

An introduction to Git

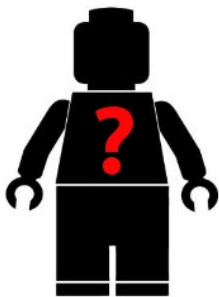
Micha Hergarden

T-Dose

October, 2012

Introduction





Configuration

```
$ git help config
$ git config --global user.name "Joe Random"
$ git config --global user.email "joe@random.net"
$ git config --global color.ui true
$ git config --list
user.name=Joe Random
user.email=joe@random.net
color.ui=true
```

Configuration

```
$ git help config
$ git config --global user.name "Joe Random"
$ git config --global user.email "joe@random.net"
$ git config --global color.ui true
$ git config --list
user.name=Joe Random
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```

Configuration

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$ git help config
$ git config --global user.name "Joe Random"
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$ git config --global color.ui true
$ git config --list
user.name=Joe Random
user.email=joe@random.net
color.ui=true
```

First Repository

```
$ mkdir fizzbot
```

```
$ cd fizzbot
```

```
$ git init
```

```
Initialized empty Git repository in  
/home/micha/fizzbot/.git/
```

```
$ ls -al fizzbot
```

```
.
```

```
..
```

```
.git
```

First Repository

```
$ mkdir fizzbot
```

```
$ cd fizzbot
```

```
$ git init
```

```
Initialized empty Git repository in  
/home/micha/fizzbot/.git/
```

```
$ ls -al fizzbot
```

```
.
```

```
..
```

```
.git
```


Adding Files

```
$ vim fizzbot.c
$ git status
# On branch master
#
# Initial commit
#
# Untracked files:
# (use "git add <file>..." to include in what will be
# committed)
#
#       fizzbot.c
nothing added to commit but untracked files present
(use "git add" to track)
```

Adding Files

```
$ vim fizzbot.c
$ git status
# On branch master
#
# Initial commit
#
# Untracked files:
# (use "git add <file>..." to include in what will be
# committed)
#
#       fizzbot.c
nothing added to commit but untracked files present
(use "git add" to track)
```

Adding Files

```
$ git add fizzbot.c
$ git status
# On branch master
#
# Initial commit
#
# Changes to be committed:
#   (use "git rm -cached <file>..." to unstage)
#
#       new file:   fizzbot.c
#
```

Adding Files

```
$ git add fizzbot.c
$ git status
# On branch master
#
# Initial commit
#
# Changes to be committed:
#   (use "git rm -cached <file>..." to unstage)
#
#       new file:   fizzbot.c
#
```

Adding Files

```
$ git commit -m "Added the initial version of my  
fizzbot"
```

```
[master (root-commit) b253969] Added the initial  
version of my fizzbot
```

```
1 file changed, 5 insertions(+)
```

```
create mode 100644 fizzbot.c
```

```
$ git status
```

```
# On branch master
```

```
nothing to commit (working directory clean)
```

Adding Files

```
$ git commit -m "Added the initial version of my  
fizzbot"  
[master (root-commit) b253969] Added the initial  
version of my fizzbot  
1 file changed, 5 insertions(+)  
create mode 100644 fizzbot.c  
$ git status  
# On branch master  
nothing to commit (working directory clean)
```

Adding Files

```
$ git commit -m "Added the initial version of my  
fizzbot"  
[master (root-commit) b253969] Added the initial  
version of my fizzbot  
1 file changed, 5 insertions(+)  
create mode 100644 fizzbot.c  
$ git status  
# On branch master  
nothing to commit (working directory clean)
```

Viewing History

```
$ git log
```

```
commit b25396949461469bbcdc3a85439408ecbee6adfc
```

```
Author: Joe Random <joe@random.net>
```

```
Date: Sun Oct 28 10:25:36 2012 +0200
```

```
Added the initial version of my fizzbot
```


