



Technology Background Development environment, Skeleton and Libraries

Slides by Prof. Dr. Matthias Hölzl (based on material from Dr. Andreas Schröder)





Lecture 1

- I. Eclipse
- II. Git

Lecture 2

IV. Skeleton OverviewV. Libraries OverviewVI. Game Rules and Coding Task







Part I. Eclipse

15.05.2017 Matthias Dangl







- Recognize the power of Eclipse
- Identify what you did not know yet
- Know where to find tutorials and help
- Being able to set up the Eclipse IDE for the lab

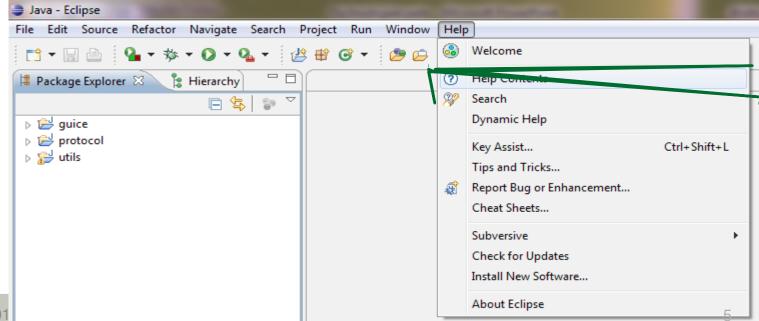






Eclipse is far more than a Java editor

- Code navigation and exploration
- Refactoring
- Background compilation
- Customizable build system
- Extensibile: Git, JUnit, Code Coverage, Web development tools, ...







Recommended reads

JNIVERSITÄT

- Workbench user guide > Tips and tricks
- Java development user guide > Tips and

Recommended shortcuts

- Quick Fix (Ctrl+1), Quick Access (Ctrl+3)
- Open Type / resource (Ctrl+Shift+T / Ctrl+Shift+R)
- Open declaration / Javadoc (F3 / F2)
- Quick type hierarchy (Ctrl+T)
- Quick outline (Ctrl+O)
- Refactor / Rename (Alt+Shift+T / Alt+Shift
- ... Key bindings overview (Ctrl+Shift+L) J

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To setup your Eclipse, you need to:

- 1. Download and install eclipse
- 2. Setup basics: code styles, save actions, file encoding,
 - • •
- 3. Setup Tomcat
- 4. Setup Git
- 5. Setup DB
- 6. Setup Launch configurations
- Install other plugins/extensions as needed (e.g., EclEmma)







Part II. Git

15.05.2017 Matthias Dangl



Git





- Git is a modern **distributed** version control system (VCS)
- Initial release 2005 by Linus Torwalds
- Widely adopted in open source communities: Linux Kernel, Ruby on Rails, Android, Debian, ...
- Can best be learned if you forget everything you know about how (centralized) version control works!



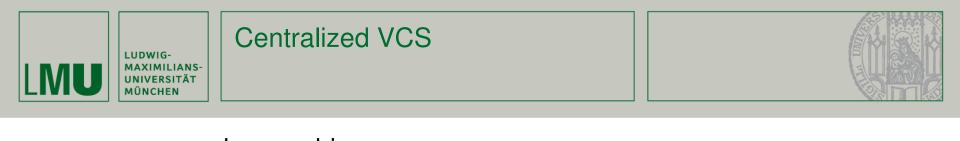


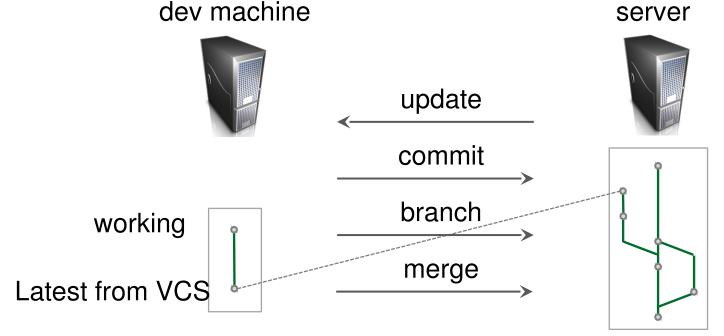
- Repository a database containing files under version control and the history of these files.
- Working Copy a local copy of files from the repository. May be modified, and may not represent the most recent repository revision.
- Revision the state of a file (CVS), of a branch (Git), or of the whole repository (SVN) as committed to the version control system.
- Change Set a set of modifications to files under version control.
- Commit the act of writing a change set from the working copy to the repository.
- Update the act of fetching changes that have been performed on the repository since the last update and applying them to the working copy.



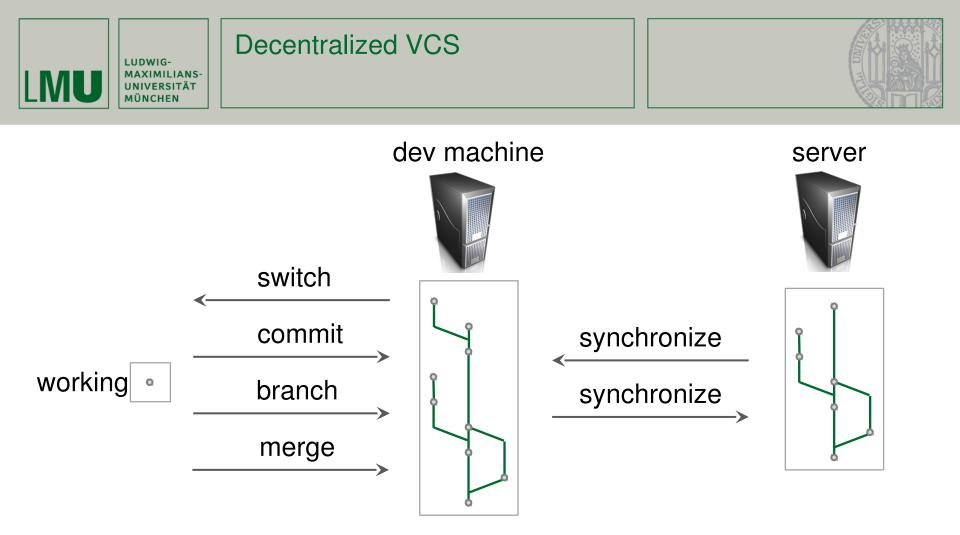


- Branch a set of files under version control that evolve independently of other file sets. Often defines an own line of development of a product.
- Tag a human-readable link to a specific revision. Is often used to mark the source code of released versions (e.g. tag v_2_0_3).
- Trunk/Master the branch denoting the main line of development of a product.
- Merge the act of reconciling change sets from parallel branches.
- Switch the act of changing the working copy from a branch to another.
- Conflict occurs when a file was changed concurrently, and the VCS cannot reconcile the changes automatically. Conflicts must be resolved manually.





- S Cannot work without connectivity
- § Needs server to branch and merge
- § Cannot save experimental features locally

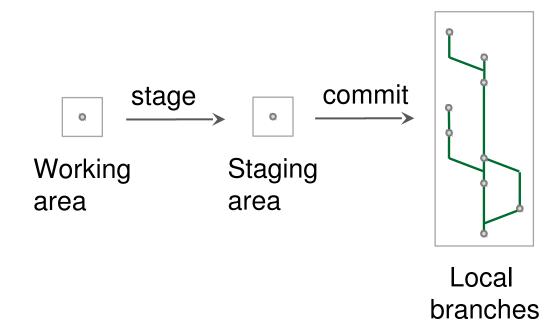




§ Works without connectivity

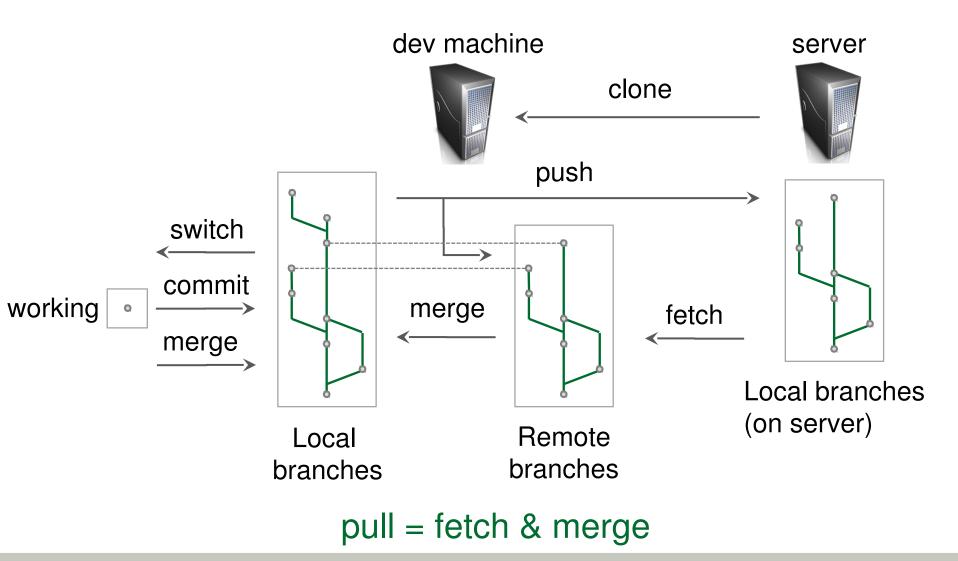
- § Can branch and merge against local VCS
- § Needs synchronization among multiple VCS

