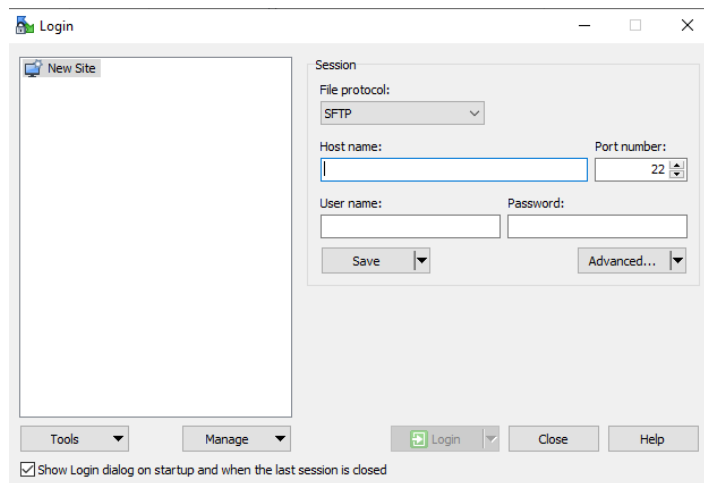


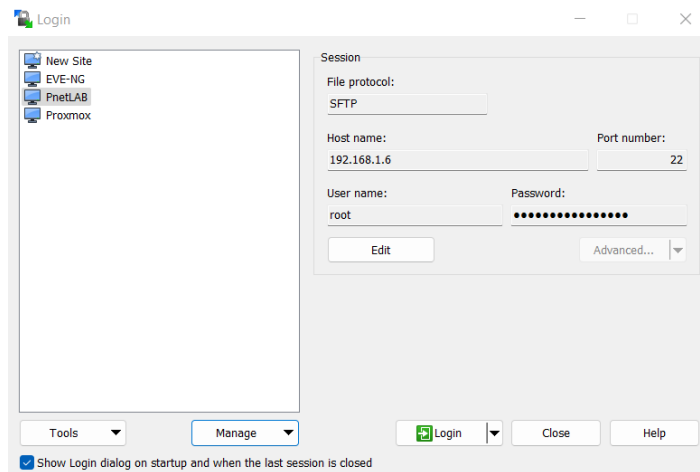
A. Menggunakan WinSCP



Gambar 7. 1 Aplikasi winSCP



Gambar 7. 2 Login WinSCP



Gambar 7. 3 Login

Cisco IOS C2691 (Dynamips)

Cisco IOS C3725 (Dynamips)

Cisco IOS C3745 (Dynamips)

Cisco IOS C7200 (Dynamips)

Gambar 7. 8 Node yang sudah ditambahkan

ADD A NEW NODE

Template

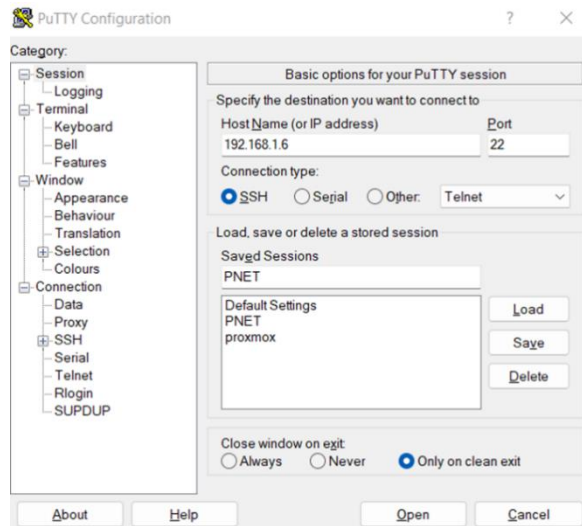
Cisco IOS C7200 (Dynamips)

