
```

```
hello
```

```
nothing added to commit but untracked files present (use "git add" to track)
```



# git push rejected

```
jianjun@mbp:~/S/g/add2|master✓
> git lg
* 270e80c - (24 hours ago) add hello - jianjun (HEAD, origin/master, origin/HEAD, master)
jianjun@mbp:~/S/g/add2|master✓
> touch hello
jianjun@mbp:~/S/g/add2|master✓
> ls
hello
jianjun@mbp:~/S/g/add2|master✓
> echo "add2 " >> hello
jianjun@mbp:~/S/g/add2|master$*
> git commit -a -m "update add2"
[master be0fc87] update add2
1 file changed, 1 insertion(+)
jianjun@mbp:~/S/g/add2|master✓
> git push
Counting objects: 5, done.
Writing objects: 100% (3/3), 240 bytes | 0 bytes/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To /Users/jianjun/Source/git-demo/git-demo-srv/
    270e80c..be0fc87  master -> master
jianjun@mbp:~/S/g/add2|master✓
> git lg
* be0fc87 - (11 seconds ago) update add2 - jianjun (HEAD, origin/master, origin/HEAD, master)
* 270e80c - (24 hours ago) add hello - jianjun
jianjun@mbp:~/S/g/add2|master✓
> cd ../add
jianjun@mbp:~/S/g/add|master$?
> git push
To /Users/jianjun/Source/git-demo/git-demo-srv/
 ! [rejected]        master -> master (fetch first)
error: failed to push some refs to '/Users/jianjun/Source/git-demo/git-demo-srv/'
hint: Updates were rejected because the remote contains work that you do
hint: not have locally. This is usually caused by another repository pushing
hint: to the same ref. You may want to first integrate the remote changes
hint: (e.g., 'git pull ...') before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
```

















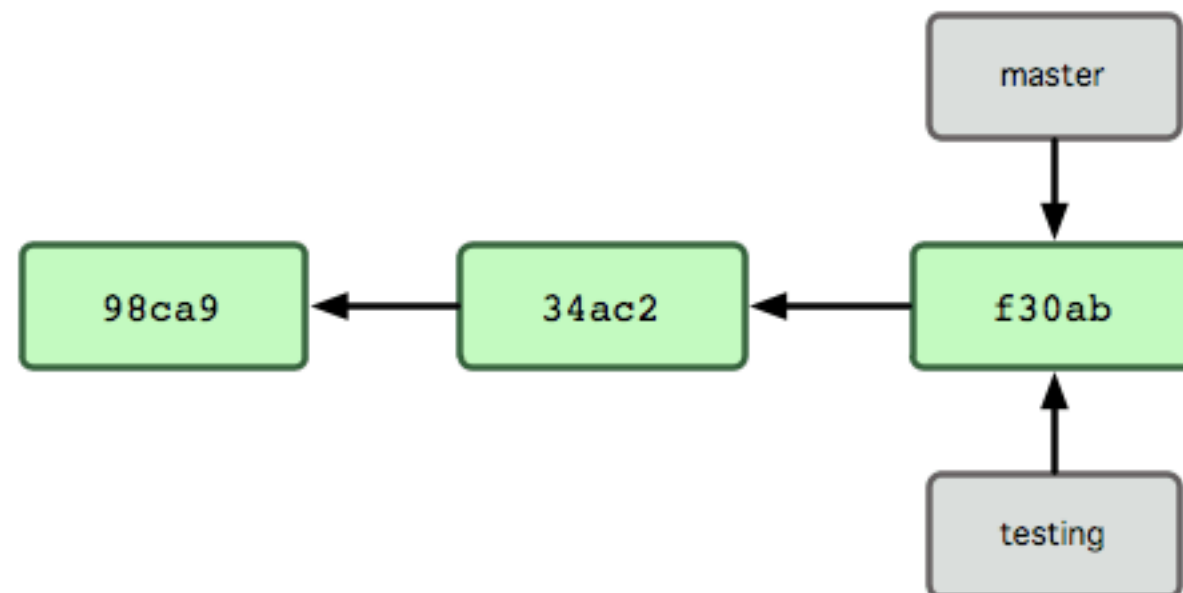
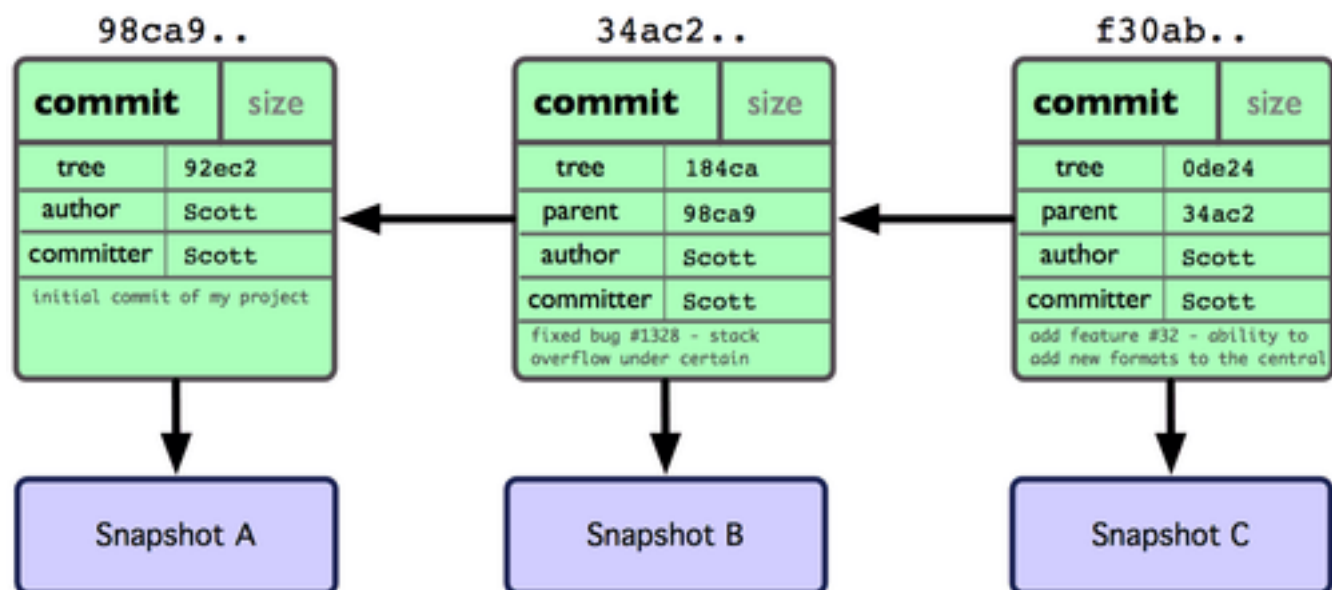
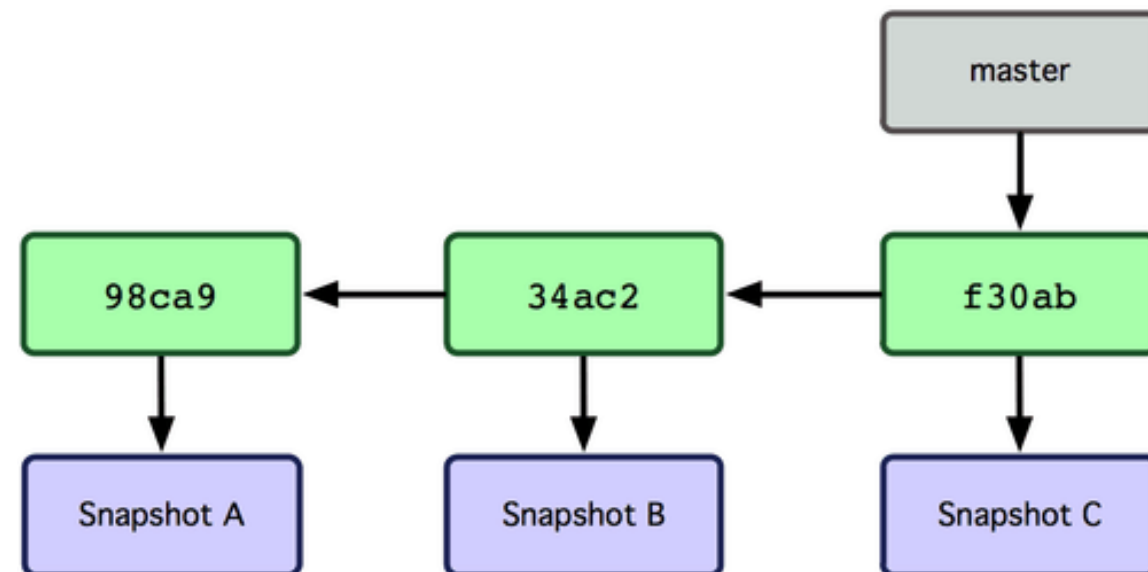
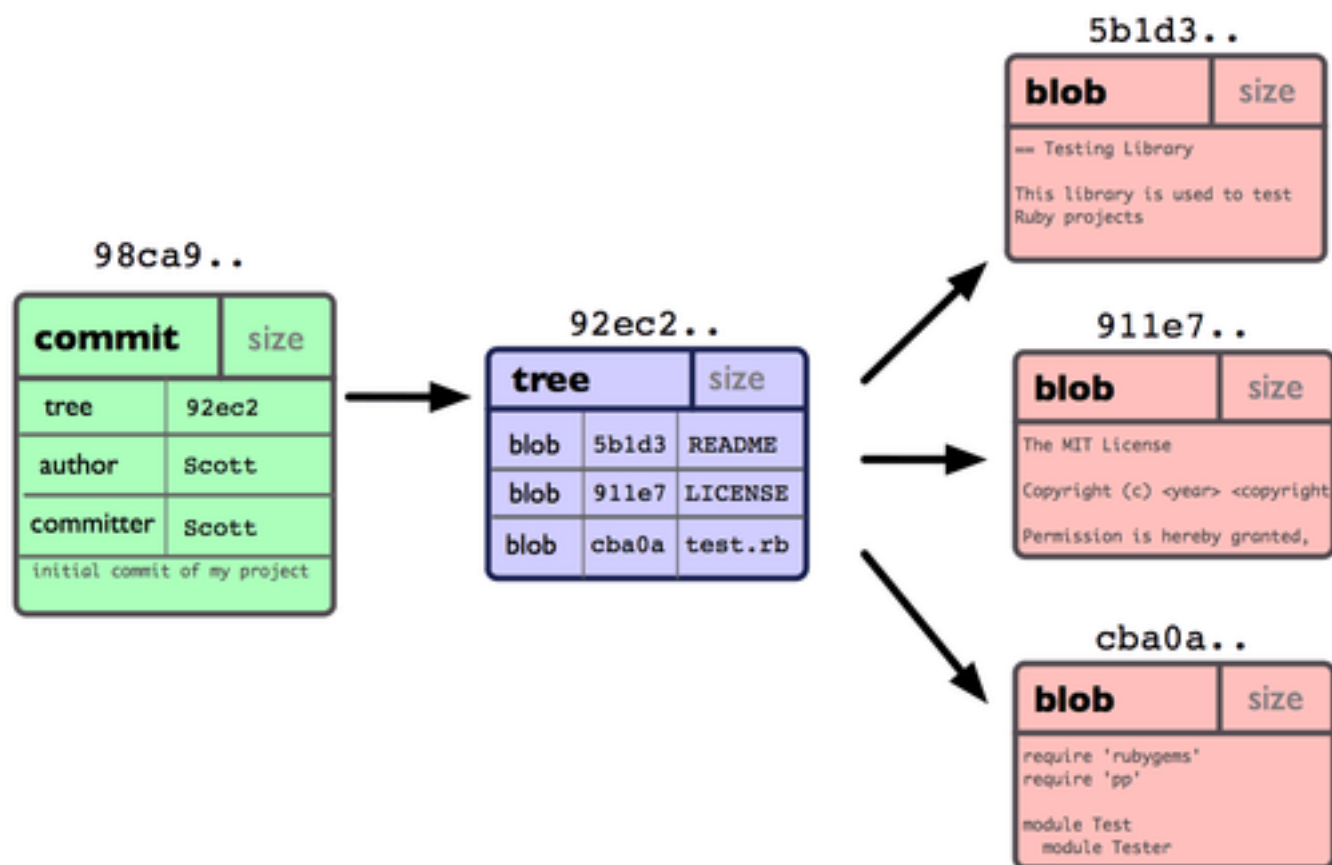


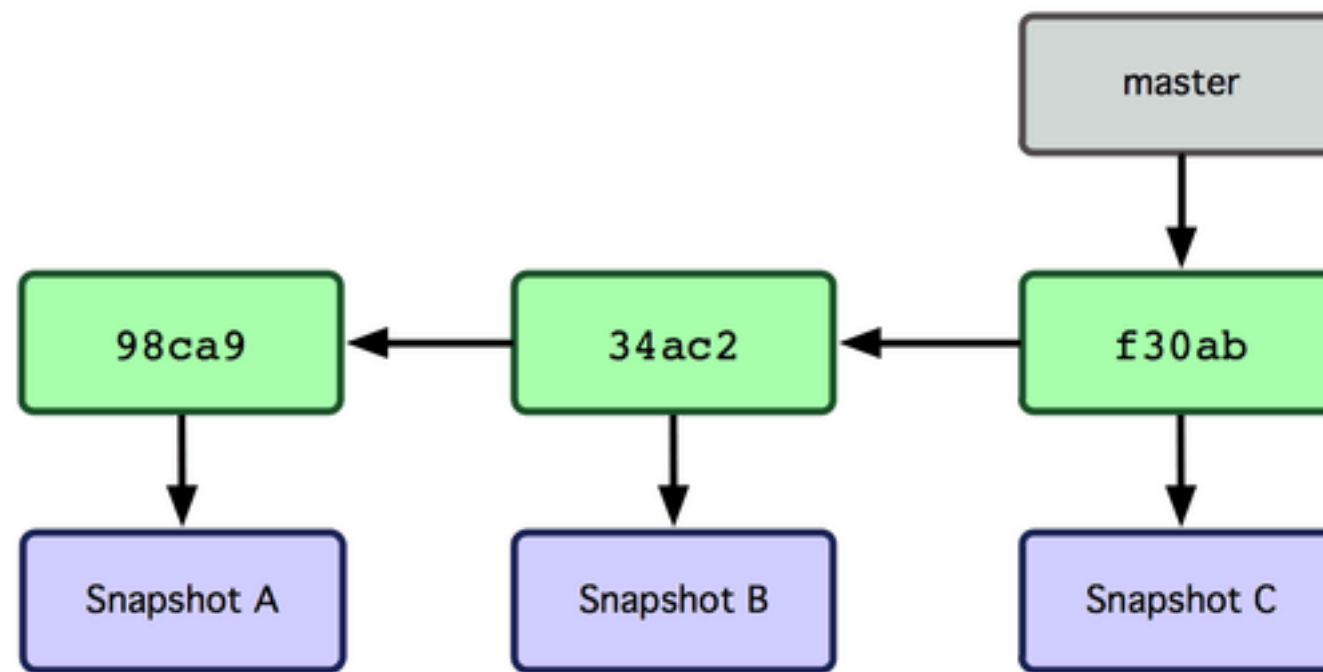





# Branching

- git branch
- git checkout





