Git: Remotes, Branching, and Rebasing

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SendOutCards

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Remotes

Viewing remotes

```
% git remote -v
origin  git+ssh://git@git.myremote.com/myrepo
```

Adding remotes

On a remote machine:

```
git init --bare ~/myrepo.git
```

Then add the new remote:

```
git remote add myremote git+ssh://myhost/myrepo
```

Mirroring a repo

```
git push --mirror myremote
```

Remote branches

```
git branch -r
```

Remote-tracking branches

Create a new branch that tracks the remote:

```
git checkout --track origin/somebranch
```

Or for existing branches:

```
git branch --set-upstream somebranch\
    origin/somebranch
```

Or for new branches:

```
git push -u origin mynewbranch
```

Remote-tracking shorthand

```
git rev-parse --short @{upstream}
git rev-parse --short @{u}
```

Viewing differences with upstream

Overview:

```
git status
```

Incoming changesets:

```
git log --oneline --decorate ..@{u}
```

Outgoing changesets:

```
git log --oneline --decorate @{u}..
```

All local branches:

```
git branch -v
```

Viewing differences in your prompt

```
wget https://raw.github.com/git/git/master/\
    contrib/completion/git-completion.bash
```

Add this to your `~/.bashrc`:

```
source ~/path/to/git-completion.bash
GIT_PS1_SHOWUPSTREAM="verbose" # or "auto"
```

Add `$(__git_ps1 " (%s)")` to your `PS1`:

```
PS1='\u@\h:\W$(__git_ps1 " (%s)")\$ '
```

git pull considered harmful

```
git fetch
git merge @{u}
```

Or:

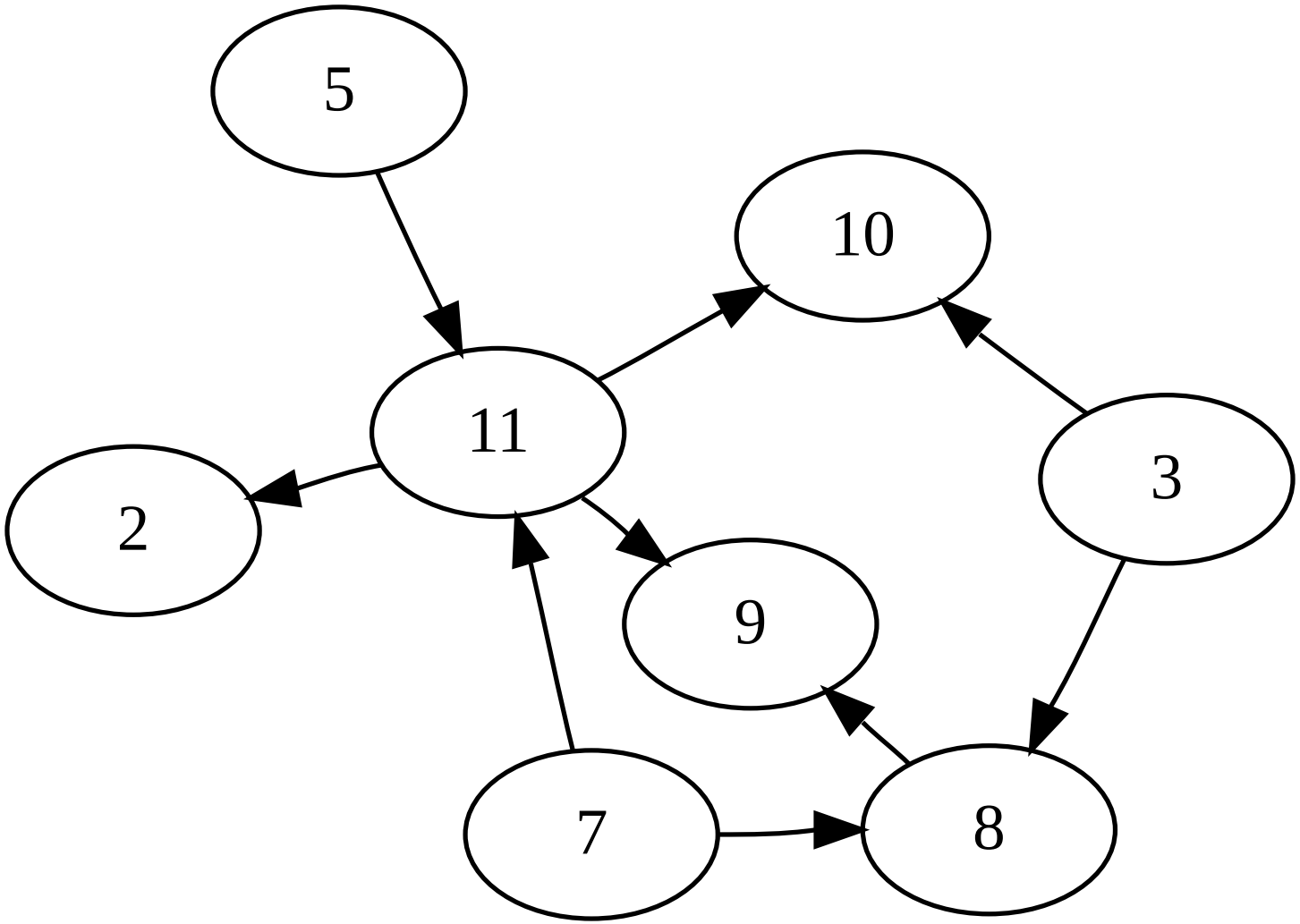
```
git fetch
git rebase @{u}
```

Or:

```
git fetch
git reset --hard @{u}
```

Branching

The DAG



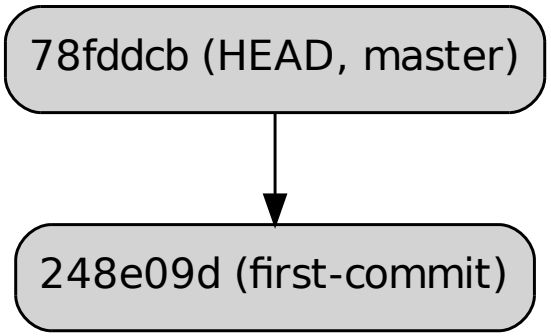
refs/heads

```
% cat .git/refs/heads/master
6bf4e7278d0cd3301ac40874d6aca6636c21975d
```

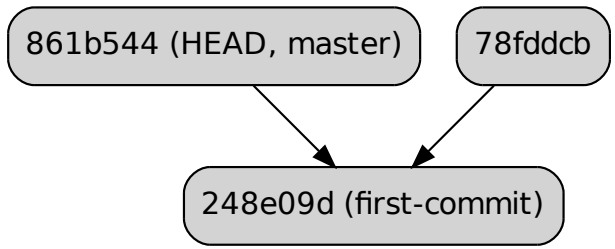
Rebasing

commit --amend

```
touch A && git add A
git commit -m "Added A"
git tag first-commit
touch B && git add B
git commit -m "Added B"
```



```
git commit --amend \
    -m "Added B and stuff"
```



Interactive

```
% git status -s -b
## mybranch...origin/develop [ahead 7]
% git rebase -i @{u} # or git rebase -i HEAD~7
```

Upstream

```
git fetch
git rebase @{u}
```

rebase --onto

```
git rebase --onto newbranch oldbranch branchname
```

reset --soft

1. Moves the ref `HEAD` points to.

reset [--mixed]

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reset [--mixed]

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2. Updates the index to match `HEAD`.

reset --hard

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reset --hard

1. Moves the ref `HEAD` points to.
2. Updates the index to match `HEAD`.

reset --hard

1. Moves the ref `HEAD` points to.
2. Updates the index to match `HEAD`.
3. Updates the working directory to match `HEAD`.

The reflog

```
git reflog --date=relative
```

Garbage collection

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  - reflog entries are pruned after 90 days.