Chapter 2
Introduction

This chapter introduces the NETGEAR WAG102 ProSafe Dual Band Wireless Access Point. Minimal prerequisites for installation are presented in "System Requirements" on page 2-4.

About the WAG102 ProSafe Dual Band Wireless Access Point

The WAG102 ProSafe Dual Band Wireless Access Point is the basic building block of a wireless LAN infrastructure. It provides connectivity between Ethernet wired networks and radio-equipped wireless notebook systems, desktop systems, print servers, and other devices.

The WAG102 provides wireless connectivity to multiple wireless network devices within a fixed range or area of coverage, interacting with a wireless network interface card (NIC) via an antenna. Typically, an individual in-building access point provides a maximum connectivity area with about a 300 foot radius. The WAG102 ProSafe Dual Band Wireless Access Point can support a small group of users in a range of several hundred feet. Most access points are rated between 10-30 users simultaneously.

The WAG102 ProSafe Dual Band Wireless Access Point acts as a bridge between the wired LAN and wireless clients. Connecting multiple WAG102 Access Points via a wired Ethernet backbone can further lengthen the wireless network coverage. As a mobile computing device moves out of the range of one access point, it moves into the range of another. As a result, wireless clients can freely roam from one Access Point to another and still maintain seamless connection to the network.

The auto-sensing capability of the WAG102 ProSafe Dual Band Wireless Access Point allows packet transmission at up to 108 Mbps, or at reduced speeds to compensate for distance or electromagnetic interference.

Key Features

The WAG102 Access Point is easy-to-use and provides solid wireless and networking support.

The following standards and conventions are supported:

- **Standards Compliant.** The Wireless Access Point complies with the IEEE 802.11a/g for Wireless LANs.
- **WEP support.** Support for WEP is included. 64-bit, 128-bit, and 152-bit keys are supported.
- **DHCP Client Support.** DHCP provides a dynamic IP address to PCs and other devices upon request. The WAG102 can act as a client and obtain information from your DHPC server.
- **SNMP Support.** Support for Simple Network Management Protocol (SNMP) Management Information Base (MIB) management.

The NETGEAR WAG102 provides solid functionality, including these features:

- Multiple Operating Modes
  - Wireless Access Point. Operates as a standard 802.11a/g.
  - Point-to-Point Bridge. In this mode, the WAG102 only communicates with another bridge-mode wireless station. You must enter the MAC address (physical address) of the other bridge-mode wireless station in the field provided. WEP should be used to protect this communication.
  - Point-to-Multi-Point Bridge. Select this only if this WAG102 is the “Master” for a group of bridge-mode wireless stations. The other bridge-mode wireless stations must be set to Point-to-Point Bridge mode, using this WAG102's MAC address. They then send all traffic to this “Master”, rather than communicate directly with each other. WEP should be used to protect this traffic.
  - Wireless Repeater. In this half-duplex mode, the WAG102 only communicates with another repeater-mode wireless station. You must enter the MAC address of the root access point. WEP should be used to protect this communication.
- **Upgradeable Firmware.** Firmware is stored in a flash memory and can be upgraded easily, using only your Web browser, and can be upgraded remotely.
- **Access Control.** The Access Control MAC address filtering feature can ensure that only trusted wireless stations can use the WAG102 to gain access to your LAN.
- **Simple Configuration.** If the default settings are unsuitable, they are easy to change.

- **Hidden Mode.** The SSID is not broadcast, assuring only clients configured with the correct SSID can connect.
- **Secure Telnet Command Line Interface.** The Telnet command line interface enables direct access over the serial port and easy scripting of configuration of multiple WAG102s across an extensive network via the Ethernet interface. An SSH client is required.
- **Configuration Backup.** Configuration settings can be backed up to a file and restored.
- **Secure and Economical Operation.** Adjustable power output allows more secure or economical operation.
- **Power over Ethernet.** Power can be supplied to the WAG102 over the Ethernet port from any 802.3af compliant mid-span or end-span source such as the NETGEAR FSM7326P Managed Power over Ethernet Layer 3 managed switch.
- **Autosensing Ethernet Connection with Auto Uplink lnterface.** Connects to 10/100 Mbps IEEE 802.3 Ethernet networks.
- **LED Indicators.** Power, test, LAN speed, LAN activity, and wireless activity are easily identified.

