

Configure Site-to-Site Wireless Link

Estimated Time: 60 minutes

Number of Team Members: Students will work in teams of two

Objective

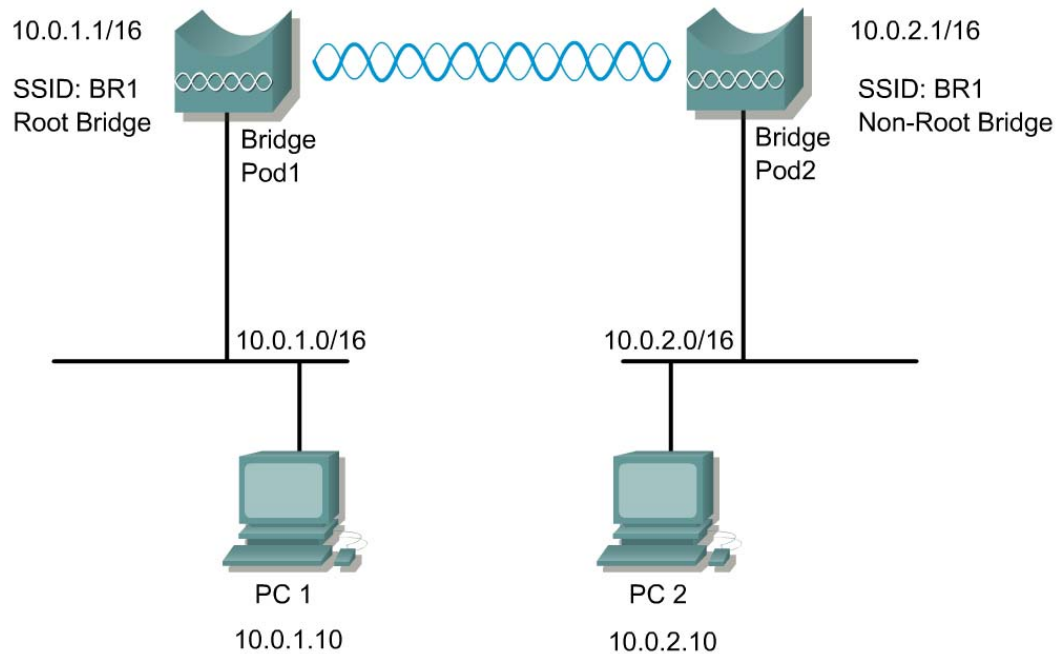
Configure a site-to-site bridged network.

Scenario

A remote location several miles away requires connectivity to the existing wired network. The two LAN segments will use a wireless bridge for their physical layer connection using two Cisco Aironet Bridges (BR1310s).

Note This lab uses a different subnet mask to identify the two segments of the same network. These two segments, although separated by distance, remain part of the same LAN through the use of a Wireless physical layer link.

Topology



Preparation

In this lab, the following will be configured.

<u>Device Name</u>	<u>SSID</u>	<u>Address</u>
BPod1	BR1	10.0.1.1/16
BPod2	BR1	10.0.2.1/16

Tools and Resources

Each team will require the following:

- Two wired LAN segments that will be bridged together.
- Two Cisco BR1310
- PC with FTP server loaded and a file to transfer in the root directory of the FTP server

Step 1 Cable and power the bridge



- a. First, attach two rubber duck antennas to the RP-TNC connectors.
- b. Connect the Power Injector to the BR1310 using the RG-59 coax cables.
- c. Connect the power cord to the Power Injector.

Step 2 Connect to the bridge CLI

Using a standard console cable, you can connect to the bridge via a terminal emulator application such as HyperTerminal. Follow these steps to open the CLI.

