**Jenkins   
  
Introduction:**

* Java Application
* Used for Continuous Integration and Continuous Delivery.

Explain CICD process

1. Installation:

Download Jenkins

<https://www.jenkins.io/download/>

| [root@ip-172-31-84-11 ~]# yum install -y wget curl |
| --- |

| sudo wget -O /etc/yum.repos.d/jenkins.repo https://pkg.jenkins.io/redhat-stable/jenkins.repo |
| --- |

| sudo rpm --import https://pkg.jenkins.io/redhat-stable/jenkins.io.key |
| --- |

For Amazon Linux:

| amazon-linux-extras install epel |
| --- |

For RedHat/Centos:

| sudo dnf install https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm |
| --- |

Install Jenkins:

| yum install java-11-openjdk-devel -y  yum install jenkins -y |
| --- |

Starting Jenkins:

| [root@ip-172-31-84-11 ~]# systemctl start jenkins [root@ip-172-31-84-11 ~]#  [root@ip-172-31-84-11 ~]# systemctl enable jenkins jenkins.service is not a native service, redirecting to systemd-sysv-install. Executing: /usr/lib/systemd/systemd-sysv-install enable jenkins |
| --- |

Ubuntu Installation:

| root@ip-172-31-95-243:~# apt install default-jre |
| --- |

| curl -fsSL https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo tee \  /usr/share/keyrings/jenkins-keyring.asc > /dev/null echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \  https://pkg.jenkins.io/debian-stable binary/ | sudo tee \  /etc/apt/sources.list.d/jenkins.list > /dev/null sudo apt-get update  sudo apt-get install jenkins |
| --- |

| systemctl start jenkins  Systemctl enable jenkins |
| --- |

Go to the web browser and use <http://jenkins-url:8080>

Reset Password:

| [root@ip-172-31-84-11 ~]# cat /var/lib/jenkins/secrets/initialAdminPassword 95eb8a68eb5541d3b1bda68d474555d6 |
| --- |

Username: admin

Password: admin123

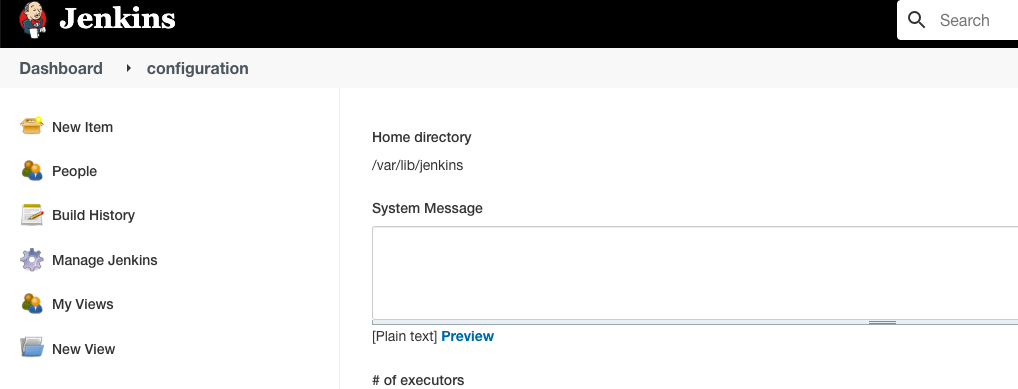
**Changing Home Directory for Jenkins:**

Jenkins Home Directory Contains:

1. All Configuration
2. Plugins
3. Job details
4. logs

Why to change Home Directory:

1. Space
2. Project Requirement.



| [root@ip-172-31-84-11 ~]# cd /var/lib/jenkins [root@ip-172-31-84-11 jenkins]# ls config.xml jenkins.telemetry.Correlator.xml secret.key.not-so-secret hudson.model.UpdateCenter.xml jobs secrets identity.key.enc nodeMonitors.xml updates jenkins.install.InstallUtil.lastExecVersion nodes userContent jenkins.install.UpgradeWizard.state plugins users jenkins.model.JenkinsLocationConfiguration.xml secret.key |
| --- |

Create new home:

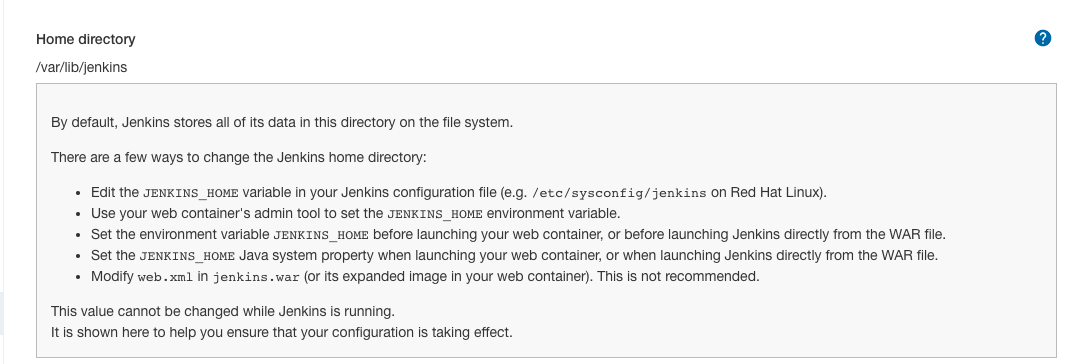
| [root@ip-172-31-84-11 ~]# mkdir /opt/Jenkins\_home [root@ip-172-31-84-11 ~]#  [root@ip-172-31-84-11 ~]#  [root@ip-172-31-84-11 ~]# cd /opt/Jenkins\_home [root@ip-172-31-84-11 Jenkins\_home]# |
| --- |

Copy all the date from the jenkins current home:

| [root@ip-172-31-84-11 Jenkins\_home]# cp -r /var/lib/jenkins/\* . [root@ip-172-31-84-11 Jenkins\_home]# ls config.xml jenkins.telemetry.Correlator.xml secret.key.not-so-secret hudson.model.UpdateCenter.xml jobs secrets identity.key.enc nodeMonitors.xml updates jenkins.install.InstallUtil.lastExecVersion nodes userContent jenkins.install.UpgradeWizard.state plugins users jenkins.model.JenkinsLocationConfiguration.xml secret.key |
| --- |

