Iduino Yun Shield

From Geeetech Wiki

Contents

Introduction

Iduino_Yun_Shield, an extremely powerful development for Arduino board, is designed to solve the problems of connection and storage which exist in the Arduino board. Iduino_Yun_Shield runs Open Source OpenWrt System (Same system as runs in Arduino Yun) and it is fully compatible with Arduino IDE V1.5.4 or later versions. Yun Shield is an ideal choice for Arduino Projects which require various internet connections and more storage.

Actually, Iduino_Yun_Shield is equal to the official Arduino Yun, but Iduino_Yun_Shield is more flexible because it can work with other Arduino board such as Uno, Duemilanove, and Mega etc. Iduino_Yun_Shield uses external antenna which provides stable connection under various environments.

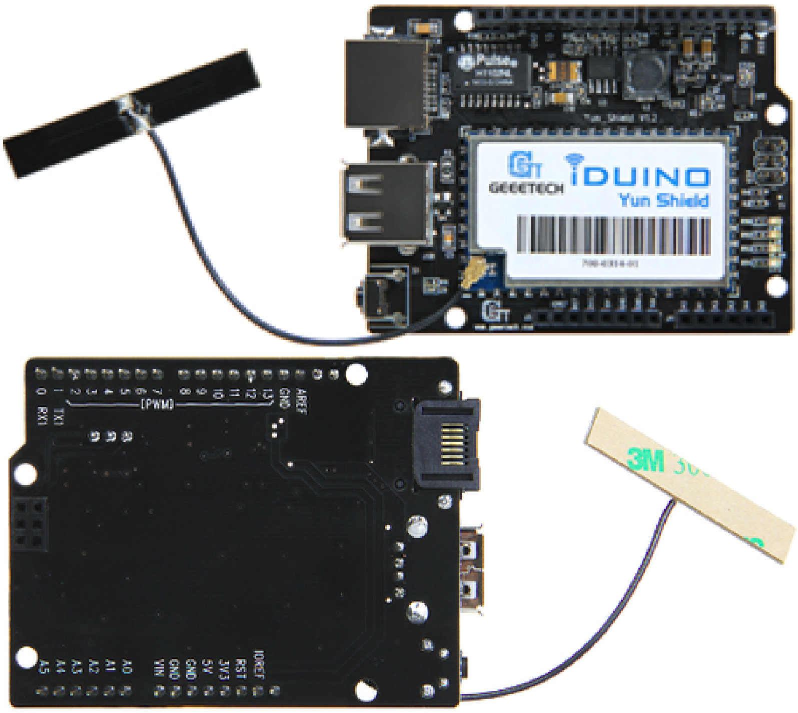
The Iduino Yun is the core module of Iduino_Yun_Shield. And it requires 200mA current when in full load, so it is powered by the Arduino VIN pins to avoid overheated in the Arduino onboard 5V LD0.

Features

- Open source Linux system (OpenWrt) inside
- Low power consumption
- Compatible with Arduino IDE 1.5.4 or later versions. Users can program, debug or upload Sketch to Arduino board
- Managed by Web GUI, SSH via LAN or Wifi
- Software upgradable via network

- Support internet connection via LAN port, Wifi or 3G dongle
- Support USB flash to provide storage for Arduino projects
- Reliable design provides robust system
- Compatible with Arduino Leonardo, Uno, Duemilanove, Diecimila and Mega

Overview and Hard ware Resources



1. Processor: 400MHz, 24 MIPS
2. Flash: 16MB
3. RAM: 64MB
4. Power input: 4.75V~23V via Arduino Vin pin
5. 1×10M/100M RJ45
6. Connector 150M Wifi 802.11 b/g/n
7. External antenna via I-Pex
8. 1×USB port for USB storage or 3G connection
9. 1×Reset button
10. Compatible with 3.3V or 5V I/O Arduino
11. Size: 70mm * 53mm*24mm
12. Weight: 33.2g

Software Resource

Compiling environment: Arduino IDE 1.5.4 or later version

Source

The Open Source hardware of Iduino_Yun_Shield: https://github.com/dragino/modules/tree/master/hardware/YunShield

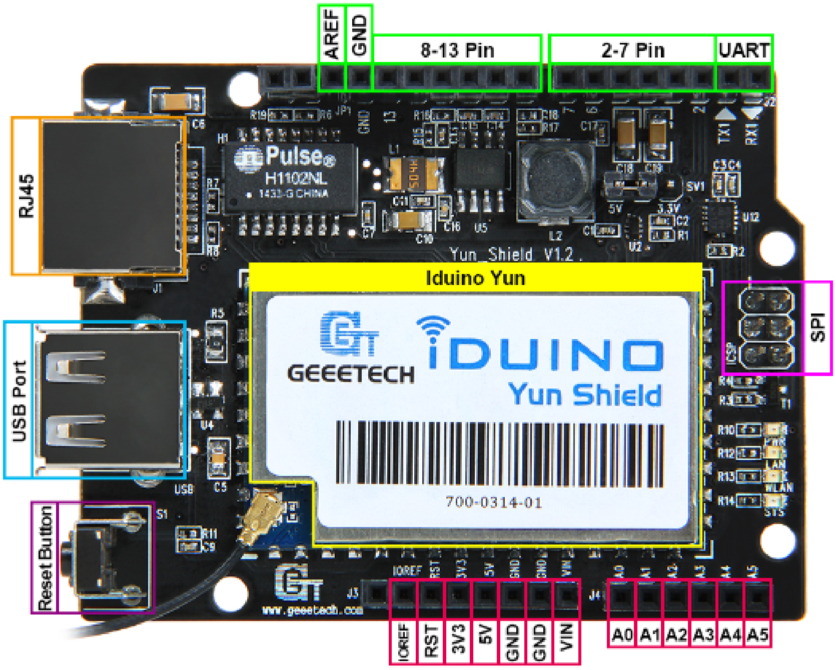
The Open Source code of Iduino_Yun_Shield: https://github.com/dragino/linino

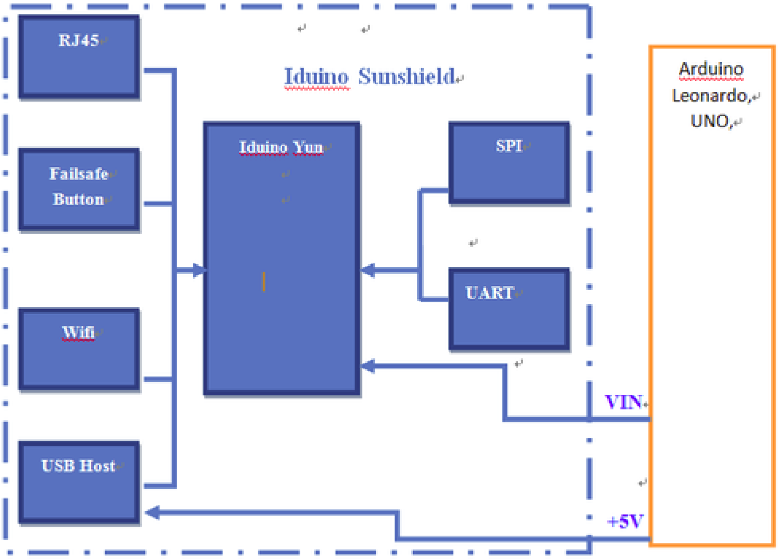
The official webpage of Arduino Yun Bridge: http://arduino.cc/en/Reference/YunBridgeLibrary

The official forum of Arduino Yun http://forum.arduino.cc/index.php?board=93.0

Interfaces

Interface layout





Interface specifications

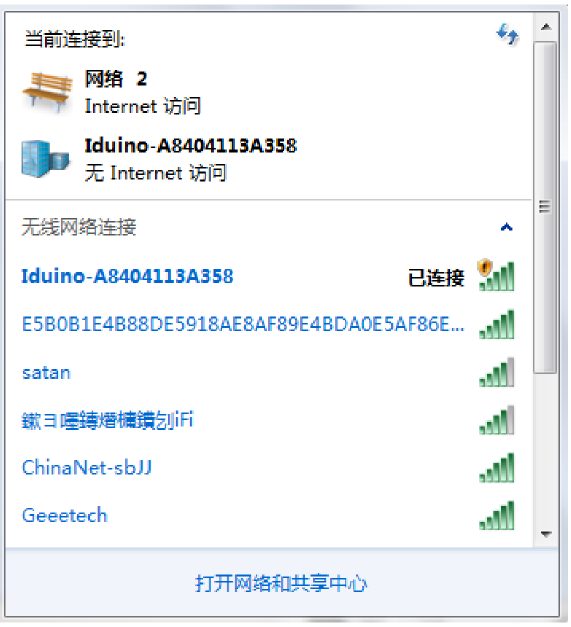
- RJ45, Wifi, USB port and Failsafe are connected to the Iduino Yun module directly, and the Iduino Yun module uses SPI and UART to communicate with Arduino board
- The SPI interface is used to upload the sketch coming from the Arduino IDE. SPI interface connects to Iduino Yun only in the upload time, so the Arduino SPI can still be used to connect to the other slave devices.
- The pins of two sides are respectively connected to the corresponding pins of Arduino

How to set up Iduino_Yun_Shield

Getting IP address

There is a Wifi interface a LAN port on the Iduino_Yun_Shield. And they both have an IP address for network connecting and device management.

Factory IP of Wifi port



当前连接到:

网络 2
Internet 访问

Iduino-A8404113A358
无 Internet 访问

无线网络连接

Iduino-A8404113A358 已连接

E5B0B1E4B88DE5918AE8AF89E4BDA0E5AF86E...

satan

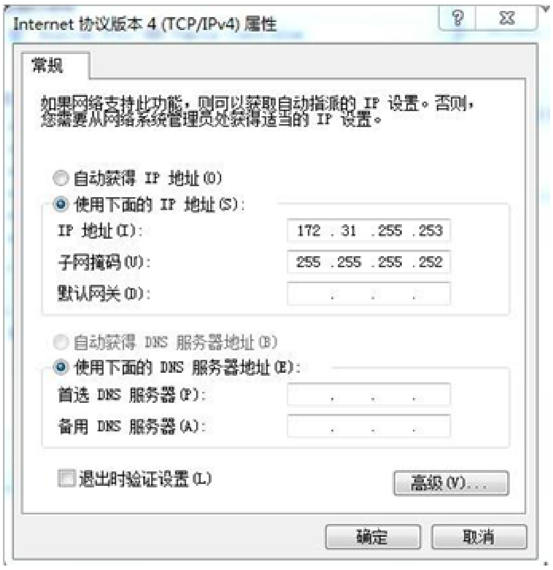
鏉ヨ嚜鐭ヨ瘑鐨刉iFi

ChinaNet-sbJJ

Geeetech

At the first boot of Iduino_Yun_Shield, an unsecure Wifi network called Iduino-xxxxxx will automatically generate. Users can use their laptop to connect to this Wifi network and the laptop will get an IP 192.168.240.xxx. The default IP of Iduino_Yun_Shield is **192.168.240.1**.

FallBack IP



Internet 协议版本 4 (TCP/IPv4) 属性

常规

如果网络支持此功能，则可以获取自动指派的 IP 设置。否则，您需要从网络系统管理员处获得适当的 IP 设置。

○ 自动获得 IP 地址(O)

● 使用下面的 IP 地址(S):

IP 地址(I): 172 . 31 . 255 . 253

子网掩码(U): 255 . 255 . 255 . 252

默认网关(D): . . .

○ 自动获得 DNS 服务器地址(B)

● 使用下面的 DNS 服务器地址(E):

首选 DNS 服务器(P): . . .

备用 DNS 服务器(A): . . .

□ 退出时验证设置(L)

The LAN port of Iduino_Yun_Shield distributes a Fall Back IP

172.31.255.254/255.255.255.252

If the user’s laptop IP is

172.31.255.253/255.255.255.252

Then you can access Yun Shield by Fall Back IP.

Detect IP from Arduino IDE

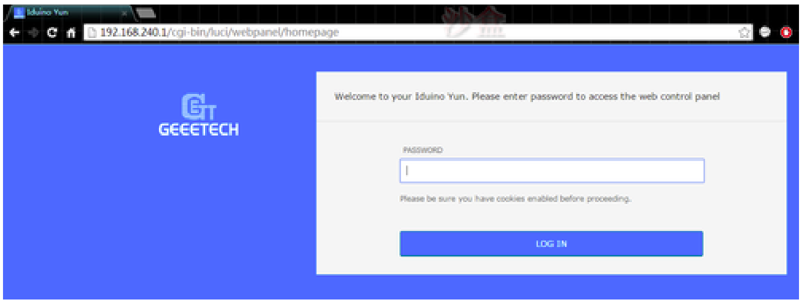
If the Ethernet port of Iduino_Yun_Shield is connected to Uplink Router or Wifi Router, the PC in the same network can use Arduino IDE to detect the IP of Iduino_Yun_Shield.

Allocation pattern

The Iduino_Yun_Shield runs Open Source Linux System. If you have a PC which is in the same network with Iduino_Yun_Shield, you can access its system by Web or Secure Shell (SSH).

Webpage access

Use browser (recommend Firefox or Chrome) to set Iduino_Yun_Shield, and you will see login page after entering 192.168.240.1.



Welcome to your Iduino Yun. Please enter password to access the web control panel

PASSWORD

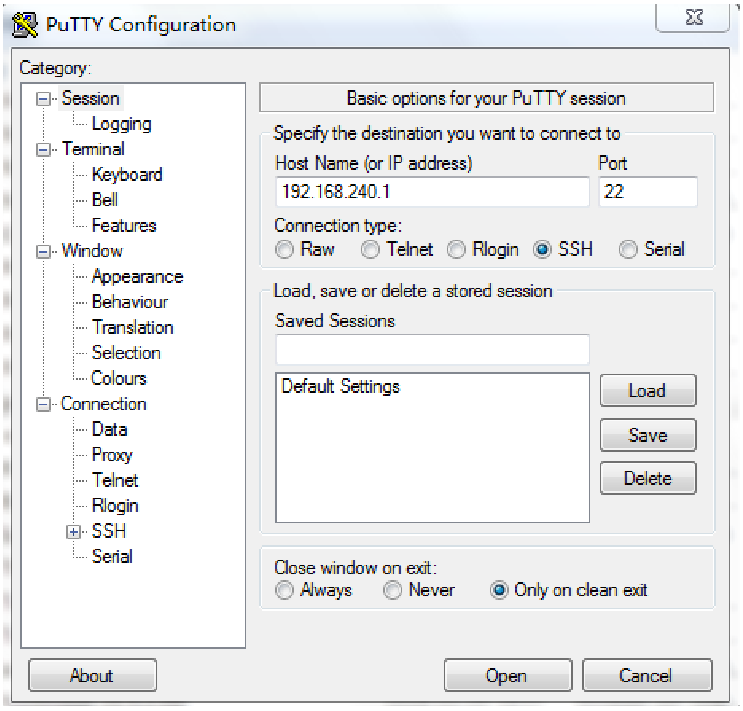
Please be sure you have cookies enabled before proceeding.