```
jianjun@mbp:~/S/g/add|master$
```

```
> ls
```

```
hello
```

```
jianjun@mbp:~/S/g/add|master$
```

```
> ls .git/
```

```
COMMIT_EDITMSG  ORIG_HEAD
```

```
HEAD            branches
```

```
config
```

```
description
```

```
hooks
```

```
index
```

```
info
```

```
logs
```

```
objects
```

```
refs
```

```
jianjun@mbp:~/S/g/add|master$
```

```
> ls .git/refs/
```

```
heads  remotes tags
```

```
jianjun@mbp:~/S/g/add|master$
```

```
> ls .git/refs/heads/
```

```
master
```

```
jianjun@mbp:~/S/g/add|master$
```

```
> cat .git/refs/heads/master
```

```
05b61c719eea52ea5ba3d2a7bda798c3234c1a17
```

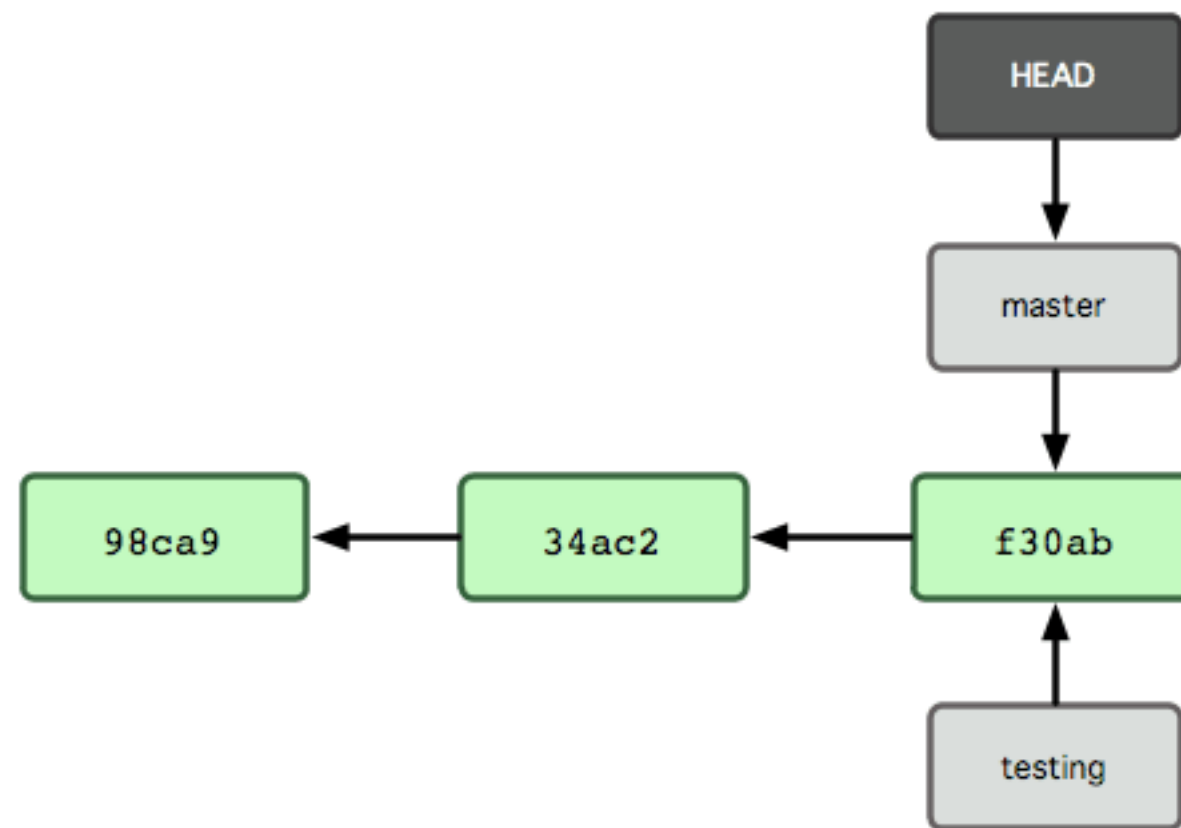
```
jianjun@mbp:~/S/g/add|master$
```

