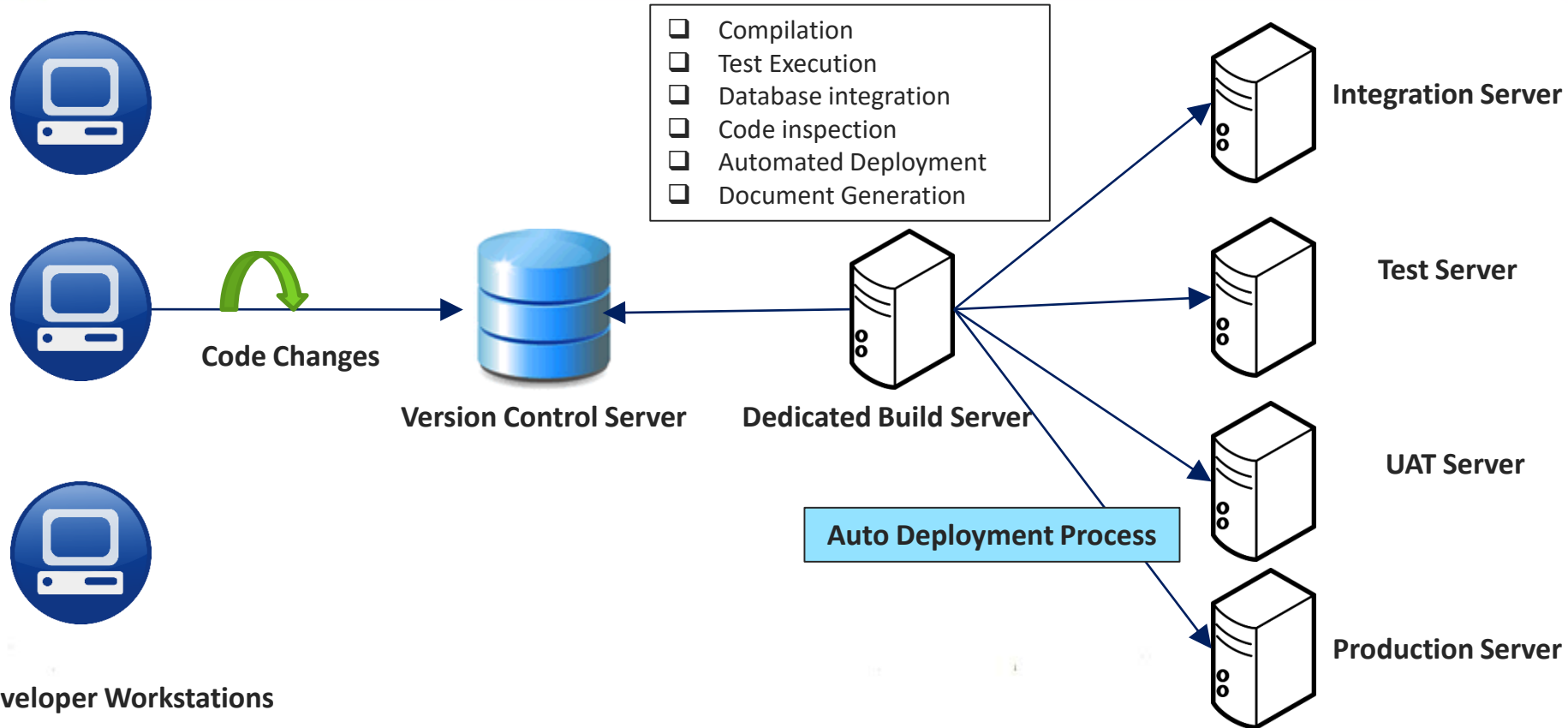


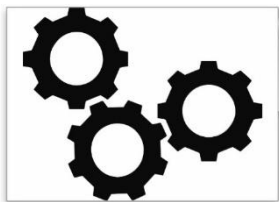


Jenkins

Getting Started with Jenkins

Continuous Integration Basics

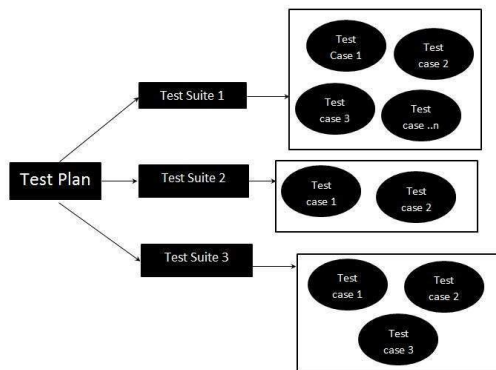




Automated Build process



Source Code Repository



Automated Test Suite



Continuous Build Server

Jenkins Supported Platforms - RECAP

- Windows
- Ubuntu/Debian
- Red Hat/Fedora/CentOS
- Mac OS X
- openSUSE
- FreeBSD
- OpenBSD
- Solaris/OpenIndiana
- Gentoo

Jenkins – involve all!

Software
Developer



Project Managers



Server Admins



Quality Consultants

→Ensure that Java 7 or 8 are setup.

- » In production version, only JRE can be present
- » For development and test, JDK/JRE can be present.
- » Ensure system variable JAVA_HOME is set and present on path.

→Create an Environment variable JENKINS_HOME.

- » This is the place where all Jenkins works (including workspaces are stored).
- » In production environment this should be on a directory with large amount of space.
- » This will also be the place to install JENKINS too.

Installing Jenkins on Windows

- Can be installed either as
 - » Web Archiver (WAR)
 - » Native Package
- Two versions
 - » Release
 - » Long Term Support (LTS) Release
- LTS versions are some point releases away from "latest and greatest" versions.
- They are more stable
- Always use LTS versions for production environments.

