# Container: Lecture 1

1. Install container tools-

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

```
[root@rhel9-server /]# yum install podman -y
```

2. Start & enable podman service-

```
[root@rhel9-server /]# systemctl enable podman.service --now
Created symlink /etc/systemd/system/default.target.wants/podman.service → /usr/lib/systemd/system/podman.service.
[root@rhel9-server /]#
```

```
[root@rhel9-server /]# systemctl status podman.service
● podman.service - Podman API Service
     Loaded: loaded (/usr/lib/systemd/system/podman.service; enabled; vendor preset: disabled)
     Active: active (running) since Fri 2022-12-30 10:50:24 IST; 2s ago
TriggeredBy: ● podman.socket
       Docs: man:podman-system-service(1)
   Main PID: 4045 (podman)
```

3. Check podman version-

```
[root@rhel9-server /]# podman version
Client:       Podman Engine
Version:      4.2.0
API Version:  4.2.0
Go Version:   go1.18.4
Built:        Mon Aug 22 18:07:10 2022
OS/Arch:      linux/amd64
[root@rhel9-server /]#
```

4. Syntax to search container image using podman-

```
[root@rhel9-server /]#
[root@rhel9-server /]# # syntax:  podman search registry/container_image
```

5. For ex, search for Redis container image-

```
[root@rhel9-server /]# podman search registry.redhat.io/redis
NAME                                                DESCRIPTION
registry.redhat.io/rhel8/redis-5                    Redis in-memory data structure store, used a...
registry.redhat.io/rhscl/redis-5-rhel7              Redis in-memory data structure store, used a...
registry.redhat.io/rhmap45/redis                    RHMAP image that provides the Redis Server.
registry.redhat.io/rhscl/redis-32-rhel7             Redis in-memory data structure store, used a...
registry.redhat.io/rhmap44/redis                    RHMAP Docker container that provides the Red...
registry.redhat.io/rhmap4/redis                     RHMAP Docker container that provides the Red...
registry.redhat.io/rhmap43/redis                    RHMAP Docker container that provides the Red...
registry.redhat.io/rhmap47/redis                    RHMAP image that provides the Redis Server.
registry.redhat.io/rhel8/redis-6                    Redis in-memory data structure store, used a...
registry.redhat.io/rhscl/redis-6-rhel7              Redis in-memory data structure store, used a...
registry.redhat.io/rhel9/redis-6                    rhcc_registry.access.redhat.com_rhel9/redis-...
registry.redhat.io/rhmap42/redis                    RHMAP Docker container that provides the Red...
registry.redhat.io/rhosp12/openstack-redis          Red Hat OpenStack Container image for openst...
registry.redhat.io/rhmap41/redis                    RHMAP Docker container that provides the Red...
registry.redhat.io/rhmap46/redis                    RHMAP image that provides the Redis Server.
registry.redhat.io/rhosp13/openstack-redis          Red Hat OpenStack Container image for openst...
registry.redhat.io/rhosp14/openstack-redis          Red Hat OpenStack Container image for openst...
registry.redhat.io/rhosp14-beta/openstack-redis-base   Red Hat OpenStack Beta Container image for o...
registry.redhat.io/rhosp-beta/openstack-redis       openstack-redis
registry.redhat.io/rhosp15-rhel8/openstack-redis    openstack-redis
registry.redhat.io/rhosp-rhel8/openstack-redis      openstack-redis
registry.redhat.io/rhosp15-rhel8/openstack-redis-base  openstack-redis-base
registry.redhat.io/rhosp-rhel8/openstack-redis-base    openstack-redis-base
registry.redhat.io/rhosp14/openstack-redis-base     Red Hat OpenStack Container image for openst...
registry.redhat.io/rhosp14-beta/openstack-redis     Red Hat OpenStack Beta Container image for o...
[root@rhel9-server /]#
```