Chown -R jenkins:jenkins /opt/Jenkins\_home

Systemctl restart jenkins



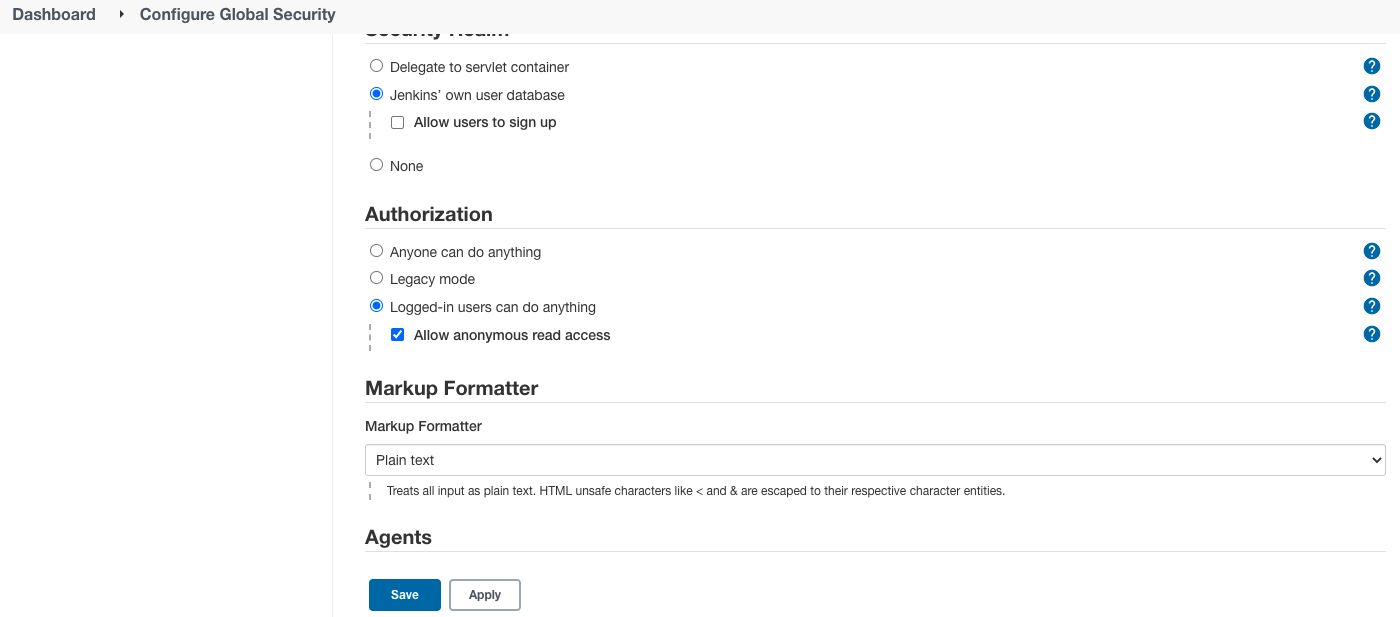
Jenkins:port/restart

| systemctl restart jenkins |
| --- |

**Using Command Line tool:**

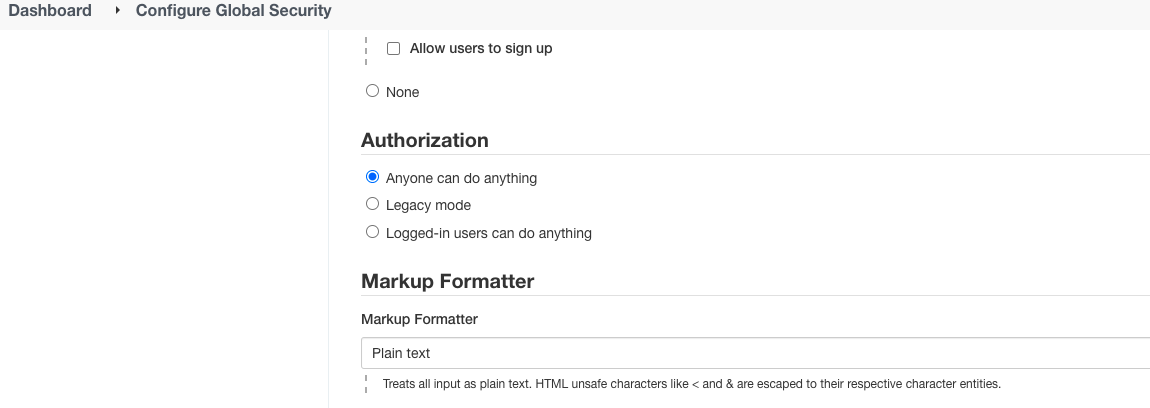
1. Easier
2. Faster
3. Memory management
4. Continuous integration

| http://jenkinsurl:port/cli |
| --- |



Trying Restart:

| sahilthakare@Sahils-MacBook-Air Downloads % java -jar jenkins-cli.jar -s http://18.233.164.4:8080/ -webSocket safe-restart  ERROR: anonymous is missing the Overall/Administer permission |
| --- |



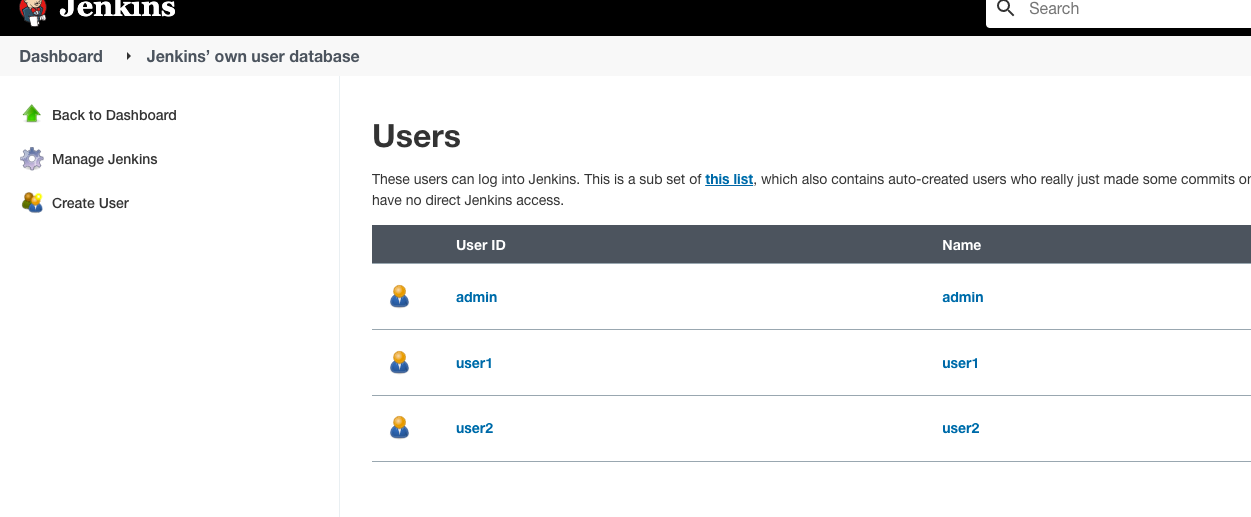
| sahilthakare@Sahils-MacBook-Air Downloads % java -jar jenkins-cli.jar -s http://18.233.164.4:8080/ -webSocket safe-restart |
| --- |

**USER MANAGEMENT**

1. How to create a new user
2. How to configure a new user
3. How to create new roles
4. How to assign roles to user
5. How to control user access on projects

