CodeZoo CATM1 Hands-On

- Raspberry Pi (with PPP)-

version 1.0

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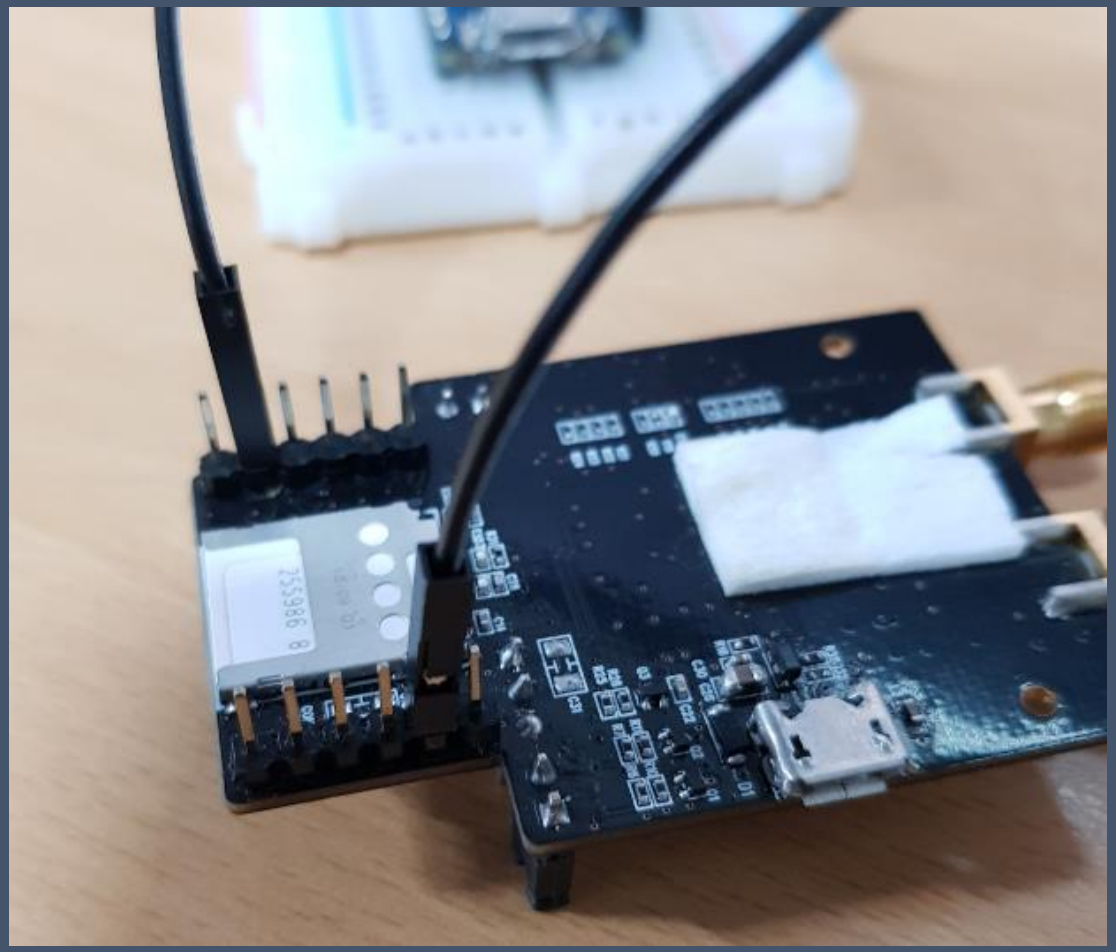
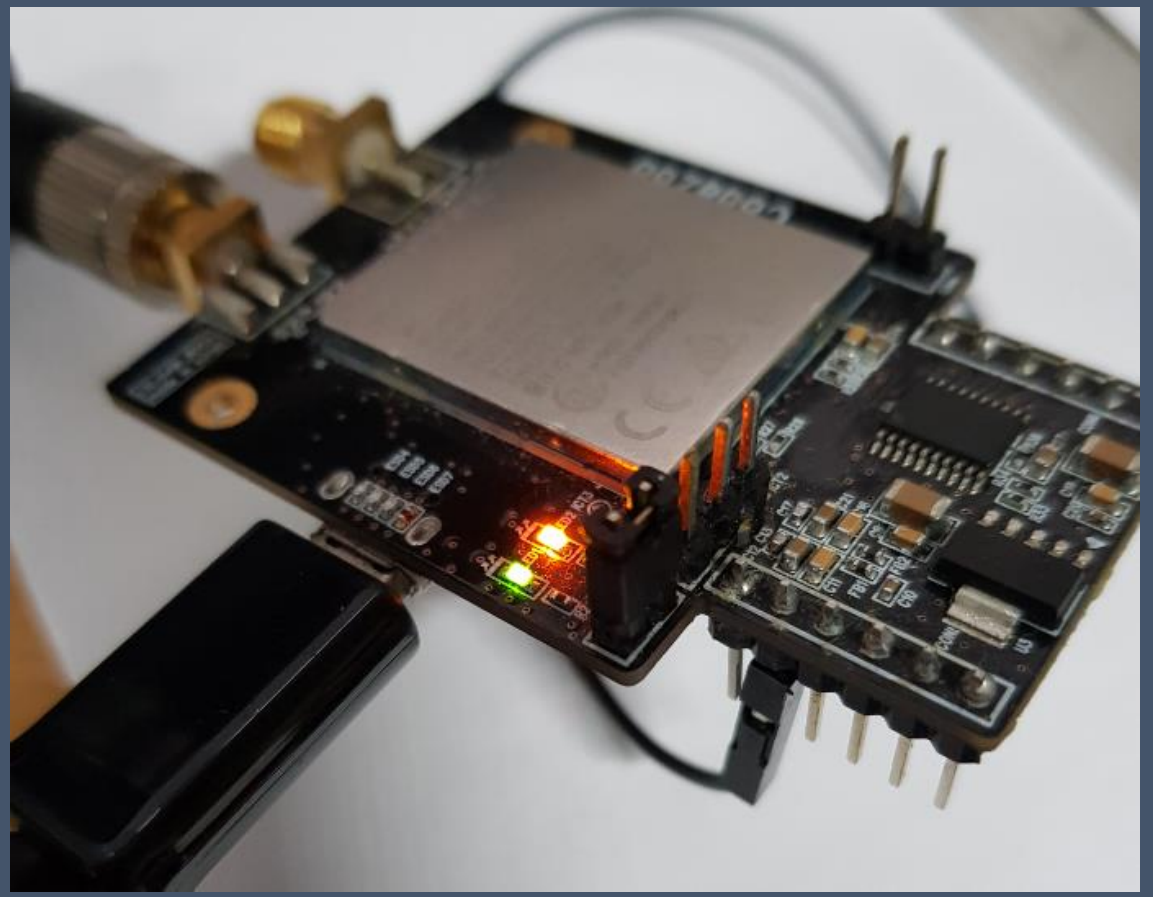
1. CAT.M1 Hardware 준비

