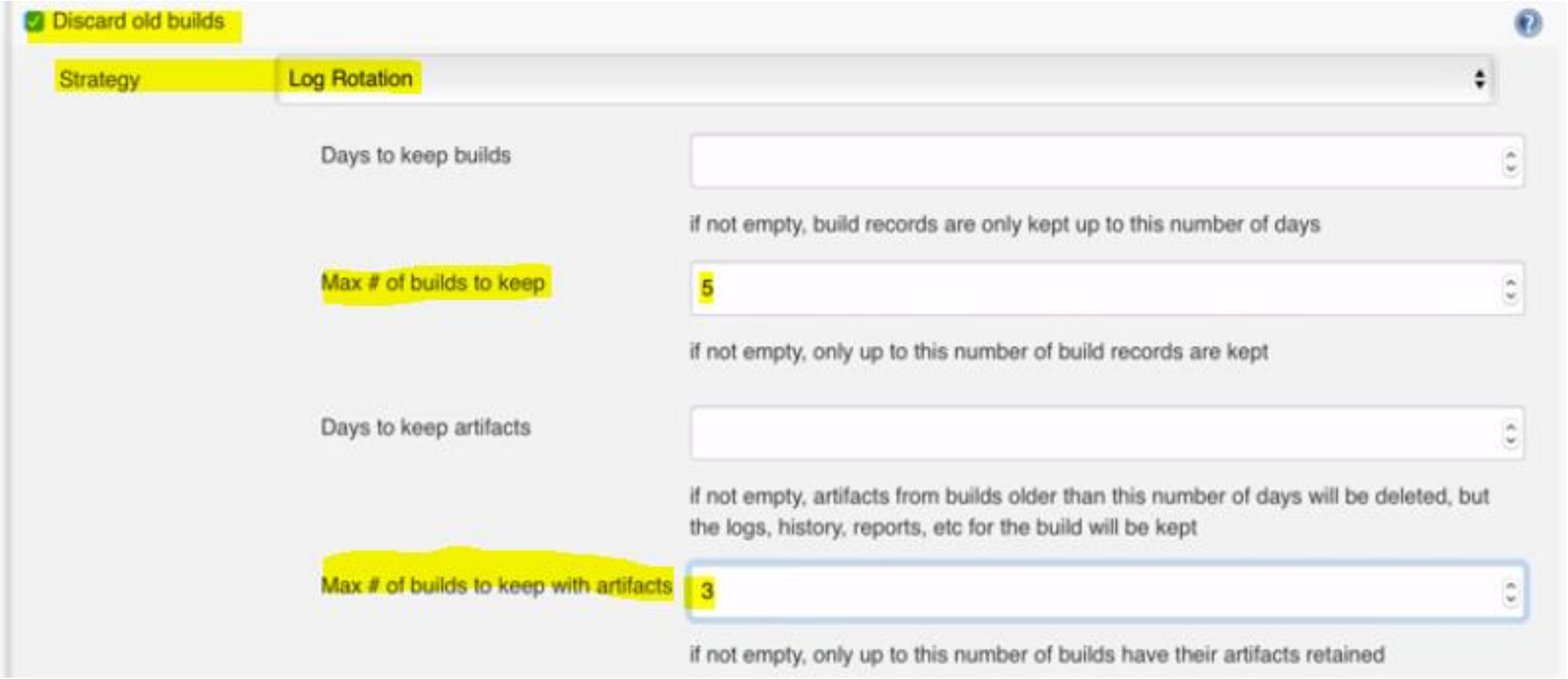
Java Project
Code, Clean, Package & Deploy
Using Jenkins

By

Keshav Kummari

Step-1 : Go to Jenkins & Create a Maven Project



☑ Discard old builds

Strategy: Log Rotation

Days to keep builds:

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

Max # of builds to keep: 5

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

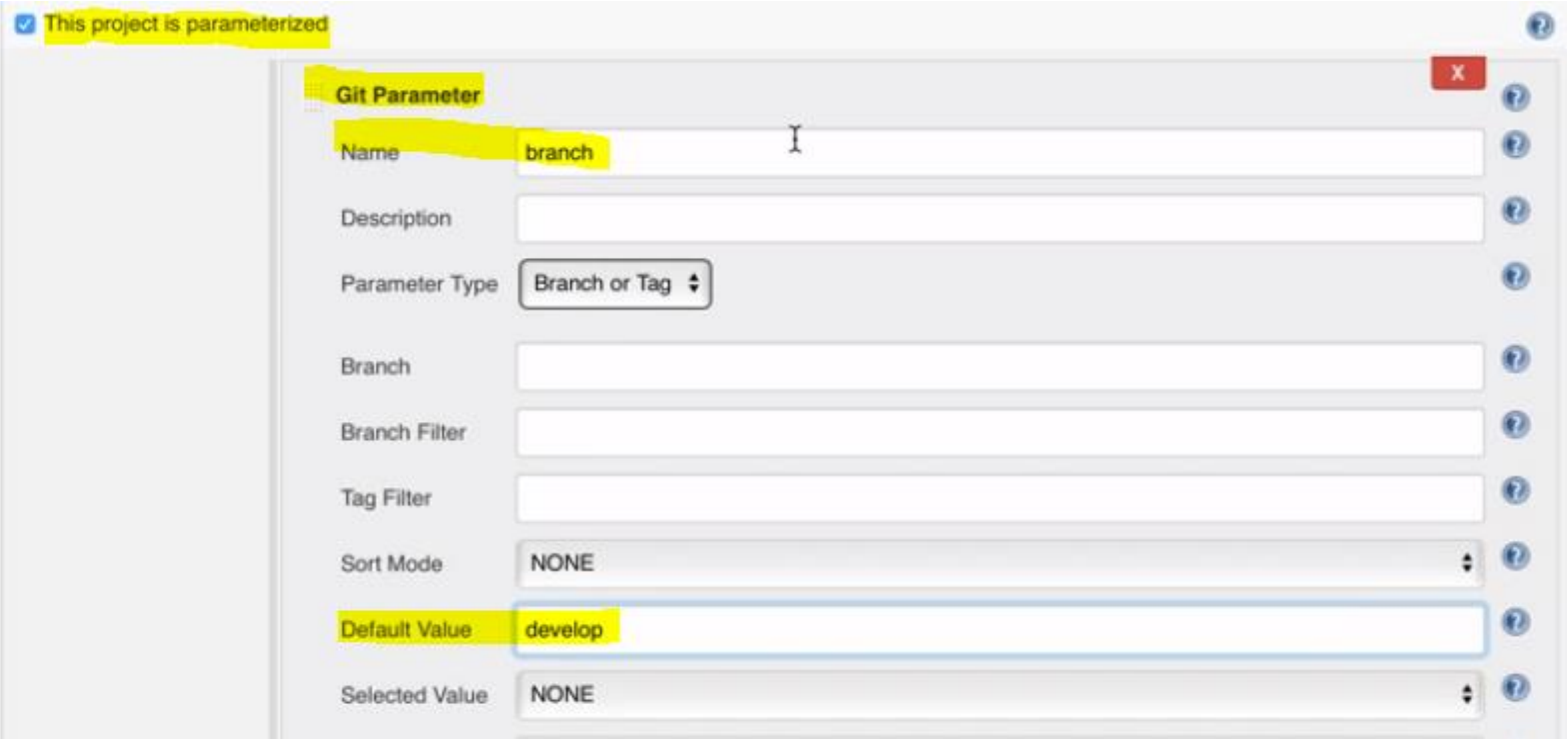
Days to keep artifacts:

if not empty, artifacts from builds older than this number of days will be deleted, but the logs, history, reports, etc for the build will be kept

Max # of builds to keep with artifacts: 3

if not empty, only up to this number of builds have their artifacts retained

Step-2: Let’s select Parameterized

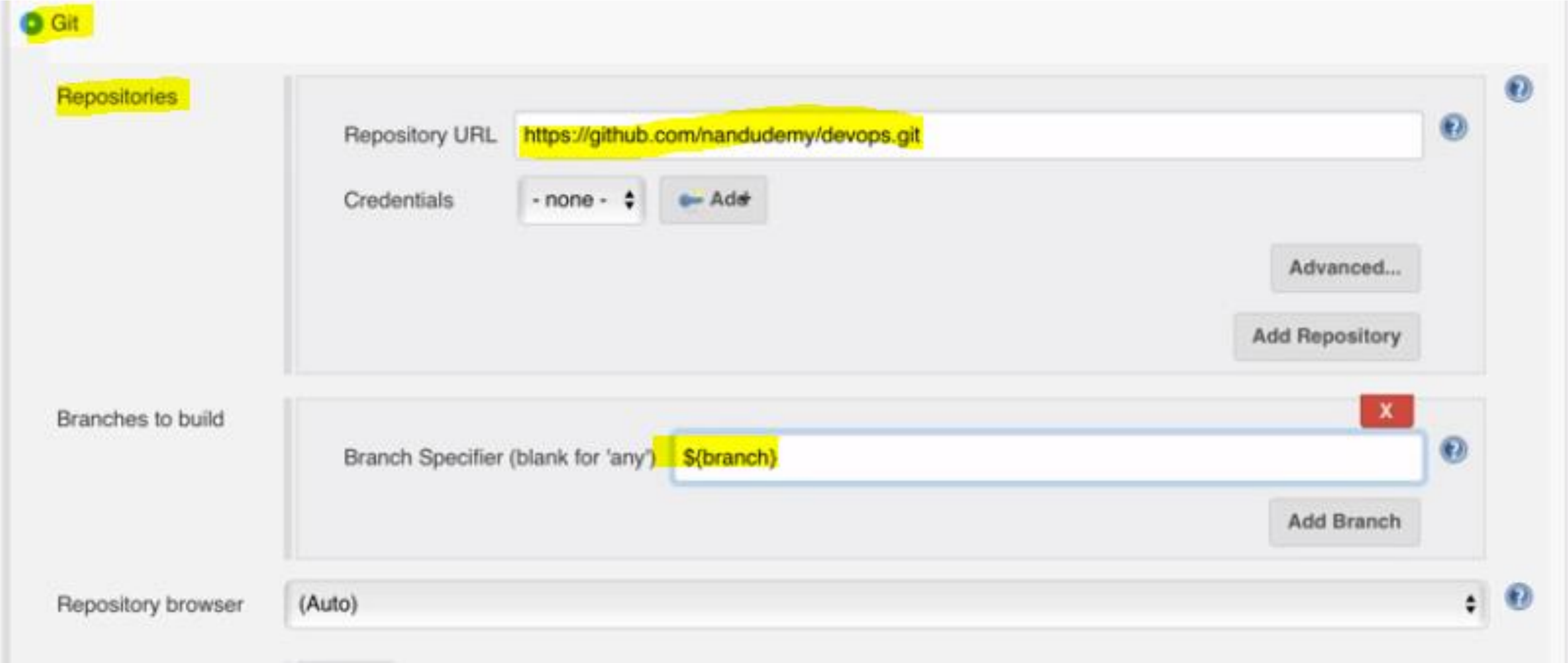


☑ This project is parameterized

Git Parameter

Name	branch
Description	
Parameter Type	Branch or Tag
Branch	
Branch Filter	
Tag Filter	
Sort Mode	NONE
Default Value	develop
Selected Value	NONE

Step-3: Select “Git” & Do parameterized branch



● Git

Repositories

Repository URL https://github.com/nandudemy/devops.git

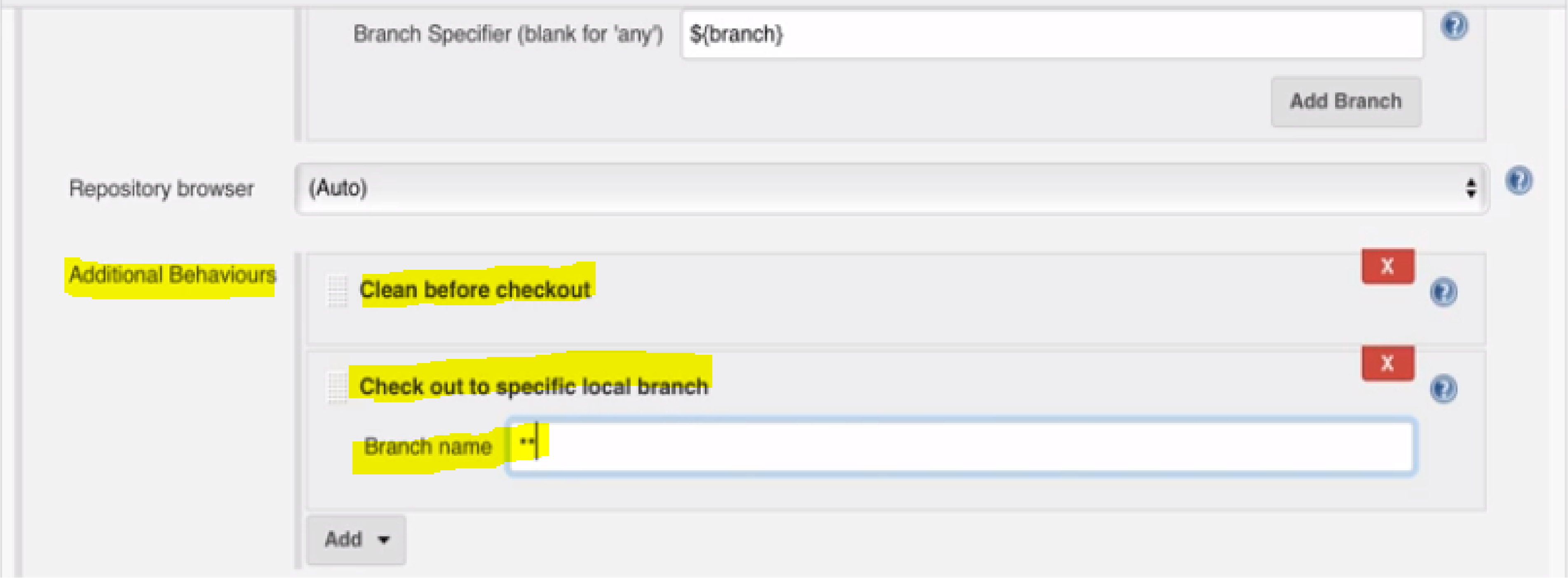
Credentials - none -

Branches to build

Branch Specifier (blank for 'any') ${branch}

Repository browser (Auto)

Step-4: Add 2 options “Clean before checkout” & “Check out to specific branch”



Branch Specifier (blank for 'any') ${branch}

Repository browser (Auto)

