



# Git into the Groove

Moving from Freelance to  
Collaborative Workflow

AmyJune Hinline

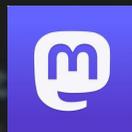
Certification Community Architect, Linux Foundation

# AmyJune Hineline

**Certification Community Architect  
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# What we'll discuss today

- ▶ Freelance versus Agency life
- ▶ Version control
  - Git
  - Git branches
  - Git commands
- ▶ Git clients
- ▶ Local environments





# Moving from Freelance to Agency



# Freedom!

Do you own thing!





# Wild, wild, west

You've been on your own awhile....





# Juggling all the roles

You've been on your own awhile...



# Agency Workflow

Working with others



# You're on a team!

Teamwork offers a diversity of  
thought and creativity.



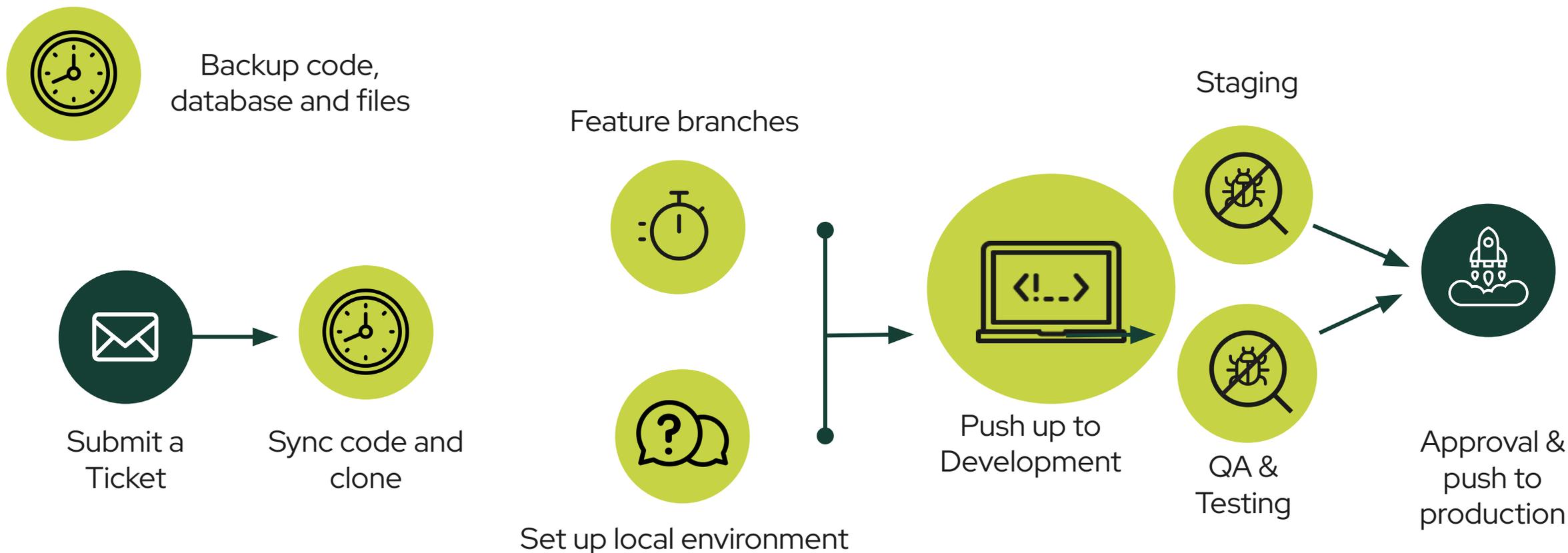


# Learning opportunities

Exposure to structured learning,  
and mentoring.



# Workflow Management



# Version Control

Managing code over time

## According to Atlassian

Version control software keeps track of every modification to the code in a special kind of database.



# Prerequisites



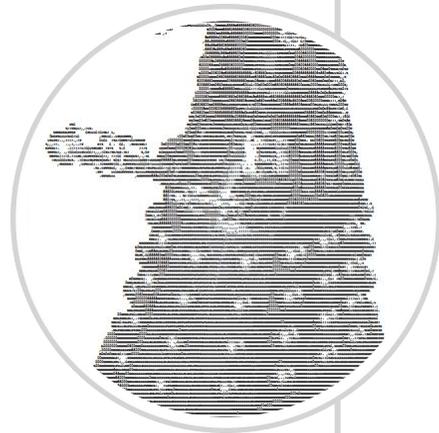
Install git locally.

