

# **DAP4.0 – DevOps PoC-1**

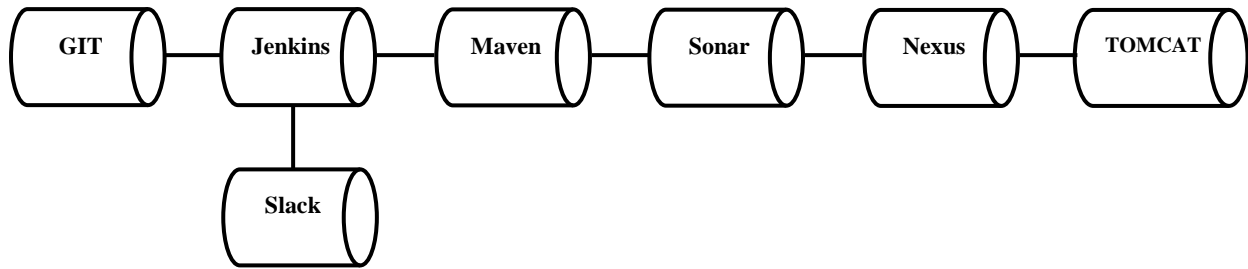
**Employee Id:** 353882  
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**Program:** DAP4.0 – DevOps  
**Mentor Name:** Anindya Bhattacharya  
**Use Case:** CI/CD Pipeline leveraging the tool stack which is in the curriculum

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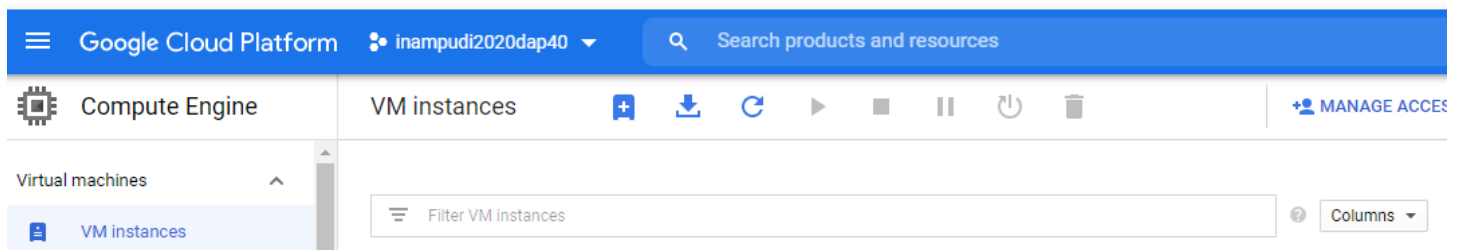
# DAP4.0 – DevOps PoC-1

## 1. CI-CD Pipeline Diagram



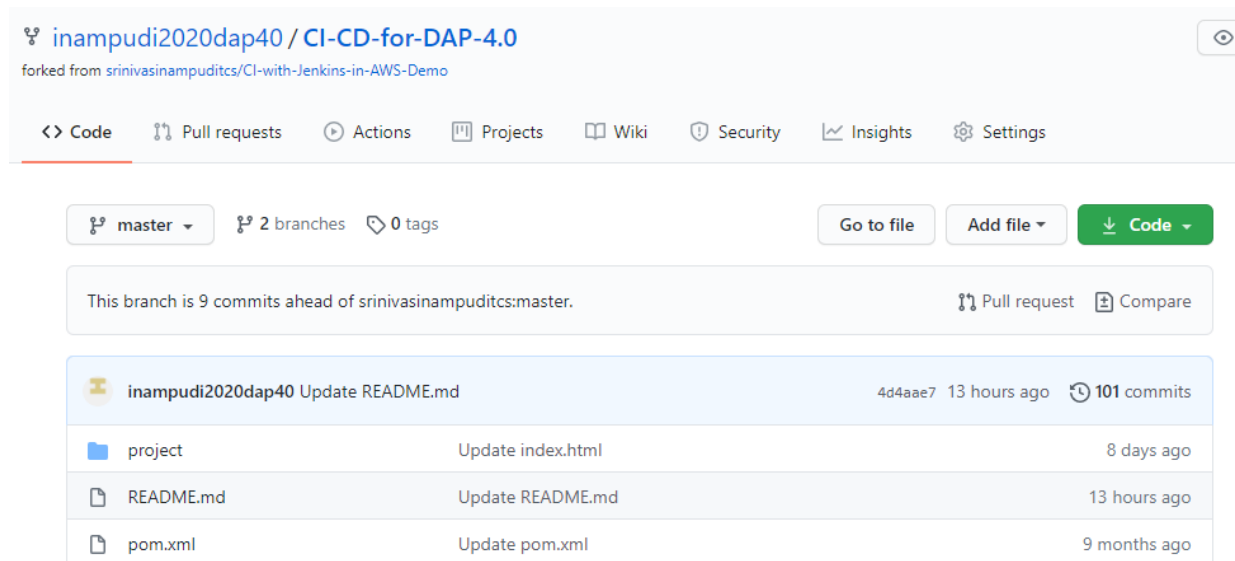
## 2. Create GCP Account

Created a GCP account and created a Project: inampudi2020dap40



## 3. Create GIT HUB Account

Created a new GIT Hub account – **inampudi2020dap40** and forked a project to a new repository **CI-CD-for-DAP-4.0**



## 4. TOMCAT Installation

## Created a VM for TOMCAT and install TOMCAT

tomcat <span>×</span> Filter VM instances <span>×</span> <span>?</span> Columns <span>▼</span>						
<input type="checkbox"/> Name <span>^</span>	Internal IP	External IP	Network tags	Connect		
<input type="checkbox"/> <span>✓</span> tomcat-vm	10.128.0.5 (nic0)	34.69.208.219 <span>↗</span>	dap-allow-egress http-server https-server open-8080	SSH <span>▼</span> <span>⋮</span>		

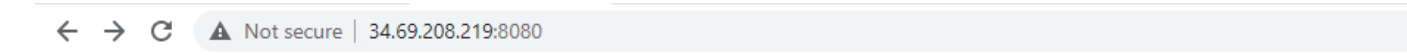
```
inampudi_2020_dap4_0@tomcat-vm:~$ sudo apt-get install tomcat8
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no
  grub-pc-bin motd-news-config
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  authbind libcommons-collections3-java libcommons-dbcip-java li
Suggested packages:
  libcommons-collections3-java-doc libcommons-dbcip-java-doc lib
  tomcat8-admin tomcat8-docs tomcat8-examples tomcat8-user
```

```
inampudi_2020_dap4_0@tomcatd-vm:~$ sudo apt-get install tomcat8-docs tomcat8-examples tomcat8-admin
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  grub-pc-bin motd-news-config
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  libjakarta-taglibs-standard-java libjaxpl3.3-java libjstl1.1-java libxalan2-java libxerces2-java lib
  libxml-commons-resolver1.1-java
```

## Start TOMCAT service

```
inampudi@2020_dap4_0@tomcat-vm:~$ sudo systemctl start tomcat8
inampudi@2020_dap4_0@tomcat-vm:~$ ps -ef | grep tomcat8
tomcat8   9814      1      1 06:01   00:00:08 /usr/lib/jvm/java-8-openjdk-amd64/bin/java -Djava.util.logging.config.file=/var/lib/tomcat8/conf/logging.properties -Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager -Djava.awt.headless=true -Xmx128m -XX:+UseConcMarkSweepGC -Djava.endorsed.dirs=/usr/share/tomcat8/endorsed -classpath /usr/share/tomcat8/bin/bootstrap.jar:/usr/share/tomcat8/bin/tomcat8-juli.jar -Dcatalina.base=/var/lib/tomcat8 -Dcatalina.home=/usr/share/tomcat8 -Djava.io.tmpdir=/tmp/tomcat8-tomcat8-tmp org.apache.catalina.startup.Bootstrap start
```

Access TOMCAT by <http://34.69.208.219:8080/>



# It works !

If you're seeing this page via a web browser, it means you've setup Tomcat successfully. Congratulations!

This is the default Tomcat home page. It can be found on the local filesystem at: `/var/lib/tomcat8/webapps/ROOT/index.html`

Tomcat8 veterans might be pleased to learn that this system instance of Tomcat is installed with `CATALINA_HOME` in `/usr/share/tomcat8` and `CATAL` in `/usr/share/doc/tomcat8-common/RUNNING.txt.gz`.

You might consider installing the following packages, if you haven't already done so:

**tomcat8-docs:** This package installs a web application that allows to browse the Tomcat 8 documentation locally. Once installed, you can access



**tomcat8-examples:** This package installs a web application that allows to access the Tomcat 8 Servlet and JSP examples. Once installed, you can

**tomcat8-admin:** This package installs two web applications that can help managing this Tomcat instance. Once installed, you can access the [ma](#)

NOTE: For security reasons, using the manager webapp is restricted to users with role "manager-gui". The host-manager webapp is restricted to `/etc/tomcat8/tomcat-users.xml`.

