



State of the Art CI

Sven Oppermann



Agenda

- Definition
- “Live” Demo
- Essential Elements
- Final Thoughts

Continuous Integration (CI)

... is a development practice that requires developers to integrate code into a shared repository ... allowing teams to detect problems early.

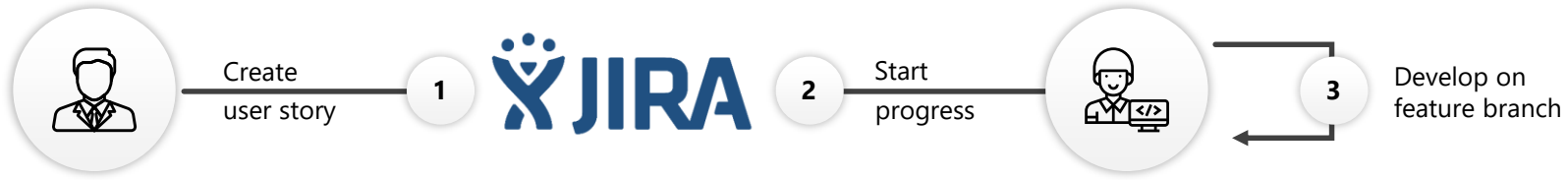
“Live” Demo



Create
user story

1





Create branch for JUG-24

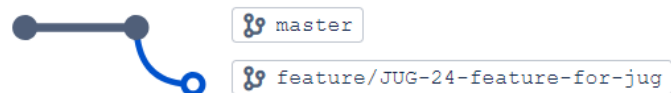
Repository  JUG / demo-wo-docker ▾

Branch type Feature ▾

[Learn about branch types](#)

Branch from  master ▾ 

Branch name feature/



[Create branch](#) [Cancel](#)

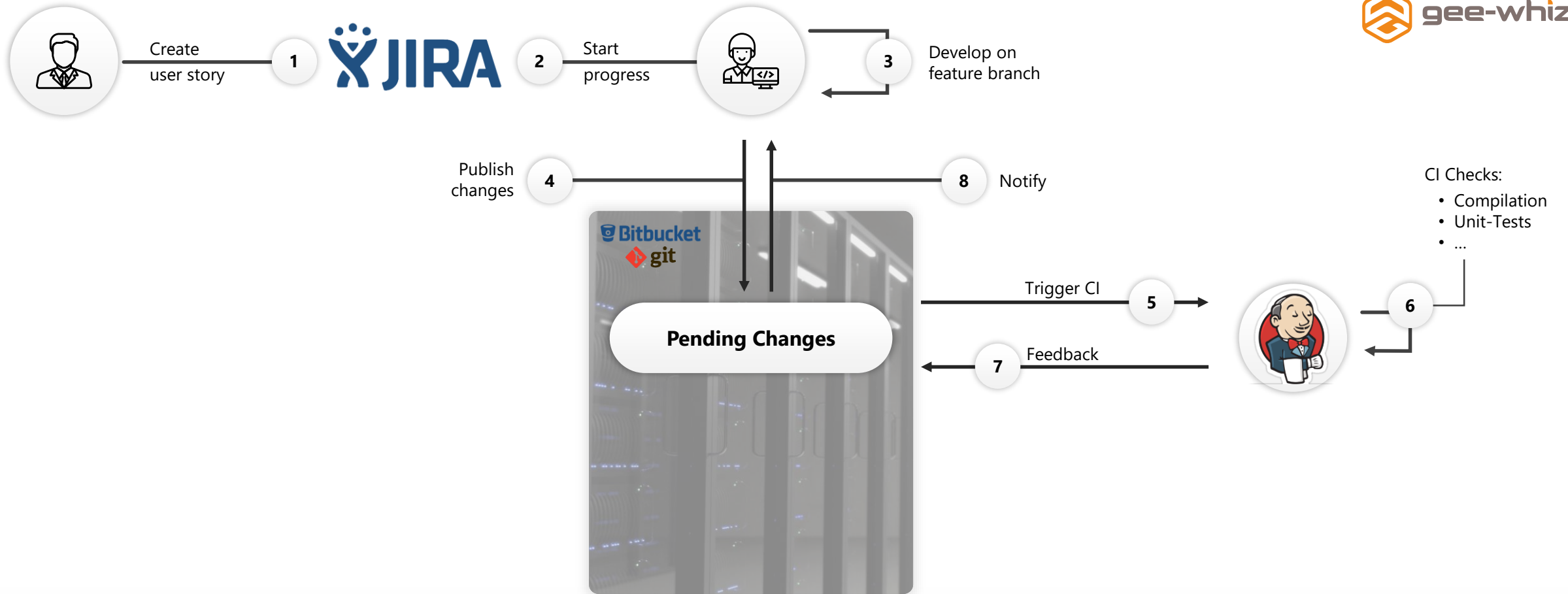
Git repository management powered by a free Atlassian Bitbucket evaluation license

[Atlassian Bitbucket v5.14.0](#) ·
 [Documentation](#) ·
 [Contact Support](#) ·
 [Request a feature](#) ·
 [About](#) ·
 [Contact Atlassian](#)





```
$ git fetch  
$ git checkout feature/JUG-24-feature-for-jug  
$ ... programming ...  
$ git commit -am 'step 1'  
$ git push
```



Branches

...

🔍 Filter branches

[Learn more](#)

Branch	Behind/Ahead	Updated	Pull requests	Issues	Builds	Actions
 feature/JUG-24-feature-for-jug	1	 15 mins ago		JUG-24		
 master DEFAULT BRANCH		 2 hours ago				

Git repository management powered by a free Atlassian Bitbucket evaluation license

Atlassian Bitbucket v5.14.0 · Documentation · Contact Support · Request a feature · About · Contact Atlassian



Jenkins

admin | Abmelden

Jenkins > JUG > demo-wo-docker > [AUTO-AKTUALISIERUNG EINSCHALTEN](#)

- Up
- Status
- View Configuration
- Scan Multibranch Pipeline Now
- Scan Multibranch Pipeline Log
- Multibranch Pipeline Events
- Benutzer
- Build-Verlauf
- Projektbeziehungen
- Fingerabdruck überprüfen
- Bitbucket
- Pipeline Syntax
- Zugangsdaten



demo-wo-docker

Branches (2) Pull requests (0) Tags (0)

S	W	Name ↓	Letzter Erfolg	Letzter Fehlschlag	Letzte Dauer
		feature/JUG-24-feature-for-jug	31 Sekunden - #2 - demo-wo-docker/feature/JUG-24-feature-for-jug	Unbekannt	25 Sekunden
		master	2 Minuten 15 Sekunden - #1 - demo-wo-docker/master	Unbekannt	1 Minute 42 Sekunden

Symbol: S M L

Legende [RSS Alle Builds](#) [RSS Nur Fehlschläge](#) [RSS Nur jeweils letzter Build](#)

Build-Warteschlange

Keine Builds geplant

Build-Prozessor-Status

- master
 - 1 Ruhend
 - 2 Ruhend
- docker-00003147xahng



admin | Abmelden

Jenkins
JUG
demo-wo-docker
feature/JUG-24-feature-for-jug
AUTO-AKTUALISIERUNG EINSCHALTEN

Up
Status
Changes
Jetzt bauen
Konfiguration anzeigen
Full Stage View
Bitbucket
Maven
Pipeline Syntax

Branch feature/JUG-24-feature-for-jug

Vollständiger Projektname: JUG2018/demo-wo-docker/feature%2FJUG-24-feature-for-jug


[Recent Changes](#)

Stage View

Trend der Testergebnisse



(Nur Fehlschläge anzeigen) Vergrößern

Declarative: Checkout SCM	Link Bitbucket	Build	Sonar for PullRequest	Publish to Sonar
812ms	1s	34s	NaNy NaNd	NaNy NaNd
658ms	779ms	20s		
967ms	1s	47s		

Build-Verlauf

Trend

suchen

#2 - demo-wo-docker/feature/JUG-24-feature-for-jug

26.09.2018 12:35

Branch: [Browse](#) • [Commits](#)

#1 - demo-wo-docker/feature/JUG-24-feature-for-jug

26.09.2018 12:33

Branch: [Browse](#) • [Commits](#)

Average stage times:

(Average full run time: ~41s)

#2 - demo-wo-docker/feature/JUG-24-fe

Sep 26 12:35

No Changes

#1 - demo-wo-docker/feature/JUG-24-fe

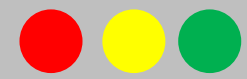
Sep 26 12:33

No Changes

RSS aller Builds

RSS der Fehlschläge


[Letztes Testergebnis](#) (Kein Test fehlgeschlagen.)



```
$ ... programming ...  
$ git commit -am 'step 2'  
$ git push
```



admin | Abmelden

Jenkins
JUG
demo-wo-docker
feature/JUG-24-feature-for-jug
AUTO-AKTUALISIERUNG EINSCHALTEN

Up
Status
Changes
Jetzt bauen
Konfiguration anzeigen
Full Stage View
Bitbucket
Maven
Pipeline Syntax

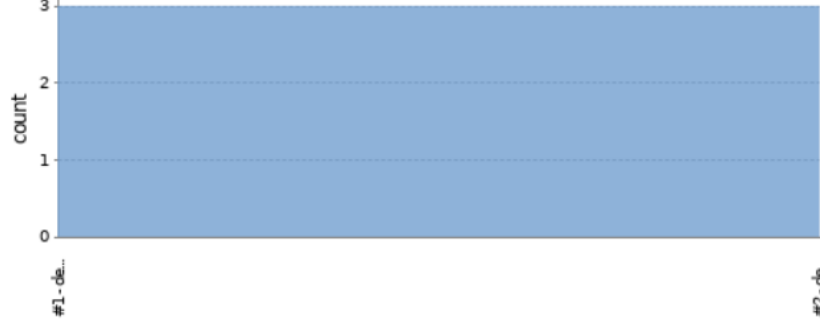
Branch feature/JUG-24-feature-for-jug

Vollständiger Projektname: JUG2018/demo-wo-docker/feature%2FJUG-24-feature-for-jug


