Cisco Packet Tracer Project: Logical and Physical Mode Exploration

Project Description

This Packet Tracer Tutored Activity (PTTA) is a guided project for logical and physical mode exploration in a simplified version of how a small to medium-sized business network might look. This task is to explore and review the devices and networks deployed.

Objective

- To investigate devices in a wiring closet
- To connect end devices to networking devices
- To install a backup router
- To configure a Hostname

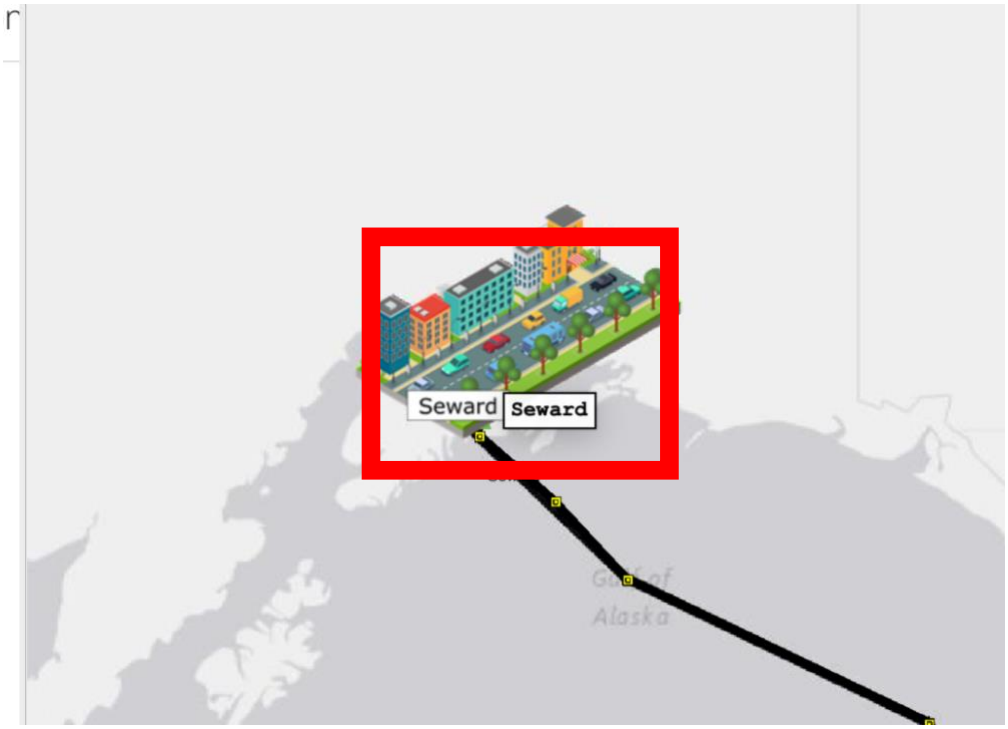
Tools Used

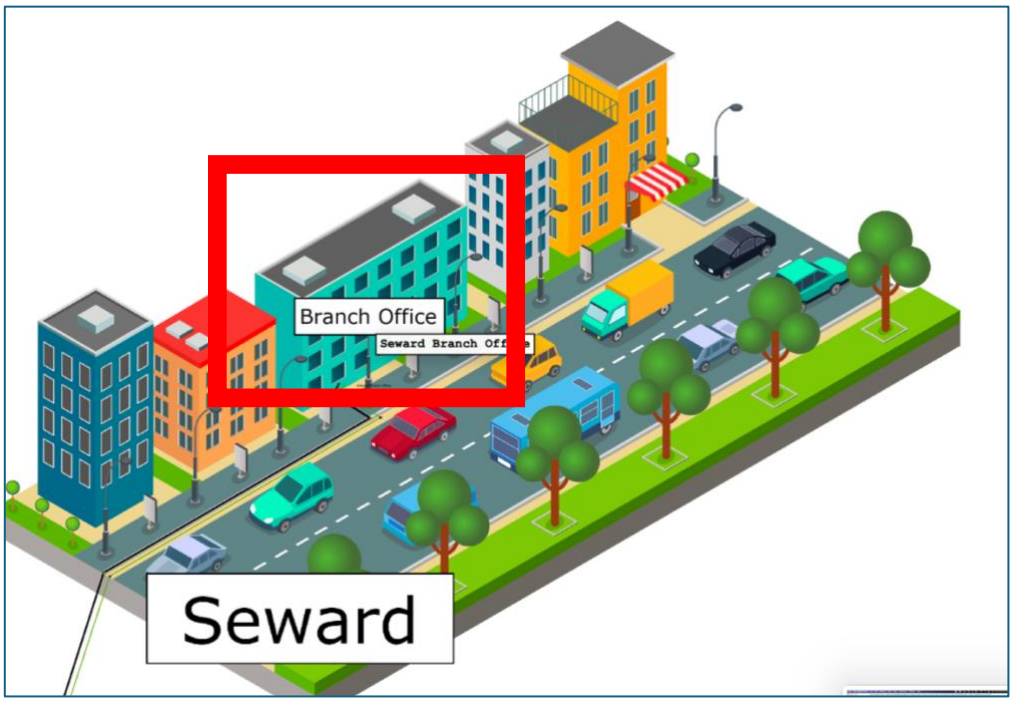
Packet Tracer is a tool that allows you to simulate real networks. It is a platform designed by Cisco Systems that allows users to create network topologies and imitate real-life physical computer networks.

