



**GF-RK3399-KIT\_V2.00 Android7.1 Functional  
Testing Manual**

2021.04

## Version Record

Date	Version	Description	Remark	Revisor
2021-04-02	Initial Version	Initial Software Version: Android 7.1.2, kernel 4.4.126 Hardware:GF-RK3399-KIT V2.00	Initial version, please pay more attention to the important notes in attachment	Yangcx
2021-04-26		Add dual Ethernet function		Yangcx

## Preface

RK3399 is a high-performance platform, it owns powerful multi-threading computing, graphic process, and hardware decoding ability, it supports Android 7.1.2. It is mainly applied to main streaming media.

RK3399 board supports infrared, Bluetooth 4.0, dual-band WIFI, 4K HD output and H265/H264 hardware decoding, and rich peripheral connectors, it suits for the application areas which need high performance board, e.g, DIY intelligent dinner room, intelligent kitchen, background music and intelligent home center control etc.

Welcome to visit company website: <http://www.qiytech.com>

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# 1. Instruction before using

## 1.1 Install Android

1. Install "DriverInstall.exe" in "DriverAssitant\_v4.4" folder of "USB Driver" directory for the first time.

2 . Use RK3399 flashing tool or AndroidTool.exe(AndroidTool\_Release\_V2.65) to flash image file.

## 2. Monitor Test

### 2.1. EDP+HDMI

- EDP Interface: J23; HDMI Interface: J18 (\*Check the direction of connector)
- EDP Power Interface: J19\_3.3V

Note: While using EDP or HDMI, you should flash the relative image files:

e.g.

update\_GF-RK3399-V2.00-EDP(1920X1080)+HDMI(1920X1080)-20210329.img

### 2.2. LVDS

- LVDS Interface: J20
- LVDS Power Interface: J19\_5.0V
- Touch Interface: J21
- Note: If using LVDS monitor, you should flash the corresponding image file:

e.g: update\_GF-RK3399-V2.00-LVDS(1024X600)-20210402.img

Note: Use different image files for various display monitors, the file name is distinguished.

## 3.UART Test

- There are 8-ch UART, including SPI1 to Node: ttysWK10~13, SPI2 to Node: ttysWK20~23, the specific node, please check the schematic;
- Note: While testing J1-RS485, the baud rate  $\leq 115200$  (hardware limitation)
- Testing Tool: serial\_test.apk
- Note: Whiling testing, please take notice of the combination for Core Board with Base Board.

UART	Location	Device Node
DBG (Debug Port)	J7(PIN1-TX; PIN2-RX; PIN3-GND)	/dev/ttysWK10
COM1	J2 (PIN1-TX;PIN2-RX;PIN3-GND)	/dev/ttysWK12
COM2	J3 (PIN1-TX; PIN2-RX; PIN3-GND)	/dev/ttysWK13
COM3	J4 (PIN1-TX; PIN2-RX; PIN3-GND)	/dev/ttysWK20
COM4	J5 (PIN1-TX;PIN2-RX;PIN3-GND)	/dev/ttysWK21
COM5	J6 (PIN1-TX;PIN2-RX;PIN3-GND)	/dev/ttysWK22
COM(To RS485)	J1(PIN1-B;PIN2-A;PIN3-GND)	/dev/ttysWK11
TTL	J8(PIN1-GND;PIN2-TX;PIN3-RX;PIN4-3V3)	/dev/ttysWK23

## 4.USB Test

### 4.1.USB Mouse Usage

- To test 4-ch USB: J12-J15

### 4.2. USB Flash Disk Usage

- Insert USB flashing disk, Android OS will recognize device automatically;
- Open 'Resource Manager' in menu, you can check the content of the memory disk.

## 5.TF Card Test

- Same test method as USB flash disk, please take notice of the TF card folder name, it named as 'SD Card'. Step: 'Resource Manager'->SD Card.

## 6.Audio & Video Test

### 6.1. Play Audio test

- Put audio file into USB flash disk or SD card, then insert to the device;
- Open 'Music' player in menu
- Select audio, connect to amplifier on J25, then you can hear the sound;
- Note: Earphone Socket: J28 (Skip this step, as the socket is not match)

### 6.2. Record Test

- Connect MIC to J27
- Open 'Recorder' in menu, then do recording and playing test.

### 6.3. Play Video Test

- Open 'Video Player' in menu

## 7. Language Setting

- Click 'Setting' in main interface, set 'language and input method'.

