

学习笔记系文章，是我本人的实践实录，也是领悟书生教程网 (<http://www.656463.com>) 最重要的资源。如果你有兴趣，诚心邀请你一起打造最靠谱、最实用的教程！让上不起培训班、不想上培训班、有理想从事 IT 行业的人们提供一站式的学习和提高的平台。

huangyineng

笔记名称	git 学习笔记
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## 概述

Git 是一个版本控制工具。与常用的版本控制工具 CVS, Subversion 等不同，它采用了分布式版本库的方式，不必服务器端软件支持，使源代码的发布和交流极其方便。Git 的速度很快，这对于诸如 Linux kernel 这样的大项目来说自然很重要。Git 最为出色的是它的合并跟踪（merge tracing）能力。

## Git 的历史

Git 是 Linux 的创始人 Linus Torvalds 开发的开源和免费的版本管理系统，也称源代码管理系统(Source Code Manage,SCM)。它的官方网站是 [Http://git-scm.com](http://git-scm.com)

2005 年的时候 Linux 核心开发小组和当时的他们的版本管理系统提供商产生分歧。他们不能再使用原有的版本管理系统了。当时 Linus 环顾宇宙之内竟然没有一个能满足自己需求的版本管理系统可用。于是他毅然决定自己动手开发一个！这就是 Git。时至今日，Git 已经成为许多著名系统的版本管理系统。比如 Linux 核心，Eclipse，Android，Ruby on Rails，PostgreSQL，jQuery.....[http://en.wikipedia.org/wiki/Git\\_\(software\)](http://en.wikipedia.org/wiki/Git_(software))