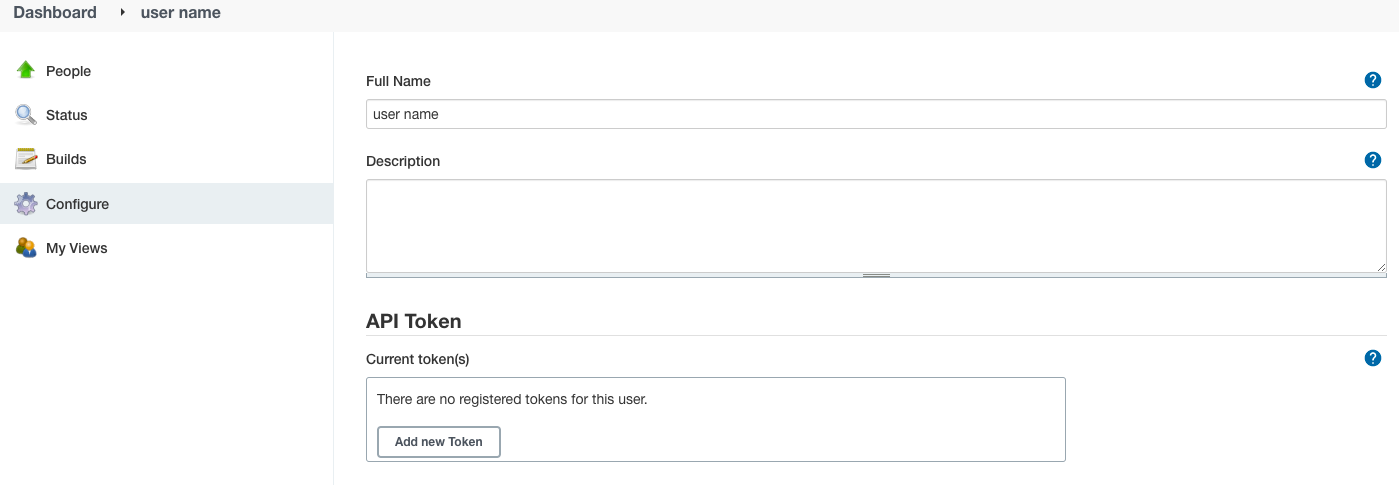
Create a new user:

Jenkins -> Manage Jenkins => Manage users => Create new user



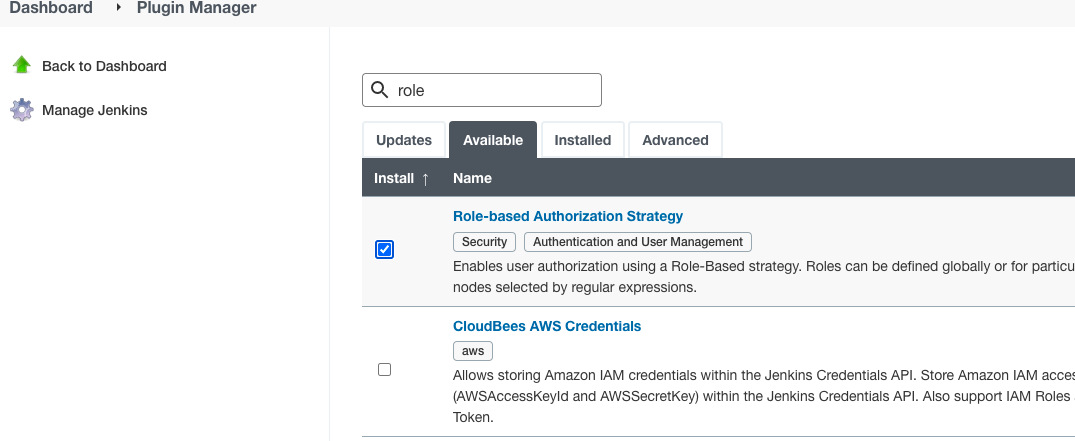
Configuring new user:

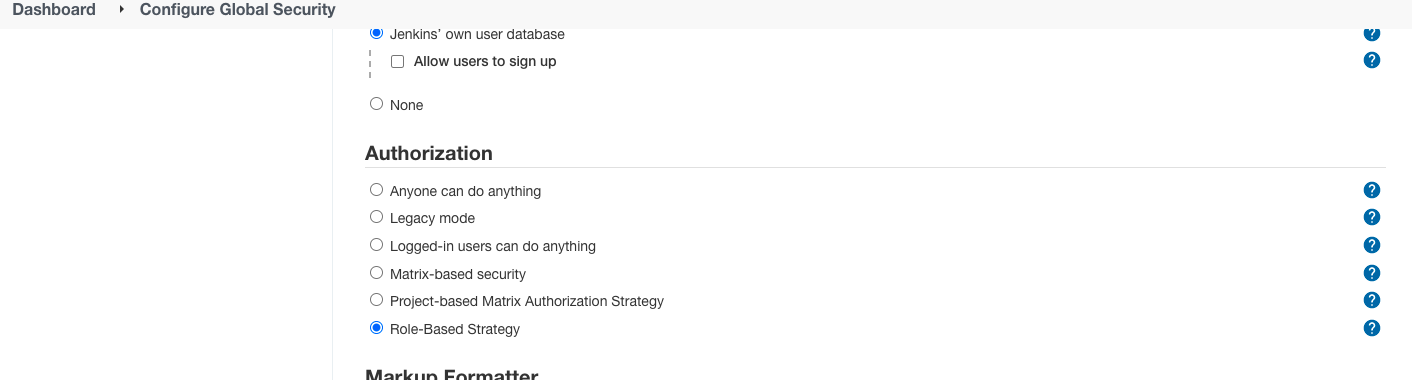
Jenkins dashboard: user name (top right side) => configure



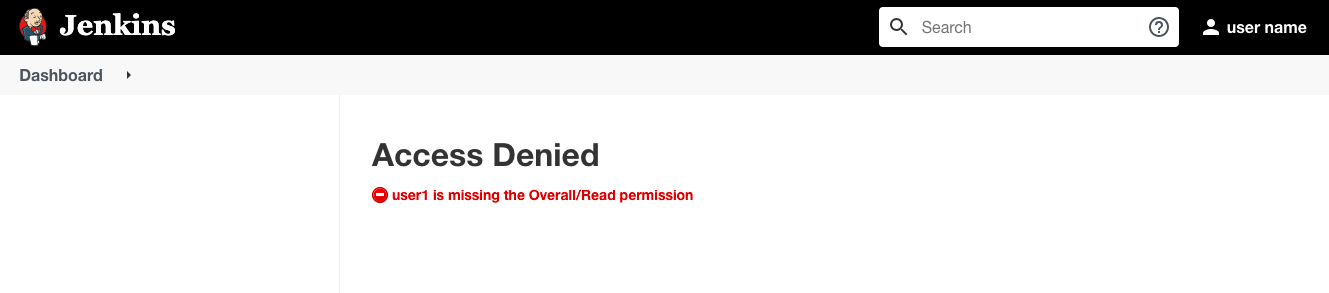
3. Create and Manage User Roles:

**⇒ Roles Strategy Plugin**

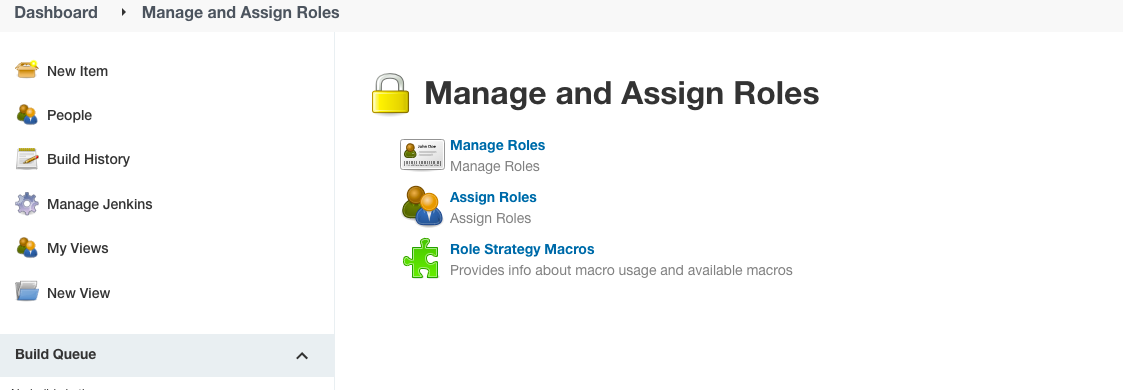
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Try to login using user1 now:

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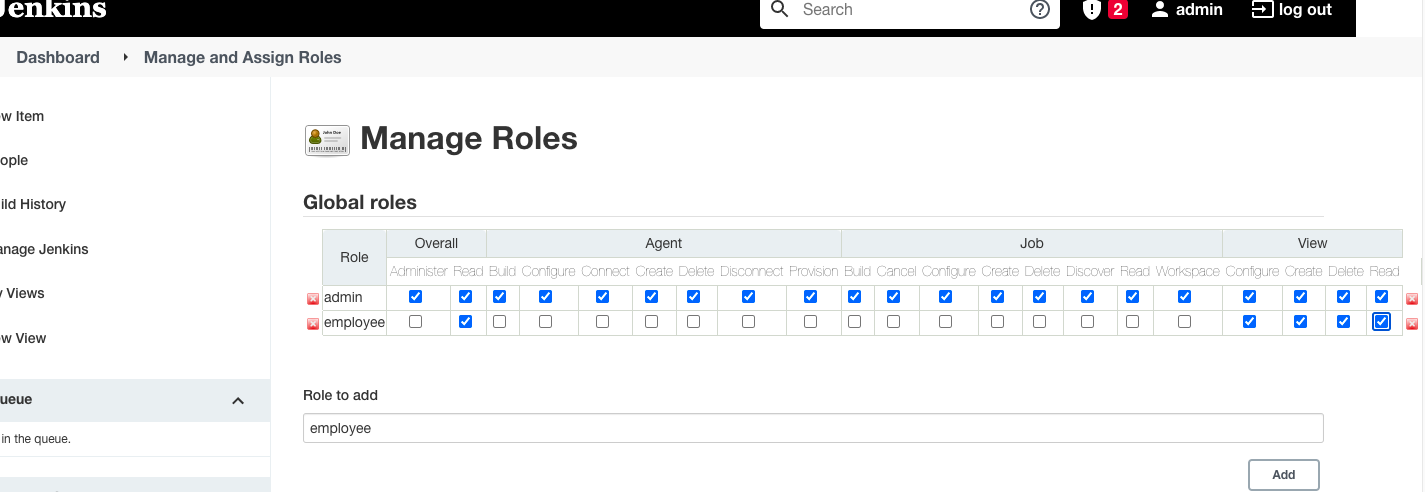
**Manage and assign roles**

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[**https://programmerah.com/cicd-jenkins-role-based-authorization-strategy-33751/**](https://programmerah.com/cicd-jenkins-role-based-authorization-strategy-33751/)