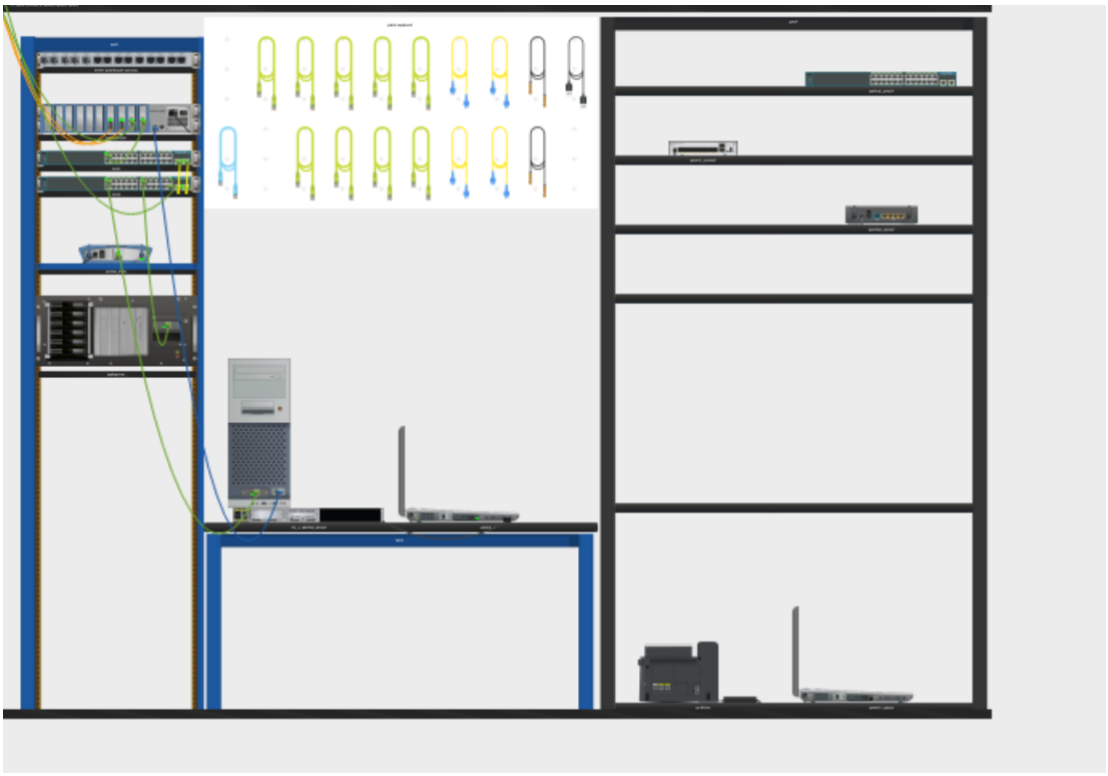
Steps

1) Investigating devices in a wiring closet

In the **Intercity**, click **Seward**. While in Seward, click the **Branch Office** and then click the **Branch Office Wiring Closet.**





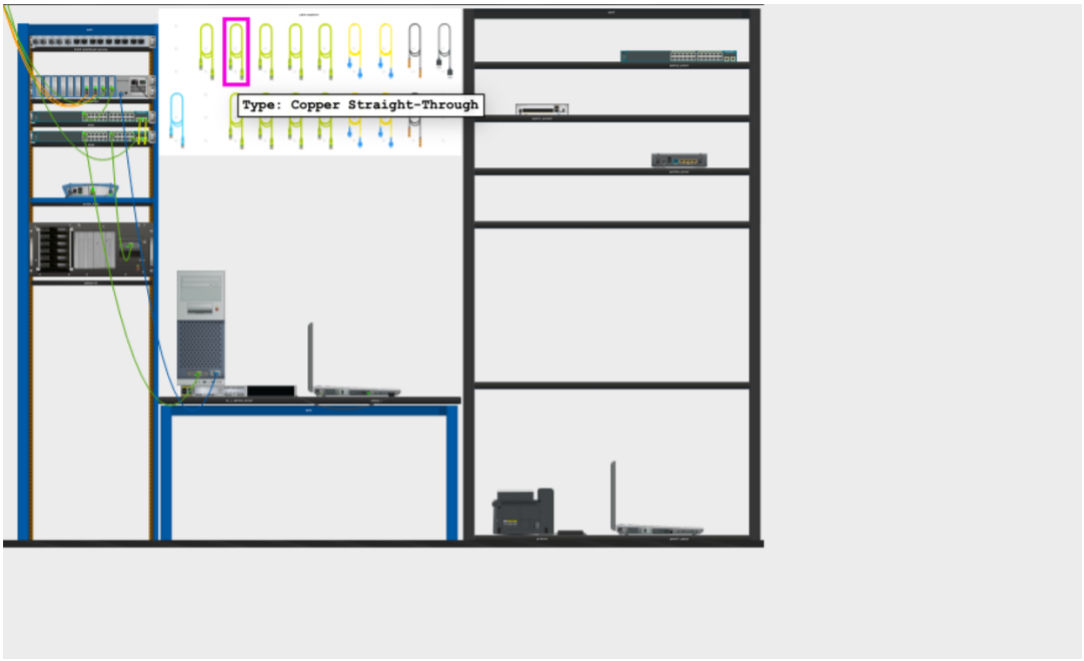


2) Connecting end devices to networking devices

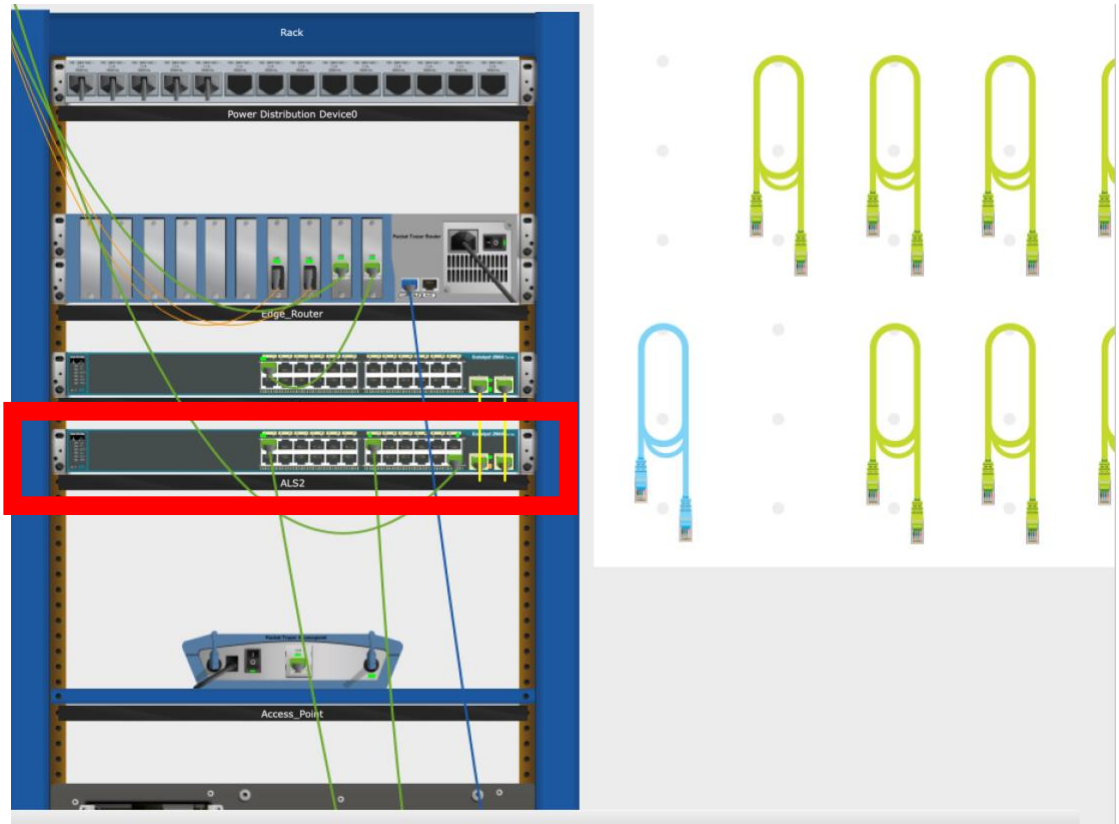
- Connect a PC to a switch using an Ethernet cable

