

# CCNA-VOICE

## 640-460 IIUC

### Implementing Cisco IOS Unified Communications

Exam Number: 640-460

Associated Certifications: CCNA-VOICE

Duration: 90 minutes (60-70 questions)

Available Languages: English

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#### Exam Description

The 640-460 IIUC Implementing Cisco IOS Unified Communications exam is associated with the CCNA Voice certification. This exam confirms basic IP telephony installation, configuration, and maintenance skills by testing a candidate's knowledge of implementing and configuring small- to medium sized IP Telephony solutions using Cisco Unified Communications Manager Express, Cisco Unity Express, and the UC500 Smart Business Communications System solutions.

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#### Topics

The following topics are general guidelines for the content likely to be included on the Implementing Cisco IOS Unified Communications exam. However, other related topics may also appear on any specific delivery of the exam. In order to better reflect the contents of the exam and for clarity purposes, the guidelines below may change at any time without notice.

##### **Describe the components of the Cisco Unified Communications Architecture**

- Describe the function of the infrastructure in a UC environment
- Describe the function of endpoints in a UC environment
- Describe the function of the call processing agent in a UC environment
- Describe the function of messaging in a UC environment
- Describe the function of auto attendants and IVRs in a UC environment
- Describe the function of contact center in a UC environment
- Describe the applications available in the UC environment, including Mobility, Presence, and Telepresence
- Describe how the Unified Communications components work together to create the Cisco Unified Communications Architecture

##### **Describe PSTN components and technologies**

- Describe the services provided by the PSTN
- Describe time division and statistical multiplexing
- Describe supervisory, informational, and address signaling
- Describe numbering plans
- Describe analog circuits
- Describe digital voice circuits
- Describe PBX, trunk lines, key-systems, and tie lines

Describe VoIP components and technologies

- Describe the process of voice packetization
- Describe RTP and RTCP
- Describe the function of and differences between codecs
- Describe H.323, MGCP, SIP, and SCCP signalling protocols

### **Describe and configure gateways, voice ports, and dial peers to connect to the PSTN and service provider networks**

- Describe the function and application of a dial plan
- Describe the function and application of voice Gateways
- Describe the function and application of voice ports in a Gateway
- Describe the function and operation of call-legs
- Describe and configure voice dial peers
- Describe the differences between PSTN and Internet Telephony Service Provider circuits

### **Describe and configure a Cisco network to support VoIP**

- Describe the purpose of VLANs in a VoIP environment
- Describe the environmental considerations to support VoIP
- Configure switched infrastructure to support voice and data VLANs
- Describe the purpose and operation of PoE
- Identify the factors that impact voice quality
- Describe how QoS addresses voice quality issues
- Identify where QoS is deployed in the UC infrastructure

### **Implement UC500 using Cisco Configuration Assistant**

- Describe the function and operation of Cisco Configuration Assistant
- Configure UC500 device parameters
- Configure UC500 network parameters
- Configure UC500 dial plan and voicemail parameters
- Configure UC500 SIP trunk parameters
- Configure UC500 voice system features
- Configure UC500 user parameters

### **Implement Cisco Unified Communications Manager Express to support endpoints using CLI**

- Describe the appropriate software components needed to support endpoints
- Describe the requirements and correct settings for DHCP, NTP, and TFTP
- Configure DHCP, NTP and TFTP
- Describe the differences between key system and PBX mode
- Describe the differences between the different types of ephones and ephone-dns
- Configure Cisco Unified Communications Manager Express endpoints
- Configure call-transfer per design specifications
- Configure voice productivity features, including hunt groups, call park, call pickup, paging groups, and paging/intercom
- Configure Music on Hold

### **Implement voicemail features using Cisco Unity Express**

- Describe the Cisco Unity Express hardware platforms
- Configure the foundational elements required for Cisco Unified Communications Manager Express to support Cisco Unity Express
- Describe the features available in Cisco Unity Express

- Configure Auto Attendant services using Cisco Unity Express
- Configure basic voicemail features using Cisco Unity Express

**Perform basic maintenance and operations tasks to support the VoIP solution**

- Describe basic troubleshooting methods for Cisco Unified Communications Manager Express
- Explain basic troubleshooting methods for Cisco Unity Express
- Explain basic maintenance and troubleshooting methods for UC500

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