



Title : Jenkins CI Server

Authored and Presented by : Cybage Software Pvt. Ltd.

Agenda

- Jenkins – CI server
- Benefits of Jenkins
- How Jenkins works
- How to configure Maven jobs in Jenkins
- Jenkins Build
- Different Plugins In Jenkins
- Jenkins Master Slave
- Jenkins integration with other tools
- Best Practices in Jenkins

Jenkins – CI Server

Open source continuous integration build tool

Automates the build, artifact management and deployment processes

Streamline the development process for all stakeholders involved

Easy to install and use

User interface is simple, intuitive, and visually appealing

Supports distributed builds using Master/Slave Architecture

Jenkins - History

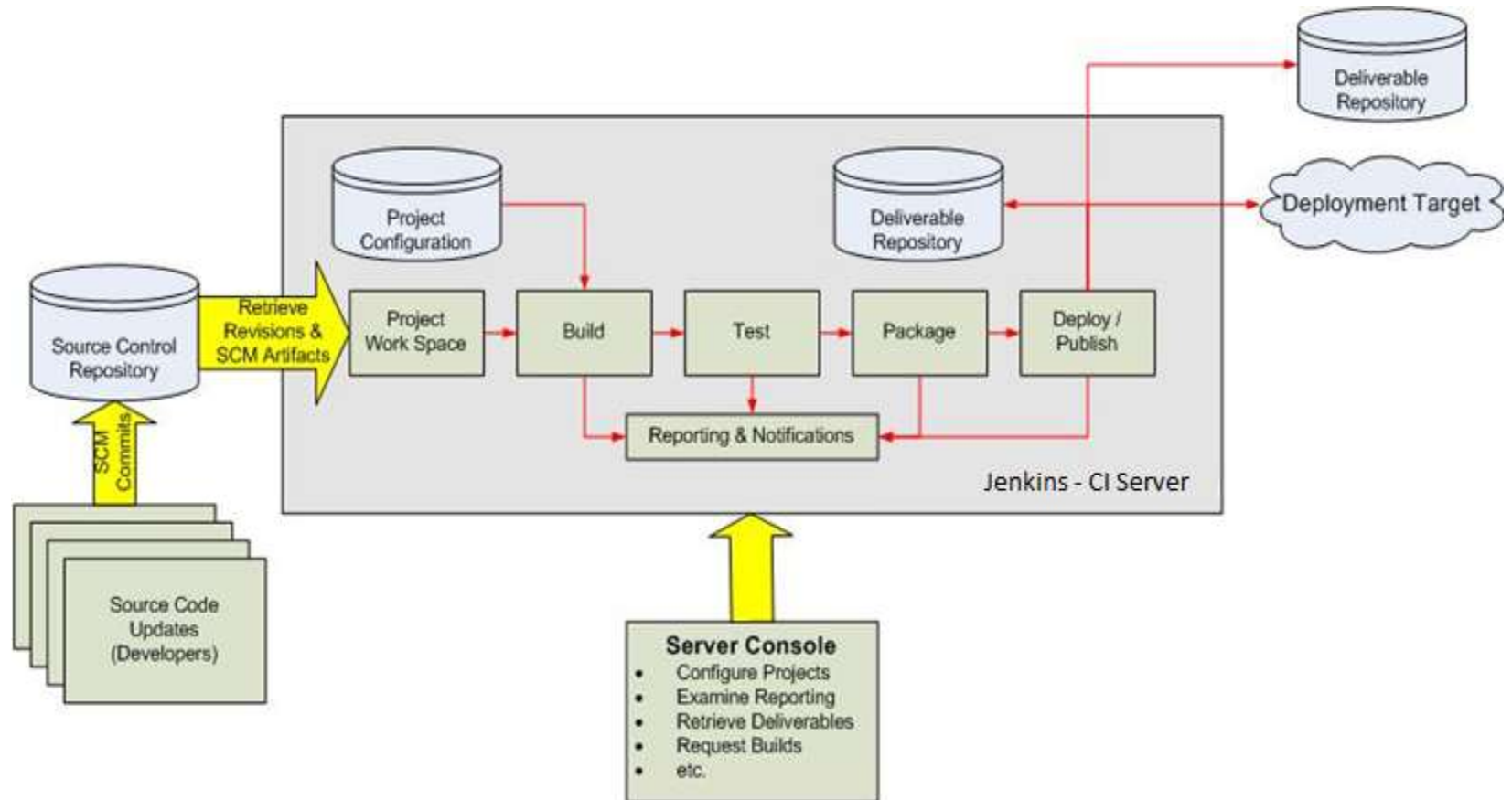
- Jenkins - History

2005 - Hudson was first released by Kohsuke Kawaguchi of
Sun Microsystems

2010 – Oracle bought Sun Microsystems

- Later on , Hudson was renamed to Jenkins
- Oracle continued development of Hudson (as a branch of the original)

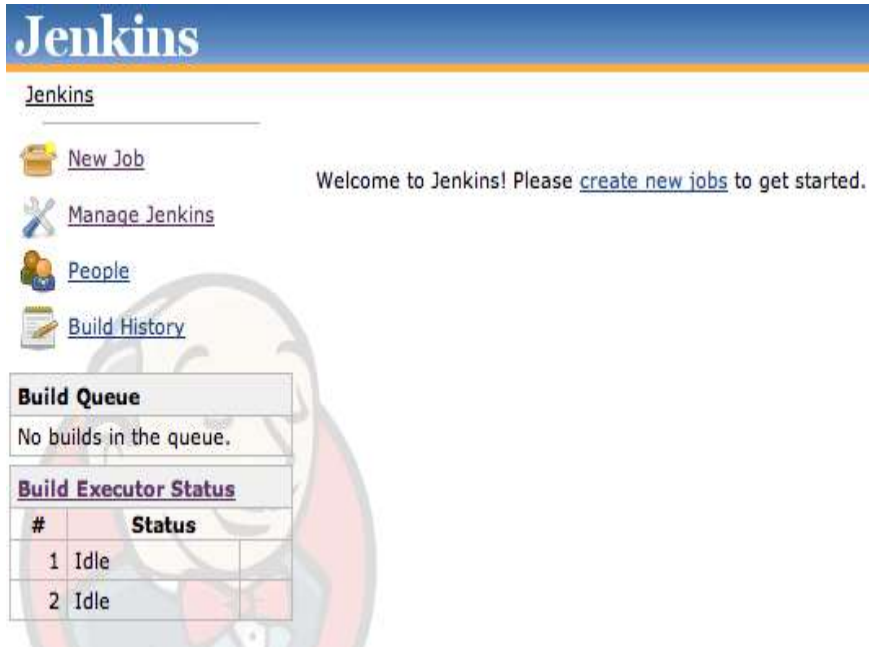
Jenkins – Architecture



Benefits of Jenkins

- Highly configurable system
- Additional community developed plugins provide more flexibility
- By combining Jenkins with Maven, Ant, Gradle or other Build Automation tools, the possibilities are limitless
- Generate various test reports
- Can be integrated with different Version Control Systems
- Can be integrated with various artifact repositories
- Deploys directly to production or test environments
- Notify stakeholders of build status

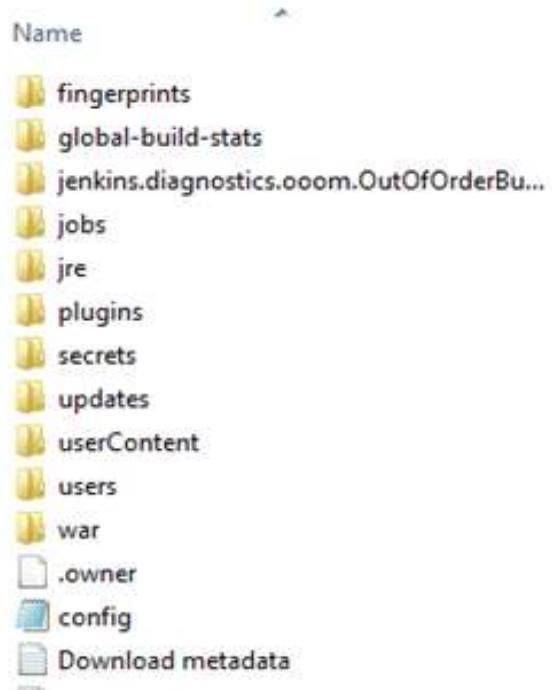
Jenkins Installation



Jenkins Start Page

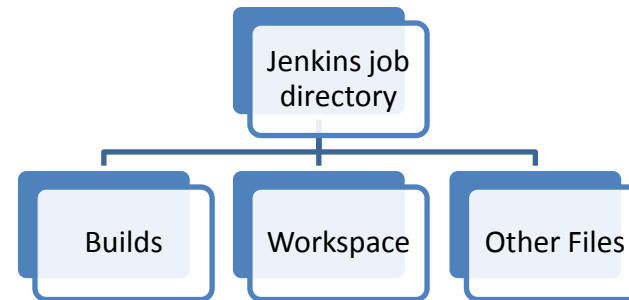
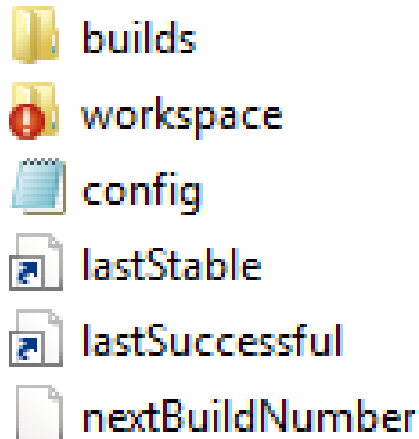
- Jenkins as Windows Service
- Running Jenkins behind an Apache Server or Application Server
- Running Jenkins as a Stand-Alone Application
 - Download one file – jenkins.war
 - Run one command – java -jar jenkins.war

Jenkins Home Directory



- Home directory –Keeps all its important data
- Stores information about build server configuration, build jobs, build artifacts, Installed plugins, user accounts and other useful information
- Default home directory is .jenkins
- Change home directory by JENKINS_HOME environment variable

Jenkins Job Directory



- Builds - Build Job's History
- Workspace - Jenkins build job execution directory and contains Source code of Job
- Directory labeled with a timestamp. e.g. "2010-03-12_20-42-05" – Stores Build history and artifacts for particular build

Jenkins Configuration

- Global level configuration – Common for all jobs



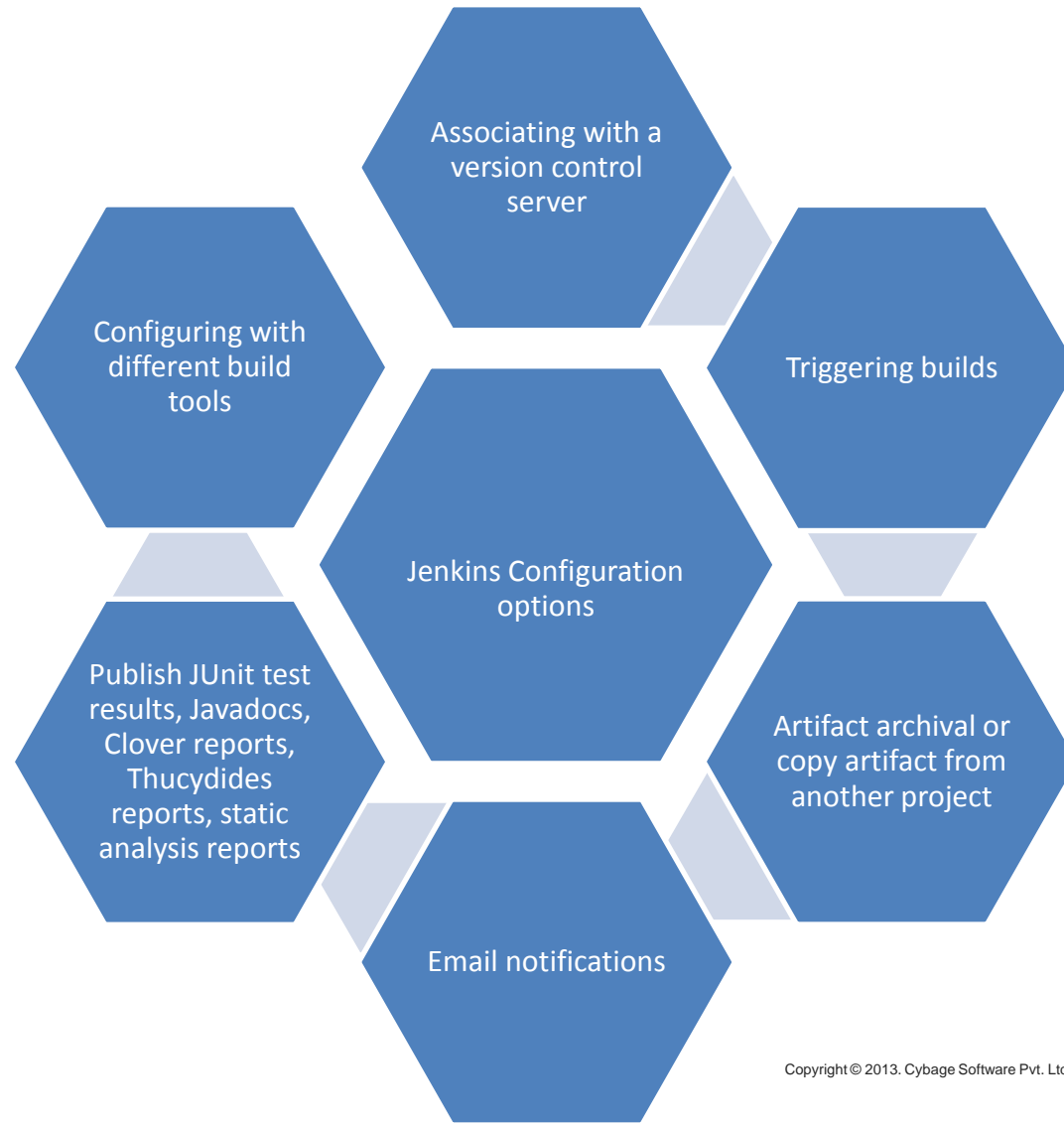
- configurations stored in global config.xml file
- Job level configuration – job specific configuration



