



# Overview

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Cisco Aironet 1400 Series Bridges (hereafter called *bridges*) provide building-to-building wireless connectivity. Operating in the 5.8-GHz, UNII-3 band and conforming to the 802.11a standard, the 1400 series bridge delivers a 54-Mbps data rate. The bridge is a self-contained unit designed for outdoor installations. You can connect external antennas to the bridge to attain various antenna gains and coverage patterns. The bridge supports both point-to-point and point-to-multipoint configurations.

You can configure and monitor the bridge using the command-line interface (CLI), the browser-based management system, or Simple Network Management Protocol (SNMP).

This chapter provides information on the following topics:

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# Features

Bridges running Cisco IOS offer these software features:

- VLANs—Allow VLAN trunking on both wireless and Ethernet interfaces.
- QoS—Use this feature to support quality of service for prioritizing traffic on the wireless interface.
- RADIUS Accounting—Enable accounting on the bridge to send accounting data about wireless client devices to a RADIUS server on your network.
- TACACS+ administrator authentication—Enable TACACS+ for server-based, detailed accounting information and flexible administrative control over authentication and authorization processes. It provides secure, centralized validation of administrators attempting to gain access to your bridge.
- Enhanced security—Enable three advanced security features to protect against sophisticated attacks on your wireless network's WEP keys: Message Integrity Check (MIC) and WEP key hashing.
- Enhanced authentication services—Set up non-root bridges to authenticate to your network like other wireless client devices. After you provide a network username and password for the non-root bridge, it authenticates to your network using LEAP, Cisco's wireless authentication method, and receives and uses dynamic WEP keys.

# Management Options

You can use the bridge management system through the following interfaces:

- The IOS command-line interface (CLI), which you use through a Telnet session. Most of the examples in this manual are taken from the CLI. [Chapter 4, “Using the Command-Line Interface,”](#) provides a detailed description of the CLI.
- A web-browser interface, which you use through a web browser. [Chapter 3, “Using the Web-Browser Interface,”](#) provides a detailed description of the web-browser interface.
- Simple Network Management Protocol (SNMP). [Chapter 16, “Configuring SNMP,”](#) explains how to configure your bridge for SNMP management.

# Network Configuration Examples

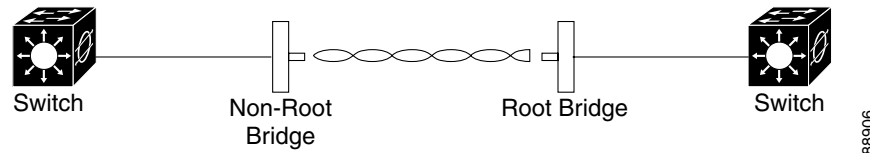
This section describes the bridge's role in common wireless bridging configurations: point-to-point, point-to-multipoint, and redundant bridging. One bridge in any pair or group of bridges must be a root bridge, and the bridge or bridges associated to the root bridge must be set to non-root.

## Point-to-Point Bridging

In a point-to-point configuration, a non-root bridge associates to a root bridge. In installation mode, the bridge listens for another 1400 series bridge. If it does not recognize another bridge, the bridge becomes a root bridge. If it recognizes another bridge, it becomes a non-root bridge associated to the bridge it recognizes. See [Chapter 2, "Configuring the Bridge for the First Time,"](#) for instructions on initial bridge setup.

[Figure 1-1](#) shows bridges in a point-to-point configuration.

**Figure 1-1** Point-to-Point Bridge Configuration

**Note**

If your bridges connect one or more large, flat networks (a network containing more than 256 users on the same subnet) Cisco recommends that you use a router to connect the bridge to the large, flat network.

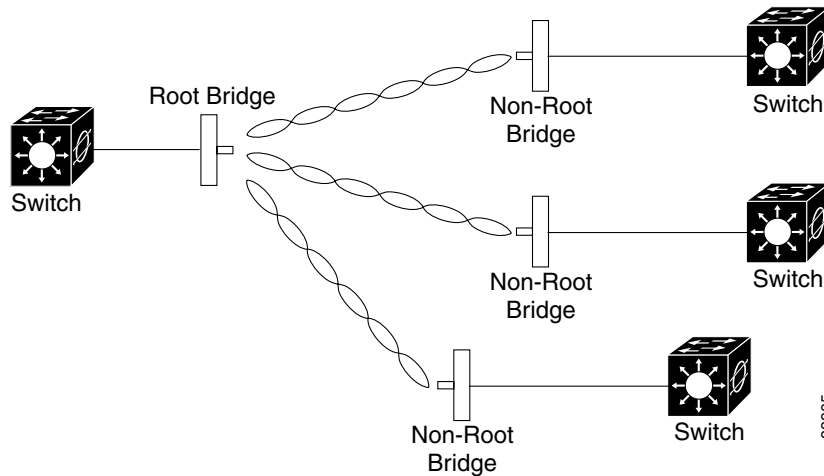
## Point-to-Multipoint Bridging

In a point-to-multipoint configuration, two or more non-root bridges associate to a root bridge. Up to 17 non-root bridges can associate to a root bridge, but the non-root bridges must share the available bandwidth.

See [Chapter 2, “Configuring the Bridge for the First Time,”](#) for instructions on initial bridge setup.

[Figure 1-2](#) shows bridges in a point-to-multipoint configuration.

**Figure 1-2 Point-to-Multipoint Bridge Configuration**



**Note**

If your bridges connect one or more large, flat networks (a network containing more than 256 users on the same subnet) Cisco recommends that you use a router to connect the bridge to the large, flat network.

## Redundant Bridging

You can set up two pairs of bridges to add redundancy or load balancing to your bridge link. The bridges must use non-adjacent, non-overlapping radio channels to prevent interference, and they must use Spanning Tree Protocol (STP) to prevent bridge loops. See [Chapter 8, “Configuring Spanning Tree Protocol,”](#) for instructions on configuring STP.

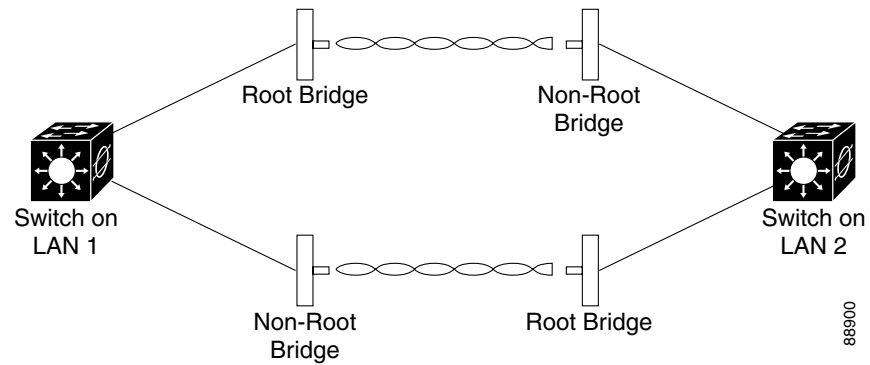


**Note**

STP is disabled by default.

Figure 1-3 shows two pairs of redundant bridges.

**Figure 1-3 Redundant Bridge Configuration**



## Troubleshooting

For basic troubleshooting procedures, refer to [Chapter 19, "Troubleshooting."](#)

For the most up-to-date, detailed troubleshooting information, refer to the Cisco TAC website at <http://www.cisco.com/tac>.