Linus 对这个版本控制开发时候的思考（特征）：

Speed 速度（用 C 写的）

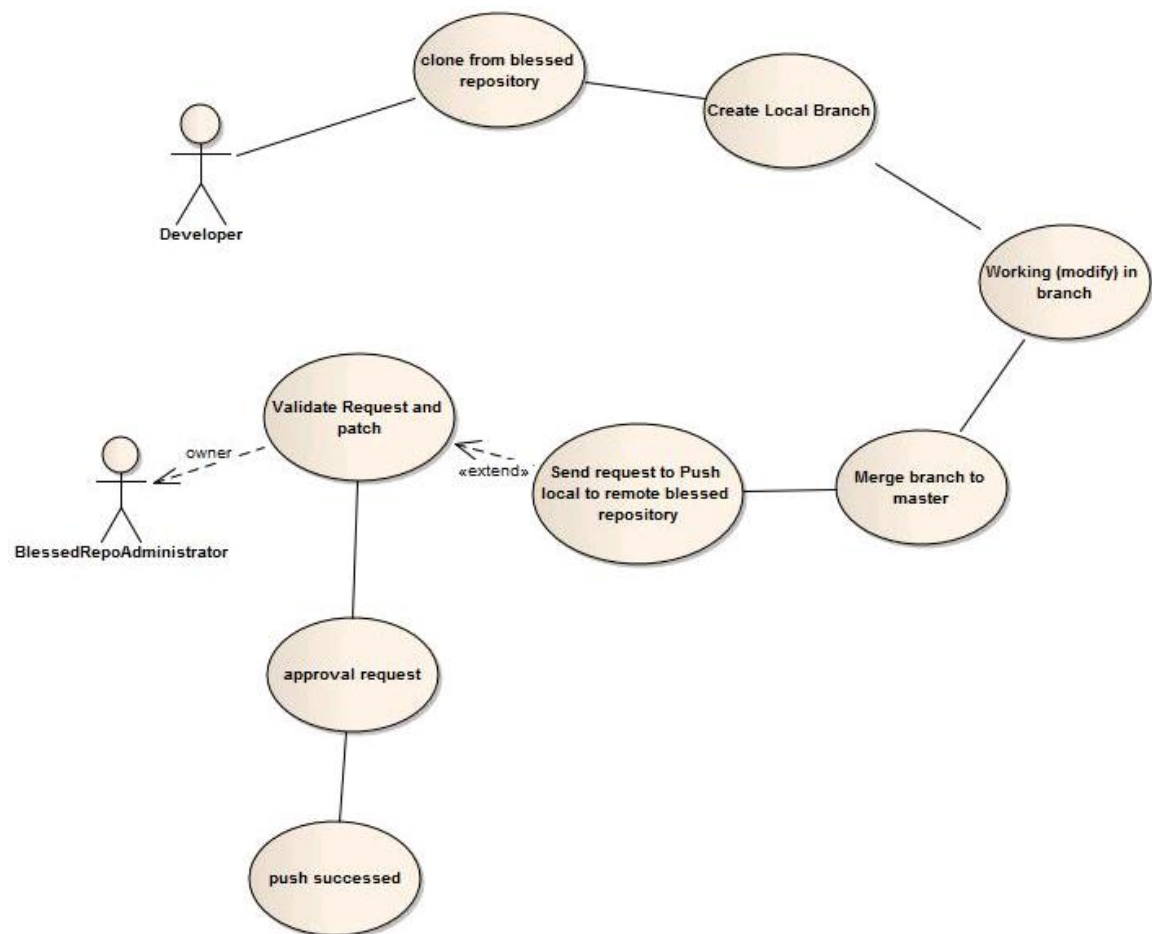
Simple design 简单设计

Strong support for non-linear development(thousands of parallel branches) 上千个分支

Fully distributed 完全分布式

Able to handle large projects like the Linux kernel efficiently (speed and data size)

## Git 开发人员使用流程



一般开发者，我就是 Google Source Code 使用者

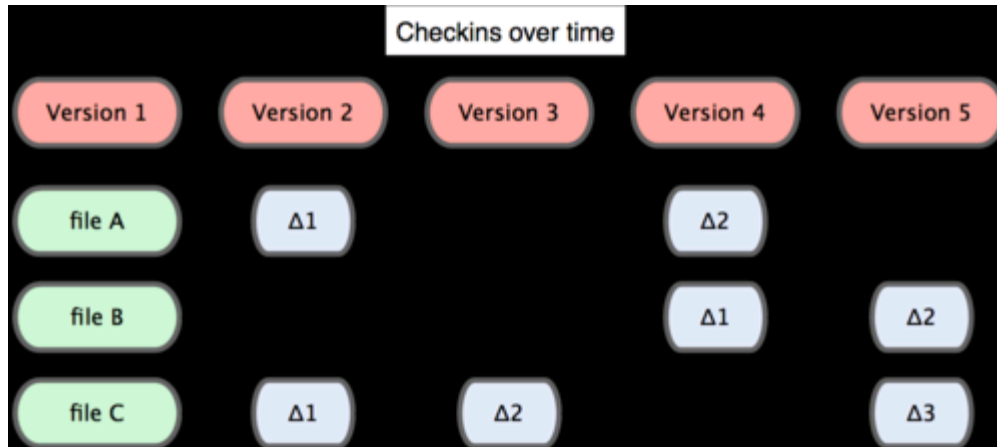
- 从服务器上克隆数据库（包括代码和版本信息）到单机上。
- 在自己的机器上创建分支，修改代码。
- 在单机上自己创建的分支上提交代码。
- 在单机上合并分支。
- 新建一个分支，把服务器上最新版的代码 `fetch` 下来，然后跟自己的主分支合并。
- 生成补丁（`patch`），把补丁发送给主开发者。
- 看主开发者的反馈，如果主开发者发现两个一般开发者之间有冲突（他们之间可以合作解决的冲突），就会要求他们先解决冲突，然后再由其中一个人提交。如果主开发者可以自己解决，或者没有冲突，就通过。
- 一般开发者之间解决冲突的方法，开发者之间可以使用 `pull` 命令解决冲突，解决完冲突之后再向主开发者提交补丁。

