GIT Workflow
and its commands ...

Remember: git command --help

Global Git configuration is stored in $HOME/.gitconfig (git config --help)

Commands Sequence

The curves indicate that the command on the right is usually executed after the command on the left. This gives an idea of the flow of commands someone usually does with GIT.

CREATE	BROWSE	CHANGE	REVERT	UPDATE	BRANCH	COMMIT	PUBLISH
init clone	status log show diff branch		reset checkout revert	pull fetch merge am	checkout branch	commit	push format-patch

For more Information
http://sunoano.name

Create

From existing data
cd ~/projects/myproject
git init
git add .

From existing repo
git clone ~/existing/repo ~/new/repo
git clone git://host.org/project.git
git clone ssh://you@host.org/proj.git

Show

Files changed in working directory
git status

Changes to tracked files
git diff

What changed between $ID1 and $ID2
git diff $id1 $id2

History of changes
git log

History of changes for file with diffs
git log -p $file $dir/ec/tory/

Who changed what and when in a file
git blame $file

A commit identified by $ID
git show $id

A specific file from a specific $ID
git show $id:$file

All local branches
git branch
(star '*' marks the current branch)

Notation
$id : notation used in this sheet to represent either a commit id, branch or a tag name
$file : arbitrary file name
$branch : arbitrary branch name

Concepts

Git Basics

master : default development branch
origin : default upstream repository
HEAD   : current branch
HEAD^   : parent of HEAD
HEAD~4 : the great-great grandparent of HEAD

Revert

Return to the last committed state
git reset --hard
⚠ you cannot undo a hard reset

Revert the last commit
git revert HEAD   Creates a new commit

Revert specific commit
git revert $id   Creates a new commit

Fix the last commit
git commit -a --amend
(after editing the broken files)

Checkout the $id version of a file
git checkout $id $file

Branch

Switch to the $id branch
git checkout $id

Merge branch1 into branch2
git checkout $branch2
git merge branch1

Create branch named $branch based on the HEAD
git branch $branch
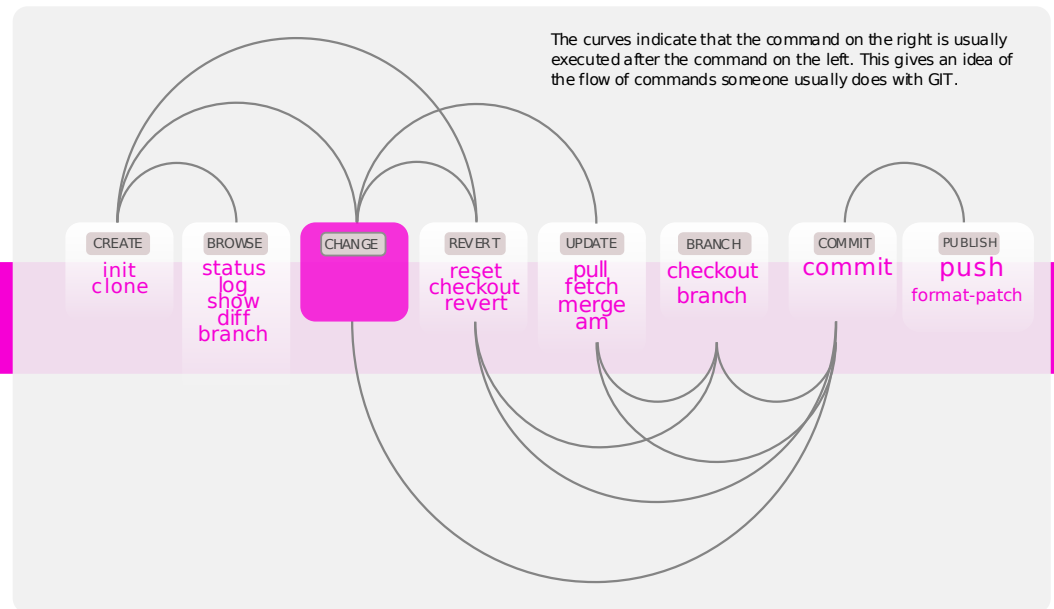
Create branch $new_branch based on branch $other and switch to it
git checkout -b $new_branch $other

Delete branch $branch
git branch -d $branch

Update

Fetch latest changes from origin
git fetch
(but this does not merge them).

Pull latest changes from origin
git pull
(does a fetch followed by a merge)

Apply a patch that some sent you
git am -3 patch.mbox
(in case of a conflict, resolve and use git am --resolved)

Publish

Commit all your local changes
git commit -a

Prepare a patch for other developers
git format-patch origin

Push changes to origin
git push

Mark a version / milestone
git tag v1.0

Useful Commands

Finding regressions
git bisect start   (to start)
git bisect good $id   ($id is the last working version)
git bisect bad $id   ($id is a broken version)

git bisect bad/good   (to mark it as bad or good)
git bisect visualize   (to launch gitk and mark it)
git bisect reset   (once you're done)

Check for errors and cleanup repository
git fsck
git gc --prune

Search working directory for foo()
git grep "foo()"

Resolve Merge Conflicts

To view the merge conclicts
git diff   (complete conflict diff)
git diff --base $file   (against base file)
git diff --ours $file   (against your changes)
git diff --theirs $file (against other changes)

To discard conflicting patch
git reset --hard
git rebase --skip

After resolving conflicts, merge with
git add $conflicting_file   (do for all resolved files)
git rebase --continue