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Docker Certified Associate Training

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Program Overview:

Hatigen's Docker Certification Training Course is aligned with the Docker Certified

Associate Examination. It will teach you the core Docker technologies such as Docker Hub,

Docker Compose, Docker Swarm, Dockerfile, Docker Containers, Docker Engine, Docker

Images, Docker Network, Docker Daemon, and Docker Storage along with real-life case studies

Program Features:

- ➢ Trusted content
- ➢ Re-learn for free anytime in a year
- ➢ Rigorous assignments and assessments
- ➢ Learn at your own pace
- ➢ Mandatory feedback sessions
- ➢ Mock-interview
- ➢ Hands-on real-time experience

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- ➢ Free Mentorship
- ➢ Live chat for instant solutions
- ➢ Job-ready employees post-training
- ➢ End-to-end training
- ➢ Download the certificate after the course

Delivery Mode:

- ➢ Online Training

Prerequisites:

Good Knowledge and Hands-on experience with Linux.

Target Audience:

- ➢ Freshers
- ➢ Software developers
- ➢ Software engineers
- ➢ Technical leads
- ➢ System Administrators

Key Learning Outcomes:

- ➢ By the end of this online Docker Certified Associate Training, you will be able to:
- ➢ Comprehend Docker and its role in DevOps life cycle
- ➢ Create an image, describe layers of image, use of Dockerfile, and using the registry for
- ➢ security
- ➢ Define and create containers, swarm, volumes, networks, and an overview of compose
- ➢ and template
- ➢ Create a different kind of networks, and identify and differentiate between different ports
- ➢ Define Docker security, identity roles, client bundles, and client-server authentication
- ➢ Explain Docker EE, UCP, and DTR

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> - Grasp the concepts of Docker engine, logging drivers, graph drivers, storage drivers, and
> - device mappers

Certification Details and Criteria:

> - Complete at least 85 percent of the course or attend 1 complete LVC batch
> - Pass any one of the course-end assessment tests with a minimum score of 80%

Course Curriculum:

Self Paced Curriculum

Lesson 01 - Introduction

> - Docker Certification Training Introduction
> - Docker Pre-read
> - Course Overview
> - Introduction to Docker
> - Why Docker
> - Overview of Certification Exam

Lesson 02 - Understanding Docker

> - Understanding Docker Overview
> - Docker Architecture Engine And Objects
> - Docker Architecture InAction
> - Docker Architecture Container Format
> - Images And Containers
> - Containerization And Virtualization
> - Docker Ecosystem

Lesson 03 - Docker CE on Linux Platform

> - Docker On Linux Platform
> - Installation: CentOS
> - Installation: continued
> - Deploy, Login, Exit Container
> - List,Start, Stop Restart Containers

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- Containers on Filesystem
- Working with Containers Hostnames
- Multiple Containers
- Stats Inspect
- Deleting Containers
- End of Module

Lesson 04 - Docker Networking

- Docker Networking
- None Network
- Container Networking
- Bridge Network
- Host Network
- Disconnect And Add Network
- Introduction to Overlay Network
- Create New Networks
- Exercise: Use Custom Networks
- Remove Networks
- Multiple Networks In Container

Lesson 05 - Docker Images

- Docker Images
- Docker Images: Recap
- Docker Images CLI Commands
- Docker Images CLI Commands: Contd
- Search and Pull Images from Docker Hub
- Build Image using Dockerfile
- Build Image using Commit
- Push Images to Docker Hub
- Docker file Instructions

Lesson 06 - Docker Storage and Volumes

- Docker Storage and Volumes
- Docker Storage Drivers

- ➢ Selecting Storage Driver
- ➢ Persistent Storage
- ➢ Manage Application Data
- ➢ Docker Volumes
- ➢ Docker Bind Mounts
- ➢ Docker tmpfs Mounts
- ➢ External Storage

Lesson 07 - Docker Compose

- ➢ Docker Compose
- ➢ Case for Docker Compose
- ➢ Compose Installation
- ➢ Compose Lab

Lesson 08 - Orchestration Docker Swarm

- ➢ Docker Swarm
- ➢ Concepts of Swarm
- ➢ Create Swarm
- ➢ Maintain Swarm
- ➢ Deploy Services to Swarm
- ➢ Updates to Services
- ➢ Managing Swarm Services
- ➢ Secrets and Overlay Network
- ➢ Docker Stack

