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# CCNP Wireless IAUWS Quick Reference

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## Chapter 1. Describing Regulatory Compliance

Failure to secure a WLAN makes it vulnerable to attack. To properly secure your network, you must be able to identify common threats to wireless and know how to counteract them.

### Identifying Wireless Vulnerabilities

#### Rogue access points and clients

Cisco WLAN controllers identify access points (APs) outside their mobility group as rogue APs. Rogues are *friendly* if they do not pose a threat, such as APs belonging CCNP Wireless IAUWS Quick Reference to neighbors. A rogue is *malicious* if it poses a threat to CCNP Wireless IAUWS Quick Reference the network, such as an AP added to the wired network without permission from the IT department; such an AP could be used for illegitimate access to network resources. Malicious APs can also be external CCNP Wireless IAUWS Quick Reference and used to disrupt your network; they include honeypots and evil twins. Honeypots are usually unsecured and set up to lure unsuspecting clients into giving up sensitive information or to CCNP Wireless IAUWS Quick Reference infect them with a virus or CCNP Wireless IAUWS Quick Reference worm. Evil twins mimic APs from your network. They are used to fool clients into connecting to a network that looks legitimate and then trick users into giving up sensitive information. CCNP Wireless IAUWS Quick Reference Rogue clients are devices connected to rogue APs or to other clients in an ad hoc manner.

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## **Denial-of-service attacks**

Wireless denial-of-service (DoS) attacks keep users from connecting by overwhelming the AP's radios. Wireless DoS attacks are usually committed CCNP Wireless IAUWS Quick Reference by spoofing management frames, through jamming, or by infecting a client with a virus that floods the network with spurious traffic.

## **Over-the-Air Attacks**

Over-the-air attacks include reconnaissance attacks (used to map out the network) or replay attacks CCNP Wireless IAUWS Quick Reference (user data is captured and re-transmitted). CCNP Wireless IAUWS Quick Reference Replay attacks work better in networks that use unencrypted or weakly encrypted data.

## **Securing client access**

You need mutual authentication to properly secure client access to the network. Mutual authentication uses Extensible Authentication Protocol (EAP) to make the client identify itself to the network and the network identify itself to the client. Wireless clients accessing the network from outside the WLAN (for example, from a hotspot in a CCNP Wireless IAUWS Quick Reference coffee shop) should use a VPN.

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## Securing guest access

We let guests access our WLANs so that CCNP Wireless IAUWS Quick Reference they can connect to the Internet or to services we offer, but at the same time we must protect company traffic from accidental or CCNP Wireless IAUWS Quick Reference unauthorized access. CCNP Wireless IAUWS Quick Reference We also need to ensure that only authorized guests get to CCNP Wireless IAUWS Quick Reference use our network.

## Industry Standards and CCNP Wireless IAUWS Quick Reference Associations

### International Organization for Standardization (ISO)

The ISO has members from organizations in 159 countries, and they create standards for the computing industry. The following is a list of published standards from CCNP Wireless IAUWS Quick Reference the 27000 series, which relates to information security:

- **ISO/IEC 27001:2005.** Specification for information security management systems
- **ISO/IEC 27002:2005.** Code of practice information security
- **ISO/IEC 27005:2008.** Information security risk management
- **ISO/IEC 27006:2007.** Guidelines for accrediting organizations that certify/register of information security management systems

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## **Institute of Electrical and Electronics Engineers (IEEE)**

The IEEE is an international organization that creates standards for IT and other engineering fields, including the following:

- **802.11-2007:** Combines 802.11a, b, d, e, g, h, i, and j with the base 802.11 standard
- **802.11i:** Created scalable security based on EAP-based authentication and Advanced Encryption Standard (AES) encryption
- **802.11r:** Draft standard for fast secure roaming intended to support voice
- **802.11u:** Draft standard for internetworking with non-802.11 networks
- **802.11w:** Draft standard for implementing management frame protection

## **Internet Engineering Task Force (IETF)**

An international group CCNP Wireless IAUWS Quick Reference interested in the continued growth and smooth operation of the Internet. They have created multiple RFCs affecting the wireless industry, including the following:

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- **RFC 3579:** *RADIUS Support for EAP*
  - **RFC 4017:** *EAP Method Requirements for WLANs*
  - **RFC 4346:** *TLS v1.1*
  - **RFC CCNP Wireless IAUWS Quick Reference 4851EAP-FAST**
  - **RFC 5169:** *Handover Key Management and Re-authentication Statement*

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### **Payment Card Industry Data Security Standard for Wireless Networks**

An international standard designed to protect credit card information, personal data, and cardholder identities.

### **Wi-Fi Alliance**

International nonprofit organization made up of Wi-Fi manufacturers. They test interoperability of Wi-Fi gear and create interim support measures for customers while waiting for a needed standard. The Wi-Fi Alliance created the following:

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- **Wi-Fi Protected Access (WPA)**

Authentication via EAP or WPA-PSK

Encryption CCNP Wireless IAUWS Quick Reference using Temporal Key CCNP Wireless IAUWS Quick Reference Integrity Protocol (TKIP)

- **Wi-Fi Protected Access 2 (WPA2)**

Authentication via EAP or WPA-PSK

Encryption using AES

### **Cisco Compatible Extensions (CCX)**

Cisco has written extensions enhancing client performance with CCNP Wireless IAUWS Quick Reference Cisco wireless equipment and has made these extensions available to Wi-Fi manufacturers.

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**Table 1-1. CCX enhancements**

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## Regulatory Compliance

Governments around the world have defined laws to protect sensitive information, including the following:

- **EU Directive on Data Protection 95/46/EC**

Protects personal data used by multinational organizations within EU boundaries

Prevents unauthorized disclosure of data by transmission, including location data

- **Health Insurance Portability and Accountability Act (HIPPA)**

Requires organizations within the United States to use reasonable safeguards to protect electronic protected health information (EPHI)

Includes CCNP Wireless IAUWS Quick Reference CCNP Wireless IAUWS Quick Reference access and audit controls, user and entity authentication, integrity mechanisms, and data encryption

- **Gramm-Leach-Bliley Act (GLBA)**

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Requires U.S. financial institutions to protect financial information

- **Personal Information Protection and Electronic Documents Act (PIPEDA)**

Canadian act requiring personal information be protected against unauthorized access, disclosure, or illegitimate use

Protects data, regardless of its form

Limits access to data based on need to know

## **CCNP Wireless IAUWS Quick Reference**

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