

Devops class guvi (DAY-5)

****21 March 2025****

****Granting Jenkins Sudo Privileges**** – The `jenkins ALL=(ALL) NOPASSWD: ALL` entry in the `sudoers` file allows the Jenkins user to run any command without a password prompt.

****Restarting SSH Services**** – Commands like `sudo systemctl restart ssh.service` and `sudo systemctl restart sshd.service` restart the SSH service, ensuring remote login functionality.

****Installing OpenSSH Server**** – The commands `sudo apt update` and `sudo apt install openssh-server` update package lists and install the OpenSSH server for secure remote access.

****Checking SSH Service Status**** – `sudo systemctl status ssh` checks if the SSH service is running and displays its current status.

****Systemd Service File Lookup**** – `ls /etc/systemd/system/sshd.service` or `ls`

/usr/lib/systemd/system/sshd.service helps locate the SSH daemon's systemd service file.

****Reloading Systemd Daemon**** – `sudo systemctl daemon-reload` ensures that systemd picks up changes in service configurations without requiring a reboot.

****Encoding Minikube Certificate**** – `cat /home/david/.minikube/ca.crt | base64 -w 0; echo` encodes the Minikube CA certificate in base64 format, likely for authentication.

****Changing Docker Socket Permissions**** – `sudo chmod 666 /var/run/docker.sock` grants read and write access to all users for Docker's Unix socket, allowing non-root users to interact with Docker.

****Deploying Kubernetes Resources**** – `sh 'kubectl apply -f deployment.yml --validate=false'` applies a Kubernetes deployment file, ignoring validation errors.

****Accessing Minikube Service**** – `minikube service my-service --url | xargs curl` retrieves the Minikube service URL and sends an HTTP request to test its accessibility.

Commands:

```
jenkins ALL=(ALL) NOPASSWD: ALL
sudo systemctl restart ssh.service
sudo systemctl restart sshd.service
sudo apt update
sudo apt install openssh-server
sudo systemctl restart ssh
sudo systemctl status ssh
ls /etc/systemd/system/sshd.service or ls
/usr/lib/systemd/system/sshd.service
sudo systemctl daemon-reload
sudo systemctl status ssh
sudo systemctl restart ssh.service
cat /home/david/.minikube/ca.crt | base64 -w 0; echo
sudo chmod 666 /var/run/docker.sock
[https://192.168.39.226:8443](https://192.168.39.226:
8443/)
sh 'kubectl apply -f deployment.yml --validate=false'
minikube service my-service --url | xargs curl
```

Pipeline codes:

```
pipeline {
  agent any
```

```
environment {
```

```
    DOCKER_CREDENTIALS = credentials('docker-  
hub-cred') // Docker Hub Credentials ID  
}
```

```
stages {  
    stage('SCM') {  
        steps {  
            git branch: 'main', url:  
'<https://github.com/MugeshS-  
04/guvidevopsday1.git>'  
        }  
    }  
}
```

```
    stage('Build') {  
        steps {  
            sh "mvn clean"  
            sh "mvn install"  
        }  
    }  
}
```

```
    stage('Build Docker Image') {  
        steps {  
            script {  
                sh 'docker build -t  
mugeshs04/guvidevopsday1 .'            }  
        }  
    }  
}
```

```

stage('Push to Docker Hub') {
    steps {
        script {
            docker.withRegistry('<https://index.docker.io/v1/>',
            'docker-hub-cred') {
                sh 'docker push
mugeshs04/guvidevopsday1'
            }
        }
    }
}

pipeline {
    agent any

    stages {
        stage('SCM') {
            steps {
                git branch: 'main', url:
'<https://github.com/PraneshC2005/DevOps_simple-
web-app.git>'
            }
        }
    }
}

```

```
    }  
  }  
  stage('Build-clean') {  
    steps{  
      sh 'mvn clean'  
    }  
  }  
  stage('Build-validate') {  
    steps{  
      sh 'mvn validate'  
    }  
  }  
  stage('Build-compile') {  
    steps{  
      sh 'mvn compile'  
    }  
  }  
  stage('Build-test') {  
    steps{  
      sh 'mvn test'  
    }  
  }  
  stage('Build-package') {  
    steps{  
      sh 'mvn package'  
    }  
  }  
}
```

```
stage('build to images') {
    steps {
        script{
            sh "docker build -t
nikilprasanna/webapplication ."
        }
    }
}
stage('docker push hub') {
    steps {
        script{
            withDockerRegistry(credentialsId: 'cred-2', url:
'<https://index.docker.io/v1/>') {
                sh 'docker push praneshc/webapplication'
            }
        }
    }
}
}}
```

