

TUGAS 4
PEMROGRAMAN JARINGAN - E



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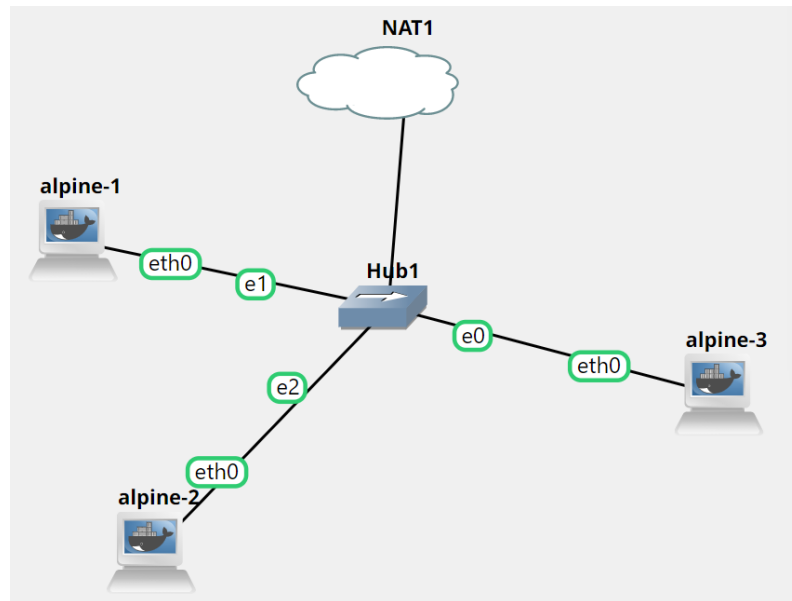
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Semua tugas berikut ini HARUS dijalankan di SIMULATOR

1. Jalankan program server seperti dalam pembahasan
2. Buatlah program client yang dapat melakukan 100 request get pada dalam satu saat untuk operasi get file "pokijan.jpg"
3. Capture dan submitlah poin 1 dan 2 dalam satu dokumen pdf. berikan DESKRIPSI dan PENJELASAN

Gambar arsitektur jaringan:



Penyelesaian:

1. Periksa *ip address* dari alpine-1 sebagai server dengan mengetikkan *command ifconfig*. Hal ini dilakukan karena alpine-1 akan menjadi server serta melihat port yang digunakan sebagai penghubung antara *client* dan server.

```
tugas-4 x alpine-1 x alpine-2
< > Not secure | 192.168.56.102/static/web-ui/server/1/project/c1705488-b87b-4ca6-89fb-cd
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 192.168.122.12...
Sending select for 192.168.122.12...
Sending select for 192.168.122.12...
Sending select for 192.168.122.12...
Sending select for 192.168.122.12...
udhcpd failed to get a DHCP lease
No lease, forking to background
ok
/ # ifconfig
eth0      Link encap:Ethernet  HWaddr 26:6E:7B:96:6D:85
          inet addr:192.168.122.12  Bcast:192.168.122.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:572 errors:0 dropped:0 overruns:0 frame:0
          TX packets:14 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:44566 (43.5 KiB)  TX bytes:3984 (3.8 KiB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

/ # cd home
/home # ls
```

2. Lakukan perubahan `ipaddress` di `file_server.py` berdasarkan hasil *ip address* yang ditemukan sebelumnya.

```
GNU nano 4.6 file_server.py Modified
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='192.168.122.12',port=6666)
    svr.start()

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

^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos
^X Exit ^R Read File ^\ Replace ^U Paste Text ^T To Spell ^_ Go To Line

Ketika dijalankan akan ditemukan *ip address* dan *port* yang menginformasikan server sudah berjalan.