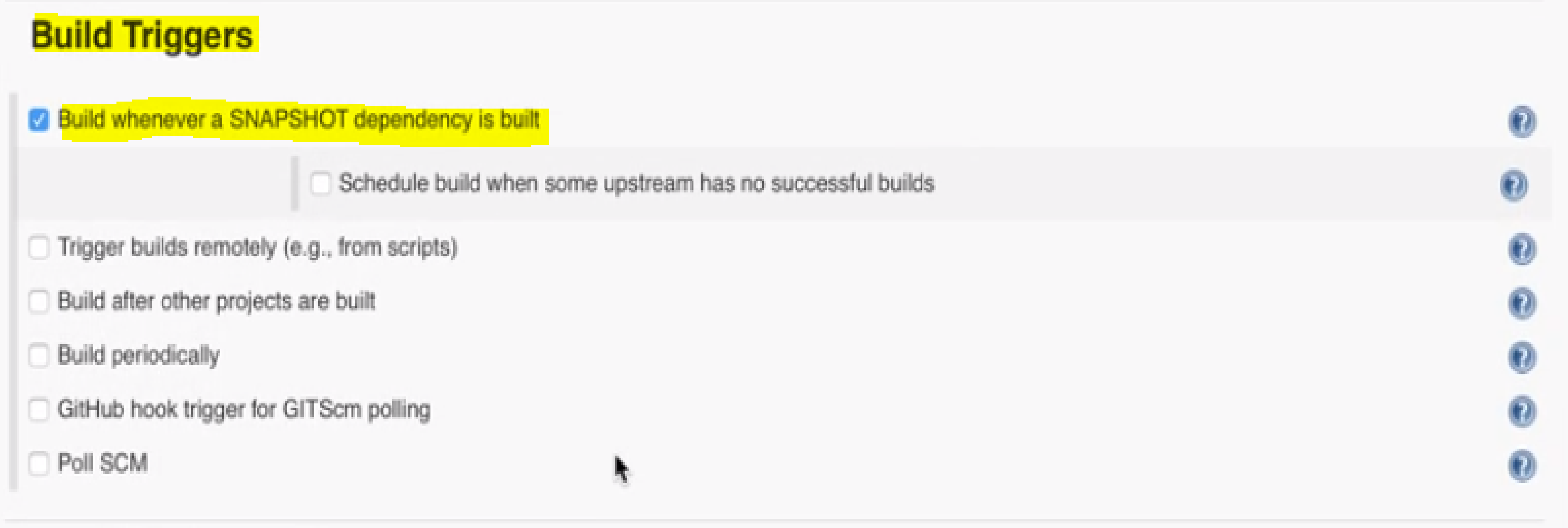
Additional Behaviours

Clean before checkout

Check out to specific local branch

Branch name **

Step-5: Add Build Triggers



Build Triggers

☑ Build whenever a SNAPSHOT dependency is built

    □ Schedule build when some upstream has no successful builds

□ Trigger builds remotely (e.g., from scripts)

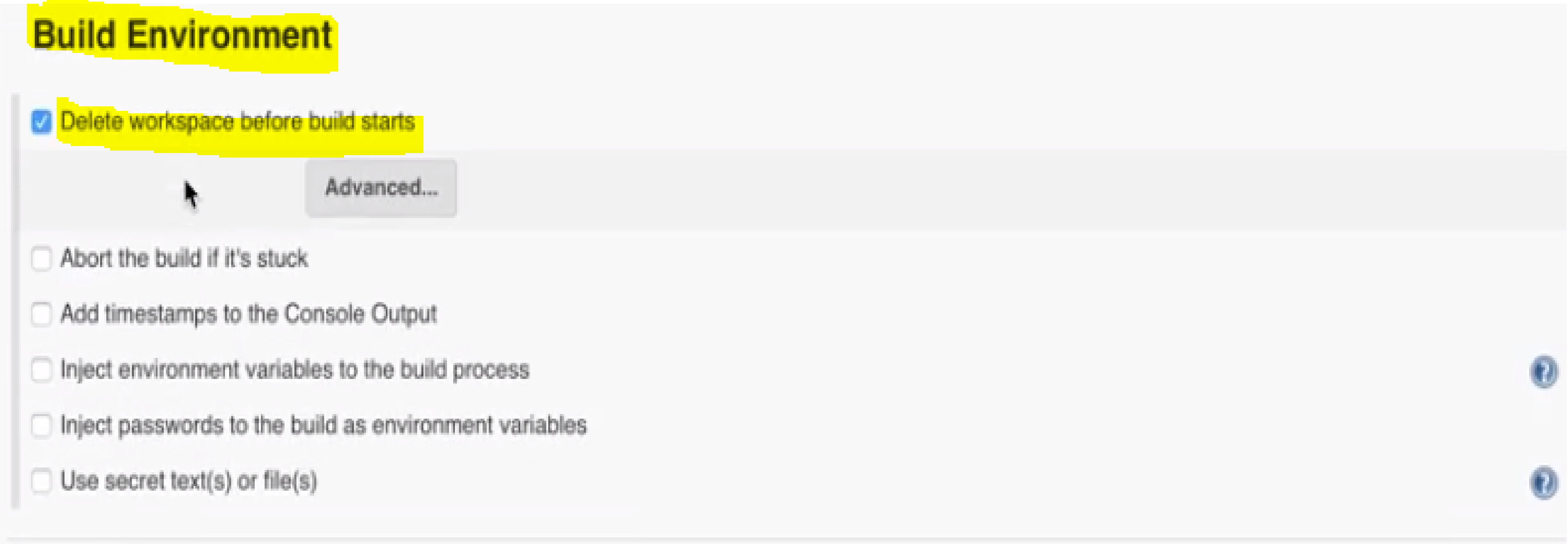
□ Build after other projects are built

□ Build periodically

□ GitHub hook trigger for GITScm polling

□ Poll SCM

Step-6: Click on “Delete workspace before build starts” check box part of Build Environment



Build Environment

☑ Delete workspace before build starts

☐ Abort the build if it's stuck

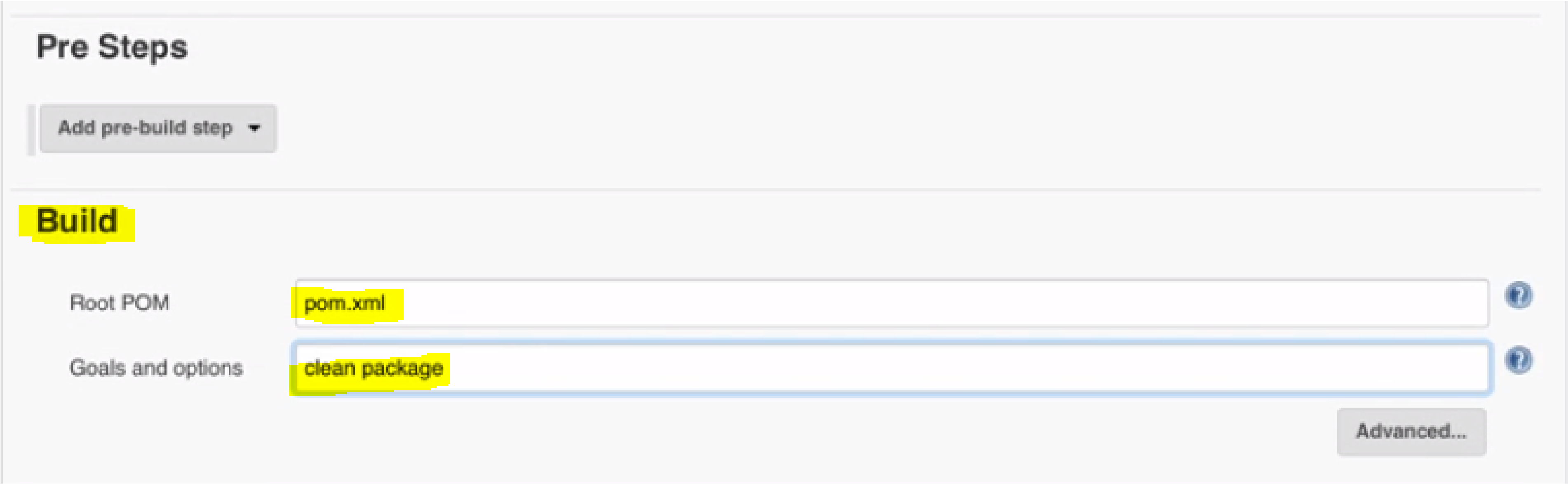
☐ Add timestamps to the Console Output

☐ Inject environment variables to the build process

☐ Inject passwords to the build as environment variables

☐ Use secret text(s) or file(s)

Step-7: Complete Pre Steps



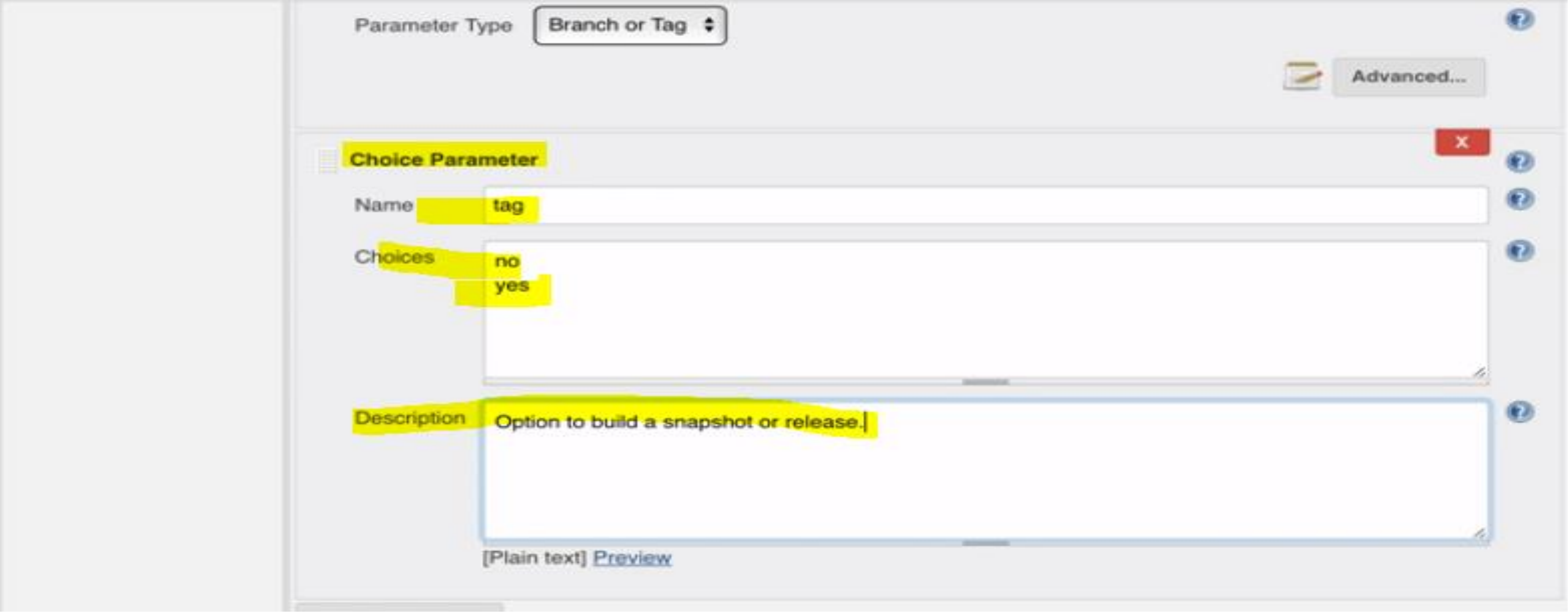
Pre Steps

Build

Root POM: pom.xml

Goals and options: clean package

Step-8: Add “Choice Parameter” for a tag



Parameter Type: Branch or Tag

Choice Parameter

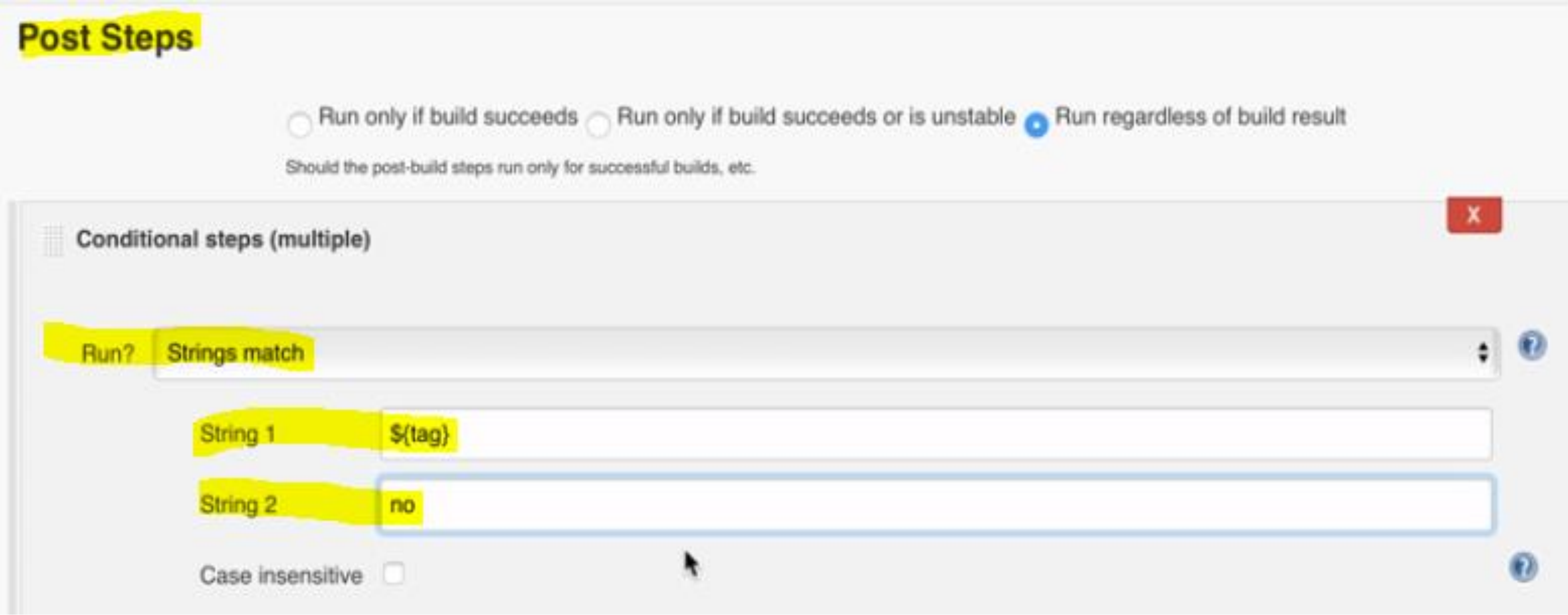
Name: tag

Choices:
no
yes

Description: Option to build a snapshot or release.

[Plain text] Preview

Step-9: Deploy build to Snapshot based on tag is no



Post Steps

○ Run only if build succeeds ○ Run only if build succeeds or is unstable ● Run regardless of build result

Should the post-build steps run only for successful builds, etc.

