

ITIM

PRACTICAL - 13

Name : Yagna Patel
Enrollment No. : 211621020
Batch : 61(CBA)

Tasks :

1) Task 1:

- Perform from Web user
- pull a httpd image from registry.redhat.io
- Use your rhel id and password for login
- perform port forwarding
- perform persistent mounting
- container must be managed using systemctl commands

Install podman using : **yum install podman**

```
[root@workstation student]# yum install podman
Red Hat Enterprise Linux 8.2 BaseOS (dvd)      164 kB/s | 2.8 kB      00:00
Red Hat Enterprise Linux 8.2 AppStream (dvd)   768 kB/s | 3.2 kB      00:00
Dependencies resolved.
=====
Package                Arch    Version                                Repository                                Size
=====
Installing:
podman                  x86_64  1.6.4-10.module+el8.2.0+6063+e761893a
                                rhel-8.2-for-x86_64-appstream-rpms      12 M
Installing dependencies:
common                  x86_64  2:2.0.6-1.module+el8.2.0+5182+3136e5d4
                                rhel-8.2-for-x86_64-appstream-rpms      37 k
container-selinux       noarch  2:2.124.0-1.module+el8.2.0+5182+3136e5d4
                                rhel-8.2-for-x86_64-appstream-rpms      47 k
containernetworking-plugins
                        x86_64  0.8.3-5.module+el8.2.0+5201+6b31f0d9
                                rhel-8.2-for-x86_64-appstream-rpms      20 M
containers-common       x86_64  1:0.1.40-10.module+el8.2.0+5955+6cd70ceb
                                rhel-8.2-for-x86_64-appstream-rpms      50 k
criu                    x86_64  3.12-9.module+el8.2.0+5029+3ac48e7d
                                rhel-8.2-for-x86_64-appstream-rpms     482 k
fuse-overlayfs          x86_64  0.7.2-5.module+el8.2.0+6060+9dbc027d
```

Login into podman using : **podman login registry.redhat.io**

```
complete!
[root@workstation student]# podman login registry.redhat.io
Username: yagnahpatel21@gnu.ac.in
Password:
Login Succeeded!
[root@workstation student]#
```

Search for the image using : `podman search httpd`

```
[root@workstation student]# podman search httpd
```

INDEX	NAME	DESCRIPTION	STARS	OFFICIAL
AUTOMATED				
redhat.com	registry.access.redhat.com/ubi9/httpd-24			
	rhcc_registry.access.redhat.com_ubi9/httpd-2...		0	
redhat.com	registry.access.redhat.com/rhsc7/httpd-24-rhel7			
	Apache HTTP 2.4 Server		0	
redhat.com	registry.access.redhat.com/rhmap45/httpd			
	Provides an extension to the RHSC7 Httpd ima...		0	
redhat.com	registry.access.redhat.com/rhmap44/httpd			
	Provides an extension to the RHSC7 Httpd Doc...		0	
redhat.com	registry.access.redhat.com/rhmap42/httpd			
	Provides an extension to the RHSC7 Httpd Doc...		0	
redhat.com	registry.access.redhat.com/rhmap46/httpd			
	Provides an extension to the RHSC7 Httpd ima...		0	
redhat.com	registry.access.redhat.com/cloudforms47/cfme-openshift-httpd			
	CloudForms 4.7 APP image for OpenShift		0	
redhat.com	registry.access.redhat.com/rhsc7/varnish-4-rhel7			
	Varnish 4 high-performance HTTP accelerator		0	

Pull the Image using : `podman pull image_path`

```
[root@workstation student]# podman pull registry.redhat.io/rhel8/httpd-24
Trying to pull registry.redhat.io/rhel8/httpd-24...
Getting image source signatures
Copying blob d00882c4b1c5 done
Copying blob 2efec45cd878 done
Copying blob 81fee47bacff done
Copying Config ef34f8f80d done
Writing manifest to image destination
Storing signatures
ef34f8f80d236b2e625154729f276577a67034cb598dae20426d3b3b91573a70
[root@workstation student]#
```

Check installed images using : `podman images`

```
[root@workstation student]# podman images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
registry.redhat.io/rhel8/httpd-24	latest	ef34f8f80d23	11 days ago	458 MB