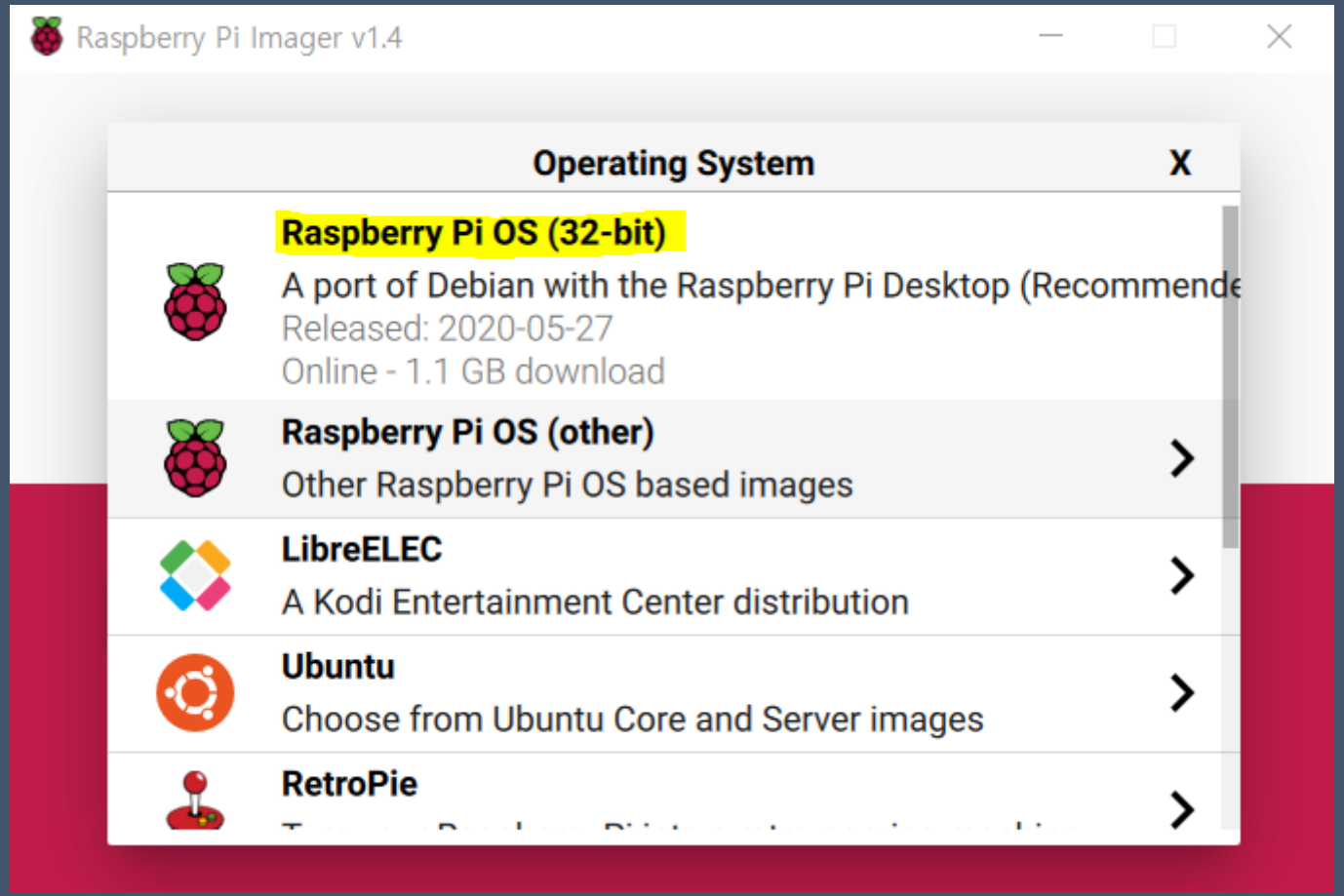
USB 연결 후 AT Command 테스트 절차

1. 후면 좌측 5번과 우측 2번을 점퍼선으로 연결
2. Micro USB 케이블을 라즈베리파이 USB 포트에 연결





2. CAT.M1 실습 (Raspberry Pi OS install)