## Add admin user and password

```
inampudi 2020_dap4_08@tomcat-vm:~$  
inampudi 2020_dap4_08@tomcat-vm:~$ sudo vi /var/lib/tomcat8/conf/tomcat-users.xml  
inampudi 2020_dap4_08@tomcat-vm:~$  
inampudi 2020_dap4_08@tomcat-vm:~$ sudo grep inampudi /var/lib/tomcat8/conf/tomcat-users.xml  
<user username="inampudi2020dap40" password="inampudi2020dap40" roles="admin,manager,admin-script,manager-gui,manager-script,manager-jmx,man  
ager-status,admin-gui"/>  
inampudi 2020_dap4_08@tomcat-vm:~$  
inampudi 2020_dap4_08@tomcat-vm:~$ sudo systemctl restart tomcat8  
inampudi 2020_dap4_08@tomcat-vm:~$
```



Tomcat Web Application Manager

Message: OK

Manager

List Applications

HTML Manager Help

Manager Help

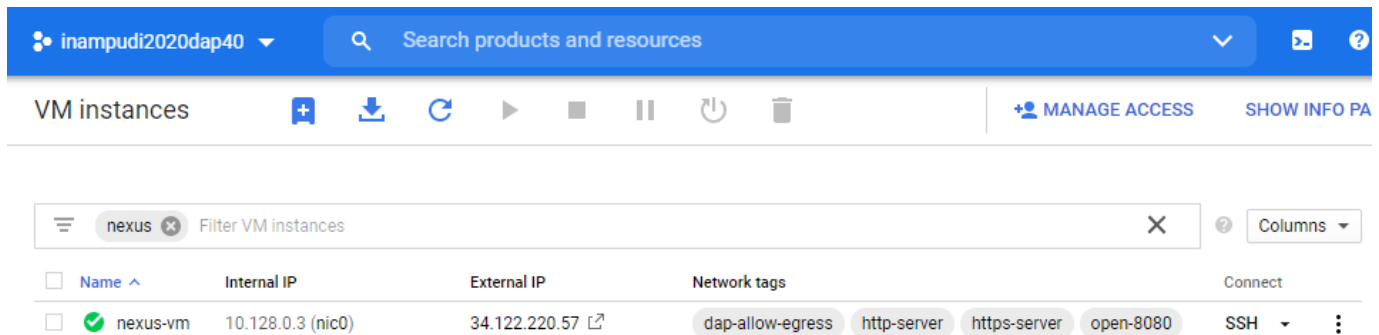
Server

Applications					
Path	Version	Display Name	Running	Sessions	Commands
/	None specified		true	0	<div>Start Stop Reload Undeploy</div> <div>Expire sessions with idle ≥ 30 minutes</div>
/docs	None specified	Tomcat Documentation	true	0	<div>Start Stop Reload Undeploy</div> <div>Expire sessions with idle ≥ 30 minutes</div>
/examples	None specified	Servlet and JSP Examples	true	0	<div>Start Stop Reload Undeploy</div> <div>Expire sessions with idle ≥ 30 minutes</div>
/host-manager	None specified	Tomcat Host Manager Application	true	0	<div>Start Stop Reload Undeploy</div> <div>Expire sessions with idle ≥ 30 minutes</div>
/manager	None specified	Tomcat Manager Application	true	1	<div>Start Stop Reload Undeploy</div> <div>Expire sessions with idle ≥ 30 minutes</div>

## 5. Nexus Installation

### Create VM and Install Nexus

- i. Create a VM with Ubuntu



The screenshot shows the Google Cloud Platform interface. At the top, there's a search bar with 'inampudi2020dap40' and a search icon. Below it, the 'VM instances' section is active, showing a list of VM instances. A filter 'nexus' is applied, resulting in one instance: 'nexus-vm'. The instance details are as follows:

Name	Internal IP	External IP	Network tags	Connect
nexus-vm	10.128.0.3 (nic0)	34.122.220.57	dap-allow-egress, http-server, https-server, open-8080	SSH

- ii. `sudo apt-get update`

```
inampudi_2020_dap4_0@nexus-vm:~$ sudo apt-get update
Hit:1 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial InRelease
Get:2 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates InRelease [109 kB]
Get:3 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-backports InRelease [107 kB]
Get:4 http://security.ubuntu.com/ubuntu xenial-security InRelease [109 kB]
Get:5 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial/universe amd64 Packages [7,532 kB]
Get:6 http://archive.canonical.com/ubuntu xenial InRelease [11.5 kB]
Get:7 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial/universe Translation-en [4,354 kB]
Get:8 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial/multiverse amd64 Packages [144 kB]
Get:9 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial/multiverse Translation-en [106 kB]
Get:10 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/main amd64 Packages [1,861 kB]
Get:11 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/main Translation-en [451 kB]
Get:12 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/restricted amd64 Packages [10.2 kB]
Get:13 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/universe amd64 Packages [1,178 kB]
Get:14 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/universe Translation-en [344 kB]
Get:15 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/multiverse amd64 Packages [23.0 kB]
Get:16 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/multiverse Translation-en [8,632 B]
Get:17 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-backports/main amd64 Packages [9,812 B]
Get:18 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-backports/main Translation-en [4,456 B]
Get:19 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-backports/universe amd64 Packages [11.3 kB]
Get:20 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-backports/universe Translation-en [4,476 B]
Get:21 http://security.ubuntu.com/ubuntu xenial-security/main amd64 Packages [1,458 kB]
Get:22 http://security.ubuntu.com/ubuntu xenial-security/main Translation-en [347 kB]
Get:23 http://security.ubuntu.com/ubuntu xenial-security/restricted amd64 Packages [9,824 B]
Get:24 http://security.ubuntu.com/ubuntu xenial-security/universe amd64 Packages [755 kB]
Get:25 http://security.ubuntu.com/ubuntu xenial-security/universe Translation-en [213 kB]
Get:26 http://security.ubuntu.com/ubuntu xenial-security/multiverse amd64 Packages [8,228 B]
Get:27 http://security.ubuntu.com/ubuntu xenial-security/multiverse Translation-en [2,888 B]
Get:28 http://archive.canonical.com/ubuntu xenial/partner amd64 Packages [3,124 B]
Get:29 http://archive.canonical.com/ubuntu xenial/partner Translation-en [1,672 B]
Fetched 19.2 MB in 3s (5,250 kB/s)
Reading package lists... Done
```

iii. Install JRE - `sudo apt-get install openjdk-8-jre`

```
inampudi_2020_dap4_0@nexus-vm:~$ sudo apt-get install openjdk-8-jre
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  grub-pc-bin motd-news-config
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  ca-certificates-java fontconfig fontconfig-config fonts-dejavu-core fonts-dejavu
  libasound2-data libasound2 libatk1.0-0 libatk1.0-data libavahi-client3 libavahi
  libdbus-1-3 libdrm-amdgpu1 libdrm-intel1 libdrm-nouveau2 libdrm-radeon1 libflac8
  libgif7 libgl1-mesa-dri libgl1-mesa-glx libglapi-mesa libgraphite2-3 libgtk2.0-0
  libjpeg-turbo8 libjpeg8 liblcms2-2 libllvm6.0 libnspr4 libnss3 libnss3-nssdb lib
  libpciaccess0 libpcsclite1 libpixman-1-0 libpulse0 libsensors4 libsndfile1 libth
  libvorbisenc2 libx11-xcb1 libxcb-dri2-0 libxcb-dri3-0 libxcb-glx0 libxcb-present
  libxcursor1 libxdamage1 libxfixes3 libxi6 libxinerama1 libxrandr2 libxrender1 li
  x11-common
Suggested packages:
  Setting up openjdk-8-jre:amd64 (8u265-b01-0ubuntu2~16.04) ...
  update-alternatives: using /usr/lib/jvm/java-8-openjdk-amd64/jre/bin/pd
  Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
  Processing triggers for ureadahead (0.100.0-19.1) ...
  Processing triggers for systemd (229-4ubuntu21.29) ...
  Processing triggers for ca-certificates (20190110~16.04.1) ...
  Updating certificates in /etc/ssl/certs...
  0 added, 0 removed; done.
  Running hooks in /etc/ca-certificates/update.d...
  done.
  done.
inampudi_2020_dap4_0@nexus-vm:~$
```

iv. Install JDK - `sudo apt-get install -y openjdk-8-jdk`

```
inampudi_2020_dap4_0@nexus-vm:~$ sudo apt-get install -y openjdk-8-jdk
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  grub-pc-bin motd-news-config
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  libice-dev libice6 libpthread-stubs0-dev libsm-dev libsm6 libx11-dev libx11-doc lib
  openjdk-8-jdk-headless x11proto-core-dev x11proto-input-dev x11proto-kb-dev xorg-s
Suggested packages:
  libice-doc libsm-doc libxcb-doc libxt-doc openjdk-8-demo openjdk-8-source visualvm
The following NEW packages will be installed:
  libice-dev libice6 libpthread-stubs0-dev libsm-dev libsm6 libx11-dev libx11-doc lib
  openjdk-8-jdk openjdk-8-jdk-headless x11proto-core-dev x11proto-input-dev x11proto-
0 upgraded, 19 newly installed, 0 to remove and 10 not upgraded.
Need to get 13.2 MB of archives.
After this operation, 60.1 MB of additional disk space will be used.
```



```
Setting up openjdk-8-jdk:amd64 (8u265-b01-0ubuntu2~16.04) ...
update-alternatives: using /usr/lib/jvm/java-8-openjdk-amd64/bin/appletviewer
update-alternatives: using /usr/lib/jvm/java-8-openjdk-amd64/bin/jconsole to
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
inampudi_2020_dap4_0@nexus-vm:~$
inampudi_2020_dap4_0@nexus-vm:~$
```

- v. Validate Java version : **java -version**

```
inampudi_2020_dap4_0@nexus-vm:~$ java -version
openjdk version "1.8.0_265"
OpenJDK Runtime Environment (build 1.8.0_265-8u265-b01-0ubuntu2~16.04-b01)
OpenJDK 64-Bit Server VM (build 25.265-b01, mixed mode)
inampudi_2020_dap4_0@nexus-vm:~$
```

- vi. Download and extract nexus : wget <https://download.sonatype.com/nexus/3/latest-unix.tar.gz>

```
inampudi_2020_dap4_0@nexus-vm:~$ pwd
/home/inampudi_2020_dap4_0
inampudi_2020_dap4_0@nexus-vm:~$ wget https://download.sonatype.com/nexus/3/latest-unix.tar.gz
--2020-10-07 17:58:53-- https://download.sonatype.com/nexus/3/latest-unix.tar.gz
Resolving download.sonatype.com (download.sonatype.com)... 52.8.211.60, 52.9.82.11
Connecting to download.sonatype.com (download.sonatype.com)|52.8.211.60|:443... connected.
HTTP request sent, awaiting response... 302 Moved Temporarily
Location: https://sonatype-download.global.ssl.fastly.net/repository/downloads-prod-group/3/nexus-3.28.0-01-unix.tar.gz [following]
--2020-10-07 17:58:53-- https://sonatype-download.global.ssl.fastly.net/repository/downloads-prod-group/3/nexus-3.28.0-01-unix.tar.gz
Resolving sonatype-download.global.ssl.fastly.net (sonatype-download.global.ssl.fastly.net)... 151.101.1.194, 151.101.65.194, 151.101.129.194,
...
Connecting to sonatype-download.global.ssl.fastly.net (sonatype-download.global.ssl.fastly.net)|151.101.1.194|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 166492158 (159M) [application/x-gzip]
Saving to: 'latest-unix.tar.gz'

latest-unix.tar.gz          100%[=====>] 158.78M  124MB/s   in 1.3s

2020-10-07 17:58:58 (124 MB/s) - 'latest-unix.tar.gz' saved [166492158/166492158]

inampudi_2020_dap4_0@nexus-vm:~$ ls
latest-unix.tar.gz
```

```
inampudi_2020_dap4_0@nexus-vm:~$ tar xvfz latest-unix.tar.gz
nexus-3.28.0-01/.install4j/9d17dc87.lprop
nexus-3.28.0-01/.install4j/MessagesDefault
nexus-3.28.0-01/.install4j/build.uuid
nexus-3.28.0-01/.install4j/i4j_extf_0_17islik.utf8
nexus-3.28.0-01/.install4j/i4j_extf_10_17islik_10358jn.png
nexus-3.28.0-01/.install4j/i4j_extf_11_17islik_lgne9sv.png
nexus-3.28.0-01/.install4j/i4j_extf_12_17islik_sc8j43.png
nexus-3.28.0-01/.install4j/i4j_extf_13_17islik_10nxrsm.png
nexus-3.28.0-01/.install4j/i4j_extf_14_17islik_yd7am4.png
nexus-3.28.0-01/.install4j/i4j_extf_15_17islik_vu6hgs.png
nexus-3.28.0-01/.install4j/i4j_extf_16_17islik_1d1wkh.png
```