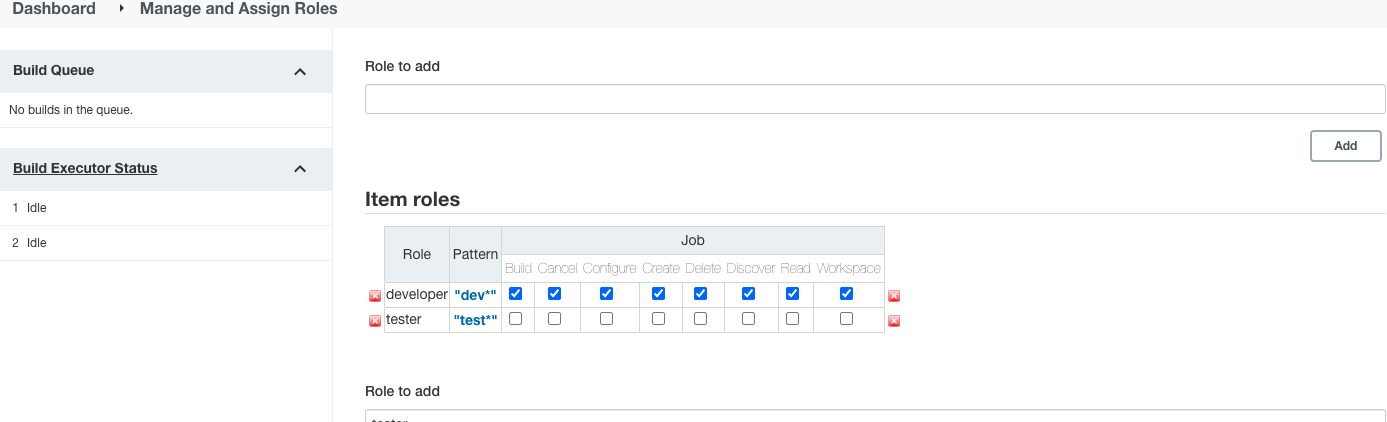
**Global Role:**

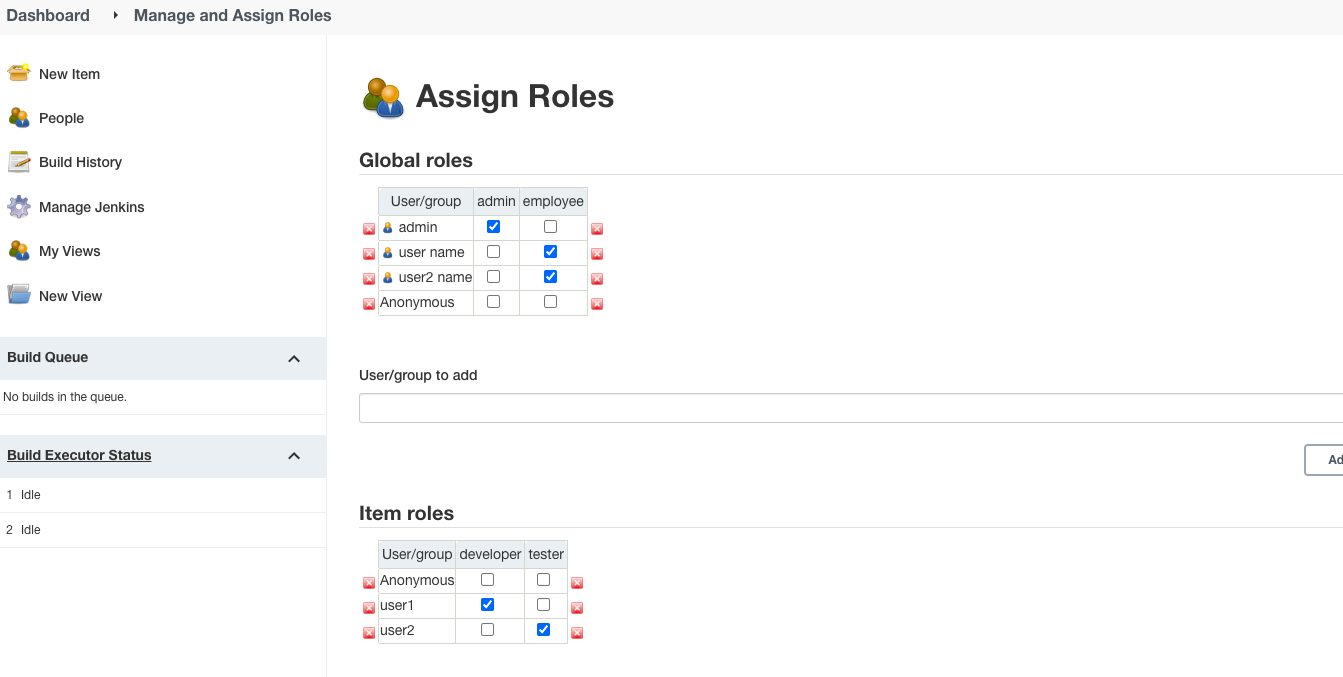
**Adding employee role:**

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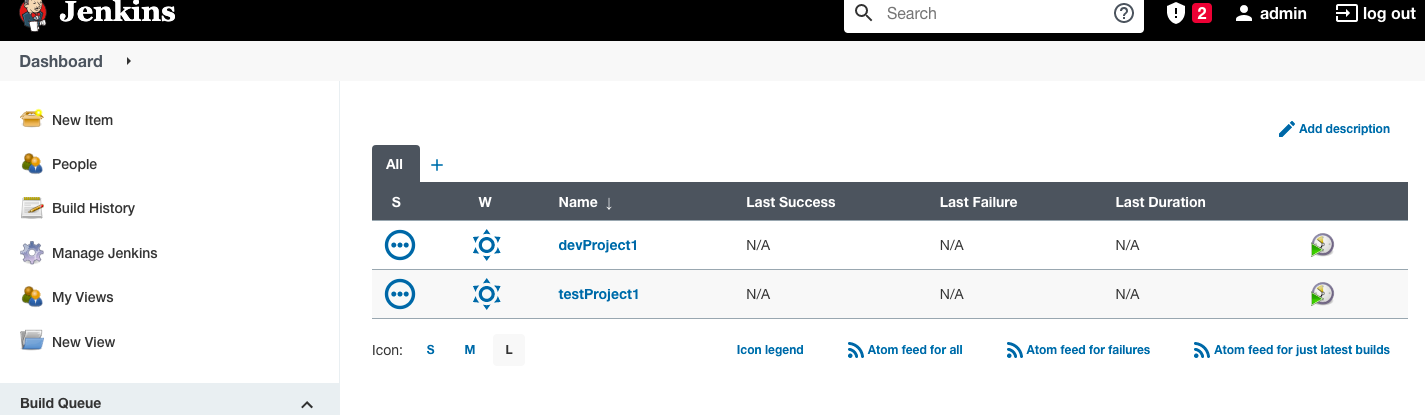
**Item Based role:**

**dev.\* , test.\***

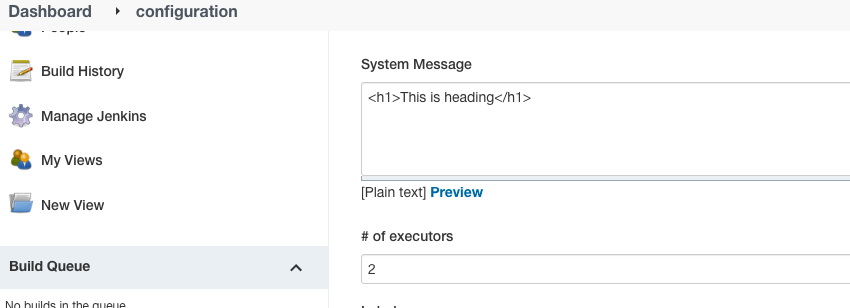
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**Create two new projects:**

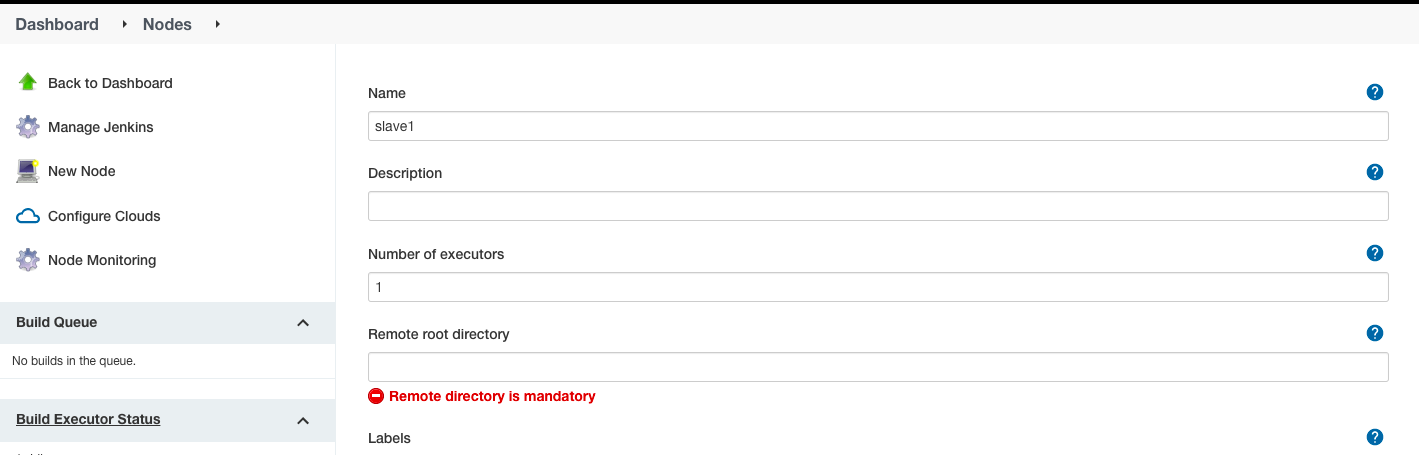
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**No of executors =>Number of parallel job Jenkins can run**

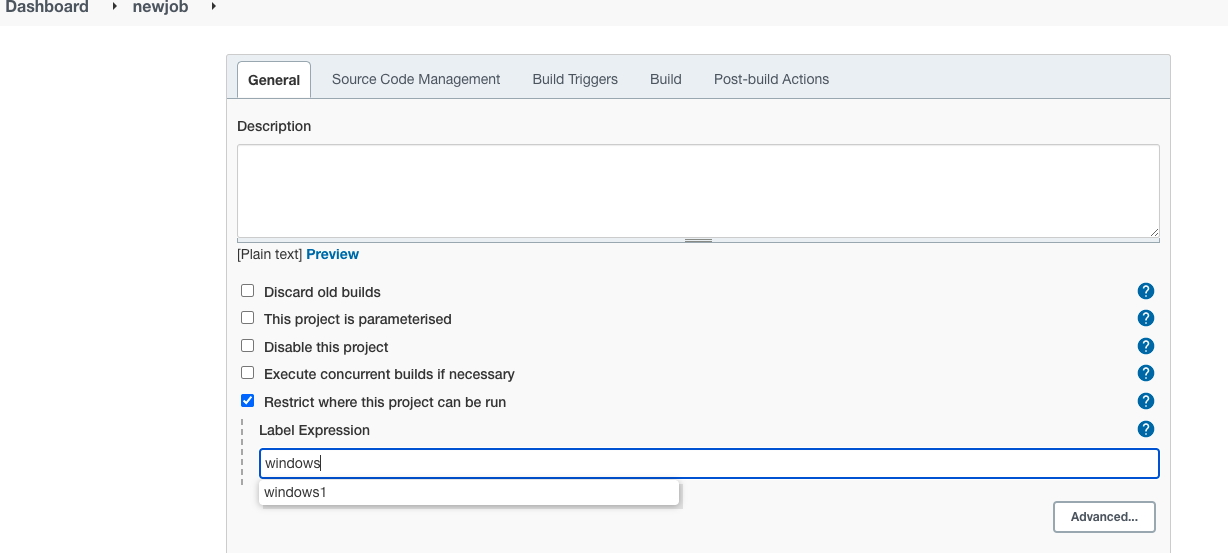
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**Managing Node:**