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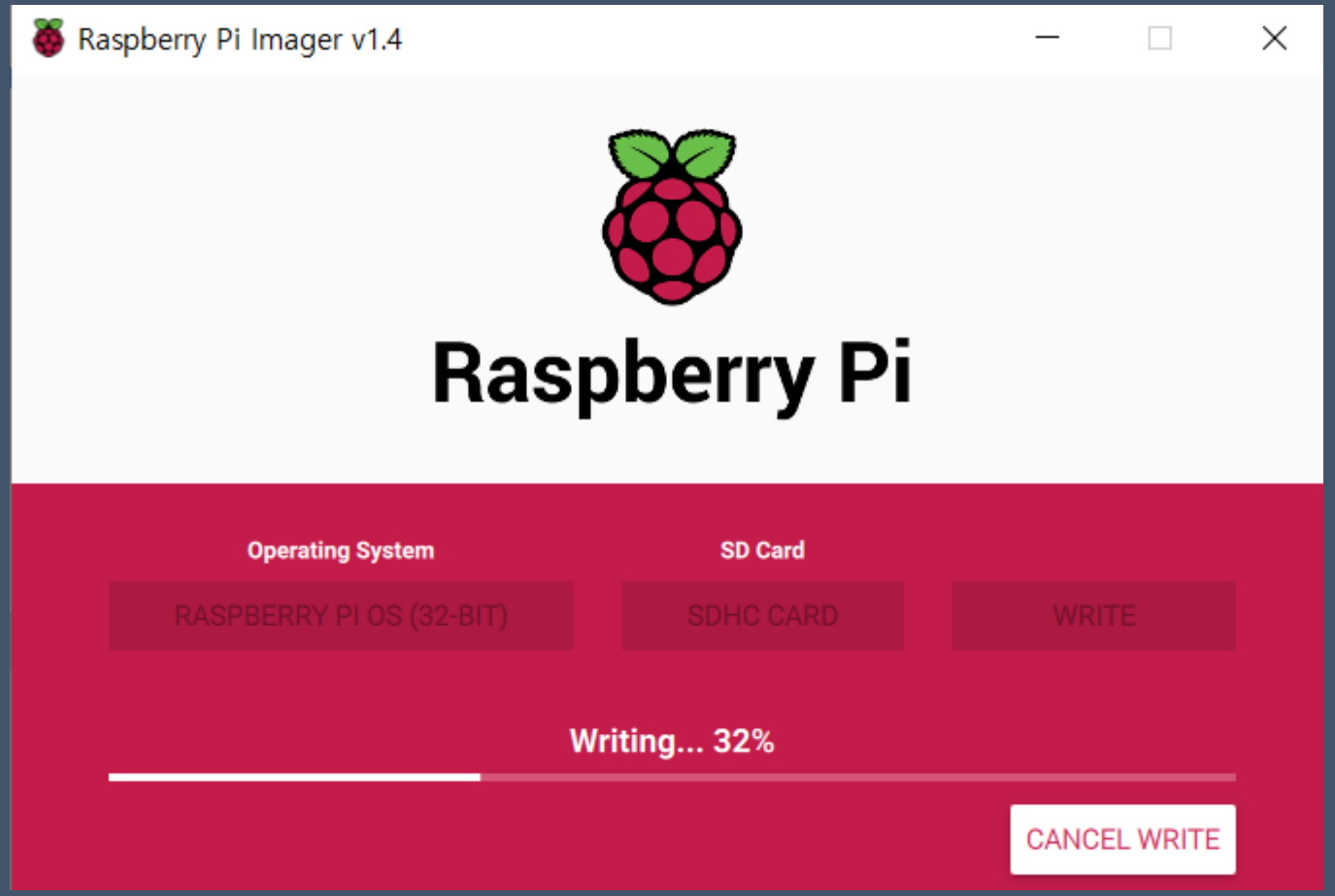

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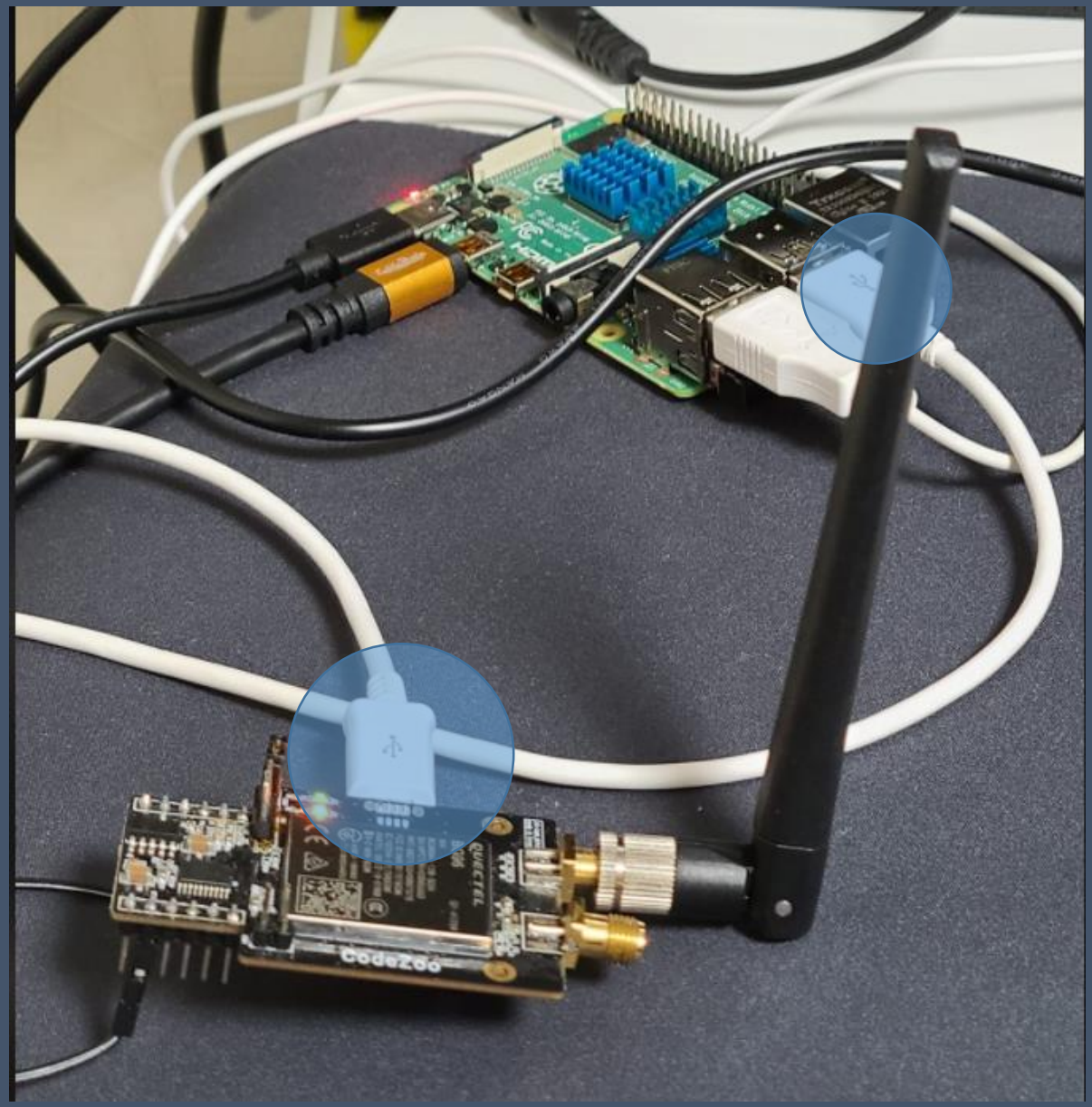
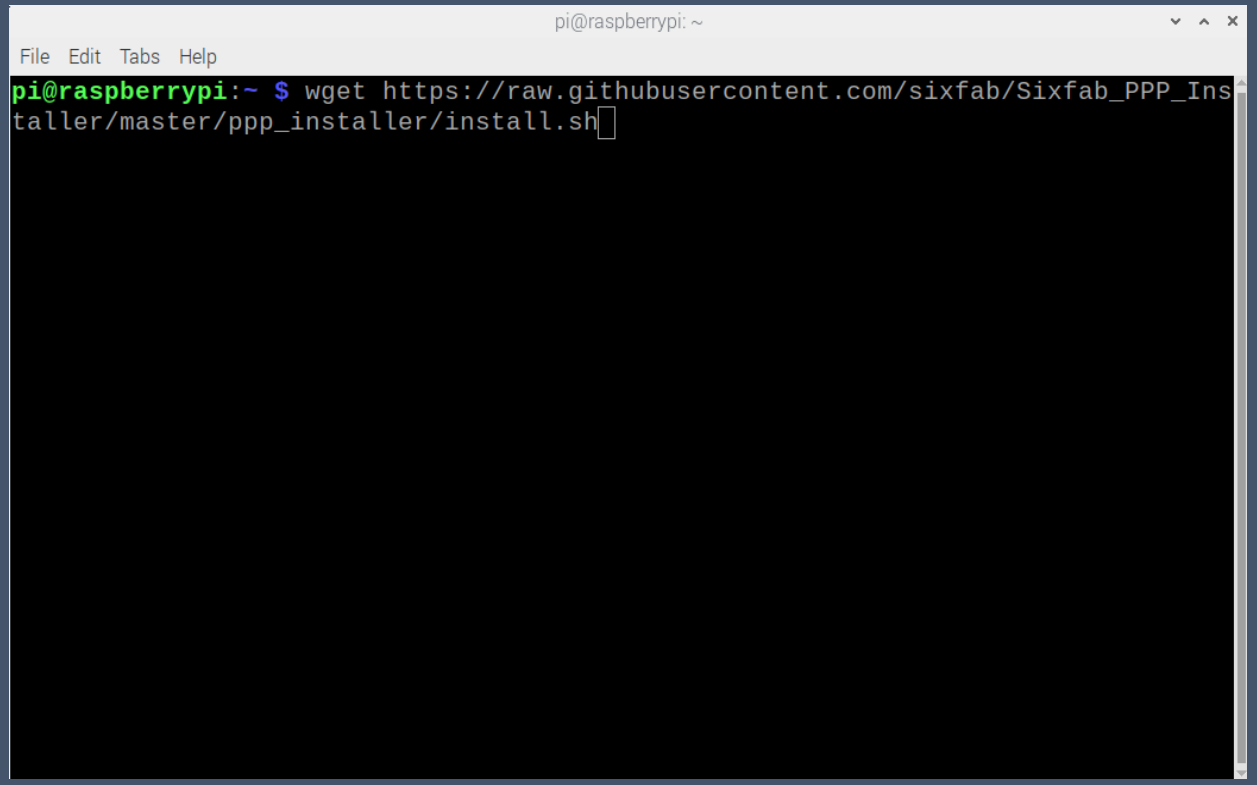
3. CAT.M1 연결

