



IMTXR

Implementing and Maintaining using Cisco IOS XR (Exam 646-906)

Duration: 5 Days

Course Overview:

The Implementing and Maintaining Cisco Technologies Using IOS XR (IMTXR) is a five-day, instructor-led which course provides the necessary training to prepare you to take the IOS XR Specialist Professional exam (exam number 646-906). The course introduces you to the features and functions of the Cisco IOS XR operating system. Through a combination of lecture and hands-on lab exercises, you will gain an understanding of all major aspects of operating system, including the control plane, the data plane, and the management plane. You will also gain knowledge of pertinent Cisco IOS XR-related equipment, including the CRS family and ASR 9000 product lines. This training is based on Cisco IOS XR Software Release 4.1.2.

This course prepares you for the following exam:

- IOS XR Specialist Professional exam number 646-906

Prerequisites:

The knowledge and skills that the learner should have before attending this course are as follows:

- Basic knowledge of router installation and some experience with installation tools
- Routing protocol configuration experience with BGP, Intermediate System-to-Intermediate System (IS-IS), and Open Shortest Path First (OSPF)
- Knowledge of Layer 2 IEEE switching and related protocols
- Strong knowledge of MPLS configuration or multicast configuration experience
- Knowledge of Cisco router security implementation, including authentication, authorization, and accounting (AAA) and TACACS
- Experience troubleshooting Cisco routers in a large network environment



Who Should Attend:

This course is designed for technical professionals who need to know how to deploy Cisco CRS or ASR 9000 Series Aggregation Services Routers in their network environment. The primary audience for this course includes:

- The course is meant for anyone wanting to prepare for the IOS XR Specialist exam
- System engineers
- Technical support personnel
- Channel partners
- Resellers



Course Objectives:

Upon completing this course, the learner will be able to meet these overall objectives:

- List and describe the major features and benefits of Cisco CRS and ASR 9000 Series routers
- List and describe the major features and benefits of the Cisco IOS XR operating system
- Understand data flow through Cisco IOS XR operating system-related routers
- Configure Cisco IOS XR operating system, back out of configuration changes, and restore older versions of the configuration
- Install the Cisco IOS XR operating system, package information envelopes (PIEs), and software maintenance updates (SMUs)
- Configure routing protocols and Route Policy Language (RPL) in a complex multi-AS environment
- Enable multicast routing
- Configure Multiprotocol Label Switching-Traffic Engineering (MPLS-TE)
- Configure Layer 3 VPN services
- Configure VPLS with Border Gateway Protocol (BGP)
- Configure Layer 2 multicast features
- Describe basic QoS implementation



Course Outline:

Module 1: Cisco IOS XR Software Platforms

- Lesson 1: Describing Physical Architectures
- Lesson 2: Maintaining Reliable Power Supply
- Lesson 3: Maintaining Operating Environment
- Lesson 4: Maintaining Hardware Inventory

Module 2: Cisco IOS XR Operating System

- Lesson 1: Introducing Cisco IOS XR Operating System Architecture
- Lesson 2: Maintaining Cisco IOS XR Software
- Lesson 3: Understanding, Monitoring, and Troubleshooting Processes and Memory
- Lesson 4: Configuring Cisco IOS XR Software

Module 3: Cisco IOS XR Control Plane

- Lesson 1: Maintaining Addressing and Static Routing Using Cisco IOS XR Software
- Lesson 2: Maintaining OSPF Using Cisco IOS XR Software
- Lesson 3: Maintaining IS-IS Using Cisco IOS XR Software
- Lesson 4: Maintaining BGP Using Cisco IOS XR Software
- Lesson 5: Maintaining Routing Policies
- Lesson 6: Maintaining MPLS and LDP
- Lesson 7: Maintaining MPLS TE
- Lesson 8: Implementing IP Multicast

Module 4: Cisco IOS XR Data Plane

- Lesson 1: Implementing General Forwarding
- Lesson 2: Implementing Packet Filtering
- Lesson 3: Implementing QoS
- Lesson 4: Implementing NetFlow
- Lesson 5: Monitoring and Troubleshooting IP Multicast Forwarding

Course Outline (cont.):

Module 5: Cisco IOS XR Management Plane

- Lesson 1: Introducing Cisco IOS XR Management Plane
- Lesson 2: Managing Remote Administrative Access Using Cisco IOS XR Software
- Lesson 3: Maintaining SNMP and Logging Using Cisco IOS XR Software
- Lesson 4: Managing Secure Domain Routers Using Cisco IOS XR Software



Lab Outline:

Labs are designed to assure learners a whole practical experience, through the following practical activities:

- Lab 1: Inspect a Router Using Cisco IOS XR Software
- Lab 2: Maintain a Router Using Cisco IOS XR Software
- Lab 3: Configure Basic Router Configuration Using Cisco IOS XR Software
- Lab 4: Configure OSPF Routing Using Cisco IOS XR Software
- Lab 5: Configure IS-IS Routing Using Cisco IOS XR Software
- Lab 6: Configure BGP Routing Using Cisco IOS XR Software
- Lab 7: Configure Routing Policy with BGP Using Cisco IOS XR Software
- Lab 8: Configure MPLS and MPLS VPNs Using Cisco IOS XR Software
- Lab 9: Configure MPLS Traffic Engineering Using Cisco IOS XR Software
- Lab 10: Filter Configuration Using Cisco IOS XR Software
- Lab 11: Configure QoS Using Cisco IOS XR Software
- Lab 12: Configure Remote Administrative Access Using Cisco IOS XR Software
- Lab 13: Configure SNMP and Logging Using Cisco IOS XR Software