Viewing History

Geschiedenis | Commit

Tak: master

Subject	Author	Date
another typo	=	wr 25 dec 2009 22:55:10 CET
kleine verbeteringen	=	wr 25 dec 2009 22:49:05 CET
typo	=	wr 25 dec 2009 22:47:05 CET
[zh] chapter 9: section Packfiles	James Chen	wr 25 dec 2009 03:40:19 CET
[fr] 31% of chapter 2	Jean-Noel Avila	do 24 dec 2009 17:59:01 CET
[nl] 35% chapter 7	micha	do 24 dec 2009 16:01:38 CET
[nl] 28% chapter 7	micha	do 24 dec 2009 09:17:46 CET
[nl] 23% chapter 7	micha	wo 23 dec 2009 20:47:15 CET
Merge remote branch 'gwx/master'	Scott Chacon	wr 18 dec 2009 03:18:28 CET
Review chapter 9 & 2	gwx	do 17 dec 2009 21:06:43 CET
Review chapter 9	gwx	do 17 dec 2009 18:33:49 CET
Started review chapter 9	gwx	do 17 dec 2009 18:18:11 CET
The Refspec completed	Cheng Renquan	do 17 dec 2009 09:25:04 CET
fixed 3 bugs. Thanks icyleaf!	chunzi	wo 16 dec 2009 02:25:54 CET
[nl] chapter 7 5%	micha	di 15 dec 2009 21:02:42 CET
Merge remote branch 'sitaranc/add-gitolite-and-stir'	Scott Chacon	ma 14 dec 2009 21:33:46 CET
Merge remote branch 'mizar/latex'	Scott Chacon	ma 14 dec 2009 21:32:19 CET
Merge remote branch 'andrecardoso/master'	Scott Chacon	ma 14 dec 2009 21:31:39 CET
Merge remote branch 'michalt/master'	Scott Chacon	ma 14 dec 2009 21:30:33 CET
Merge remote branch 'ashchan/master'	Scott Chacon	ma 14 dec 2009 21:29:14 CET
Merge remote branch 'dagget/master'	Scott Chacon	ma 14 dec 2009 21:28:39 CET
[fr][latex] modify latex/config.yml	Mizar	za 12 dec 2009 00:23:49 CET
Merge branch 'ja' into latex	Mizar	za 12 dec 2009 00:19:12 CET
[nl] 100% chapter 9, ready for preview	micha	wr 11 dec 2009 19:41:59 CET
[nl] 94% chapter 9	micha	wo 09 dec 2009 20:00:01 CET

Details | Changes | Files

SHA: cfc4da68764693a0ec2ac393a9808cf80305cde

Auteur: [Scott Chacon <schacon@gmail.com>](mailto:Scott.Chacon@schacon@gmail.com) (ma 14 dec 2009 21:33:46 CET)


Committer: [Scott Chacon <schacon@gmail.com>](mailto:Scott.Chacon@schacon@gmail.com) (ma 14 dec 2009 21:33:46 CET)

Onderwerp: **Merge remote branch 'sitaranc/add-gitolite-and-stir'**

Ouder: [aee709b74ad2d5b0fc7d9be824391c048c3e85d1](#) : Merge remote branch 'mizar/latex'
[52023ac79d0c930ed4a98cf246372724d398cb6a1](#) : gitolite section: rebel is now part of master in gitolite

Merge remote branch 'sitaranc/add-gitolite-and-stir'

[en/04-git-server/01-chapter4.markdown](#) 12



The Index

```
$ git add fizzbot.c  
$ git commit
```

repository

staging area

working directory

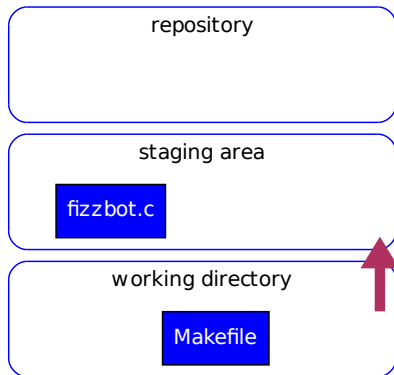
fizzbot.c

Makefile

The Index

```
$ git add fizzbot.c
```

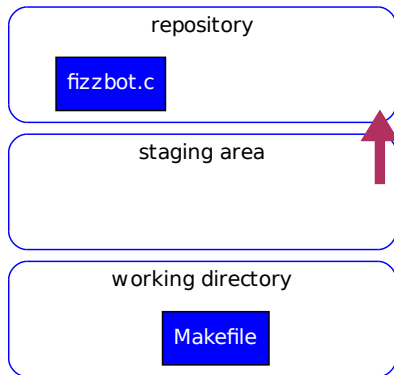
```
$ git commit
```



The Index

```
$ git add fizzbot.c
```

```
$ git commit
```



The Index

```
$ git add fizzbot.c  
$ git reset HEAD fizzbot.c  
$ git checkout -- fizzbot.c
```

