

Source Code Management (SCM) or Version Control System(VCS)

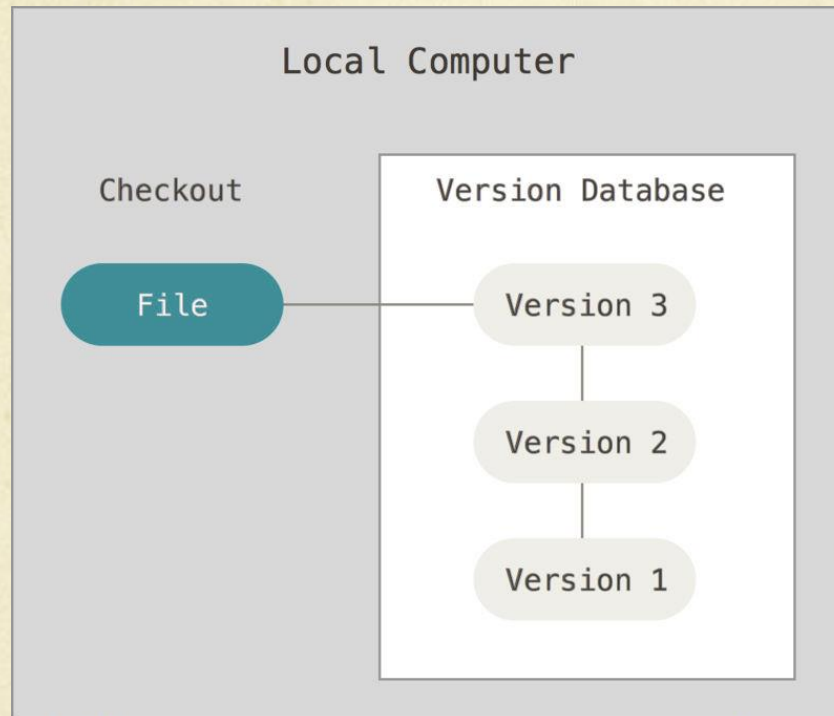
<https://www.atlassian.com/git/tutorials/what-is-version-control>