主开发者的角度（假设主开发者不用开发代码）：我就是 Google Source code 管理员

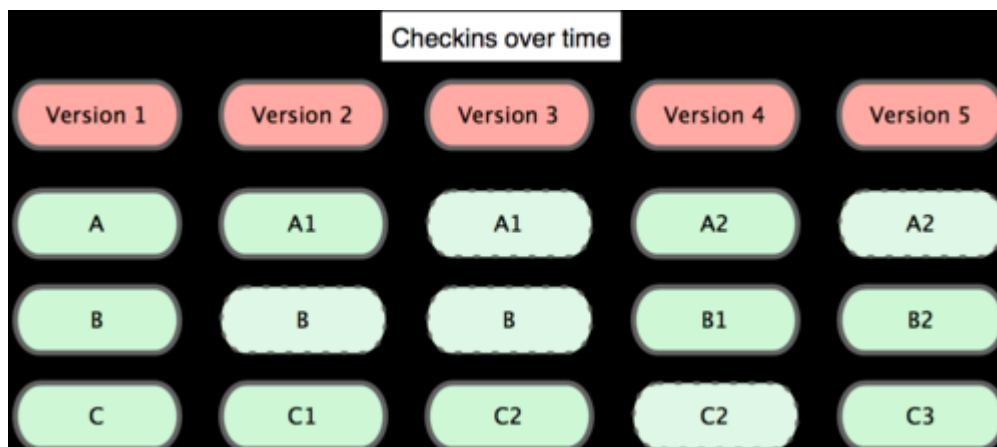
- 查看邮件或者通过其它方式查看一般开发者的提交状态。
- 打上补丁，解决冲突（可以自己解决，也可以要求开发者之间解决以后再重新提交，如果是开源项目，还要决定哪些补丁有用，哪些不用）。
- 向公共服务器提交结果，然后通知所有开发者

## Git 的记录方式

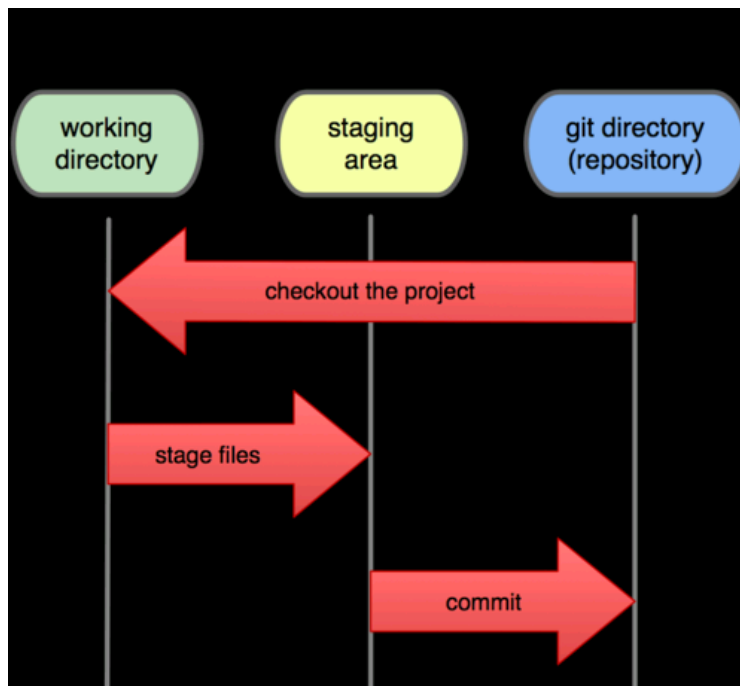
Git 是比快照而不是比不同  
其他版本控制系统:



Git,更像一个小型的文件系统:



## Git 文件的三个状态

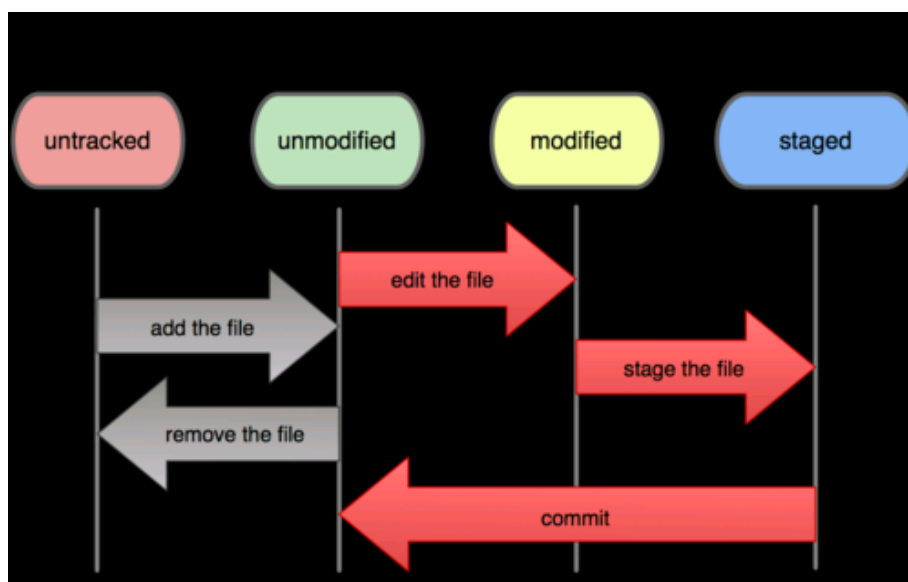


Committed: 文件安全地存储在你的本地

Modified: 你修改了文件，但还未提交到你的仓库

Staged: 已经标记了一个已修改文件到下一个版本的快照

## Git 文件状态的生命周期



Untracked 相当于 SVN 中图标为紫色问号那个状态，也就是还没和版本控制没什么关系的

Unmodified 相当于 SVN 中图标为绿色打勾那个状态

modified 相当于 SVN 中图标为红色感叹号那个状态

# 下载安装

git 最新版是 Git-1.7.11-preview20120710.exe

下载地址: <http://msysgit.github.com/>或者 <http://code.google.com/p/msysgit/downloads/list>

安装就一路 next 就行了, 在这里就不做说明。

打开命令行窗口 Git Bash, 输入 “git help git” 即可打开 git 的帮助文档

```
$ git help git
```

```
Launching default browser to display HTML ...
```

```
D:/Program/Git/doc/git/html/git.html
```

Git 客户端 tortoisegit, 现在的最新版本是 TortoiseGit-1.7.12.0-32bit.msi, 下载地址:

<http://code.google.com/p/tortoisegit/>, 这个安装也一路 NEXT, 不作讲解

## 初步了解 Git

### 配置项

1. 了解系统环境变量

```
/etc/gitconfig(D:/Program/Git/etc/gitconfig)
```

```
.gitconfig
```

2. 设置身份

```
$ git config --global user.name "yineng huang"
```

```
$ git config --global user.email huangyineng@656463.com
```

3. 设置编辑器 (可选)

```
$ git config --global core.editor emacs
```

4. 设置你的比较工具 (可选)

```
$ git config --global merge.tool vimdiff
```

5. 检查你的配置 (可选)

```
$ git config --list
```

```
$ git config --list
```

```
core.symlinks=false
```

```
core.autocrlf=true
```

```
color.diff=auto
```

```
color.status=auto
```

```
color.branch=auto
```

```
color.interactive=true
```

```
pack.packsizelimit=2g
```

```
help.format=html
```

```
http.sslcainfo=/bin/curl-ca-bundle.crt
```

```
sendemail.smtpserver=/bin/msmtp.exe
```

```
diff.astextplain.textconv=astextplain
rebase.autosquash=true
user.name=yineng huang
user.email=huangyineng@656463.com
```

## 6. 帮助

```
$ git help <verb>
```

```
$ git <verb> --help
```

如: \$ git help git

注, 怎么如何以上配置是用什么命令呢?请参阅帮助文档:

<file:///D:/Program/Git/doc/git/html/git-config.html>

## 几个区域

blessed(remote) repository:远程仓库

local repository:本地仓库

stage area:缓冲区-->git 目录下的 index 文件

work area:工作区

我们现在用实例来描述一下这几个区域

```
huangyineng@HUANGYINENG-PC ~
$ mkdir gittest1

huangyineng@HUANGYINENG-PC ~
$ cd gittest1/

huangyineng@HUANGYINENG-PC ~/gittest1
$ git init
Initialized empty Git repository in c:/Users/huangyineng/gittest1/.git/

huangyineng@HUANGYINENG-PC ~/gittest1 (master)
$ echo "hello" >> hello

huangyineng@HUANGYINENG-PC ~/gittest1 (master)
$ git add .
warning: LF will be replaced by CRLF in hello.
The file will have its original line endings in your working directory.

huangyineng@HUANGYINENG-PC ~/gittest1 (master)
$ git commit hello -m "init hello"
warning: LF will be replaced by CRLF in hello.
The file will have its original line endings in your working directory.
```

```
[master (root-commit) 4d850bf] init hello
warning: LF will be replaced by CRLF in hello.
The file will have its original line endings in your working directory.
1 file changed, 1 insertion(+)
create mode 100644 hello

huangyineng@HUANGYINENG-PC ~/gittest1 (master)
$
```