Download Jenkins

Release

Long-Term Support Release

Java Web Archive (.war)

Latest and greatest (1.634)

[changelog](#) | [past releases](#)

[upgrading from Hudson?](#)

Native packages



Windows



Ubuntu/Debian



Red Hat/Fedora/CentOS



Mac OS X



openSUSE



FreeBSD



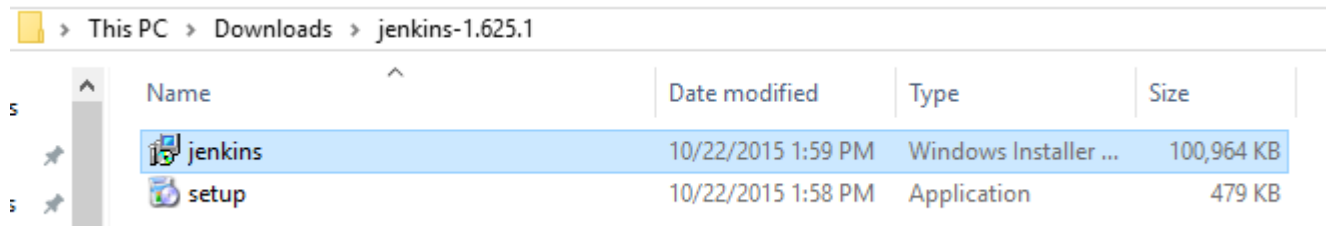
OpenBSD




Gentoo

Installing as native package

- Click on link for Windows Package
- Download ZIP file
- Extract files to temporary folder (This is not required strictly).
- Double click on file named Jenkins.msi. Just click on next for all appearing windows to perform a default install.



This PC > Downloads > jenkins-1.625.1				
Name	Date modified	Type	Size	
jenkins	10/22/2015 1:59 PM	Windows Installer ...	100,964 KB	
setup	10/22/2015 1:58 PM	Application	479 KB	



If you are using Norton, it will complain about the installer file not being trusted.

→The default is to install c:\program files (x86)\Jenkins

» CHANGE THIS to use JENKINS_HOME and ensure that JENKINS_HOME does not contain spaces.

→The native package comes bundled with a JRE which is used.

→All configuration is stored in file Jenkins.xml.

