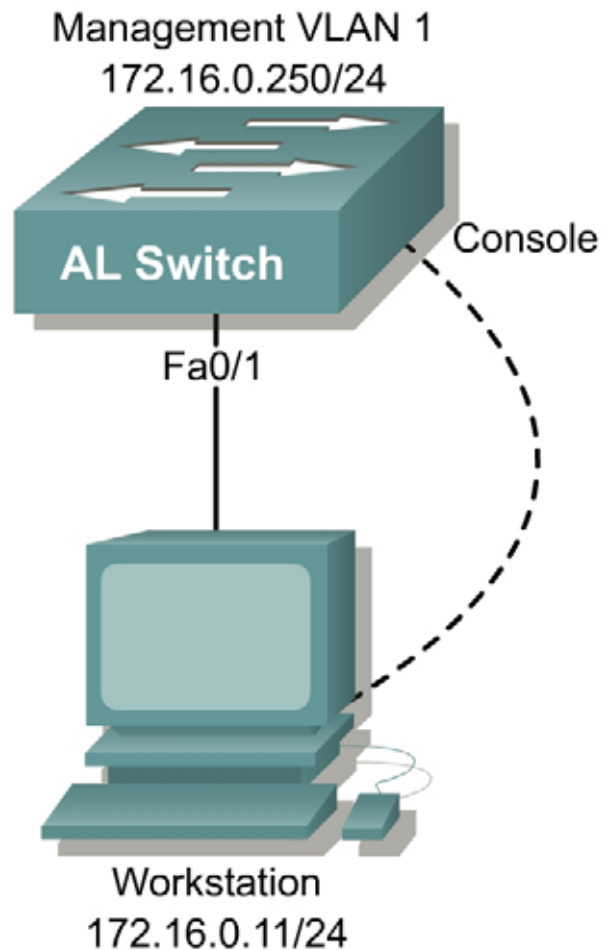


Lab 7.5.6.3 Using Advanced Username Options



Objective

In this lab, students will configure multiple user accounts with advanced options to limit privilege levels and use strong encryption to secure passwords.

Equipment

The following equipment is required to complete this lab:

- Catalyst 3550 series or 2950 series switch
- IOS 12.1(11)EA1
- Network-capable workstation with the Telnet client

Scenario

Corporate headquarters wants to allow first-level Helpdesk staff to have low-level access to network switches for monitoring purposes. The network administrators Alice, Bob, and Carol want to have their own accounts on the switch. The Helpdesk staff must be able to log into the switch without a password. The three network administrators must automatically enter privileged mode after authenticating with the switch.

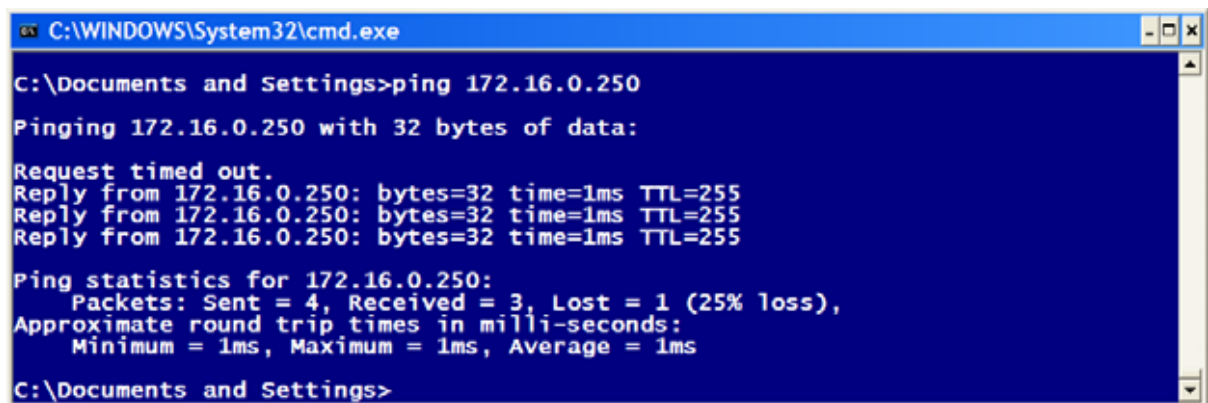
A strong encryption algorithm must protect the passwords for the network administrator accounts since the Helpdesk staff will have access to the switch.

Step 1

Build and configure the network according to the diagram. Configure the hostname and the management VLAN with the indicated IP address.

```
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname ALSwitch
ALSwitch(config)#interface vlan 1
ALSwitch(config-if)#ip add 172.16.0.250 255.255.255.0
ALSwitch(config-if)#no shut
ALSwitch(config-if)#^Z
ALSwitch#
01:07:25: %SYS-5-CONFIG_I: Configured from console by console
01:07:25: %LINK-3-UPDOWN: Interface Vlan1, changed state to up
01:07:26: %LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1,
changed state to up
ALSwitch#
```

Use the **ping** command to verify the Ethernet connection to the switch.

