Tip of the Week

Tuesday, October 7th, 2014

October 21, 2014

Source Code Revision Control

Why?

In general:

- Document what changed

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- Collaborative work
- Permanent history of versions facilitates comparisons

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- Enables regression testing
- Helps fix bugs faster
- Easier than changelogs + diffs

Semantic Versioning

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- See `http://semver.org/`

Change Documentation

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- No information on what changed where and how

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3 yatsm/line_yatsm.py View

```
@@ -305,7 +305,8 @@ def run_pixel(X, Y, dataset_config, yatsm_config, px=0, py=0):
305 305             raise TSLengthException('Not enough valid observations')
306 306
307 307         # Otherwise continue
308     -       clear = Y[mask_band, :] <= 1
    308 +       clear = np.logical_and(Y[mask_band, :] <= 1,
    309 +                              np.all(Y <= 10000, axis=0))
309 310         Y = Y[:mask_band, clear]
310 311         X = X[clear, :]
311 312
```

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Version Control Systems (VCS)

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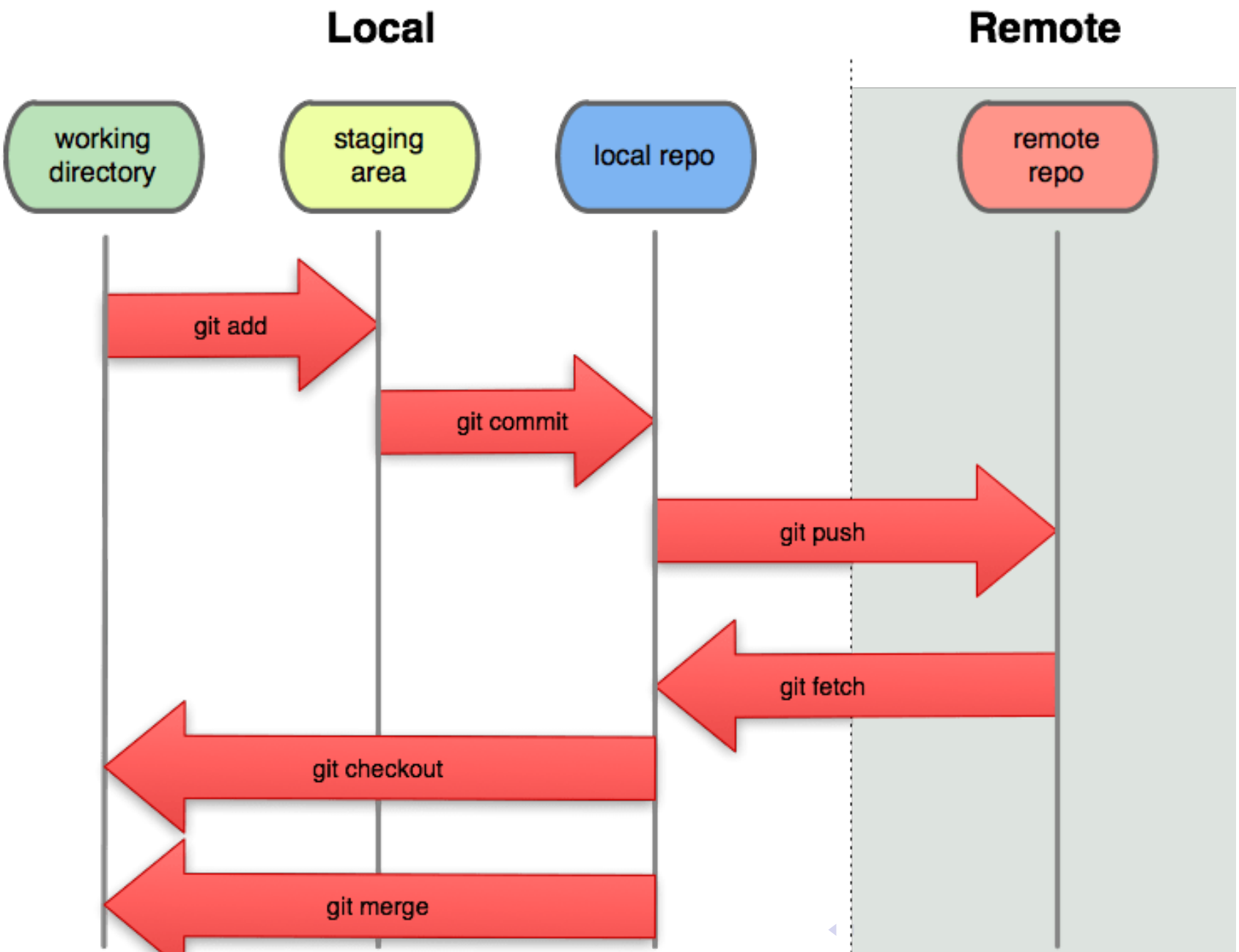
- Many, many more (please don't use CVS)

Concept:


Local
Remote
working directory
staging area
local repo
remote repo
git add
git commit
git push
git fetch
git checkout
git merge

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- **Push**: send your local history to the repository, enabling it to be shared by others
- **Pull** or **Update**: bring changes from the remote repository into your local working copy

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- Getting started takes ~5 commands

Clone

```
> git clone https://github.com/try-git/try_git.git
Cloning into 'try_git'...
warning: You appear to have cloned an empty repository.
Checking connectivity... done.
> cd try_git/
```

Add

```
> echo "some work" > my_file.txt
> git add my_file.txt
```

Status

```
> git status
On branch master

Initial commit

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)

    new file:   my_file.txt
```

Commit

```
> git commit -m "I did some work. Wow!"
 1 file changed, 1 insertion(+)
 create mode 100644 my_file.txt
```

Log

```
> git log
commit 9e0e514d7b54e45d2d8667472376d125939a780a
Author: Chris Holden <ceholden@gmail.com>
Date:   Sun Oct 5 19:23:53 2014 -0400

    I did some work. Wow!
```

Push

```
> git push origin master
```

Git on SCC/GEO

HTTPS

Because of some network firewall reasons, we cannot `pull` or `push` using HTTPS.

SSH

Instead we have to use SSH:

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- Full details: `https://help.github.com/categories/ssh/`

Resources:

Accounts

Github for education (free private repos for students):
`https://education.github.com/`

Tutorials

- `https://try.github.io/` (AMAZING!)

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- http://www.software-carpentry.org/v5/novice/git/index.html