```
> git lg
```

```
* 05b61c7 - (23 minutes ago) update hello - jianjun (HEAD, testing, master)
```

```
* 270e80c - (3 hours ago) add hello - jianjun (upstream/master, origin/master)
```

```
jianjun@mbp:~/S/g/add|master$
```



```
jianjun@mbp:~/S/g/add|master$
```

```
> ls .git/
```

COMMIT_EDITMSG	ORIG_HEAD	config	hooks	info	objects
HEAD	branches	description	index	logs	refs

```
jianjun@mbp:~/S/g/add|master$
```

```
> cat .git/HEAD
```

```
ref: refs/heads/master
```

```
jianjun@mbp:~/S/g/add|master$
```

```
> cat .git/ORIG_HEAD
```

```
2570fe08b64581fde99dda14c4f1d49fc1807b4a
```

```
jianjun@mbp:~/S/g/add|master$
```

```
> git lg
```

```
* 05b61c7 - (25 minutes ago) update hello - jianjun (HEAD, testing, master)
```

```
* 270e80c - (3 hours ago) add hello - jianjun (upstream/master, origin/master)
```

```
..
```



```

jianjun@ohio ~/bs2> cd yaml/
jianjun@ohio ~/b/yaml> ls
README.md  obj/  test-hima.coverage.d/  test-hima.release.d/
log/       src/  test-hima.debug.d/    test-hima.valgrind.d/
jianjun@ohio ~/b/yaml> ls .git/
COMMIT_EDITMSG  HEAD      branches/  description  index  logs/      packed-refs
FETCH_HEAD     ORIG_HEAD config     hooks/      info/  objects/   refs/
jianjun@ohio ~/b/yaml> ls .git/refs/
heads/  remotes/  tags/
jianjun@ohio ~/b/yaml> ls .git/refs/heads/
coverage  devel  jj/  jj131212/  master
jianjun@ohio ~/b/yaml> ls .git/refs/heads/jj
140224_fix_messages  140225_checksum  140228_checksum  140306_newflow  140415_bug

```

```

jianjun@mbp:~/S/g/add|master$
> ls .git/
COMMIT_EDITMSG  ORIG_HEAD      config     hooks     info     objects
HEAD            branches       description index     logs     refs
jianjun@mbp:~/S/g/add|master$
> ls .git/refs/
heads  remotes  tags
jianjun@mbp:~/S/g/add|master$
> ls .git/refs/heads/
master  testing
jianjun@mbp:~/S/g/add|master$
> ls
hello
jianjun@mbp:~/S/g/add|master$
> ls .git/refs/
heads  remotes  tags
jianjun@mbp:~/S/g/add|master$
> ls .git/refs/remotes/
origin  upstream
jianjun@mbp:~/S/g/add|master$
> ls .git/refs/remotes/origin/
master

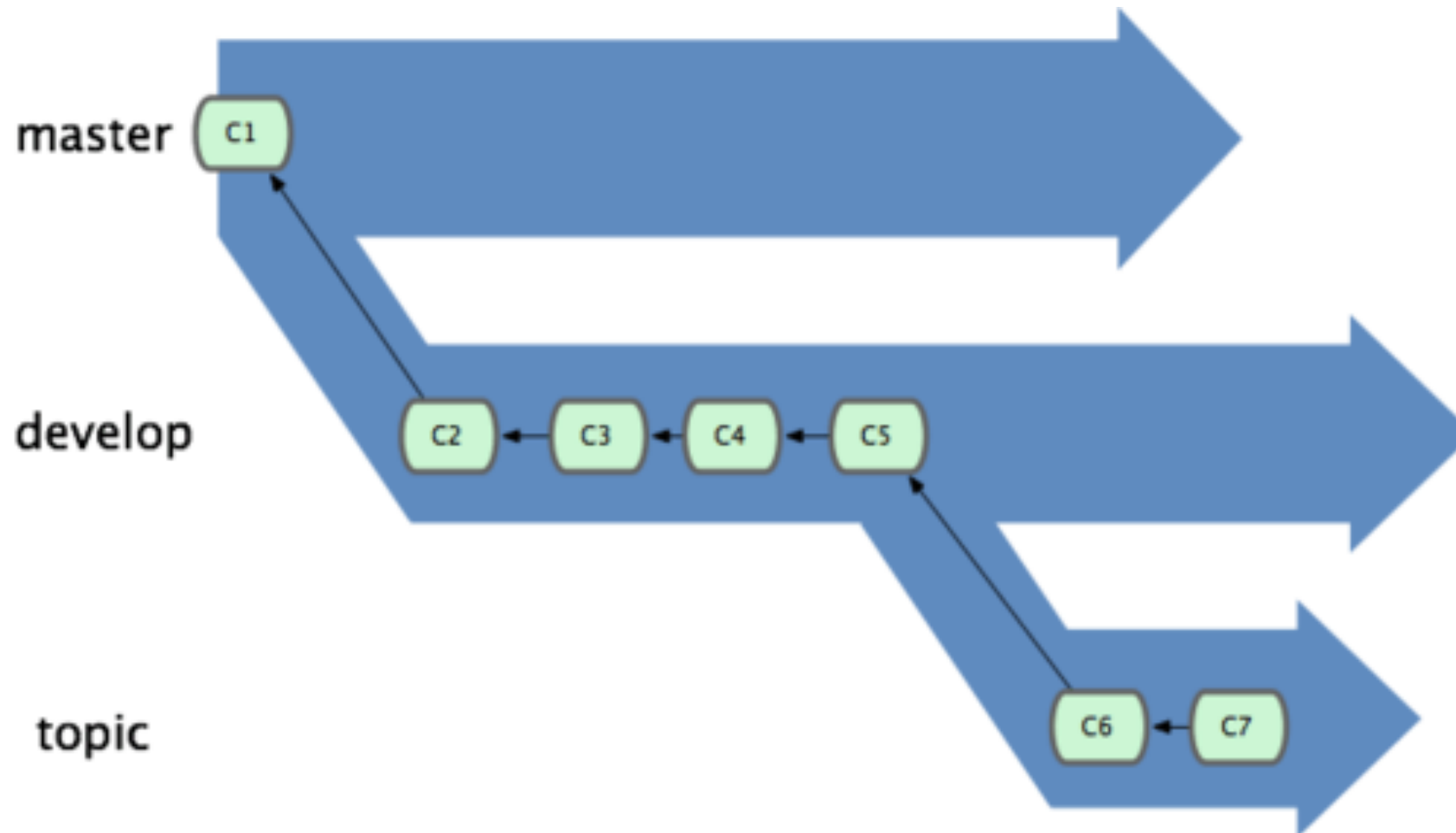
```

# Basic Branch

- `git checkout -b <branch name>`
- `git branch <branch name>`
- `git checkout <branch name>`
- `git merge hotfix`
- `git branch -d testing`



# Branching workflow



# git push new\_branch

