Quick Start Guide

Cisco Small Business Pro

AP541N Dual-band Single-radio Access Point Quick Start Guide

Package Contents

- AP541N Dual-band Single-radio Access Point that includes an IEEE 802.11a/b/g/n radio.
- Three Antennas (These might be black or black-and-silver. This does not affect performance.)
- Screws and Wallboard Anchors
- Grey Cat 5e Ethernet cable
- Power supply
- This quick start guide and companion notices
- Product CD-ROM

Welcome

Thank you for choosing the Cisco AP541N. The Cisco AP541N, part of the Cisco Smart Business Communications System (SBCS), is a wireless network communications device.

This guide is designed to familiarize you with the general layout of the access point, how to deploy the device in your network, and access the configuration interface. Your access point has more features or functionality than what is described in this guide. For additional configuration information, see the Cisco AP541N Administration Guide available at www.cisco.com/go/TBD.

1 Before You Begin

Decide if you are going to configure the device by using a static IP address or the IP address assigned by a network DHCP server.

NOTE It is expected that a static IP address to be assigned to the access point is based on the network topology and known prior to installation.

If while displaying the configuration window the IP address is changed, either by a DHCP server or manually, you will loose connectivity between the PC and the access point.

Also make sure that you have the following equipment and services:

- Tools for installing the hardware
- PC with Microsoft Internet Explorer (version 6 and higher), Firefox (version 3 or higher), or Safari (for Mac).
- TBD
- TBD
- Need Eng to provide the information for this section.

2 Getting to Know the Cisco AP541N

This section describes the exterior of the access point.

Front Panel LEDs

PWR—Lights green while the access point is powered on. Blinks during a firmware upgrade.

PoE—Lights green when Power-over-Ethernet (PoE) is powering the access point.

Diag—Lights red during the power-on-self-test (POST) or the system is otherwise not ready.

Speed—The LAN LED light is off when the LAN port data speed is zero or 10 Mbps. Lights amber to indicate the LAN port data speed is 100 Mbps. Lights green to indicate the LAN port data speed is 1000 Mbps.

LAN—Lights solid green when a link is established. Blinks green when the port is passing traffic.

WLAN 2.4G—Lights solid green when a 2.4 GHz wireless network link is established. Blinks green when the link is passing traffic. The light is off when the 2.4 GHz radio is off.

WLAN 5.0G—Lights solid green when a 5.0 GHz wireless network link is established. Blinks green when the link is passing traffic. The light is off when the 5.0 GHz radio is off.

Back Panel Ports

Ethernet Port—The access point is equipped with an auto-sensing, Gigabit Ethernet (802.3) port used for configuration and wired network communications. Auto-sensing technology enables the port to automatically detect the speed and duplex settings of the device connected to it, and adjust its speed and duplex settings to match the settings of the connected device. The Gigabit Ethernet port accepts an RJ-45 connector and supports Power-over-Ethernet (PoE).

NOTE We recommend using Cat5e or better cable. Also, do not exceed the maximum cabling distance of 328 feet (100 meters) per segment.

ANT01, ANT02, and ANT03—BNC connectors that accept the antennas provided with the access point.

3 Installing the Cisco AP541N

The access point can be placed on a wall, a flat surface, a ceiling, or in a ceiling plenum space. A ceiling mount kit is available for this device (SKU#). Do not deploy the device in a location where any of the following conditions exist:

High Ambient Temperature—The ambient temperature must not exceed 104 degrees Fahrenheit (40C).

Reduced Air Flow—The air flow must be adequate to prevent overheating.

Mechanical Overloading—The device should be level, stable, and secure to avoid it sliding or shifting out of position.

Circuit Overloading—Adding the device to the power outlet or a PoE port must not overload that circuit or PoE device.

NOTE We recommend using Cat5e or better cable. Also, do not exceed the maximum cabling distance of 328 feet (100 meters).

To place the access point on a desktop, install the four rubber feet (included) on the bottom of the access point. Place the device on a flat surface.

