

Jenkins – Slave Nodes

Jenkins - Master Configuration

- In this session we will look at using additional machines to build jenkins jobs
- The additional machines are needed to reduce work loads and are called Slaves
- Go to Manage Jenkins → Configure Global Security
- Check 'TCP Port for JNLP Agent' and Save
- You can keep a fixed port or randomly generate a port number

Configure Global Security



Jenkins - Create Slave Node

- In this exercise, we will utilize another windows machine as Slave
- Lets configure that as slave using Manage Jenkins → Manage Nodes



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.



Manage and Assign Roles

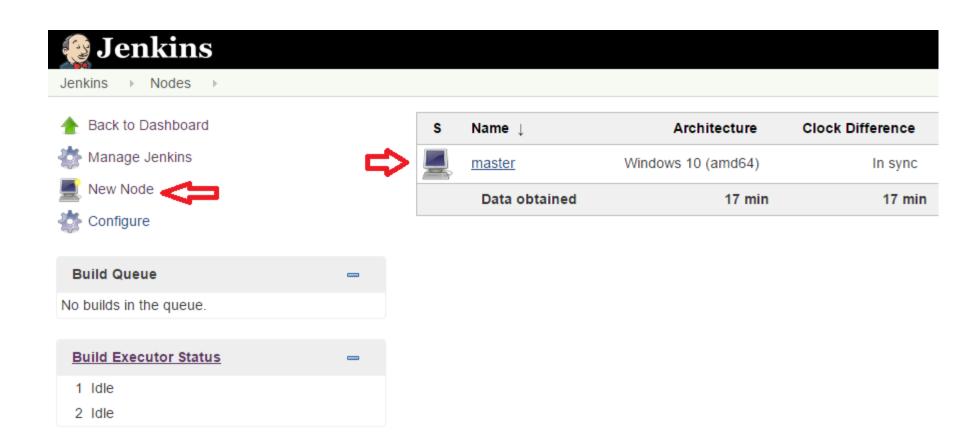
Handle permissions by creating roles and assigning them to users/groups



Can the version and license information

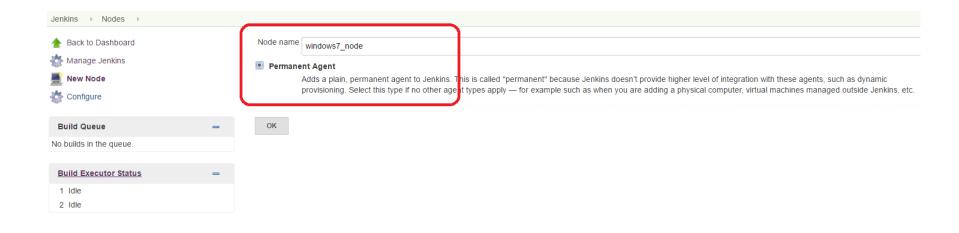
Jenkins - Create Slave Node contd..

- You can see only the master listed here
- Click on 'New Node' link in Left Menu



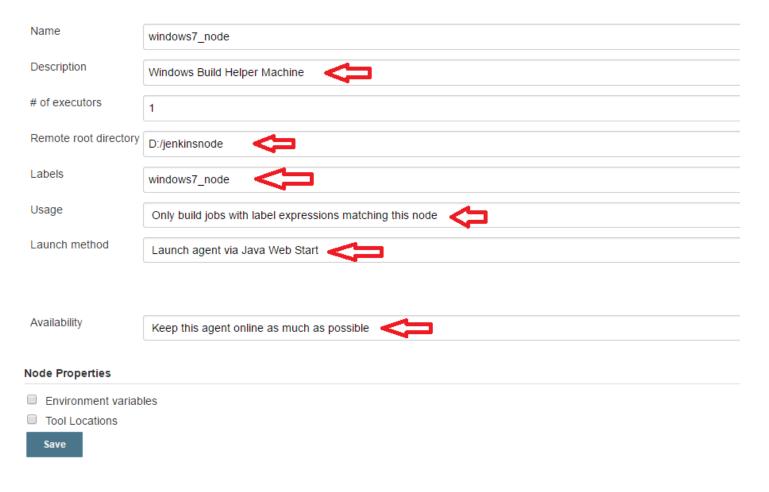
Jenkins - Create Slave Node contd..

- Provide a meaningful name for the slave node
- Click on 'Permanent Agent' and OK



Jenkins - Create Slave Node contd..

