

Module 4: Continuous Integration Using Jenkins

Demo Document

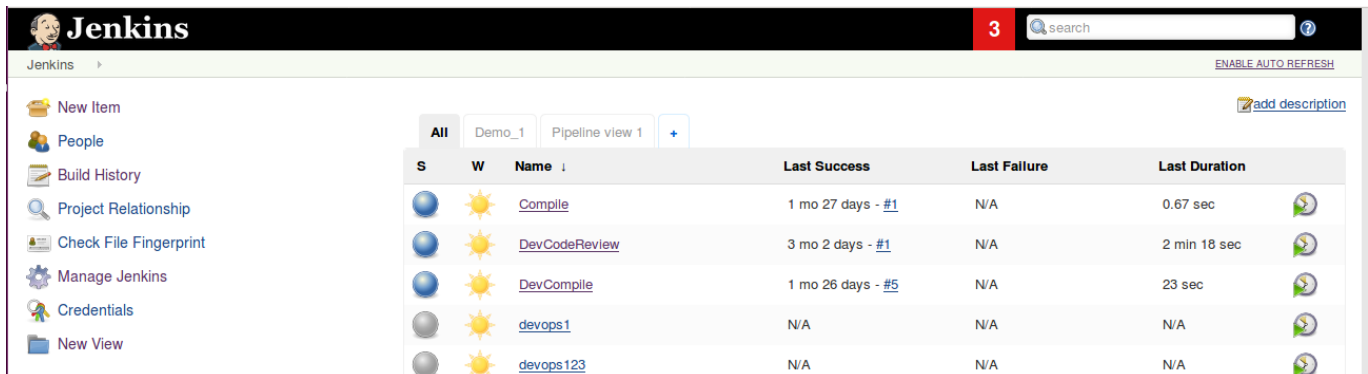
edureka!

edureka!

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Demo 2: Add a slave node in your Jenkins.

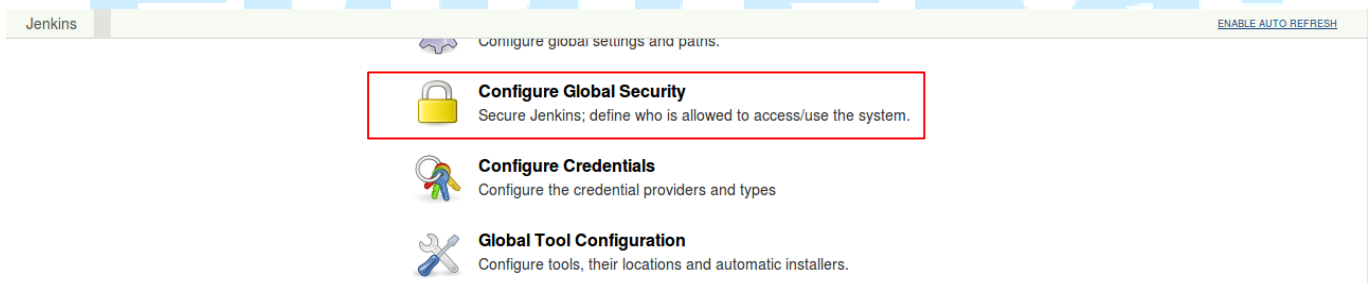
Step 1: Open Jenkins Dashboard and click on manage Jenkins.



The screenshot shows the Jenkins Dashboard. On the left is a sidebar with navigation links: New Item, People, Build History, Project Relationship, Check File Fingerprint, Manage Jenkins, Credentials, and New View. The main area displays a table of build jobs. The table has columns for status (S), icon (W), name, last success, last failure, and last duration. The jobs listed are Compile, DevCodeReview, DevCompile, devops1, and devops123. The 'devops1' and 'devops123' jobs are highlighted with a red box.