connect PC_1FastEthernet0 to an empty FastEthernet port on ALS2

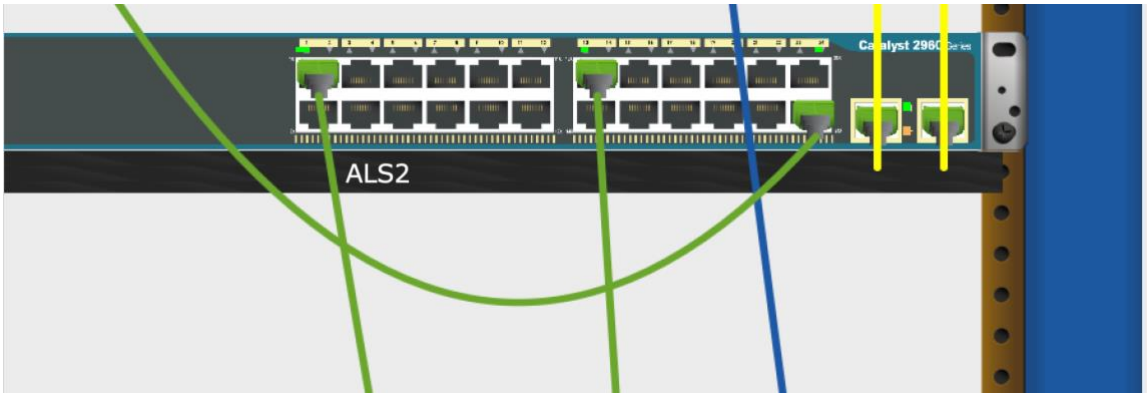
Before connecting, I picked ‘Copper Straight-Through’ cable in green from the cable pegboard.



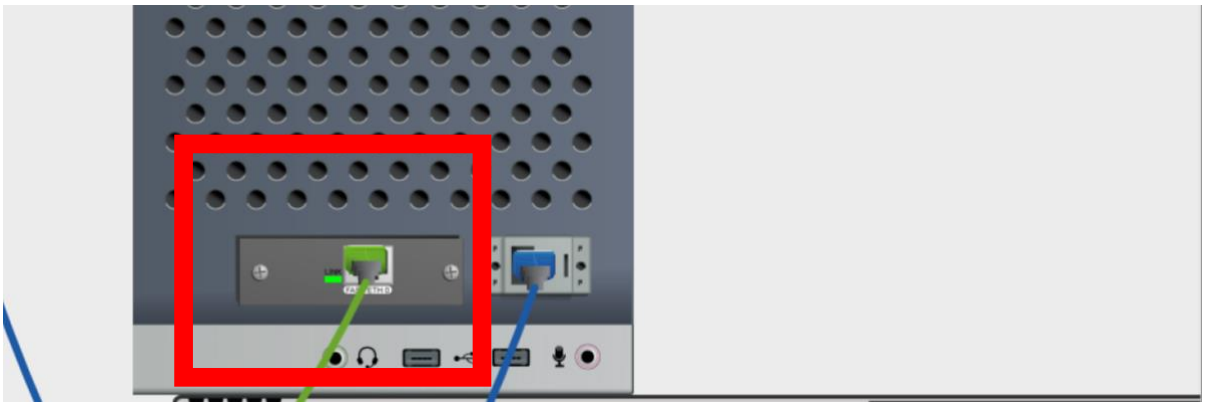
Locate ALS2 from the Rack section



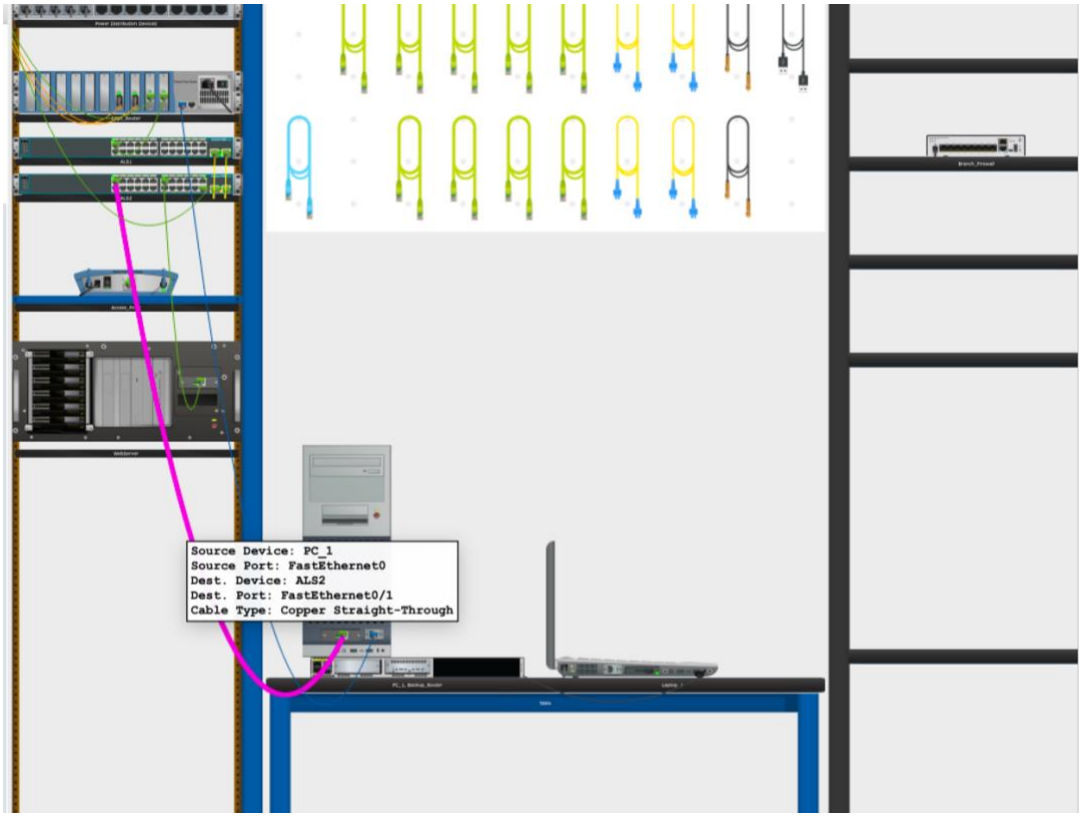
Find an empty port in the ALS2 and use the green cable that you picked previously and insert in any empty ports that you choose.



From there, locate an empty FastEthernet port on the computer case and insert the other end of the cable to the port.