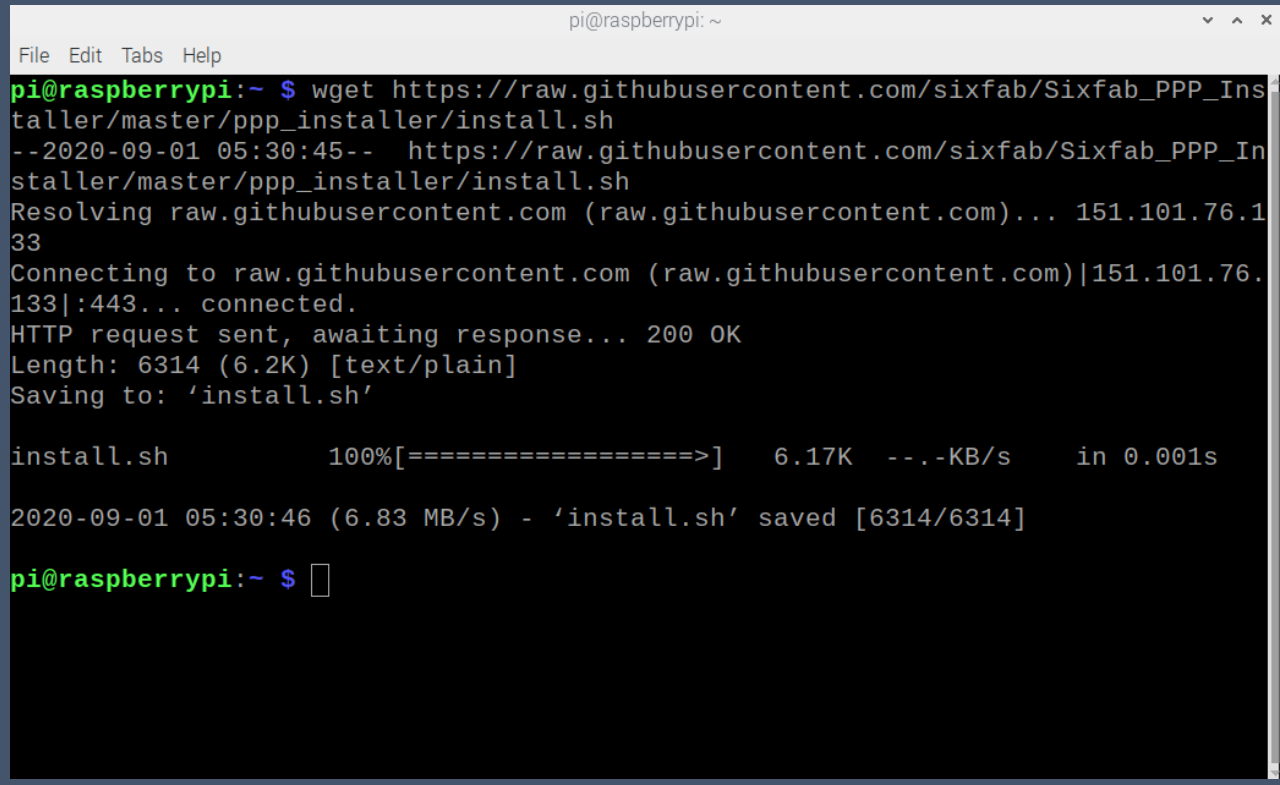
마이크로 USB 케이블로 CATM1과
라즈베리파이 연결



4. CAT.M1 PPP install

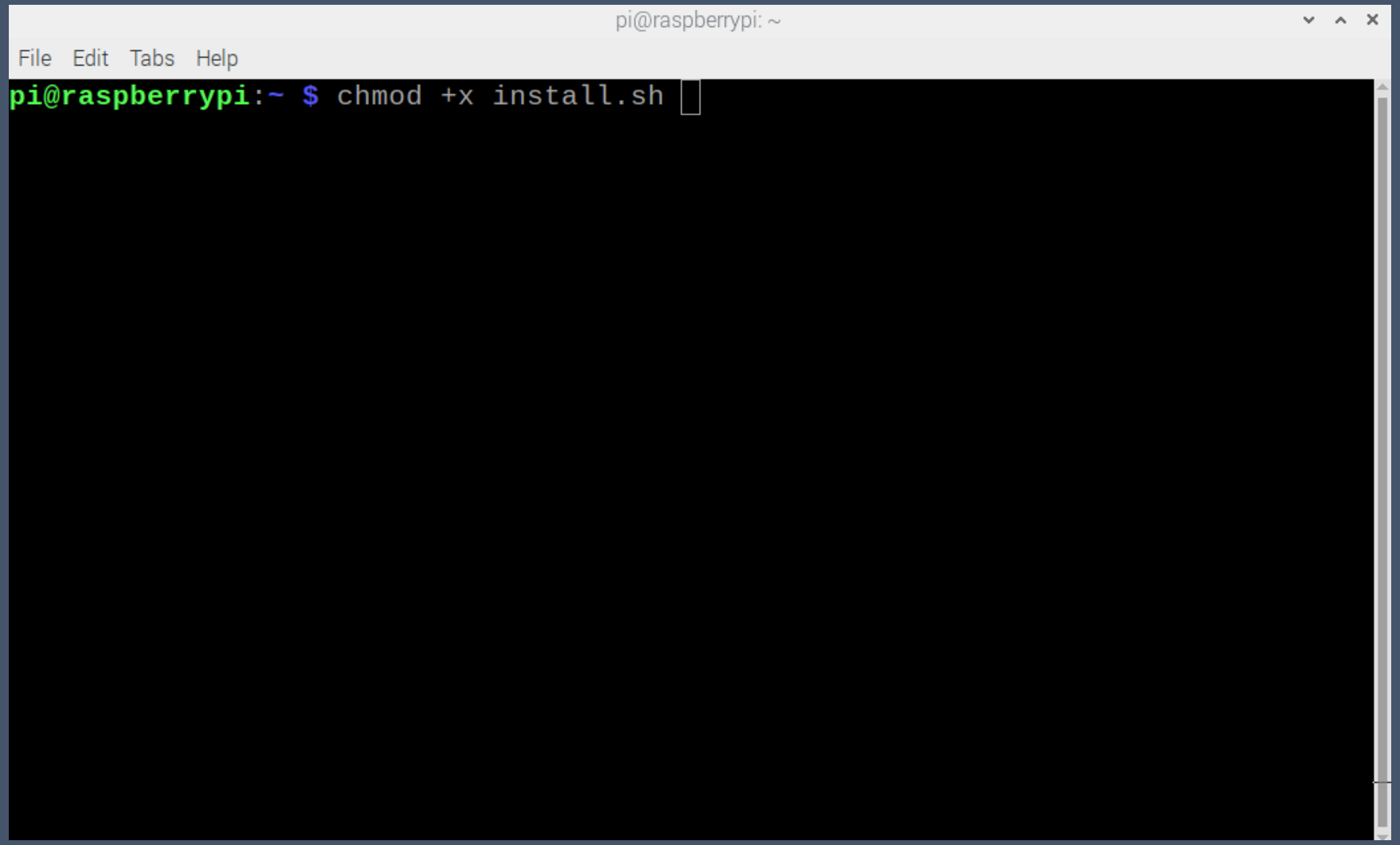
1. 라즈베리파이 터미널을 실행해서 installer file 을 다운로드 받습니다.
wget https://raw.githubusercontent.com/sixfab/Sixfab_PPP_Installer/master/ppp_installer/install.sh





