



Associated Certifications: CCNA
Length: 5 days

Introduction: You will learn to install, configure, operate, and verify a basic Ipv4 and Ipv6 network. This course focuses on configuring a LAN switch, configuring an IP router identifying basic security threats, understanding redundant topologies, troubleshooting common network issues, connecting to a wide-area network (WAN), configuring EIGRP and OSPF in both IPv4 and IPv6, understanding WAN technologies, and getting familiar with device management and Cisco licensing.
Certification exam: 200-125 CCNAX

Prerequisites:

- A solid understanding of Ipv4 and Ipv6 based networks
 - A basic knowledge of network subnetting and IP routing
 - Knowledge of TCP/IP Networking
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Objectives:

- Network Fundamentals and how to build simple LANs
 - Establish Internet connectivity
 - Manage network device security
 - IPV6 Basics
 - Troubleshoot VLAN issues
 - Spanning Tree Protocol (STP)
 - Configure EtherChannel
 - Layer 3 redundancy
 - Troubleshoot IP connectivity
 - Characteristics, functions, and components of a WAN
 - Configure and troubleshoot EIGRP in an IPv4 environment
 - Configure EIGRP for IPv6
 - Configure, verify, and troubleshoot multiarea OSPF
 - SNMP, syslog, and NetFlow
 - Manage Cisco device configurations, IOS images, and licenses
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Course Outline

I. Building a Simple Network

- A. The Functions of Networking
- B. Host-to-Host Communication Model
- C. Introducing LANs
- D. Operating Cisco IOS Software
- E. Starting a Switch
- F. Ethernet and Switch Operation
- G. Understanding Ethernet and Switch Operation
- H. Troubleshooting Common Switch Media Issues

II. Establishing Internet Connectivity

- A. TCP/IP Internet Layer
- B. IP Addressing and Subnets
- C. TCP/IP Transport Layer
- D. Functions of Routing
- E. Configuring a Cisco Router
- F. Packet Delivery Process
- G. Enabling Static Routing
- H. Managing Traffic Using ACLs
- I. Enabling Internet Connectivity



III. Implementing Scalable Medium-Sized Networks

- A. Enterprise network design
- B. VLAN Introduction and Creation
- C. Configure an 802.1Q Trunk
- D. VLAN Trunking Protocol
- E. VLAN Design
- F. Redundancy in LAN
- G. Spanning-Tree Operation and Protocols
- H. EtherChannel Protocols
- I. Options and Purpose for Inter-VLAN Routing
- J. DHCP Server Operation and Configuration
- K. Layer 3 Redundancy
 - FHRP
 - HSRP
- L. RIPv2 Operation and Configuration

IV. Introducing IPv6

- A. Ipv6 Features and Addresses
- B. Describe ICMPv6
- C. Routing types for Ipv6
- D. Configure and Implement Static Routes

V. Troubleshooting Basic Connectivity

- A. Troubleshooting Ipv4 Network Connectivity
- B. Use SPAN for Troubleshooting
- C. Troubleshooting Ipv6 Network Connectivity

VI. Implementing Network Device Security

- A. Implement a Basic Security Configuration
- B. Device Hardening
- C. Port Security
- D. Access Layer Threat Mitigation Techniques

VII. Implementing an EIGRP-Based Solution

- A. EIGRP Features, Path Selection, and Composite Metric
- B. Implement EIGRP for Ipv6
- C. Troubleshoot EIGRP Issues

VIII. Implementing a Scalable, OSPF-Based Solution

- A. OSPF Overview and Features
- B. OSPF Area Structure
- C. Single-Area and Multiarea OSPF
- D. Ospf3 for Ipv6
- E. Troubleshoot Multiarea OSPF

IX. Implementing a Wide-Area Networks

- A. WAN Topology and Connectivity Options
- B. Managed VPS
- C. WAN Devices
- D. Point-To-Point Protocols
- E. GRE Tunnels

X. Network Device Management

- A. Configure Syslog
- B. Configure SNMP
- C. Switch Stacking
- D. Cloud Computing and Its Effect On Enterprise Network
- E. Cisco APIC-EM
- F. Intelligent WAN (IWAN)
- G. QoS Concepts
- H. Managing Cisco Devices
- I. Locating and Loading Cisco IOS Image Files
- J. Managing Device Configuration Files
- K. Licensing