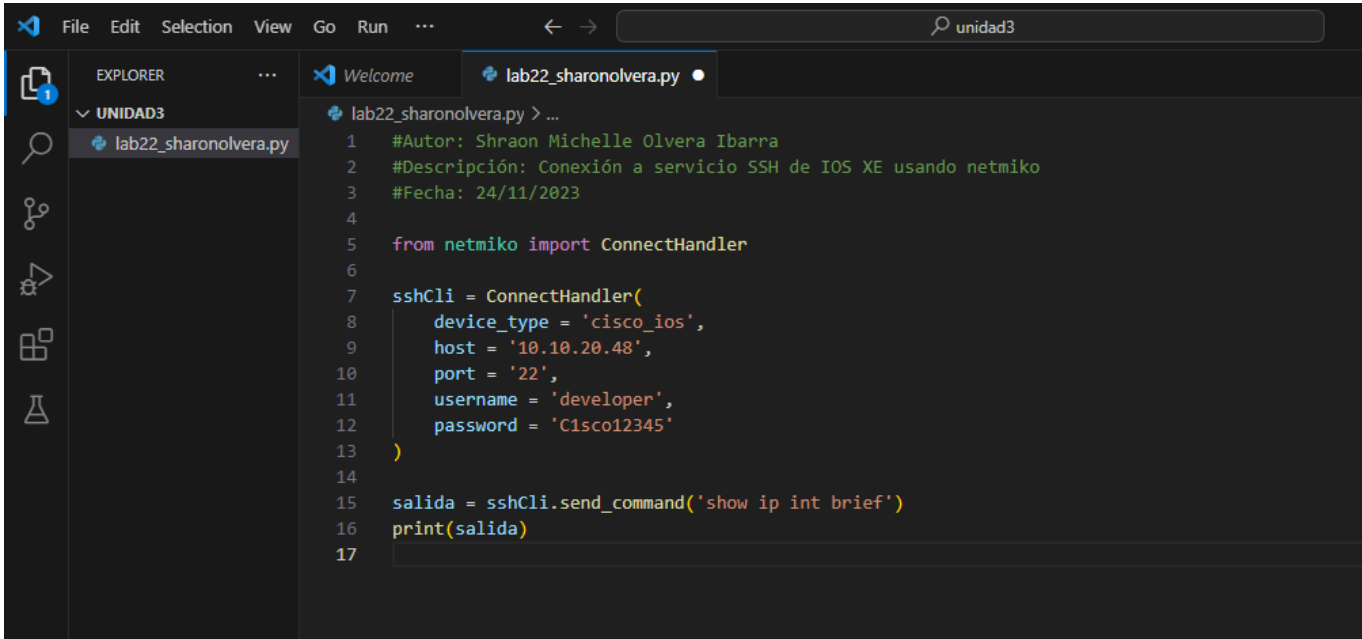


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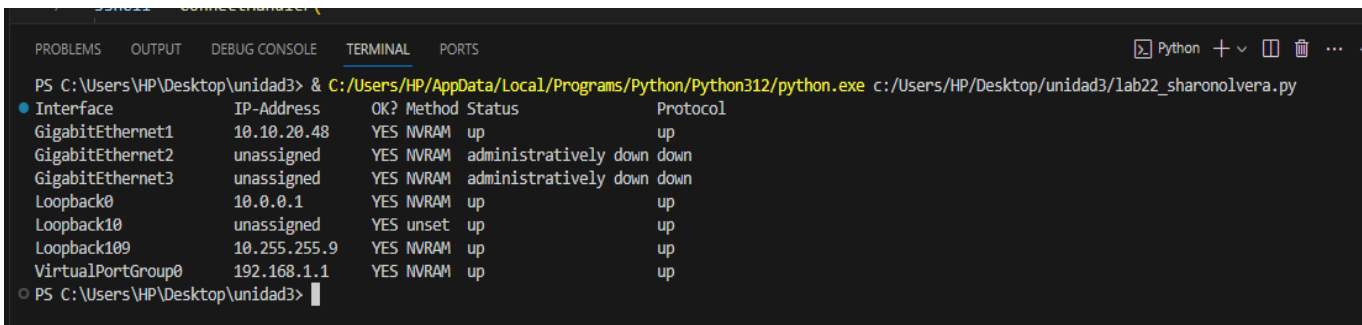
Lab 2.2- CLI Automation with Python using netmiko