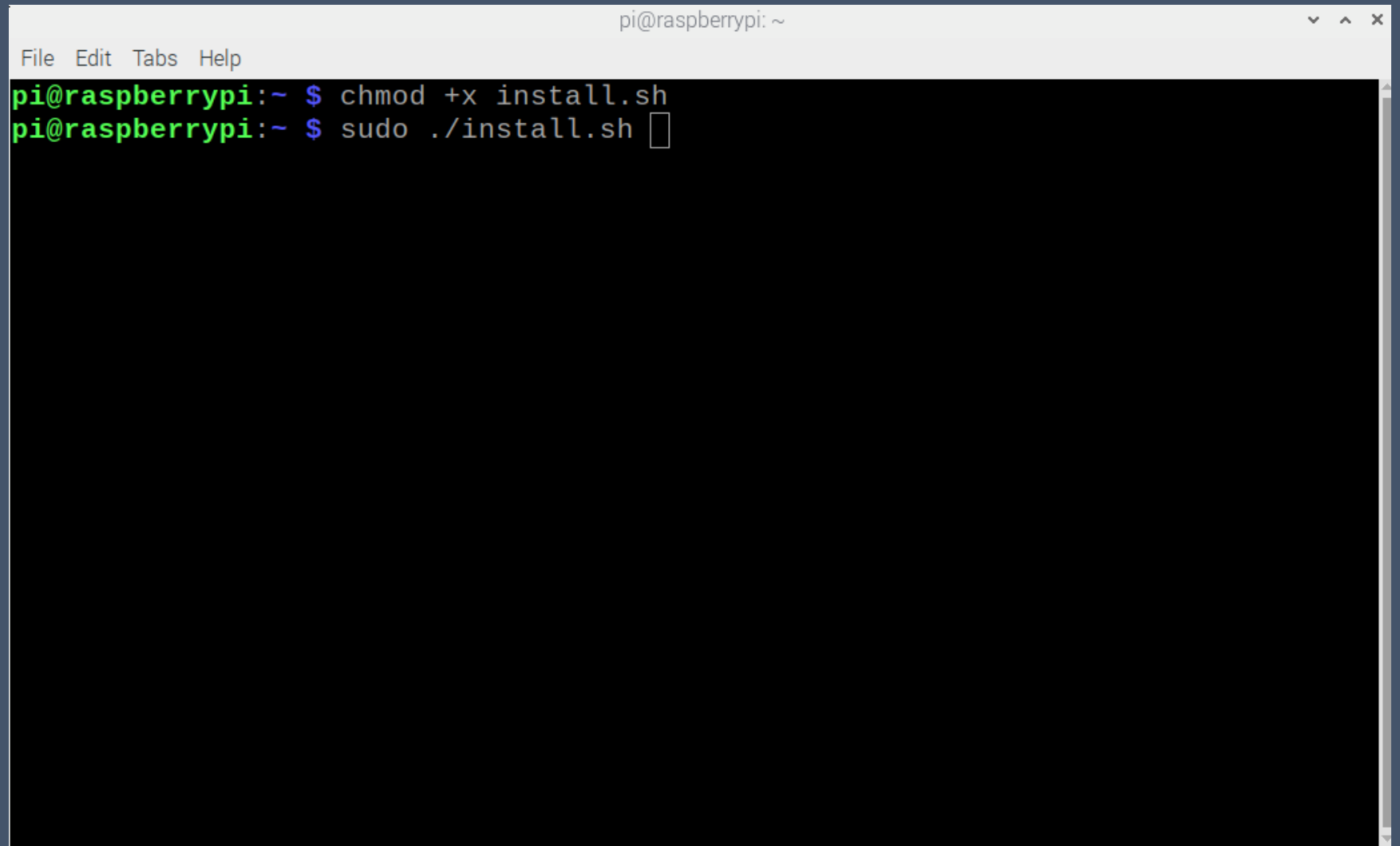
4. CAT.M1 PPP install

2. install.sh 파일의 퍼미션을 변경합니다.
sudo chmod +x install.sh



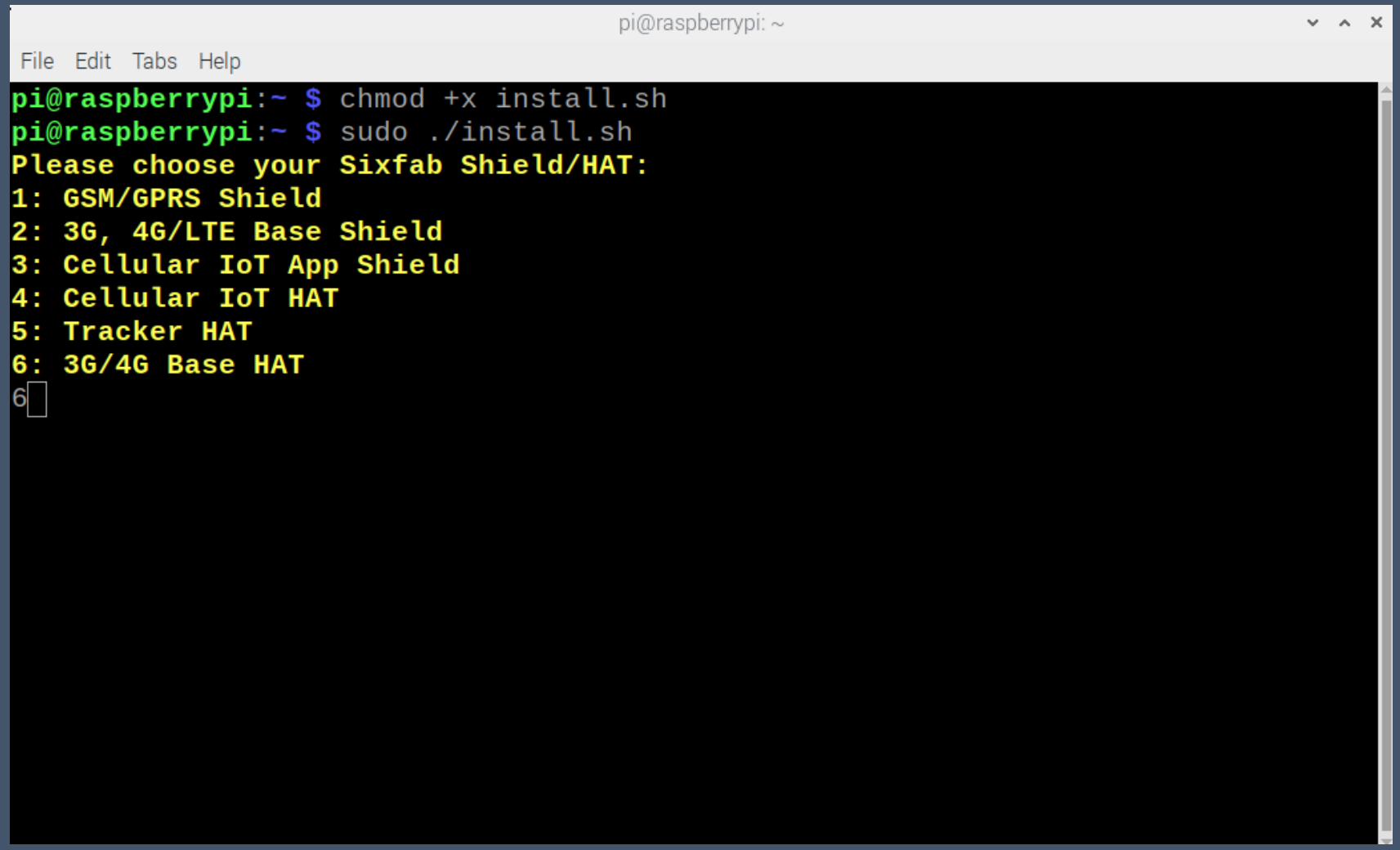
4. CAT.M1 PPP install

3. install.sh 을 실행 합니다.
sudo ./install.sh



4. CAT.M1 PPP install

4. 6: 3G/4G Base HAT 을 선택 합니다.
6 (Enter)