## 8. Network Test

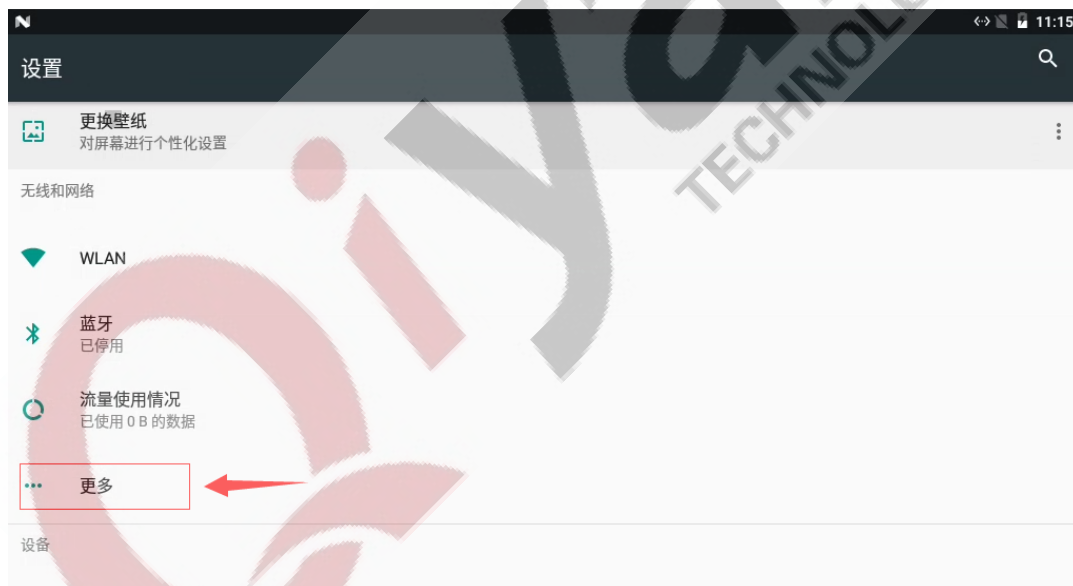
### 8.1. Ethernet

#### 8.1.1 . Independent Ethernet Mode

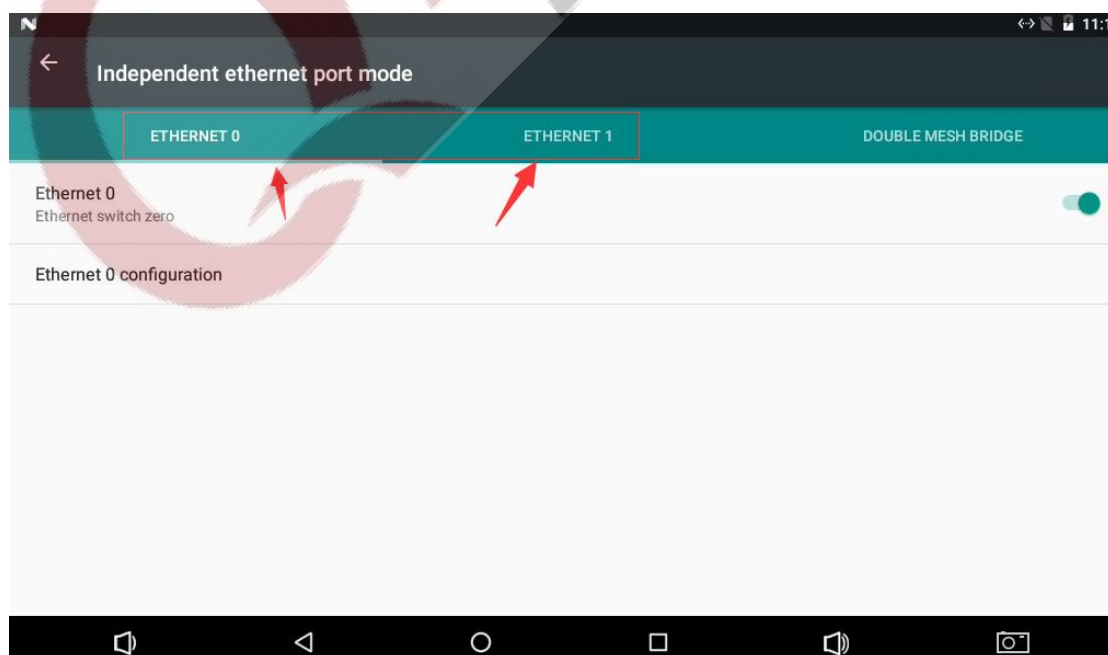