LOG IN

Default password for Iduino_Yun_Shield is ‘iduino’.

SSH Access

By SSH Access, users can enter Linux system directory and customize more functions as well as applications.



Specify the destination you want to connect to

Host Name (or IP address): 192.168.240.1

Port: 22

Connection type: ○ Raw ○ Telnet ○ Rlogin ● SSH ○ Serial

Close window on exit: ○ Always ○ Never ● Only on clean exit

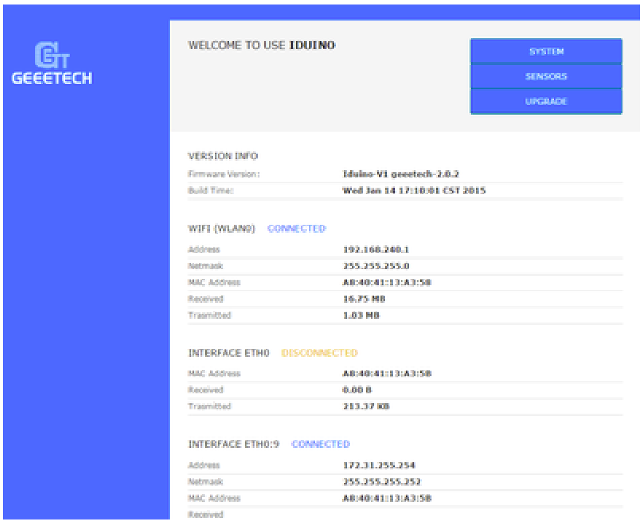
SSH Access:

IP address: IP address of Iduino_Yun_Shield
Port: 22
User Name: root
Password: iduino (default)

Webpage Setting

General setting

After login, the GUI will show the WIFI/ETH status.



WELCOME TO USE **IDUINO**

VERSION INFO

Firmware Version:	Iduino-V1 geeetech-2.0.2
Build Time:	Wed Jan 14 17:10:01 CST 2015

WIFI (WLAN0) CONNECTED

Address	192.168.240.1
Netmask	255.255.255.0
MAC Address	A8:40:41:13:A3:58
Received	16.75 MB
Trasmitted	1.03 MB

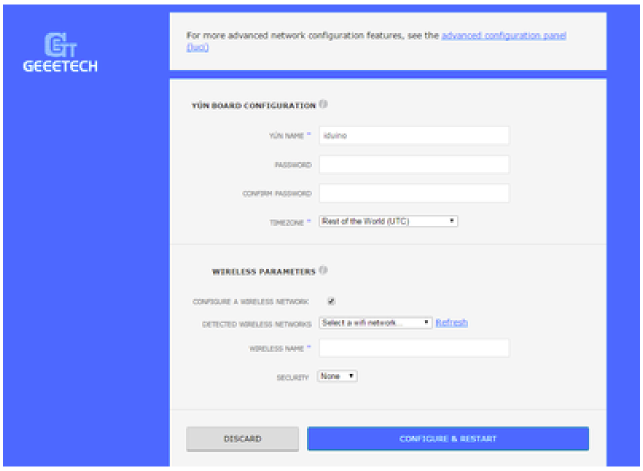
INTERFACE ETH0 DISCONNECTED

MAC Address	A8:40:41:13:A3:58
Received	0.00 B
Trasmitted	213.37 KB

INTERFACE ETH0:9 CONNECTED

Address	172.31.255.254
Netmask	255.255.255.252
MAC Address	A8:40:41:13:A3:58
Received	

Click the SYSTEM button, and you can set the device password and parameter.



For more advanced network configuration features, see the advanced configuration panel (luci)

YÚN BOARD CONFIGURATION

YÚN NAME * iduino

PASSWORD

CONFIRM PASSWORD

TIMEZONE * Rest of the World (UTC)

WIRELESS PARAMETERS

CONFIGURE A WIRELESS NETWORK ☑

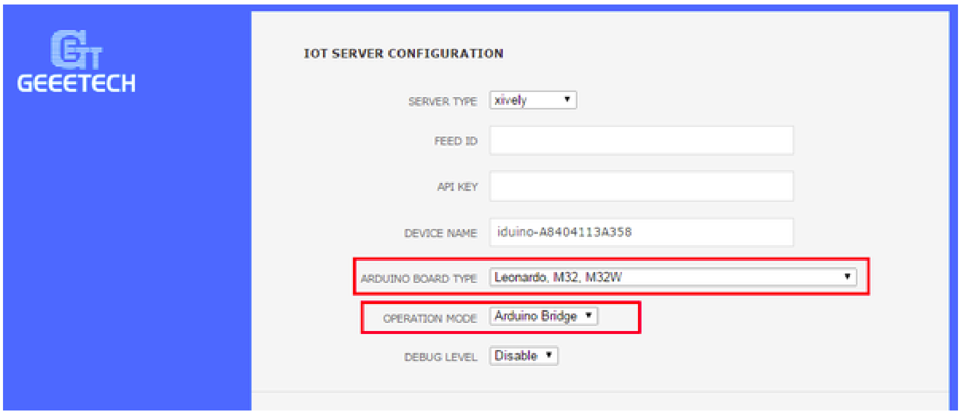
DETECTED WIRELESS NETWORKS Select a wifi network... Refresh

WIRELESS NAME *

SECURITY None

Settings of Iduino

Click SENSORS button and enter the settings relate to Iduino



IOT SERVER CONFIGURATION

SERVER TYPE xively

FEED ID

API KEY

DEVICE NAME iduino-A8404113A358

ARDUINO BOARD TYPE Leonardo, M32, M32W

OPERATION MODE Arduino Bridge

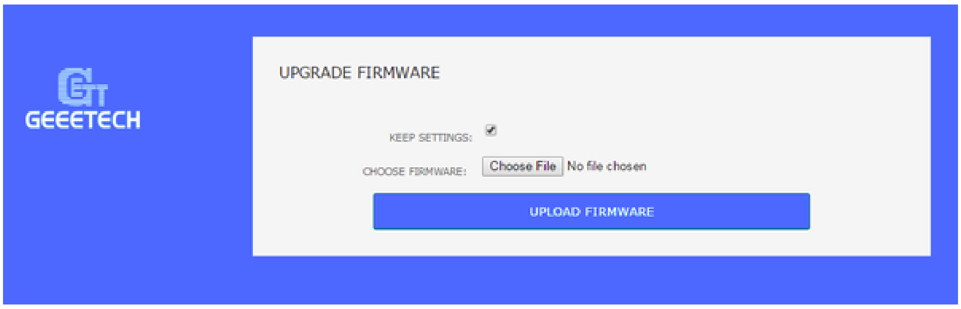
DEBUG LEVEL Disable

Arduino board Type: Define the setting of bootloader/mcu type/fuse during Sketch uploading

Operation Mode: Make sure the mode is Arduino Bridge mode so that the Bridge class can work

Upgrade

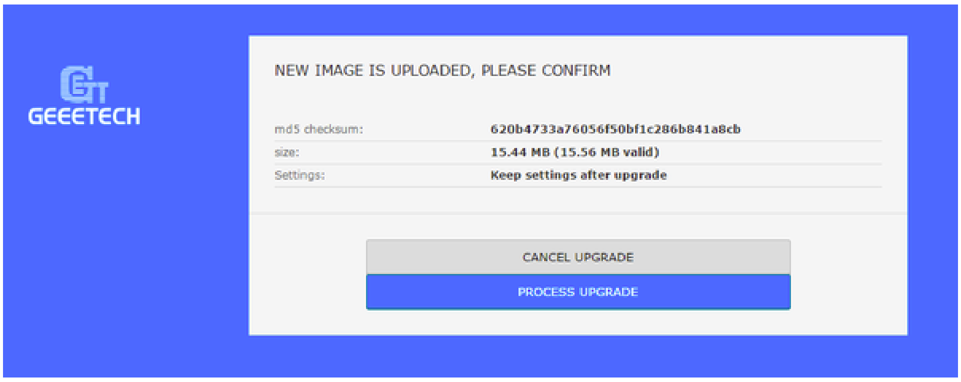
You can repair bug, upgrade system, and add new function by upgrading Iduino_Yun_Shield firmware through GUI. Turn to page of GUI→Upgrade and choose correct firmware. The firmware used for webpage upgrade should be Sysupgrade Type, and you can decide to save setting or not after upgrade.



UPGRADE FIRMWARE

KEEP SETTINGS: ☑

CHOOSE FIRMWARE: No file chosen



NEW IMAGE IS UPLOADED, PLEASE CONFIRM

md5 checksum:	620b4733a76056f50bf1c286b841a8cb
size:	15.44 MB (15.56 MB valid)
Settings:	Keep settings after upgrade

Usually, it takes 2 minutes to upgrade firmware. The Iduino_Yun_Shield will restart automatically and all the LEDs will blink together.

Use with Arduino Board

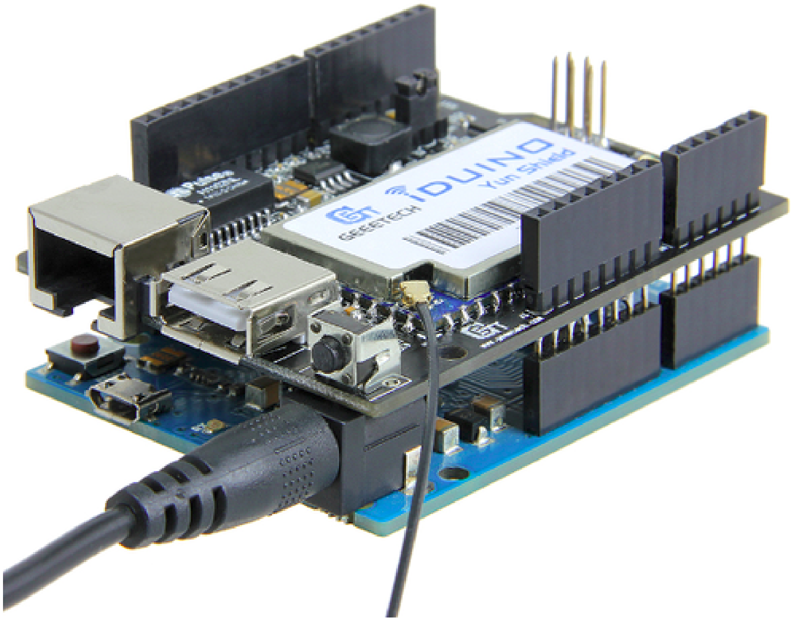
The Iduino_Yun_Shield uses SPI for uploading sketch and uses UART port for Bridge class to talk to the AVR. While connecting Iduino_Yun_Shield to Arduino board, below points should be checked:

1. Whether the Arduino board is powered by DC jack;
2. If the board type setting is correct in the Iduino_Yun_Shield;
3. If the board type setting is correct in the Arduino IDE;
4. Whether the Arduino SPI and UART is not influenced by other hardware
5. Make sure the UART mode is in Arduino Bridge.

Connect to Arduino Board

Connect to Leonardo

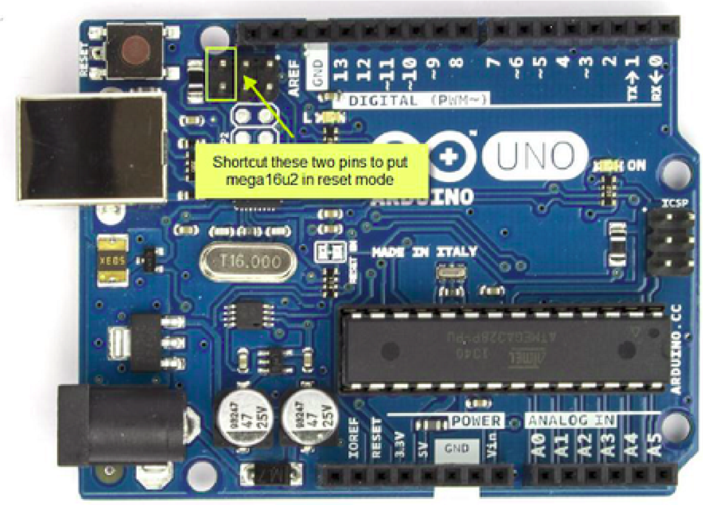
As is shown in the follow figure, simply plug the Iduino_Yun_Shield on the top of Leonardo, and power the Leonardo via DC jack



In Arduino IDE, the board type selected should be Arduino Yun.

Connect to Arduino Uno

1) In Uno, the UART connection between mega328P and mega16u2 will influence the Bridge feature with Iduino_Yun_Shield. So we have to disconnect it by setting the mege16u2 into reset mode, as below:



Shortcut these two pins to put mega16u2 in reset mode

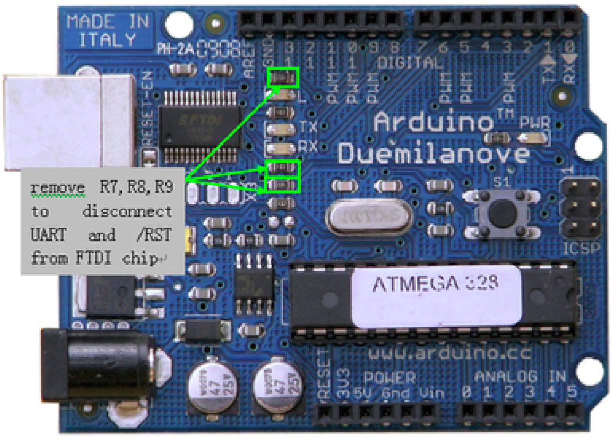
Note: USB upgrade/debug won’t work after this change. User must upgrade/debug via Arduino IDE via Wifi.

