



**JJ Tech**

# Distributed Version Control System: **GIT SCM**

**Ultimate Git Mastery** Runbook that teaches you everything you need to know to use Git like a professional.

- ✓ Learn & understand Git inside out
- ✓ Master the command line
- ✓ Version your code and confidently recover from mistakes
- ✓ Collaborate effectively with others using Git and GitHub
- ✓ Boost your career opportunities

+1 (410) 8887049

[contact@jjtechinc.co](mailto:contact@jjtechinc.co)

[www.jjtechinc.co](http://www.jjtechinc.co)

14103 Hammermill Field Dr Bowie MD 20720





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+1 (410) 8887049



[contact@jjtechinc.co](mailto:contact@jjtechinc.co)



[www.jjtechinc.co](http://www.jjtechinc.co)

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# Creating Git Snapshots

## Initialising a repository

git init

## Staging files

git add file1.js # Stages a single file

git add file1.js file2.js # Stages multiple files

git add \*.js # Stages with a pattern

git add . # Stages the current directory and all its content

## Viewing the status

git status # Full status

git status -s # Short status

## Committing the staged files

git commit -m "Message" # Commits with a one-line message

git commit # Opens the default editor to type a long message



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contact@jitechinc.co



www.jitechinc.co

14103 Hammermill Field Dr Bowie MD 20720



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### **Skipping the staging area**

`git commit -am "Message"`

### **Removing files**

`git rm file1.js` # Removes from working directory  
and staging area

`git rm --cached file1.js` # Removes from staging area only

### **Renaming or moving files**

`git mv file1.js file1.txt`

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contact@iitechinc.co



www.iitechinc.co

14103 Hammermill Field Dr Bowie MD 20720



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### Viewing the staged/unstaged changes

git diff	# Shows unstaged changes
git diff --staged	# Shows staged changes
git diff --cached	# Same as the above

### Viewing a commit

git show 921a2ff	# Shows the given commit
git show HEAD	# Shows the last commit
git show HEAD~2	# Two steps before the last commit
git show HEAD:file.js commit	# Shows the version of file.js stored in the last commit

### Unstaging files (undoing git add)

git revert "Commit ID"

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www.jjtechinc.co

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# Browsing History

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## Viewing the history

git log --stat # Shows the actual changes (patches)  
git log --patch # Shows the list of modified files

## Viewing the history

git log # Full history  
git log --oneline # Summary  
git log --reverse # Lists the commits from the oldest to the newest

## Filtering the history

git log -3 # Shows the last 3 entries

git log --author="Mosh"

git log

--befo

re="2

020-0

8-17"

git log

--after

= "one

week



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contact@iitechinc.co



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ago”

git log --grep="GUI"

# Commits with "GUI" in their message

git log -S"GUI"

# Commits with "GUI" in their patches

git log hash1..hash2

# Range of commits

git log file.txt

# Commits that touched file.txt

### **Formatting the log output**

git log --pretty=format:"%an committed %H"

### **Creating an alias**

git config --global alias.lg "log --oneline"

### **Viewing a commit**

git show HEAD~2

git show HEAD~2:file1.txt # Shows the version of file stored in this commit

### **Comparing commits**

git diff HEAD~2 HEAD # Shows the changes between two commits

git diff HEAD~2 HEAD file.txt # Changes to file.txt only



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contact@iitechinc.co



www.iitechinc.co

14103 Hammermill Field Dr Bowie MD 20720



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### Checking out a commit

git checkout dad47ed # Checks out the given commit

git checkout master # Checks out the master branch

### Finding a bad commit

git bisect start

git bisect bad #Marks the current commit as a bad commit

git bisect good ca49180 #Marks the given commit as a good commit

git bisect reset #Terminates the bisect session

### Finding contributors

git shortlog

### Viewing the history of a file

git log file.txt # Shows the commits that touched file.txt

git log --stat file.txt # Shows the number of changes for file.txt

git log --patch file.txt # Shows the patches (changes) applied to file.txt

### Tagging

git tag v1.0 # Tags the last commit as v1.0

git tag v1.0 5e7a828 # Tags an earlier commit

git tag # Lists all the tags

git tag -d v1.0 # Deletes the given tag



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# Branching & Merging

## Managing branches

git branch bugfix	# Creates a new branch called bugfix
git checkout bugfix	# Switches to the bugfix branch
git switch bugfix	# Same as the above
git switch -C bugfix	# Creates and switches
git branch -d bugfix	# Deletes the bugfix branch

## Comparing branches

git log master..bugfix	# Lists the commits in the bugfix
branch not in master	
git diff master..bugfix	# Shows the summary of changes

## Stashing

git stash push -m "New tax rules"	#Creates a new stash
git stash list	# Lists all the stashes
git stash show stash@{1}	# Shows the given stash
git stash show 1	# shortcut for stash@{1}
git stash apply 1	# Applies the given stash to the
working dir	
git stash drop 1	# Deletes the given stash



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git stash clear

# Deletes all the stashes

### Merging

git merge bugfix # Merges the bugfix branch into the current branch

git merge --no-ff bugfix # Creates a merge commit even if FF is

git merge --squash bugfix # Performs a squash merge

git merge --abort # Aborts the merge

### Viewing the merged branches

git branch --merged # Shows the merged branches

git branch --no-merged # Shows the unmerged branches

### Rebasing

git rebase master # Changes the base of the current branch

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# Collaboration

## Cloning a repository

git clone url

## Syncing with remotes

git fetch origin master	# Fetches master from origin
git fetch origin	# Fetches all objects from origin
git fetch	# Shortcut for “git fetch origin”
git pull	# Fetch + merge
git push origin master	# Pushes master to origin
git push	# Shortcut for “git push origin master”

## Sharing tags

git push origin v1.0	# Pushes tag v1.0 to origin
git push origin —delete v1.0	

## Sharing branches

git branch -r	# Shows remote tracking branches
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git branch -v

# Shows local & remote tracking branches

git push -u origin bugfix

# Pushes bugfix to origin

git push -d origin bugfix

# Removes bugfix from origin

### **Managing remotes**

git remote

# Shows remote repos

git remote add upstream url

# Adds a new remote called upstream

git remote rm upstream

# Removes upstream

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# Rewriting History

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## Undoing commits

`git reset --soft HEAD^` # Removes the last commit,  
keeps changed staged

`git reset --mixed HEAD^` # Unstages the changes as well

`git reset --hard HEAD^` # Discards local changes

## Reverting commits

`git revert 72856ea` # Reverts the given commit

`git revert HEAD~3...` # Reverts the last three commits

`git revert --no-commit HEAD~3..`

## Recovering lost commits

`git reflog` # Shows the history of HEAD

`git reflog show bugfix` # Shows the history of bugfix pointer

## Amending the last commit

`git commit --amend`

## Interactive rebasing

`git rebase -i HEAD~5`



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