Introduction to Cisco IOS XR (IOSXR100) v2.0

What you'll learn in this course

The **Introduction to Cisco IOS XR (IOSXR100) v2.0** course introduces you to the features and functions of the Cisco® Internetwork Operating System (Cisco IOS®) XR Software operating system. You learn the fundamental concepts on which the operating system is based and Cisco IOS XR basic operations, system administration, and troubleshooting.

Through a combination of lecture and hands-on lab exercises, you gain an understanding of all major aspects of the operating system, including the architecture, high-availability components, scalability features, configuration basics, basic software operations, configuration file overview, Authentication, Authorization, and Accounting (AAA) services, Network Time Protocol (NTP) configuration, packet filtering, and management plane protection. You also learn how to monitor the Cisco IOS XR operating system, and how to work with error messages and core dumps.

Course duration

- Instructor-led training: 4 days in the classroom with hands-on lab practice
- Virtual instructor-led training: 5 days of web-based classes with hands-on lab practice
- E-learning: Equivalent of 4 days of instruction with hands-on lab practice

How you'll benefit

This course will help you:

- Prepare to deploy, implement, configure, operate, and maintain Cisco IOS XR routers
- Gain hands-on practice using Cisco IOS XR software
- Deepen your understanding of the Cisco IOS XR software architecture and capabilities

Who should enroll

- System installers
- System integrators
- System administrators
- Network administrators
- Solution designers

How to enroll

Instructor-led training

- Find a class with the Cisco Learning Locator
- Arrange private training at your location through Cisco Private Group Training

E-learning

- For digital library access, visit Cisco Digital Learning

Technology areas

- Service provider
- Networking

Course details

Objectives

After taking this course, you should be able to:

- Describe the Cisco IOS XR software architecture, high availability components, and scalability features
- Perform basic configurations on a Cisco IOS XR router
- Describe Cisco IOS XR software operations
- Describe the configuration file system
- Perform Cisco IOS XR software installations
- Configure AAA services
- Configure NTP
- Configure Simple Network Management Protocol (SNMP), telemetry, and logging
- Configure routing protocols
- Monitor processes
- Use error messages and core dumps

Prerequisites

Before taking this course, you should have the following knowledge and skills:

- Experience working with Command-Line Interface (CLI)–based network devices
- Knowledge of general routing concepts

Outline

- Cisco IOS XR Software Overview
  - Platform Overview
  - Cisco IOS XR Architecture
  - Cisco IOS XR High Availability
- Cisco IOS XR Software Configuration Basics
  - Cisco IOS XR Configuration Operations
  - Cisco IOS XR Initial Configuration
  - Reviewing the Configuration
- Cisco IOS XR Software Operations
  - Examining Configuration Operations
  - Examining Configuration Rollback and Recovery
- Configuration File System Overview
  - Examining the Binary Configuration
  - Examining the Commit Database
  - Examining the ASCII Configuration
  - Examining the Nonvolatile Generation (NVgen) Files
  - Verifying Cisco Fabric Services (CFS) Integrity
- Cisco IOS XR Software Installation
  - Software Package Basics
  - Installing Software Packages
- AAA Security
  - AAA Fundamentals
  - Task-Based Security
  - Configuring a User Security Policy
  - Authentication with Remote Servers
  - Configuring Router to AAA Server Communication
  - Configuring Authentication
  - Terminal Access Controller Access-Control System Plus (TACACS+) Command Authorization
  - Configuring Accounting
  - AAA Troubleshooting

- Network Time Synchronization
  - Network Time Protocol
- SNMP, Telemetry, and Logging
  - Examining SNMP
  - Examining Telemetry
  - Examining Logging
- Basic Routing Configuration
  - Configuring Intermediate System to Intermediate System (IS-IS)
  - Configuring Open Shortest Path First (OSPF)
  - Configuring Border Gateway Protocol (BGP)
  - Configuring Routing Protocol for LLN (RPL) Policy
- Packet Filtering
  - Access Control Lists
  - Unicast Reverse Path Forwarding
  - Management Plane Protection
- Monitoring Process
  - Examining Processes and Threads
  - Process Crashes
  - Commands for Debugging Processes
  - Restartability of Processes
  - Process Monitoring
  - Identifying Memory Problems
  - Memory Depletion
- Core Dumps
  - Core Dump Fundamentals
  - Using Core Dump Information

Lab outline

- Initial Configuration of a Cisco IOS XR Router
- Configuration Commit and Rollback
- Configuration File System
- Cisco IOS XR Software Installation
- Configuring User Security Policies
- Cisco IOS XR AAA Configuration
- Configuring NTP
- Configuring SNMP, Telemetry, and Logging
- Configuring Routing Protocols
- Configuring IPv4 and IPv6 Filtering
- Configuring uRPF and MPP
- Using Monitoring and Restarting Processes

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