Conditional steps (multiple)

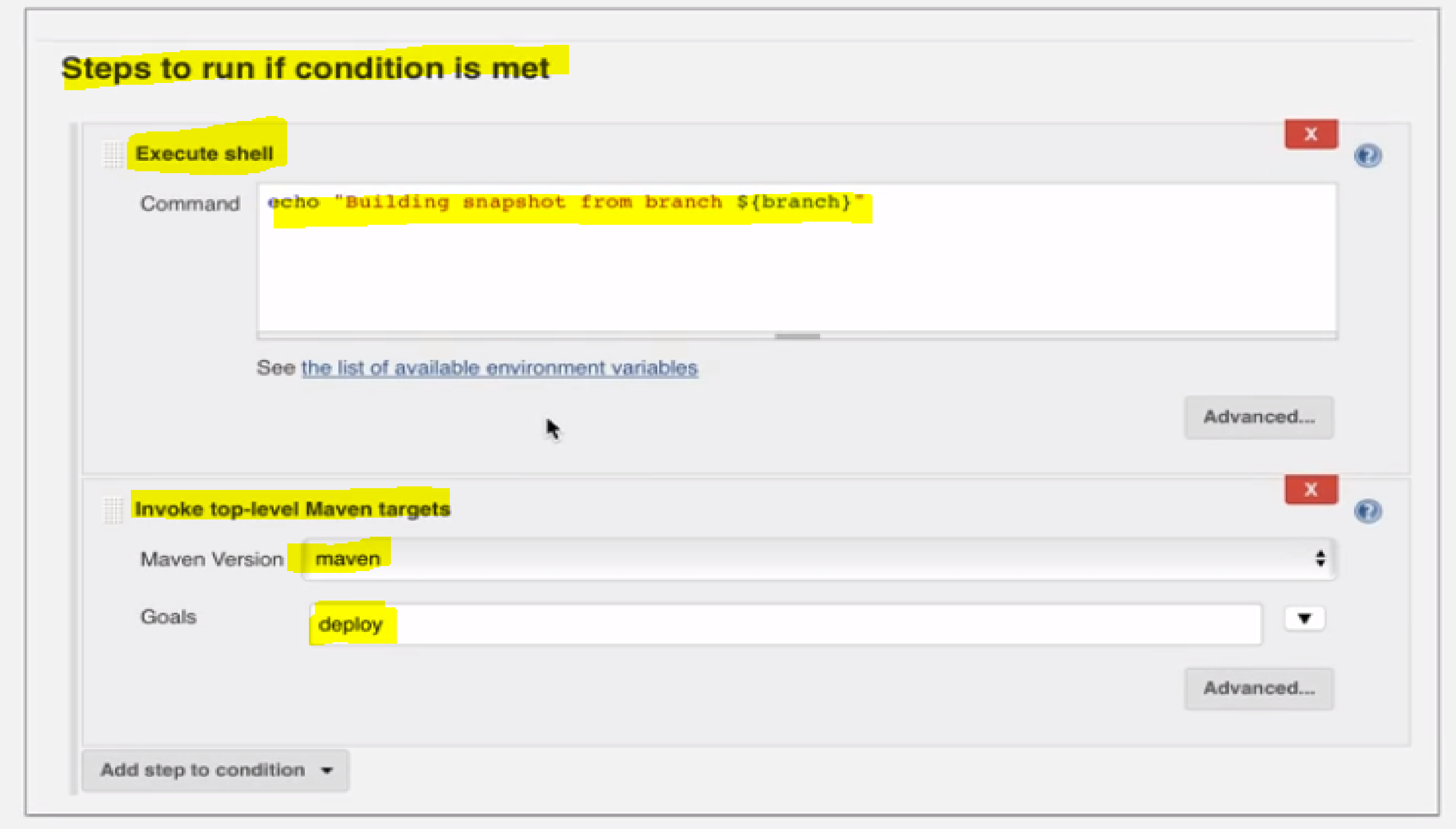
Run? Strings match

String 1 ${tag}

String 2 no

Case insensitive □

Step-10: Add “Execute Shell” & “Invoke top-level Maven targets”



Steps to run if condition is met

Execute shell

Command

```
echo "Building snapshot from branch ${branch}"
```

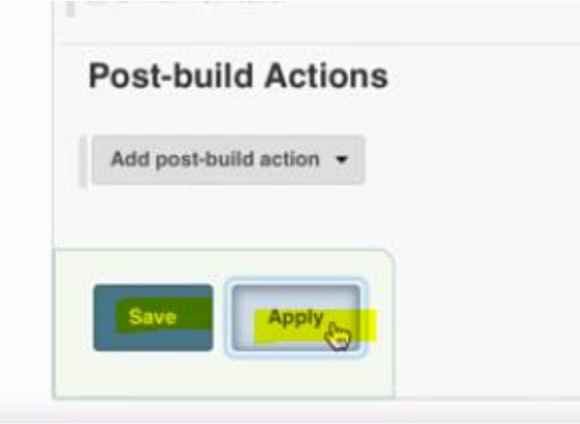
See the list of available environment variables

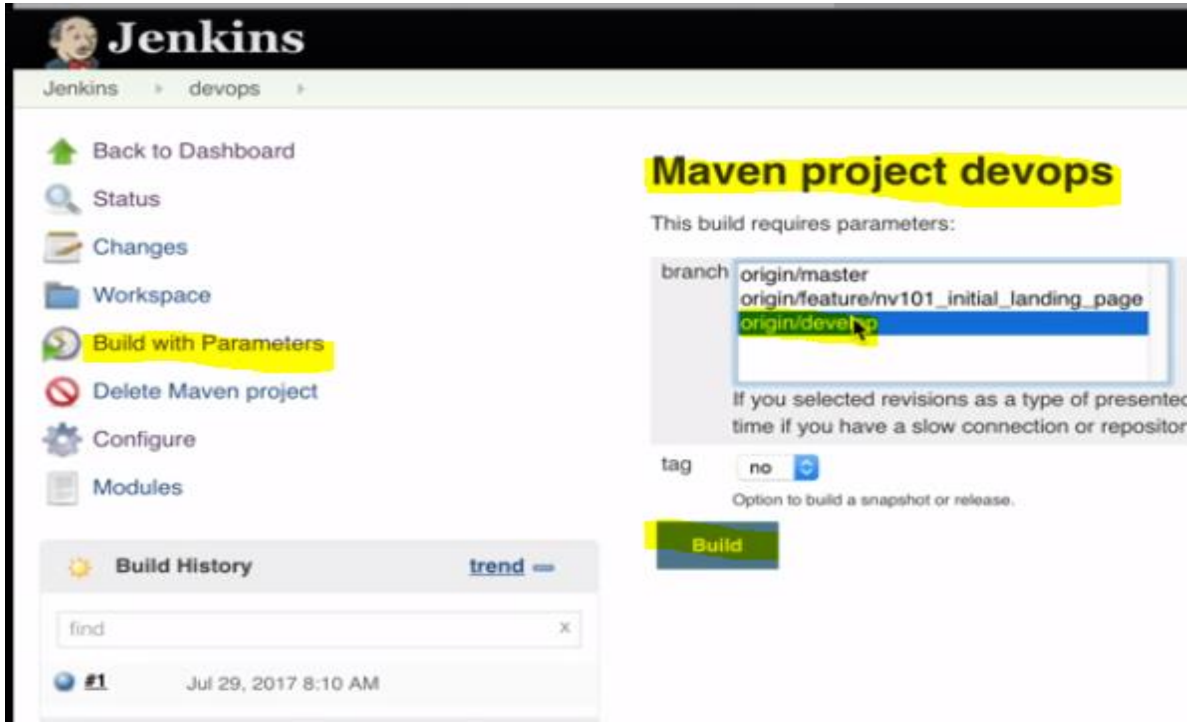
Invoke top-level Maven targets

Maven Version: maven

Goals: deploy

Step-11: Click on Apply & Build based on develop branch





Maven project devops

This build requires parameters:

branch: origin/master, origin/feature/nv101_initial_landing_page, origin/develop

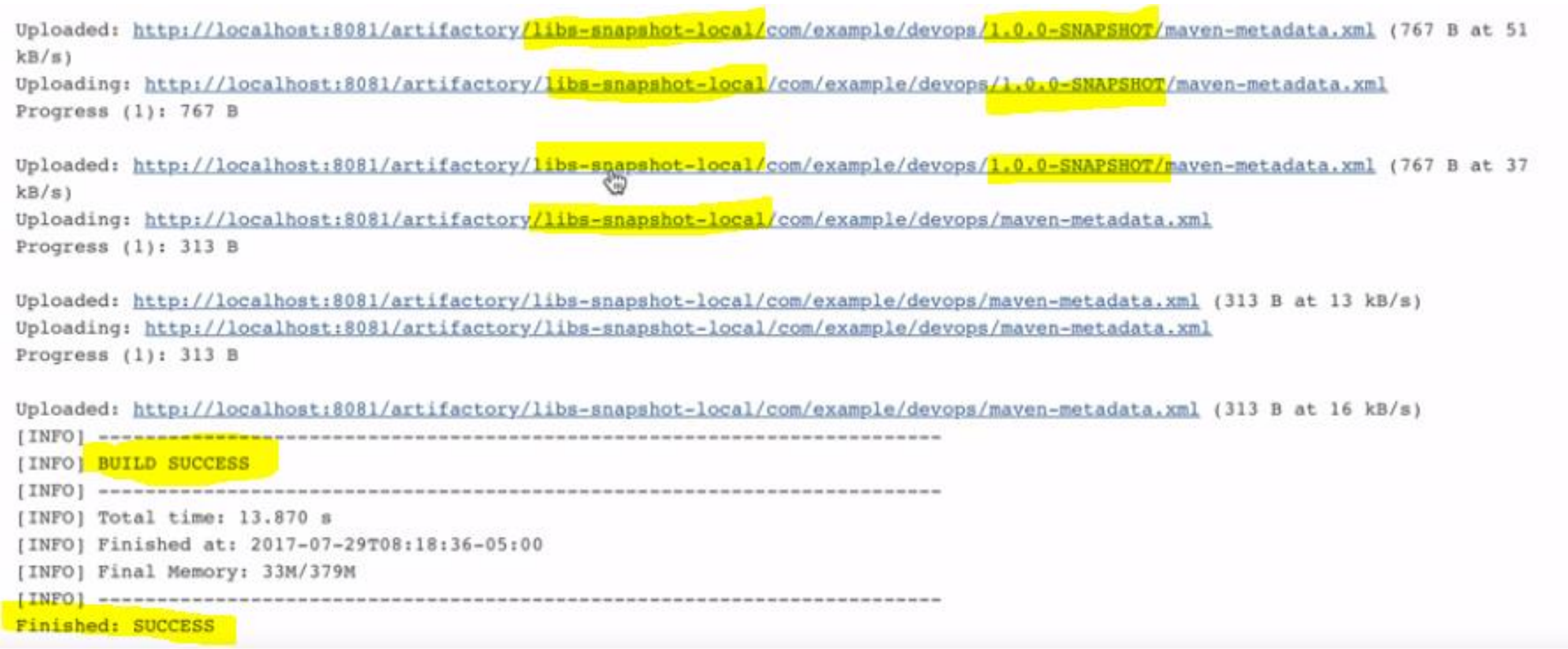
If you selected revisions as a type of presente
time if you have a slow connection or repositor

tag: no

Option to build a snapshot or release.

#1 Jul 29, 2017 8:10 AM

Step-12: It’s Building and Deploying the War to Jfrog Artifactory under Snapshot path



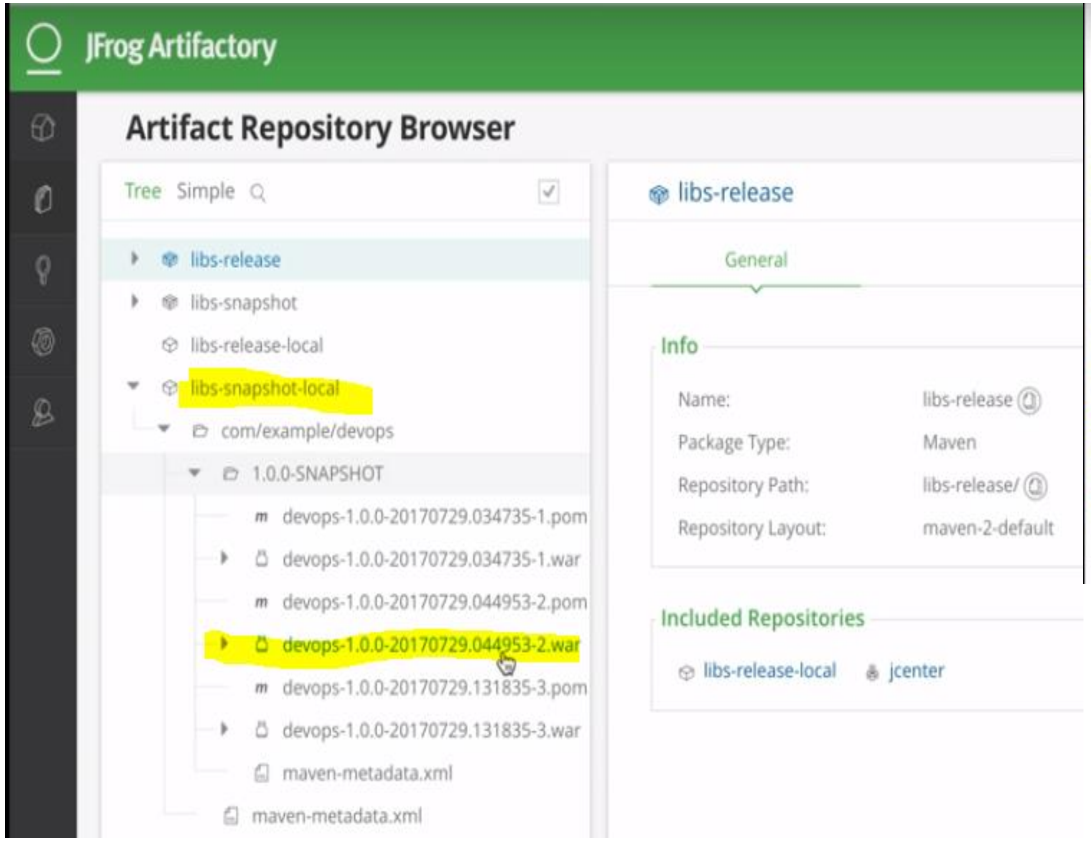
```
Uploaded: http://localhost:8081/artifactory/libs-snapshot-local/com/example/devops/1.0.0-SNAPSHOT/maven-metadata.xml (767 B at 51
kB/s)
Uploading: http://localhost:8081/artifactory/libs-snapshot-local/com/example/devops/1.0.0-SNAPSHOT/maven-metadata.xml
Progress (1): 767 B

Uploaded: http://localhost:8081/artifactory/libs-snapshot-local/com/example/devops/1.0.0-SNAPSHOT/maven-metadata.xml (767 B at 37
kB/s)
Uploading: http://localhost:8081/artifactory/libs-snapshot-local/com/example/devops/maven-metadata.xml
Progress (1): 313 B

Uploaded: http://localhost:8081/artifactory/libs-snapshot-local/com/example/devops/maven-metadata.xml (313 B at 13 kB/s)
Uploading: http://localhost:8081/artifactory/libs-snapshot-local/com/example/devops/maven-metadata.xml
Progress (1): 313 B

Uploaded: http://localhost:8081/artifactory/libs-snapshot-local/com/example/devops/maven-metadata.xml (313 B at 16 kB/s)
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time: 13.870 s
[INFO] Finished at: 2017-07-29T08:18:36-05:00
[INFO] Final Memory: 33M/379M
[INFO] ------------------------------------------------------------------------
Finished: SUCCESS
```