802.11a/g Standards-based Wireless Networking

The WAG102 ProSafe Dual Band Wireless Access Point provides a bridge between Ethernet wired LANs and 802.11a/g compatible wireless LAN networks. It provides connectivity between Ethernet wired networks and radio-equipped wireless notebook systems, desktop systems, print servers, and other devices. Additionally, the WAG102 supports the following wireless features:

- Distributed coordinated function (CSMA/CA, Back off procedure, ACK procedure, retransmission of unacknowledged frames)
- RTS/CTS handshake
- Beacon generation
- Packet fragmentation and reassembly
- Short or long preamble
- Roaming among access points on the same subnet

Autosensing Ethernet Connections with Auto Uplink

The WAG102 can connect to a standard Ethernet network. The LAN interface is autosensing and capable of full-duplex or half-duplex operation.

The wireless access point incorporates Auto Uplink™ technology. The Ethernet port will automatically sense whether the Ethernet cable plugged into the port should have a 'normal' connection such as to a computer or an 'uplink' connection such as to a switch or hub. That port will then configure itself to the correct configuration. This feature also eliminates any concerns about crossover cables, as Auto Uplink will accommodate either type of cable to make the right connection.

Compatible and Related NETGEAR Products

For a list of compatible products from other manufacturers, see the Wireless Ethernet Compatibility Alliance Web site (WECA, see *http://www.wi-fi.net*).

The following NETGEAR products work with the WAG102 Access Point:

- WAG511 ProSafe 108 Mbps Dual Band PC Card
- WAG311 ProSafe 108 Mbps Dual Band PCI Card
- WG311T 802.11g 108 Mbps Wireless PCI Card
- WG511T 802.11g 108 Mbps Wireless CardBus Adapter
- WG511 802.11g 54 Mbps Wireless CardBus Adapter
- WG111 801.11g 54 Mbps Wireless Bridge

System Requirements

Before installing the WAG102, make sure your system meets these requirements:

- A 10/100 Mbps Local Area Network device such as a hub or switch
- The Category 5 UTP straight through Ethernet cable with RJ-45 connector included in the package, or one like it
- A 100-240 V, 50-60 HZ AC power source
- A Web browser for configuration such as Microsoft Internet Explorer 6.0 or above, or Netscape Navigator 4.78 or above
- At least one computer with the TCP/IP protocol installed
- 802.11b or 802.11b-compliant devices, such as the NETGEAR WG511 Wireless Adapter

What's In the Box?

The product package should contain the following items:

- WAG102 ProSafe Dual Band Wireless Access Point
- Power adapter and cord (12 V dc, 1 A)
- Straight through Category 5 Ethernet cable
- WAG102 ProSafe Dual Band Wireless Access Point Installation Guide
- *Resource CD for the NETGEAR WAG102 ProSafe Dual Band Wireless Access Point* which includes this manual.
- Support Registration card

Contact your reseller or customer support in your area if there are any missing or damaged parts. You can refer to the Support Information Card for the telephone number of customer support in your area. You should keep the Support Information card, along with the original packing materials, and use the packing materials to repack the WAG102 if you need to return it for repair. To qualify for product updates and product warranty registrations, we encourage you to register on the NETGEAR Web site at: *http://www.NETGEAR.com*.

Hardware Description

The WAG102 front and rear hardware functions are described below.

Front Panel

Figure 2-1

The following table explains the LED indicators:

LED	DESCRIPTION
PWR	Power Indicator
Off	No power.
On	Power is on.
TEST	Self Test Indicator
Blink	Indicates self test, loading software, or system fault (if continues). **Note:** This LED may blink for a minute before going off.
100 LINK/ACT	Ethernet LAN Speed Indicator
Off	Indicates no 100 Mbps Ethernet link detected
Green Solid On	100 Mbps Fast Ethernet link detected, no activity
Green Blink	Indicates data traffic on the 100 Mbps Ethernet LAN.
10 LINK/ACT	Ethernet LAN Link Activity Indicator
Off	Indicates no 10 Mbps Ethernet link detected.
Green Solid On	10 Mbps Fast Ethernet link detected, no activity.
Green Blink	Indicates data traffic on the 10 Mbps Ethernet LAN.

LED	DESCRIPTION
802.11a WLAN	Wireless LAN Link Activity Indicator (5 GHz)
Off	Indicates no wireless link activity.
Green Blink	Wireless link activity.
802.11g WLAN	Wireless LAN Link Activity Indicator (2.4 GHz)
Off	Indicates no wireless link activity.
Green Blink	Wireless link activity.

Rear Panel

Figure 2-2

- Left and Right Detachable Antenna

  The WAG102 provides two detachable antennas (2.4 GHz and 5 GHz).

- Restore to Factory Defaults Button

  The restore to default button located between the Ethernet RJ-45 connector and the power socket restores the WAG102 to the factory default settings.

- RJ-45 Ethernet Port

  Use the WAG102 Ethernet RJ-45 port to connect to an Ethernet LAN through a device such as a hub, switch, router, or POE switch.

- Power Socket

  This socket connects to the WAG102 12V 1 A power adapter.