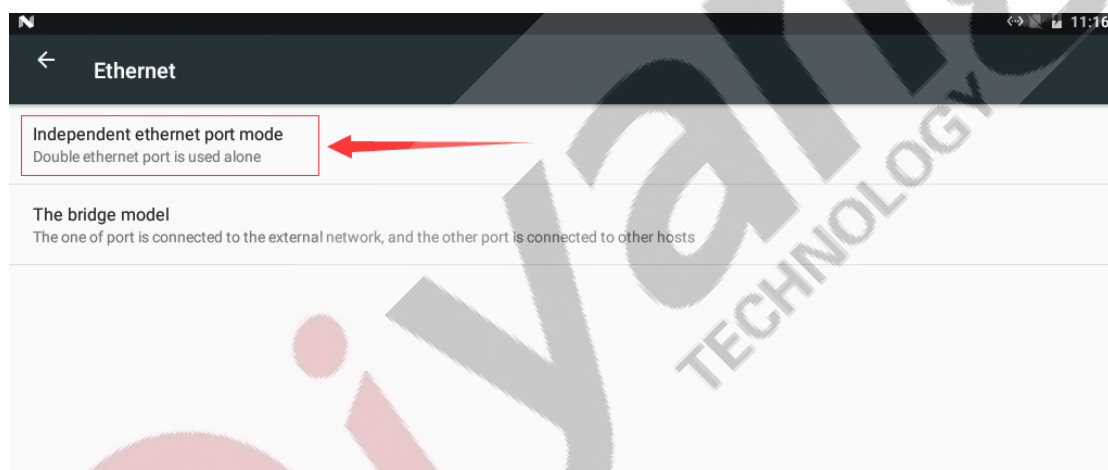
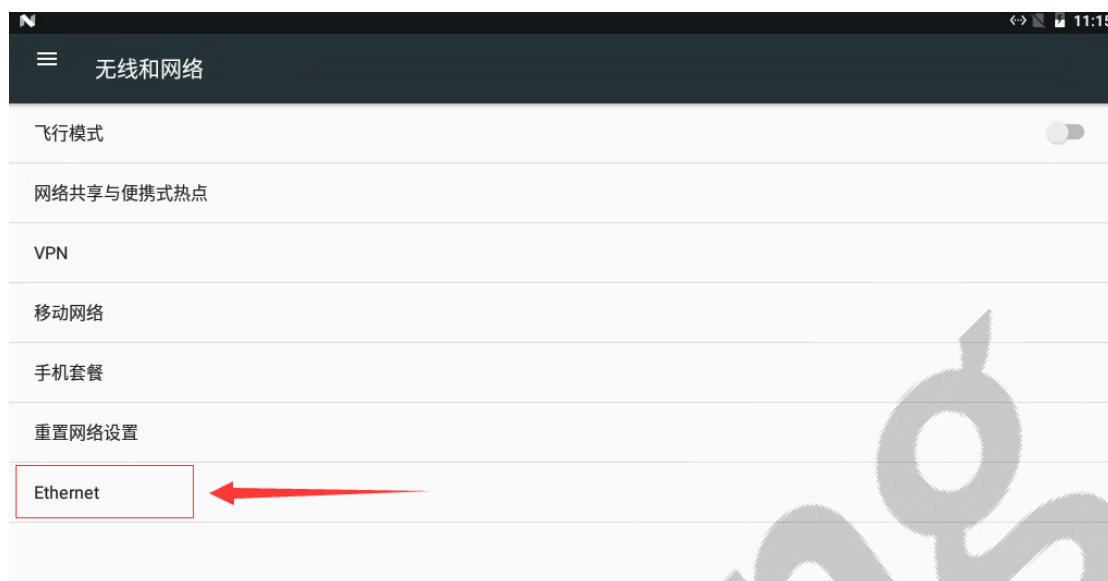
1-1. Two Ethernet (Ethernet0 -J36 &Ethernet1 -J37) freedom use.