Lesson 09 - Universal Control Plane

- ➢ Universal Control Plane
- ➢ Introduction to UCP
- ➢ Deploy, Manage, and Monitor UCP
- ➢ Access Control
- ➢ LDAP with UCP
- ➢ Client Certificate Bundles
- ➢ External Certificates

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Lesson 10 - Docker Trusted Registry

- ➤ Docker Trusted Registry
- ➤ Introduction Deploy DTR
- ➤ Backup Swarm UCP DTR
- ➤ Miscellaneous Topic with DTR

Lesson 11 - Security

- ➤ Docker Security Logs
- ➤ Security Scanning
- ➤ Docker Content Trust
- ➤ Security With MTLS
- ➤ Logs and Logging Drivers

Lesson 12 - The DCA Test

- ➤ Taking the Test

Live Virtual Curriculum

Lesson 01 - Course Introduction

- ➤ What is Docker?
- ➤ Features of Docker
- ➤ Virtual Machine vs. Docker
- ➤ Industries Using Docker
- ➤ Good To Know
- ➤ Exam Information
- ➤ Examination Format
- ➤ Course Outline
- ➤ Course Outcome
- ➤ Course Components
- ➤ Customer Support

Lesson 02 - Introduction to Docker

- ➤ Docker Introduction
- ➤ Docker Engine

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- ➢ Docker Properties
- ➢ Installation of Docker Community Edition
- ➢ Assisted practice: Install, Upgrade, and Uninstall Docker CE for Linux
- ➢ Assisted practice: Configure Docker Daemon to Start on Boot
- ➢ Docker: Architecture
- ➢ Assisted Practice: Images and Containers

Lesson 03 - Image Creation, Management, and Registry

- ➢ Images
- ➢ Containers
- ➢ Service
- ➢ Overview and Instructions
- ➢ Assisted Practice: Create a Docker Image
- ➢ Layers of Images
- ➢ Flattening
- ➢ Docker Commit
- ➢ Tag an Image
- ➢ Assisted Practice: Image Tagging
- ➢ Filter and Format
- ➢ Basic Commands
- ➢ The copy-on-write (COW) Strategy
- ➢ Registry
- ➢ Repositories
- ➢ Private Repositories
- ➢ Docker Push, Content Trust, and Pull
- ➢ Assisted Practice: Deploy a registry
- ➢ Assisted Practice: Configure a registry
- ➢ Assisted Practice: Login to a registry
- ➢ Assisted Practice: Push an Image to Docker Hub
- ➢ Assisted Practice: Push an image to a registry
- ➢ Prune an Images and Containers
- ➢ Assisted Practice: Inspect, Remove and Prune Images
- ➢ Assisted Practice: Pull and Delete an Image

Lesson 04 – Networking

- Network Architecture
- Bridge networks
- Assisted Practice: Create a Bridge Network
- Assisted Practice: Create a User-Defined Docker Bridge Network
- Host networking
- Assisted practice: Create a Host network
- Overlay networks
- Macvlan networks
- Assisted practice: Create a Macvlan networks
- None Network
- Prune Network
- Container networking model
- Container Networking
- Use Cases of Network Drivers
- Identifying Ports
- Publishing Ports
- Assisted Practice: Publishing Ports
- Traffic
- Assisted Practice: Configure Docker to Use External DNS
- Docker Link
- Nodes

Lesson 05 – Orchestration

- Container: Overview
- Services and types (Replicated and global)
- Tasks
- Swarm
- Nodes
- Manager nodes
- Worker nodes
- Assisted practice: Set Up Swarm Cluster with Manager and Worker Nodes
- Assisted practice: Join nodes to swarm
- Assisted Practice: Create Replicated and Global Services
- Assisted practice: Running Container vs. Running Service

