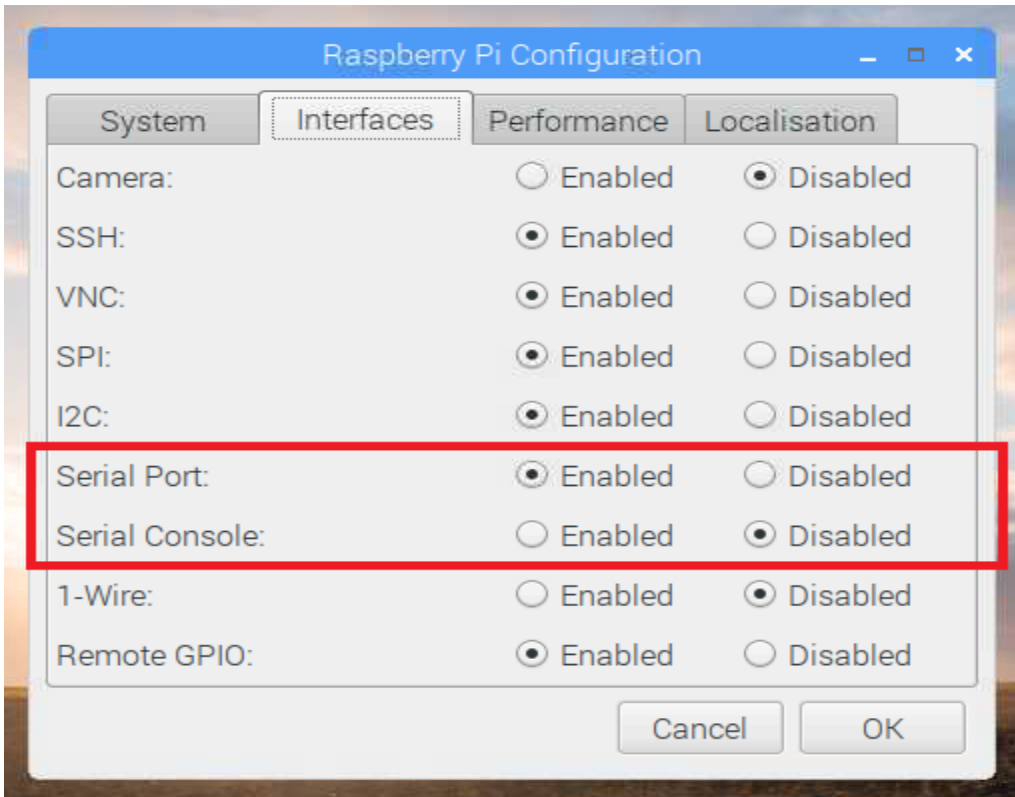


1-1 UART serial port setting

If uart is set, Bluetooth is not available.

1. Raspberry Pi Config Setting

- (1) Raspberry Pi Menu -> Preferences -> Raspberry Pi Configuration
- (2) Serial Port Enabled
- (3) Serial Console Disabled
- (4) OK click



2. BLE Disable Setting

- (1) Terminal Command: `sudo nano /boot/config.txt`
- (2) Add to bottom last line `dtoverlay=pi3-disable-bt`
- (3) Save : Ctrl + O (+ Enter), Close : Ctrl + X
- (4) Terminal Command: `sudo systemctl disable hciuart`
- (5) Terminal Command: `sudo reboot`

```
pi@raspberrypi: ~
GNU nano 2.7.4      File: /boot/config.txt      Modified
#dtoverlay=lirc-rpi

# Additional overlays and parameters are documented /boot/overlays/README

# Enable audio (loads snd_bcm2835)
dtparam=audio=on
dtoverlay=wl-gpio
enable_uart=1

dtoverlay=pi3-disable-bt
```