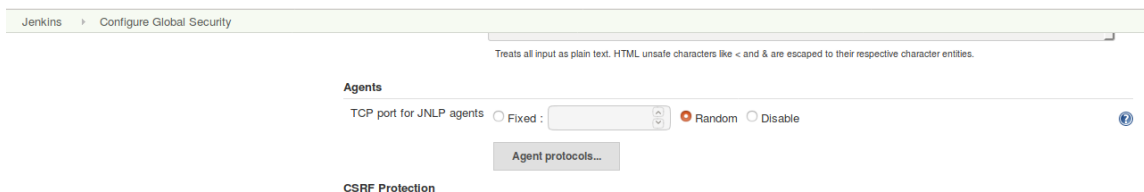
S	W	Name	Last Success	Last Failure	Last Duration
		Compile	1 mo 27 days - #1	N/A	0.67 sec
		DevCodeReview	3 mo 2 days - #1	N/A	2 min 18 sec
		DevCompile	1 mo 26 days - #5	N/A	23 sec
		devops1	N/A	N/A	N/A
		devops123	N/A	N/A	N/A

Step 2: Click on configure global security.



The screenshot shows the 'Configure Global Security' page in Jenkins. The page has a header 'Configure global settings and pains.' and a sub-header 'ENABLE AUTO REFRESH'. Below the header are three sections: 'Configure Global Security' (highlighted with a red box), 'Configure Credentials', and 'Global Tool Configuration'. The 'Configure Global Security' section includes a description: 'Secure Jenkins; define who is allowed to access/use the system.'

Step 3: Select random option for TCP ports for JNLP agents



The screenshot shows the 'Agents' section of the 'Configure Global Security' page. It includes a note: 'Treats all input as plain text. HTML unsafe characters like < and & are escaped to their respective character entities.' Below this is a section for 'Agents' with a sub-section 'TCP port for JNLP agents'. The 'Random' option is selected, and the 'Disable' option is also visible. There is a button 'Agent protocols...' and a section for 'CSRF Protection'.

Step 4: Click on manage Jenkins.

Jenkins

New Item

People

Build History

Project Relationship

Check File Fingerprint

Manage Jenkins

Credentials

New View

Build Queue

No builds in the queue.

Build Executor Status

master

1 Idle

Manage Jenkins

New version of Jenkins (2.121.1) is available for [download](#) ([changelog](#)).

Jenkins is currently unsecured and allows anyone on the network to launch processes on your behalf. It is recommended to set up security and to limit anonymous access even on private networks.

Setup SecurityDismiss

Warnings have been published for the following currently installed components.

Go to plugin managerConfigure which of these warnings are shown

Jenkins 2.107.1 core and libraries:
Multiple security vulnerabilities in Jenkins 2.120 and earlier, and LTS 2.107.2 and earlier
Multiple security vulnerabilities in Jenkins 2.115 and earlier, and LTS 2.107.1 and earlier
Git plugin 3.8.0:
Server-side request forgery

Step 5: Click on Manage Nodes option.

Jenkins

System Information

Displays various environmental information to assist trouble-shooting.

System Log

System log captures output from `java.util.logging` output related to Jenkins.

Load Statistics

Check your resource utilization and see if you need more computers for your builds.

Jenkins CLI

Access/manage Jenkins from your shell, or from your script.

Script Console

Executes arbitrary script for administration/trouble-shooting/diagnostics.

