

CCNP Voice (CCVP)

Syllabus/Module Details

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| 642-437 CVOICE | Cisco Voice over IP and QoS v8.0 (CVOICE v8.0) |
| 642-447 CIPT1 | Implementing Cisco Unified Communications Manager, Part 1 v8.0 (CIPT1 v8.0) |
| 642-457 CIPT2 | Implementing Cisco Unified Communications Manager Part 2, v8.0 (CIPT2 v8.0) |
| 642-427 TVOICE | Troubleshooting Cisco Unified Communications Systems v8.0 (TVoice v8.0) |
| 642-467 CAPPs | Integrating Cisco Unified Communications Applications v8.0 (CAPPs v8.0) |

642-437 Cisco Voice over IP v8.0

Module 1: Describe a dial plan

- Describe a numbering plan
- Describe digit manipulation
- Describe path selection
- Describe calling privileges

Module 2: Basic operation and components involved in a VoIP call

- Describe VoIP call flows
- Describe RTP, RTCP, cRTP, and sRTP
- Describe H.323
- Describe MGCP
- Describe Skinny Call Control Protocol
- Describe SIP
- Identify the appropriate gateway signaling protocol for a given scenario
- Choose the appropriate codec for a given scenario
- Describe and Configure VLANs

Module 3: Implement Cisco Unified Communications Manager Express to support endpoints using CLI

- Describe the appropriate software components needed to support endpoints
- Configure DHCP, NTP and TFTP
- Describe the differences between the different types of ephones and ephone-dns
- Configure Cisco Unified Communications Manager Express endpoints

Module 4: Describe the components of a gateway

- Describe the function of gateways
- Describe DSP functionality
- Describe the different types of voice ports and their usage
- Describe dial peers and the gateway call routing process
- Describe codecs and codec complexity

Module 5: Implement a gateway

- Configure analog voice ports
- Configure digital voice ports
- Configure dial-peers
- Configure digit manipulation
- Configure calling privileges
- Verify dial-plan implementation
- Implement fax support on a gateway

Module 6: Implement Cisco Unified Border Element

- Describe the Cisco Unified Border Element features and functionality
- Configure Cisco Unified Border Element to provide address hiding
- Configure Cisco Unified Border Element to provide protocol and media interworking
- Configure Cisco Unified Border Element to provide call admission control
- Verify Cisco Unified Border Element configuration and operation

Module 7: Describe the need to implement QoS for voice and video

- Describe causes of voice and video quality issues
- Describe how to resolve voice and video quality issues
- Describe QoS requirements for voice and video traffic

Module 8: Describe and configure the DiffServ QoS model

- Describe the DiffServ QoS model
- Describe marking based on CoS, DSCP, and IP Precedence
- Configure layer 2 to layer 3 QoS mapping
- Describe trust boundaries
- Configure trust boundary on Cisco switches
- Describe the operations of the QoS classifications and marking mechanisms
- Describe Low Latency Queuing
- Describe the operations of the QoS WAN Link Efficiency mechanisms
- Enable QoS mechanisms on switches using AutoQoS
- Configure Low Latency Queuing

642-447 Implementing Cisco Unified Communications Manager, Part 1 v8.0 (CIPT1 v8.0)

Module 1: Perform initial set up of a Cisco Unified Communications Manager cluster

- Describe Cisco Unified Communications Manager cluster architecture
- Describe Cisco Unified Communications Manager redundancy designs
- Describe the requirements for Cisco Unified Communications Manager use of DHCP, TFTP, DNS, and NTP
- Determine the services necessary to support a Cisco Unified Communications Manager deployment and activate the appropriate services

Module 2: Describe and configure Cisco Unified Communications Manager to support on-cluster calling

- Configure a Cisco Unified Communications Manager group
- Configure Cisco Unified Communications Manager profiles and device pools
- Configure Cisco Unified Communications Manager templates
- Manage phones and users using Cisco Unified Communications Manager Bulk Administration Tool
- Describe the tool for Auto-Registered Phones Support functionality

Module 3: Describe and configure a route plan for Cisco Unified Communications Manager to support off-net calling

- Describe Cisco Unified Communications Manager digit analysis
- Implement gateways
- Configure route patterns
- Configure route lists and route groups
- Implement toll-fraud prevention
- Configure digit manipulation
- Describe the functions and usage of calling search spaces and partitions
- Implement calling privileges

Module 4: Describe and configure Cisco Unified Communications Manager media resources

- Describe media resources
- Configure MeetMe conferencing and software conferencing resources
- Configure Music on Hold
- Configure Media Resource Groups and Media Resource Group Lists

Module 5: Describe and configure the Cisco Unified Communications Manager to support features and applications

- Configure IP phone services
- Configure Cisco Unified Communications Manager native presence features

- Configure Cisco Unified Mobility

642-457 Implementing Cisco Unified Communications Manager Part 2 v8.0 (CIPT2 v8.0)