repository

staging area

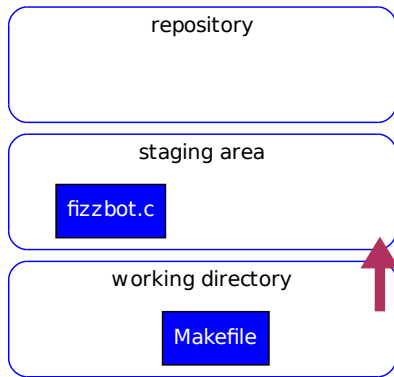
working directory

fizzbot.c

Makefile

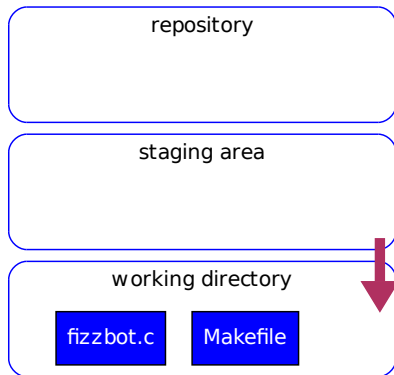
The Index

```
$ git add fizzbot.c  
$ git reset HEAD fizzbot.c  
$ git checkout -- fizzbot.c
```



The Index

```
$ git add fizzbot.c  
$ git reset HEAD fizzbot.c  
$ git checkout -- fizzbot.c
```



The Index

```
$ git add fizzbot.c  
$ git reset HEAD fizzbot.c  
$ git checkout -- fizzbot.c
```

repository

staging area

working directory

fizzbot.c

Makefile

The Index

```
$ git diff
$ git add fizzbot.c
$ git diff --cached
```

repository

staging area

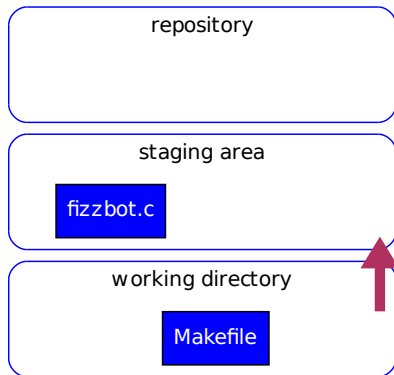
working directory

fizzbot.c

Makefile

The Index

```
$ git diff  
$ git add fizzbot.c  
$ git diff --cached
```



The Index

```
#include <stdio.h>
int main(int argc, const char *argv[])
{
    return 0;
}
```

The Index

```
#include <stdio.h>
// This file is licensed under the BSD license

int main(int argc, const char *argv[])
{
    printf("hello world\n");
    return 0;
}
```

The Index

```
$ git add --patch fizzbot.c
@@ -1,4 +1,6 @@
#include <stdio.h>
+// This file is licensed under the BSD license
+
int main(int argc, const char *argv[])
{
Stage this hunk [y,n,q,a,d,/,j,J,g,e,?]? y
```

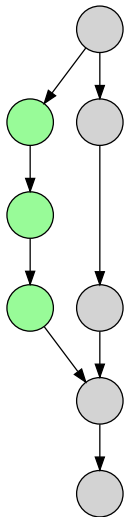
The Index

```
@@ -3,5 +5,5 @@
int main(int argc, const char *argv[])
{
-
+     printf("hello world\n");
    return 0;
}
Stage this hunk [y,n,q,a,d,/,K,g,e,]? n
```

The Index

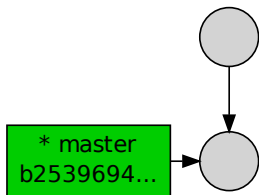
```
$ git status
# On branch master
# Changes to be committed:
# (use "git reset HEAD <file>..." to unstage)
#
#       modified:   fizzbot.c
#
# Changes not staged for commit:
# (use "git add <file>..." to update what will be
committed)
# (use "git checkout - <file>..." to discard changes
in working directory)
#
#       modified:   fizzbot.c
#
```

Branching



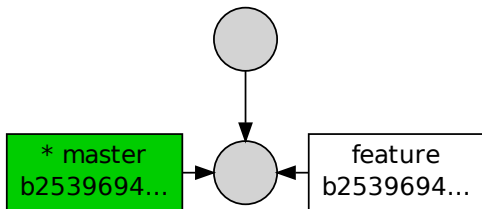
Branching

```
$ git branch
* master
$ git branch feature
$ git branch
feature
* master
```



