



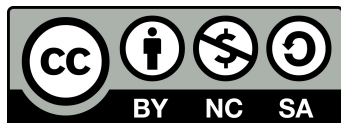
Global Information Tracker (git)

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Agenda

- Software Version Control
- Everyday git commands
- Online git repositories

Software Version Control

Software Configuration Management (1/3)

- A software project typically contains multiple files (source code, build scripts, configuration files)
- Developers share the code periodically after every small incremental code change so as to let tester work on it sooner.
- Testers add new test-cases/test-scripts for the incremental code added by developers and share back the test-scripts to developers to ensure the new changes dont break existing features.
- Sharing of code/test-scripts happens via system viz., Software Configuration Management (SCM)

Software Configuration Management (2/3)

- Historically (20th century), a tool called concurrent versioning system (CVS) was used.
- CVS contains a server which keeps track of versioning of each file.
- To commit files, CVS requires client to be hooked to the Internet.
- CVS works only for small teams and when changes are less frequent.
- But with the open-source revolution (thousands of engineers), CVS could not scale

Software Configuration Management (3/3)

- Linux Torvalds developed a distributed SCM tool viz., GIT during his vacation to address issues in CVS.
- Git uses commit hashes instead of versions to keep track of changes to each file.
- To commit files, git does not require the client to be hooked to the Internet. This helps developer/tester in check-pointing incremental progress. Once all changes are done for a feature, batches of commits can be pushed to an online repository.
- Git works quite well for open-source communities geographically located apart.

Everyday git

git setup

- Secure keys (ssh key pair) are used to

One time setup

```
$ git config --global user.email "<email-id>"  
$ git config --global user.name "<name>"  
$ git config --global push.default matching
```

Cloning (downloading)

```
$ git clone <remote_repo_url>
```

git commands (1/3)

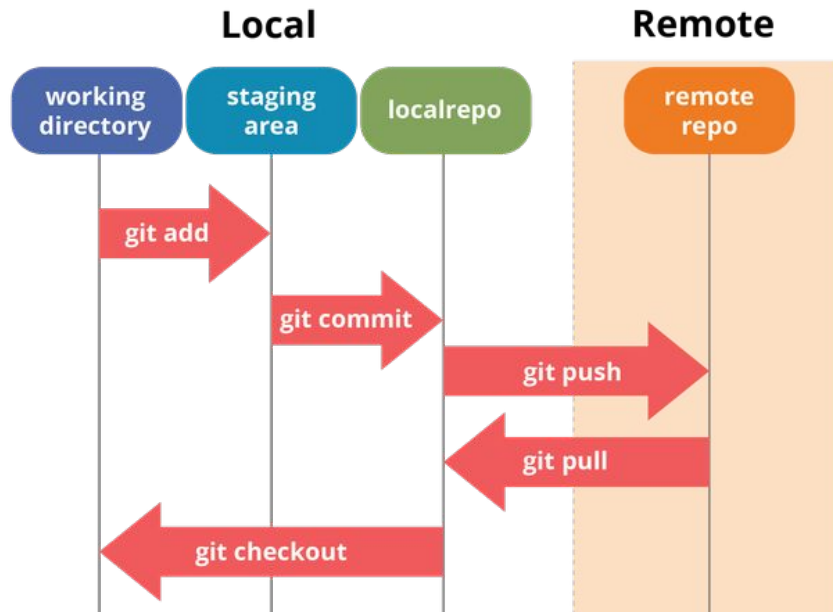
- A distributed source code version control system

One time setup

```
$ git config --global user.email "<email-id>"  
$ git config --global user.name "<name>"  
$ git config --global push.default matching
```

Cloning (downloading)

```
$ git clone <remote_repo_url>
```



git commands (2/3)

Pulling (downloading)

```
$ cd <localrepo>  
$ git pull
```

List modified files

```
$ git status -s
```

See changes

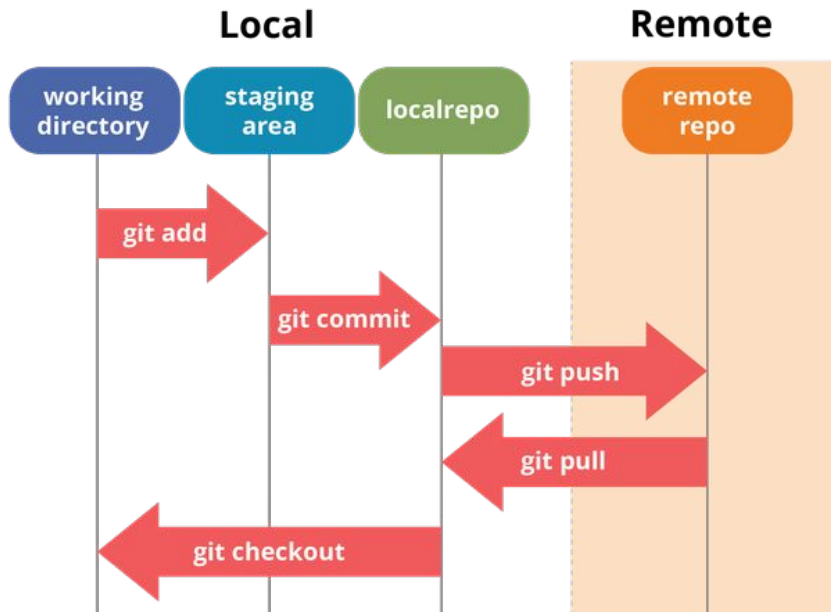
```
$ git diff  
$ git diff --staged
```

Committing code changes

```
$ git add <file_or_directory>  
$ git commit -m "<comment>" <file_or_directory>
```

Pushing (uploading)

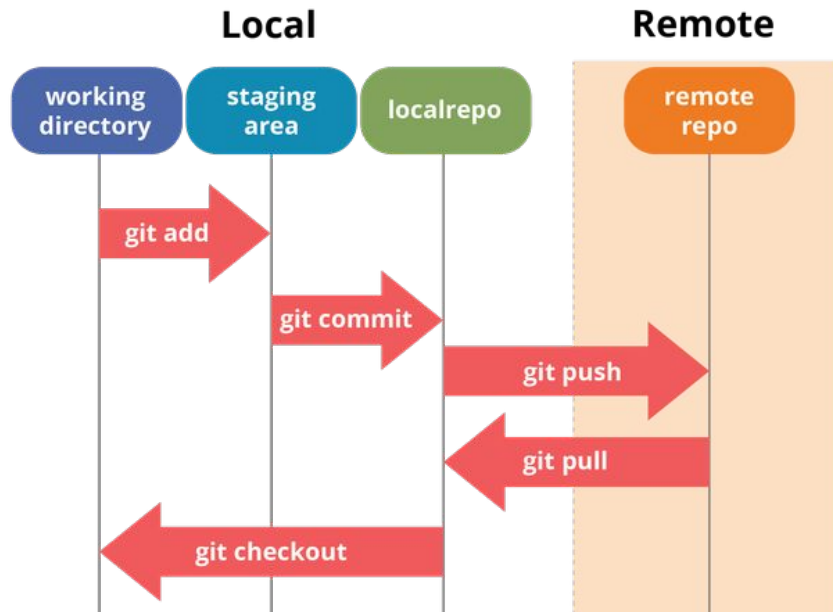
```
$ git push
```



git commands (3/3)

Undo local code changes [uncommitted]

```
$ git checkout <file_or_directory>
```



Online git repositories

Online git repositories

- Git Hub (www.github.com)
- Bitbucket (www.bitbucket.org)
- Gitlab (www.gitlab.com)

Q & A