Step-13: Verify the Build Part of Jfrog Artifactory



Artifact Repository Browser

- libs-release
- libs-snapshot
- libs-release-local
- libs-snapshot-local
  - com/example/devops
    - 1.0.0-SNAPSHOT
      - devops-1.0.0-20170729.034735-1.pom
      - devops-1.0.0-20170729.034735-1.war
      - devops-1.0.0-20170729.044953-2.pom
      - devops-1.0.0-20170729.044953-2.war
      - devops-1.0.0-20170729.131835-3.pom
      - devops-1.0.0-20170729.131835-3.war
      - maven-metadata.xml
    - maven-metadata.xml

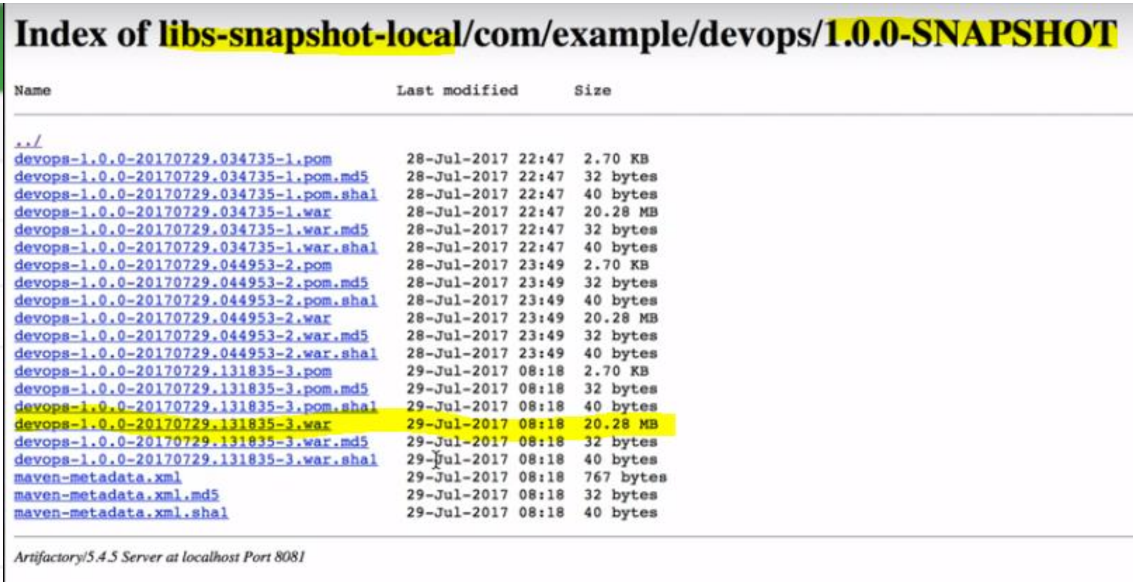
libs-release

Info

Name:	libs-release
Package Type:	Maven
Repository Path:	libs-release/
Repository Layout:	maven-2-default

Included Repositories

libs-release-local jcenter



Index of libs-snapshot-local/com/example/devops/1.0.0-SNAPSHOT

```
Name                                        Last modified      Size

../
devops-1.0.0-20170729.034735-1.pom          28-Jul-2017 22:47  2.70 KB
devops-1.0.0-20170729.034735-1.pom.md5      28-Jul-2017 22:47  32 bytes
devops-1.0.0-20170729.034735-1.pom.sha1     28-Jul-2017 22:47  40 bytes
devops-1.0.0-20170729.034735-1.war          28-Jul-2017 22:47  20.28 MB
devops-1.0.0-20170729.034735-1.war.md5      28-Jul-2017 22:47  32 bytes
devops-1.0.0-20170729.034735-1.war.sha1     28-Jul-2017 22:47  40 bytes
devops-1.0.0-20170729.044953-2.pom          28-Jul-2017 23:49  2.70 KB
devops-1.0.0-20170729.044953-2.pom.md5      28-Jul-2017 23:49  32 bytes
devops-1.0.0-20170729.044953-2.pom.sha1     28-Jul-2017 23:49  40 bytes
devops-1.0.0-20170729.044953-2.war          28-Jul-2017 23:49  20.28 MB
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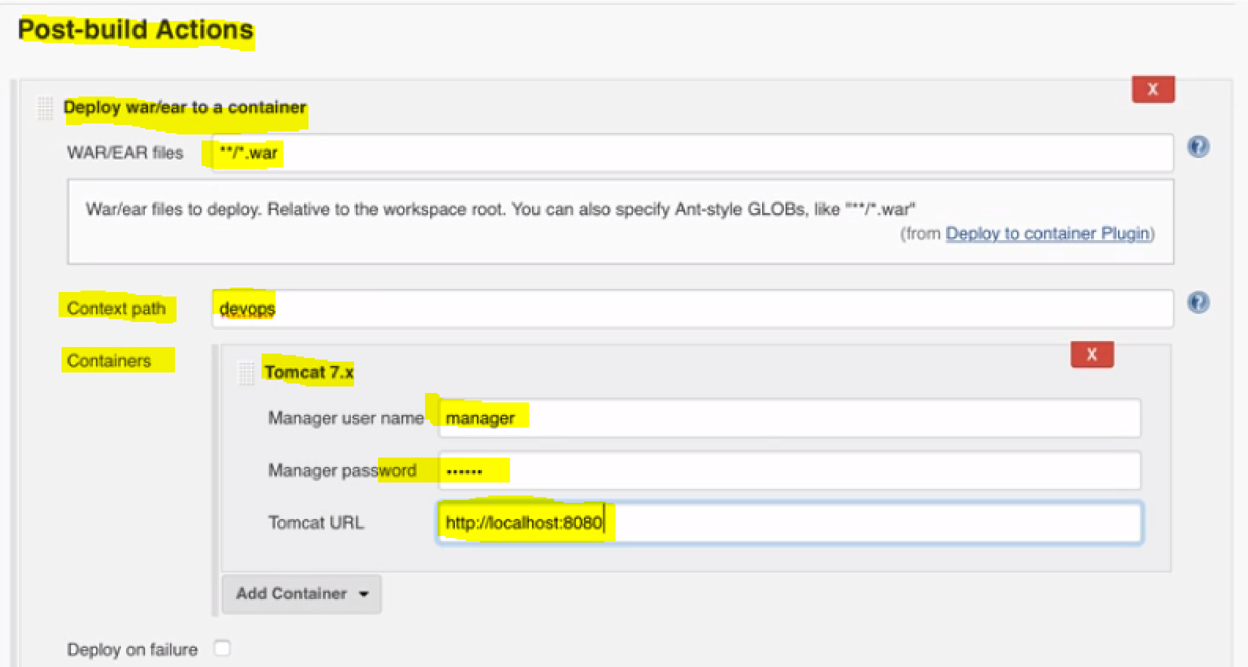
devops-1.0.0-20170729.044953-2.war.sha1     28-Jul-2017 23:49  40 bytes
devops-1.0.0-20170729.131835-3.pom          29-Jul-2017 08:18  2.70 KB
devops-1.0.0-20170729.131835-3.pom.md5      29-Jul-2017 08:18  32 bytes
devops-1.0.0-20170729.131835-3.pom.sha1     29-Jul-2017 08:18  40 bytes
devops-1.0.0-20170729.131835-3.war          29-Jul-2017 08:18  20.28 MB
devops-1.0.0-20170729.131835-3.war.md5      29-Jul-2017 08:18  32 bytes
devops-1.0.0-20170729.131835-3.war.sha1     29-Jul-2017 08:18  40 bytes
maven-metadata.xml                          29-Jul-2017 08:18  767 bytes
maven-metadata.xml.md5                      29-Jul-2017 08:18  32 bytes
maven-metadata.xml.sha1                     29-Jul-2017 08:18  40 bytes
```

Artifactory/5.4.5 Server at localhost Port 8081

Deploy Java Build on Tomcat Server Using Jenkins

- Go to Post Build Actions >> Select >> Deploy war/ear to a container
- Tomcat Manager UserName : admin & Password : redhat@123



Post-build Actions

Deploy war/ear to a container

WAR/EAR files: **/*.war

War/ear files to deploy. Relative to the workspace root. You can also specify Ant-style GLOBs, like "**/*.war"
(from Deploy to container Plugin)

Context path: devops

Containers

Tomcat 7.x

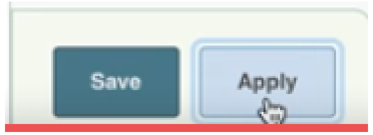
Manager user name: manager

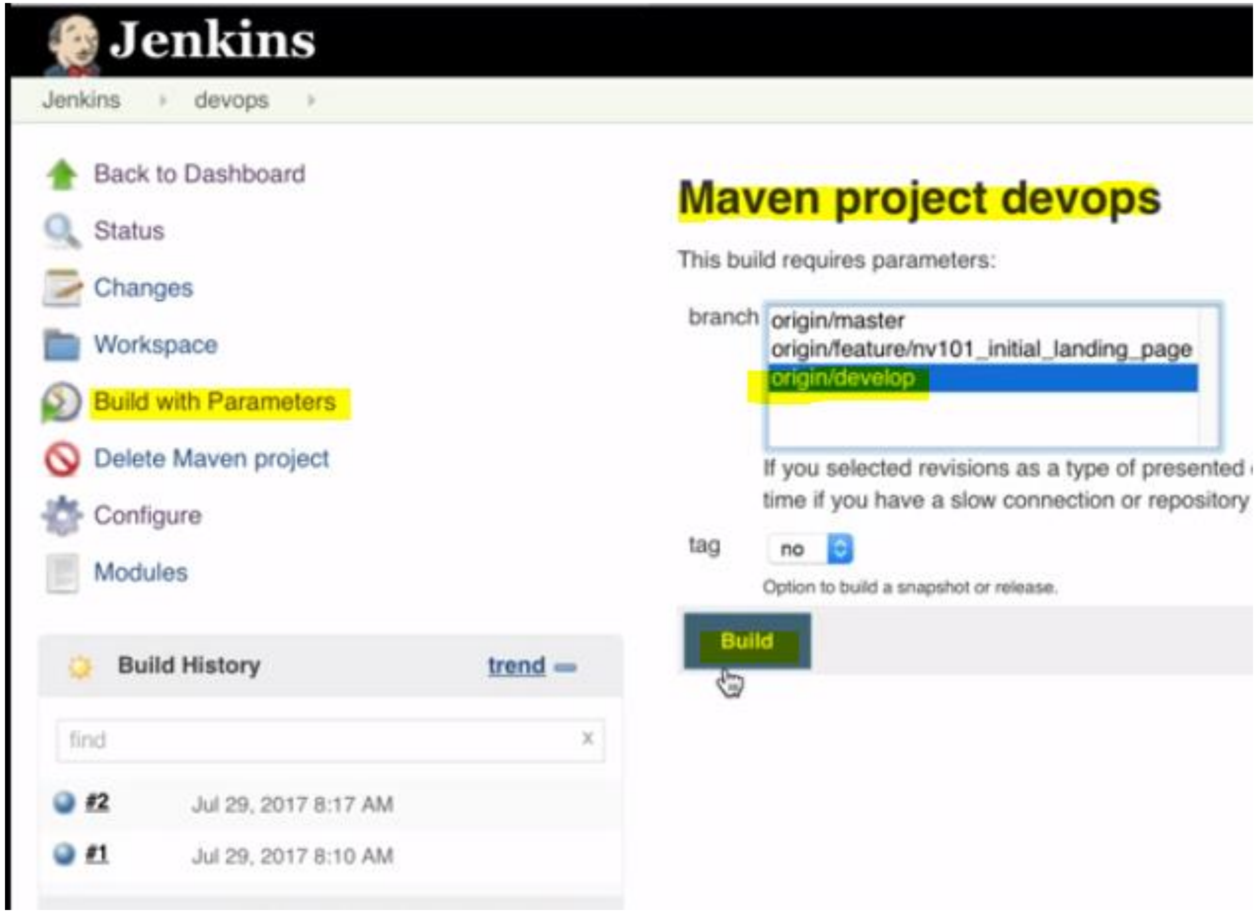
Manager password: ••••••

Tomcat URL: http://localhost:8080

Deploy on failure □

Step-2: Click on Apply & Build based on develop branch





Maven project devops

This build requires parameters:

branch
origin/master
origin/feature/nv101_initial_landing_page
origin/develop

If you selected revisions as a type of presented
time if you have a slow connection or repository

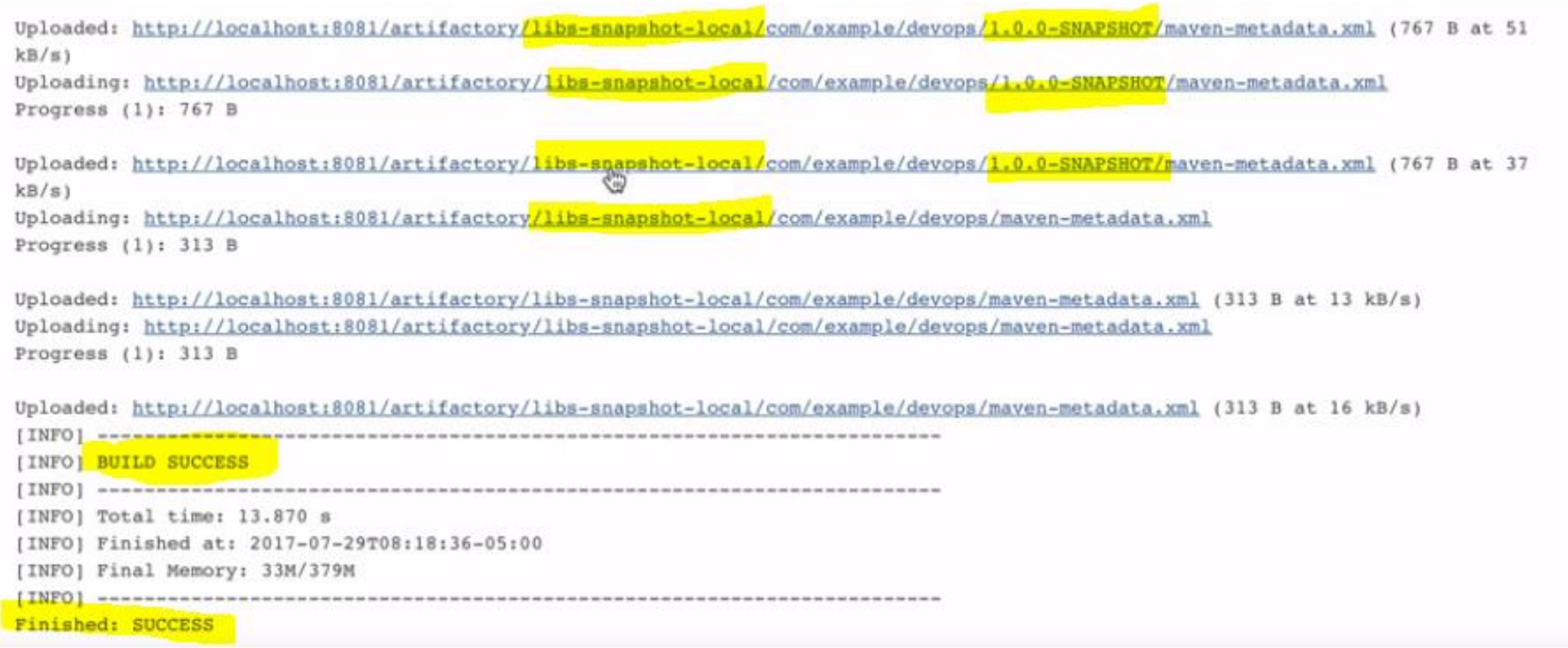
tag: no

Option to build a snapshot or release.