[illegible]

```
niki@NIKILPRASANNA: ~/ku
nikil@NIKILPRASANNA:~$ sudo visudo
[sudo] password for niki:
nikil@NIKILPRASANNA:~$ sudo apt update
sudo apt install openssh-server
Hit:1 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:2 https://download.docker.com/linux/ubuntu noble InRelease
Hit:3 http://archive.ubuntu.com/ubuntu noble InRelease
Get:4 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Fetched 252 kB in 4s (57.2 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
28 packages can be upgraded. Run 'apt list --upgradable' to see them.
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libwrap0 ncurses-term openssh-sftp-server ssh-import-id
Suggested packages:
  molly-guard monkeysphere ssh-askpass ufw
The following NEW packages will be installed:
  libwrap0 ncurses-term openssh-server openssh-sftp-server ssh-import-id
0 upgraded, 5 newly installed, 0 to remove and 28 not upgraded.
Need to get 880 kB of archives.
After this operation, 6861 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 openssh-sftp-server amd64 1:9.6p1-3ubuntu13.8 [37.3 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble/main amd64 libwrap0 amd64 7.6.q-33 [47.9 kB]
Get:3 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 openssh-server amd64 1:9.6p1-3ubuntu13.8 [509 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble/main amd64 ncurses-term all 6.4+20240113-1ubuntu2 [275 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 ssh-import-id all 5.111-0ubuntu2.24.04.1 [10.1 kB]
Fetched 880 kB in 2s (441 kB/s)
Preconfiguring packages ...
Selecting previously unselected package openssh-sftp-server.
(Reading database ... 41311 files and directories currently installed.)
Preparing to unpack .../openssh-sftp-server_1%3a9.6p1-3ubuntu13.8_amd64.deb ...
Unpacking openssh-sftp-server (1:9.6p1-3ubuntu13.8) ...
Selecting previously unselected package libwrap0:amd64.
Preparing to unpack .../libwrap0_7.6.q-33_amd64.deb ...
Unpacking libwrap0:amd64 (7.6.q-33) ...
```



```

nikil@NIKILPRASANNA: ~/ku  +  v
After this operation, 6861 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 openssh-sftp-server amd64 1:9.6p1-3ubuntu13.8 [37.3 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble/main amd64 libwrap0 amd64 7.6.q-33 [47.9 kB]
Get:3 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 openssh-server amd64 1:9.6p1-3ubuntu13.8 [509 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble/main amd64 ncurses-term all 6.4+20240113-1ubuntu2 [275 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 ssh-import-id all 5.11-0ubuntu2.24.04.1 [10.1 kB]
Fetched 880 kB in 2s (441 kB/s)
Preconfiguring packages ...
Selecting previously unselected package openssh-sftp-server.
(Reading database ... 41311 files and directories currently installed.)
Preparing to unpack .../openssh-sftp-server_1%3a9.6p1-3ubuntu13.8_amd64.deb ...
Unpacking openssh-sftp-server (1:9.6p1-3ubuntu13.8) ...
Selecting previously unselected package libwrap0:amd64.
Preparing to unpack .../libwrap0_7.6.q-33_amd64.deb ...
Unpacking libwrap0:amd64 (7.6.q-33) ...
Selecting previously unselected package openssh-server.
Preparing to unpack .../openssh-server_1%3a9.6p1-3ubuntu13.8_amd64.deb ...
Unpacking openssh-server (1:9.6p1-3ubuntu13.8) ...
Selecting previously unselected package ncurses-term.
Preparing to unpack .../ncurses-term_6.4+20240113-1ubuntu2_all.deb ...
Unpacking ncurses-term (6.4+20240113-1ubuntu2) ...
Selecting previously unselected package ssh-import-id.
Preparing to unpack .../ssh-import-id_5.11-0ubuntu2.24.04.1_all.deb ...
Unpacking ssh-import-id (5.11-0ubuntu2.24.04.1) ...
Setting up openssh-sftp-server (1:9.6p1-3ubuntu13.8) ...
Setting up ssh-import-id (5.11-0ubuntu2.24.04.1) ...
Setting up libwrap0:amd64 (7.6.q-33) ...
Setting up ncurses-term (6.4+20240113-1ubuntu2) ...
Setting up openssh-server (1:9.6p1-3ubuntu13.8) ...

Creating config file /etc/ssh/sshd_config with new version
Creating SSH2 RSA key; this may take some time ...
3072 SHA256:hEf8NH2D+2P7pVzKKAT3hdjkgNb3rtUI7CFbgbhU2t4 root@NIKILPRASANNA (RSA)
Creating SSH2 ECDSA key; this may take some time ...
256 SHA256:PhStjsAS9a7DW8cKoBNPSgd2oaIyKRg16GuFaPcLL2U root@NIKILPRASANNA (ECDSA)
Creating SSH2 ED25519 key; this may take some time ...
256 SHA256:Fd9ThxLjdGwal10ajBlznex0UTEhMcVL1Y718Kf5KMg root@NIKILPRASANNA (ED25519)
Created symlink /etc/systemd/system/sockets.target.wants/ssh.socket → /usr/lib/systemd/system/ssh.socket.
Created symlink /etc/systemd/system/ssh.service.requires/ssh.socket → /usr/lib/systemd/system/ssh.socket.
Processing triggers for man-db (2.12.0-4build2) ...

