

Git 介绍和使用培训

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https://github.com/xiez



2 分支概念 & 管理

3 常用命令&工作流

4 架构和数据结构





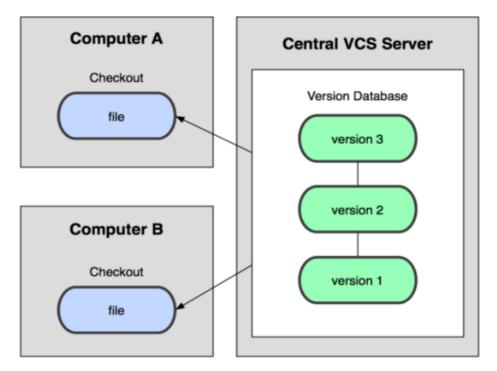


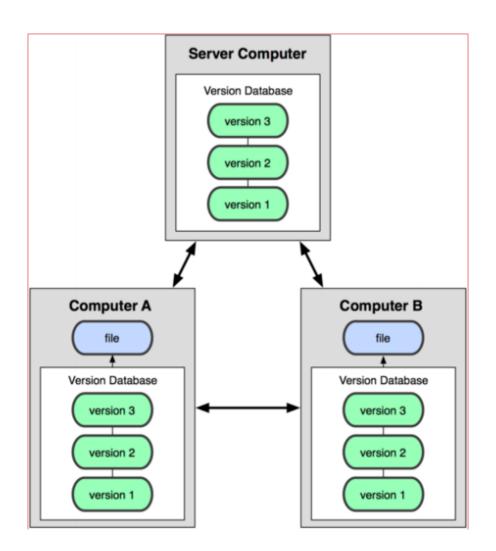


代码版本系统的演变: https://coolshell.cn/articles/3288.html

- 集中式: cvs, svn ...

- 分布式: git, Mercurial(Hg) ...





https://courses.cs.washington.edu/courses/cse403/13au/lectures/git.ppt.pdf



Git 作者 Linus 2007 年在 Google 的演讲: https://www.youtube.com/watch?v=4XpnKHJAok8

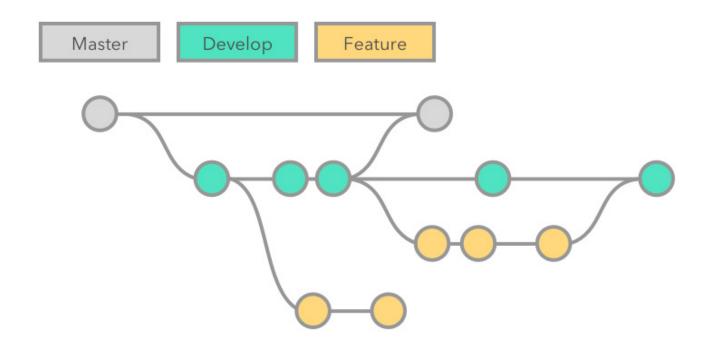
- Git 的由来
- 分布式的工作原理
- 相对 cvs,svn 的优点



https://blog.csdn.net/wypblog/article/details/102493579

分支概念 & 管理



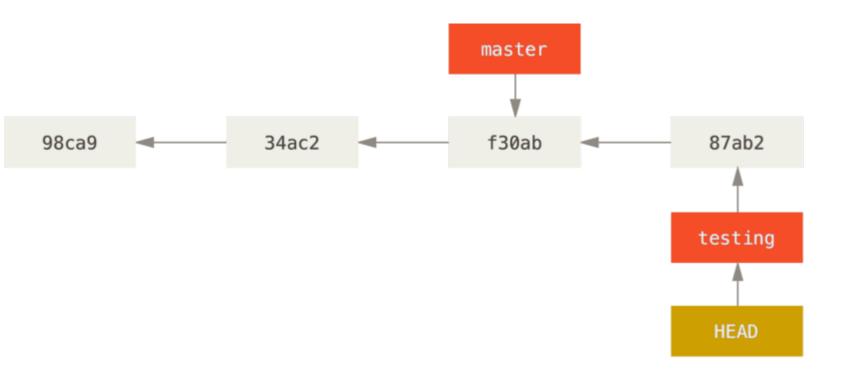


分支概念 & 管理 - cheap branch



轻量的(cheap)分支: https://softwareengineering.stackexchange.com/questions/202432/what-does-branching-is-free-mean-in-git

