



Lab 7.1.8.3 BR1310 Configure Bridge Diversity Settings

Estimated Time: 15 minutes

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

Objective

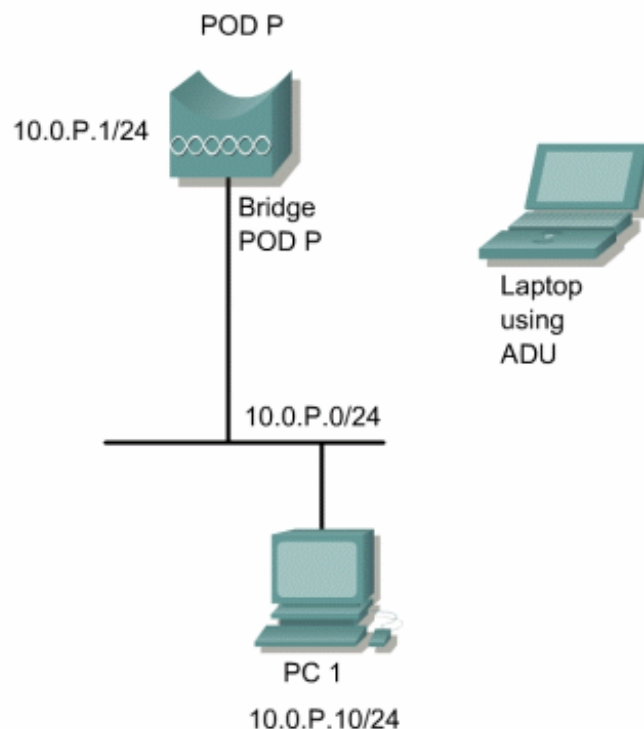
The student will test the effects of various antenna diversity settings on the Cisco BR1310

Scenario

Bridges have two RP-TNC connectors attached them. These two antennas connectors are for diversity in signal reception, and their purpose is not to increase coverage or distance. They help eliminate the null path and RF being received out of phase. Only one antenna at a time is active.

Which antenna is active is selected on a per-client basis for optimal signal and only applies to that specific client. The bridge can hop back and forth between antennas when talking to different clients. This can be useful in a point to multipoint installation.

Topology



Preparation

Cisco BR1310 configured as a root unit and performing properly.

Computers with a properly installed Cisco Aironet client adapter and utility.

Tools and Resources or Equipment

- Cisco BR1310
- Laptop or PC with a client adapter properly installed

Step 1 Configure the Cisco Aironet antenna settings

- Open a web browser and type the IP address of the bridge in the browser address box. When prompted for the username and password enter the defaults or the username and password provided by your instructor.
- Go to the **Network Interfaces>Radio0-802.11G>Settings** page and select the current channel as the default. The current channel will be displayed to the right of the drop down box. Click **Apply** to save the changes.

Note: if multiple bridge units are operating within the classroom it is important that they use different channels.

Default Radio Channel:

Channel 2 - 2417 MHz

Channel 2 2417 Mhz

- Scroll down to the Receive and Transmit Antenna section. Both the Receive and Transmit Antennas should be set to Diversity by default.

Receive Antenna:

☒ Diversity ☐ Left ☐ Right

Transmit Antenna:

☒ Diversity ☐ Left ☐ Right

- Before making any changes to the antenna settings, open the Aironet Desktop Utility on the PC. From the Current Status tab, click the **Advanced** button and note the Signal Quality and Signal Strength before any changes are made. The quality and strength will be updated continuously if the Advanced Status window is left open.

Advanced Status			
Network Name (SSID):	Wireless	Current Signal Strength:	100%
Server Based Authentication:	None	Current Signal Quality:	100%
Data Encryption:	None	Up Time:	1, 17:06:35
Authentication Type:	Open	802.11b Preamble:	Short & Long
Message Integrity Check:	None	Current Link Speed:	11.0 Mbps
Associated AP Name:		Channel:	6
Associated AP IP Address:	0.0.0.0	Frequency:	2.437 GHz
Associated AP MAC Address:	00-30-AB-0A-83-D6	Channel Set:	America
Power Save Mode:	CAM (Constantly Awake Mode)		
Current Power Level:	100 mW		
Available Power Levels (802.11a):	40, 25, 20, 13, 10 mW		
Available Power Levels (802.11b/g):	100, 63, 50, 30, 20, 10 mW		
<div>OK</div>			

- Change the Receive and Transmit antenna settings to left, right, diversity or various combinations and note any changes in the Signal Strength or Signal Quality once you have applied the changes.
 - Is it actually necessary for you to physically remove the antennas?

If using only one antenna, the Receive and Transmit antenna settings will have to correspond to the proper bridge antenna setting for RF reception.

If using two standard dipole antennas, very little changes will be effected on the Site Survey Meter. If you remove one of the antennas, you will observe a more dramatic effect in the setting changes. Make numerous changes with the antenna settings and check the results with the PC Aironet Client Site Survey utility. Remember to only make one change at a time so that you have a good idea which setting change caused the effect.

1. Which antenna setting gave the strongest signal quality (Left, Right, or Diversity)?

2. Which antenna setting gave the strongest signal strength (Left, Right, or Diversity)?

3. Which setting gave the weakest signal strength (Left, Right, or Diversity)?

4. Which setting gave the weakest signal quality (Left, Right, or Diversity)?