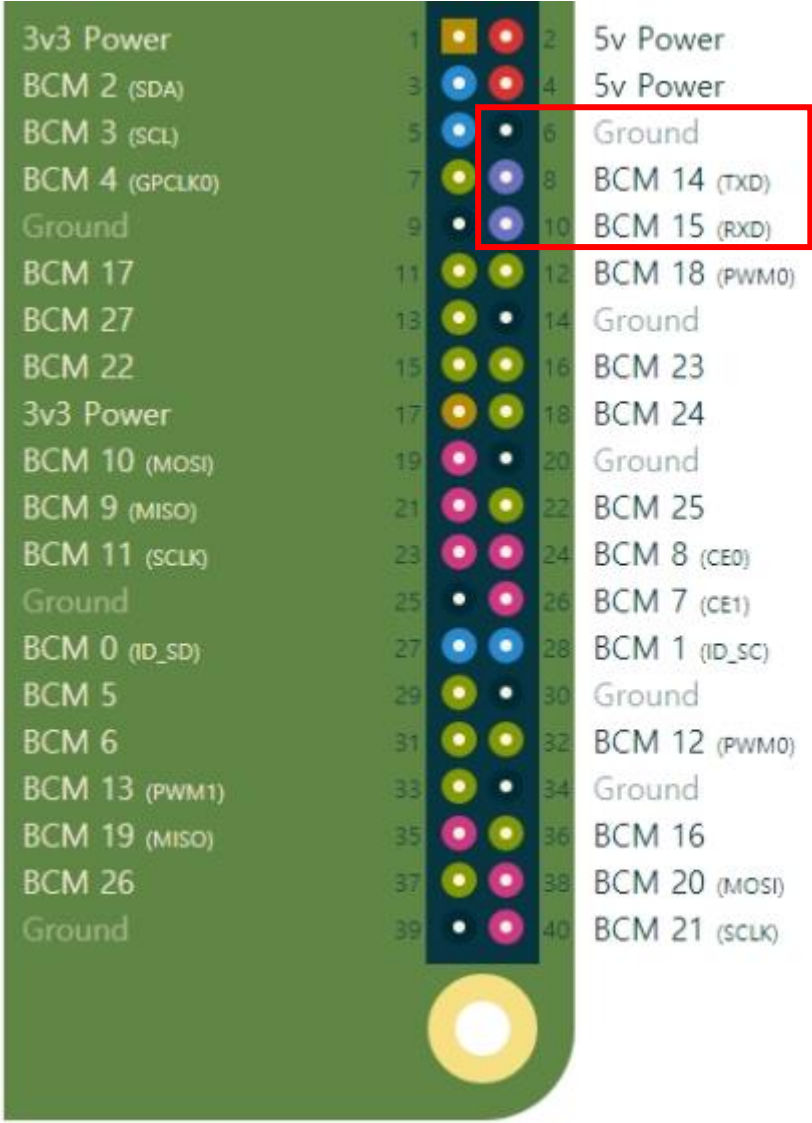
3. Check UART serial port

- (1) The reboot is complete
- (2) Terminal Command: `dmesg | grep tty`
- (3) Check ttyAMA0 if there is, it's a success

```
pi@raspberrypi: ~
pi@raspberrypi:~$
pi@raspberrypi:~$ dmesg | grep tty
[ 0.000000] Kernel command line: 8250.nr_uarts=1 bcm2708_fb.fbwidth=656 bcm2708_fb.fbheight=416 bcm2708_fb.fbswap=1 vc_mem.mem_base=0x3ec00000 vc_mem.mem_size=0x40000000 dwc_otg.lpm_enable=0 console=tty1 root=PARTUUID=bdf3bdd1-02 rootfstype=ext4 elevator=deadline fsck.repair=yes rootwait quiet splash plymouth.ignore-serial-consoles
[ 0.000286] console [tty1] enabled
[ 0.664244] 3f201000.serial: ttyAMA0 at MMIO 0x3f201000 (irq = 87, base_baud = 0) is a PL011 rev2
pi@raspberrypi:~$
```

1-2 UART serial port setting

If uart is set, Bluetooth is not available.



