HALMSTAD UNIVERSITY

CNAP HALMSTAD — SWEDEN

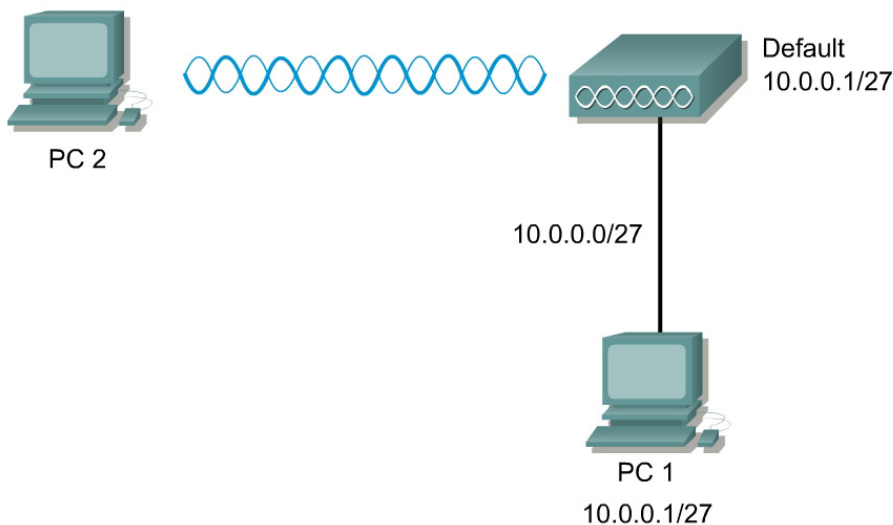## LAB 2 Configuring Basic AP Settings

Objective

In this lab, the student will assign basic parameters to the AP using the GUI and IOS CLI. The Express Setup page will also be accessed through a web browser to assign the IP address, subnet mask, default gateway, and SSID to the AP.

Scenario

Basic configuration of an AP can be done through the GUI or IOS CLI.

Topology

Preparation

The student PC should be connected to the AP through an isolated wired network or crossover cable. The AP should be set to factory defaults.

Tools and Resources

- x   One AP
- x   The AP power supply or source
- x   A PC (PC1) that is connected to the same wired network as the AP
- x   A wireless PC or laptop (PC2)

Additional Materials

http://www.cisco.com/en/US/products/hw/wireless/ps430/products_installation_and_configuration_gu ide_book09186a0080147d69.html

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
hostname	Set the hostname on the device
interface bvi1	Enter the virtual interface for the AP
ip address	Set the IP address and subnet mask on the device
interface dot11radio 0	Enter the device radio interface
station role **repeater | root** **[fallback { shutdown | repeater }]**	Set the AP role. Set the role to repeater or root. (Optional) Select the fallback role of the radio. If the Ethernet port of the AP is disabled or disconnected from the wired LAN, the AP can either shut down its radio port or become a repeater AP associated to a nearby root AP.
ssid ssid-string	Create an SSID and enter SSID configuration mode for the new SSID. The SSID can consist of up to 32 alphanumeric characters. SSIDs are case sensitive. **Note:** Do not include spaces or underscore characters in SSIDs.
enable password *password*	The default password is Cisco. This commands allows an administrator to change the password
enable secret *password* **enable password level** *level* *password*	The default enable password is *Cisco*. The default is level 15 (privileged EXEC level). The password is encrypted before it is written to the configuration file.
show dot11 associations	View the connected wireless clients
show running-config	Display the current configuration of the device
show startup-config	Display the startup configuration of the device
copy running-config startup-config	Save the entries into the configuration file
show interfaces	Display interface information of the device

Step 1 Connect to the AP using a console

DB-9 to RJ-45 serial cable — RJ-45 serial connector
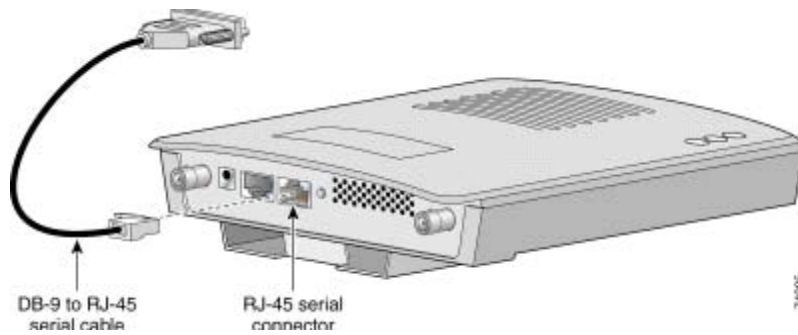
a. Connecting a Cisco rollover cable (console cable) between PC1 and the AP