- Note You need to create a folder D:/jenkinsnode on the Slave Machine
- Create a label as windows_node
- Launch method will be Java Web Start



Jenkins - Connect to slave

- You can see that the newly created slave node is marked as 'X'
- Indicating that the node is not accessible to master
- We will fix this by trying to connect to the slave node
- Click on the windows7_node

| | s | Name ↓ | Architecture | Clock Difference | Free Disk Space |
|---------------|---|---------------|--------------------|------------------|-----------------|
| \Rightarrow | | master | Windows 10 (amd64) | In sync | 266.14 GB |
| | × | windows7_node | | N/A | N/A |
| | | Data obtained | 25 min | 25 min | 25 min |

Jenkins - Connect to slave contd

- You can see that there are multiple options
- 1 -- is a Launch Agent from browser
- 2 -- Run agent from command line
- Lets use the option 2
- You need to have slave.jar to be available on Slave Machine
- Click on slave.jar and it will be download
- Copy slave.jar and also the jnlp url, secret key to slave machine



Agent windows7_node (Windows Build Helper Machine)

Connect agent to Jenkins one of these ways:

- <u>\$ Launch</u> Launch agent from browser
- · Run from agent command line:

java -jar<u>slave.jar</u>jnlpUrl http://localhost:8080/computer/windows7_node/slave-agent.jnlp -secret 9b553fa878063ge80pp78a3775280182607a898e187ee6de64446663a0166ad8

Projects tied to windows7_node

None

Jenkins – Slave Machine Configuration

- NOTE: These commands are run on Slave Node
- Create a folder D:/jenkinsnode
- Copy the slave.jar into D:/jenkinsnode
- Open a command prompt and navigate to D:/jenkinsnode directory
- Execute the command which you copied in previous step
- NOTE: Change the url from localhost to IP Address of Jenkins Master server

java -jar slave.jar -jnlpUrl http://<IP Address of Jenkins Master>:8080/computer/windows7_node/slave-agent.jnlp -secret 9b553fa878063de80bb78a3775280182607a898e187ee6de64446663a0166ad8

Jenkins - Slave Machine Configuration contd

- In the screen shot below, you can see that the command is run from D:/jenkinsnode
- D:/jenkinsnode folder also containes slave.jar
- The IP address of Jenkins Server (Master) has replace 'localhost'
- Note: This command can be run from anywhere as long as 'slave.jar' is available on Java Class
 Path

```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.
C:\Users\User>d:
D:\>cd jenkinsnode |
D:\jenkinsnode>dir
Volume in drive D has no label.
Volume Serial Number is 9E75-2F7B
 Directory of D:\jenkinsnode
):\jenkinsnode>java -jar slave.jar -jnlpUrl http://192.168.1.34:8080/computer/wi
ndows7_node/slave-agent.jnlp -secret 9b553fa878063de80bb78a3775280182607a898e187
```

Jenkins - Slave Machine Configuration contd

- The connection should be successful
- Now go back and Check the status of node in Jenkins Server

```
D:\jenkinsnode\java -jar slave.jar -jnlpUrl http://192.168.1.34:8080/computer/windows7_node/slave-agent.jnlp -secret 9b553fa878063de80bb78a3775280182607a898e187
ee6de64446663a0166ad8
May 12, 2017 11:31:19 AM hudson.remoting.jnlp.Main createEngine
INFO: Setting up slave: windows7_node
May 12, 2017 11:31:19 AM hudson.remoting.jnlp.Main$CuiListener <init>
INFO: Jenkins agent is running in headless mode.
May 12, 2017 11:31:19 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Jenkins agent is running in headless mode.
May 12, 2017 11:31:19 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Locating server among [http://localhost:8080/, http://192.168.1.34:8080/]
May 12, 2017 11:31:20 AM org.jenkinsci.remoting.engine.JnlpAgentEndpointResolver
 INFO: Remoting server accepts the following protocols: [JNLP4-connect, JNLP-conn
ect, Ping, JNLP2-connect]
May 12, 2017 11:31:20 AM hudson remoting jnlp.Main$CuiListener status
INFO: Agent discovery successful Agent address: 192.168.1.34
Agent port: 64715
  Identity: be:ab:4e:ac:93:88:51:f0:c0:6d:ca:dd:0c:27:2b:c5
May 12, 2017 11:31:20 AM hudson.remoting.jnlp.Main$CuiListener status
     NFO: Handshaking
May 12, 2017 11:31:20 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Connecting to 192.168.1.34:64715
May 12, 2017 11:31:20 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Trying protocol: JNLP4-connect
May 12, 2017 11:31:33 AM hudson.remoting.jnlp.Main$CuiListener status
INFO: Remote identity confirmed: be:ab:4e:ac:93:88:51:f0:c0:6d:ca:dd:0c:27:2b:c5
 May 12, 2017 11:31:33 AM hudson.remoting.jnlp.Main$CuiListener status
 INFO: Connected
```