- Global level configurations can be override at Job level .
- Job level configurations are stored in directory



Jenkins Configuration



How Jenkins works

Job Execution

- Executed automatically by different build triggers
- Executed manually

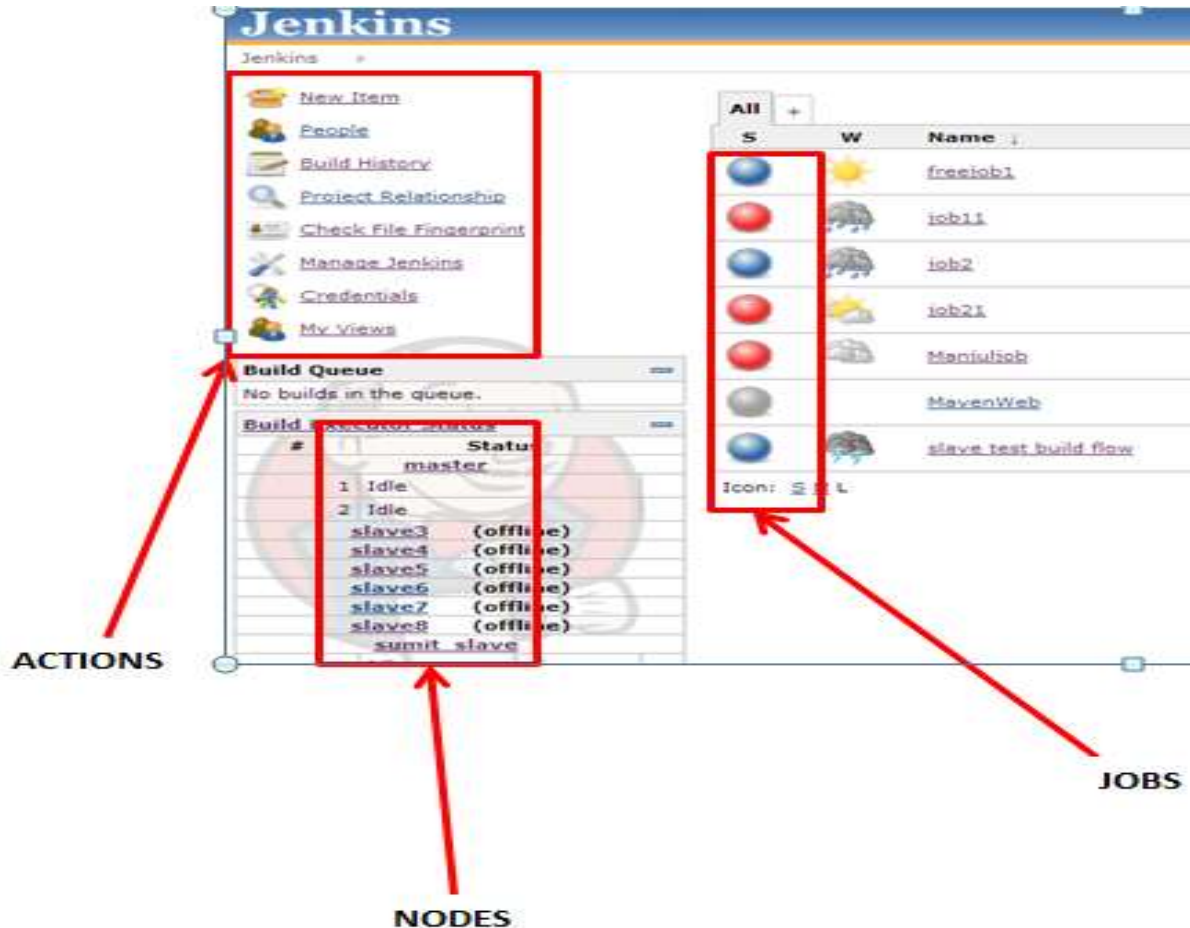
Building

- Executes the build in an executer
- By default, one executer per core on the build server

Slave build servers

- Useful for building on different environment
- Distribution of load




Jenkins User Interface



Build statistics

Shows statistics based on build status.







Build statistics

Status of the build	Description
	Failed
	Unstable
	Success
	Pending
	Disabled
	Aborted
Total builds	All builds

Jobs statistics

Shows statistics based on jobs health.

Jobs statistics

Job health	Description
	No recent builds failed
	20-40% of recent builds failed
	40-60% of recent builds failed
	60-80% of recent builds failed
	All recent builds failed
	Unknown status
Total jobs	All jobs

Configuring Jenkins



Jenkins search DISABLE

Manage Jenkins

[New Job](#)
[Manage Jenkins](#)
[People](#)
[Build History](#)

Build Queue
No builds in the queue.

#	Status
1	Idle
2	Idle

GLOBAL CONFIGURATION

- [Configure System](#)
Configure global settings and paths.
- [Reload Configuration from Disk](#)
Discard all the loaded data in memory and reload everything from file system. Useful when you modify files directly on disk.
- [Manage Plugins](#)
Add, remove, disable or enable plugins that can extend the functionality of Jenkins.
- [System Information](#)
Displays various environmental information to assist trouble-shooting.
- [System Log](#)
System log captures output from java.util.logging output related to Jenkins.
- [Load Statistics](#)
Check your resource utilization and see if you need more computers for your builds.
- [Jenkins CLI](#)
Access/manage Jenkins from your shell, or from your script.
- [Script Console](#)
Executes arbitrary script for administration/trouble-shooting/diagnostics.
- [Manage Nodes](#)
Add, remove, control and monitor the various nodes that Jenkins runs jobs on.
- [About Jenkins](#)
See the version and license information.
- [Prepare for Shutdown](#)
Stops executing new builds, so that the system can be eventually shut down safely.

Page generated: May 5, 2011 7:24:07 AM [Jenkins](#)

Jenkins global configuration

JDK and GIT settings at global level

JDK

JDK installations

⌵ **JDK**

Name

jdk1.7.0_45

JAVA_HOME

C:\Program Files\Java\jdk1.7.0_45

☐ Install automatically



Delete JDK

Add JDK

List of JDK installations on this system

Clover

Clover installations

Add Clover

List of Clover installations on this system

Git

Git installations

⌵ **Git**

Name

Default

Path to Git executable

C:\Program Files (x86)\Git\bin\git.exe

☐ Install automatically



Delete Git

Add Git ▼

description

Jenkins global configuration...

Maven

Maven installations

Maven

Name

apache-maven-3.0.3

MAVEN_HOME

D:\apache-maven-3.0.3

☐ Install automatically

Delete Maven

Add Maven

List of Maven installations on this system

Jenkins global configuration...

Sonar settings at global

Maven

Maven installations

Maven

Name

apache-maven-3.0.3

MAVEN_HOME

C:\apache-maven-3.0.3

☐ Install automatically

Add Maven

Delete Maven

List of Maven installations on this system

Sonar

Sonar installations

Name

D:\sonarqube-4.0

Disable

☐

Check to quickly disable Sonar on all jobs.

Server URL

http://localhost:9000/sonar

Default is http://localhost:9000

Sonar account login

Sonar account used to perform analysis. Mandatory since Sonar 3.4 when anonymous access is disabled.

Sonar account password

Sonar account used to perform analysis. Mandatory since Sonar 3.4 when anonymous access is disabled.

Database URL

jdbc:mysql://localhost:3306/sonar

Do not set if default embedded database.

Database login

root

Default is sonar.

Database password

Default is sonar.

Database driver

com.mysql.jdbc.Driver

Do not set if you use the default embedded database on localhost.

Version of sonar-maven-plugin

2.0

If not specified, then sonar:sonar will be used.

Additional properties

Additional properties to be passed to the maven executable (example : -Dsomeproperty=some.value)

Trigger Exclusions (only for jobs with Sonar as a post build action)

Skip if triggered by SCM Changes

☐

Skip if triggered by the build of a dependency

☐

Skip if environment variable is defined and set to true

Add Sonar

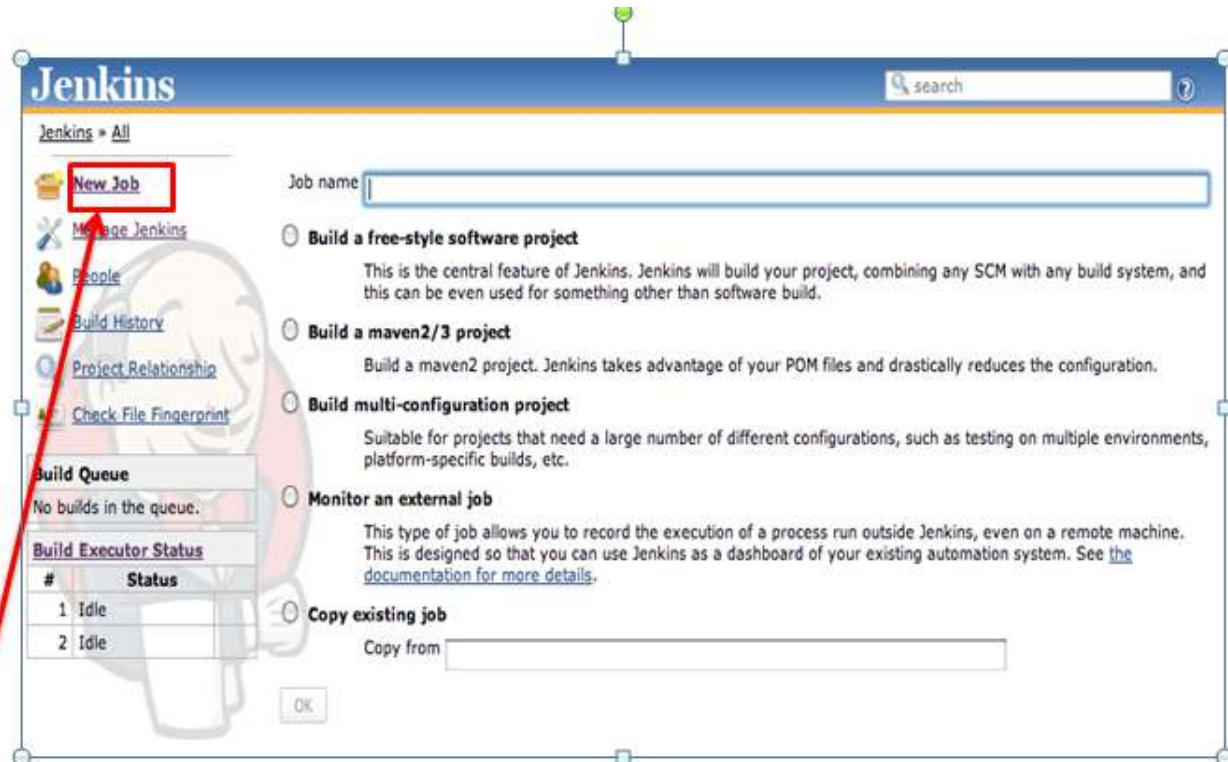
Delete Sonar

List of Sonar installations

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Jenkins Build Job Types



Jenkins

Jenkins » All

New Job

[Manage Jenkins](#)

[People](#)

[Build History](#)

[Project Relationship](#)

[Check File Fingerprint](#)

Build Queue
No builds in the queue.

Build Executor Status

#	Status
1	Idle
2	Idle

Job name

☐ **Build a free-style software project**
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.

☐ **Build a maven2/3 project**
Build a maven2 project. Jenkins takes advantage of your POM files and drastically reduces the configuration.

