



Learning
Partner

To register for this course, go to www.giga-wave.com, or call 210-375-0085

Aironet Wireless LAN Fundamentals and Site Survey v5.0

Keyword: AWFSS

4 Days – List Price \$2,150

Course Description

This course is instructor-led training and includes instructor assisted, hands-on labs. The curriculum is designed to give students a firm understanding of the Cisco Aironet product set, radio frequency theory, 802.11 standards, WLAN topologies, basic antenna theory and an introduction to WLAN security and bridging techniques. Hands-on access point and client adaptor labs provide attendees with experience setting up and securing a wireless LAN. This course also teaches students how to conduct a WLAN site survey and explores essential WLAN design concerns as well as infrastructure, cabling and mounting awareness.

To participate in the hands-on labs, please bring a laptop computer with an available 32-bit CardBus slot. Laptop should have MS Windows 2000 or XP OS loaded. Laptop should also have a 9-pin serial port or USB to serial adapter. IN ADDITION, you will need administrator rights to the laptop to install the drivers for the wireless card.

You Learn...

After completing this course, the student should be able to:

- State basic RF and Antenna theory
- Identify and define Cisco WLAN product offerings
- Propose best Cisco WLAN Solution
- Demonstrate knowledge of WLAN Fundamentals
- Install WLAN client adapters, drivers, associated utilities
- Configure client adapter and access point
- Demonstrate WLAN functionality
- Troubleshoot driver installation
- Understand best practices for securing an enterprise class wireless LAN
- Perform an entry level site survey and generate proper documentation of site survey findings
- Quote a complete WLAN solution including staging and installation services, and all necessary equipment.
- Install, configure and run a coverage check for WLAN

Who Would Benefit

The Cisco Aironet Wireless LAN Fundamentals and Site Survey course is targeted to technical engineers, network integrators and technical sales personnel, who need to know how to sell, design, install, support wireless networks or tasked with performing or overseeing site surveys for wireless LAN solution implementations.

Prerequisite

There are no recommended prerequisites for this course

Follow-On Courses

- Cisco Aironet WLAN Security (CWLS)
- Managing your WLAN w/ Cisco's WLAN Solution Engine (WLSE)
- Aironet Wireless LAN Advanced Topics (AWLAT)
- Cisco Aironet Essentials of Wireless Bridging (CABE)
- Cisco Aironet Advanced Wireless Bridging Lab (CAAB)

Course Content

Module 1 -- Introduction

Module 2 -- Radio Technologies Overview

- ISM Unlicensed Frequencies
- Spread Spectrum RF Technology
- 802.11b Characteristics
- 802.11a Characteristics
- 802.11g Characteristics
- Multipath Distortion

Module 3 – Antenna Concepts

- Antenna Characteristics
- Cisco 2.4 GHz Standard Antennas
- Cisco Aironet 5 GHz Antennas
- Cisco Aironet 1100 Series and 1130AG Series Access Point Internal Antennas
- Diversity Antennas
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Module 4 -- Wireless LAN Topologies

- Wireless LAN Technology Features
- Enterprise Topologies
- Channel Reuse
- Multi-Rate Shifting
- Inline Power
- Access Point VLAN Feature
- Access Point Quality of Service Feature
- Cisco's Integrated Wireless Network (formerly know as Structured Wireless-Aware Network - SWAN)

Module 5 – Cisco Aironet Wireless LAN Products

- WLAN Product Features
- WLAN Product Line
- Access Point Comparison
- Wireless LAN Client Adapters
- Cisco 7920 Wireless IP Phone
- Wireless Bridge Features
- Antennas and Accessories

Module 6 – Wireless Bridging

- Bridging Definitions and Bridge Alternatives
- Products Introduction
- Role in Radio Network
- Installation Considerations
- Path Loss Considerations
- Bridge Distance Calculation
- Path Considerations
- Site Survey
- Antenna Issues
- Interference Detection
- Antenna Installation
- Common Questions and Misconceptions
- LAB 1-1 – Default Configuration of Aironet 1400 Series Bridge

Module 6 – Wireless Bridging (continued)