```
jianjun@mbp:~/S/g/add|master✓
```

```
> git branch
```

```
* master
```

```
testing
```

```
jianjun@mbp:~/S/g/add|master✓
```

```
> git branch jj/testing
```

```
jianjun@mbp:~/S/g/add|master✓
```

```
> git checkout jj/testing
```

```
Switched to branch 'jj/testing'
```

```
jianjun@mbp:~/S/g/add|jj/testing✓
```

```
> touch testing
```

```
jianjun@mbp:~/S/g/add|jj/testing$?
```

```
> git add -A
```

```
jianjun@mbp:~/S/g/add|jj/testing$+
```

```
> git commit -m "add testing"
```

```
[jj/testing 756142e] add testing
```

```
1 file changed, 0 insertions(+), 0 deletions(-)
```

```
create mode 100644 testing
```

```
jianjun@mbp:~/S/g/add|jj/testing✓
```

```
> git push
```

```
fatal: The current branch jj/testing has no upstream branch.
```

```
To push the current branch and set the remote as upstream, use
```

```
git push --set-upstream origin jj/testing
```

```
jianjun@mbp:~/S/g/add|jj/testing✓
```

```
> git push -u origin jj/testing
```

```
Counting objects: 4, done.
```

```
Delta compression using up to 4 threads.
```

```
Compressing objects: 100% (2/2), done.
```

```
Writing objects: 100% (3/3), 268 bytes | 0 bytes/s, done.
```

```
Total 3 (delta 0), reused 0 (delta 0)
```

```
To /Users/jianjun/Source/git-demo/git-demo-srv/
```

```
* [new branch]      jj/testing -> jj/testing
```

```
Branch jj/testing set up to track remote branch jj/testing from origin.
```

# merge master