2) Add board type in the file: Arduino\hardware\arduino\avr\board.txt, as below, and reopen the Arduino IDE:

```
unoyun.name=Arduino Uno --Iduino Yún
unoyun.upload.via_ssh=true
unoyun.vid.0=0x2341
unoyun.pid.0=0x0043
unoyun.vid.1=0x2341
unoyun.pid.1=0x0001
unoyun.upload.tool=avrdude
unoyun.upload.protocol=arduino
unoyun.upload.maximum_size=32256
unoyun.upload.maximum_data_size=2048
unoyun.upload.speed=57600
unoyun.upload.disable_flushing=true
unoyun.upload.use_1200bps_touch=true
unoyun.upload.wait_for_upload_port=true
unoyun.bootloader.tool=avrdude
unoyun.bootloader.low_fuses=0xff
unoyun.bootloader.high_fuses=0xde
unoyun.bootloader.extended_fuses=0x05
unoyun.bootloader.file=optiboot/optiboot_atmega328.hex
unoyun.bootloader.unlock_bits=0x3F
unoyun.bootloader.lock_bits=0x0F
unoyun.build.mcu=atmega328p
unoyun.build.f_cpu=16000000L
unoyun.build.board=AVR_YUN
unoyun.build.core=arduino
unoyun.build.variant=standard
```

Connect to Arduino Duemilanove/Diecimila

1) The mega avr interface on the Duemilanove/Diecimila is connected to the FTDI chip, and we must disconnect them as the below figure:



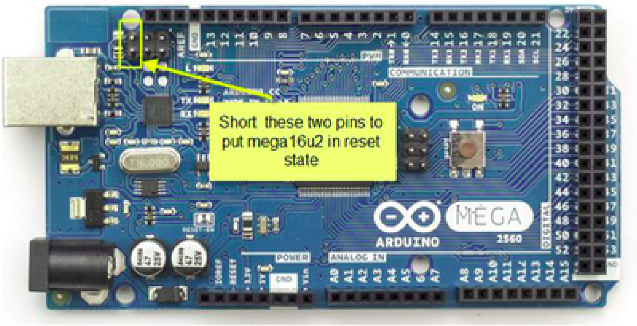
remove R7, R8, R9 to disconnect UART and /RST from FTDI chip

2) Add a “Duemilanove” board type in the file: Arduino\hardware\arduino\avr\board.txt. User can use the Uno Yun board type if there is mega328P. For mega328/mega168/mega168P, they can modify the upload.maximum_data/upload.maximum_size and build.mcu accordingly.

3) Plug the Iduino_Yun_Shield on the Duemilanove and power it via DC jack.

Connect to Arduino Mega2560

1) In Mega2560, the UART between mega2560 and mega16u2 will influence the Bridge feature with Iduino_Yun_Shield. So we have to disconnect it by setting mega16u2 into reset mode, as below figure:



Short these two pins to put mega16u2 in reset state

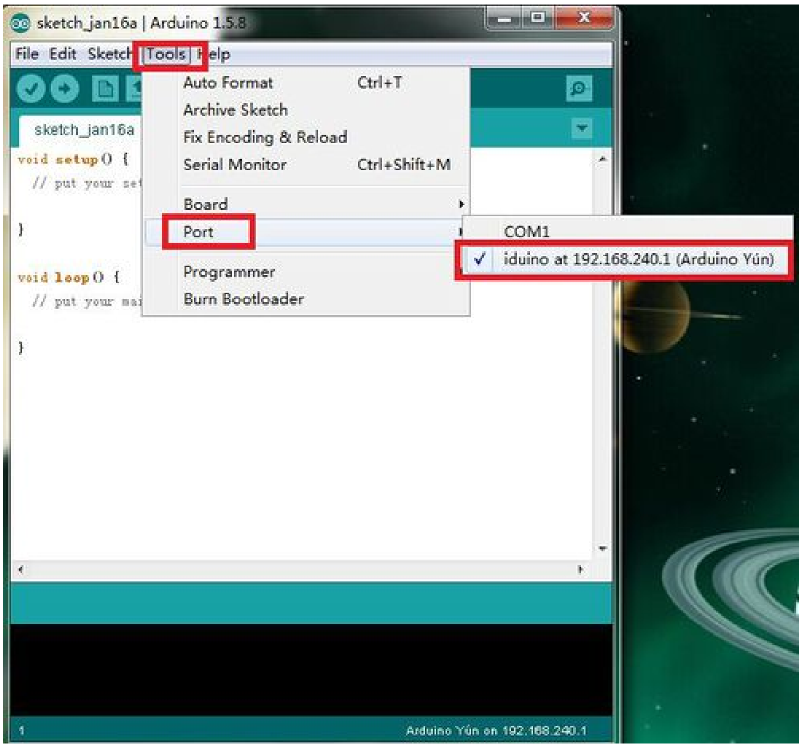
2) Add a “Mega2560 Yun” board type in the file: Arduino\hardware\arduino\avr\board.txt, as below, and reopen the Arduino IDE:

```
mega2560Yun.name=Arduino Mega 2560 -- Iduino Yún
mega2560Yun.upload.via_ssh=true
mega2560Yun.vid.0=0x2341
mega2560Yun.pid.0=0x0044
mega2560Yun.vid.1=0x2341
mega2560Yun.pid.1=0x003f
mega2560Yun.upload.tool=avrdude
mega2560Yun.upload.protocol=arduino
mega2560Yun.upload.maximum_size=258048
mega2560Yun.upload.maximum_data_size=8192
mega2560Yun.upload.speed=57600
mega2560Yun.upload.disable_flushing=true
mega2560Yun.upload.use_1200bps_touch=true
mega2560Yun.upload.wait_for_upload_port=true
mega2560Yun.bootloader.tool=avrdude
mega2560Yun.bootloader.low_fuses=0xff
mega2560Yun.bootloader.high_fuses=0xd8
mega2560Yun.bootloader.extended_fuses=0xfd
mega2560Yun.bootloader.file=stk500v2/stk500boot_v2_mega2560.hex
mega2560Yun.bootloader.unlock_bits=0x3F
mega2560Yun.bootloader.lock_bits=0x0F
mega2560Yun.build.mcu=atmega2560
mega2560Yun.build.f_cpu=16000000L
mega2560Yun.build.board=AVR_MEGA2560
mega2560Yun.build.core=arduino
mega2560Yun.build.variant=mega
```

3) Plug the Iduino_Yun_Shield on the Mega2560 and power it via DC jack.

Detect Iduino_Yun_Shield

Make sure your laptop and Iduino_Yun_Shield are in the same network. The Iduino_Yun_Shield will broadcast data in this network and Arduino IDE will show Iduino_Yun_Shield in Tools>Port after receiving this data.


sketch_jan16a | Arduino 1.5.8
File Edit Sketch Tools Help
Auto Format Ctrl+T
Archive Sketch
Fix Encoding & Reload
Serial Monitor Ctrl+Shift+M
Board
Port
Programmer
Burn Bootloader
COM1
✓ iduino at 192.168.240.1 (Arduino Yún)
sketch_jan16a
1
Arduino Yún on 192.168.240.1

```
void setup() {
  // put your se

}

void loop() {
  // put your mai

}
```

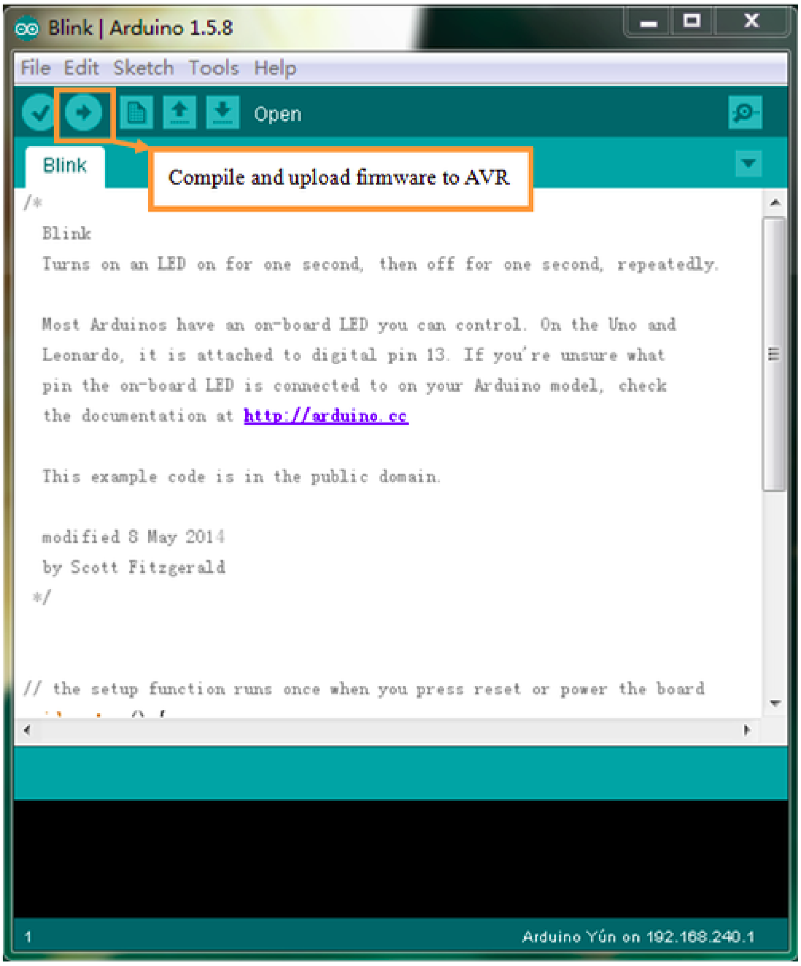
Upload Sketch

1) In the Arduino IDE, choose correct board type for AVR module.

2) In the Arduino IDE, choose correct port (may be the address of Arduino Yun).

3) In the Iduino_Yun_Shield GUI>Sensor page, choose correct board type for uploading.

4) Compile and upload sketch to Arduino board. During uploading, the Iduino_Yun_Shield will ask you to input the password, which is “iduino” by default.


Blink | Arduino 1.5.8
File Edit Sketch Tools Help
Open
Blink
Compile and upload firmware to AVR
1
Arduino Yún on 192.168.240.1

```
/*
  Blink
  Turns on an LED on for one second, then off for one second, repeatedly.

  Most Arduinos have an on-board LED you can control. On the Uno and
  Leonardo, it is attached to digital pin 13. If you're unsure what
  pin the on-board LED is connected to on your Arduino model, check
  the documentation at http://arduino.cc

  This example code is in the public domain.

  modified 8 May 2014
  by Scott Fitzgerald
 */


// the setup function runs once when you press reset or power the board
```

Example

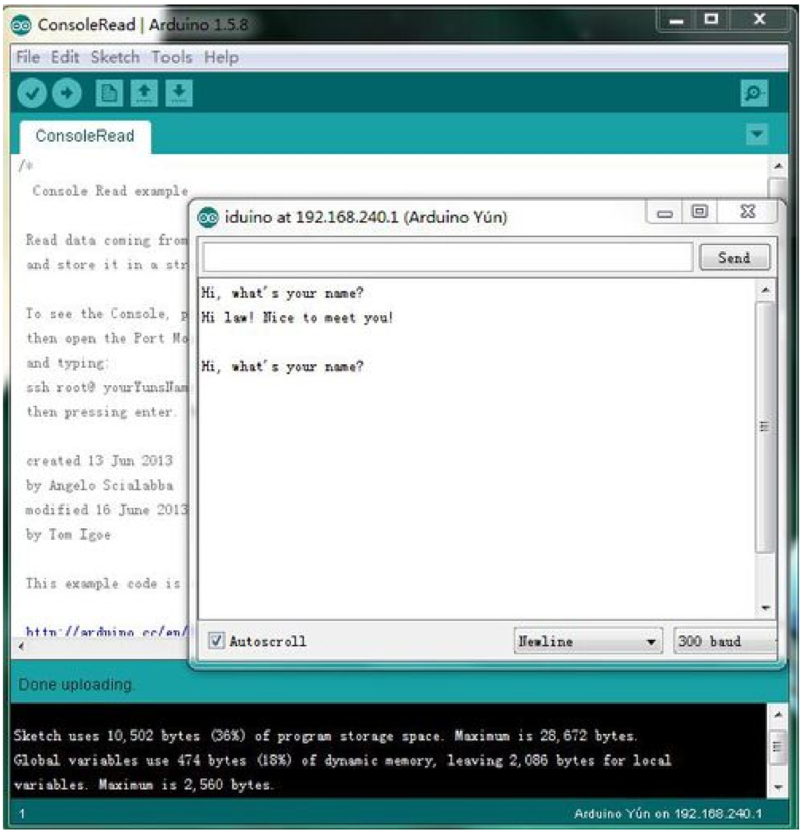
Say hello to Linux

Introduction: This example is a Hello test between Arduino and Iduino_Yun_Shield, which can be found at Arduino IDE--> File --> Examples --> Bridge --> ConsoleRead. The course of this example can be checked at http://arduino.cc/en/Tutorial/ConsoleRead. The code and notes will be shown as below:

Code:

```
#include <Console.h>//use Console class for Arduino IDE debug over Wifi, similarto Serial class,
String name;
voidsetup() {
// Initialize Console and wait for port to open:
Bridge.begin();
Console.begin();
// Wait for Console port to connect
while (!Console);
Console.println("Hi, what's your name?");//Data flow: Arduino --> Yun Shield --> Arduino IDE
}
void loop() {
if (Console.available() > 0) {
char c = Console.read(); //read the next char received, data flow: IDE --> Yun Shield--> Arduino
// look for the newline character, this is the last character in the string
if (c == '\n') {
//print text with the name received
Console.print("Hi ");
Console.print(name);
Console.println("! Nice to meet you!");
Console.println();
// Ask again for name and clear the old name
Console.println("Hi, what's your name?");
name = "";  // clear the name string
}
Else {  // if the buffer is empty Cosole.read() returns -1
name += c; // append the read char from Console to the name string
}
}
}
```

Test Interface:


ConsoleRead | Arduino 1.5.8
File Edit Sketch Tools Help
ConsoleRead
iduino at 192.168.240.1 (Arduino Yún)
Send
Done uploading.
1
Arduino Yún on 192.168.240.1

```
/*
  Console Read example

 Read data coming fro
 and store it in a str

 To see the Console, p
 then open the Port Mo
 and typing:
 ssh root@ yourYunsNam
 then pressing enter.

 created 13 Jun 2013
 by Angelo Scialabba
 modified 16 June 2013
 by Tom Igoe

 This example code is

 http://arduino.cc/en/
```

```
Hi, what's your name?
Hi law! Nice to meet you!

Hi, what's your name?
```

☑ Autoscroll Newline 300 baud

```
Sketch uses 10,502 bytes (36%) of program storage space. Maximum is 28,672 bytes.
Global variables use 474 bytes (18%) of dynamic memory, leaving 2,086 bytes for local
variables. Maximum is 2,560 bytes.
```

FAQ

The advantages of Iduino_Yun_Shield compared to official Arduino Yun

In Hardware Aspect

Both Arduino Yun and Iduino_Yun_Shield have the same CPU, Memory size, and RAM size for the Linux system. The Arduino Yun is an integrated of Linux part and MCU part. Iduino_Yun_Shield is designed as a shield which can be used with existing Arduino boards.

Basically, Iduino_Yun_Shield + Arduino Leonardo equal to an Arduino Yun, but Iduino_Yun_Shield is more flexible because it can be used with other Arduino boards such as Arduino Uno, Duemilanove, and Diecimila etc.

Iduino_Yun_Shield is replicable and reproducible: The design of Iduino_Yun_Shield is open and the most complicated and difficult parts are in the Dragino HE module. User can purchase the Dragino HE module separately to customize their projects and release variant Yun Solution.

Stable and flexible Wifi performance: Arduino Yun uses chip-like antenna design. If there is a shield on the top of Arduino Yun, the Wifi will be greatly shielded and lead to a poor Wifi performance. Instead, Iduino_Yun_Shield uses external antenna design. User can connect different type of antennas to the I-pex connector of Iduino_Yun_Shield and that makes the installation more flexible and the signal can transferred several kilometers.

