

1. Prepare in advance

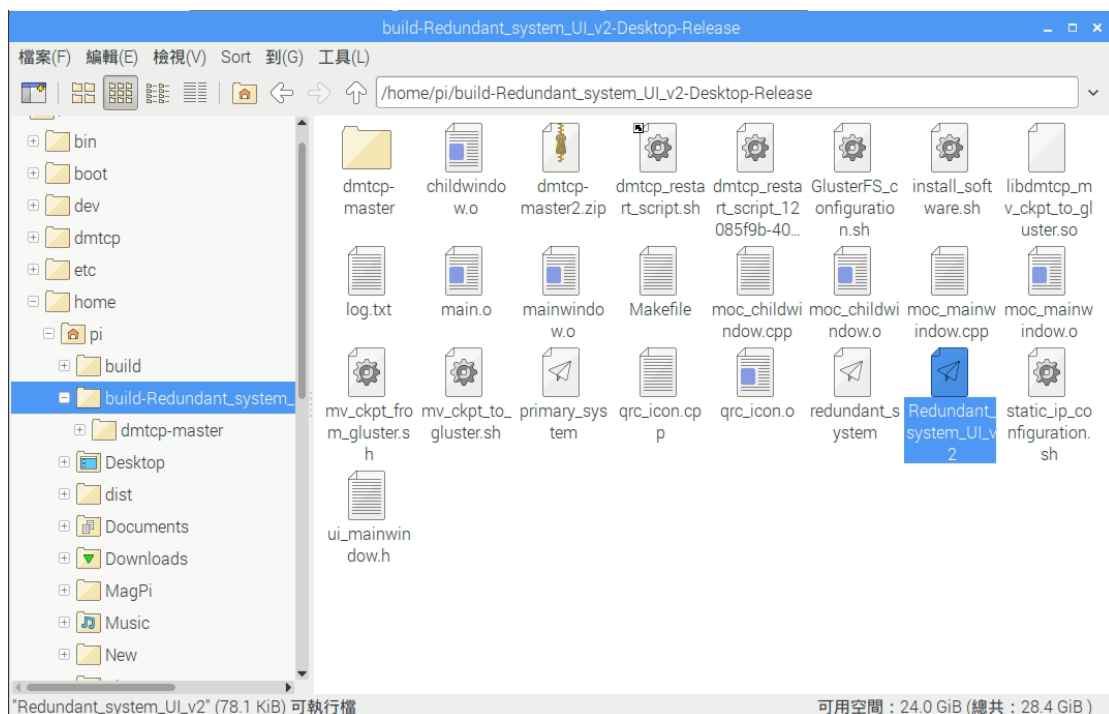
(1-1) First prepare two raspberry pi and two SD cards.

(1-2) Install the raspbian operating system on the SD card, the version I use is 2018-11-13-raspbian-stretch.

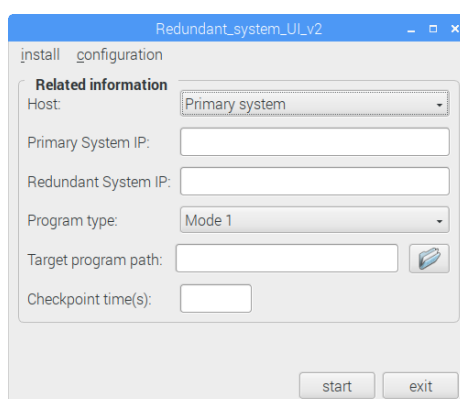
(1-3) Unzip the compressed file build-Redundant System... in the folder, as shown in the figure below.

```
pi@raspberrypi: ~  
檔案(F) 編輯(E) 分頁(T) 說明(H)  
pi@raspberrypi:~ $ ls -l  
總計 38584  
drwxr-xr-x 3 pi pi 4096 8月 3 2018 build  
drwxr-xr-x 3 pi pi 4096 6月 14 12:55 build-Redundant_system_UI_v2-Desktop-Release  
-rw-r--r-- 1 pi pi 25087392 6月 13 13:37 build-Redundant_system_UI_v2-Desktop-Release.zip
```

(1-4) Then enter the folder and click Redundant system_UI_v2 to execute.