[Recent Changes](#)

Stage View

Trend der Testergebnisse



(Nur Fehlschläge anzeigen) Vergrößern

Declarative: Checkout SCM	Link Bitbucket	Build	Sonar for PullRequest	Publish to Sonar
730ms	987ms	24s	NaNy NaNd	NaNy NaNd
566ms	347ms			
658ms	779ms	20s		
967ms	1s	47s		

Build-Verlauf
Trend

#3 - demo-wo-docker/feature/JUG-24-feature-for-jug

26.09.2018 12:48

Branch: [Browse](#) • [Commits](#)

#2 - demo-wo-docker/feature/JUG-24-feature-for-jug

26.09.2018 12:35

Branch: [Browse](#) • [Commits](#)

#1 - demo-wo-docker/feature/JUG-24-feature-for-jug

Branch: [Browse](#) • [Commits](#)

Average stage times:
(Average full run time: ~41s)

#3 - demo-wo-docker/feature/JUG-24-fe

Sep 26
1

12:48
commit

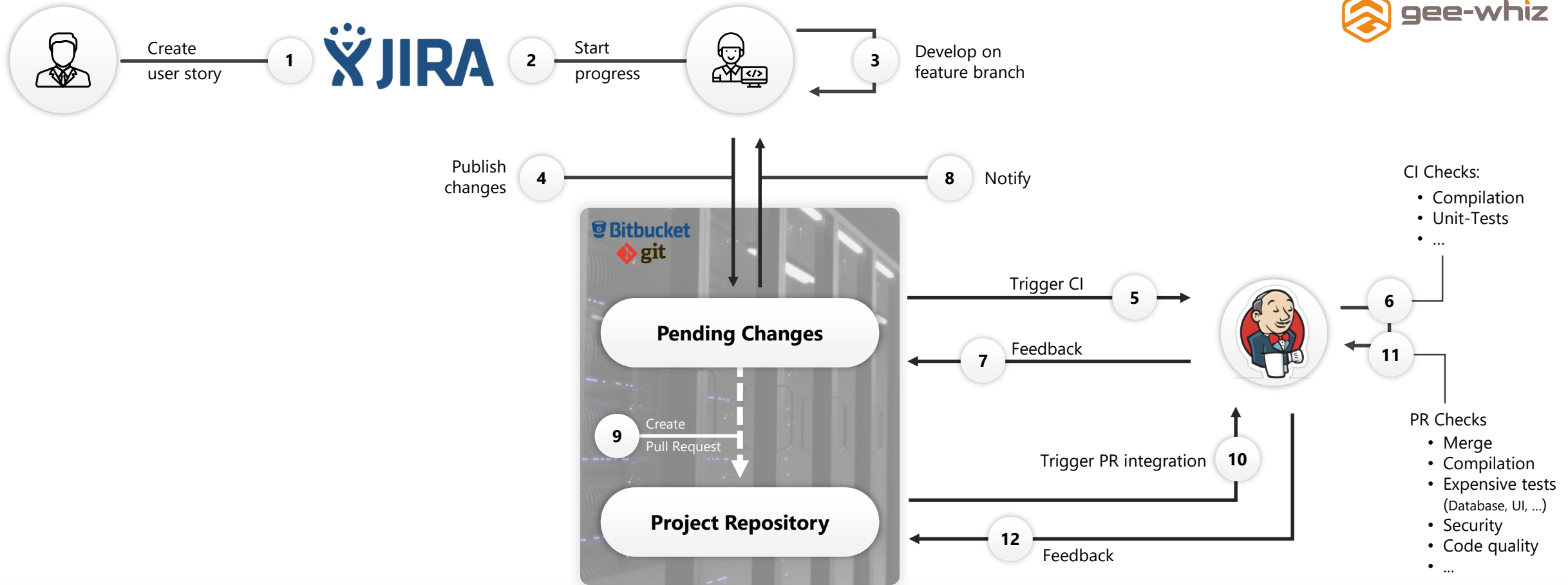
#2 - demo-wo-docker/feature/JUG-24-fe

Sep 26
No Changes

12:35

#1 - demo-wo-docker/feature/JUG-24-fe

Sep 26
No Changes



JUG
SAXONY
DAY



<>





Create pull request


demo-w...


feature/JUG-24-feature...

→


demo-wo-d...


master

Change

Title*

Feature/JUG-24 feature for jug

Description

* [step1](#)

* [step2](#)




Preview

Reviewers


Dennis Keitzel
×

Reviewers can approve a pull request to let others know when it is good to merge

Create

Cancel

Diff

Commits

Author	Commit	Message	Commit date	Builds
 Sven Oppermann	482e8da9fab	step2	22 mins ago	
 Sven Oppermann	ba05819ed91	step1	44 mins ago	



Find text in diff and context lines

modules / modul-a / src / main / java / de / geewhiz / jug2018 / modula /
Calculator.java MODIFIED
pom.xml

1	1	package de.geewhiz.jug2018.modula;
2	2	
3	3	public class Calculator {
4	4	
5	5	public int add(int v1, int v2) {
6 +	6 +	//sven was also
7 +	7 +	//here
8 +	8 +	//and
9 +	9 +	//here
10 +	10 +	// and again here
11 +	11 +	;
6	12	return v1 + v2;
7	13	}
8	14	
9	15	public int multiply(int v1, int v2) {
10	16	return v1 * v2;
11	17	}
12	18	
13	19	public int subtract(int v1, int v2) {
14	20	return v1 - v2;
15	21	}

Blame

>>



Jenkins

admin | Abmelden

Jenkins » JUG » demo-wo-docker » Pull requests (1)
AUTO-AKTUALISIERUNG EINSCHALTEN

- Up
- Status
- View Configuration
- Scan Multibranch Pipeline Now
- Scan Multibranch Pipeline Log
- Multibranch Pipeline Events
- Benutzer
- Build-Verlauf
- Projektbeziehungen
- Fingerabdruck überprüfen
- Bitbucket
- Pipeline Syntax
- Zugangsdaten



demo-wo-docker

Branches (2)
Pull requests (1)
Tags (0)

S	W	Name ↓	Letzter Erfolg	Letzter Fehlschlag	Letzte Dauer
		PR-1	Nicht anwendbar	Unbekannt	Nicht anwendbar

Symbol: S M L

[Legende](#)
[RSS Alle Builds](#)
[RSS Nur Fehlschläge](#)
[RSS Nur jeweils letzter Build](#)

Build-Warteschlange

Keine Builds geplant

Build-Prozessor-Status

1

#1 - demo-wo-docker
JUG » demo-wo-docker » PR-1

= docker /PR


JUG demo-wo-docker

ACTIONS

- Clone
- Create branch
- Create pull request
- Create fork

NAVIGATION

- Source
- Commits
- Branches
- Pull requests** 1
- Forks

SHORTCUTS

- Add shortcut
- Repository settings

Feature/JUG-24 feature for jug

[Overview](#) [Diff](#) [Commits](#)

Details

 **Sven Oppermann** created a pull request 8 mins ago

- step1
- step2

 **2 builds** 

 **JUG-24**

 **1 open task**

 [Learn more](#)

Activity

 What do you want to say?

 **sonar** marked the pull request as **NEEDS WORK** 8 mins ago

 **sonar** commented on a file 8 mins ago

 modules / modul-a / src / main / java / de / geewhiz / jug2018 / modula / **Calculator.java**

```

1 1 package de.geewhiz.jug2018.modula;
2 2
3 3 public class Calculator {
4 4
5 5     public int add(int v1, int v2) {
6 +         //sven was also
7 +         //here
8 +         //and
9 +         //here
10 +        // and again here
11 +        ;

```

 **sonar**

MINOR - Remove this empty statement. [squid:EmptyStatementUsageCheck]

[Reply](#) · [Create task](#) · [Create Jira issue](#) · [Like](#) · 8 mins ago



```
$ ... fixing sonar issue ...  
$ git commit -am 'sonar bug removed'  
$ git push
```



Jenkins

admin | Abmelden

Jenkins » JUG » demo-wo-docker » Pull requests (1)

[Up](#)
[Status](#)
[View Configuration](#)
[Scan Multibranch Pipeline Now](#)
[Scan Multibranch Pipeline Log](#)
[Multibranch Pipeline Events](#)
[Benutzer](#)
[Build-Verlauf](#)
[Projektbeziehungen](#)
[Fingerabdruck überprüfen](#)
[Bitbucket](#)
[Pipeline Syntax](#)
[Zugangsdaten](#)



demo-wo-docker

[Branches \(2\)](#)
[Pull requests \(1\)](#)
[Tags \(0\)](#)

S	W	Name ↓	Letzter Erfolg	Letzter Fehlschlag	Letzte Dauer
		PR-1	6 Minuten 52 Sekunden - #3 - demo-wo-docker/PR-1	Unbekannt	11 Sekunden

Symbol: [S](#) [M](#) [L](#)

[Legende](#)
[RSS Alle Builds](#)
[RSS Nur Fehlschläge](#)
[RSS Nur jeweils letzter Build](#)

Build-Warteschlange

Keine Builds geplant

Build-Prozessor-Status

1	#4 - demo-wo-docker/PR-1 (Sonar for PullRequest)		
2	Ruhend		



[Projects](#)
[Repositories](#)