- vii. Go to bin directory and Start Nexus - **./nexus run**

```
inampudi_2020_dap4_0@nexus-vm:~$ ls
latest-unix.tar.gz  nexus-3.28.0-01  sonatype-work
inampudi_2020_dap4_0@nexus-vm:~$ cd nexus-3.28.0-01/
inampudi_2020_dap4_0@nexus-vm:~/nexus-3.28.0-01$ ls
bin  deploy  etc  lib  NOTICE.txt  OSS-LICENSE.txt  PRO-LICENSE.txt  public  system
inampudi_2020_dap4_0@nexus-vm:~/nexus-3.28.0-01$ cd bib
-bash: cd: bib: No such file or directory
inampudi_2020_dap4_0@nexus-vm:~/nexus-3.28.0-01$ cd bin
inampudi_2020_dap4_0@nexus-vm:~/nexus-3.28.0-01/bin$ ./nexus run
2020-10-07 18:04:22,037+0000 INFO [FelixStartLevel] *SYSTEM org.sonatype.nexus.pax.
2020-10-07 18:04:22,854+0000 INFO [FelixStartLevel] *SYSTEM org.sonatype.nexus.feath
ing
2020-10-07 18:04:25,036+0000 WARN [FelixStartLevel] *SYSTEM uk.org.lidalia.sysouts1
ework class org.ops4j.pax.logging.slf4j.Slf4jLogger is not known - if it needs acces
need to register it by calling registerLoggingSystemPackage
```

```
-----
Started Sonatype Nexus OSS 3.28.0-01
-----
```

```
2020-10-07 18:05:22,266+0000 INFO [FelixStartLevel] *SYSTEM org.sonatype.nexus.quartz
[tasklog.cleanup] : state=WAITING
2020-10-07 18:05:22,355+0000 INFO [FelixStartLevel] *SYSTEM org.sonatype.nexus.schedu
g.cleanup] scheduled: cron
2020-10-07 18:05:22,385+0000 INFO [FelixStartLevel] *SYSTEM org.sonatype.nexus.quartz
repository.cleanup] : state=WAITING
2020-10-07 18:05:22,396+0000 INFO [FelixStartLevel] *SYSTEM org.sonatype.nexus.schedu
ory.cleanup] scheduled: cron
2020-10-07 18:05:22,467+0000 INFO [FelixStartLevel] *SYSTEM org.sonatype.nexus.quartz
nup' [repository.storage-facet-cleanup] : state=WAITING
2020-10-07 18:05:22,477+0000 INFO [FelixStartLevel] *SYSTEM org.sonatype.nexus.schedu
epository.storage-facet-cleanup] scheduled: cron
2020-10-07 18:05:22,529+0000 INFO [FelixStartLevel] *SYSTEM org.sonatype.nexus.quartz
mode
2020-10-07 18:08:22,729+0000 INFO [qtp744598046-42] *UNKNOWN org.apache.shiro.session
validation scheduler...
2020-10-07 18:08:22,764+0000 INFO [qtp744598046-42] *UNKNOWN org.sonatype.nexus.inter
ult configuration: OrientAnonymousConfiguration{enabled=true, userId='anonymous', real
2020-10-07 18:10:00,031+0000 INFO [quartz-8-thread-1] *SYSTEM org.sonatype.nexus.quar
eanup' [repository.storage-facet-cleanup] state change WAITING -> RUNNING
2020-10-07 18:10:00,072+0000 INFO [quartz-8-thread-1] *SYSTEM org.sonatype.nexus.quar
eanup' [repository.storage-facet-cleanup] state change RUNNING -> WAITING (OK)
```

viii. Launch Nexus in browser : <http://34.122.220.57:8081/>

Not secure | 34.122.220.57:8081

Sonatype Nexus Repository Manager OSS 3.28.0-01

Welcome Learn about Sonatype Nexus Repository Manager

Get Started

- Configuration Set things up properly
- Documentation Visit our help site
- Community Ask and answer questions

Repository Formats

APT, Composer, Conan, CPAN, Docker, ELPA, Git LFS, Go, Helm, Maven, npm, NuGet, p2, PyPI, R, Raw, RubyGems, YUM

\* Community supported

Be careful what you commit

11% of components used in applications are known to be vulnerable.

LEARN MORE

Nexus Repository Pro

Repository staging, dynamic storage for blob stores, & enterprise support.

Try Pro

Not secure | 34.122.220.57:8081/#admin/repository/repositories

Sonatype Nexus Repository Manager OSS 3.28.0-01

Administration

Repository

Repositories Manage repositories

Create repository

Filter

Name ↑	Type	Format	Status	URL	Health check	IQ Policy Vi...
maven-central	proxy	maven2	Online - Ready to Connect		Analyze	
maven-public	group	maven2	Online			
maven-releases	hosted	maven2	Online			
maven-snapshots	hosted	maven2	Online			
nuget-group	group	nuget	Online			
nuget-hosted	hosted	nuget	Online			
nuget.org-proxy	proxy	nuget	Online - Ready to Connect		Analyze	



## Create a Repository : ci\_cd\_pipeline

← → ↻ ⚠ Not secure | 34.122.220.57:8081/#admin/repository/repositories

**Sonatype Nexus Repository Manager**  
OSS 3.28.0-01

Administration

- Repository
  - Repositories**
  - Blob Stores
  - Content Selectors
  - Cleanup Policies
  - Routing Rules
- Security
  - Privileges
  - Roles
  - Users
  - Anonymous Access
  - LDAP
  - Realms
  - SSL Certificates
  - IQ Server
- Support

**Repositories** / Select Recipe / Create Repository: maven2 (hosted)

**Name:** A unique identifier for this repository  
ci\_cd\_pipeline

**Online:** ☒ If checked, the repository accepts incoming requests

**Maven 2**

**Version policy:**  
What type of artifacts does this repository store?  
Release

**Layout policy:**  
Validate that all paths are maven artifact or metadata paths  
Strict

**Storage**

**Blob store:**  
Blob store used to store repository contents  
default

**Strict Content Type Validation:**  
☒ Validate that all content uploaded to this repository is of a MIME type appropriate for the repository format

**Hosted**

**Deployment policy:**  
Controls if deployments of and updates to artifacts are allowed  
Allow redeploy

## 6. Sonar Qube Installation

### Create VM and Install Sonar Qube

inampudi2020dap40 Search products and resources

VM instances

sonar Filter VM instances Columns

Name	Internal IP	External IP	Network tags	Connect
sonar-qube-vm	10.128.0.4 (nic0)	35.238.78.18	dap-allow-egress http-server https-server open-8080	SSH

## Install JDK

```
inampudi_2020_dap4_0@sonar-qube-vm:~$ sudo apt-get install default-jdk
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  grub-pc-bin motd-news-config
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  ca-certificates-java default-jdk-headless default-jre default-jre-headless fonts-dejavu-extra
  hicolor-icon-theme java-common libasound2 libasound2-data libavahi-common-data libavahi-common3
  libcairo2 libcups2 libdatriel libdrm-amd
Setting up default-jdk-headless (2:1.8-56ubuntu2) ...
Setting up openjdk-8-jdk:amd64 (8u265-b01-0ubuntu2~16.04) ...
update-alternatives: using /usr/lib/jvm/java-8-openjdk-amd64/bin/ to provide /usr/bin/java in
update-alternatives: using /usr/lib/jvm/java-8-openjdk-amd64/bin/ to provide /usr/bin/javac in
Setting up default-jdk (2:1.8-56ubuntu2) ...
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
Processing triggers for ureadahead (0.100.0-19.1) ...
Processing triggers for systemd (229-4ubuntu21.29) ...
Processing triggers for ca-certificates (20190110~16.04.1) ...
Updating certificates in /etc/ssl/certs...
0 added, 0 removed; done.
Running hooks in /etc/ca-certificates/update.d...
done.
done.
inampudi_2020_dap4_0@sonar-qube-vm:~$
```

Install Docker with : `wget -qO- https://get.docker.com | sh`

```
inampudi_2020_dap4_0@sonar-qube-vm:~$ wget -qO- https://get.docker.com | sh
# Executing docker install script, commit: 26ff363bcf3b3f5a00498ac43694bflc7d9ce16c
+ sudo -E sh -c apt-get update -qq >/dev/null
+ sudo -E sh -c DEBIAN_FRONTEND=noninteractive apt-get install -y -qq apt-transport-h
+ sudo -E sh -c curl -fsSL "https://download.docker.com/linux/ubuntu/gpg" | apt-key a
+ sudo -E sh -c echo "deb [arch=amd64] https://download.docker.com/linux/ubuntu xenia
+ sudo -E sh -c apt-get update -qq >/dev/null
+ [ -n ]
+ sudo -E sh -c apt-get install -y -qq --no-install-recommends docker-ce >/dev/null
+ sudo -E sh -c docker version
Client: Docker Engine - Community
Version:      19.03.13
API version:  1.40
Go version:   go1.13.15
Git commit:   4484c46d9d
Built:        Wed Sep 16 17:02:59 2020
OS/Arch:      linux/amd64
Experimental: false
```

If you would like to use Docker as a non-root user, you should now consider adding your user to the "docker" group with something like:

```
sudo usermod -aG docker inampudi_2020_dap4_0
```

Remember that you will have to log out and back in for this to take effect!