To prepare the device, do the following:

STEP 1 Attach the antennas to the RP-TNC connectors labeled ANT101, ANT102, and ANT103. The antennas are all the same, so which antenna is attached to what connector is of no consequence.

STEP 2 Determine where you want to locate the access point. If you are using AC power, make sure the location is within reach of an AC power outlet.

STEP 3 Keep enough ventilation space for the access point and check for any environmental restrictions.

Wall Mounting

Before you begin, you need 2 wallboard screws (included) to mount the access point. We recommend using screws with a minimum of 4mm width at the head and a shaft diameter of at least 1.5mm.

WARNING Cisco is not responsible for damages incurred by insecure wall-mounting.

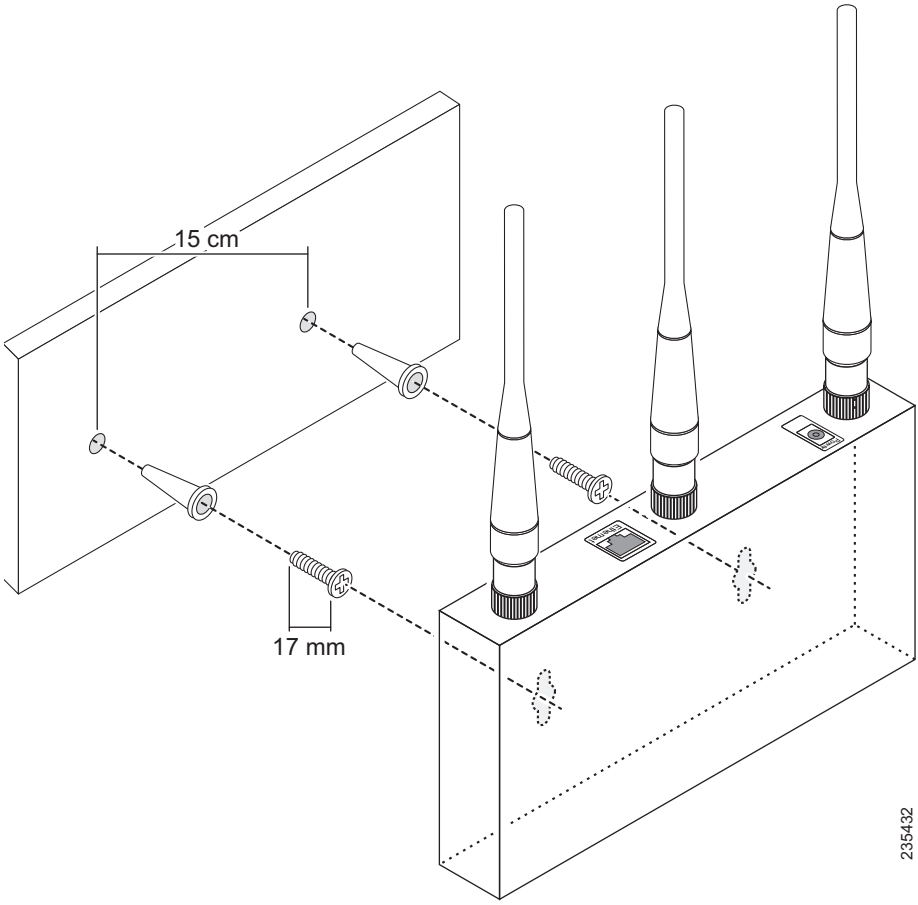
To mount the access point to the wall:

STEP 1 Determine where you want to mount the access point. Verify that the surface is smooth, flat, dry, and sturdy.

STEP 2 Drill two pilot holes into the surface 5.75 inches (146 mm) apart, and with a minimum of 4.0 inches (101 mm) of clearance.

STEP 3 Insert a screw into each hole, leaving a gap between the surface and the base of the screw head of at least 0.1 inches (3 mm).

STEP 4 Place the access point wall-mount slots over the screws and slide the access point down until the screws fit snugly into the wall-mount slots.