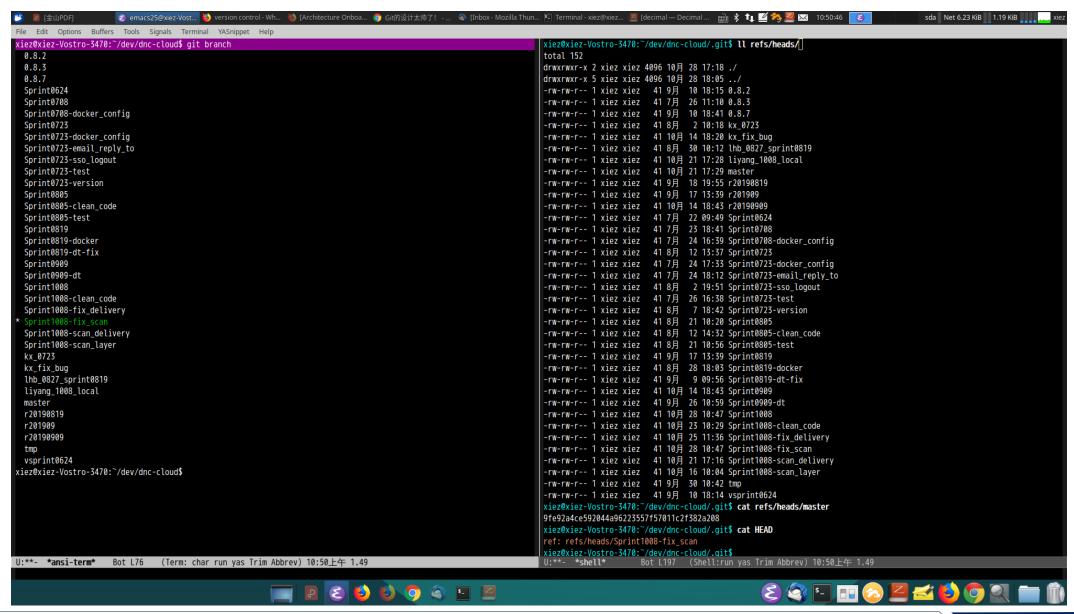
- git 核心功能(killer feature)
- 一个分支只占用 41 字节
- 一个项目可以维护几百上千分支
- 切换分支只是修改 HEAD 文件的内容



https://git-scm.com/book/en/v2/Git-Branching-Branches-in-a-Nutshell







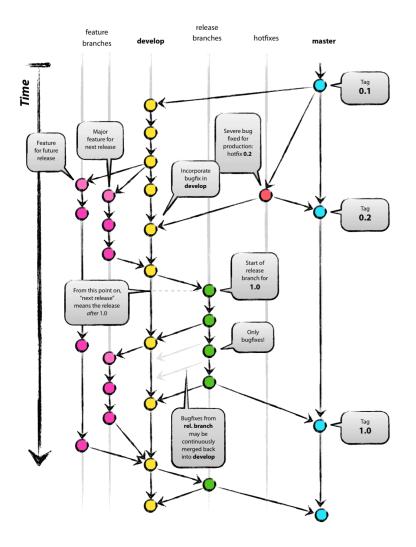
分支概念 & 管理 - best practise



业界主流的几种分支管理的最佳实践:

https://medium.com/@patrickporto/4-branching-workflows-for-git-30d0aaee7bf

- 命名区分功能分支/fix分支, feature-*, fix-*
- 从哪个分支开出,合并回该分支
- 使用 rebase 保持当前分支代码最新
- 多使用 fetch 命令, 少用 pull 命令 (原因见后面)



https://nvie.com/posts/a-successful-git-branching-model/







常用命令: http://wiki.cyai.com/pages/viewpage.action?pageId=17478745

- add, add -u, add -A ...
- diff, diff --cached ...
- push, push -u, push -f ...
- commit, commit --amend
- rebase/stash/push/fetch/pull
- status/cherry-pick/reset/merge