Number of nodes to add

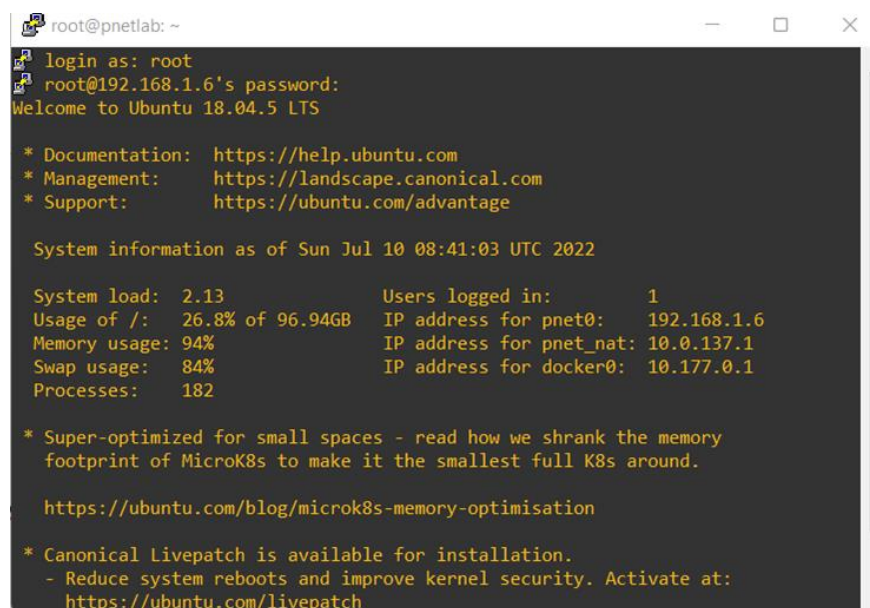
Image

Gambar 7. 9 Image node cisco ios c7200

B. Menggunakan Putty



Gambar 7. 10 Konfigurasi putty



Gambar 7. 11 Login putty

```

root@pnetlab:~# ishare search iol

```

Name	Type	Size
i86bi_linux_l2-adventerprisek9-ms.SSA.high_iron_20180510.bin	iol	120MB
i86bi_linux_l2-adventerprisek9-ms.SSA.high_iron_20190423.bin	iol	120MB
i86bi_linux_l2-advispervicesk9-ms.high_iron_20170202.bin	iol	100MB
i86bi_linux_l2-ipbasek9-ms.high_iron_aug9_2017b.bin	iol	101MB
i86bi_LinuxL2-AdvEnterpriseK9-M_152_May_2018.bin	iol	120MB
i86bi_LinuxL3-AdvEnterpriseK9-M2_157_3_May_2018.bin	iol	176MB
L2-Adventerprisek9-ms.nov3_2015_high_iron.bin	iol	108MB
i86bi_linux_l2-adventerprisek9-ms.SSA.high_iron_20180510.zip	iol	41MB
i86bi_linux_l2-adventerprisek9-ms.SSA.high_iron_20190423.zip	iol	41MB
i86bi_linux_l2-advispervicesk9-ms.high_iron_20170202.zip	iol	35MB
i86bi_linux_l2-ipbasek9-ms.high_iron_aug9_2017b.zip	iol	35MB
i86bi_Linux-L2-Adventerprisek9-ms.SSA.high_iron_20190423.zip	iol	41MB
i86bi_Linux-L3-AdvEnterpriseK9-M2_157_3_May_2018.zip	iol	61MB
i86bi_LinuxL2-AdvEnterpriseK9-M_152_May_2018.zip	iol	41MB
i86bi_LinuxL3-AdvEnterpriseK9-M2_157_3_May_2018.zip	iol	61MB
L2-Adventerprisek9-ms.nov3_2015_high_iron.zip	iol	38MB
i86_Linux-L2-Adventerprisek9-mx.SSA.high_iron_20190423	iol	200MB
i86bi_Linux-L3-AdvEnterpriseK9-M2_157_3_May_2018	iol	200MB
i86bi_linux-adventerprisek9-ms.154-1.T_AntiGNS3.bin	iol	149MB
i86bi_linux_l2-ipbasek9-ms.may8-2013-team_track.bin	iol	60MB
i86bi_linux_l2-adventerprisek9-ms.SSA.high_iron_20180510.bin	iol	120MB
i86bi_linux_l2-advispervicesk9-ms.high_iron_20170202.bin	iol	100MB
i86bi_linux_l2-ipbasek9-ms.high_iron_aug9_2017b.bin	iol	100MB
i86bi_linux-adventerprisek9-ms.156-3.M3a.bin	iol	175MB
i86bi_LinuxL2-AdvEnterpriseK9-M_152_May_2018.bin	iol	120MB
L2-ADVENTERPRISEK9-M-15.2-20150703.bin	iol	106MB
L2-ADVENTERPRISEK9-M-15.2-IRON-20151103.bin	iol	106MB
L3-ADVENTERPRISEK9-M-15.2-M5.3.bin	iol	106MB
L3-ADVENTERPRISEK9-M-15.2-S7.bin	iol	106MB
L3-ADVENTERPRISEK9-M-15.4-2T.bin	iol	106MB

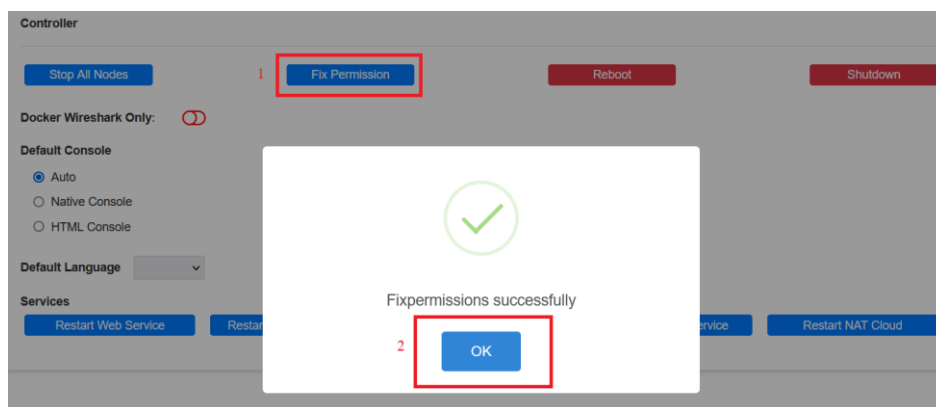
Gambar 7. 12 Kumpulan node iol

```

root@pnetlab:~# ishare pull cisco-switchl2-IOL.bin
Download: switch-l2.bin
File size: 70M
Download progress: 17 MB