```
jianjun@mbp:~/S/g/add|master✓
> git lg
* 756142e - (15 minutes ago) add testing - jianjun (origin/jj/testing, jj/testing)
* 577fa54 - (23 minutes ago) confirm merge - jianjun (HEAD, origin/master, master)
| \
| * be0fc87 - (26 minutes ago) update add2 - jianjun
* | 3fafdcd - (31 minutes ago) delete hello - jianjun
* | 28f9e65 - (33 minutes ago) update hello - jianjun
* | 05b61c7 - (22 hours ago) update hello - jianjun (testing)
| /
* 270e80c - (24 hours ago) add hello - jianjun (upstream/master)
jianjun@mbp:~/S/g/add|master✓
> git checkout -b jj/devel
Switched to a new branch 'jj/devel'
jianjun@mbp:~/S/g/add|jj/devel✓
> echo "dev" >> devel
jianjun@mbp:~/S/g/add|jj/devel$?
> git add -A
jianjun@mbp:~/S/g/add|jj/devel$+
> git commit -m "add dev"
[jj/devel 37ca279] add dev
1 file changed, 1 insertion(+)
create mode 100644 devel
jianjun@mbp:~/S/g/add|jj/devel✓
> git lg
* 37ca279 - (9 seconds ago) add dev - jianjun (HEAD, jj/devel)
| * 756142e - (16 minutes ago) add testing - jianjun (origin/jj/testing, jj/testing)
| /
* 577fa54 - (24 minutes ago) confirm merge - jianjun (origin/master, master)
| \
| * be0fc87 - (26 minutes ago) update add2 - jianjun
* | 3fafdcd - (31 minutes ago) delete hello - jianjun
* | 28f9e65 - (34 minutes ago) update hello - jianjun
* | 05b61c7 - (22 hours ago) update hello - jianjun (testing)
| /
* 270e80c - (24 hours ago) add hello - jianjun (upstream/master)
```

# merge jj/testing

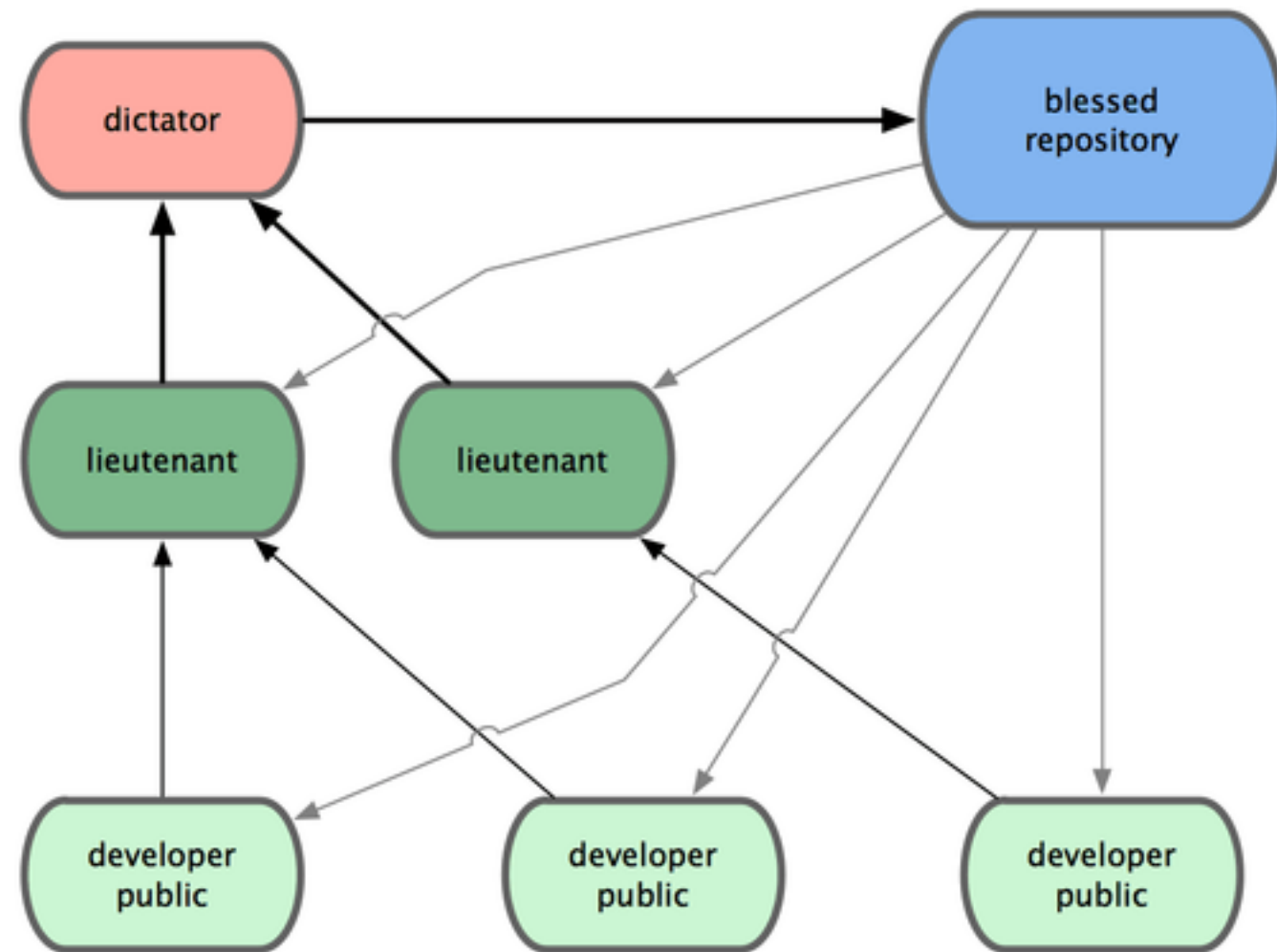
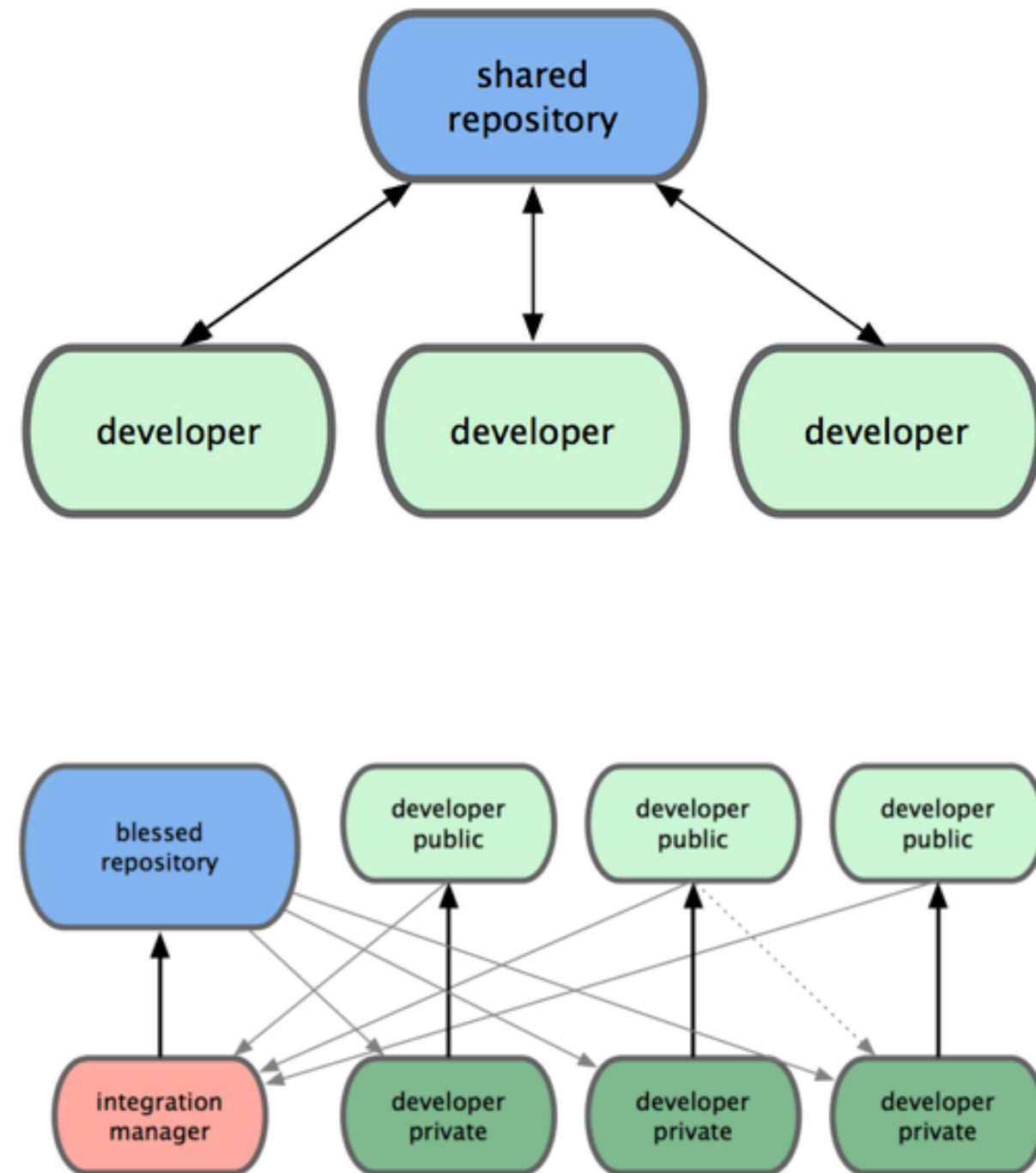
```
jianjun@mbp:~/S/g/add|jj/devel✓
> git checkout master
Switched to branch 'master'
Your branch is up-to-date with 'origin/master'.
jianjun@mbp:~/S/g/add|master✓
> git merge jj/testing
Updating 577fa54..756142e
Fast-forward
 testing | 0
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 testing
jianjun@mbp:~/S/g/add|master✓
> git lg
* 37ca279 - (30 seconds ago) add dev - jianjun (jj/devel)
| * 756142e - (16 minutes ago) add testing - jianjun (HEAD, origin/jj/testing, master, jj/testing)
|/
* 577fa54 - (24 minutes ago) confirm merge - jianjun (origin/master)
|\
| * be0fc87 - (27 minutes ago) update add2 - jianjun
* | 3fafdcd - (32 minutes ago) delete hello - jianjun
* | 28f9e65 - (34 minutes ago) update hello - jianjun
* | 05b61c7 - (22 hours ago) update hello - jianjun (testing)
|/
* 270e80c - (24 hours ago) add hello - jianjun (upstream/master)
.. . . .
```

# merge master

