
打造自己的 LoRaWAN 网关，进阶 1：构建软件

摘要：

2 步构建 LoRaWAN 网关软件系统：安装 Linux -> 编译软件

引言

如果您只关心：打造一个 LoRaWAN 网关，请参考《花一个小时，打造自己的 LoRaWAN 网关》https://blog.csdn.net/jiangjunjie_2005/article/details/79758720

如果您感兴趣：构建 LoRaWAN 网关的软件系统，那本文再适合不过了。尽管它需要一点儿 Linux 知识，然而，这是每个“有耐心”的人都可以掌握的。

第 1 步：安装 Linux

1.1 准备 SD 卡

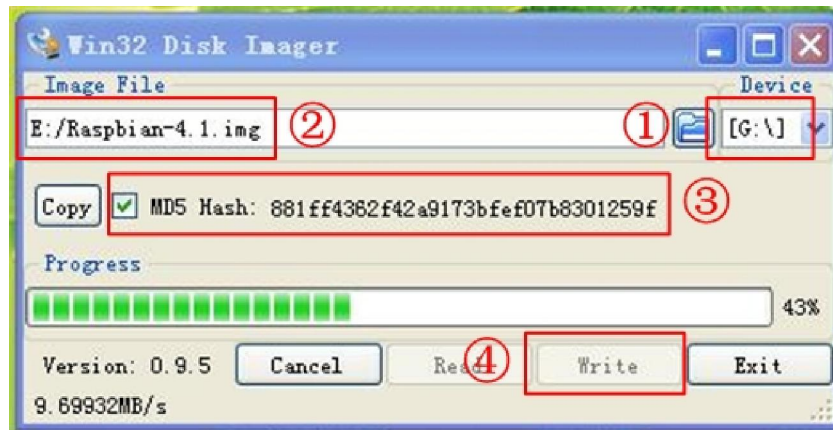
准备一张 4GB 容量，Class 6 以上的高质量 SD 卡，是使用 RaspberryPi 的前提。

