

# NETWORK CONFIGURATION AND TROUBLESHOOTING

Course number : 125

## Overview

The ability to provide users with constant access to critical data is essential for the success of today's rapidly evolving networks. In this training course, you gain a comprehensive set of tools and techniques needed to proficiently configure and maintain networks, as well as identify and resolve problems related to cables, wireless connections, protocols, and applications.

## What you'll learn

- Configure, maintain, and troubleshoot multiple network configurations
- Implement VLANs in a switched network
- Access and secure your wireless network
- Manage IP address assignments and subnetting

## Who should attend

## Pre-requis

- Networking experience at the level of:
  - [Course 124](#), Introduction to Networking

## Outline

### [Networking Overview](#)

#### **Fundamentals of a network**

- Types of networks
- Hardware and software

#### **Applying the OSI model to troubleshooting**

- Executing a troubleshooting methodology
- Employing fault isolation at each layer

## Connecting the Physical Layer

### **Distinguishing media terminology**

- Twisted pair
- Fiber
- Wireless
- EIA/TIA standards

### **Cabling and port configuration**

- Strategies for successful configuration
- Validating wiremap with cable scanner
- MDI/MDI-X port configuration
- Specifying various fiber types

## Building the Data Link Layer

### **Working with network adapters**

- Designating Layer 2 MAC address
- Demystifying access methods
- Displaying NIC configuration

### **Assessing LAN topologies**

- Logical and physical topologies
- Star
- Hybrid
- Mesh

### **LAN and WAN standards at Layer 2**

- 802 standards
- Wireless
- Fast and Gigabit Ethernet
- xDSL
- Cable modem
- Frame Relay
- ATM
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## **Interfacing with the network**

- Testing speed and duplex settings
- Authenticating using 802.1X and EAP

## **Switching at the Data Link Layer**

### **Analyzing protocols**

- Differentiating Ethernet and 802.3 frame formats
- Capturing and filtering traffic with Wireshark

### **Solving network congestion**

- Deploying switches
- Interpreting Layer 2 traffic

### **Implementing VLANs**

- Defining the VLAN
- Port tagging with 802.1Q
- Interconnecting VLANs across switches

## **Wireless Networking**

### **Traversing the wireless topology**

- Network types and standards
- Selecting infrastructure or ad hoc mode
- IBSS
- BSS
- ESS

### **Building the wireless network**

- Setting up the access point
- Configuring the SSID on a client
- Securing the wireless traffic

## **Integrating the Network and Transport Layers**

### **The role of TCP/IP**

- TCP/IP protocol suite

- OSI model vs. TCP/IP model

## **Configuring IP addresses**

- Public vs. private addresses
- Allocating addresses with DHCP
- Managing addresses with ifconfig/ipconfig
- Resolving address conflicts

## **Enabling the routing function**

- Subnetting and the adjacency test
- Interpreting a routing table

## **Investigating protocol headers**

- TCP
- UDP
- IP
- ARP
- ICMP
- Identifying common protocol issues

## **[Troubleshooting the Application Layer](#)**

## **Managing OS functions**

- File
- Print
- Messaging
- Database

## **Fine-tuning network services**

- DNS
- Web services
- Debugging name resolution with nslookup

## **Schedule**

### **Location Dates Status**

## **Tuition**

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