Interconnecting Cisco Networking Devices, Part 1 (ICND1) v3.0

What you'll learn in this course

The **Interconnecting Cisco Networking Devices, Part 1** (ICND1) course helps you prepare for the Cisco CCNA®
Routing and Switching and CCENT® certifications and for associate-level routing and switching network
engineering roles. This course teaches you how to install, operate, configure, and verify a basic IPv4 and IPv6
network, and gives you the knowledge you need to configure LAN switches and IP routers, as well as manage
network devices and identify basic security threats. The course provides a foundational understanding of network
Layers 1–3, which underlie core routing and switching plus other advanced technologies.

In this course, you'll use a full suite of labs in the virtual Cisco IOS® Software environment with flexible topologies
to help reinforce your knowledge with hands-on exercises that align to each lesson module.

This course can help you prepare for the CCENT certification. It is also the first of two courses in a series that can
help you prepare for the CCNA Routing and Switching certification. The second course in the series is
Interconnecting Cisco Networking Devices, Part 2 (ICND2).

Course duration

- Instructor-led training: 5 days with hands-on lab practice
- Virtual instructor-led training: 5 days of web-based classes with hands-on lab practice
- E-learning: Equivalent of 5 days of instruction with hands-on lab practice

How you'll benefit

This course will help you:

- Learn to install, operate, configure, and verify a basic IPv4 and IPv6 network
- Understand the foundational basics of network Layers 1–3, which underlie core routing and switching
- Prepare to pass the 100-105 ICND1 exam, which leads to the CCENT certification and completes the first
  half of the requirements for the CCNA Routing and Switching certification

Who should enroll

- Network administrators
- Network support engineers
- Network engineer associates
- Network specialists
- Network analysts

How to enroll

- For instructor-led training, visit the Cisco® Learning Locator.

- For private group training, visit Cisco Private Group Training.

- For self-paced e-learning, visit the Cisco Learning Network Store.

- For e-learning volume discounts, email ask_cpll@cisco.com.

- For digital library access, visit the Cisco Platinum Learning Library.

Technology areas

- Routing and switching

- Network fundamentals

Course details

Objectives

After taking this course, you should be able to:

- Describe network fundamentals and build simple LANs

- Establish Internet connectivity

- Manage and secure network devices

- Expand small to medium-sized networks

- Describe IPv6 basics

Prerequisites

We recommend but do not require that you have the following knowledge and skills before taking this course:

- Basic computer literacy

- Basic PC operating system navigation skills

- Basic Internet usage skills

- Basic knowledge of IP addressing

Outline

- 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

- 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 the Basics of ACL
- ◦ Enabling Internet Connectivity
- Summary Challenge 1
  - ◦ Establish Internet Connectivity
  - ◦ Troubleshoot Internet Connectivity
- Medium-Sized Network
  - ◦ Implementing VLANs and Trunk
  - ◦ Routing Between VLANs
  - ◦ Using a Cisco IOS Network Device as a DHCP Server
  - ◦ Implementing RIPv2
- Network Device Management and Security
  - ◦ Securing Administrative Access
  - ◦ Implementing Device Hardening
  - ◦ Configuring System Message Logging
  - ◦ Managing Cisco Devices
  - ◦ Licensing
- Summary Challenge 2
  - ◦ Implement a Medium-Sized Network
  - ◦ Troubleshoot a Medium-Sized Network
- IPv6 Overview
  - ◦ Introducing Basic IPv6
  - ◦ Understanding IPv6 Operation
  - ◦ Configuring IPv6 Static Routes

Lab outline

- Get Started with Cisco CLI
- Perform Basic Switch Configuration
- Observe How a Switch Operates
- Troubleshoot Switch Media and Port Issues
- Inspect TCP/IP Applications
- Start with Cisco Router Configuration
- Configure Cisco Discovery Protocol
- Configure Default Gateway
- Explore Packet Forwarding
- Configure and Verify Static Routes
- Configure and Verify ACLs
- Configure a Provider-Assigned IP Address

- Configure Static NAT
- Configure Dynamic NAT and PAT
- Troubleshoot NAT
- Configure VLAN and Trunk
- Configure a Router on a Stick
- Configure a Cisco Router as a DHCP Server
- Troubleshoot DHCP Issues
- Configure and Verify RIPv2
- Troubleshoot RIPv2
- Enhance Security of Initial Configuration
- Limit Remote Access Connectivity
- Configure and Verify Port Security
- Configure and Verify NTP
- Configure Syslog
- Configure Basic IPv6 Connectivity
- Configure IPv6 Static Routes
- Implement IPv6 Static Routing