**Jenkins => Manage Jenkins => Manage nodes and clouds => add node**

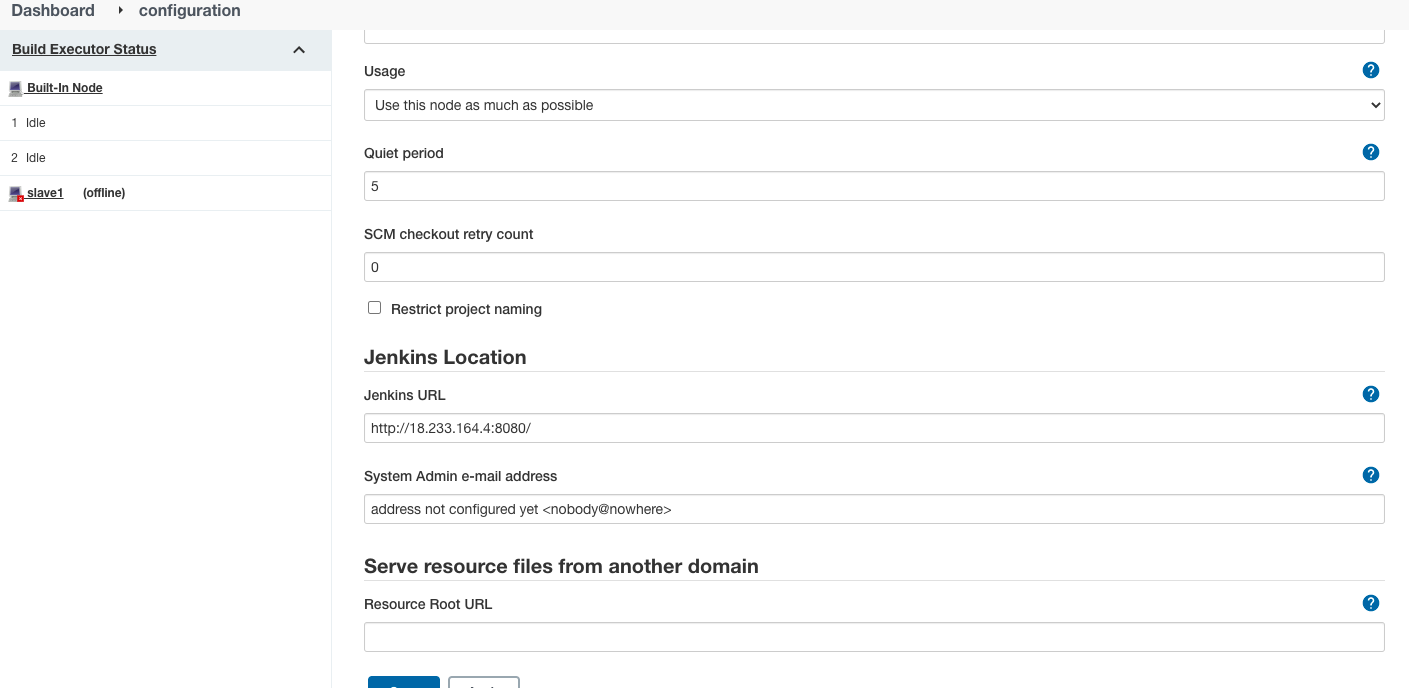
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* **Need of Lables: matching the jobs**

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**Quite Period:**

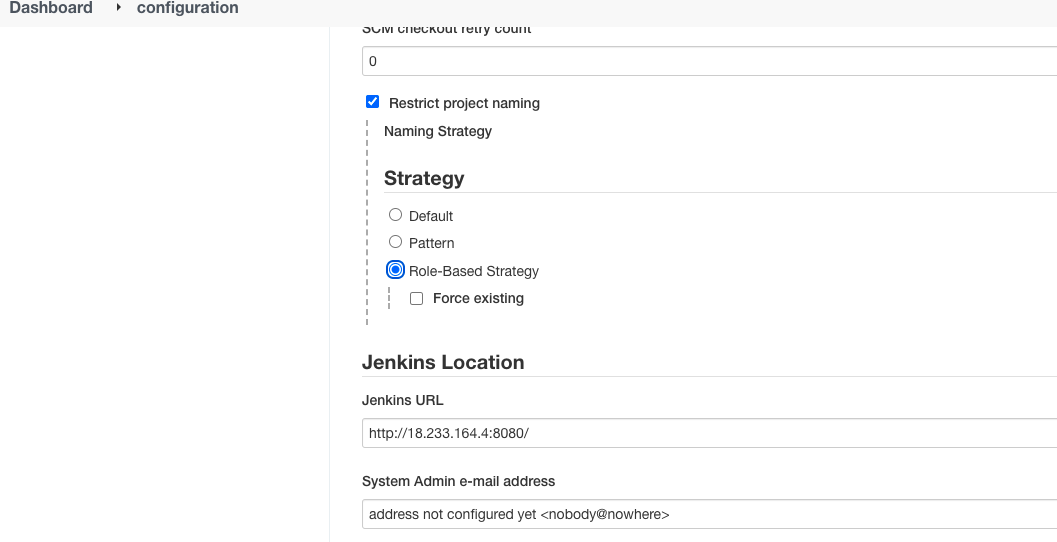
TIme interval between two jobs triggered by jenkins : sometimes commit may take some time.



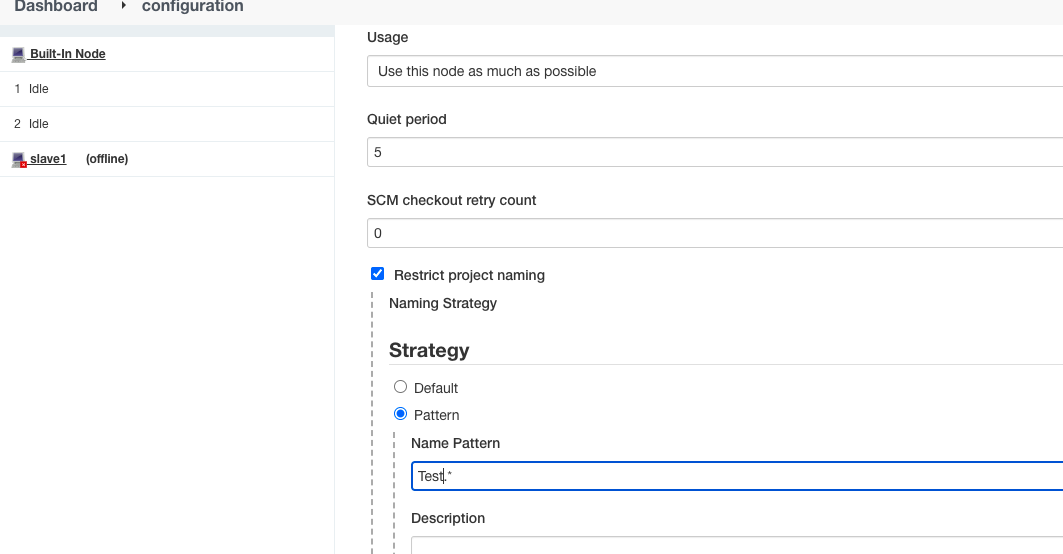
**SCM checkout retry count:**

How many times the build should be retried, if it fails.