A computer equipped for the task.



Basic knowledge of the command line

More than cute ascii art...



# Git Clients



Directories x

- git (master)
- block-sha1
- builtin
- compat
- fnmatch
- nedmalloc
- poll
- regex
- vcbuild
- win32
- contrib
- Documentation
- git-gui
- git\_remote\_h
- gitk-git
- gitweb
- mergetools
- perl
- po
- ppc
- t
- templates
- vcs-svn
- xdiff

Branches x

- HEAD (master)
- develop
- master = origin
- Local Branches
- origin (5) - https://github.com
- Tags (474)
- Stashes
- Lost Heads

Commits (895)

Filter [P] Default Coloring [v]

Message	Date	Author
Merge branch 'maint'	01:43 AM	Junio C Hamano
git-remote-mediawiki: un-brace file handles in binmode calls	Yesterday 12:14 PM	Matthieu Moy
Update draft release notes to 1.8.3.3	01:43 AM	Junio C Hamano
Merge branch 'rr/diffcore-pickaxe-doc' into maint	01:41 AM	Junio C Hamano
Merge branch 'cr/git-work-tree-sans-git-dir' into maint	01:41 AM	Junio C Hamano
Merge branch 'fc/do-not-use-the-index-in-add-to-index' into maint	01:40 AM	Junio C Hamano
Merge branch 'dm/unbash-subtree' into maint	01:39 AM	Junio C Hamano
Merge branch 'jc/core-checkstat' into maint	01:39 AM	Junio C Hamano
Merge branch 'jc/t5551-posix-sed-bre' into maint	01:37 AM	Junio C Hamano
Merge branch 'vv/help-unknown-ref' into maint	01:37 AM	Junio C Hamano
Merge branch 'rs/empty-archive' into maint	01:36 AM	Junio C Hamano
Merge branch 'rh/merge-options-doc-fix' into maint	01:36 AM	Junio C Hamano
Merge branch 'an/diff-index-doc' into maint	01:35 AM	Junio C Hamano
Merge branch 'cm/gitweb-project-list-persistent-cgi-fix' into maint	01:31 AM	Junio C Hamano

Details x



**Junio C Hamano**  
07/04/2013 01:43 AM

Merge branch 'maint'

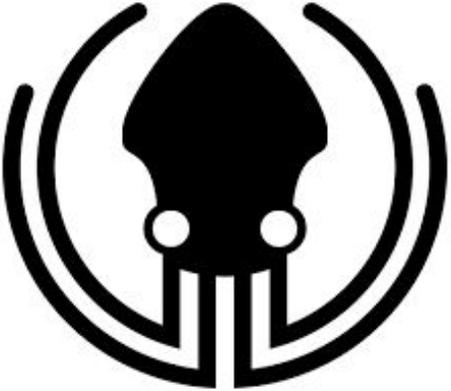
Files (1) x

Name	Modification	Re
git-config.txt	Modified	De

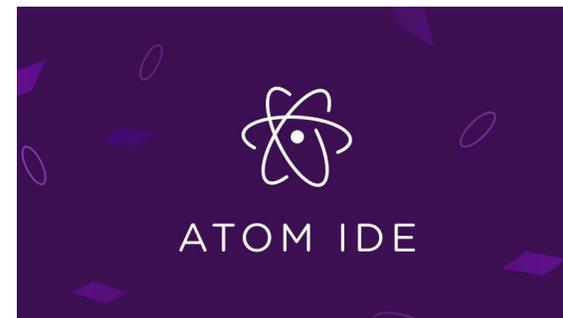
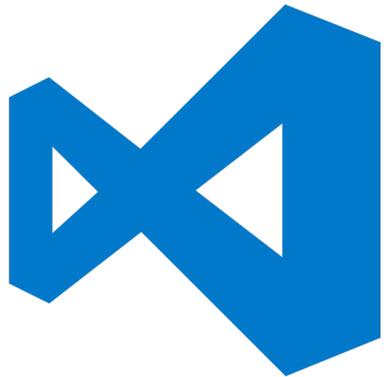
Changes of git-config.txt x