```

Gambar 7. 13 Download iol

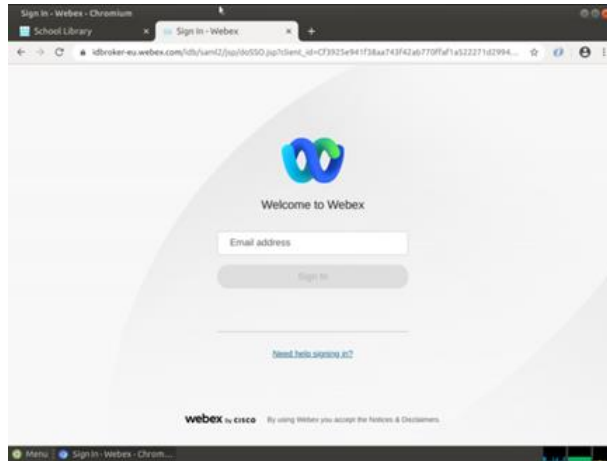


Gambar 7. 14 Permissions

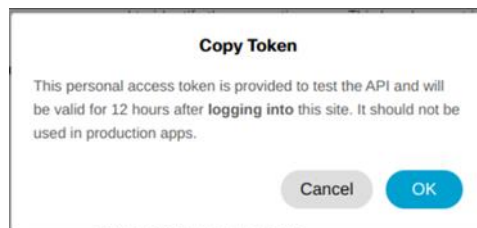


Gambar 7. 15 Add node

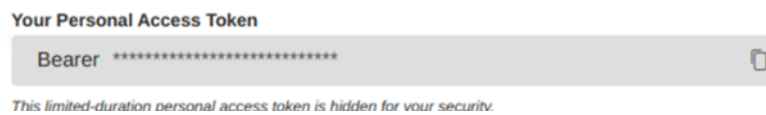
C. Pengujian modul 8.6.7 Construct a Python Script to Manage Webex Teams.



Gambar 7. 16 login webex



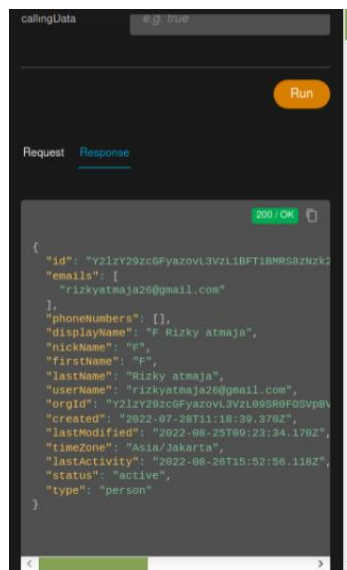
Gambar 7. 17 Masa aktif token API



Gambar 7. 18 Copy token API

Method	Description
GET https://webexapis.com/v1/people	List People
POST https://webexapis.com/v1/people	Create a Person
GET https://webexapis.com/v1/people/{personId}	Get Person Details
PUT https://webexapis.com/v1/people/{personId}	Update a Person
DELETE https://webexapis.com/v1/people/{personId}	Delete a Person
GET https://webexapis.com/v1/people/me	Get My Own Details

Gambar 7. 19 Method people



Gambar 7. 20 Tampilan setelah dirun

```

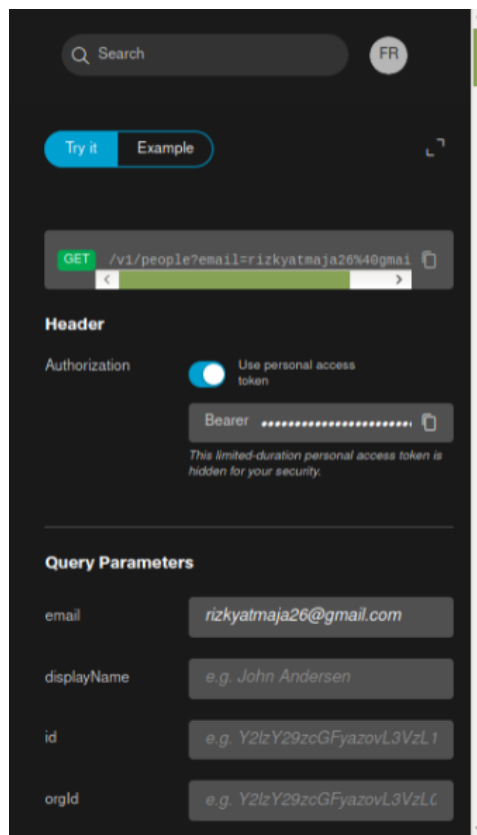
devasc@labvm:~/labs/devnet-src/webex-teams$ python3 authentication.py
{
  "id": "Y2lZV29zcGFyazovL3VzL1BFT1BMR58zNzk2Y2Y0YyYjVLLTRKODMtYTVhZC1iYjZjN2EwMzkxZTM",
  "emails": [
    "rizkyatmaja26@gmail.com"
  ],
  "phoneNumbers": [],
  "displayName": "F Rizky atmaja",
  "nickName": "F",
  "firstName": "F",
  "lastName": "Rizky atmaja",
  "userName": "rizkyatmaja26@gmail.com",
  "orgId": "Y2lZV29zcGFyazovL3VzL09SR0F0SVpBVElPTi8wNmRhYzE0MS1iZjgWLTQ2ZTAtYjE1ZS1hMTM1ZGM1YTA2OWI",
  "created": "2022-07-28T11:18:39.370Z",
  "lastModified": "2022-08-25T09:23:34.170Z",
  "timeZone": "Asia/Jakarta",
  "lastActivity": "2022-08-26T16:00:05.112Z",
  "status": "active",
  "type": "person"
}
devasc@labvm:~/labs/devnet-src/webex-teams$

