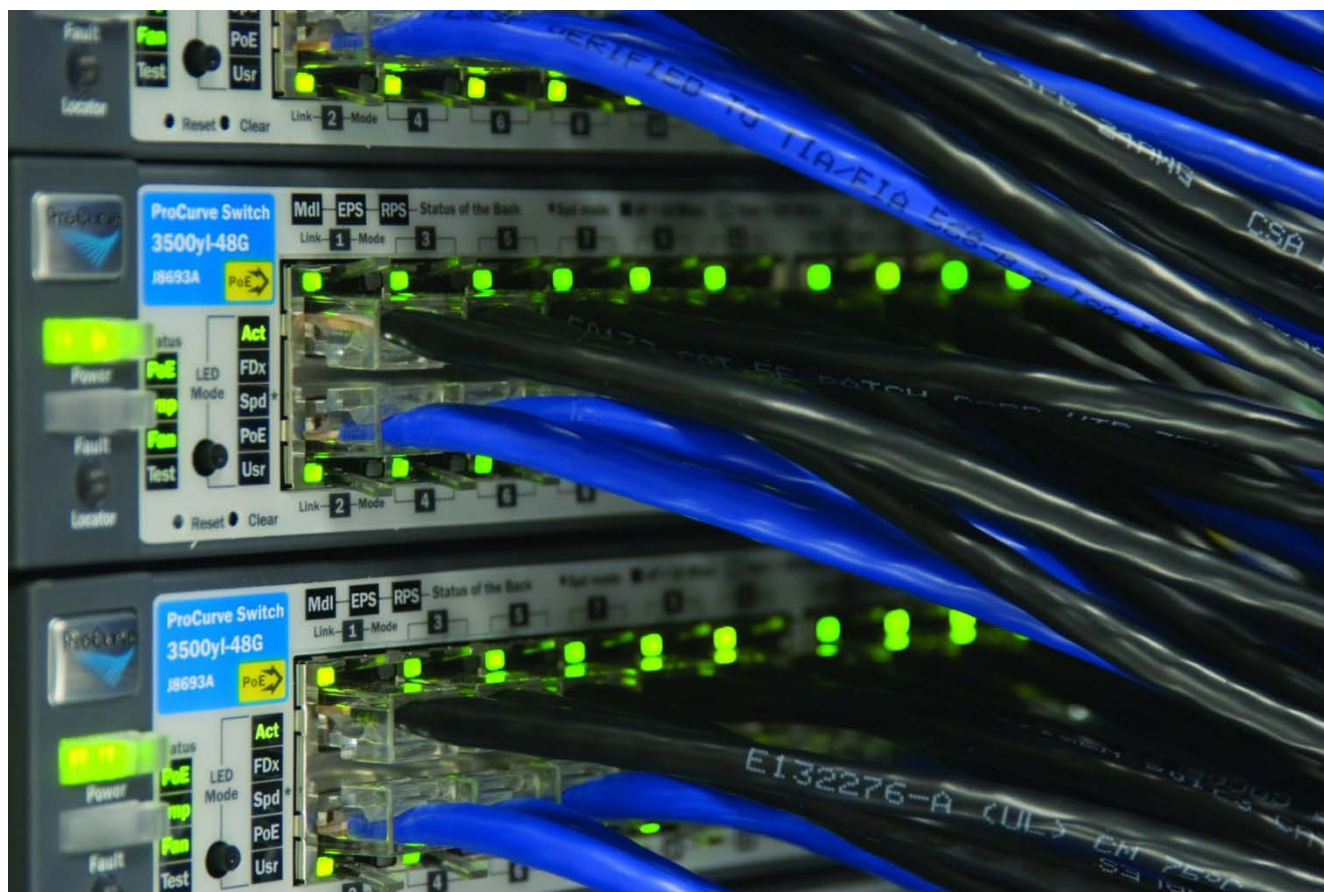




HP Enterprise Wireless Networks

Lab Guide

Version 11.21



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Objectives

This lab is broken into three parts. The first lab reviews the process of creating a wireless service. The second section asks you to review a customer scenario and document their security needs. The second and last lab puts the scenario into practice as you configure 802.1x authentication and dynamic assignment of user VLAN.