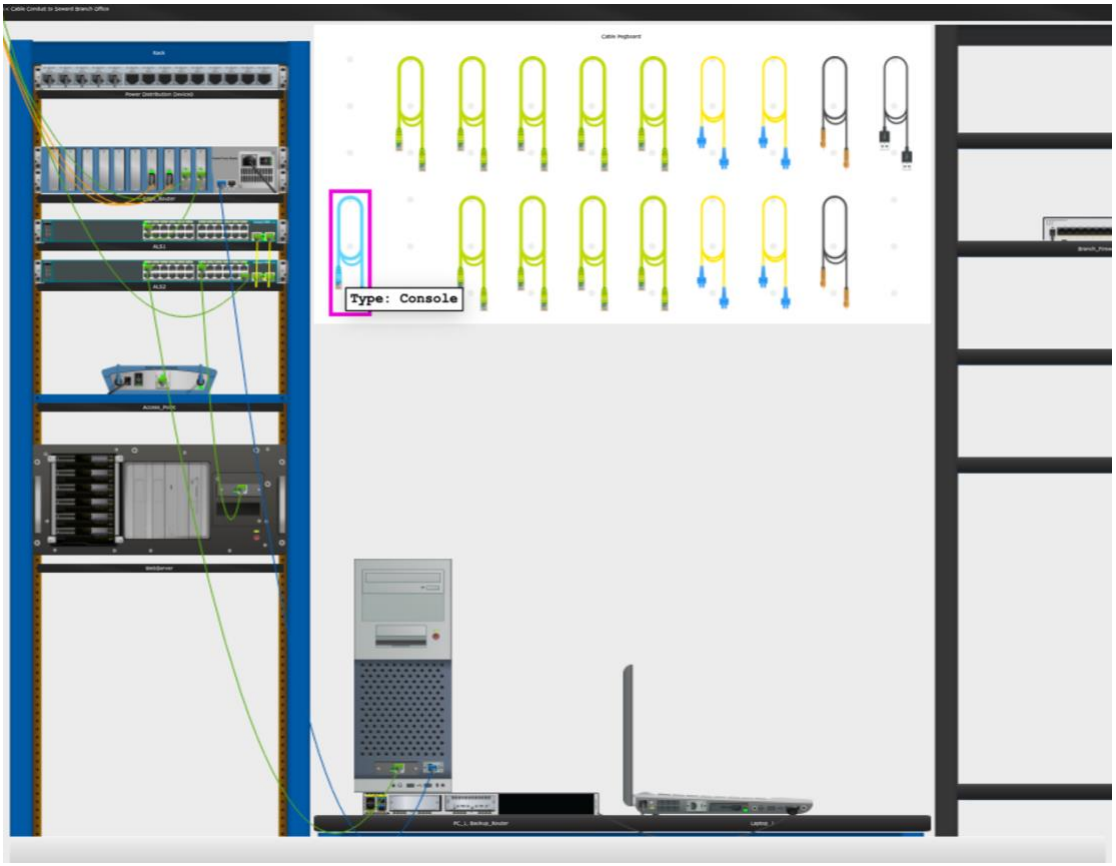
Lastly, (neon pink-highlighted line) this is how it looks like when the devices are being connected to each other.



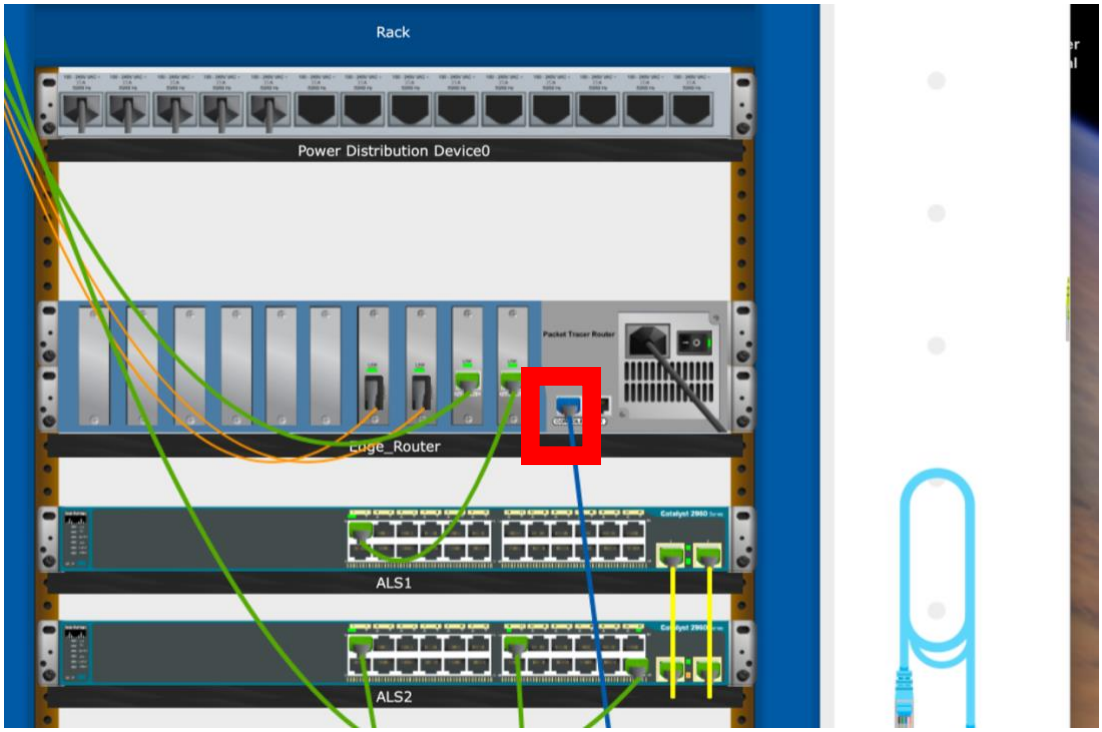
- Connect a PC/laptop to a router using a console cable

PCs and laptops can also be connected to networking devices using a console cable or a USB cable. This connection provides management access. Management access is used to view and change device configurations. In this step, you can connect a PC to a router using a console cable.