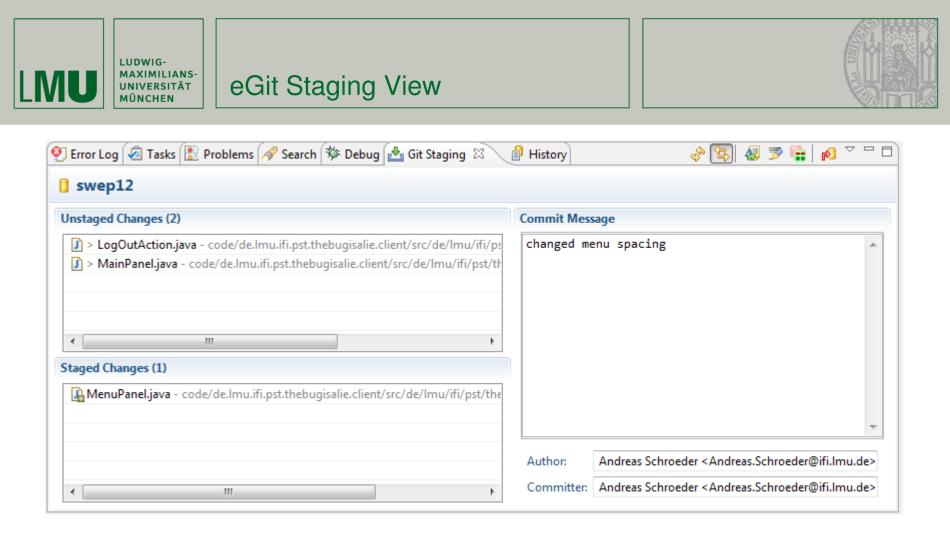




Git allows to select changes for commit
"Staging area" lies between working area and local branches







- Helpful tool for creating commits
- Faster than Menu > Team > Add





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 Menu Team Synchronize Workspace (or change to Team Synchronizing perspective)



eGit from the start



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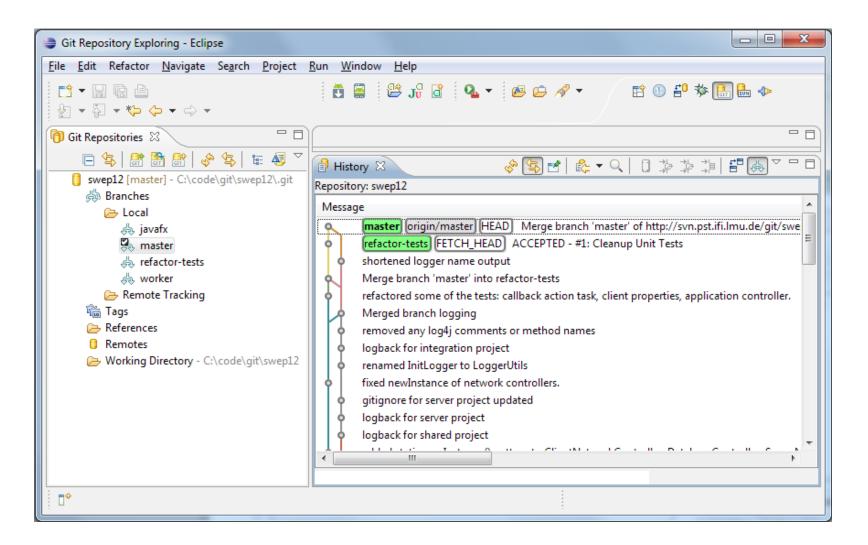
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eGit: cloning

Clone Git Repository	
Branch Selection Select branches to clone from remote repository. Remote tracking branches will be created to track updates for these branches in the	GIT
Branches of http://svn.pst.ifi.lmu.de/git/swep13:	
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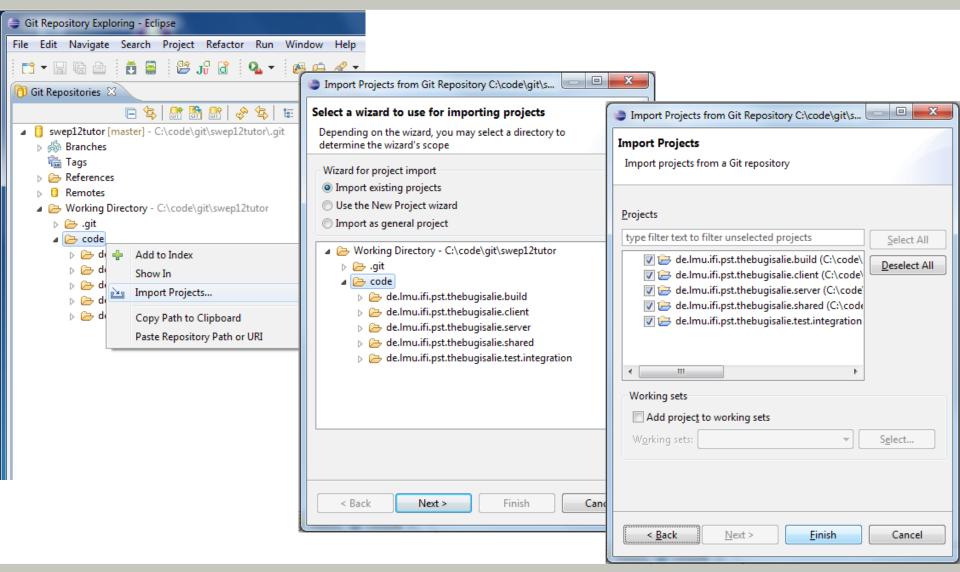


