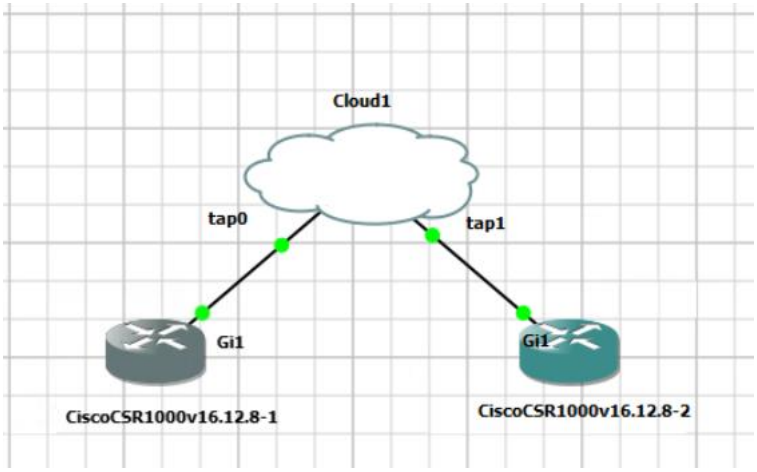
Enable the Netconf on the Router

Build the Network Topology in GNS3 as per below



DHCP will allocate the IP address to the Router

```
Router#show ip int brief
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet1       172.20.0.98     YES DHCP   up                    up
GigabitEthernet2       unassigned      YES unset  down                  down
GigabitEthernet3       unassigned      YES unset  down                  down
GigabitEthernet4       unassigned      YES unset  down                  down
```

Go to Config Mode:

Conf t
user admin privilege 15 secret cisco123
aaa new-model
aaa authentication login default local
aaa authorization exec default local
Netconf-yang

```
Router(config)#user admin privilege 15 secret cisco123
Router(config)#aaa new-m
Router(config)#aaa new-model
Router(config)#aaa auth
Router(config)#aaa authen
Router(config)#aaa authentication logi
Router(config)#aaa authentication login def
Router(config)#aaa authentication login default loc
Router(config)#aaa authentication login default local
Router(config)#aaa authrori
Router(config)#aaa authroriza
Router(config)#aaa authori
Router(config)#aaa authorization ex
Router(config)#aaa authorization exec def
Router(config)#aaa authorization exec default lo
Router(config)#aaa authorization exec default local
Router(config)#net
Router(config)#netco
Router(config)#netconf-y
Router(config)#netconf-yang
```

Show platform software yang-management process

```
Router#show platform software yang-management process
confd            : Running
nesd             : Running
syncfd           : Running
ncsshd           : Running
dmiauthd         : Running
nginx            : Running
ndbmand          : Running
pubd             : Running
```

Go to Command prompt and check the yang connectivity

Ssh admin@IP -p 830 –s netconf -- connect via cmd prompt

```
C:\Users\Administrator>ssh admin@172.20.0.67 -p 830 -s netconf
The authenticity of host '[172.20.0.67]:830 ([172.20.0.67]:830)' can't be established.
RSA key fingerprint is SHA256:M5YPzH3dtKfwDIH5FL1YID1c+uuFEyGdaMWxvxAManE.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '[172.20.0.67]:830' (RSA) to the list of known hosts.
admin@172.20.0.67's password:
Permission denied, please try again.
admin@172.20.0.67's password:
<?xml version="1.0" encoding="UTF-8"?>
<hello xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">
<capabilities>
<capability>urn:ietf:params:netconf:base:1.0</capability>
<capability>urn:ietf:params:netconf:base:1.1</capability>
<capability>urn:ietf:params:netconf:capability:writable-running:1.0</capability>
<capability>urn:ietf:params:netconf:capability:xpath:1.0</capability>
<capability>urn:ietf:params:netconf:capability:validate:1.0</capability>
<capability>urn:ietf:params:netconf:capability:validate:1.1</capability>
<capability>urn:ietf:params:netconf:capability:rollback-on-error:1.0</capability>
<capability>urn:ietf:params:netconf:capability:notification:1.0</capability>
<capability>urn:ietf:params:netconf:capability:interleave:1.0</capability>
<capability>urn:ietf:params:netconf:capability:with-defaults:1.0?basic-mode=explicit&amp;also-supported=
d</capability>
<capability>urn:ietf:params:netconf:capability:yang-library:1.0?revision=2016-06-21&amp;module-set-id=b1
50b51197785edf</capability>
<capability>http://tail-f.com/ns/netconf/actions/1.0</capability>
```

Start a NETCONF session by sending a hello message from the client.

