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jenkins master slave architecture handson demo

Master Slave architecture

1. first, we are going to create two servers (Master and slave). In ec2 we are creating two servers, the screenshot is given below.

Graphical user interface, text, application

Description automatically generated

1. connect the slave machine, the screen shot is given below.

Text

Description automatically generated with medium confidence

Install java OpenJDK, GIT, MAVEN on Ubuntu Slave Machine:

1. we can see that git is installed by default. Now we are going to install another pre-requisite in slave machine.
2. If git is not present or any other distribution does not present so install. In case if git is not present in this system, we can add sudo apt install git -y.
3. Now in slave machine add below commands one after another.

Code updation in slave system:

* sudo apt update
* sudo apt install openjdk-11-jre
* java -version
* sudo apt install maven -y [installing built tool ]
* mvn –version
* /usr/lib/jvm/java-11-openjdk-amd64 [ default path ]

1. Establish a connection between master and slave. so that why need one user, user credentials.
2. Adding a New User for Slave :

root@ip-172-31-81-201:/home/ubuntu# useradd -m -s /bin/bash devopsadmin1

root@ip-172-31-81-201:/home/ubuntu# su - devopsadmin1

root@ip-172-31-81-201:/home/ubuntu# ls

devopsadmin1@ip-172-31-81-201:~$ ls

devopsadmin1@ip-172-31-81-201:~$ pwd

/home/devopsadmin1

devopsadmin1@ip-172-31-81-201:~$ ls -a [ there is no ssh key generated]

. .. .bash\_logout .bashrc .profile

devopsadmin1@ip-172-31-81-201:~$ rm -rf .ssh/

devopsadmin1@ip-172-31-81-201:~$ **ssh-keygen -t rsa -b 4096 -m PEM**

Generating public/private rsa key pair.

Enter file in which to save the key (/home/devopsadmin1/.ssh/id\_rsa):

Created directory '/home/devopsadmin1/.ssh'.

Enter passphrase (empty for no passphrase):

Enter same passphrase again:

Your identification has been saved in /home/devopsadmin1/.ssh/id\_rsa

Your public key has been saved in /home/devopsadmin1/.ssh/id\_rsa.pub

The key fingerprint is:

SHA256:Oq7FVsZjTfuWq6PROVUxMMAYB+BsOyob33JOy1v2FBo devopsadmin1@ip-172-31-81-201

The key's randomart image is:

+---[RSA 3072]----+

| ..o=o.o.o |

| o ... . o |

| + . . |

| . o o . . |

| o E + . |

| o \* = = . |

| o . B = = + |

| =.B.= +.o . |

| . o=B...oo. |

+----[SHA256]-----+

devopsadmin1@ip-172-31-81-201:~$ ls -a

. .. .bash\_logout .bashrc .profile .ssh

devopsadmin1@ip-172-31-81-201:~$ ls -a

. .. .bash\_logout .bashrc .profile .ssh

devopsadmin1@ip-172-31-81-201:~$ cd .ssh

devopsadmin1@ip-172-31-81-201:~/.ssh$ ls

id\_rsa id\_rsa.pub

devopsadmin1@ip-172-31-81-201:~/.ssh$ cat id\_rsa

-----BEGIN OPENSSH PRIVATE KEY-----

b3BlbnNzaC1rZXktdjEAAAAABG5vbmUAAAAEbm9uZQAAAAAAAAABAAABlwAAAAdzc2gtcn

NhAAAAAwEAAQAAAYEAty7OjEWoLTIjpUzYBvORM/eawFgAVQj+Gv0rrYh1VIH9mYMiuZqH

a3tNLdJqkswa+pkXNFasX9df6Htn7rp0FqT4ZRIw54rR5vJ4DPyeBLpd/wC4uMDLkVDusm

lFd9FYziX34nCbTzNbmErLYPaSA/xPH7cPtgBOsDPbQFynJb2KIly4CbM5sftsy9VrXN8E

SfqZhPhBKTNdlwGFVzgbMrAy1XozH5wsllc0rXmyOTHK8f/+JbpbFPNTHvl59YrEeddKUz

ffkueWOKLuTwevZKsM6dJFivAuQ8OlUE2R2usFkBTGcFrAyOsuSnUkLPGC1TW84Zsf1cGb

FscijP8kO3cRhDsdcyR/w9nAvngBJKFODr+1fHtPTtfRZWpEbkxfBwgz1L5ADN1XWaBUS2

Ic34HyxW2tXu8vFxPeLEjEWxcU+mSZYKTbdtD6L6edxfvIECgRT05gcEzTb52j9gKyds1u

KkIilyFcpBVnNFwq4DpYbI114dQer792Aepy+53tAAAFmBecbQMXnG0DAAAAB3NzaC1yc2

EAAAGBALcuzoxFqC0yI6VM2AbzkTP3msBYAFUI/hr9K62IdVSB/ZmDIrmah2t7TS3SapLM

GvqZFzRWrF/XX+h7Z+66dBak+GUSMOeK0ebyeAz8ngS6Xf8AuLjAy5FQ7rJpRXfRWM4l9+

Jwm08zW5hKy2D2kgP8Tx+3D7YATrAz20BcpyW9iiJcuAmzObH7bMvVa1zfBEn6mYT4QSkz

XZcBhVc4GzKwMtV6Mx+cLJZXNK15sjkxyvH//iW6WxTzUx75efWKxHnXSlM335Lnljii7k

8Hr2SrDOnSRYrwLkPDpVBNkdrrBZAUxnBawMjrLkp1JCzxgtU1vOGbH9XBmxbHIoz/JDt3

EYQ7HXMkf8PZwL54ASShTg6/tXx7T07X0WVqRG5MXwcIM9S+QAzdV1mgVEtiHN+B8sVtrV

7vLxcT3ixIxFsXFPpkmWCk23bQ+i+nncX7yBAoEU9OYHBM02+do/YCsnbNbipCIpchXKQV

ZzRcKuA6WGyNdeHUHq+/dgHqcvud7QAAAAMBAAEAAAGAQWITlz3FqVwcHQQwl0qYqVPXiI

/gjnmHOVrkHCx4tJExU3nbCyR88YAxLAnOwFbZyliaT7QgEpVtRi3GCw/CH9MCVhEII50J

DsW80+XXARkEM+CuDkPCZTvd9xBcG0g9ylcDA2/t/3b1WoZX0WQw+fs0wr00fmHdtEbOG0

r23iGpDFrL1aqDDWQQkTC8AYoYnc80vKFfoLUU0rFYRqlgC9eYTVowpTe5MnAt/T1Sv9dl

+LrGm/DIUdIH+SZSwbGlk6XwkVRb0wE5ibtRPyvwPMn1cME8+ZVcnesVmHFu0+tT9WJSDW

flNy2LMk7SJi+Ywvnf0E2wyCOlsZAK2tHZD6WaPE7Op17yTlnliWx4cbsU5V8/3q1dwYmI

FDS5VNjdI0ScitfF2kIOQSHS6D++PmWBRAymt4CmxmtgH+pYSzgK01yBFRmLPlBjSPRWrK

o6pKgD7MjBzMTI9KOlGSYS4HTwZl0USG8XpGjAOTRKoPjejwEcvQ8+XuMOQumZPvaBAAAA

wGlCbyIeCJOOO3uzA7Lu157PkNqGmDzsxY8nEIEYCn6CwLydHqYPfg0r1izD4PdFTDgsDW

GmTpXjf4TxLKVFf3PqEiNcrfQUBCYL2rYM6Y2hTUSfla9S3kctjQhpnmJMAS7DycG07qgx

tsSfnDY2H9i54z9juW9WlC/48+Jm4K52SK3dEw0xYseac5u9r61Z3VigZ72NtFC1Vur4J4