Rpi ↔ uart board
RxD ↔ Tx
TxD ↔ Rx



6 ↔ Black
8 ↔ Yellow
10 ↔ Blue

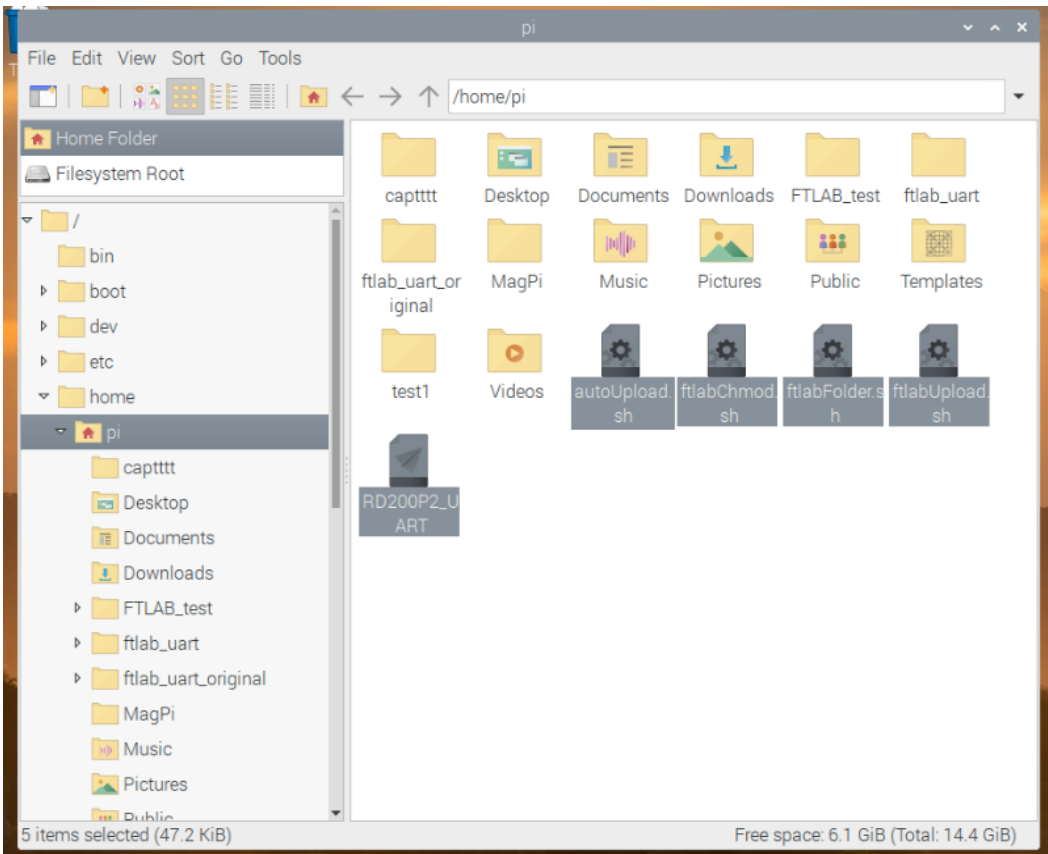
Connecting to the correct port

2-1 GitHub Upload Value File setting

Please distinguish between case and case.