\$ man git-rebase

```
instead.

Assume the following history exists and the current branch is "topic":

A---B---C topic

D---E---F---G master

From this point, the result of either of the following commands:

git rebase master

git rebase master topic

would be:

A'--B'--C' topic

D---E---F---G master

NOTE: The latter form is just a short-hand of git checkout topic followed by git rebase master. When rebase exits topic will remain the checked-out branch.
```



git pull vs git fetch

- git fetch
 - 参考 https://www.atlassian.com/git/tutorials/syncing/git-fetch
 - fetch 相对安全(safe),下载远程内容,更新 .git/refs/heads/, 但不会改变当前的文件。
- git pull
 - 参考 https://www.atlassian.com/git/tutorials/syncing/git-pull
 - pull 相对不安全(unsafe),会下载远程的内容,并与当前的文件做合并,生成一个 merge commit, 影响commit 历史的可读行。



Merge branch 'Sprint1008' of ssh://gitlab.cyai.com:10022/dev01-ic/dnc-cloud into yanlima-dnc-1008



Merge branch 'ly_1022_sp1008' of ssh://gitlab.cyai.com:10022/dev01-ic/dnc-cloud... ...



干净的历史 vs 不干净的历史

[two factor] Fix sms method for desktop/mobile client. ② xiez committed on 2 Jan ✓
[password session] Disable for non-database users ♠ xiez committed on 2 Jan ✓
Commits on Dec 29, 2018
update admin org users api
Don't show form error when not ENABLE_UPDATE_USER_INFO 李史 imwhatiam committed on 29 Dec 2018 ✓
gettext('A file is being uploaded. Are you') 奪來 imwhatiam committed on 29 Dec 2018 ✓
Commits on Dec 26, 2018
update water mark □・・・ 季安 imwhatiam authored and Ilj committed on 26 Dec 2018 ✔
Commits on Dec 22, 2018
add new org user/info api (#2625) *********** imwhatiam authored and xiez committed on 22 Dec 2018 ✓
Merge pull request #2622 from haiwen/edit-profile
Commits on Dec 20, 2018
Merge pull request #2676 from haiwen/fix-get-event-type-test
add LOCAL_PRO_DEV_ENV when test generet event type *** imwhatiam committed on 20 Dec 2018 ✓

	Update delivery-pending.js 李占胜 committed a day ago
0	Merge branch 'Sprint1008' of ssh://gitlab.cyai.com:10022/dev01-ic/dnc-cloud into liyang_1008_local 李阳阳 committed a day ago
	修改头部导航 李阳阳 committed a day ago
	Merge branch 'yanlima-dnc-1008' into 'Sprint1008' 李占胜 committed a day ago
	feat: 修改代码规范相关 yanli_ma committed a day ago
	Merge branch 'Sprint1008' of ssh://gitlab.cyai.com:10022/dev01-ic/dnc-cloud into yanlima-dnc-1008 yanli_ma committed a day ago
0	Merge branch 'Sprint1008' of ssh://gitlab.cyai.com:10022/dev01-ic/dnc-cloud into liyang_1008_local 李阳阳 committed a day ago
₩	完善选择checkbox 李阳阳 committed a day ago
29 O	ct, 2019 11 commits
?	Merge branch 'tian-1008-dingdan' into 'Sprint1008' 郑勰 committed a day ago
	fix: 修改显示更多对话框信息 田晶英 committed a day ago
?	Merge branch 'kx_1008_feat_fix' into 'Sprint1008'
0	fix: 重命名文件拼接 kx_guo committed a day ago
?	Merge branch 'kx_1008_feat' into 'Sprint1008' 郑勰 committed a day ago