```

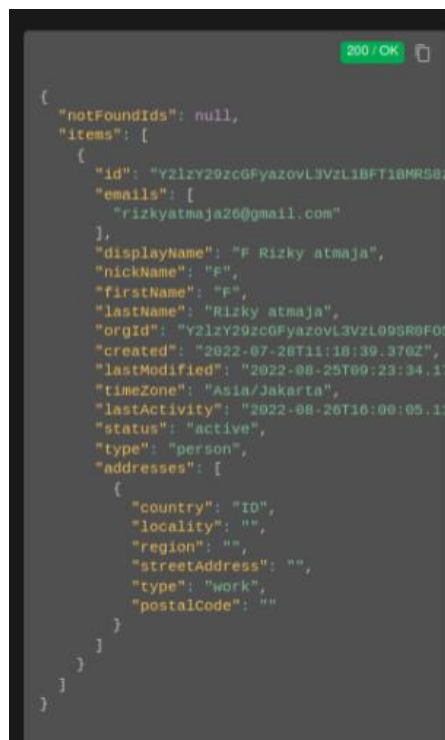
Gambar 7. 21 Hasil setelah dirun



Gambar 7. 22 Method get list people



Gambar 7. 23 Panel try it method



Gambar 7. 24 Tampilan panel setelah dirun

```
# Fill in this file with the people listing code from the Webex Teams exercise
import requests
import json
access_token = 'MTYSN2E1MjMtZjJkNS00NTFjLWI3YzUyYjdlOTJlM2IzN2YyZDUzTGwMjUtMjg2_P0A1_06dac141-bf80-46e0-b15e-a135dc5a069b'

url = 'https://webexapis.com/v1/people/me'
headers = {
    'Authorization': 'Bearer {}'.format(access_token),
    'Content-Type': 'application/json'
}
params = {
    'email': 'rizkyatmaja26@gmail.com'
}
res = requests.get(url, headers=headers, params=params)
print(json.dumps(res.json(), indent=4))
```

Gambar 7. 25 Source setelah dituliskan dalam perintah vim

```
devasc@labvm:~/labs/devnet-src/webex-teams$ python3 list-people.py
{
  "id": "Y2lzY29zcGFyazovL3VzL1BFT1BMR58zNzk2YTQ1Yy0yYjVlLTRkODMtYVhZC1lYjZjN2EwMzkxZTM",
  "emails": [
    "rizkyatmaja26@gmail.com"
  ],
  "phoneNumbers": [],
  "displayName": "F Rizky atmaja",
  "nickName": "F",
  "firstName": "F",
  "lastName": "Rizky atmaja",
  "userName": "rizkyatmaja26@gmail.com",
  "orgId": "Y2lzY29zcGFyazovL3VzL09SR0F0SVpBVElPTi8wNmRhYzE0MS1lZjgwLTQ2ZTAtYjE1ZS1hMTM1ZGM1YTA2OWI",
  "created": "2022-07-28T11:18:39.370Z",
  "lastModified": "2022-08-25T09:23:34.170Z",
  "timeZone": "Asia/Jakarta",
  "lastActivity": "2022-08-26T16:08:59.091Z",
  "status": "active",
  "type": "person"
}
devasc@labvm:~/labs/devnet-src/webex-teams$
```