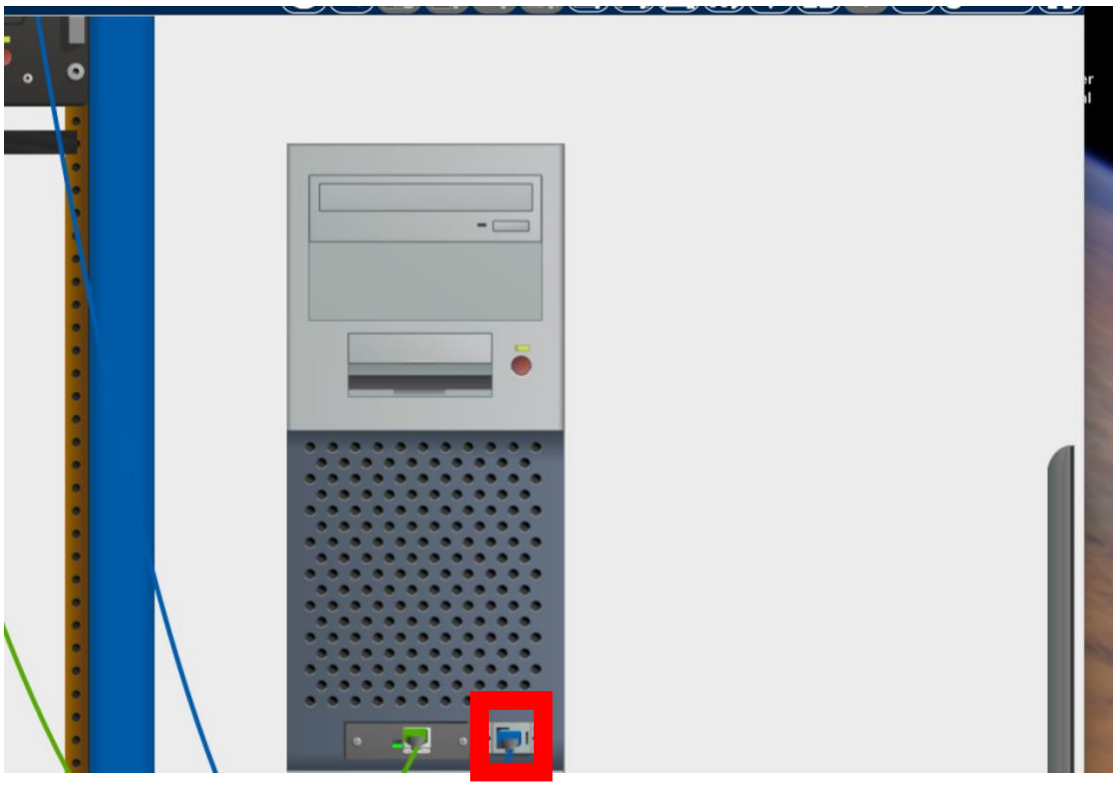
First, pick the console cable in light-blue from the cable pegboard.



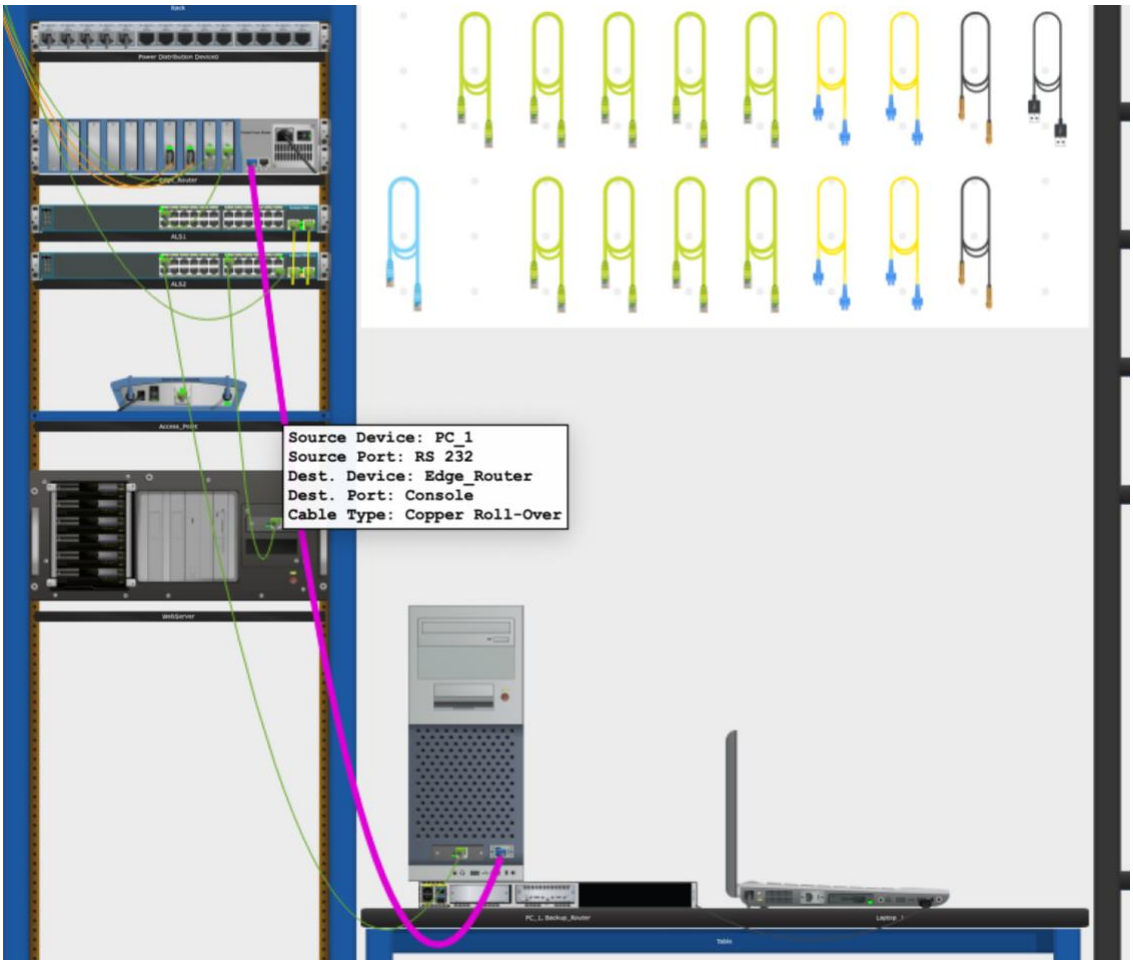
Then, locate RS232 port from the Edge_Router in the Rack section and insert the light-blue cable in the empty port.



After that, insert the other end of the cable to a console port of the computer case. Usually, the console port is typically a serial port, such as RS232 or USB, used to connect a console cable to the device.



Finally, this is how it is supposed to look like (neon pink-highlighted line) when the devices are connected to each other.

