Learning Services

Cisco Training on Demand

Cisco CRS-3 Carrier Routing System Essentials (CRS3E) Version 3.0

Overview

The Cisco® CRS-3 Carrier Routing System Essentials (CRS3E) Version 3.0 Cisco Training on Demand lab-intensive course introduces you to the Cisco CRS-3 carrier routing system and its features and functions. You learn the important theoretical concepts on which the Cisco CRS-3 solution is based and gain the practical knowledge and skills to successfully deploy it on your network. You also should be able to determine the right Cisco CRS-3 routing system based on the requirements of your network.

In the hands-on labs, you learn to install the Cisco IOS® XR Software operating system, deploy the Cisco Open Shortest Path First (OSPF) and Internal Border Gateway Protocol (iBGP) routing protocols, and deploy Multiprotocol Label Switching-Label Distribution Protocol (MPLS-LDP) and MPLS Layer 3 VPNs in the classroom environment.

In addition, you learn how to verify correct operation of various Cisco CRS-3 hardware, including the 140-Gbps switch fabric, 140-Gbps line cards, 14- and 20-port 10-Gigabit and 1-port 100-Gigabit Ethernet physical layer interface modules (PLIMs), the Cisco CRS Performance Route Processors (CRS-PRPs), the new modular power systems, and perform basic troubleshooting. This course combines lecture materials and hands-on labs throughout to assist you in deploying a Cisco CRS-3 carrier routing system network.

Interested in purchasing this course in volume at discounts for your company? Contact ctod-sales@cisco.com.
Duration

The Cisco CRS-3 Carrier Routing System Essentials Training on Demand course consists of 16 modules totaling more than 22 hours of video instruction along with 18 hands-on lab exercises.

Target Audience

This course is intended for network professionals, including designers, implementation staff, network operations center personnel, and support staff who are involved with the deployment, operations, and maintenance of the Cisco CRS-3 carrier routing system.

Objectives

After completing this course, you should be able to:

- List and describe the major features and benefits of the Cisco CRS-3 system, 140-Gbps line cards, and the 14- and 20-port 10-Gigabit and 100-Gigabit Ethernet PLIMs
- List and describe the major features and functions of the modular power systems and the Cisco CSR-PRPs
- Describe the steps to migrate the 40-Gbps switch fabric to the 140-Gbps switch fabric
- Describe the steps to migrate from a fixed power system to the modular power system and verify its correct operation
- Describe the steps to migrate from a route processor B to the Cisco Performance Route Processor (PRP) and verify its proper operation
- Configure the Cisco CRS-3 router, back out of configuration changes, and restore older versions of a configuration
- Install the Cisco IOS XR Software operating system, package information envelopes, and software maintenance updates
- Upgrade field-programmable device (FPD) and ROMmon code
- Configure OSPF and iBGP routing protocols
- Configure MPLS-LDP in Cisco IOS XR Software and MPLS Layer 3VPNs on the Cisco CRS-3
- Understand data flow through the Cisco CRS-3 router
- Troubleshoot basic Cisco CRS-3 hardware and software problems

Course Prerequisites

The knowledge and skills necessary before attending this course are:

- Routing protocol configuration experience with Border Gateway Protocol (BGP), including Multiprotocol Border Gateway Protocol (MP-BGP)
- Advanced knowledge of BGP multihomed, multiautonomous configurations
Course Outline

- Module 1: Course Introduction
- Module 2: Introduction to the CRS
- Module 3: CRS 16-Slot LCC Hardware
- Module 4: CRS 8-Slot LCC Hardware
- Module 5: CRS 4-Slot LCC Hardware
- Module 6: CRS LCC Common Elements
- Module 7: Modular Power Systems
- Module 8: New Performance Route Processors
- Module 9: 140 Gb/s Architecture
- Module 10: Cisco CRS Multishelf Architecture
- Module 11: CRS-3 B2B
- Module 12: Cisco IOS XR Software Introduction
- Module 13: Cisco IOS XR Operating System
- Module 14: Cisco IOS XR Control Plane
- Module 15: Cisco IOS XR Data Plane
- Module 16: Cisco IOS XR Management Plane

Labs Outline

This course contains 18 hands-on virtual lab exercises, powered by Cisco Learning Labs and Cisco IOL (IOS on Linux).

Figure 1. Topology for All Labs in Cisco CRS-3 Carrier Routing System Essentials
The labs included in this course are:

- CRS3 Lab 1: Hardware Discovery and Initial Configuration
- CRS3 Lab 2: Modular Power Systems
- CRS3 Lab 3: Performance Route Processor (PRP)
- CRS3 Lab 4: 140Gb/s Switch Fabric
- CRS3 Lab 5: 140Gb/s Line Cards
- CRS3 Lab 6: New Physical Layer Interface Modules
- IMTXR Lab 1-1: Inspecting a Router with IOS XR Software
- IMTXR Lab 2-1: Maintaining a Router with IOS XR Software
- IMTXR Lab 2-2: Configuring Basic Router Tasks with IOS XR Software
- IMTXR Lab 3-1: Configuring OSPF Routing with IOS XR Software
- IMTXR Lab 3-2: Configuring IS-IS Routing with IOS XR Software
- IMTXR Lab 3-3: Configuring BGP Routing with IOS XR Software
- IMTXR Lab 3-4: Configuring Routing Policy with BGP using IOS XR Software
- IMTXR Lab 3-5: Configuring MPLS and MPLS VPNs Using IOS XR Software
- IMTXR Lab 3-6: Configuring MPLS TE Using IOS XR Software
- IMTXR Lab 4-1: Configuring Filtering Using IOS XR Software
- IMTXR Lab 5-1: Configuring Remote Administration Access Using IOS XR Software
- IMTXR Lab 5-2: Configuring SNMP and Logging Using IOS XR Software

**Instructor: Joe Chapman**

Joe Chapman has more than 25 years of industry experience from the mundane to the complex. He's been helping customers design, build, and maintain voice and data systems built on Cisco technology for 15 years. Despite having a Chicago street address, Chapman has spent most of his time all over the United States and the world where he helps bring complex concepts into clear focus for talented professionals looking to transform their careers.

**Instructor: John Mansholt**

John Mansholt has been teaching Cisco technologies since the late 1990s and specializes in service provider, and CCNA and CCNP products. His approach to presenting subjects ranging from XConnect to access-list commands is to keep concepts simple and straightforward with an emphasis on labs and practical implementation. He has traveled extensively, teaching classes in various locations in North and South America, as well as in numerous places in Europe and Asia.

**Cisco Capital Financing Helps You Achieve Your Objectives**

Cisco Capital® financing can help you acquire the technology you need to achieve your objectives and stay competitive. We can help you reduce capital expenditures (CapEx), accelerate your growth, and optimize your investment dollars and ROI. Cisco Capital financing gives you flexibility in acquiring hardware, software, services, and complementary third-party equipment. And there’s just one predictable payment. Cisco Capital financing is available in more than 100 countries. [Learn more](#).