1.2 下载与烧录 Raspbian

烧录 SD 卡的工具为 Win32DiskImager

下载并解压 Raspbian-4.1（建议安装 4.1，更高版本拒绝 SSH 登录）。

下载链接：http://www.rimelink.com/nd.jsp?id=70#_np=107_316



1.2.1 选择 SD 卡对应的盘符，本例为 G 盘。

（小心：如果选择错误的盘符，会导致灾难----数据丢失!）

1.2.2 找到 Raspbian-4.1.img 镜像文件。

1.2.3 生成 MD5 Hash，确保镜像文件 100% 正确。

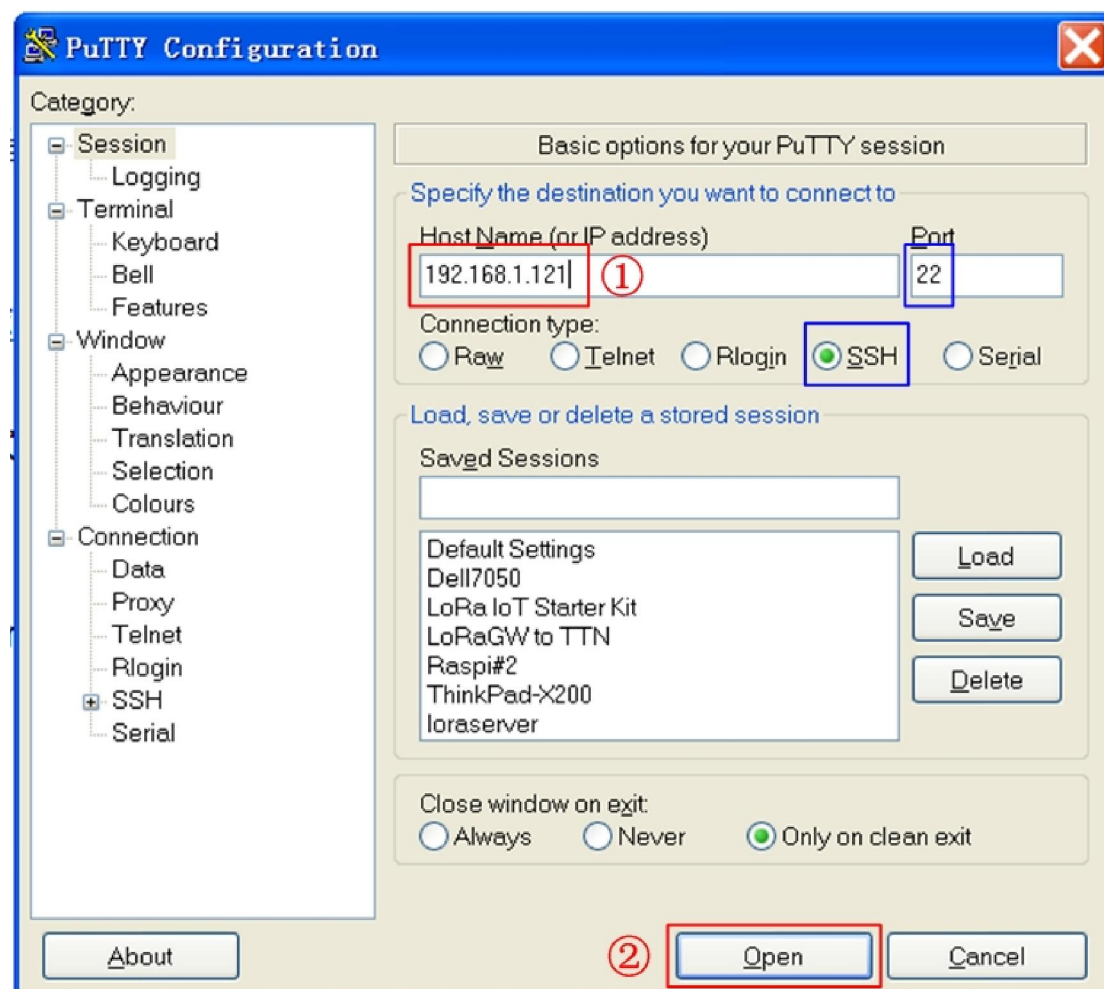
MD5 Hash = 881ff4362f42a9173bfef07b8301259f

1.2.4 点击 Write

1.3 通过 SSH 登录

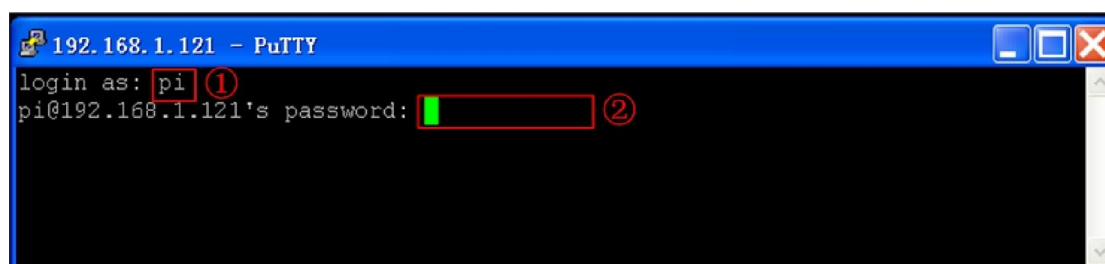
获取 Raspberry 的 IP，请咨询网管或从“路由器”的 DHCP 表中查找。本例为 192.168.1.121

