Enterprise Wi-Fi Analysis & Troubleshooting - CWAP Certification

Category: Networking & Security | **Vendor:** CWNP

Duration: 32.00 hours (4 days) **26.0 CPD Hours** **Rating:** ⭐ 4.6 (5,878 reviews)

Course Information

Delivery Format:	Instructor Led - Online
Certification:	Certified Wireless Analysis Professional (CWAP)
Related Exam:	CWAP-404

Course Overview

The CWAP Wireless LAN Analysis course consists of hands-on learning using the latest enterprise wireless LAN analysis and troubleshooting tools. This course takes an in-depth look at the functionality of WLANs, intended operation of the 802.11 protocol and Wi-Fi Alliance specifications, WLAN frame formatting and structure, troubleshooting methodology, and protocol analysis. It also includes extensive training in modern spectrum analysis with a focus on advanced RF behavior analysis, data collection methods, interpreting spectrum plots and charts, and understanding advanced features of WLAN spectrum analyzers.

Students who complete the course will acquire the necessary skills for analyzing, assessing, and troubleshooting wireless operation in the enterprise, utilizing hardware and software solutions from the industry’s leading manufacturers.

This course is excellent preparation for the challenging CWAP Certification, and includes practice exams and “Exam Cram” sessions (Exam Number: PW0-270).

It is also very hands-on intensive, roughly 50% hands-on, with lots of time to get your hands on real equipment to perform actual Wi-Fi Analysis work.

This intensive course covers all that is required to prepare for the CWAP Certification, including:

- 4 intensive days of hands-on training
- Official CWAP practice test questions
- Exam voucher for the CWAP Certification Exam (# PW0-270)
- Mentor support after class by our Wireless Expert team

It also ensures that students leave with real hands on skills. Hands-on exercises include the following:

- Protocol Analyzer Setup, Use, and In-Depth Analysis
- Understanding Frame Components
- Frame Exchanges
- Troubleshooting Common Problems
- Spectrum Analyzer Setup, Use, and In-Depth Analysis

About This Course

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Who Should Attend

This intensive, 4 day course is intended for network and system administrators, consultants and engineers that need to support Wireless LAN deployments. It also is a great course for network analysts and architects.

Prerequisites & Entry Requirements

General Prerequisites:

You will need to have your CWNA (or the equivalent in experience and knowledge) before attending the Enterprise Wi-Fi Analysis & Troubleshooting - CWAP Certification Course.

Note that CWAP Certification does require that the candidate pass the CWNA certification exam (PW0-104) as well as the CWAP certification exam (CWAP-402 Exam available until November 30, 2018) or (CWAP-403 Exam available October 1, 2018) in order to achieve certified status.

Learning Outcomes

Upon successful completion of this course, participants will be able to:

During class, you will develop skills and knowledge on the following objectives:

- 802.11 Physical (PHY) Layer Frame Formats and Technologies
- 802.11 MAC Layer Frame Formats and Technologies
- 802.11 Operation and Frame Exchanges
- Spectrum Analysis and Troubleshooting
- Protocol Analysis and Troubleshooting
- CWAP-402 Exam Objectives (Exam available until November 30, 2018)
- CWAP-403 Exam Objectives (Exam available October 1, 2018)

Detailed Course Outline

Principles of WLAN Communication

- 802.11 Working Group
- OSI reference model and the 802.11 PHY and MAC
- Communication sublayers and data units
- WLAN architecture components
- Organization of station forwarding
- Addressing and internetworking operation
- Modern WLAN product architectures

Physical (PHY) and MAC Layer Formats and Technologies

- Physical layer functions
- Preamble function and format

- Header purpose and structure
- Analysis of PHY problems
- Physical PPDU formats
- 802.11b
- 802.11a
- 802.11g
- 802.11n
- MAC frame components
- MAC encapsulation
- Fields and subfields of the MAC header
- Frame Control
- Frame types and subtypes and their uses
- Addressing
- Frame body
- Data frame format
- Control frame format
- Management frame format
- Information elements and fields

Protocol Operation

- Beaconing and synchronization
- Scanning
- Client state machine
- 802.11 contention
- QoS
- Admission control
- Band steering and airtime fairness mechanisms
- Fragmentation
- Acknowledgments and Block acknowledgments
- Protection mechanisms and backward compatibility

- Power management
- Dynamic Frequency Selection (DFS) and Transmit Power Control (TPC)
- Security components, methods, and exchanges
- Roaming procedures exchanges
- Future protocol enhancements

802.11n

- Transmit beamforming
- Spatial multiplexing
- Maximal Ratio Combining (MRC)
- Space-Time Block Coding
- 40 MHz channels
- Frame aggregation
- HT-OFDM format
- Modulation and Coding Schemes (MCS)
- HT frame formatting
- And More

Protocol Analysis Tools and Methodology

- Troubleshooting methodology
- Protocol analyzer types
- Analysis NIC/adapter selection and constraints
- Interpreting results based on location
- Analyzer settings and features
- Filtering and channel scanning
- Interpreting decodes
- Using advanced analysis features
- Assessing WLAN health and behavior factors