<pre> Default behavior is to replace at most one line. This replaces all lines matching the key (and optionally the value_regex).  --add::   Adds a new line to the option without altering any existing   values. This is the same as providing '^\$' as the value_regex   in '--replace-all'.  --get::   Get the value for a given key (optionally filtered by a regex   matching the value). Returns error code 1 if the key was not   found and error code 2 if multiple key values were found.  --get-all::   Like get, but does not fail if the number of values for the key   is not exactly one.  --get-regexp::   Like --get-all, but interprets the name as a regular expression and   writes out the key names. Regular expression matching is currently   case-sensitive and done against a canonicalized version of the key   in which section and variable names are lowercased, but subsection </pre>	<pre> Default behavior is to replace at most one line. This replaces all lines matching the key (and optionally the value_regex).  --add::   Adds a new line to the option without altering any existing   values. This is the same as providing '^\$' as the value_regex   in '--replace-all'.  --get::   Get the value for a given key (optionally filtered by a regex   matching the value). Returns error code 1 if the key was not   found and the last value if multiple key values were found.  --get-all::   Like get, but does not fail if the number of values for the key   is not exactly one.  --get-regexp::   Like --get-all, but interprets the name as a regular expression and   writes out the key names. Regular expression matching is currently   case-sensitive and done against a canonicalized version of the key   in which section and variable names are lowercased, but subsection </pre>
--	--

# Git Clients



# IDEs



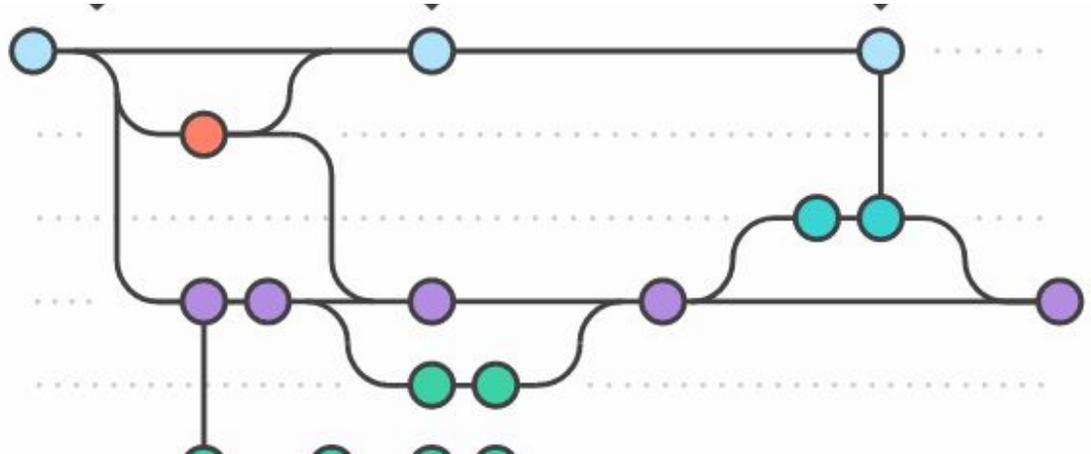


# Never Gonna Git You Up

Never Gonna Pull you down...



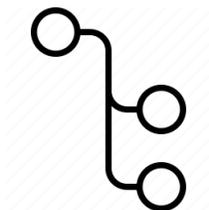
# The basics of git



## The basics

- .git init
- .git status
- .git branch
- .git diff
- .git log
- .git push
- .git pull
- .git add
- .git commit
- .git merge

# Working Locally



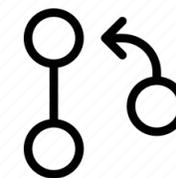
## git clone

Create a working copy of a local repository.



## git remote

If you haven't connected your local repository to a remote server, add the server to be able to push to it.



## git pull

Fetch and merge changes on the remote server to your working directory.



sitory  
Directory  
ct

## Repository

Specify the Git, Mercurial or SVN repository to clone.

