SERVERLESS

Kubernetes Administration Official Linux Foundation™ Course (LFS458)

CERTIFIED kubernetes ADMINISTRATOR

FUTURESKILLS
CONNECTION TECHNOLOGY 裝備未來

Course Fee: HK$15,000   (May apply up to HK$10,000 subsidy)
*Maximum saving, with the final grant subjects to approval.

RTTP Approved   TechEd

This course offers exposure to the many skills necessary to administer Kubernetes in a production environment and is excellent preparation for the Certified Kubernetes Administrator (CKA) exam.

It covers the core concepts typically used to build and administer a Kubernetes cluster in production, using vendor-independent tools. Participants can build a cluster, determine network configuration, grow the cluster, deploy applications and configure the storage, security and other objects necessary for typical use.

RTTP Training Grant Application
Companies should submit their RTTP training grant application for their employee(s) via https://rttp.vtc.edu.hk/rttp/login at least two weeks before course commencement. Alternatively, application form could be submitted by email to rttp@vtc.edu.hk along with supporting documents.

Programme code	10012208
Duration and time	8 half days 19:00-22:00
Venue	1/F, HKPC Building, 78 Tat Chee Avenue, Kowloon Tong
Medium	Cantonese, supplemented with English terminology
Course fee	HK$15,000 (May apply up to HK$10,000* subsidy)
Prerequisite	• Participants should have an understanding of Linux administration skills, comfortable using the command line • Must be able to edit files using a command-line text editor • We encourage participants to complete Kubernetes Fundamentals (3 Days)

Enrolment Methods

1. Scan the QR code to complete the enrolment and payment online OR
2. Mail the crossed cheque with payee name "Hong Kong Productivity Council" (in HK dollar) to HKPC Academy, Hong Kong Productivity Council, 3/F, HKPC Building, 78 Tat Chee Avenue, Kowloon (attention to Mr Desmond CHAN). Please indicate the course name and course code on the envelope.

Enrolment Link

This course is an approved Reindustrialisation and Technology Training Programme (RTTP), which offers up to 2/3 course fee reimbursement upon successful applications. For details: https://rttp.vtc.edu.hk.

Course Overview

This course does not focus on one vendor's tools. We use kubeadm to deploy the cluster and focus on tools that would work on anyone's Kubernetes cluster.

- ❖ Installation of a multi-node Kubernetes cluster using kubeadm, and how to grow a cluster
- ❖ Choosing and implementing cluster networking
- ❖ Various methods of application lifecycle management, including scaling, updates and roll-backs
- ❖ Configuring security both for the cluster as well as containers
- ❖ Managing storage available to containers
- ❖ Learn monitoring, logging and troubleshooting of containers and the cluster
- ❖ Configure scheduling and affinity of container deployments
- ❖ Use Helm and Charts to automate application deployment
- ❖ Understand Federation for fault-tolerance and higher availability

About CKA Certification exam

The Certified Kubernetes Administrator (CKA) program was established by The Linux Foundation and the Cloud Native Computing Foundation (CNCF) as a part of their ongoing effort to help develop the Kubernetes ecosystem. As one of the highest velocity open source projects, Kubernetes application is exploding. There are no pre-requisites for this exam.

Award of Certificate of Accomplishment

This is the Linux Foundation's official training and participants with full attendance will obtain the certificate of completion by the Linux Foundation.

Also, full Attendance will also be awarded a Certificate of Accomplishment issued by the Hong Kong Productivity Council.

Bring Your Own Device (BYOD): Windows 7/10 / Mac OS 10.x or above with minimum 2 GB RAM and 20 GB hard disk

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Inquiry Mr CHAN | +852 2788 5800 | ecinfo@hkpc.org

1. **Introduction**
   - ❑ Laboratory Exercises, Solutions and Resources
   - ❑ Labs

2. **Basics of Kubernetes**
   - ❑ Define Kubernetes and Cluster Structure
   - ❑ Adoption and Project Governance and CNCF
   - ❑ Labs

3. **Installation and Configuration**
   - ❑ Getting Started With Kubernetes
   - ❑ Minikube, kubeadm and more Installation Tools
   - ❑ Labs

4. **Kubernetes Architecture**
   - ❑ Kubernetes Architecture, Networking
   - ❑ Other Cluster Systems
   - ❑ Labs

5. **APIs and Access**
   - ❑ API Access, Annotations
   - ❑ Working with A Simple Pod
   - ❑ kubectl and API, Swagger and OpenAPI
   - ❑ Labs

6. **API Objects**
   - ❑ API Objects, The v1 Group,
   - ❑ API Resources, RBAC APIs
   - ❑ Labs

7. **Managing State With Deployments**
   - ❑ Deployment Overview
   - ❑ Managing Deployment States,
   - ❑ Deployments and Replica Sets
   - ❑ DaemonSets, Labels
   - ❑ Labs

8. **Services**
   - ❑ Overview, Accessing Services, DNS
   - ❑ Labs

9. **Volumes and Data**
   - ❑ Overview, Volumes, Persistent Volumes
   - ❑ Rook, Passing Data To Pods, ConfigMaps
   - ❑ Labs

10. **Ingress**
    - ❑ Overview, Ingress Controller, Ingress Rules,
    - ❑ Service Mesh and Labs

11. **Scheduling**
    - ❑ Overview, Scheduler Settings, Policies
    - ❑ Affinity Rules, Taints and Tolerations
    - ❑ Labs

12. **Logging and Troubleshooting**
    - ❑ Overview, Troubleshooting Flow
    - ❑ Basic Start Sequence,
    - ❑ Monitoring, Plugins, Logging
    - ❑ Troubleshooting Resources
    - ❑ Labs

13. **Custom Resource Definition**
    - ❑ Overview, Custom Resource Definitions
    - ❑ Aggregated APIs
    - ❑ Labs

14. **Helm**
    - ❑ Overview, Helm
    - ❑ Using Helm and Labs

15. **Security**
    - ❑ Overview, Accessing the API
    - ❑ Authentication and Authorization
    - ❑ Admission Controller, Pod Policies
    - ❑ Network Policies
    - ❑ Labs

16. **High Availability**
    - ❑ Overview, Stacked Database
    - ❑ External Database
    - ❑ Labs

Special to HKCS members

- ❖ May enjoy up to HK$300 Bookstore Coupon. **Promo Code: CS11HK2020**
- ❖ Can apply for the **certification of CPD hours**, this course hours will be counted.
  Please visit: http://www.hkcs.org.hk/continuous-professional-development-cpd/ for your information about CPD Hours.

Supporting Organisations
(In arbitrary order)

50th Anniversary — HONG KONG COMPUTER SOCIETY 香港電腦學會 | WTIA 香港無線科技商會 | Hong Kong Software Industry Association 香港軟件行業協會 | TCC