WARNING: Adding a user to the "docker" group will grant the ability to run containers which can be used to obtain root privileges on the docker host.  
Refer to <https://docs.docker.com/engine/security/security/#docker-daemon-attack-surface> for more information.

```
inampudi_2020_dap4_0@sonar-qube-vm:~$
```

```
inampudi_2020_dap4_0@sonar-qube-vm:~$  
inampudi_2020_dap4_0@sonar-qube-vm:~$ docker --version  
Docker version 19.03.13, build 4484c46d9d  
inampudi_2020_dap4_0@sonar-qube-vm:~$
```

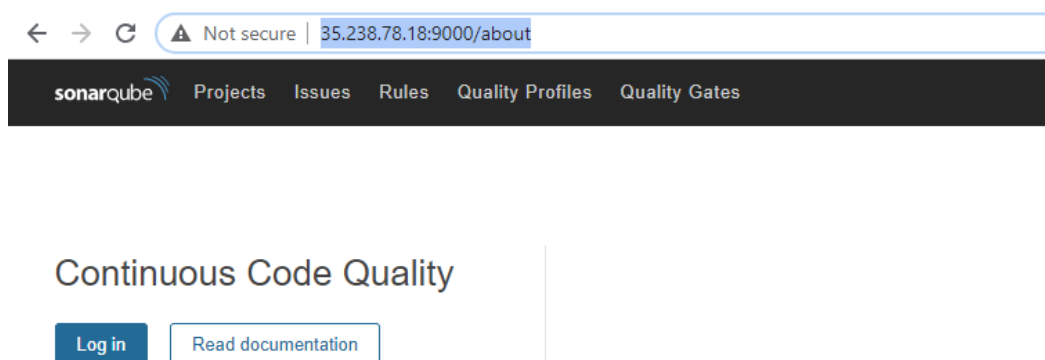
Install Sonarqube through docker

```
inampudi_2020_dap4_0@sonar-qube-vm:~$ sudo docker pull sonarqube  
Using default tag: latest  
latest: Pulling from library/sonarqube  
cbdbe7a5bc2a: Pull complete  
ad75d47265c8: Pull complete  
43f3acb0c861: Pull complete  
bfe61efc35b0: Pull complete  
cc57849e5ff2: Pull complete  
Digest: sha256:10bb6f658a4a716733b6226a165897237fd031d8b02e6f7eddc639125eb8607e  
Status: Downloaded newer image for sonarqube:latest  
docker.io/library/sonarqube:latest
```

Run Sonar Qube image to start the service

```
inampudi_2020_dap4_0@sonar-qube-vm:~$ sudo docker run -d --name sonarqube -p 9000:9000 -p 9092:9092 sonarqube  
f121377d19405ba078d42aecd831482ace951e7d2e5681188780a8459f94eb3a  
inampudi_2020_dap4_0@sonar-qube-vm:~$  
inampudi_2020_dap4_0@sonar-qube-vm:~$ sudo docker ps  
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS  
f121377d1940        sonarqube          "bin/run.sh bin/sona..." 8 seconds ago       Up 7 seconds       0.0.0.0:9000->9000/tcp, 0.0.0.0:9092->9092/tcp  
inampudi_2020_dap4_0@sonar-qube-vm:~$
```









Launch SonarQube from URL : <http://35.238.78.18:9000/>






## 7. Jenkins and Maven Installation





### Create VM and Install Jenkins

- i. Create a VM with Ubuntu

VM instances        

 MANAGE ACCESS  SHOW INFO PANEL

Filter VM instances  Columns

<input type="checkbox"/> Name ^	Internal IP	External IP	Network tags	Connect
<input type="checkbox"/>  maven-jenkins-vm	10.128.0.2 (nic0)	35.222.150.4 	dap-allow-egress http-server https-server open-8080	SSH  

- ii. Connect to VM through SSH

```
inampudi_2020_dap4_0@maven-jenkins-vm: ~
Connected, host fingerprint: ssh-rsa 0 38:16:CC:6D:14:3C:F7:6A:64:12:CA:32:00:68
:99:0D:F3:D7:32:22:A3:CA:DC:69:B0:D1:0B:C4:7D:88:1F:44
Welcome to Ubuntu 16.04.7 LTS (GNU/Linux 4.15.0-1084-gcp x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

2 packages can be updated.
0 updates are security updates.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

inampudi_2020_dap4_0@maven-jenkins-vm:~$
```

- iii. Execute **sudo apt-get update**

```
inampudi_2020_dap4_0@maven-jenkins-vm:~$ sudo apt-get update
Hit:1 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial InRelease
Get:2 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates InRelease [109 kB]
Get:3 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-backports InRelease [107 kB]
Hit:4 http://security.ubuntu.com/ubuntu xenial-security InRelease
Get:5 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/main amd64 Packages [1,861 kB]
Hit:6 http://archive.canonical.com/ubuntu xenial InRelease
Fetched 2,077 kB in 0s (2,734 kB/s)
Reading package lists... Done
inampudi_2020_dap4_0@maven-jenkins-vm:~$
```

- iv. Install Java : **sudo apt-get install openjdk-8-jdk**

```

inampudi_2020_dap4_0@maven-jenkins-vm:~$ sudo apt-get install openjdk-8-jdk
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  grub-pc-bin motd-news-config
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  ca-certificates-java fontconfig fontconfig-config fonts-dejavu-core fonts-dejavu-extra
  libatk1.0-data libavahi-client3 libavahi-common-data libavahi-common3 libcairo2 libcups
  libfontconfig1 libgdk-pixbuf2.0-0 libgdk-pixbuf2.0-common libgif7 libgl1-mesa-dri libg
  libharfbuzz0b libice-dev libice6 libjbig0 libjpeg-turbo8 libjpeg8 liblcms2-2 libllvm6.
  libpangoft2-1.0-0 libpciaccess0 libpcsclite1 libpixman-1-0 libpthread-stubs0-dev libpu
  libtxc-dxtn-s2tc0 libvorbis0a libvorbisenc2 libx11-dev libx11-doc libx11-xcb1 libxau-d
  libxcb-sync1 libxcb1-dev libxcompositel libxcursor1 libxdamage1 libxdmcp-dev libxfixes
  libxxf86vm1 openjdk-8-jdk-headless openjdk-8-jre openjdk-8-jre-headless x11-common x11

```

```

Setting up openjdk-8-jdk:amd64 (8u265-b01-0ubuntu2~16.04) ...
update-alternatives: using /usr/lib/jvm/java-8-openjdk-amd64/bin/appletviewer to provide /usr/bin/appletviewer (appletviewer) in auto mode
update-alternatives: using /usr/lib/jvm/java-8-openjdk-amd64/bin/jconsole to provide /usr/bin/jconsole (jconsole) in auto mode
Processing triggers for libc-bin (2.23-0ubuntu1.2) ...
Processing triggers for ureadahead (0.100.0-19.1) ...
Processing triggers for systemd (229-4ubuntu21.29) ...
Processing triggers for ca-certificates (20190110~16.04.1) ...
Updating certificates in /etc/ssl/certs...
0 added, 0 removed; done.
Running hooks in /etc/ca-certificates/update.d...
done.
done.
inampudi_2020_dap4_0@maven-jenkins-vm:~$

```

#### v. Install Maven : `sudo apt-get install maven`

```

inampudi_2020_dap4_0@maven-jenkins-vm:~$ sudo apt-get install maven
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  grub-pc-bin motd-news-config
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  ant ant-optional junit junit4 libaopalliance-java libapache-pom-java libasm4-java
  libcglib3-java libclassworlds-java libcommons-cli-java libcommons-codec-java libco
  libcommons-lang-java libcommons-lang3-java libcommons-logging-java libcommons-net
  libdom4j-java libdoxia-core-java libeasymock-java libeclipse-aether-java libgeron
  libhamcrest-java libhttpclient-java libhttpcore-java libjaxen-java libjaxp1.3-jav
  libjsr305-java liblog4j1.2-java libmaven-parent-java libmaven2-core-java libmaver
  libplexus-archiver-java libplexus-bsh-factory-java libplexus-cipher-java libplexu
  libplexus-cli-java libplexus-component-annotations-java libplexus-component-metac
  libplexus-container-default1.5-java libplexus-containers-java libplexus-containe
  libplexus-interpolation-java libplexus-io-java libplexus-sec-dispatcher-java libp
  libservlet2.5-java libservlet3.1-java libsisu-inject-java libsisu-plexus-java lib
  libxbean-java libxerces2-java libxml-commons-external-java libxml-commons-resolve
Suggested packages:

```

```

Setting up libplexus-component-metadata-java (1.6-2) ...
Setting up libplexus-containers1.5-java (1.6-2) ...
Setting up libsisu-inject-java (0.3.2-1) ...
Setting up libsisu-plexus-java (0.3.2-1) ...
Setting up libwagon2-java (2.10-3) ...
Setting up libmaven3-core-java (3.3.9-3) ...
Setting up libxom-java (1.2.10-1) ...
Setting up maven (3.3.9-3) ...
update-alternatives: using /usr/share/maven/bin/mvn to provide /usr/bin/mvn (mvn) in auto mode
inampudi_2020_dap4_0@maven-jenkins-vm:~$

```

#### vi. Install Jenkins : **sudo apt-get install Jenkins**

```

wget -q -O - https://pkg.jenkins.io/debian/jenkins.io.key | sudo apt-key add -
sudo sh -c 'echo deb https://pkg.jenkins.io/debian binary/ > \
/etc/apt/sources.list.d/jenkins.list'
sudo apt-get update
sudo apt-get install jenkins