#2 Jul 29, 2017 8:17 AM

#1 Jul 29, 2017 8:10 AM

Step-3: It’s Building and Deploying the War to Jfrog Artifactory under Snapshot path



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Uploading: http://localhost:8081/artifactory/libs-snapshot-local/com/example/devops/maven-metadata.xml
Progress (1): 313 B

Uploaded: http://localhost:8081/artifactory/libs-snapshot-local/com/example/devops/maven-metadata.xml (313 B at 13 kB/s)
Uploading: http://localhost:8081/artifactory/libs-snapshot-local/com/example/devops/maven-metadata.xml
Progress (1): 313 B

Uploaded: http://localhost:8081/artifactory/libs-snapshot-local/com/example/devops/maven-metadata.xml (313 B at 16 kB/s)
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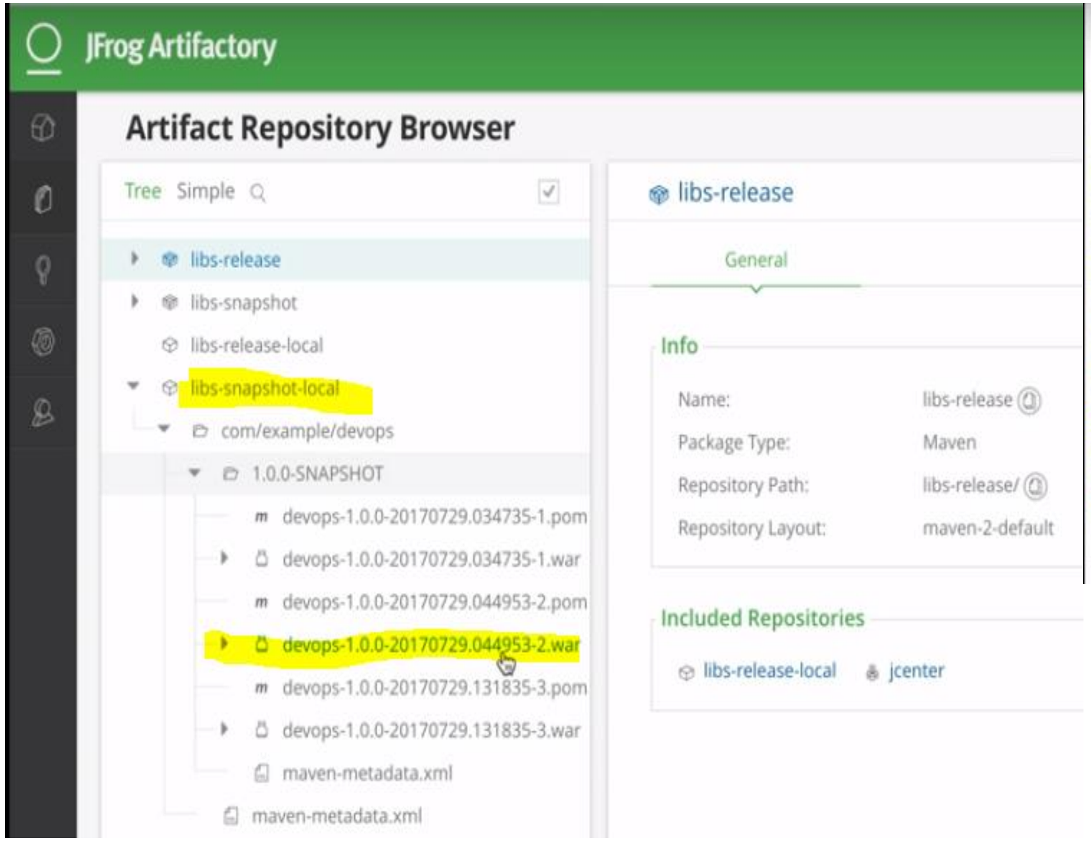
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time: 13.870 s
[INFO] Finished at: 2017-07-29T08:18:36-05:00
[INFO] Final Memory: 33M/379M
[INFO] ------------------------------------------------------------------------
Finished: SUCCESS
```

Step-4: Verify the Build Part of Jfrog Artifactory



Artifact Repository Browser

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- libs-snapshot
- libs-release-local
- libs-snapshot-local
  - com/example/devops
    - 1.0.0-SNAPSHOT
      - devops-1.0.0-20170729.034735-1.pom
      - devops-1.0.0-20170729.034735-1.war
      - devops-1.0.0-20170729.044953-2.pom
      - devops-1.0.0-20170729.044953-2.war
      - devops-1.0.0-20170729.131835-3.pom
      - devops-1.0.0-20170729.131835-3.war
      - maven-metadata.xml
    - maven-metadata.xml

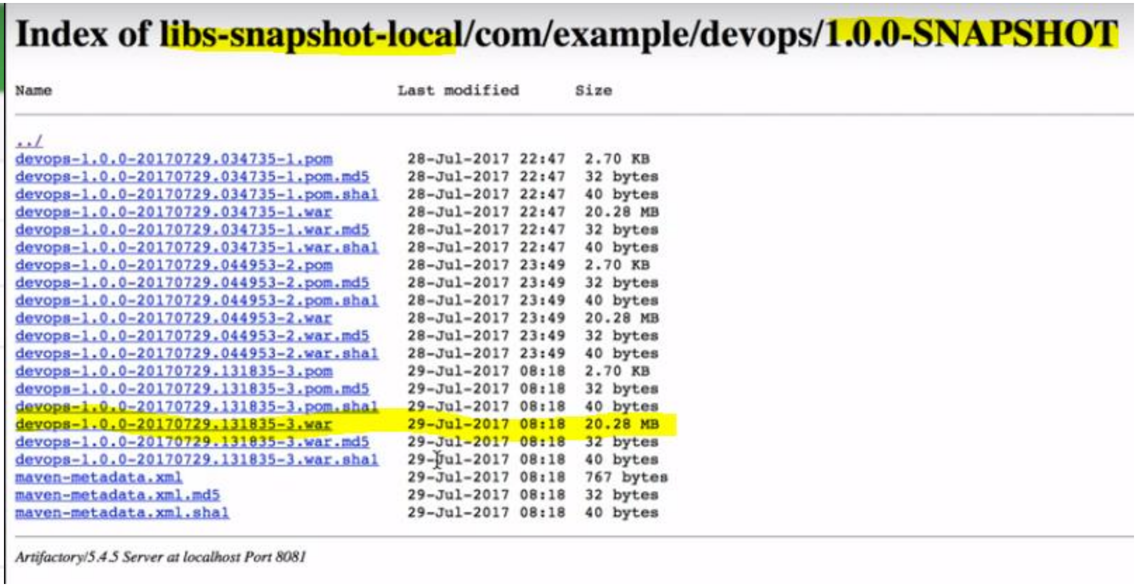
libs-release

Info

Name:	libs-release
Package Type:	Maven
Repository Path:	libs-release/
Repository Layout:	maven-2-default

Included Repositories

libs-release-local jcenter



Index of libs-snapshot-local/com/example/devops/1.0.0-SNAPSHOT

