

(642-436) CVOICE 6.0 Exam Topics



642-436 CVOICE 6.0 Exam Topics

Exam Description

The 642-436 Cisco Voice over IP (CVOICE) is the exam associated with the Cisco Certified Voice Professional CCVP® certification. This exam tests a candidate's knowledge of the foundational elements of VOIP calls, and the description of dial plans, and the implementation of gateways, gatekeepers and IP-IP gateways. Candidates can prepare for this exam by taking the CVOICE Cisco Voice over IP course.

Exam Topics

The following topics are general guidelines for the content likely to be included on the Remote Access 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 a gateway

- Describe the function of gateways
- Describe DSP functionality
- Describe the different types of voice ports and their usage
- Describe dial peer types
- Describe codecs and codec complexity

Describe a dial plan

- Describe a numbering plan
 - Describe digit manipulation
 - Describe path selection
 - Describe calling privileges
 - Describe call coverage
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Describe the basic operation and components involved in a VoIP call

- Describe VoIP call flow
- Describe RTP, RTCP, cRTP, and sRTP
- Describe H.323
- Describe MGCP
- Describe SCCP
- Describe SIP
- Identify the appropriate gateway signaling protocol for a given situation
- Describe voice quality considerations
- Choose the appropriate codec for a given situation

Implement a gateway

- Describe the gateway call routing process
- Configure analog voice ports
- Configure digital voice ports
- Describe considerations for PBX integration
- Configure dial-peers
- Configure hunt groups and trunk groups
- Configure digit manipulation
- Configure calling privileges
- Verify dial-plan implementation
- Implement fax and modem support on a gateway
- Configure a gateway to provide DTMF support

Describe the function and interoperation of gatekeepers within an IP Communications network

- Describe the function and types of gatekeepers
 - Describe the interoperation of devices with a gatekeeper
 - Describe gatekeeper signaling
 - Describe Dynamic Zone Prefix Registration with a gatekeeper
 - Describe gatekeeper redundancy
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Implement a gatekeeper

- Configure devices to register with a gatekeeper
- Configure gatekeeper to provide dial-plan resolution
- Configure gatekeeper to provide call admission control
- Verify gatekeeper operation

Implement an IP-to-IP gateway

- Describe the IP-to-IP gateway features and functionality
 - Configure gatekeeper to support an IP-to-IP gateway
 - Configure IP-to-IP gateway to provide address hiding
 - Configure IP-to-IP gateway to provide protocol and media interworking
 - Configure IP-to-IP gateway to provide call admission control
 - Verify IP-to-IP gateway implementations
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(642-446) CIPT1 6.0 Exam Topics



642-446 CIPT1 6.0 Exam Topics

Exam Description

The 642-446 CIPT1 Implementing Cisco Unified Communications Manager Part 1 is the exam associated with the Cisco Certified Voice Professional CCVP® certification. This exam tests a candidate's knowledge of deploying a Cisco Unified Communications Manager to support single site and centralized call processing models. Candidates can prepare for this exam by taking the CIPT1 Implementing Cisco Unified Communications Manager Part 1 course.

Exam Topics

The following topics are general guidelines for the content likely to be included on the Remote Access 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.

Perform an installation and initial set up of a Cisco Unified Communications Manager cluster

- Describe administrative access to Cisco Unified Communications Manager
 - 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
 - Perform an install and upgrade on Cisco Unified Communications Manager
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Describe and configure Cisco Unified Communications Manager to support on-cluster calling

- Configure a Cisco Unified Communications Manager group
- Configure users, user groups, and roles
- Configure Cisco Unified Communications Manager to support Cisco SCCP & SIP Phones
- Configure Cisco Unified Communications Manager to support 3rd party SIP phones
- Describe how to harden an IP phone
- Configure LDAP integration
- Configure Cisco Unified Communications Manager profiles and device pools
- Configure Cisco Unified Communications Manager templates
- Configure a Cisco switch to support IP phones
- Use Cisco Unified Communications Manager BAT to manage phones and users
- Describe the function of TAPS

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

- Describe Cisco Unified Communications Manager digit analysis
- Implement an MGCP Gateway
- Configure route patterns and route filters
- Configure route lists and route groups
- Implement toll-fraud prevention
- Configure digit manipulation
- Describe the functions and usage of CSS and partitions
- Implement calling privileges
- Implement call coverage

Describe and configure Cisco Unified Communications Manager media resources

- Describe media resources
 - Configure MeetMe conferencing, hardware conferencing resources, and software conferencing resources
 - Configure MoH
 - Configure MRGs and MRGLs
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Configure the Cisco Unified Communications Manager to support features and applications

