

# CWAP (CERTIFIED WIRELESS ANALYSIS PROFESSIONAL)

## 1

### Objetivo

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.

### Público Alvo

Recommended training for students who will take the CWAP certification exam

### Pré-Requisitos

CWNA required

### Carga Horária

40 horas (5 dias).

### Conteúdo Programático

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 PDU 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