```
[root@workstation student]#
```

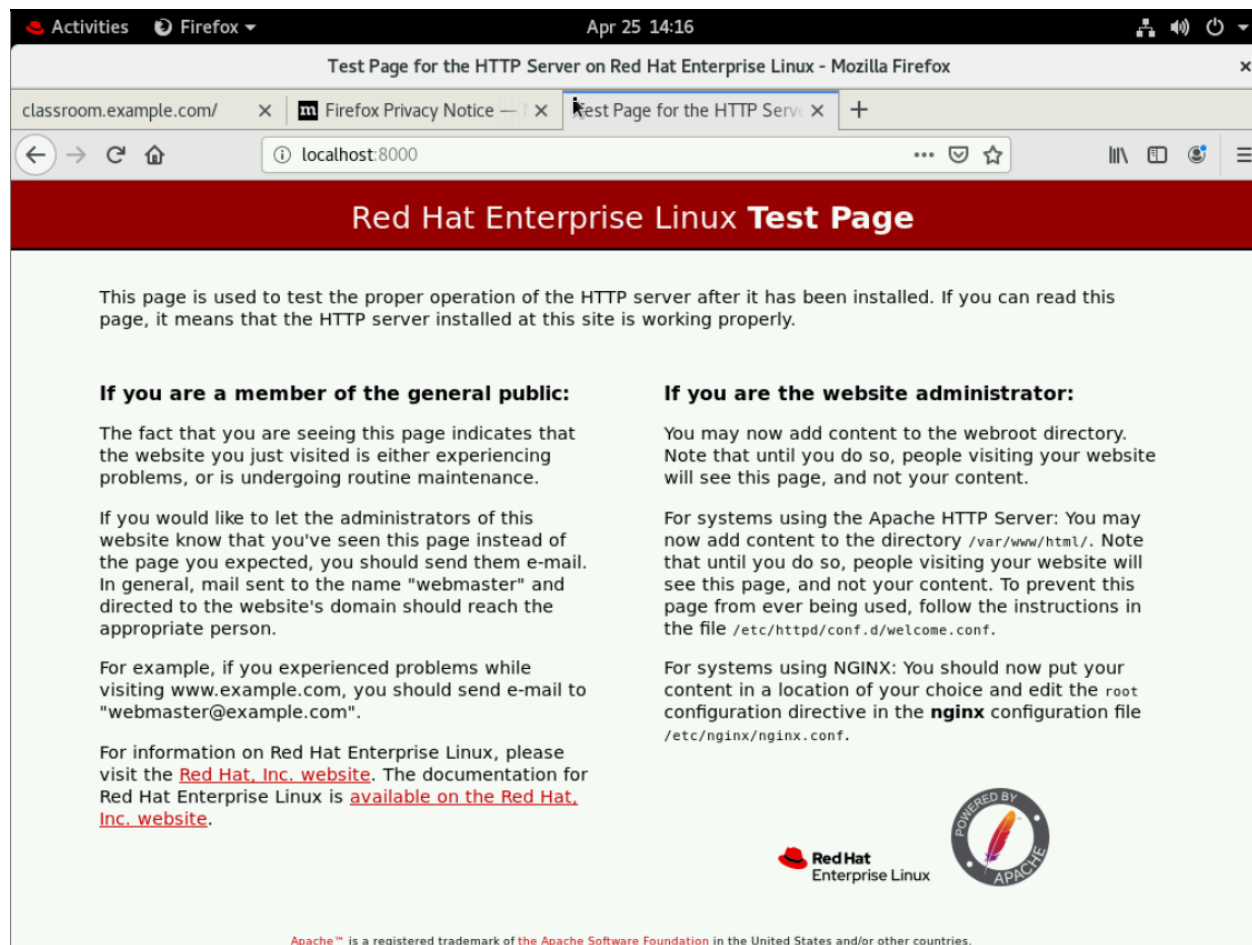
run the image at port 8000 in detached mode using : `podman run -d -p 8000:8080 image_path`

```
[root@workstation student]# podman run -d -p 8000:8080 registry.redhat.io/rhel8/httpd-24
ebf176cb906a8e33c9fbc20119ff63079d138d37ad80dd1da23c0e42f5bb23f9
[root@workstation student]#
```

Allow inbound traffic on port 8000 using : `firewall-cmd --add-port 8000/tcp`

```
[root@workstation student]# firewall-cmd --add-port 8000/tcp
success
[root@workstation student]#
```

Check port 8000



Create a dir for persistent mounting :