6. Similarly, for MariaDB container image-

```
[root@rhel9-server /]# podman search registry.redhat.io/mariadb
NAME                                                DESCRIPTION
registry.redhat.io/rhscl/mariadb-101-rhel7          MariaDB server 10.1 for OpenShift and genera...
registry.redhat.io/rhscl/mariadb-100-rhel7          MariaDB 10.0 SQL database server
registry.redhat.io/openshift3/mariadb-apb           Ansible Playbook Bundle application definiti...
registry.redhat.io/rhel8/mariadb-105                MariaDB 10.5 SQL database server
registry.redhat.io/rhel8/mariadb-103                MariaDB is a multi-user, multi-threaded SQL...
registry.redhat.io/rhscl/mariadb-105-rhel7          MariaDB 10.5 SQL database server
registry.redhat.io/rhel9/mariadb-105                rhcc_registry.access.redhat.com_rhel9/mariad...
registry.redhat.io/rhscl/mariadb-102-rhel7          MariaDB is a multi-user, multi-threaded SQL...
registry.redhat.io/rhosp12/openstack-mariadb        Red Hat OpenStack Container image for openst...
registry.redhat.io/openshift4/mariadb-apb           'Ansible Playbook Bundle application definit...
registry.redhat.io/rhscl/mariadb-103-rhel7          MariaDB 10.3 SQL database server
registry.redhat.io/rhosp13/openstack-mariadb        Red Hat OpenStack Container image for openst...
registry.redhat.io/rhosp15-rhel8/openstack-mariadb  openstack-mariadb
registry.redhat.io/rhosp14-beta/openstack-mariadb   Red Hat OpenStack Beta Container image for o...
registry.redhat.io/rhosp-beta/openstack-mariadb     openstack-mariadb
registry.redhat.io/rhosp-rhel8/openstack-mariadb    openstack-mariadb
registry.redhat.io/rhosp14/openstack-mariadb        Red Hat OpenStack Container image for openst...
registry.redhat.io/rhosp-rhel9/openstack-mariadb    rhcc_registry.access.redhat.com_rhosp-rhel9/...
[root@rhel9-server /]#
```

7. To get description of any particular container image-

```
[root@rhel9-server /]# podman search --no-trunc registry.redhat.io/rhel8/mariadb-105
NAME                                DESCRIPTION
registry.redhat.io/rhel8/mariadb-105  MariaDB 10.5 SQL database server
[root@rhel9-server /]#
[root@rhel9-server /]#
[root@rhel9-server /]# podman search --no-trunc registry.redhat.io/rhosp12/openstack-mariadb
NAME                                          DESCRIPTION
registry.redhat.io/rhosp12/openstack-mariadb  Red Hat OpenStack Container image for openstack-mariadb
[root@rhel9-server /]#
```

8. Login using Redhat credential-

```
[root@rhel9-server /]# podman login
Username: abhay.pinku
Password:
Login Succeeded!
[root@rhel9-server /]#
```

9. Look for centos 8 container image-

```
[root@rhel9-test /]# podman search centos8
NAME                                        DESCRIPTION
docker.io/roboxes/centos8                   A generic CentOS 8 base image.
docker.io/sirajahamed/centos8
docker.io/cloudlinuxinc/centos8-python38    CentOS 8 with Python-3.8
docker.io/starlabio/centos8-crucible-build  CentOS build environment for Crucible
docker.io/memiiso/centos8-java8python3docker  centos8-java8python3docker
docker.io/memiiso/centos8-java8azkaban3     centos8-java8azkaban3
docker.io/wuykimpang/centos8-extended
docker.io/liuwh08/centos8-kubevirt-vm
docker.io/nmstate/centos8-nmstate-dev
docker.io/inveniosoftware/centos8-python    This image is now deprecated and unmaintaine...
docker.io/bluedata/centos8
docker.io/geodesolutions/centos8
docker.io/prestocpp/centos8-gcc9
docker.io/getgambacom/centos8
docker.io/lps0530/centos8
docker.io/anthrax/centos8
docker.io/alazartech/centos8
docker.io/thinakar/centos8                  centos8 core with net-utils, vim, sshuttle
docker.io/hyperglance/centos8
docker.io/olcsanteknoloji/centos8-perf
docker.io/matrixdb/centos8_build
docker.io/maxboehme/centos8-php8
docker.io/unboundukc/centos8
docker.io/thinkpranav/centos8-build-essential  Image with all tools for building Project0 f...
docker.io/vindevoy/centos8-openjdk11        This base image uses a base CentOS 8 image a...
[root@rhel9-test /]#
```

10. Pull centos 8 container image from docker registry shown above-

```
[root@rhel9-test /]# podman pull docker.io/cloudlinuxinc/centos8-python38
Trying to pull docker.io/cloudlinuxinc/centos8-python38:latest...
Getting image source signatures
Copying blob cfc3fb50d273 done
Copying blob a1f18d9dc549 done
Copying blob 915229397771 done
Copying blob 3a7ba744b515 done
Copying config 1194bb8e65 done
Writing manifest to image destination
Storing signatures
1194bb8e65c3eb4f87c16d3b4f046d296b845d19a1e6ccc4651ca9d7416bbaf9
[root@rhel9-test /]#
```