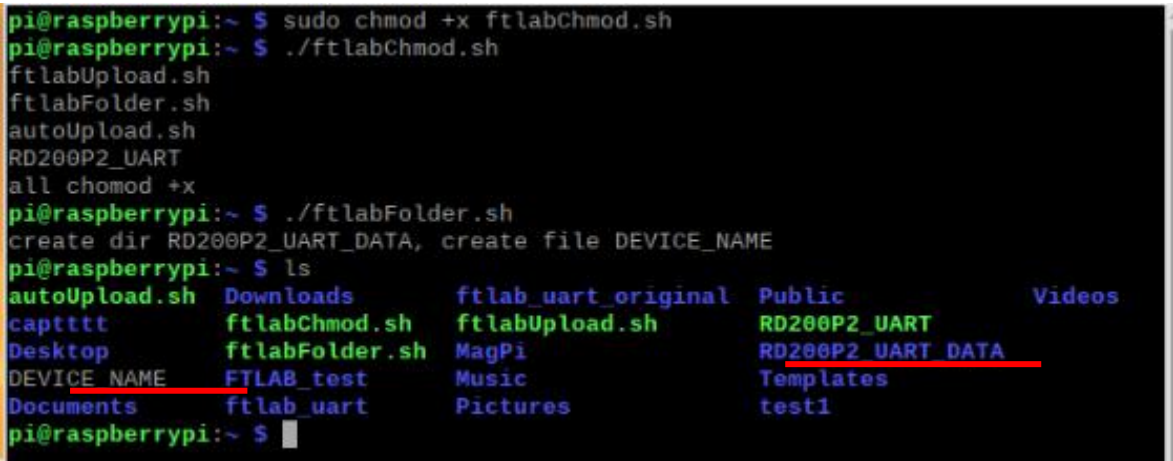
1.Shell Setting

- (1) Please download (autoUpload.sh,ftlabChmod.sh ,ftlabFolder.sh,ftlabUpload.sh,RD200P2_UART)
- (2) move the file /home/pi.

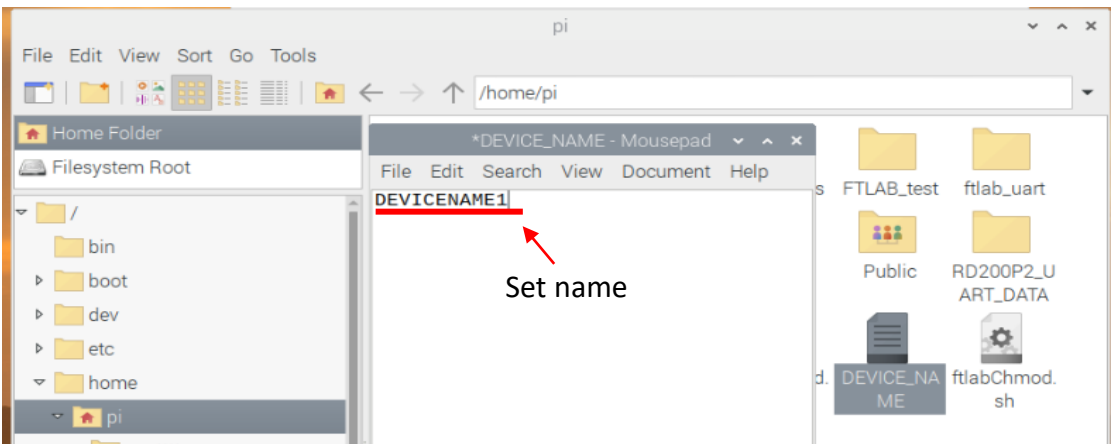


2. Permission Settings

- (1) Terminal Comman: `sudo chmod +x ftlabChmod.sh`.
- (2) Terminal Comman: `./ftlabChomod.sh`
- (3) Terminal Comman: `./ftlabFolder.sh`
- (4) Terminal Comman: `ls (L lowercase)`
- (5) Check if RD200P2_UART_DATA , DEVICE_NAME is in the current path.



3. Please put Setting device name in the DEVICE_NAME file.



2-2 GitHub Upload Value File setting

Please distinguish between case and case.