```

```

nikil@NIKILPRASANNA: ~/ku  +  v
nikil@NIKILPRASANNA:~$ sudo systemctl restart ssh
nikil@NIKILPRASANNA:~$ sudo systemctl status ssh
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: enabled)
   Active: active (running) since Fri 2025-03-21 06:23:32 UTC; 15s ago
 TriggeredBy: ● ssh.socket
    Docs: man:sshd(8)
          man:sshd_config(5)
   Process: 20231 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
  Main PID: 20232 (sshd)
    Tasks: 1 (limit: 4620)
   Memory: 1.2M ( )
   CGroup: /system.slice/ssh.service
           └─20232 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Mar 21 06:23:32 NIKILPRASANNA systemd[1]: Starting ssh.service - OpenBSD Secure Shell server...
Mar 21 06:23:32 NIKILPRASANNA sshd[20232]: Server listening on :: port 22.
Mar 21 06:23:32 NIKILPRASANNA systemd[1]: Started ssh.service - OpenBSD Secure Shell server.
nikil@NIKILPRASANNA:~$ ls /etc/systemd/system/sshd.service or ls /usr/lib/systemd/system/sshd.service
ls: cannot access '/etc/systemd/system/sshd.service': No such file or directory
ls: cannot access 'or': No such file or directory
ls: cannot access 'ls': No such file or directory
ls: cannot access '/usr/lib/systemd/system/sshd.service': No such file or directory
nikil@NIKILPRASANNA:~$ ls /usr/lib/systemd/system/sshd.service
ls: cannot access '/usr/lib/systemd/system/sshd.service': No such file or directory
nikil@NIKILPRASANNA:~$ ls /usr/lib/systemd/system/sshd.service
ls: cannot access '/usr/lib/systemd/system/sshd.service': No such file or directory
nikil@NIKILPRASANNA:~$ ssh -V
OpenSSH_9.6p1 Ubuntu-3ubuntu13.8, OpenSSL 3.0.13 30 Jan 2024
nikil@NIKILPRASANNA:~$ systemctl status sshd
Unit sshd.service could not be found.
nikil@NIKILPRASANNA:~$ sudo apt update
sudo apt install openssh-server -y
Hit:1 https://download.docker.com/linux/ubuntu noble InRelease
Hit:2 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:3 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:4 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:5 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done