Setting->More->Ethernet-> Independent ethernet port mode->Ethernet 0/1

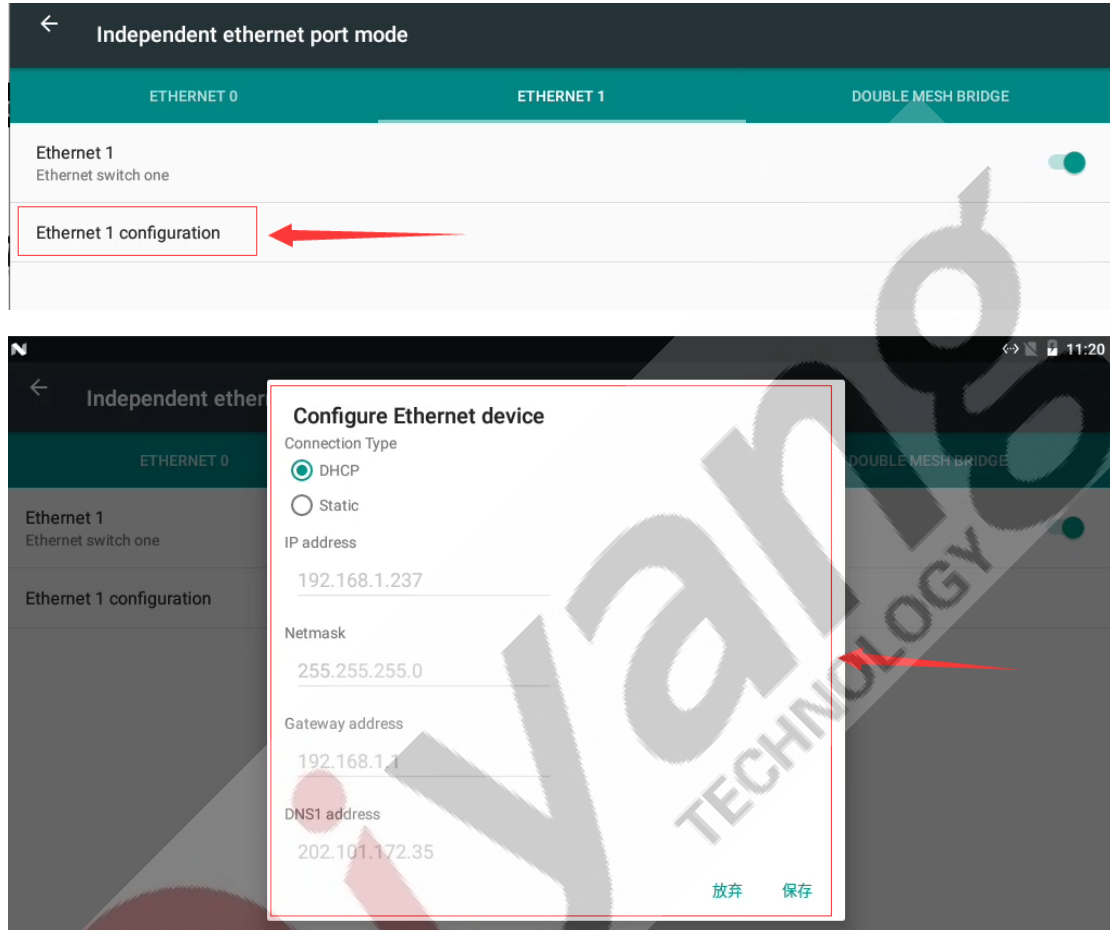
Two Ethernet ports (Ethernet 0 - J36 & Ethernet 1 - J37)





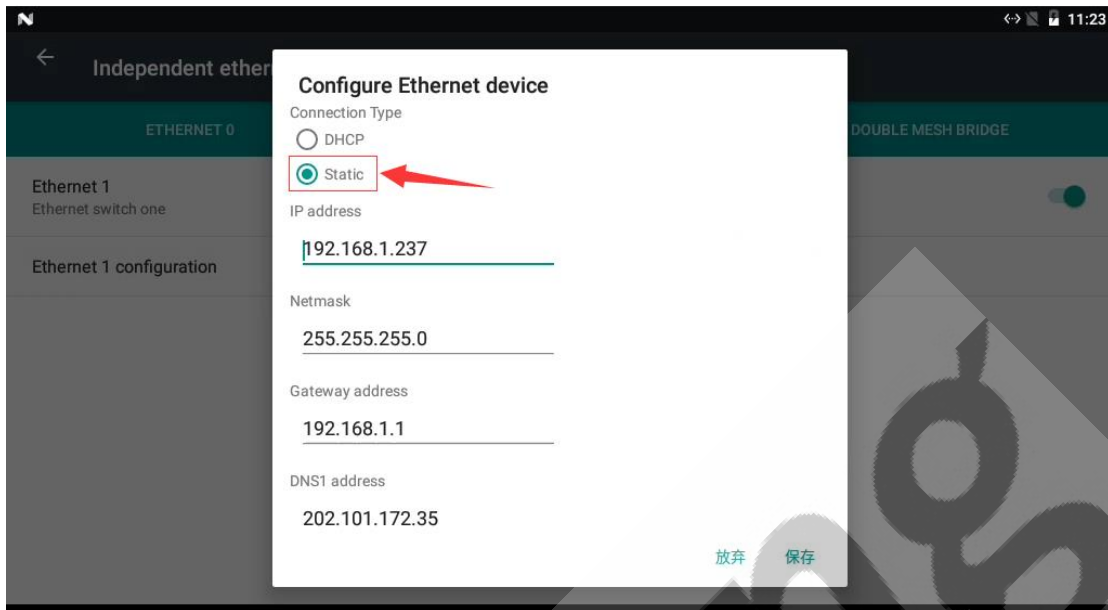


In each Ethernet port, there is a configuration option:



In Connection Type column, to set Ethernet connection mode -DHCP and Static.

In Static mode, configure Ethernet port.