- LAB 1-2 – Bridging the Aironet 1400 Series Bridges into Normal/Operation Mode
- LAB 1-3 – Radio Settings on Root and Non-Root Bridges
- LAB 1-4 – Running a Link Test
- LAB 1-5 – Connecting the Aironet 1400 Series Bridges to the Core Network
- LAB 1-6 – LEAP Configuration

Module 7 – Aironet Client Utility and Drivers

- Workgroup Bridge Functionality
- Supported Operating Systems
- PC Card LEDs
- Aironet Administrator Configuration Tool
- Aironet Administrator Configuration Utility
- Aironet Desktop Utility
- Aironet Client Utility
- LAB 2-1 – Install the CB21AG Client Card
- LAB 2-2 – Configure ACAU
- LAB 2-3 – Client Adapter Installation

Module 8 – Access Point & Bridge Configuration

- Access Point: Root Mode
- Access Point Hardware
- Initial Connect and Reset
- Firmware Upgrade and Distribution
- Express Setup
- Setup of Network Ports and Data Rates
- Link Test
- Cisco Services
- VLAN and SSID Configuration
- Quality of Service Configuration
- Simple Network Management Protocol Setup
- Filtering
- Access Point Cisco IOS CLI Interface
- System Management
- Statistics
- Association Parameters
- Bridge LEDs
- Initial Connect
- Aironet 1300 and 1400 Series Bridge Express Setup
- Setup of Network Ports
- Bridge Link Test
- Cisco Services
- VLAN Configuration
- Local RADIUS Authentication
- Bridge LEDs
- Aironet 1300 and 1400 Series Wireless Bridge Firmware Upgrade

Course Content

Module 8 – Access Point & Bridge Configuration (continued)

- Aironet 1300 and 1400 Series Wireless Bridge SNMP
- Aironet 1300 and 1400 Series Wireless Bridge Statistics
- LAB 3-1 – AP Configuration
- LAB 3-2 – Resort AP to Default Data Rates
- LAB 3-3 – Test Throughput to a Lab Server using FTP
- LAB 3-4 – Set Data Rates on AP for 802.11b only
- LAB 3-5 – Compare Throughput with 802.11g Protection Turned On and Turned Off
- LAB 3-6 – Walk About to Measure Throughput Changes

Module 9 – Security

- 802.11 Security
- WLAN Security Vulnerabilities
- Cisco Security Suite
- WLAN Security Best Practices
- Configuring the Access Point for Encryption and Authentication
- Configuring WLAN Devices for Authentication
- Non-Root Device Configuration and MAC Authentication
- Configuring the Client for Authentication and Encryption
- Configuring Cisco Secure ACS
- Cisco Secure ACS User Setup
- LAB 4-1 – Configure Wireless Client and AP for WEP

Module 10 – WLAN Management Solution

- Introduction to WLAN Management
- Structured Wireless-Aware Network Solution
- CiscoWorks Wireless LAN Solution Engine
- CiscoWorks WLSE Radio Management Tools
- Other WLAN Management Options
- WLSE Radio Management (RM) Tools
- Other WLAN Management Options

Module 11 – Impact of WLAN Applications & Design on a Site Survey

- WLAN Applications
- WLAN Design
- Retail
- Warehousing and Manufacturing
- Healthcare

Module 11 – Impact of WLAN Applications & Design on a Site Survey (continued)

- Hotels and Hospitality
- Hot Spots
- Education
- Offices
- Transportation
- Government

Module 12 - Manual Site Survey Tools

- Access Point Selection
- Site Survey Equipment

Module 13 - Manual Site Survey Utilities and Techniques

- Preparation
- Indoor Site Survey Concepts
- Software Tools

Module 14 – Using AirMagnet Site Survey Utility for a Manual Survey

- Designed Service Area Coverage
- AirMagnet Site Survey Tool
- Manual Survey Situations and Obstacles

Module 15 - Assisted Site Survey Techniques

- Introduction to Assisted Site Survey Techniques
- Required Cisco Products
- Density Testing
- AP Radio Scans
- Client Walkabout
- Final Testing

Module 16 –WLAN Design Considerations

- LAN Infrastructure
- Cables and Connectors
- Plenum
- Firewalls
- Risers
- Mounting
- Securing the Access Point
- Splitters
- NEMA Enclosures

Module 17 - Documentation

- Site Survey Preassessment Form
- Site Survey Reports