```
/home/Pemrograman_Jaringan_E/progjar4a/ans # python3 file_server.py
WARNING:root:server berjalan di ip address ('192.168.122.12', 6666)
```

3. Lakukan perubahan `server address` di `file_client_cli.py` berdasarkan hasil *ip address* yang ditemukan sebelumnya.

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

server_address=('192.168.122.12',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)
```

^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos
^X Exit ^R Read File ^\ Replace ^U Paste Text ^T To Spell ^_ Go To Line

4. Lakukan multi process dengan membuat fungsi baru. Dalam hal ini fungsi akan diletakkan pada file yang berbeda dan diletakkan pada multiprocessing.py.

```
1 from file_client_cli import remote_get
2 import time
3 import datetime
4 from multiprocessing import Process
5
6 def req100():
7     texec = dict()
8     catat_awal = datetime.datetime.now()
9     filename = 'pokijan.jpg'
10    for k in range(100):
11        print(f"file - {k}")
12        waktu = time.time()
13        texec[k] = Process(target=remote_get, args=(filename,))
14        texec[k].start()
15    for k in range(100):
16        texec[k].join()
17    catat_akhir = datetime.datetime.now()
18    selesai = catat_akhir - catat_awal
19    print(f"Waktu TOTAL yang dibutuhkan {selesai} detik {catat_awal} s/d {catat_akhir}")
20
21 if __name__ == '__main__':
22     req100()
```

Hal yang dilakukan adalah fungsi req100 akan mengambil variabel filename sebagai *file* yang dimaksudkan lalu akan dimasukkan pada perulangan sebanyak 100 kali pokijan.jpg untuk pemanggilan fungsi remote_get dan diberikan *debugging* print untuk melihat iterasi.

```
filename = 'pokijan.jpg'
for k in range(100):
    print(f"file - {k}")
```

Dengan multiprocessing diambil sebanyak 100 kali pada Process(target=remote_get, args=(filename,))

```
texec[k] = Process(target=remote_get, args=(filename,))
```

Pada file_client_cli.py akan dilakukan pemanggilan fungsi remote_get berdasarkan argumen filename melalui multi process.

5. *Run* `multiprocess.py` pada `alpine-2` sebagai *client* dan menghasilkan pemanggilan `remote_get` sebanyak 100 kali `pokijan.jpg` dan *run* `file_server.py` pada `alpine-1` sebagai server.
 - `alpine-2` (*client*)

```
tugas-4 x alpine-1 x alpine-2 x
```

```
< → ↻ ⚠ Not secure | 192.168.56.102/static/web-ui/server/1/project/c1705488-b87b-4ca6-89fb-c6765c7b  
/home/Pemrograman_Jaringan_E/progjar4a/ans # python3 multiprocessing.py  
file - 0  
file - 1  
file - 2  
file - 3  
file - 4  
file - 5  
file - 6  
file - 7  
WARNING:root:connecting to ('192.168.122.12', 6666)  
WARNING:root:sending message  
WARNING:root:connecting to ('192.168.122.12', 6666)  
WARNING:root:sending message  
WARNING:root:connecting to ('192.168.122.12', 6666)  
WARNING:root:sending message  
WARNING:root:connecting to ('192.168.122.12', 6666)  
WARNING:root:sending message  
WARNING:root:connecting to ('192.168.122.12', 6666)  
WARNING:root:sending message  
WARNING:root:connecting to ('192.168.122.12', 6666)  
WARNING:root:sending message  
WARNING:root:connecting to ('192.168.122.12', 6666)  
WARNING:root:sending message  
WARNING:root:data received from server:  
WARNING:root:data received from server:  
WARNING:root:data received from server:  
WARNING:root:connecting to ('192.168.122.12', 6666)  
WARNING:root:sending message  
WARNING:root:data received from server:  
file - 8  
file - 9  
file - 10  
file - 11  
file - 12
```