```
Name                                         Last modified      Size

../
devops-1.0.0-20170729.034735-1.pom           28-Jul-2017 22:47  2.70 KB
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devops-1.0.0-20170729.034735-1.pom.sha1      28-Jul-2017 22:47  40 bytes
devops-1.0.0-20170729.034735-1.war           28-Jul-2017 22:47  20.28 MB
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devops-1.0.0-20170729.044953-2.pom.sha1      28-Jul-2017 23:49  40 bytes
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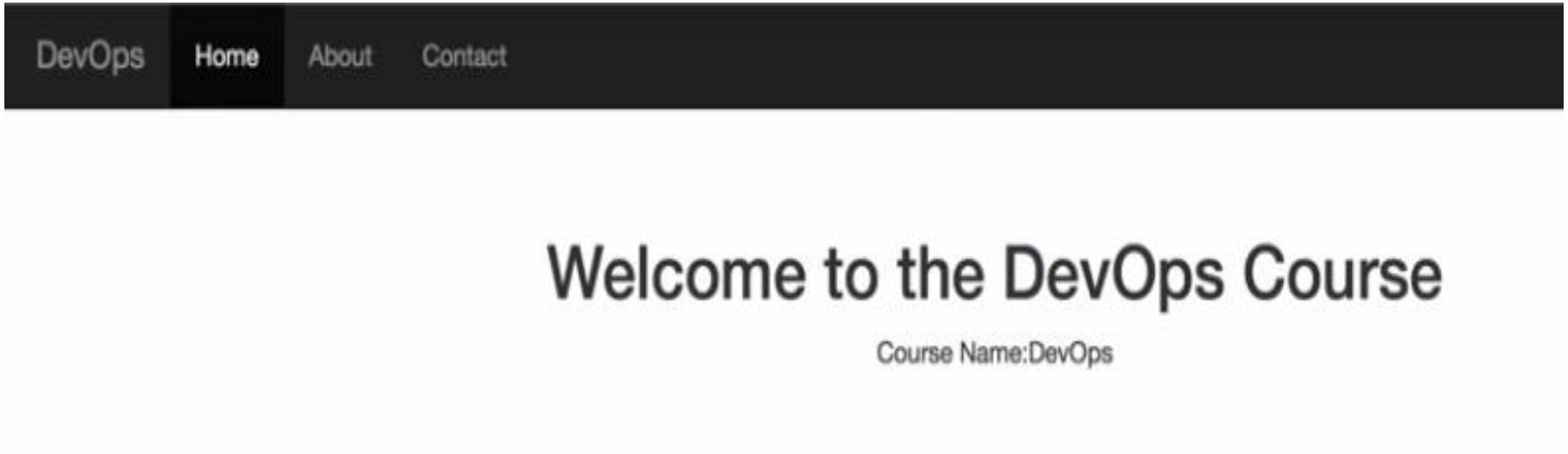
devops-1.0.0-20170729.044953-2.war.md5       28-Jul-2017 23:49  32 bytes
devops-1.0.0-20170729.044953-2.war.sha1      28-Jul-2017 23:49  40 bytes
devops-1.0.0-20170729.131835-3.pom           29-Jul-2017 08:18  2.70 KB
devops-1.0.0-20170729.131835-3.pom.md5       29-Jul-2017 08:18  32 bytes
devops-1.0.0-20170729.131835-3.pom.sha1      29-Jul-2017 08:18  40 bytes
devops-1.0.0-20170729.131835-3.war           29-Jul-2017 08:18  20.28 MB
devops-1.0.0-20170729.131835-3.war.md5       29-Jul-2017 08:18  32 bytes
devops-1.0.0-20170729.131835-3.war.sha1      29-Jul-2017 08:18  40 bytes
maven-metadata.xml                           29-Jul-2017 08:18  767 bytes
maven-metadata.xml.md5                       29-Jul-2017 08:18  32 bytes
maven-metadata.xml.sha1                      29-Jul-2017 08:18  40 bytes
```

Artifactory/5.4.5 Server at localhost Port 8081

Step-5: Build has been deployed to Tomcat through Jenkins

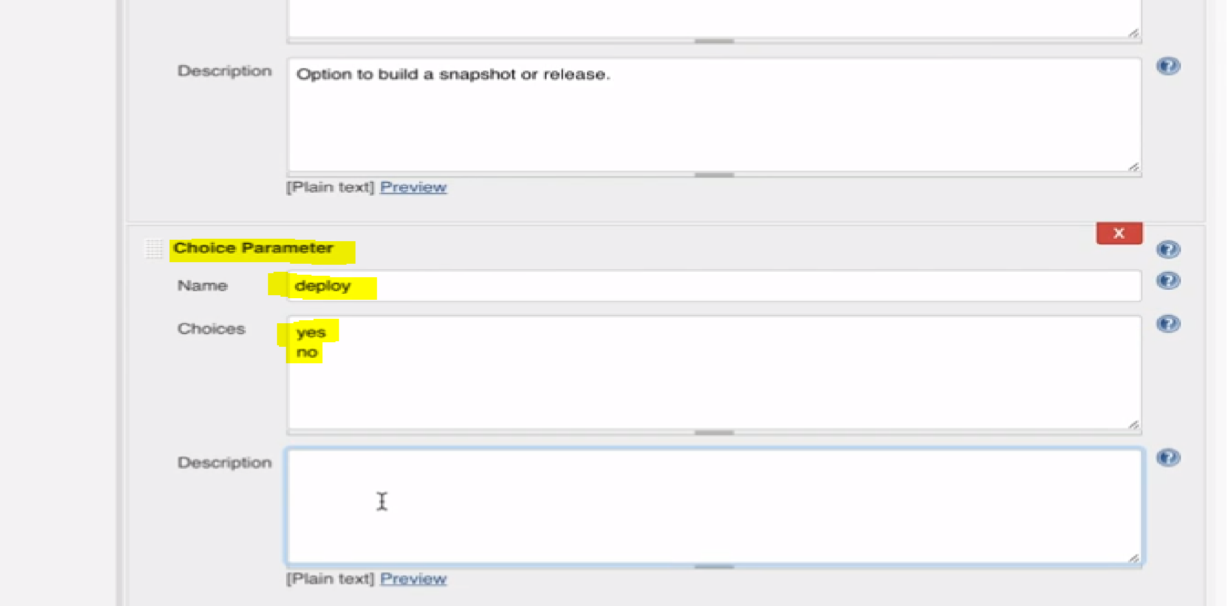


Welcome to the DevOps Course

Course Name:DevOps

Deploy Java Build on Tomcat Server Using Jenkins based on Tagging

- Step-1 : Go to >> Parameterized >> Add “Choice parameter”



Description: Option to build a snapshot or release.

[Plain text] Preview

Choice Parameter

Name: deploy

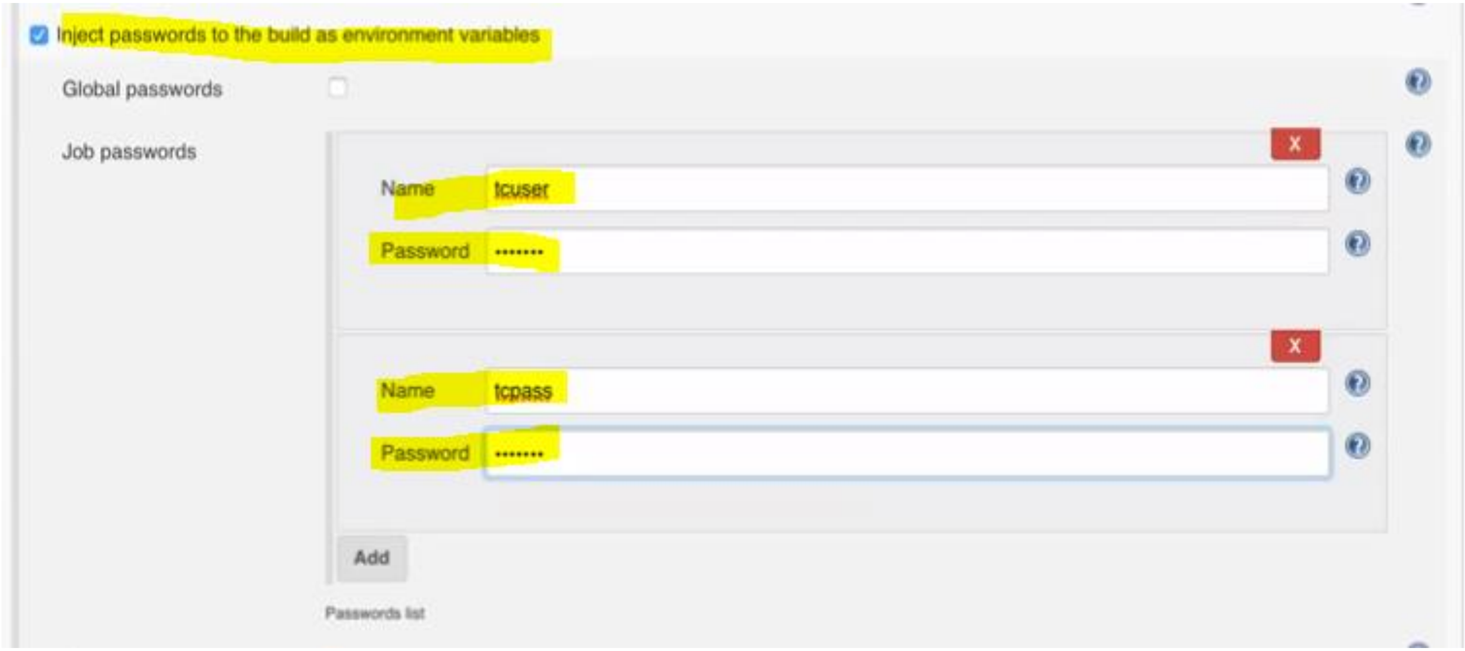
Choices:
yes
no

Description:

[Plain text] Preview

Step-2: Go to >> Build Environment >> Inject passwords to the build as environment variables

- Tomcat Manager User Name : admin & Password : redhat@123



☑ Inject passwords to the build as environment variables

Global passwords □

Job passwords

Name tcuser

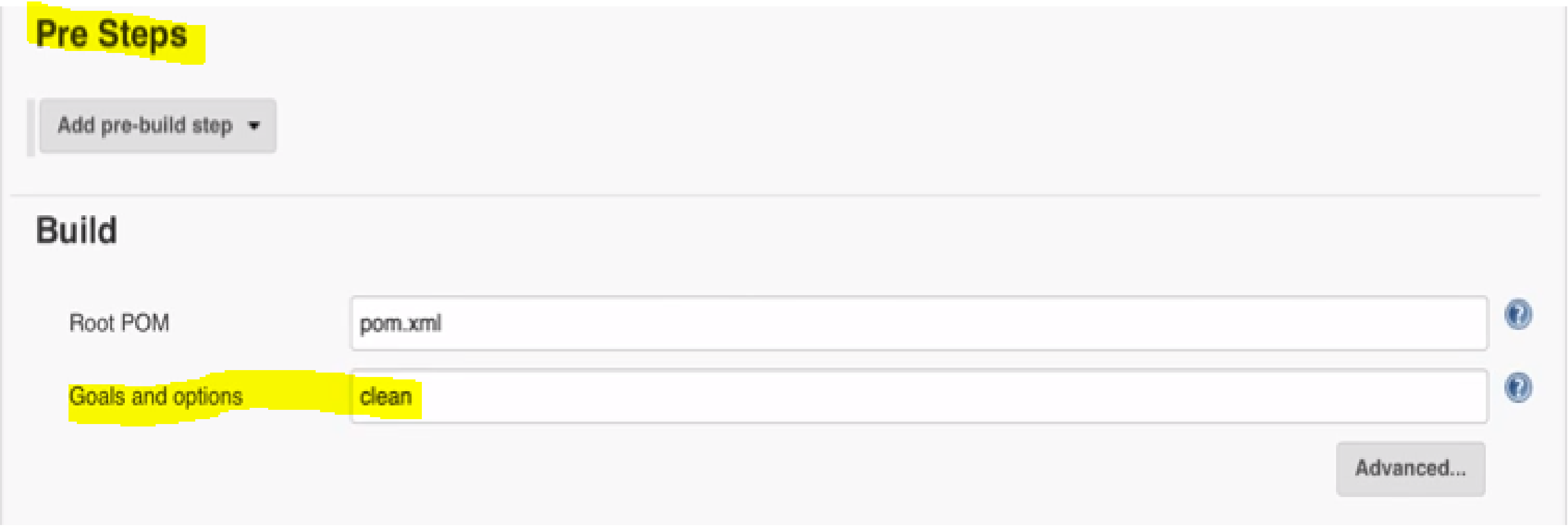
Password •••••••

Name tcpass

Password •••••••

Passwords list

Step-3: Go to >> Pre Steps & add as below



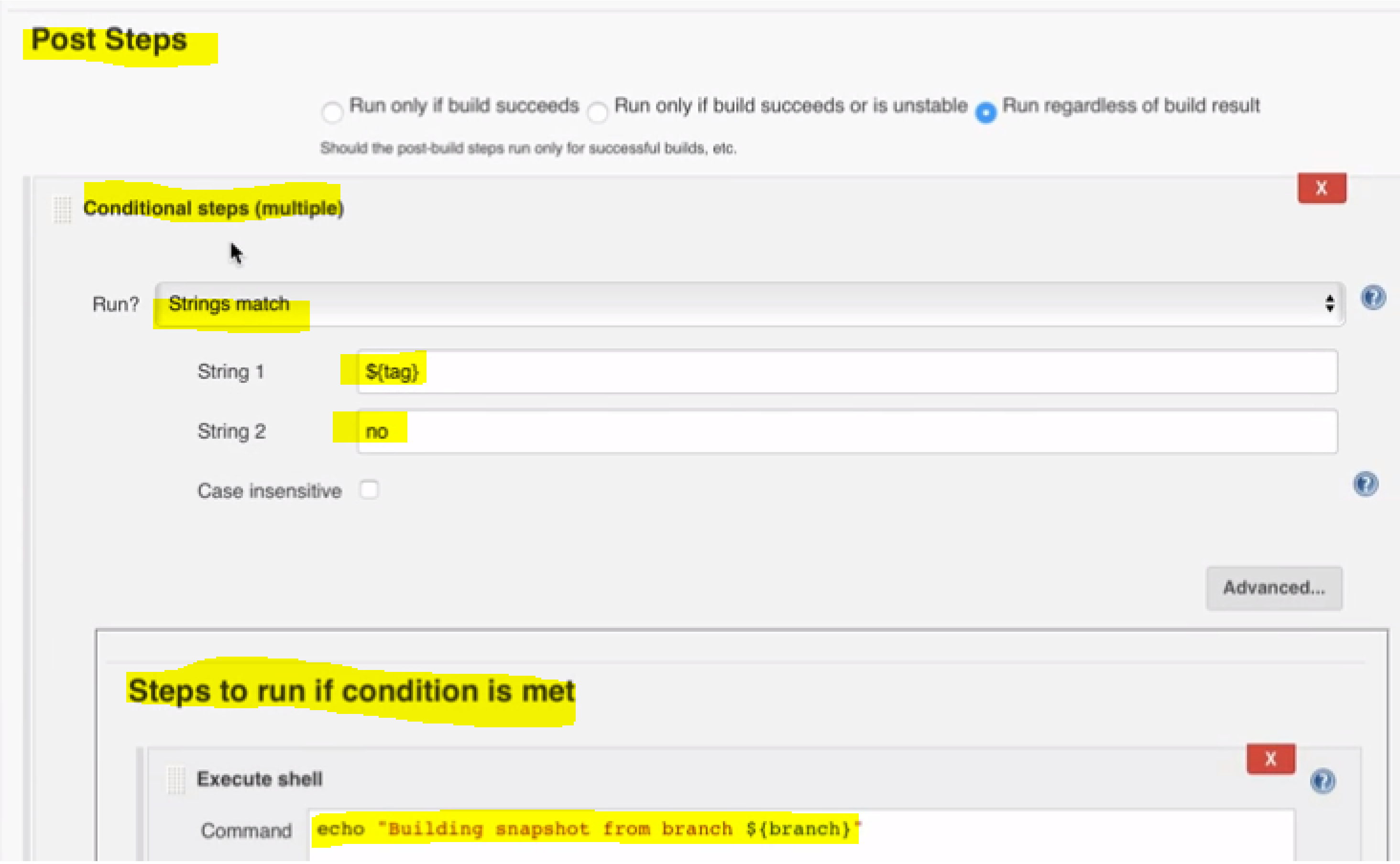
Pre Steps

Build

Root POM: pom.xml

Goals and options: clean

Step-4: It's already add in the above so, we can skip



Post Steps

○ Run only if build succeeds ○ Run only if build succeeds or is unstable ● Run regardless of build result

Should the post-build steps run only for successful builds, etc.

Conditional steps (multiple)

Run? Strings match

String 1 ${tag}

String 2 no

Case insensitive □

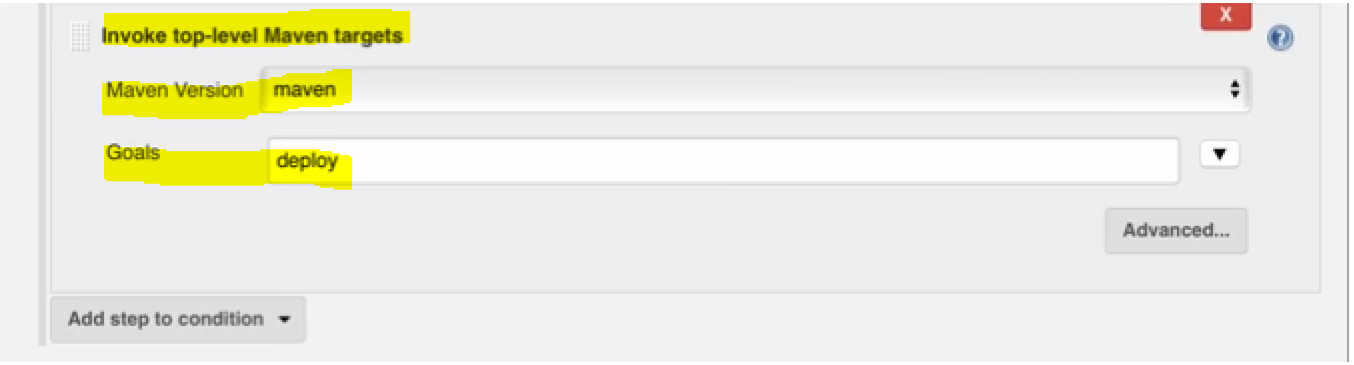
Steps to run if condition is met

Execute shell

Command

```
echo "Building snapshot from branch ${branch}"
```

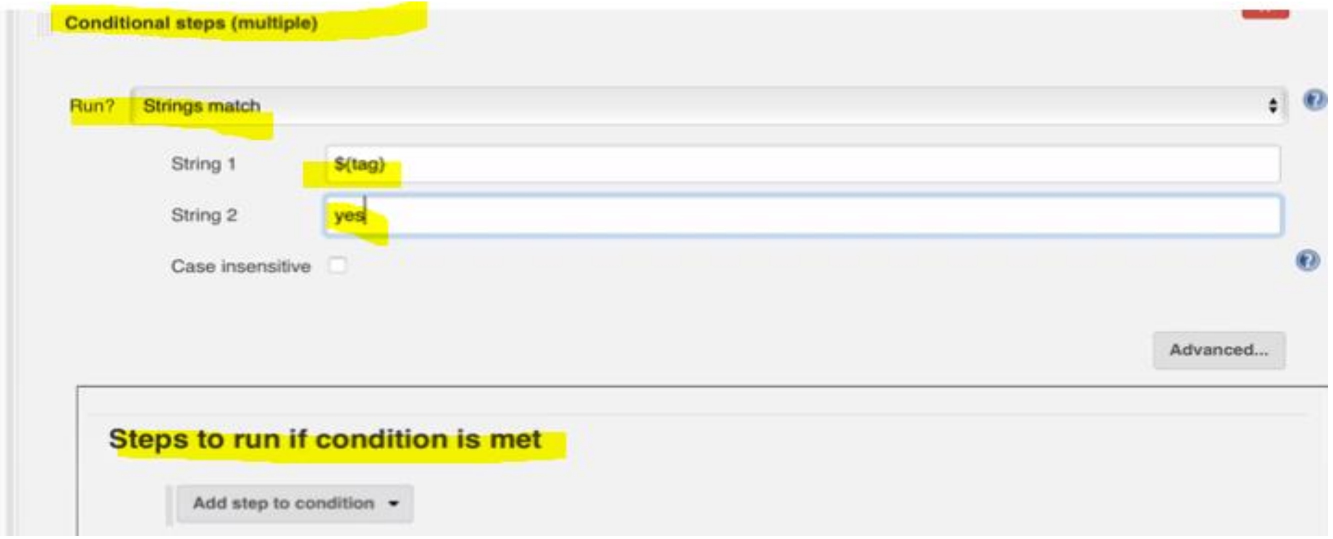
Step-5: Add new parameter >> Conditional steps(multiple) and as below



Invoke top-level Maven targets

Maven Version: maven

Goals: deploy



Conditional steps (multiple)

Run? Strings match

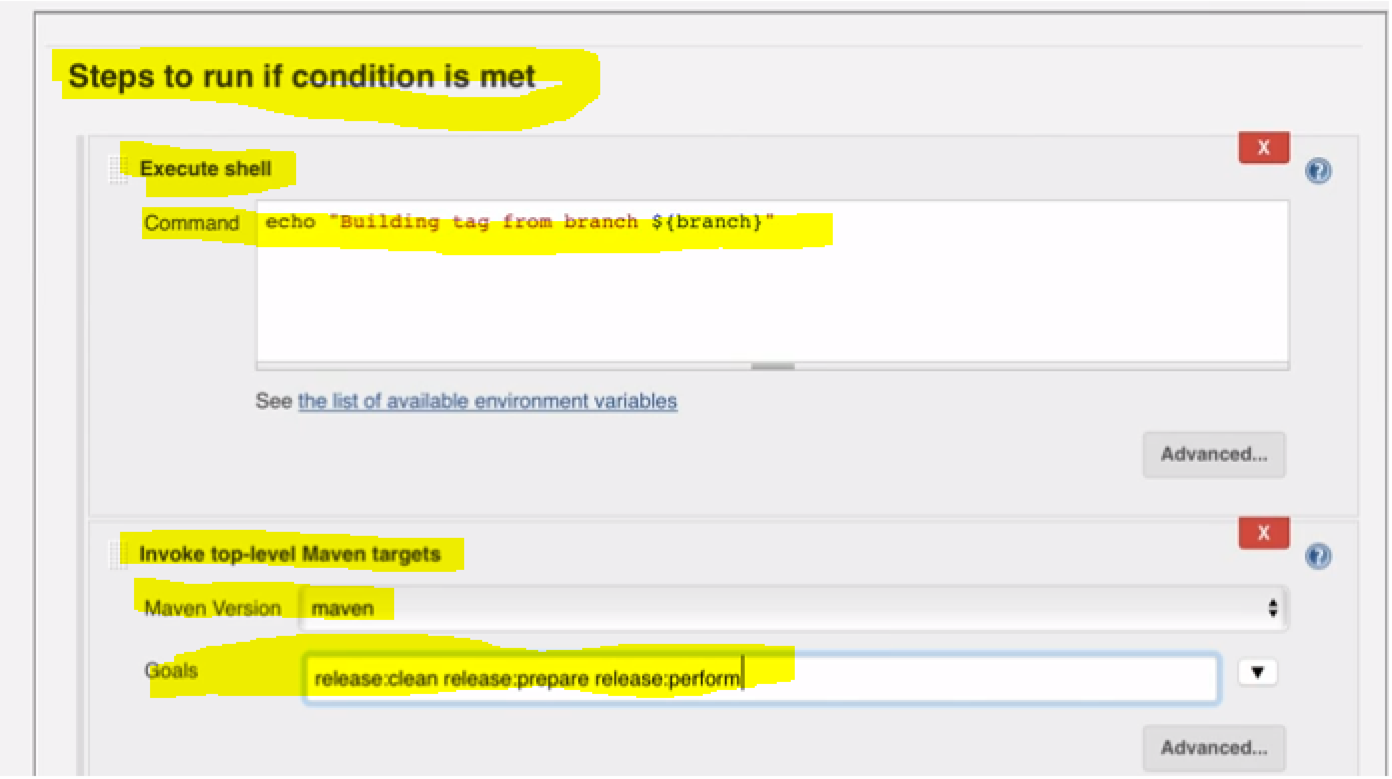
String 1: $(tag)

String 2: yes

Case insensitive □

Steps to run if condition is met

Step-5: Add parameter >> Invoke top-level Maven targets & add as below



Steps to run if condition is met

Execute shell

Command