以上命令的操作过程是：创建 `gittest1` 目录，进入该目录，把该目录初始化为仓库。这个仓库的具体位置是：`C:\Users\huangyineng\gittest1\.git`。创建创建一个文件（`hello`），把当然目录下的所有文件添加到缓冲区中，然后提交把 `hello` 文件提交到本地仓库中。

工作区就是 `gittest1` 目录（`C:\Users\huangyineng\gittest1`）

缓冲区存放在 `.git` 的 `index` 文件中（`C:\Users\huangyineng\gittest1\.git\index`）

本地仓库会存放在 `.git` 的 `objects` 目录下（`C:\Users\huangyineng\gittest1\.git\objects`）

## 基本操作

### 初始化和建立项目

有两种方式，一种是 `init`，另外一种是 `clone`

`init` 在上面的例子中已经用过了，也就是进入项目所在的目录，用 `$ git init` 即可。

`Clone` 一般是从远程服务器克隆一个已有的版本仓库到本机，命令如下：

```
$ git clone git://github.com/git/hello-world.git
Cloning into 'hello-world'...
remote: Counting objects: 158, done.
remote: Compressing objects: 100% (79/79), done.
remote: Total 158 (delta 54), reused 154 (delta 54)
Receiving objects: 100% (158/158), 15.63 KiB, done.
Resolving deltas: 100% (54/54), done.
error: unable to create file brainf*ck.bf (Invalid argument)
```

查看远程服务器：

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git remote
origin

huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git remote -v
origin  git://github.com/git/hello-world.git (fetch)
origin  git://github.com/git/hello-world.git (push)
```

## 添加与提交

所用到的命令是 add、commit 和 status.

1. 创建一个名为 helloworld.naxsu 的文件.
2. 用 git status 查看当前目录文件的提交状态  
brainf\*ck.bf 是刚才克隆的时候, 没法克隆下来, 这里显示是删除了  
helloworld.naxsu 是刚创建的文件, 提示用"git add"添加的缓冲区中或者用"git commit -a"  
添加并提交
3. \$ git add helloworld.naxsu 进行添加到缓冲区  
添加当前目录下的所有文件  
\$ git add .  
添加以.c 为后缀的文件  
\$ git add \*.c  
添加指定文件  
\$ git add index.jsp
4. \$ git commit helloworld.naxsu -m "init helloworld.naxsu"提交到本地仓库

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ echo "hello world" >> helloworld.naxsu

huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ ls *.naxsu
helloworld.naxsu

huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git status
# On branch master
# Changes not staged for commit:
#   (use "git add/rm <file>..." to update what will be committed)
#   (use "git checkout -- <file>..." to discard changes in working directory)
#
#       deleted:    brainf*ck.bf
#
# Untracked files:
#   (use "git add <file>..." to include in what will be committed)
#
#       helloworld.naxsu
no changes added to commit (use "git add" and/or "git commit -a")

huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git add helloworld.naxsu
warning: LF will be replaced by CRLF in helloworld.naxsu.
The file will have its original line endings in your working directory.
```



```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git status
# On branch master
# Changes to be committed:
#   (use "git reset HEAD <file>..." to unstage)
#
#       new file:   helloworld.naxsu
#
# Changes not staged for commit:
#   (use "git add/rm <file>..." to update what will be committed)
#   (use "git checkout -- <file>..." to discard changes in working directory)
#
#       deleted:    brainf*ck.bf
#

huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git commit helloworld.naxsu -m "init helloworld.naxsu"
warning: LF will be replaced by CRLF in helloworld.naxsu.
The file will have its original line endings in your working directory.
[master 8c17395] init helloworld.naxsu
warning: LF will be replaced by CRLF in helloworld.naxsu.
The file will have its original line endings in your working directory.
1 file changed, 1 insertion(+)
create mode 100644 helloworld.naxsu

huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git status
# On branch master
# Your branch is ahead of 'origin/master' by 1 commit.
#
# Changes not staged for commit:
#   (use "git add/rm <file>..." to update what will be committed)
#   (use "git checkout -- <file>..." to discard changes in working directory)
#
#       deleted:    brainf*ck.bf
#
no changes added to commit (use "git add" and/or "git commit -a")

huangyineng@HUANGYINENG-PC ~/hello-world (master)
$
```