In Software Aspect

Iduino_Yun_Shield has repaired some bugs and adds more functions as well as supports more board types.

Is Iduino_Yun_Shield compatible with different Arduino boards?

If the Arduino board is different from the supported boards, you can check the following list to check the compatibility:

1.The voltage of Vin pin to power the Iduino_Yun_Shield is 7~15V;

2.The variant has same definition and position of SPI in the ICSP header as the official board;

3.The variant has same definition and position of D0 and D1 pins as the official board

4.Check whether there are ICs connected to the AVR and the UART of SPI, and evaluate if they will influence the communication between Yun Shield and AVR.

The system structure section of Iduino_Yun_Shield well explains the working principle of it. If you are still not sure if Iduino_Yun_Shield is compatible with their boards or having trouble in the compatibility, then you can send the board info to support@dragino.com, and our team will review and check it.

How to set up /www/sd and mnt/sd?

The way to use /www/sd and /mnt/sd is as the same as Arduino Yun. User can prepare a USB flash and create directory /arduino and /arduino/www at the root of USB flash. Then input the USB flash into the Iduino_Yun_Shield and it will automatically create directory /www/sd and /mnt/sd, which link to /arduino and /arduino/www.

What if Arduino IDE doesn’t detect Iduino_Yun_Shield?

You can check the below issues:

1. Whether the Arduino version is 1.5.4 or later;
2. Whether you PC is in the same network with the Iduino_Yun_Shield;
3. If the Iduino_Yun_Shield boots in advance than Arduino IDE, this situation may happen. So try to reboot the Iduino_Yun_Shield and check again.

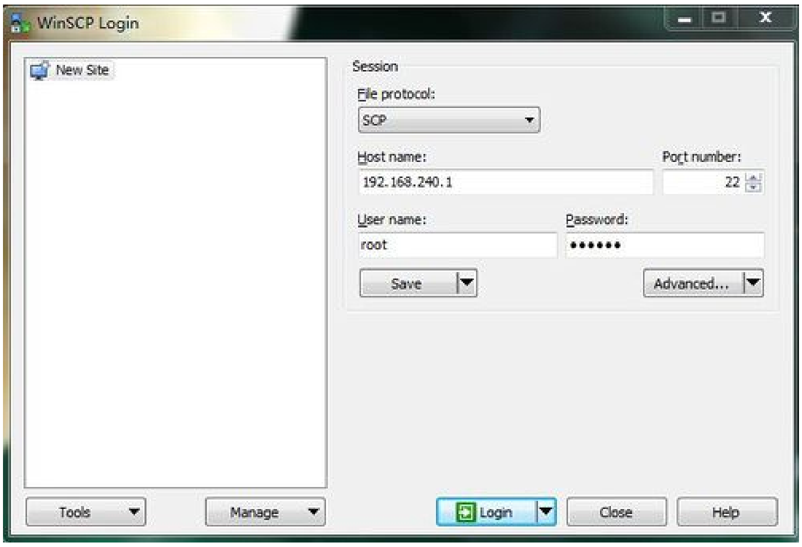
Where can you find the source code of the Iduino_Yun_Shield?

The source code can be found at https://github.com/dragino/linino

How to upload, download or edit the files in Iduino_Yun_Shield?

Iduino_Yun_Shield has a built-in Linux system and supports SCP protocol. You can download or edit the Linux files using SCP tools. In Windows OS, the SCP tool is winscp. Install it and log into SCP as below:

> Host name: The IP address of Iduino_Yun_Shield
> User name: root
> Password: iduino (default)
> Protocol: SCP


WinSCP Login

Session

File protocol: SCP

Host name: 192.168.240.1

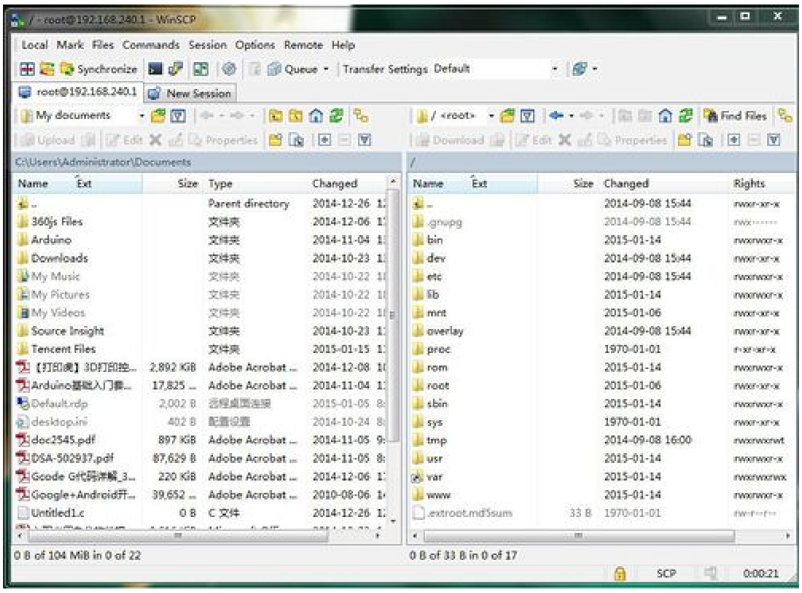
Port number: 22

User name: root

Password: ••••••

There will be 2 warnings during login and just ignore it. After login, a management panel will appear.

The left part of this panel is your PC’s directories and the right part is the directories of Iduino_Yun_Shield. You can upload/download files by dragging, or double click the file to edit its content.


/ - root@192.168.240.1 - WinSCP

C:\Users\Administrator\Documents

Name	Ext	Size	Type	Changed
..			Parent directory	2014-12-26
360js Files			文件夹	2014-12-06
Arduino			文件夹	2014-11-04
Downloads			文件夹	2014-10-23
My Music			文件夹	2014-10-22
My Pictures			文件夹	2014-10-22
My Videos			文件夹	2014-10-22
Source Insight			文件夹	2014-10-23
Tencent Files			文件夹	2015-01-15
【打印虎】3D打印绝...		2,892 KiB	Adobe Acrobat ...	2014-12-08
Arduino基础入门篇...		17,825 ...	Adobe Acrobat ...	2014-11-04
Default.rdp		2,002 B	远程桌面连接	2015-01-05
desktop.ini		402 B	配置设置	2014-10-24
doc2545.pdf		897 KiB	Adobe Acrobat ...	2014-11-05
DSA-502937.pdf		87,629 B	Adobe Acrobat ...	2014-11-05
Gcode G代码详解_3...		220 KiB	Adobe Acrobat ...	2014-12-06
Google+Android开...		39,652 ...	Adobe Acrobat ...	2010-08-06
Untitled1.c		0 B	C 文件	2014-12-26

0 B of 104 MiB in 0 of 22

/

Name	Ext	Size	Changed	Rights
..			2014-09-08 15:44	rwxr-xr-x
.gnupg			2014-09-08 15:44	rwx------
bin			2015-01-14	rwxrwxr-x
dev			2014-09-08 15:44	rwxr-xr-x
etc			2014-09-08 15:44	rwxrwxr-x
lib			2015-01-14	rwxrwxr-x
mnt			2015-01-06	rwxr-xr-x
overlay			2014-09-08 15:44	rwxr-xr-x
proc			1970-01-01	r-xr-xr-x
rom			2015-01-14	rwxrwxr-x
root			2015-01-06	rwxr-xr-x
sbin			2015-01-14	rwxrwxr-x
sys			1970-01-01	rwxr-xr-x
tmp			2014-09-08 16:00	rwxrwxrwt
usr			2015-01-14	rwxrwxr-x
var			2015-01-14	rwxrwxrwx
www			2015-01-14	rwxrwxr-x
.extroot.md5sum		33 B	1970-01-01	rw-r--r--

0 B of 33 B in 0 of 17

SCP 0:00:21

How to reset Iduino_Yun_Shield?

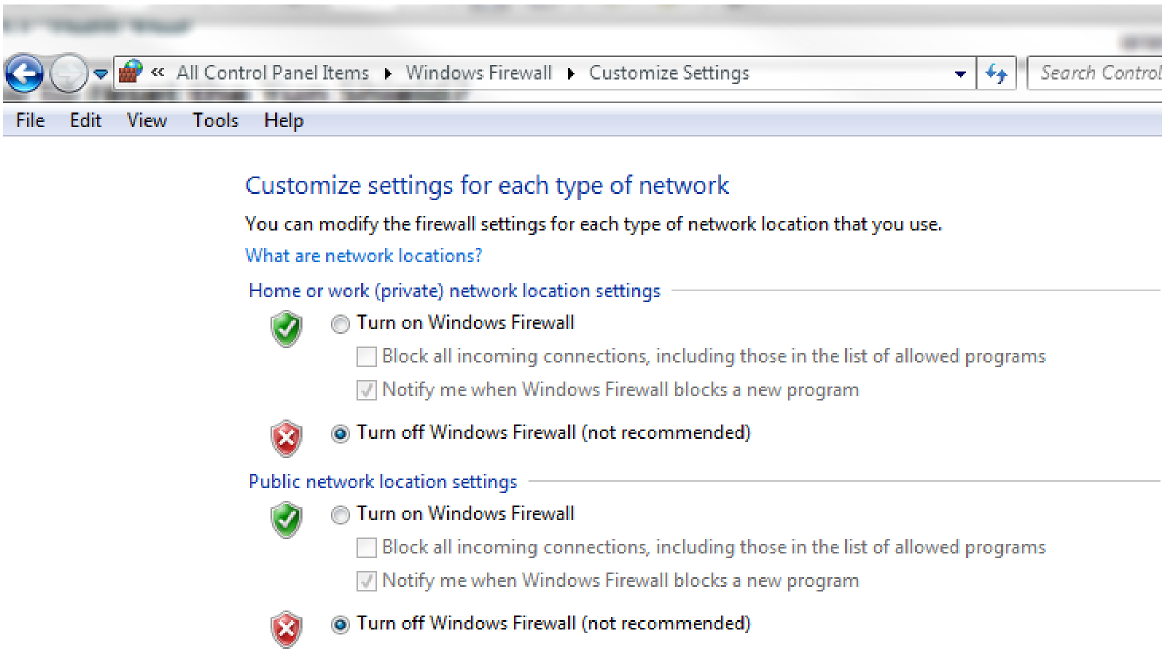
Iduino_Yun_Shield has a toggle button which can be used for reset. You can press the toggle button to reset the running Iduino_Yun_Shield.

1. If pressing the toggle button and release after 5 seconds, it will reset the Wifi setting and other settings will be kept.
2. If pressing the toggle button and release after 30 seconds, it will reset all the settings to factory default.

How to recover the Iduino_Yun_Shield in case firmware crash?

There are some cases that the Iduino_Yun_Shield fails to boot. For example, upgrade an improper firmware or lost power during upgrade. But you are still able to recover the Iduino_Yun_Shield by using the U-boot of Iduino_Yun_Shield. An instruction in Windows is shown as below:

1.Turn of Windows firewall


« All Control Panel Items ▸ Windows Firewall ▸ Customize Settings
Search Control
File Edit View Tools Help

Customize settings for each type of network

You can modify the firewall settings for each type of network location that you use.

What are network locations?

Home or work (private) network location settings

○ Turn on Windows Firewall

□ Block all incoming connections, including those in the list of allowed programs

☑ Notify me when Windows Firewall blocks a new program

● Turn off Windows Firewall (not recommended)

Public network location settings

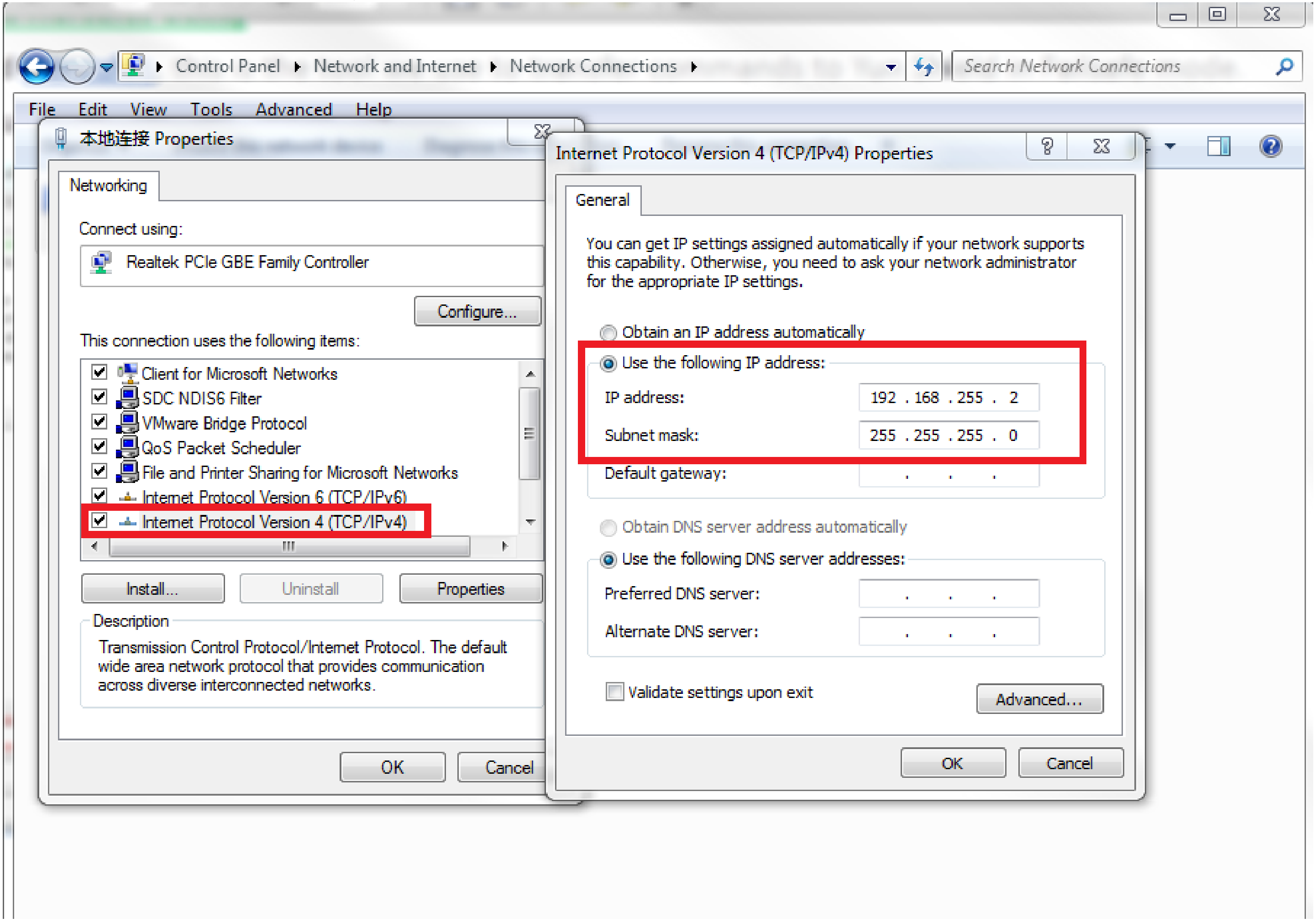
○ Turn on Windows Firewall

□ Block all incoming connections, including those in the list of allowed programs

☑ Notify me when Windows Firewall blocks a new program

● Turn off Windows Firewall (not recommended)

2.Set IP address as "192.168.255.2", Subnet mask: 255.255.255.0


▸ Control Panel ▸ Network and Internet ▸ Network Connections ▸
Search Network Connections
File Edit View Tools Advanced Help

本地连接 Properties

Networking

Connect using:

Realtek PCIe GBE Family Controller

Configure...