» Internally, you can see it invoke java on **Jenkins.war** on port 8080

» The engine used is winstone

» Log files are

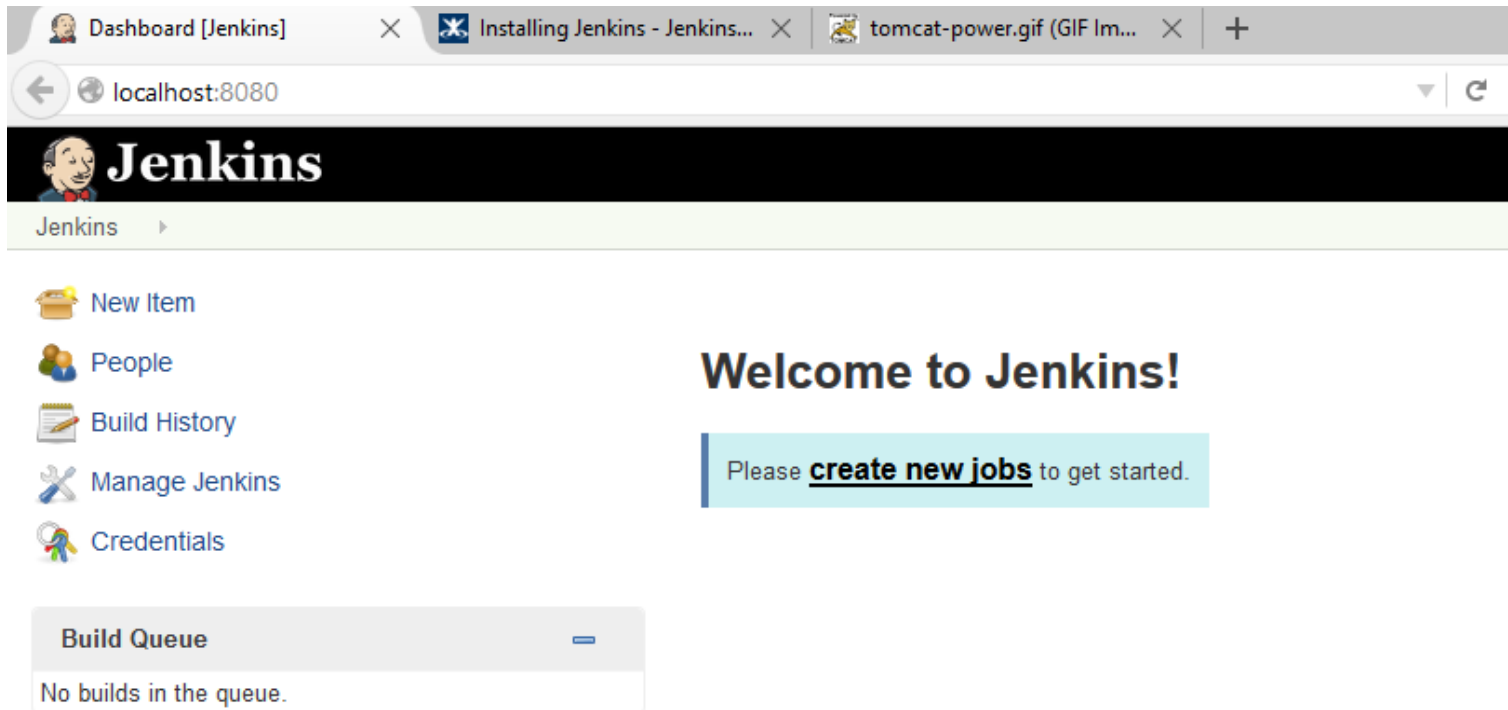
Jenkins.out.log

Jenkins.err.log

Jenkins.wrapper.log

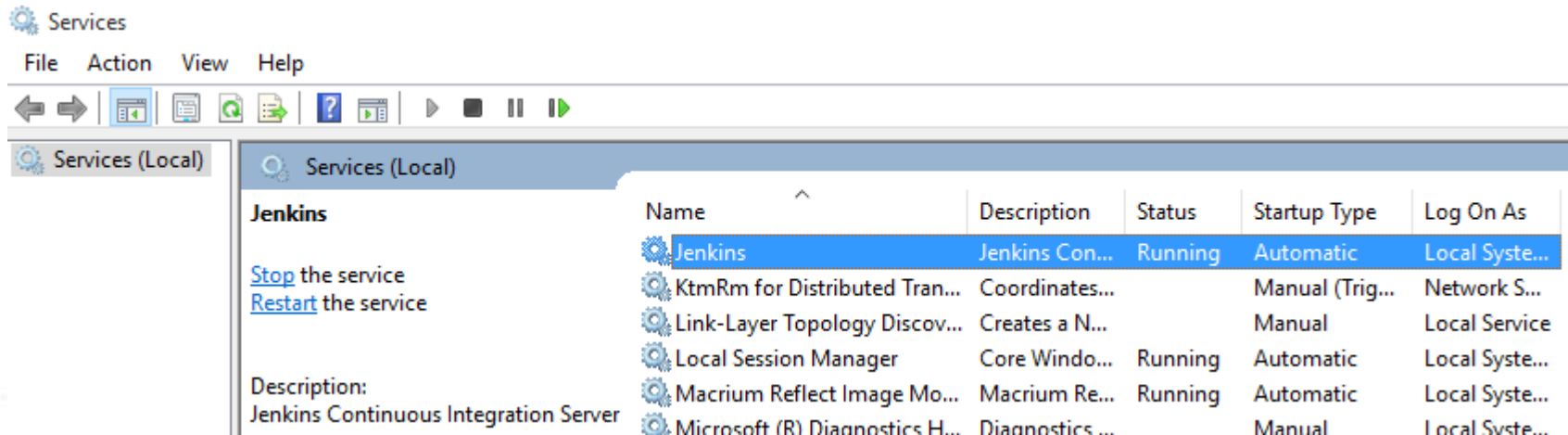
Native Package installation

→Navigate to `http://<localhost>:8080`. The Jenkins page should be displayed.



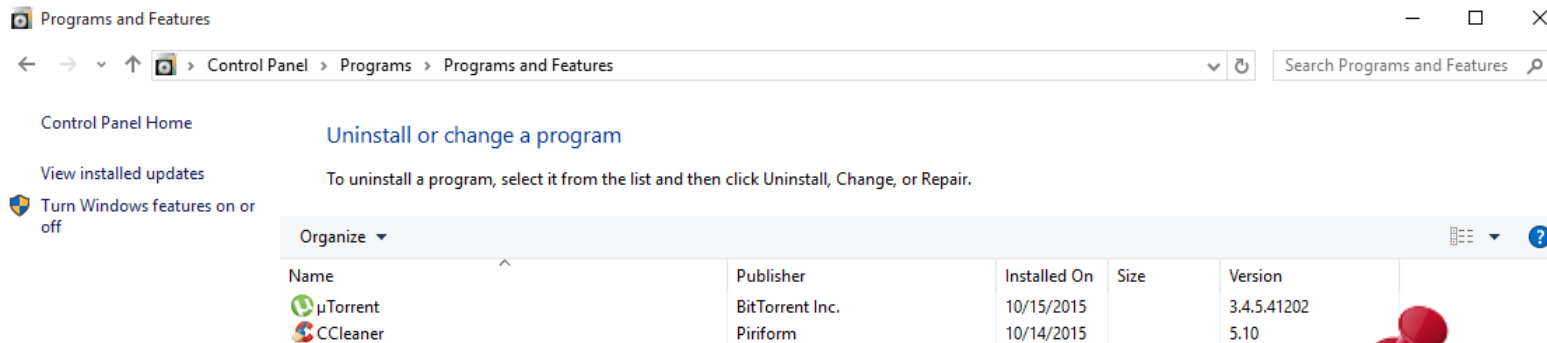
Native package installation

- The default context is / (no need to specify /Jenkins).
- This will automatically install Jenkins as a Windows Service.
- This service will run by default with "Local System Account".
- The service is marked as Automatic which means that Jenkins will start automatically.



Native Package - Remove Jenkins

- Click on Control Panel -> Program and Features -> Uninstall a program
- Double click on Jenkins to confirm removal.
- Restart the system



You will need to restart to complete the uninstall operation.

Native Package –Can I run as a war file?

→Yes. All Jenkins.exe does is to invoke java on Jenkins.war.

→Create a batch file that contains this:

```
» java -Xrs -Xmx1024m -Dhudson.lifecycle=udson.lifecycle.WindowsServiceLifecycle -jar jenkins.war" --  
    httpPort=8080
```

→That will work too! However

- » You lose benefits of running as a service with auto start/stop from service control panel.
- » Ugly – one closable terminal will continue to be displayed (which can be hidden though)

→You will need the following:

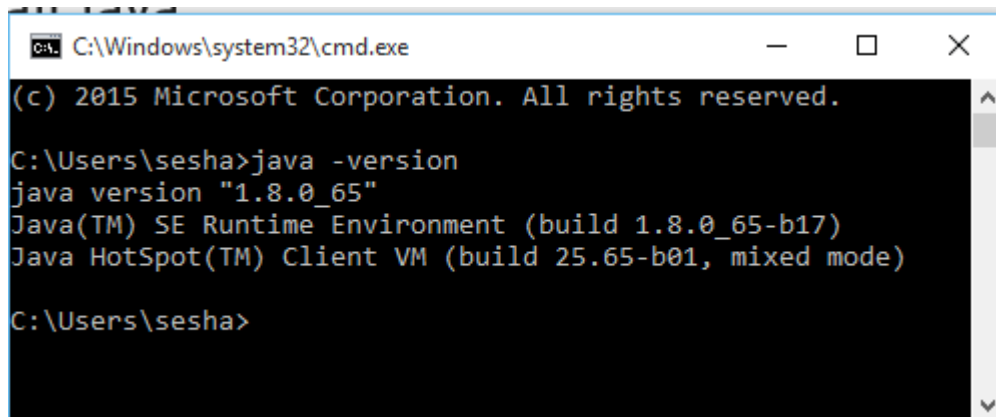


Apache Tomcat 6+ (We recommend 7 or 8)