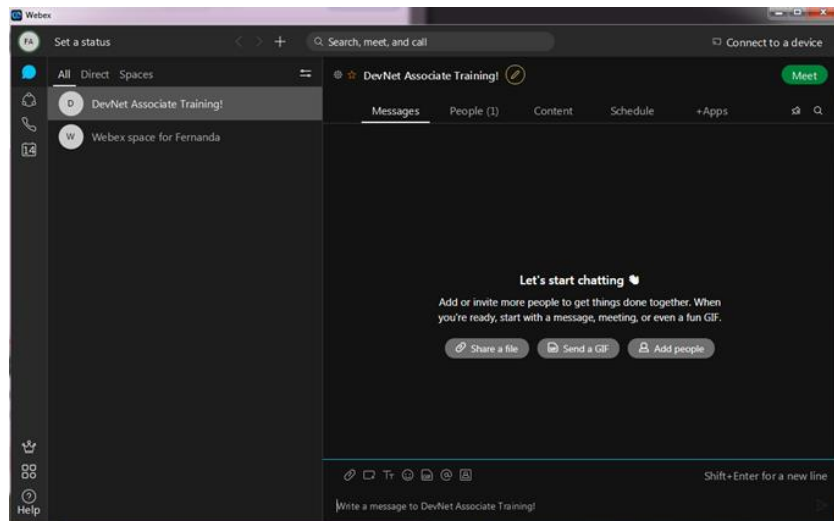
Gambar 7. 26 Output pat terminal devasc file list-people.py

```
devasc@labvm:~/labs/devnet-src/webex-teams$ python3 list-rooms.py
{'items': [{'id': 'Y2lzY29zcGFyazovL3VybjpURUFNbnVzLXdlc3Q0tMl9yL1JPT00vODA4NDFlYtAtMjU1YS0xMmVklWI4MDUtM2IzYWIwNzIxYThm', 'title': 'DevNet Associate Training!', 'type': 'group', 'isLocked': False, 'lastActivity': '2022-08-26T16:16:55.179Z', 'creatorId': 'Y2lzY29zcGFyazovL3VzL1BFT1BMR58zNzk2YTQ1Yy0yYjVlLTRkODMtYVhZC1lYjZjN2EwMzkxZTM', 'created': '2022-08-26T16:16:55.178Z', 'ownerId': 'Y2lzY29zcGFyazovL3VzL09SR0F0SVpBVElPTi8wNmRhYzE0MS1lZjgwLTQ2ZTAtYjE1ZS1hMTM1ZGM1YTA2OWI', 'isPublic': False}, {'id': 'Y2lzY29zcGFyazovL3VybjpURUFNbnVzLXdlc3Q0tMl9yL1JPT00vOTY3NGI4ZTAtMjU1Yy0xMmVklWE0YjctMTkM2ZHNzkzN2Q2', 'title': 'Webex space for F', 'type': 'group', 'isLocked': False, 'lastActivity': '2022-08-25T09:23:32.334Z', 'creatorId': 'Y2lzY29zcGFyazovL3VzL1BFT1BMR58zNzk2YTQ1Yy0yYjVlLTRkODMtYVhZC1lYjZjN2EwMzkxZTM', 'created': '2022-08-25T09:23:32.334Z', 'ownerId': 'Y2lzY29zcGFyazovL3VzL09SR0F0SVpBVElPTi8wNmRhYzE0MS1lZjgwLTQ2ZTAtYjE1ZS1hMTM1ZGM1YTA2OWI', 'isPublic': False}]}
devasc@labvm:~/labs/devnet-src/webex-teams$
```

Gambar 7. 27 Output source code list-rooms.py

```
devasc@labvm:~/labs/devnet-src/webex-teams$ python3 create-rooms.py
{'id': 'Y2lzY29zcGFyazovL3VybjpURUFNbnVzLXdlc3Q0tMl9yL1JPT00vODA4NDFlYtAtMjU1YS0xMmVklWI4MDUtM2IzYWIwNzIxYThm', 'title': 'DevNet Associate Training!', 'type': 'group', 'isLocked': False, 'lastActivity': '2022-08-26T16:16:55.179Z', 'creatorId': 'Y2lzY29zcGFyazovL3VzL1BFT1BMR58zNzk2YTQ1Yy0yYjVlLTRkODMtYVhZC1lYjZjN2EwMzkxZTM', 'created': '2022-08-26T16:16:55.178Z', 'ownerId': 'Y2lzY29zcGFyazovL3VzL09SR0F0SVpBVElPTi8wNmRhYzE0MS1lZjgwLTQ2ZTAtYjE1ZS1hMTM1ZGM1YTA2OWI'}
devasc@labvm:~/labs/devnet-src/webex-teams$
```

Gambar 7. 28 Tampilan run create-rooms.py



Gambar 7. 29 Tampilan *nama room* yang dibuat

```
# Fill in this file with the code to get room details from the Webex Teams exercise
import requests
access_token = 'MTY5N2E1MjhtZjJkNS00NTFjLWl3YzYtYjdlOTJlM2IzN2YyZDUzZTgwMjU0Mjg2_P0A1_06dac141-bf80-46e0-b15e-a135dc5a069b'
room_id = 'Y2lzY29zcGFyazovL3VybjpURUFNOnVzLXdlc3QtMl9yL1JPT00vODA4NDFlYTAtMjU1YS0xMmVvLWI4MDU0M2IzYWlWZyYThm'
url = 'https://webexapis.com/v1/rooms/{}?meetingInfo'.format(room_id)
headers = {
    'Authorization': 'Bearer {}'.format(access_token),
    'Content-Type': 'application/json'
}
res = requests.get(url, headers=headers)
print(res.json())
```

Gambar 7. 30 *Source code* setelah dimasukkan *file* dengan perintah

vim

```
devasc@labvm:~/labs/devnet-src/webex-teams$ python3 get-room-details.py
{'roomId': 'Y2lzY29zcGFyazovL3VybjpURUFNOnVzLXdlc3QtMl9yL1JPT00vODA4NDFlYTAtMjU1YS0xMmVvLWI4MDU0M2IzYWlWZyYThm', 'meetingLink': 'https://meet240.webex.com/j/60dd1dae-5de5-4f84-89f9-319d9f3a1b11', 'sipAddress': '26418241216@meet240.webex.com', 'meetingNumber': '26418241216', 'meetingId': '74724d3008b5437cbc1c0dd52bfd677a'}
devasc@labvm:~/labs/devnet-src/webex-teams$
```

