

## Cisco Voice Over IP (CVOICE)

**Prerequisites:** Working knowledge of fundamental terms and concepts of computer networking to include LANs, WANs, and IP switching and routing. - Basic internetworking skills taught in Interconnecting Cisco Network Devices (ICND), or equivalent knowledge. - Ability to configure and operate Cisco routers and switches and to enable VLANs and DHCP. - Knowledge of traditional public switched telephone network (PSTN) operations and technologies.

**Length:** 5 days

**Summary:** This course provides an understanding of converged voice and data networks and the challenges faced by the various network technologies. Students receive knowledge and skills required to integrate gateways and gatekeepers into an enterprise VoIP network.

After completing this course, the student should be able to: - Configure gateway interconnections to support VoIP and PSTN calls. - Define a dial plan, describing the purpose of each dial plan component, and implement a dial plan on a voice gateway. - Describe gatekeeper functions, protocols, and operation and implement an H.323 gatekeeper to provide dial plan resolution and call admission control. - Implement a Cisco Unified Border Element gateway to connect to an Internet Telephony Service Provider. - Implement an effective method of transporting fax and modem traffic over a Voice over IP network given the standard implementations of fax and the methods used to transport modem traffic. Technical Features of this course include: - Components of a VoIP network, VoIP protocols, special requirements for VoIP calls, and Codecs. - Voice port configuration - Signaling protocols used on voice gateways and configure a gateway to support calls using the various signaling protocols. - Dial plans - Voice compression schemes Associated Certification: CCNA Voice.

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## COURSE CONTENT

### INTRODUCTION TO VOIP

Introducing VoIP  
Introducing Voice Gateways  
Specifying Requirements for VoIP Calls  
Understanding Codecs, Codec Complexity, and DSP Functionality

### VOICE PART CONFIGURATION

Implementing H.323 Gateways  
Implementing MGCP Gateways  
Implementing SIP Gateways  
Lab 3-1: Implementing H.323 Gateways  
Lab 3-2: Implementing SIP Gateways

### DIAL PLAN IMPLEMENTATION ON VOICE GATEWAYS

Understanding Dial Plans  
Implementing Numbering Plans

Understanding Call Types  
Configuring Analog Voice Ports  
Understanding Dial Peers  
Configuring Digital Voice Ports  
Understanding QSIG  
Lab 2-1: Configuring Analog Voice Ports  
Lab 2-2: Configuring POTS Dial Peers  
Lab 2-3: Configuring VoIP Dial Peers  
Lab 2-4: Configuring Digital Voice Ports

### VOIP GATEWAY IMPLEMENTATION

Configuring Digit Manipulation  
Configuring Path Selection Implementing Calling Privileges on Cisco IOS Gateways  
Lab 4-1: Implementing Numbering Plans  
Lab 4-2: Implementing PSTN Dial Plans on Cisco IOS Gateways  
Lab 4-3: Configuring Path Selection  
Lab 4-4: Implementing Calling Privileges on Cisco IOS Gateways

### **H.323 GATEKEEPERS**

Introducing Gatekeepers  
Configuring Basic Gatekeeper Functionality  
Implementing Gatekeeper- Based CAC  
Lab 5-1: Configuring Basic Gatekeeper Functionality  
Lab 5-2: Implementing Gatekeeper-Based CAC

### **ITSP CONNECTIVITY**

Understanding Special Requirements for External  
VoIP Connections  
Implementing a Cisco UBE