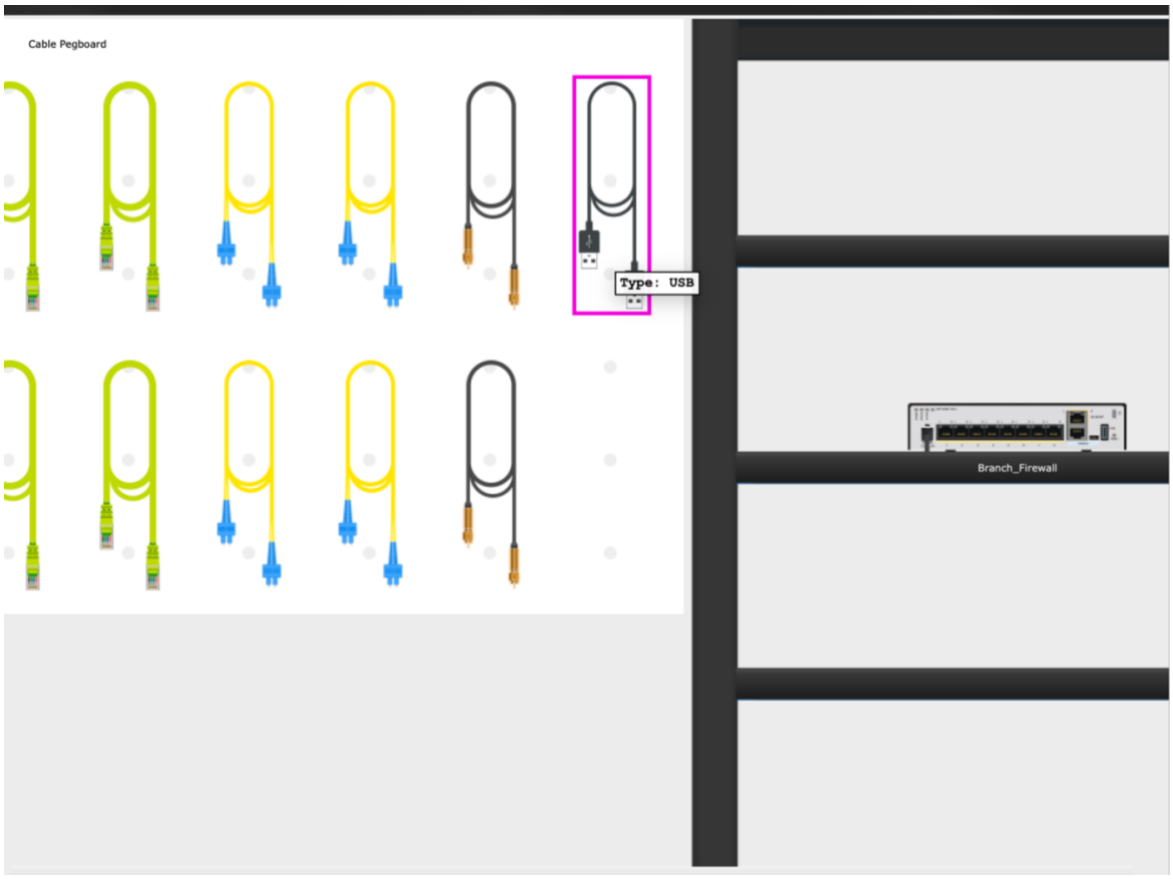


3) Installing a backup router

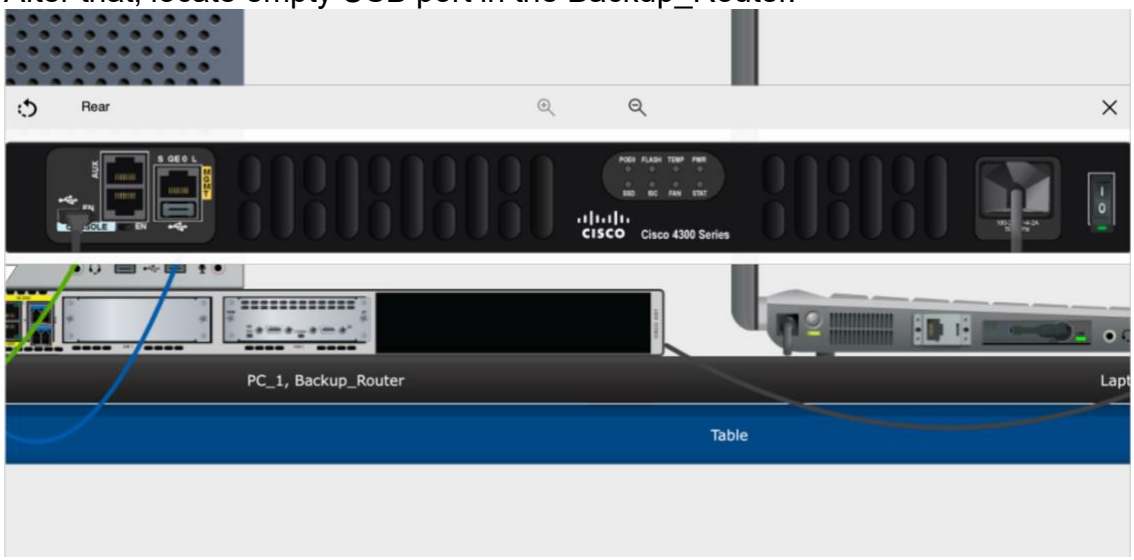
Newer models of networking devices can be accessed for management configuration through a USB port. This is necessary because newer laptops and PCs typically do not include an RS232 port for console cable connections.

We need to install and power up a new router in the Rack and connect this device via USB console with a USB cable.

First, pick USB cable in black from the cable pegboard.

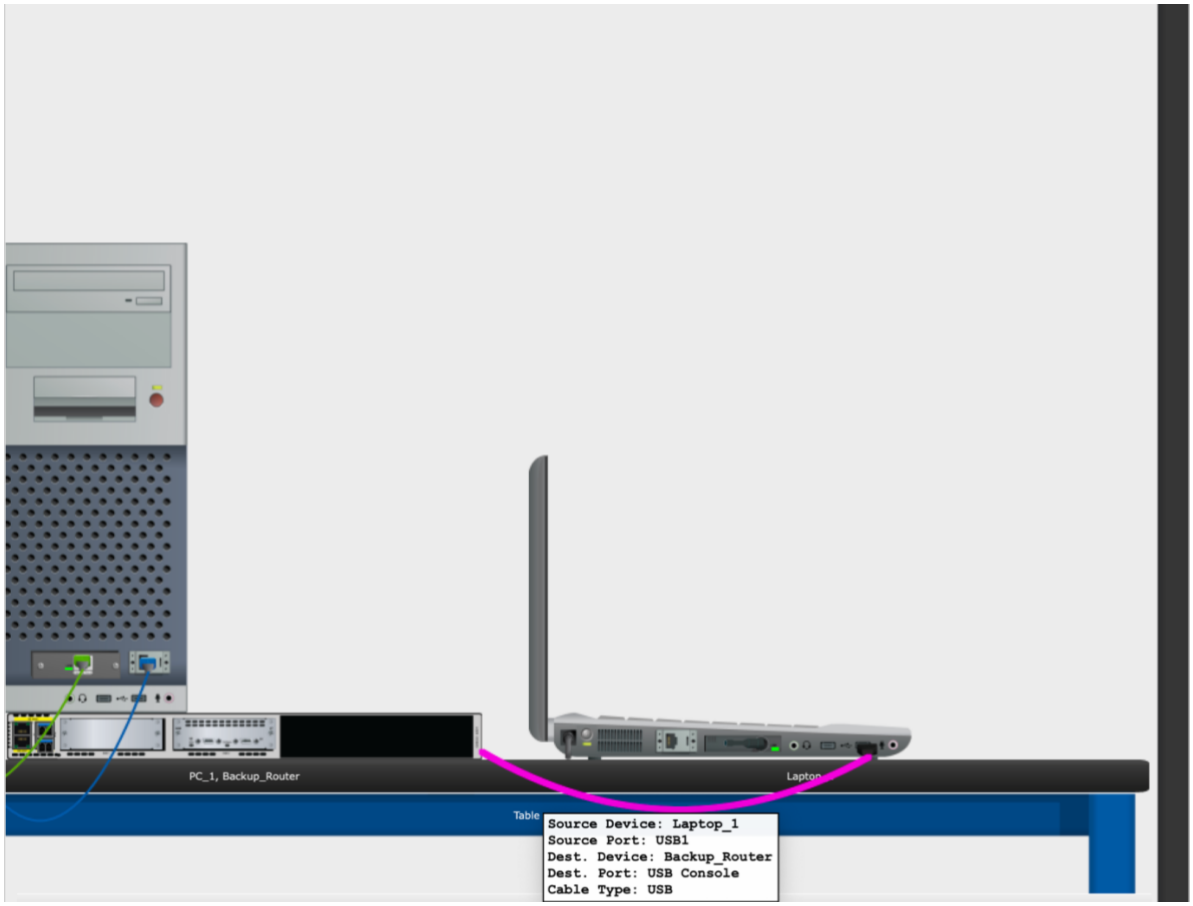


After that, locate empty USB port in the Backup_Router.