## 忽略某些文件

Java 文件编译成.class 文件，他是自动生成的，我们没必要用版本控制它，所以提交的时候可以用忽略。

创建文件 class1.class、java1.java，创建.gitignore，并把 class1.class 添加到.gitignore 中,同时用 vim 编辑.gitignore，把他自己也添加到里面，用\$ cat .gitignore 命令可以查看.gitignore 的内容。接下来用 add,commit,你就会发现 class1.class 是不会提交到仓库中的。

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
```

```
$ echo "class1" > class1.class
```

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
```

```
$ echo "java1" > java1.java
```

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
```

```
$ echo "class1.class" > .gitignore
```

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
```

```
$ vim .gitignore
```

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
```

```
$ cat .gitignore
```

```
class1.class
```

```
.gitignore
```

```
$ git status
```

```
$ git add .
```

```
$ git status
```

```
$ git commit -a -m "ignore test"
```

```
.....
```

## 比较文件的不同

```
$ git diff(默认是$ git diff --staged)
```

```
$ git diff --staged:比较 workspace VS staged
```

```
$ git diff --cached:比较 staged VS local repo
```

演示思路：修改 helloworld.naxsu，用 git diff 查看不同，把他 add 之后再查看他们的不同，然后 commit 后，又一次查看他们的不同。

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
```

```
$ vim helloworld.naxsu
```

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
```

```
$ git diff
diff --git a/helloworld.naxsu b/helloworld.naxsu
index 3b18e51..6d05489 100644
--- a/helloworld.naxsu
+++ b/helloworld.naxsu
@@ -1 +1,2 @@
 hello world
+add something
warning: LF will be replaced by CRLF in helloworld.naxsu.
The file will have its original line endings in your working directory.

huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git add helloworld.naxsu
warning: LF will be replaced by CRLF in helloworld.naxsu.
The file will have its original line endings in your working directory.

huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git diff --cached
diff --git a/helloworld.naxsu b/helloworld.naxsu
index 3b18e51..6d05489 100644
--- a/helloworld.naxsu
+++ b/helloworld.naxsu
@@ -1 +1,2 @@
 hello world
+add something
warning: LF will be replaced by CRLF in helloworld.naxsu.
The file will have its original line endings in your working directory.

huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git commit helloworld.naxsu -m "modified helloworld.naxsu"
warning: LF will be replaced by CRLF in helloworld.naxsu.
The file will have its original line endings in your working directory.
[master warning: LF will be replaced by CRLF in helloworld.naxsu.
The file will have its original line endings in your working directory.
6e7814d] modified helloworld.naxsu
warning: LF will be replaced by CRLF in helloworld.naxsu.
The file will have its original line endings in your working directory.
1 file changed, 1 insertion(+)

huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git diff

huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git diff --cached
```

## 文件的移动和删除

移动=删除+添加

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ ls *naxsu
helloworld.naxsu  test.naxsu

huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git rm test.naxsu
rm 'test.naxsu'

huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git status
# On branch master
# Your branch is ahead of 'origin/master' by 6 commits.
#
# Changes to be committed:
#   (use "git reset HEAD <file>..." to unstage)
#
#       deleted:    test.naxsu
#

huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git reset head test.naxsu
Unstaged changes after reset:
D       test.naxsu

huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git status
# On branch master
# Your branch is ahead of 'origin/master' by 6 commits.
#
# Changes not staged for commit:
#   (use "git add/rm <file>..." to update what will be committed)
#   (use "git checkout -- <file>..." to discard changes in working directory)
#
#       deleted:    test.naxsu
#
no changes added to commit (use "git add" and/or "git commit -a")
```

