**Project 19**

**Description:**

In this lab, you're an otherwise experienced systems operator who has been tasked with working through how root-less containers can be configured on your server. You'll be querying for what container images are available, pulling container images, performing basic operations on them, monitoring the state and operation of the containers, and testing for running services on the containers. You'll then configure the user environment for running a container as a systemd service, pull and execute a container with custom parameters, and then generate a custom systemd service unit and enable it to run automatically on system boot. Finally, you'll test that everything is set for being persistent upon reboot, then reboot and verify that the custom systemd service is verifiably persistent, and monitor it briefly for continued function.

**Tasks 1**: Install Container Tools and Get Container Info

1. Install the container tools.
2. Verify tool installation.
3. Query available ubi8 container images.
4. Query local image state.

**Tasks 2**: Pull, Run, and Remove a Container Image

1. Pull a container ubi8 image from an online repo registry.access.redhat.com.
2. Verify and inspect the local image.
3. Run the image as a container and query its status.
4. Remove the running container.
5. Remove the container image.

**Tasks 3**: Configure and Run a `httpd` Container On-Demand

1. Query a httpd container's particulars before pulling it.
2. Run the Container On-Demand with altered configuration by mapping port 8000 to container port 8080.
3. Test the container is running and answering default http queries.
4. Monitor your container's running state briefly.

**Tasks 4**: Configure a Container as a `systemd` Service with Persistent Storage from registry.access.redhat.com registry.

1. Create a student user if doesn’t not exist yet on your system
2. Set up a user student to run containers via systemd.
3. Create a data storage directory on student home directory named web\_data
4. Echo below line into file:

#echo “Test Data” > /home/student/web\_data/test.txt

1. Run a web service container with customer parameters such as:

* Mapping port 8000 to container port 8080.
* Attached local storage web\_data to container http volume
* Make sure your container has name web\_server

1. Check and validate your container is running and display appropriate content.
2. Generate a systemd service unit from the container.
3. Run and verify the container as a systemd service.
4. Stop local container and remove it from local system.
5. Reboot and verify the service and systemd container are persistent.