Oracle JDK 7/8

- Download Java from java.com.
- Double click on installer to start.
- Verify correctness of install by typing below from a command line
 - » `java -version`




```
C:\Windows\system32\cmd.exe

(c) 2015 Microsoft Corporation. All rights reserved.

C:\Users\sasha>java -version
java version "1.8.0_65"
Java(TM) SE Runtime Environment (build 1.8.0_65-b17)
Java HotSpot(TM) Client VM (build 25.65-b01, mixed mode)

C:\Users\sasha>
```

- 
- On windows, it is always recommended to install to a directory that has no spaces in its name.
 - JAVA_HOME must be set and JAVA should in PATH

- Choose Correct installer. (JDK or JRE)
- If choosing JDK, ensure Public JRE is also installed and that the JRE and JDK are installed separately.
- JDK 8: 1.8.0_66+ is preferred.

» This PC » EDriveData (E:) » apps » java				
	Name	Date modified	Type	Size
✦	jdk7	11/25/2015 10:45 ...	File folder	
✦	jdk8	11/25/2015 4:52 PM	File folder	
✦	jre7	11/25/2015 10:45 ...	File folder	
✦	jre8	11/25/2015 4:52 PM	File folder	

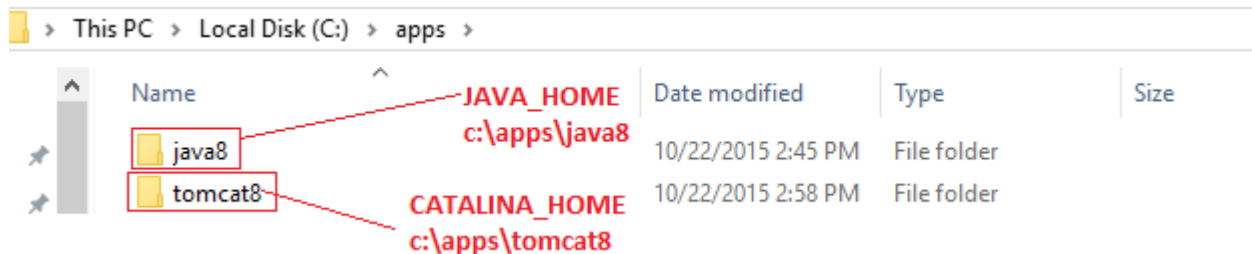
→ There are multiple ways to install Tomcat.

- » Binary installers
- » Zip installers
- » Install Tomcat as a service

→ Refer here: <https://tomcat.apache.org/tomcat-8.0-doc/setup.html#Windows> for setup of Tomcat 8 on Windows

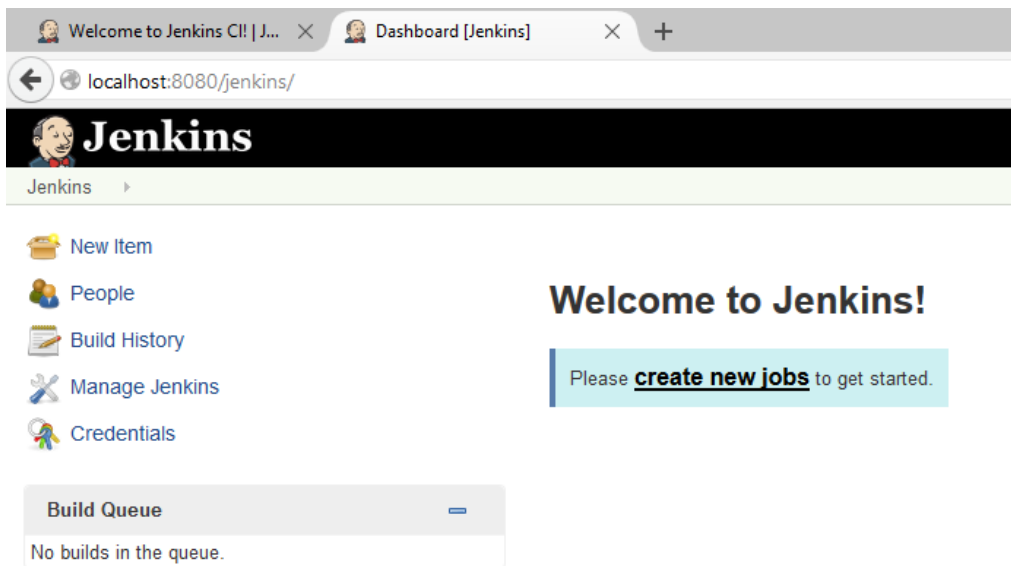
→ At end of install of Java and tomcat, the following system variables should be set to point to correct location

- » JAVA_HOME: the location where java is installed
- » CATALINA_HOME: The location where TOMCAT is installed.



Install as a web WAR

- Download WAR file to %CATALINA_HOME%\webapps directory folder. (if using Tomcat)
- Tomcat should automatically expand Jenkins.war to Jenkins folder and auto-deploy the application.
- Navigate to <http://localhost:8080/jenkins>





If not using Tomcat or other container, the application can be run
using the following command:

```
java -jar jenkins.war --httpPort=8080
```

- Installing as a Win installer creates context under root i.e. <http://localhost:8080>, while installing as war creates Jenkins context as <http://localhost:8080/jenkins>
- Configuration under installer can be found under Jenkins.xml while in war file, it is standard server.xml/web.xml file.
- Typically in production, build servers are usually on UNIX and UNIX variants mainly because of
 - » Better SSH/SSL Support
 - » Better support for upgrade to latest versions of Jenkins as required.
- In all cases, default port is 8080 which can be changed.

→ This is a recommended practice for Jenkins.

→ On tomcat, there are multiple ways to do this.

→ **Method 1:**

» Unzip the WAR file for Jenkins directly under ROOT folder

→ **Method 2:**

» Change the context for default servlet and change context for Jenkins to /

→Maven is a build tool.