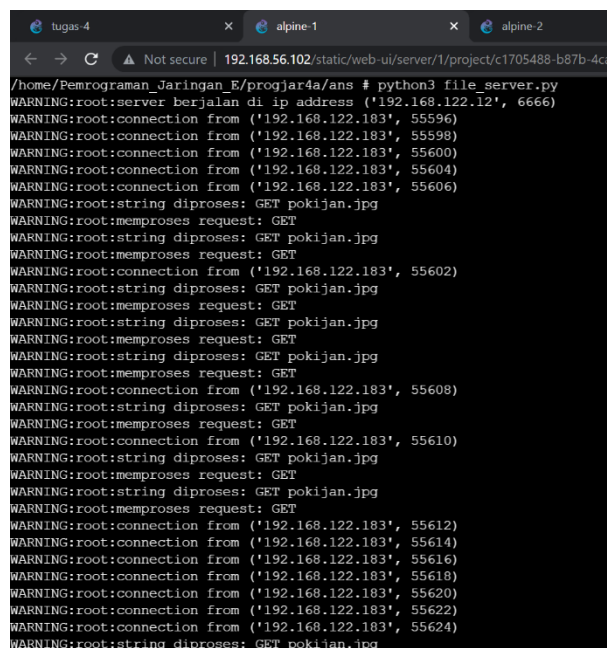
[illegible]

```

WARNING:root:sending message
WARNING:root:data received from server:
WARNING:root:data received from server:
WARNING:root:sending message
WARNING:root:sending message
WARNING:root:data received from server:
WARNING:root:data received from server:
file - 91
WARNING:root:connecting to ('192.168.122.12', 6666)
WARNING:root:connecting to ('192.168.122.12', 6666)
WARNING:root:sending message
file - 92
WARNING:root:data received from server:
file - 93
WARNING:root:sending message
file - 92
WARNING:root:data received from server:
file - 93
WARNING:root:data received from server:
WARNING:root:connecting to ('192.168.122.12', 6666)
WARNING:root:sending message
WARNING:root:data received from server:
WARNING:root:sending message
file - 94
file - 95
WARNING:root:data received from server:
WARNING:root:connecting to ('192.168.122.12', 6666)
WARNING:root:sending message
file - 96
file - 97
WARNING:root:data received from server:
WARNING:root:connecting to ('192.168.122.12', 6666)
WARNING:root:sending message
WARNING:root:data received from server:
WARNING:root:connecting to ('192.168.122.12', 6666)
WARNING:root:sending message
WARNING:root:connecting to ('192.168.122.12', 6666)
WARNING:root:sending message
WARNING:root:data received from server:
WARNING:root:connecting to ('192.168.122.12', 6666)
WARNING:root:sending message
WARNING:root:data received from server:
WARNING:root:data received from server:
WARNING:root:connecting to ('192.168.122.12', 6666)
WARNING:root:sending message
WARNING:root:data received from server:
WARNING:root:connecting to ('192.168.122.12', 6666)
WARNING:root:sending message
WARNING:root:sending message
WARNING:root:data received from server:
WARNING:root:data received from server:
WARNING:root:data received from server:
WARNING:root:data received from server:
WARNING:root:data received from server:

```

- alpine-1 (server)



```

/home/Pemrograman_Jaringan_E/progjar4a/ans # python3 file_server.py
WARNING:root:server berjalan di ip address ('192.168.122.12', 6666)
WARNING:root:connection from ('192.168.122.183', 55596)
WARNING:root:connection from ('192.168.122.183', 55598)
WARNING:root:connection from ('192.168.122.183', 55600)
WARNING:root:connection from ('192.168.122.183', 55604)
WARNING:root:connection from ('192.168.122.183', 55606)
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:memproses request: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:connection from ('192.168.122.183', 55602)
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 ('192.168.122.183', 55608)
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:connection from ('192.168.122.183', 55610)
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 ('192.168.122.183', 55612)
WARNING:root:connection from ('192.168.122.183', 55614)
WARNING:root:connection from ('192.168.122.183', 55616)
WARNING:root:connection from ('192.168.122.183', 55618)
WARNING:root:connection from ('192.168.122.183', 55620)
WARNING:root:connection from ('192.168.122.183', 55622)
WARNING:root:connection from ('192.168.122.183', 55624)
WARNING:root:string diproses: GET pokijan.jpg

```

```
tugas-4 x alpine-1 x
Not secure | 192.168.56.102/static/web-ui/server/1/project/c
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 ('192.168.122.183', 55640)
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:connection from ('192.168.122.183', 55642)
WARNING:root:connection from ('192.168.122.183', 55644)
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 ('192.168.122.183', 55646)
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 ('192.168.122.183', 55790)
WARNING:root:connection from ('192.168.122.183', 55792)
WARNING:root:connection from ('192.168.122.183', 55780)
WARNING:root:connection from ('192.168.122.183', 55794)
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
```

Tautan GitHub: [FXKevinK/Pemrograman Jaringan E at Tugas 4 \(github.com\)](https://github.com/FXKevinK/Pemrograman_Jaringan_E_at_Tugas_4)