Jenkins – Back to Master

- Go to Manage Jenkins → Manage Nodes
- You can see that the JNLP agent is successfully running on Slave machine
- Master and Slave are able to communicate
- Next lets configure a simple job to check if remote build is working

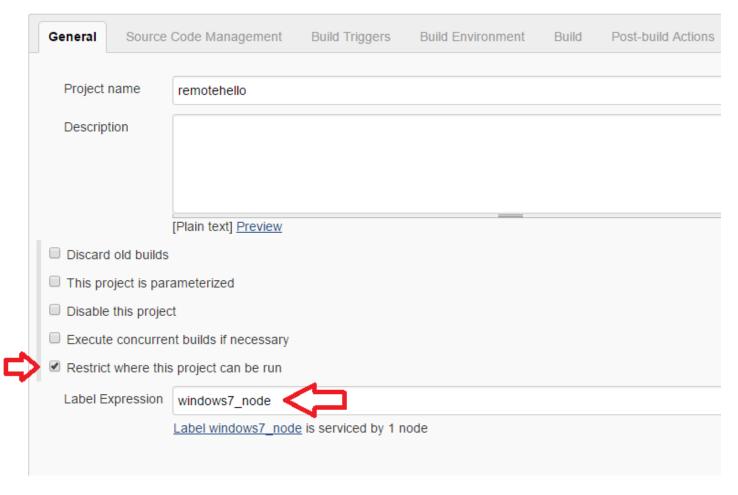
| S | Name ↓ | Architecture | Clock Difference | Free Disk Space |
|---|---------------|--------------------|------------------|-----------------|
| | <u>master</u> | Windows 10 (amd64) | In sync | 265.91 GB |
| | windows7_node | Windows 7 (x86) | a.4 sec ahead | 159.30 GB |
| | Data obtained | 3 min 37 sec | 3 min 37 sec | 3 min 39 sec |

Jenkins – Create a job

- Lets Create a job and build it on remote slave
- Go to Dashboard → New Item
- Give the name as remotehello and select 'Free Style Project' and OK

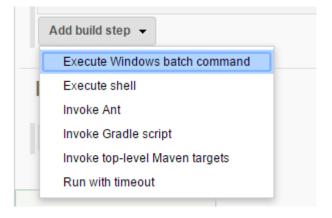
Jenkins - Create a job contd

- Click on 'Restrict where this Project can be Run'
- Provide the Label of the Slave Machine which was created during Slave machine configuration



Jenkins - Create a job contd

- Lets try with a simple build here, Click on Add Build Step
- Select 'Execute windows batch command'
- Just put a simple echo "Hello" and Save





Jenkins – Build the remote job

- Build the job and check the Console
- As you can see, the job is built on remote slave node





Started by user <u>Jenkins Admin</u>

Building remotely on <u>windows7</u> in workspace D:/jenkinsnode/workspace/remotehello

[remotehello] \$ cmd /c call C:\Users\User\AppData\Local\Temp\hudson2450421269615980158.bat

D:\jenkinsnode\workspace\remotehello>echo "Hello from Master"
"Hello from Master"

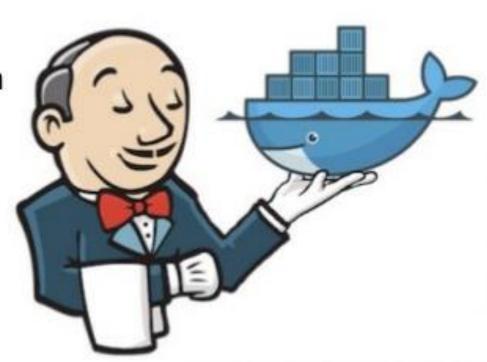
D:\jenkinsnode\workspace\remotehello>exit 0
Finished: SUCCESS

Jenkins & Docker

- Docker is a Open source container management platform
- Light weight & can bring up any application stack (open source or free to use) within seconds

Docker Plugin

- Dynamically provision slaves
- Run build
- Tear-down slave
- Slaves in the Cloud



Jenkins & Docker

- Jenkins can bring up Slaves (Docker containers) on Demand
- Master can only be built on Docker