Remote Git, Mercurial or SVN repository

Repository URL:

ssh://user@server:port/repository-path or svn:

Local Git or Mercurial repository

Local Directory:

Cancel

Go Back

# Cloning





# Take my Branch Away



# Branches



## git branch

List all the branches in your repo.



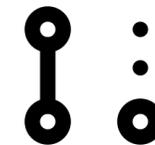
## git checkout

Switch from one branch to another.



## git checkout -b

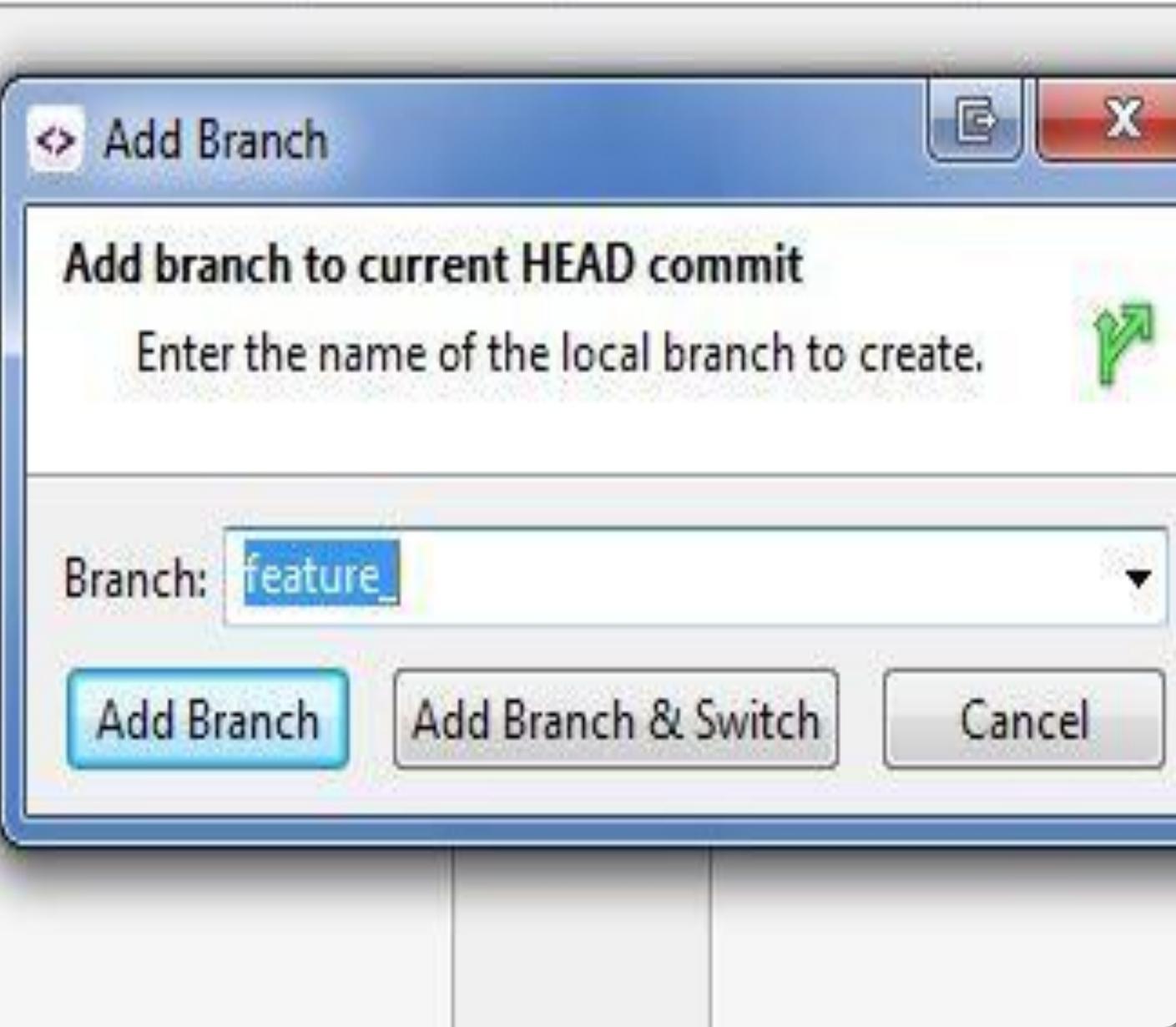
Create a new branch and switch to it.