→To install,

- » Download the ZIP/GZ file

- » Unzip the same

 - `unzip apache-maven-3.3.3-bin.zip` (Windows)

 - `tar xzvf apache-maven-3.3.3-bin.tar.gz` (Linux)

- » Set MAVEN_HOME environmental variable to where Maven has been extracted.

- » Add \$M2_HOME/bin (%M2_HOME%\bin) to the PATH variable.



→ANT is a build tool.

→To install,

- » Download the ZIP/GZ file

- » Unzip the same

 - `unzip apache-ant-1.9.6-bin.zip` (Windows)

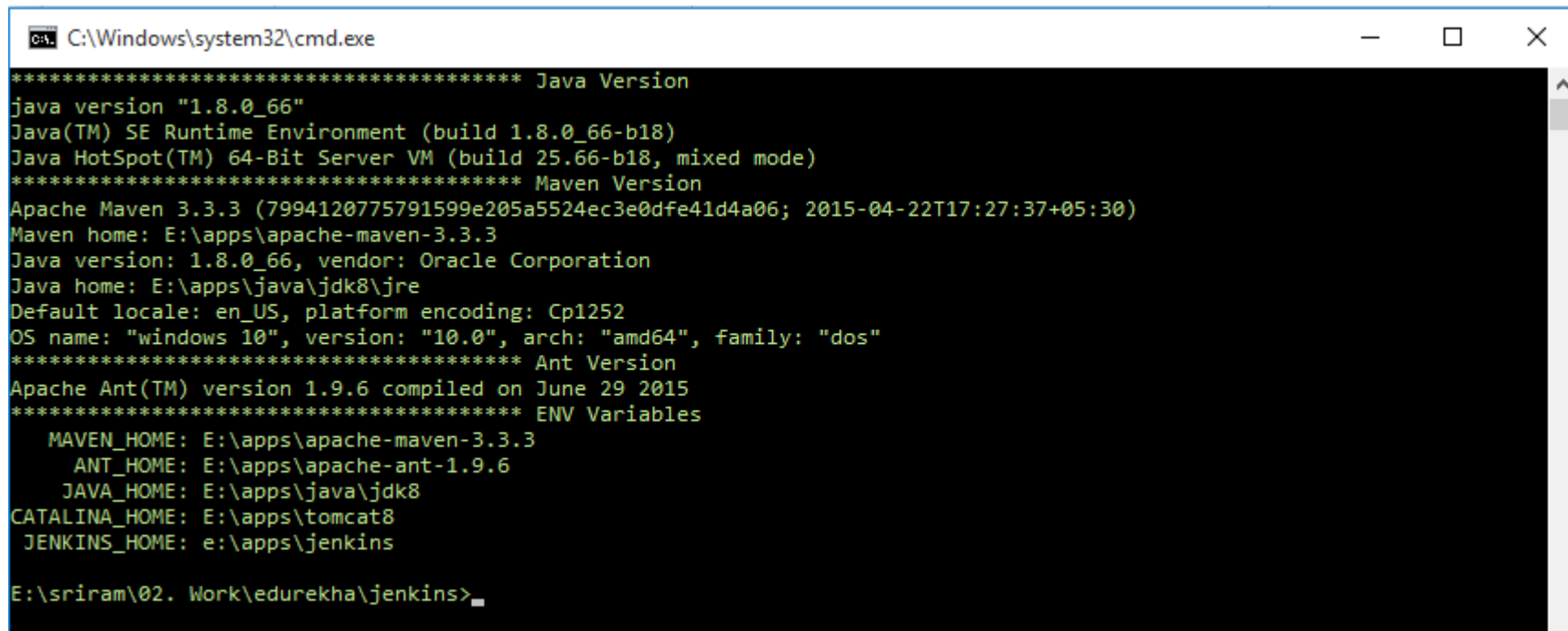
 - `tar xzvf apache-ant-1.9.6-bin.tar.gz` (Linux)

- » Set ANT_HOME environmental variable to where Ant has been extracted.

- » Add \$ANT_HOME/bin (%ANT_HOME%\bin) to the PATH variable.



→If all went fine, you can verify the correct installation path (Custom script) as below:



```
C:\Windows\system32\cmd.exe

***** Java Version
java version "1.8.0_66"
Java(TM) SE Runtime Environment (build 1.8.0_66-b18)
Java HotSpot(TM) 64-Bit Server VM (build 25.66-b18, mixed mode)
***** Maven Version
Apache Maven 3.3.3 (7994120775791599e205a5524ec3e0dfe41d4a06; 2015-04-22T17:27:37+05:30)
Maven home: E:\apps\apache-maven-3.3.3
Java version: 1.8.0_66, vendor: Oracle Corporation
Java home: E:\apps\java\jdk8\jre
Default locale: en_US, platform encoding: Cp1252
OS name: "windows 10", version: "10.0", arch: "amd64", family: "dos"
***** Ant Version
Apache Ant(TM) version 1.9.6 compiled on June 29 2015
***** ENV Variables
  MAVEN_HOME: E:\apps\apache-maven-3.3.3
  ANT_HOME: E:\apps\apache-ant-1.9.6
  JAVA_HOME: E:\apps\java\jdk8
CATALINA_HOME: E:\apps\tomcat8
JENKINS_HOME: e:\apps\jenkins

E:\sriram\02. Work\edureka\jenkins>
```


- Install OpenJDK 7
- Install Tomcat 7
- Download WAR file to \$CATALINA_HOME/webapps
- Restart tomcat 7

OR SIMPLY INSTALL NATIVE IMAGES

→Require



Open JDK 7 or Open JRE 7



Prefer not to use GNU Compiler for Java

→To install, you first need to install Jenkins to the list of package source list.