```
[root@workstation student]# mkdir -p /var/www/html

[root@workstation student]# podman run -d --publish=8080:80 -v /var/www/html:/usr/local/apache2/htdocs registry.redhat.io/rhel8/httpd-24
df0dfc535cb529053d8c009ec12f94bf22954a07a564e97f605f818e056d6195
[root@workstation student]#
```

Create a new file using : vim /etc/systemd/system/httpd.service

And write ;

[Unit]

Description=Apache HTTP Server

After=network.target

[Service]

Type=simple

ExecStart=/usr/bin/podman run -d --publish=8080:80

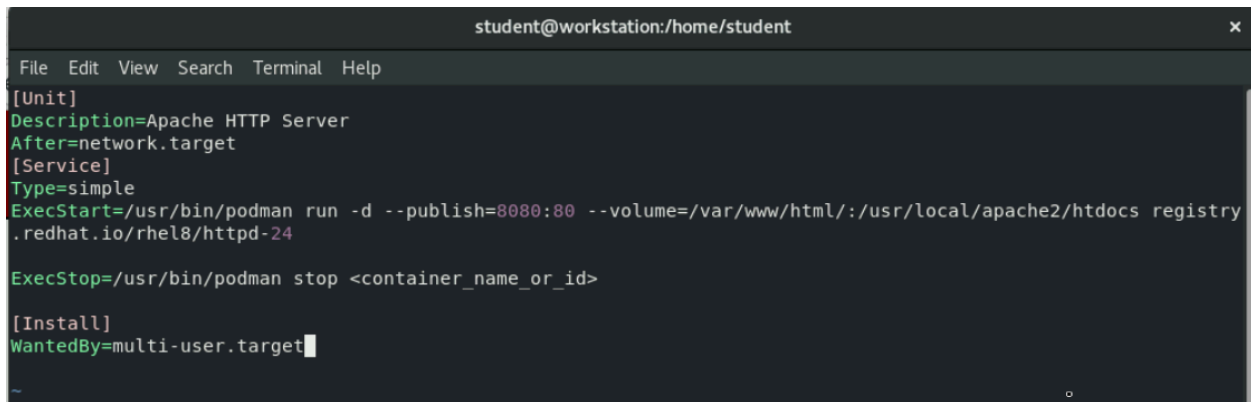
--volume=/var/www/html:/usr/local/apache2/htdocs

registry.redhat.io/rhel8/httpd-24

ExecStop=/usr/bin/podman stop <container_name_or_id>

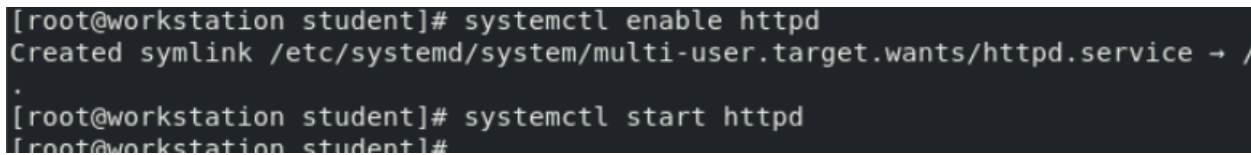
[Install]

WantedBy=multi-user.target

A screenshot of a terminal window titled 'student@workstation:/home/student'. The terminal shows the contents of the file /etc/systemd/system/httpd.service. The text is as follows:

```
[Unit]
Description=Apache HTTP Server
After=network.target
[Service]
Type=simple
ExecStart=/usr/bin/podman run -d --publish=8080:80 --volume=/var/www/html:/usr/local/apache2/htdocs registry
.redhat.io/rhel8/httpd-24
ExecStop=/usr/bin/podman stop <container_name_or_id>
[Install]
WantedBy=multi-user.target
```

enable and start the httpd service

A screenshot of a terminal window showing the commands to enable and start the httpd service. The text is as follows:

```
[root@workstation student]# systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /
.
[root@workstation student]# systemctl start httpd
[root@workstation student]#
```

2) Task 2:

Create a container mysql-server from an image mysql on server a from registry

- perform the port forwarding

-create a database by your name

-create a table having the student details

Search for mysql images on registry

```
[root@workstation student]# podman search mysql
```

INDEX	NAME	DESCRIPTION
	STARS OFFICIAL AUTOMATED	
redhat.com	registry.access.redhat.com/openshift3/mysql-apb	Ansible Playbook Bundle application defin
iti... 0		
redhat.com	registry.access.redhat.com/openshift3/mysql-55-rhel7	MySQL 5.5 SQL database server
0		
redhat.com	registry.access.redhat.com/rhsc1/mysql-56-rhel7	MySQL 5.6 SQL database server
0		
redhat.com	registry.access.redhat.com/rhmap42/mysql	Provides an extension to the RHSC1 MySQL
Doc... 0		
redhat.com	registry.access.redhat.com/rhmap43/mysql	Provides an extension to the RHSC1 MySQL
Doc... 0		
redhat.com	registry.access.redhat.com/rhmap45/mysql	Provides an extension to the RHSC1 MySQL
ima... 0		
redhat.com	registry.access.redhat.com/rhmap44/mysql	Provides an extension to the RHSC1 MySQL
Doc... 0		
redhat.com	registry.access.redhat.com/rhsc1/mysql-57-rhel7	Docker image for running MySQL 5.7 server
. T... 0		
redhat.com	registry.access.redhat.com/rhmap46/mysql	Provides an extension to the RHSC1 MySQL
ima... 0		
redhat.com	registry.access.redhat.com/rhmap47/mysql	Provides an extension to the RHSC1 MySQL
ima... 0		
redhat.com	registry.access.redhat.com/rhsc1/mysql-80-rhel7	This container image provides a container

Pull an image of mysql