Sven Oppermann

feature/JUG-24-feature-for-jug
→ master
OPEN




Merge

Feature/JUG-24 feature for jug

[Overview](#)
[Diff](#)
[Commits](#)

Show diff of




All changes in this pull request

Files

modules/modul-a/src/main/java/de/geewhiz/jug2018/m

Calculator.java

pom.xml

modules / modul-a / src / main / java / de / geewhiz / jug2018 / modula /

Blame







Calculator.java

MODIFIED

1	1	package de.geewhiz.jug2018.modula;
2	2	
3	3	public class Calculator {
4	4	
5	5	public int add(int v1, int v2) {
6	6	//sven was also
7	7	//here
8	8	//and
9	9	//here
10	10	// and again here
11	11	return v1 + v2;
12	12	}
13	13	
14	14	public int multiply(int v1, int v2) {
15	15	return v1 * v2;
16	16	}
17	17	
18	18	public int subtract(int v1, int v2) {
19	19	return v1 - v2;
20	20	}



Dennis Keitzel

plz as oneliner

[Reply](#) · [Edit](#) · [Delete](#) · [Create task](#) · [Create Jira issue](#) · 5 mins ago (edited a moment ago)

Code review
by Dennis














Feature/JUG-24 feature for jug

[Overview](#)
[Diff](#)
[Commits](#)

Details


Sven Oppermann created a pull request 23 mins ago

- step1
- step2

 2 builds 
 JUG-24

 1 open task

[Learn more](#)

Activity




Dennis Keitzel marked the pull request as **NEEDS WORK** 7 mins ago


Dennis Keitzel commented on a file 7 mins ago


 modules / modul-a / src / main / java / de / geewhiz / jug2018 / modula / **Calculator.java**

```

1 1 package de.geewhiz.jug2018.modula;
2 2
3 3 public class Calculator {
4 4
5 5     public int add(int v1, int v2) {
6 +         //sven was also
7 +         //here
8 +         //and
9 +         //here
10 +        // and again here

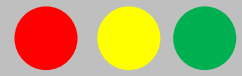
```


Dennis Keitzel
 plz as oneliner
 Reply · Delete · Create task · Create Jira issue · Like · 7 mins ago (edited 2 mins ago)

```

6 11     return v1 + v2;

```

```
$ ... fixing code review issue ...  
$ git commit -am 'fixing code review issue'  
$ git push
```




[Projects](#)
[Repositories](#)










Sven Oppermann

feature/JUG-24-feature-for-jug → master

OPEN





Merge

...

Feature/JUG-24 feature for jug

[Overview](#)
[Diff](#)
[Commits](#)

Show diff of

1 commit since you last reviewed

▼

Files

modules/modul-a/src/main/java/de/geewhiz/jug2018/m

Calculator.java

modules / modul-a / src / main / java / de / geewhiz / jug2018 / modula /

Blame

↺

📄

...

Calculator.java

MODIFIED

1	1	package de.geewhiz.jug2018.modula;
2	2	
3	3	public class Calculator {
4	4	
5	5	public int add(int v1, int v2) {
6	-	//sven was also
7	-	//here
8	-	//and
9	-	//here
10	-	// and again here
6	+	//sven was also here and here and again here
11	7	return v1 + v2;
12	8	}
13	9	
14	10	public int multiply(int v1, int v2) {
15	11	return v1 * v2;
16	12	}
17	13	
18	14	public int subtract(int v1, int v2) {
19	15	return v1 - v2;
20	16	}

Code review
by Dennis



Suchen

admin | Abmelden

Jenkins
JUG
demo-wo-docker
Pull requests (1)

AUTO-AKTUALISIERUNG EINSCHALTEN

Up
Status
View Configuration
Scan Multibranch Pipeline Now
Scan Multibranch Pipeline Log
Multibranch Pipeline Events
Benutzer
Build-Verlauf
Projektbeziehungen
Fingerabdruck überprüfen
Bitbucket
Pipeline Syntax
Zugangsdaten



demo-wo-docker

Branches (2)
Pull requests (1)
Tags (0)

S	W	Name ↓	Letzter Erfolg	Letzter Fehlschlag	Letzte Dauer
		PR-1	18 Minuten - #5 - demo-wo-docker/PR-1	Unbekannt	30 Sekunden

Symbol: S M L

Legende
RSS Alle Builds
RSS Nur Fehlschläge
RSS Nur jeweils letzter Build

Branches (2)
Pull requests (1)
Tags (0)

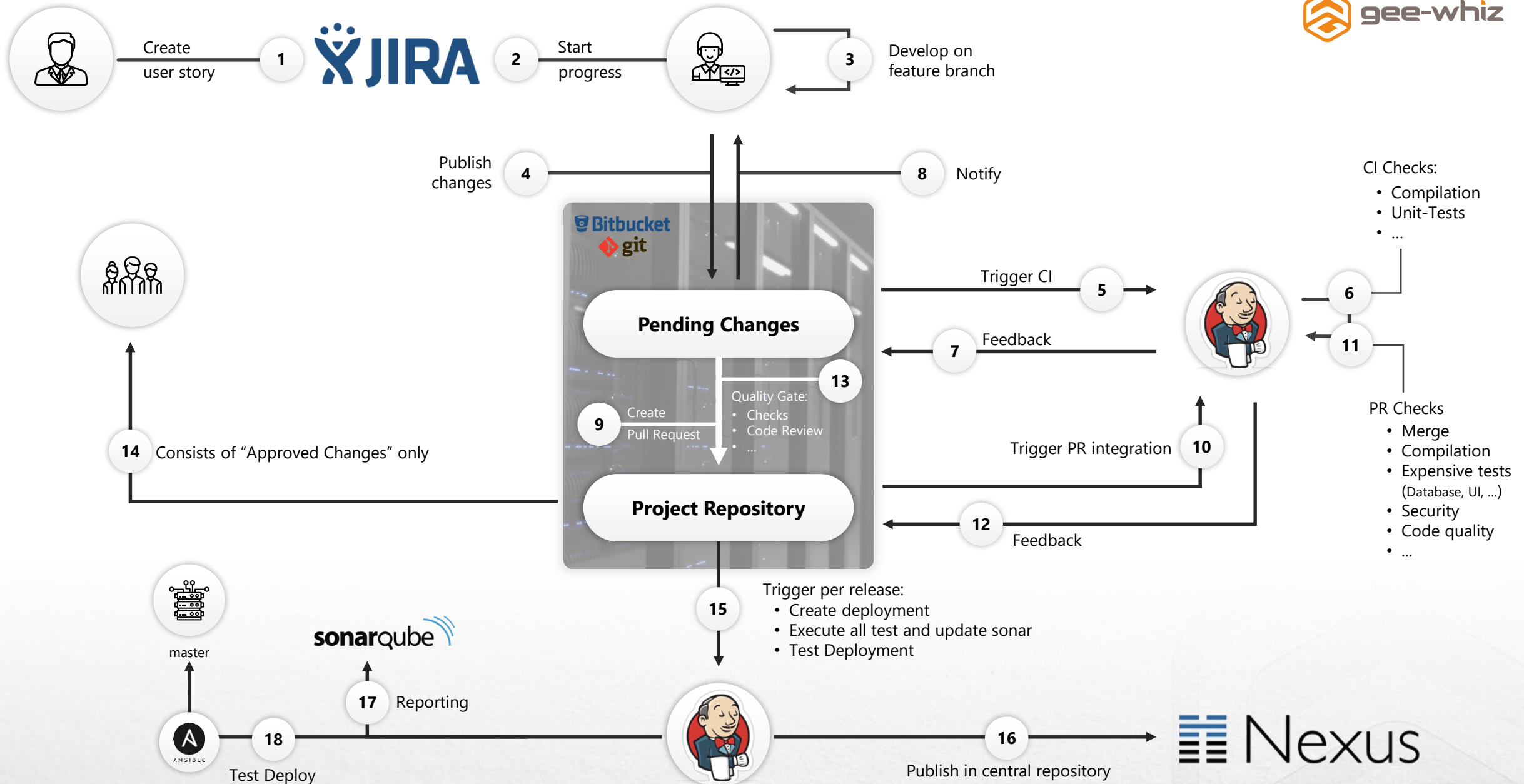
S	W	Name ↓	Letzter Erfolg	Letzter Fehlschlag	Letzte Dauer
		feature/JUG-24-feature-for-jug	19 Minuten - #5 - demo-wo-docker/feature/JUG-24-feature-for-jug	Unbekannt	19 Sekunden
		master	1 Minute 19 Sekunden - #2 - demo-wo-docker/master	Unbekannt	23 Sekunden