11. Verify all available container images on local machine using podman-

```
[root@rhel9-test /]# podman images
REPOSITORY                                  TAG         IMAGE ID      CREATED        SIZE
docker.io/cloudlinuxinc/centos8-python38    latest      1194bb8e65c3  11 months ago  1.82 GB
registry.centos.org/centos/httpd            latest      3539eed1f25d  2 years ago    436 MB
[root@rhel9-test /]#

[root@rhel9-test /]#
[root@rhel9-test /]# podman images -a
REPOSITORY                                  TAG         IMAGE ID      CREATED        SIZE
docker.io/cloudlinuxinc/centos8-python38    latest      1194bb8e65c3  11 months ago  1.82 GB
registry.centos.org/centos/httpd            latest      3539eed1f25d  2 years ago    436 MB
[root@rhel9-test /]#
```

12. To inspect any installed container image to get all details about this container image-

```
[root@rhel9-test /]# podman inspect 1194bb8e65c3
```

13. To give tag to any installed container image-

```
[root@rhel9-test /]# podman tag 1194bb8e65c3 johnyos
[root@rhel9-test /]#
[root@rhel9-test /]#
[root@rhel9-test /]# podman images
REPOSITORY                                  TAG         IMAGE ID      CREATED        SIZE
docker.io/cloudlinuxinc/centos8-python38    latest      1194bb8e65c3  11 months ago  1.82 GB
localhost/johnyos                           latest      1194bb8e65c3  11 months ago  1.82 GB
registry.centos.org/centos/httpd            latest      3539eed1f25d  2 years ago    436 MB
[root@rhel9-test /]#
```

Note: It will create a copy of that original container image with tag.

14. Run container image & verify it-

```
[root@rhel9-test /]# podman run 3539eed1f25d
```

Note: This will start container image in foreground.

```
[root@rhel9-test /]# podman ps
CONTAINER ID  IMAGE                                   COMMAND       CREATED        STATUS            PORTS       NAMES
d48f2b4126d3  registry.centos.org/centos/httpd:latest  /run-httpd.sh  9 seconds ago  Up 9 seconds ago              romantic_jang
[root@rhel9-test /]#
```

15. To stop the running container image-

```
[root@rhel9-test /]# podman stop 3539eed1f25d
```

16. To run container in background-

```
[root@rhel9-test /]# podman run -d 3539eed1f25d
```

```
[root@rhel9-test /]# podman ps
CONTAINER ID  IMAGE                                   COMMAND       CREATED         STATUS             PORTS       NAMES
0e8f001998c3  registry.centos.org/centos/httpd:latest  /run-httpd.sh  13 minutes ago  Up 13 minutes ago              serene_blackburn
[root@rhel9-test /]#
```

17. Stop & verify it-

```
[root@rhel9-test /]# podman stop 0e8f001998c3
WARN[0010] StopSignal SIGTERM failed to stop container serene_blackburn in 10 seconds, resorting to SIGKILL
0e8f001998c3
[root@rhel9-test /]#
[root@rhel9-test /]# podman ps
CONTAINER ID  IMAGE       COMMAND     CREATED     STATUS      PORTS       NAMES
[root@rhel9-test /]#
```

18. List all available container image & run centos8 with interactive terminal using /bin/bash-

```
[root@rhel9-test ~]# podman images
REPOSITORY                                  TAG         IMAGE ID      CREATED        SIZE
docker.io/cloudlinuxinc/centos8-python38  latest      1194bb8e65c3  11 months ago  1.82 GB
localhost/johnyos                           latest      1194bb8e65c3  11 months ago  1.82 GB
registry.centos.org/centos/httpd            latest      3539eed1f25d  2 years ago    436 MB
[root@rhel9-test ~]#
[root@rhel9-test ~]# podman run -it --name=mybash 1194bb8e65c3
[root@f52db873a34a /]#
```

19. Run few commands in it-

```
[root@f52db873a34a /]# cat /etc/redhat-release
AlmaLinux release 8.5 (Arctic Sphynx)
[root@f52db873a34a /]#
[root@f52db873a34a /]#
[root@f52db873a34a /]# uname -a
Linux f52db873a34a 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@f52db873a34a /]#
```