```

```
niki@NIKILPRASANNA: ~/ku
Default: niki@NIKILPRASANNA: ~/kube
ctrl-alt-t s /usr/lib/systemd/system/ssh.service
Error: Unit file /usr/lib/systemd/system/ssh.service' is not a unit file or directory
niki@NIKILPRASANNA:~$ systemctl status sshd
Unit sshd.service could not be found.
niki@NIKILPRASANNA:~$ sudo apt update
sudo apt install openssh-server -y
Hit:1 https://download.docker.com/linux/ubuntu noble InRelease
Hit:2 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:3 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:4 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:5 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
28 packages can be upgraded. Run 'apt list --upgradable' to see them.
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
openssh-server is already the newest version (1:9.6p1-3ubuntu13.8).
0 upgraded, 0 newly installed, 0 to remove and 28 not upgraded.
niki@NIKILPRASANNA:~$ sudo find / -name "sshd.service" 2>/dev/null
/var/lib/docker/volumes/minikube/_data/lib/systemd/deb-systemd-helper-enabled/sshd.service
/var/lib/docker/overlay2/b1d6c675904484b1b53e6c67a375adf052c9842f111976f09588f07e44d4dfb4/merged/var/lib/systemd/deb-systemd-helper-enabled/sshd.service
/var/lib/docker/overlay2/b1d6c675904484b1b53e6c67a375adf052c9842f111976f09588f07e44d4dfb4/merged/etc/systemd/system/sshd.service
/var/lib/docker/overlay2/c6b7f62286bbc772bdc480c452fb5d6edaadb0603056284ff0fdb249a37ccb2c/diff/var/lib/systemd/deb-systemd-helper-enabled/sshd.service
/var/lib/docker/overlay2/c6b7f62286bbc772bdc480c452fb5d6edaadb0603056284ff0fdb249a37ccb2c/diff/etc/systemd/system/sshd.service
niki@NIKILPRASANNA:~$ minikube start
🔧 minikube v1.35.0 on Ubuntu 24.04 (amd64)
👉 Using the docker driver based on existing profile
🔥 Starting "minikube" primary control-plane node in "minikube" cluster
📦 Pulling base image v0.0.46 ...
🔄 Updating the running docker "minikube" container ...
🔄 Preparing Kubernetes v1.32.0 on Docker 27.4.1 ...
🔍 Verifying Kubernetes components...
   * Using image gcr.io/k8s-minikube/storage-provisioner:v5
   * Enabled addons: storage-provisioner, default-storageclass
🎉 Done! kubectrl is now configured to use "minikube" cluster and "default" namespace by default
niki@NIKILPRASANNA:~$ sudo systemctl restart ssh.service
niki@NIKILPRASANNA:~$ sudo systemctl daemon-reload
niki@NIKILPRASANNA:~$ sudo systemctl status ssh
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset:
   Active: active (running) since Fri 2025-03-21 06:35:27 UTC; 35s ago
   TriggeredBy: ● ssh.socket
   Docs: man:sshd(8)
         man:sshd_config(5)
   Main PID: 26166 (sshd)
   Tasks: 1 (limit: 4620)
   Memory: 1.5M ( )
   CGroup: /system.slice/ssh.service
           └─26166 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startu>
Mar 21 06:35:27 NIKILPRASANNA systemd[1]: Starting ssh.service - OpenBSD Se>
Mar 21 06:35:27 NIKILPRASANNA sshd[26166]: Server listening on :: port 22.
Mar 21 06:35:27 NIKILPRASANNA systemd[1]: Started ssh.service - OpenBSD Sec>
...skipping...
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset:
   Active: active (running) since Fri 2025-03-21 06:35:27 UTC; 35s ago
   TriggeredBy: ● ssh.socket
   Docs: man:sshd(8)
         man:sshd_config(5)
   Main PID: 26166 (sshd)
   Tasks: 1 (limit: 4620)
   Memory: 1.5M ( )
   CGroup: /system.slice/ssh.service
           └─26166 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startu>
Mar 21 06:35:27 NIKILPRASANNA systemd[1]: Starting ssh.service - OpenBSD Se>
Mar 21 06:35:27 NIKILPRASANNA sshd[26166]: Server listening on :: port 22.
Mar 21 06:35:27 NIKILPRASANNA systemd[1]: Started ssh.service - OpenBSD Sec>
~
~
~
~
~
~
```

```
Main PID: 26166 (sshd)
Tasks: 1 (Limit: 4620)
Memory: 1.5M ()
CGroup: /system.slice/ssh.service
└─26166 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startu>
Mar 21 06:35:27 NIKILPRASANNA systemd[1]: Starting ssh.service - OpenBSD Se>
Mar 21 06:35:27 NIKILPRASANNA sshd[26166]: Server listening on :: port 22.>
Mar 21 06:35:27 NIKILPRASANNA systemd[1]: Started ssh.service - OpenBSD Sec>
```

```
niki@nikilprasan-na:~$ cd ~/.kube/
niki@nikilprasan-na:~/\.kube$ sudo nano config
niki@nikilprasan-na:~/\.kube$ kubectl get node
```

	NAME	STATUS	ROLES	AGE	VERSION
#1	minikube	Ready	control-plane	78m	v1.32.0

```
niki@nikilprasan-na:~/\.kube$ |
```

The screenshot shows the Jenkins web console for a pipeline named 'java-application'. The left sidebar contains navigation links like Status, Changes, Build Now, Configure, Delete Pipeline, Full Stage View, Stages, Rename, and Pipeline Syntax. The main area displays the 'Stage View' as a grid where each row represents a build attempt and columns represent stages.

	SCM	Build-clean	Build-validate	Build-compile	Build-test	Build-package	build to images	docker push hub	Deploy App
Average stage times: (full run time: ~53s)	2s	2s	1s	2s	2s	3s	49ms	29s	740ms
#6 15:17 No Changes	6s	3s	2s	3s	3s	3s	741ms	50s	979ms
#5 14:43 No Changes	1s	2s	1s	2s	2s	3s	500ms	29s	337ms
#4 14:40 1 failure	1s	2s	1s	2s	3s	4s	484ms	37s	533ms failed
#3 14:36 No Changes	1s	3s	2s	3s	3s	3s	508ms	30s	1s failed
#2 13:37 No Changes	1s	1s	848ms	1s	1s	3s	336ms	28s	
#1 13:33 No Changes	1s	1s	848ms	1s	1s	1s	422ms	75ms	

In the bottom-left corner, there's a 'Builds' panel listing recent builds by their number, timestamp, and status (e.g., #6 at 9:47 AM is successful).