Container: Lecture 3

1. Install container tools-

```
[root@rhel9-test ~]#
[root@rhel9-test ~]# dnf install -y @container-tools
```

2. Get container image detail like os-release without using interactive shell just after download-

```
[root@rhel9-test containers]# podman run --rm registry.access.redhat.com/ubi8/ubi cat /etc/os-release
Trying to pull registry.access.redhat.com/ubi8/ubi:latest...
Getting image source signatures
Checking if image destination supports signatures
Copying blob 0e0c4af1097a done
Copying config b2276c479c done
Writing manifest to image destination
Storing signatures
NAME="Red Hat Enterprise Linux"
VERSION="8.7 (Ootpa)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="8.7"
PLATFORM_ID="platform:el8"
PRETTY_NAME="Red Hat Enterprise Linux 8.7 (Ootpa)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:8::baseos"
HOME_URL="https://www.redhat.com/"
DOCUMENTATION_URL="https://access.redhat.com/documentation/red_hat_enterprise_linux/8/"
BUG_REPORT_URL="https://bugzilla.redhat.com/"

REDHAT_BUGZILLA_PRODUCT="Red Hat Enterprise Linux 8"
REDHAT_BUGZILLA_PRODUCT_VERSION=8.7
REDHAT_SUPPORT_PRODUCT="Red Hat Enterprise Linux"
REDHAT_SUPPORT_PRODUCT_VERSION="8.7"
[root@rhel9-test containers]#
[root@rhel9-test containers]#
```

3. Verify it-

```
[root@rhel9-test containers]# podman images
REPOSITORY                              TAG       IMAGE ID       CREATED       SIZE
registry.access.redhat.com/ubi8/ubi    latest    b2276c479c60   2 weeks ago   214 MB
```

4. Now for container image interactive session, use command as shown-

```
[root@rhel9-test containers]#
[root@rhel9-test containers]# podman run --name=abhayubi -it registry.access.redhat.com/ubi8/ubi /bin/bash
[root@904ad7596565 /]#
```

Note: We are in container now.

5. We can verify few commands, like shown below-

```
[root@904ad7596565 /]# ps -ef
bash: ps: command not found
[root@904ad7596565 /]#
[root@904ad7596565 /]# yum install procps-ng -y
```

```
[root@904ad7596565 /]# ps -ef
UID          PID    PPID  C STIME TTY          TIME CMD
root           1       0  0 14:03 pts/0    00:00:00 /bin/bash
root          31       1  0 14:04 pts/0    00:00:00 ps -ef
[root@904ad7596565 /]#
[root@904ad7596565 /]# cat /etc/redhat-release
Red Hat Enterprise Linux release 8.7 (Ootpa)
[root@904ad7596565 /]#
[root@904ad7596565 /]#
[root@904ad7596565 /]# uname -a
Linux 904ad7596565 5.14.0-162.6.1.el9_1.x86_64 #1 SMP PREEMPT_DYNAMIC Fri Sep 30 07:36:03 EDT 2022 x86_64 x86_64 x86_64 GNU/Linux
[root@904ad7596565 /]#
[root@904ad7596565 /]#
[root@904ad7596565 /]# exit
[root@rhel9-test containers]#
```

Note: If command not found, install its package first. After verifying few commands, exit from container.

6. To get logs for that image, use command shown-

```
[root@rhel9-test ~]#
[root@rhel9-test ~]# podman logs abhayubi
```

Note: It will show all task we done there previously like we ran few commands & install packages.

7. If we want to pull container image & run it in background at the same time, use below command-

```
[root@rhel9-test ~]# podman run -d docker.io/lendingworks/rsyslog
Trying to pull docker.io/lendingworks/rsyslog:latest...
Getting image source signatures
Copying blob 00d92704ec58 done
Copying blob cbdbe7a5bc2a done
Copying blob 692ba7e301ec done
Copying blob 2890df2f5ec8 done
Copying config cf97c1e428 done
Writing manifest to image destination
Storing signatures
9c93dc42db93843a7e48e1c47bd33d74f86400255ffe6907765e5a2d705822fe
[root@rhel9-test ~]#
[root@rhel9-test ~]#
[root@rhel9-test ~]# podman ps
CONTAINER ID  IMAGE                                      COMMAND     CREATED        STATUS            PORTS       NAMES
9c93dc42db93  docker.io/lendingworks/rsyslog:latest                  9 seconds ago  Up 10 seconds ago             gallant_mahavira
[root@rhel9-test ~]#
[root@rhel9-test ~]#
[root@rhel9-test ~]# podman ps -a
CONTAINER ID  IMAGE                                      COMMAND     CREATED        STATUS                  PORTS       NAMES
90255a929bca  registry.access.redhat.com/ubi8/ubi:latest  /bin/bash   8 minutes ago  Exited (0) 8 minutes ago             myubi
904ad7596565  registry.access.redhat.com/ubi8/ubi:latest  /bin/bash   7 minutes ago  Exited (0) 5 minutes ago             abhayubi
9c93dc42db93  docker.io/lendingworks/rsyslog:latest                  26 seconds ago  Up 26 seconds ago             gallant_mahavira
[root@rhel9-test ~]#
```

8. To start a stopped image, run below command & verify it-

```
[root@rhel9-test ~]# podman start abhayubi
abhayubi
[root@rhel9-test ~]#
[root@rhel9-test ~]# podman ps
CONTAINER ID  IMAGE                                     COMMAND    CREATED           STATUS              PORTS    NAMES
904ad7596565  registry.access.redhat.com/ubi8/ubi:latest  /bin/bash  8 minutes ago     Up 4 seconds ago             abhayubi
9c93dc42db93  docker.io/lendingworks/rsyslog:latest                  About a minute ago  Up About a minute ago       gallant_mahavira
[root@rhel9-test ~]#
```

9. To start interactive session-

```
[root@rhel9-test ~]# podman start -a -i abhayubi
[root@904ad7596565 /]#
[root@904ad7596565 /]# cat /etc/redhat-release
Red Hat Enterprise Linux release 8.7 (Ootpa)
[root@904ad7596565 /]#
```

Note: "-a "for attach. "-i" for interactive.