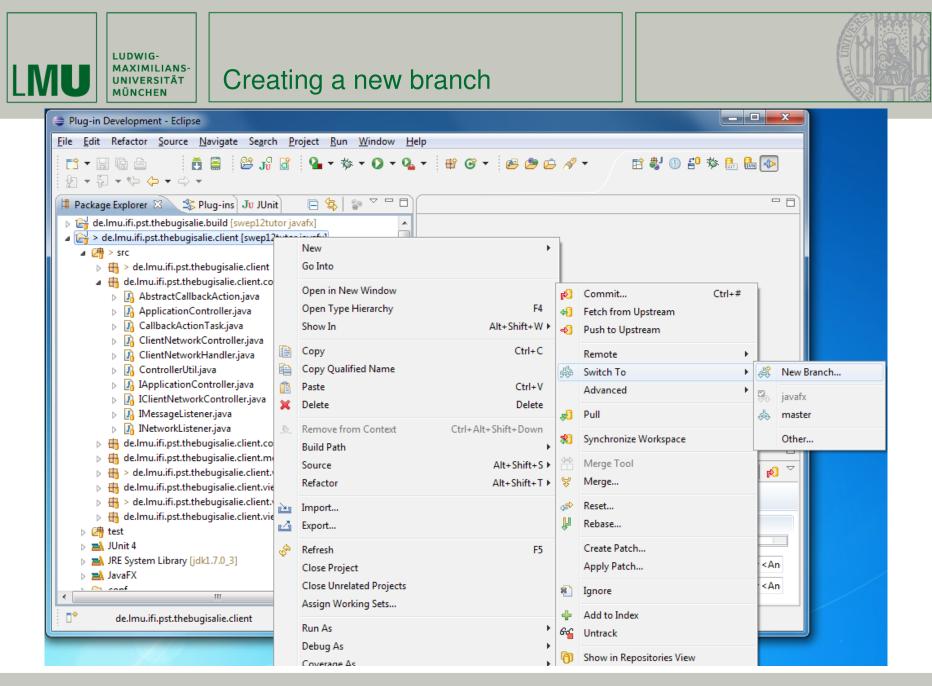




eGit: Import Projects



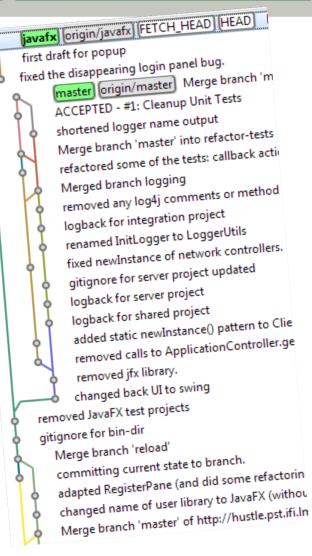


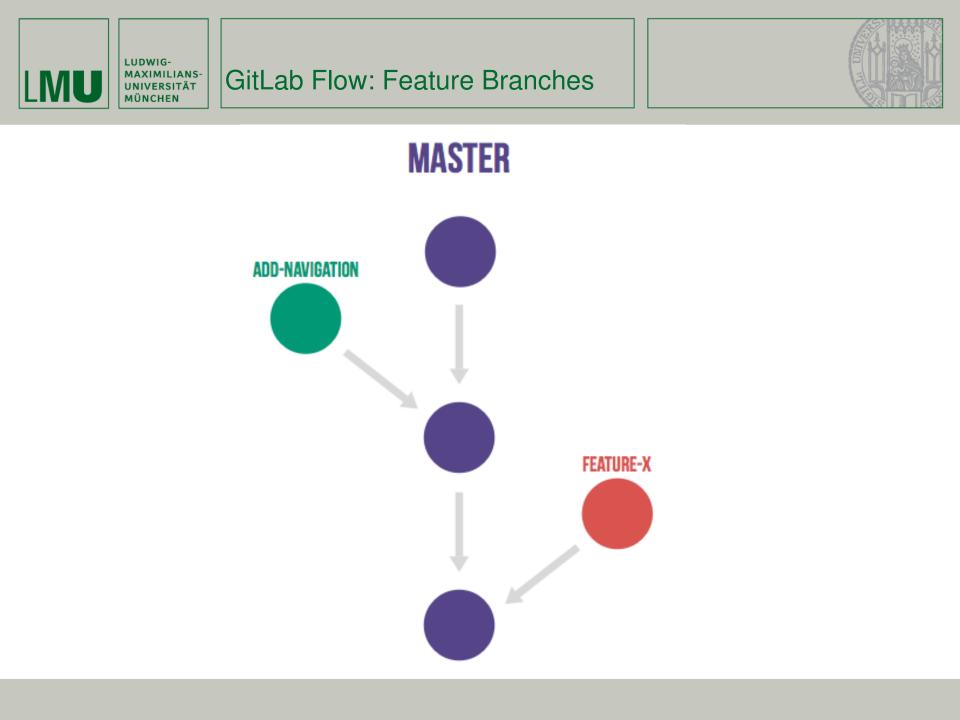


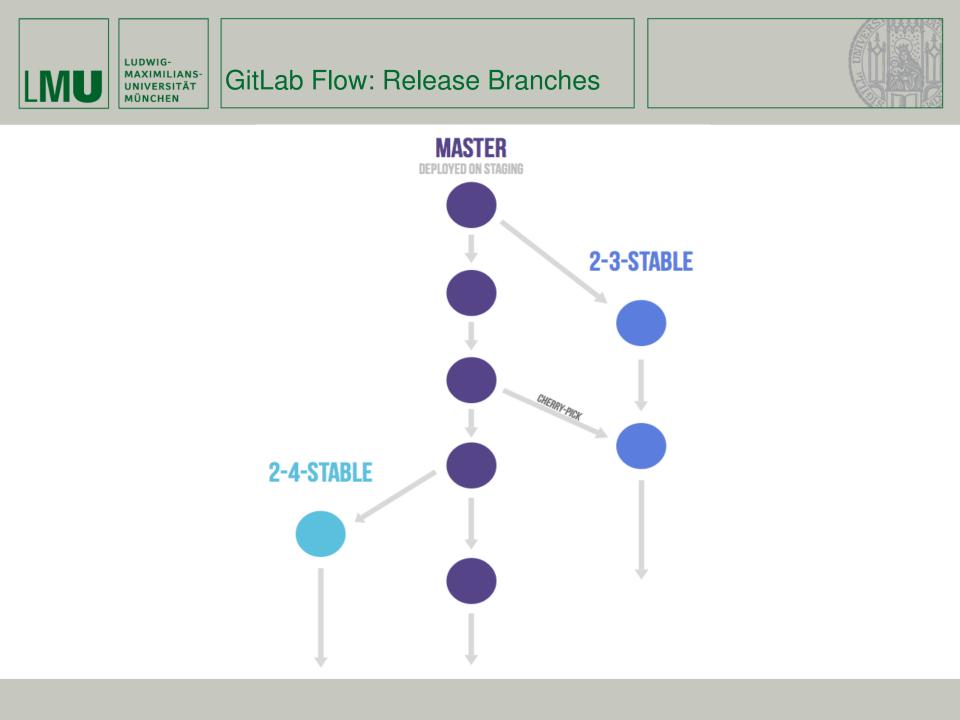




- When working on a user story
 - Create a branch for your story (= feature branch)
 - Work on the branch
 - Merge the branch into master
- Don't disconnect from the reposito (= team): fetch & merge master changes to your branch regularly!
- Read the Git tutorials











- What does the following history tell you?
 - ea42b79 There were some bugs in the code!!!! Didn't know 2db0f12 fixed two build-breaking issues: the ant task co 147709f Tweaks to some files 22b25e0 7f96f57 polishing 59a2ed6 update
- And the following?

5ba3db6 Fix failing CompositePropertySourceTests 84564a0 Rework @PropertySource early parsing logic e142fd1 Add tests for ImportSelector meta-data 887815f Update docbook dependency and generate epub ac8326d Polish mockito usage





- Good commit messages are important
 - Separate subject from body with a blank line
 - Limit the subject line to 50 characters
 - Capitalize the subject line
 - Do not end the subject line with a period
 - Use the imperative mood in the subject line
 - Wrap the body at 72 characters
 - Use the body to explain what and why vs. How
- See http://chris.beams.io/posts/git-commit/ for more





- Instead of checking out a remote branch directly, it's better to create a local branch that tracks the remote branch.
- After that, you can pull and push directly to/from the original remote branch.
- If you push a branch that you created locally, the local branch starts tracking the remote copy.

Source ref:	refs/remotes	:/origin/bra	ach1	
Branch name: - Pull strategy © Rebase @ Merge	refs/heads/			
O None	new branch			





- Deleting the remote reference doesn't do anything on the server.
- To remove a remote branch you have to push "nothing" to the branch:

git push origin --delete branch or with the push dialog in eGit (see picture).

 Deleting remote branches is most fun when others are tracking it J

Push to: origin								
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Add create/update specification								
Source ref: Destination ref:								
* *	🚔 Add Spec							
Add delete ref specification								
Remote ref to delete: [©] refs/heads/branch1 -	🔀 Add spec							
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Save specifications in 'origin' configuration								
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- Git allows to switch between branches at any time
 - eGit: Menu Team Switch To
- If you have uncommitted changes, you have to either commit them first or stash your changes
 - eGit: Menu in Git Repository View Stash Changes
 - Those changes get "stored" and you can switch branches
 - You can restore stashed changes in the Git Repository View
 Git Repositories & Git Repositories & Git Test [master] - C\Users\kroiss\git\GitTest\.git



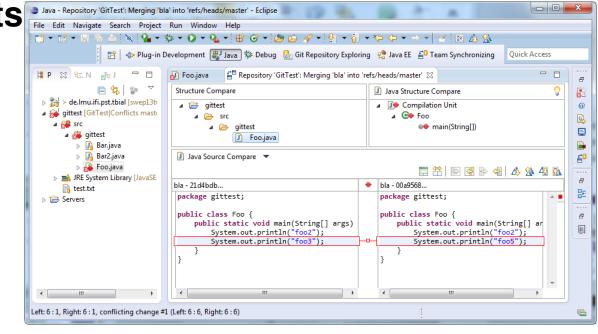




- Merging branches may lead to conflicts. When this happens you end up in a "merging-state" where you have to resolve the conflicts.
- Resolve conflicts
 - Menu Team Merge Tool
 - Or/and edit manually

• Then:

- Add to index
- Commit





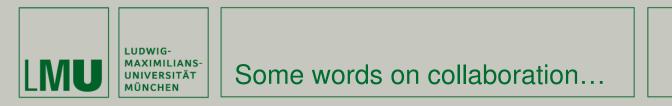


- Undoing changes:
 - Use Menu Replace (HEAD|Commit|...) to replace files/folders with previous versions from the repository
- If you're used to SVN: don't forget to push
 - Commit only writes to your local repository. Use "commit and push" in Commit dialog or push explicitly.
- Resolving conflicts without editing (e.g. for binary files)
 - git checkout --ours <path>
 - git checkout --theirs <path>





- Use own repository (e.g. GitHub/GitLab) to experiment!
- Install full Git distribution (<u>www.git-scm.com</u>) and (optionally) GUI like TortoiseGit, etc.
- Have a look at the git command line

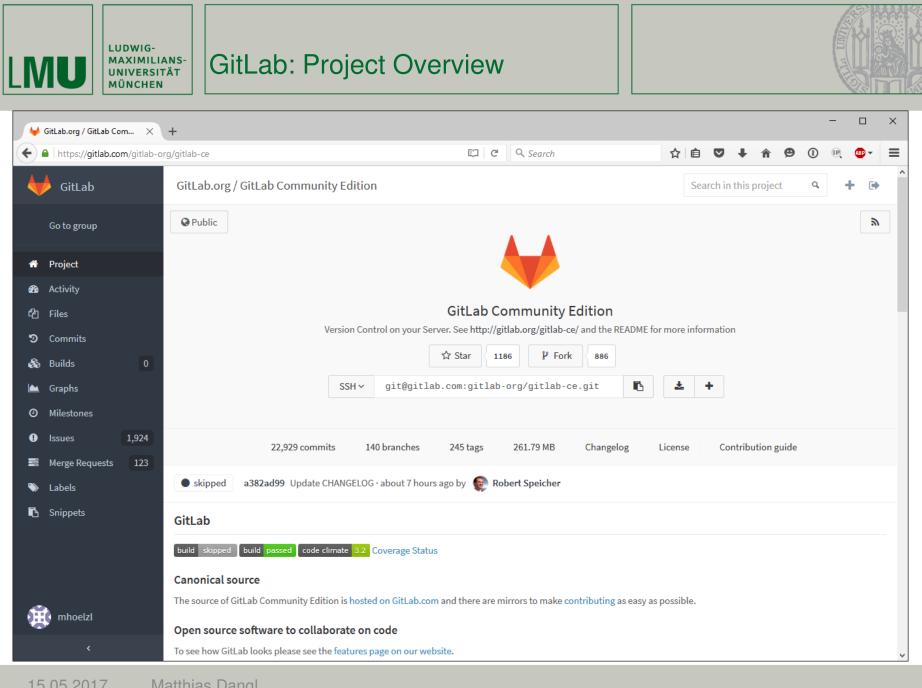




Merging a user story into master means integration

- Conflicts must be carefully resolved
- The whole codebase must compile
- All tests must pass: unit tests, integration tests, system tests

Integrate early and opportunistically, It will not get easier if you wait!



Matthias Dangl 15.05.2017





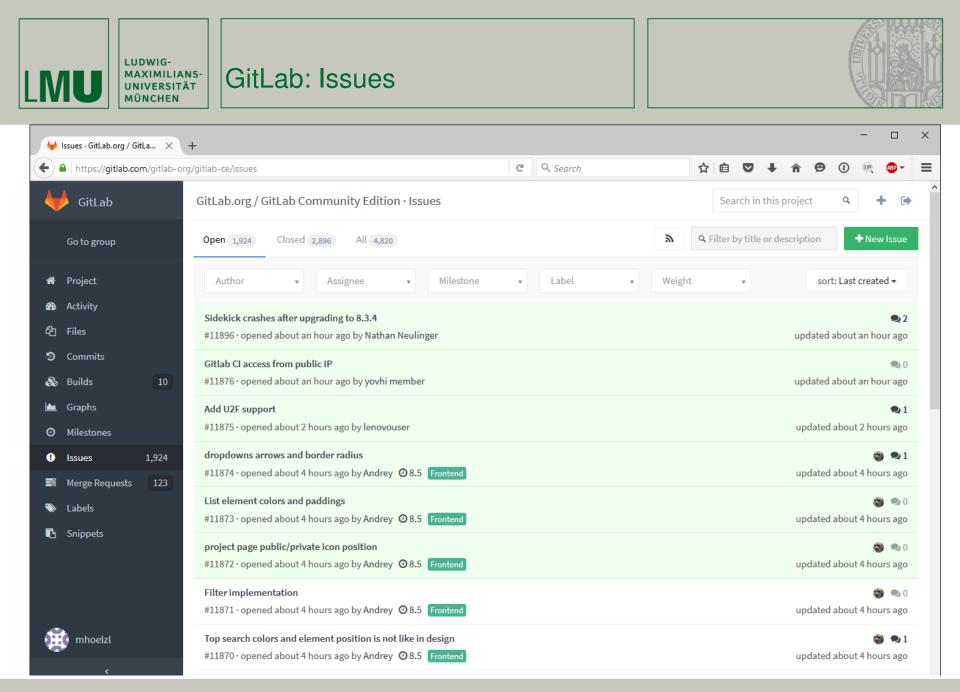
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GitLab: Issue