```

```

inampudi_2020_dap4_0@maven-jenkins-vm:~$ wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key add -
OK
inampudi_2020_dap4_0@maven-jenkins-vm:~$ sudo sh -c 'echo deb https://pkg.jenkins.io/debian-stable binary/ > \
> /etc/apt/sources.list.d/jenkins.list'
inampudi_2020_dap4_0@maven-jenkins-vm:~$ sudo apt-get update
Hit:1 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial InRelease
Hit:2 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates InRelease
Get:3 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-backports InRelease [107 kB]
Hit:4 http://security.ubuntu.com/ubuntu xenial-security InRelease
Ign:5 https://pkg.jenkins.io/debian-stable binary/ InRelease
Get:6 https://pkg.jenkins.io/debian-stable binary/ Release [2,044 B]
Hit:7 http://archive.canonical.com/ubuntu xenial InRelease
Get:8 https://pkg.jenkins.io/debian-stable binary/ Release.gpg [833 B]
Get:9 https://pkg.jenkins.io/debian-stable binary/ Packages [18.4 kB]
Fetched 128 kB in 0s (243 kB/s)
Reading package lists... Done

```

```

inampudi_2020_dap4_0@maven-jenkins-vm:~$ sudo apt-get install jenkins
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  grub-pc-bin motd-news-config
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  daemon
The following NEW packages will be installed:
  daemon jenkins
0 upgraded, 2 newly installed, 0 to remove and 8 not upgraded.
Need to get 66.1 MB of archives.
After this operation, 67.7 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial/universe amd64 daemon amd64 0.6.4-1 [98.2 kB]
Get:2 https://pkg.jenkins.io/debian-stable binary/ jenkins 2.249.1 [66.0 MB]
Fetched 66.1 MB in 3s (21.6 MB/s)
Selecting previously unselected package daemon.
(Reading database ... 76644 files and directories currently installed.)
Preparing to unpack .../daemon_0.6.4-1_amd64.deb ...
Unpacking daemon (0.6.4-1) ...
Selecting previously unselected package jenkins.
Preparing to unpack .../jenkins_2.249.1_all.deb ...
Unpacking jenkins (2.249.1) ...
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for ureadahead (0.100.0-19.1) ...
Processing triggers for systemd (229-4ubuntu21.29) ...
Setting up daemon (0.6.4-1) ...
Setting up jenkins (2.249.1) ...
Processing triggers for ureadahead (0.100.0-19.1) ...
Processing triggers for systemd (229-4ubuntu21.29) ...
inampudi_2020_dap4_0@maven-jenkins-vm:~$

```

#### vii. Validate Jenkins Installation : **sudo systemctl status jenkins**



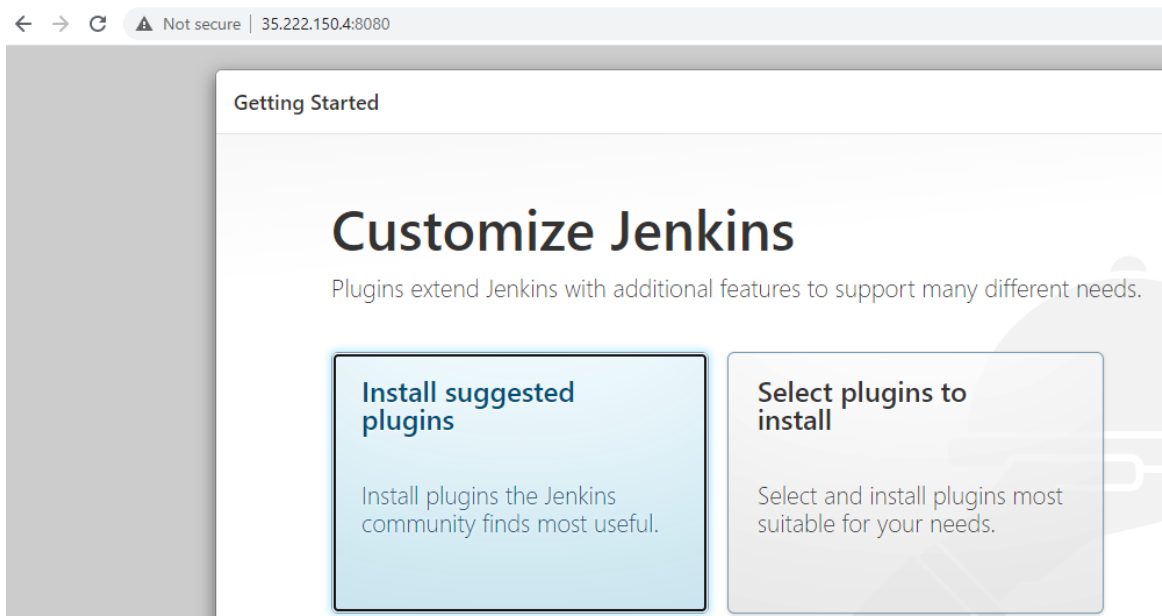
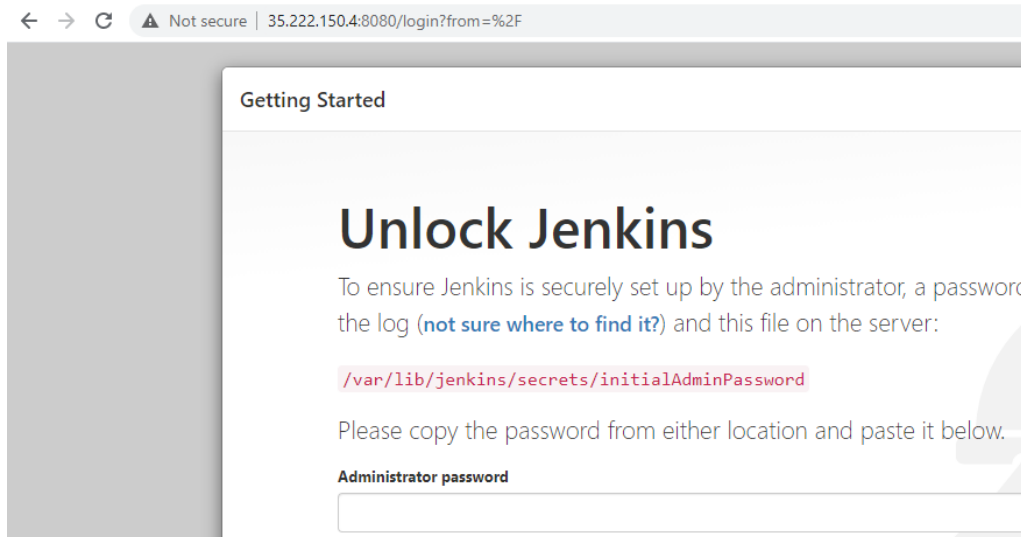
```

inampudi 2020 dap4_0@maven-jenkins-vm:~$ sudo systemctl status jenkins
• jenkins.service - LSB: Start Jenkins at boot time
   Loaded: loaded (/etc/init.d/jenkins; bad; vendor preset: enabled)
   Active: active (exited) since Wed 2020-10-07 13:32:12 UTC; 3min 35s ago
   Docs: man:systemd-sysv-generator(8)

Oct 07 13:32:11 maven-jenkins-vm systemd[1]: Starting LSB: Start Jenkins at boot time...
Oct 07 13:32:11 maven-jenkins-vm jenkins[10892]: Correct java version found
Oct 07 13:32:11 maven-jenkins-vm jenkins[10892]: * Starting Jenkins Automation Server jenkins
Oct 07 13:32:11 maven-jenkins-vm su[10940]: Successful su for jenkins by root
Oct 07 13:32:11 maven-jenkins-vm su[10940]: + ??? root:jenkins
Oct 07 13:32:11 maven-jenkins-vm su[10940]: pam_unix(su:session): session opened for user jenkins by (uid=0)
Oct 07 13:32:12 maven-jenkins-vm jenkins[10892]: ...done.
Oct 07 13:32:12 maven-jenkins-vm systemd[1]: Started LSB: Start Jenkins at boot time.

```

viii. Access Jenkins URL : <http://35.222.150.4:8080/>. Get the password for Admin from below path



## Getting Started

## Getting Started

✓ Folders	✓ OWASP Markup Formatter	✓ Build Timeout	✓ Credentials Binding	** Structs
✓ Timestamp	Workspace Cleanup	Ant	Gradle	** Pipeline: Step API
Pipeline	GitHub Branch Source	Pipeline: GitHub Groovy Libraries	Pipeline: Stage View	** Token Macro
Git	SSH Build Agents	Matrix Authorization Strategy	PAM Authentication	** Build Timeout
LDAP	Email Extension	Mailer		** Credentials
				** Plain Credentials
				** SSH Credentials
				** Credentials Binding
				** SCM API
				** Pipeline: API
				** Timestamp
				** Script Security
				** Pipeline: Supporting APIs
				** Durable Task
				** Pipeline: Nodes and Processes
				** Plugin Utilities API
				** Task API

# Instance Configuration

Jenkins URL:

<http://35.222.150.4:8080/>

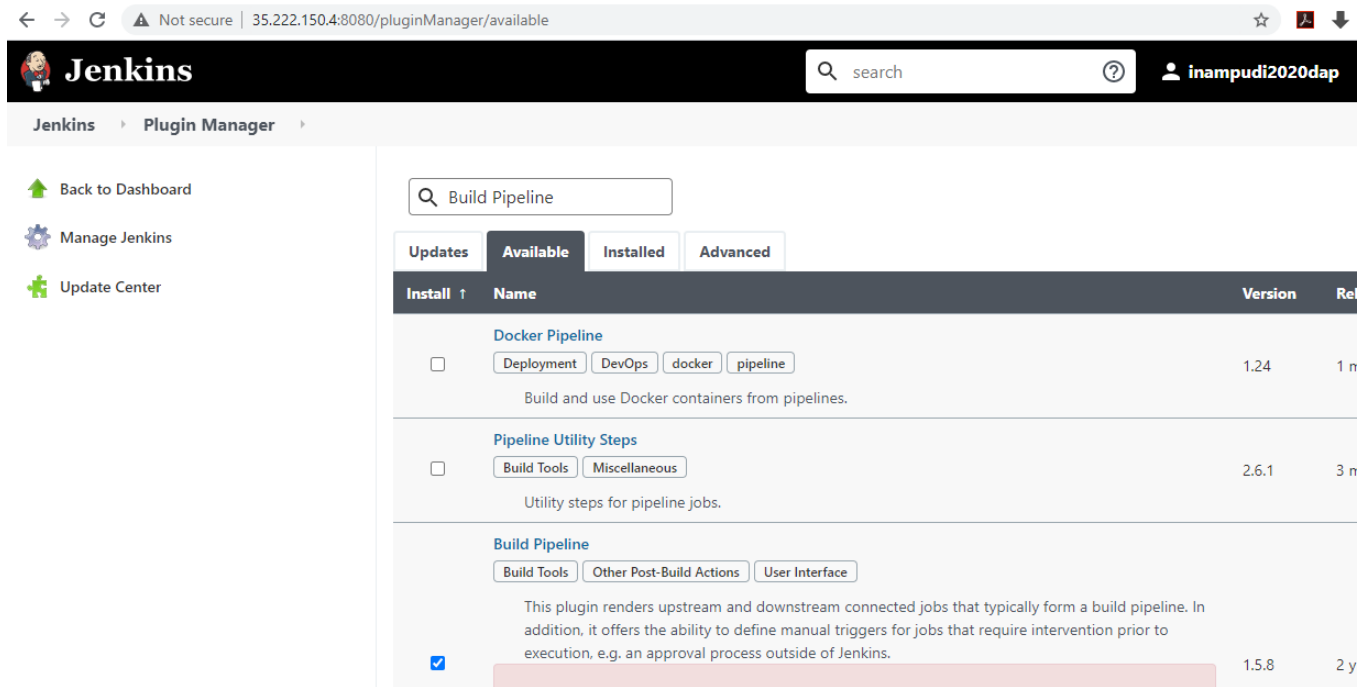
The Jenkins URL is used to provide the root URL for absolute links to various Jenkins resources. That means this value is required for proper operation of many Jenkins features including email notifications, PR status updates, and the BUILD\_URL environment variable provided to build steps.