Flat Surface Installation

To prepare the device for placement the device on a flat surface, do the following:

STEP 1 Install the four rubber feet (included) on the bottom of the device.

STEP 2 Place the access point on a desktop near an AC power source, unless you are using PoE.

4 Connecting the Equipment

This section describes the process for connecting the device to power and the network.

STEP 1 Attach the power cord to the power connector and outlet (if used).

STEP 2 Connect a network Ethernet cable to the access point Ethernet port.

STEP 3 Connect the other end of the Ethernet cable to your network or the Ethernet port of the PC you are using to configure the access point.

WARNING DHCP is enabled by default. If a DHCP server is running on your network and you have not turned DHCP off, the device will accept a new IP address when it is connected to your network. You must use this IP address to configure the device.

5 Verifying the Hardware Installation

To verify the hardware installation, complete the following tasks:

- Check the cable connections.
- Check the LED states, as described in **Getting to Know the Cisco AP541N, page 3**.

NOTE If you need help resolving a problem, visit the Cisco Small Business Support Community at www.cisco.com/go/smallbizsupport. For technical documentation and other links, see **Where to Go From Here, page 14**.

6 Getting Started with the Configuration

This section contains information for starting the configuration utility to provision the access point features. It also describes enabling the radio that is turned off by default.

You can display the configuration utility by entering the *access point IP address* in the URL field of a Web browser. The access point IP address is the:

- *factory default access point static IP address*, if it has not been changed in a previous configuration or replaced by an IP address assigned by a DHCP server running on the network.
- *dynamically assigned IP address* allocated to the access point by a DHCP server.

TIP If you deploy the Cisco AP541N in a Cisco Small Business Pro network that is running DHCP, you can use Cisco Configuration Assistant 2.0 or higher to discover the Cisco AP541N IP address.

The factory defaults are:

Parameter	Default Value
username	cisco
password	cisco
IP connection type	DHCP
default IP	192.168.10.10
subnetmask	255.255.255.0
default gateway	192.168.10.1
data VLAN	1
voice VLAN	100
radio	Off
data SSID	**cisco–data** (VLAN 1)

Parameter	Default Value
voice SSID	cisco-voice (VLAN 100)
wireless security	None

Display the Configuration GUI and Enable the Radio

For security reasons, the radio is off by default. This procedure describes how to access the GUI and enable the radio.

Before you begin:

- Verify that you have a power source for theCisco AP541N. If you will be deploying the Cisco AP541N by using PoE, it might be necessary to temporarily power the device by using the provided power supply or by connecting it to a hub or switch that provides PoE.
- The Cisco AP541N IP address is required. If the IP address is unknown, you can reset the device to use the static default Cisco AP541N IP address by using the **"Returning the Cisco AP541N to the Factory Default Settings"** procedure.

To configure the access point by using a PC directly connected to the Cisco AP541N or connected through a hub or switch:

STEP 1 Power on the PC and configure the **PC IP address** to an IP address in the same subnetwork. The default Cisco AP541N IP address is **192.168.10.10**. For example, you can set the:

PC IP address to *192.168.10.250*

PC IP subnet mask to **255.255.255.0**

PC Default Gateway to **192.168.10.10**.

STEP 2 Connect an Ethernet cable to an Ethernet port on the PC.

STEP 3 Connect the other end of the PC Ethernet cable to an Ethernet port on a switch, hub, or the Cisco AP541N **Ethernet** port. If you connected the PC through a switch or a hub, connect the Cisco AP541N to that device by using another Ethernet cable.

STEP 4 Power on the access point.

STEP 5 Open a Web browser window. If you are prompted to install an Active-X plug-in when connecting to the device, follow the prompts to accept the plug-in.

STEP 6 Enter the Cisco AP541N IP address in the address bar and press Enter. For example, enter **http://192.168.10.10**. The login window displays.

STEP 7 Enter the default username **cisco** and the default password **cisco**. (Passwords are case sensitive.) The configuration window displays.

NOTE We recommend that you change the username and password.

STEP 8 Click **Wireless** > **Basic Settings**.