- Evaluating network statistics
- Troubleshooting common problems
- Wired analysis to support wireless network issues

Spectrum Analysis Tools and Methodology

- Radio frequency behavior review
- Visualizing RF domains using spectrum measurement tools
- Spectrum analyzer types and operation
- Analyzer specifications and characteristics
- Understanding spectrum data presentation
- Interpreting plots and charts
- Common WLAN spectrum analyzer features
- Identifying transmit patterns
- Device classification and network impact
- Recognizing transmit signatures

Hands-on Lab Exercises

Protocol Analyzer Setup, Use, and In-Depth Analysis

- Basic installation and familiarity with capabilities, configuration, and data display
- Opening, collecting, saving, and modifying capture files
- Exploring common features like device naming and prioritization, filtering traffic, and using coloring rules as analysis aides
- Configuration of the tool to perform live captures based on a set of desired collection criteria
- Identifying significant network behaviors, metrics, and statistics used to identify and isolate network problems

- Using expert features of the analyzer, such as conversation analysis
- Remote packet capture with an AP

Understanding Frame Components

- Understanding the MAC header
- Comparing the three major frame types and their subtypes
- Analyzing frame formats of individual frame types
- Analyzing 802.11n frame components
- Identifying what additional information is reported by protocol analyzers
- Understanding what information is not visible in protocol analyzers

Frame Exchanges

- Connectivity exchanges and sequences
- Legacy and modern security exchanges
- ERP and HT protection mechanisms
- Power save behavior
- Acknowledgments, block acknowledgments, and supporting action frames
- Dynamic rate switching
- Band steering
- And more

Troubleshooting Common Problems

- Troubleshooting connectivity exchanges
- Troubleshooting 802.1X and EAP exchanges
- Troubleshooting roaming

Spectrum Analyzer Setup, Use, and In-Depth Analysis

- Installing the analyzer and becoming familiar with display and navigation
- Understanding the “RF perspective” provided by each plot and chart
- Using built-in features like markers and traces as well as automated device identification
- Characterizing the behaviors of an interference source
- Assessing the impact of an interference source
- Determining the impact of transmitter proximity on interference and spectrum displays
- Identifying signatures of common transmitters
- Remote spectrum analysis with an AP

□□ Certification Path

Certified Wireless Analysis Professional (CWAP)

Exam: CWAP-404

Skills You Will Learn:

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Frequently Asked Questions

Q: What delivery options are available for Enterprise Wi-Fi Analysis & Troubleshooting - CWAP Certification?

We offer multiple delivery formats:

- Live Instructor-Led Classroom Online (Virtual/Live Online)
- Traditional Instructor-Led Classroom Training (ILT)
- On-site delivery at your offices anywhere in United Kingdom
- Private dedicated courses customized for your team

Q: What certification does this course prepare me for?

The Enterprise Wi-Fi Analysis & Troubleshooting - CWAP Certification course helps prepare you for the Certified Wireless Analysis Professional (CWAP) certification path.

Q: Which exam does this course prepare me for?

This course prepares you for the CWAP-404 official exam. You can take this exam at any exam center across United Kingdom including London, Manchester, Birmingham, Edinburgh, or live online wherever you are located.

Q: How many CPD hours does this course provide?

The 4-day Enterprise Wi-Fi Analysis & Troubleshooting - CWAP Certification course provides up to 26.0 CPD hours of structured learning. CPD certificates can be provided upon request.

Q: What is the duration of the Enterprise Wi-Fi Analysis & Troubleshooting - CWAP Certification training?

The training takes place over 4 day(s), with each day lasting approximately 32.00 hours including breaks for lunch and refreshments.

Q: Do you provide corporate training for Enterprise Wi-Fi Analysis & Troubleshooting - CWAP Certification?

Yes, we provide corporate training, dedicated training, and closed classes for Enterprise Wi-Fi Analysis & Troubleshooting - CWAP Certification. Training can take place anywhere in United Kingdom including London, Manchester, Birmingham, Edinburgh, or live online allowing teams from across United Kingdom or internationally to attend.

Q: What related terms do people search for?

Popular related searches include: Enterprise Wi-Fi Analysis & Troubleshooting - CWAP Certification, Professional Level, CWAP

Q: Why choose Nexus Human for Enterprise Wi-Fi Analysis & Troubleshooting - CWAP Certification?

Nexus Human is recognized as one of the leading training providers. Our trainers have won multiple awards including:

- Small Firms Best Trainer Award
- National Training Partner of the Year (Ireland) - Multiple Years
- Global Top 30 Instructor Awards (2012, 2019, 2021)
- Tech Excellence Award Nominations
- Learning Performance Institute (LPI) External Training Provider Sponsor 2024

Q: Are there any discount codes available?

Yes! Use discount code **PENPAL5** when booking your Enterprise Wi-Fi Analysis & Troubleshooting - CWAP Certification training. Please note that only one discount code can be used per booking and cannot be combined with other special offers.

Nexus Human

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