```
echo "Building tag from branch ${branch}"
```

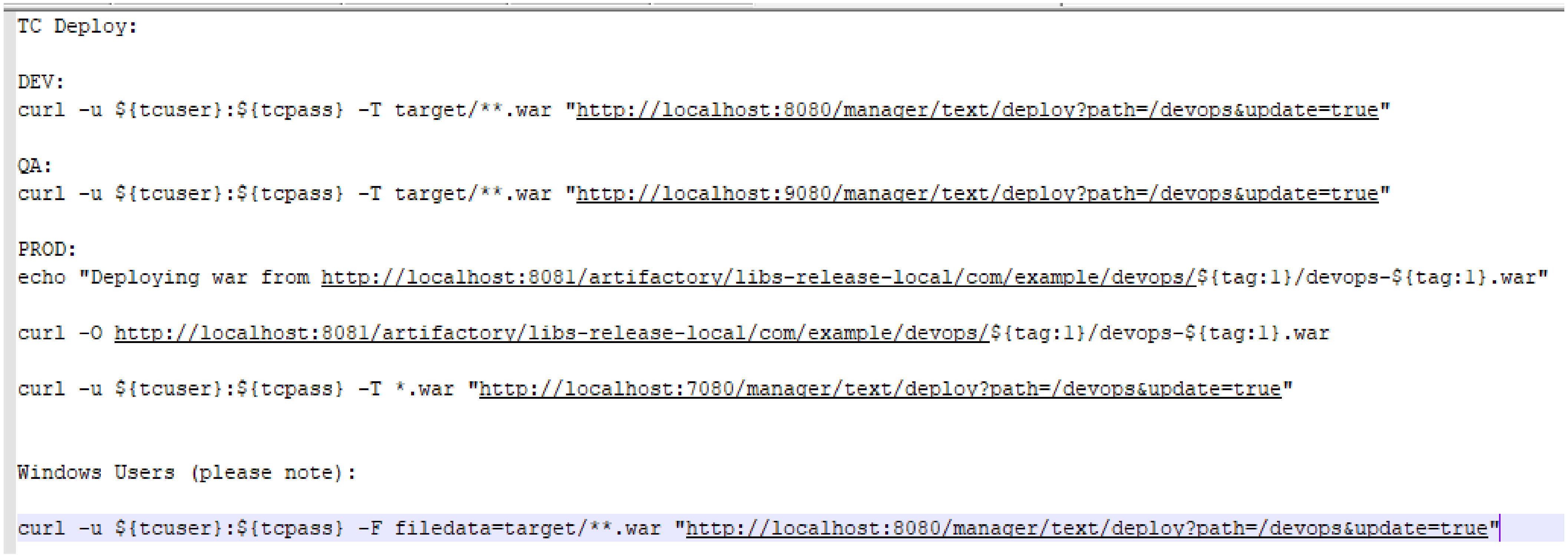
See the list of available environment variables

Invoke top-level Maven targets

Maven Version: maven

Goals: release:clean release:prepare release:perform

Step-6: Copy the below data based on environment and update in Jenkins



```
TC Deploy:

DEV:
curl -u ${tcuser}:${tcpass} -T target/**.war "http://localhost:8080/manager/text/deploy?path=/devops&update=true"

QA:
curl -u ${tcuser}:${tcpass} -T target/**.war "http://localhost:9080/manager/text/deploy?path=/devops&update=true"

PROD:
echo "Deploying war from http://localhost:8081/artifactory/libs-release-local/com/example/devops/${tag:1}/devops-${tag:1}.war"

curl -O http://localhost:8081/artifactory/libs-release-local/com/example/devops/${tag:1}/devops-${tag:1}.war

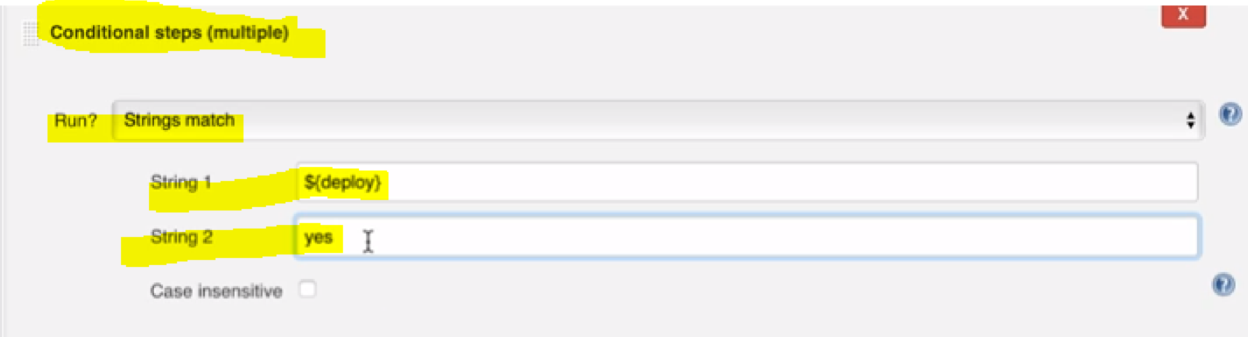
curl -u ${tcuser}:${tcpass} -T *.war "http://localhost:7080/manager/text/deploy?path=/devops&update=true"


Windows Users (please note):

curl -u ${tcuser}:${tcpass} -F filedata=target/**.war "http://localhost:8080/manager/text/deploy?path=/devops&update=true"
```

Step-7: Add new parameter >> Conditional steps(multiple) and as below

- curl -u ${tcuser}:${tcpass} -T target/**.war "http://localhost:8080/manager/text/deploy?path=/devops&update=true"



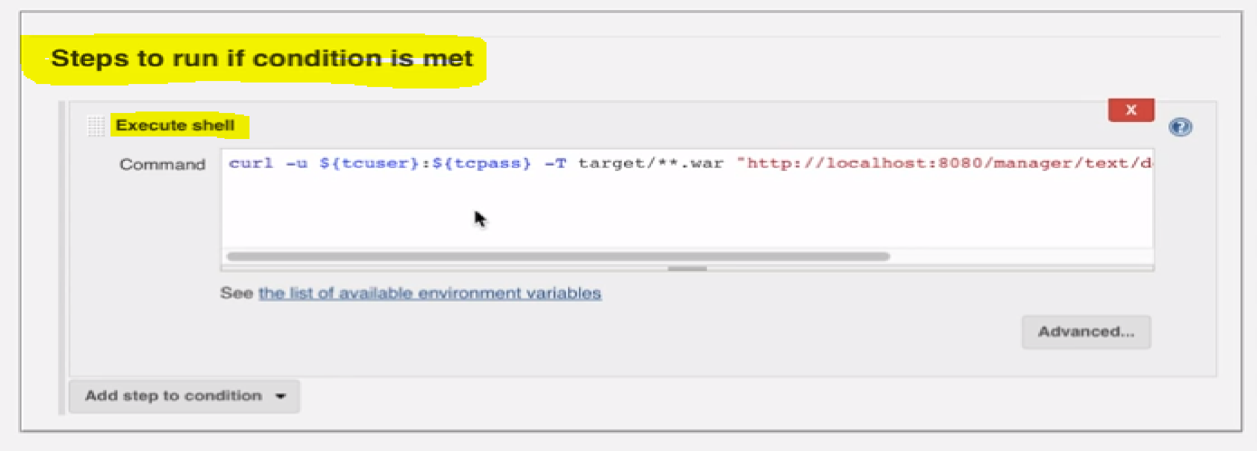
Conditional steps (multiple)

Run? Strings match

String 1 ${deploy}

String 2 yes

Case insensitive □



Steps to run if condition is met

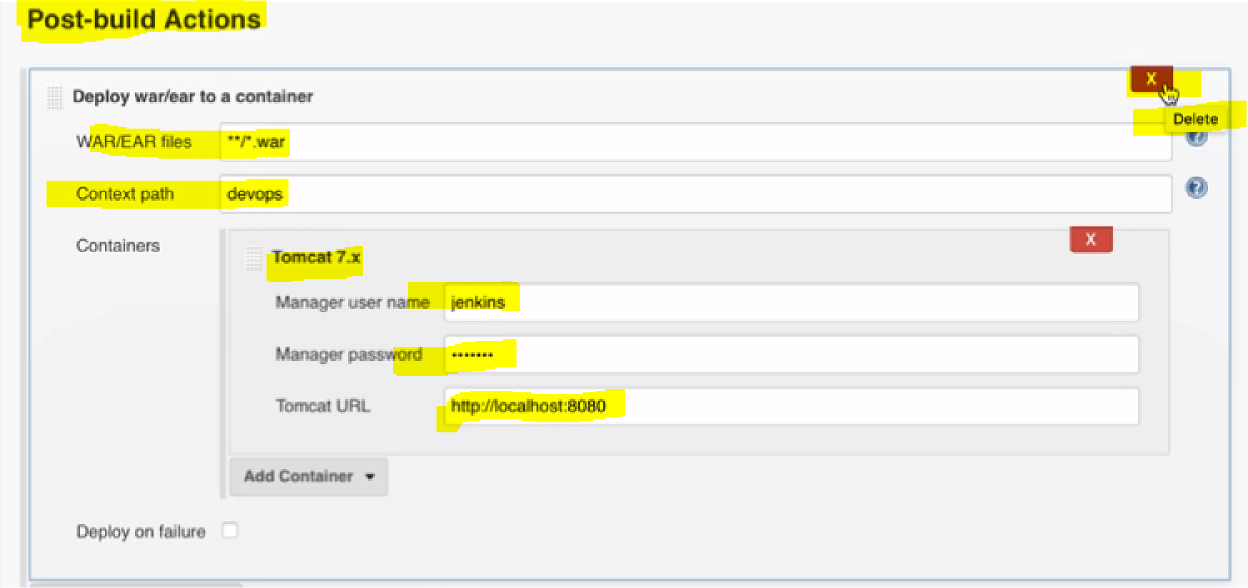
Execute shell

Command
```
curl -u ${tcuser}:${tcpass} -T target/**.war "http://localhost:8080/manager/text/d
```

See the list of available environment variables

Step-8: Click on Apply & Build based on develop branch

- Note : If you come across “Post Build Actions” i.e. Deploy a war/ear to Container



Post-build Actions

Deploy war/ear to a container

WAR/EAR files: **/*.war

Context path: devops

Containers

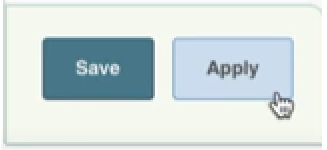
Tomcat 7.x

Manager user name: jenkins

Manager password: •••••••

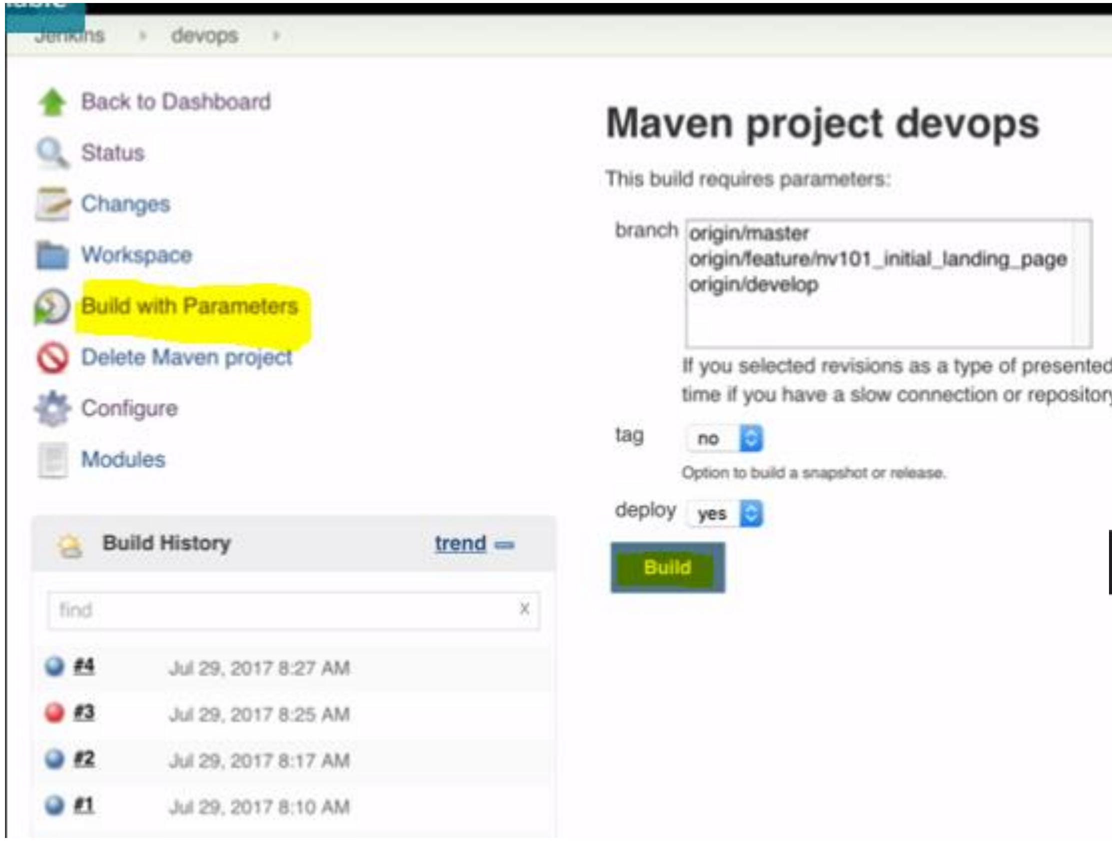
Tomcat URL: http://localhost:8080

Deploy on failure □



Step-9: Build, Deploy the build to dev environment & Verify.

Dev Environment : http://ipaddress:8080/devops



#4	Jul 29, 2017 8:27 AM
#3	Jul 29, 2017 8:25 AM
#2	Jul 29, 2017 8:17 AM
#1	Jul 29, 2017 8:10 AM

Maven project devops

This build requires parameters:

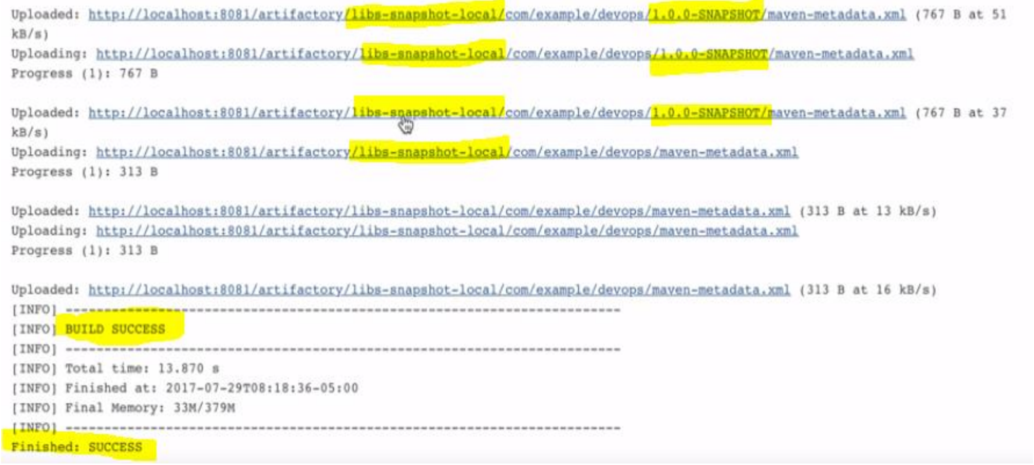
branch: origin/master
origin/feature/nv101_initial_landing_page
origin/develop

If you selected revisions as a type of presented
time if you have a slow connection or repository

tag: no

Option to build a snapshot or release.

deploy: yes

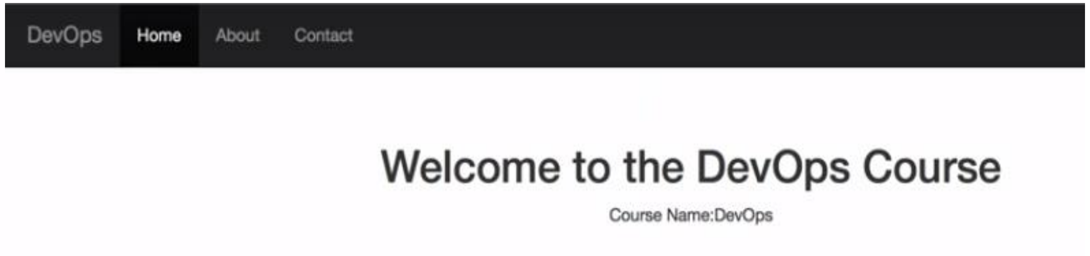