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The screenshot shows the Visual Studio Code editor with a file named `lab22_sharonolvera.py` open. The Explorer sidebar on the left shows the file structure under a folder named `UNIDAD3`. The code in the editor is as follows:

```
1 #Autor: Shraon Michelle Olvera Ibarra
2 #Descripción: Conexión a servicio SSH de IOS XE usando netmiko
3 #Fecha: 24/11/2023
4
5 from netmiko import ConnectHandler
6
7 sshCli = ConnectHandler(
8     device_type = 'cisco_ios',
9     host = '10.10.20.48',
10    port = '22',
11    username = 'developer',
12    password = 'Cisco12345'
13 )
14
15 salida = sshCli.send_command('show ip int brief')
16 print(salida)
17
```



The screenshot shows the terminal window of Visual Studio Code. The command prompt is `PS C:\Users\HP\Desktop\unidad3>`. The command executed is `C:\Users\HP\AppData\Local\Programs\Python\Python312\python.exe c:\Users\HP\Desktop\unidad3\lab22_sharonolvera.py`. The output is a table showing the status of network interfaces:

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet1	10.10.20.48	YES	NVRAM	up	up
GigabitEthernet2	unassigned	YES	NVRAM	administratively down	down
GigabitEthernet3	unassigned	YES	NVRAM	administratively down	down
Loopback0	10.0.0.1	YES	NVRAM	up	up
Loopback10	unassigned	YES	unset	up	up
Loopback109	10.255.255.9	YES	NVRAM	up	up
VirtualPortGroup0	192.168.1.1	YES	NVRAM	up	up

The terminal prompt is now `PS C:\Users\HP\Desktop\unidad3>`.

The top screenshot shows a VS Code editor with a file named `lab22_sharonolvera.py`. The code is a Python script using the `netmiko` library to connect to a Cisco IOS device. The code includes a date comment, imports `ConnectHandler`, and defines `device_params` with `device_type: 'cisco_ios'`, `host: '10.10.20.48'`, and `port: '22'`.

The bottom screenshot shows the same VS Code editor with the `TERMINAL` tab active. It displays the command prompt output of running the script. The output shows the configuration of a Cisco switch named `cat8000v`, including interface `loopback 1` with IP address `2.2.2.2` and description `WHATEVER`. A table is displayed showing the status of various interfaces:

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet1	10.10.20.48	YES	NVRAM	up	up
GigabitEthernet2	unassigned	YES	NVRAM	administratively down	down
GigabitEthernet3	unassigned	YES	NVRAM	administratively down	down
Loopback0	10.0.0.1	YES	NVRAM	up	up
Loopback1	2.2.2.2	YES	manual	up	up
Loopback10	unassigned	YES	unset	up	up
Loopback109	10.255.255.9	YES	NVRAM	up	up
VirtualPortGroup0	192.168.1.1	YES	NVRAM	up	up

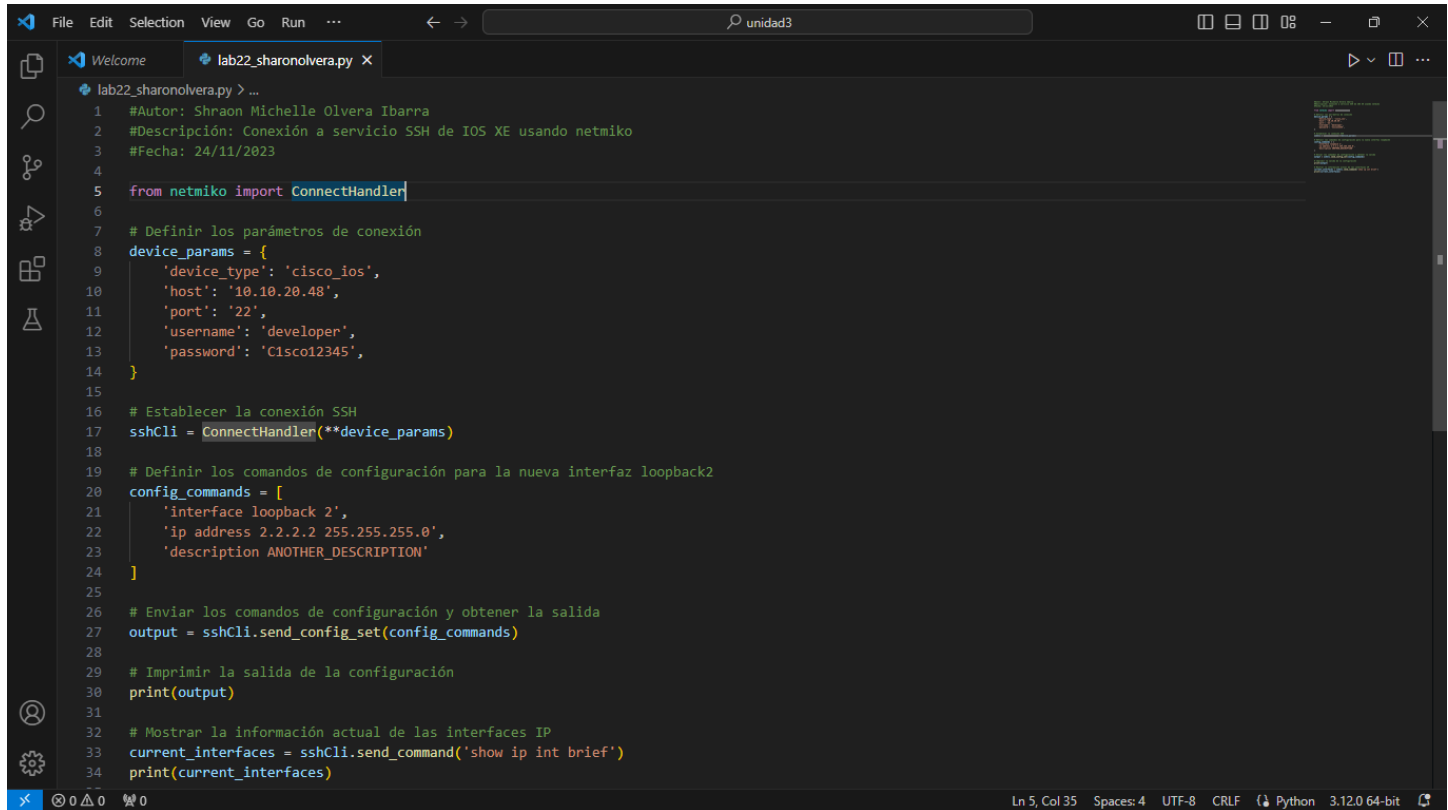
Execute the Python script file and verify the results