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. Press return to get started

e. Now apply the AP power by plugging in the power supply cable or powered Ethernet cable. Hold the MODE button until the Status LED turns amber (approximately 1 to 2 seconds), and release the button. The AP reboots with the factory default values including the IP address. Without a connected DHCP server, the AP will default to 10.0.0.1/27.
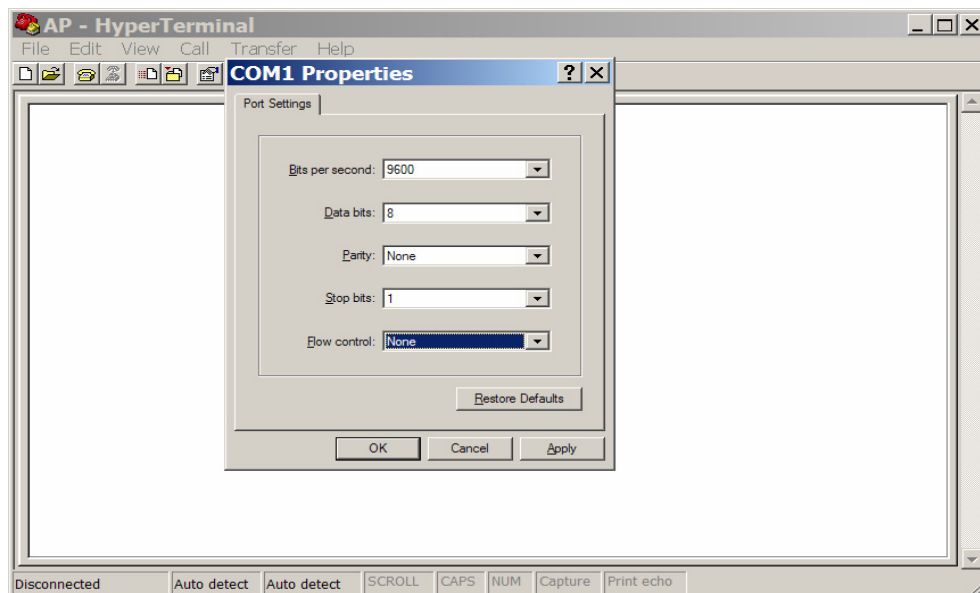
Step 2 Configure PC1

Make sure the AP is connected to PC1 by way of a wired connection.

a. Configure the IP address, subnet mask, and gateway on PC1.

1. IP address 10.0.0.2
2. Subnet Mask 255.255.255.224
3. Gateway 10.0.0.1

Step 3 Connect to AP using the web browser

a. Open an Internet browser. The default IP address of an AP from the factory is 10.0.0.1.

b. Type the AP IP address in the browser address location field. Press **Enter**.

c. A log in screen appears. Type in the password of **Cisco** (case sensitive) and click OK.

d. When the AP HOME page appears, click **Express Setup** if the Express Setup does not appear.

e. Type a system name of Pod**P** (where **P** is the Pod or Team number) for the AP in the System Name field.

f. Select **Static IP** as a configuration server protocol from the Configuration Server Protocol selections.

Cisco 1200 Access Point

HOME	Hostname ap		ap uptime is 12 minutes
EXPRESS SET-UP			
NETWORK MAP +	**Home: Summary Status**		
ASSOCIATION			
NETWORK INTERFACES +	**Association**		
SECURITY +	Clients: 0		Repeaters: 0
SERVICES +	**Network Identity**		
WIRELESS SERVICES +	IP Address		10.0.0.1
SYSTEM SOFTWARE +			
EVENT LOG +	MAC Address		000b.fd4a.700c

Network Interfaces		
Interface	MAC Address	Transmission Rate
⬆ FastEthernet	000b.fd4a.700c	100Mb/s
⬆ Radio0-802.11B	0007.85b3.c270	11.0Mb/s
⬆ Radio1-802.11A	000b.fd01.05b7	54.0Mb/s
Event Log		
Time	Severity	Description

Cisco 1200 Access Point

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

Hostname ap   ap uptime is 12 minutes

Express Set-Up

System Name: ap
MAC Address: 000b.fd4a.700c

Configuration Server Protocol: ○ DHCP   ● Static IP
IP Address: 10.0.0.1
IP Subnet Mask: 255.255.255.224
Default Gateway: 0.0.0.0

SNMP Community: defaultCommunity
                              ● Read-Only   ○ Read-Write

Radio0-802.11B

SSID: tsunami
Broadcast SSID in Beacon: ● Yes ○ No
Role in Radio Network: ● Access Point Root   ○ Repeater Non-Root
Optimize Radio Network for: ● Throughput ○ Range ○ Custom
Aironet Extensions: ● Enable   ○ Disable

Radio1-802.11A

SSID: tsunami
Broadcast SSID in Beacon: ● Yes ○ No
Role in Radio Network: ● Access Point Root   ○ Repeater Non-Root
Optimize Radio Network for: ○ Throughput ○ Range ● Default ○ Custom
Aironet Extensions: ● Enable   ○ Disable