- a. Connect a nine-pin, female DB-9 to RJ-45 serial cable to the RJ-45 serial port on the power injector and to the COM port on your PC.
- b. Open a terminal emulator.
- c. Enter these settings for the connection:
 - Bits per second (baud rate): 9600
 - Data bits: 8
 - Parity: none
 - Stop bits: 1
 - Flow control: None
- d. When the terminal emulator is activated, press **Enter**. An Enter Network Password window appears. The default username is *Cisco*. The default password is *Cisco*. Both the username and password are case sensitive.
- e. Upon a success login, the bridge will display the user mode prompt.
- f. Enter the enabled mode by typing the `enable` command and providing the default password: *Cisco*.

```
br>enable
Password:*****
br#
```
- g. Reset the bridge to factory defaults by entering the `erase nvram` command and confirming.

```
br#erase nvram

Erasing the nvram filesystem will remove all configuration
files! Continue? [confirm]
```

Step 3 Connect to the BR1310 using Express Setup

- a. Connect an RJ-45 Ethernet cable into the power injector Ethernet LAN port. Connect the other end of the Ethernet cable into an Ethernet port on a switch or hub. Then connect PC1 to the switch. (NOTE: A crossover cable can be used to connect directly from the power injector to PC1/PC2.)
- b. Configure PC1 to 10.0.0.2/24
- c. Open a web browser, type the default bridge address <http://10.0.0.1>, and press Enter.
- d. When prompted for the username and password, enter the case-sensitive default values:
 - i. Username: Cisco
 - ii. Password: Cisco
- e. The bridge Home page will open displaying the Summary Status of the bridge.
- f. Navigate to the Express setup page by selecting the **Express Setup** link from the left navigation bar. The Express Setup page will allow configuration of some basis settings.

- HOME
- EXPRESS SET-UP
- EXPRESS SECURITY
- NETWORK MAP +
- ASSOCIATION +
- NETWORK INTERFACES +
- SECURITY +
- SERVICES +
- WIRELESS SERVICES +
- SYSTEM SOFTWARE +
- EVENT LOG +

Hostname **bridge**

bridge uptime is 5 minutes

Home: Summary Status

Association

Clients: [0](#) Infrastructure clients: [0](#)

Network Identity

IP Address 10.0.0.1

MAC Address 0011.9375.13e2

Network Interfaces

Interface	MAC Address	Transmission Rate
FastEthernet	0011.9375.13e2	100Mb/s
Radio0-802.11G	0011.9345.4350	54.0Mb/s

Event Log

Time	Severity	Description
Mar 1 00:03:31.415	◆ Notification	Configured from console by console

Step 4 Configure the bridge settings

Using the Express Setup page, configure the bridge with the appropriate settings as indicated in the table below. Remember to choose the correct parameters for your pod.

Configure the following settings:

Parameter	BPod1	BPod2
a. System Name:	BPod1	BPod2
b. Configuration Server Protocol:	Static IP	Static IP
c. Default IP address:	10.0.1.1/16	10.0.2.1/16
d. Default Gateway:	10.0.1.254	10.0.1.254
e. Role in Radio Network:	Root	Non-Root

f. Click Apply. The connection will drop. Reestablish the connection by changing the configuration of the PC to match the bridge.

- PC1 with an IP address of 10.0.1.10/16
- PC2 with an IP address of 10.0.2.10/16

g. Browse to the configured IP address of the bridge.

1. What roles can the bridge serve in the network?

Express Set-Up

System Name:

MAC Address: 0011.9375.13e2

Configuration Server Protocol: DHCP Static IP

IP Address:

IP Subnet Mask:

Default Gateway:

SNMP Community:

Read-Only Read-Write

Radio0-802.11G

Role in Radio Network: Root Non-Root Install-Mode

Root AP Workgroup Bridge

Optimize Radio Network for: Throughput Range Default [Custom](#)

Aironet Extensions: Enable Disable

From the left navigation bar, select the Security>SSID Manager link to configure SSIDs on the bridges.

- From the Current SSID List, make sure that <NEW> is selected. Configure a new SSID for both bridges to the value: **BR1**.
- Leave all other fields at their default values.
- Click Apply to save the settings.
- After the page refreshes, there will be 2 SSIDs in the current list.