```
jianjun@mbp:~/S/g/add|master✓
> git checkout jj/devel
Switched to branch 'jj/devel'
jianjun@mbp:~/S/g/add|jj/devel✓
> git merge master
Merge made by the 'recursive' strategy.
testing | 0
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 testing
jianjun@mbp:~/S/g/add|jj/devel✓
> git lg
* f0eabde - (3 seconds ago) Merge branch 'master' into jj/devel - jianjun (HEAD, jj/devel)
| \
| * 756142e - (17 minutes ago) add testing - jianjun (origin/jj/testing, master, jj/testing)
* | 37ca279 - (47 seconds ago) add dev - jianjun
| /
* 577fa54 - (24 minutes ago) confirm merge - jianjun (origin/master)
| \
| * be0fc87 - (27 minutes ago) update add2 - jianjun
* | 3fafdcd - (32 minutes ago) delete hello - jianjun
* | 28f9e65 - (35 minutes ago) update hello - jianjun
* | 05b61c7 - (22 hours ago) update hello - jianjun (testing)
| /
* 270e80c - (24 hours ago) add hello - jianjun (upstream/master)
```



# Distributed Git



# Internals

```
jianjun@mbp:~/S/g/add|master$
```

```
> ls .git
```

```
COMMIT_EDITMSG  ORIG_HEAD  
HEAD            branches
```

```
config  
description
```

```
hooks  
index
```

```
info  