Module 1: Describe and implement centralized call processing redundancy

- Describe device fail over
- Configure call survivability
- Configure Cisco Unified Survivable Remote Site Telephony operation
- Configure Cisco Unified Communications Manager Express to provide redundancy
- Configure MGCP Fallback operation
- Verify redundancy operations

Module 2: Describe and configure a multi-site dial plan for Cisco Unified Communication Manager

- Describe the issues with multi-site dial plans
- Describe the differences between the various gateways and trunk types supported by Cisco Unified Communication Manager
- Implement trunks
- Describe globalized call routing
- Implement a numbering plan for multi-site topologies
- Configure tailend hop off

Module 3: Implement call control discovery and Cisco Inter Company Media Exchange

- Configure Service Advertisement Framework Forwarder
- Configure Service Advertisement Framework Client Control
- Configure Service Advertisement Framework Call Control Discovery

Module 4: Implement bandwidth management and Call Admission Control

- Configure regions
- Implement transcoders and MTPs
- Configure locations
- Implement RSVP agents
- Implement SIP precondition
- Describe functionality of a gatekeeper
- Implement gatekeeper-based Call Admission Control
- Configure Automated Alternate Routing
- Configure multi-site Music on Hold

Module 5: Implement mobility features

- Configure Cisco Unified Communications Manager Device Mobility

- Configure Cisco Extension Mobility

642-427 Troubleshooting Cisco Unified Communications v8.0 (TVOICE v8.0)

Module 1: Apply the Cisco recommended methodology used to determine general Unified communications system problems and issues

- Describe the steps that can be used to identify a problem with a given unified communication system
- Identify tools available for troubleshooting
- Identify tools available for monitoring

Module 2: Identify available tools to operate and troubleshoot a Unified Communications System

- Describe troubleshooting and monitoring tools
- Determine appropriate tools to use for troubleshooting and monitoring system
- Correlate events based on traces, logs, debugs and output of monitoring tools
- Parse and interpret traces, logs, debugs and output of monitoring tools

Module 3: Troubleshoot registration issues

- Troubleshoot issues with endpoint registration
- Troubleshoot issues with gateway registration

Module 4: Troubleshoot call setup issues

- Troubleshoot intersite call setup issues
- Troubleshoot intrasite call setup issues
- Troubleshoot off-net call setup issues

Module 5: Troubleshoot database issues

- Troubleshoot database replication issues in Cisco Unified Communications Manager

Module 6: Troubleshoot call control discovery and Cisco Inter Company Media Exchange

- Troubleshoot Service Advertisement Framework Forwarder issues
- Troubleshoot Service Advertisement Framework Client Control issues
- Troubleshoot Service Advertisement Framework Call Control Discovery issues

Module 7: Troubleshoot application issues

- Troubleshoot Cisco Extension Mobility issues
- Troubleshoot Cisco Unified Communications Manager Device Mobility issues
- Troubleshoot Cisco Unified Mobility issues

Module 8: Troubleshoot media resources

- Troubleshoot Music on Hold
- Troubleshoot conference bridges
- Troubleshoot transcoders
- Troubleshoot MTP

Module 9: Troubleshoot voice quality issues

- Troubleshoot echo
- Troubleshoot dropped calls
- Troubleshoot audio quality issues

642-467 Integrating Cisco Unified Communications Applications v8.0 (CAPPS v8.0)

Module1: Configure Cisco Unity Connection

- Choose the appropriate desktop messaging interface for client machines
- Integrate Cisco Unity Connection and Cisco Unified Communications Manager
- Configure Cisco Unity Connection system settings
- Describe call management options
- Configure call routing options
- Configure audiotext applications
- Configure Cisco Unity Connection partitions and search spaces
- Configure account policies, subscriber classes of service, and subscriber templates
- Import user accounts into Cisco Unity Connection
- Troubleshoot Cisco Unity Connection

Module2: Configure Cisco Unity Express using the GUI

- Choose the appropriate desktop messaging interface for endpoints
- Integrate Cisco Unity Express and Cisco Unified Communications Manager Express
- Configure Cisco Unity Express system settings
- Configure call routing options
- Configure auto-attendant
- Configure account policies, subscriber classes of service, and subscriber templates
- Import user accounts into Cisco Unity Express from Cisco Unified Communications Manager Express
- Troubleshoot Cisco Unity Express

Module 3: Configure VPIM to network Cisco Unity Connection and Cisco Unity Express

- Describe VPIM
- Configure VPIM on Cisco Unity Connection

- Configure VPIM on Cisco Unity Express

Module 4: Implement Cisco Unified Presence Solution

- Describe the function and operation of Cisco Unified Presence
- Describe Cisco Unified Presence solution components
- Describe the Cisco Unified Presence solution communication flows
- Configure Cisco Unified Communications Manager for integration with Cisco Unified Presence
- Integrate Cisco Unified Presence with Cisco Unified Communications Manager
- Integrate Cisco Unified Presence with Cisco Unified Communications applications
- Troubleshoot Cisco Unified Presence