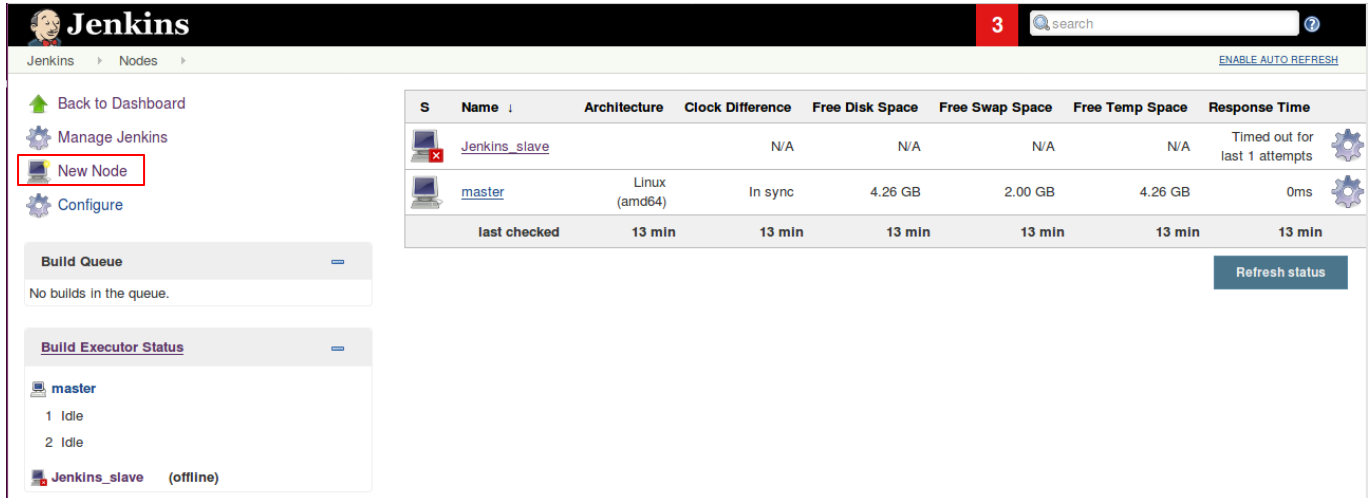
Manage Nodes

Add, remove, control and monitor the various nodes that Jenkins runs jobs on.

About Jenkins

See the version and license information.

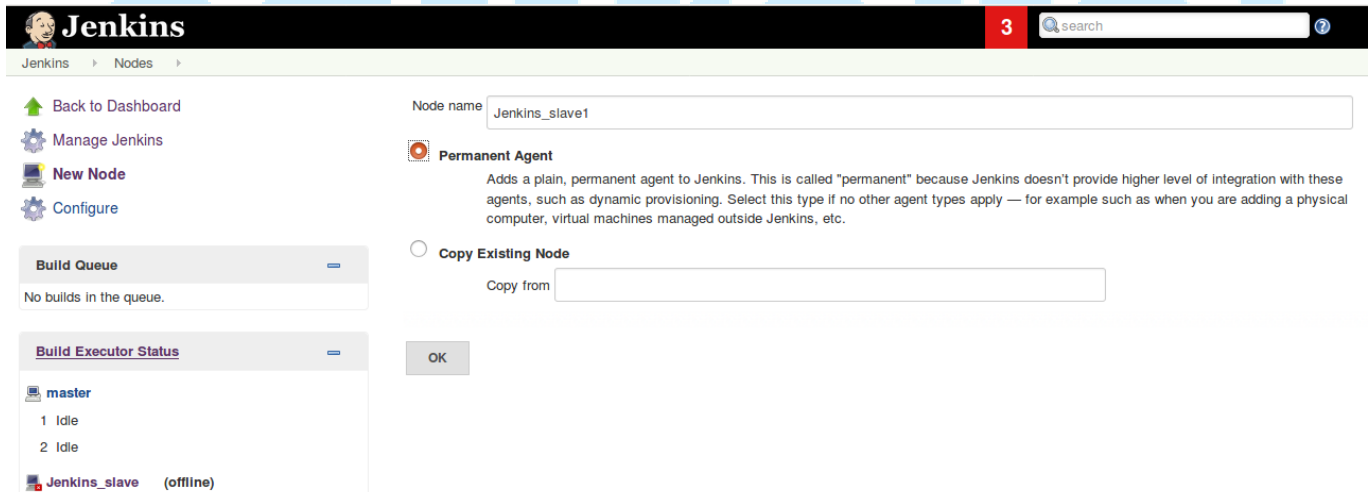
Step 6: Click on new node and then give your node a name and make it a permanent agent.



The screenshot shows the Jenkins 'Nodes' page. On the left sidebar, the 'New Node' button is highlighted with a red box. The main area displays a table of nodes:

S	Name	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
	Jenkins_slave		N/A	N/A	N/A	N/A	Timed out for last 1 attempts
	master	Linux (amd64)	In sync	4.26 GB	2.00 GB	4.26 GB	0ms
	last checked	13 min	13 min	13 min	13 min	13 min	13 min

Buttons for 'Back to Dashboard', 'Manage Jenkins', 'New Node', and 'Configure' are visible on the left. Below the table is a 'Refresh status' button.