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GitLab: Issue

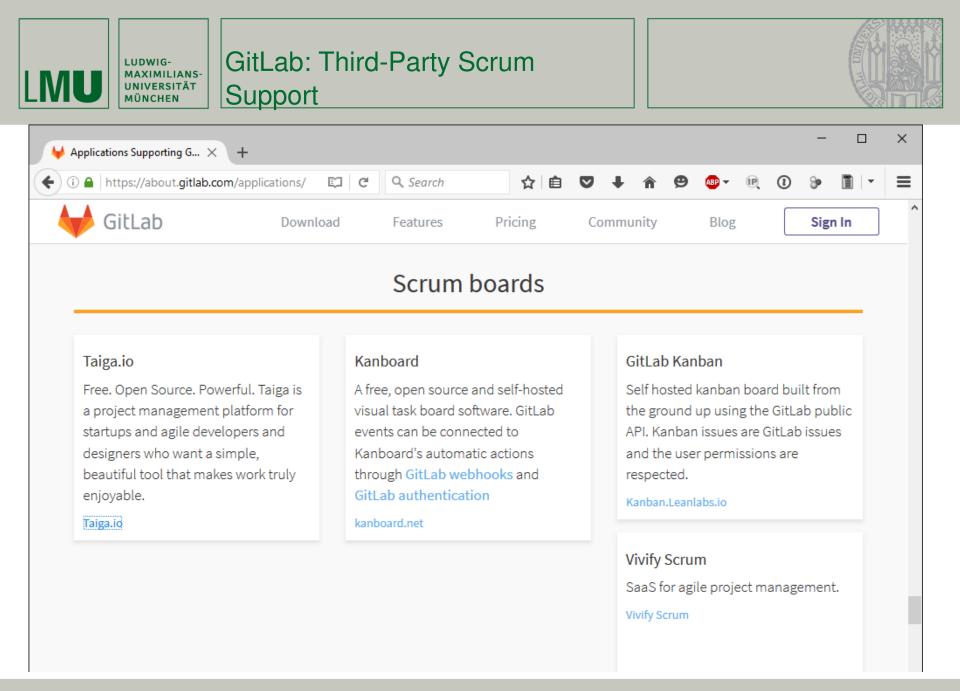


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+ https://gitlab.com/gitlab	o-org/gitlab-ce 🖾 C Q Search 🔂 🖻 🛡 I A 😕 ① 🖳 🚭 I	:
₩ GitLab	GitLab.org / GitLab Community Edition	^
Go to group	Public	
希 Project		
🚯 Activity		
ර ු Files	GitLab Community Edition	
ອ Commits	Version Control on your Server. See http://gitlab.org/gitlab-ce/ and the README for more information	
👶 Builds 🛛 0	☆ Star 1186 P Fork 886	
📥 Graphs	SSH~ git@gitlab.com:gitlab-org/gitlab-ce.git <table-cell> 🛓 🕇</table-cell>	
Ø Milestones		
Issues 1,924	22,929 commits 140 branches 245 tags 261.79 MB Changelog License Contribution guide	
Merge Requests 123		
🏷 Labels	skipped a382ad99 Update CHANGELOG · about 7 hours ago by Robert Speicher	
🚯 Snippets	GitLab	
	build skipped build passed code climate 3.2 Coverage Status	
	Canonical source	
A	The source of GitLab Community Edition is hosted on GitLab.com and there are mirrors to make contributing as easy as possible.	
mhoelzl	Open source software to collaborate on code	
<	To see how GitLab looks please see the features page on our website.	>



GitLab: Branches



😝 Branches - GitLab.org / Git 🗙	+					-		×
+ https://gitlab.com/gitlab-o	rg/gitlab-ce/branches?page=2 C Sea	arch 🔂	e 🛡	↓ ☆ \$	• 1	(P)	ABP 🔻	≡
🔶 GitLab	GitLab.org / GitLab Community Edition · Commits		Search in	this project	q		+ 🗭	^
Go to group	4d7216aa · Update CHANGELOG · 2 months ago	3120 92		т мегge кеqu	iest	← CO	mpare	
🕷 Project	8-2-stable 1322bd78 · Merge branch 'rs-issue-4032' into 'master' · about a month ago	2436 82		+ Merge Requ	iest	₽Co	mpare	
න Activity එ Files	8-3-stable 59166702 · Version 8.3.4 · 7 days ago	1194 61		+ Merge Requ	iest	₽Co	mpare	
CommitsBuilds	8-4-stable d3af84af • Update CHANGELOG • about 7 hours ago	101 36		+ Merge Requ	iest	≓Co	mpare	
📥 Graphs 🕐 Milestones	DNSBL_docs 5a3bea6e · First attempt on DNSBL documentation · 4 days ago	95 1		+ Merge Requ	iest	≓Co	mpare	
● Issues 1,924■ Merge Requests 123	Michi302/gitlab-ce-feature/detailed-user-endpoint merged 8393e3e0 · Add missing changelog entry · 14 days ago	887 0		+ Merge Requ	iest	≓Co	mpare	
📎 Labels 🗈 🗈	admin_notes_for_user 22244ddf • Create admin notes for users • about a month ago	1772 1		+ Merge Requ	iest	₽Co	mpare	
	api-groups 8e746daa · Return all authorized groups in API. · 10 months ago	7820 1		+ Merge Requ	iest	≓Co	mpare	
mhoelzl	awardemoji-tooltip-shows-people-multiple-times e5cbd588 · Fixes issue where other emoji (not thumbup/thumbdown) were not removed · a ago	about 8 hours 58 5		🕇 Merge Requ	iest	₽Co	mpare	

15.05.2017 Mat

Matthias Dangl





₩ Merge Requests · GitLab.o ×	+								-		×
+ https://gitlab.com/gitlab	-org/gitlab-ce/merge_requests C Search	☆	é (7	ŧ	Â	⊜	1	(P)	ABP 👻	≡
🔶 GitLab	GitLab.org / GitLab Community Edition · Merge Requests		Searc	h in	this p	rojec	t	ď	-	•	^
Go to group	Open 123 Merged 2,035 Closed 345 All 2,503				Q, F	ilter k	by title	e or de	escript	ion	
A Project	Author • Assignee • Milestone • Label •						sort	t: Last	create	d •	
හ Activity එ Files	Adds "t" as a shortcut for find file anywhere #2507 · opened about 9 hours ago by Jacob Schatz ② 8.4 Frontend					upo	dated			오 10 rs ago	
ා Commits හී Builds 0	WIP: Add LICENSE type detection #2506 · opened about 10 hours ago by Aslak Knutsen					upda	ated a	about		🗨 0 rs ago	
 Graphs Milestones 	Check if MR is not broken. #2505 · opened about 11 hours ago by Rubén Dávila Santos					upda	ated a	about	🗙 🍯 11 hou	오 1 rs ago	
 Issues 1,924 Merge Requests 123 	[ci skip] Fixed minor typo in workflow documentation #2503 · opened about 12 hours ago by John Galt					upda	ated a	about		🗨 0 rs ago	
 Labels 	WIP: Recursive build artifacts metadata entries #2500 · opened about 14 hours ago by Grzegorz Bizon gitlab ci					upda	ated a	about		🗨 0 rs ago	
Snippets	Add an option to supply root email through an environmental variable. #2499 · opened about 14 hours ago by Koichiro Mikami					upda	ated a	about		🗨 0 rs ago	
	Fix diff comments loaded by AJAX to load comment with diff in discussion tab #2497 · opened about 17 hours ago by Rémy Coutable ② 8.4 Frontend bug					upda	ated a	√ about∶	A 🍥 10 hou	🗨 2 rs ago	
in mhoelzl	Add option to include author name in body of notification email. fix #7824 #2495 · opened about 18 hours ago by Jason Lee ②8.5					upo	dated	about	🗸 🌘 t 9 hou	ns ago	
<	Don't wondow minified 15									. 1	~





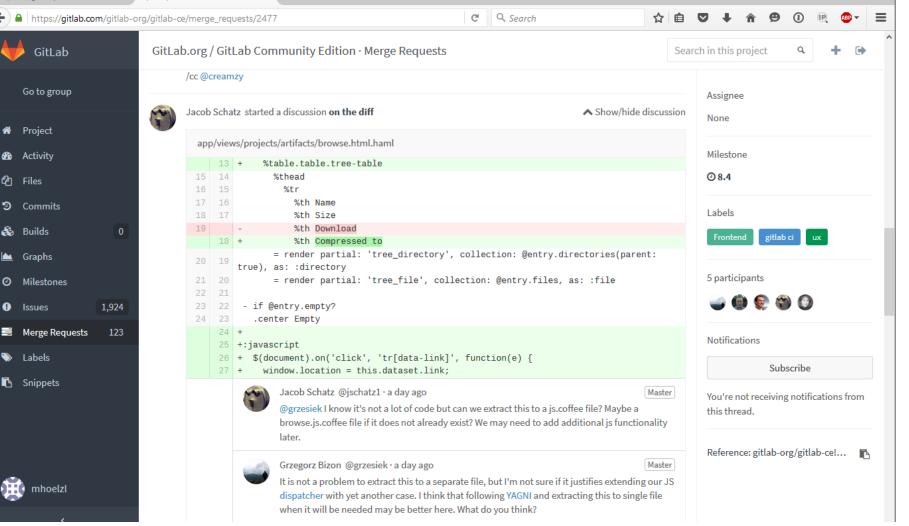
₩ Merge Requests · GitLab.o ×	₩ Improve UX in build artifa × +									_		×
+ https://gitlab.com/gitlab-	org/gitlab-ce/merge_requests/2477	C	Q Search	ជ	Ê	◙	+	Â	9 (0) ABP -	≡
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Go to group	Merge Request #2477 · opened by		go∙ 🕜 a day ago									
ቶ Project ช Activity	Improve UX in build artifacts bro This improves UX in build artifacts browser, and r		epository tree browser we already h	ave.								
ී Files	Before:											
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Ø Milestones	Name		Size		Do	ownloa	ad					
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📑 Merge Requests 123	tests_encoding											
🏷 Labels	☐ ci_artifacts.txt		27 Bytes		4	Ł						
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¢ mhoelzl							🕹 Do	ownload	d artifa	cts arc	hive	~