After completing the labs and exercises in this module, you should be able to:

- Use CLI commands
- Create multiple VLANs
- Assign IP addresses to VLAN interfaces
- Successfully configure a wireless service
- Connect to an Access Point
- Configure 802.1X authentication
- Interface with a remote security server
- Implement 802.11i security mechanisms

Note

Please note that the network topologies and approaches presented in this Lab Activity Guide are developed to expedite learning of specific products and solutions. Consequently, some of the approaches used here would not be suitable for a production network and should not be considered best practices. Students should not assume that all material presented here is appropriate for implementation in their work environments.

Lab configuration

When this lab activity is completed, your network topology and IP addressing scheme should resemble the diagram below:

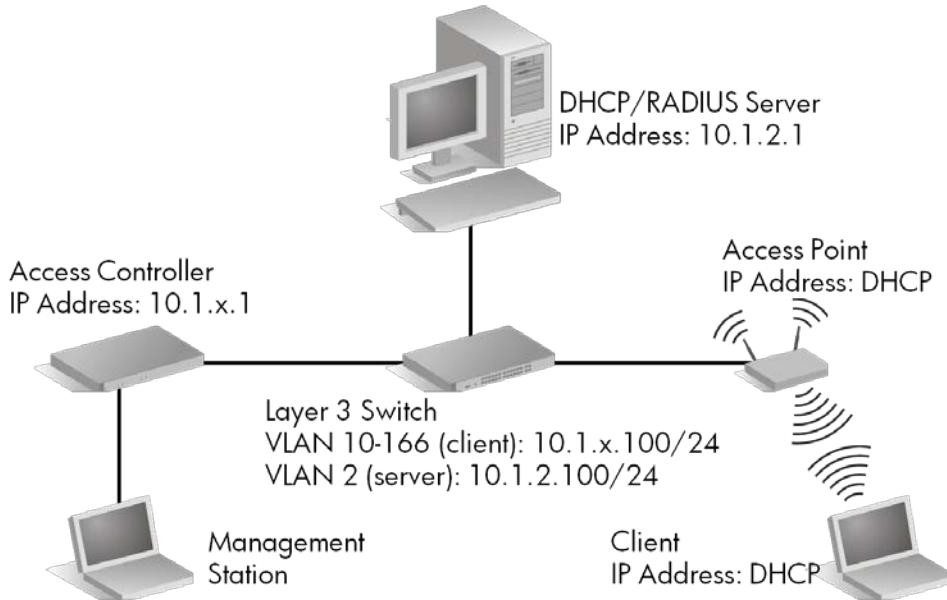


Figure 3-1: Lab networking diagram

Requirements

For this lab, you will need the following:

- One HP A5500-24G-PoE EI Switch or equivalent
 - Software version 5.20 release 2202P19 or later
- One A-WX5004 Access Controller (AC) or equivalent
 - Software version 5.20 or later
- A-WA2620E Dual Radio 802.11n Plenum Access Point (AP) or equivalent
- One computer with the following:
 - Microsoft Windows Server 2008 R2 running dynamic host configuration protocol (DHCP), domain name service (DNS), Active Directory (AD), and RADIUS services

- One computer with the following:
 - Microsoft Windows 7
 - Wired and wireless network adapters
 - Console terminal software
- One HP A-Series switch console cable
- One 1 meter USB-to-serial DB-9 male RS-232 cable
- Three 1 meter CAT5e cables
- One 10 meter CAT5e cable

Reference Materials

For more information about the products used in this lab, refer to:

- H3C WX Series Access Controllers User Manual
- H3C WX Series Access Controllers User Command Manual

Lab 3-1: Creating a wireless service

In this exercise, you establish a management session with the AC to create VLANs, a wireless interface for services, and finally connect to that service as a client. The classroom infrastructure switch has been preconfigured for this exercise and you will not be required to change it.

Your instructor will assign you a group number. Use this group number to determine the networking assignments you should use in this lab. See Tables 3.1, 3.2, and 3.3.