☐ **Build multi-configuration project**
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

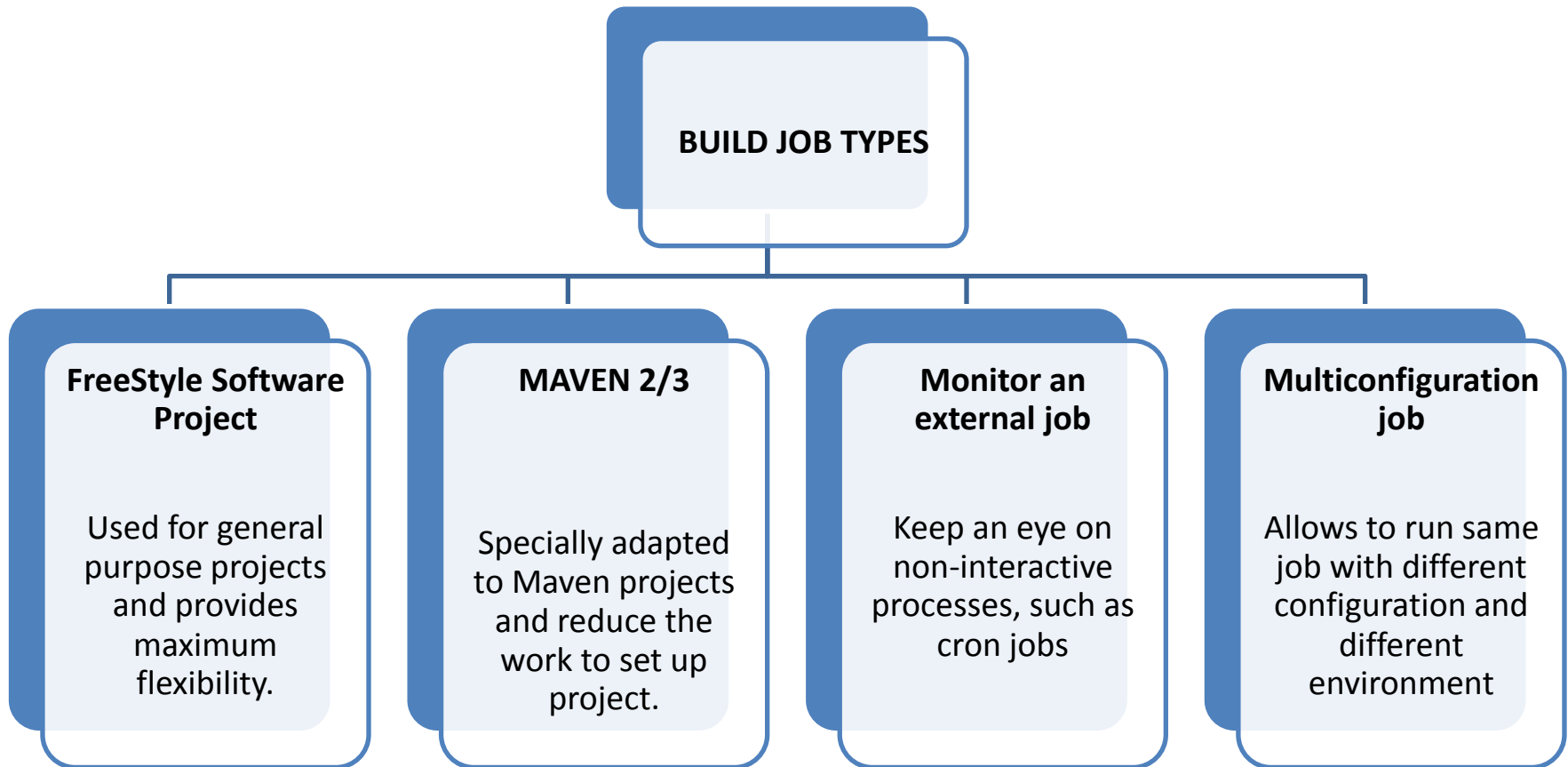
☐ **Monitor an external job**
This type of job allows you to record the execution of a process run outside Jenkins, even on a remote machine. This is designed so that you can use Jenkins as a dashboard of your existing automation system. See [the documentation for more details](#).

☐ **Copy existing job**
Copy from

OK

CREATING NEW JOB

Jenkins Build Job Types...



How to configure maven jobs in Jenkins

Configuring repository from stash with Jenkins for maven job

Source Code Management

- ☐ CVS
 - ☐ CVS Projectset
 - ☒ Git
- Repositories

Repository URL ? ?

Credentials

Branches to build

Branch Specifier (blank for 'any') ?

Git executable

Repository browser

?

URL

Additional Behaviours

- ☐ None
- ☐ Subversion

How to configure maven jobs in Jenkins...

- Maven configuration at Job level
- Specify the pom and maven goals that you want to execute

Build

Root POM

pom.xml



Goals and options

clean install



Advanced...

Build Triggers

Build trigger starts execution of the build



Different ways to trigger the build

- Build Periodically
- For scheduling tasks, Jenkins uses a cron-style syntax, consisting of five fields separated by white space in the following format: MINUTE HOUR DOM MONTH DOW

Build Triggers

- ☐ Build whenever a SNAPSHOT dependency is built
- ☐ Build after other projects are built
- ☒ Build periodically

Schedule

H/5 * * * *

Would last have run at Wednesday, May 28, 2014 10:31:25 AM IST; would next run at Wednesday, May 28, 2014 10:36:25 AM IST.

- ☐ Poll SCM

Build Triggers

Different ways to trigger the build

- Poll the SCM for changes – Poll the version controlled repository at the specified intervals and start executing the build if it finds any changes committed to repository.

Build Triggers

- ☐ Build whenever a SNAPSHOT dependency is built
- ☐ Build after other projects are built
- ☐ Build periodically
- ☒ Poll SCM

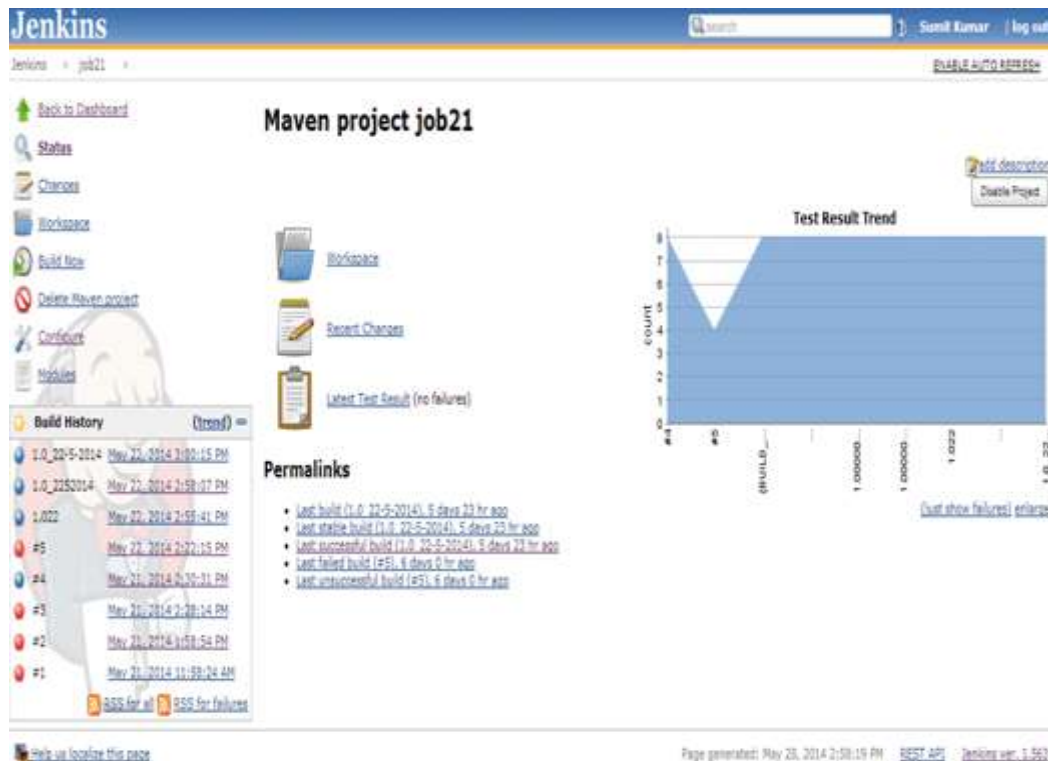
Schedule

H/5 * * * *

Would last have run at Wednesday, May 28, 2014 10:35:37 AM IST; would next run at Wednesday, May 28, 2014 10:35:37 AM IST.

Ignore post-commit hooks ☐

Jenkins Build Job Home Page



Post Build Actions- Reports

- Basic reporting features
 - Keeping track of build status
 - Last success and failure
 - “Weather” – Build trend
- Can be enhanced with the use of plugins


Tools	Plugins
Unit Test Framework	Junit, TestNG
Code Coverage	Clover, Cobertura
Static Code Analysis	Sonar

Post Build Actions


- Tasks after build is completed
 - Archiving the artifacts –Displays archived artifacts on the build job home page.

Post-build Actions

☐ Publish Javadoc


☒ Archive the artifacts 

Files to archive


gameoflife-web/target/*.war, **/target/*.jar 

Excludes



☒ Discard all but the last successful/stable artifact to save disk space 


Post Build Actions...


 [Back to Project](#)

 [Status](#)


 [Changes](#)

 [Console Output](#)

 [Tag this build](#)

 [Test Result](#)

 [Downstream build view](#)

 [Previous Build](#)



Build #7 (Oct 31, 2010 6:44:04 PM)



Build Artifacts

- [gameoflife-cli-0.0.55-SNAPSHOT.jar](#) 
- [gameoflife-core-0.0.55-SNAPSHOT.jar](#) 
- [gameoflife.war](#) 
- [gameoflife-webservice-0.0.55-SNAPSHOT.jar](#) 
- [gameoflife-0.0.55-SNAPSHOT-sources.jar](#) 

JUnit Test Report

<u>Tests</u>							
Job	Success		Failed		Skipped		Total
	#	%	#	%	#	%	#
Eden-ActiveWorlds	127	100%	0	0%	0	0%	127
Eden-Eden	266	100%	0	0%	0	0%	266
Eden-MondiDinamiciWebservice	155	100%	0	0%	0	0%	155
Eden-Palm	20	100%	0	0%	0	0%	20
Total	568	100%	0	0%	0	0%	568

Test Result

0 failures (±0) , 2 skipped (±0)

1,513 tests (±0)

Module	Fail	(diff)	Total	(diff)
org.apache.httpcomponents:httpClient	0		582	
org.apache.httpcomponents:httpClient-cache	0		920	
org.apache.httpcomponents:httpmime	0		11	

Test Code Coverage : Clover

- Check post build action “Publish Clover Coverage Report” and do the below settings.

Post-build Actions

Publish Clover Coverage Report




Clover report directory

Specify the path to the directory that contains the clover.xml report file, relative to [the workspace root](#)
Clover must be configured to generate XML reports for this plugin to function fully.


Clover report file name



Specify the name of the Clover.xml file generated relative to the Clover report directory specified above. If not specified - clover.xml is assumed.

Coverage Metric Targets

	% Methods	% Conditionals	% Statements
	<input type="text" value="60"/>	<input type="text" value="60"/>	<input type="text" value="60"/>
	<input type="text" value="40"/>	<input type="text" value="40"/>	<input type="text" value="40"/>
	<input type="text" value="50"/>	<input type="text" value="50"/>	<input type="text" value="50"/>

Configure health reporting thresholds.

For the  row, leave blank to use the default values (i.e. 70, 80, and 80 for methods, conditionals and statements respectively).

For the  and  rows, leave blank to use the default values (i.e. 0).

Delete

Test Code Coverage : Clover...

Build #70 (May 26, 2014 3:34:41 PM)

No changes.

[Artifactory Build Info](#)

Started by user [Mangli Shetty](#)

Revision: [faf49d52e2facd681028f1b2fe1ade561fa9fb20](#)
 • origin/master

[Test Result](#) (no failures)

Clover Code Coverage : 94.9% method 55/57, conditional 8/8, statement 311/329.