The proposed default value shown is **not saved yet** and is generated from the current request, if possible. The best practice is to set this value to the URL that users are expected to use. This will avoid confusion when sharing or viewing links.

## 8. Jenkins Integration with other Tools

### Install Plug-ins that are required for CI-CD pipeline implementation

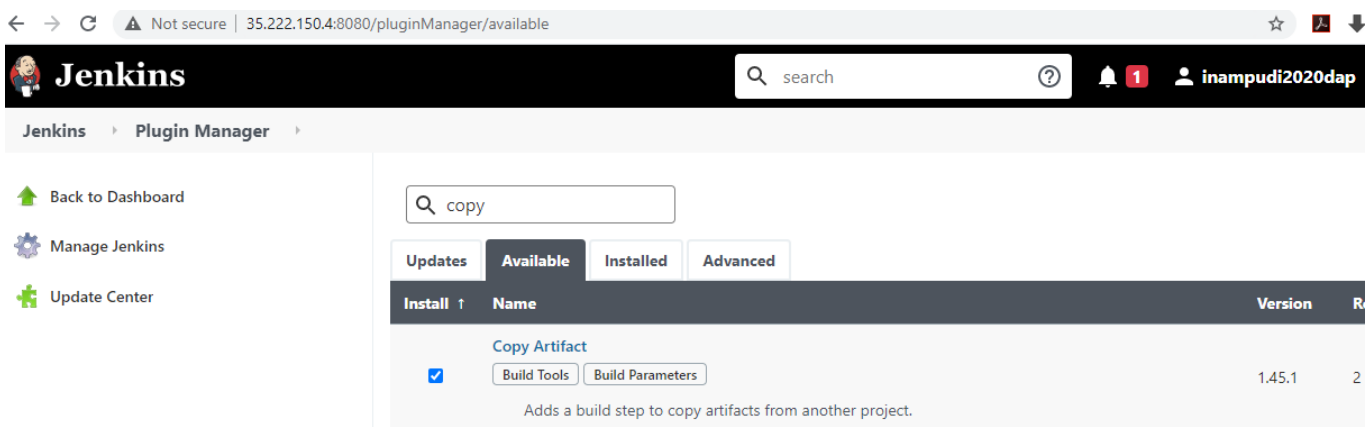
#### i. Install Build Pipeline Plug-in



The screenshot shows the Jenkins Plugin Manager interface. The search bar contains 'Build Pipeline'. The 'Available' tab is selected. The 'Build Pipeline' plugin is listed with a checked 'Install' checkbox. The description states: 'This plugin renders upstream and downstream connected jobs that typically form a build pipeline. In addition, it offers the ability to define manual triggers for jobs that require intervention prior to execution, e.g. an approval process outside of Jenkins.'

Install	Name	Version	Release
<input type="checkbox"/>	<b>Docker Pipeline</b> Deployment DevOps docker pipeline Build and use Docker containers from pipelines.	1.24	1 n
<input type="checkbox"/>	<b>Pipeline Utility Steps</b> Build Tools Miscellaneous Utility steps for pipeline jobs.	2.6.1	3 n
<input checked="" type="checkbox"/>	<b>Build Pipeline</b> Build Tools Other Post-Build Actions User Interface This plugin renders upstream and downstream connected jobs that typically form a build pipeline. In addition, it offers the ability to define manual triggers for jobs that require intervention prior to execution, e.g. an approval process outside of Jenkins.	1.5.8	2 y

#### ii. Install [Copy Artifact](#) Plug-in



The screenshot shows the Jenkins Plugin Manager interface. The search bar contains 'copy'. The 'Available' tab is selected. The 'Copy Artifact' plugin is listed with a checked 'Install' checkbox. The description states: 'Adds a build step to copy artifacts from another project.'

Install	Name	Version	Release
<input checked="" type="checkbox"/>	<b>Copy Artifact</b> Build Tools Build Parameters Adds a build step to copy artifacts from another project.	1.45.1	2

#### iii. Install [Deploy to container Plugin](#) Plug-in

← → ↻ ⚠ Not secure | 35.222.150.4:8080/pluginManager/installed

**Jenkins** search 1 inampudi2020dap

Jenkins > Plugin Manager

🏠 Back to Dashboard  
⚙️ Manage Jenkins  
🧩 Update Center

🔍 deploy to container

Updates Available **Installed** Advanced

Enabled	Name ↓	Version	Previously installed version
<input checked="" type="checkbox"/>	<b>Credentials Plugin</b> This plugin allows you to store credentials in Jenkins.	2.3.13	
<input checked="" type="checkbox"/>	<b>Deploy to container Plugin</b> This plugin allows you to deploy a war to a container after a successful build. Glassfish 3.x remote deployment	1.15	

iv. Install [SonarQube Scanner](#) Plug-in

← → ↻ ⚠ Not secure | 35.222.150.4:8080/pluginManager/available

**Jenkins** search 1 inampudi2020dap

Jenkins > Plugin Manager >

🏠 Back to Dashboard  
⚙️ Manage Jenkins  
🧩 Update Center

🔍 sonarqube

Updates **Available** Installed Advanced

Install ↑	Name	Version	R
<input checked="" type="checkbox"/>	<b>SonarQube Scanner</b> External Site/Tool Integrations Build Reports This plugin allows an easy integration of <a href="#">SonarQube</a> , the open source platform for Continuous Inspection of code quality.	2.12	1

v. Install [Nexus Artifact Uploader](#) Plug-in

← → ↻ ⚠ Not secure | 35.222.150.4:8080/pluginManager/available

**Jenkins** search 1 inampudi2020dap

Jenkins > Plugin Manager >

🏠 Back to Dashboard  
⚙️ Manage Jenkins  
🧩 Update Center

🔍 nexus

Updates **Available** Installed Advanced

Install ↑	Name	Version	R
<input checked="" type="checkbox"/>	<b>Nexus Artifact Uploader</b> Artifact Uploaders This plugin to upload the artifact to Nexus Repository.	2.13	3

i. Install [Slack Notification](#) Plug-in

← → ↻ ⚠ Not secure | 35.222.150.4:8080/pluginManager/available ☆ 🔒 ⬇

🔔 1
👤 inampudi2020dap

Jenkins > Plugin Manager >

🏠 Back to Dashboard
⚙ Manage Jenkins

Updates
Available
Installed
Advanced

Install ↑	Name	Version	Releases
<input checked="" type="checkbox"/>	Slack Notification <span>Build Notifiers</span> <span>slack</span>	2.42	28

Integrates Jenkins with Slack, allows publishing build statuses, messages and files to Slack channels.

## Github integration with Jenkins

Add Jenkins URL webhook Settings

🔑 inampudi2020dap40 / CI-CD-for-DAP-4.0  
forked from srinivasinampuditcs/CI-with-Jenkins-in-AWS-Demo

<> Code
🔗 Pull requests
🎬 Actions
📁 Projects
📖 Wiki
🛡 Security
📈 Insights
⚙ Settings

Options  
Manage access  
Security & analysis  
Branches  
Webhooks  
Notifications  
Integrations  
Deploy keys  
Secrets  
Actions  
Moderation settings

### Webhooks / Add webhook

We'll send a post request to the URL below with details of any subscribed (JSON, x-www-form-urlencoded, etc). More information can be found in [our](#)

**Payload URL \***

**Content type**

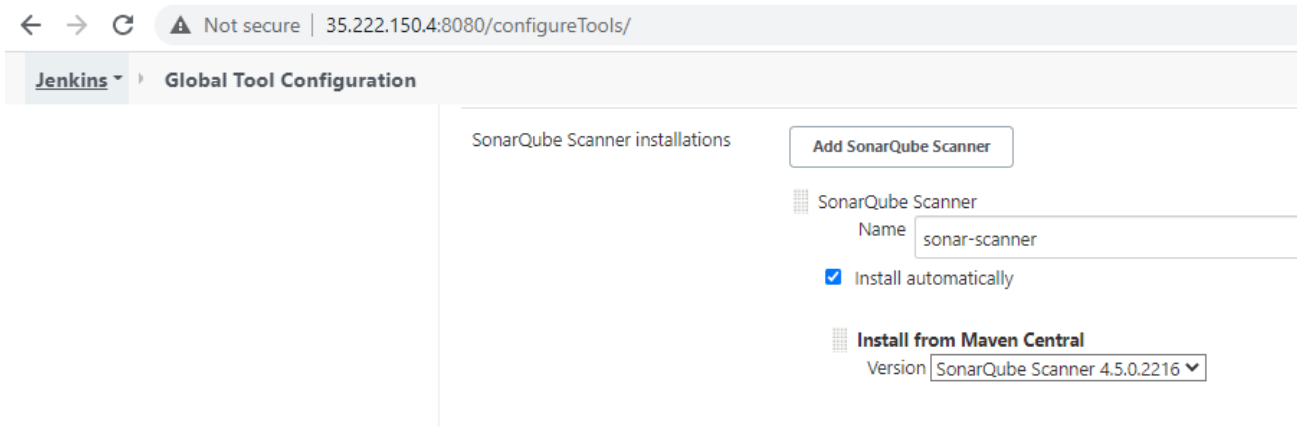
**Secret**

**Which events would you like to trigger this webhook?**

☒ Just the push event.