	Merge Requests · GitLa	ab.o ×	↓ Improve UX in build artifa × +									-		×
(https://gitlab.co	m/gitlab-c	rg/gitlab-ce/merge_requests/2477	C	Q Search		Ê	◙	↓ 1	9	1	R	ABP 🔻	≡
	GitLab		GitLab.org / GitLab Community Edition · Merge Requests				Sea	rch in	this pro	ject	Q,] •	F 🗭	^
	Go to group		tests_encoding											
			i ci_artifacts.txt		27 Bytes	27 8	Bytes							
*	Project		rails_sample.jpg		34 KB	31	КB							
æ	Activity													
ළු	Files		It is easier to click on a file/directory entry now, because we don't need			that can be really sh	ort, lik	«e	parent	directory	y). We a	also sh	woi	
	Commits		Compressed to size that indicates how much storage does this entry Row for an entry is also highlighted on hover and we do not have Downl			w / file basename is	enoug	gh to d	ownload	l a file).				
	Builds	0	Closes #10242											
	Graphs		Request to merge ux/improve-artifacts-browser into master											
	Milestones		request to merge and improve an erraces promoer into master											
•	Issues Merge Requests	1,924 123	 Build passed for 121866a3. View details 											
	Labels	125	Merged by 🧉 Grzegorz Bizon a day ago											
Ň	Snippets		The changes were merged into master . The source branch has been re	moved.										
~			Discussion 13 Commits 3 Builds 17 Changes 7											
			Discussion 13 Commits 3 Dunus 17 Changes 7											-
			👍 0 👎 0 🙂											
A	mhoelzl													-
			Grzegorz Bizon @grzesiek · 2 days ago @jschatz1 Please review changes in Frontend. @DouweM Please	eview a	lso.	М	aster		signee one					
	<		/cc.@creamzv					NC	one					~



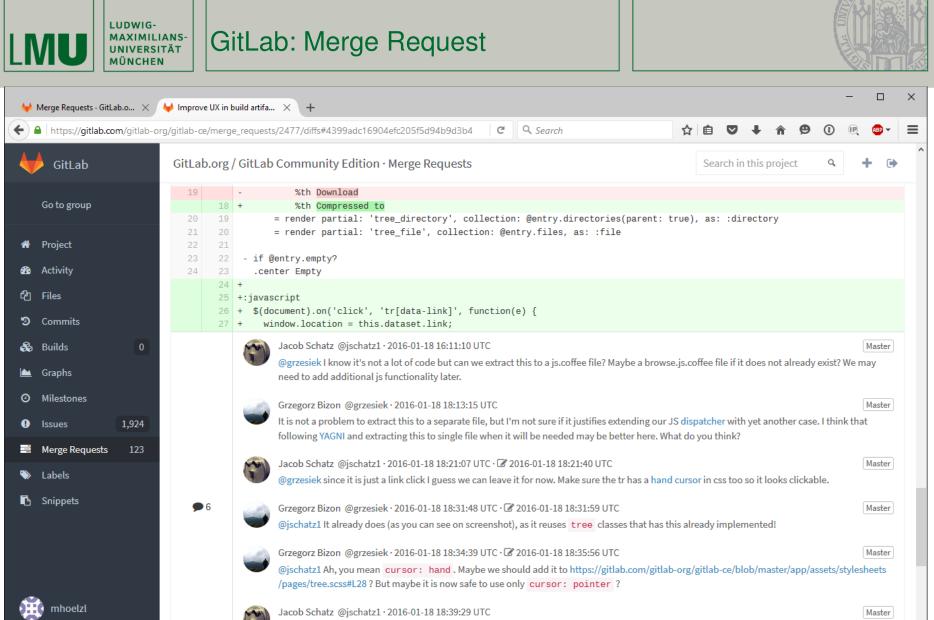


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+ https://gitlab.com/gitlab	o-org/gitlab-ce/merge_requests/2477/diffs#4399adc16904efc205f5d94b9d3b4 C 🛇 Search 🗘 🖻 🛡 🕂	r 9	0 R	ABP 👻	≡
itLab	GitLab.org / GitLab Community Edition · Merge Requests Search in this	project	Q,	+ 🕩	^
Go to group	Request to merge ux/improve-artifacts-browser into master				
🔿 Project					
🚯 Activity	✓ Build passed for 121866a3. View details				
ර ු Files	Merged by 🧉 Grzegorz Bizon a day ago				
🔊 Commits	The changes were merged into master . The source branch has been removed.				
🗞 Builds 0					1
🕍 Graphs	Discussion 13 Commits 3 Builds 17 Changes 7				
Ø Milestones	Showing 7 changed files with 29 additions and 22 deletions	Inline	Side-	by-side	
Issues 1,924					
📑 Merge Requests 123		Q V	iew file @1	21866a	
🏷 Labels	62 62 - Add reporters ability to download and browse build artifacts (Andrew Johnson)				
🖪 Snippets	 63 63 - Autofill referring url in message box when reporting user abuse. (Josh Frye) 64 64 - Remove leading comma on award emoji when the user is the first to award the emoji (Zeger-Jan van 	n de Weg)			
	65 + - Add build artifacts browser	. ao 1109)			
	66 + - Improve UX in builds artifacts browser				
	65 67 66 68 v 8.3.4				
	67 69 - Use gitlab-workhorse 0.5.4 (fixes API routing bug)				
	68 Add build artifacts browser				
	69 70				
mhoelzl	70 71 v 8.3.3				
	71 72 - Preserve CE behavior with JIRA integration by only calling API if URL is set				



@grzesiek You are right. Didn't see it. I am good to go here.



LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN



Summary



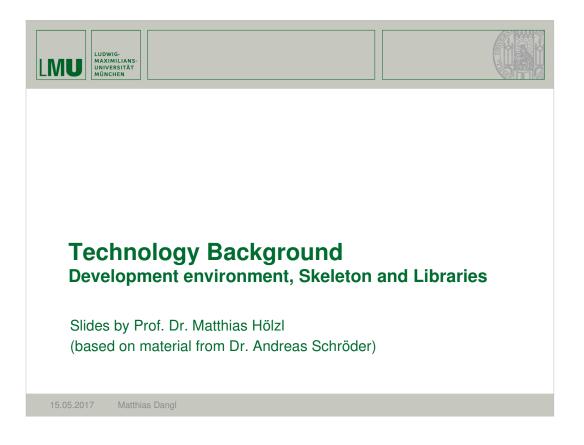
Summary: Development Environment

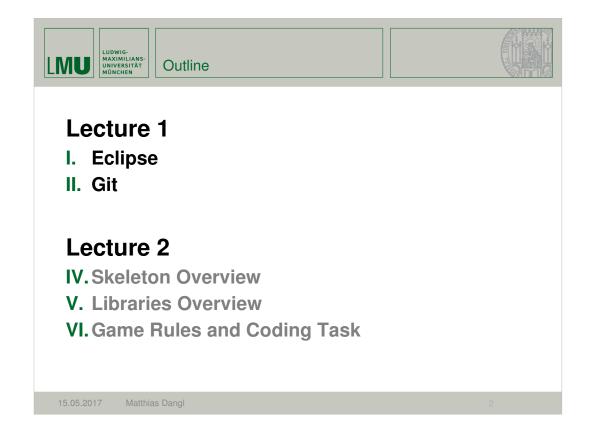


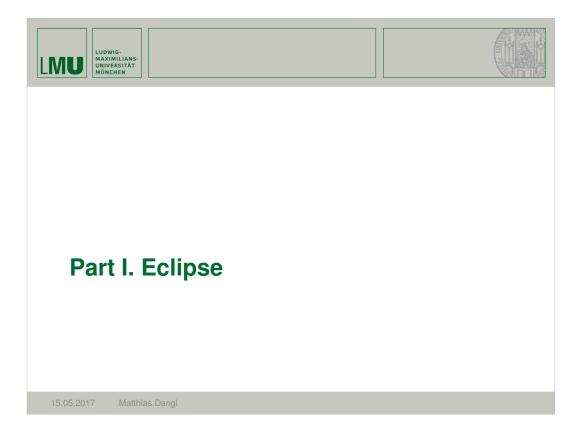
- Eclipse
 - The IDE for our project
- Git
 - Distributed version control system
 - Built-in branching facilities

