Packet Tracer - Configure SSH_Brett Rainiel Espiritu

Addressing Table

Device	Interface	IP Address	Subnet Mask
S1	VLAN 1	10.10.10.2	255.255.255.0
PC1	NIC	10.10.10.10	255.255.255.0

Objectives

Part 1: Secure Passwords

Part 2: Encrypt Communications

Part 3: Verify SSH Implementation

Background

SSH should replace Telnet for management connections. Telnet uses insecure plain text communications. SSH provides security for remote connections by providing strong encryption of all transmitted data between devices. In this activity, you will secure a remote switch with password encryption and SSH.

Instructions

Part 1: Secure Passwords

a. Using the command prompt on **PC1**, Telnet to **S1**. The user EXEC and privileged EXEC password is **cisco**.

b. Save the current configuration so that any mistakes you might make can be reversed by toggling the power for **S1**.

c. Show the current configuration and note that the passwords are in plain text. Enter the command that encrypts plain text passwords:

```
S1(config)# service password-encryption
```

d. Verify that the passwords are encrypted.

```
S1#show running-config
Building configuration...

Current configuration : 1295 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
service password-encryption
!
hostname S1
!
!
enable password 7 0822455D0A16
!
!
!
ip domain-name netacad.pka
!
username administrator secret 5 $1$mERr$hx5rVt7rPNoS4wqbXKX7m0
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
interface FastEthernet0/2
```

```
interface FastEthernet0/8
!
interface FastEthernet0/9
!
interface FastEthernet0/10
!
interface FastEthernet0/11
!
interface FastEthernet0/12
!
interface FastEthernet0/13
!
interface FastEthernet0/14
!
interface FastEthernet0/15
!
interface FastEthernet0/16
!
interface FastEthernet0/17
!
interface FastEthernet0/18
!
interface FastEthernet0/19
!
interface FastEthernet0/20
!
interface FastEthernet0/21
!
interface FastEthernet0/22
!
interface FastEthernet0/23
!
interface FastEthernet0/24
!
interface GigabitEthernet0/1
!
interface GigabitEthernet0/2
!
interface Vlan1
 ip address 10.10.10.2 255.255.255.0
!
!
!
!
!
!
line con 0
!
line vty 0 4
 login local
 transport input ssh
line vty 5 15
 password 7 0822455D0A16
 login local
 transport input ssh
!
!
!
!
end


S1#
```

Part 2: Encrypt Communications

Step 1: Set the IP domain name and generate secure keys.

It is generally not safe to use Telnet, because data is transferred in plain text. Therefore, use SSH whenever it is available.

a. Configure the domain name to be **netacad.pka**.

```
Enter configuration commands, one per line.  End with CNTL/Z.
S1(config)#ip domain-name netacad.pka
S1(config)#
```

b. Secure keys are needed to encrypt the data. Generate the RSA keys using a 1024 key length.

```
S1(config)#crypto key generate rsa
The name for the keys will be: S1.netacad.pka
Choose the size of the key modulus in the range of 360 to 4096 for your
  General Purpose Keys. Choosing a key modulus greater than 512 may take
  a few minutes.

How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]

S1(config)#
```

Step 2: Create an SSH user and reconfigure the VTY lines for SSH-only access.

a. Create an **administrator** user with **cisco** as the secret password.

```
S1(config)#username administrator secret cisco
*Mar 1 15:55:52.962: %SSH-5-ENABLED: SSH 1.99 has been enabled
S1(config)#
```

b. Configure the VTY lines to check the local username database for login credentials and to only allow SSH for remote access. Remove the existing vty line password.

```
S1(config)#line vty 0 15
S1(config-line)#transport input ssh
S1(config-line)#login local
S1(config-line)#exit
```

```
!
interface GigabitEthernet0/2
!
interface Vlan1
 ip address 10.10.10.2 255.255.255.0
!
!
!
!
!
!
line con 0
!
line vty 0 4
 login local
 transport input ssh
line vty 5 15
 password 7 0822455D0A16
 login local
 transport input ssh
!
!
!
!
end

S1#
```

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Step 3: Verify SSH Implementation

a. Exit the Telnet session and attempt to log back in using Telnet. The attempt should fail.

```
C:\>telnet 10.10.10.2
Trying 10.10.10.2 ...Open

[Connection to 10.10.10.2 closed by foreign host]
C:\>
```

b. Attempt to log in using SSH. Type **ssh** and press **Enter** without any parameters to reveal the command usage instructions. **Hint**: The `-l` option is the letter “L”, not the number 1.

```
C:\>ssh -l administrator 10.10.10.2

Password:



S1>
```

c. Upon successful login, enter privileged EXEC mode and save the configuration. If you were unable to successfully access **S1**, toggle the power and begin again at Part 1.

```
S1>enable
Password:
S1#copy
S1#copy run
S1#copy running-config start
S1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
S1#
S1#e
```