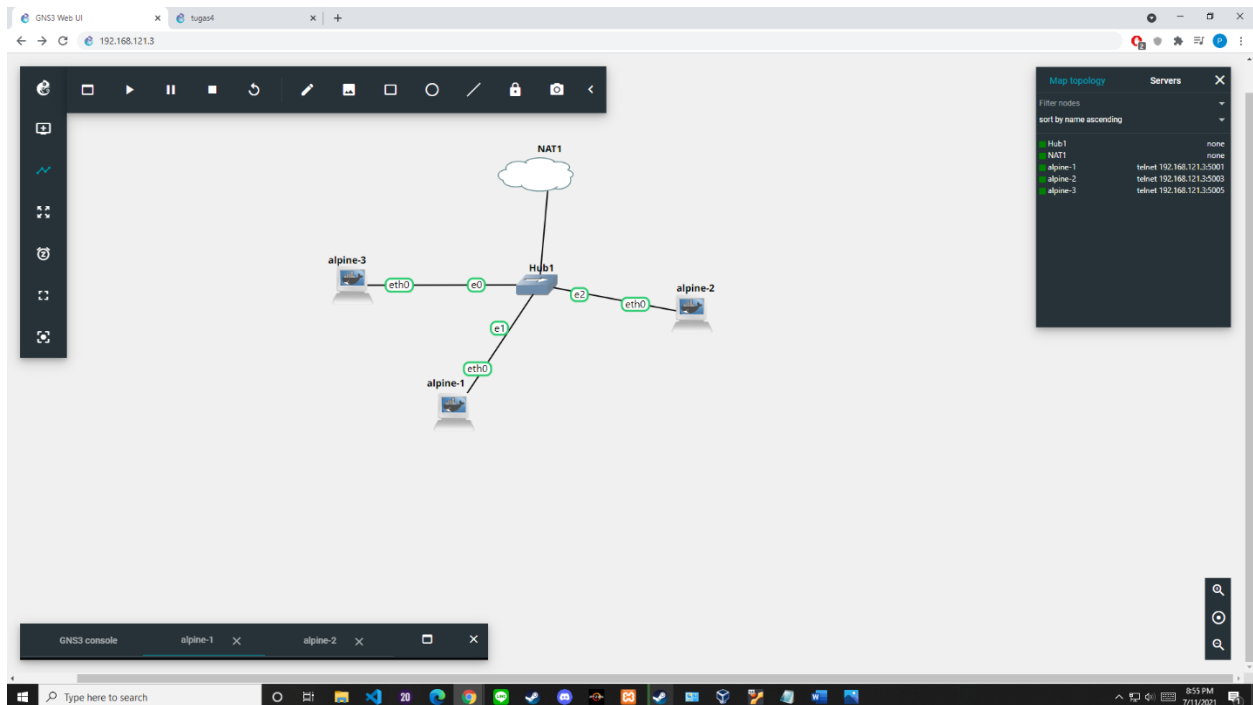


## JAWABAN

1. Topologi yang akan digunakan adalah topologi pada gambar dibawah ini



alpine-1 akan berperan sebagai server, alpine-2 sebagai client, dan alpine-3 tidak dipakai. Pada alpine-1, konfigurasi file bernama file\_server.py dengan mengubah ip address menjadi ip address dari alpine-1. Kemudian, jalankan file\_server.py.

```
GNS3 console  alpine-1  alpine-2  -  X
GNU nano 4.6  file_server.py
self.my_socket.bind(self.ipinfo)
self.my_socket.listen(1)
while True:
    self.connection, self.client_address = self.my_socket.accept()
    logging.warning(f"connection from {self.client_address}")

    clt = ProcessTheClient(self.connection, self.client_address)
    clt.start()
    self.the_clients.append(clt)

def main():
    svr = Server(ipaddress='192.168.122.192',port=6666)
    svr.start()

if __name__ == "__main__":
    main()
[]
```

```
GNS3 console    alpine-1  X    alpine-2  X    -    X

alpine-1 console is now available... Press RETURN to get started.
udhcpd (v1.24.2) started
Sending discover...
Sending discover...
Sending discover...
Sending discover...
Sending select for 192.168.122.192...
Sending select for 192.168.122.192...
Sending select for 192.168.122.192...
Sending select for 192.168.122.192...
Sending select for 192.168.122.192...
udhcpd failed to get a DHCP lease
No lease, forking to background
ok
/ # cd /home/work/Pemrograman_Jaringan_D/progjar4a
/home/work/Pemrograman_Jaringan_D/progjar4a # nano file_server.py
/home/work/Pemrograman_Jaringan_D/progjar4a # nano file_server.py
/home/work/Pemrograman_Jaringan_D/progjar4a # python3 fileserver.py
python3: can't open file 'filesver.py': [Errno 2] No such file or directory
/home/work/Pemrograman_Jaringan_D/progjar4a # python3 file_server.py
WARNING:root:server berjalan di ip address ('192.168.122.192', 6666)
```