The screenshot shows the 'New Node' configuration page in Jenkins. The 'Node name' field is filled with 'Jenkins_slave1'. The 'Permanent Agent' radio button is selected, and its description is visible: 'Adds a plain, permanent agent to Jenkins. This is called "permanent" because Jenkins doesn't provide higher level of integration with these agents, such as dynamic provisioning. Select this type if no other agent types apply — for example such as when you are adding a physical computer, virtual machines managed outside Jenkins, etc.'

The 'Copy Existing Node' radio button is unselected, and its 'Copy from' field is empty. An 'OK' button is at the bottom.

Step 7: Select the launch method as shown in the screen shot and then set the availability as shown in the screenshot and then click on the save button.

The screenshot shows the Jenkins Node Configuration page for a node named 'Jenkins_slave1'. The page is divided into a left sidebar and a main configuration area.

Left Sidebar:

- Navigation links: Back to Dashboard, Manage Jenkins, New Node, Configure.
- Build Queue:** No builds in the queue.
- Build Executor Status:** Shows the master node as idle and the 'Jenkins_slave' node as offline.

Main Configuration Area:

- Name:** Jenkins_slave1
- Description:** (empty)
- # of executors:** 2
- Remote root directory:** /var/lib/jenkins/
- Labels:** (empty)
- Usage:** Use this node as much as possible
- Launch method:** Launch agent via Java Web Start
- Disable WorkDir:** ☐
- Custom WorkDir path:** (empty)
- Internal data directory:** remoting
- Fail if workspace is missing:** ☐

Advanced... (button)

Availability: Keep this agent online as much as possible

Node Properties:

- ☐ Environment variables
- ☐ Tool Locations

Save (button)

Step 8: Click on the name you have given to your slave node.

The screenshot shows the Jenkins 'Nodes' page. On the left, there are navigation links: 'Back to Dashboard', 'Manage Jenkins', 'New Node', and 'Configure'. Below these are sections for 'Build Queue' (showing 'No builds in the queue.') and 'Build Executor Status' (showing 'master' with 1 Idle and 2 Idle executors). The main part of the page is a table of nodes:

S	Name	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
	Jenkins_slave		N/A	N/A	N/A	N/A	Timed out for last 1 attempts
	Jenkins_slave1		N/A	N/A	N/A	N/A	N/A
	master	Linux (amd64)	In sync	4.26 GB	2.00 GB	4.26 GB	0ms
	last checked	13 ms	41 ms	25 min	25 min	25 min	25 min

A red box highlights the 'Jenkins_slave1' row. A 'Refresh status' button is at the bottom right of the table.

Step 9: Click on the agent.jar and download the file, also it should be present on the node which you want to add as slave node.

The screenshot shows the Jenkins 'Agent Jenkins_slave1' configuration page. On the left, there are navigation links: 'Back to List', 'Status', 'Delete Agent', 'Configure', 'Build History', 'Load Statistics', and 'Log'. Below these is the 'Build Executor Status' section. The main content area shows instructions to connect the agent to Jenkins:

- Launch agent from browser (with a 'Launch' button)
- Run from agent command line:


```
javaws http://localhost:8080/computer/Jenkins_slave1/slave-agent.jnlp
```
- Or if the agent is headless:


```
java -jar agent.jar -jnlpUrl http://localhost:8080/computer/Jenkins_slave1/slave-agent.jnlp -workDir "/var/lib/jenkins/"
```

The 'agent.jar' in the command line is highlighted with a red box. Below the instructions, it says 'Projects tied to Jenkins_slave1' and 'None'. A 'Mark this node temporarily offline' button is at the top right.

Step 10: Copy the whole link and run it on the slave node which you want to add.

This screenshot is identical to the previous one, showing the Jenkins 'Agent Jenkins_slave1' configuration page. The 'agent.jar' in the command line is highlighted with a red box. The page shows instructions to connect the agent to Jenkins, including a 'Launch' button and command line instructions for both browser and headless execution. The 'Mark this node temporarily offline' button is at the top right.