4. AutoStart Setting Enter

- (1) After you set up the DEVICE_NAME file
- (2) Termianl Command : `sudo nano /etc/xdg/lxsession/LXDE-pi/autostart`

5. Auto-Run on Boot Setting

- (1) Please add it to the last line. `Lxterminal -e /home/pi/RD200P2_UART`
- (2) Save : Ctrl + O (+ Enter), Close : Ctrl + X
- (3) Terminal Command : `sudo reboot`

```
pi@raspberrypi: ~
File Edit Tabs Help
GNU nano 3.2 /etc/xdg/lxsession/LXDE-pi/autostart

@lxpanel --profile LXDE-pi
@pcmanfm --desktop --profile LXDE-pi
@xscreensaver -no-splash

Lxterminal -e /home/pi/RD200P2_UART
```

- 6. It will run automatically after reboot. and Please wait 1 minute.
A successful write to a file will result in a log.

```
RD200P2_UART
File Edit Tabs Help
Port /dev/ttyAMA0 opened.

[2020-7-24 16:24] Device name : DEVICENAME1 ← set name
[2020-7-24 16:24] Program start

[2020-7-24 16:25] Send data
[2020-7-24 16:26] Send data
[2020-7-24 16:26] CMD_MessageFromDevice 1
[2020-7-24 16:26] Read Data : PROC_TIM(MIN) 7644, VALUE1 0.22, VALUE2 0.16
[2020-7-24 16:26] File write. File name : DEVICENAME1 ← file save
```

- 7. Please check if the file is stored correctly in `/home/pi/RD200P2_UART_DATA` path.

```
RD200P2_UART_DATA
File Edit View Sort Go Tools
/home/pi/RD200P2_UART_DATA

Home Folder
Filesystem Root
Downloads
FTLAB_test
ftlab_uart
ftlab_uart_original
MagPi

DEVICENAME1
DEVICENAME1
2020-7-24 16:26 PROC_TIM(MIN) 7777, VALUE1 0.22, VALUE2 0.22
```

Data storage format : 2020-7-24 16:26 PROC_TIM(MIN) 7777, VALUE1 0.22, VALUE2 0.22
This setting is complete, it will run automatically on each reboot.

3-1 Git Upload Setting

Please distinguish between case and case.

1. Git init Setting

- (1) Git Install Terminal Command : `sudo apt-get install git`
- (2) Install Check Terminal Command : `git --version`
- (3) Terminal Command : `cd /home/pi/RD200P2_UART_DATA`
- (4) Git Terminal Command : `git init`
- (5) Git Terminal Command : `git remote add origin (Github repositories url)`
Ex) `git remote add origin https://github.com/rhdqngusanr/FTLAB_test.git`
- (6) GitHub Automatic Authentication Settings
Terminal Command : `git config credential.helper 'cache --timeout=31536000'`
Terminal Command : `git config --global credential.helper store`

```
pi@raspberrypi: ~ $ sudo apt-get install git
Reading package lists... Done
Building dependency tree
Reading state information... Done
git is already the newest version (1:2.20.1-2+deb10u3).
The following packages were automatically installed and are no longer required:
  point-rpi rpi-eeeprom-images vlc-l10n vlc-plugin-notify vlc-plugin-samba
  vlc-plugin-video-splitter vlc-plugin-visualization
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 34 not upgraded.
pi@raspberrypi: ~ $ git --version
git version 2.20.1
pi@raspberrypi: ~ $ git config --global user.name "ftlab"
pi@raspberrypi: ~ $ git config --global user.email "ftlab@naver.com"
pi@raspberrypi: ~ $ cd /home/pi/RD200P2_UART_DATA
pi@raspberrypi: /RD200P2_UART_DATA $ git init
Reinitialized existing Git repository in /home/pi/RD200P2_UART_DATA/.git/
pi@raspberrypi: /RD200P2_UART_DATA $ git remote add origin https://github.com/rhdqngusanr/FTLAB_test.git
pi@raspberrypi: /RD200P2_UART_DATA $ git config credential.helper 'cache --timeout=31536000'
pi@raspberrypi: /RD200P2_UART_DATA $ git config --global credential.helper store
```