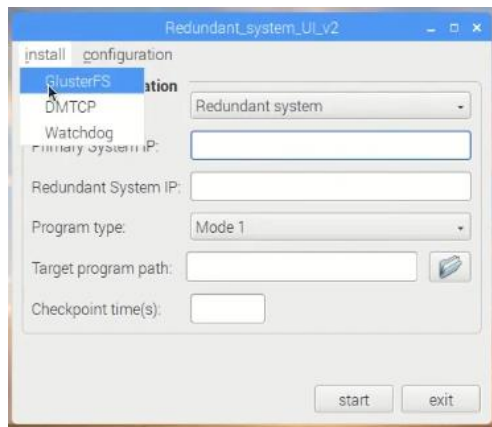


Click to display the picture

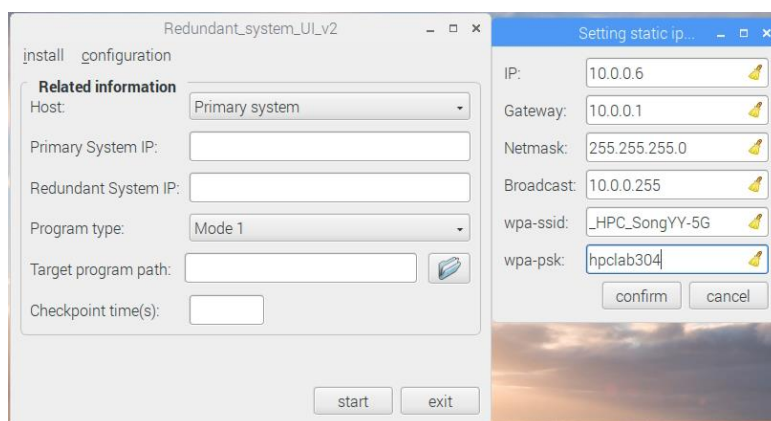
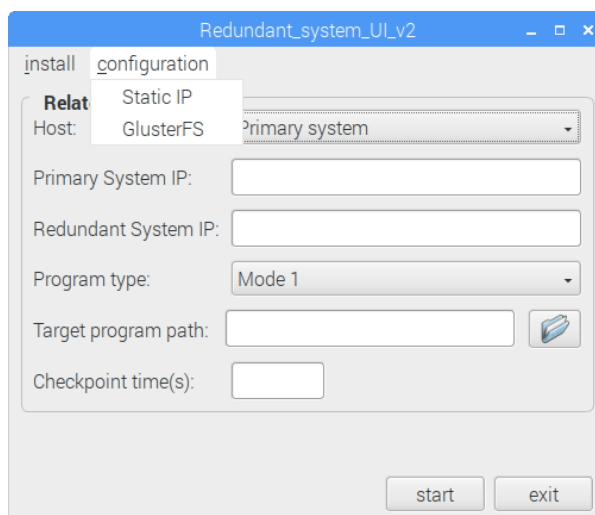


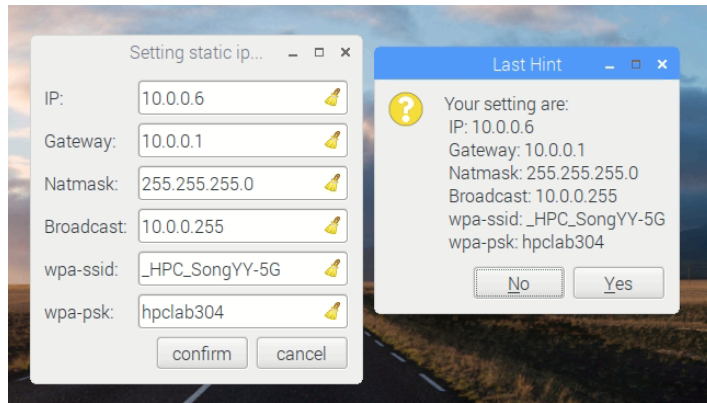
2. Install related software

(2-1) First click install to install glusterFS, DMTCP, Watchdog respectively. It will take some time to install DMTCP.As shown in the figure below



(2-2) Click configuration to set the environment, first set static ip and then set up GlusterFS.