4. CAT.M1 PPP install

5. APN 을 입력 합니다.
유플러스 유심 사용시 : m2m-catm1.default.lguplus.co.kr
텔레노어 유심 사용시 : internet.lte.cxn

```
pi@raspberrypi: ~
File  Edit  Tabs  Help
Need to get 436 kB of archives.
After this operation, 1,107 kB of additional disk space will be used.
Get:1 http://ftp.harukasan.org/raspbian/raspbian buster/main armhf libpcap0.8 a
rmhf 1.8.1-6 [124 kB]
Get:2 http://ftp.harukasan.org/raspbian/raspbian buster/main armhf ppp armhf 2.
4.7-2+4.1+deb10u1 [312 kB]
Fetched 436 kB in 7s (60.7 kB/s)
Selecting previously unselected package libpcap0.8:armhf.
(Reading database ... 95606 files and directories currently installed.)
Preparing to unpack .../libpcap0.8_1.8.1-6_armhf.deb ...
Unpacking libpcap0.8:armhf (1.8.1-6) ...
Selecting previously unselected package ppp.
Preparing to unpack .../ppp_2.4.7-2+4.1+deb10u1_armhf.deb ...
Unpacking ppp (2.4.7-2+4.1+deb10u1) ...
Setting up libpcap0.8:armhf (1.8.1-6) ...
Setting up ppp (2.4.7-2+4.1+deb10u1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/pppd-dns.service →
/lib/systemd/system/pppd-dns.service.
Processing triggers for systemd (241-7~deb10u4+rpi1) ...
Processing triggers for man-db (2.8.5-2) ...
Processing triggers for libc-bin (2.28-10+rpi1) ...
What is your carrier APN?
```

```
What is your carrier APN?
m2m-catm1.default.lguplus.co.kr
```

```
What is your carrier APN?
internet.lte.cxn
```

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4. CAT.M1 PPP install

6. 기타 설정을 입력 합니다.
1) username and password : n
2) device communication port : ttyUSB3
3) activate auto connect/reconnect service at R.Pi boot up : y

```
Does your carrier need username and password? [Y/n]
n
What is your device communication PORT? (ttyS0/ttyUSB3/etc.)
ttyUSB3
Do you want to activate auto connect/reconnect service at R.Pi boot up? [Y/n]
y
```