```
[root@workstation student]# podman pull registry.redhat.io/rhel8/mysql-80
Trying to pull registry.redhat.io/rhel8/mysql-80...
Getting image source signatures
Copying blob 088890f6aa4e skipped: already exists
Copying blob 2efec45cd878 skipped: already exists
Copying blob d00882c4b1c5 skipped: already exists
Copying config a08b94f153 done
Writing manifest to image destination
Storing signatures
a08b94f153725b02340e9a85d454e0518e6290cedb68d6028e9971a14d68ae49
[root@workstation student]#
```

Create a dir and assign permissions 777 to it

```
[root@workstation student]# mkdir mysql_data
[root@workstation student]# chmod 777 mysql_data
[root@workstation student]#
```

Run the container give it name mysqlcontainer, port 3306 also add environment variable MYSQL_ROOT_PASSWORD

```
[root@workstation /]# podman run --name mysqlcontainer -p 3306:3306 -v /home/student/mysql_data:/var/lib/mysql --env MYSQL_ROOT_PASSWORD=redhat registry.redhat.io/rhel8/mysql-80
=> sourcing 20-validate-variables.sh ...
=> sourcing 25-validate-replication-variables.sh ...
=> sourcing 30-base-config.sh ...
--> 18:42:22 Processing basic MySQL configuration files ...
=> sourcing 60-replication-config.sh ...
=> sourcing 70-s2i-config.sh ...
--> 18:42:22 Processing additional arbitrary MySQL configuration provided by s2i ...
=> sourcing 20-default-authentication-plugin.cnf ...
=> sourcing 40-paas.cnf ...
=> sourcing 50-my-tuning.cnf ...
--> 18:42:22 Initializing database ...
--> 18:42:22 Running /usr/libexec/mysqld --initialize --datadir=/var/lib/mysql/data
--> 18:43:19 Starting MySQL server with disabled networking ...
--> 18:43:19 Waiting for MySQL to start ...
2024-04-25T18:43:20.166739Z 0 [Warning] [MY-011070] [Server] 'Disabling symbolic links using --skip-symbolic-links (or equivalent) is the default. Consider not using this option as it' is deprecated and will be removed in a future release.
2024-04-25T18:43:20.168788Z 0 [System] [MY-010116] [Server] /usr/libexec/mysqld (mysqld 8.0.36) starting as process 76
2024-04-25T18:43:20.190061Z 0 [Warning] [MY-013907] [InnoDB] Deprecated configuration parameters innodb_log_file_size and/or innodb_log_files_in_group have been used to compute innodb_redo_log_capacity=16777216. Please use innodb_redo_log_capacity instead.
2024-04-25T18:43:20.192270Z 1 [System] [MY-013576] [InnoDB] InnoDB initialization has started.
```

Open a new container and execute the container with mysql -u root to enter the mysql cli

```
[root@workstation /]# podman exec -it mysqlcontainer mysql -u root
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.36 Source distribution

Copyright (c) 2000, 2024, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> █
```


Performing CRUD operations inside the mysql connection

```
mysql> CREATE TABLE STUDENT(ENROLL INT,NAME VARCHAR(10));
ERROR 1046 (3D000): No database selected
mysql> CREATE DATABASE YAGNA;
Query OK, 1 row affected (0.04 sec)

mysql> USE YAGNA;
Database changed
mysql> CREATE TABLE STUDENT(ENROLL INT,NAME VARCHAR(10));
Query OK, 0 rows affected (0.30 sec)

mysql> INSERT INTO STUDENT VALUES(20,'YAGNA');
Query OK, 1 row affected (0.05 sec)

mysql> SELECT * FROM STUDENT;
+-----+-----+
| ENROLL | NAME  |
+-----+-----+
|      20 | YAGNA |
+-----+-----+
1 row in set (0.00 sec)

mysql> 
```