commit message

参考公司规范: http://wiki.cyai.com/pages/viewpage.action?pageId=17466665

- 一个 commit 只完成单一功能/bugfix
- commit 消息尽量详细, 方便后续追踪

subject

必填,用于简要描述commit,必须在type之后的冒号之后的一个空格之后,不超过50个字符

- 动词开头,用第一人称现在时,比如change,而不是changed或changes
- 第一个字母小写
- 结尾不加句号

fix(common): escape query selector used when anchor scrolling

2.4 Body

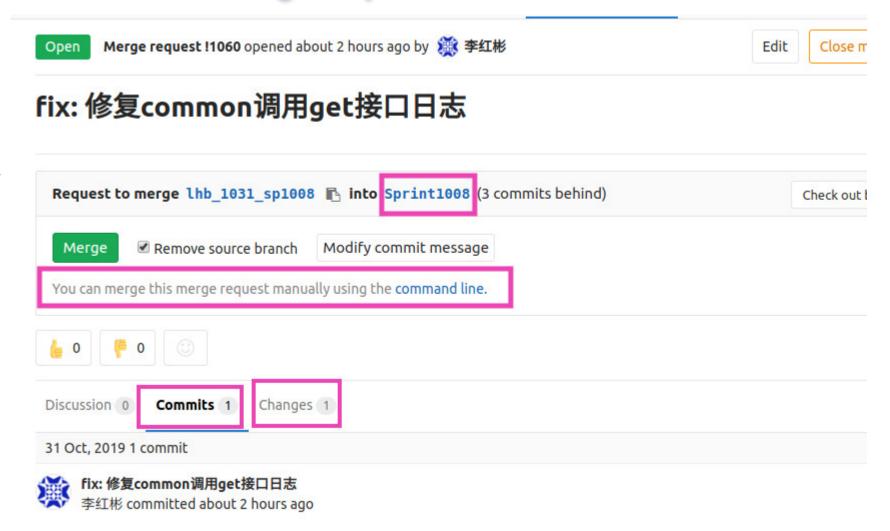
选填,对commit的详细描述,包含what、why(不要how)等,使用第一人称现在时,可以为多行。 如果有对应ticket,加上链接。这里ticket指jira或者wiki等跟踪需求的工具。

Add Authenticate Algorithm 1. based on api key 2. hash algorithms are hmac, sha1 3. sign will be transfered with Header "Authorization" 4. authenticate will be run in controller.Prepare More detail, plz refer to http://wiki.intra.xiaojukeji.com/pages/viewpage.action?pageId=89683624



merge request

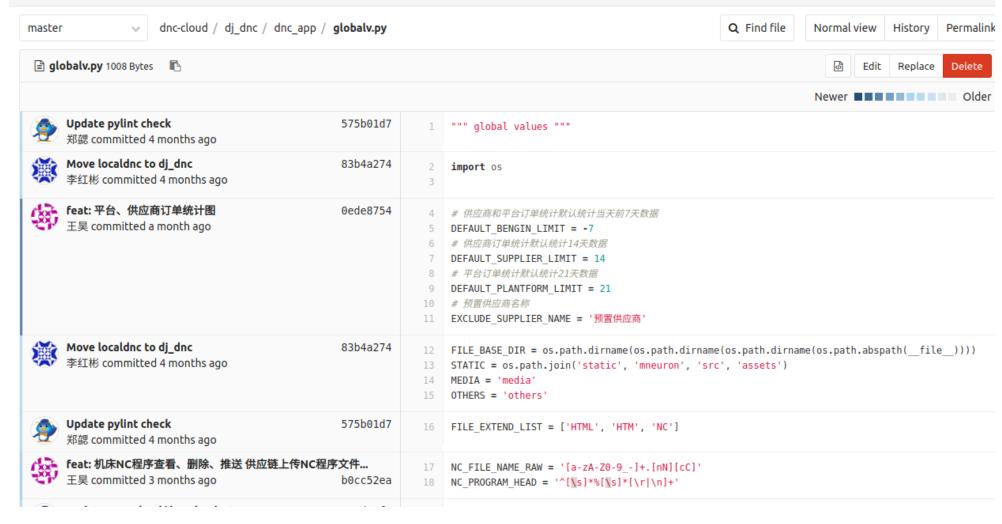
- 是否有冲突导致无法合并
- 是否只包含单一功能
- 多个 commit 是否合成一个
- commit 消息是否符合规范
- 文件改动是否都提交
- 合并的分支是否正确