## git branch -d

Delete the feature branch.





# Branches





# Tag it!

Tag it good!



# Tags

## Add tag to current branch (HEAD)

Enter the name of the tag to create. If entering a message, an annotated tag is created.

Tag:

Annotated Tag Message:

Cancel

Add Tag

Add Tag & Push





# Push It...

Push it real good



# Pushing



## git add

Add one or more files to staging.

```
git add *
```

```
git add <file name>
```

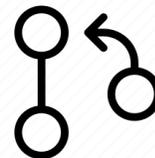


## git commit

Commit changes to current branch.

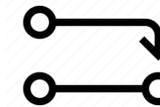
```
git commit -m "message  
here"
```

```
git commit -a
```



## git pull

Fetch and merge changes on the remote server to your working directory.



## git push

Send changes to the main branch of your remote repository.



The screenshot shows the SmartGit application window. At the top, the title bar reads "all - [E:\java\all-togethe". Below the title bar are window control buttons (red, yellow, green) and two main action buttons: "Pull" (with a green downward arrow) and "Sync" (with an orange upward arrow and a green downward arrow). Below these are three smaller icons: "Pull", "Sync", and "Push". A "Repositories" panel is open, showing a list of repositories. The repository "all\* (master)" is selected and highlighted in blue. Below it, other repositories are listed: "SmartGit", "CatRotati", and "deepgit".

# Pushing





# Like a Merge-In

Requesting for the very first time....

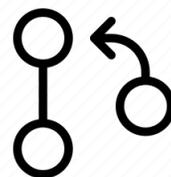


# Bringing it all Together



## git remote

This command is used to connect your local repository to the remote server.



## git pull

Fetch and merge changes on the remote server to your working directory.



## git merge

To merge a different branch into your active branch



SmartGit develop - [E:\java\smartgit\master] - SmartGit

Repository Edit View Remote Local Branch Query Changes Tools Window Help Debug

Pull Sync Push Git-Flow Merge Commit Stage Index Editor Unstage Save Stash Apply Stash Abort Discard Delete Log Blame Investigate

Repositories x Files x 12,215 files hidden File Filter

Name	State	Relative Directory
ScCompareInnerLineTokenComparatorTest.java	Staged	src/base/components/compare/test/com/syntevo/sc/textcompo
ScCompareInnerLineTokenComparator.java	Staged	src/base/components/compare/src/com/syntevo/sc/textcompon
ScCompareInnerLineMedia.java	Staged	src/base/components/compare/src/com/syntevo/sc/textcompon
ScCompareBlockBuildPacketTest.java	Modified	src/base/components/compare/test/com/syntevo/sc/textcompo
realWorldTooComplex1.res.1.txt	Modified	src/base/components/compare/test-resources/com/syntevo/sc/t
realWorldSkinIrrelevantSmallIdenticalAreas1.right	Untracked	src/base/components/compare/test-resources/com/syntevo/sc/t

Changes for ScCompareInnerLineTokenComparator.java - HEAD vs. Index +7-2~9

```

180     if (diffTokenIndices.contains(index)) {
181         lineDiffs[line]++;
182     }
183 }
184
185 int diffCount = 0;
186 int tokenCount = 0;
187 for (int index = 0; index < lineTokens.length; index++) {
188     final int diffs = lineDiffs[index];
189     final int tkns = lineTokens[index];
190     if (diffs == tkns ||
191         // special handling for trailing \n of
192         // without line endings and hence ScCom
193         index == lineTokens.length - 1 && diffC
194         continue;
195     }
196 }
273     break;
274 }
275     maxLine--;
276 }
277
278 int diffCount = 0;
279 int tokenCount = 0;
280 for (int index = minLine; index <= maxLine; index++) {
281     final int diffs = lineDiffs[index];
282     final int tkns = lineTokens[index];
283     diffCount += diffs;
284     tokenCount += tkns;
285 }
286
287 if (tokenCount < THRESHOLD_MIN_TOKENS) {
288     return Quality.depends_on_counterpart;
289 }
    
```

for (int index = 0; index < lineTokens.length; index++) {  
for (int index = minLine; index <= maxLine; index++) {

