An Introduction to Subversion

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   - How to get Subversion?
2. Concepts
   - Centralized version control
   - Repository structure
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Features of Subversion

- It's a version control system
- Uses a centralized model:
  - Server-client approach
  - Version merging
  - With wireless connections everywhere, it's rarely a limitation
- Easy to learn (but slower than Git)
- It's free

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- If you are using Linux . . . use the terminal!

Subversion on Cornell servers

- CISER
- ECCO
- Quick reference guide at `http://www2.vrdc.cornell.edu/news/documentation/subversion/`

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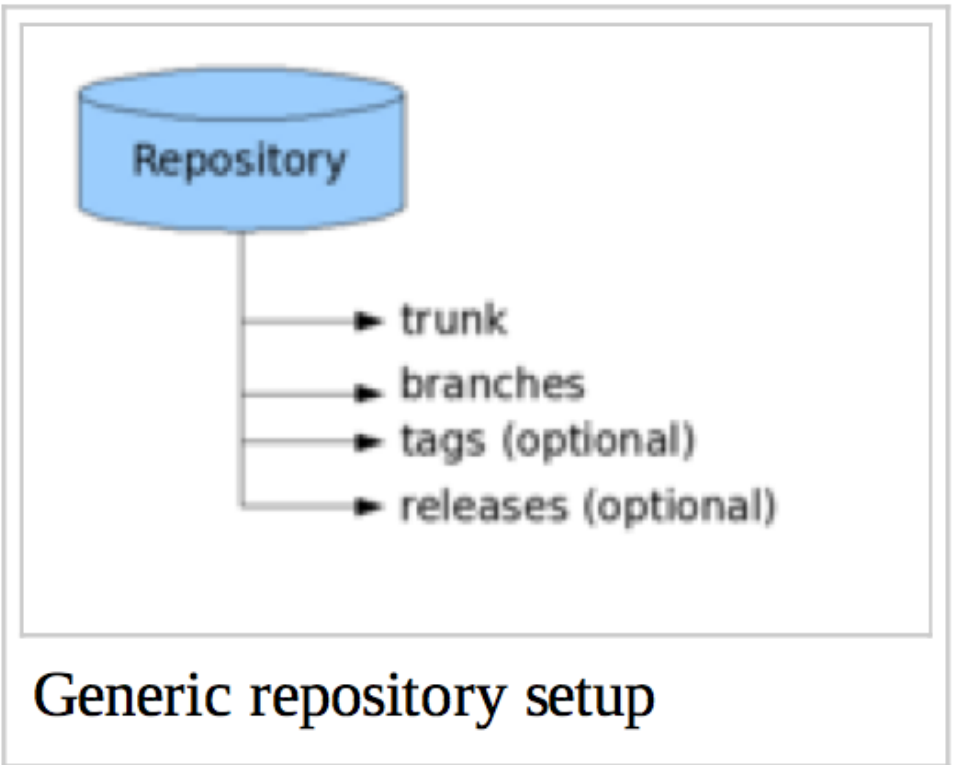
- Server-client approach
  - The repository is located in the server
  - No version control over local copies
- Version merging:
  - Multiple editors can check out any given file
  - Discrepancies are handled upon commit

Generic setup

- Trunk: contains all the clean code
- Branches: where all initial work occurs
- Tags and releases (optional)



Generic repository setup

Where to create a repository?

- TeamForge:
  - Create an account at `https://forge.cornell.edu`
  - Follow the instructions at `http://www.it.cornell.edu/services/subversion/howto/index.cfm`

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- GitHub at `https://github.com/`
- Use *svnserve* as a lightweight custom server

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- Instead, check out a local copy of the repository (or of its subelements)
- Make changes to the local copy
  - Important: use Subversion commands to move and rename files, so that every change is registered
- Commit the changes back into the repository
  - Add a commit (log) message
  - Every commit is registered with a revision number

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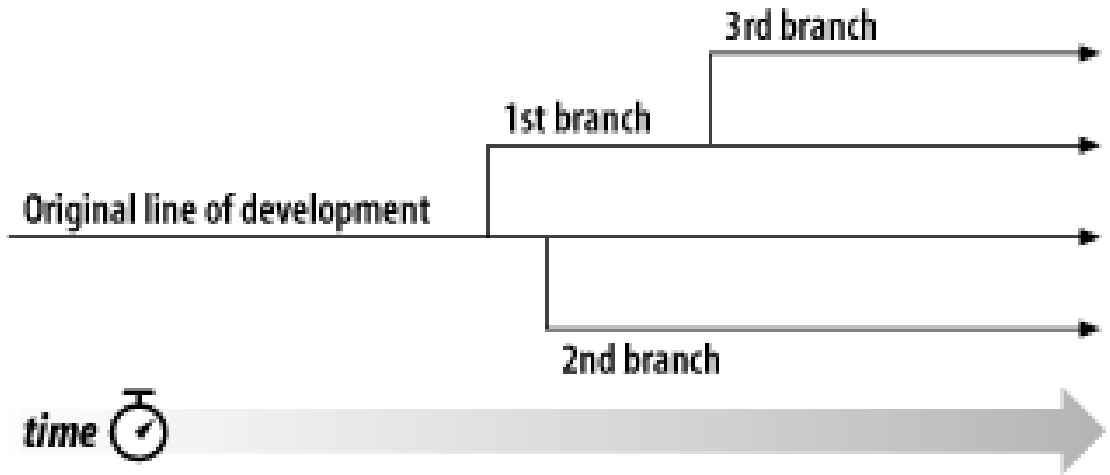
Local copy

- Note: direct changes to the repository are immediately applied . . . while changes to the local copy are applied to the repository upon commit
- Hence, commit frequently!