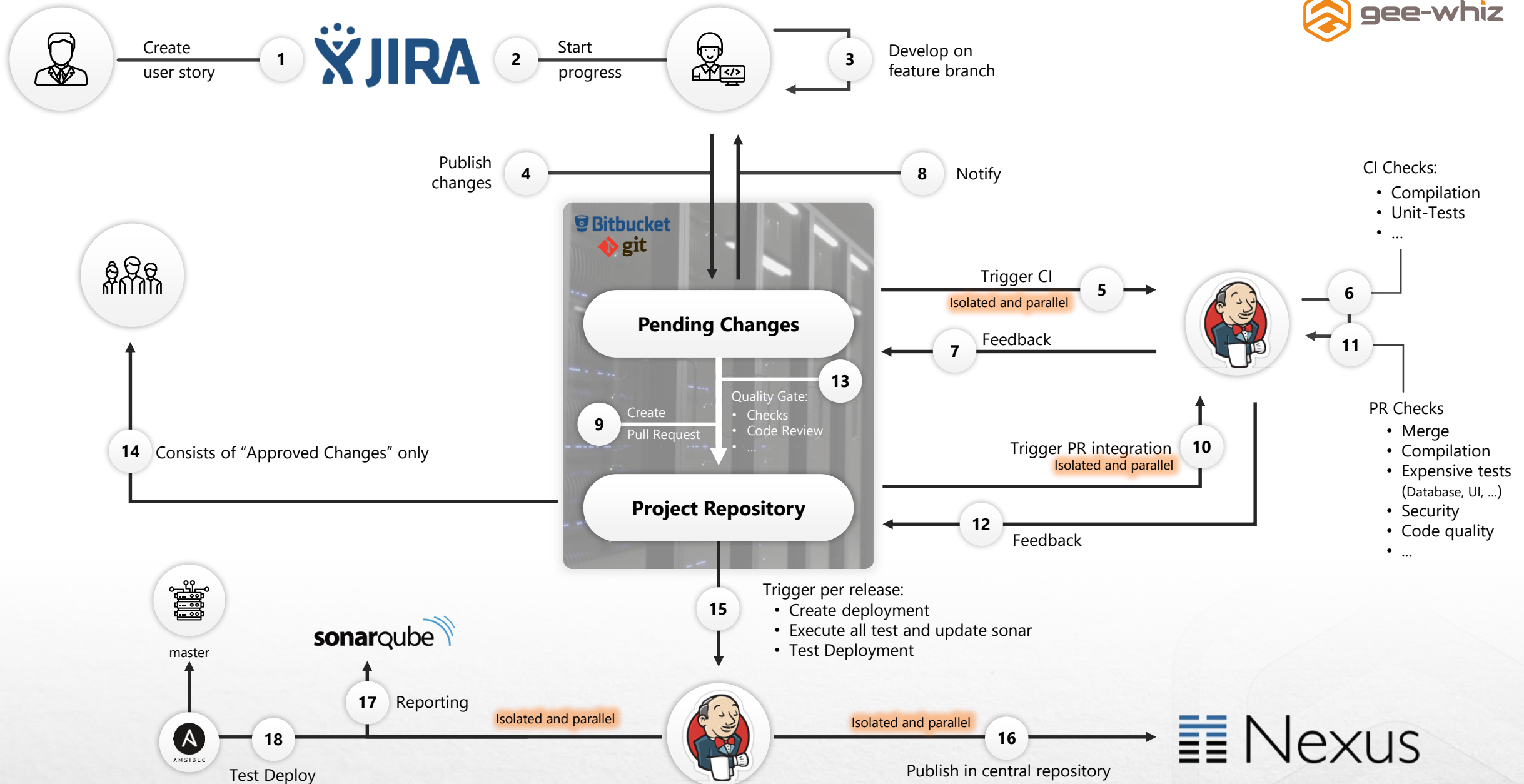
Build-Warteschlange

Keine Builds geplant

Build-Prozessor-Status

1 Ruhend
2 [#2 - demo-wo-docker/master](#) (Publish to Sonar)





Essential Elements

Essential Elements

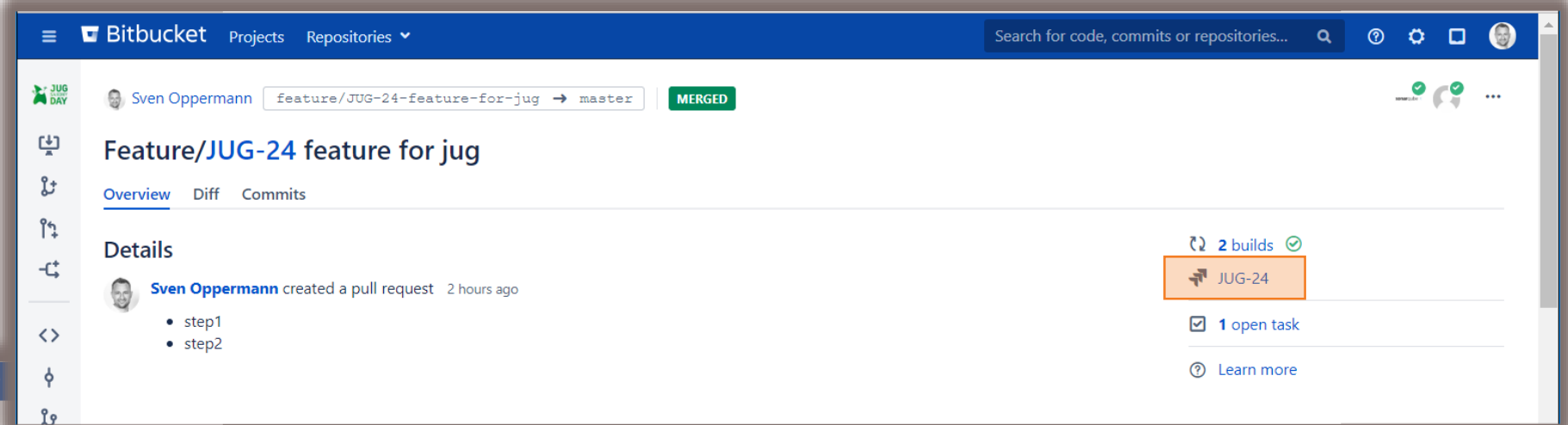
- Tool integration
- Infrastructure as Code
- Proper setup
- Nifty additions

Essential Elements

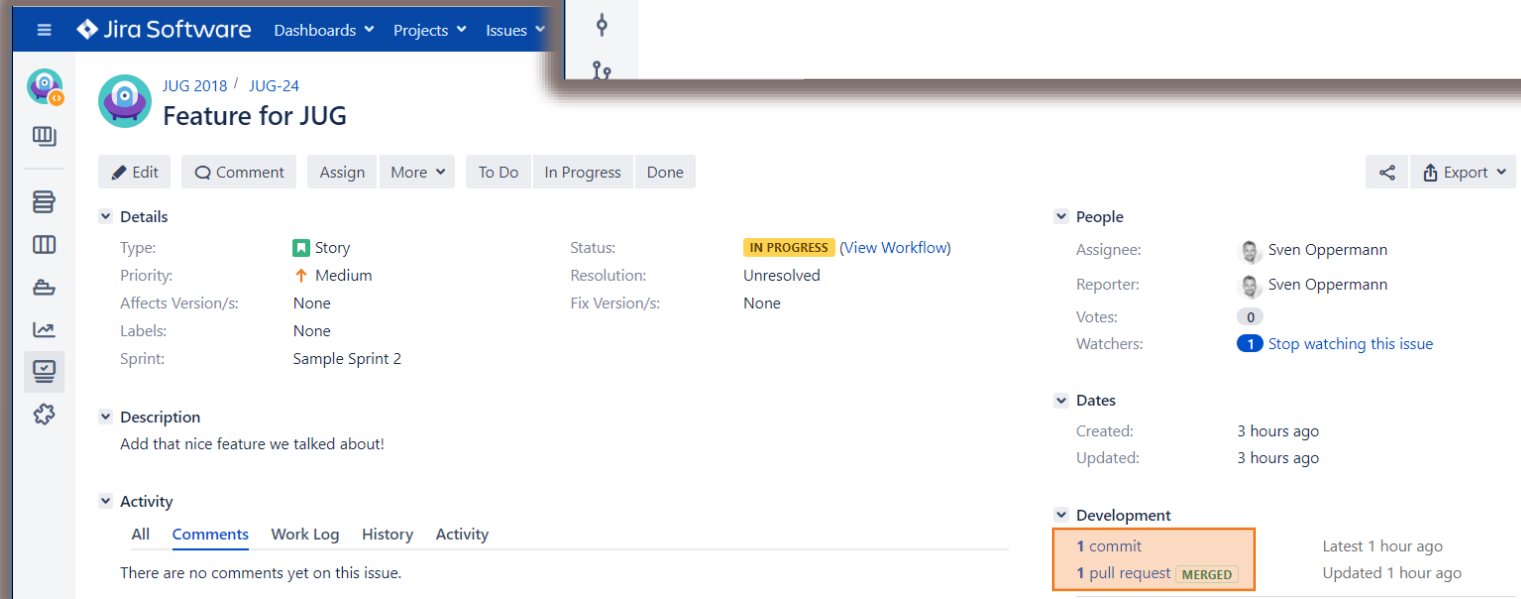
- Tool integration
- Infrastructure as Code
- Proper setup
- Nifty additions

Tool integration

Traceability



Bitbucket interface showing a pull request for 'Feature/JUG-24 feature for jug'. The pull request is titled 'Feature/JUG-24 feature for jug' and is in the 'MERGED' state. The pull request was created by Sven Oppermann 2 hours ago. The pull request details show a list of changes: step1 and step2. The pull request is linked to a build (JUG-24) and has 1 open task. The pull request is also linked to a commit (JUG-24) and has 1 pull request (MERGED).