20. Use CTRL+P & CTRL+Q one by one to exit this interactive session without terminating it.
Verify the running image from command shown below-

```
[root@rhel9-test ~]# podman ps
CONTAINER ID  IMAGE                                       COMMAND     CREATED        STATUS            PORTS       NAMES
f52db873a34a  docker.io/cloudlinuxinc/centos8-python38:latest  /bin/bash   41 seconds ago  Up 41 seconds ago             mybash
[root@rhel9-test ~]#
```

21. Stop this container image-

```
[root@rhel9-test ~]# podman stop f52db873a34a
f52db873a34a
[root@rhel9-test ~]#
```

22. Next, pull Redis container image & verify all the images as shown-

```
[root@rhel9-test ~]# podman pull docker.io/redislabs/redis
```

```
[root@rhel9-test ~]# podman images
REPOSITORY                                  TAG         IMAGE ID      CREATED        SIZE
docker.io/redislabs/redis                   latest      01941d1c57ee  4 weeks ago    1.25 GB
docker.io/cloudlinuxinc/centos8-python38  latest      1194bb8e65c3  11 months ago  1.82 GB
localhost/johnyos                           latest      1194bb8e65c3  11 months ago  1.82 GB
registry.centos.org/centos/httpd            latest      3539eed1f25d  2 years ago    436 MB
[root@rhel9-test ~]#
```

23. Run this Redis container image in background using mentioned port & verify it-

```
[root@rhel9-test ~]# podman run -d --name=redis_server -p 6379:6379 redis
0708b646733e8f41b6723c9e66c63370c0185c95f01cc5d87ad8920d8b31f1e9
[root@rhel9-test ~]#
```

```
[root@rhel9-test ~]# podman ps
CONTAINER ID  IMAGE                           COMMAND     CREATED        STATUS            PORTS                   NAMES
0708b646733e  docker.io/redislabs/redis:latest            9 seconds ago  Up 9 seconds ago  0.0.0.0:6379->6379/tcp  redis_server
[root@rhel9-test ~]#
```

24. To keep any container image running even after server reboot. Go to mentioned directory (For systemd unit)-

```
[root@rhel9-test ~]# cd /etc/systemd/system/
[root@rhel9-test system]#
[root@rhel9-test system]# ls
 basic.target.wants                          dbus.service                                                  multi-user.target.wants
 bluetooth.target.wants                      default.target                                                network-online.target.wants
 ctrl-alt-del.target                         default.target.wants                                          printer.target.wants
 dbus-org.bluez.service                     'dev-virtio\x2dports-org.qemu.guest_agent.0.device.wants'      remote-fs.target.wants
 dbus-org.fedoraproject.FirewallD1.service   display-manager.service                                       sockets.target.wants
 dbus-org.freedesktop.Avahi.service          getty.target.wants                                            sysinit.target.wants
 dbus-org.freedesktop.ModemManager1.service  graphical.target.wants                                        timers.target.wants
 dbus-org.freedesktop.nm-dispatcher.service  local-fs.target.wants                                         vmtoolsd.service.requires
[root@rhel9-test system]#
```

25. Create file for systemd unit-

```
[root@rhel9-test system]#
[root@rhel9-test system]# vim redis-container.service
```

26. Mentioned below line of codes in it-

```
[Unit]
Description=Redis container
[Service]
Restart=always
ExecStart=/usr/bin/podman start -a redis_server
ExecStop=/usr/bin/podman stop -t 2 redis_server
[Install]
WantedBy=local.target
```

27. Stop the running Redis container-

```
[root@rhel9-test system]# podman stop 0708b646733e
0708b646733e
[root@rhel9-test system]#
```

28. Start & enable the created service for Redis container image using systemd unit to keep it running even after server reboot-

```
[root@rhel9-test system]# systemctl enable --now redis-container.service
Created symlink /etc/systemd/system/local.target.wants/redis-container.service → /etc/systemd/system/redis-container.service.
Unit /etc/systemd/system/redis-container.service is added as a dependency to a non-existent unit local.target.
[root@rhel9-test system]#
[root@rhel9-test system]#
[root@rhel9-test system]# systemctl status redis-container.service
● redis-container.service - Redis container
     Loaded: loaded (/etc/systemd/system/redis-container.service; enabled; vendor preset: disabled)
     Active: active (running) since Sat 2022-12-31 18:45:44 IST; 14s ago
   Main PID: 43129 (podman)
```

Note: Container will withstand server reboot.

