Lab 7.1.8.1 Configure AP Diversity Settings

Estimated Time: 15 minutes

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

Objective

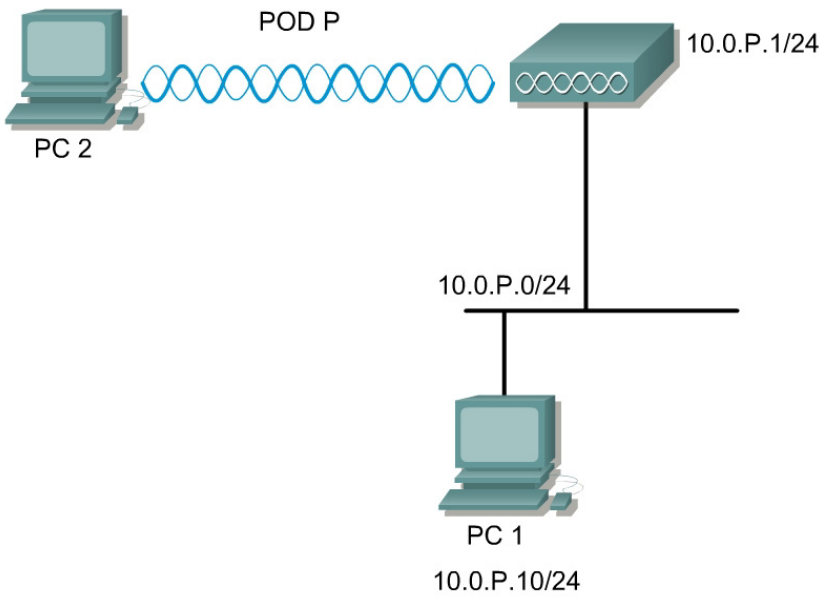
The student will test the effects of various antenna diversity settings on the Cisco Aironet AP. The student will configure the AP radio antennas through GUI and IOS command line.

Scenario

APs have two RP-TNC connectors. These two antennas connectors are for diversity in signal reception, and their purpose is not to increase coverage. 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 AP can hop back and forth between antennas when talking to different clients. PCMCIA cards also have antenna diversity built into the card.

Topology



Preparation

Cisco Aironet AP configured as a root unit and performing properly.

PCs with a properly installed Cisco Aironet client adapter and ACU utility.

Tools and Resources or Equipment

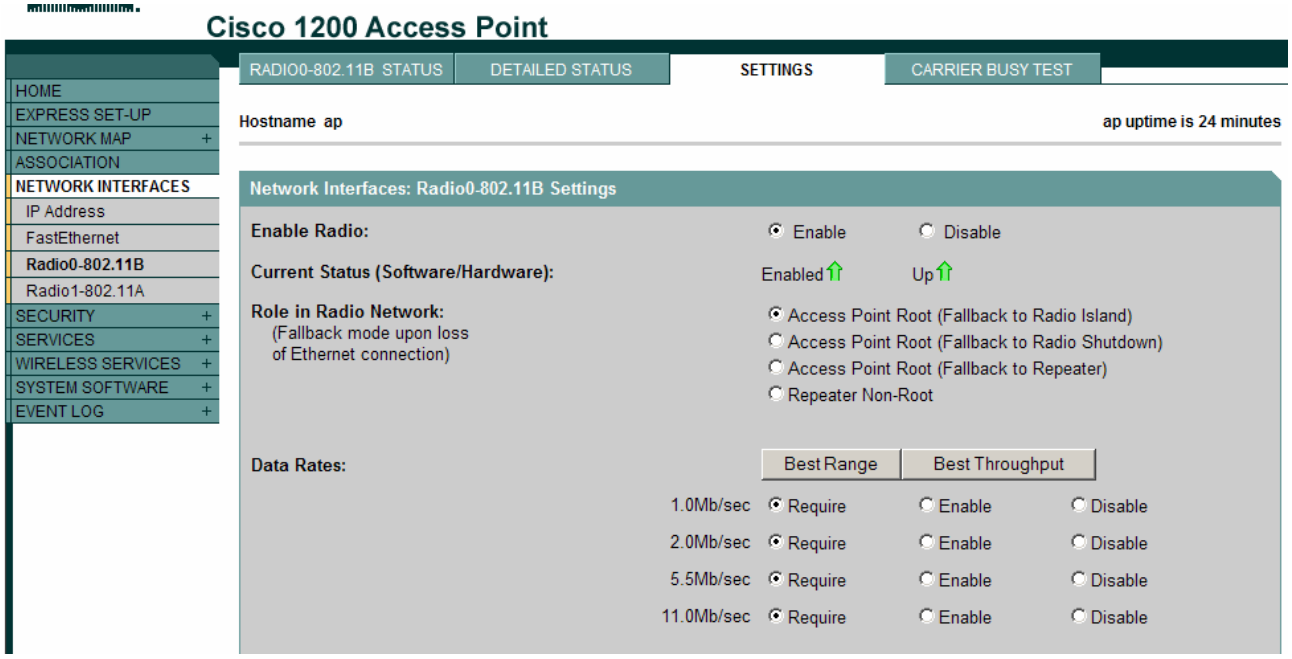
- One AP
- One wired PC or Laptop
- One wireless Laptop or PC with a client adapter properly installed

Command List:

In this lab exercise, the following commands will be used. Refer to this list if assistance or help is needed during the lab exercise.