A screenshot of a Windows command prompt window titled "C:\WINDOWS\System32\cmd.exe". The window has a blue background and white text. The user is at the "C:\Documents and Settings>" prompt. They have entered the command "ping 172.16.0.250". The output shows "Pinging 172.16.0.250 with 32 bytes of data:" followed by three successful replies: "Request timed out." (which is likely a typo for "Reply from 172.16.0.250: bytes=32 time=1ms TTL=255" in the original image), "Reply from 172.16.0.250: bytes=32 time=1ms TTL=255", and "Reply from 172.16.0.250: bytes=32 time=1ms TTL=255". Below this, the ping statistics are shown: "Ping statistics for 172.16.0.250: Packets: Sent = 4, Received = 3, Lost = 1 (25% loss), Approximate round trip times in milli-seconds: Minimum = 1ms, Maximum = 1ms, Average = 1ms". The prompt is now "C:\Documents and Settings>".

```
C:\WINDOWS\System32\cmd.exe
C:\Documents and Settings>ping 172.16.0.250
Pinging 172.16.0.250 with 32 bytes of data:
Request timed out.
Reply from 172.16.0.250: bytes=32 time=1ms TTL=255
Reply from 172.16.0.250: bytes=32 time=1ms TTL=255
Reply from 172.16.0.250: bytes=32 time=1ms TTL=255

Ping statistics for 172.16.0.250:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 1ms, Average = 1ms
C:\Documents and Settings>
```

Step 2

Enter global configuration mode and create a new account for the Helpdesk. The Helpdesk account does not have a password.

Create the account for Helpdesk and set the account privilege at Level 3.

```
ALSwitch(config)#username Helpdesk nopassword
ALSwitch(config)#username Helpdesk privilege 3
```

Step 3

Enable login authentication for local accounts on the console port and virtual terminal lines.

```
ALSwitch(config)#line console 0
ALSwitch(config-line)#login local
ALSwitch(config-line)#exit
ALSwitch(config)#line vty 0 15
ALSwitch(config-line)#login local
ALSwitch(config-line)#^Z
```

Step 4

Verify the running configuration of the switch.

```
ALSwitch#show running-config
Building configuration...

Current configuration : 1093 bytes
!
version 12.1
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname ALSwitch
!
!
username Helpdesk privilege 3 nopassword

<Output omitted>

!
line con 0
  login local
line vty 0 4
  login local
line vty 5 15
  login local
!
end
```

Step 5

Re-enter global configuration mode and create user accounts for Alice, Bob, and Carol. Strong encryption must be used to store the passwords for these

accounts. The password for Alice is **fantastic**. The password for Bob is **switching**. The password for Carol is **equipment**.

```
ALSwitch(config)#username Alice secret fantastic
ALSwitch(config)#username Bob secret switching
ALSwitch(config)#username Carol secret equipment
ALSwitch(config)#end
```

Check the running configuration again.

```
ALSwitch#show running-config
Building configuration...

Current configuration : 1256 bytes
!
version 12.1
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname ALSwitch
!
!
username Helpdesk privilege 3 nopassword
username Alice secret 5 $1$vBnC$kw40PgOX0yQQyM1KzOmv71
username Bob secret 5 $1$f3mK$C5PUyHwjT0T0fvNgPDwT60
username Carol secret 5 $1$808J$XeiJBlrFTCLUaZhBcE/y..
```

<Output omitted>

1. The **service password-encryption** command has not been used. Why are the passwords for Alice, Bob, and Carol not stored in clear text?
2. What does the '5' mean in the output **username Carol secret 5 \$808J\$XeiJBlrFTCLUaZhBcE/y..?**

Step 6

Enter global configuration mode. Configure the accounts for the network administrators so that they automatically enter privileged mode after authenticating with the switch.

```
ALSwitch(config)#username Alice privilege 15
ALSwitch(config)#username Bob privilege 15
ALSwitch(config)#username Carol privilege 15
ALSwitch(config)#end
```

Step 7

Check the running configuration of the switch.

```
ALSwitch#show running-config
Building configuration...

Current configuration : 1295 bytes
!
version 12.1
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname ALSwitch
!
!
username Helpdesk privilege 3 nopassword
username Alice privilege 15 secret 5
$1$vBnC$kw40PgOX0yQQyM1KzOmv71
username Bob privilege 15 secret 5 $1$f3mK$C5PUyHwjT0T0fvNgPDwT60
username Carol privilege 15 secret 5
$1$808J$XeiJBlrFTCLUaZhBcE/y..

<Output omitted>
```

Step 8

Log out of the switch and reconnect as Helpdesk.

```
ALSwitch con0 is now available
```

```
Press RETURN to get started.
```

```
User Access Verification
```

```
Username: Helpdesk
```

```
ALSwitch#
```

1. The Helpdesk account appears to have been entered into privileged mode automatically. Check the list of available commands using ?. Does the Helpdesk username have full privileged mode?
2. What are some of the core commands Helpdesk users cannot use? Try to examine or change the switch configuration.

Step 9

Log out of the switch. Log on again as one of the network administrator accounts.

```
ALSwitch con0 is now available
```

```
Press RETURN to get started.
```

```
User Access Verification
```

```
Username: Carol
```

```
Password: [ equipment ]
```

```
ALSwitch#
```

3. Do the network administrators get complete privileged mode access automatically after authenticating?