29. Now we will disable & stop the service as well as delete the service file. We are going to create systemd unit automatically-

```
[root@rhel9-test system]# systemctl disable redis-container.service
Removed "/etc/systemd/system/local.target.wants/redis-container.service".
[root@rhel9-test system]#
[root@rhel9-test system]# systemctl stop redis-container.service
[root@rhel9-test system]#
```

```
[root@rhel9-test system]# rm redis-container.service
rm: remove regular file 'redis-container.service'? y
[root@rhel9-test system]#
```

30. First, we need to turn on mentioned Boolean to use this feature-

```
[root@rhel9-test system]# setsebool -P container_manage_cgroup on
[root@rhel9-test system]#
```

31. Now we will see the systemd unit file content, which we will generate-

```
[root@rhel9-test system]#
[root@rhel9-test system]# podman generate systemd --new --name redis_server
```

32. To generate systemd unit file, see snapshot below-

```
[root@rhel9-test system]# podman generate systemd --new --name redis_server > /etc/systemd/system/redis-container.service
[root@rhel9-test system]#
[root@rhel9-test system]# ls
 basic.target.wants                      default.target                                          printer.target.wants
 bluetooth.target.wants                  default.target.wants                                    redis-container.service
 ctrl-alt-del.target                    'dev-virtio\x2dports-org.qemu.guest_agent.0.device.wants'  remote-fs.target.wants
 dbus-org.bluez.service                  display-manager.service                                 sockets.target.wants
 dbus-org.fedoraproject.FirewallD1.service  getty.target.wants                                   sysinit.target.wants
 dbus-org.freedesktop.Avahi.service      graphical.target.wants                                  timers.target.wants
 dbus-org.freedesktop.ModemManager1.service  local-fs.target.wants                               vmtoolsd.service.requires
 dbus-org.freedesktop.nm-dispatcher.service  multi-user.target.wants
 dbus.service                            network-online.target.wants
```

33. Start & enable service again-

```
[root@rhel9-test system]# systemctl enable --now redis-container.service
Created symlink /etc/systemd/system/default.target.wants/redis-container.service → /etc/systemd/system/redis-container.service.
[root@rhel9-test system]#
[root@rhel9-test system]#
[root@rhel9-test system]# systemctl status redis-container.service
● redis-container.service - Podman container-redis_server.service
     Loaded: loaded (/etc/systemd/system/redis-container.service; enabled; vendor preset: disabled)
     Active: active (running) since Sat 2022-12-31 19:04:33 IST; 16s ago
```

34. Verify the container status whether it is running or not-

```
[root@rhel9-test system]# podman ps
CONTAINER ID  IMAGE                           COMMAND     CREATED            STATUS                PORTS                   NAMES
c227ae024a45  docker.io/redislabs/redis:latest            About a minute ago  Up About a minute ago  0.0.0.0:6379->6379/tcp  redis_server
[root@rhel9-test system]#
```

35. To test, we will reboot server now-

```
[root@rhel9-test system]# reboot now
[root@rhel9-test system]# client_loop: send disconnect: Connection reset
PS C:\Users\abhay.pinku>
```

```
PS C:\Users\abhay.pinku> ssh root@192.168.111.128
root@192.168.111.128's password:
Activate the web console with: systemctl enable --now cockpit.socket

Register this system with Red Hat Insights: insights-client --register
Create an account or view all your systems at https://red.ht/insights-dashboard
Last login: Sat Dec 31 18:28:00 2022 from 192.168.111.1
[root@rhel9-test ~]#
[root@rhel9-test ~]# podman ps
CONTAINER ID  IMAGE                           COMMAND     CREATED         STATUS             PORTS                   NAMES
9d7b4d1d8e68  docker.io/redislabs/redis:latest            24 seconds ago  Up 22 seconds ago  0.0.0.0:6379->6379/tcp  redis_server
[root@rhel9-test ~]#
[root@rhel9-test ~]# systemctl status redis-container.service
● redis-container.service - Podman container-redis_server.service
     Loaded: loaded (/etc/systemd/system/redis-container.service; enabled; vendor preset: disabled)
     Active: active (running) since Sat 2022-12-31 19:12:19 IST; 30s ago
```