Command	Description
`configure terminal`	enter global configuration mode
`interface dot11radio 0`	enter the device radio interface
`antenna`	set the receive or transmit antenna

Step 1 Configure the Cisco Aironet antenna settings



a. Open a web browser and type the IP address of the AP in the browser address box.

b. Go to the **Radio0-802.11B** Settings page of the AP.

c. Record the following information:

1. Enable Radio Setting:

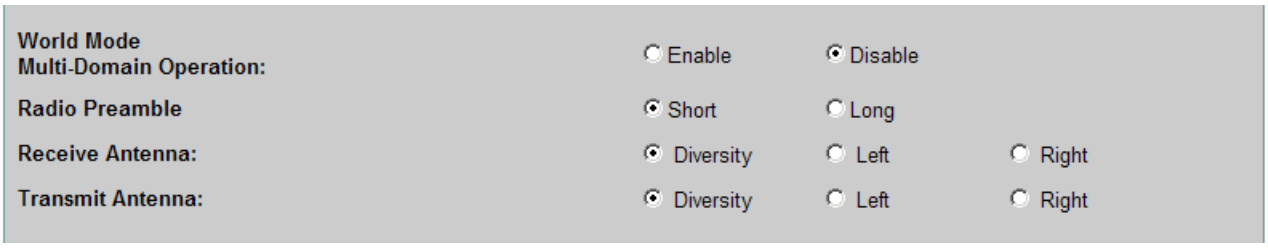
_____

2. Role in Radio Network

_____

3. Default Radio Channel

_____

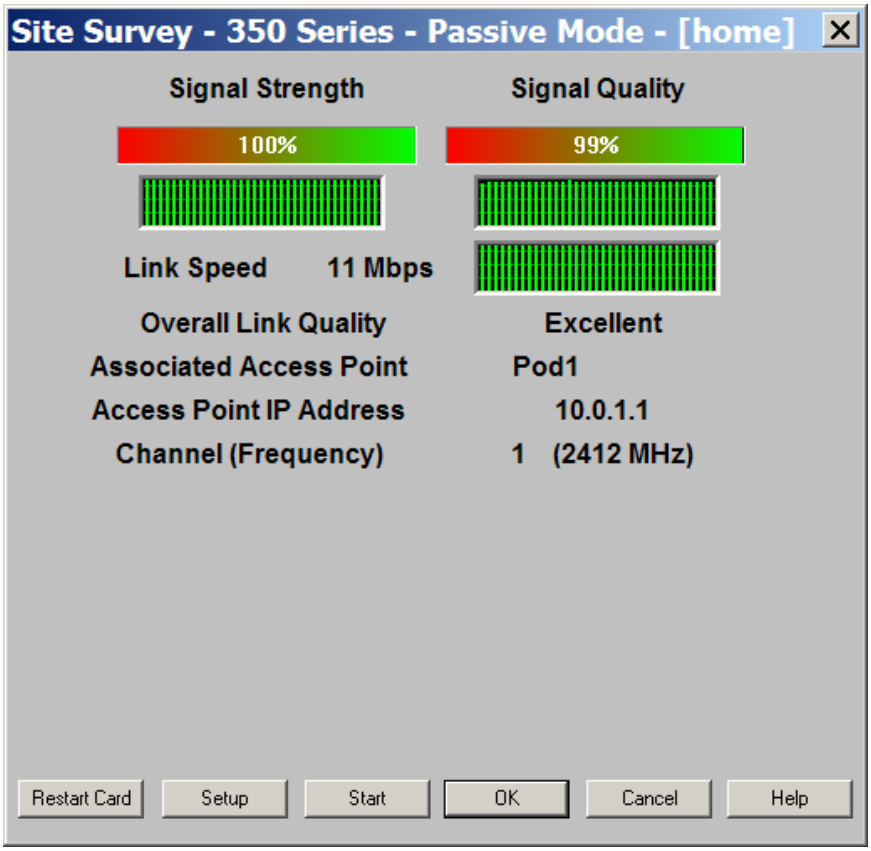


Step 2 Antenna settings

a. On the middle of the **AP Radio Hardware** page are the selections for the **Receive Antenna** and one for the **Transmit Antenna**.

b. Record the Receive Antenna Setting: _____

c. Record the Transmit Antenna Setting: _____



Step 3 Change antenna settings

a. Before making any changes to the antenna settings, open the Site Survey utility on the PC. Note the Signal Quality and Signal Strength before any changes are made.

