

**Course Catalog
2012-2013**

CCNA VOICE



CCNA Voice

The Cisco Certified Network Associate Voice (CCNA® Voice) validates associate-level knowledge and skills required to administer a voice network. The Cisco® CCNA Voice certification confirms that the required skill set for specialized job roles in voice technologies such as voice technologies administrator, voice engineer, and voice manager. It validates skills in VoIP technologies such as IP PBX, IP telephony, handset, call control, and voicemail solutions.

Course Objectives

- PSTN components, number plans and multiplexing
- Analogue and digital circuits, PBXs, trunk and tie lines
- Codecs
- Signaling protocols H323, MGCP, SIP, SCCP and protocols, RTP and RTCP
- Dial peers and plans, voice gateways
- ISP provider circuits
- Infrastructure with UC, IVR and auto attendant
- Messaging and call processing
- VoIP in relation to Cisco and VLANs, understanding and deploying QoS
- Understanding of Infrastructure and equipment required for voice and data at layer 2
- Understanding and using Cisco UC500 series
- Network, user and device parameters
- Configuring dial plans

Who Should Attend

The primary audience for this course is as follows:

- Network Administrators and Network Engineers
- CCNA Voice candidates
- Telephony and voice system engineers

Prerequisite

- Fundamental Computer information.
- A+ Certification.
- Fundamental acquaintance of networking and TCP/IP is mandatory.
- CCNA Course Complete is mandatory.

Course Duration

48 Hours, 16 Classes, 3 Hours per Class

Course Details

Lesson 01: Perspectives on voice before convergence

- Loop start and Ground Start Signaling
- Supervisory Signaling
- Informational Signaling
- Address Signaling
- The Evolution: Digital Connection
- Converting Analogue to Digital Signals
- Sending Multiple Calls over a single line
- Understanding the PSTN
- The pieces of the PSTN
- Understanding PBX and Key Systems
- Connections to and between the PSTN
- PSTN numbering plans

Lesson 02: Perspectives on voice after convergence

- VoIP: What's the big deal
- The Cisco VoIP Structure
- Infrastructure layer
- Call Processing Layer
- Applications Layer
- End points layer

Lesson 03: Connecting IP Phones to the LAN infrastructure

- Connecting and powering the Cisco IP Phones
- Cisco Catalyst switch PoE
- Powering the IP Phone using a Power patch panel or coupler
- Powering the IP Phone with a power brick
- VLAN Concepts and Configuration
- VLAN Concepts
- VLAN configuration
- Understanding Cisco IP Phone Boot Process
- Configuring a router based DHCP server
- Setting the clock of a Cisco device with NTP

Lesson 04: Installing Cisco Unified Communications Manager Express

- Cisco Unified communications manager express overview
- Licensing and models for Cisco Unified CME
- PBX model
- Key switch model
- Hybrid Model
- Installing Unified CME on a Cisco router
- Configuring the Cisco Unified CME Router as a TFTP server
- Configuring the Cisco Unified CME system-level functions
- Maximum phones and directory numbers
- Firmware load files
- Source IP information
- Generated configuration files

Course Details

Lesson 05: Basic Cisco CME IP Phone configuration

- Voice VLAN
- DHCP Server
- TFTP services
- Ephone and Ephone DN The keys to Ringing phones
- Understanding and configuring Ephones
- Associating Ephones and Ephones-DNs
- Working with shared-line and overlay options
- Fault finding IP Phone registration
- Supporting Auto-Registration and Auto-Assignment of IP phones
- Rebooting IP phones
- Phone language settings

Lesson 06: Configuring Cisco Unified CME Voice productively features

- Configuring a voice network directory
- Configuring call forwarding
- Forwarding calls from the IP Phone
- Forwarding calls from the CLI
- Using the Call-Forward pattern command to support H.450.3
- Configuring transfer
- Configuring call park
- Configuring call pickup
- Configuring intercom
- Configuring paging
- Configuring After hours call blocking
- Configuring CDR's and Call accounting
- Configuring Music on Hold
- Enabling the CME GUI

Lesson 07: Gateway and trunk concepts

- The process of converting voice to packets
- Choosing a voice codec
- Calculating codec bandwidth requirements
- The role of Digital signal processors
- Understanding RTP and RTCP
- Internet low bit rate codec
- Trunking CME to the PSTN
- Understanding Analogue connections
- Understanding Digital connections
- Trunking CME to other VoIP systems
- H.323
- SIP
- MGCP
- SCCP
- Understanding internet telephony service providers

Course Details

Lesson 08: Configuring and verifying gateways and trunks

- Configuring analogue voice ports
- Configuring Digital Voice ports
- Understanding Dial Peers
- Voice call legs
- Configuring POTS dial peers
- Configuring VoIP dial peers
- Using Dial-Peer wild cards
- Private line automatic ringdown
- Understanding router call processing and digit manipulation
- Matching inbound and outbound dial peers
- Using digit manipulation
- Quality of Service
- Requirements for voice, Video and data traffic
- Using Cisco Auto QoS

Lesson 09: Cisco Unity Express

- Hardware flavors of Cisco unity express
- Cisco Unity express software
- Cisco Unity express licensing
- Cisco Unity express to IP PBX integrations
- Users and Groups
- Subscriber Mailbox versus general delivery Mailbox
- Mailbox Subscriber features
- Mailbox caller features
- Voiceview express
- Integrated messaging
- Voice profile for internet mail
- Cisco Unity express automated attendant
- Cisco Unity Express custom scripting
- Administrator management
- Subscriber management
- Record options for the caller