STEP 9 Click the **Radio Interface On** radio button.

STEP 10 Click **Update**. A warning displays, indicating that you might loose connectivity. Because you are configuring the access point by using a wired connection, this will not occur unless enabling the radio establishes a network connection and the IP address is changed by the DHCP server.

STEP 11 Click **OK** to continue.

The the configuration is updated and WLAN LED lights green. You can configure additional parameters or close the window.

Troubleshoot Your Connection

If you cannot display the configuration utility, you can test the ability of the PC to communicate with the access point by using **ping**. To use **ping** on a PC running Windows:

STEP 1 Verify that the Cisco AP541N is powered on and the LEDs indicate the appropriate links.

STEP 2 Open a command window by using **Start** > **Run** and enter **cmd**.

STEP 3 At the **Command** window prompt enter **ping** and the *access point IP address*. For example **ping** ***192.168.10.10***.

If successful, you should get a reply similar to the following:

```
Pinging 192.168.10.10 with 32 bytes of data:
Reply from 192.168.10.10: bytes=32 time<1ms TTL=128
```

If it fails, you should get a reply similar to the following:

```
Pinging 192.168.10.10 with 32 bytes of data:
Request timed out.
```

Possible Cause of Failure

The most likely cause of connectivity failure is an incorrect IP address.

DHCP is enabled on the Cisco AP541N by default. When a DHCP server is enabled on your network and the access point is connected to the network, the DHCP server replaces the default static IP address with a DHCP server–assigned IP address.

You might lose connectivity between the PC and the access point, because the Web browser is pointed to the wrong IP address.

Or, your PC is configured with a static IP address that is not in the same subnet as the access point.

If the access point is not in a Cisco Small Business Pro network, you can query the DHCP server for the new IP address or disconnect the access point from the network and reset the device to use the static default access point IP address by using the **"Returning the Cisco AP541N to the Factory Default Settings"** procedure.

If the access point is connected to a Cisco Small Business Pro network, the IP address can be discovered by using Cisco Configuration Assistant 2.0 or higher. Use the procedure in the Cisco Configuration Assistant 2.1 Smart Business Communications System Administrator Guide, available at http://www.cisco.com/en/US/docs/net_mgmt/cisco_configuration_assistant/version2_1/feature/guide/cca_feature_guide.pdf.

7 Returning the Cisco AP541N to the Factory Default Settings

To use the **Reset** button to reboot or reset the access point, do the following:

- To **reboot** the access point, press the **Reset** button for less than 10 seconds.
- To **restore** the access point to the factory default settings:
  1. Disconnect the access point from the network or disable all DHCP servers on your network.
  2. With the power on, press-and-hold the **Reset** button for more than 10 seconds.

8 Where to Go From Here

Support	
Cisco Small Business Support Community	www.cisco.com/go/smallbizsupport
Online Technical Support and Documentation (Login Required)	www.cisco.com/support
Phone Support Contacts	www.cisco.com/en/US/support/tsd_cisco_small_business_support_center_contacts.html
Software Downloads (Login Required)	Go to tools.cisco.com/support/downloads, and enter the model number in the Software Search box.
Product Documentation	
Cisco AP541N Access Point	www.cisco.com/en/US/docs/wireless/access_point/csbap/AP541N/quick_start/guide/AP541N_QSG.pdf
Cisco Small Business	
Cisco Partner Central for Small Business (Partner Login Required)	www.cisco.com/web/partners/sell/smb
Cisco Small Business Home	www.cisco.com/smb
Marketplace	www.cisco.com/go/marketplace

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78-19028-01

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to

operate this equipment.

For operation within 5.15 ~ 5.25GHz frequency range, it is restricted to indoor environment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

Industry Canada statement

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Caution:

The device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems.

High power radars are allocated as primary users (meaning they have priority) of 5250-5350 MHz and 5650-5850 MHz and these radars could cause interference and/or damage to LE-LAN devices.

This device has been designed to operate with an antenna having a maximum gain of 2 dB. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.