Why does the output from “show ip int brief” not include the “loopback1” interface?

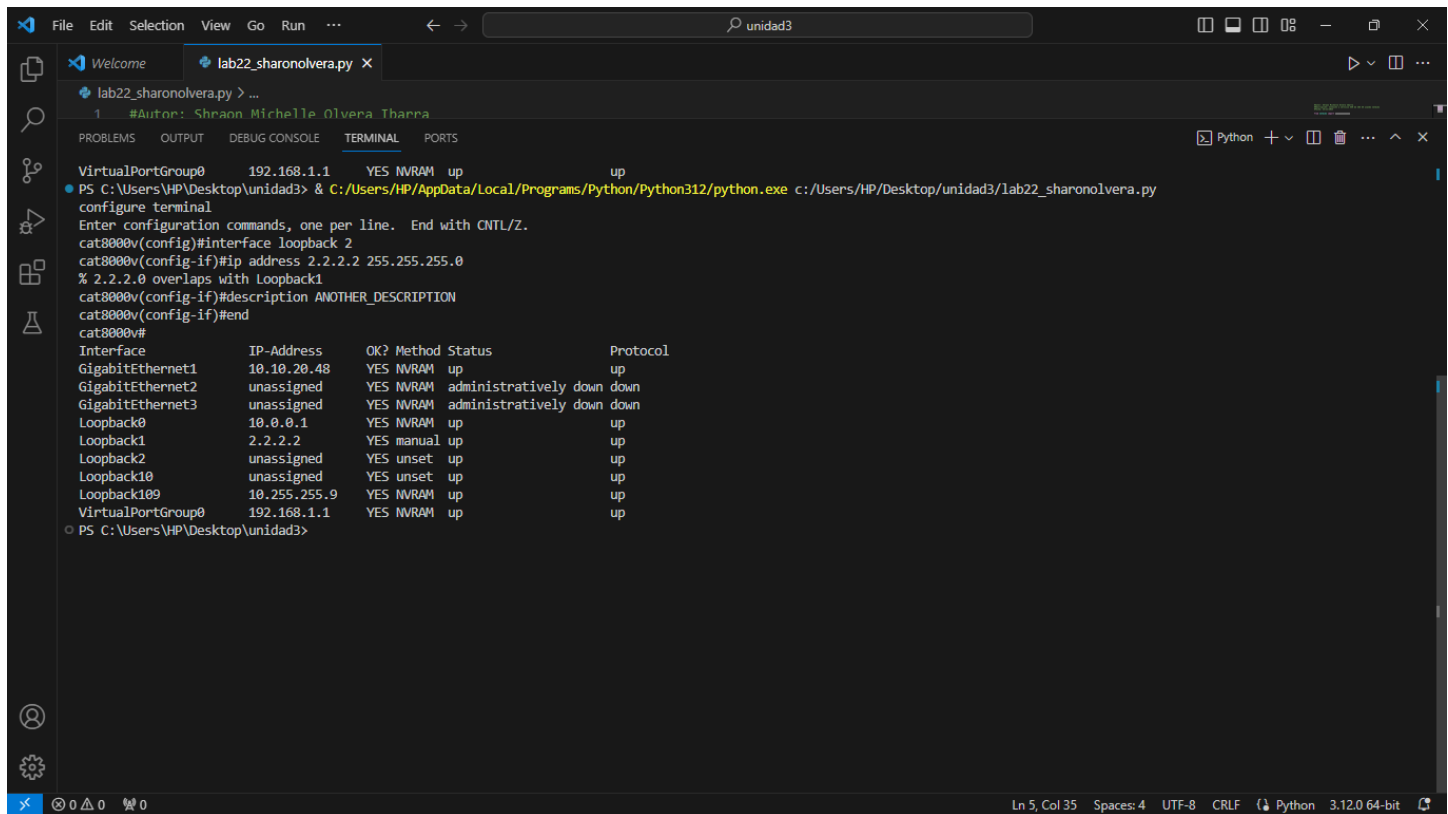
La salida de "show ip int brief" puede no incluir la interfaz "loopback1" por que la interfaz loopback1 no se ha creado correctamente debido a errores en los comandos de configuración.

