

Hands-On

CCNA Routing and Switching Accelerated (CCNAX 200-125)



Course Description

The CCNA Routing and Switching Boot Camp is an accelerated course that merges content from ICND1 and ICND2. Learn how to install, operate, configure, and troubleshoot basic IPv4 and IPv6 networks.

The Cisco Certified Network Associate (CCNA) Routing and Switching composite Exam (200-125) is an assessment that is associated with the CCNA Routing and Switching certification.

This exam tests a candidate's knowledge and skills related to network fundamentals, LAN switching technologies, IPv4 and IPv6 routing technologies, WAN technologies, infrastructure services, infrastructure security, and infrastructure management.

CCNAX is an intense and accelerated path to certification for students with extensive network experience. The traditional path to CCNA Routing and Switching certification requires two courses (ICND1 and ICND2) and two exams. This boot camp fulfills the CCNA Routing and Switching requirement with a single exam.

In addition to learning about basic networks, you'll learn to configure a LAN switch, configure an IP router, identify basic security threats, understand redundant topologies, troubleshoot common network issues, connect to a WAN, configure EIGRP and OSPF in both IPv4 and IPv6, understand wide-area network technologies, and get familiar with device management and Cisco licensing.

The newest version of CCNAX includes a focus on 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.

A full suite of labs included with this course have been developed using the virtual IOS environment with flexible topologies that reinforce concepts with hands-on, guided discovery and challenge labs that align to each lesson module.

Students Will Learn

- **Network fundamentals and build simple LANs**
- **Establish Internet connectivity**
- **Manage and secure network devices**
- **Operate a medium-sized LAN with multiple switches, supporting VLANs, trunking, and spanning tree**
- **Troubleshoot IP connectivity**
- **Describe how to configure and troubleshoot EIGRP in an IPv4 environment, and configure EIGRP for IPv6**
- **Configure and troubleshoot OSPF in an IPv4 environment and configure OSPF for IPv6**
- **Characteristics, functions, and components of a WAN**
- **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.
- And much more...

Target Audience

Cisco's CCNA certification is one of the most recognized certifications in the industry and validates an engineer's ability to install, configure, operate, and troubleshoot small and medium-sized networks.

Prerequisites

Basic IP address/network subnetting knowledge, and at least one year of networking experience is highly recommended.

Course Outline

Network Fundamentals

- Compare and contrast OSI and TCP/IP models
- Compare and contrast TCP and UDP protocols
- Describe the impact of infrastructure components in an enterprise network
- Describe the effects of cloud resources on enterprise network architecture
- Compare and contrast collapsed core and three-tier architectures
- Compare and contrast network topologies
- Select the appropriate cabling type based on implementation requirements
- Apply troubleshooting methodologies to resolve problems
- Configure, verify, and troubleshoot IPv4 addressing and subnetting
- Compare and contrast IPv4 address types
- Describe the need for private IPv4 addressing
- Identify the appropriate IPv6 addressing scheme to satisfy addressing requirements in a LAN/WAN environment
- Configure, verify, and troubleshoot IPv6 addressing
- Configure and verify IPv6 Stateless Address Auto Configuration
- Compare and contrast IPv6 address types

LAN Switching Technologies

- Describe and verify switching concepts
- Interpret Ethernet frame format
- Troubleshoot interface and cable issues (collisions, errors, duplex, speed)
- Configure, verify, and troubleshoot VLANs (normal/extended range) spanning multiple switches
- Configure, verify, and troubleshoot interswitch connectivity
- Configure, verify, and troubleshoot STP protocols
- Configure, verify and troubleshoot STP related optional features
- Configure and verify Layer 2 protocols
- Configure, verify, and troubleshoot (Layer 2/Layer 3) EtherChannel

- Describe the benefits of switch stacking and chassis aggregation

Routing Technologies

- Describe the routing concepts
- Interpret the components of a routing table
- Describe how a routing table is populated by different routing information sources
- Configure, verify, and troubleshoot inter-VLAN routing
- Compare and contrast static routing and dynamic routing
- Compare and contrast distance vector and link state routing protocols
- Compare and contrast interior and exterior routing protocols
- Configure, verify, and troubleshoot IPv4 and IPv6 static routing
- Configure, verify, and troubleshoot single area and multi-area OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
- Configure, verify, and troubleshoot single area and multi-area OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
- Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
- Configure, verify, and troubleshoot EIGRP for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub)
- Configure, verify, and troubleshoot RIPv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution)
- Troubleshoot basic Layer 3 end-to-end connectivity issues

WAN Technologies

- Configure and verify PPP and MLPPP on WAN interfaces using local authentication
- Configure, verify, and troubleshoot PPPoE client-side interfaces using local authentication
- Configure, verify, and troubleshoot GRE tunnel connectivity
- Describe WAN topology options
- Describe WAN access connectivity options
- Configure and verify single-homed branch connectivity using eBGP IPv4 (limited to peering and route advertisement using Network command only)
- Describe basic QoS concepts

Infrastructure Services

- Describe DNS lookup operation
- Troubleshoot client connectivity issues involving DNS
- Configure and verify DHCP on a router (excluding static reservations)
- Troubleshoot client- and router-based DHCP connectivity issues
- Configure, verify, and troubleshoot basic HSRP
- Configure, verify, and troubleshoot inside source NAT
- Configure and verify NTP operating in a client/server mode

Infrastructure Security

- Configure, verify, and troubleshoot port security
- Describe common access layer threat mitigation techniques
- Configure, verify, and troubleshoot IPv4 and IPv6 access list for traffic filtering
- Verify ACLs using the APIC-EM Path Trace ACL analysis tool
- Configure, verify, and troubleshoot basic device hardening
- Describe device security using AAA with TACACS+ and RADIUS

Infrastructure Management

- Configure and verify device-monitoring protocols
- Troubleshoot network connectivity issues using ICMP echo-based IP SLA
- Configure and verify device management
- Configure and verify initial device configuration
- Perform device maintenance

- Use Cisco IOS tools to troubleshoot and resolve problems
- Describe network programmability in enterprise network architecture

Notes

Due to this course being an Accelerated BootCamp, there will be extended hours and required study and exam preparation time.

Delivery Method

Instructor-Led with numerous labs and exercises throughout the course. Due to this course being an Accelerated BootCamp, there will be extended hours and required study and exam preparation time.

Equipment Requirements

(This apply's to our hands-on courses only)

BTS always provides equipment to have a very successful Hands-On course. BTS also encourages all attendees to bring their own equipment to the course. This will provide attendees the opportunity to incorporate their own gear into the labs and gain valuable training using their specific equipment.

Course Length

5 Days