Module Builds

[Employee Management System](#) 12 sec

Employee Management System 1.0-SNAPSHOT
 Clover Coverage Report

Dashboard
 Coverage Reports
 Coverage (Aggregate)
 Test Code (Aggregate)
 Test Results

Application Packages

com.sample.mvc.command (100%)
 com.sample.mvc.controller (91.2%)
 com.sample.mvc.domain (100%)
 com.sample.mvc.service (100%)

Classes	Tests	Results
Class		Coverage
Employee		(100%)
EmployeeAddController		(20%)
EmployeeAddControllerTest		(96.2%)
EmployeeCommand		(100%)
EmployeeController		(100%)
EmployeeControllerTest		(97.1%)
EmployeeDeleteController		(23%)
EmployeeDeleteControllerTest		(98.1%)
EmployeeEditController		(100%)
EmployeeEditControllerTest		(96.4%)
EmployeeService		(100%)
EmployeeServiceTest		(100%)

Clover Coverage Report - Employee Management System 1.0-SNAPSHOT

Coverage timestamp: Wed Mar 26 2014 18:02:28 IST

Statistics for project Clover database Wed Mar 26 2014 18:02:22 IST:

Stats: 329 LOC: 185 Total craps: 65 Stats/Method: 5.77
 Branches: 0 NCLOC: 675 Crap density: 0.2 Methods/Class: 4.72
 Methods: 37 Files: 12 Avg method craps: 1.14 Classes/Package: 3
 Classes: 12 Packages: 4

Overview Package File

PRAMES NO PRAMES SMDIS HELP

Coverage 12 classes, 374 / 394 elements
 94.9%

Test Results 46 / 46 tests 0.18 secs
 100%

Class Coverage Distribution



Class Complexity



Most Complex Packages

1. 91.2% com.sample.mvc.controller (35)
2. 100% com.sample.mvc.service (18)
3. 100% com.sample.mvc.command (6)
4. 100% com.sample.mvc.domain (6)

Most Complex Classes

1. 100% EmployeeService (10)
2. 100% EmployeeCommand (6)
3. 100% Employee (8)
4. 100% EmployeeEditController (2)
5. 23% EmployeeDeleteController (2)

Top 2 Project Risks

EmployeeAddController
 EmployeeDeleteController

Coverage Tree Map



Least Tested Methods

1. 0% EmployeeAddController.onSubmit(HttpServletRequest, HttpServletResponse, Object, BindException) (1)
2. 0% EmployeeDeleteController.onSubmit(HttpServletRequest, HttpServletResponse, Object, BindException) (1)

Test Code Coverage : Cobertura

Packages

[All](#)

[net.sourceforge.cobertura.ant](#)
[net.sourceforge.cobertura.check](#)
[net.sourceforge.cobertura.cover](#)
[net.sourceforge.cobertura.instru](#)
[net.sourceforge.cobertura.merg](#)
[net.sourceforge.cobertura.repor](#)
[net.sourceforge.cobertura.repor](#)
[net.sourceforge.cobertura.repor](#)

All Packages

Classes

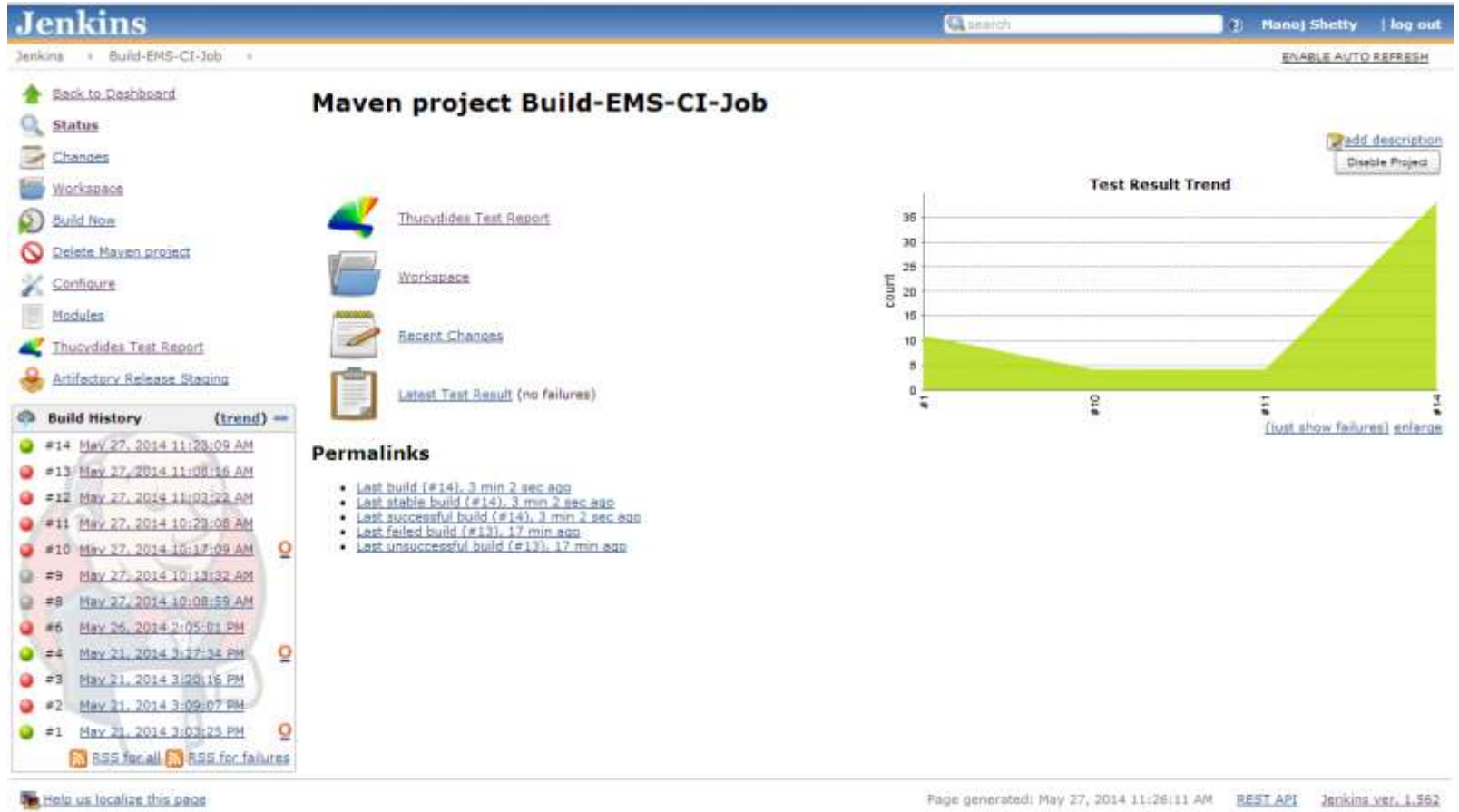
[AntUtil](#) (88%)
[Archive](#) (100%)
[ArchiveUtil](#) (80%)
[BranchCoverageData](#) (N/A)
[CheckTask](#) (0%)
[ClassData](#) (N/A)

Coverage Report - All Packages

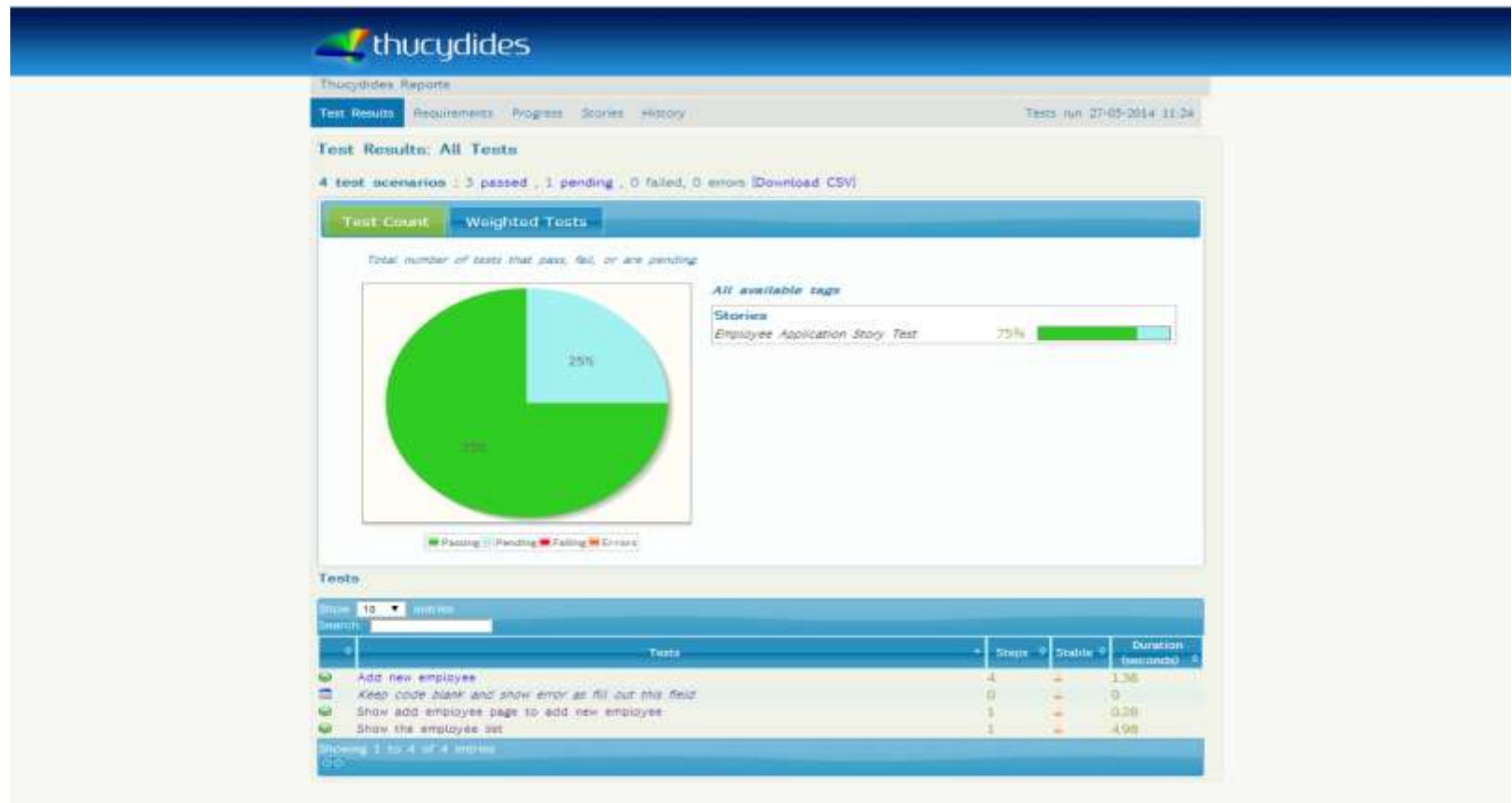
Package	# Classes	Line Coverage		Branch Coverage		Complexity
All Packages	55	75%	1625/2179	64%	472/738	2,319
net.sourceforge.cobertura.ant	11	52%	170/330	43%	40/94	1,848
net.sourceforge.cobertura.check	3	0%	0/150	0%	0/76	2,429
net.sourceforge.cobertura.coveragedata	13	N/A	N/A	N/A	N/A	2,277
net.sourceforge.cobertura.instrument	10	90%	460/510	75%	123/164	1,854
net.sourceforge.cobertura.merge	1	86%	30/35	88%	14/16	5.5
net.sourceforge.cobertura.reporting	3	87%	116/134	80%	43/54	2,882
net.sourceforge.cobertura.reporting.html	4	91%	475/523	77%	156/202	4,444
net.sourceforge.cobertura.reporting.html.files	1	87%	39/45	62%	5/8	4.5
net.sourceforge.cobertura.reporting.xml	1	100%	155/155	95%	21/22	1,524
net.sourceforge.cobertura.util	9	60%	175/291	69%	70/102	2,892
someotherpackage	1	83%	5/6	N/A	N/A	1.2

Report generated by [Cobertura](#) 1.9 on 6/9/07 12:37 AM.