1-2. In independent mode, use bridge connection

(A) . Use default configuration

1.Operation

e.g.: Ethernet 0 is allocated Ethernet Port (Intranet/Slave Computer),  
Ethernet 1 is access network port (Extranet is available).

To connect Ethernet1 LAN cable (Extranet is available).

To connect Ethernet 0 LAN cable (To connect slave computer-Intranet)

Open Ethernet 1 in UI, then open the switch after switching to Double

MESH BRIDGE



Click 'Bridge Configuration' (2)

Any question, please send E-mail :[supports@qiyangtech.com](mailto:supports@qiyangtech.com)

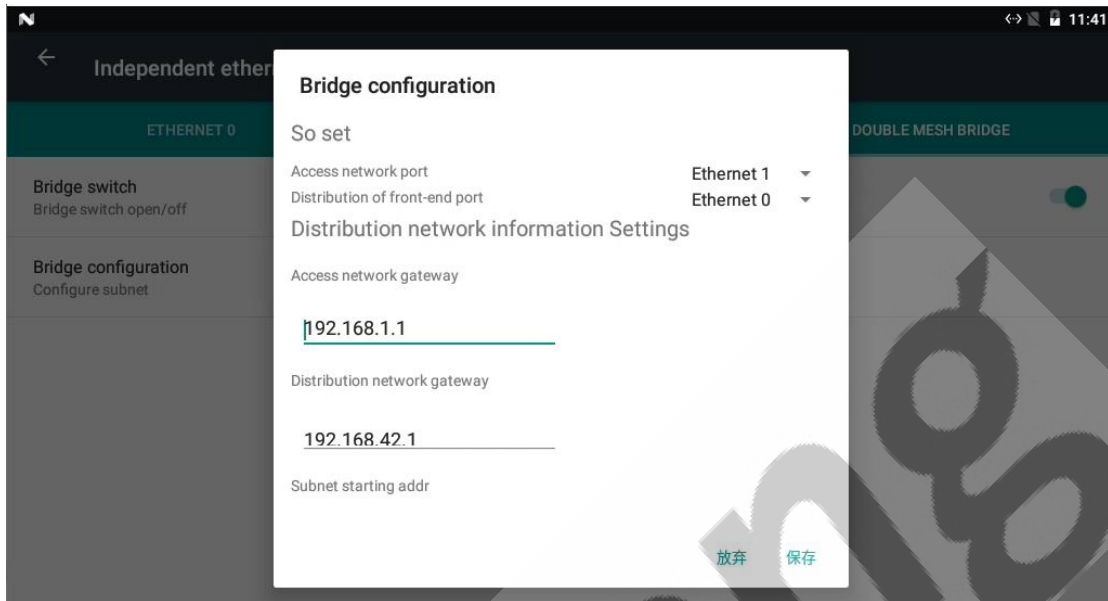
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Note: If it is the first time to use this function, please configure it.



Configuration Interface:

First column is to select which network ports are as access Ethernet port and allocated Ethernet port.

Second column is the gateway address for the access Ethernet port (Need to check by yourself)

Third column is to distribute gateway address (Set by yourself)

Forth column and fifth column are the range of subnet IP.

