

## Tip of the Week

Tuesday, October 7th, 2014

October 13, 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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- ▶ Synchronize your work across computers
- ▶ Enables regression testing
- ▶ Helps fix bugs faster
- ▶ Easier than changelogs + diffs

# Semantic Versioning

## Example:

QGIS versions 1.8.0, 2.0.0, 2.0.1, and 2.4.0

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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):
    raise TSLengthException('Not enough valid observations')
305 305
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
```

# Version Control Systems (VCS)

# Examples:

► Git

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- ▶ Subversion (SVN)

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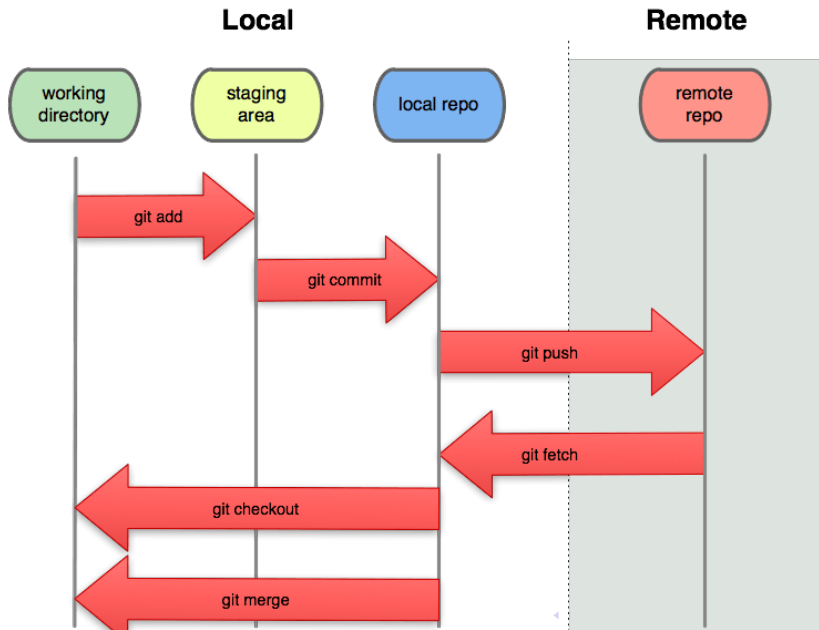
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- ▶ Mercurial (hg)

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- ▶ Git
- ▶ Subversion (SVN)
- ▶ Mercurial (hg)
- ▶ Many, many more (please don't use CVS)



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- ▶ **Commit**: write your changes in your local history, including how the code changed (diff) and why (changelog)
- ▶ **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

Git

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- ▶ A very popular Distributed Version Control System used extensively in open source software (e.g., Linux kernel).
- ▶ 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
```

```
> 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.

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- ▶ Switch your remote URL to the SSH link
- ▶ Full details: <https://help.github.com/categories/ssh/>

Resources:

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

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- ▶ [https://help.github.com/articles/](https://help.github.com/articles/what-are-other-good-resources-for-learning-git-and-git-)  
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# Tutorials

- ▶ <https://try.github.io/> (AMAZING!)
- ▶ <https://help.github.com/articles/what-are-other-good-resources-for-learning-git-and-git-tools/>
- ▶ <https://help.github.com/articles/set-up-git/>

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- ▶ <https://help.github.com/articles/set-up-git/>
- ▶ [http://www.software-carpentry.org/v5/novice/git/  
index.html](http://www.software-carpentry.org/v5/novice/git/index.html)