b. What is the current Signal Strength? ____

c. What is the current Signal Strength? ____

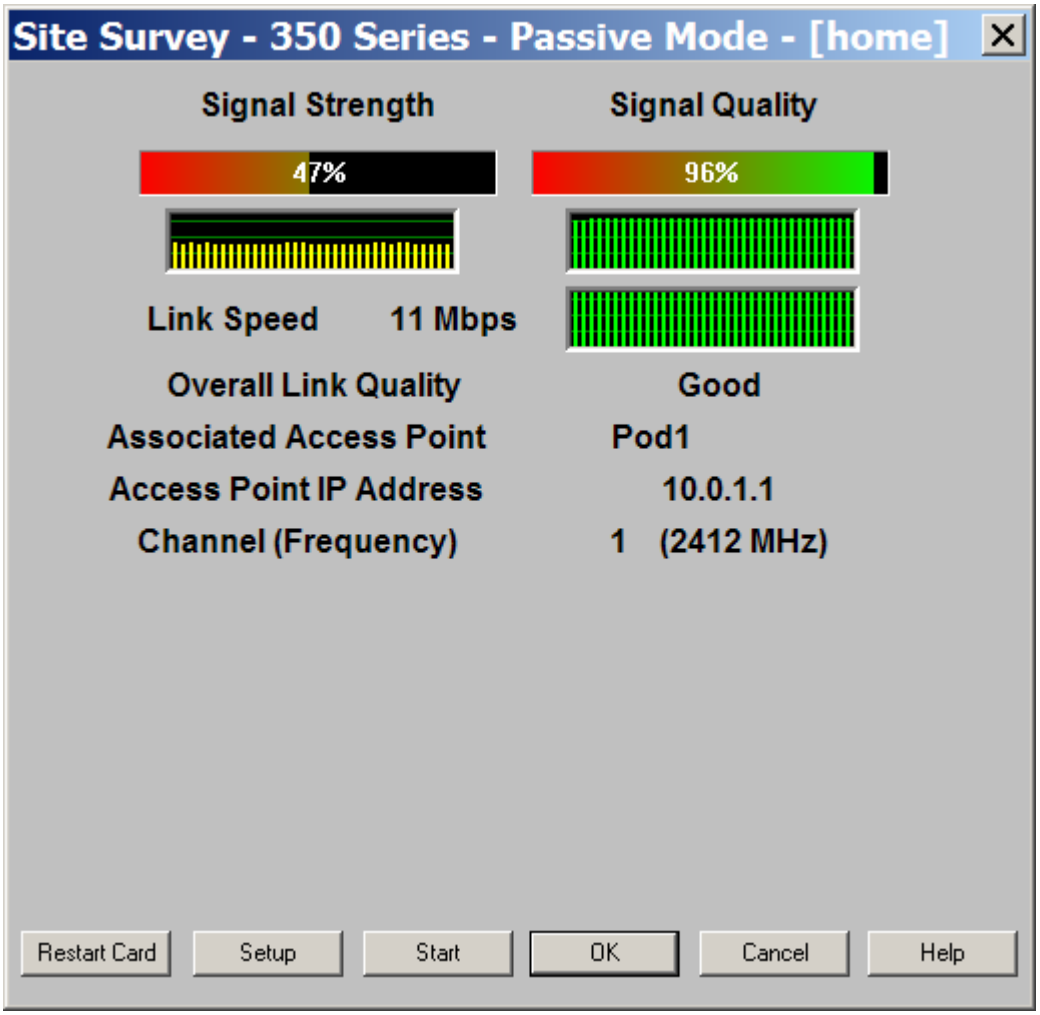
Step 4 Change antenna settings (continued)

a. Is it necessary to physically remove the antennas to change the antenna settings?

_____

b. Change the Receive and Transmit antenna settings to left, right, diversity or various combinations and note any changes on the Site Survey Meter once the changes are applied.

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



If you are 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.

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

_____

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

_____

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

_____

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

_____

Step 5 Configure the 802.11b antenna using the IOS CLI

This section describes how to configure the AP radio antennas using the IOS command line.

Command List:

In this lab exercise, the following commands will be used. Refer to this list if assistance or help is needed during the lab exercise.

Command	Description
configure terminal	enter global configuration mode
interface dot11radio 0	enter the device radio interface
antenna	set the receive or transmit antenna

Follow these steps to set the AP receive and transmit to right:

```
PodP(config)#interface dot11radio 0
PodP(config-if)#antenna receive right
PodP(config-if)#antenna transmit right
PodP(config-if)#
```

Follow these steps to set the AP receive and transmit to left:

```
PodP(config)#interface dot11radio 0
PodP(config-if)#antenna receive left
PodP(config-if)#antenna transmit left
PodP(config-if)#
```

Follow these steps to set the AP receive and transmit to diversity:

```
PodP(config)#interface dot11radio 0
PodP(config-if)#antenna receive diversity
PodP(config-if)#antenna transmit diversity
PodP(config-if)#
```

Step 6 Configure 802.11a antenna using the IOS CLI (optional)

Repeat Step 5 for the 802.11a radio