This connection uses the following items:

☑ Client for Microsoft Networks
☑ SDC NDIS6 Filter
☑ VMware Bridge Protocol
☑ QoS Packet Scheduler
☑ File and Printer Sharing for Microsoft Networks
☑ Internet Protocol Version 6 (TCP/IPv6)
☑ Internet Protocol Version 4 (TCP/IPv4)

Install... Uninstall Properties

Description

Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.

OK Cancel

Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically

● Use the following IP address:

IP address: 192 . 168 . 255 . 2

Subnet mask: 255 . 255 . 255 . 0

Default gateway: . . .

○ Obtain DNS server address automatically

● Use the following DNS server addresses:

Preferred DNS server: . . .

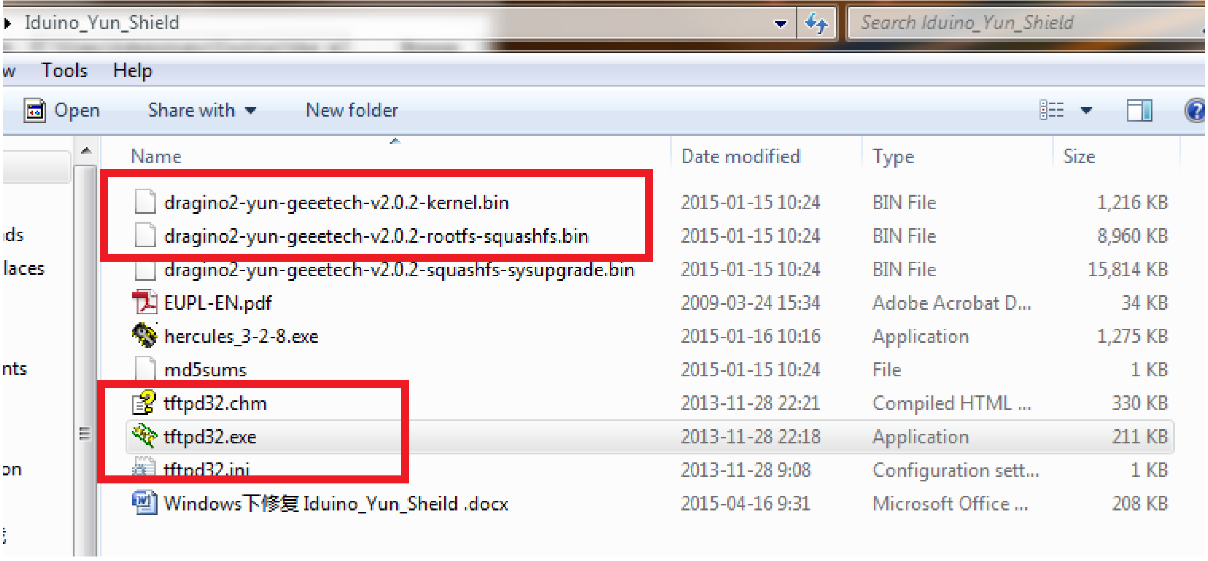
Alternate DNS server: . . .

□ Validate settings upon exit

Advanced...

OK Cancel

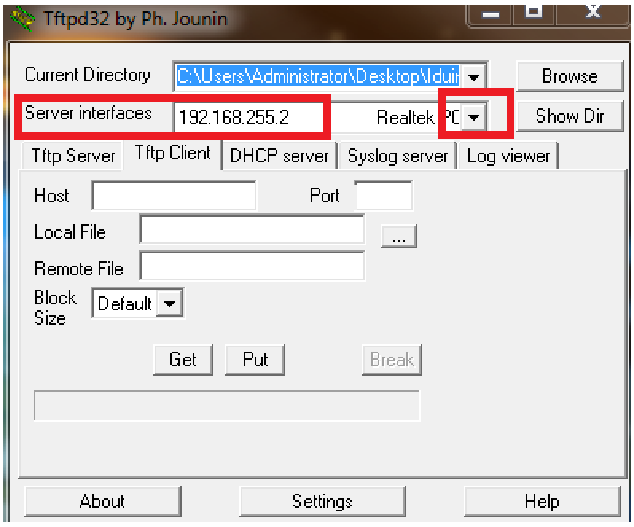
3. You need firmwares called "kernel" and "root-squash", put the firmwares and "tftpd32.exe" in same folder.



Name	Date modified	Type	Size
dragino2-yun-geeetech-v2.0.2-kernel.bin	2015-01-15 10:24	BIN File	1,216 KB
dragino2-yun-geeetech-v2.0.2-rootfs-squashfs.bin	2015-01-15 10:24	BIN File	8,960 KB
dragino2-yun-geeetech-v2.0.2-squashfs-sysupgrade.bin	2015-01-15 10:24	BIN File	15,814 KB
EUPL-EN.pdf	2009-03-24 15:34	Adobe Acrobat D...	34 KB
hercules_3-2-8.exe	2015-01-16 10:16	Application	1,275 KB
md5sums	2015-01-15 10:24	File	1 KB
tftpd32.chm	2013-11-28 22:21	Compiled HTML ...	330 KB
tftpd32.exe	2013-11-28 22:18	Application	211 KB
tftpd32.ini	2013-11-28 9:08	Configuration sett...	1 KB
Windows下修复 Iduino_Yun_Sheild .docx	2015-04-16 9:31	Microsoft Office ...	208 KB

4.Connect Iduino Yun Shield to computer via cable. Power Iduino Yun Shield with 9V of DC.
5.Set TPFP service:

(1)Open "tftpd32.exe", Choose "192.168.255.2" in "Service interfaces".



Current Directory: C:\Users\Administrator\Desktop\Iduir

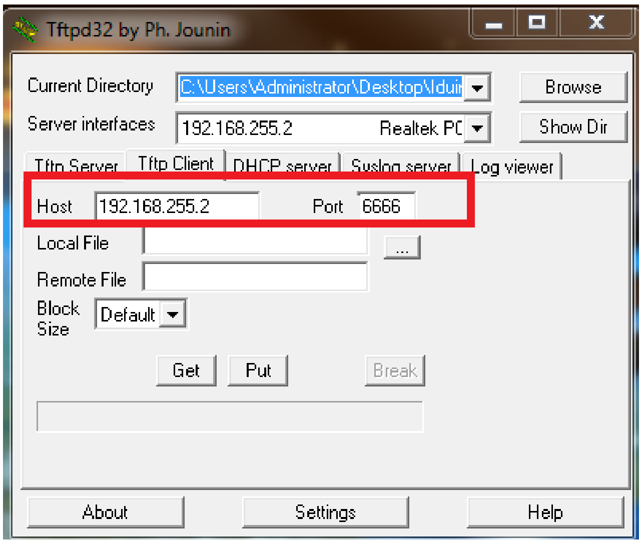
Server interfaces: 192.168.255.2 Realtek PC

Host:

Port:

(2)Host: 192.168.255.2

Port:6666



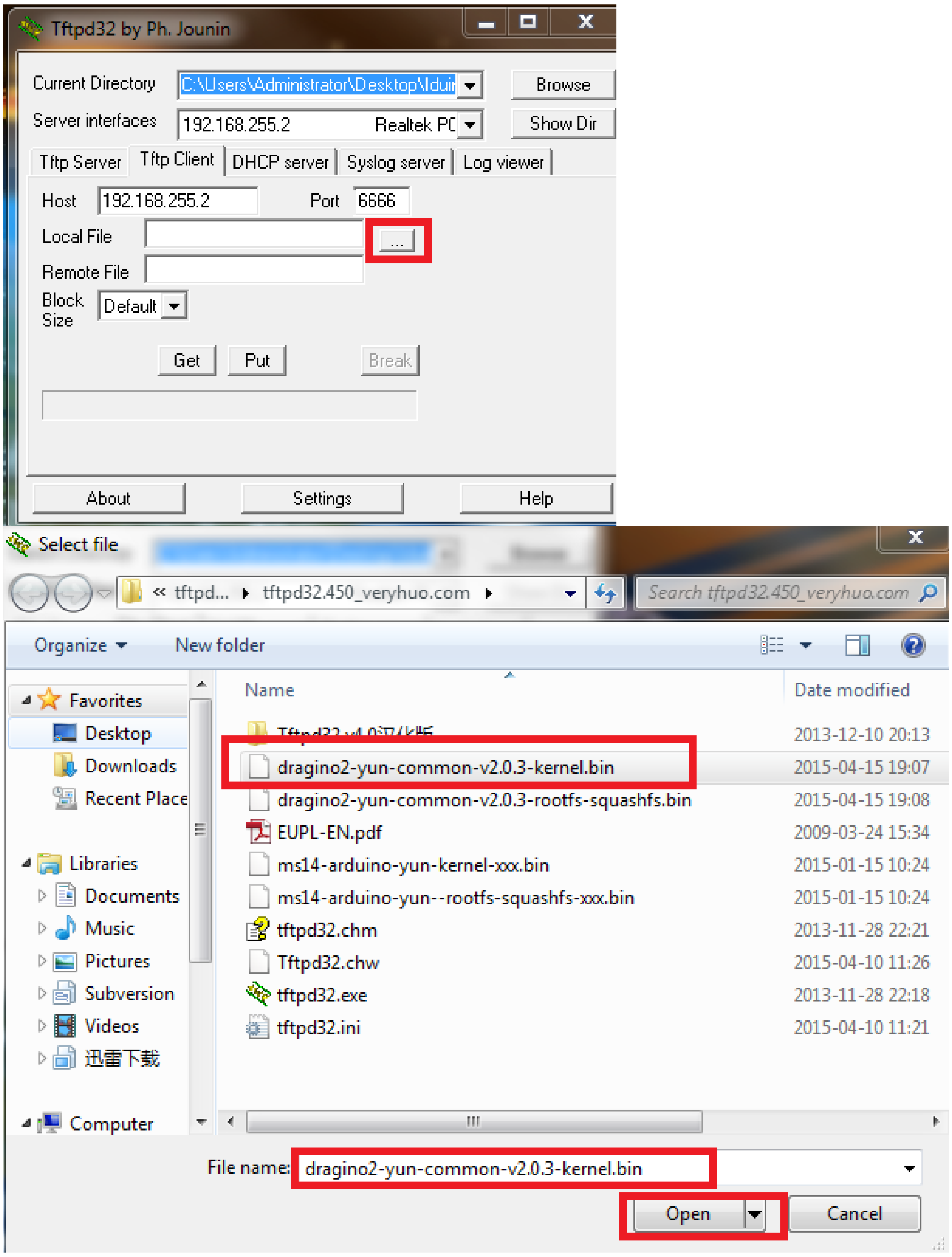
Current Directory: C:\Users\Administrator\Desktop\Iduir

Server interfaces: 192.168.255.2 Realtek PC

Host: 192.168.255.2

Port: 6666

(3)Choose file "kernel" in "Local File".



Tftpd32 by Ph. Jounin

Current Directory: C:\Users\Administrator\Desktop\Idui

Server interfaces: 192.168.255.2 Realtek PC

Tftp Client

Host: 192.168.255.2 Port: 6666

Local File:

Remote File:

Block Size: Default

Select file

tftpd32.450_veryhuo.com

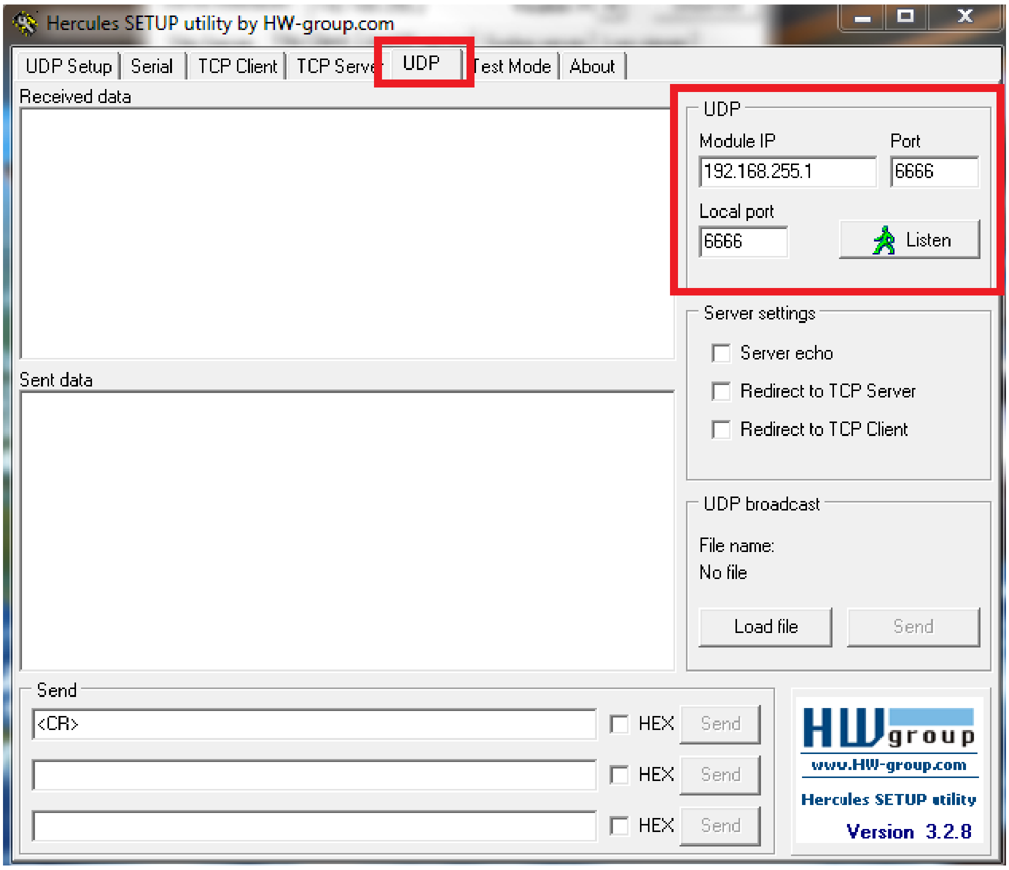
Name	Date modified
Tftpd32 v4.0汉化版	2013-12-10 20:13
dragino2-yun-common-v2.0.3-kernel.bin	2015-04-15 19:07
dragino2-yun-common-v2.0.3-rootfs-squashfs.bin	2015-04-15 19:08
EUPL-EN.pdf	2009-03-24 15:34
ms14-arduino-yun-kernel-xxx.bin	2015-01-15 10:24
ms14-arduino-yun--rootfs-squashfs-xxx.bin	2015-01-15 10:24
tftpd32.chm	2013-11-28 22:21
Tftpd32.chw	2015-04-10 11:26
tftpd32.exe	2013-11-28 22:18
tftpd32.ini	2015-04-10 11:21

