

# HPE Ezmeral Runtime Enterprise Administration

Course code: HG7G2S

This course is for administrators who want to learn about the installation, upgrade, system management, network integration and other tasks required to effectively administer HPE Ezmeral Runtime Enterprise 5.3 (previously known as HPE Ezmeral Container Platform). Hands-on labs are included.

## Who is the course for

Hadoop administrators, system administrators, network administrators, IT managers

## What we teach you

- Understand all architecture components of HPE Ezmeral Runtime Enterprise 5.6
- Understand all basic administration concepts of HPE Ezmeral Runtime Enterprise 5.6, including installation, tenant management, user management and maintenance
- Understand application development to cluster handling
- Learn how HPE Ezmeral Runtime Enterprise integrates with existing IT infrastructure and integration with MapR
- Understand monitoring and alerting services in HPE Ezmeral Runtime Enterprise

## Required skills

- Unix/Linux user and administration experience
- Hadoop/AI/big data application administration experience (Cloudera/Hortonworks, Jupyter Notebook, Tensorflow, etc.)
- Experience in machine learning lifecycle (e.g. model training/development and model deployment)
- bash/shell/python scripting

## Course outline

### Introduction

- Introduction
- Learning objectives review
- Course schedule review
- HPE Ezmeral Container Platform architecture overview
- Control plane/management overview
- Network architecture overview
- Handling distributed stateful app
- Storage architecture overview

### HPE Ezmeral Container Platform Packaging - Install, Upgrade

- Requirement gathering and planning
- HPE Ezmeral Container Platform installation checklist
- HPE Ezmeral Container Platform sizing tool
- Installation/deployment
- Deployment + ecosystem planning
- Worker/gateway deployment methods
- App Store
- Virtual cluster lifecycle (including scripts)
- Container placement using host tags
- Adding host to create Kubernetes cluster
- Airgap support
- License
- Upgrade

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# HPE Ezmeral Runtime Enterprise Administration

- Kubernetes cluster rolling upgrade

## HPE Ezmeral Container Platform Multi-Tenancy

- Multi-tenancy
- What is a tenant
- Comparison EPIC tenant and K8s tenant
- Tenant management
- Kubernetes: Creating tenant
- Kubernetes: Tenant and namespace
- HPE Ezmeral Container Platform agent operator: Tenant management

## HPE Ezmeral Container Platform User Role

- User roles
- Role and corresponding view
- Navigating to different roles
- User authentication
- HPE Ezmeral Container Platform management login
- User authentication into HPE Ezmeral Container Platform with 3 different methods
- Exercise: Tenant group membership
- RBAC: Role binding (authorization)
- HPE Ezmeral Container Platform five users roles
- HPE Ezmeral Container Platform role is mapped to K8s role (RBAC)
- Session management
- User authenticated sessions

## HPE Ezmeral Container Platform Storage

- Overall storage architecture
- Ephemeral storage
- Tenant share
- HDFS
- DataTap
- Application persistent storage
- Container migration
- FS mount/DTap management
- MapR management

## MapR Integration

- MapR terminology
- MapR services
- HPE Ezmeral Container Platform and MapR integration
- MapR Control System (MCS)
- MapR user accounts

## HPE Ezmeral Container Platform Application

- Complex stateful application deployment
- App Store

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# HPE Ezmeral Runtime Enterprise Administration

- Kubernetes application management
- Anatomy of Kubedirector application
- Application lifecycle
- Deploy application
- Deployment vs statefulset
- start, stop, scale virtual cluster
- Kubedirector operator

## HPE Ezmeral Container Platform Monitoring and Alerting

- Kubernetes cluster service monitoring
- Dashboard monitoring
- Usage monitoring
- Monitoring architecture
- HPE Ezmeral Container Platform usage monitoring tools
- Kibana: UI visualization
- Collecting container node storage usage
- Elasticsearch monitoring logs
- Elasticsearch common tasks
- Best practice
- SNMP alerts and SMTP notification
- From planning to production to optimization—Big-Data-as a-Service lifecycle
- Create and secure environments
- Monitor, manage and optimize
- Optimize memory usage

## HPE Ezmeral Container Platform Technical Overview

- Control plane/management overview
- Network architecture overview
- Handling distributed stateful app (App Store and deployment)
- Container application services
- Storage architecture overview
- Ephemeral and persistent disks
- Application persistent storage
- Rest API

## HPE Ezmeral Container Platform Network

- Overall network architecture
- Linux virtual networking
- Docker networking
- HPE Ezmeral Container Platform gateway
- Gateway Loadbalancer
- Case study: HPE Ezmeral Container Platform gateway
- Gateway configuration scenarios
- Kubernetes core DNS
- EPIC: DNS for containers
- Container network

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# HPE Ezmeral Runtime Enterprise Administration

- Kubernetes network
- Virtualized networking
- Networking in multi-tenant environment

## Add-on and Picasso integration

- Kubernetes Deployment and Add-ons
- Picasso Cluster Deployment

## Detailed Lab Outline

### Module 1: Login to HPE Ezmeral Container Platform

- Task 1: Login
- Task 2: Monitoring via HPE Ezmeral Container Platform Dashboard

### Module 2: HPE Ezmeral Container Platform—Cluster Management

- Task 1: Create cluster
- Task 2: App Store and virtual cluster
- Task 3: ActionScript and Bootstrap script
- Task 4: Virtual node resource
- Task 5: Container placement

### Module 3: User Roles

- Task 1: Create local users
- Task 2: Configure external authentication for project members
- Task 3: Observe differences in tenant membership
- Task 4: Observe user membership

### Module 4: HPE Ezmeral Container Platform Tenant Management

- Task 1: Create tenants
- Task 2: Action performed on tenants

### Module 5: Kubernetes Tenant Management

- Task 1: Creating Kubernetes tenant
- Task 2: Accessing a Kubernetes tenant
- Task 3: Accessing Kubernetes web terminal
- Task 4: KubeDirector application image

### Module 6: HPE Ezmeral Container Platform—User Management

- Task 1: Create user
- Task 2: AD/LDAP login
- Task 3: Logon to container
- Task 4: Container logon to container via AD/LDAP

### Module 7: Kubernetes User Management

- Task 1: Internal user management
- Task 2: External user management - AD/LDAP User

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# HPE Ezmeral Runtime Enterprise Administration

## Module 8: HPE Ezmeral Container Platform - Storage Management

- Task 1: Storage concepts and DataTap

## Module 9: Kubernetes Applications Management

- Task 1: Launch an application using KubeDirector app images
- Task 2: Access application using service endpoints

## Module 10: HPE Ezmeral Container Platform - Monitoring

- Task 1: BDaas monitoring

## Module 11: HPE Container Platform - Network Management

- Task 1: Network - validate network isolation

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