Gambar 7. 31 *Output get -room-details.py*

```

devasc@labvm:~/Labs/devnet-src/webex-teams$ python3 list-memberships.py
{'items': [{'id': 'Y2lzY29zcGFyazovL3VybJpURUFN0NzVzLXdlc3Q0tMl9yL01FTUJFUlNISVAVmZc5NmE0NWMtMmI1Yi00DgzLWE1YWQ0tYmI2YzdhMDM5MmUzOjZkYTc1NmQwLTI0NmEtMTFLZC05MjNmLWlZYTl3MTEwNzIzOA', 'roomId': 'Y2lzY29zcGFyazovL3VybJpURUFN0NzVzLXdlc3Q0tMl9yL1JPT00vNmRhNzU2ZDAtMjQ2YS0xMmVvLkYmY2YtYjNhMjcMTA3MjM4', 'roomType': 'group', 'personId': 'Y2lzY29zcGFyazovL3VzL1BFT1BMRS8zNzk2YTQ1Yy0yYjVlTRk0dHtYVhZC1iYjZjN2EwMzIxZTM', 'personEmail': 'rizkyatmaja26@gmail.com', 'personDisplayName': 'F Rizky atmaja', 'personOrgId': 'Y2lzY29zcGFyazovL3VzL09SR0F0SVPbVbVlPFI80ZmJjODgzNi0yOGQyLTQ3Y2Q0OWI4MCl1MDVlYjZkY2ZU2Nz', 'isModerator': False, 'isMonitor': False, 'created': '2022-08-25T11:38:26.306Z'}, {'id': 'Y2lzY29zcGFyazovL3VybJpURUFN0NzVzLXdlc3Q0tMl9yL01FTUJFUlNISVAVmZDZkMmQwYtE2M2VmZS00MTQ5LlNjktMmM5MjJjYmY4OTVlOjZkYTc1NmQwLTI0NmEtMTFLZC05MjNmLWlZYTl3MTEwNzIzOA', 'roomId': 'Y2lzY29zcGFyazovL3VybJpURUFN0NzVzLXdlc3Q0tMl9yL1JPT00vNmRhNzU2ZDAtMjQ2YS0xMmVvLkYmY2YtYjNhMjcMTA3MjM4', 'roomType': 'group', 'personId': 'Y2lzY29zcGFyazovL3VzL1BFT1BMRS9kNmQyZDBhMS0zZWZlLTQxNDktOWE2OS0yYzky0WNlZjg5NWU', 'personEmail': 'fernandarizkyatmaja@gmail.com', 'personDisplayName': 'fernandarizkyatmaja@gmail.com', 'personOrgId': 'Y2lzY29zcGFyazovL3VzL09SR0F0SVPbVbVlPFI80ZmJjODgzNi0yOGQyLTQ3Y2Q0OWI4MCl1MDVlYjZkY2ZU2Nz', 'isModerator': False, 'isMonitor': False, 'created': '2022-08-26T15:48:07.715Z'}]}
devasc@labvm:~/Labs/devnet-src/webex-teams$

```

Gambar 7. 32 Output list-memberships.py

```

File Edit View Search Terminal Help
# Fill in this file with the code to create a room membership from the Webex Teams exercise

import requests
access_token = 'MTYSN2E1MjhtZjJknS00NTFjLWI3YzUtYjdLOTJlM2IzN2YyZDUzZTgwMjUtMjg2_P0A1_06dac141-bf80-46e0-b15e-a135dc5a069'
room_id = 'Y2lzY29zcGFyazovL3VybJpURUFN0NzVzLXdlc3Q0tMl9yL1JPT00vNmRhNzU2ZDAtMjQ2YS0xMmVvLkYmY2YtYjNhMjcMTA3MjM4'
person_email = 'fernandarizkyatmaja@gmail.com'
url = 'https://webexapis.com/v1/memberships'
headers = {
    'Authorization': 'Bearer {}'.format(access_token),
    'Content-Type': 'application/json'
}
params = {'roomId': room_id, 'personEmail': person_email}
res = requests.post(url, headers=headers, json=params)
print(res.json())

```

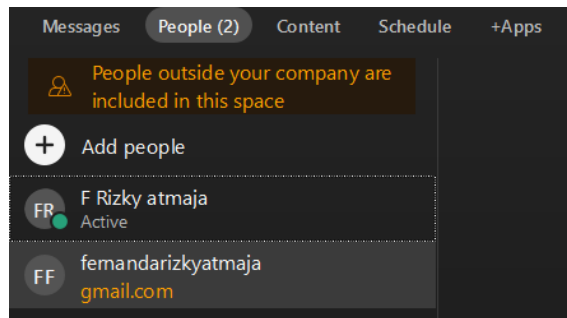
Gambar 7. 33 Source code create-membership.py dalam perintah vim

```

devasc@labvm:~/Labs/devnet-src/webex-teams$ python3 create-membership.py
{'id': 'Y2lzY29zcGFyazovL3VybJpURUFN0NzVzLXdlc3Q0tMl9yL01FTUJFUlNISVAVmZDZkMmQwYtE2M2VmZS00MTQ5LlNjktMmM5MjJjYmY4OTVlOjZkYTc1NmQwLTI0NmEtMTFLZC05MjNmLWlZYTl3MTEwNzIzOA', 'roomId': 'Y2lzY29zcGFyazovL3VybJpURUFN0NzVzLXdlc3Q0tMl9yL1JPT00vNmRhNzU2ZDAtMjQ2YS0xMmVvLkYmY2YtYjNhMjcMTA3MjM4', 'roomType': 'group', 'personId': 'Y2lzY29zcGFyazovL3VzL1BFT1BMRS9kNmQyZDBhMS0zZWZlLTQxNDktOWE2OS0yYzky0WNlZjg5NWU', 'personEmail': 'fernandarizkyatmaja@gmail.com', 'personDisplayName': 'fernandarizkyatmaja@gmail.com', 'personOrgId': 'Y2lzY29zcGFyazovL3VzL09SR0F0SVPbVbVlPFI80ZmJjODgzNi0yOGQyLTQ3Y2Q0OWI4MCl1MDVlYjZkY2ZU2Nz', 'isModerator': False, 'isMonitor': False, 'isRoomHidden': False, 'created': '2022-08-26T15:48:07.715Z'}
devasc@labvm:~/Labs/devnet-src/webex-teams$