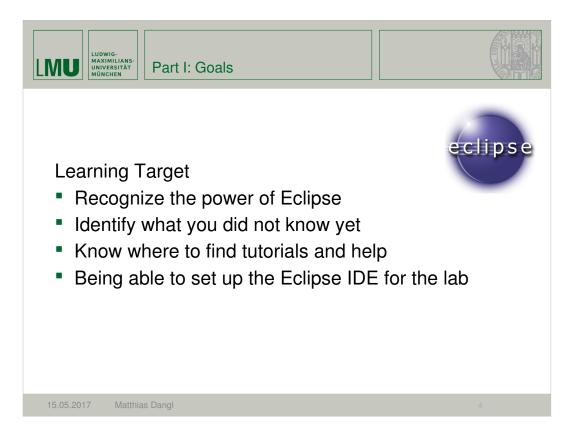


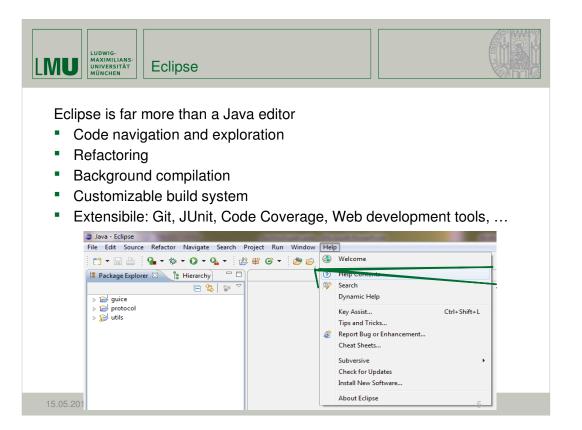


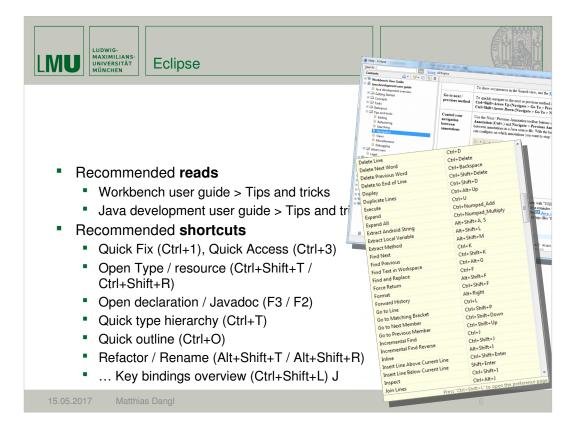








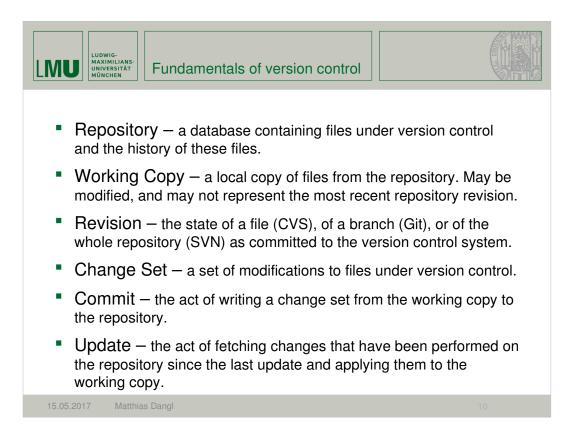


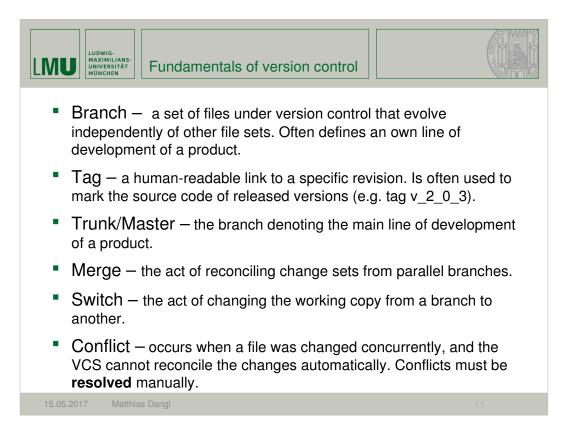


LUDWIG- MAXIMILIANS- UNIVERSITÄT MÜNCHEN Setting up Eclipse
 To setup your Eclipse, you need to: 1. Download and install eclipse 2. Setup basics: code styles, save actions, file encoding, 3. Setup Tomcat 4. Setup Git 5. Setup DB 6. Setup Launch configurations 7. Install other plugins/extensions as needed (e.g., EclEmma)
15.05.2017 Matthias Dangl 7

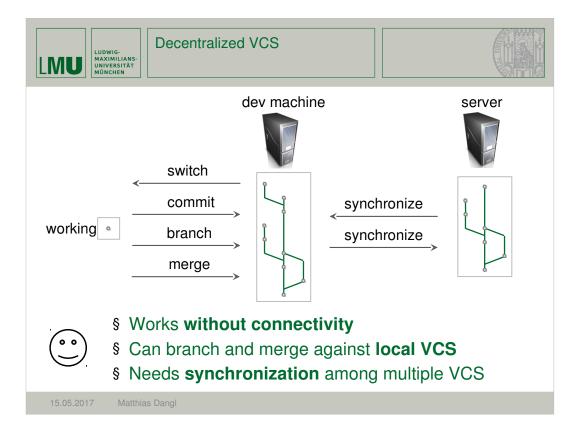




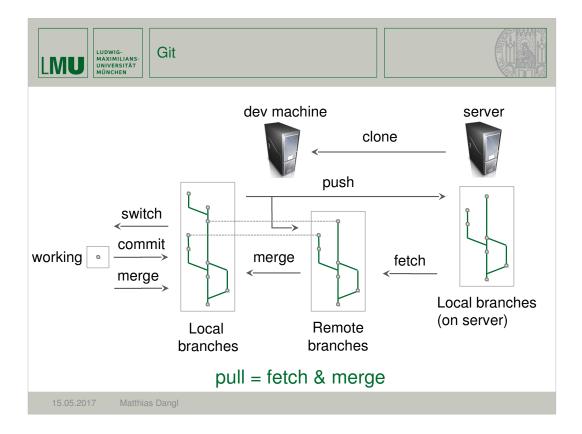




LUDWIG- MAXIMILIANS- UNIVERSITÄT WÖNCHEN	
dev machine update commit branch branch merge § Cannot work without connectiv	server
 § Needs server to branch and me § Cannot save experimental feature 	rge
15.05.2017 Matthias Dangl	



LUDWIG- MAXIMILIANS- UNIVERSITÄT MÜNCHEN		
a <u>stage</u> a <u>commit</u> Working Staging area area	Local branches	
 Git allows to select changes for commit "Staging area" lies between working area and local branches 		
15.05.2017 Matthias Dangl		

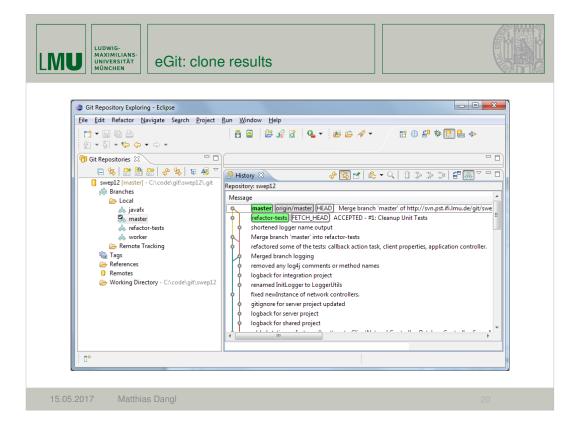


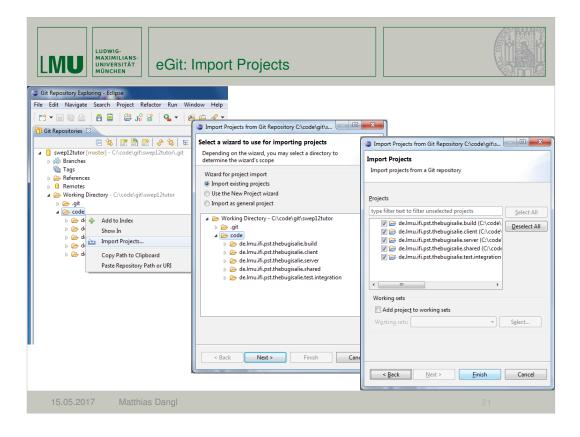
> LogOutAction.java - code/de.lmu.ifi.pst.thebugisalie.client/src/de/lmu/ifi/ps changed menu spacing > MainPanel.java - code/de.lmu.ifi.pst.thebugisalie.client/src/de/lmu/ifi/pst/tt changed menu spacing	*
MenuPanel.java - code/de.lmu.ifi.pst.thebugisalie.client/src/de/lmu/ifi/pst/the	
Author: Andreas Schroeder < Andreas.Schroede	r@ifi.lmu.de>
Committer: Andreas Schroeder < Andreas. Schroeder	r@ifi.lmu.de>

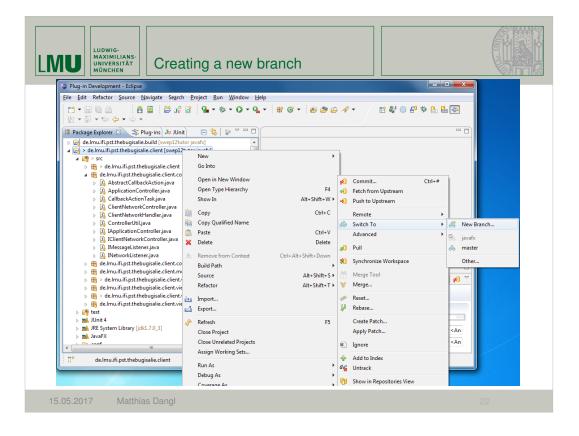
LUDWIG- MAXIMILIANS- UNIVERSITÄT MÜNCHEN Synchronize Wo	orkspace View			
Team Synchronizing - Git (gittest): /gittest/src/gittest/Foo.java - Eclipse				
File Edit Navigate Search Project Run Window Help				
□ + □ □ + □ - - - -				
😴 🖆 Synchronize 🛛 🗖 🗖	D Foo.java 😫 🗖 Foo.java 😢			
	👔 Java Structure Compare			
Git (gittest) Git (gittest) Git (gittest [GitTest branch1 41]	Compilation Unit Get Foo			
⊿ 🍋 > src/gittest I%9 Bar2.iava	Co Foo we main(String[])			
In Foojava	🛿 Java Source Compare 🔻			
	Local File Workspace			
	package gittest;			
	public class Foo {			
	public static void main(String[] System.out.println("foo2"); System.out.println("foo2");			
	System.out.println("Now it's } }			
 Menu Team Synchronize Workspace (or change to Team Synchronizing perspective) 				
15.05.2017 Matthias Dangl	17			

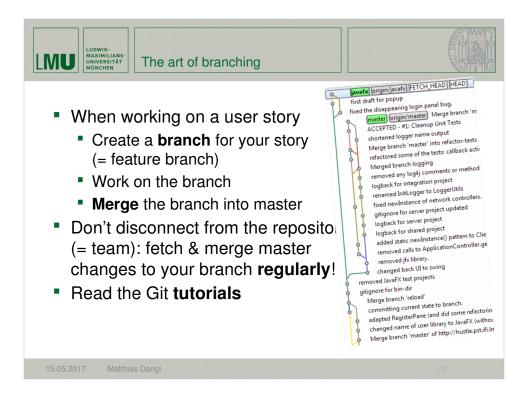
LUDWIG- MAXIMILIANS- UNIVERSITAT MÜNCHEN eGit from the start	
⇒ Git Repository Exploring - Eclipse File Edit Navigate Search Project Refactor Run Window Help □ ▼ □ ● ● ● ● ● ▼ ● ● ▼ ●	Cit Repositor I Plug-in Deve
Select one of the following to add a repository to this view: Madd an existing local Git repository Clone a Git repository. Create a new local Git repository.	
0 items selected	e 🗆 🕯 🗳 4)
15.05.2017 Matthias Dangl	18