File name: dragino2-yun-common-v2.0.3-kernel.bin

6.Open "hercules_3-2-8.exe", set the following parameters in UDP board:

Module IP: 192.168.255.1
Port: 6666
Local Port: 6666

Click "Listen":



UDP

Module IP: 192.168.255.1

Port: 6666

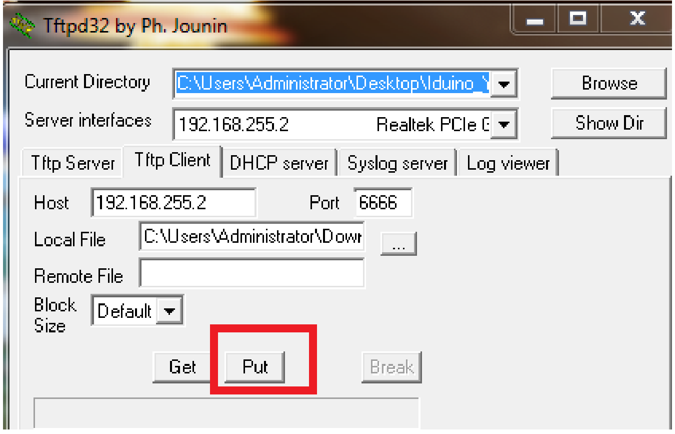
Local port: 6666

□ Server echo

File name:
No file

Send: <CR>

7.Back to tftpd32, click "Put":



Current Directory: C:\Users\Administrator\Desktop\Iduino_Y

Server interfaces: 192.168.255.2 Realtek PCIe G

Host: 192.168.255.2

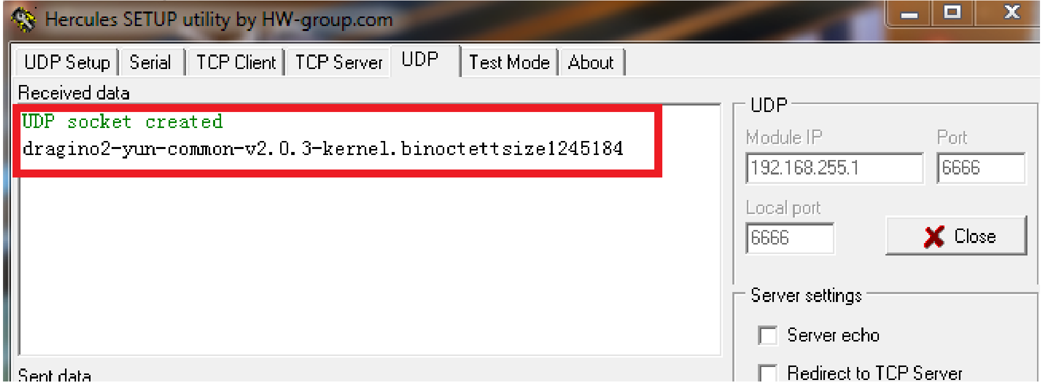
Port: 6666

Local File: C:\Users\Administrator\Dowr

Remote File:

Block Size: Default

8.After clicking "Put", you can see "kernel" displayed in "Received data" on Hercule.



```
UDP socket created
dragino2-yun-common-v2.0.3-kernel.binoctettsize1245184
```

UDP

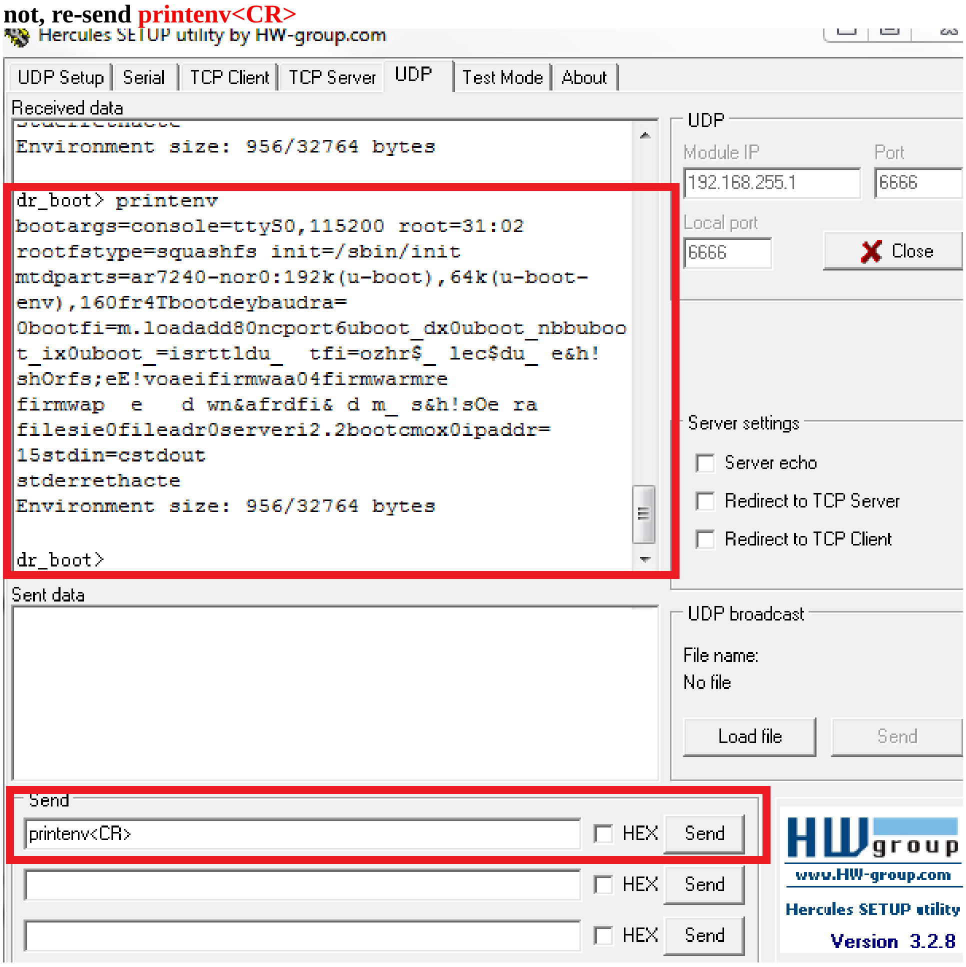
Module IP: 192.168.255.1

Port: 6666

Local port: 6666

9.Access "Failsafe" mode: Disconnect the power supply for Iduino Yun Shield, keep pressing button "Failsafe". Then power Iduino Yun Shield again, you will see the LEDs of LAN,WLAN and SYS blinking at the same time. When these LEDs stop blinking, release "Failsafe".

10.Send printenv<CR> command on Hercules. "Received data" will display some information from Iduino Yun Shield as follow, if not, re-send printenv<CR>



Hercules SETUP utility by HW-group.com

Received data

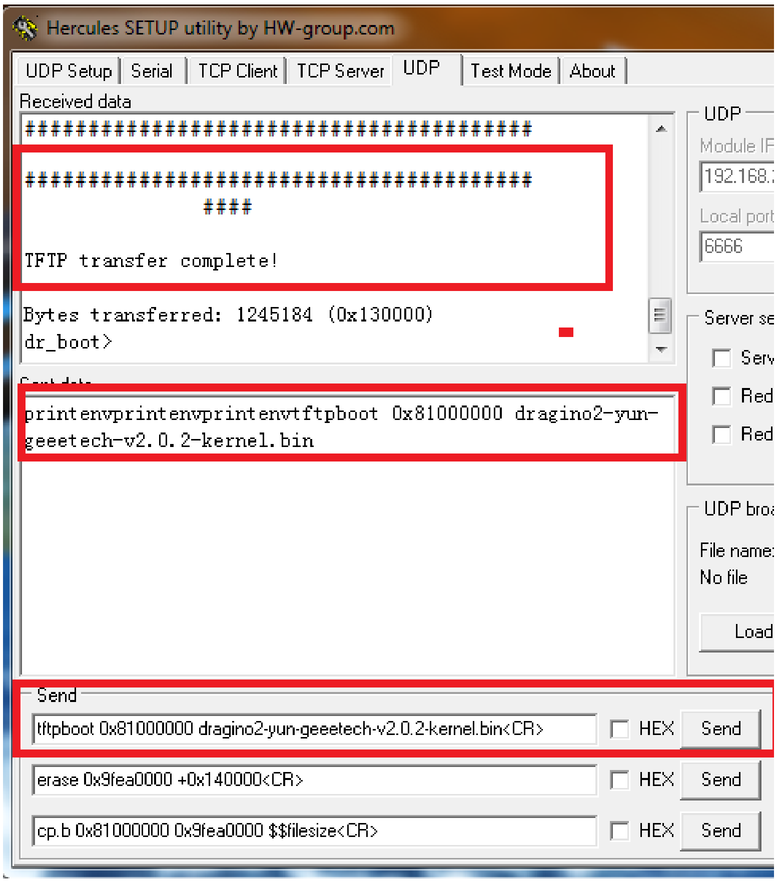
```
Environment size: 956/32764 bytes

dr_boot> printenv
bootargs=console=ttyS0,115200 root=31:02
rootfstype=squashfs init=/sbin/init
mtdparts=ar7240-nor0:192k(u-boot),64k(u-boot-
env),160fr4Tbootdeybaudra=
0bootfi=m.loadadd80ncport6uboot_dx0uboot_nbbuboo
t_ix0uboot_=isrttldu_  tfi=ozhr$_ lec$du_ e&h!
shOrfs;eE!voaeifirmwaa04firmwarmre
firmwap  e   d wn&afrdfi& d m_ s&h!sOe ra
filesie0fileadr0serveri2.2bootcmox0ipaddr=
15stdin=cstdout
stderrethacte
Environment size: 956/32764 bytes

dr_boot>
```

UDP: Module IP 192.168.255.1, Port 6666, Local port 6666

Send: printenv<CR>

11.Send the following commands in order, to upgrade kernel:

```
tftpboot 0x81000000 dragino2-yun-geeetech-v2.0.2-kernel.bin<CR>
```



Hercules SETUP utility by HW-group.com

Received data

```
#########################################

#########################################
             ####

TFTP transfer complete!

Bytes transferred: 1245184 (0x130000)
dr_boot>
```

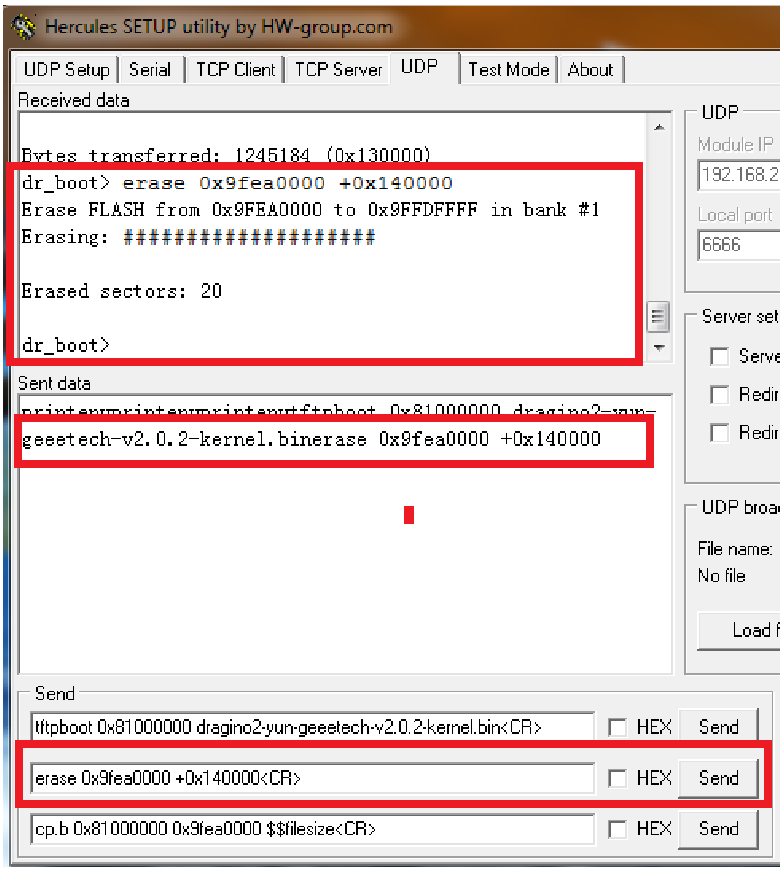
Sent data

```
printenvprintenvprintenvtftpboot 0x81000000 dragino2-yun-
geeetech-v2.0.2-kernel.bin
```

Send:

```
tftpboot 0x81000000 dragino2-yun-geeetech-v2.0.2-kernel.bin<CR>
erase 0x9fea0000 +0x140000<CR>
cp.b 0x81000000 0x9fea0000 $$filesize<CR>
```

```
erase 0x9fea0000 +0x140000<CR>
```

