<https://www.bitdegree.org/learn/git> -- highly recommended.

# Install Git

Git is a free and open-source distributed version control system. Get Git from [git-scm.com/](http://git-scm.com/). The Download button for the latest source release automatically selects Windows or [macOS](http://git-scm.com/download/mac). Take the defaults during installation with the possible exception of the default editor.

|  |  |
| --- | --- |
| To launch git:  Windows-Key, “git”, then select Git Bash.  This is an emulated Linux / Unix (\*nix) environment.  Git GUI is available but making it work takes more effort than using the Bash shell. |  |
| Running Git Bash results in a \*nix emulated terminal window.  Enter git to verify the installation.  In your project folder containing source files, create a Shortcut to save time.  Target: "C:\Program Files\Git\git-bash.exe"  Start in *example*: "%USERPROFILE%\Documents\Seneca\CP4P Final Project" |  |

In the Bash shell, do not use the back slash \ as a folder separator in a path; use the forward slash / as if in \*nix. Bash interprets \ as the escape char for special characters, e.g. \$. Avoid special characters in folder and file names – it will make life at the command line easier.

At the $ prompt in the Bash git shell

* Git commands are preceded with "git"
* \*nix commands like cd or ls can be entered normally
* use the Insert key to paste from clipboard instead of Ctrl-V ([see this](https://danlimerick.wordpress.com/2011/07/23/git-for-windows-tip-how-to-copy-and-paste-into-bash/))
* select text by click + drag with mouse
* copy selected text with right click or Enter key.
* Up or down arrow keys will recall commands from the stack

## Bash shell examples

$ cd "Documents/Seneca/CPR101 Final Project"

$ ls # list all files

$ git init # Create an empty Git repository in the current folder/directory

If you see Documents/Seneca/CPR101 Final Project**/.git: No such file or directory**  
allow git.exe to write to your drive in your anti-virus or malware protection software

The response should be   
 Initialized empty Git repository in Documents/Seneca/CPR101 Final Project/.git/

# Essential Git Commands

$ git **init** # Create an empty Git repository.

$ git **config** user.name *host\_userID*# at remote host for pull & push when working with shared repo

$ git **config** user.email *user\_email*# at remote host for pull & push when working with shared repo

$ git **add** *file\_name*[type first character(s) of filename and press TAB key for auto complete]

N.B. filenames should not include any version indication. Git merges and tracks the code differences within the same filename across committed versions.

git add . add all files

add a remote repository

$ git **remote add origin <URL’s ->**https://github.com/octocat/Spoon-Knife.git>

$ git **commit -m** *version\_name*# -m is message switch: use a unique name for each commit.

$ git **status -v** # files with changes to be committed   
 -v switch also shows source files' content differences:   
 lines + added, - deleted, -/+ changed. e.g.

diff --git a/converting.c b/converting.c  
index b493251..c815139 100644  
--- a/converting.c  
+++ b/converting.c  
@@ -1,4 +1,5 @@  
-// CONVERTING V2  
+// CONVERTING V2, changed this line to test git  
+// added this line to test git  
 #include "converting.h" !! there is no -/+ flag, line listed for context and location of -/+ changes within the source file.$ git **log** # summary of commits

To finish your git session:  
$ **exit**

To process the next version of source files:

* Make the changes to the same source filename. Comment, compile, write test cases, record test results.
* $ git **add** *file\_name*# adds the latest changes made to a source code file into the git repo.
* $ git **commit -m** *next\_version\_name*# e.g. if previous version was "V1", this will be "V2"
* To reset git and start again, delete the **.git** folder and see the commands above starting with **init**

# Additional Git Commands

$ git rm --cached file\_name   
 # removes a file from git repo, but not from the filesystem (source file remains)

$ git commit -m "removingfile\_name from repo only"# to commit the removal

$ git **ls-tree -r master** # lists files tracked in current branch named 'master'

$ git **log -p** # shows details of code changes between commits. Enter **q** to quit the list, **h** for help.

$ git branch -M origin # switch to a branch

$ git push origin <nameBrach> # push to an specified branch

$git pull #make changes locally done from github interface

See <https://www.git-tower.com/learn/git/ebook/en/command-line/advanced-topics/diffs/>   
<https://intellipaat.com/community/12299/how-to-exit-git-log-or-git-diff>

# File States

Diagram, timeline

Description automatically generated

Info in website

[Adding locally hosted code to GitHub - GitHub Docs](https://docs.github.com/en/get-started/importing-your-projects-to-github/importing-source-code-to-github/adding-locally-hosted-code-to-github)