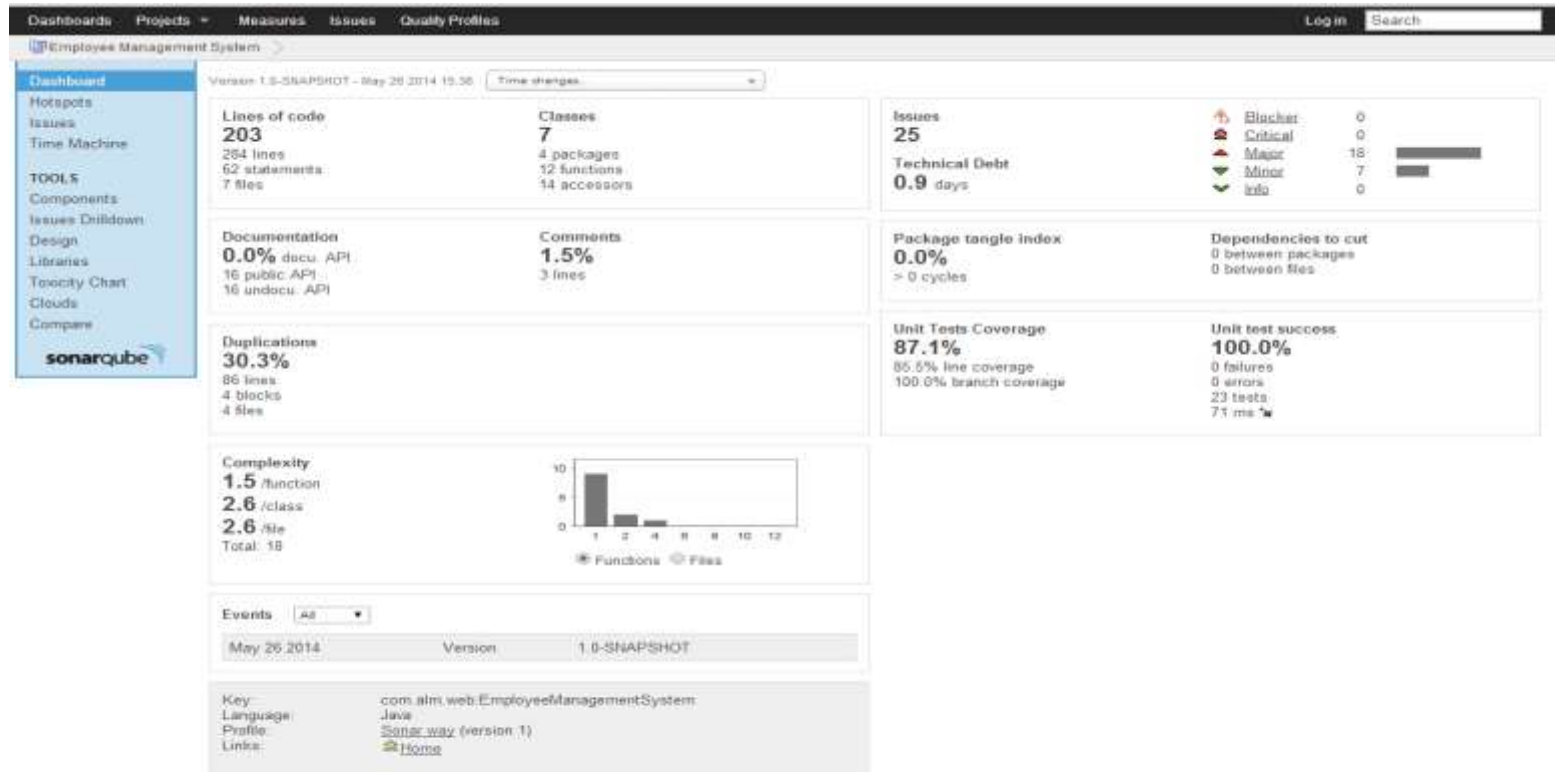
Test Code Coverage : Thucydides



Test Code Coverage : Thucydides...

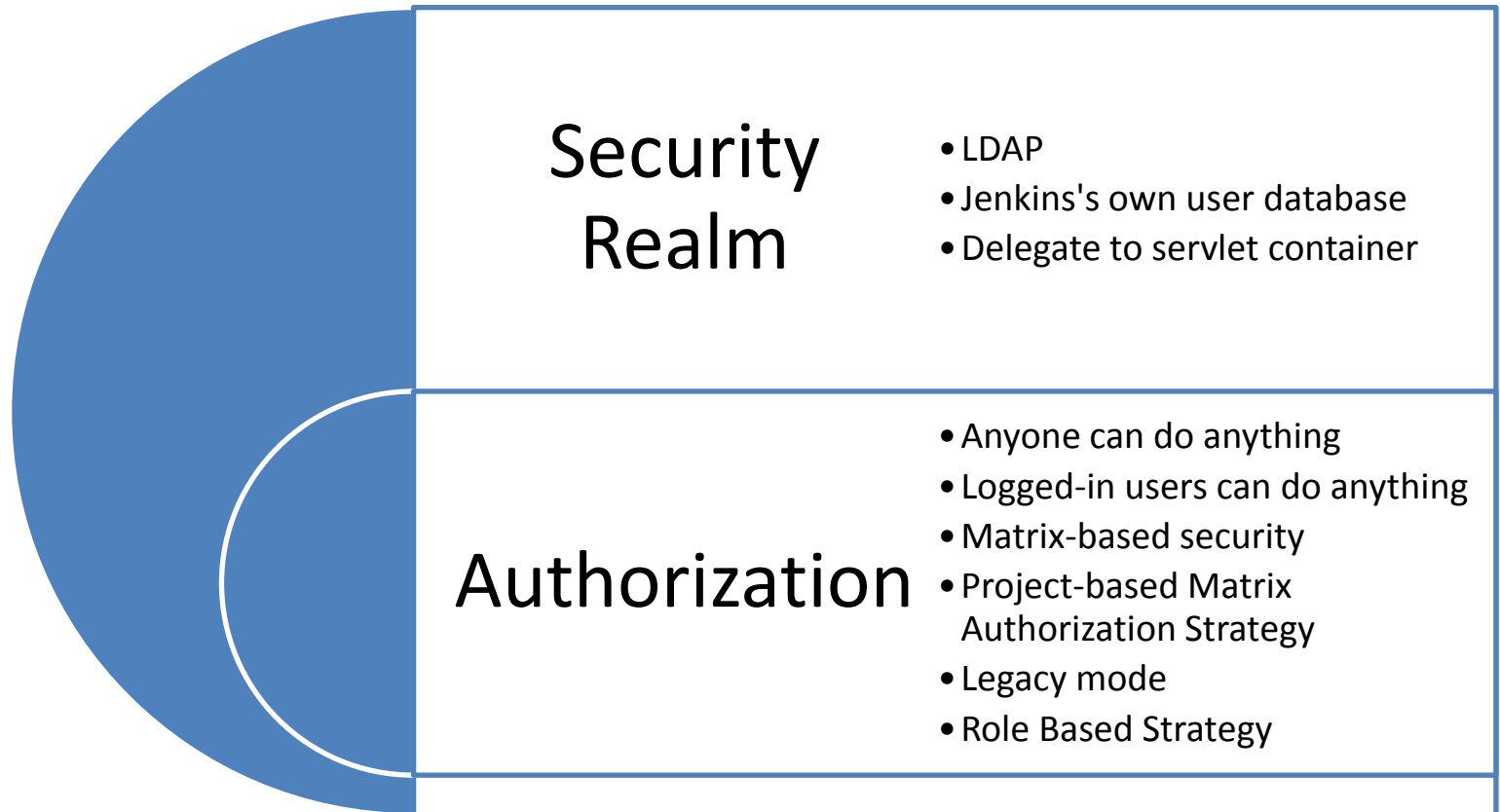


Static Code Analysis : Sonar



SonarQube™ technology is powered by [ListiaSource SA](#)
 Version 4.0 - [Comments](#) - [Documentation](#) - [Get SonarQube](#) - [Buy](#)

Security Management



Security Management...

- Matrix-based security


☒ Matrix-based security

User/group	Overall					Credentials					Slave					Job								
	Administer	Read	RunScripts	UploadPlugins	Configure	UpdateCenter	Create	Update	View	Delete	ManageDomains	Configure	Delete	Create	Disconnect	Connect	Build	Create	Delete	Configure	Read	Discover	Build	Workspac
Anonymous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

User/group to add:

- Project-based Matrix Authorization

☒ Project-based Matrix Authorization Strategy

User/group	Overall					Credentials					Slave					Job								
	Administer	Read	RunScripts	UploadPlugins	Configure	UpdateCenter	Create	Update	View	Delete	ManageDomains	Configure	Delete	Create	Disconnect	Connect	Build	Create	Delete	Configure	Read	Discover	Build	Wor
Anonymous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 Cybage_ALM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

User/group to add:

Add

Security Management Plugins

Role based privilege control

Global roles

Role	Overall		Slave		Job						Run			View			SCM
	Administer	Read	Configure	Delete	Create	Delete	Configure	Read	Build	Workspace	Delete	Update	Artifacts	Create	Delete	Configure	Tag
admin	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
anonymous	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
job-creator	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Role to add

Project roles

Role	Pattern	Job					Run		
		Delete	Configure	Read	Build	Workspace	Delete	Update	Artifacts
		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sample Sample.*		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Build Pipeline

- Forms chain of jobs based on their upstream/downstream dependencies.

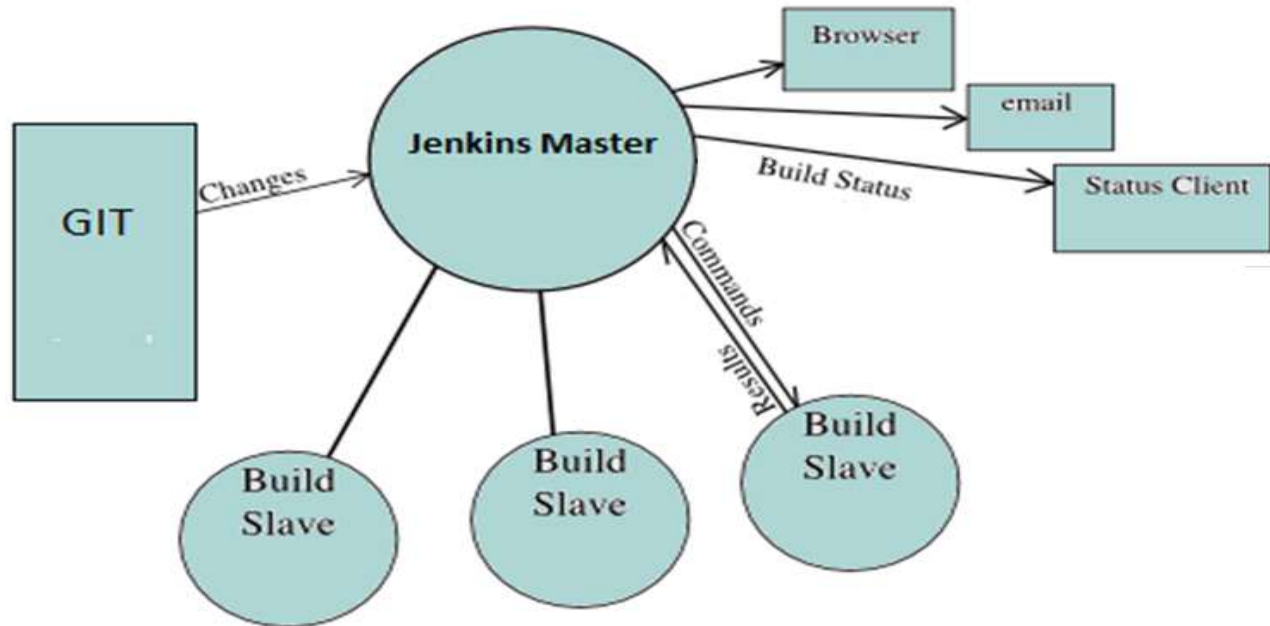


Jenkins Distributed Build Architecture

- Master/slave architecture to manage distributed builds.

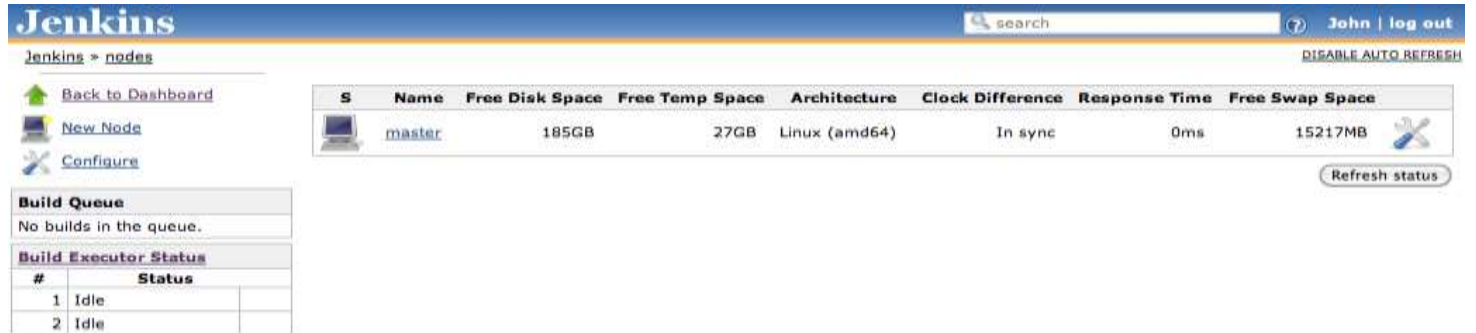


Jenkins Master Slave



Master Slave

- Master



Jenkins search John | log out DISABLE AUTO REFRESH

[Jenkins » nodes](#)

[Back to Dashboard](#)
[New Node](#)
[Configure](#)

S	Name	Free Disk Space	Free Temp Space	Architecture	Clock Difference	Response Time	Free Swap Space
	master	185GB	27GB	Linux (amd64)	In sync	0ms	15217MB

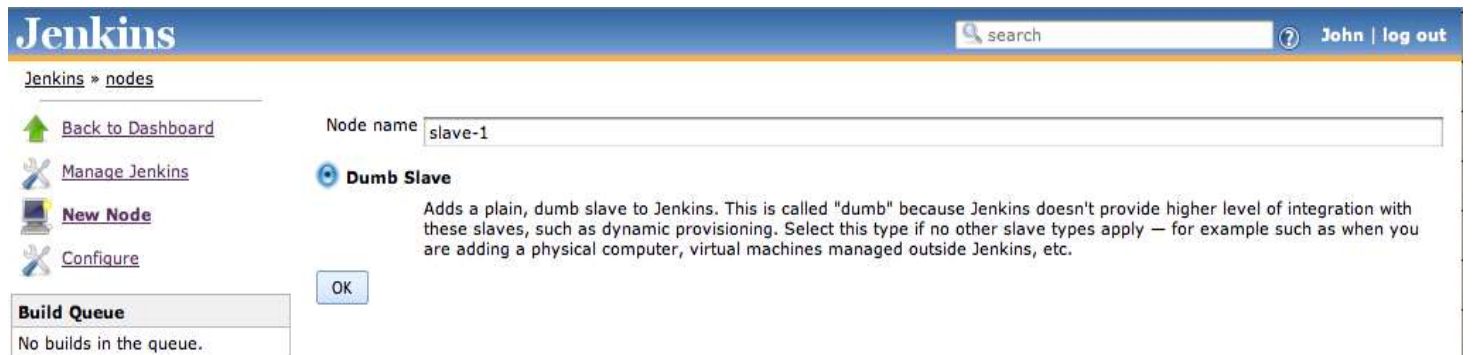
[Refresh status](#)

Build Queue
No builds in the queue.