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- ➢ Assisted practice: Create an Overlay network
- ➢ Assisted practice: Deploy a Service on Overlay Network
- ➢ Assisted practice: Run a Container into a Running Service under Swarm
- ➢ Assisted practice: Demonstrate Locking in Swarm Cluster
- ➢ Drain swarm node
- ➢ Assisted practice: Draining the swarm node
- ➢ Docker Inspect
- ➢ Assisted practice: Inspect a service on swarm
- ➢ Compose
- ➢ Compose: Configuration
- ➢ Docker stack deploy
- ➢ Assisted practice: Convert an Application Deployment into a Stack
- ➢ Manipulate services in stack
- ➢ Scaling
- ➢ Assisted practice: Increase the Number of Replicas
- ➢ Persistent Storage
- ➢ Volumes
- ➢ Bind Mounts
- ➢ tmpfs Mounts
- ➢ Assisted practice: Mount Volumes via Swarm Services
- ➢ Assisted Practice: Demonstrate How to Use Storage Across Cluster Nodes
- ➢ Prune Volumes
- ➢ Docker Storage Drivers
- ➢ DeviceMapper
- ➢ Devicemapper Workflow
- ➢ Devicemapper and Docker Performance
- ➢ Assisted Practice: Select Storage Driver and Configure Device Mapper
- ➢ Graph Driver
- ➢ Labels
- ➢ Assisted practice: Apply Node Labels, Inspect the Labels, and Filter Swarm Nodes by Labels
- ➢ Quorum of managers
- ➢ Recovering from Losing the Quorum
- ➢ Services with template

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- Assisted practice: Usage of Templates
- Logs
- Assisted practice: Troubleshoot a Service that Is Unable to Deploy
- Logging Drivers
- Configure Logging Drivers
- Assisted Practice: Logging Drivers
- Network Troubleshooting
- Assisted Practice: Troubleshooting container networking
- Backup: Swarm
- Backup: Restore
- Assisted Practice: Set up a Backup Schedule
- Swarm Disaster Recovery
- Containerizing Legacy Application
- Creating a Docker Image and Creating a Replicated Service on Swarm Cluster

Lesson 06 - Installation and Configuration of Docker Enterprise

- Docker Enterprise: Overview
- Docker Enterprise : Features
- Kubernetes Services
- Orchestration
- Security Features
- Assisted Practice: Install Docker Enterprise
- Installation Using Package
- Uninstall
- Post-Installation Procedures
- UCP: Overview
- UCP: Architecture
- Interaction with UCP
- Assisted Practice: Install Docker Universal Control Plane
- Joining Manager Nodes
- Load Balancing UCP and DTR
- Configuring Load Balancer
- Deploying Load Balancer
- Deploy Swarm Service Using UCP

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- ➢ Access Control
- ➢ Grant
- ➢ Subject
- ➢ Assisted Practice: Create and Manage Teams and Users
- ➢ Role
- ➢ Collection
- ➢ Create a Grant
- ➢ Service Deployment
- ➢ Grant Composition
- ➢ Docker Trusted Registry: Overview
- ➢ Architecture
- ➢ DTR Components
- ➢ Networks
- ➢ Volumes
- ➢ Image Storage
- ➢ Installation Requirements
- ➢ Installation
- ➢ Assisted Practice: Install Docker Trusted Registry
- ➢ High Availability
- ➢ DTR Failure Tolerance
- ➢ Sizing DTR Installation
- ➢ Add Replicas
- ➢ Remove Replicas
- ➢ Load Balancer
- ➢ Configure Load Balancer
- ➢ Health Check of Replicas
- ➢ Load Balancer: Configuration and Deployment
- ➢ UCP: Backup and restore
- ➢ DTR: Backup and restore
- ➢ UCP Disaster Recovery
- ➢ DTR Disaster Recovery
- ➢ Deployment Options
- ➢ Prerequisites
- ➢ Mediums and Configurations

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- Docker for AWS
- Docker Enterprise Edition for AWS
- Creating a Grant with Custom Roles

Lesson 07 – Security

- Docker Security
- Default Engine Security
- Namespace
- Control Groups
- Docker Daemon Attack Surface
- Docker Content Trust
- Sign an Image
- Docker Content Trust Signature Verification
- Sign Images that UCP Can Trust
- Assisted Practice: Describe the Process of Signing an Image
- Vulnerabilities
- Scan Images for Vulnerabilities
- Assisted Practice: Demonstrate an Image Passing Security Scan
- Client Bundle
- Features of UCP
- Integrate UCP with LDAP
- Configure the LDAP Integration
- LDAP Enabled
- LDAP Server
- LDAP User Search Configurations
- LDAP Test Login
- LDAP Sync Configuration
- Assisted Practice: Create UCP Client Bundles
- UCP: Worker and Manager Nodes
- UCP Workers and Managers
- UCP Components in Manager Nodes
- UCP Components in Worker Nodes
- External Certificates with UCP
- External Certificates with DTR

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- ➢ Configuration of Certificates
- ➢ Swarm Security
- ➢ Roles
- ➢ Secrets
- ➢ How Docker Manages Secrets
- ➢ Docker Secret Commands