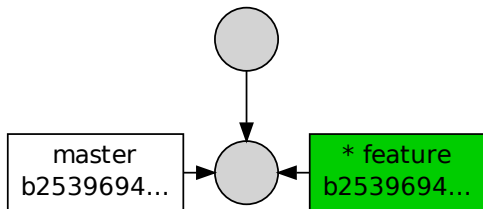
Branching

```
$ git branch
* master
$ git branch feature
$ git branch
feature
* master
```



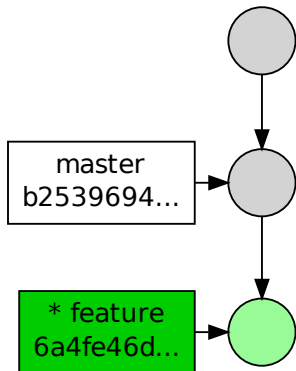
Branching

```
$ git checkout feature
* feature
master
$ git add fizzbot.c
$ git commit -m "new"
```



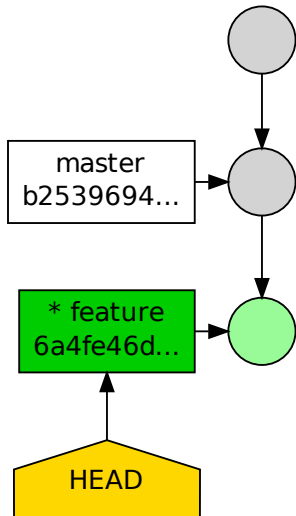
Branching

```
$ git checkout feature
* feature
master
$ git add fizzbot.c
$ git commit -m "new"
```



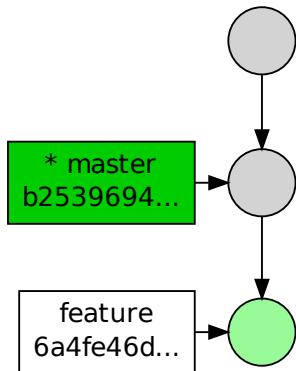
Branching

```
$ git checkout feature
* feature
  master
$ git add fizzbot.c
$ git commit -m "new"
```



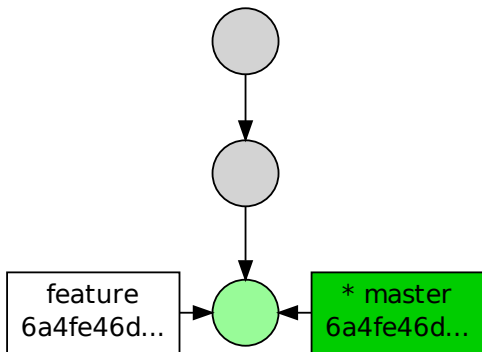
Merging - Fast Forward

```
$ git checkout master  
feature  
* master  
$ git merge feature
```



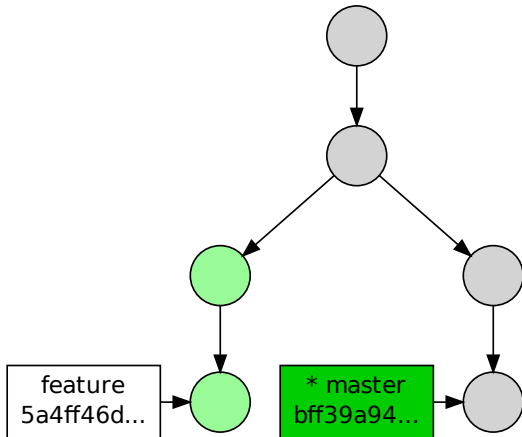
Merging - Fast Forward

```
$ git checkout master  
feature  
* master  
$ git merge feature
```



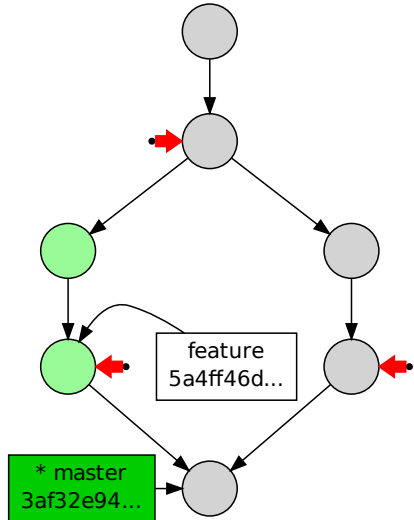
Merging - Normal

```
$ git checkout master  
feature  
* master  
$ git merge feature
```