of7DCqqSq0PiotGvHSWqiOUHHCxmaXBgw2at1GE4EcvPxfXwAAAMEAwCoa97fP8CUhUl5x

yOpG4I0fvyYs9qSDybCrcyY6kuztcjlPTvxhTPK43zSzycUIh68LNDq/cPv93P7YIkkvz1

0h6KfQ4N1ikRFifbnNONyBH9gSYpsKPDWUAs8un2YZh0jjB2nn8qSzMk2ZHXjCQkx+0Vkj

JOkewMnEu1I3QwIIepcH7gLuyj7tFuO1h+YwNhYtwvsWdXFZBdU3d92JdVGnuz3XQWpi7X

8tNV266QxDc6mxKH6WKUKnOsLn48qfAAAAwQD0COSCUbCmSz/mCg6eqPi0gjxe9HAv76tR

BA3JdxuwEUTvYunTVtCcVZZXAVpx3P4gfvWBc/nlEtuuKa/bg07CRDPgd4NPlwewuRd5oR

2HC9HUxOjQic7j+gk6t6djiZ7X+tpDefvNFu2pbG1S1EVFndFaib2pTuzjkt7VW37ZkSFj

AYZmFX0MOW6G0kUJMYeUWZZGfuev12NfI4uyNBZfmmihTH7BMNiUnNRqSEnpIi4Z0AdIb9

lEoiLDCoSyF/MAAAAdZGV2b3BzYWRtaW4xQGlwLTE3Mi0zMS04MS0yMDEBAgMEBQY=

-----END OPENSSH PRIVATE KEY-----

[devopsadmin1@ip-172-31-81-201:~/.ssh$](mailto:devopsadmin1@ip-172-31-81-201:~/.ssh$)

this private key we have to configure in my master node.

#You should see following two files:

#id\_rsa - private key

#id\_rsa.pub - public

#cat id\_rsa & copy the private key and paste it into jenkins node config. enter private key directly field. Then,

[devopsadmin1@ip-172-31-81-201:~/.ssh$](mailto:devopsadmin1@ip-172-31-81-201:~/.ssh$) cat id\_rsa.pub > authorized\_keys

devopsadmin1@ip-172-31-81-201:~/.ssh$ ls

authorized\_keys id\_rsa id\_rsa.pub

devopsadmin1@ip-172-31-81-201:~/.ssh$ ll

total 20

drwx------ 2 devopsadmin1 devopsadmin1 4096 Apr 23 11:38 ./

drwxr-x--- 3 devopsadmin1 devopsadmin1 4096 Apr 23 11:30 ../

-rw-rw-r-- 1 devopsadmin1 devopsadmin1 583 Apr 23 11:38 authorized\_keys

-rw------- 1 devopsadmin1 devopsadmin1 2622 Apr 23 11:30 id\_rsa

-rw-r--r-- 1 devopsadmin1 devopsadmin1 583 Apr 23 11:30 id\_rsa.pub

[devopsadmin1@ip-172-31-81-201:~/.ssh$](mailto:devopsadmin1@ip-172-31-81-201:~/.ssh$) chown -R devopsadmin1 /home/devopsadmin1/.ssh

chmod 600 /home/devopsadmin1/.ssh/authorized\_keys

chmod 700 /home/devopsadmin1/.ssh

step 8: Add this slave node to jenkins master.

So first we have to go inside the master node , then we have to go manage jenkins and add our new node, the screenshot is given below.

Table

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

Step 9 :

The node configuration settings are given below.

{

“Name” :” slave\_machine\_1”,

“Description”: “this is slave node configuration, java maven build server.”,

“Number of executors[”](http://ec2-3-84-3-78.compute-1.amazonaws.com:8080/manage/computer/createItem) : 2,

“Remote root directory”:”/home/devopsadmin1”note : slave machine directory

“Labels”: ”slave1”

