Basics of Network Security

Version 1.0.0

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January 19, 2025

Contents

1   Introduction

In this document, I will outline my personal methods for basic network security on a Cisco 2950 Series Switch. This is not all-encompassing, and I plan to iterate on it in the future.

The original purpose of this document is for the Cybersecurity in Networks Workshop with ShiftKey Labs on January 16, 2025.

Although this guide is based on the build notes for a physical switch, it can be recreated using network simulation programs such as Cisco Packet Tracker. Although these programs may not have the Cisco 2950 Series Switch used in this document, others can be used, as the syntax is typically similar. You can find documentation online for most Cisco network hardware that describes its command syntax. If a command isn't working, try searching the command with your model of hardware.

2   Hardware

This guide uses the following:

1. Cisco Catalyst 2950 Series[1] (24 Ports)

2. USB to RJ45 Console Cable (Learn more about console cables here[2])

3. CAT6A Ethernet Cable

4. Windows 11 Device

3   Steps

3.1   Installation & Setup

1. Plug the RJ45 connection side of console cable into the console port on your switch, typically located on the back.

2. Plug the USB side into a USB port on your device.

3. Install PuTTY[3] or similar SSH Client

4. Open Device Manager

    (a) Expand `Ports (COM & LPT)`
    (b) Find `USB Serial Port (COMx)` and note `x`.

5. Open PuTTY

    (a) Select `Serial` connection type
    (b) Change from `COM1` to `COMx`, where `x` is the previously noted interface.

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[1]https://www.cisco.com/c/dam/en/us/td/docs/switches/lan/catalyst2955/software/release/12_1_12c_ea1/command/reference/cr2955.pdf
[2]https://www.cablesandkits.com/learning-center/what-are-console-cables-why-need-them
[3]https://www.putty.org/

      (c) Set the speed based on your device (9600 is common, and is the speed the Catalyst 2950 uses)

      (d) Select `Open`

6. Press enter once the console screen opens. You should see "`Switch>`".

7. Run the "`enable`" command. You should see "`Switch#`".

8. Run "`show running`" to ensure the configuration is cleared.

3.2   Switch Configuration

To enter configuration mode, enter the command `configure terminal`.

3.2.1   Hostname

Setting a hostname is especially important on multiple-device networks to tell the difference between each device.

```
hostname [new-hostname]
```

1.