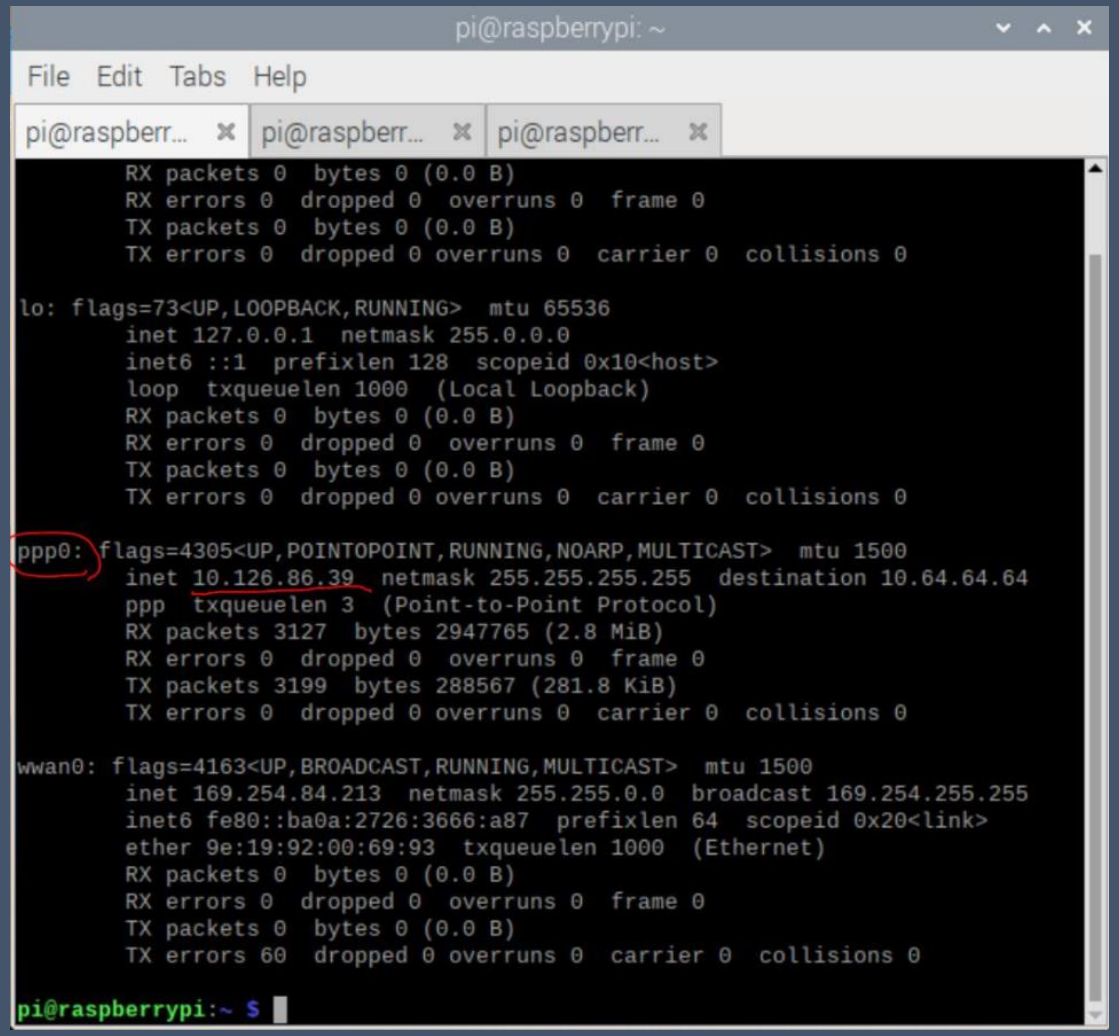
4. CAT.M1 PPP install

7. ENTER key 를 누르고 라즈베리파이를 재실행 시키면 PPP 서비스가 적용됩니다.

```
--2020-09-01 05:37:39--  https://raw.githubusercontent.com/sixfab/Sixfab_PPP_In
staller/master/ppp_installer/reconnect_basehat
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 151.101.76.1
33
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|151.101.76.
133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 314 [text/plain]
Saving to: ‘reconnect.sh’

reconnect.sh        100%[===================>]     314  --.-KB/s    in 0s

2020-09-01 05:37:39 (4.50 MB/s) - ‘reconnect.sh’ saved [314/314]

Created symlink /etc/systemd/system/multi-user.target.wants/reconnect.service →
 /etc/systemd/system/reconnect.service.
Press ENTER key to reboot
```

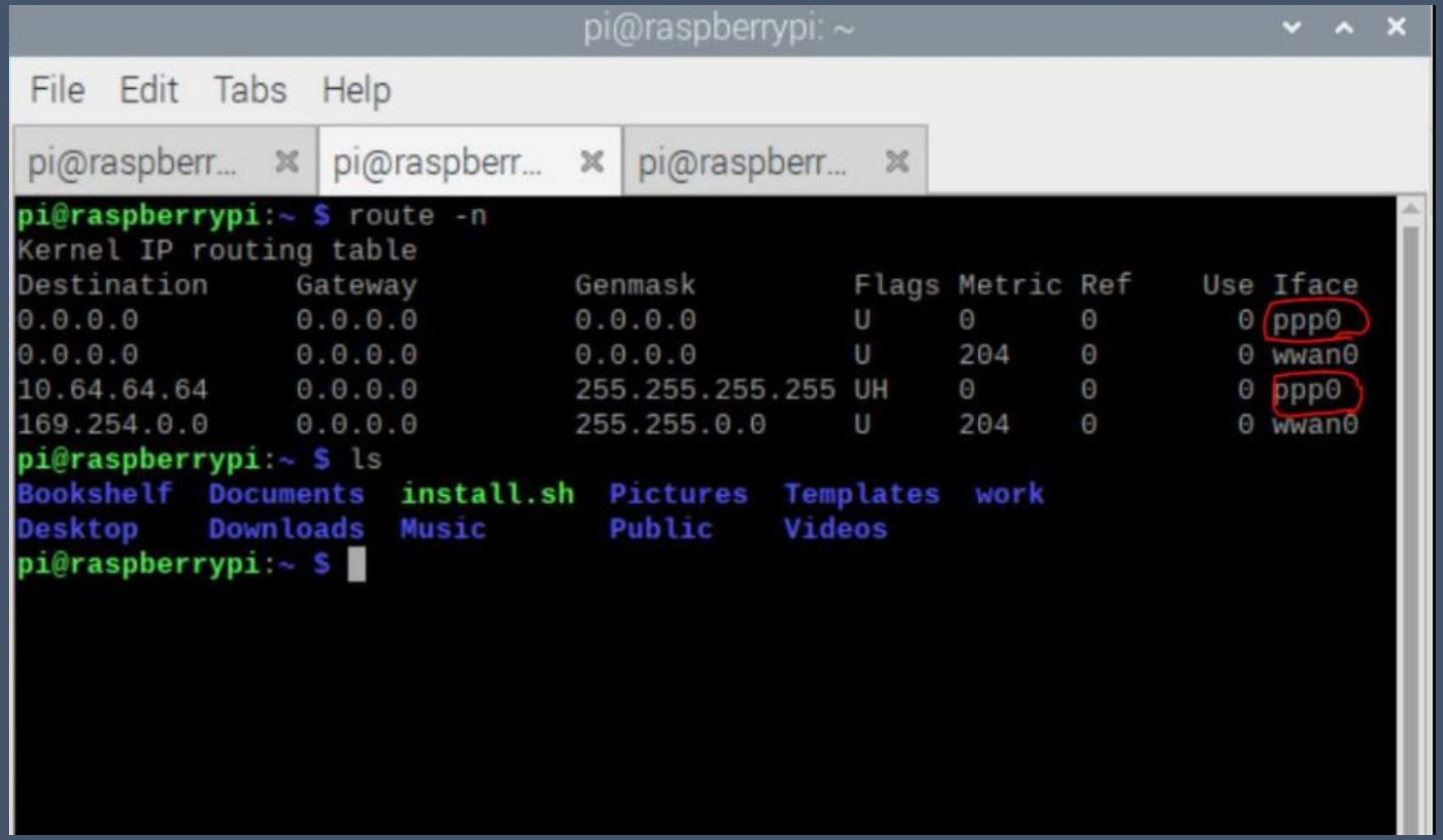
5. CAT.M1 PPP 동작 확인

1. 라즈베리파이 터미널에서 ifconfig 실행, PPP0 디바이스 확인



5. CAT.M1 PPP 동작 확인

2. 라즈베리파이 터미널에서 route -n 실행, PPP0 디바이스 확인



5. CAT.M1 PPP 동작 확인

3. 파이썬 테스트 코드로 통신 테스트

python3 python_echo_client.py

pi@raspberrypi: ~/work/python_echo_client

File Edit Tabs Help

pi@raspberr... pi@raspberr... pi@raspberr...

```
import socket
import sys

#Create a TCP/IP socket
sock = socket.socket(socket.AF_INET, socket.SOCK_STREAM)

#Connect the socket to the port where the server is listening
server_address = ('echo.mbedcloudtesting.com', 7)
print('connecting to {}port {}'.format(*server_address))
sock.connect(server_address)

try:

    #Send data
    message = b'This is the message. It will be repeated.'
    print('sending {!r}'.format(message))
    sock.sendall(message)

    #Look for the response
    amount_received = 0
    amount_expected = len(message)

    while amount_received < amount_expected:
        data = sock.recv(16)
        amount_received += len(data)
        print('received {!r}'.format(data))

finally:
    print('closing socket')
    sock.close()
~
~
                                                    33,0-1        Bot
```

감사합니다.