Table 3-1: Group networking assignments

| Group # | VLANs | AC IP addresses | Default gateway |
|---------|-------|-----------------|-----------------|
| 1 | 10 | 10.1.10.1 | 10.1.10.100 |
| | 11 | 10.1.11.1 | |
| 2 | 20 | 10.1.20.1 | 10.1.20.100 |
| | 22 | 10.1.22.1 | |
| 3 | 30 | 10.1.30.1 | 10.1.30.100 |
| | 33 | 10.1.33.1 | |
| 4 | 40 | 10.1.40.1 | 10.1.40.100 |
| | 44 | 10.1.44.1 | |
| 5 | 50 | 10.1.50.1 | 10.1.50.100 |
| | 55 | 10.1.55.1 | |
| 6 | 60 | 10.1.60.1 | 10.1.60.100 |
| | 66 | 10.1.66.1 | |

Table 3-2: AP channel assignments

| Group # | 5 GHz channel | 2.4 GHz channel |
|---------|---------------|-----------------|
| 1 | 149 | 1 |
| 2 | 153 | 6 |
| 3 | 157 | 11 |
| 4 | 161 | 1 |
| 5 | 165 | 6 |
| 6 | 149 | 11 |

Table 3-3: Switch port assignments

| Group # | Switch port of AC | Switch port of AP |
|---------|-------------------|-------------------|
| 1 | 1 | 7 |
| 2 | 2 | 8 |
| 3 | 3 | 9 |
| 4 | 4 | 10 |
| 5 | 5 | 11 |
| 6 | 6 | 12 |

Configure VLANs on the AC

In this section of the lab, you will establish network connectivity to the classroom infrastructure by defining VLANs, IP interfaces, and a default route.

1. Power on the AC and connect port 1 to port X on the classroom infrastructure switch. Refer to Table 3-3.
2. Launch console terminal software on the PC and establish a management session with the AC.
3. Press the enter key to access the CLI and then navigate to the system view.

```
<H3C> system-view
```
4. Set the system name, replacing X with your group number.

```
[H3C] sysname ACX
```
5. Create the VLAN assigned to you. Refer to Table 3-1.

```
[ACX] vlan X0  
[ACX-vlanX0] quit
```
6. Assign an IP address to the VLAN interface of the AC.

```
[ACX] interface vlan-interface X0  
[ACX-vlan-interface-X0] ip address 10.1.X0.1 24  
[ACX-vlan-interface-X0] quit
```
7. Repeat the last two steps, creating VLAN XX and assign an IP address to its VLAN interface.
8. Assign both VLANs to the network uplink port and set the default VLAN to X0.

```
[ACX] interface GigabitEthernet 1/0/1  
[ACX-GigabitEthernet1/0/1] port link-type trunk  
[ACX-GigabitEthernet1/0/1] undo port trunk permit vlan 1  
[ACX-GigabitEthernet1/0/1] port trunk permit vlan X0 XX  
[ACX-GigabitEthernet1/0/1] port trunk pvid vlan X0  
[ACX-GigabitEthernet1/0/1] quit
```
9. Create a static route to the switch, which will act as the default gateway.

```
[ACX] ip route-static 0.0.0.0 0.0.0.0 10.1.X0.100
```
10. Check the configuration.

```
[ACX] display current-configuration
```
11. Save the configuration of the AC to the default file at the root directory.

```
[ACX] return  
<ACX> save
```

Check the VLAN configuration of the Switch

1. From the AC, use Telnet to establish a management session with the switch.
`<ACX> telnet 10.1.X0.100`
2. Press the enter key to access the CLI and login with the username <admin> and a null password <>.
3. Check that your VLANs have been set up correctly on the switch.
`<SWX> display vlan X0`
 - VLAN interface has an IP address, 10.1.X0.100/24.
 - Interface GigabitEthernet 1/0/X (AC uplink port) is an untagged member of VLAN X0.
4. Repeat these last two steps for VLAN XX.
`<SWX> display vlan XX`
 - VLAN interface has an IP address, 10.1.XX.100/24.
 - Interface GigabitEthernet 1/0/X (AC uplink port) is a tagged member of VLAN XX.
 - Interface GigabitEthernet 1/0/X+6 (AP port) is an untagged member of VLAN XX.

Check network connectivity

In this section of the lab, you will verify your connectivity.

1. Check that the switch can reach the AC.
`[SWX] ping 10.1.X0.1`
2. Use the CTRL+K key combination to return to the CLI of the AC.
3. Check that the AC can ping the switch.
`[ACX] ping 10.1.X0.100`
4. Check that the AC can reach the Server.
`[ACX] ping 10.1.2.1`