36. Now our Lab is done. We will stop running container & verify it-

```
[root@rhel9-test ~]# podman stop 9d7b4d1d8e68
9d7b4d1d8e68
[root@rhel9-test ~]#
[root@rhel9-test ~]# podman ps
CONTAINER ID  IMAGE       COMMAND     CREATED     STATUS      PORTS       NAMES
[root@rhel9-test ~]#
```

```
[root@rhel9-test ~]# podman ps -a
CONTAINER ID  IMAGE                                          COMMAND       CREATED           STATUS                       PORTS       NAMES
2a581984662e  docker.io/cloudlinuxinc/centos8-python38:latest  /bin/bash     About an hour ago  Exited (0) About an hour ago             gallan
t_mahavira
d48f2b4126d3  registry.centos.org/centos/httpd:latest         /run-httpd.sh  About an hour ago  Exited (137) About an hour ago           romant
ic_jang
0e8f001998c3  registry.centos.org/centos/httpd:latest         /run-httpd.sh  About an hour ago  Exited (137) 57 minutes ago              serene
_blackburn
f52db873a34a  docker.io/cloudlinuxinc/centos8-python38:latest  /bin/bash     49 minutes ago     Exited (127) 46 minutes ago              mybash
```

37. Remove the container & verify it-

```
[root@rhel9-test ~]# podman rm -a
0e8f001998c330b3ee21ce7db6cd11b4a2197b12e8ad112fe2e9432fea4c675c
2a581984662ef3cfef5f871f32b54cb1b96f53eb3ef4a73ebf2e35ef0c313ca0
d48f2b4126d3b48697faff9ead168fc0b6231644b3b5f9aab16f8d850e60eeed
f52db873a34a7483f4a8045254e7c431b9d3fce9211ac1b751ea51127490f56b
[root@rhel9-test ~]#
[root@rhel9-test ~]#
[root@rhel9-test ~]# podman ps
CONTAINER ID  IMAGE       COMMAND     CREATED     STATUS      PORTS       NAMES
[root@rhel9-test ~]# podman ps -a
CONTAINER ID  IMAGE       COMMAND     CREATED     STATUS      PORTS       NAMES
[root@rhel9-test ~]#
```

Note: “podman ps -a” will show status of current container as well as container ran in past.

38. Verify the container images & remove all-

```
[root@rhel9-test ~]# podman images
REPOSITORY                                TAG         IMAGE ID      CREATED        SIZE
docker.io/redislabs/redis                 latest      01941d1c57ee  4 weeks ago    1.25 GB
docker.io/cloudlinuxinc/centos8-python38  latest      1194bb8e65c3  11 months ago  1.82 GB
localhost/johnyos                         latest      1194bb8e65c3  11 months ago  1.82 GB
registry.centos.org/centos/httpd          latest      3539eed1f25d  2 years ago    436 MB
[root@rhel9-test ~]#
[root@rhel9-test ~]# podman rmi 3539eed1f25d
Untagged: registry.centos.org/centos/httpd:latest
Deleted: 3539eed1f25d81cefd2d4c92a10c7bd19db496486627f9b7e649a269e5662436
[root@rhel9-test ~]#
[root@rhel9-test ~]# podman images
REPOSITORY                                TAG         IMAGE ID      CREATED        SIZE
docker.io/redislabs/redis                 latest      01941d1c57ee  4 weeks ago    1.25 GB
docker.io/cloudlinuxinc/centos8-python38  latest      1194bb8e65c3  11 months ago  1.82 GB
localhost/johnyos                         latest      1194bb8e65c3  11 months ago  1.82 GB
```

```
[root@rhel9-test ~]# podman rmi -a
Untagged: docker.io/cloudlinuxinc/centos8-python38:latest
Untagged: localhost/johnyos:latest
Untagged: docker.io/redislabs/redis:latest
Deleted: 1194bb8e65c3eb4f87c16d3b4f046d296b845d19a1e6ccc4651ca9d7416bbaf9
Deleted: 01941d1c57eebb8f3f9f8a48ee7336e163ecb0769e4d6ba2af7f918049ec6e9d
[root@rhel9-test ~]#
[root@rhel9-test ~]# podman images
REPOSITORY  TAG         IMAGE ID    CREATED     SIZE
[root@rhel9-test ~]#
```

Container Removal Stage -> Stop the container -> Remove the container -> Remove the images.

If any image is not getting remove, we can remove it forcefully using “-f”.

This is it for Lecture 1!!!