<https://git-scm.com/book/en/v2/Getting-Started-About-Version-Control>

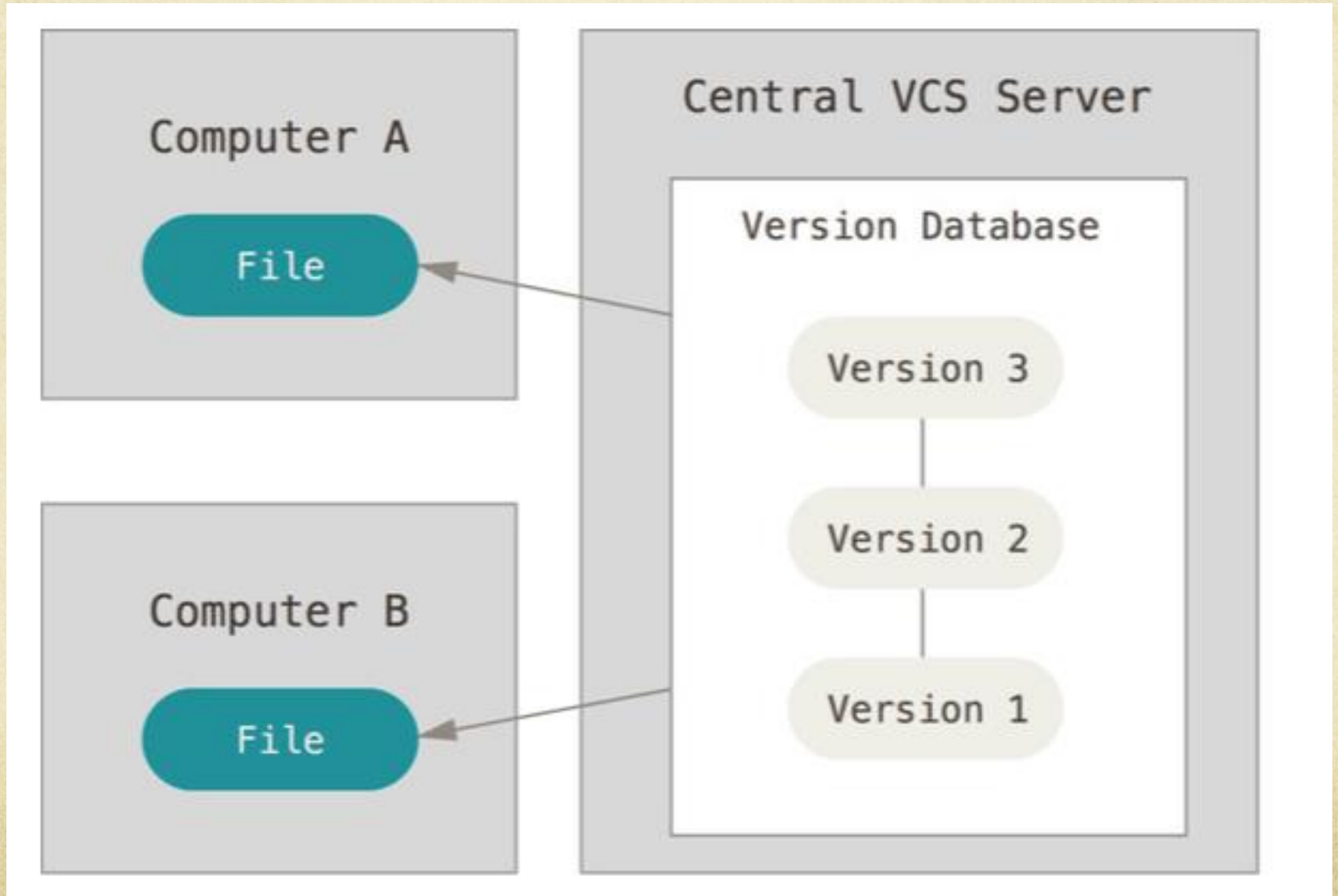
SCM or VCS Software

- Source Code Management or Version Control System or Revision Control System are all the various terms used.
- Keep track of changes over time to revert to an older version if necessary
- Collaborate on projects with team members
- Revision History
- Can use multiple computers to access your code.
- Lots of software available out there – Git, CVS, Subversion, etc.
- Create branches and merge the branches with the trunk
- We will focus on Git in this course

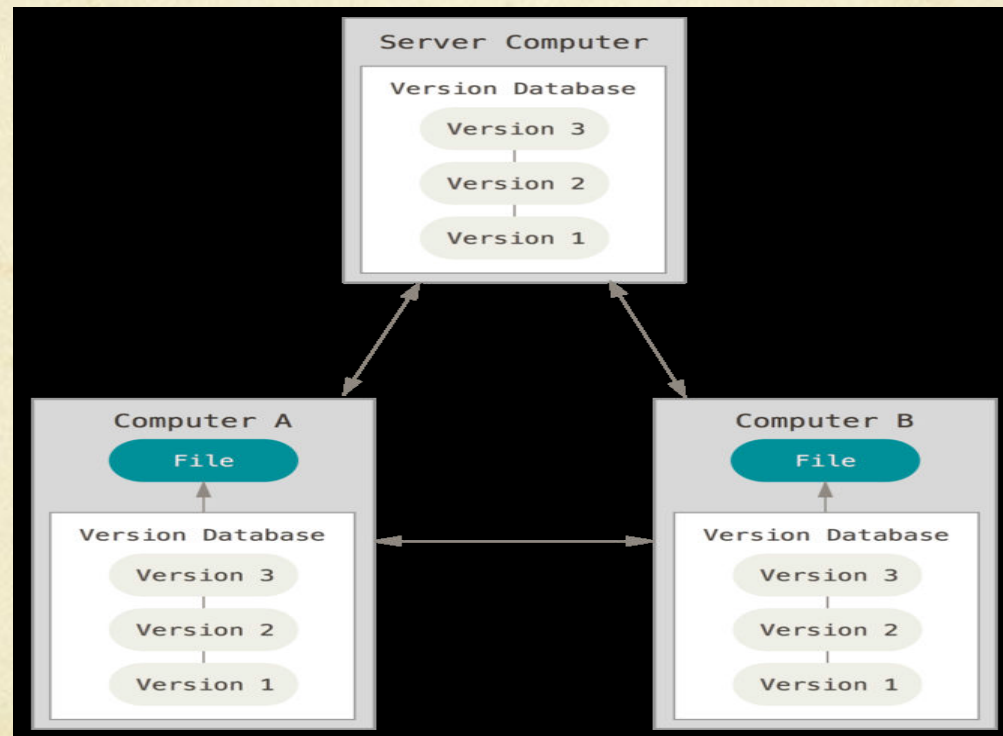
Local version control



Centralized version control - Subversion, CVS



Distributed VCS (Git, Mercurial, etc.)