```

Gambar 7. 34 Output create-membership.py



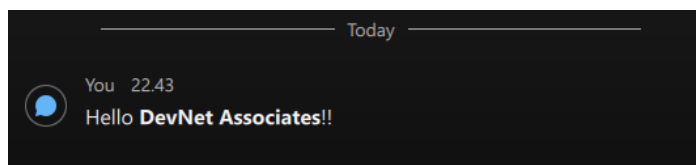
Gambar 7. 35 Akun fernanda26 akun baru yang sudah ditambahkan

```
import requests
access_token = 'MTY5N2E1MjZjJkN500NTFjLWI3YzUyYjd1OTJlM2IzN2YyZDUzZTgwMjUtMjg2_P0A1_06dac141-bf80-46e0-b15e-a135dc5a069'
room_id = 'Y2lzY29zcGFyazovL3VybjpURUFNbnVzLXdlc3QtMl9yL1JPT00vNmRhNzU2ZDAtMjQ2YS0xMmVklTkyM2YtYjNhMjcMTA3MjM4'
message = 'Hello **DevNet Associates**!!'
url = 'https://webexapis.com/v1/messages'
headers = {
    'Authorization': 'Bearer {}'.format(access_token),
    'Content-Type': 'application/json'
}
params = {'roomId': room_id, 'markdown': message}
res = requests.post(url, headers=headers, json=params)
print(res.json())
```

Gambar 7. 36 Tampilan di dalam perintah *vim*

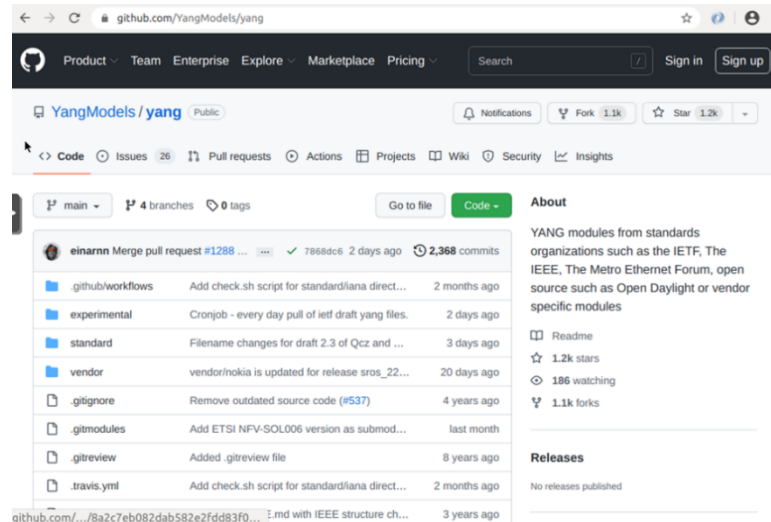
```
devasc@labvm:~/labs/devnet-src/webex-teams$ python3 creat-markdown-message.py
{'id': 'Y2lzY29zcGFyazovL3VybjpURUFNbnVzLXdlc3QtMl9yL01FU1NBR0UvZDdlNm2YjAtMjU1N2YyZDUzZTgwMjUtMjg2_P0A1_06dac141-bf80-46e0-b15e-a135dc5a069', 'roomId': 'Y2lzY29zcGFyazovL3VybjpURUFNbnVzLXdlc3QtMl9yL1JPT00vNmRhNzU2ZDAtMjQ2YS0xMmVklTkyM2YtYjNhMjcMTA3MjM4', 'roomType': 'group', 'text': 'Hello DevNet Associates!!', 'personId': 'Y2lzY29zcGFyazovL3VzL1BFT1BMR58zNzk2YTQ1Yy0yYjVlTRk0ODhtYTVhZC1lYjZjN2EwMzkxZTM', 'personEmail': 'rizkyatmaja26@gmail.com', 'markdown': 'Hello **DevNet Associates**!!', 'html': '<p>Hello <strong>DevNet Associates</strong>!!</p>', 'created': '2022-08-26T15:43:34.299Z'}
```

Gambar 7. 37 Output tampilan run script file *create-markdown-message.py*



Gambar 7. 38 Pesan muncul diwebex

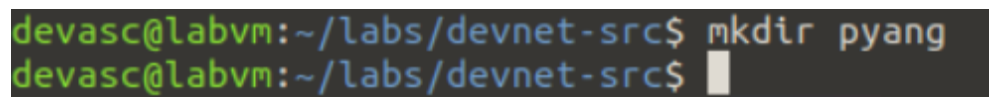
D. Pengujian menggunakan modul 8.3.5 explore yang models