Restrict Project Naming Strategy:

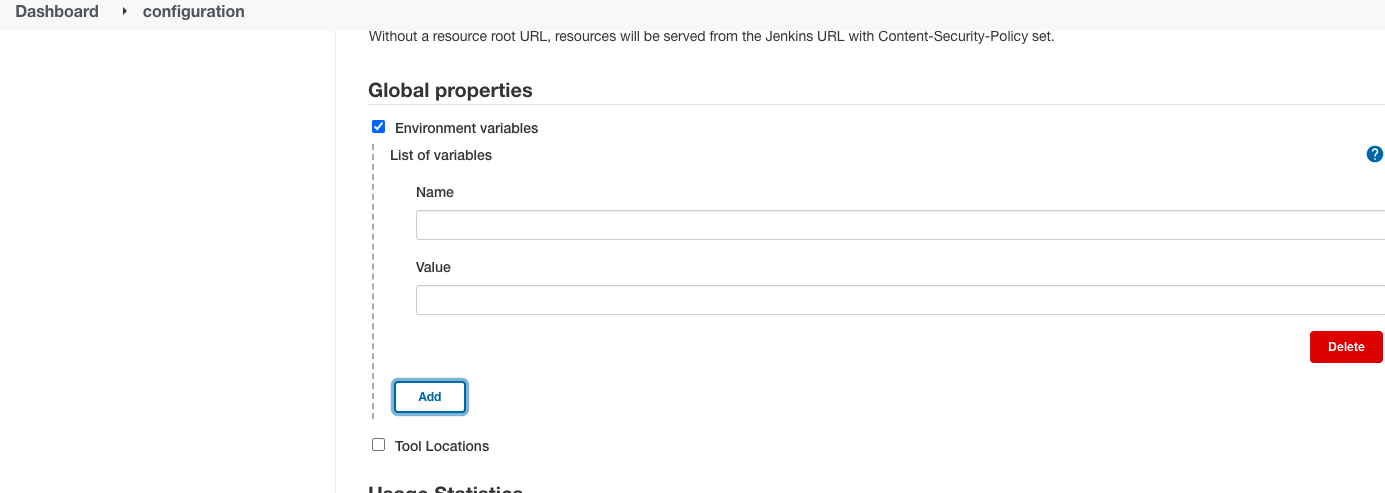


Fixing pattern:



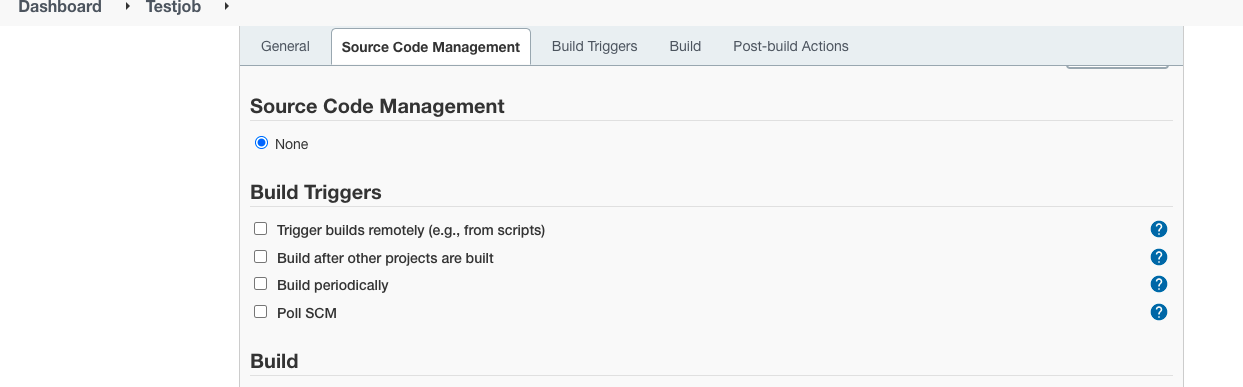
Try to create new job, with different name, wont work.

**Global Parameters**

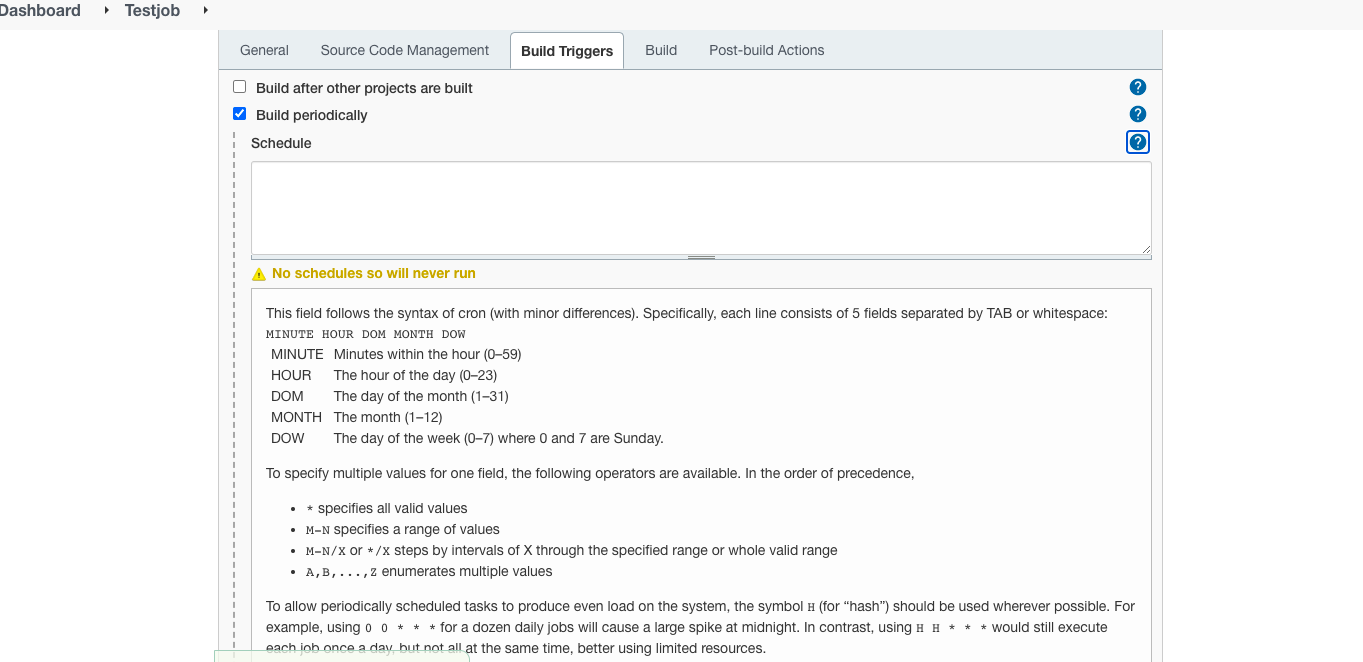
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**Getting Started with JOBS:**