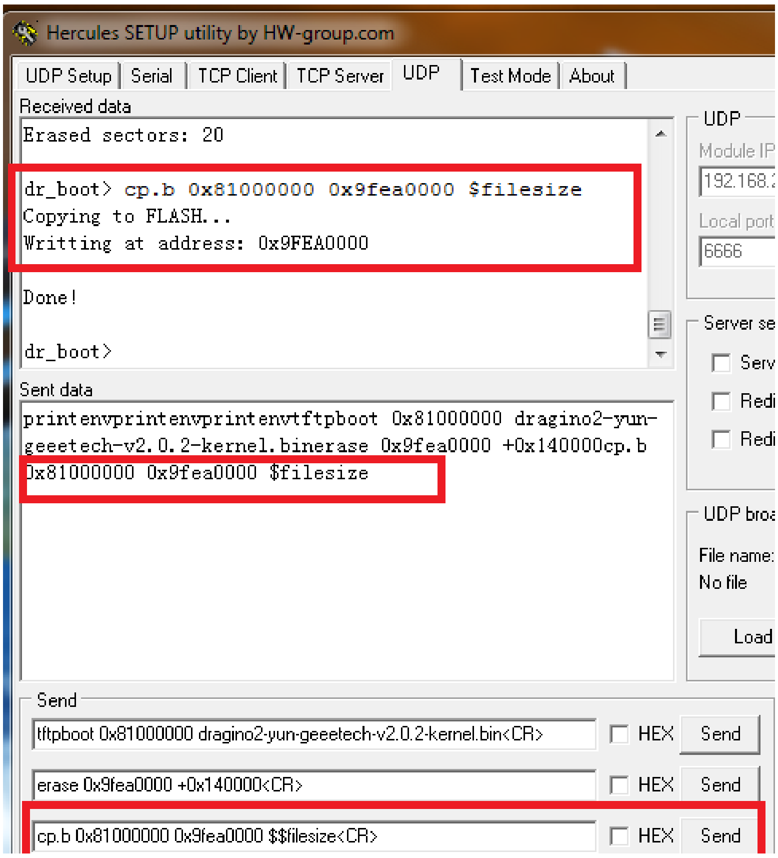


```
Bytes transferred: 1245184 (0x130000)
dr_boot> erase 0x9fea0000 +0x140000
Erase FLASH from 0x9FEA0000 to 0x9FFDFFFF in bank #1
Erasing: ###################

Erased sectors: 20

dr_boot>
```

```
printenvprintenvprintenvtftpboot 0x81000000 dragino2-yun-
geeetech-v2.0.2-kernel.binerase 0x9fea0000 +0x140000
```

```
tftpboot 0x81000000 dragino2-yun-geeetech-v2.0.2-kernel.bin<CR>
erase 0x9fea0000 +0x140000<CR>
cp.b 0x81000000 0x9fea0000 $$filesize<CR>
```

```
cp.b 0x81000000 0x9fea0000 $$filesize<CR>
```

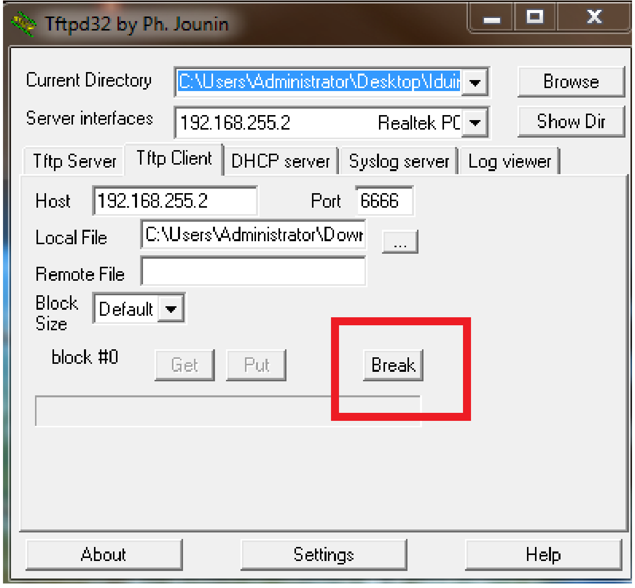


```
Erased sectors: 20

dr_boot> cp.b 0x81000000 0x9fea0000 $filesize
Copying to FLASH...
Writting at address: 0x9FEA0000

Done!

dr_boot>
```

```
printenvprintenvprintenvtftpboot 0x81000000 dragino2-yun-
geeetech-v2.0.2-kernel.binerase 0x9fea0000 +0x140000cp.b
0x81000000 0x9fea0000 $filesize
```

```
tftpboot 0x81000000 dragino2-yun-geeetech-v2.0.2-kernel.bin<CR>
erase 0x9fea0000 +0x140000<CR>
cp.b 0x81000000 0x9fea0000 $$filesize<CR>
```

12.Disconnect the power supply for Iduino Yun Shield, and back to tftpd32, click "Break":



Tftpd32 by Ph. Jounin

Current Directory: C:\Users\Administrator\Desktop\Iduir

Server interfaces: 192.168.255.2 Realtek PC

Host: 192.168.255.2 Port: 6666

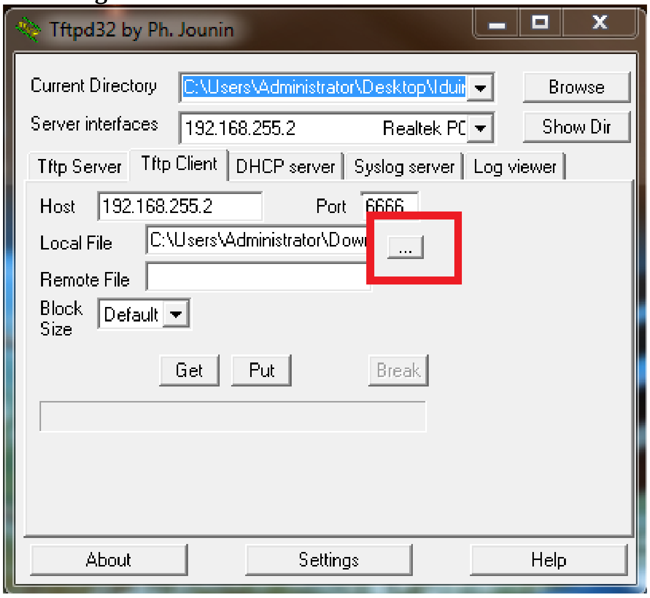
Local File: C:\Users\Administrator\Dowr

Remote File:

Block Size: Default

block #0

13.Change "Local File"



Tftpd32 by Ph. Jounin

Current Directory: C:\Users\Administrator\Desktop\Iduir

Server interfaces: 192.168.255.2 Realtek PC

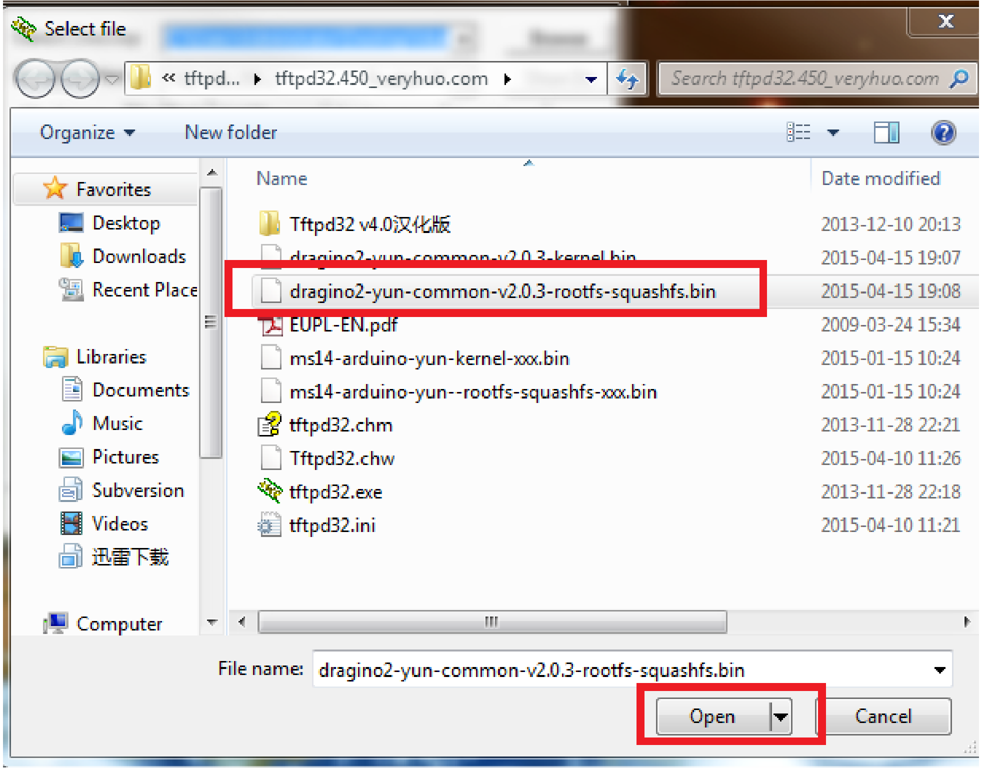
Host: 192.168.255.2 Port: 6666

Local File: C:\Users\Administrator\Dowr

Remote File:

Block Size: Default

14.Choose root-squashfs file



Select file

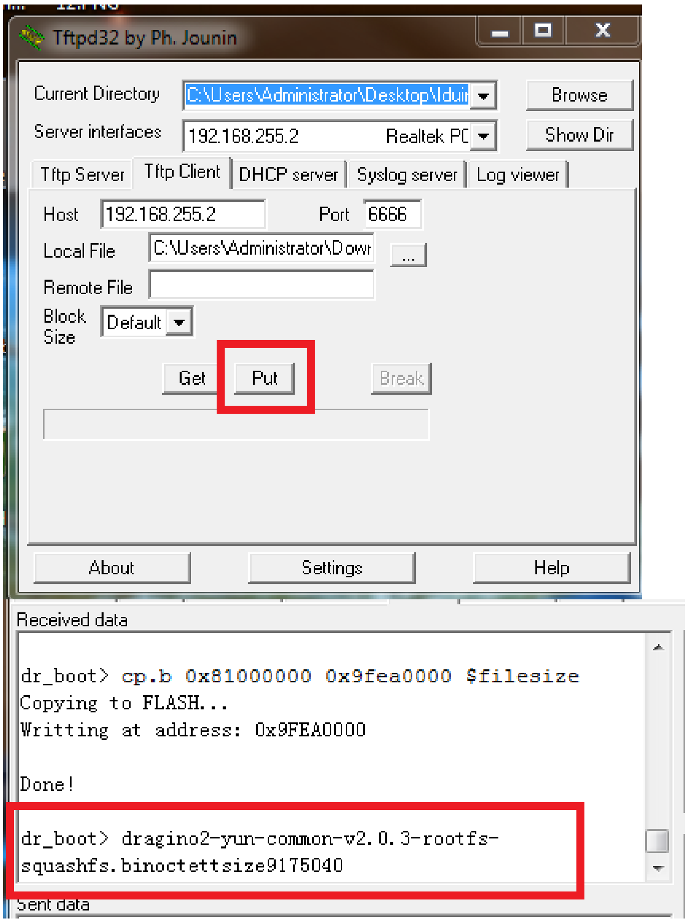
« tftpd... ▸ tftpd32.450_veryhuo.com ▸

Search tftpd32.450_veryhuo.com

Name	Date modified
Tftpd32 v4.0汉化版	2013-12-10 20:13
dragino2-yun-common-v2.0.3-kernel.bin	2015-04-15 19:07
dragino2-yun-common-v2.0.3-rootfs-squashfs.bin	2015-04-15 19:08
EUPL-EN.pdf	2009-03-24 15:34
ms14-arduino-yun-kernel-xxx.bin	2015-01-15 10:24
ms14-arduino-yun--rootfs-squashfs-xxx.bin	2015-01-15 10:24
tftpd32.chm	2013-11-28 22:21
Tftpd32.chw	2015-04-10 11:26
tftpd32.exe	2013-11-28 22:18
tftpd32.ini	2015-04-10 11:21

File name: dragino2-yun-common-v2.0.3-rootfs-squashfs.bin

15.Click "Put" to send file to Hercules.



Current Directory: C:\Users\Administrator\Desktop\Iduir

Server interfaces: 192.168.255.2 Realtek PC

Host: 192.168.255.2 Port: 6666

Local File: C:\Users\Administrator\Dowr

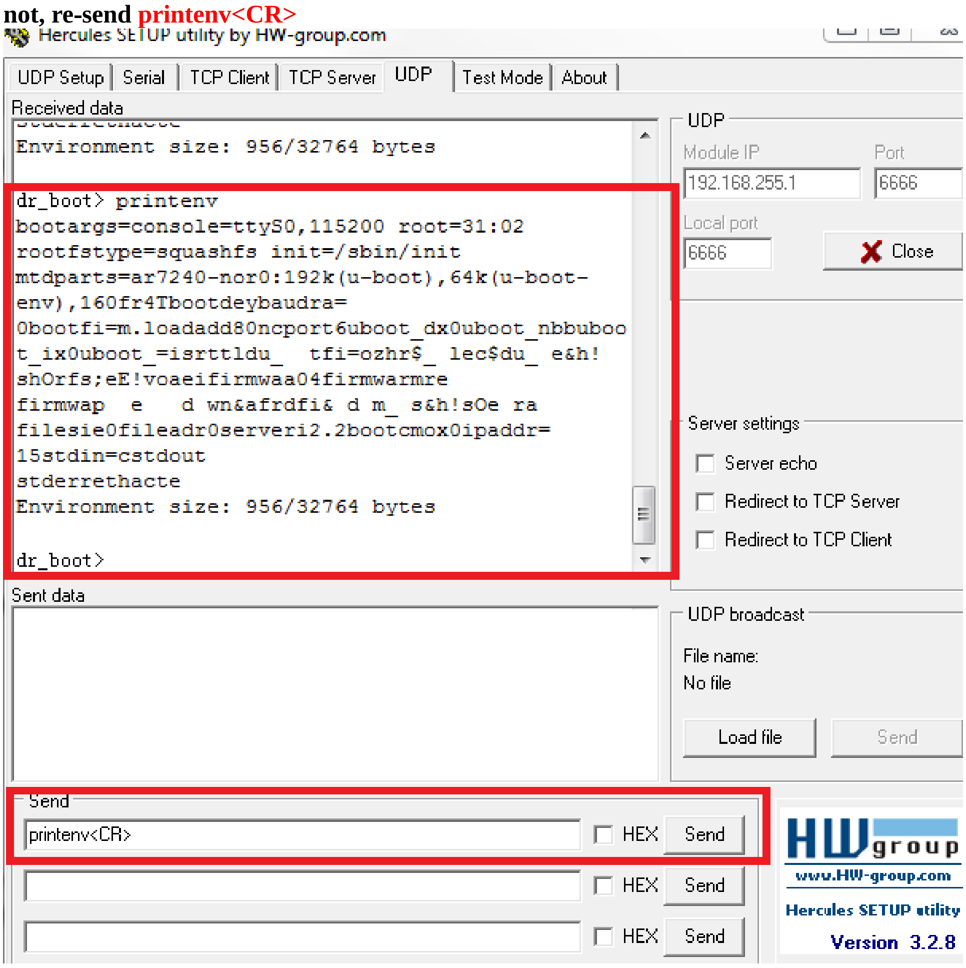
Remote File:

Block Size: Default

```
dr_boot> cp.b 0x81000000 0x9fea0000 $filesize
Copying to FLASH...
Writting at address: 0x9FEA0000

Done!

dr_boot> dragino2-yun-common-v2.0.3-rootfs-
squashfs.binoctettsize9175040
```

16. Keep pressing "Failsafe" button on Iduino Yun Shield, power Iduino Yun Shield again, you will see LEDs of LAN,WLAN and SYS blinking at the same time. When they stop blinking, release "Failsafe" button. Iduino Yun Shield is in Failsafe mode now.