Gambar 7. 39 Github Yang models

```
221     leaf enabled {
222         type boolean;
223         default "true";
224         description
225             "This leaf contains the configured, desired state of the
226             interface.
227
228             Systems that implement the IF-MIB use the value of this
229             leaf in the 'running' datastore to set
230             IF-MIB.ifAdminStatus to 'up' or 'down' after an ifEntry
231             has been initialized, as described in RFC 2863.
232
233
234             Changes in this leaf in the 'running' datastore are
235             reflected in ifAdminStatus, but if ifAdminStatus is
236             changed over SNMP, this leaf is not affected.";
237         reference
238             "RFC 2863: The Interfaces Group MIB - ifAdminStatus";
239     }
240 }
```

Gambar 7. 40 Isi file ietf-interfaces.yang



Gambar 7. 41 Membuat folder pyang

```

devasc@labvm:~/labs/devnet-src/pyang$ wget https://raw.githubusercontent.com/YangModels/ietf-interfaces/master/vendor/cisco/xe/1693/ietf-interfaces.yang
--2022-08-26 14:42:51-- https://raw.githubusercontent.com/YangModels/ietf-interfaces/master/vendor/cisco/xe/1693/ietf-interfaces.yang
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 185.199.109.133, 185.199.108.133, 185.199.111.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|185.199.109.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 24248 (24K) [text/plain]
Saving to: 'ietf-interfaces.yang'

ietf-interfaces 100% 23.68K 110KB/s in 0.2s

2022-08-26 14:42:54 (110 KB/s) - 'ietf-interfaces.yang' saved [24248/24248]

devasc@labvm:~/labs/devnet-src/pyang$

```

Gambar 7. 42 Proses download file *ietf-interfaces.yang*

Explore a YANG Model Using pyang

```

devasc@labvm:~/labs/devnet-src$ pyang -v
pyang 2.2.1
devasc@labvm:~/labs/devnet-src$

```

Gambar 7. 43 Cek versi *pyang*

```

devasc@labvm:~/labs/devnet-src$ pip3 install pyang --upgrade
Collecting pyang
  Downloading pyang-2.5.3-py2.py3-none-any.whl (592 kB)
    |-----| 592 kB 263 kB/s
Requirement already satisfied, skipping upgrade: lxml in /home/devasc/.local/lib/python3.8/site-packages (from pyang) (4.5.1)
Installing collected packages: pyang
  Attempting uninstall: pyang
    Found existing installation: pyang 2.2.1
    Uninstalling pyang-2.2.1:
      Successfully uninstalled pyang-2.2.1
  Successfully installed pyang-2.5.3
devasc@labvm:~/labs/devnet-src$

```

Gambar 7. 44 Perintah untuk *upgrade pyang*

```

devasc@labvm:~/labs/devnet-src/pyang$ pyang -f tree ietf-interfaces.yang
ietf-interfaces.yang:6: error: module "ietf-yang-types" not found in search path
module: ietf-interfaces
  +--rw interfaces
  |   +--rw interface* [name]
  |   |   +--rw name                string
  |   |   +--rw description?       string
  |   |   +--rw type                identityref
  |   |   +--rw enabled?           boolean
  |   |   +--rw link-up-down-trap-enable? enumeration {if-mib}?
  |   +--ro interfaces-state
  |   |   +--ro interface* [name]
  |   |   |   +--ro name                string
  |   |   |   +--ro type                identityref
  |   |   |   +--ro admin-status       enumeration {if-mib}?
  |   |   |   +--ro oper-status        enumeration
  |   |   |   +--ro last-change?      yang:date-and-time
  |   |   |   +--ro if-index          int32 {if-mib}?
  |   |   |   +--ro phys-address?     yang:phys-address
  |   |   |   +--ro higher-layer-if*  interface-state-ref
  |   |   |   +--ro lower-layer-if*  interface-state-ref
  |   |   |   +--ro speed?            yang:gauge64
  |   |   +--ro statistics
  |   |   |   +--ro discontinuity-time yang:date-and-time
  |   |   |   +--ro in-octets?        yang:counter64
  |   |   |   +--ro in-unicast-pkts?  yang:counter64
  |   |   |   +--ro in-broadcast-pkts? yang:counter64
  |   |   |   +--ro in-multicast-pkts? yang:counter64
  |   |   |   +--ro in-discards?      yang:counter32
  |   |   |   +--ro in-errors?       yang:counter32
  |   |   |   +--ro in-unknown-protos? yang:counter32
  |   |   |   +--ro out-octets?      yang:counter64
  |   |   |   +--ro out-unicast-pkts? yang:counter64
  |   |   |   +--ro out-broadcast-pkts? yang:counter64
  |   |   |   +--ro out-multicast-pkts? yang:counter64
  |   |   |   +--ro out-discards?    yang:counter32
  |   |   |   +--ro out-errors?      yang:counter32
devasc@labvm:~/labs/devnet-src/pyang$

```

Gambar 7. 45 Tampilan setelah diubah diformat *tree*