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 industryâ□□s leading manufacturers.

PÃºblico Alvo

Recommended training for professionals interested on advanced troubleshooting and wireless analysis, and who will take the CWAP certification exam.

PrÃ©-Requisitos

CWNA certificate professional or equivalent knowledge.

Carga HorÃ¡ria

40 horas (5 dias).

ConteÃºdo ProgramÃ¡tico

Course Introduction
Course Outline
Course Goals & Objectives

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

Lab Outline
Lab 1: Protocol Analyzer Setup, Use, and In-Depth Analysis
Lab 2: Understanding Frame Components
Lab 3: Frame Exchanges
Lab 4: Troubleshooting Common Problems
Lab 5: Spectrum Analyzer Setup, Use, and In-Depth Analysis