

SSVP™ SIP School VoIP Professional Certification

Exam Objectives

The SSVP™ exam is designed to test your skills and knowledge on the basics of Networking and Voice over IP. Everything that you need to cover in order to pass this test is covered in the [Networking 4 VoIP](#) training program but if you decide to 'train' elsewhere then these are the topics that you should learn about in order to be prepared for the test.

This list is the same as the 'course topics' list also found under the 'outline' button next to the course name in the Catalog.

Please note that if you go along an alternate training path it is possible that you may get a question that may not have been covered in that path. It's up to you!

Topics:

What is Voice over IP? This is an introduction module that sets out the scope of the course and introduces the concepts of LANs and WANs.

Networking Components This module is designed to introduce you to Data networks and how devices connect to them. It does this by describing the most commonly used topologies and cabling types in use today.

Topologies
What is a Protocol?
UTP and STP Cables
RJ-45 Connectors
UTP Implementations
Power over Ethernet
Fiber Optics

Ethernet Ethernet is the predominant force in networking today and this module introduces all of the concepts needed to understand this specification along with introducing basic network components like LAN cards and LAN switches.

Ethernet and 802.3
NIC Cards
Hubs and Ethernet
Collisions and CSMA/CD
Repeaters
Bridges
LAN switches
Routers
Bandwidth

The OSI Model

The OSI Model was designed to break networking components and software into 'bite-size' interoperable chunks. This module explains the 7 layers of the OSI model and compares them to the real world implementation of the TCP/IP layered model.

The Reasons for OSI

The 7 Layers

Role of the 'Application' layers

Role of the 'Data' layers

OSI v TCP/IP

Physical Layer functions

Datalink Layer functions and MAC addresses

IEEE 802.2/3 Frame format

Switches and the Datalink layer

Network Layer Functions

Transport Layer Functions

Encapsulation / De-encapsulation

WANS

Wide Area Networks connect buildings, homes and people together. This module aims to explain what a WAN is and how they work along with explaining some WAN protocols such as PPP, ADSL and Frame Relay.

What is a WAN?

DTE/DCE

Synchronous communications

The Point to Point Protocol – PPP

DSL

ADSL @ Home

ADSL Channels and Contention ratios

Frame Relay

WAN Physical Layer implementations

TCP/IP Networks

This module explains how TCP/IP networks work by describing the functionality of each TCP/IP layer. By understanding these layers you will understand how a TCP/IP network works which will give you a good understanding of how voice can be carried across an IP network.

TCP/IP Protocol Stack

Application Layer overview

Transport Layer overview

Ports and Sockets

TCP/IP Internet Layer – Overview

Address Resolution Protocol – ARP

IP Datagrams

ICMP

TCP/IP Addresses

IP Addresses, Subnet Masks, Default Gateways. It's all here and delivered to you in a way so that you will understand what these

numbers are for and how they work with each other.

Analogies

Binary and Hexadecimal

The IP address

IP Address Classes – A, B, C and more!

Special IP addresses

TCP/IP addressing quizzes

The Subnet mask

IP Address and Subnet mask 'in combination'

Sample IP networks

Addressing without subnets

Why subnet at all?

How many Subnets do you need?

Easy Subnetting

DHCP

This Module introduces the Dynamic Configuration protocol (DHCP) and describes what it is, how it works and how it works in a multi-network environment along with introducing some troubleshooting commands.

Overview of DHCP

Static or Dynamic addressing

DHCP Discovery

DHCP Offers

Lease and Renewal Times

Multiple DHCP Servers

Relay Agents

IPconfig utility

Troubleshooting

Follow the tips in this module and you will be able to solve the majority of problems you will encounter on a Network.

Troubleshooting Rules

Layer 8

Are you connected?

Ping utility

Loopback address

IPconfig utility

APIPA addresses

Ping Tests

Troubleshooting exercises

LAN Monitoring

This module teaches you how to use a Network monitoring program to analyse traffic on the network in order to help troubleshoot even the trickiest problems.

Lan Monitoring Tools

Capturing Traffic

Analyzing Frames

Filtering to assist in analysis

Switches and VLANS

This module explains the fundamental operation of a LAN switch along with the important concepts of Virtual LANs (VLANs).

- Switch Functions**
- Address learning**
- Filtering and Forwarding Frames**
- Broadcast Frames**
- Redundant Topologies**
- Broadcast Storms and Loops**
- Multiple Frame Copies**
- MAC table instability**
- The Spanning Tree Protocol**
- How STP works**
- VLANs**
- 802.1Q/P Tagging**
- Connecting VLANs**
- Router Sub-interfaces**
- Layer 3 Switches**

Routing

Routers are used on the edge of networks to pass data onto a WAN and within Layer 3 LAN switches. This module describes how routers work along with a brief explanation of Routing protocols such as RIP, IGRP and EIGRP.

- What is Routing?**
- Routers**
- Port guides**
- Static and Dynamic routes**
- Default Routes**
- Routing Decisions**
- Distance Vector Routing Protocols**
- RIP and Routing Table updates**
- Interior Gateway Protocol – IGRP**
- Other Routing Protocols**
- Testing Routes with Tracert (Trace Route)**

Wireless

Wireless is one of the fastest moving areas in the world of networking. This module explains the basics of Wireless networking along with information on securing your wireless network.

- Wireless Networks**
- Wireless Bridging**
- WiFi**
- WiMax**
- Wireless Security**

IP Applications and Services

Bluetooth Other Wireless Technologies

So many other services can be found on a network and some, if not all, will have an impact on how your voice will work. This module looks at services such as FTP, TFTP, Firewalls, NAT, Proxy Server, DNS and VPNS.

IP Applications
FTP – File Transfer Protocol
Setting up FTP
The FTP Default directory
Connecting to FTP
Transferring files
FTP Clients
TFTP - Trivial File Transfer Protocol
Firewalls
Network Addresses Translation
Proxy Servers
Telnet
DNS – The Domain Name System
VPNs – Virtual Private Networks

VoIP

This module introduces the different implementations of Voice over IP and describes the basics of codecs, signalling, the real time protocol (RTP), quality of service (QoS) and the basics of network design to reduce delay and jitter that can affect the quality of voice on a network.

What is Voice over IP
VoIP over the Internet
Branch to Branch VoIP
IP PBX
Encoding
Codec types
RTP – The Real Time Protocol
Bandwidth Requirements
Delay, Jitter and Packet Loss
Measuring Delay
Jitter and Packet Loss
VoIP acceptance criteria
LAN guidelines for Voice quality
Dedicated voice LAN
Shared LAN for Voice and Data
Utilizing VLANs and 802.1Q
VLAN Tagging and Priority
Quality of Service for Wide Area Networks