2. Git Branches Setting

- (1) Please re-run the terminal.
- (2) Terminal Command : `sudo nano ftlabUpload.sh`
- (3) Please set up a place to save on the last line. All Device must not have duplicate names.
EX) Device 1 : `git push -u origin master:ftlabTest1` ,
Device 2 : `git push -u origin master:ftlabTest2`
- (4) Save : Ctrl + O (+ Enter), Close : Ctrl + X

```
#!/bin/bash
SHELL=/bin/bash
PATH=/sbin:/bin:/usr/sbin:/usr/bin

cd /home/pi/
STR1=$(cat DEVICE_NAME)

cd /home/pi/RD200P2_UART_DATA
git init
git add $STR1
git commit -m "ftlab upload"
git push -u origin master:ftlabTest31
```

3. GitHub Upload

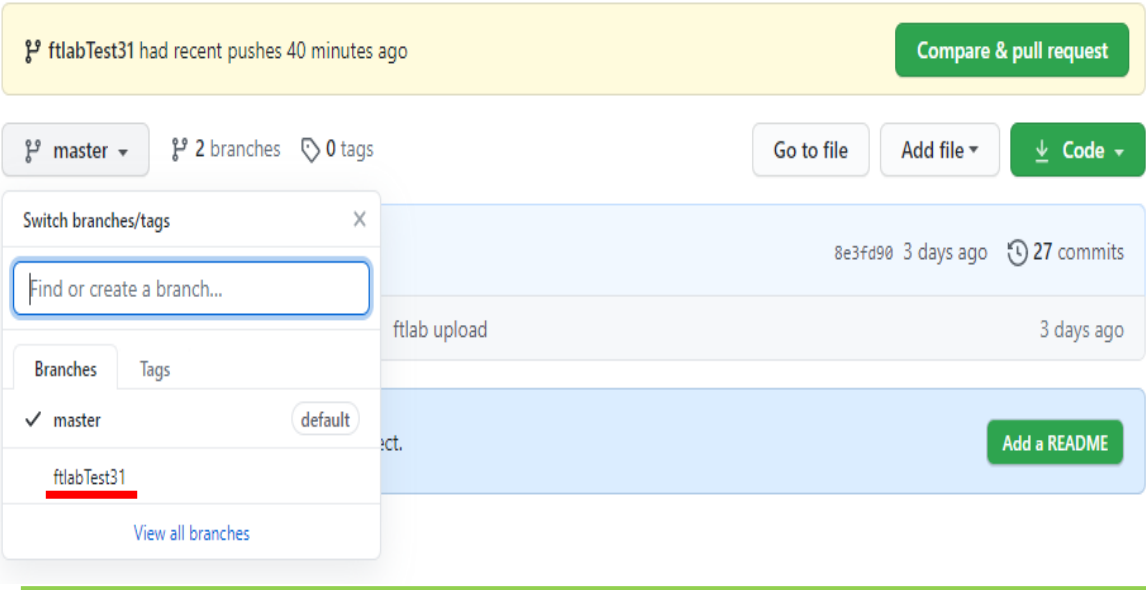
- (1) Terminal Command : `./ftlabUpload.sh` Upload successful if run without errors

```
pi@raspberrypi: ~ $ ./ftlabUpload.sh
Reinitialized existing Git repository in /home/pi/RD200P2_UART_DATA/.git/
[master 10089d2] ftlab upload
1 file changed, 2 insertions(+), 1 deletion(-)
Enumerating objects: 9, done.
Counting objects: 100% (9/9), done.
Delta compression using up to 4 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (9/9), 713 bytes | 356.00 KiB/s, done.
Total 9 (delta 2), reused 0 (delta 0)
remote: Resolving deltas: 100% (2/2), done.
remote:
remote: Create a pull request for 'ftlabTest31' on GitHub by visiting:
remote:   https://github.com/rhdqngusanr/FTLAB_test/pull/new/ftlabTest31
remote:
To https://github.com/rhdqngusanr/FTLAB_test.git
* [new branch] master -> ftlabTest31
Branch 'master' set up to track remote branch 'ftlabTest31' from 'origin'.
```