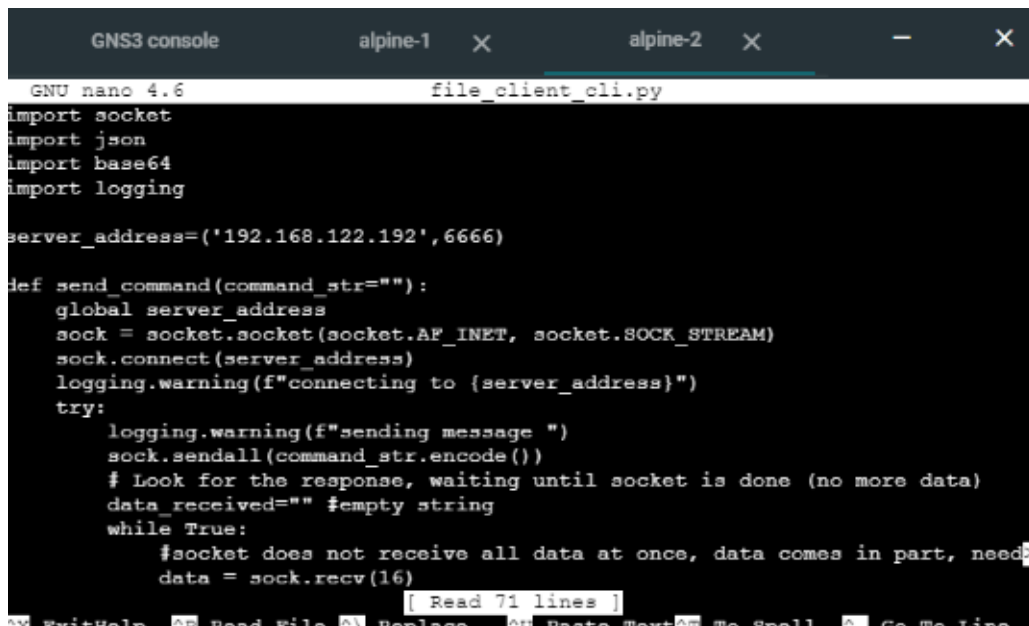
2. Buat file baru yang akan digunakan untuk melakukan 100 request get dalam satu saat untuk operasi get file "pokijan.jpg". File multi\_process.py yang ada di directory progjar3 saya gunakan untuk menjalankan hal tersebut. Disini lakukan modifikasi pada file multi\_preece.py tersebut dengan import remote\_get dari file\_client\_cli.py, lalu ubah iterasi menjadi 100 dan tambahkan variabel nama file pokijan.jpg. Kemudian ubah file\_client\_cli.py pada bagian ip address nya dan arahkan ke ip address dari alpine-1.

```
GNS3 console    alpine-1  X    alpine-2  X    -    X

GNU nano 4.6    multi_process.py
from file_client_cli import remote_get
import time
import datetime
from multiprocessing import Process

def downloads():
    texec = dict()
    catat_awal = datetime.datetime.now()
    filename = 'pokijan.jpg'
    for k in range(100):
        print(f"download iteration - {k}")
        waktu = time.time()
        texec[k] = Process(target=remote_get, args=(filename,))
        texec[k].start()
    for k in range(100):
        texec[k].join()
    catat_akhir = datetime.datetime.now()
    selesai = catat_akhir - catat_awal
    print(f"TIME NEEDED {selesai} seconds {catat_awal} - {catat_akhir}")

[ Read 22 lines ]
^X ExitHelp  ^R Read File  ^W Replace  ^U Paste Text  ^T To Spell  ^_ Go To Line
```