```
Uploaded: http://localhost:8081/artifactory/libs-snapshot-local/com/example/devops/1.0.0-SNAPSHOT/maven-metadata.xml (767 B at 51
kB/s)
Uploading: http://localhost:8081/artifactory/libs-snapshot-local/com/example/devops/1.0.0-SNAPSHOT/maven-metadata.xml
Progress (1): 767 B

Uploaded: http://localhost:8081/artifactory/libs-snapshot-local/com/example/devops/1.0.0-SNAPSHOT/maven-metadata.xml (767 B at 37
kB/s)
Uploading: http://localhost:8081/artifactory/libs-snapshot-local/com/example/devops/maven-metadata.xml
Progress (1): 313 B

Uploaded: http://localhost:8081/artifactory/libs-snapshot-local/com/example/devops/maven-metadata.xml (313 B at 13 kB/s)
Uploading: http://localhost:8081/artifactory/libs-snapshot-local/com/example/devops/maven-metadata.xml
Progress (1): 313 B

Uploaded: http://localhost:8081/artifactory/libs-snapshot-local/com/example/devops/maven-metadata.xml (313 B at 16 kB/s)
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time: 13.870 s
[INFO] Finished at: 2017-07-29T08:18:36-05:00
[INFO] Final Memory: 33M/379M
[INFO] ------------------------------------------------------------------------
Finished: SUCCESS
```



Welcome to the DevOps Course

Course Name:DevOps

Start a Release

1. Start a Release Flow and Update Version on develop branch

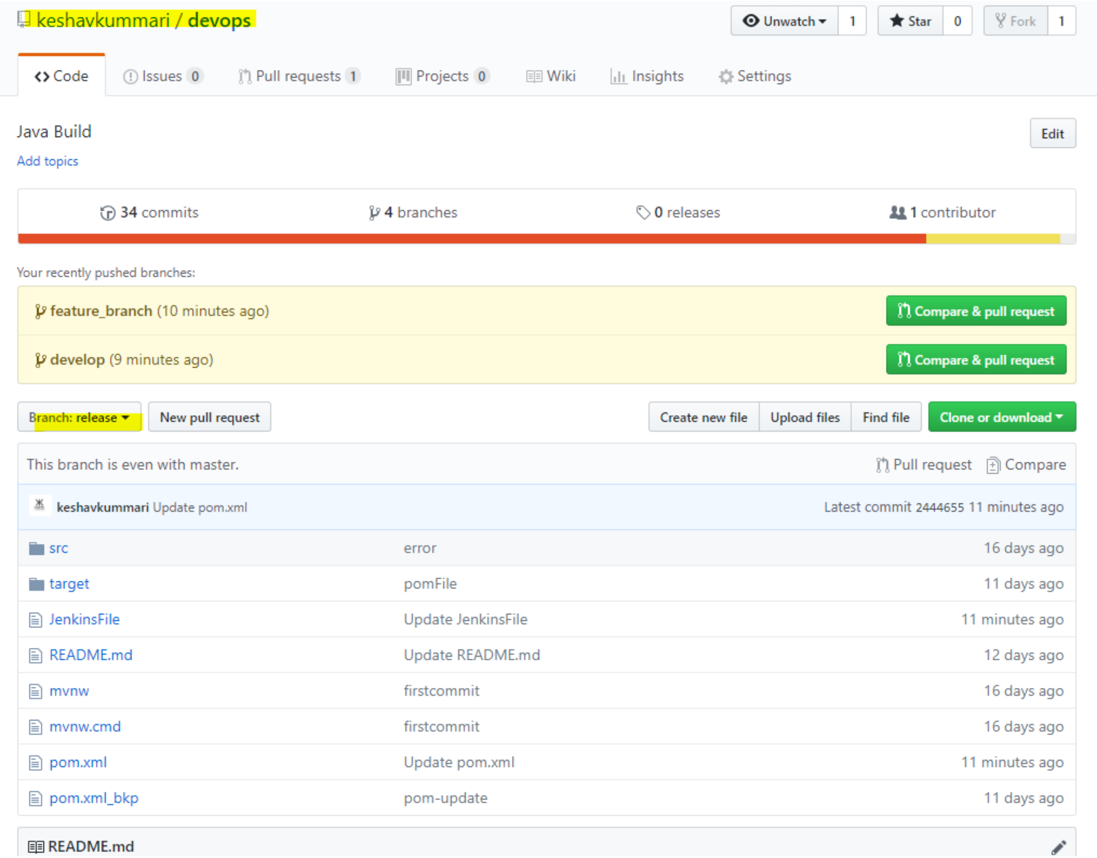
2. Tag the code for Release

3. Release code to QA from tag

4. Release code to Production from Artifactory

5. Finish current Release

Step-1: Create a branch & pull locally



keshavkummari / **devops**

Java Build

Add topics

34 commits **4** branches **0** releases **1** contributor

Your recently pushed branches:

feature_branch (10 minutes ago)

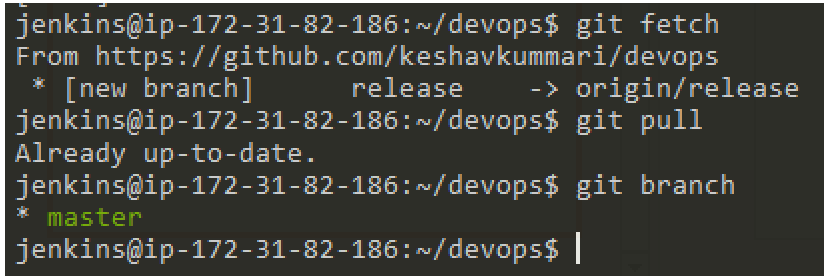
develop (9 minutes ago)

This branch is even with master.

keshavkummari Update pom.xml Latest commit 2444655 11 minutes ago

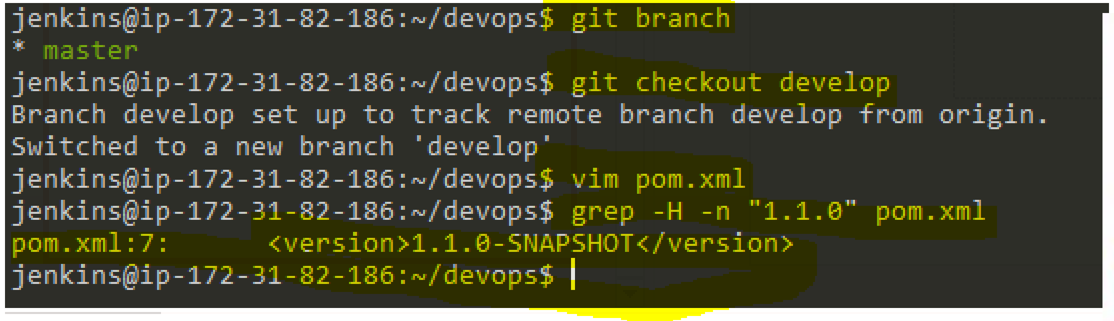
src	error	16 days ago
target	pomFile	11 days ago
JenkinsFile	Update JenkinsFile	11 minutes ago
README.md	Update README.md	12 days ago
mvnw	firstcommit	16 days ago
mvnw.cmd	firstcommit	16 days ago
pom.xml	Update pom.xml	11 minutes ago
pom.xml_bkp	pom-update	11 days ago

README.md

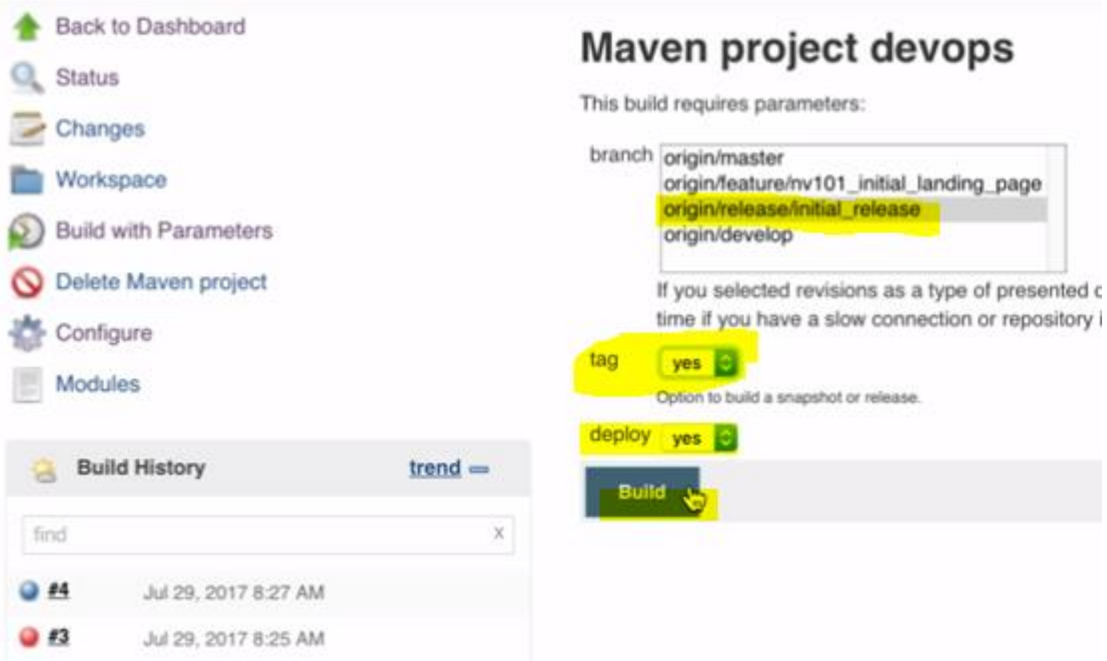


```
jenkins@ip-172-31-82-186:~/devops$ git fetch
From https://github.com/keshavkummari/devops
 * [new branch]      release    -> origin/release
jenkins@ip-172-31-82-186:~/devops$ git pull
Already up-to-date.
jenkins@ip-172-31-82-186:~/devops$ git branch
* master
jenkins@ip-172-31-82-186:~/devops$
```

Step-2: Deploy the release from “develop” branch as below



```
jenkins@ip-172-31-82-186:~/devops$ git branch
* master
jenkins@ip-172-31-82-186:~/devops$ git checkout develop
Branch develop set up to track remote branch develop from origin.
Switched to a new branch 'develop'
jenkins@ip-172-31-82-186:~/devops$ vim pom.xml
jenkins@ip-172-31-82-186:~/devops$ grep -H -n "1.1.0" pom.xml
pom.xml:7:        <version>1.1.0-SNAPSHOT</version>
jenkins@ip-172-31-82-186:~/devops$ 
```



Maven project devops

This build requires parameters:

branch
origin/master
origin/feature/nv101_initial_landing_page
origin/release/initial_release
origin/develop

If you selected revisions as a type of presented c
time if you have a slow connection or repository i

tag: yes

Option to build a snapshot or release.

deploy: yes

#4 Jul 29, 2017 8:27 AM

#3 Jul 29, 2017 8:25 AM