# WCNA certification for Wireshark Training

Duration: **5 Day**

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Wireshark is a free network protocol analyzer used to inspect and understand network traffic in detail. This hands-on course provides a comprehensive introduction to using Wireshark for network troubleshooting and protocol analysis. The content is also focused on the knowledge and skills needed to prepare for the WCNA exam.

The program is an **intensive, advanced TCP/IP course** that examines protocol behavior in detail according to the relevant RFCs. Particular attention is given to TCP and network performance. For this reason, the course is intended for participants who already understand TCP/IP fundamentals rather than those who are completely new to the subject.

Participants are expected to be comfortable with addressing and general TCP/IP configuration concepts. Hands-on sessions use Wireshark for practical protocol analysis across a wide range of network scenarios.

## Prerequisites

There are no formal prerequisite courses. However, participants should already have a good understanding of how IP networking works.

A TCP/IP foundation-level course may be useful for learners who want to strengthen their background before attending.

## What You Will Learn

By the end of the course, participants should be able to:

- Analyze packets and protocols in detail.
- Troubleshoot network issues using Wireshark.
- Identify performance problems through Wireshark analysis.
- Perform network forensics using captured traffic.

## Training Outline

### What Is Wireshark?

- Network analysis
- Troubleshooting
- Network traffic flows

#### Hands-on

- Downloading and installing Wireshark

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## Wireshark Introduction

- Capturing packets
- libpcap, winpcap, and airpcap
- Dissectors and plugins
- Menus
- Right-click functionality

### Hands-on

- Working with Wireshark

## Capturing Traffic

- Using Wireshark with switches and routers
- Remote traffic capture

### Hands-on

- Capturing packets

## Capture Filters

- Applying capture filters
- Identifiers and qualifiers
- Protocol, address, and byte-value filtering
- File sets and ring buffers

### Hands-on

- Building and applying capture filters

## Preferences

- Configuration folders
- Global and personal configurations
- Capture preferences
- Name resolution
- Protocol settings
- Traffic colouring
- Profiles

### Hands-on

- Customizing Wireshark

## Time Analysis

- Packet time
- Timestamps
- Packet arrival times
- Delays
- Traffic rates
- Packet sizes

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- Overall byte counts

**Hands-on**

- Measuring high latency

## Trace File Statistics

- Protocols and applications
- Conversations
- Packet lengths
- Destinations
- Protocol usage
- Streams
- Flows

**Hands-on**

- Working with Wireshark statistics

## Display Filters

- Applying and clearing filters
- Filter expressions
- Right-click filtering
- Conversations and endpoints
- Protocol filters
- Combining filters
- Filtering specific bytes
- Regular expression filters

**Hands-on**

- Filtering displayed traffic

## Streams

- Traffic reassembly
- UDP and TCP conversations
- SSL traffic

**Hands-on**

- Reconstructing streams

## Saving and Exporting

- Filtered packets
- Marked packets
- Packet ranges

**Hands-on**

- Exporting captured data

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## TCP/IP Analysis

- Wireshark Expert System
- DNS
- ARP
- IPv4
- IPv6
- ICMP
- UDP
- TCP

**Hands-on**

- Analyzing network traffic

## IO Rates and Trends

- Basic graphs
- Advanced IO graphs
- Round Trip Time
- Throughput rates

**Hands-on**

- Using graphs for traffic and performance analysis

## Application Analysis

- DHCP
- HTTP
- FTP
- SMTP

**Hands-on**

- Analyzing application traffic

## WiFi Analysis

- Signal strength and interference
- Monitor mode and promiscuous mode
- Data frames
- Management frames
- Control frames

**Hands-on**

- Analyzing WLAN traffic

## VoIP Analysis

- Call flows
- Jitter
- Packet loss

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- RTP
- SIP

**Hands-on**

- Reviewing and playing back calls

## Performance Problems

- Baselining
- High latency
- Arrival times
- Delta times

**Hands-on**

- Identifying poor network performance

## Network Forensics

- Host forensics versus network forensics
- Unusual traffic patterns
- Detecting scans and sweeps
- Suspicious traffic

**Hands-on**

- Identifying traffic signatures

## Command-Line Tools

- Tshark
- capinfos
- editcap
- mergecap
- text2pcap
- dumpcap

**Hands-on**

- Using Wireshark command-line utilities