如果没提交还可以 checkout 进行恢复

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
```

```
$ git checkout -- test.naxsu
```

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
```

```
$ ls *.naxsu
```

```
helloworld.naxsu  test.naxsu
```

如果 commit 了之后, 就不能 checkout 了

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
```

```
$ git rm test.naxsu
```

```
rm 'test.naxsu'
```

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
```

```
$ git commit -a -m "delete test.naxsu"
```

```
[master 46d28af] delete test.naxsu
```

```
1 file changed, 1 deletion(-)
```

```
delete mode 100644 test.naxsu
```

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
```

```
$ git checkout -- test.naxsu
```

```
error: pathspec 'test.naxsu' did not match any file(s) known to git.
```

移动用 mv 命令, 具体参考\$ git mv --help

## 查看操作记录

git log 显示所有的提交 (commit) 记录

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
```

```
$ git log
```

```
commit 46d28afa27a90678c7391fc0bc5549db345f3c7d
```

```
Author: yineng huang <huangyineng@656463.com>
```

```
Date: Fri Aug 17 23:28:34 2012 +0800
```

```
delete test.naxsu
```

```
.....
```

git whatchanged

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
```

```
$ git whatchanged
```

```
commit 46d28afa27a90678c7391fc0bc5549db345f3c7d
```

```
Author: yineng huang <huangyineng@656463.com>
```

```
Date: Fri Aug 17 23:28:34 2012 +0800
```

```
delete test.naxsu
```

```
:100644 000000 77608b6... 0000000... D test.naxsu
```

```
.....
```

git-whatchanged 显示的信息比 git-log 更详细一些，可以显示具体的文件名。

## 共享及更新项目

### 1. 了解 remote

remote 是显示远程仓库信息的命令

显示远程仓库

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git remote
origin
```

显示远程仓库地址

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git remote -v
origin  git://github.com/git/hello-world.git (fetch)
origin  git://github.com/git/hello-world.git (push)
```

### 2. fetch 从远程拉下来，不与本地的合并，并建立一个分支

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git fetch origin
```

### 3. pull 从远程拉下来，和本地的合并

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git pull origin
Already up-to-date.
```

### 4. push 提交到远程服务器

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git push origin master
fatal: remote error:
  You can't push to git://github.com/git/hello-world.git
  Use git@github.com:git/hello-world.git
```

这个是没有权限提交的。

## 分支管理与合并

显示所有分支

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git branch
* master
```

增加分支

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git branch b1
```

## 切换分支

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git checkout b1
Switched to branch 'b1'

huangyineng@HUANGYINENG-PC ~/hello-world (b1)
$
```

切换到不同的分支对 helloworld.naxsu 这个文件进行修改并提交，并查看他们的内容  
原先 helloworld.naxsu 的内容是

```
huangyineng@HUANGYINENG-PC ~/hello-world (b1)
$ cat helloworld.naxsu
hello world
add something
```

在 b1 分支修改并提交，然后查看文件内容

```
huangyineng@HUANGYINENG-PC ~/hello-world (b1)
$ vim helloworld.naxsu

huangyineng@HUANGYINENG-PC ~/hello-world (b1)
$ git commit -a -m "b1 update helloworld.naxsu"
warning: LF will be replaced by CRLF in helloworld.naxsu.
The file will have its original line endings in your working
[b1 warning: LF will be replaced by CRLF in helloworld.naxsu
The file will have its original line endings in your working
b9c5de1] b1 update helloworld.naxsu
warning: LF will be replaced by CRLF in helloworld.naxsu.
The file will have its original line endings in your working
1 file changed, 1 insertion(+)

huangyineng@HUANGYINENG-PC ~/hello-world (b1)
$ git status
# On branch b1
nothing to commit (working directory clean)

huangyineng@HUANGYINENG-PC ~/hello-world (b1)
$ cat helloworld.naxsu
hello world
add something
b1 branch add something
```

切换到 master 分支，进行和上面一样的操作