Step 4 Assign the IP address

Team	AP Name	SSID	AP Address	PC1 Address	PC2 Address
1	Pod1	AP1	10.0.1.1/24	10.0.1.10/24	10.0.1.12/24
2	Pod2	AP2	10.0.2.1/24	10.0.2.10/24	10.0.2.12/24

a. Type the IP address in the **IP Address** field.
What IP address will be assigned to this AP? _____

b. Enter an IP subnet mask in the **IP Subnet Mask** field. What Subnet mask will be assigned to this AP? _____

Write the answer in dotted decimal notation_____
What Subnet mask in binary. ?_____

c. Enter the IP address of the default Internet gateway in the **Default Gateway** field.
Assume the router address is 10.0.P.254.
d. Leave the **SNMP Community** field alone at this time.

e. f. Verify the **AP Root**: as the network role for the AP from the **Role in Radio Network**.

f. Select **Throughput**: as the **Optimize Radio Network**.

g. Click **OK**.

i. The connection will be lost.

j. Reconfigure the IP address, subnet mask and gateway on PC1?

1. IP address 10.0.P.10

2. Subnet Mask 255.255.255.0

3. Gateway 10.0.P.254

Step 5 Access the AP through IOS CLI

Open the HyperTerminal window on PC1. PC1 should still be connected through the console cable. Enter privileged mode with the following command. *Cisco* is the default password.

> PodP>**enable**
> Password:
> PodP#show running-config

Step 6 Erase the configuration through CLI

Erase the configuration with the following commands:

> PodP#**erase startup-config**
> Erasing the nvram filesystem will remove all files! Continue?
> [confirm] (press Enter)
> [OK]
> Erase of nvram: complete
> PodP# **reload**

> System configuration has been modified. Save? [yes/no]: **N**

> Proceed with reload? [confirm] (press Enter)
> Radio system is preparing for reload...
> Radio system is ready for reload.
> *Mar 1 00:31:09.103: %SYS-5-RELOAD: Reload requested by console.

Step 7 Configure Hostname

The system name, while not an essential setting, helps identify the AP on your network. The system name appears in the titles of the management system pages.

a. Enter into configuration mode

> ap>**enable**
> Password:
> ap#
> ap#**configure terminal**
> ap(config)#

b. Now configure the host name with the following command:

        ap(config)#**hostname PodP** (where **P** is the pod number)

Step 8 Configure the Bridge Virtual Interface (BVI)

Enter the bvi1 interface mode to configure the ip address, subnet mask settings:

Assign an IP address and address mask to the BVI.

        PodP(config)#**interface bvi1**

        PodP(config-if)#**ip address 10.0.P.1 255.255.255.0**

        PodP(config-if)# **no shutdown**

Step 9 Configure passwords

Now configure the enable password to *cisco*. Also, configure the secret password to *class*.The password is not encrypted and provides access to level 15 (traditional privileged EXEC mode access):

        PodP(config)#**enable password cisco**
        PodP(config)#**enable secret class**

Use the **level** keyword to define a password for a specific privilege level. After you specify the level and set a password, give the password only to users who need to have access at this level. Use the **privilege level** global configuration command to specify commands accessible at various levels.

Now set the **configure** command to privilege level 15 and define *cisco* as the password users must enter to use level 15 commands:

        PodP(config)#**privilege exec level 15 configure**
        PodP(config)#**enable password level 15 cisco**

Step 10 Configure SSID

Name an SSID and set the maximum number of client devices that can associate using this SSID to 15.

        PodP(config)#**interface dot11radio 0**

        PodP(config-if)#**ssid APP** (where **P** is the pod number)

        PodP(config-if-ssid)#**authentication open**

PodP(config-if-ssid)#**max-associations 15**

PodP(config-if-ssid)#**exit**

PodP(config-if)# **no shutdown**
PodP(config-if)#**exit**

Step 11 Check the running configuration and interface status

Display the current configuration of the device

PodP#show running-config

 Pod1#show run

Display the condition and information of the device interfaces.

PodP#**show interfaces**

Step 12 Save and verify the configuration is saved to Flash

Save the current configuration of the device into the configuration file.

PodP#**copy running-config startup-config**

Verify the startup configuration saved in Flash.

PodP#**show startup-config**

Step 13 Connect to the AP using a wireless PC

Using a laptop or desktop with a wireless adapter, connect to the correct AP. Make sure
the wireless device is not connected through the wired network.

a. Configure and select a profile to connect to the AP. Make sure the SSID is configured
   in the profile to match the AP.
b. Configure a unique **Client Name** in the profile, such as a first initial last name of one
   of the team members
c. Make sure to check or configure the TCP/IP settings of the laptop or desktop to connect
   to the proper IP network. If a DHCP server is running, configure TCP/IP to receive the
   address automatically, or configure static IP setting.
d. Now check to see if the ACU icon in the system tray is green, which indicates a
   successful link to the AP. Double click on the ACU icon to verify the correct **AP Name**
   and **AP IP Address.**

Step 14 Verify the Associations

View the current device associations. The wireless device configured in step 11
should appear in the association output.

PodP#show dot11 associations