→This is done by first adding the key ring and source to package list

```
❏ wget -q -O - https://jenkins-ci.org/debian/jenkins-ci.org.key | sudo apt-key add -  
❏ sudo sh -c 'echo deb http://pkg.jenkins-ci.org/debian binary/ > /etc/apt/sources.list.d/jenkins.list'
```

→Next we need to update apt to refresh with the changes

```
❏ sudo apt-get update
```

→Finally, we install Jenkins

```
❏ sudo apt-get install jenkins
```

→ **Updation**

» Just perform an apt-get update and installation

→ **Removal**

» Just perform an apt-remove

→ Jenkins will start on auto-startup.

» See `/etc/init.d/Jenkins` for additional details.

→ User jenkins is created to run this service

→ Log file can be found here: `/var/log/jenkins/jenkins.log`

→ Configuration file can be found here:

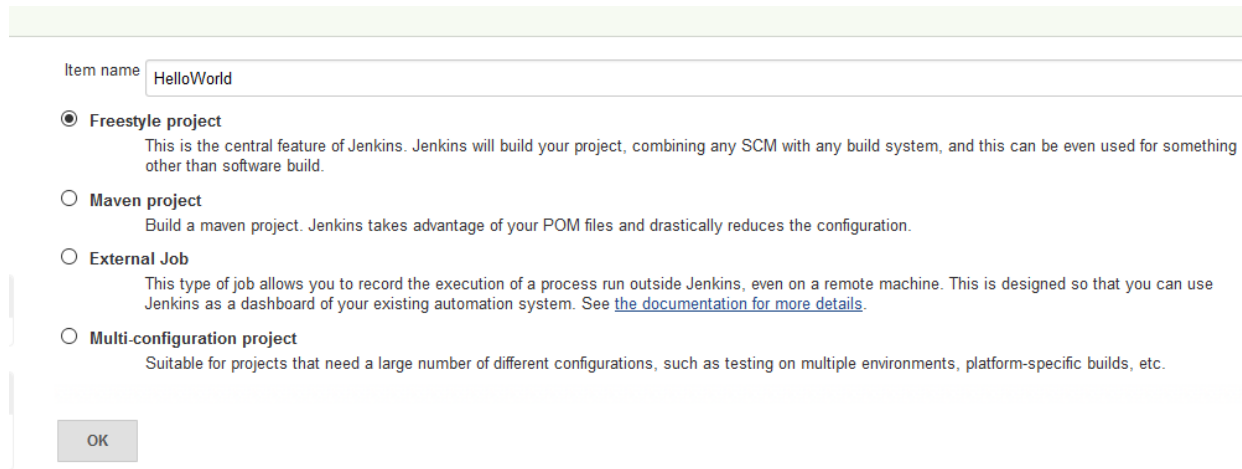
» `/etc/default/jenkins`

→ Default port listening is always 8080. Edit above file (line than contains `HTTP_PORT`) to change the number

→ You could install either Apache, NGINX or simply edit iptables to redirect traffic on port 80 to 8080 or use Apache/NGINX as a proxy.

Your First Jenkins Job

- We will start with a free style job
- The build is to just execute 1 shell script
- The job will be named "HelloWorld"
 - » Click on New Item
 - » Enter the name
 - » Select Free Style project
 - » Click OK



Item name

☒ **Freestyle 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.

☐ **Maven project**
Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuration.

☐ **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](#).

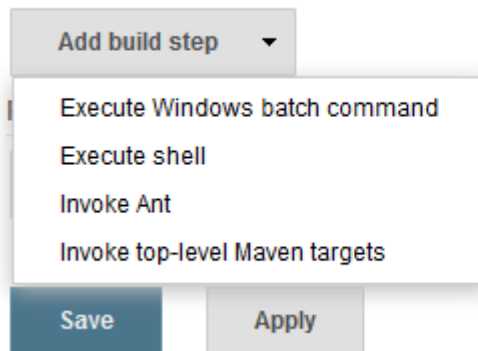
☐ **Multi-configuration project**
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

Your First Jenkins Job

→Leave all empty (default) for now.

→In build section, choose "Execute Windows Batch Command" from Add Build Steps and Click Apply.

Build



Your First Jenkins Job

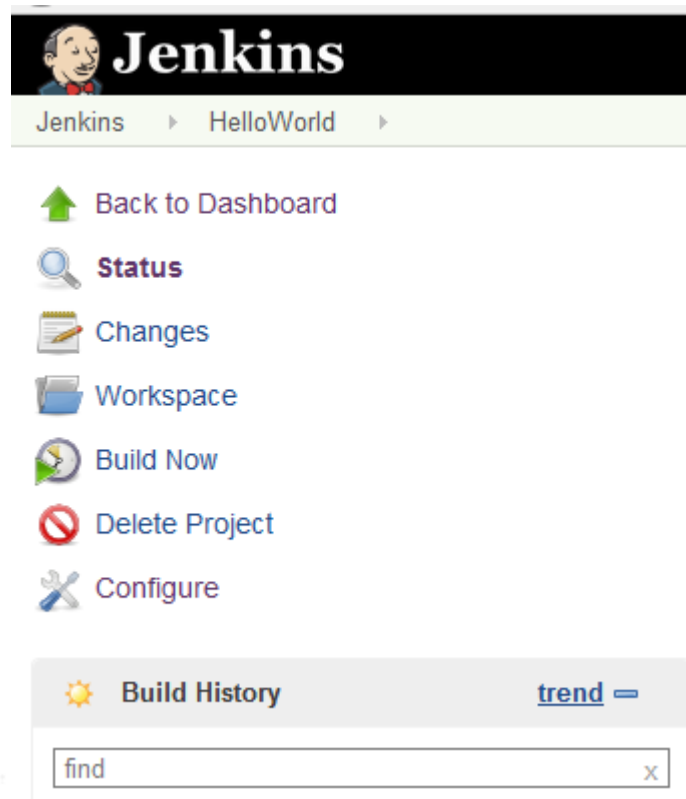
→In the Command area, type

» echo Hello World

→Click Save. Jenkins will open the HelloWorld project as shown

→The Build history will be blank – as this has not been run at all.