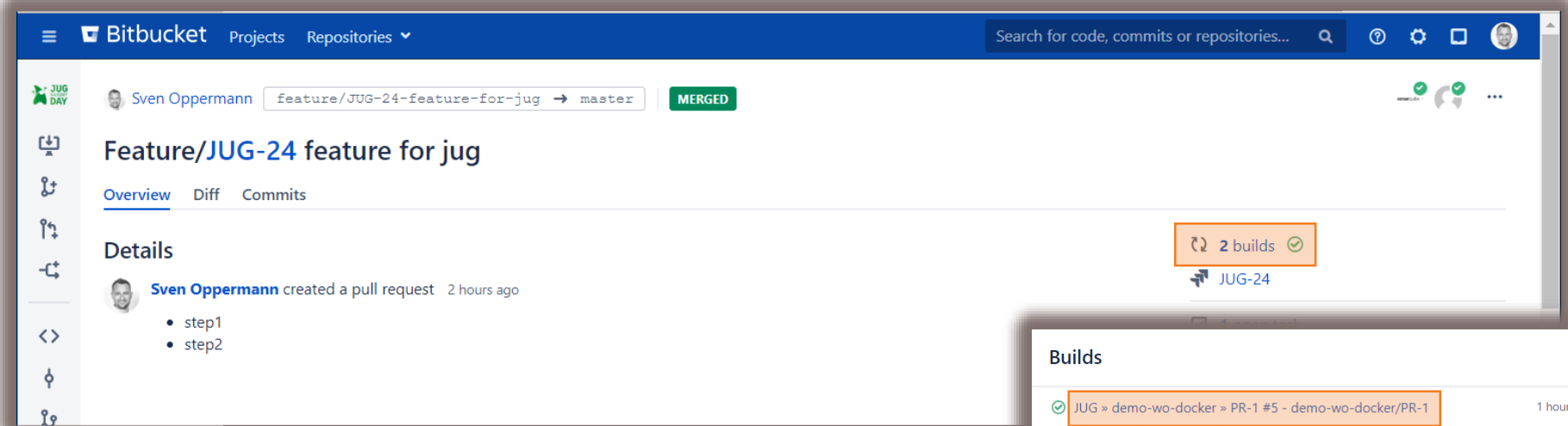
Jira Software interface showing an issue titled 'Feature for JUG'. The issue is in the 'IN PROGRESS' state. The issue details show the following information:

- Type: Story
- Priority: Medium
- Affects Version/s: None
- Labels: None
- Sprint: Sample Sprint 2
- Status: IN PROGRESS (View Workflow)
- Resolution: Unresolved
- Fix Version/s: None

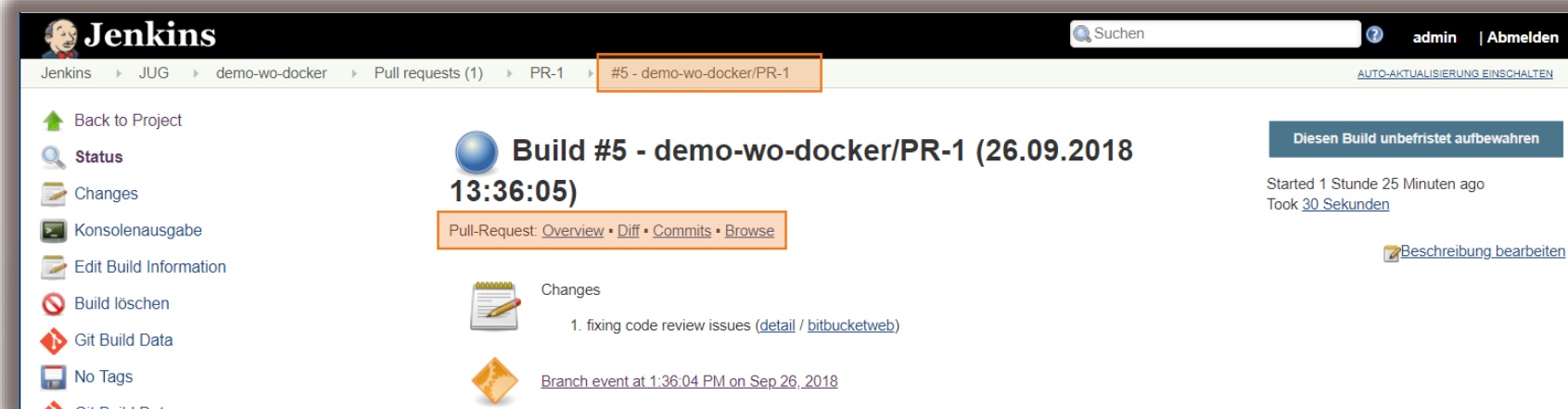
The issue description is 'Add that nice feature we talked about!'. The issue is assigned to Sven Oppermann. The issue has 0 votes and 1 watcher. The issue was created 3 hours ago and updated 3 hours ago. The issue has 1 commit and 1 pull request (MERGED). The issue is linked to a build (JUG-24) and has 1 open task. The issue is also linked to a commit (JUG-24) and has 1 pull request (MERGED).

Tool integration

Traceability



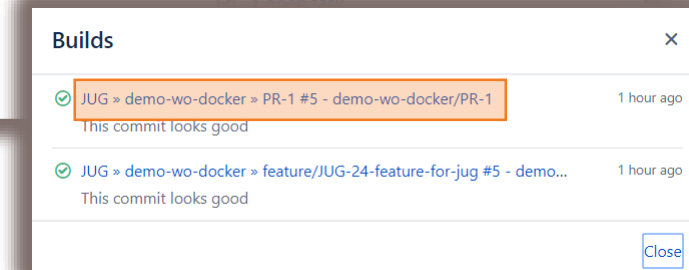
Bitbucket interface showing a pull request for 'Feature/JUG-24 feature for jug'. The pull request is created by Sven Oppermann and is in the 'MERGED' state. The pull request details show two steps: 'step1' and 'step2'. A '2 builds' status is visible on the right side of the pull request.



Jenkins interface showing the build details for 'Build #5 - demo-wo-docker/PR-1 (26.09.2018)'. The build status is 'Success' (green circle). The build started 1 hour and 25 minutes ago and took 30 seconds. The build log shows the following changes:

- 1. fixing code review issues (detail / bitbucketweb)

The build log also indicates a 'Branch event at 1:36:04 PM on Sep 26, 2018'.



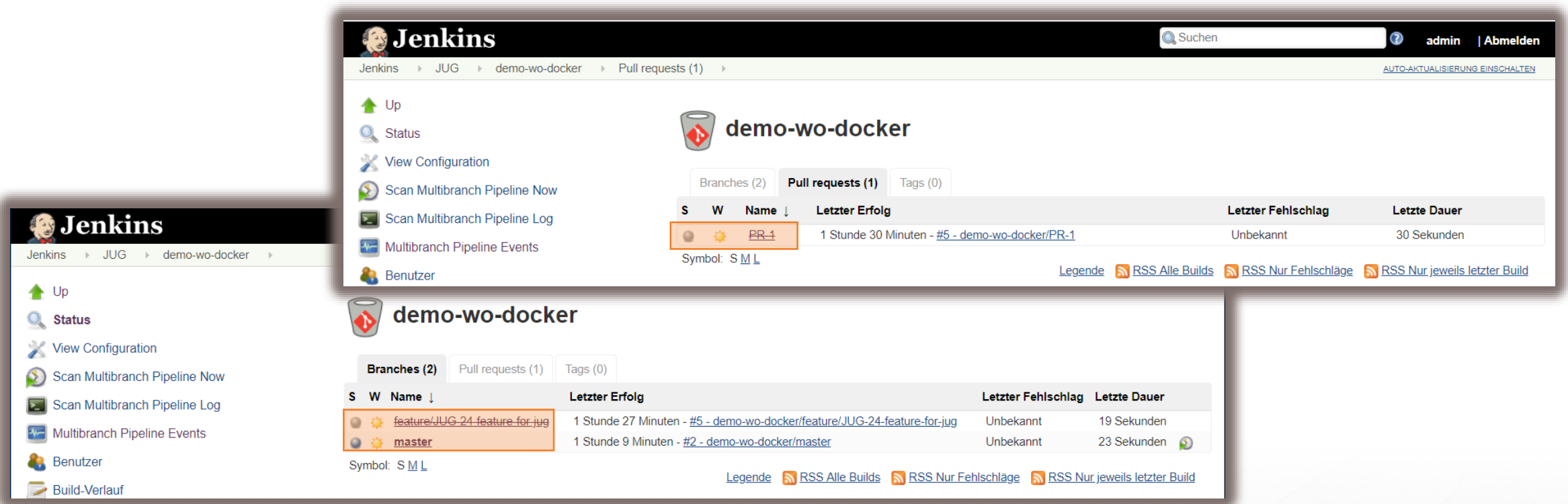
Jenkins 'Builds' list showing two builds:

- JUG » demo-wo-docker » PR-1 #5 - demo-wo-docker/PR-1 (1 hour ago) - This commit looks good
- JUG » demo-wo-docker » feature/JUG-24-feature-for-jug #5 - demo... (1 hour ago) - This commit looks good

A 'Close' button is visible at the bottom right of the builds list.

Tool integration

CI stack



The image displays two overlapping screenshots of the Jenkins web interface. The top screenshot shows the 'Pull requests (1)' view for the 'demo-wo-docker' project. The bottom screenshot shows the 'Branches (2)' view for the same project.

Top Screenshot: Pull requests (1)

Navigation: Jenkins > JUG > demo-wo-docker > Pull requests (1)

Left sidebar: Up, Status, View Configuration, Scan Multibranch Pipeline Now, Scan Multibranch Pipeline Log, Multibranch Pipeline Events, Benutzer.

Header: demo-wo-docker

Tabs: Branches (2), Pull requests (1), Tags (0)

S	W	Name ↓	Letzter Erfolg	Letzter Fehlschlag	Letzte Dauer
		PR-1	1 Stunde 30 Minuten - #5 - demo-wo-docker/PR-1	Unbekannt	30 Sekunden

Symbol: S M L

Legende: RSS Alle Builds, RSS Nur Fehlschläge, RSS Nur jeweils letzter Build

Bottom Screenshot: Branches (2)

Navigation: Jenkins > JUG > demo-wo-docker

Left sidebar: Up, Status, View Configuration, Scan Multibranch Pipeline Now, Scan Multibranch Pipeline Log, Multibranch Pipeline Events, Benutzer, Build-Verlauf.