NOTE: Remember to reboot after setting, the set parameters will take effect.

```
bash
檔案(F) 編輯(E) 分頁(T) 說明(H)
setting static ip...
your setting are:
# interfaces(5) file used by ifup(8) and ifdown(8)

# Please note that this file is written to be used with dhcpcd
# For static IP, consult /etc/dhcpcd.conf and 'man dhcpcd.conf'

# Include files from /etc/network/interfaces.d:
source-directory /etc/network/interfaces.d

auto lo
iface lo inet loopback
iface eth0 inet dhcp

allow-hotplug wlan0
iface wlan0 inet static
address 10.0.0.6
gateway 10.0.0.1
netmask 255.255.255.0
broadcast 10.0.0.255
wpa-ssid " _HPC_SongYY-5G"
wpa-psk "hpclab304"
setting finished...
[ ok ] Restarting networking (via systemctl): networking.service.
Please reboot your raspberrypi...
```

After rebooting, check whether the IP has been changed successfully

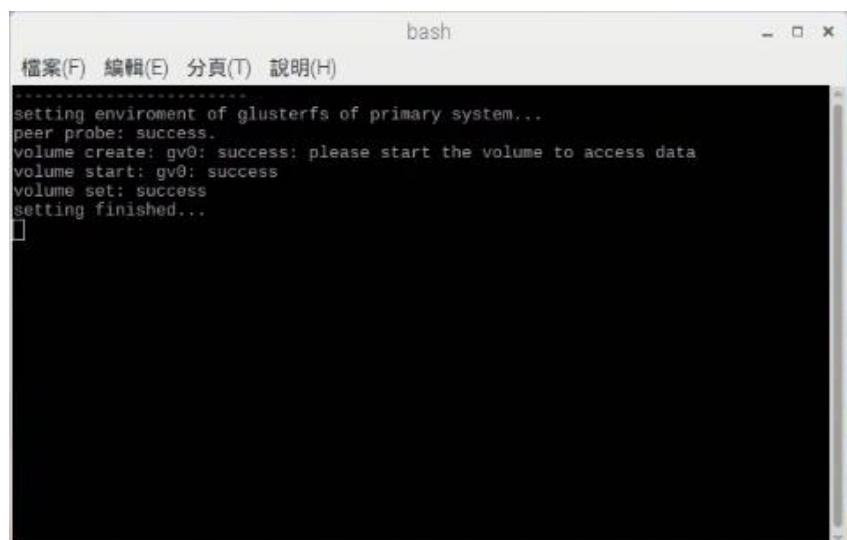
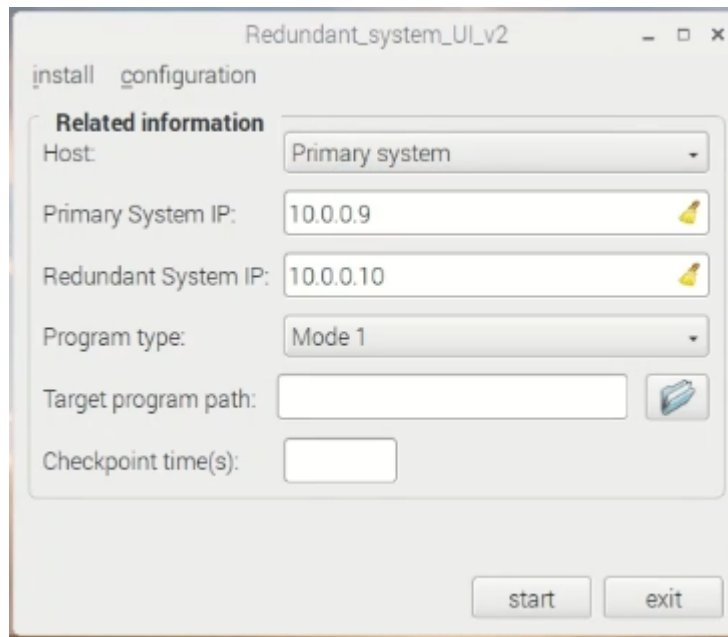
NOTE: Both raspberry pi must install software and set static ip.