Build Executor Status

#	Status
1	Idle
2	Idle

- Creating Slave



Jenkins search John | log out

[Jenkins » nodes](#)

[Back to Dashboard](#)
[Manage Jenkins](#)
[New Node](#)
[Configure](#)


Build Queue
No builds in the queue.

Node name

Dumb Slave

Adds a plain, dumb slave to Jenkins. This is called "dumb" because Jenkins doesn't provide higher level of integration with these slaves, such as dynamic provisioning. Select this type if no other slave types apply — for example such as when you are adding a physical computer, virtual machines managed outside Jenkins, etc.

Master Slave together



The screenshot shows the Jenkins Master interface. On the left, the 'Build Queue' and 'Build Executor Status' panels are visible. The 'Build Queue' panel shows 'No builds in the queue.' The 'Build Executor Status' panel shows the status of the master and slaves. The master is 'master' and is 'idle'. There are 8 slaves: 'slave3', 'slave4', 'slave5', 'slave6', 'slave7', 'slave8', 'submit_slave', and 'slave test build flow'. All slaves are 'offline'. The 'slave test build flow' is currently 'Building job11 #12'.

On the right, the 'All' jobs table is displayed. It lists jobs with their status, name, last success, last failure, and last duration.

S	W	Name	Last Success	Last Failure	Last Duration
Blue	Sun	freejob1	13 days - #4	N/A	0.95 sec
Red	Ele	job11	12 days - #5	11 days - #2	2 min 20 sec
Blue	Ele	job2	12 days - #16	14 days - #15	15 sec
Red	Sun	job21	11 days - 1.0.22-5-2014	3 days 23 hr - 1.0.22-5-2014	1 min 45 sec
Red	Ele	ManishJob	11 days - #4	7 days 1 hr - #6	1 min 39 sec
Grey	Ele	MavenJob	N/A	N/A	N/A
Blue	Ele	slave test build flow	12 days - #5	12 days - #4	2 min 30 sec

Legend: BSS for all BSS for failures BSS for just latest builds

Page generated: Jun 2, 2014 3:28:00 PM [REST API](#) [Jenkins ver. 1.563](#)

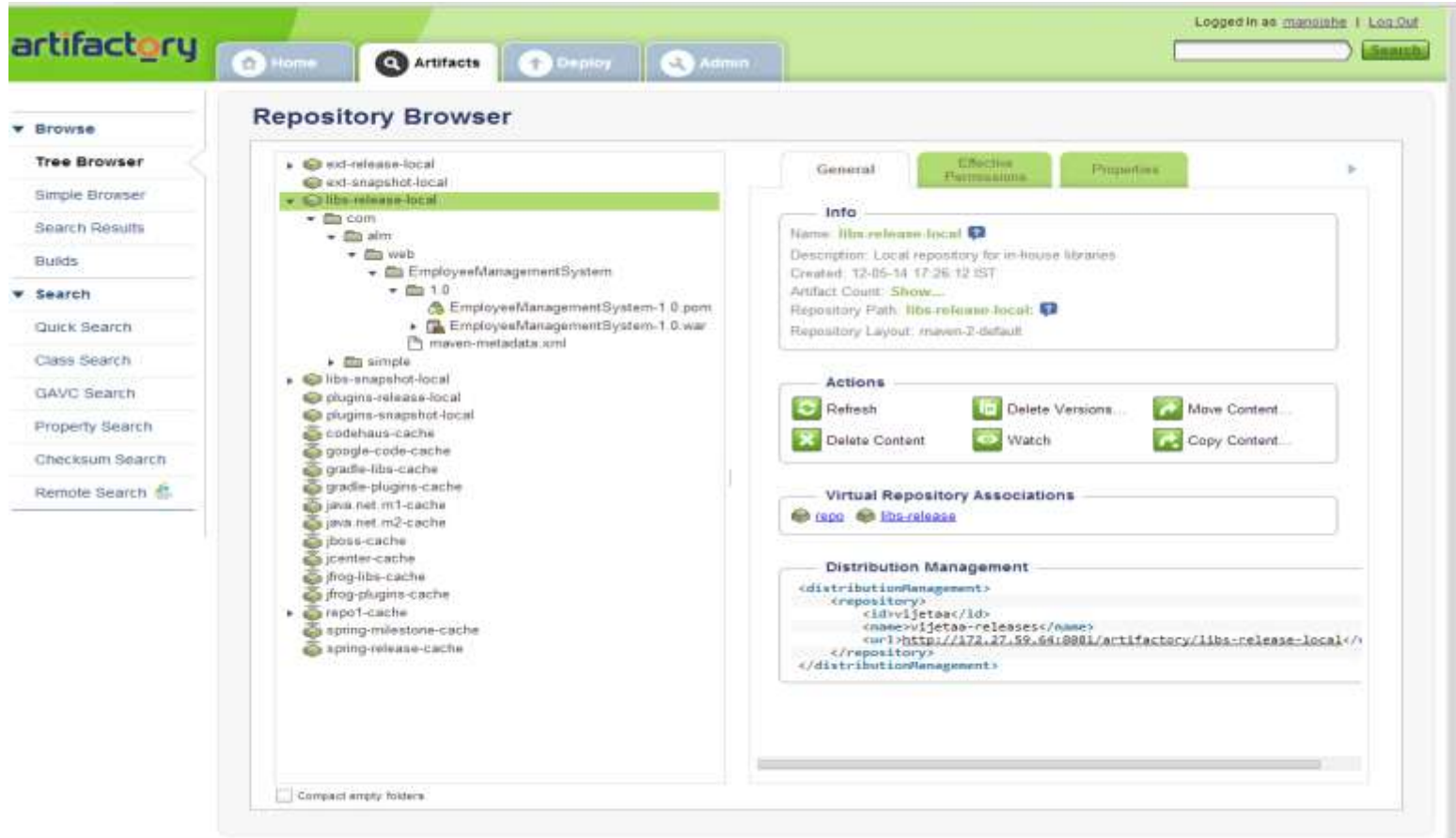
Annotations: A red arrow points from the word 'MASTER' to the 'master' entry in the 'Build Executor Status' panel. Another red arrow points from the word 'SLAVES' to the list of slave entries in the same panel.

Jenkins with Artifactory

Artifactory

- Central storage server for internal artifacts
- Open Source from JFrog makes configuring and maintaining maven repositories easy
- Refer back to the build that generated a given artifact
- keeps track of the dependencies that were used in the Jenkins build
- Jenkins Artifactory Plugin - Provides tighter two-way integration with the Artifactory

Jenkins with Artifactory...



The screenshot displays the Artifactory web interface. The top navigation bar includes links for Home, Artifacts, Deploy, and Admin, along with a user login status (Logged in as mansahe) and a search bar. The left sidebar contains a 'Browse' section with a 'Tree Browser' and a 'Search' section with various search options like Quick Search, Class Search, and Remote Search. The main content area is titled 'Repository Browser' and shows a tree view of repositories. The 'libs-release-local' repository is selected, showing its internal structure with folders like 'com' and 'simple', and files like 'EmployeeManagementSystem-1.0.pom' and 'maven-metadata.xml'. On the right, the 'Info' tab is active, displaying details such as Name, Description, Created date, Artifact Count, Repository Path, and Repository Layout. Below the info, there are 'Actions' like Refresh, Delete Versions, Move Content, Delete Content, Watch, and Copy Content. The 'Virtual Repository Associations' section shows a link to 'repo' and 'libs-release'. The 'Distribution Management' section contains XML code for configuring the repository in a distribution management system.

artifactory Home Artifacts Deploy Admin

Logged in as mansahe | Log Out

Repository Browser

Tree Browser

- Simple Browser
- Search Results
- Builds

Search

- Quick Search
- Class Search
- GAVC Search
- Property Search
- Checksum Search
- Remote Search

libs-release-local

- com
 - alm
 - web
 - EmployeeManagementSystem
 - 1.0
 - EmployeeManagementSystem-1.0.pom
 - EmployeeManagementSystem-1.0.war
 - maven-metadata.xml
- simple

Info

Name: **libs-release-local**

Description: Local repository for in-house libraries

Created: 12-05-14 17:26:12 IST

Artifact Count: [Show...](#)

Repository Path: **libs-release-local**

Repository Layout: maven-2-default

Actions

- Refresh
- Delete Versions
- Move Content
- Delete Content
- Watch
- Copy Content

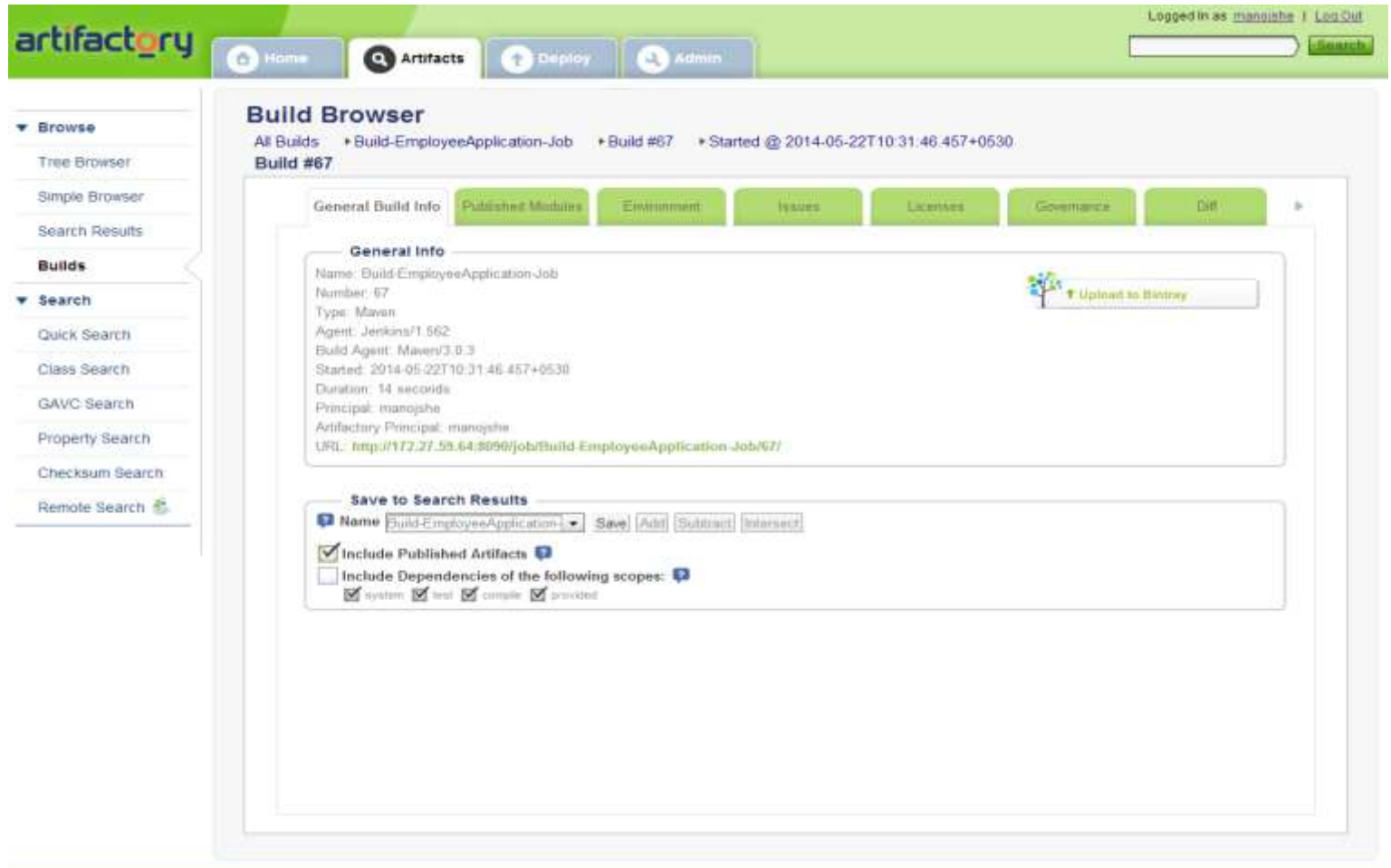
Virtual Repository Associations

[repo](#) [libs-release](#)

Distribution Management

```
<distributionManagement>
  <repository>
    <id>vijetaa</id>
    <name>vijetaa-releases</name>
    <url>http://172.27.59.64:8081/artifactory/libs-release-local</url>
  </repository>
</distributionManagement>
```


Jenkins with Artifactory...