Then, connect the other end of the cable to an empty USB port on the Laptop and switch on the laptop till it has ‘green light’ which means the laptop is working.

Finally, (neon pink-highlighted line) this is how it looks like when devices are connected.



4) Configuring a Hostname

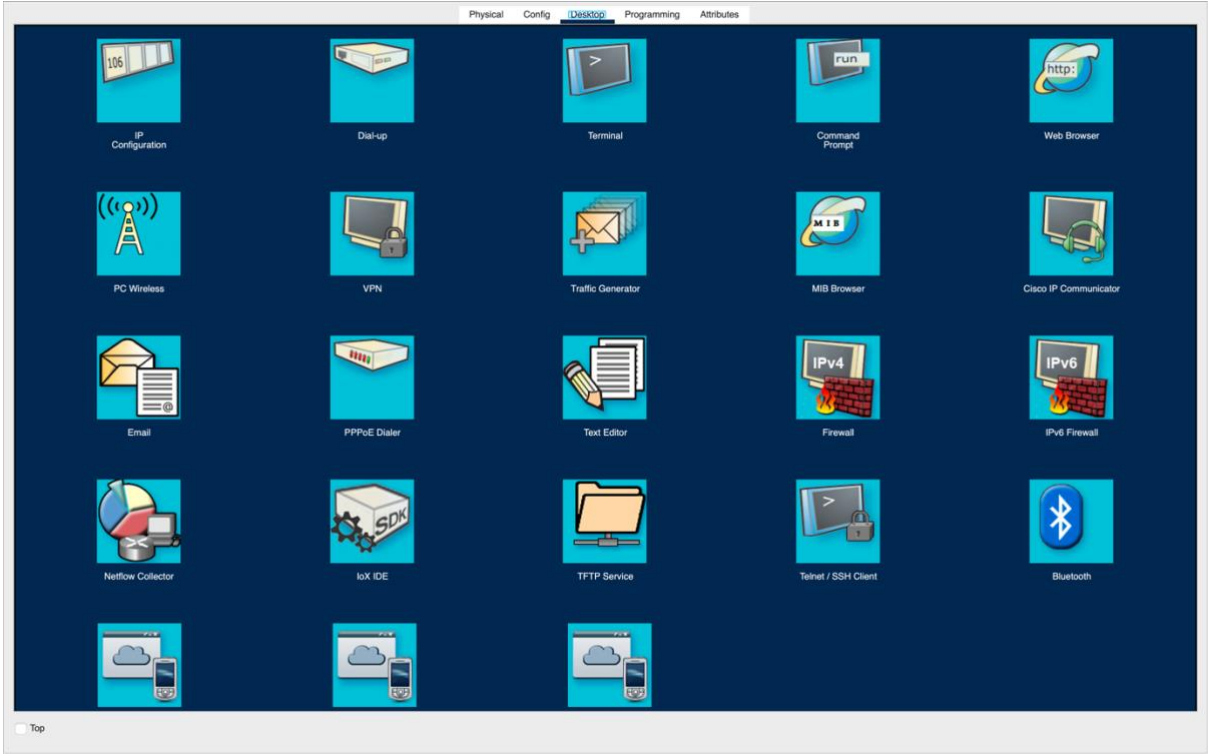
After connecting Laptop_1 to Backup_Router via a USB console cable. With the USB console connected, we will have the access to the command line interface (CLI) of Backup_Router via terminal software and configure a hostname.

Every computer including network devices such as routers and switches requires an operating system to function. The operating system allows the device hardware to function and provides an interface for users to interact.

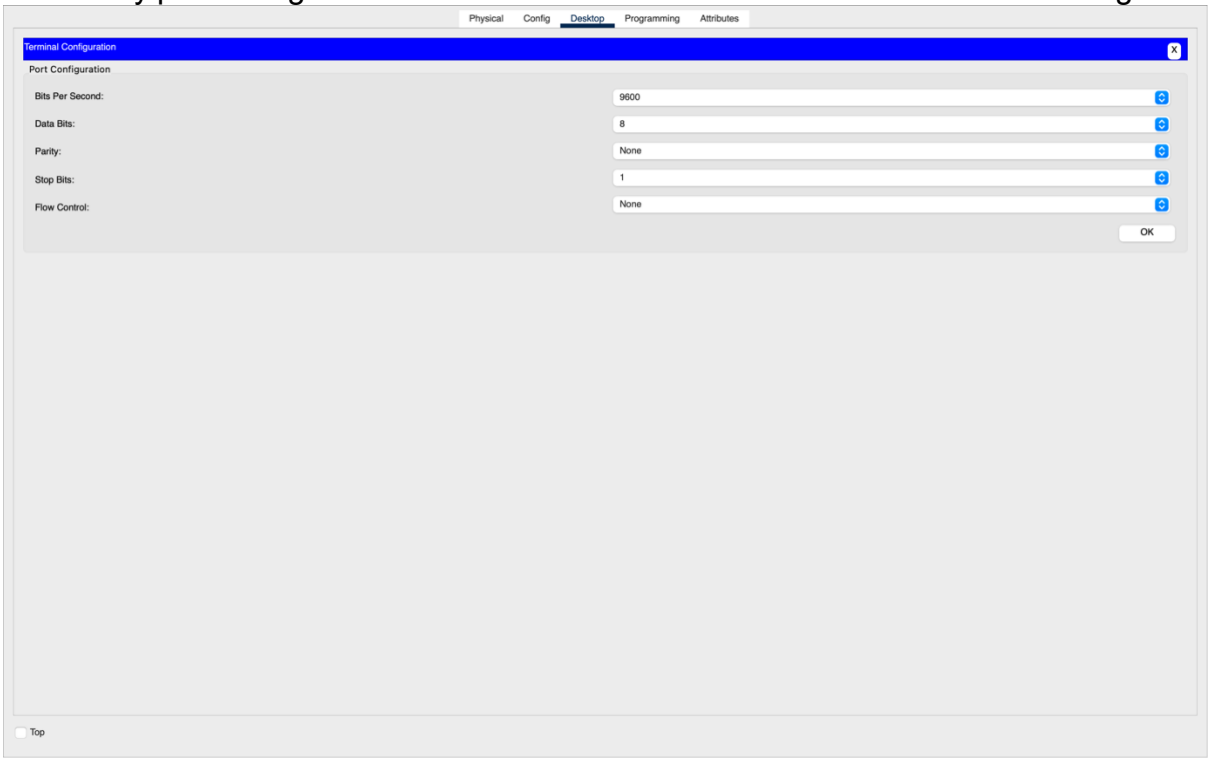
For this task, Cisco Internetwork Operating System (IOS) is an operating system in Cisco networking devices, enabling network administrators to create of modify configurations. The CLI can be accessed locally via the console port or remotely via SSH to manage the device's settings.