Branches

A branch is a line of development that exists independently of another line, yet still shares a common history if you look far enough back in time.

It begins life as a copy of something, and moves on from there, generating its own history.



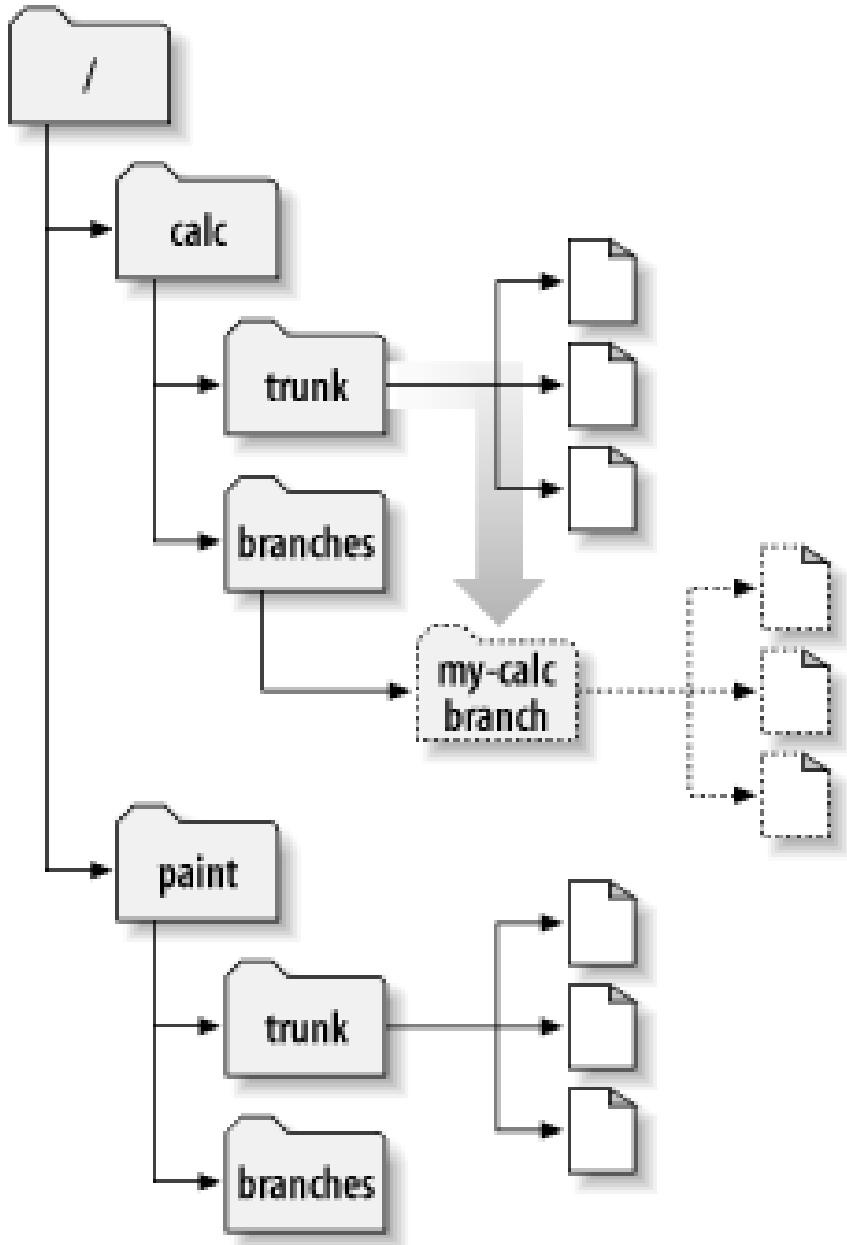
Creating a branch

Make a copy of (a part of) your project tree in the repository using the svn copy command.

The copy may live wherever you wish. Usually, in a folder named **branches**.

Note: you can do a remote copy — a copy that immediately results in a newly committed repository revision — no working copy is required! Just copy one URL to another.

Cheap copies: when you copy a directory, you don't need to worry about duplicating the size, since SVN doesn't actually duplicate any data. Instead, it creates a new directory entry that points to an existing tree.


/
calc
trunk
branches
my-calc
branch
paint
trunk
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The terminal

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- Advantages:
  - Flexibility
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- Every command must be preceded by *svn*

```
server> svn co repository:trunk /programs/production/prod/current
```

Your best friend

- The most important command is ...

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- Calling *svn help* alone will print a summary of the commands and their usage
- Calling *svn help* followed by the name of a command will print a short description of the command and its options
- Options are often useful (and sometimes necessary), but it's hard to remember them all: use *help*!

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   - Command: *revert* (non committed)
   - Undoing commits: *svn merge -r REVnew:REVold file; svn commit*

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6. Publish changes
   - Command: *ci* (commit)

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