Note : Labels are very important for identifying slave machine “,

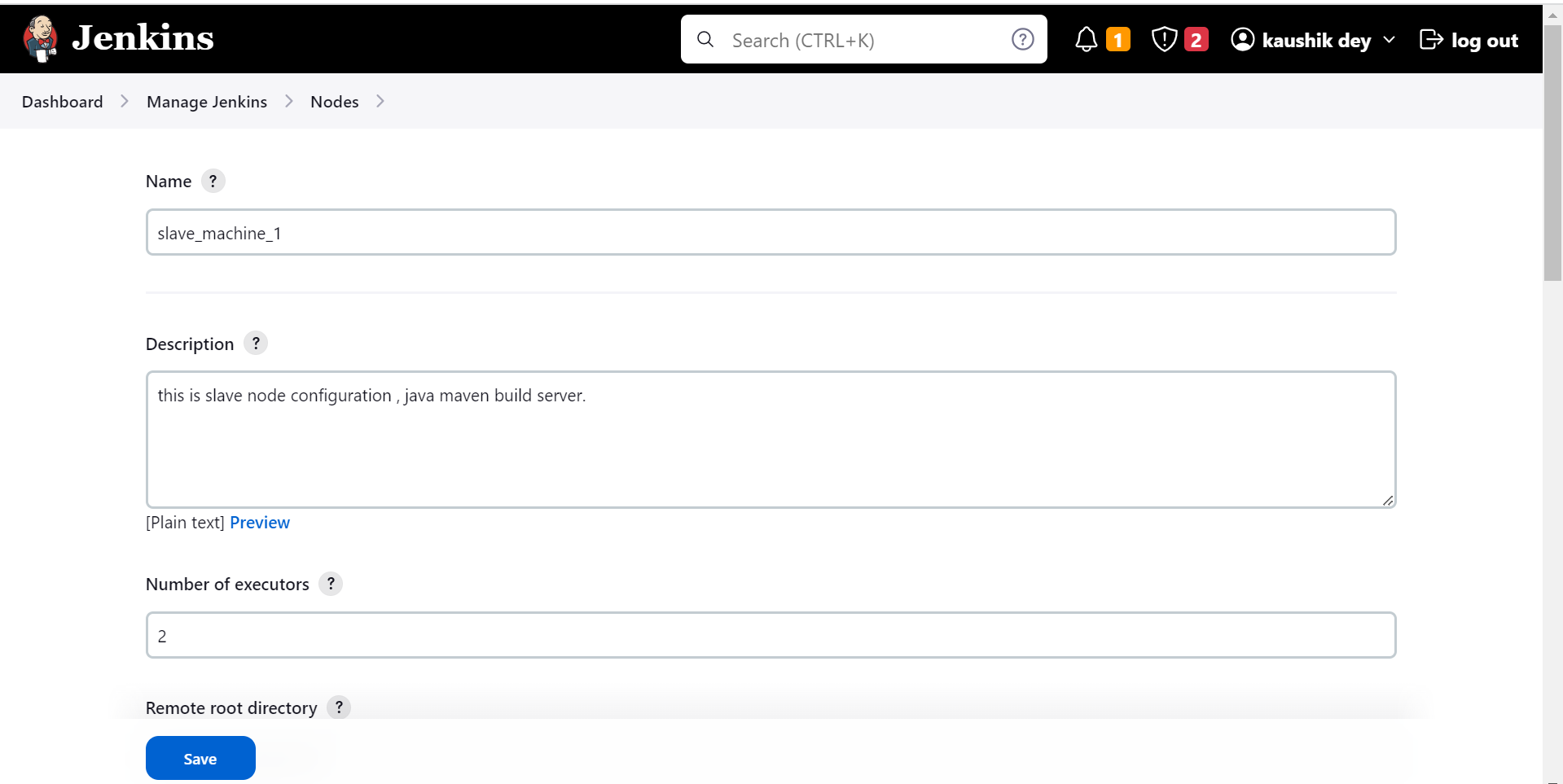
“Launch method” : “Launch agent via SSH”,