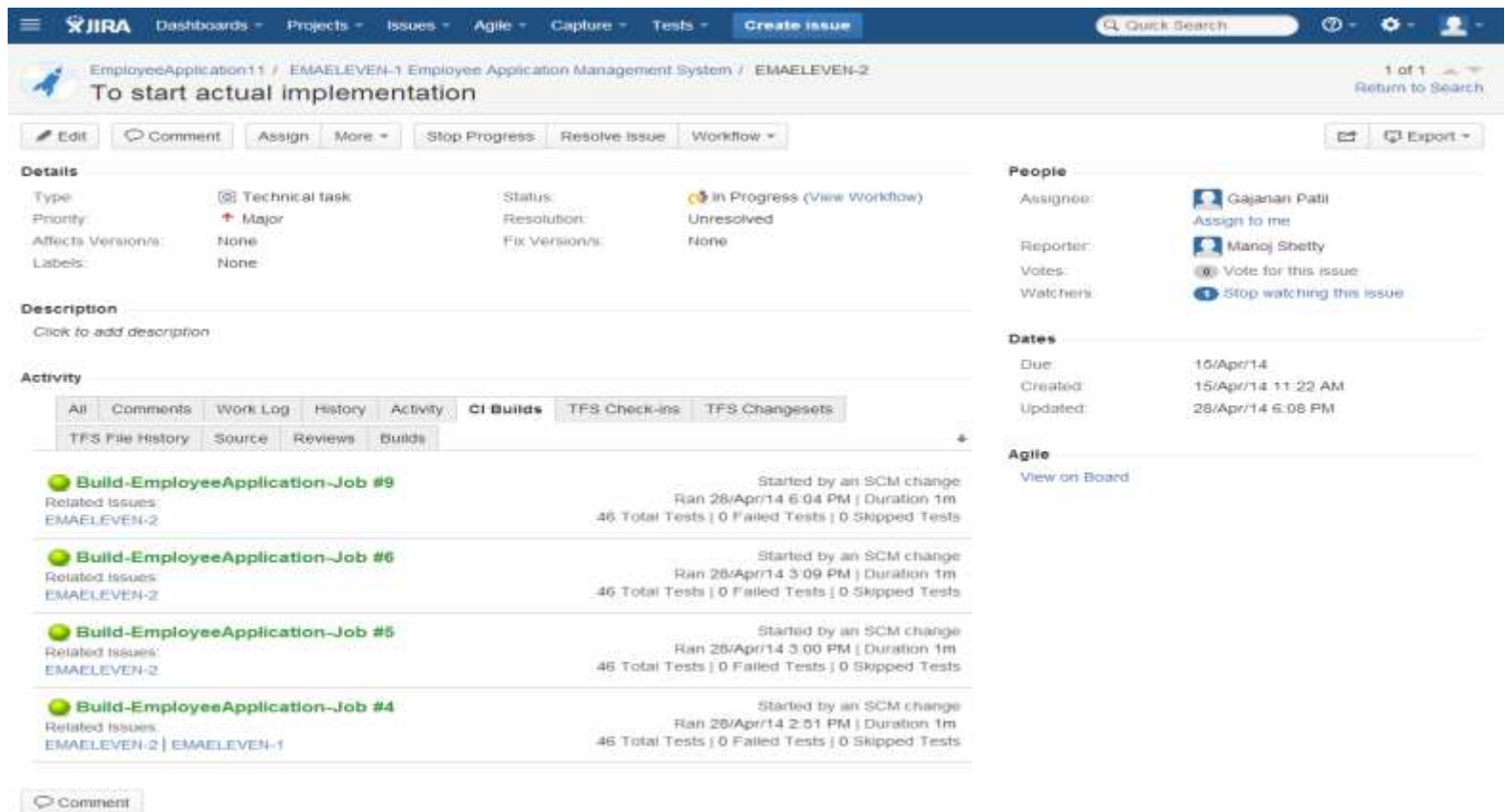


The screenshot displays the Artifactory Build Browser interface. At the top, the Artifactory logo is on the left, and navigation buttons for Home, Artifacts, Deploy, and Admin are in the center. On the right, it shows the user is logged in as 'manojsha' with a 'Log Out' link and a search bar. A left sidebar contains a 'Browse' section with links to Tree Browser, Simple Browser, and Search Results, followed by a 'Builds' section with a 'Search' dropdown and links for Quick Search, Class Search, GAVC Search, Property Search, Checksum Search, and Remote Search. The main content area is titled 'Build Browser' and shows the breadcrumb 'All Builds > Build-EmployeeApplication-Job > Build #67 > Started @ 2014-05-22T10:31:46.457+0530'. Below this, the 'Build #67' is selected. A row of tabs includes 'General Build Info' (active), 'Published Modules', 'Environment', 'Issues', 'Licenses', 'Governance', and 'Diff'. The 'General Info' tab displays details: Name (Build-EmployeeApplication-Job), Number (67), Type (Maven), Agent (Jenkins/1.562), Build Agent (Maven/3.0.3), Started (2014-05-22T10:31:46.457+0530), Duration (14 seconds), Principal (manojsha), Artifactory Principal (manojsha), and URL (http://172.27.59.64:8080/job/Build-EmployeeApplication-Job/67/). An 'Upload to Bintray' button is visible. Below the info, a 'Save to Search Results' section shows the build name in a dropdown, with 'Save', 'Add', 'Subtract', and 'Intersect' buttons. It also has checkboxes for 'Include Published Artifacts' (checked) and 'Include Dependencies of the following scopes' (unchecked), with sub-checkboxes for 'system', 'test', 'compile', and 'provided' (all checked).

Jenkins with Jira

- Jira plugin integrates Atlassian JIRA to Jenkins
- Configure Jira Url
- Back pointer to Jenkins build pages
- JIRA keys in changelogs are linked to the corresponding JIRA pages.

Jenkins with Jira...



The screenshot shows the Jira issue page for the issue titled "To start actual implementation" (ID: EMAELEVEN-2). The issue is a Technical task with a Major priority, currently in progress, and is assigned to Gajanan Patil. The page includes sections for Details, Description, Activity, People, Dates, and Agile.

Details

Type:	Technical task	Status:	In Progress (View Workflow)
Priority:	Major	Resolution:	Unresolved
Affects Version/s:	None	Fix Version/s:	None
Labels:	None		

Description

Click to add description

Activity

Activity tabs: All, Comments, Work Log, History, Activity, **CI Builds**, TFS Check-ins, TFS Changesets, TFS File History, Source, Reviews, Builds

Build-EmployeeApplication-Job #	Started by an SCM change	Ran	Duration	Total Tests	Failed Tests	Skipped Tests
Build-EmployeeApplication-Job #9	Started by an SCM change	Ran 26/Apr/14 6:04 PM	Duration 1m	46 Total Tests	0 Failed Tests	0 Skipped Tests
Build-EmployeeApplication-Job #6	Started by an SCM change	Ran 26/Apr/14 3:09 PM	Duration 1m	46 Total Tests	0 Failed Tests	0 Skipped Tests
Build-EmployeeApplication-Job #5	Started by an SCM change	Ran 26/Apr/14 3:00 PM	Duration 1m	46 Total Tests	0 Failed Tests	0 Skipped Tests
Build-EmployeeApplication-Job #4	Started by an SCM change	Ran 26/Apr/14 2:51 PM	Duration 1m	46 Total Tests	0 Failed Tests	0 Skipped Tests

People

Assignee: Gajanan Patil
 Reporter: Manoj Shetty
 Votes: 0
 Watchers: 1

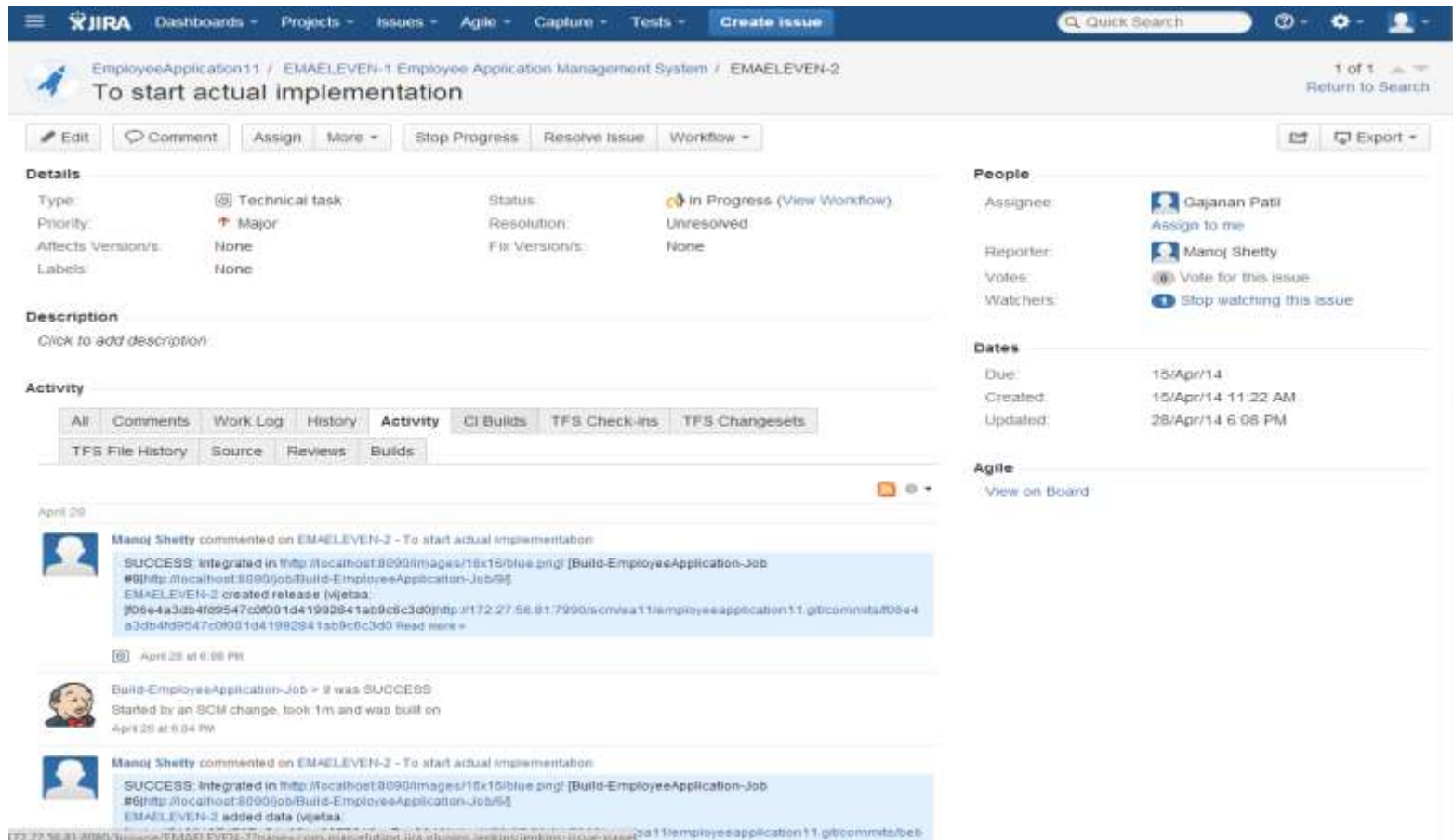
Dates

Due: 16/Apr/14
 Created: 15/Apr/14 11:22 AM
 Updated: 28/Apr/14 6:08 PM

Agile

View on Board

Jenkins with Jira



The screenshot shows the Jira issue page for the issue titled "To start actual implementation" (ID: EMAELEVEN-2). The issue is in the "In Progress" status and is a "Technical task" with a "Major" priority. The assignee is Gajanan Patil, and the reporter is Manoj Shetty. The issue was created on 15/Apr/14 at 11:22 AM and updated on 28/Apr/14 at 6:08 PM.

