PREREQUISITES:

1. <u>Jenkins server installed on ubuntu system</u>:-
   Vagrant vm or your local ubuntu desktop.
   - Install JDK 1.7 on jenkins server
     # sudo apt-get update
     # `sudo apt-get install openjdk-7-jdk`

   - Install jenkins with below command.
     # sudo apt-get install jenkins

https://wiki.jenkins-ci.org/display/JENKINS/Installing+Jenkins+on+Ubuntu

   - Install git client and maven in jenkins server.
     # sudo apt-get install git
     # sudo apt-get install maven

2. <u>Tomcat node on centos</u>:-

   - Three tomcat node is required for Dev, QA and UAT deployement.
   - Use only **centos 6.7**. Vagrant box name is **bento/centos-6.7**(vagrant box add bento/centos-6.7)
   - Create centos vagrant vm's, installation of tomcat and configuration would be taken care by ansible playbook, so we just need three centos vm's.
   - Please note its Ip and credentials which we are going to add in ansible inventory file.

3. <u>Nexus server on Centos</u>.
   - Nexus installation steps below.
   - Create a centos vagrant vm and login into it.

     # yum install -y java-1.8.0-openjdk.x86_64 vim wget

     # yum install -y java-1.8.0-openjdk-devel.x86_64

     # export RUN_AS_USER=root
     # wget http://www.sonatype.org/downloads/nexus-latest-bundle.tar.gz

     # sudo cp nexus-latest-bundle.tar.gz /usr/local/

     # cd /usr/local

     # sudo tar xvzf nexus-latest-bundle.tar.gz

     # sudo ln -s nexus-2.13.0-01 nexus

     # /usr/local/nexus/bin/nexus start

   - From browser hit URL <Nexus server IP>:8081/nexus.
   - Click login button and enter the credentials. (admin/admin123)

- Create hosted repository named "gameoflife-repo" with all default settings.

4. In total we should have below mentioned servers ready.
- One vm or local ubuntu box for Jenkins server setup(Ubuntu).
- Three vm's for deploying artifacts, tomcat node(Centos-6.7).
- One vm for nexus server(Centos-6.7).

JENKINS DEV JOB SETUP.

1. Login to jenkins server.
2. Prereqs for the job execution mentioned below.
    Install plugins:-
- git
- zentimestamp
- Parameterized Trigger plugin
- Nexus
- Ansible

    Configure plugin:- Setup zentimestamp variable from Jenkins global settings page.
        Manage Jenkins → Configure System → Global properties →
        Check mark Date pattern for the BUILD_TIMESTAMP → Enter value
        yyyyMMddHHmm

3.Create Jenkins Jobs
Create three empty jenkins job (Freestyle project) with below mentioned name and run all three jobs. Once you run these three empty jobs its going to fail but thats okay we want the jobs to **create workspace directory** so that we can place our ansible script in those directories.
    Job Names:-   GameOfLifeOf_Dev
                GameOfLifeOf_QA
                GameOfLifeOf_UAT

4. Configure Dev job
        As specified in the screenshots below.

Configure Jenkins job.

Configure github plugin.

Source Code Management

- ○ None
- ○ CVS
- ○ CVS Projectset
- ● Git

Advanced...

Repositories	
Repository URL	https://github.com/wakaleo/game-of-life.git
Credentials	- none - ☐ Add ▾

Advanced...

Add Repository   Delete Repository

Branches to build	
Branch Specifier (blank for 'any')	*/master

Add Branch   Delete Branch

Repository browser	(Auto)
Additional Behaviours	Add ▾

Add build step.

Jenkins ▸ GameOfLifeOf_Dev ▸ configuration

- ☐ Build periodically
- ☐ Poll SCM

Build

Invoke top-level Maven targets

Goals	install

Advanced...

Delete

Configure nexus plugin.

Jenkins ▸ GameOfLifeOf_Dev ▸ configuration

Upload artifact to nexus

Nexus Details

Protocol	HTTP
Nexus URL	192.168.1.9:8081/nexus
User	admin
Password	••••••••••••••••••••••••••
Credentials	- none - ☐ Add ▾
GroupId	Dev
ArtifactId	$BUILD_TIMESTAMP
Version	$BUILD_ID
Packaging	war
Repository	gameoflife
File	gameoflife-web/target/gameoflife.war

Build step for ansible execution.

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

Invoke Ansible Playbook   x

Playbook path   ansible/gamer.yaml   ?

Inventory   ○ Do not specify Inventory
                     ○ File or host list
                     ● Inline content
                        Dynamic inventory ☐   ?
                        Content   devtomcat1 ansible_ssh_host=192.168.1.10

                                   [tomcatservers]
                                   devtomcat1

Host subset   ?

Credentials   vagrant/******   ▼   👍 Add   ?

☑ sudo   ?

sudo user   ?

Tags to run   ?

Tags to skip   ?

Task to start at   ?

Number of parallel processes   5   ?

Check host SSH key   ☐   ?

Unbuffered stdout   ☑   ?

Colorized stdout   ☐   ?

Extra Variables   x

                     Key   time
                     Value $BUILD_TIMESTAMP
                     Hidden variable in build log ☐

                                                                         x
                     Key   build
                     Value $BUILD_ID
                     Hidden variable in build log ☐

                                                                         x
                     Key   gol_version
                     Value $BUILD_TIMESTAMP-$BUILD_ID.war
                     Hidden variable in build log ☐

                     Add Extra Variable

5. <u>Ansible code modifications:</u>
   - Login to jenkins server and place ansible directory in the workspace of the job. Workspace path specified below.
     - */var/lib/jenkins/workspace/GameofLife_Dev/*

   - Open gamer.yaml playbook and replace nexus server ip.