Security: SSID Manager

SSID Properties

Current SSID List

< NEW >
BR1
tsunami

SSID:

VLAN: [Define VLANs](#)

Network ID: (0-4096)

- e. Scroll to the bottom and select the *BR1* SSID for the Infrastructure SSID, and click the check box to force infrastructure devices to associate using this SSID.
- f. Click Apply to save your settings.

Global Radio0-802.11G SSID Properties

Set Guest Mode SSID: < NONE >

Set Infrastructure SSID: BR1 Force Infrastructure Devices to associate only to this SSID

Apply
Cancel

Step 5 Radio settings for the non-root bridge

To ensure that the non-root bridge associates with the correct root bridge, the root parent MAC address can be configured on the non-root bridge.

- a. Record the MAC address of the root bridge radio. This address can be found on the Summary Status page of the root bridge.

Home: Summary Status

Association

[Clients: 0](#) [Infrastructure clients: 0](#)

Network Identity

IP Address	10.0.0.1
MAC Address	0011.9375.13e2

Network Interfaces

Interface	MAC Address	Transmission Rate
FastEthernet	0011.9375.13e2	100Mb/s
Radio0-802.11G	0011.9345.4350	54.0Mb/s

- b. From the non-root bridge, navigate to the Settings tab of the Radio interface.

HOME

RADIO0-802.11G STATUS

DETAILED STATUS

SETTINGS

CARRIER BUSY TEST

Hostname **BPod2** BPod2 uptime is 6 hours, 21 minutes

Network Interfaces: Radio0-802.11G Settings

Enable Radio:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Current Status (Software/Hardware):	Enabled Up
Role in Radio Network:	<input type="radio"/> Root <input checked="" type="radio"/> Non-Root <input type="checkbox"/> Install-Mode
Fallback mode upon loss of Ethernet connection	<input type="radio"/> Root AP <input type="radio"/> Workgroup Bridge

- c. Scroll to the bottom of the settings page to enter the root bridge radio MAC address in the Root Parent MAC address field. Click Apply to save the configuration.

Root Parent Timeout:	<input type="text" value="0"/>	(0-65535 sec)
Root Parent MAC 1 (optional):	<input type="text" value="0011.9345.4350"/>	(HHHH.HHHH.HHHH)
Root Parent MAC 2 (optional):	<input type="text"/>	(HHHH.HHHH.HHHH)
Root Parent MAC 3 (optional):	<input type="text"/>	(HHHH.HHHH.HHHH)
Root Parent MAC 4 (optional):	<input type="text"/>	(HHHH.HHHH.HHHH)

Step 7 View Associations

The non-root bridge should now be associated with the root bridge. To view the current associations on each bridge, open a web connection to the bridge from the wired PC.

- a. Navigate to the bridge IP address.
- b. Select the **Association** link from the left navigation bar. All associated devices should appear in the list.

Hostname **BPod1**

BPod1 uptime is 3 hours, 3 minutes

Association

Clients: 0	Infrastructure clients: 1
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View: Client Infrastructure client

Radio802.11G

SSID BR1 :

Device Type	Name	IP Address	MAC Address	State	Parent	VLAN
1300-bridge	BPod2	10.0.2.1	0011.9345.6df0	Associated	self	none

1. Which devices are listed in the Association table for BR1? What device is the parent for this association?
-

2. Which devices are listed in the Association table for BR2? What device is the parent for this association?
-

Step 8 Test the connection

Verify client PCs are configured with the appropriate IP address. The only wireless devices on this topology will be the two wireless multi-function bridges used for the point-to-point connection.

- a. Once the wireless bridge link is configured properly, ping from PC1 to BR2. Then ping from PC1 to PC2. Were these successful?
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- b. Test layer 7 connectivity by browsing to BR2 from PC1. Was this successful?
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