Header: demo-wo-docker

Tabs: Branches (2), Pull requests (1), Tags (0)

S	W	Name ↓	Letzter Erfolg	Letzter Fehlschlag	Letzte Dauer
		feature/JUG-24-feature-for-jug	1 Stunde 27 Minuten - #5 - demo-wo-docker/feature/JUG-24-feature-for-jug	Unbekannt	19 Sekunden
		master	1 Stunde 9 Minuten - #2 - demo-wo-docker/master	Unbekannt	23 Sekunden

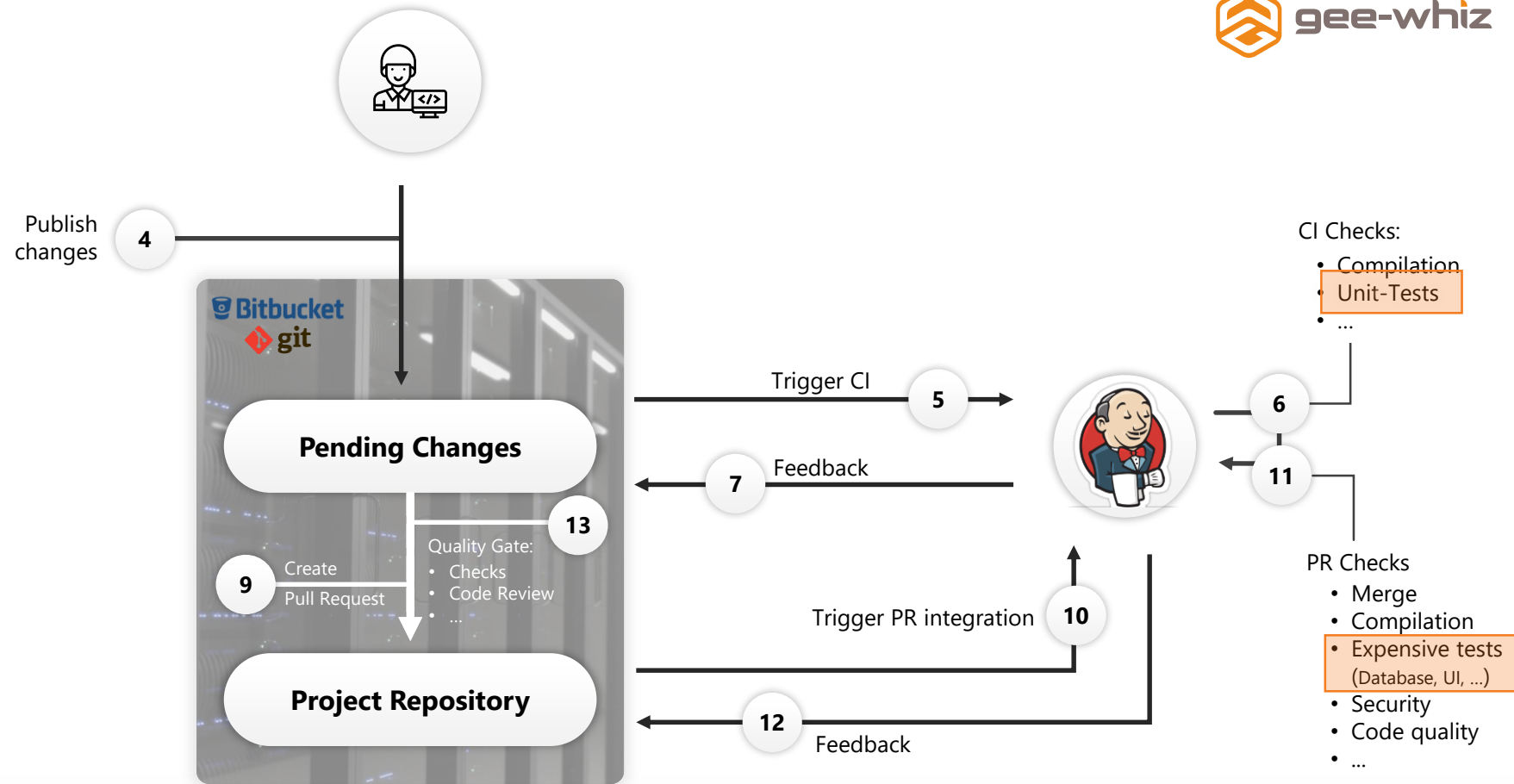
Symbol: S M L

Legende: RSS Alle Builds, RSS Nur Fehlschläge, RSS Nur jeweils letzter Build

Tool integration

Do only the necessary

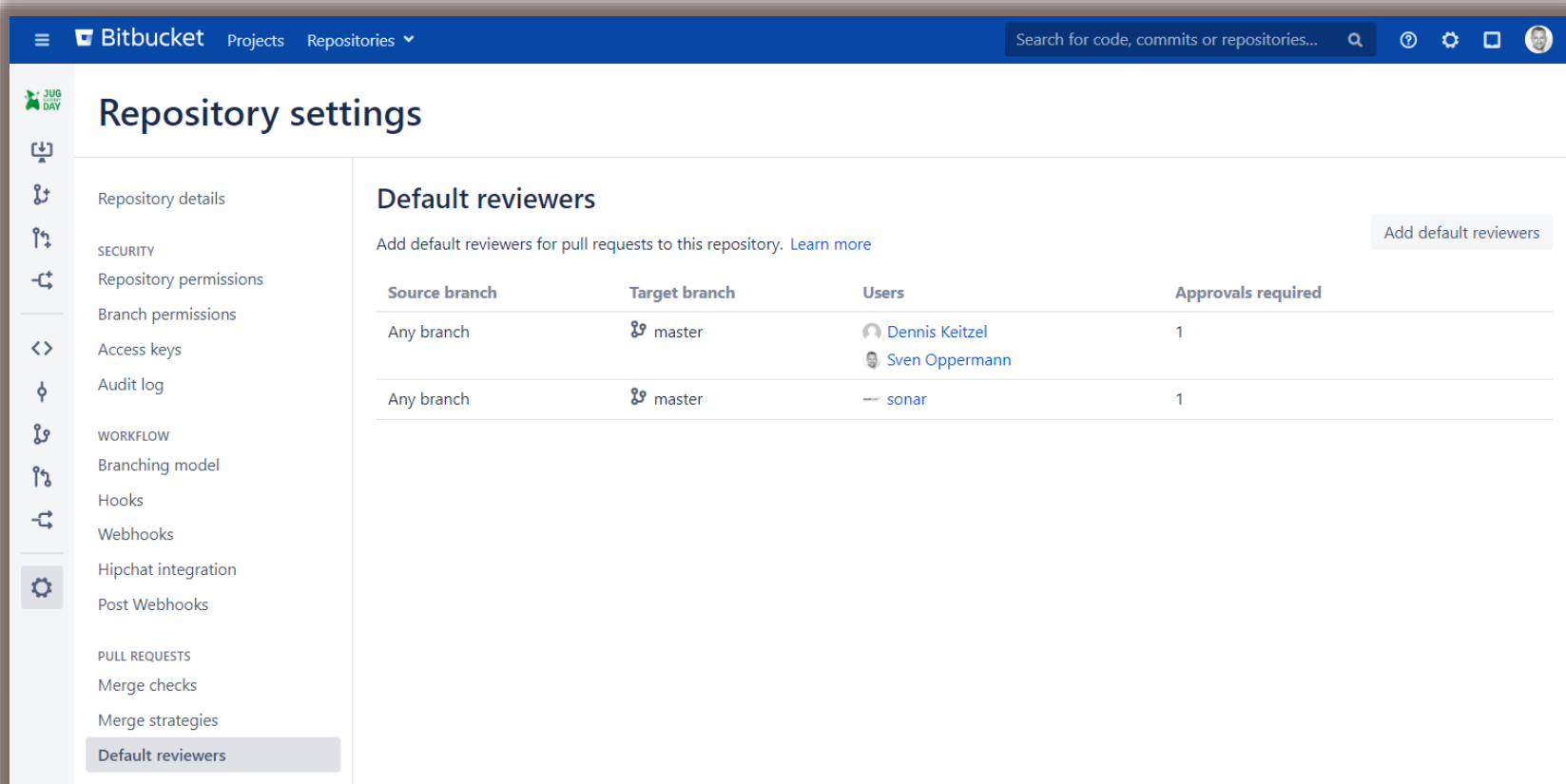
- jQAssistant ¹
- Ekstazi ²



1. <https://jqassistant.org>
2. <http://ekstazi.org/index.html>

Tool integration

Code review



The screenshot shows the Bitbucket 'Repository settings' page for a repository named 'JUG DAY'. The left sidebar contains a navigation menu with categories: SECURITY (Repository details, Repository permissions, Branch permissions, Access keys, Audit log), WORKFLOW (Branching model, Hooks, Webhooks, Hipchat integration, Post Webhooks), and PULL REQUESTS (Merge checks, Merge strategies, Default reviewers). The 'Default reviewers' option is selected. The main content area is titled 'Default reviewers' and includes a link to 'Learn more' and a button to 'Add default reviewers'. Below this is a table with two entries.

