FIREFLY

IMPLEMENTING AND ADMINISTERING CISCO SOLUTIONS

DURATION: 5 DAYS   COURSE CODE: CCNA   FORMAT: LECTURE/LAB

COURSE DESCRIPTION

The Implementing and Administering Cisco Solutions (CCNA) v1.0 course gives you a broad range of fundamental knowledge for all IT careers. Through a combination of lecture, hands-on labs, and self-study, you will learn how to install, operate, configure, and verify basic IPv4 and IPv6 networks. The course covers configuring network components such as switches, routers, and wireless LAN controllers; managing network devices; and identifying basic security threats. The course also gives you a foundation in network programmability, automation, and software-defined networking.

This course helps you prepare to take the 200-301 Cisco® Certified Network Associate (CCNA®) exam. By passing this one exam, you earn CCNA certification.

This course will help you:

- Learn the knowledge and skills to install, configure, and operate a small- to medium-sized network
- Gain a foundation in the essentials of networking, security, and automation
- Prepare for the 200-301 CCNA exam, which earns CCNA certification

WHO SHOULD ATTEND

Entry-level network engineer

Network administrator

Network support technician

Help desk technician

PREREQUISITES

Basic computer literacy

Basic PC operating system navigation skills

Basic Internet usage skills

Basic IP address knowledge

There are no formal prerequisites for CCNA certification, but you should make sure to have a good understanding of the exam topics.

ABOUT THE EXAM

The 200-301 CCNA exam certifies your knowledge and skills related to network fundamentals, network access, IP connectivity, IP services, security fundamentals, and automation and programmability.

After you pass 200-301 CCNA, you earn CCNA certification.

LEARNING OBJECTIVES

Identify the components of a computer network and describe their basic characteristics

Understand the model of host-to-host communication

Describe the features and functions of the Cisco Internetwork Operating System (IOS®) software

Describe LANs and the role of switches within LANs

Describe Ethernet as the network access layer of TCP/IP and describe the operation of switches

Install a switch and perform the initial configuration

Describe the TCP/IP Internet layer, IPv4, its addressing scheme, and subnetting

Describe the TCP/IP Transport layer and Application layer

Explore functions of routing

Implement basic configuration on a Cisco router

Explain host-to-host communications across switches and routers

Identify and resolve common switched network issues and common problems associated with IPv4 addressing

Describe IPv6 main features and addresses, and configure and verify basic IPv6 connectivity

Describe the operation, benefits, and limitations of static routing

Describe, implement, and verify Virtual Local Area Networks (VLANs) and trunks

Describe the application and configuration of inter-VLAN routing

Explain the basics of dynamic routing protocols and describe components and terms of Open Shortest Path First (OSPF)

Explain how Spanning Tree Protocol (STP) and Rapid Spanning Tree Protocol (RSTP) work

Configure link aggregation using EtherChannel

Describe the purpose of Layer 3 redundancy protocols

Describe basic WAN and VPN concepts

Describe the operation of Access Control Lists (ACLs) and their applications in the network

Configure Internet access using Dynamic Host Configuration Protocol (DHCP) clients and explain and configure Network Address Translation (NAT) on Cisco routers

Describe basic Quality of Service (QoS) concepts

Describe the concepts of wireless networks, which types of wireless networks can be built, and how to use Wireless LAN Controllers (WLCs)

Describe network and device architectures and introduce virtualization

Introduce the concept of network programmability and Software-Defined Networking (SDN) and describe smart network management solutions such as Cisco DNA Center™, Software-Defined Access (SD-Access), and Software-Defined Wide Area Network (SD-WAN)

Configure basic IOS system monitoring tools

Describe the management of Cisco devices

Describe the current security threat landscape

Describe threat defense technologies

Implement a basic security configuration of the device management plane

Implement basic steps to harden network devices

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LABS

Discovery 1: Get started with Cisco CLI

Discovery 2: Observe How a Switch Operates

Discovery 3: Perform Basic Switch Configuration

FASTLab 1: Implement the Initial Switch Configuration

Discovery 4: Inspect TCP/IP Applications

Discovery 5: Configure an Interface on a Cisco Router

Discovery 6: Configure and Verify Layer 2 Discovery Protocols

FASTLab 2: Implement an Initial Router Configuration

Discovery 7: Configure Default Gateway

Discovery 8: Explore Packet Forwarding

Discovery 9: Troubleshoot Switch Media and Port Issues

Discovery 10: Troubleshoot Port Duplex Issues

Discovery 11: Configure Basic IPv6 Connectivity

Discovery 12: Configure and Verify IPv4 Static Routes

Discovery 13: Configure IPv6 Static Routes

FASTLab 3: Implement IPv4 Static Routing

FASTLab 4: Implement IPv6 Static Routing

Discovery 14: Configure VLAN and Trunk

FASTLab 5: Troubleshoot VLANs and Trunk

Discovery 15: Configure a Router on a Stick

FASTLab 6: Implement Multiple VLANs and Basic Routing Between the VLANs

Discovery 16: Configure and Verify Single-Area OSPF

Discovery 17: Configure and Verify EtherChannel

FASTLab 7: Improve Redundant Switched Topologies with EtherChannel

Discovery 18: Configure and Verify IPv4 ACLs

FASTLab 8: Implement Numbered and Named IPv4 ACLs

Discovery 19: Configure a Provider-Assigned IPv4 Address

Discovery 20: Configure Static NAT

Discovery 21: Configure Dynamic NAT and PAT

FASTLab 9: Implement PAT

Discovery 22: Log into the WLC

Discovery 23: Monitor the WLC

Discovery 24: Configure a Dynamic (VLAN) Interface

Discovery 25: Configure a DHCP Scope

Discovery 26: Configure a WLAN

Discovery 27: Define a RADIUS Server

Discovery 28: Explore Management Options

Discovery 29: Explore the Cisco DNA Center

Discovery 30: Configure and Verify NTP

FASTLab 10: Configure System Message Logging

Discovery 31: Create the Cisco IOS Image Backup

Discovery 32: Upgrade Cisco IOS Image

Discovery 33: Configure WLAN Using WPA2 PSK Using the GUI

Discovery 34: Secure Console and Remote Access

Discovery 35: Enable and Limit Remote Access Connectivity

FASTLab 11: Secure Device Administrative Access

Discovery 36: Configure and Verify Port Security

FASTLab 12: Implement Device Hardening