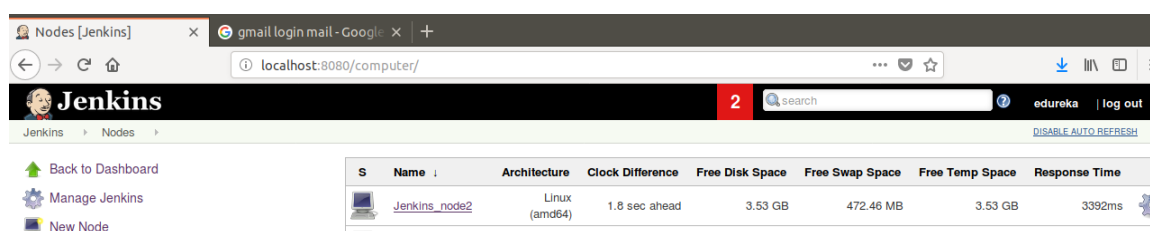
Step 11: Go to the slave node and download that agent.jar file on this node. Change the permission of that file.


Then copied link from Jenkins master should be pasted here and replace the local host with the IP address of the Jenkins master node. You will get the below output.

```
edureka@slav-3:~$ cd /home/edureka/
edureka@slav-3:~$ ls
agent.jar  chromedriver  Desktop  Documents  Downloads  examples.desktop  jenkins  Music  ~None  Pictu
edureka@slav-3:~$ sudo chmod 777 agent.jar
edureka@slav-3:~$ sudo java -jar agent.jar -jnlUrl http://192.168.56.101:8080/computer/Jenkins_node2/
163322b1da2a8c4d4d2d3994e1c035c91ca134353a9e741e0 -workDir "/var/lib/jenkins/"
Jun 20, 2018 7:35:32 PM org.jenkinsci.remoting.engine.WorkDirManager initializeWorkDir
INFO: Using /var/lib/jenkins/remoting as a remoting work directory
Both error and output logs will be printed to /var/lib/jenkins/remoting
Jun 20, 2018 7:35:33 PM hudson.remoting.jnlp.Main createEngine
INFO: Setting up agent: Jenkins_node2
Jun 20, 2018 7:35:33 PM hudson.remoting.jnlp.Main$CuiListener <init>
INFO: Jenkins agent is running in headless mode.
Jun 20, 2018 7:35:33 PM hudson.remoting.Engine startEngine
INFO: Using Remoting version: 3.20
Jun 20, 2018 7:35:33 PM org.jenkinsci.remoting.engine.WorkDirManager initializeWorkDir
INFO: Using /var/lib/jenkins/remoting as a remoting work directory
Jun 20, 2018 7:35:33 PM hudson.remoting.jnlp.Main$CuiListener status
INFO: Locating server among [http://localhost:8080/, http://192.168.56.101:8080/]
Jun 20, 2018 7:35:33 PM org.jenkinsci.remoting.engine.JnlpAgentEndpointResolver resolve
INFO: Remoting server accepts the following protocols: [JNLP4-connect, Ping]
Jun 20, 2018 7:35:33 PM hudson.remoting.jnlp.Main$CuiListener status
INFO: Agent discovery successful
Agent address: 192.168.56.101
Agent port: 34077
Identity: 74:ca:9a:5b:35:08:2f:98:ae:72:34:4c:54:96:49:a0
Jun 20, 2018 7:35:33 PM hudson.remoting.jnlp.Main$CuiListener status
INFO: Handshaking
```

```
Jun 20, 2018 7:35:33 PM hudson.remoting.jnlp.Main$CuiListener status
INFO: Connecting to 192.168.56.101:34077
Jun 20, 2018 7:35:33 PM hudson.remoting.jnlp.Main$CuiListener status
INFO: Trying protocol: JNLP4-connect
Jun 20, 2018 7:35:33 PM hudson.remoting.jnlp.Main$CuiListener status
INFO: Remote identity confirmed: 74:ca:9a:5b:35:08:2f:98:ae:72:34:4c:54:96:49:a0
Jun 20, 2018 7:35:34 PM hudson.remoting.jnlp.Main$CuiListener status
INFO: Connected
```

Step 12: Go to your Jenkins master and check if your slave node is connected or not.



S	Name	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
	Jenkins_node2	Linux (amd64)	1.8 sec ahead	3.53 GB	472.46 MB	3.53 GB	3392ms