Journal x

- origin/origin/all-master SG-11275: Compare: improved inner-changes diff (relaxed "complexity" condition) Thomas Singer 2018-02-02 09:04
- SG-11275: Compare: improved inner-changes diff (treat small, "irrelevant" areas of similarity as changed) 2018-02-02 09:04
- SG-11275: Compare: improved inner-changes diff (no-white-space block shifting should already honor line star... 2018-02-02 09:03
- develop ScCompareInnerLineTokenComparator: debug output improved 2018-02-02 09:02
- SG-11275: Compare: improved inner-changes diff (tightened "complexity" condition which prevents inline cha... 2018-02-01 19:12
- SG-11460: Compare: inner-line changes not showing up where they should (2) 2018-02-01 19:11
- SG-11461: Compare: displayed inner-line changes may be outdated (e.g. after switching options) 2018-02-01 19:10
- SG-11275: Compare: improved inner-changes diff (no more camel-hump tokenizing) 2018-02-01 19:05
- ScLicensePurchaseConfiguration -> ScLicensePurchaseConfigProvider 2018-02-01 19:04

Ready 1 File 280:18

# Merging



The screenshot shows the Git GUI interface. At the top, there are navigation buttons: Check Out, Add Tag, Add Branch, Delete, Merge, Cherry-Pick, Rebase, and Reset. On the right, there are buttons for Main and Review. The main area is divided into several sections:

- Branches:** A tree view showing the current branch structure, including HEAD (develop), develop, origin/master, Pull Requests (1), and various features, hotfixes, and tags.
- Commits (979):** A list of recent commits with a search filter and default coloring options. A context menu is open over the commit list, showing options like Reveal Commit, Merge Pull Request..., Reject Pull Request..., Drop Local Data..., and Toggle.
- Details:** A section showing the profile of the author, Marc Strapetz, with a photo and the commit date (2013-10-14 15:46). Below this, there is a log entry for SG-7733: "Log: some context menu actions should have more specific".
- Files (4):** A table showing the files included in the commit, such as QMenuStructureCustomizedPopupProvider.java, QMenuStructureFiller.java, SdProjectMenuStructure.java, and SgLogFrameActions.java.
- Code Editor:** The bottom section shows the code for QMenuStructureCustomizedPopupProvider.java, including package declarations, imports, and class definitions.

```

package com.syntevo.q.gui.action.configuration.menustructure;

import java.util.*;

import org.eclipse.swt.graphics.*;
import org.eclipse.swt.widgets.*;
import org.jetbrains.annotations.*;

import com.syntevo.q.gui.*;
import com.syntevo.q.gui.action.*;
import com.syntevo.q.gui.action.configuration.*;

/**
 * @author Marc Strapetz
 */
public class QMenuStructureCustomizedPopupProvider implements QPopupProvider {

    // Fields -----

    private final QIdToAction idToAction;
  
```

# Merging



Pull it down before  
you go go



# Conflicts N Commotion

If you've got the notion...





**I Am Developer**

@iamdeveloper

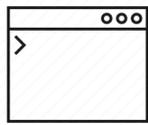
> It'll just be a quick fix

Narrator: It wasn't.

2:25 AM · Aug 9, 2018 · Twitter Web Client

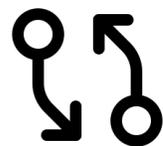


# Merge Conflicts



## git status

List the files you've changed and those you still need to add or commit.



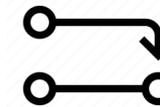
## git diff

Show changes between commits, commit and working tree, etc



## git log --merge

View all the merge conflicts



## git push

Send changes to the main branch of your remote repository.