Copy and paste the following XML code into the SSH session. Notice that the end of the client hello message is identified with a **]]>]]>**.

```
<hello xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">
 <capabilities>
   <capability>urn:ietf:params:netconf:base:1.0</capability>
 </capabilities>
</hello>
]]>]]>
```

```
<session-id>48</session-id></hello>]]>]]><hello xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">
<capabilities>
 <capability>urn:ietf:params:netconf:base:1.0</capability>
</capabilities>
</hello>
]]>]]>
```

show netconf-yang sessions

```
Router#show netconf-yang sessions
R: Global-lock on running datastore
C: Global-lock on candidate datastore
S: Global-lock on startup datastore

Number of sessions : 1

session-id  transport    username             source-host          global-lock

-------------------------------------------------------------------------------
48          netconf-ssh  admin                172.20.0.43          None
```

Close the NETCONF session

To close the NETCONF session, the client needs to send the following RPC message:

```
<rpc message-id="9999999"
xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">
 <close-session />
</rpc>
```

Return to the router prompt and show the open netconf sessions. You will see that the session has been closed.

```
<session-id>57</session-id></hello>]]>]]><rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="1">
  <close-session/>
</rpc>
```

```
Router#show netconf-yang sessions
There are no active sessions
```

Get the interface IP address details:

```
<rpc message-id="101" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">
  <get>
    <filter>
      <interfaces xmlns="urn:ietf:params:xml:ns:yang:ietf-interfaces">
        <interface>
          <name>GigabitEthernet2</name>
          <ipv4 xmlns="urn:ietf:params:xml:ns:yang:ietf-ip">
            <address/>
          </ipv4>
        </interface>
      </interfaces>
    </filter>
  </get>
</rpc>
<?xml version="1.0" encoding="UTF-8"?>
<rpc-reply xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"><data><interfaces xmlns="urn:ietf:params:xml
:ns:yang:ietf-interfaces"><interface><name>GigabitEthernet2</name><ipv4 xmlns="urn:ietf:params:xml:ns:yang:ietf-ip"><add
ress><ip>13.0.0.1</ip><netmask>255.255.255.0</netmask></address></ipv4></interface></interfaces></data></rpc-reply>]]>]]
>
```

Get the router hostname

```
]]>]]>
<rpc xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="1">
  <get-config>
     <source>
        <running/>
     </source>
     <filter type="subtree">
            <native xmlns="http://cisco.com/ns/yang/Cisco-IOS-XE-native">
            <hostname/>
            </native>
     </filter>
  </get-config>
</rpc>
<?xml version="1.0" encoding="UTF-8"?>
<rpc-reply xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="1"><data><native xmlns="http://cisco.com/ns/yang
Cisco-IOS-XE-native"><hostname>R1</hostname></native></data></rpc-reply>]]>]]>
```

Change the router hostname

```
<?xml version="1.0" ?>
    <rpc message-id="101"
         xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">
      <edit-config>
        <target>
          <running/>
        </target>
        <config>
          <native xmlns="http://cisco.com/ns/yang/Cisco-IOS-XE-native">
            <hostname>Router</hostname>
          </native>
        </config>
      </edit-config>
    </rpc>

<?xml version="1.0" encoding="UTF-8"?>
<rpc-reply xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"><ok/></rpc-reply>]]>]]>
```

Change the interface status to down

```
<rpc message-id="101" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">
  <edit-config>
    <target>
      <running/>
    </target>
    <config>
      <interfaces xmlns="urn:ietf:params:xml:ns:yang:ietf-interfaces">
        <interface>
          <name>GigabitEthernet2</name>
          <enabled>false</enabled>
        </interface>
      </interfaces>
    </config>
  </edit-config>
</rpc>
<?xml version="1.0" encoding="UTF-8"?>
<rpc-reply xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"><ok/></rpc-reply>]]>]]>
```

Create the Loopback interface

```
<rpc message-id="101" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">
  <edit-config>
    <target>
      <running/>
    </target>
    <config>
      <native xmlns="http://cisco.com/ns/yang/Cisco-IOS-XE-native">
        <interface>
         <Loopback>
          <name>4</name>
          <ip>
           <address>
            <primary>
             <address>14.1.1.1</address>
             <mask>255.255.255.0</mask>
            </primary>
           </address>
          </ip>
         </Loopback>
        </interface>
      </native>
    </config>
  </edit-config>
</rpc>

<?xml version="1.0" encoding="UTF-8"?>
<rpc-reply xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="101"><ok/></rpc-reply>]]>]]>
```

Delete the Loopback interface

```
<rpc message-id="101" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">
  <edit-config>
    <target>
      <running/>
    </target>
    <config>
      <native xmlns="http://cisco.com/ns/yang/Cisco-IOS-XE-native">
        <interface>
         <Loopback operation='delete'>
          <name>4</name>
         </Loopback>
        </interface>
      </native>
    </config>
  </edit-config>
</rpc>
```