

Lab 2.8– NETCONF w/Python: Device Configuration

```
lab28_sharonolvera.py X lab27_sharonolvera.py
lab28_sharonolvera.py > ...
1 #Autor: Sharon Michelle Olvera Ibarra
2 #Descripción: Configuración NETCONF con Python: Configuración del dispositivo
3 #Fecha: 05/12/2023
4
5 from ncclient import manager
6
7 m = manager.connect(
8     host = "10.10.20.48",
9     port = 830,
10    username = "developer",
11    password = "C1sco12345",
12    hostkey_verify = False
13 )
14
15 netconf_reply = m.get_config(source="running")
16 print(netconf_reply)
17
```

```

<protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-pol-types:STATIC</protocol><address-family xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-types:IPv6</address-family></config></table></tables><protocols><protocol><identifier xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-pol-types:STATIC</identifier><name>DEFAULT</name></config><identifier xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-pol-types:STATIC</identifier><name>DEFAULT</name></config><static-routes><static<prefix>0.0.0.0/0</prefix></config><prefix>0.0.0.0/0</prefix></config><next-hops><next-hop><index>GigabitEthernet1_10.10.20.254</index></config><index>GigabitEthernet1_10.10.20.254</index><next-hop>10.10.20.254</next-hop><metric>1</metric></config></interface-ref></config></interface>GigabitEthernet1</interface></config></interface-ref></next-hop></next-hops></static></static-routes></protocol></protocols></network-instance></network-instances></data></rpc-reply>

```

The screenshot shows the SonarQube web interface. The left pane displays the XML code for 'openconfig-net.yang'. The right pane shows the 'Salida' (Output) view, which is a JSON representation of the XML. The JSON structure includes 'xmlns', 'message-id', 'base', 'datos', 'app-hosting-cfg-data', 'Aplicaciones', and 'aplicación'.

```

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2  #Descripción: Configuración NETCONF con Python: Configuración del dispositivo
3  #Fecha: 05/12/2023
4
5  from ncclient import manager
6  import xml.dom.minidom
7
8  m = manager.connect(
9      host = "10.10.20.48",
10     port = 830,
11     username = "developer",
12     password = "Cisco12345",
13     hostkey_verify = False
14 )
15
16 netconf_filter = """
17 <filter>
18     <native xmlns="http://cisco.com/ns/yang/Cisco-IOS-XE-native" />
19 </filter>
20 """
21
22 netconf_reply = m.get_config(source="running", filter=netconf_filter)
23 print(xml.dom.minidom.parseString(netconf_reply.xml).toprettyxml())
24
PS C:\Users\HP\Desktop\unidad3> & C:/Users/HP/AppData/Local/Programs/Python/Python312/python.exe c:/Users/HP/Desktop/unidad3/lab28_sharonolvera.py
Traceback (most recent call last):
  File "c:/Users/HP/Desktop/unidad3/lab28_sharonolvera.py", line 22, in <module>
    netconf_reply = m.get_config(source="running", filter=netconf_filter)
                    ~~~~~^~~~~~
  File "C:\Users\HP\AppData\Local\Programs\Python\Python312\Lib\site-packages\ncclient\manager.py", line 257, in execute
    return cls(self._session,
               ~~~~~^~~~~~
  File "C:\Users\HP\AppData\Local\Programs\Python\Python312\Lib\site-packages\ncclient\operations\retrieve.py", line 166, in request
    return self._request(node)
           ~~~~~^~~~~~
  File "C:\Users\HP\AppData\Local\Programs\Python\Python312\Lib\site-packages\ncclient\operations\rpc.py", line 375, in _request
    raise self._reply.error
ncclient.operations.rpc.RPCError: {'type': 'protocol', 'tag': 'unknown-element', 'app_tag': None, 'severity': 'error', 'info': '<?xml version="1.0" encoding="
UTF-8"?><error-info xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0"><bad-element>filter</bad-element>\n<er
ror-info>\n', 'path': '\n /rpc/get-config\n ', 'message': None}
PS C:\Users\HP\Desktop\unidad3>

```

El script genera un error, puede ser a causa de que el servicio esta dado de baja.

PARTE 2

```
lab28_2_olverasharon.py > ...
1  #Autor: Sharon Michelle Olvera Ibarra
2  #Descripción: Configuración NETCONF con Python: Configuración del dispositivo
3  #Fecha: 05/12/2023
4
5  from ncclient import manager
6  import xml.dom.minidom
7
8  m = manager.connect(
9      host = "10.10.20.48",
10     port = 830,
11     username = "developer",
12     password = "C1sco12345",
13     hostkey_verify = False
14 )
15
16 netconf_data = """
17 <config>
18     <native xmlns="http://cisco.com/ns/yang/Cisco-IOS-XE-native">
19         <hostname>NEWHOSTNAME</hostname>
20     </native>
21 </config>
22 """
23 netconf_reply = m.edit_config(target="running", config=netconf_data)
24 print(xml.dom.minidom.parseString(netconf_reply.xml).toprettyxml())
25
```

```
10.10.20.48 - PuTTY
| Password:
| End of keyboard-interactive prompts from server

Welcome to the DevNet Sandbox for Cat8000V and IOS XE

The following programmability features are already enabled:

-NETCONF
-RESTCONF

Thanks for stopping by.

cat8000v#sh ip int brief
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
cat8000v#
```

```
)  
  
netconf_data = """  
<config>  
  <native xmlns="http://cisco.com/ns/yang/Cisco-IOS-XE-native">  
    <interface>  
      <Loopback>  
        <name>100</name>  
        <description>TEST1</description>  
        <ip>  
          <address>  
            <primary>  
              <address>100.100.100.100</address>  
              <mask>255.255.255.0</mask>  
            </primary>  
          </address>  
        </ip>  
      </Loopback>  
    </interface>  
  </native>  
</config>  
"""  
  
netconf_reply = m.edit_config(target="running", config=netconf_data)  
print(xml.dom.minidom.parseString(netconf_reply.xml).toprettyxml())
```

```
from ncclient import manager
import xml.dom.minidom

m = manager.connect(
    host = "10.10.20.48",
    port = 830,
    username = "developer",
    password = "Cisco12345",
    hostkey_verify = False
)

netconf_data = """
<config>
  <native xmlns="http://cisco.com/ns/yang/Cisco-IOS-XE-native">
    <interface>
      <Loopback>
        <name>111</name>
        <description>TEST1</description>
        <ip>
          <address>
            <primary>
              <address>100.100.100.100</address>
              <mask>255.255.255.0</mask>
            </primary>
          </address>
        </ip>
      </Loopback>
    </interface>
  </native>
</config>
"""

netconf_reply = m.edit_config(target="running", config=netconf_data)
print(xml.dom.minidom.parseString(netconf_reply.xml).toprettyxml())
```