```
huangyineng@HUANGYINENG-PC ~/hello-world (b1)
$ git checkout master
Switched to branch 'master'
```

```
Your branch is ahead of 'origin/master' by 7 commits.
```

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ vim helloworld.naxsu
```

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git commit -a -m "master update helloworld.naxsu"
[master d9f15c9] master update helloworld.naxsu
1 file changed, 1 insertion(+)
```

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ cat helloworld.naxsu
hello world
add something
master branch add something
```

从中可以看出两个分支是没有影响的。

列出各分支之间的信息

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git show-branch
! [b1] b1 update helloworld.naxsu
* [master] master update helloworld.naxsu
--
* [master] master update helloworld.naxsu
+ [b1] b1 update helloworld.naxsu
+* [master^] delete test.naxsu
```

比较 master 和 b1 这两个分支文件的不同

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git diff master b1
diff --git a/helloworld.naxsu b/helloworld.naxsu
index 9e73a56..7929722 100644
--- a/helloworld.naxsu
+++ b/helloworld.naxsu
@@ -1,3 +1,3 @@
hello world
add something
-master branch add something
+b1 branch add something
```

分支合并 merge

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git merge "merge" HEAD b1
Auto-merging helloworld.naxsu
```



```
CONFLICT (content): Merge conflict in helloworld.naxsu
Automatic merge failed; fix conflicts and then commit the result.
```

显示自动合并失败，我们看一下状态，可以看到 helloworld.naxsu 被两个分支修改过了

```
huangyineng@HUANGYINENG-PC ~/hello-world (master|MERGING)
$ git status
# On branch master
# Your branch is ahead of 'origin/master' by 8 commits.
#
# Unmerged paths:
#   (use "git add/rm <file>..." as appropriate to mark resolution)
#
#       both modified:       helloworld.naxsu
#
no changes added to commit (use "git add" and/or "git commit -a")
```

我们来看一下 helloworld.naxsu 的内容

```
huangyineng@HUANGYINENG-PC ~/hello-world (master|MERGING)
$ cat helloworld.naxsu
hello world
add something
<<<<<<< HEAD
master branch add something
=====
b1 branch add something
>>>>>>> b1
```

把们用 vim 编辑工具人为的把冲突去掉，然后保存、提交，切换到其他分支，也可以看到没有冲突了

```
huangyineng@HUANGYINENG-PC ~/hello-world (master|MERGING)
$ vim helloworld.naxsu

huangyineng@HUANGYINENG-PC ~/hello-world (master|MERGING)
$ git commit -a -m "merging"
[master 34908f4] merging

huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ cat helloworld.naxsu
hello world
add something
master branch add something
b1 branch add something

huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git checkout b1
Switched to branch 'b1'
```

```
huangyineng@HUANGYINENG-PC ~/hello-world (b1)
$ cat helloworld.naxsu
hello world
add something
b1 branch add something
```

另一种合并的做法，自行去查帮助文档：

```
$ git checkout master
$ git pull . b1
```

## 标签

git 跟其它版本控制系统一样，可以打标签(tag)，作用是标记一个点为一个版本号，如 0.1.3, v0.1.7, ver\_0.1.3.在程序开发到一个阶段后，我们需要打个标签，发布一个版本，标记的作用显而易见。

下面介绍一下打标签，分享标签，移除标签的操作命令。

### 打标签

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git tag -a 0.1.3 -m "Release version 0.1.3"
```

详解：git tag 是命令,-a 0.1.3 是增加名为 0.1.3 的标签,-m 后面跟着的是标签的注释

### 分享提交标签到远程服务器上

```
git push origin master
```

```
git push origin --tags
```

--tags 参数表示提交所有 tag 至服务器端，普通的 git push origin master 操作不会推送标签到服务器端。

### 删除标签的命令

```
git tag -d 0.1.3
```

### 删除远端服务器的标签

```
git push origin :refs/tags/0.1.3
```

### 查看本地标签

```
huangyineng@HUANGYINENG-PC ~/hello-world (master)
$ git tag -l
0.1.3
```

## Android 源码下载

待续

# 建立我们自己的 **Git** 开源项目

待续