- Configure IP phone services
 - Enable user web page access
 - Integrate Cisco Unified Communications Manager with Unity and UnityConnection
 - Configure Call Park, Privacy, Barge, Call Pickup, and Intercom
 - Implement Presence
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(642-456) CIPT2 6.0 Exam Topics



642-456 CIPT2 6.0 Exam Topics

Exam Description

The 642-456 CIPT2 Implementing Cisco Unified Communications Manager Part 2 is the exam associated with the Cisco Certified Voice Professional certification. This exam tests a candidate's knowledge of deploying a Cisco Unified Communications Manager in a multi-site deployment model. Candidates can prepare for this exam by taking the CIPT2 Implementing Cisco Unified Communications Manager Part 2 course.

Exam Topics

The following topics are general guidelines for the content likely to be included on the Remote Access 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.

Manage Tcl and VXML call applications on a gateway

- Describe how to obtain call applications
- Configure a gateway to use call applications
- Verify call application implementations

Describe and implement centralized call processing redundancy

- Describe device fail over
 - Configure call survivability
 - Configure SRST operation
 - Configure CME to provide redundancy
 - Configure MGCP Fallback operation
 - Verify redundancy operations
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Describe and configure a multi-site dial plan for Cisco Unified Communications 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
- Configure Cisco Unified Communications Manager to utilize an H.323 gateway
- Configure a SIP trunk
- Implement a numbering plan for multi-site topologies
- Configure intercluster trunks
- Configure tailend hop off
- Configure Cisco Unified Communication Manager to register with a gatekeeper

Implement bandwidth management and Call Admission Control

- Configure Regions
- Configure transcoders and MTPs
- Configure Locations
- Implement RSVP agent
- Implement gatekeeper-based Call Admission Control
- Configure AAR
- Configure multi-site MoH

Secure an IP Telephony network

- Describe the threats to an IP Telephony network
 - Describe the features used to mitigate threats to an IP Telephony network
 - Describe how authentication and cryptographic services can secure an IP Telephony network
 - Configure secure signaling between devices
 - Configure devices to support sRTP
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Implement mobility in an IP Telephony network

- Configure device mobility
- Configure Cisco Extension Mobility
- Configure Cisco Unified Mobility

(642-426) TUC Exam Topics



642-426 TUC Exam Topics (Blueprint)

Exam Description

The 642-426 Troubleshooting Cisco Unified Communications Systems (TUC) exam is the exam associated with the Cisco Certified Voice Professional CCVP® certification. Candidates can prepare for this exam by taking Troubleshooting Cisco Unified Communications (TUCv1.0) course. The exam will certify that the successful candidate has the knowledge and skills necessary to troubleshoot Enterprise CallManager, Unity, and IP network deployments. The exam addresses hands-on experience in configuring, deploying, and troubleshooting Unified Communications solutions (see Claims and Components attached).

Exam Topics

The following topics are general guidelines for the content likely to be included on the Remote Access 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.

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 that can be used to identify and isolate problems
 - Correlate events (using traces, logs, and monitoring tools to identify the problem)
 - Parse and interpret trace logs and system logs
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Troubleshoot call setup issues

- Troubleshoot PSTN call setup issues
- Troubleshoot intersite call setup issues
- Troubleshoot intrasite call setup issues

Troubleshoot registration issues

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

Troubleshoot database issues

- Troubleshoot database replication issues in CallManager 4.x
- Troubleshoot database replication issues in CallManager 5.x
- Troubleshoot 3rd party LDAP synchronization issues

Troubleshoot application issues

- Troubleshoot voicemail integration
- Troubleshoot CTI integration issues
- Troubleshoot IP phone XML services

Troubleshoot media resources

- Troubleshoot music on hold
 - Troubleshoot conference bridges
 - Troubleshoot transcoders
 - Troubleshoot MTP
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Troubleshoot voice quality issues

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

Troubleshoot security issues

- Troubleshoot authentication issues
 - Troubleshoot certificate issues
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(642-642) QoS Exam Topics



642-642 QoS Exam Topics

Exam Description

The QoS exam is one of the qualifying exams for the Cisco Certified Internetwork Professional, Cisco Certified Voice Professional, Cisco IP Telephony Design Specialist, Cisco IP Telephony Express Specialist, Cisco IP Telephony Operations Specialist, and Cisco IP Telephony Support Specialist certifications. The QoS 642-642 exam will test materials covered under the Implementing Cisco Quality of Service QoS v2.2 or v2.3 course. The exam will certify that the successful candidate has knowledge and skills necessary to configure and troubleshoot Cisco IOS routers running Quality of Service protocols in Service Provider and Enterprise environments. The exam covers topics on IP QoS, classification and marking Mechanisms, queuing mechanisms, traffic shaping and policing mechanisms, congestion avoidance mechanisms, link efficiency mechanisms, modular QoS command line interface, and QoS Best Practices.