How to execute and display the output from the “show ip int brief” command after the loopback interfaces was created?

Para ejecutar el script y mostrar la salida del comando "show ip int brief" después de que se creen las interfaces loopback, hay que guardar el código y ejecútalo desde la línea de comandos o terminal configurar_loopback.py



```
1 #Autor: Shraon Michelle Olvera Ibarra
2 #Descripción: Conexión a servicio SSH de IOS XE usando netmiko
3 #Fecha: 24/11/2023
4
5 from netmiko import ConnectHandler
6
7 # Definir los parámetros de conexión
8 device_params = {
9     'device_type': 'cisco_ios',
10    'host': '10.10.20.48',
11    'port': '22',
12    'username': 'developer',
13    'password': 'Cisco12345',
14 }
15
16 # Establecer la conexión SSH
17 sshCli = ConnectHandler(**device_params)
18
19 # Definir los comandos de configuración para la nueva interfaz loopback2
20 config_commands = [
21     'interface loopback 2',
22     'ip address 2.2.2.2 255.255.255.0',
23     'description ANOTHER_DESCRIPTION'
24 ]
25
26 # Enviar los comandos de configuración y obtener la salida
27 output = sshCli.send_config_set(config_commands)
28
29 # Imprimir la salida de la configuración
30 print(output)
31
32 # Mostrar la información actual de las interfaces IP
33 current_interfaces = sshCli.send_command('show ip int brief')
34 print(current_interfaces)
```



```
PS C:\Users\HP\Desktop\unidad3> & C:\Users\HP\AppData\Local\Programs\Python\Python312\python.exe c:\Users\HP\Desktop\unidad3\lab22_sharonolvera.py
configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
cat8000v(config)#interface loopback 2
cat8000v(config-if)#ip address 2.2.2.2 255.255.255.0
% 2.2.2.0 overlaps with Loopback1
cat8000v(config-if)#description ANOTHER_DESCRIPTION
cat8000v(config-if)#end
cat8000v#
Interface IP-Address OK? Method Status Protocol
GigabitEthernet1 10.10.20.48 YES NVRAM up up
GigabitEthernet2 unassigned YES NVRAM administratively down down
GigabitEthernet3 unassigned YES NVRAM administratively down down
Loopback0 10.0.0.1 YES NVRAM up up
Loopback1 2.2.2.2 YES manual up up
Loopback2 unassigned YES unset up up
Loopback10 unassigned YES unset up up
Loopback109 10.255.255.9 YES NVRAM up up
VirtualPortGroup0 192.168.1.1 YES NVRAM up up
PS C:\Users\HP\Desktop\unidad3>
```

Execute the Python script file and verify the results.

Was the new loopback2 interface successfully created?

No, la interfaz loopback2 no se creó con éxito debido a un conflicto de direcciones IP. La salida indica que hay un problema con la configuración de la dirección IP, específicamente el solapamiento con

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Loopback1. La dirección IP 2.2.2.2 ya está asignada a Loopback1, por lo que no se puede asignar a Loopback2 sin corregir este conflicto.

Was the new configuration change accepted, partially accepted or rejected?

La nueva configuración fue parcialmente aceptada. Se puede observar que la interfaz Loopback2 está presente en la salida del comando "show ip int brief", pero su dirección IP es "unassigned" debido al conflicto de solapamiento con Loopback1. La descripción de Loopback2 se desarrolló correctamente, pero la dirección IP no se asignó correctamente debido al conflicto.