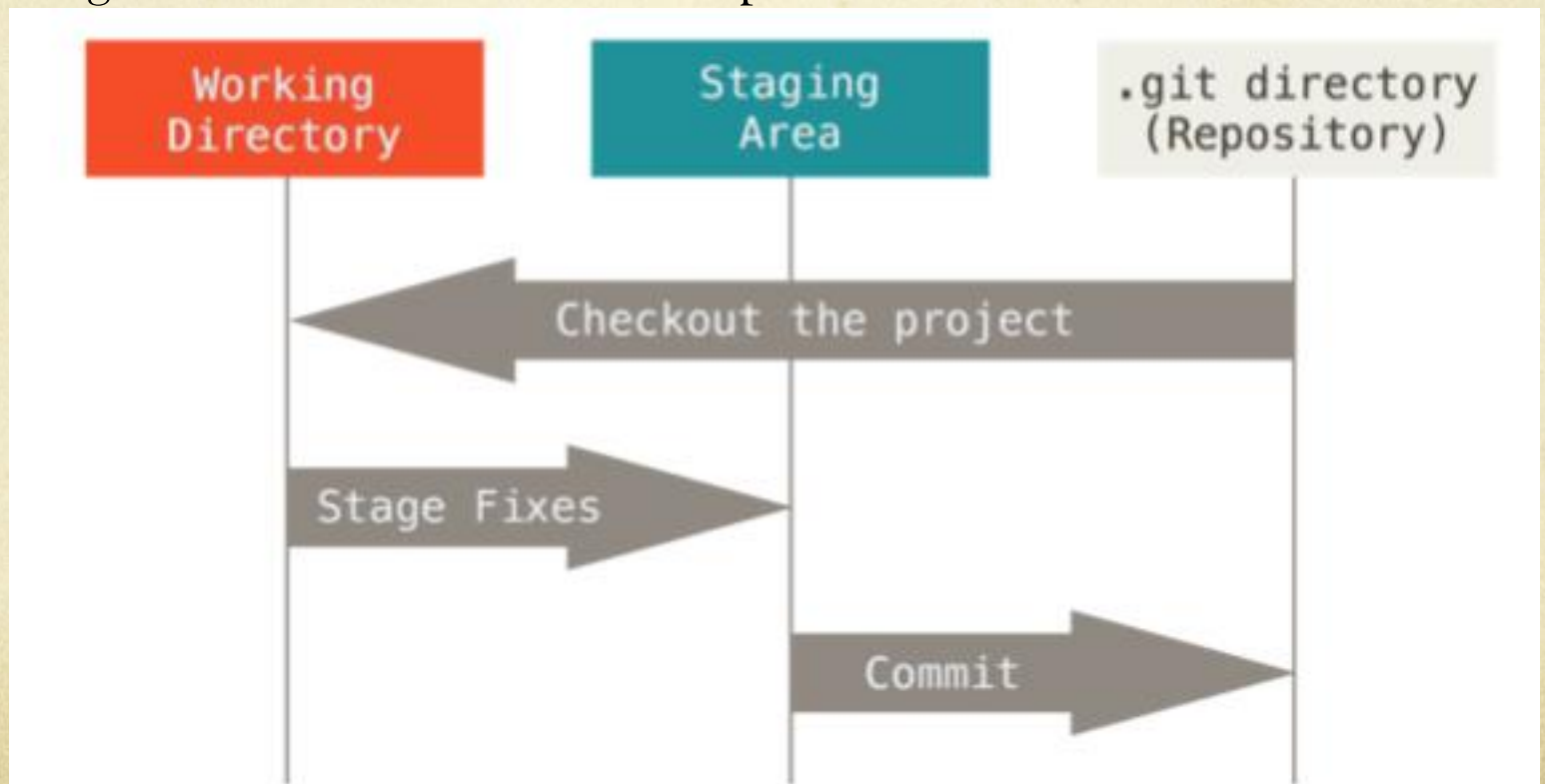


How Git Works

- Every clone is really a full backup of all the data.
- Snapshots of data is kept.
- Stores as check-sums which means that any change is detected.
- Every operation is local
- Can be setup command line and all changes can be made through command line

Three main states

- Modified → Changed but not committed
- Committed → Stored safely in local
- Staged → Marked as modified file in this current version to go into the next commit snapshot.



Git commands

- git config (once per machine)
- git init (once per project)
- git add – To add files to be versioned
- git commit – To commit to the staging directory
- git push – To push the changes to the remote server
- git status – To look at tracked or untracked changes
- git clone – To get a copy of a project from remote server

Git commands (cont..)

- `git diff` – To see changes since the last commit (snapshot)
- `git rm` – To remove files from staging
- `git mv` – To rename files
- `git log` – To view commit logs.

Branches

- git fetch
- git checkout <branch>
- Use the server to create a pull request
- The admin can choose to merge the branch into the master.

Options from the Web

- Forking a repository
 - Allows you to make a copy and contribute by using a pull request.
- Cloning a repository
 - Make a local copy
- Pull Request
 - You must commit changes and send a pull request to the master contributor.
- Merge Request
 - The original owner can merge the request and it becomes part of the master.