Exam Topics

The following information provides general guidelines for the content likely to be included on the exam. However, other related topics may also appear on any specific delivery of the exam.

IP QoS Fundamentals

- Given a description of a converged network, identify problems that could lead to poor quality of service and explain how the problems might be resolved
- Define the term Quality of Service (QoS) and identify and explain the key steps to implementing QoS on a converged network

IP QoS Components

- List and explain the models for providing Quality of Service on a network
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- Explain the purpose and function of the DiffServ model
- Describe the basic format of and explain the purpose of the DSCP field in the IP header
- Define and explain the different per hop behaviors used in DSCP
- Explain the interoperability between DSCP-based and IP-precedence-based devices in a network
- Given a list of QoS actions, correctly match the QoS actions to mechanisms for implementing QoS and identify where in a network the different QoS mechanisms are commonly used

Modular QoS CLI and Auto-QoS

- Given a network requiring QoS, explain how to implement a QoS policy using MQC
- Explain how AutoQoS is used to implement QoS policy

Classification and Marking

- Explain how link layer and network layer markings are used to define service classes and the different applications represented by each of these service classes
- Given a network and a description of QoS issues, use MQC CLI commands to classify packets
- Given a network and a description of QoS issues, use class-based marking to assign packets to a specific service class
- Describe the function of Network Based Application Recognition
- Describe the purpose of pre-classification to support QoS in various VPN (IPSEC, GRE, L2TP) configurations
- Describe QoS trust boundaries and their significance in LAN based classification and marking
- Identify the different classification and marking options available on Cisco L2 and L3 switching platforms

Congestion Management Methods

- List and explain the different queuing algorithms
 - Explain the components of hardware and software queuing systems on Cisco routers and how they are effected by tuning and congestion
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- Describe the benefits and drawbacks of using WFQ to implement QoS
- Explain the purpose and features of Class-Based WFQ (CBWFQ)
- Explain the purpose and features of Low Latency Queuing (LLQ)
- Identify the Cisco IOS commands required to configure and monitor LLQ on a Cisco router
- Describe and explain the different queuing capabilities available on the Cisco Catalyst 2950 Switch

Congestion Avoidance Methods

- Describe the drawbacks tail drop as a congestion control mechanism
- Describe the elements of a RED traffic profile
- Describe Weighted Random Early Detection and how it can be used to prevent congestion
- Identify the Cisco IOS commands required to configure and monitor DSCP-based CB-WRED
- Explain how ECN interacts with WRED in Cisco IOS

Traffic Policing and Shaping

- Describe the purpose of traffic conditioning using traffic policing and traffic shaping and differentiate between the features of each
 - Explain how network devices measure traffic rates using single rate or dual rate, single or dual token bucket mathematical models
 - Identify the Cisco IOS commands required to configure and monitor single rate and dual rate CB-Policing
 - Identify the Cisco IOS commands required to configure and monitor percentage based CB-Policing
 - Explain how the two rate limits, average rate and peak rate, can be used to rate limit traffic
 - Identify the Cisco IOS commands required to configure and monitor CB-Shaping
 - Identify the Cisco IOS commands required to configure and monitor Frame Relay adaptive CB-Shaping on Frame Relay interfaces
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Link Efficiency Mechanisms

- Explain the various link efficiency mechanisms and their function
- Identify the Cisco IOS commands required to configure and monitor CB header compression
- Given a list of link speeds and a specific delay requirement, determine the proper fragment size to use at each link speed and identify the typical delay requirement for VoIP packets
- Identify the Cisco IOS commands required to configure and monitor Multilink PPP with Interleaving
- Identify the Cisco IOS commands required to configure and monitor FRF.12

QoS Best Practices

- Explain the QoS requirements of the different application types
 - List typical enterprise traffic classes then identify the delay, jitter, packet loss and bandwidth requirements of each traffic class
 - Explain the best practice QoS implementations and configurations within the campus LAN
 - Explain the best practice QoS implementations and configurations on the WAN customer edge (CE) and provider edge (PE) routers
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