

CWNA Vendor-Neutral Lab Exercise Hardware/Software Requirements

1. (1) **WLAN Controller/WNMS management appliance** (Aerohive, Motorola, Meru, Aruba, Cisco, Ruckus, Trapeze/Belden, etc.)
2. (6) **Lightweight 802.11n access points** (preferably dual-band) with AC power supplies or 802.3at power injectors.
3. (1) **WIPS server appliance** (AirTight, AirDefense, AirMagnet, etc.) or Virtual Machine with (1) WIPS sensor with AC power supply or 802.3af power injector – or – WLAN Controller with Lightweight APs can be used as WIPS with Sensors (Cisco, Aruba, etc.) when these features are integrated into the controller.
4. **Site survey software**
 - a. **Manual:** AirMagnet Survey, Motorola LANPlanner, Ekahau, BV Systems, Helium, OmniPeek, etc.
 - b. **Predictive:** AirMagnet Planner, Motorola LAN Planner, Trapeze RingMaster, Aruba RF Plan, Cisco WCS, etc.
 - c. **Floor plan raster graphic**
5. (1) **Spectrum Analysis card** (Cognio, Metageek USB dongle, Intel 5300 Mini-PCIe—with AirMagnet AirMedic)
6. **Spectrum Analysis software** (Cisco Spectrum Expert (or OEM), AirMagnet AirMedic, Metageek Wi-Spy, etc.)
 - a. Optional - include sample captures of typical interference sources
 - b. Optional - include narrowband signal generator, wideband signal generator, Bluetooth device
7. **Wireless Protocol Analyzer Software** (Wildpackets OmniPeek, AirMagnet Wi-Fi Analyzer, Tamosoft CommView for Wi-Fi, etc.)
8. **(6) 802.11n client adapters** that can be used for 802.11n protocol analysis - must be compatible with the protocol analyzer software (Linksys WUSB600N, AirMagnet C1060, etc.)
 - a. Must include **drivers** to function with protocol analysis software
9. **Student laptop software**
 - a. Throughput measurement software (Netpersec)
 - b. 802.11n client adapter driver and client utility
10. **Server laptop**
 - a. Throughput measurement software (Netpersec)
 - b. FTP/TFTP server software (3C Daemon)
11. **DHCP Server**
 - a. Internal DHCP server in WLAN controller
 - b. Separate hardware configured as DHCP server—this may be a small SOHO router, a Cisco router, or any other simple device that provides DHCP services
 - c. Software DHCP server running on server laptop (please ensure proper operation—these are seldom reliable)
12. **8-port Layer-2, Gigabit Ethernet switch**
13. **Cat5e cables**