3. Configure GlusterFS

(3-1) Choose which raspberry pi to use as the primary system.

(3-2) Select Primary system in the Host field, and enter the primary system IP and redundant system IP into the fields, and then click configuration->GlusterFS. operate like a redundant system.

NOTE: First, set the primary system and then set the redundant system, otherwise problems will occur.



Use the `sudo gluster volume info` command to check whether the gluster setting is successful.

```
pi@raspberrypi-active:/$ sudo gluster volume info
Volume Name: gv0
Type: Replicate
Volume ID: 168eae8d-0674-413b-8320-30e97c23ce05
Status: Started
Snapshot Count: 0
Number of Bricks: 1 x 2 = 2
Transport-type: tcp
Bricks:
Brick1: 10.0.0.17:/srv/gv0
Brick2: 10.0.0.18:/srv/gv0
Options Reconfigured:
transport.address-family: inet
performance.readdir-ahead: on
nfs.disable: on
pi@raspberrypi-active:/$ █
```

4. Select mode

(4-1) Select Mode-1 or Mode-2 in the Program type field

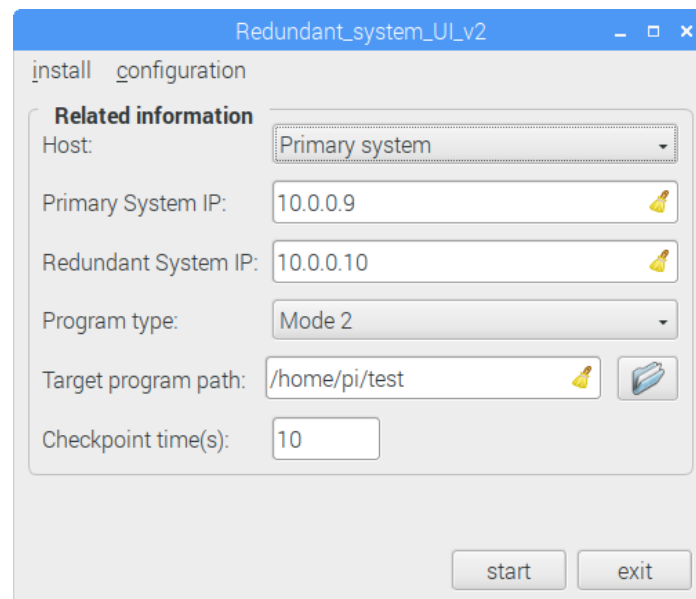
(4-2) Mode-1 is a normal mode and has no recovery function

(4-3) Mode-2 general program needs to save the memory state program in order to recover after failure.

(4-4) Target program path enter the path of the program to be executed

(4-5) The checkpoint time field is to execute a checkpoint every few seconds

NOTE: redundant system In Mode-2, you don't need to fill in the target program path and checkpoint time



The screenshot shows a window titled "Redundant_system_UI_v2" with two tabs: "install" and "configuration". The "configuration" tab is active. Under the heading "Related information", there are several fields:

- Host: A dropdown menu showing "Primary system".
- Primary System IP: A text box containing "10.0.0.9" with a yellow bell icon to its right.
- Redundant System IP: A text box containing "10.0.0.10" with a yellow bell icon to its right.
- Program type: A dropdown menu showing "Mode 2".
- Target program path: A text box containing "/home/pi/test" with a yellow bell icon and a folder icon to its right.
- Checkpoint time(s): A text box containing "10".

At the bottom of the window, there are two buttons: "start" and "exit".

(4-6) Finally, click start to start using it, no matter which raspberry pi clicks start, it will not affect the execution of the program.

5. Other reminders

The program and installation data are in the file, but the running program is provided by the user, or you can select the example execution in dmtcp. There is a test counting program in the file for you to test. Thank you for using this function. You can also refer to demo.mp4 to view the function usage.