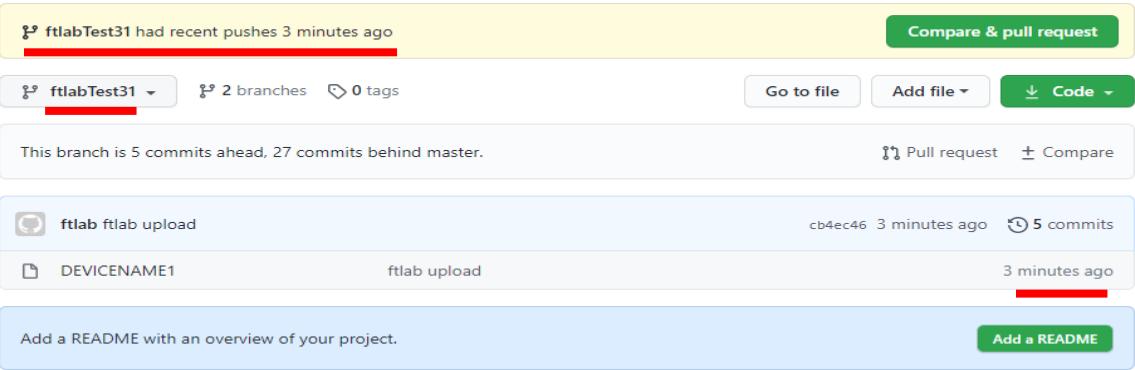
3-2 Git Upload Setting

Please distinguish between case and case.

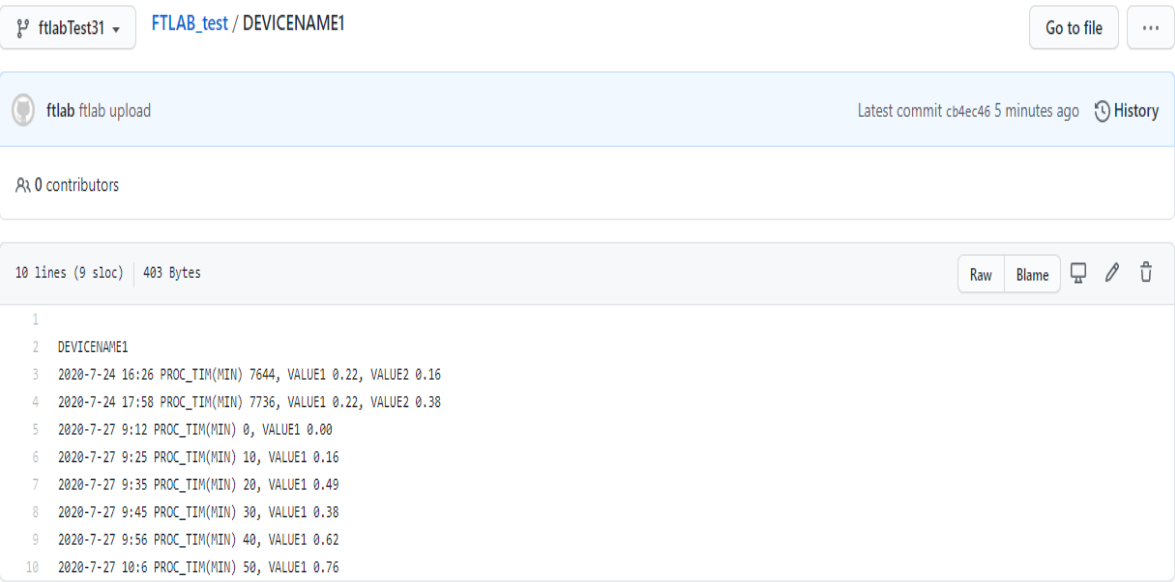
4. If the upload is successful, the branches are saved in the name you set.



5. Make sure that the branch is properly stored.



6. See if the value in the file is OK.



7. Auto Upload Setting

(1) If everything is normal, please set the automatic upload every hour.

(2) Terminal Command : `./autoUpload.sh`

(3) Auto Upload Check setup completion

Terminal Command : `crontab -l`