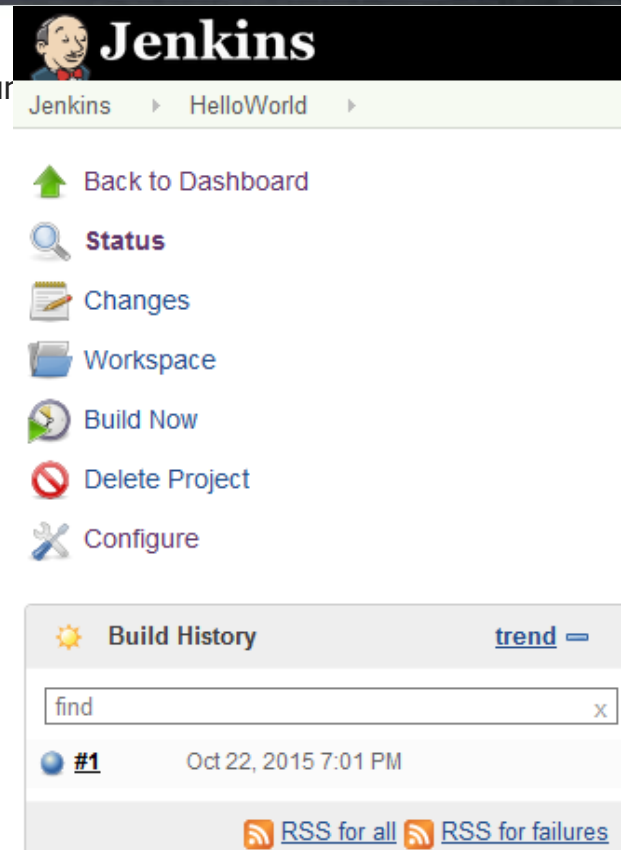
→To run the project, click on Build now.



Your First Jenkins Job

→ Build run #1 is shown below. A default blue icon indicates a successful run

→ Click on link for Build 1 and click on Console Output.



Jenkins

Jenkins ▶ HelloWorld ▶

- Back to Dashboard
- Status
- Changes
- Workspace
- Build Now
- Delete Project
- Configure

Build History [trend](#)

find x

#1 Oct 22, 2015 7:01 PM

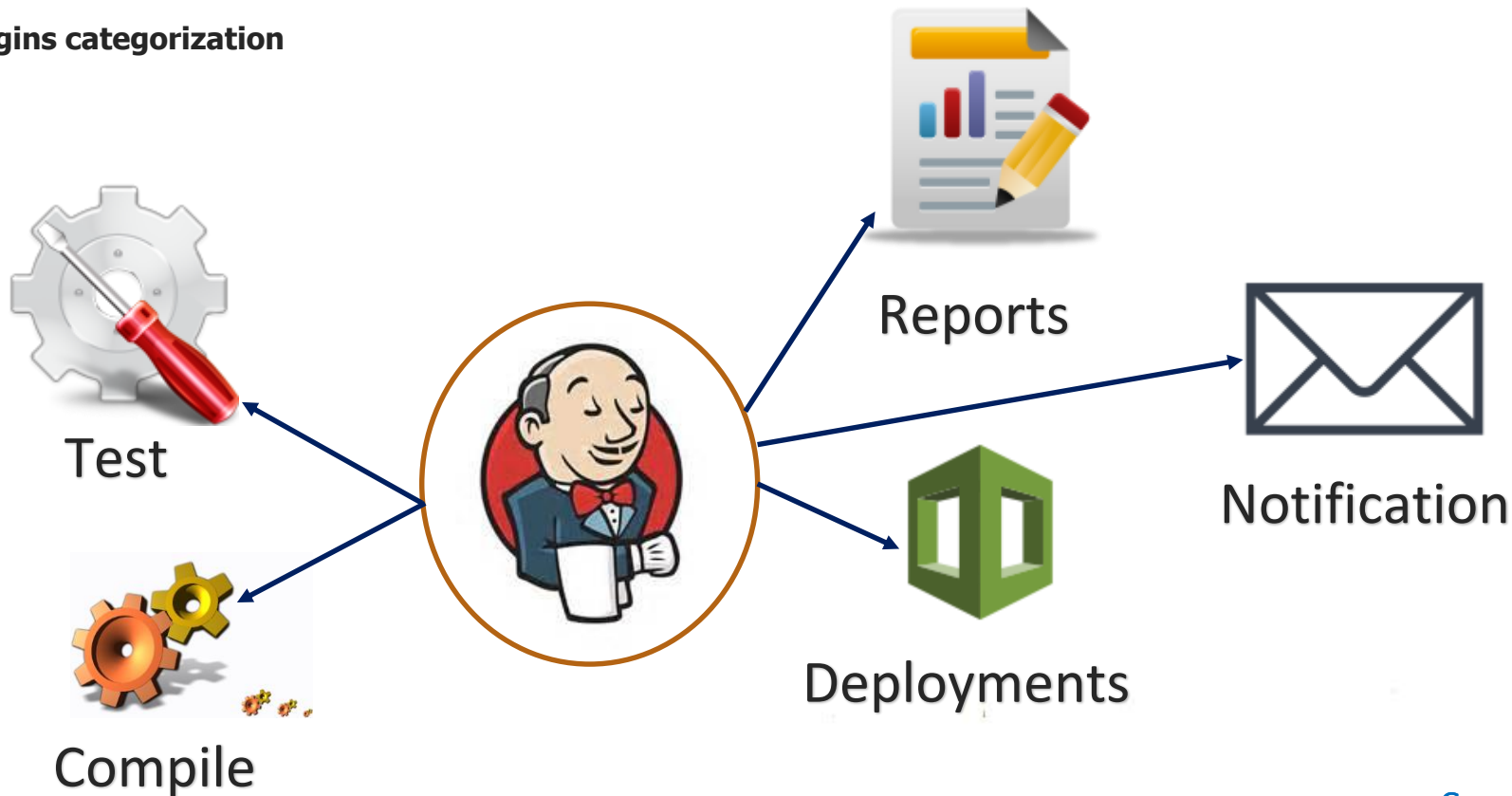
[RSS for all](#) [RSS for failures](#)

→The Console output shows that a temporary batch file was created by Jenkins and executed on your behalf.