“Host” : 172.31.81.201 ( private ip of this slave node ),

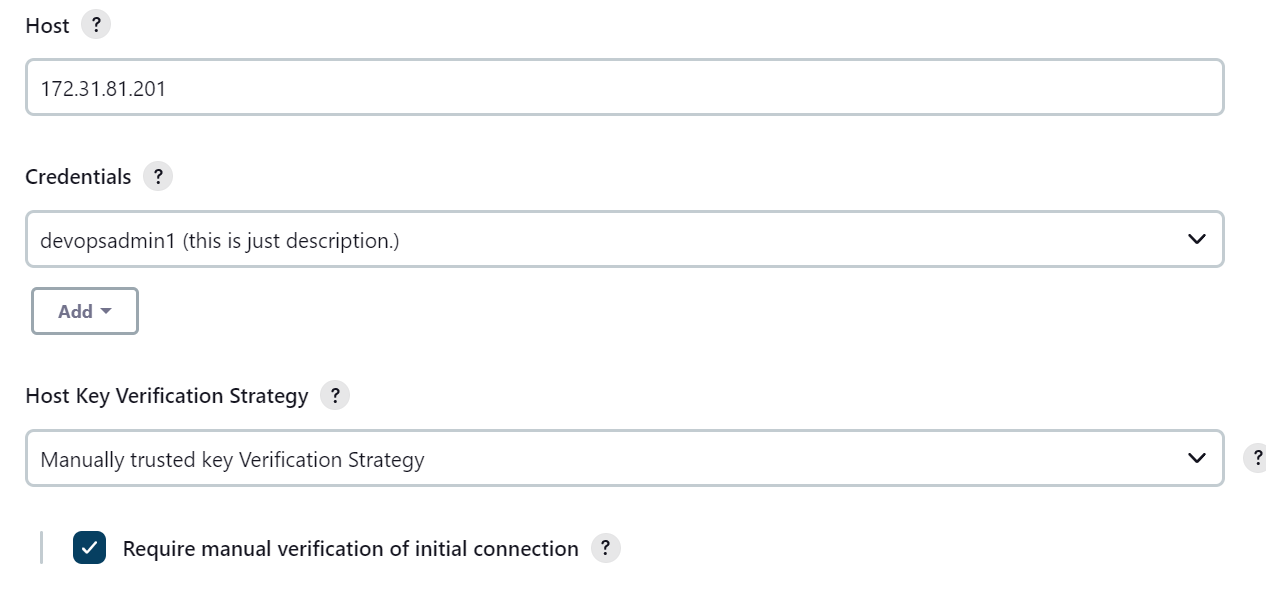
“Credentials”: devopsadmin1(it is just a credentials)

using jenkins credentials provider

}

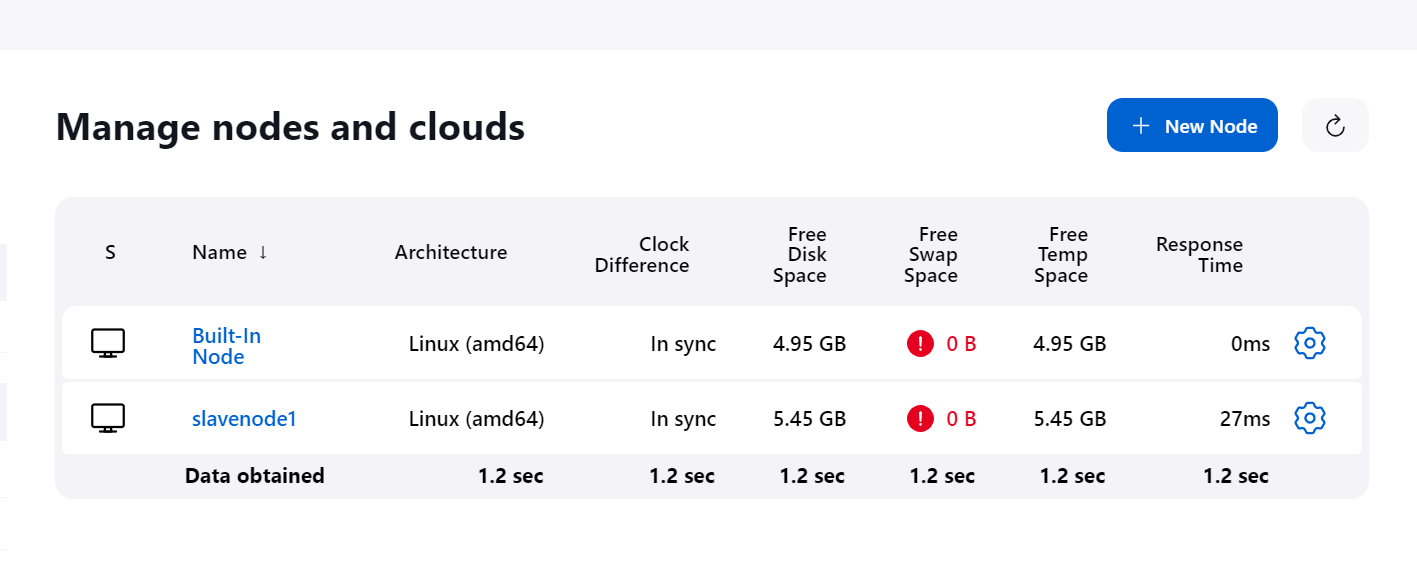


Host key verification settings are given below.



Step 10 :

Show the Jenkins nodes dashboard



And the console output in slave machine.

Text

Description automatically generated