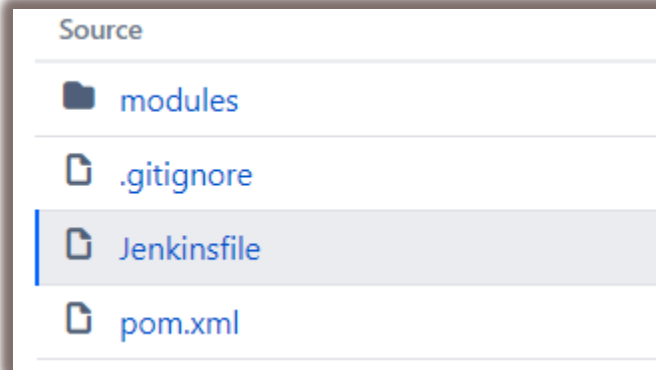
Source branch	Target branch	Users	Approvals required
Any branch	master	Dennis Keitzel Sven Oppermann	1
Any branch	master	sonar	1

Essential Elements

- Tool integration
- Infrastructure as Code
- Proper setup
- Nifty additions

Infrastructure as Code

Build definition



```
1 pipeline {
2   agent {
3     label 'master'
4   }
5
6   options {
7     ansiColor('xterm')
8     timestamps()
9     buildDiscarder(logRotator(numToKeepStr: '5'))
10    timeout(time: 1, unit: 'HOURS')
11  }
12
13  stages {
14    stage("Build") {
15      steps {
16        withMaven(maven: "Maven 3.5.4") {
17          sh "mvn clean install"
18        }
19      }
20    }
21  }
22 }
```


Infrastructure as Code

Build environment

Source

..

build.sh

Dockerfile

frpc

frpc.ini

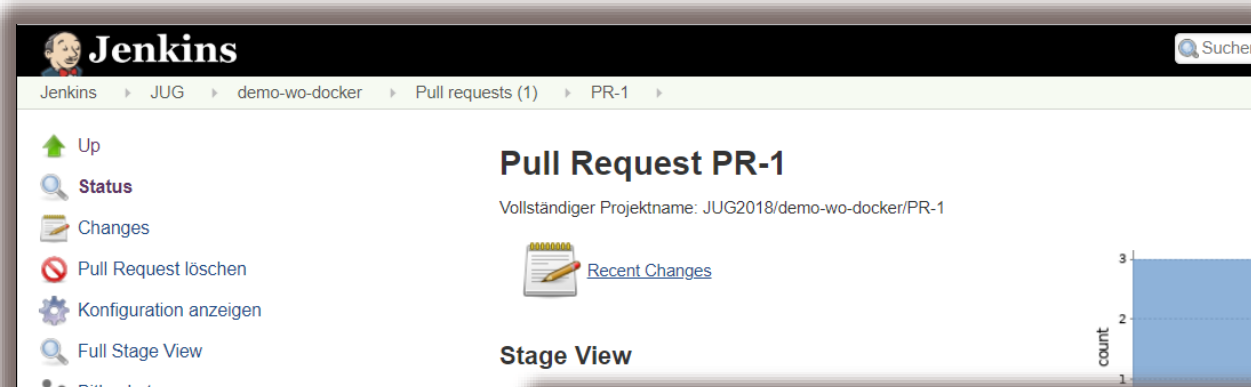
```
1 FROM ...
2
3 RUN apt-get update \
4     && apt-get install -y socat git curl procs python
5
6 #maven 3.5.4
7 RUN mkdir -p /usr/share/maven-3.5.4 \
8     && curl -fsSL -o /tmp/apache-maven.tar.gz https://apache.osuosl.org/maven/maven-3/3.5.4/binaries/apache-maven-3.5.4-bin.tar.gz \
9     && echo "ce50b1c91364cb77efe3776f756a6d92b76d9038b0a0782f7d53acf1e997a14d /tmp/apache-maven.tar.gz" | sha256sum -c - \
10    && tar -xzf /tmp/apache-maven.tar.gz -C /usr/share/maven-3.5.4 --strip-components=1 \
11    && rm -f /tmp/apache-maven.tar.gz
12
13 #maven 3.3.9
14 RUN mkdir -p /usr/share/maven-3.3.9 \
15    && curl -fsSL -o /tmp/apache-maven.tar.gz https://apache.osuosl.org/maven/maven-3/3.3.9/binaries/apache-maven-3.3.9-bin.tar.gz \
16    && echo "6e3e9c949ab4695a204f74038717aa7b2689b1be94875899ac1b3fe42800ff82 /tmp/apache-maven.tar.gz" | sha256sum -c - \
17    && tar -xzf /tmp/apache-maven.tar.gz -C /usr/share/maven-3.3.9 --strip-components=1 \
18    && rm -f /tmp/apache-maven.tar.gz
```

Essential Elements

- Tool integration
- Infrastructure as Code
- Proper setup
- Nifty additions

Proper setup

Shared libraries



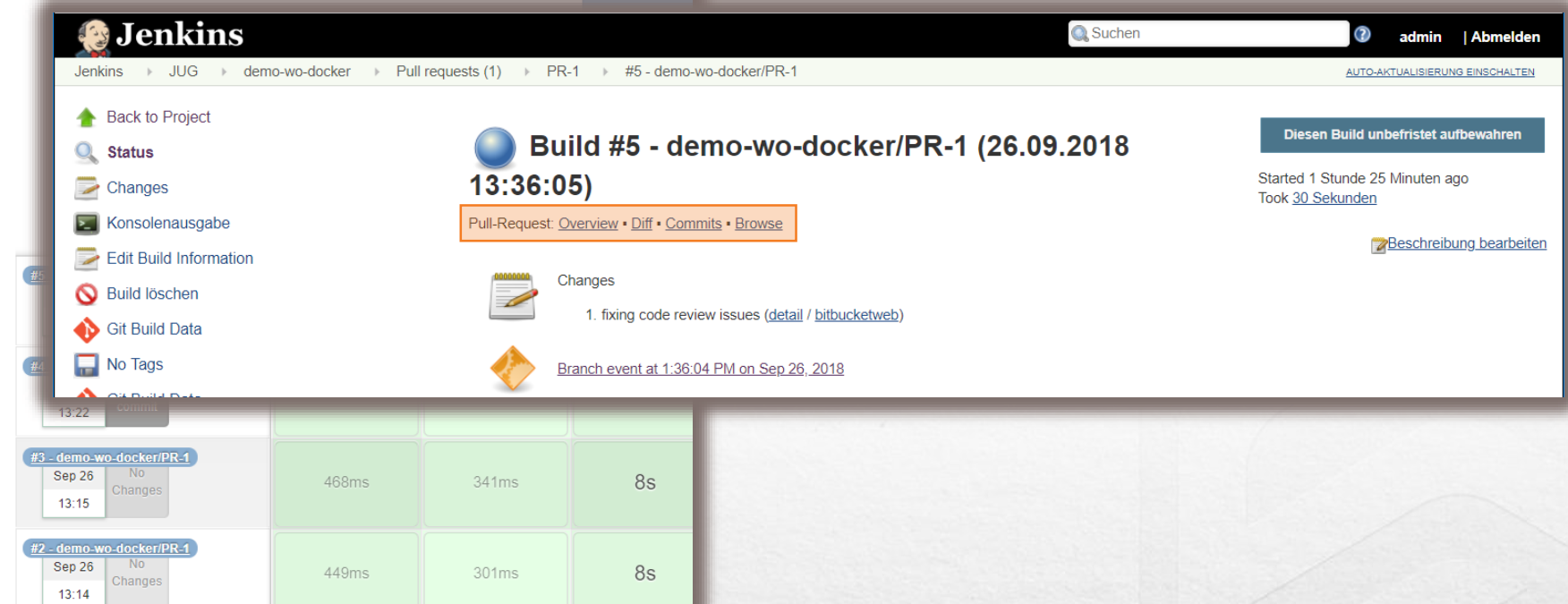
Jenkins Pull Request PR-1

Vollständiger Projektname: JUG2018/demo-wo-docker/PR-1

[Recent Changes](#)

Stage View

count



Jenkins Build #5 - demo-wo-docker/PR-1 (26.09.2018 13:36:05)

[Pull-Request: Overview • Diff • Commits • Browse](#)

[Changes](#)

1. fixing code review issues ([detail](#) / [bitbucketweb](#))

[Branch event at 1:36:04 PM on Sep 26, 2018](#)

[Beschreibung bearbeiten](#)

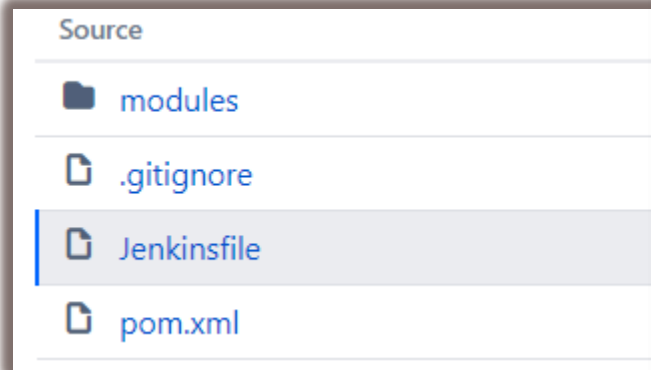
[Diesen Build unbefristet aufbewahren](#)

Started 1 Stunde 25 Minuten ago
Took [30 Sekunden](#)

Build	Status	Duration	Changes
#5 - demo-wo-docker/PR-1	Success	30s	1. fixing code review issues
#4 - demo-wo-docker/PR-1	Success	30s	No Changes
#3 - demo-wo-docker/PR-1	Success	30s	No Changes
#2 - demo-wo-docker/PR-1	Success	30s	No Changes
#1 - demo-wo-docker/PR-1	Success	30s	No Changes

