Product Overview

The Cisco Aironet 340 Series Base Station (hereafter referred to as the base station) is a small unit that incorporates a wireless LAN transceiver (radio) that acts as the center point of a standalone wireless network and as the connection between wireless devices and a wired LAN network. Wireless devices can communicate with a network infrastructure through the base station. The base station also supports Ethernet or dial-up access to the Internet.

The base station connects to a wired LAN through a standard Ethernet port by using a 10BaseT RJ-45 (twisted pair) connector or through a standard telephone port by using an RJ-11 connector. The wireless client devices can associate with the base station through the wireless LAN. The base station configuration parameters can be changed from a wireless device by using an Internet browser or the Cisco Aironet Base Station Client Utility (BSCU).

Note: The base station can also be configured from a wireless PC using a Telnet interface, but this interface is not documented because the BSCU and Internet browser interfaces are the recommended methods.

The base station communicates with IEEE 802.11 Direct Sequence Spread Spectrum (DSSS) radio-equipped devices from Cisco Aironet or other companies.

Here’s what you’ll find in this chapter:

- Ethernet Compatibility and Protocols Supported, page 1-2
- Radio Characteristics, page 1-2
- Radio Ranges, page 1-2
- Radio Antenna, page 1-2
- Security Features, page 1-3
- Base Station Configurations, page 1-3
Ethernet Compatibility and Protocols Supported

The base station attaches directly to 10BaseT (twisted pair) Ethernet LAN segments. These segments must conform to IEEE 802.3 specifications.

The base station supports the following protocols:

- LAN protocols
  - TCP/IP
  - PPP-over-Ethernet
  - DHCP
- Authentication protocols
  - CHAP
  - PAP
  - Microsoft CHAP
- Dial-up protocols
  - PPP

Note The base station does not support the proprietary AOL dial-up protocol.

Radio Characteristics

The base station uses an IEEE 802.11 DSSS radio. It combines high data throughput with excellent immunity to interference. The base station operates in the 2.4 GHz license-free Industrial Scientific and Medical (ISM) band. Data transmits over a half-duplex radio channel operating at up to 11 Mbps.

Radio Ranges

Because the base station is a radio device, it is susceptible to common causes of interference. Follow these guidelines to ensure the best possible performance:

- Install the base station in an area where large steel structures such as shelving units, bookcases, and filing cabinets will not obstruct radio signals to and from the base station.
- Install the base station away from microwave ovens and 2.4 GHz cordless phones.
- Clear or open areas provide better radio range than closed or filled areas. The less cluttered the work environment, the greater the range. Internal coverage areas are limited by internal structures such as walls, partitions, floors, heating and air-conditioning ducts, electrical wiring, etc.

Radio Antenna

The base station comes with one captured antenna that can be easily rotated to a vertical position.
Security Features

The base station offers the following security features:

- DSSS technology, previously developed for military “anti-jamming” and “low probability of intercept” radio systems.
- WEP Encryption Key, an optional IEEE 802.11 feature that provides data confidentiality equivalent to a wired LAN. All wireless devices must be configured with the same key. In enterprise devices this is called the Wired Equivalent Privacy (WEP) key.

Base Station Configurations

The base station supports four network configuration options for connections to internal and external LAN networks (see Table 1-1):

- Dial-up—This configuration provides access to the Internet by using the optional modem to provide a telephone dial-up connection through a user’s ISP account. In this configuration the base station can also connect to an Ethernet hub to provide a dial-up Internet connection for both wireless and wired devices as shown in Figure 1-1.
- Cable modem or DSL Modem—This Ethernet configuration provides high-speed Internet access using a Cable modem or DSL modem through a user’s ISP account. See Figure 1-2.
- PPP-over-Ethernet—This Ethernet configuration provides high-speed Internet access and uses a Point-to-Point Protocol (PPP) over a cable modem or DSL modem through a user’s ISP account. See Figure 1-3.
- Access Point—This configuration supports a standalone wireless network or connects to an internal LAN for wireless access, as shown in Figure 1-4. This configuration allows wireless terminals to access local LAN resources such as printers and servers.

Table 1-1  Base Station Configuration Information

<table>
<thead>
<tr>
<th>Features</th>
<th>Cable or DSL Modem</th>
<th>PPP-Over-Ethernet</th>
<th>Dial-Up</th>
<th>Access Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Clients (see Note)</td>
<td>10 (wireless)</td>
<td>10 (wireless)</td>
<td>10 (wired and wireless)</td>
<td>10 (wireless)</td>
</tr>
<tr>
<td>External Network DHCP Client</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Internal Network DHCP Server function</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>External Network Connection</td>
<td>10BaseT Ethernet</td>
<td>10BaseT Ethernet</td>
<td>Telephone 56 Kbps Dial-up</td>
<td>10BaseT Ethernet</td>
</tr>
<tr>
<td>Internal Network Connection</td>
<td>RF</td>
<td>RF</td>
<td>RF and 10BaseT Ethernet</td>
<td>RF</td>
</tr>
<tr>
<td>Internal Network IP Address</td>
<td>192.168.200.1</td>
<td>192.168.200.1</td>
<td>192.168.200.1</td>
<td>DHCP assigned or 192.168.200.1</td>
</tr>
<tr>
<td>NAT function</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Note: The base station typically supports ten clients in all supported configurations, depending on the connection bandwidth.
NAT Support

When configured for cable or DSL modem, PPP-over-Ethernet, or dial-up operating modes, the base station automatically provides a NAT function for all connected devices. Before a packet is sent, the NAT function translates the internal IP address into an external IP address. This address translation shields the internal IP addresses from the public Internet. The base station NAT function allows multiple devices to use the external IP address assigned to the base station for Internet traffic.

Note

You cannot deactivate the base station NAT function. In Access Point mode the base station does not provide a NAT function.

DHCP Support

When configured for cable or DSL modem, PPP-over-Ethernet, or dial-up operating modes, the base station provides a DHCP server function for the wireless devices. In dial-up mode, the base station also provides the DHCP server function for the wired devices on an internal LAN connected to the Ethernet port. DHCP allows devices to request IP addresses from a DHCP server. A DHCP server assigns IP addresses from an assigned address pool or range.

Note

The base station DHCP function cannot be deactivated. In Access Point mode the base station does not provide a DHCP function.

The base station DHCP server function assigns addresses starting at 192.168.200.2. The base station increments the assigned IP address by 1 for each requesting device; for example, the first device requesting an IP address receives an IP address of 192.168.200.2, the second device receives 192.168.200.3, and so on. The DHCP server function in the base station is limited to 100 IP addresses for wired and wireless devices. When the limit is reached, additional DHCP requests are ignored.

Note

Static IP addresses can be assigned by the user (192.168.200.102–254).

Caution

When the base station is configured for dial-up operation, do not connect it to a wired LAN being supported by another DHCP server. This might produce conflicting IP address assignments on the wired LAN because the base station DHCP server function supports both wireless and wired devices in dial-up mode.
Figure 1-1  Dial Up Network Overview

Figure 1-2  Cable Modem or DSL Modem Network Overview
In Access Point mode, the base station does not provide a DHCP server function (or a NAT function); therefore, the wireless devices can be automatically configured from an external DHCP server on the attached local LAN or manually configured by the user. Typically, for the wireless devices you must provide the IP address, the subnet mask, and the default gateway.

**Caution**

IP addresses for wireless devices must be unique. To configure the base station, they must be on the same subnet as the base station.