17.Send printenv<CR> command on Hercules. "Received data" will display some information from Iduino Yun Shield as follow, if not, re-send printenv<CR>



```
Environment size: 956/32764 bytes

dr_boot> printenv
bootargs=console=ttyS0,115200 root=31:02
rootfstype=squashfs init=/sbin/init
mtdparts=ar7240-nor0:192k(u-boot),64k(u-boot-
env),160fr4Tbootdeybaudra=
0bootfi=m.loadadd80ncport6uboot_dx0uboot_nbbuboo
t_ix0uboot_=isrttldu_  tfi=ozhr$_ lec$du_ e&h!
sh0rfs;eE!voaeifirmwaa04firmwarmre
firmwap  e   d wn&afrdfi& d m_ s&h!s0e ra
filesie0fileadr0serveri2.2bootcmox0ipaddr=
15stdin=cstdout
stderrethacte
Environment size: 956/32764 bytes

dr_boot>
```

Module IP: 192.168.255.1 Port: 6666

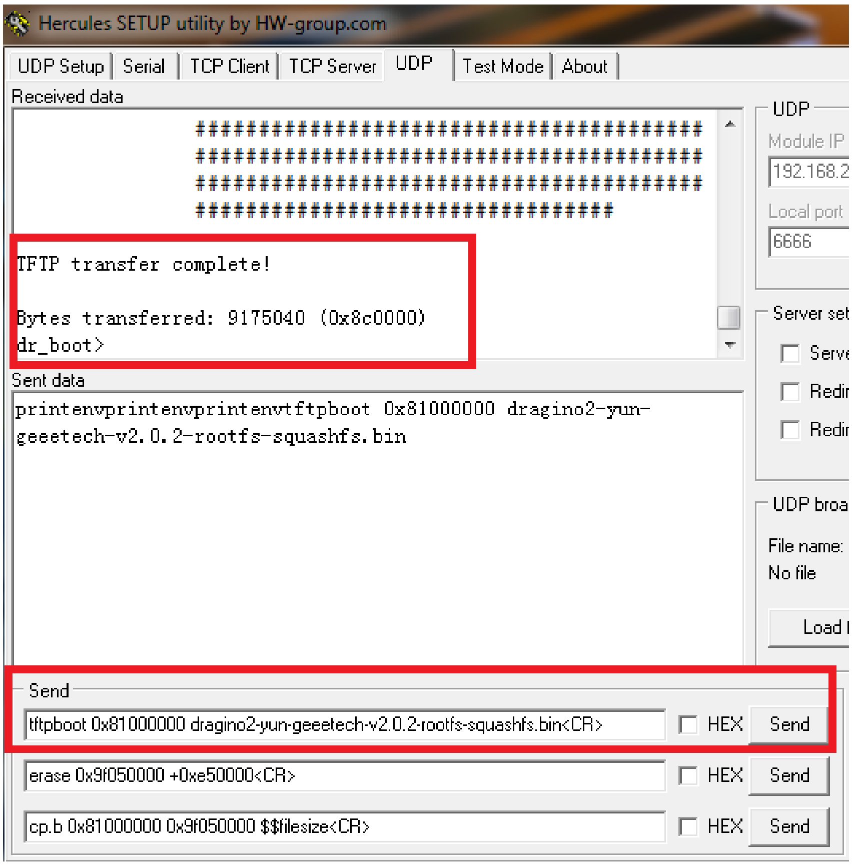
Local port: 6666

File name: No file

Send: printenv<CR>

18.Send the following commands to upgrade rootfs:

```
tftpboot 0x81000000 dragino2-yun-geeetech-v2.0.2-rootfs-squashfs.bin<CR>
```



```
                ########################################
                ########################################
                ########################################
                #################################
TFTP transfer complete!

Bytes transferred: 9175040 (0x8c0000)
dr_boot>
```

Module IP: 192.168.2

Local port: 6666

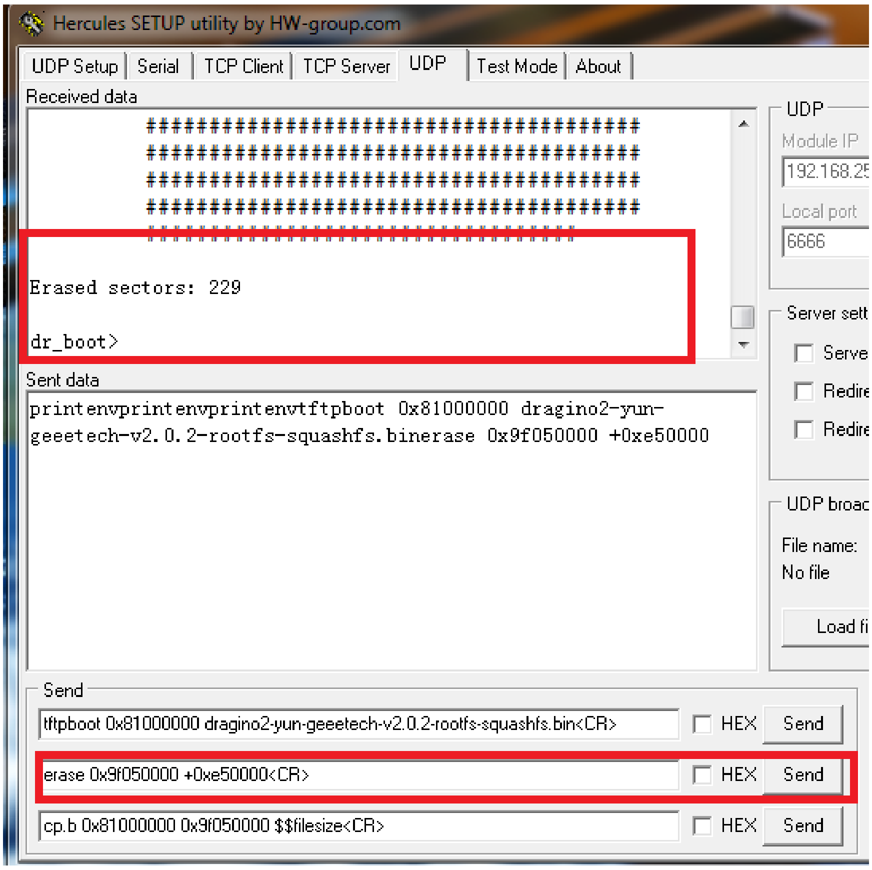
Sent data:

```
printenvprintenvprintenvtftpboot 0x81000000 dragino2-yun-
geeetech-v2.0.2-rootfs-squashfs.bin
```

Send:

```
tftpboot 0x81000000 dragino2-yun-geeetech-v2.0.2-rootfs-squashfs.bin<CR>
erase 0x9f050000 +0xe50000<CR>
cp.b 0x81000000 0x9f050000 $$filesize<CR>
```

```
erase 0x9f050000 +0xe50000<CR>
```



```
        ########################################
        ########################################
        ########################################
        ########################################
        ##################################

Erased sectors: 229

dr_boot>
```

Module IP: 192.168.25

Local port: 6666

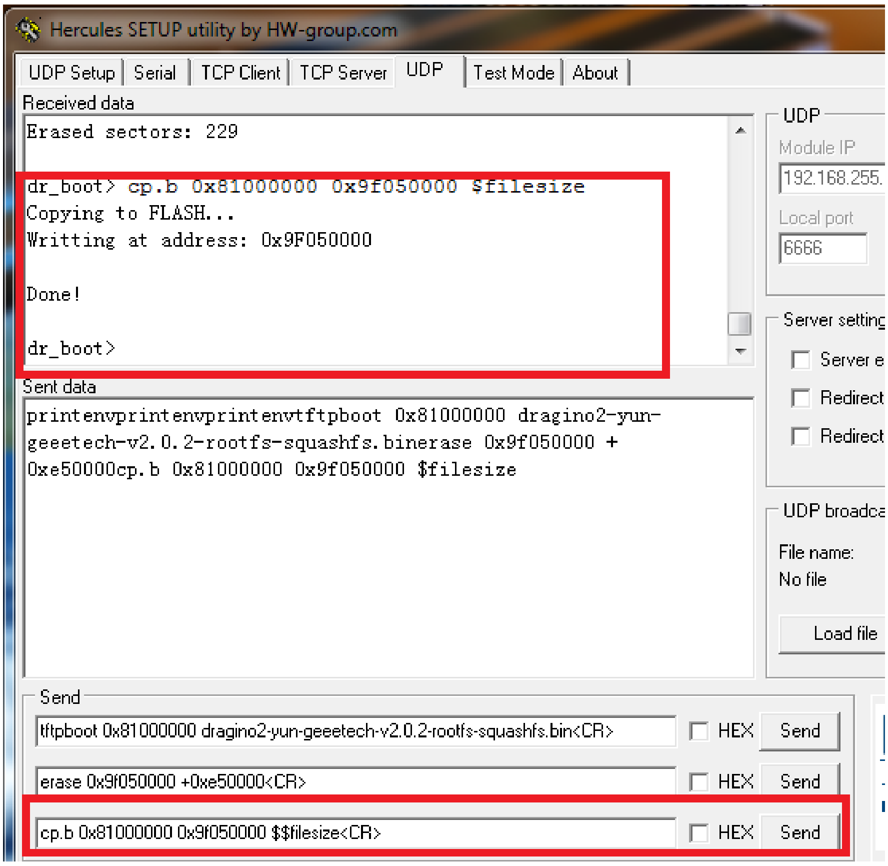
Sent data:

```
printenvprintenvprintenvtftpboot 0x81000000 dragino2-yun-
geeetech-v2.0.2-rootfs-squashfs.binerase 0x9f050000 +0xe50000
```

Send:

```
tftpboot 0x81000000 dragino2-yun-geeetech-v2.0.2-rootfs-squashfs.bin<CR>
erase 0x9f050000 +0xe50000<CR>
cp.b 0x81000000 0x9f050000 $$filesize<CR>
```

```
cp.b 0x81000000 0x9f050000 $$filesize<CR>
```



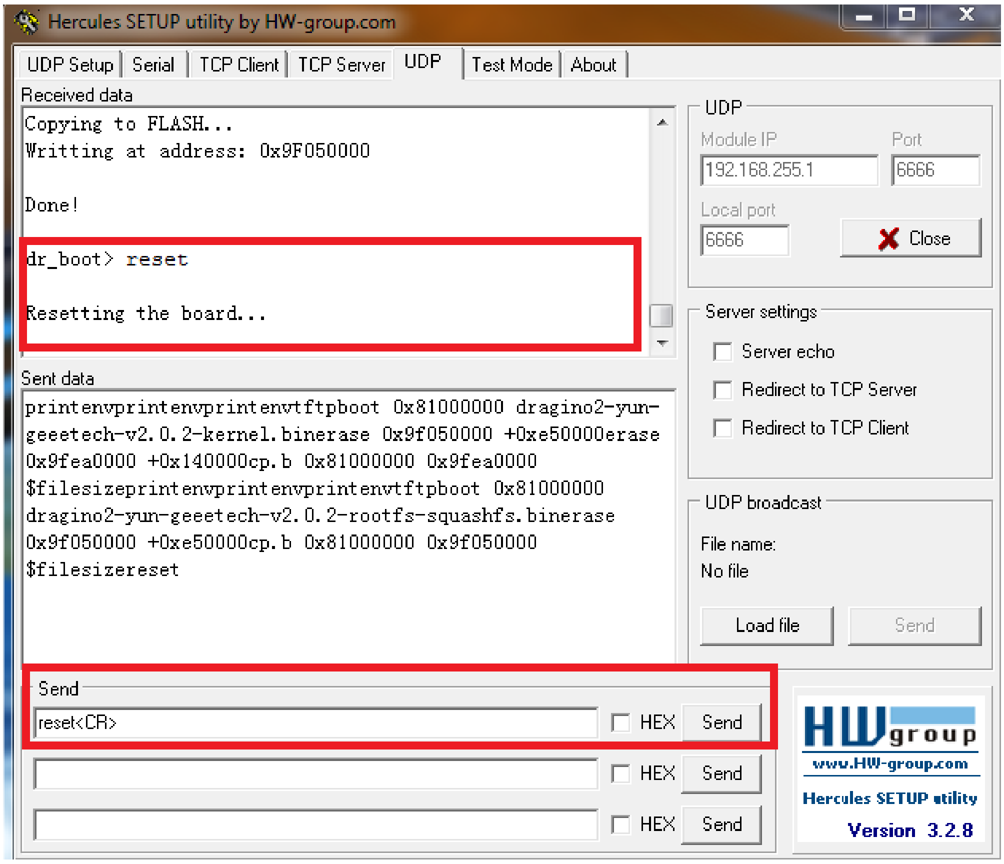
```
Erased sectors: 229

dr_boot> cp.b 0x81000000 0x9f050000 $filesize
Copying to FLASH...
Writting at address: 0x9F050000

Done!

dr_boot>
```

```
printenvprintenvprintenvtftpboot 0x81000000 dragino2-yun-
geeetech-v2.0.2-rootfs-squashfs.binerase 0x9f050000 +
0xe50000cp.b 0x81000000 0x9f050000 $filesize
```

```
tftpboot 0x81000000 dragino2-yun-geeetech-v2.0.2-rootfs-squashfs.bin<CR>   □ HEX  Send
erase 0x9f050000 +0xe50000<CR>   □ HEX  Send
cp.b 0x81000000 0x9f050000 $$filesize<CR>   □ HEX  Send
```

19.Send the following command to reset Iduino Yun Shield.

```
reset<CR>
```



Module IP: 192.168.255.1 Port: 6666 Local port: 6666

```
Copying to FLASH...
Writting at address: 0x9F050000

Done!

dr_boot> reset

Resetting the board...
```

```
printenvprintenvprintenvtftpboot 0x81000000 dragino2-yun-
geeetech-v2.0.2-kernel.binerase 0x9f050000 +0xe50000erase
0x9fea0000 +0x140000cp.b 0x81000000 0x9fea0000
$filesizeprintenvprintenvprintenvtftpboot 0x81000000
dragino2-yun-geeetech-v2.0.2-rootfs-squashfs.binerase
0x9f050000 +0xe50000cp.b 0x81000000 0x9f050000
$filesizereset
```

```
reset<CR>   □ HEX  Send
             □ HEX  Send
             □ HEX  Send
```

Relevant file:
http://www.geeetech.com/wiki/images/4/41/How_to_recover_Iduino_Yun_Shield.rar

> Warning: User should use correct address in the erase and cp.b. Wrong address may destroy the boot-loader of Iduino_Yun_Shield and the device won’t boot anymore, or destroy the radio data leading to a poor Wifi performance or incorrect MAC address.

Recover in Linux is similar with Windows. The different is that the tool used in Linux is nc, namely nc-kul6666. The figure below shows that the Iduino_Yun_Shield has been in Failsafe mode and detected by nc.

[[File:Reset firmware.png|reset firmware]

How to get it

Click here to buy: iduino Yun Shield (http://www.geeetech.com/iduino-yun-shield-p-914.html)

Retrieved from "http://www.geeetech.com/wiki/index.php?title=Iduino_Yun_Shield&oldid=7723"

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