LUDWIG- MAXIMILIANS- UNIVERSITAT WÖNCHEN	
Clone Git Repository Source Git Repository Enter the location of the source repository. Location URI: http://svn.pst.ifi.lmu.de/git/swep13 Local File Host: svn.pst.ifi.lmu.de/git/swep13 Connection Protocol: http:/ Port: Authentication User: kroiss Password: Connect on Store in Secure Store (? < Back Next> Enish Cancel 15.05.2017 Matthias Dangl	<complex-block></complex-block>
15.05.2017 Matthias Dangi	19

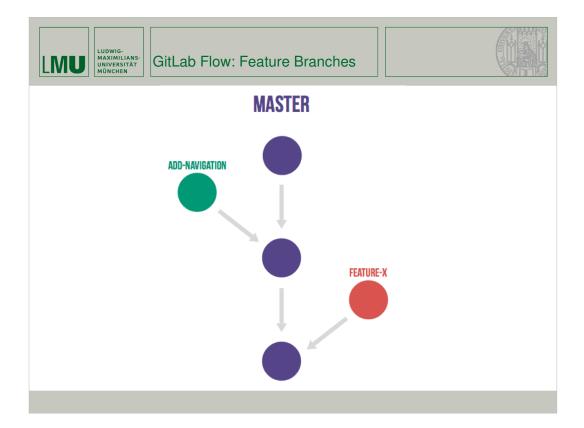


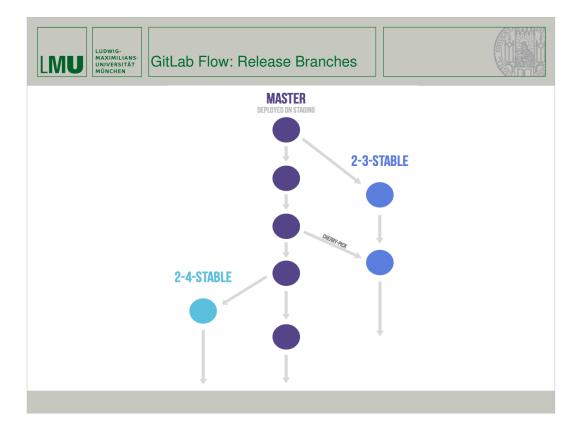


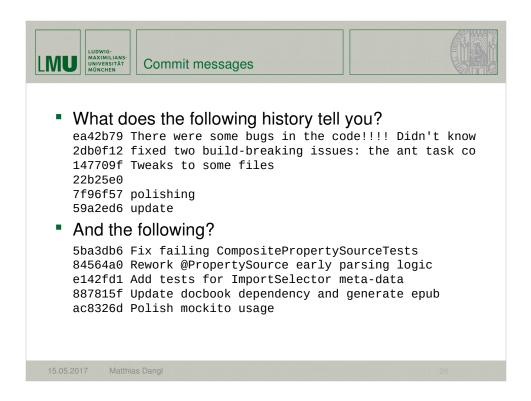




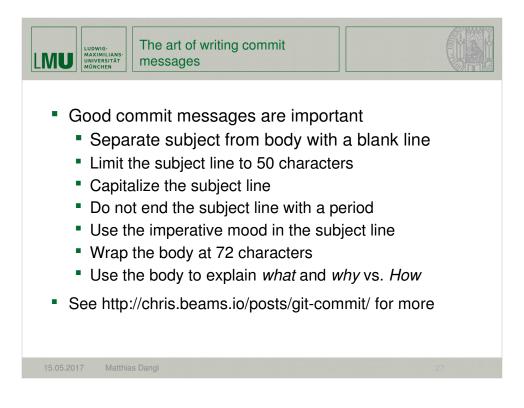
Viel Erfolg mit Git J Und jetzt zum nächsten Thema, MyLyn



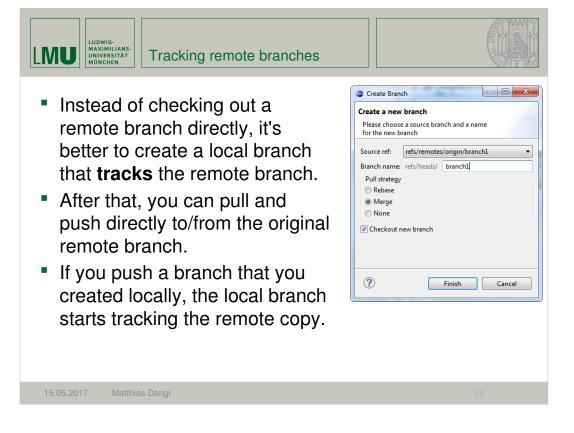


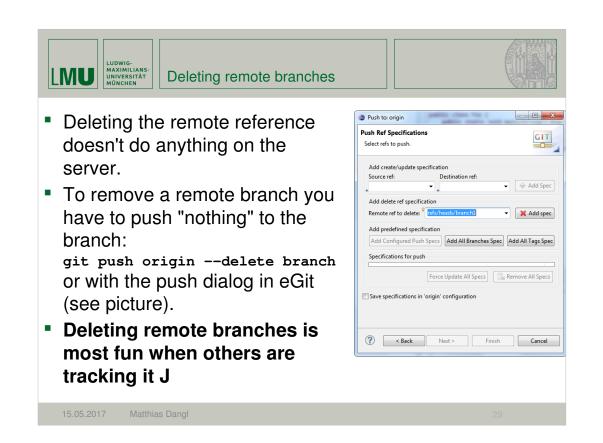


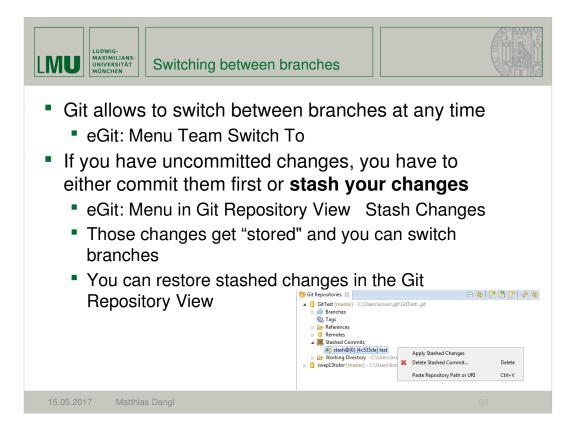
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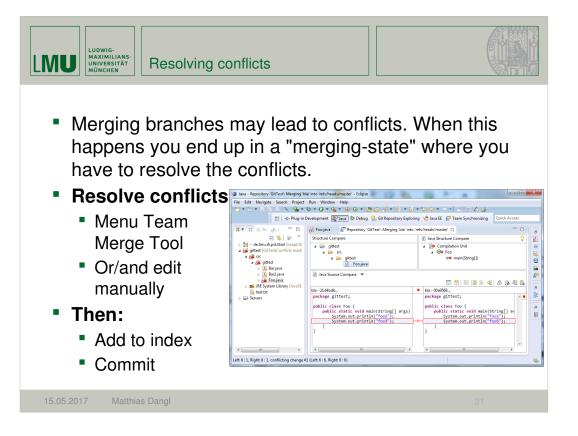


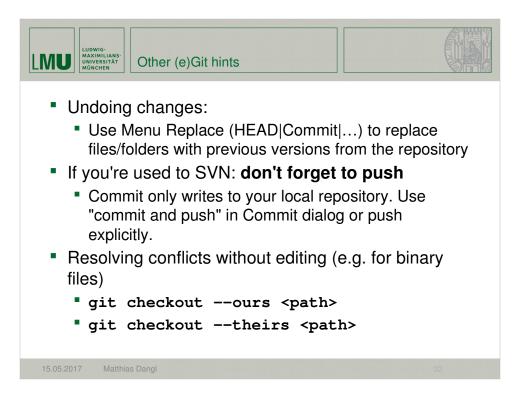
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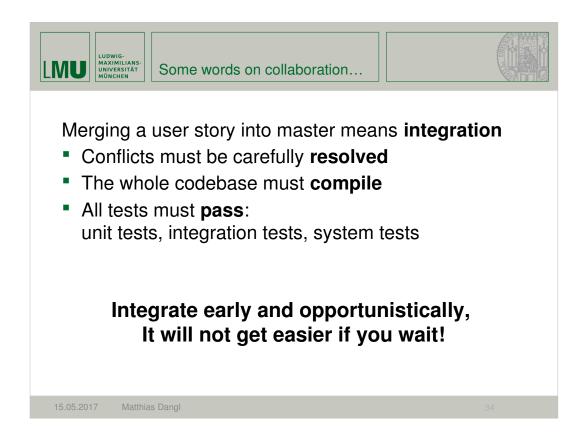