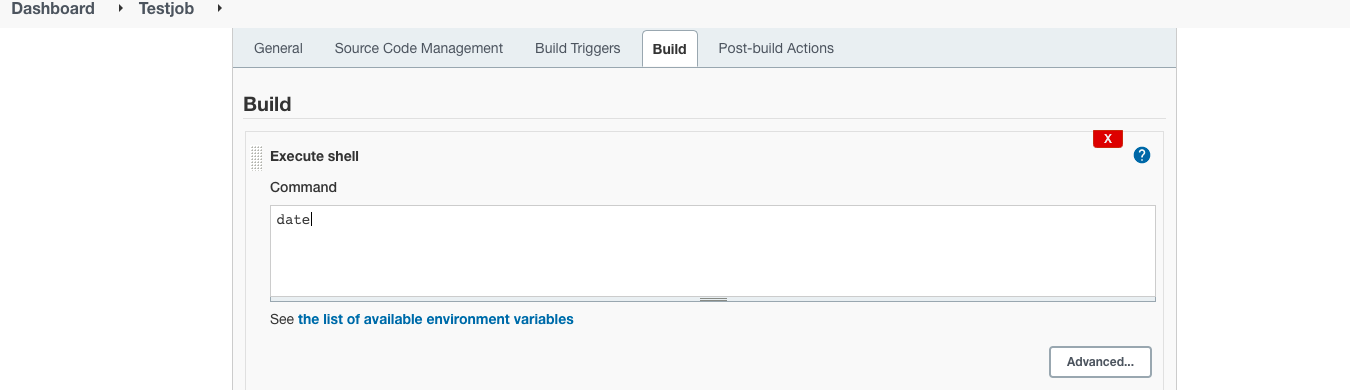
1. **Explaining about SCM**

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1. **Build Periodically**

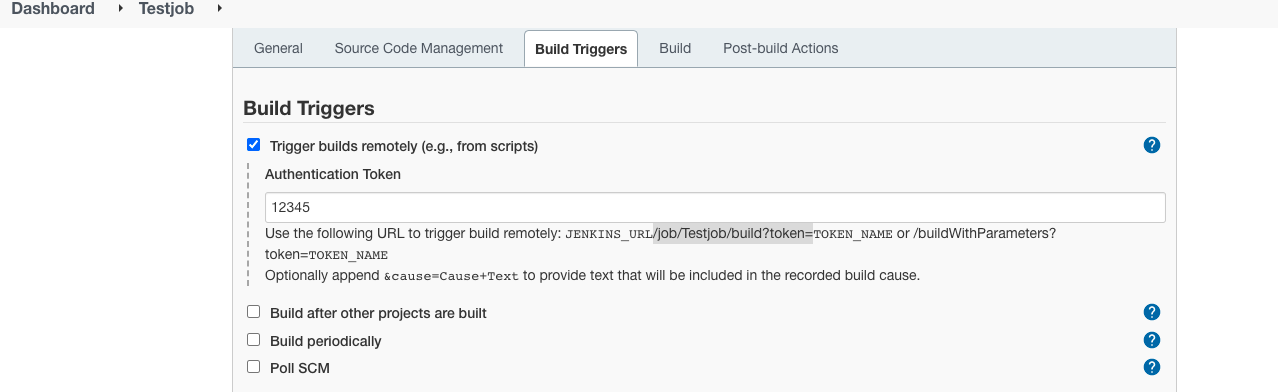
****

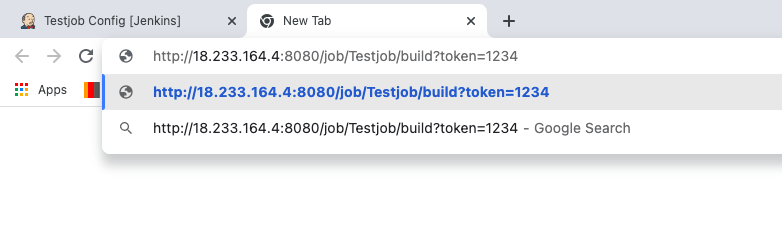
**Build:**

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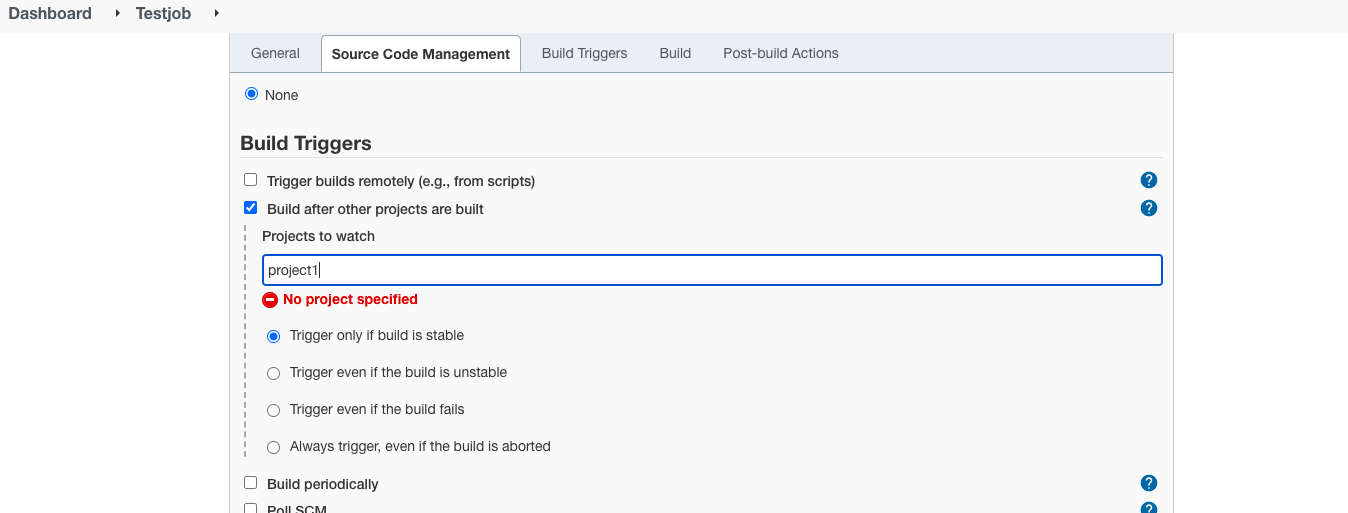
**Create and run a test project.**

**Run a Job by remote trigger:**

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**Project Trigger:**

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**HandsON 1: Jenkins +GIT**

1. Create a file in local directory
2. Execute a job as a shell
3. Push the file to remote repo
4. Configure project to use remote repo
5. Modify project content
6. See if build is triggered.

**https://docs.gitlab.com/ee/integration/jenkins.html**

**Adding Git Credentials to Jenkins**

1. Add credential plugin
2. Add new credentials.

