

RAN211v2.8 Rancher Manager 2.8 for Rancher Prime Deployment

Course Duration: 16 Hours

Course code: RAN211v2.8

1. Course Overview

This two-day course focuses on deploying, configuring, and managing Kubernetes clusters using Rancher Manager 2.8 (Rancher Prime). It provides in-depth knowledge of container orchestration, cluster lifecycle management, and enterprise Kubernetes operations. Learners will gain hands-on experience in deploying Rancher, provisioning clusters, managing workloads, and implementing security and governance in production environments.

2. What you'll learn?

By the end of the course, you will be able to:

- Understand the architecture and components of Rancher Manager 2.8
- Deploy and configure Rancher in on-premises and cloud environments
- Provision and manage Kubernetes clusters using Rancher
- Deploy, scale, and manage containerized workloads
- Implement role-based access control (RBAC) and security policies
- Monitor cluster health and application performance
- Manage multi-cluster and multi-cloud environments
- Troubleshoot Rancher and Kubernetes issues

3. Target Audience

- Kubernetes administrators
- DevOps engineers and platform engineers
- Cloud and infrastructure engineers
- IT professionals managing containerized environments

4. Pre-Requisites

Before taking this course, you should have:

- Basic understanding of containers and Docker
- Familiarity with Kubernetes concepts
- Knowledge of Linux system administration
- Basic networking knowledge

5. Course content

Module 1: Course Introduction

- Introduction and course logistics
- Overview of Rancher and Kubernetes ecosystem
- Course objectives and lab setup

Module 2: Introduction to Rancher and Kubernetes

- Overview of Kubernetes architecture
- Introduction to Rancher Manager
- Rancher Prime features and benefits
- Use cases and enterprise scenarios

Module 3: Rancher Architecture and Components

- Rancher server architecture
- Cluster types (RKE, RKE2, K3s)
- Node roles and responsibilities
- Communication and networking model

Module 4: Installing Rancher Manager

- Deployment prerequisites
- Installing Rancher using Helm
- Deploying on Kubernetes clusters
- Verifying installation and access

Module 5: Cluster Provisioning and Management

- Creating Kubernetes clusters using Rancher
- Importing existing clusters
- Node management and scaling
- Cluster lifecycle management

Module 6: Workload Deployment and Management

- Deploying applications using Rancher UI and CLI
- Managing pods, deployments, and services
- Scaling and updating workloads
- Rolling updates and rollbacks

Module 7: Networking and Ingress Management

- Kubernetes networking concepts
- Service types and load balancing
- Ingress controllers and routing
- DNS and service discovery

Module 8: Storage and Persistent Volumes

- Kubernetes storage concepts
- Persistent volumes and claims
- Storage classes and provisioning
- Managing stateful applications

Module 9: Security and Access Control

- Role-Based Access Control (RBAC)
- Authentication and authorization
- Securing clusters and workloads
- Secrets and configuration management

Module 10: Monitoring and Logging

- Cluster monitoring using Rancher tools
- Integrating Prometheus and Grafana
- Logging with centralized solutions
- Alerts and performance tracking

Module 11: Multi-Cluster and Multi-Cloud Management

- Managing multiple clusters
- Multi-cloud deployment strategies
- Cluster federation concepts
- Governance across environments

Module 12: Backup, Restore, and Disaster Recovery

- Backup strategies for Rancher and clusters
- Restoring cluster states
- Disaster recovery planning
- High availability setup

Module 13: Automation and CI/CD Integration

- Integrating Rancher with CI/CD pipelines
- Automating deployments
- GitOps concepts and tools
- Infrastructure as Code (IaC) basics

Module 14: Troubleshooting and Maintenance

- Diagnosing cluster and workload issues
- Debugging networking and storage problems
- Rancher logs and diagnostics
- Maintenance best practices

Module 15: Capstone Lab and Real-World Scenarios

- Deploying a production-ready Kubernetes environment
- Managing workloads across clusters
- Implementing security and monitoring
- Final project and assessment