File Edit View Go To Window Help

Save All Reload Prev. Change Next Change Take Left Take Right Left + Merge All Merge + Right Merge Below

C:\temp\...\SdPrivateKeyCredential-master.java	C:\temp\...\SdPrivateKeyCredential-common.java	C:\temp\...\SdPrivateKeyCredential-branch.java
34		42
35 private SdPrivateKeyCredential(ScPasswo	43 public File getFile() {	43 public synchronized File getFile() {
36 super(passwordSet);	44 return file;	44 return file;
37	45 }	45 }
38 this.file = file;	46 }	46 }
39 }	47 public void setFile(File file) {	47 public synchronized void setFile(File f
40	48 this.file = file;	48 this.file = file;
41 // Accessing =====	49 }	49 }
42	50 }	50 }
43 public File getFile() {	51 public boolean isPassphraseKnown() {	51 public synchronized boolean isPassphas
44 return file;	52 passphrase = notNull(passphrase);	52 passphrase = notNull(passphrase);
45 }	53 return passphrase.isKnown();	53 return passphrase.isKnown();
46	54 }	54 }
47 public void setFile(File file) {	55 }	55 }
48 this.file = file;	56 public boolean isPassphraseStored() {	56 public synchronized boolean isPassphas
49 }	57 passphrase = notNull(passphrase);	57 passphrase = notNull(passphrase);
50	58 return passphrase.isStored();	58 return passphrase.isStored();
51 @NotNull	59 }	59 }
52 public ScPassword getScPassword() {	60 }	60 }
53 passphrase = maybeCreateInstance(pa	61 public boolean isValid() {	61 public synchronized boolean isValid() {
54 return passphrase;	62 return file != null;	62 return file != null;
55 }	63 }	63 }
56	64 }	64 }
57 public boolean isValid() {	65 @Nullable	65 @Nullable
58 return file != null;	66 public String getPassphrase(@Nullable S	66 public String getPassphrase(@Nullable S
59 }	67 passphrase = notNull(passphrase);	67 synchronized (this) {
60	68 return passphrase.getPhrase(userInt	68 passphrase = notNull(passphrase
61 public boolean matches(File file) {	69 }	69 }
62 return QCompareUtils.areEqual(file,	70 }	70 return passphrase.getPhrase(userInt
63 }	71 public void setPassphrase(String passph	71 }
64	72 final ScPassword scPassword = notNu	72 }
65 // Description =====	73 scPassword.setPassphrase(passphrase	73 public void setPassphrase(String passph
66	74 this.passphrase = scPassword;	74 synchronized (this) {
67 @Override	75 }	75 this.passphrase = notNull(this.
68 public void toDescription(@NotNull QDes	76 }	76 }
69 QDescriptionUtils.putFile(writer, "	77 public boolean matches(File file) {	77 this.passphrase.setPassphrase(pass
70 putPassword(writer, "passphrase", p	78 return QCompareUtils.areEqual(file,	78 }
71 }	79 }	79 }
72	80 // Description =====	80 public synchronized boolean matches(Fil
73 @Override	81	81 return QCompareUtils.areEqual(file,
74 public void fromDescription(@NotNull QD	82	82 }
75 file = QDescriptionUtils.getFile(re	83 @Override	83 // Description =====
76 passphrase = getPassword(reader, "p	84 public void toDescription(@NotNull QDes	84
77 }	85 QDescriptionUtils.putFile(writer, "	85 @Override
78 }	86 putPassword(writer, "passphrase", p	86 public synchronized void toDescription(
79 }	87 }	87 }

# Conflicts

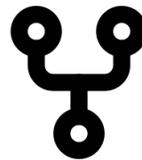


# Really mess up?



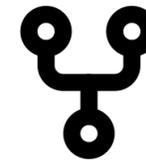
## git fetch origin

Fetches the latest history from the server.



## git reset <commit>

This command undoes all the commits after the specific commit and preserves the changes.



## git reset --hard <commit>

This command discards all history and goes back to the specific commit.



1	gr	Thursday 00:01
vadoc bash for 4.12	NM	Wednesday 12:52

### Local or staged changes

the files for which changes should be discarded and whether to set back to Index or HEAD state.

HEAD  Index

Discard [X]



**Are you sure to reset 2 files back to their HEAD state?**

The content might be hard to restore!

Discard Cancel

Discard Cancel

# Reset of all the things!







# Web Based Version Control

GitLab, BitBucket, GitHub...

# The Workflow

## Create a branch

- Work in a space away from production

## Work in a Space Away from Production

- Work from anywhere

## Add commits

- Modify the code and add the changes

## Revise the Code and Add Them to Your Branch

- Revise, tweak, and push changes to your branch. Be sure to test!