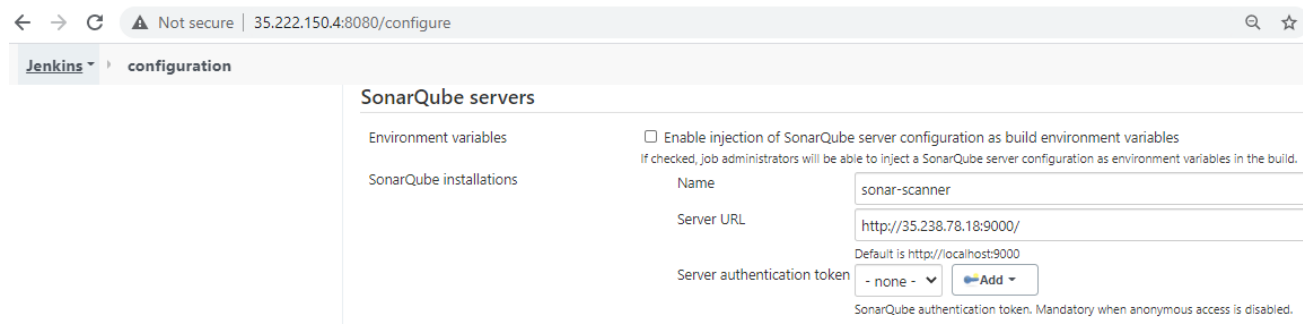
## Sonar Qube integration with Jenkins

Add Sonar Installation in Global Tool Configuration in Jenkins



The screenshot shows the Jenkins web interface at the URL 35.222.150.4:8080/configureTools/. The breadcrumb navigation shows 'Jenkins' > 'Global Tool Configuration'. The main section is titled 'SonarQube Scanner installations'. There is a button 'Add SonarQube Scanner'. Below it, a 'SonarQube Scanner' entry is shown with a 'Name' field containing 'sonar-scanner' and a checked 'Install automatically' checkbox. Further down, there is a section 'Install from Maven Central' with a 'Version' dropdown menu set to 'SonarQube Scanner 4.5.0.2216'.

Add SonarQube Servers in Configuration in Jenkins



The screenshot shows the Jenkins web interface at the URL 35.222.150.4:8080/configure. The breadcrumb navigation shows 'Jenkins' > 'configuration'. The main section is titled 'SonarQube servers'. It has two tabs: 'Environment variables' and 'SonarQube installations'. The 'SonarQube installations' tab is active. It contains a checkbox 'Enable injection of SonarQube server configuration as build environment variables' which is unchecked. Below it, a note says 'If checked, job administrators will be able to inject a SonarQube server configuration as environment variables in the build.' There are three input fields: 'Name' with 'sonar-scanner', 'Server URL' with 'http://35.238.78.18:9000/', and 'Server authentication token' with a dropdown set to '- none -' and an 'Add' button. A default URL 'Default is http://localhost:9000' is shown. A note at the bottom says 'SonarQube authentication token. Mandatory when anonymous access is disabled.'

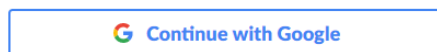
## Slack integration with Jenkins

- Logged into Slack and created
  - workspace – **DAP4.0\_DevOps**(dap40devops.slack.com)
  - channel – **ci-cd-pipeline**



## First, enter your email

We suggest using the email address you use at work.



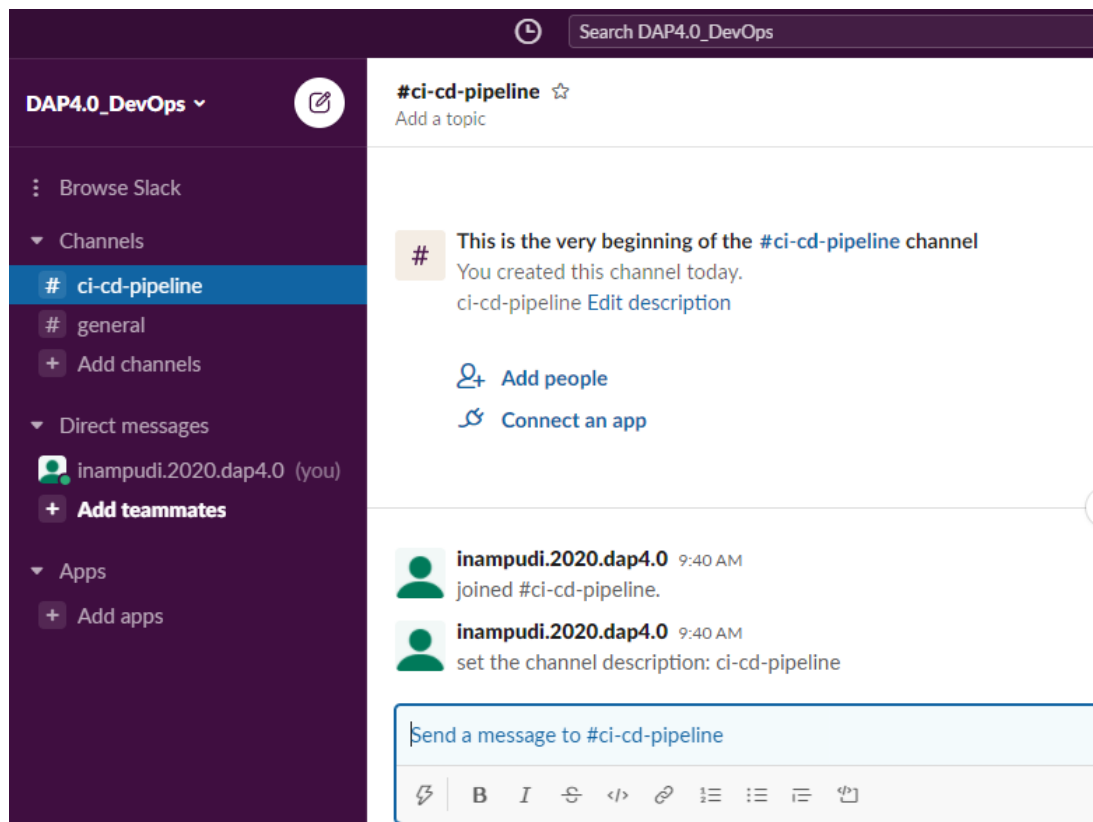
OR



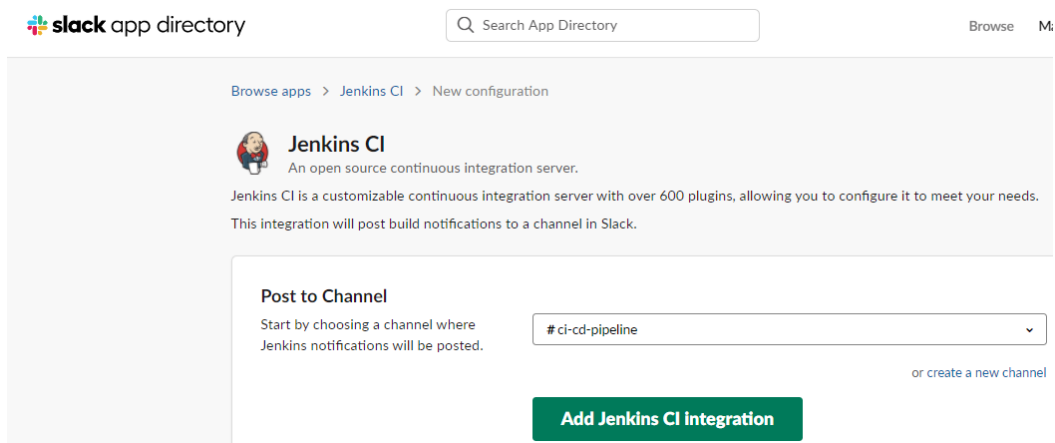
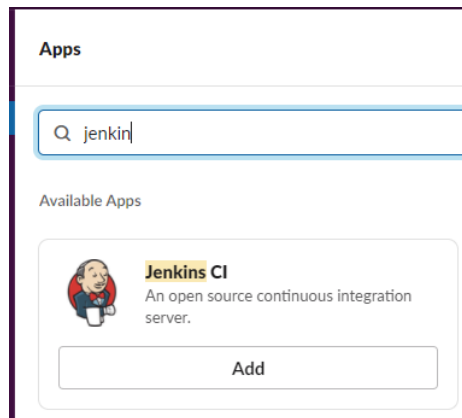
☒ It's okay to send me emails about Slack.



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## Add Jenkins to Slack App Directory



Follow the steps mentioned in Slack and integrate with Jenkins

### Step 3

After it's installed, click on **Manage Jenkins** again in the left navigation, and then go to **Configure System**. Find the **Global Slack Notifier Settings** section and add the following values:

- **Team Subdomain:** `dap48devops`
- **Integration Token Credential ID:** Create a secret text credential using `J57GxmLD1IyG8yB7sY07RKPC` as the value

The other fields are optional. You can click on the question mark icons next to them for more information. Press **Save** when you're done.

**Note:** Please remember to replace the Integration Token in the screenshot below with your own.

A screenshot of the 'Global Slack Notifier Settings' form in Jenkins. The form includes several input fields: 'Slack compatible app URL (optional)', 'Team Subdomain' (filled with 'jenkins-slack-plugin'), 'Integration Token' (empty), 'Integration Token Credential ID' (filled with 'some text (bot user slack token)' and an 'Add' button), 'Is Bot User?' (checkbox), and 'Channel or Slack ID' (filled with 'slack-plugin-testing'). There are question mark icons next to each field. A 'Test Connection' button is at the bottom right.