The screenshot shows the Jenkins web interface. At the top, the address bar displays 'localhost:8080/jenkins/job/HelloWorld/1/console'. Below the address bar is the Jenkins logo and the text 'Jenkins'. A breadcrumb trail shows 'Jenkins > HelloWorld > #1'. On the left sidebar, there are several links: 'Back to Project' (with an upward arrow icon), 'Status' (with a magnifying glass icon), 'Changes' (with a notepad icon), 'Console Output' (with a terminal icon and highlighted in purple), 'View as plain text' (with a document icon), 'Edit Build Information' (with a notepad icon), and 'Delete Build' (with a red circle and slash icon). The main content area is titled 'Console Output' with a blue sphere icon. It contains the following text: 'Started by user anonymous', 'Building in workspace C:\Users\sesha\.jenkins\jobs\HelloWorld\workspace', '[workspace] \$ cmd /c call c:\apps\tomcat8\temp\hudson6127711964530974889.bat', 'C:\Users\sesha\.jenkins\jobs\HelloWorld\workspace>echo Hello World', 'Hello World', 'C:\Users\sesha\.jenkins\jobs\HelloWorld\workspace>exit 0', and 'Finished: SUCCESS'.

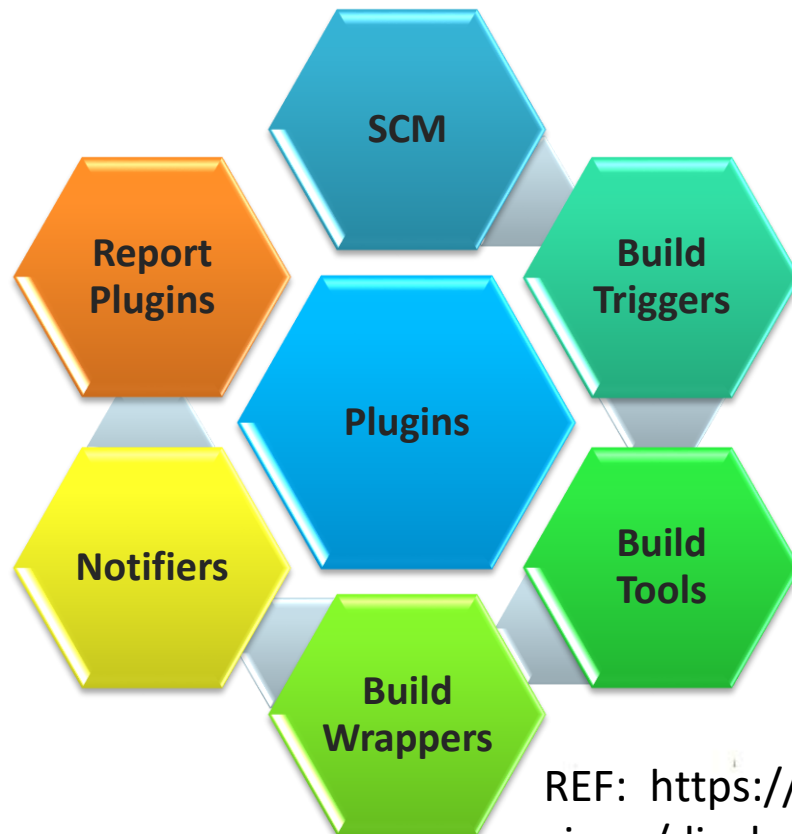
Your first job just ran successfully with no issues!

→ **Plugins categorization**

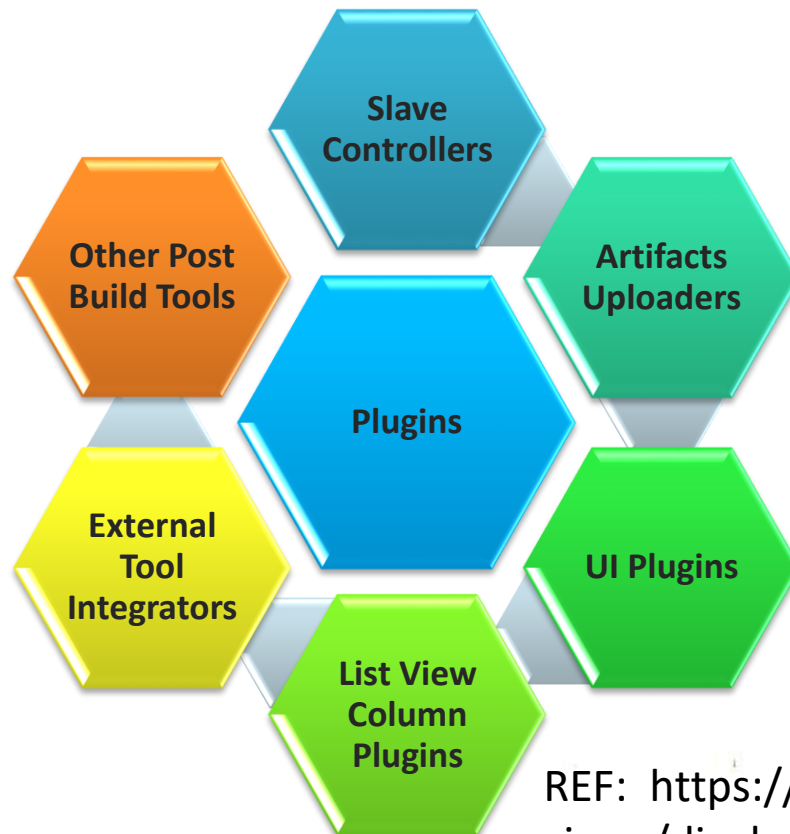




Over 1100 plugins!!



REF: <https://wiki.jenkins-ci.org/display/JENKINS/Plugins>



REF: <https://wiki.jenkins-ci.org/display/JENKINS/Plugins>

Thank you!