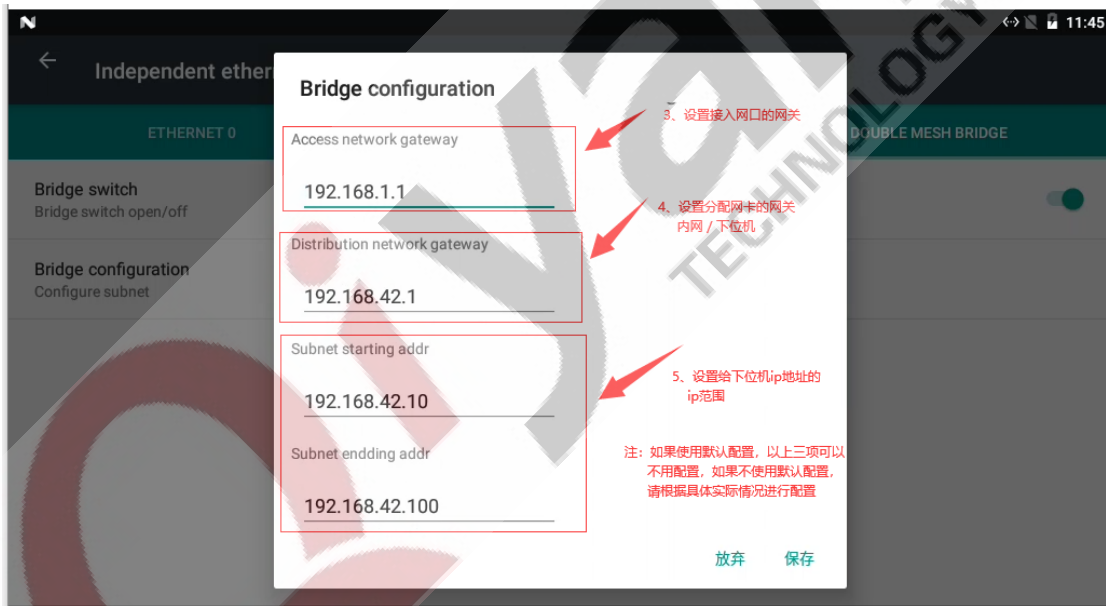
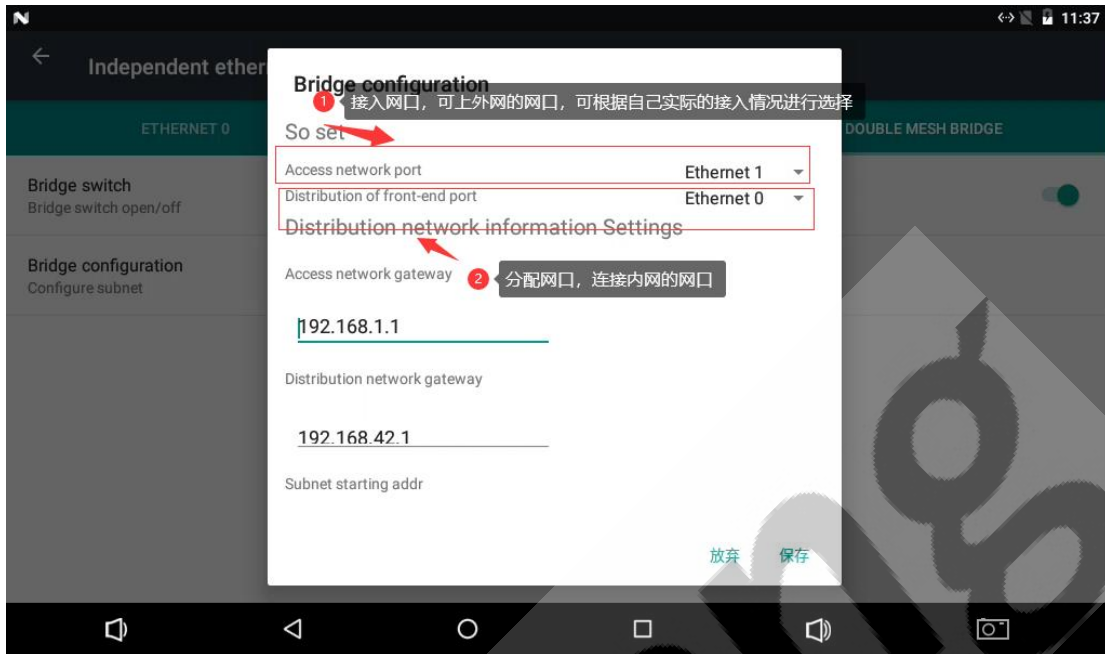
Sixth column and seventh column are DNS address.

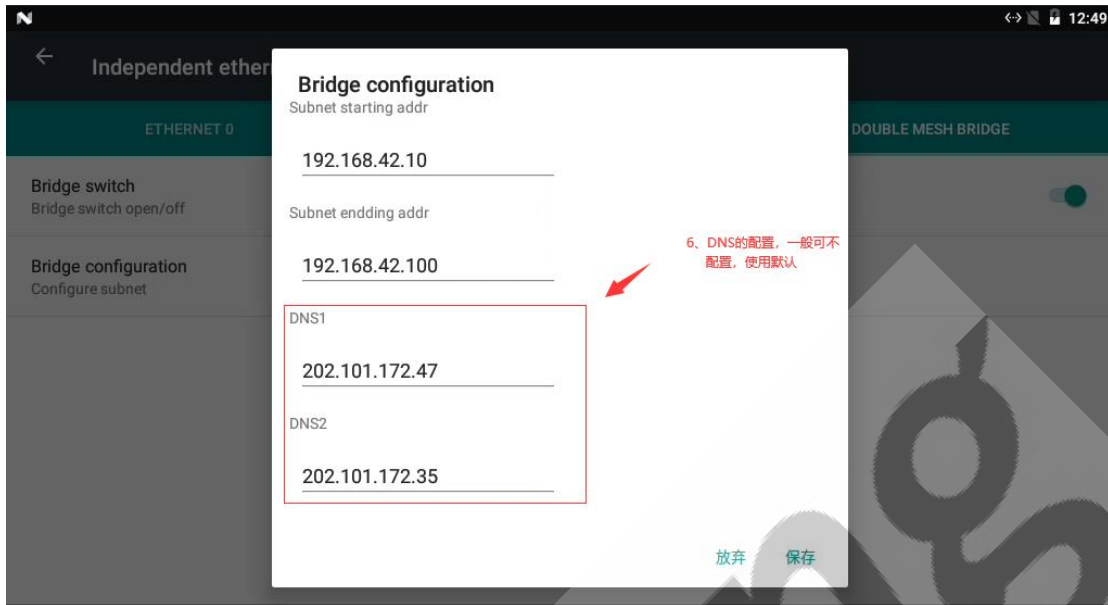
Description:

Default gateway address: 192.168.42.1

Default subnet allocated range: 192.168.42.10-99

The configuration method is as below:



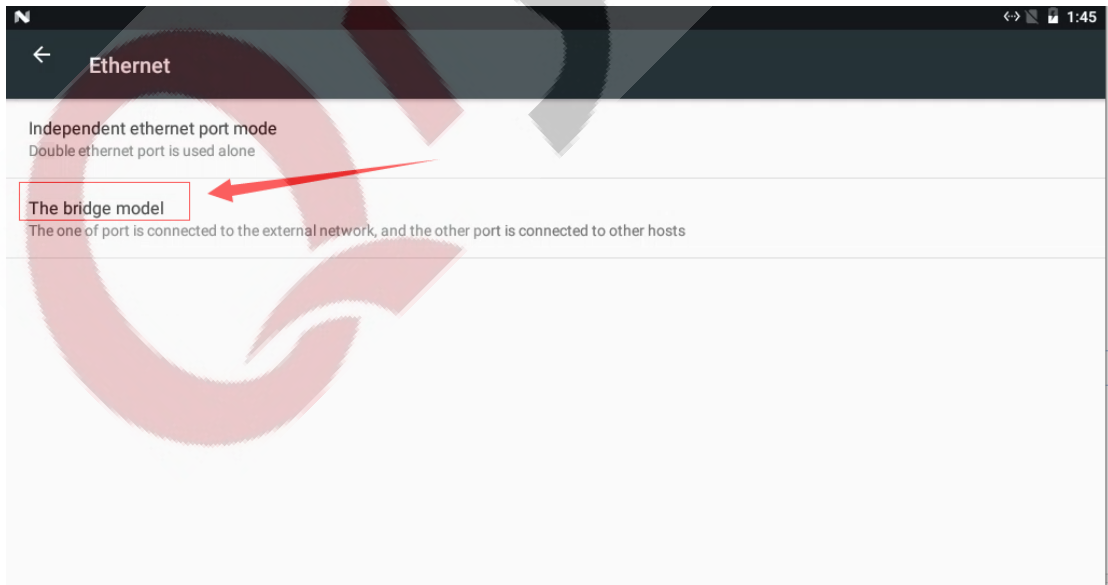


Click 'Save', you can visit the Internet while the network icon shown on the interface. The connected slave computer is also available for visiting Internet (Use 'ifconfig' to check slave computer IP address if it is still in your IP range.)