# The Workflow

## Create a pull request

- This starts the process of review

## Code review

- Discuss and collaborate

## Merge

- Move your code into the main branch





Search or jump to...



[Pull requests](#) [Issues](#) [Marketplace](#) [Explore](#)

[AmyJuneH / Open-Source-Resources](#)

[Code](#) [Issues](#) [Pull requests](#) [Actions](#) [Projects](#) [Wiki](#) [Security](#)

[master](#) [Open-Source-Resources / WordPress /](#)

AmyJuneH Rename Creating a Patch.d to Creating a Patch.md

..

Applying a patch locally.md	Create Applying a patch locally.md
Creating a Patch.md	Rename Creating a Patch.d to Creating a Patch.md
WP placeholder file.md	Adding WordPress folder

# GitHub repo



# AmyJuneH / Open-Source-Resources

Unwatch 2 ☆

- Code
- Issues
- Pull requests**
- Actions
- Projects
- Wiki
- Security
- Insights
- Settings

## Update to 8.9.x for Drupal 8 core development #2

Merged AmyJuneH merged 1 commit into AmyJuneH:master from brookemahoney:patch-2 on Jun 28

Conversation 0 Commits 1 Checks 0 Files changed 1

brookemahoney commented on Jun 28

Contributor 😊 ⋮

No description provided.

Update to 8.9.x for Drupal 8 core development

Verified 8e2896c

AmyJuneH merged commit 386cd33 into AmyJuneH:master on Jun 28

Revert

Reviewers

No reviews

Assignees

No one—assigned

Labels

None yet

Projects

None yet

Write Preview

H B I [List Icons] @ ↻ ↶



# Let's Git Physical

Spin Up That Local Dev Environment...



# Local Environments





# At a minimum

Web server, a database server, and  
PHP for WordPress





# A computer equipped for task

Processor, memory, disk space...



# Local Server Setups

- Linux development environments
- Mac OS development environment
- Windows development environment
- Virtual Machine development environments
- Docker development environments





# Making the case

Why have a local server?



# Limited Access to Client Server

If you're building a website and you don't have access to the web server.



# Experimentation

You don't want to mess with the production code while experimenting with new code.



# Local Environments



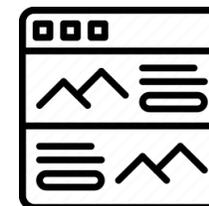
## No internet connection required!

No longer bound to the internet.  
Work from anywhere!



## Customize your setup

Test your development before going live.  
Makes the development less stressful.



## More control!

Debugging complex errors requires more control over your environment.



# Local web development environment

## Usually come equipped with:

A web server

A database management system

A server-side programming language

An interface for controlling the web server

An interface for accessing the database



# Browser Based Environment



## GitPod

The developer platform for on-demand cloud development environments.



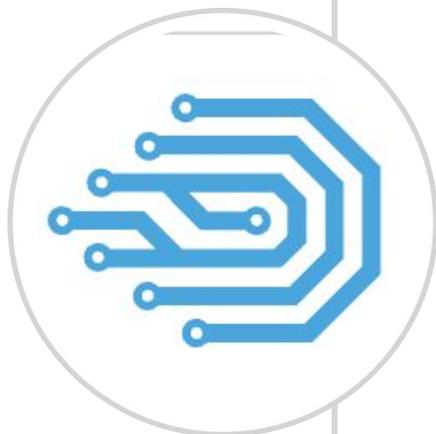
## DrupalPod

This project allows you to work on Drupal contributions with a familiar setup of a "normal" Drupal website.



## DDEV Gitpod Launcher

Launch and develop any web project in gitpod using DDEV.



## Drupal Forge

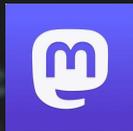
Drupal Forge spins up pre-configured sites for you. Each site configuration is called a template. You provide some basic information and Drupal Forge sends you a link when your site is ready.



# Thanks!!



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# Resources - Git

[Bitbucket Support](#)

[Top 20 Git Commands With Examples](#)

[Oh Shit, Git!?!](#)

[Git Documentation](#)



# Merging, merging on a prayer

If you've got the notion...