First, click on the Laptop_1.

Another window shows up, click on the ‘desktop’ tab above and look for ‘terminal’



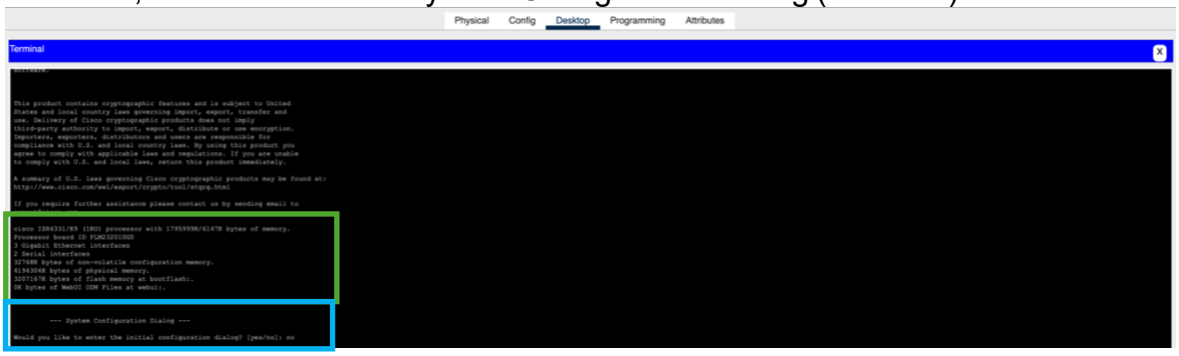
When you click on the ‘desktop’ tab, the terminal has already been set with the necessary port configuration and this task should be used with the default settings.



When you're in the CLI for Backup_Router, we should see the following output from the router (green box):

```
[output omitted]
cisco ISR4331/K9 (1RU) processor with 1795999K/6147K bytes of memory.
Processor board ID FLM232010G0
3 Gigabit Ethernet interfaces
2 Serial interfaces
32768K bytes of non-volatile configuration memory.
4194304K bytes of physical memory.
3207167K bytes of flash memory at bootflash:.
0K bytes of WebUI ODM Files at webui:.
```

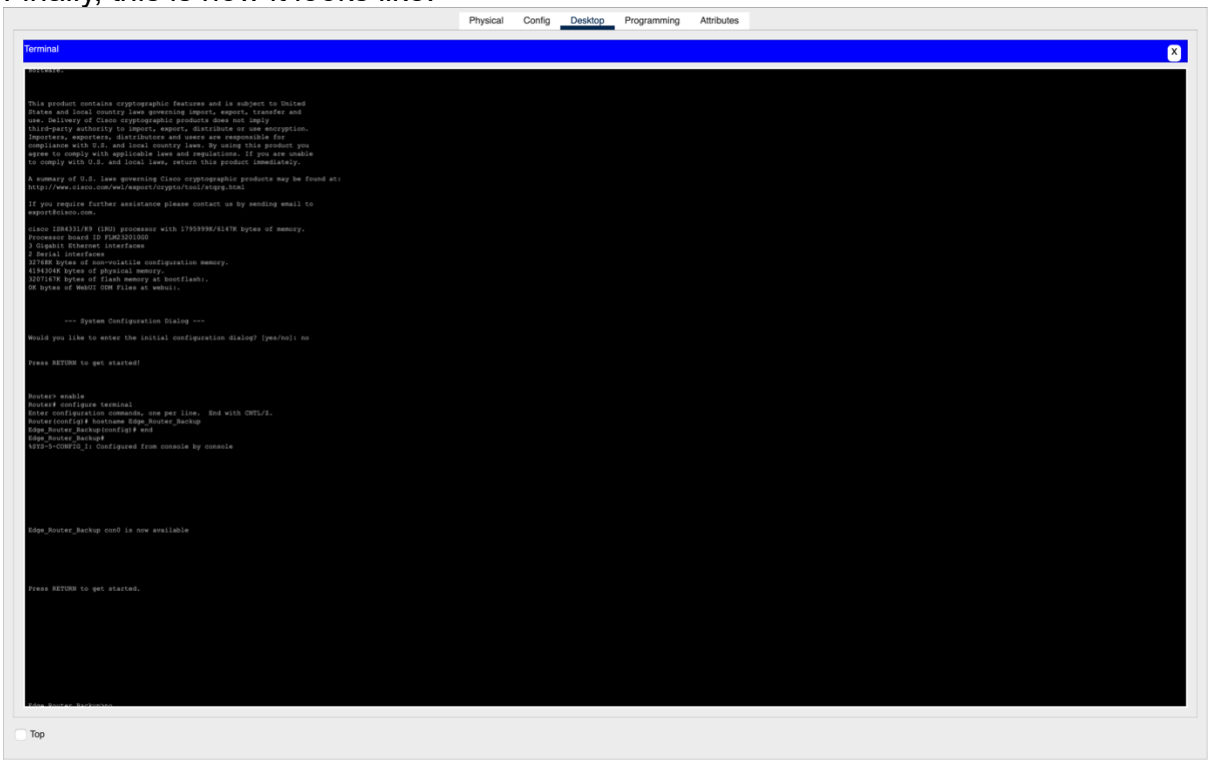
And then, answer no to the 'System Configuration Dialog'(blue box):



Then, type this out to the command-line:

```
Router> enable
Router# configure terminal
Router(config)# hostname Edge_Router_Backup
Edge_Router_Backup(config)# end
```

Finally, this is how it looks like.



Personal note:

Console cable (typically RS232 for older setups or USB for modern setups) is not considered to connect to the internet. It is basically used for device management and configuration, not for direct internet connectivity. It is only essential for configuring the devices that manage network communications while connecting the internet using copper straight-through cable is considered as one of the primary ways to connect a PC/laptop to the internet when connected to a router or switch in a network.

We can connect to the device's CLI without using console cable. For example, using SSH on a personal laptop to securely connect to a remote device's CLI over a network. SSH is the preferred method for accessing its CLI from a personal laptop, as it allows for remote management without needing a physical connection via a console cable. While a console cable is useful, it is not typically used for everyday management on personal laptops. But using a console cable is ideal where physical security is preferred and can be as out-of-band management.