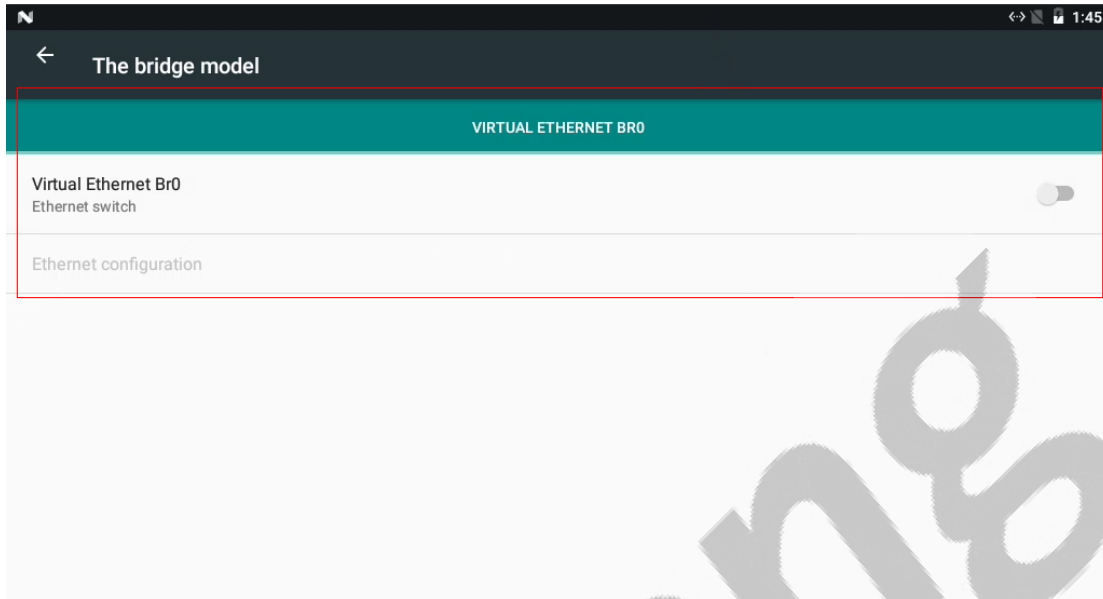
### 8.1.2. Network Bridge Mode

#### 1. Usage

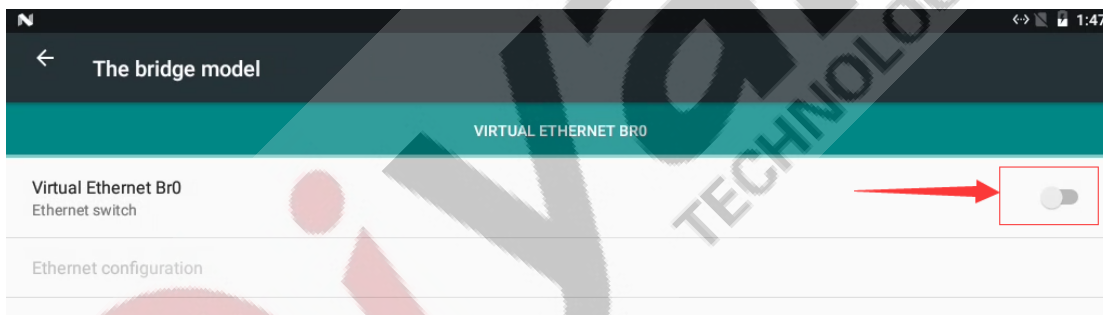
Click 'The bridge model' in Ethernet option:



Enter :



Click 'ON/OFF':



Note:

1.If selecting this mode, all switch in independent network card mode should be off. Or you can't use this function;

2.In network bridge mode, insert at any LAN port, the network is accessible. But don't insert LAN cable to these two Ethernet ports at same time.(It will cause a loop-all network will not be available.)

3.In network bridge mode, one Ethernet port connects to LAN cable, another Ethernet port connects to slave computer, then, the slave computer could obtain the same network segment IP as mainboard, at this time, the slave computer could also access the Internet.

### 8.1.3. Options:

#### 1) Independent Network Mode

Two LAN ports could be enabled or disabled independently, IP is also can be obtained independently.

#### 2) Network Bridge Mode

##### Description:

The board has only one existing IP address.

##### Application Scenarios:

One LAN port connects external network, another LAN port connects to other device, other device be allocated the same segment address as the mainboard.

#### 3) Bridge Pattern

Description: Mainboard has two IP, one IP is allocated from Extranet to mainboard, another IP is set by user (Gateway address for using as Local Area Network)

##### Application Scenarios:

Two Ethernet ports could be used independently, including one Ethernet port connects Extranet, another Ethernet port be taken as slave computer for Gateway to allocate designated IP address, the slave computer could visit Internet by this Gateway.

#### 4) Distinction:

##### Network Bridge Mode & Bridge Pattern

Network bridge port can't be taken as Gateway, the connected slave computer IP and mainboard network segment is same.

The bridge pattern network port could be taken as gateway, it could be allocated to the slave computer with different IP address (To create a new local area network).



## 8.2. WiFi Test

- Disconnect Ethernet
- Open 'WIFI' in 'Setting'
- Open 'Search' in Menu, to test if network is working.

## 8.3. Bluetooth

- Open Bluetooth in 'Setting', to test Bluetooth

## 8.4. 4G

- Turn off WIFI, Ethernet
- Power off, then connect 4G module (EC20), SIM card, power on again;
- Open 'Search' in Menu, to test if it network is working.

## 9. Time Test

To check if RTC time is accurate after power-off for a while.

- Click 'Setting' in main interface, to find out 'Date and Time' option, to do time setting (1. Network Time Synchronization-Connect Network; 2. Manual Setting)
- After setting time, power-off for a while, then power on again, check if the time is accurate.
- To connect network, then check if it could be synchronized automatically, disconnect network for a while, then power on again, to check if the travelling time is correct, to confirm the RTC accuracy.
- Note: Suggest to use network time to synchronize, then test as the previous step.

## Remark:

As mentioned above:

As the issue existed on Core Board or Base Board, please be careful of the combination for Core Board with Base Board.

1. SPI To UART (SPI2)

Core Board :SPI2-NO,ETH-OK , use them to test Ethernet, if SPI is with issue, change another Core Board to test.

2. Ethernet

Core Board remark with ETH-OK, it means you can test Ethernet.

Remark: While testing, if some functions can't use, please change the Base Board.

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