Proper setup

Shared libraries



```
1 @Library('global') _
2 pipeline {
3   agent {
4     label 'master'
5   }
6
7   options {
8     ansiColor('xterm')
9     timestamps()
10    buildDiscarder(logRotator(numToKeepStr: '5'))
11    timeout(time: 1, unit: 'HOURS')
12  }
13
14  stages {
15    stage("Build") {
16      steps {
17        linkBitbucket()
18        withMaven(maven: "Maven 3.5.4") {
19          sh "mvn clean install"
20        }
21      }
22    }
23  }
24 }
```

Proper setup

Credentials

Source	Description
modules	
.gitignore	
Jenkinsfile	<pre>64 withMaven(maven: "\$MAVEN_VERSION") { 65 withCredentials([string(credentialsId: 'SONAR_TOKEN', variable: 'SONAR_TOKEN')]) { 66 sh "mvn -Dsonar.login=\${env.SONAR_TOKEN} -DrunJacoco \${env.SONAR_MAVEN_GOAL}" 67 } 68 }</pre>
pom.xml	

Essential Elements

- Tool integration
- Infrastructure as Code
- Proper setup
- Nifty additions

Nifty additions

jgitver

Source

modules

.gitignore

Jenkinsfile

pom.xml

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
3     xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
4     <modelVersion>4.0.0</modelVersion>
5     <groupId>de.gee-whiz.jug2018</groupId>
6     <artifactId>jug2018</artifactId>
7     <version>3.4.0</version>
8     <packaging>pom</packaging>
9
10    <modules>
11        <module>modules</module>
12    </modules>
13
14    <properties>
15        <project.encoding>UTF-8</project.encoding>
16        <project.build.sourceEncoding>${project.encoding}</project.build.sourceEncoding>
17        <project.reporting.outputEncoding>${project.encoding}</project.reporting.outputEncoding>
18    </properties>
```


Nifty additions

jgitver

Source	Description
..	
.mvn	
modules	
.gitignore	
Jenkinsfile	
pom.xml	

Source	Description
..	
extensions.xml	
jgitver.config.xml	


```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <configuration xmlns="http://jgitver.github.io/maven/configuration/1.0.0">
3   <mavenLike>false</mavenLike>
4   <autoIncrementPatch>true</autoIncrementPatch>
5   <useCommitDistance>true</useCommitDistance>
6   <useDirty>true</useDirty>
7   <useGitCommitId>true</useGitCommitId>
8   <gitCommitIdLength>8</gitCommitIdLength>
9   <nonQualifierBranches>master,develop</nonQualifierBranches>
10 </configuration>
```


Nifty additions

jgitver

```
Jenkins ▶ JUG ▶ demo-docker ▶ feature/projectSpecificBuildContainer ▶ #3 - demo-docker/feature/projectSpecificBuildContainer
16:56:06 [INFO] -----
16:56:06 [INFO] Reactor Summary:
16:56:06 [INFO]
16:56:06 [INFO] jug2018 0.0.0-35-ec4625ca ..... SUCCESS [ 1.328 s]
16:56:06 [INFO] jug2018.modules ..... SUCCESS [ 0.045 s]
16:56:06 [INFO] jug2018.modules.modul-a ..... SUCCESS [ 2.836 s]
16:56:06 [INFO] jug2018.modules.modul-b ..... SUCCESS [ 1.357 s]
16:56:06 [INFO] jug2018.modules.modul-c 0.0.0-35-ec4625ca ..... SUCCESS [ 1.473 s]
16:56:06 [INFO] -----
16:56:06 [INFO] BUILD SUCCESS
16:56:06 [INFO] -----
16:56:06 [INFO] Total time: 8.366 s
16:56:06 [INFO] Finished at: 2018-09-26T14:56:06Z
16:56:06 [INFO] -----
```

Nifty additions

Customizing the build container

Source

..

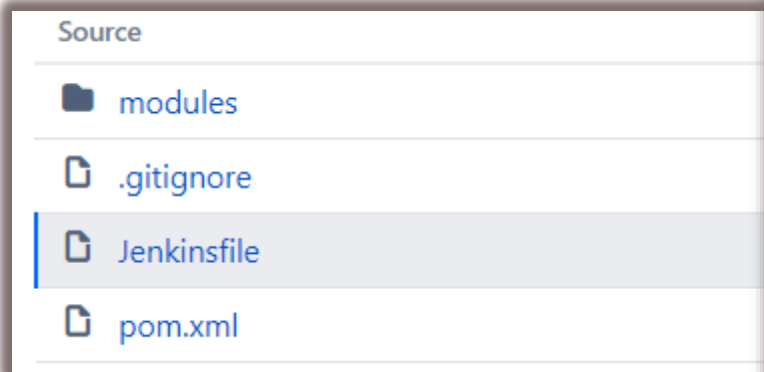
 build.sh

 Dockerfile

```
1 FROM docker-jdk-maven-frp
2
3 #git repo
4 RUN mkdir -p /var/tmp/cache/git \
5     && cd /var/tmp/cache/git \
6     && git init --bare \
7     && git remote add jug2018 http://localhost:7990/scm/jug/jug2018.git \
8     && git fetch --all --quiet
9
10 #maven 3rd party
11 RUN git clone --reference /var/tmp/cache/git http://localhost:7990/scm/jug/jug2018.git /tmp/git/jug2018 \
12     && cd /tmp/git/jug2018 \
13     && /usr/share/maven-3.5.4/bin/mvn -B -V -q --fail-never -DrunJacoco org.apache.maven.plugins:maven-dependency-plugin:3.0.2:go-offline package
```

Nifty additions

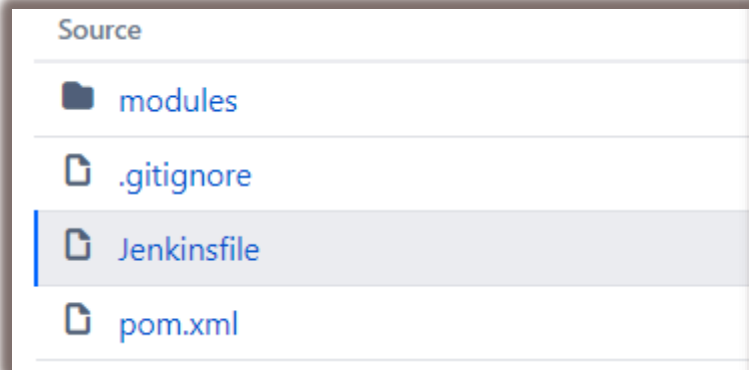
Debugshell



```
1 @Library('global') _
2 pipeline {
3   agent {
4     label 'docker-jdk-maven-frp'
5   }
6
7   options {
8     ansiColor('xterm')
9     timestamps()
10    buildDiscarder(logRotator(numToKeepStr: '5'))
11    timeout(time: 1, unit: 'HOURS')
12  }
13
14  stages {
15    stage("Build") {
16      steps {
17        withMaven(maven: "Maven 3.3.9") {
18          sh "mvn clean install"
19        }
20      }
21    }
22  }
23 }
```

Nifty additions

Debugshell



```
1 @Library('global') _
2 pipeline {
3   agent {
4     label 'docker-jdk-maven-frp'
5   }
6
7   options {
8     ansiColor('xterm')
9     timestamps()
10    buildDiscarder(logRotator(numToKeepStr: '5'))
11    timeout(time: 1, unit: 'HOURS')
12  }
13
14  stages {
15    stage("Build") {
16      steps {
17        withMaven(maven: "Maven 3.3.9") {
18          debugShell()
19          sh "mvn clean install"
20        }
21      }
22    }
23  }
24 }
```

Nifty additions

Debugshell

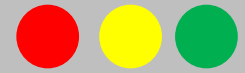
```
Jenkins > JUG > minimal-docker > master > #5
16:20:46 + /tmp/debugshell/create.sh
16:20:46 2018/09/26 14:20:46 [I] [proxy_manager.go:300] proxy removed: []
16:20:46 2018/09/26 14:20:46 [I] [proxy_manager.go:310] proxy added: [shell]
16:20:46 2018/09/26 14:20:46 [I] [proxy_manager.go:333] visitor removed: []
16:20:46 2018/09/26 14:20:46 [I] [proxy_manager.go:342] visitor added: []
16:20:46 2018/09/26 14:20:46 [I] [control.go:246] [a410e2e02b0028d9] login to server success, get run id [a410e2e02b0028d9], server
udp port [0]
16:20:46 2018/09/26 14:20:46 [I] [service.go:50] admin server listen on 127.0.0.1:42381
16:20:46 2018/09/26 14:20:46 [I] [control.go:169] [a410e2e02b0028d9] [shell] start proxy success
16:20:47 2018/09/26 14:20:47 [I] [admin_api.go:195] Http request: [/api/status]
16:20:47 2018/09/26 14:20:47 [I] [admin_api.go:190] Http response [/api/status]
16:20:47
16:20:47 -----
16:20:47 Reverse connection endpoint to localhost:40199 created on: localhost:17000
16:20:47 Connect via: socat file:${tty},raw,echo=0,escape=0x0f tcp:localhost:17000
16:20:47 Listening for incoming connection and pausing execution until connection terminates
16:20:47 -----
16:20:47
```



```
$ socat file:${tty},raw,echo=0,escape=0x0f tcp:localhost:17000
```

Nifty additions

Debugshell



```
$ socat file:$(tty),raw,echo=0,escape=0x0f tcp:localhost:17000
Connected to buildcontainer jug on docker-00009sdffema6 for job
...
Hello :)
$ mvn -version
...
Maven home: /usr/share/maven-3.3.9
...
```

Essential Elements

- Tool integration
- Infrastructure as Code
- Proper setup
- Nifty additions

**Organisational
rules do not
work!**

Final Thoughts



Name

Sven Oppermann



Phone

+49 (0)351 4667749-1



Email

sven.oppermann@gee-whiz.de
