



Interconnecting Cisco Network Devices Part 1

Length
5 days

Format
Lecture/lab

Track
CCNA

Version
1.0

ICND1

Course Description

ICND1 is a five-day course that focuses on providing the foundational skills and knowledge you need to implement and support a small switched and routed IP network.

After starting with an introduction to networks, you will learn about host-to-host communications using TCP/IP, Layer 2 and Layer 3 devices. The introduction of Layer 3 devices leads to the use of WANs and routing to connect the site to the Internet and corporate sites. Finally, device management skills are introduced.

In the lab, you will build a multirouter, multiswitch internetwork that uses LAN and WAN interfaces for the most commonly used protocols.

Who Should Attend

This course is designed for network designers, engineers, administrators, and managers who need to learn intermediate-level IP networking concepts and Cisco router and switch configuration. This is the first of two courses designed for individuals who are pursuing CCNA certification.

Recommended Prerequisites

- Basic computer literacy
- Basic Microsoft Windows skills
- Basic Internet usage skills
- Basic e-mail usage skills

Learning Objectives

After you complete this course, you will be able to:

- Describe how networks function, identifying major components, function of network components, and the OSI reference model
- Using the host-to-host packet delivery process, describe issues related to increasing traffic on an Ethernet LAN and identify switched LAN technology solutions to Ethernet networking issues
- Describe the reasons for extending the reach of a LAN and the methods that can be used, with a focus on RF wireless access
- Describe the reasons for connecting networks with routers and how routed networks transmit data through networks using TCP/IP
- Describe the function of WANs, the major devices of WANs, and configure PPP encapsulation, static and dynamic routing, PAT, and RIP routing
- Use the command-line interface to discover neighbors on the network and manage the router startup and configuration



Learning
Solutions



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Course Outline

Module 1: Building a Simple Network

- Exploring the Functions of Networking
- Securing the Network
- Understanding the Host-to-Host Communications Model
- Understanding the TCP/IP Internet Layer
- Understanding the TCP/IP Transport Layer
- Exploring the Packet Delivery Process
- Understanding Ethernet
- Connecting to an Ethernet LAN

Module 2: Ethernet LANs

- The Challenges of Shared LANs
- Switched LAN Technology
- Exploring the Packet Delivery Process
- Operating Cisco IOS Software
- Starting a Switch
- Understanding Switch Security
- Maximizing the Benefits of Switching
- Troubleshooting Switch Issues

Module 3: Wireless LANs

- Exploring Wireless Networking
- Understanding WLAN Security
- Implementing a WLAN

Module 4: LAN Connections

- Exploring the Functions of Routing
- Understanding Binary Basics
- Constructing a Network Addressing Scheme
- Starting a Cisco Router
- Configuring a Cisco Router
- Exploring the Packet Delivery Process
- Understanding Cisco Router Security
- Using Cisco SDM
- Using a Cisco Router as a DHCP Server
- Accessing Remote Devices

Module 5: WAN Connections

- Understanding WAN Technologies
- Enabling the Internet Connection
- Enabling Static Routing
- Configuring Serial Encapsulation
- Enabling RIP

Module 6: Network Environment Management

- Discovering Neighbors on the Network
- Managing Cisco Router Startup and Configuration
- Managing Cisco Devices

Course Labs

- Lab 1-1: Using Windows Applications as Network Tools
- Lab 1-2: Observing the TCP Three-Way Handshake
- Lab 1-3: Observing Extended PC Network Information
- Lab 2-1: Connecting to Remote Lab Equipment
- Lab 2-2: Performing Switch Startup and Initial Configuration
- Lab 2-3: Enhancing the Security of Initial Switch Configuration
- Lab 2-4: Operating and Configuring a Cisco IOS Device
- Lab 4-1: Converting Decimal to Binary and Binary to Decimal
- Lab 4-2: Classifying Network Addressing
- Lab 4-3: Computing Usable Subnetworks and Hosts
- Lab 4-4: Calculating Subnet Masks
- Lab 4-5: Performing Initial Router Startup
- Lab 4-6: Performing Initial Router Configuration
- Lab 4-7: Enhancing the Security of Initial Router Configuration
- Lab 4-8: Using Cisco SDM to Configure DHCP Server Function
- Lab 4-9: Managing Remote Access Sessions
- Lab 5-1: Connecting to the Internet
- Lab 5-2: Connecting to the Main Office
- Lab 5-3: Enabling Dynamic Routing to the Main Office
- Lab 6-1: Using Cisco Discovery Protocol
- Lab 6-2: Managing Router Startup Options
- Lab 6-3: Managing Cisco Devices
- Lab 6-4: Confirming the Reconfiguration of the Branch Network



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