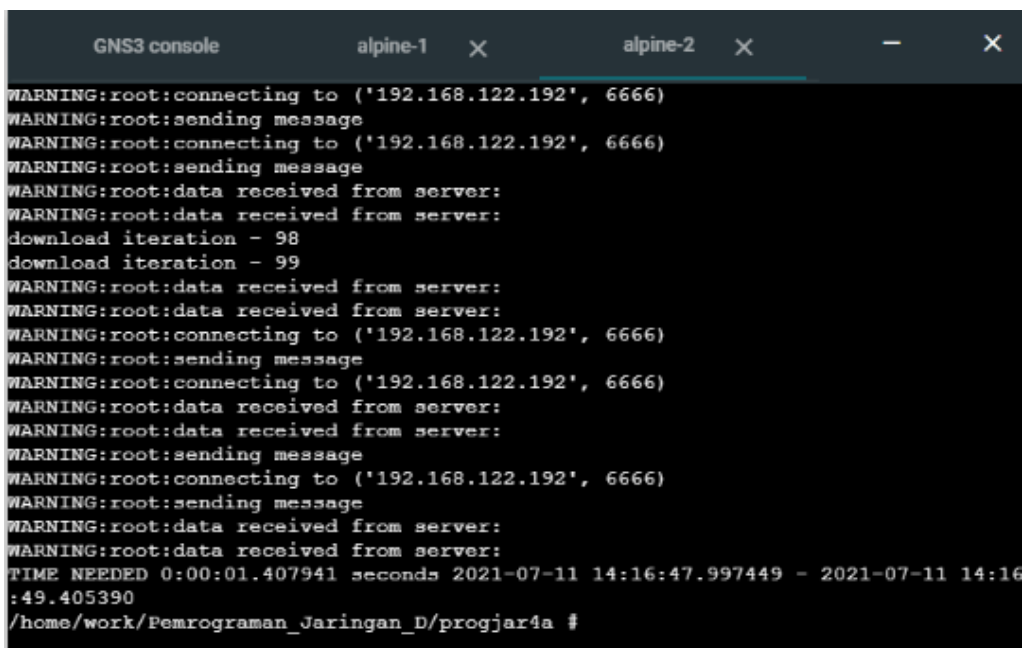
The screenshot shows a GNS3 console window with two tabs: 'alpine-1' and 'alpine-2'. The 'alpine-2' tab is active, displaying a nano editor window for the file 'file\_client\_cli.py'. The script is written in Python and includes imports for socket, json, base64, and logging. It defines a 'send\_command' function that connects to a server at '192.168.122.192' on port 6666 and sends a command. The script is currently at line 71, which is highlighted.

```
GNU nano 4.6 file_client_cli.py
import socket
import json
import base64
import logging

server_address=('192.168.122.192',6666)

def send_command(command_str=""):
    global server_address
    sock = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
    sock.connect(server_address)
    logging.warning(f"connecting to {server_address}")
    try:
        logging.warning(f"sending message ")
        sock.sendall(command_str.encode())
        # Look for the response, waiting until socket is done (no more data)
        data_received="" #empty string
        while True:
            #socket does not receive all data at once, data comes in part, need
            data = sock.recv(16)
```

Ketika file multi\_process.py dijalankan pada alpine-2, maka hasilnya akan seperti pada gambar dibawah ini.



The screenshot shows the same GNS3 console window, but now the 'alpine-2' tab displays the output of the multi\_process.py script. The output shows a series of warnings for connecting and sending messages, followed by data received from the server. It also shows the download iteration count (98 and 99) and the time needed for the process (0:00:01.407941 seconds). The prompt at the bottom indicates the user is in the directory /home/work/Pemrograman\_Jaringan\_D/progjar4a.

```
WARNING:root:connecting to ('192.168.122.192', 6666)
WARNING:root:sending message
WARNING:root:connecting to ('192.168.122.192', 6666)
WARNING:root:sending message
WARNING:root:data received from server:
WARNING:root:data received from server:
download iteration - 98
download iteration - 99
WARNING:root:data received from server:
WARNING:root:data received from server:
WARNING:root:connecting to ('192.168.122.192', 6666)
WARNING:root:sending message
WARNING:root:connecting to ('192.168.122.192', 6666)
WARNING:root:data received from server:
WARNING:root:data received from server:
WARNING:root:sending message
WARNING:root:connecting to ('192.168.122.192', 6666)
WARNING:root:sending message
WARNING:root:data received from server:
WARNING:root:data received from server:
TIME NEEDED 0:00:01.407941 seconds 2021-07-11 14:16:47.997449 - 2021-07-11 14:16:49.405390
/home/work/Pemrograman_Jaringan_D/progjar4a #
```

Kemudian, akan muncul message seperti gambar dibawah pada alpine-1.

```
GNS3 console      alpine-1  X      alpine-2  X      -      X
WARNING:root:connection from ('192.168.122.187', 46154)
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:connection from ('192.168.122.187', 46156)
WARNING:root:connection from ('192.168.122.187', 46158)
WARNING:root:connection from ('192.168.122.187', 46160)
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
```