Merging - Normal

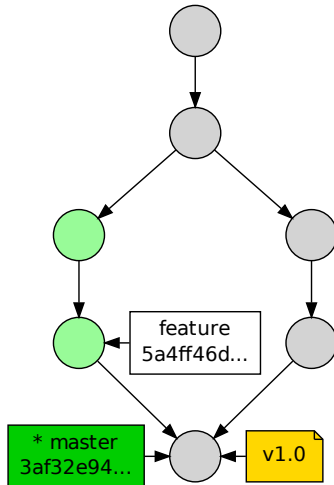
```
$ git checkout master  
feature  
* master  
$ git merge feature
```



Tagging

```
$ git tag v1.0
```

```
$ git tag -a -s v1.0
```



Clone

```
$ git clone git://github.com/progit/progit.git progit
Cloning into 'progit'...
remote: Counting objects: 12003, done.
remote: Compressing objects: 100% (3587/3587), done.
remote: Total 12003 (delta 6569), reused 11655 (delta
6265)
Receiving objects: 100% (12003/12003), 12.24 MiB |
599 KiB/s, done.
Resolving deltas: 100% (6569/6569), done.
```

Remotes

```
$ git remote show origin
* remote origin
Fetch URL: git://github.com/progit/progit.git
Push URL: git://github.com/progit/progit.git
HEAD branch: master
Remote branch:
  master tracked
Local branch configured for 'git pull':
  master merges with remote master
Local ref configured for 'git push':
  master pushes to master (up to date)
```

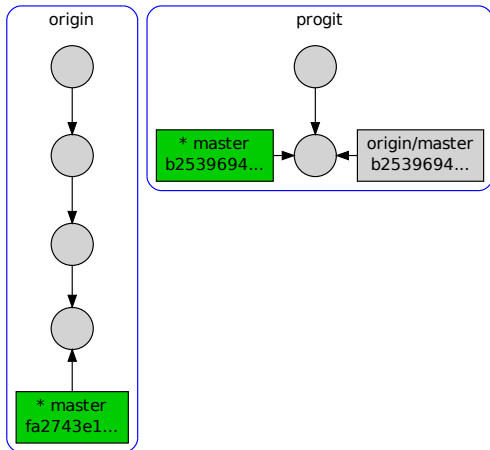
Fetch / Pull / Push

```
$ git fetch origin master
```

```
$ git merge
```

_____ +

```
$ git pull origin master
```



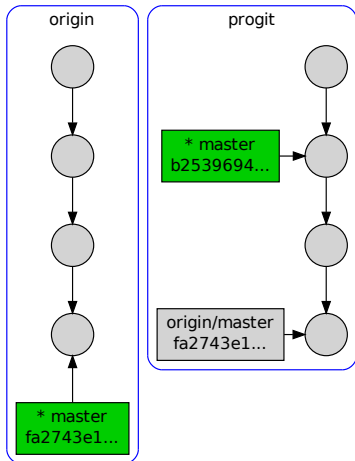
Fetch / Pull / Push

```
$ git fetch origin master
```

```
$ git merge
```

```
_____ +
```

```
$ git pull origin master
```



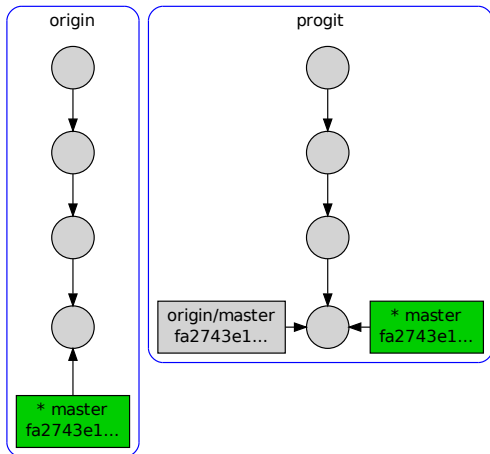
Fetch / Pull / Push

```
$ git fetch origin master
```

```
$ git merge
```

+

```
$ git pull origin master
```



Remote Branches

```
$ git checkout -b newbranch  
$ git push origin newbranch:remote-newbranch  
$ git push origin :remote-newbranch
```


Remote Branches

```
$ git checkout -b newbranch  
$ git push origin newbranch:remote-newbranch  
$ git push origin :remote-newbranch
```

Remote Branches

```
$ git checkout -b newbranch origin/remote-newbranch  
$ git remote prune origin
```

Remote Branches

```
$ git checkout -b newbranch origin/remote-newbranch  
$ git remote prune origin
```