git blame

追踪代码最后由谁修改





工作流

- 单个功能/bugfix开启新分支
- 定期 rebase 解决冲突保持代码最新
- 定期 commit & push 保证代码不丢失 cat ~/.bash aliases
- 绑定常用快捷命令

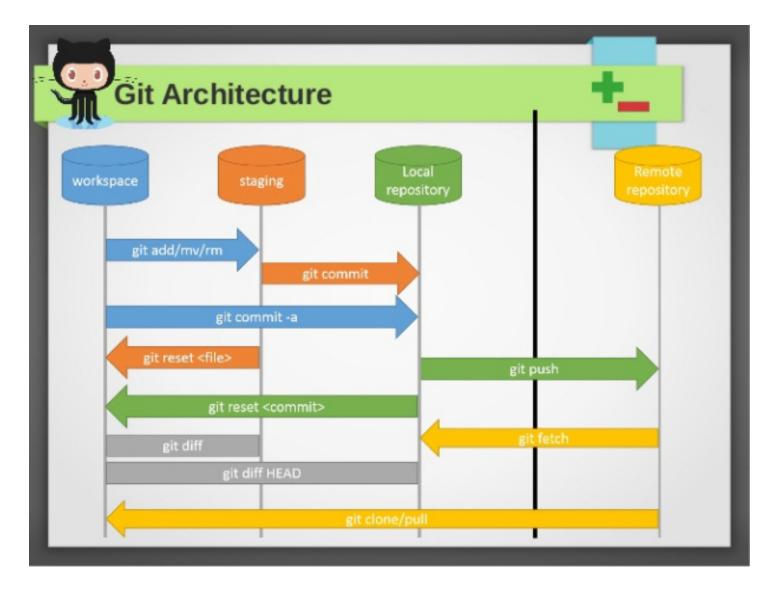
```
alias gl='git log -20 --graph --pretty=format:"%Cred%h%Creset -%C(yellow)%d%Creset %s %Cgreen(%cr) %C(bold blue)<%an>%Creset" --abbrev-commit --' alias gdiff='git diff --name-only' alias gd='git diff --name-only' alias gbranch='git branch --color' alias gb='git branch --color' alias gs='git status' alias gco='git checkout'
```