10. Verify images & inspect any one-

```
[root@rhel9-test ~]# podman images
REPOSITORY                            TAG      IMAGE ID      CREATED      SIZE
registry.access.redhat.com/ubi8/ubi   latest   b2276c479c60  2 weeks ago  214 MB
docker.io/lendingworks/rsyslog        latest   cf97c1e428d9  2 years ago  9.22 MB
[root@rhel9-test ~]#
[root@rhel9-test ~]#
[root@rhel9-test ~]# podman inspect b2276c479c60
```

11. If we want to inspect any particular format of that image, use command as shown-

```
[root@rhel9-test ~]# podman inspect --format='{{.NamesHistory}}' b2276c479c60
[registry.access.redhat.com/ubi8/ubi:latest]
[root@rhel9-test ~]#
```

12. We want to mount container's log directory on host machine to see container logs-

```
[root@rhel9-test ~]# podman run --name="log_test" -v /dev/log:/dev/log --rm docker.io/library/httpd logger "Testing logging to the host"
Trying to pull docker.io/library/httpd:latest...
Getting image source signatures
Copying blob ec3bbe99d2b1 done
Copying blob 3f4ca61aafcd done
Copying blob 2e3d233b6299 done
Copying blob 6d859023da80 done
Copying blob f856a04699cc done
Copying config 73c10eb926 done
Writing manifest to image destination
Storing signatures
[root@rhel9-test ~]#
[root@rhel9-test ~]#
[root@rhel9-test ~]# journalctl -b | grep Testing
Jan 01 19:54:17 rhel9-test.cricbuzz.com root[4436]: Testing logging to the host  ←
[root@rhel9-test ~]#
```

Note: here we can see container logs on host machine.

13. If we want to mount container image file system on host machine--

```
[root@rhel9-test ~]# podman run -d --name=mysyslog docker.io/lendingworks/rsyslog
bf657f6b1e4b4f5f6c12f80cc03458fa800a72061815cbc7a7b094d1687abc5d
[root@rhel9-test ~]#
[root@rhel9-test ~]# podman ps -a
CONTAINER ID  IMAGE                                          COMMAND     CREATED         STATUS                     PORTS      NAMES
90255a929bca  registry.access.redhat.com/ubi8/ubi:latest    /bin/bash   25 minutes ago  Exited (0) 25 minutes ago             myubi
904ad7596565  registry.access.redhat.com/ubi8/ubi:latest    /bin/bash   24 minutes ago  Exited (0) 14 minutes ago             abhayubi
9c93dc42db93  docker.io/lendingworks/rsyslog:latest                     17 minutes ago  Up 17 minutes ago                     gallant_mahavira
bf657f6b1e4b  docker.io/lendingworks/rsyslog:latest                     10 seconds ago  Up 11 seconds ago                     mysyslog
```

```
[root@rhel9-test ~]# podman mount mysyslog
/var/lib/containers/storage/overlay/6676db02b0c5a28598dc486919f1c37bee1abf63a02194ca6796b3674be7b661/merged
[root@rhel9-test ~]#
[root@rhel9-test ~]#
[root@rhel9-test ~]#
[root@rhel9-test ~]# cd /var/lib/containers/storage/overlay/6676db02b0c5a28598dc486919f1c37bee1abf63a02194ca6796b3674be7b661/merged
[root@rhel9-test merged]#
[root@rhel9-test merged]# ls
bin  dev  etc  home  lib  media  mnt  opt  proc  root  run  sbin  srv  sys  tmp  usr  var
[root@rhel9-test merged]#
[root@rhel9-test merged]# cat /var/lib/containers/storage/overlay/6676db02b0c5a28598dc486919f1c37bee1abf63a02194ca6796b3674be7b661/merged/etc/os-re
lease
NAME="Alpine Linux"
ID=alpine
VERSION_ID=3.11.6
PRETTY_NAME="Alpine Linux v3.11"
HOME_URL="https://alpinelinux.org/"
BUG_REPORT_URL="https://bugs.alpinelinux.org/"
[root@rhel9-test merged]#
```

Note: We ran the container in background. Mounted its file system on host machine & verified its os-release file.

14. Now unmount the container file system & stop container image-

```
[root@rhel9-test ~]# podman umount mysyslog
mysyslog
[root@rhel9-test ~]#
[root@rhel9-test ~]#
[root@rhel9-test ~]# podman stop mysyslog
mysyslog
[root@rhel9-test ~]#
```

15. Remove container image-

```
[root@rhel9-test ~]# podman rmi -a -f
Untagged: registry.access.redhat.com/ubi8/ubi:latest
Untagged: docker.io/lendingworks/rsyslog:latest
Deleted: b2276c479c6016fc5f3f87899e43a32578781feb6043fade2e132e97a75ba2c9
Deleted: cf97c1e428d919750e5a182e08eac637fde078dcd0e3520ae2e85fb7edcae100
[root@rhel9-test ~]#
[root@rhel9-test ~]#
[root@rhel9-test ~]# podman images
REPOSITORY   TAG          IMAGE ID     CREATED      SIZE
[root@rhel9-test ~]#
```

This is it for Lecture 3!!!