

# Using Docker

## **Using Docker: Benefits and Installation**

- Describe Docker and the problem it solves
- Describe the uses of Docker
- Compare Docker with virtual machine deployments
- Describe Docker architecture
- Identify internal components on which Docker is based
- Differentiate between public and private registries in Docker
- Describe the process of accessing Docker hub
- Identify the use of namespaces in Docker
- Identify the use of control groups in Docker
- Identify the use of union systems in Docker
- Verify minimum requirements for Ubuntu
- Install Docker on Ubuntu
- Create a Docker group
- Configure memory for Docker
- Configure UFW forwarding in Docker
- Configure DNS for Docker
- Describe CentOS version and kernel support
- Install a Docker package on CentOS 6.5
- Start and verify Docker daemon in CentOS
- Describe the process of templating an image
- Use the run command to spawn a Docker container
- Run and interact with a Docker container
- List the steps to access, interact, and see results from a command executed on an image from a local or remote registry

## **Using Docker: Dockerizing Applications**

- Identify the features of a Dockerized application
- List the steps to spawn an interactive Docker container
- List the steps to daemonize a Docker container
- List the steps and commands to access a Docker daemon
- Identify the syntax and version of a Docker command

- Identify Docker client commands and usage
- Describe the command to execute an application in Docker
- Describe container and port details
- Use commands to name and inspect config details in JSON
- Identify the step to list available Docker images
- List the steps to pull a Docker image
- List the steps to search for Docker images
- List the steps to update, create, and commit a Docker image
- List the steps to push and remove an image from the host or registry
- Identify the use of the -P and -D flags to control port access
- Identify the steps to link containers by referencing through names
- Use environment variables to link containers
- List available environment variables and its impact on /etc/hosts file
- Understanding data volumes
- Identify the steps to configure data volumes
- List the steps to create a data volume container to share data between containers
- Identify the steps to back up and restore data
- Define steps to edit an Ubuntu image for adding a command to it

### **Using Docker: Customizing and Clustering**

- Identify the need for custom metadata in Docker
- Describe how different types of data can be stored in labels
- Describe steps to add labels to an image
- Describe steps to filter images by label
- Identify the need for Docker Compose tool for defining and running applications
- Describe the steps to install Compose in Docker
- Describe how to build a DockerFile for defining images
- Build a .yaml file for defining Docker services
- Build and run an application in Docker Compose
- Identify the need for clustering Docker hosts and prerequisites for Swarm
- List the steps to set up Swarm nodes for clustering
- Use commands to access and list nodes
- Work with Discovery services and list the different approaches
- Describe the need for filters and its various types

- List the steps to configure a constraint filter
- List the steps to configure an affinity filter
- List the steps to configure a port filter
- List the steps to configure a dependency and health filter
- Identify the need for Swarm strategies and list different types of strategies
- Use BinPack strategy to choose a Docker node in a cluster
- Use Spread strategy to choose a Docker node in a cluster
- Implement steps to create a data label