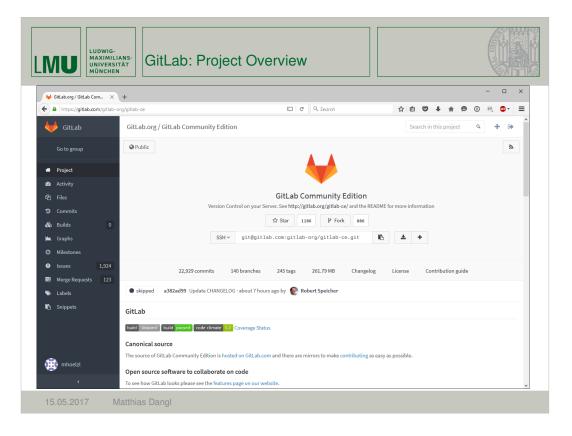




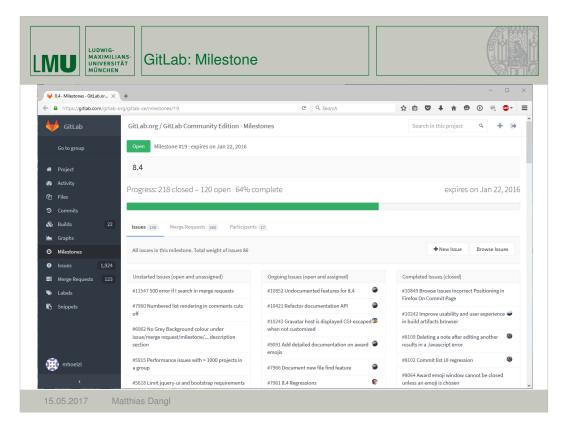


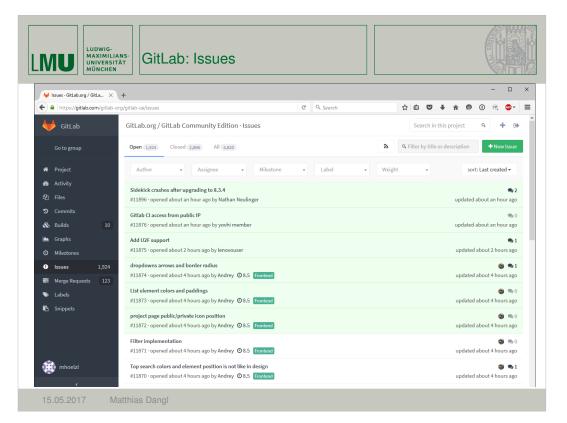


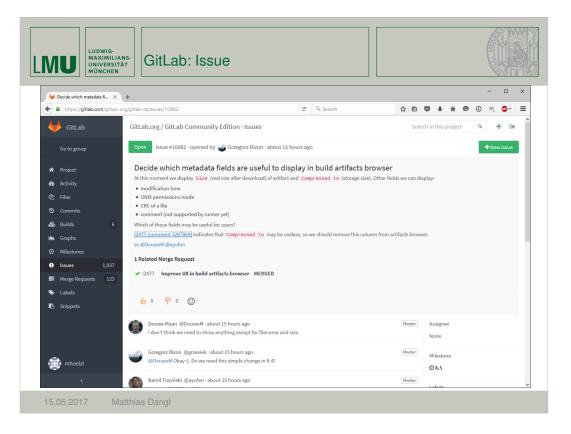


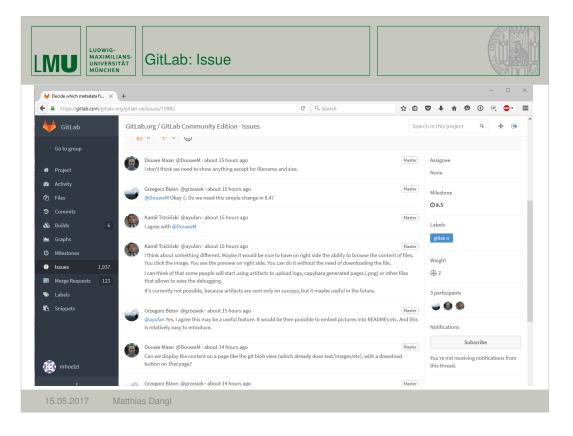


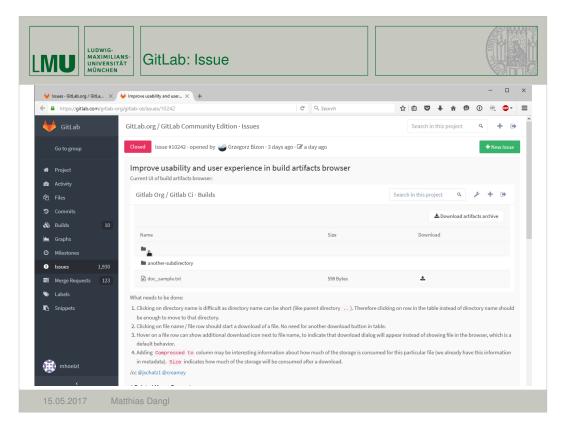
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https://gitlab.com/gitlab	-org/gitlab-ce/milestones	C ^e Q, Search	☆ 自 ♥ ↓ 余 ♥	◑ ▣
🔶 GitLab	GitLab.org / GitLab Community Edition · Milestones		Search in this project	۹ 🕂 🕩
Go to group	Open Closed All			
# Project	Milestone allows you to group issues and set due date for it			
🚯 Activity	8.7			0% complete
🔁 Files	17 Issues - 0 Merge Requests expires on Apr 22, 2016			
Ocommits				
🗞 Builds 13	8.6 43 Issues - 0 Merge Requests	_		4% complete
📥 Graphs	expires on Mar 22, 2016			
Ø Milestones	9.0			0% complete
Issues 1,924	7 Issues · 2 Merge Requests			
Merge Requests 123	8.5			13% complete
🃎 Labels	113 Issues · 11 Merge Requests expires on Feb 22, 2016			
Snippets				
	8.4 158 Issues - 180 Merge Requests			64% complete
	expires on Jan 22, 2016			
	8.3			97% complete
👬 mhoelzl	99 Issues • 173 Merge Requests (Expired) expired on Dec 22, 2015			

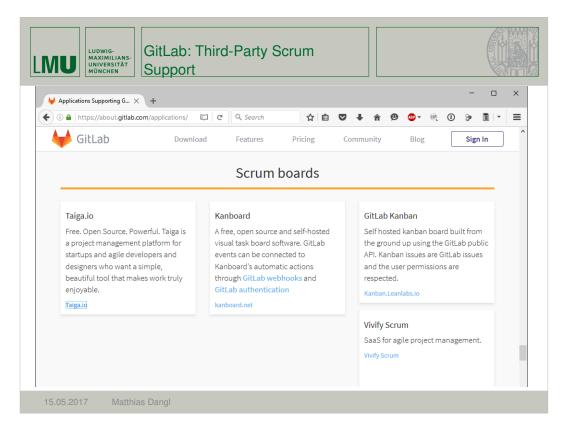


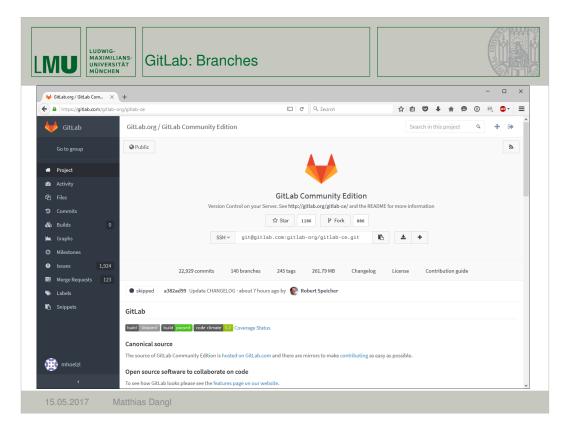












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🔶 GitLab	GitLab.org / GitLab Community Edition · Commits		Searc	ch in this project	۹ 🕂 🔿
Go to group	4d7216aa · Update CHANGELOG · 2 months ago		3120 92	→ Merge Request	← compare
A Project	8-2-stable 1322bd78 · Merge branch 'rs-issue-4032' into 'master' · about a m	onth ago	2436 82	+ Merge Request	≓ Compare
න Activity තී Files	8-3-stable 59166762 · Version 8.3.4 · 7 days ago		1194 61	+ Merge Request	≓ Compare
ට Commits හි Builds 0	8-4-stable d3af84af · Update CHANGELOG · about 7 hours ago		101 36	+ Merge Request	≓ Compare
▲ Graphs ⊘ Milestones	DNSBL_docs 5a3bea6e · First attempt on DNSBL documentation · 4 days ago		95 1	+ Merge Request	≓ Compare
Issues 1,924 Merge Requests 123	Michi302/gitlab-ce-feature/detailed-user-endpoint merged 83936360 · Add missing changelog entry · 14 days ago		887 0	+ Merge Request	≓ Compare
≫ Labels ┗ Snippets	admin_notes_for_user 22244ddf - Create admin notes for users - about a month ago		1772 1	+ Merge Request	≓ Compare
	api-groups 80746daa - Return all authorized groups in API 10 months ago		7820 1	+ Merge Request	≓ Compare
mhoelzl	awardemoji-tooltip-shows-people-multiple-times o5cbd588 · Fixes issue where other emoji (not thumbup/thumbdc ago	own) were not removed - about 8 hours	58 5	♣ Merge Request	≓ Compare
15.05.2017	Matthias Dangl				

Werge Requests · GitLab.o ×	+ C Q Search	- □ × ☆自♡↓余�0⊮@▼ 〓
6itLab	GitLab.org / GitLab Community Edition · Merge Requests	Search in this project ۹ 🕂 🕞
Go to group	Open 123 Merged 2,035 Closed 345 All 2,503	Q Filter by title or description
# Project	Author • Assignee • Milestone • Label •	sort: Last created 🕶
න Activity අට Files	Adds "t" as a shortcut for find file anywhere #2507 - opened about 9 hours ago by Jacob Schatz Ø8.4 [Finatena]	🗶 🏐 🙊 10 updated about 2 hours ago
ව Commits & Builds 0	WIP: Add LICENSE type detection #2506 - opened about 10 hours ago by Aslak Knutsen	✓ 😒 0 updated about 10 hours ago
🖮 Graphs Ø Milestones	Check if MR is not broken. #2505 - opened about 11 hours ago by Rubén Dávila Santos	🗙 🎯 🗣 1 updated about 11 hours ago
Issues 1,924	[ci skip] Fixed minor typo in workflow documentation #2503 - opened about 12 hours ago by John Galt	🗙 🦔 0 updated about 12 hours ago
 Merge Requests 123 Labels 	WIP: Recursive build artifacts metadata entries #2500 · opened about 14 hours ago by Grzegorz Bizon [<u>pttabe</u>]	✓ 🙊 0 updated about 14 hours ago
🔥 Snippets	Add an option to supply root email through an environmental variable. #2499 - opened about 14 hours ago by Koichiro Mikami	🗙 🦔 0 updated about 14 hours ago
	Fix diff comments loaded by AJAX to load comment with diff in discussion tab #2497 · opened about 17 hours ago by Rémy Coutable @8.4 Frontend Reg	✓ 🛕 🍘 🗫 2 updated about 10 hours ago
🐞 mhoelzl	Add option to include author name in body of notification email. fix #7824 #2495 - opened about 18 hours ago by Jason Lee 0 8.5	V 🔮 🙊 0 updated about 9 hours ago
<		~
15.05.2017 M	atthias Dangl	