6. <u>Execute the jenkins dev job to validate.</u>
   Execution will happen in below phases
   - Checkout git code from github repository.
   - Run maven build and unit test execution.
   - Upload artifact to nexus server.
   - Execution of ansible playbook to install java,tomcat on tomcat node and deploy artifacts from nexus to tomcat node.

JENKINS QA JOB SETUP.

1. <u>Configure QA job same as Dev job, **step 4 & 5**</u>.
    - Make sure to edit the ansible inventory to specify QA tomcat node IP and nexus groupid to QA
    - Change Nexus artifact URL in gamer.yaml playbook:- In URL change Dev to QA.

Note: All the jenkins job will have its own workspace directory. For QA job the workspace path would be as mentioned below.
    - */var/lib/jenkins/workspace/GameofLife_QA/*
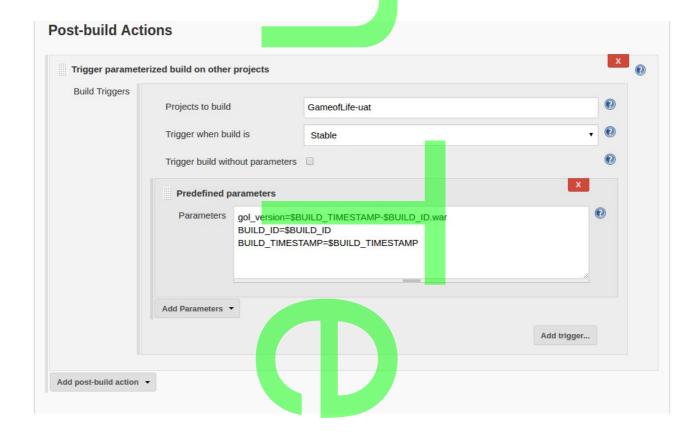
2. <u>Adding QA automation script.</u>
    Add build step → Execute Shell → add below mentioned commands

    echo "Executing test automation script."
    sleep 5
Note:- We do not have test automation script so we are **imitating** it.
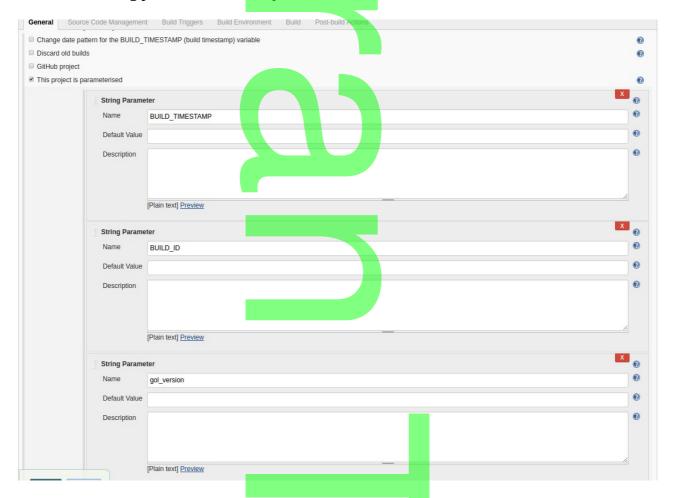
3. <u>Add post build step which will pass parameter to the UAT job</u>
    - Click Add post-build action → Trigger parameterized build on other properties
        → Click on Add Parameter
        → Predefined parameters
        → fill everything as shown in screenshot below.
        → Put a check mark on "Block until the triggred projects finish their builds."

JENKINS UAT JOB SETUP.

1. Configure UAT job, put a check mark on "This build is parameterized".
2. Add three String parameter, fill in only "Name" section as shown in the screenshot.

3. Ansible execution for UAT job.
   Add build step → Execute Shell → Add below mentioned content from screenshot.

4. Ansible Code modifications for UAT job.
   - Place ansible directory in UAT workspace. Path for workspace mentioned below.
     - /var/lib/jenkins/workspace/GameofLife_QA/
   - Make sure to edit the ansible inventory to specify UAT tomcat node IP.
   - Change Nexus artifact URL in gamer.yaml playbook:- In URL change it to QA.

Build

Invoke Ansible Playbook   [X]

Playbook path   ansible/gamer.yaml   ?

Inventory   ○ Do not specify Inventory
                 ○ File or host list
                 ● Inline content
                 Dynamic inventory ☐   ?

                 Content   uattomcatserver1 ansible_ssh_host=192.168.1.12

                            [tomcatservers]
                            uattomcatserver1

Host subset   [   ] ?

Credentials   [vagrant/****** ▼]   [🔑 Add]   ?

☐ sudo   ?

Tags to run   [   ] ?

Tags to skip   [   ] ?

Task to start at [   ] ?

Number of parallel processes   [5   ] ?

Check host SSH key   ☐   ?

Unbuffered stdout   ☑   ?

Colorized stdout   ☐   ?

Extra Variables
                                                           [X]
        Key   [time   ]
        Value   [$BUILD_TIMESTAMP   ]
        Hidden variable in build log ☐

                                                           [X]
        Key   [build   ]
        Value   [$BUILD_ID   ]
        Hidden variable in build log ☐

                                                           [X]
        Key   [gol_version   ]
        Value   [$BUILD_TIMESTAMP-$BUILD_ID.war   ]
        Hidden variable in build log ☐

        [Add Extra Variable]

Additional parameters   [   ] ?

[Add build step ▾]

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