
CCNA Routing and Switching Boot Camp

DURATION: 5 DAYS

COURSE CODE: CCNAX

FORMAT: LECTURE/LAB

COURSE DESCRIPTION

The CCNA Routing and Switching Boot Camp is a composite course derived from ICND1 and ICND2 content merged into a single accelerated course. Overlapping content is eliminated and some content is rearranged for the purpose of course flow.

In this course, you will learn how to install, operate, configure, and troubleshoot basic IPv4 and IPv6 networks, including configuring a LAN switch, configuring an IP router, identifying basic security threats, understanding redundant topologies, troubleshooting common network issues, connecting to a WAN, configuring EIGRP and OSPF in both IPv4 and IPv6, understanding wide-area network technologies, and getting familiar with device management and Cisco licensing.

Key additions to this latest revision include an understanding of Quality of Service (QoS) elements and their applicability, how virtualized and cloud services will interact and impact enterprise networks, and an overview of network programmability with the related controller types and tools that are available to support software defined network architectures.

You will learn about the interactions and network functions of firewalls, wireless controllers and access points, along with additional focus on IPv6 and basic network security.

A full suite of labs has been developed using the virtual IOS environment with flexible topologies that reinforce concepts with hands-on, guided discovery and Labs that align to each

WHO SHOULD ATTEND

This course is designed to prepare students to take CCNA Routing and Switching certification exam.

PREREQUISITES

Basic computer literacy, internet usage skills, PC operating system navigation skills and IP address knowledge.

LEARNING OBJECTIVES

Prepare for the CCNA Routing and Switching certification

Operate a medium-sized LAN with multiple switches, supporting VLANs, trunking, and spanning tree

Interactions and network functions of firewalls, wireless controllers and access points

Develop core routing and switching networking skills to configure, monitor, and troubleshoot Cisco networks for increased effectiveness and optimal performance within SMB and Enterprise settings

How device management can be implemented using the traditional and intelligent ways

QoS, virtualization and cloud services, and network programmability related to WAN, access and core segments

Support Cisco network deployments and maintain these services in an on-going operational network..

COURSE OUTLINE

1. Building a Simple Network

- Exploring the Functions of Networking
- Understanding the Host-to-Host Communications Model
- Introducing LANs
- Operating Cisco IOS Software
- Starting a Switch
- Understanding Ethernet and Switch Operation
- Troubleshooting Common Switch Media Issues

2. Establishing Internet Connectivity

- Understanding the TCP/IP Internet Layer
- Understanding IP Addressing and Subnets
- Understanding the TCP/IP Transport Layer
- Exploring the Functions of Routing
- Configuring a Cisco Router
- Exploring the Packet Delivery Process
- Enabling Static Routing
- Learning Basics of ACL
- Enabling Internet Connectivity

3. Summary Challenge

- Establish Internet Connectivity
- Troubleshoot Internet Connectivity

4. Implementing Scalable Medium-Sized Networks

- Implementing and Troubleshooting VLANs and Trunks
- Building Redundant Switched Topologies
- Improving Redundant Switched Topologies with Ether-Channel
- Routing Between VLANs
- Using a Cisco IOS Network Device as a DHCP Server
- Understanding Layer 3 Redundancy
- Implementing RIPv2

5. Introducing IPv6

- Introducing Basic IPv6
- Understanding IPv6 Operation
- Configuring IPv6 Static Routes

6. Troubleshooting Basic Connectivity

- Troubleshooting IPv4 Network Connectivity
- Troubleshooting IPv6 Network Connectivity

7. Implementing Network Device Security

- Securing Administrative Access
- Implementing Device Hardening
- Implementing Advance Security

8. Implementing an EIGRP-Based Solution

- Implementing EIGRP
- Implementing EIGRP for IPv6

9. Summary Challenge

- Troubleshooting a Medium-Sized Network
- Troubleshooting Scalable Medium-Sized Network

10. Implementing a Scalable OSPF-Based Solution

- Understanding OSPF
- Multiarea OSPF IPv4 Implementation
- Implementing OSPFv3 for IPv6
- Troubleshooting Multiarea OSPF

11. Implementing Wide-Area Networks

- Understanding WAN Technologies
- Understanding Point-to-Point Protocols
- Configuring GRE Tunnels
- Configuring Single-Homed EBGP

12. Network Device Management

- Implementing Basic Network Device Management
- Evolution of Intelligent Networks
- Introducing QoS
- Managing Cisco Devices
- Licensing

13. Summary Challenge

- Troubleshooting Scalable Multiarea Network
- Implementing and Troubleshooting Scalable Multiarea Network

DISCOVERY LABS

- 1: Get Started with Cisco CLI
- 2: Perform Basic Switch Configuration
- 3: Observe How a Switch Operates
- 4: Troubleshoot Switch Media and Port Issues
- 5: Inspect TCP/IP Applications
- 6: Start with Cisco Router Configuration
- 7: Configure Cisco Discovery Protocol
- 8: Configure Default Gateway
- 9: Exploration of Packet Forwarding
- 10: Configure and Verify Static Routes
- 11: Configure and Verify ACLs
- 12: Configure a Provider-Assigned IP Address
- 13: Configure Static NAT
- 14: Configure Dynamic NAT and PAT
- 15: Troubleshoot NAT
- 16: Configure VLAN and Trunk
- 17: Troubleshoot VLANs and Trunks
- 18: Configure Root Bridge and Analyze STP Topology
- 19: Troubleshoot STP Issues
- 20: Configure and Verify EtherChannel
- 21: Configure a Router on a Stick
- 22: Configure a Cisco Router as a DHCP Server
- 23: Troubleshoot DHCP Issues
- 24: Configure and Verify HSRP
- 25: Troubleshoot HSRP
- 26: Configure and Verify RIPv2
- 27: Troubleshoot RIPv2
- 28: Configure Basic IPv6 Connectivity
- 29: Configure IPv6 Static Routes
- 30: Use Troubleshooting Tools
- 31: Configure and Verify IPv4 Extended Access Lists
- 32: Troubleshoot IPv4 Network Connectivity
- 33: Configure and Verify IPv6 Extended Access Lists
- 34: Troubleshoot IPv6 Network Connectivity
- 35: Enhance Security of Initial Configuration
- 36: Limit Remote Access Connectivity
- 37: Configure and Verify Port Security
- 38: Configure and Verify NTP
- 39: Configure External Authentication Using RADIUS and TACACS+
- 40: Configure and Verify EIGRP
- 41: Configure and Verify EIGRP for IPv6
- 42: Troubleshoot EIGRP

- 43: Configure and Verify Single-Area OSPF
- 44: Configure and Verify Multiarea OSPF
- 45: Configure and Verify OSPFv3
- 46: Troubleshoot Multiarea OSPF
- 47: Configure Serial Interface and PPP
- 48: Configure and Verify MLP
- 49: Configure and Verify PPPoE Client
- 50: Configure and Verify GRE Tunnel
- 51: Configure and Verify Single Homed EBGP

CHALLENGE LABS

- 1: Summary Lab: 1
- 2: Summary Lab: 2
- 3: Implementing RIPv2
- 4: Implement IPv6 Static Routing
- 5: Troubleshooting IPv4 Connectivit
- 6: Troubleshooting IPv6 Connectivity
- 7: Securing Device Administrative Access
- 8: Implementing Device Hardening
- 9: Troubleshooting EIGRP
- 10: Summary Lab: 3
- 11: Summary Lab: 4
- 12: Troubleshooting OSPF