Details:

- Type: Technical task
- Priority: Major
- Affects Version/s: None
- Labels: None
- Status: In Progress (View Workflow)
- Resolution: Unresolved
- Fix Version/s: None

Description:

Click to add description

Activity:

Activity | CI Builds | TFS Check-ins | TFS Changesets

April 28

Manoj Shetty commented on EMAELEVEN-2 - To start actual implementation

SUCCESS: Integrated in http://localhost:8080/images/16x16/blue.png! [Build-EmployeeApplication-Job #6]http://localhost:8080/job/Build-EmployeeApplication-Job/6/ EMAELEVEN-2 created release [Vjetaa: j066e4a3db4f09547c0f001d41992841ab9c6c3d0]http://172.27.58.81:7990/scm/vet11/employeeapplication11.git/commit/a3db4f09547c0f001d41992841ab9c6c3d0 Read more »

April 28 at 6:08 PM

Build-EmployeeApplication-Job # 9 was SUCCESS

Started by an SCM change, took 1m and was built on April 28 at 6:04 PM

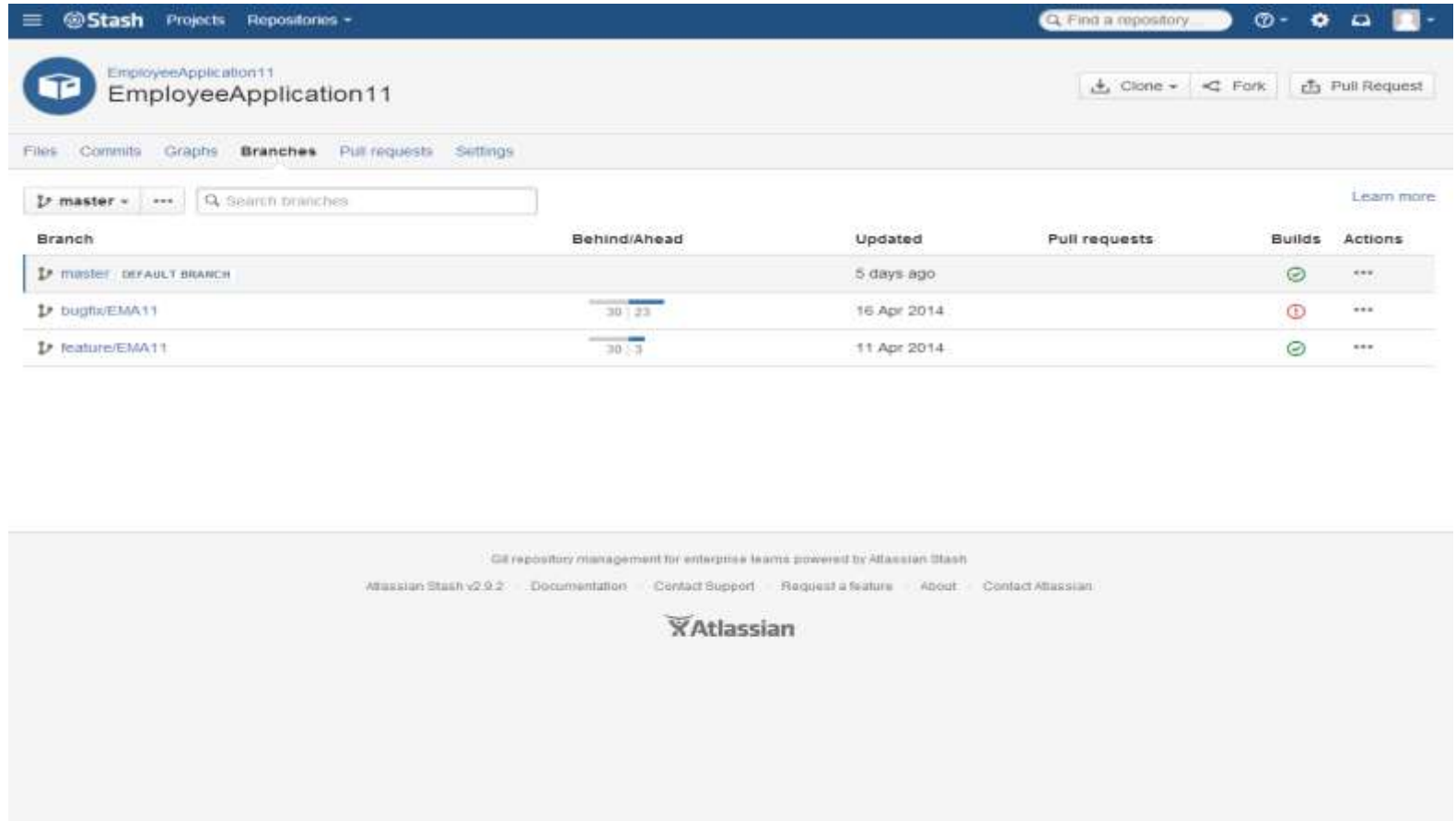
Manoj Shetty commented on EMAELEVEN-2 - To start actual implementation

SUCCESS: Integrated in http://localhost:8080/images/16x16/blue.png! [Build-EmployeeApplication-Job #6]http://localhost:8080/job/Build-EmployeeApplication-Job/6/ EMAELEVEN-2 added data [Vjetaa: 172.27.58.81:8080/tviewce/EMAELEVEN-2?page=com.minsolution.jira.plugin.jenkins.jenkins-issue-panel&id=11employeeapplication11.git/commit/a3db4f09547c0f001d41992841ab9c6c3d0]

Jenkins with Stash

- Stash notifier plugin integrates Atlassian Stash with Jenkins
- builds in progress and their results.
- The build results will show up in the commit list in Stash or in a Stash pull request and provide immediate and easy to scan feedback about a commit.
- It is possible to navigate from build result information in Stash directly to the build in question.
- The plugin can be configured on a per-job basis, globally for all Jobs or both to minimize the configuration overhead.

Jenkins with Stash

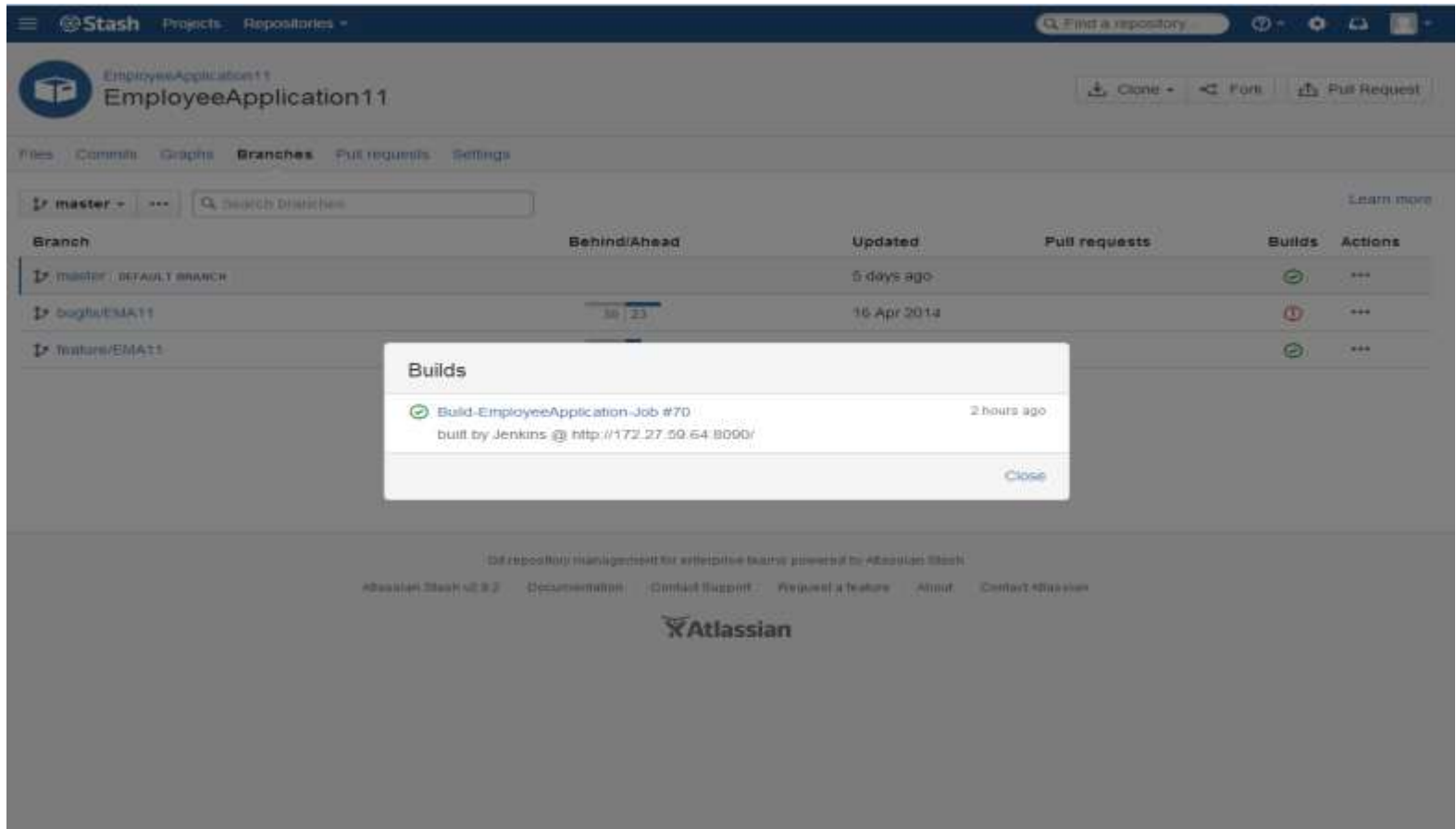


The screenshot displays the Atlassian Stash web interface for a repository named "EmployeeApplication11". The interface includes a navigation bar with "Stash", "Projects", and "Repositories" tabs. A search bar is present with the text "Find a repository...". Below the repository name, there are buttons for "Clone", "Fork", and "Pull Request". The "Branches" tab is selected, showing a list of branches. The table below lists the branches and their status.




Branch	Behind/Ahead	Updated	Pull requests	Builds	Actions
master (DEFAULT BRANCH)		5 days ago		✓	...
bugfix/EMA11	30 : 23	16 Apr 2014		!	...
feature/EMA11	30 : 3	11 Apr 2014		✓	...

At the bottom of the interface, there is a footer with the text "Git repository management for enterprise teams powered by Atlassian Stash" and "Atlassian Stash v2.9.2". There are also links for "Documentation", "Contact Support", "Request a feature", "About", and "Contact Atlassian". The Atlassian logo is also present.


Jenkins with Stash



The screenshot displays the Atlassian Stash web interface for a repository named "EmployeeApplication11". The interface includes a top navigation bar with "Stash", "Projects", and "Repositories" tabs. Below the repository name, there are tabs for "Files", "Commits", "Graphs", "Branches", "Pull requests", and "Settings". The "Branches" tab is active, showing a table of branches. A "Builds" modal window is open, displaying a successful build for "Build-EmployeeApplication-Job #70" completed 2 hours ago by Jenkins.

Branch	Behind/Ahead	Updated	Pull requests	Builds	Actions
master - DEFAULT BRANCH		5 days ago			...
bugfix/MA11	38 23	16 Apr 2014			...
feature/EMAt1					...

Builds

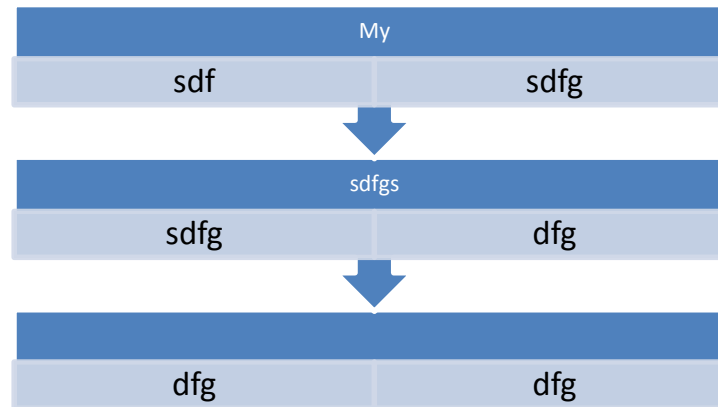
-  Build-EmployeeApplication-Job #70 2 hours ago
built by Jenkins @ http://172.27.59.64:8080/

Close

Jenkins Best Practices

- Always secure Jenkins
- Jenkins Home should be backed up regularly
- Issues must be tightly integrated with tracking system.
- Job should always be configured to generate trend reports and automated testing
- Jenkins on the partition that has the most free disk-space
- Master Slave distribution should be used
- Take steps to ensure failures are reported as soon as possible

TESTING SMART ART



List of Plugins required for a Jenkins CI

- Deploy Plugin
- Clover Plugin
- Sonar Plugin
- Cobertura Plugin
- Jacoco Plugin
- Jira Plugin
- Git Plugin
- Stash notifier plugin
- Thucydides Plugin
- Build pipeline Plugin
- Copy artifact Plugin
- Join Plugin
- Artifactory Plugin
- Role Strategy Plugin

Who uses Jenkins?



Apache





Thank You!