## Add Slack details in Jenkins Configuration

← → ↻ ⚠ Not secure | 35.222.150.4:8080/configure ☆ ⌵ ⚙ ⚙ ⌵

Jenkins ▾ configuration

### Slack

Workspace

Credential

Default channel / member id

Custom slack app bot user ☐

Success

## Nexus integration with Jenkins

### Add Nexus repository details in Jenkins Configuration

← → ↻ ⚠ Not secure | 35.222.150.4:8080/configure 🔍 ☆ ⌵ ⚙ ⌵

Jenkins ▾ configuration

### Sonatype Nexus

Nexus Repository Manager Servers


#### Nexus Repository Manager 3.x Server

Display Name

Server ID

Server URL

Credentials

 Nexus Repository Manager 3.x connection succeeded

## 9. CI-CD Pipeline Job in Jenkins

Create [Continuous Integration Job](#) and [Continuous Deployment Job](#)

 add description

All	CI_CD_PIPELINE	+					
S	W	Name ↓	Last Success	Last Failure	Last Duration		
		Continuous_Deployment_Job	26 min - #10	1 hr 30 min - #1	0.64 sec		
		Continuous_Integration_Job	26 min - #18	N/A	28 sec		

Icons: S M I

## Continuous\_Integration\_Job

**General** Source Code Management Build Triggers Build Environment Build Nexus Repository Manager Publisher

Maven Artifact Post-build Actions

Description

Continuous Integration Job

[Plain text] [Preview](#)

☒ Discard old builds ?

Strategy Log Rotation

Days to keep builds 30

if not empty, build records are only kept up to this number of days

Max # of builds to keep 10

**General** **Source Code Management** Build Triggers Build Environment Build Nexus Repository Manager Publisher

Maven Artifact Post-build Actions

☐ None

☒ Git

Repositories

Repository URL https://github.com/inampudi2020dap40/CI-CD-for-DAP-4.0.git ?

Credentials inampudi2020dap40/\*\*\*\*\* (github) ? Add

Advanced...

Add Repository

Branches to build

Branch Specifier (blank for 'any') \*/master X ?

General Source Code Management **Build Triggers** Build Environment Build Nexus Repository Manager Publisher  
Maven Artifact Post-build Actions

## Build Triggers

- ☐ Trigger builds remotely (e.g., from scripts) ?
- ☐ Build after other projects are built ?
- ☐ Build periodically ?
- ☒ GitHub hook trigger for GITScm polling ?
- ☐ Poll SCM ?

General Source Code Management Build Triggers **Build** Build Environment Nexus Repository Manager Publisher  
Maven Artifact Post-build Actions

## Build

### Invoke top-level Maven targets

Goals

package

X ?

Advanced...

### Execute SonarQube Scanner

Task to run

JDK

(Inherit From Job)

JDK to be used for this SonarQube analysis

Path to project properties

Analysis properties

```
sonar.projectKey=dap
sonar.login=admin
sonar.password=dapsonar2020
sonar.java.binaries=project/target
```

X ?

Maven Artifact : /var/lib/jenkins/workspace/Continuous\_Integration\_Job/project/target/project-4.0-DAP.war

General Source Code Management Build Triggers Build Environment Build **Nexus Repository Manager Publisher**

Maven Artifact Post-build Actions

### Nexus Repository Manager Publisher

Nexus Instance

Nexus Repository

Tag

Packages

Group

Artifact

Version

Packaging

Artifacts

### Maven Artifact

File Path

General Source Code Management Build Triggers Build Environment Build **Nexus Repository Manager Publisher**

Maven Artifact **Post-build Actions**

### Build other projects

Projects to build

☒ Trigger only if build is stable

☐ Trigger even if the build is unstable

☐ Trigger even if the build fails



General Source Code Management Build Triggers Build Environment Build Nexus Repository Manager Publisher

Maven Artifact **Post-build Actions**

**Slack Notifications**

Notify Build Start	<input checked="" type="checkbox"/>
Notify Success	<input checked="" type="checkbox"/>
Notify Aborted	<input checked="" type="checkbox"/>
Notify Not Built	<input checked="" type="checkbox"/>
Notify Unstable	<input checked="" type="checkbox"/>
Notify Regression	<input checked="" type="checkbox"/>
Notify Every Failure	<input checked="" type="checkbox"/>
Notify Back To Normal	<input checked="" type="checkbox"/>

## Continuous\_Deployment\_Job

**General** Source Code Management Build Triggers Build Environment Build Post-build Actions

Description Continuous Deployment Job

[Plain text] [Preview](#)

☒ Discard old builds

Strategy Log Rotation

Days to keep builds 30

if not empty, build records are only kept up to this number of days

Max # of builds to keep 10

General

Source Code Management

Build Triggers

Build Environment

**Build**

Post-build Actions

## Build

Execute shell

Command

`wget http://34.122.220.57:8081/repository/ci_cd_pipeline/ci/jenkins/dap/project1/4.0-DAP/project1/4.0-DAP/`

See the list of available environment variables

Advanced...

### Post-build Actions

Deploy war/ear to a container

X

WAR/EAR files

\*/

Context path

\$BUILD\_NUMBER

Containers

Tomcat 8.x Remote

X

Credentials

inampudi2020dap40/\*\*\*\*\* (tomcat8)

Add

Tomcat URL

http://34.69.208.219:8080/

?

General

Source Code Management

Build Triggers

Build Environment

Build

Post-build Actions

Slack Notifications

Notify Build Start

Notify Success

Notify Aborted

Notify Not Built

Notify Unstable

Notify Regression

Notify Every Failure

Notify Back To Normal

## Create Pipeline View

Name

CI\_CD\_PIPELINE

Description

CI\_CD\_PIPELINE

[Plain text] Preview

Filter build queue

Filter build executors

Build Pipeline View Title

## Pipeline Flow

Layout

Based on upstream/downstream relationship

This layout mode derives the pipeline structure based on the upstream/downstream trigger relationship between jobs. This is the only out-of-the-box supported layout mode, but is open for extension.

Upstream / downstream config

Select Initial Job

Continuous\_Integration\_Job

10. Validation Screen Shots

Jenkins

CI\_CD\_PIPELINE

Build Pipeline

CI\_CD\_PIPELINE

Run

History

Configure

Add Step

Delete

Manage

Pipeline #18

#18 Continuous\_Integration\_Job  
Oct 8, 2020 2:14:15 PM  
0:28 sec

#10 Continuous\_Deployment\_Job  
Oct 8, 2020 2:14:50 PM  
0:04 sec

dap

master

Last analysis had 2 warnings

October 8, 2020, 7:44 PM

Version not provided

Overview

Issues

Security Hotspots

Measures

Code

Activity

Project Settings

Project Information

QUALITY GATE STATUS

MEASURES

Failed

2 conditions failed

On New Code

B

Reliability Rating on New Code is worse than A

82.35% Duplicated Lines (%) on New Code is greater than 3.0%

New Code

Since October 8, 2020  
Started 2 hours ago

Overall Code

2

New Bugs

Reliability

B

0

New Vulnerabilities

Security

A


0


New Security Hotspots

Security Review


A


← → ↻ ⚠ Not secure | 34.122.220.57:8081/#browse/browse:ci\_cd\_pipeline


 **Sonatype Nexus Repository Manager**  
OSS 3.28.0-01





**Browse**



 Welcome



 Search



 **Browse**



 **Browse** /  ci\_cd\_pipeline



HTML View


  ci


  jenkins


  dap



  project1


  4.0-DAP


 project1-4.0-DAP.pom



 project1-4.0-DAP.pom.md5


 project1-4.0-DAP.pom.sha1


  project1-4.0-DAP.war

 project1-4.0-DAP.war.md5

 project1-4.0-DAP.war.sha1

  maven-metadata.xml

 maven-metadata.xml.md5

 maven-metadata.xml.sha1

DAP4.0\_DevOps

Browse Slack

Channels

# ci-cd-pipeline

# general

Add channels

Direct messages

inampudi.2020.dap4.0 (you)

Add teammates

Apps

Add apps

#ci-cd-pipeline

Add a topic

Continuous\_Deployment\_Job - #8 Success after 0.79 sec (Open)

jenkins
7:15 PM

Continuous\_Integration\_Job - #17 Started by changes from noreply (1 file(s) changed) (Open)

Continuous\_Integration\_Job - #17 Success after 28 sec (Open)

Continuous\_Deployment\_Job - #9 Started by upstream project "Continuous\_Integration\_Job" build number 17 (Open)

Continuous\_Deployment\_Job - #9 Success after 0.77 sec (Open)

jenkins
7:44 PM

Continuous\_Integration\_Job - #18 Started by changes from noreply (1 file(s) changed) (Open)

Continuous\_Integration\_Job - #18 Success after 28 sec (Open)

Continuous\_Deployment\_Job - #10 Started by upstream project "Continuous\_Integration\_Job" build number 18 (Open)

Continuous\_Deployment\_Job - #10 Success after 0.64 sec (Open)

TOMCAT URL : <http://34.69.208.219:8080/9/>

← → ↻ ⚠ Not secure | 34.69.208.219:8080/9/

## Hello DevOps Architects!

**I am Srinivas Inampudi. As part of Poc1, I have used below tool stack**

```

graph LR
    GIT --- Jenkins
    Jenkins --- Maven
    Maven --- Sonar
    Sonar --- Nexus
    Nexus --- TOMCAT
    Jenkins --- Slack
  
```

This session is to demonstrate how to setup CI CD pipeline with GITScm polling

353882\_Srinivas\_Inampudi\_DAP4.0\_DevOps\_PoC\_1

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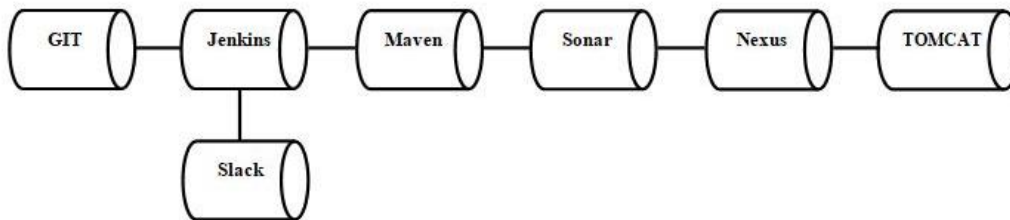
After changing the HTML page, build was initiated and deployed to TOMCAT with the context as 10, which is the latest CD Job Build Number

← → ↻ ⚠ Not secure | 34.69.208.219:8080/10/

## Hello DevOps Architects!



## I am Srinivas Inampudi. As part of Poc1, I have used below tool stack



This session is to demonstrate how to setup CI CD pipeline with GITScm polling

## PoC1 has completed. Thank you