logs
```

```
objects  
refs
```

```
jianjun@mbp:~/S/g/add|master$
```

```
> tree .git/objects/
```

```
.git/objects/
```

```
├── 05  
│   └── b61c719eea52ea5ba3d2a7bda798c3234c1a17  
├── 25  
│   └── 70fe08b64581fde99dda14c4f1d49fc1807b4a  
├── 27  
│   └── 0e80cb340fd666a102586bc8a9a88ad9cb2613  
├── 3b  
│   └── 18e512dba79e4c8300dd08aeb37f8e728b8dad  
├── 76  
│   └── 04755fe13e27f5327d6d13dc6663d44847562d  
├── e6  
│   └── 9de29bb2d1d6434b8b29ae775ad8c2e48c5391  
├── f9  
│   └── 66952d7e0715683ee935d201cd4ab22736c831  
├── info  
└── pack
```

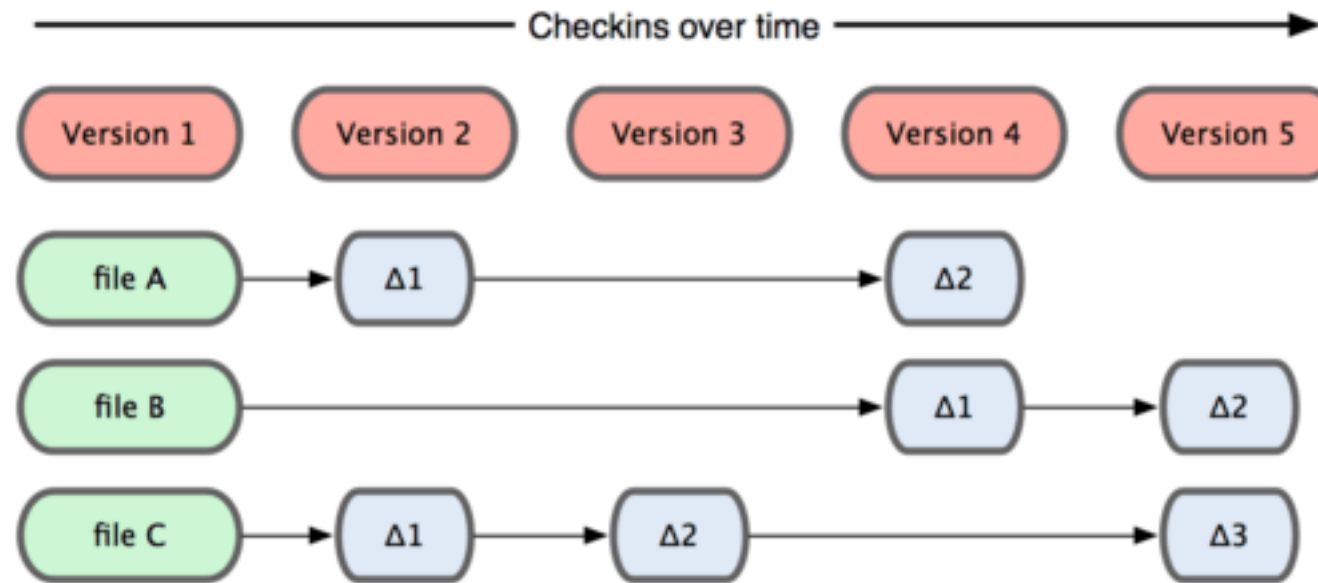
```
9 directories, 7 files
```

# \$diff others git

-

-

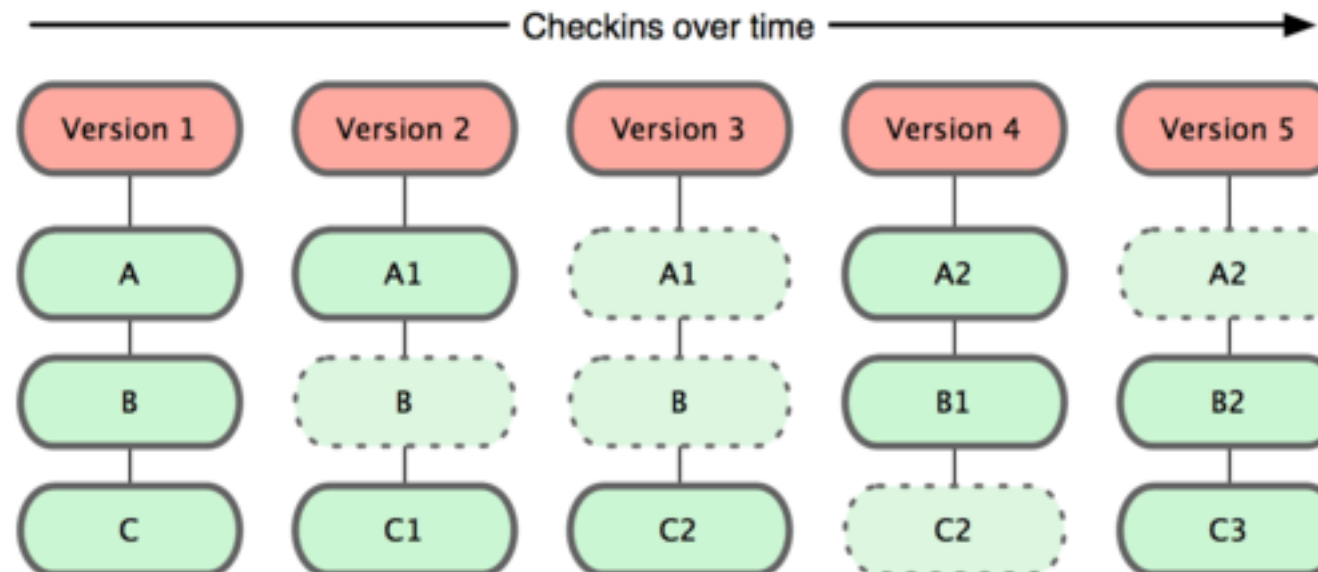
-



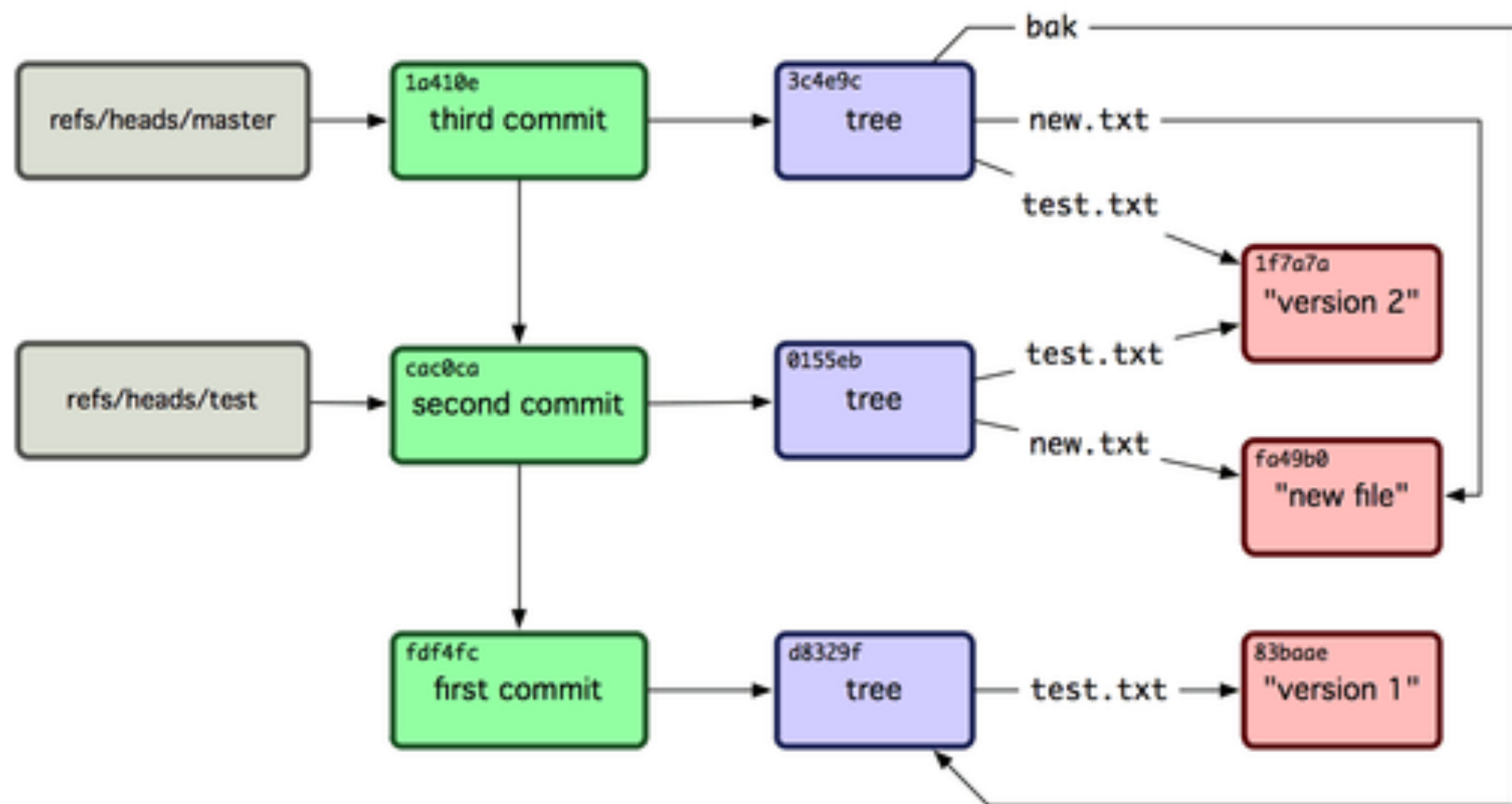
+

+

+







# Summary

- Git has 3 “trees”
  - Working directory
  - Index
  - HEAD -> Commit tree
- Git is a distributed filesystem\*
- Git is simple but powerful

# Q&A

- Thank you!
- The best place to learn Git: <http://git-scm.com>

# Extra

- Pretty shell: <http://fishshell.com>
- git lg is an alias: <http://stackoverflow.com/questions/1057564/pretty-git-branch-graphs>