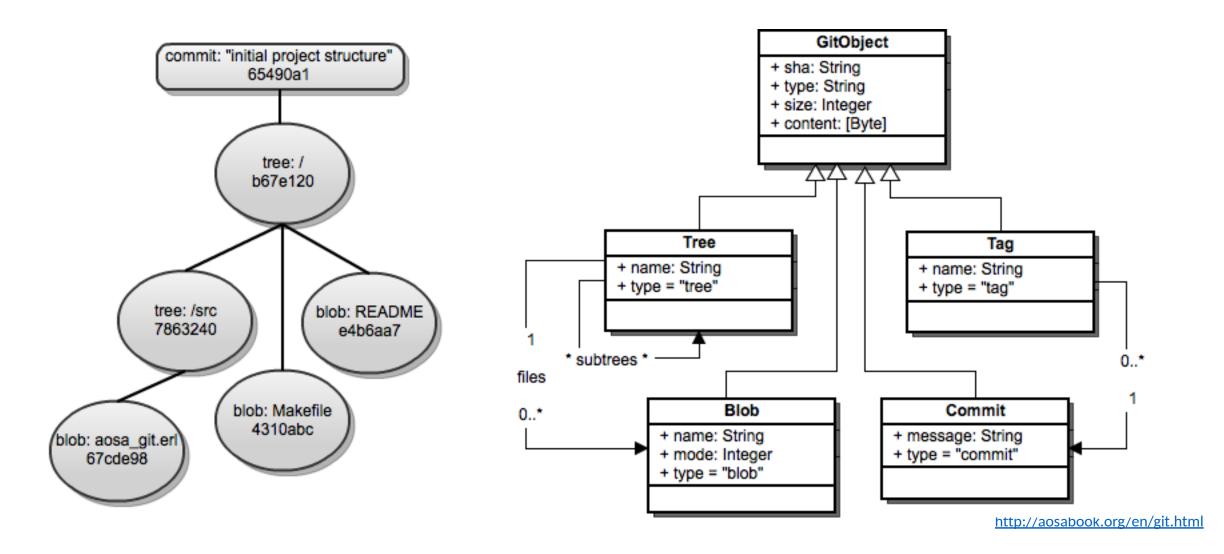






https://do4learning.wordpress.com/2016/02/26/basic-commands-of-git/

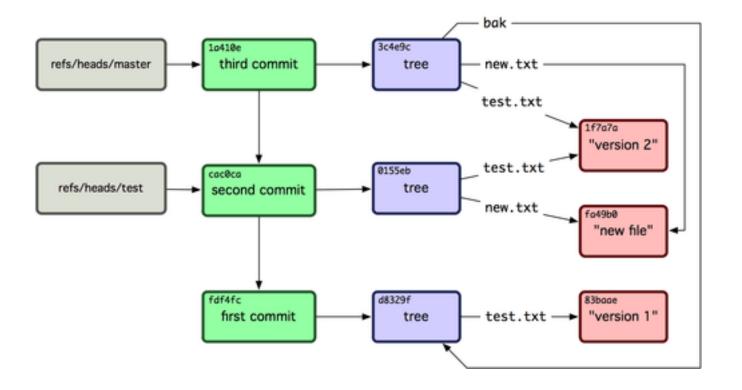






数据结构&源码

- https://git-scm.com/book/en/v1/Git-Internals
- https://github.com/git/git



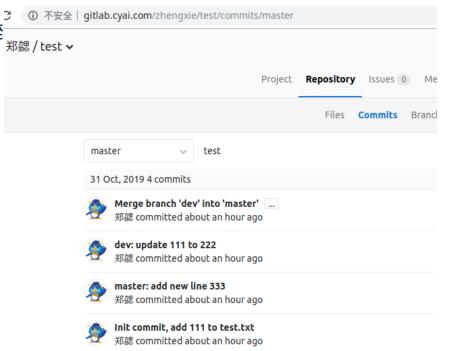
练习测试



- 分支管理 clone/commit/rebase/push
 - 1. gitlab 上创建新项目 test, 新建文件 test.txt, 内容: 111, commit push 到 master 分支。
 - 2. 基于 master 新建分支 dev, 修改 111 为 222, commit push 到 dev 分支。
 - 3. 切换到 master 分支,新增一行 333, commit push。
 - 4. 切换到 dev 分支,rebase 最新的 master 分支,解决冲突,再重新提交到
 - 5. 在 gitlab 上发起 merge request, 合并 dev 分支到 master。
 - 6. 完成参考: https://github.com/xiez/test/commits/master

• 分布式代码管理

1. 不通过 gitlab,通过 28 服务器来协同提交代码。







感谢聆听 Thank you