下载 PuTTY 软件: http://www.rimelink.com/nd.jsp?id=33#_np=105_315

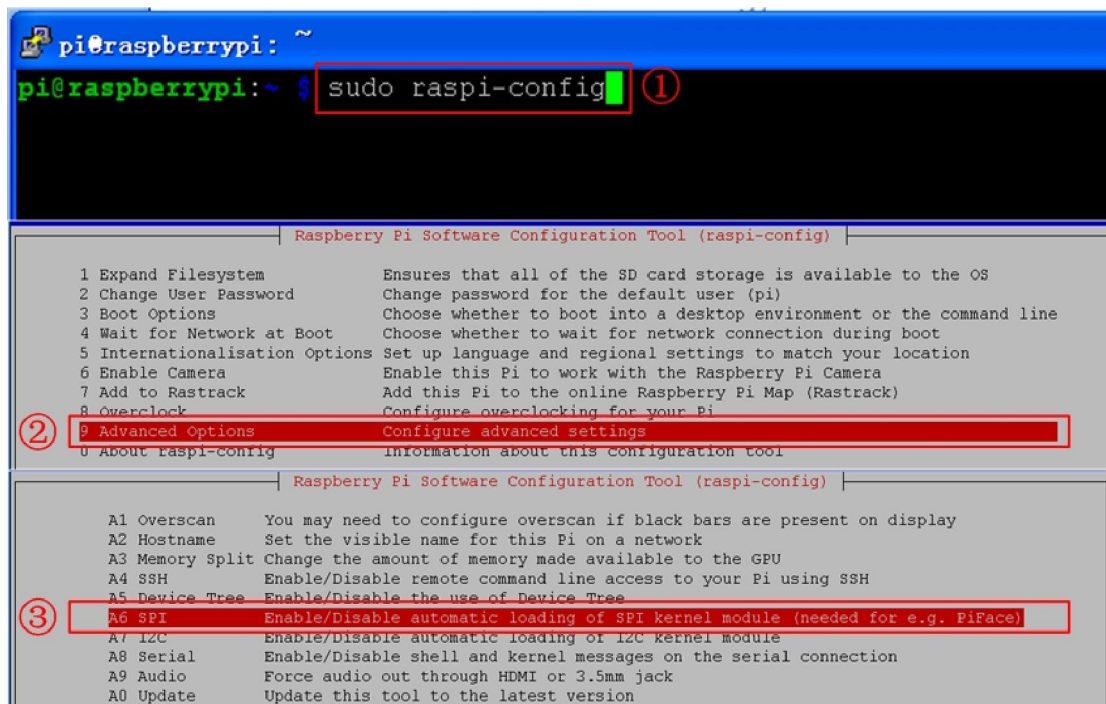


用户名: pi

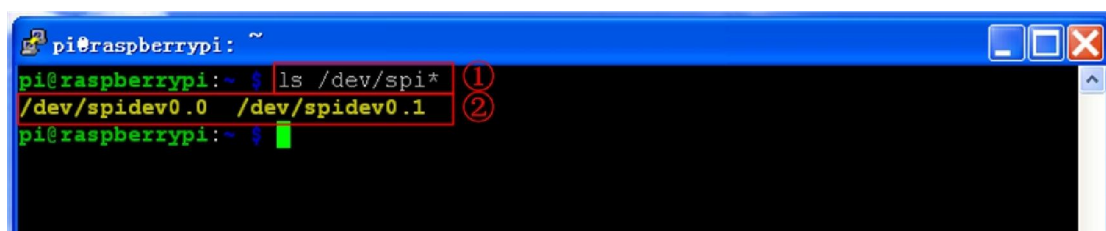
密码 : raspberry



1.4 使能 SPI 驱动



按上图，逐步操作，即可使能 SPI 驱动。



重启 raspberry pi 后，可以看到，SPI 被成功启用。

第 2 步：编译软件

2.1 新建用户

```
pi@raspberrypi: ~  
pi@raspberrypi:~$ sudo adduser rime ①  
Adding user `rime' ...  
Adding new group `rime' (1001) ...  
Adding new user `rime' (1001) with group `rime' ...  
Creating home directory `/home/rime' ...  
Copying files from `/etc/skel' ...  
Enter new UNIX password: ②  
Retype new UNIX password:  
passwd: password updated successfully  
Changing the user information for rime  
Enter the new value, or press ENTER for the default  
Full Name []: rimelink  
Room Number []: 1403  
Work Phone []: 0731-82236164  
Home Phone []: 0731-82231246  
Other []: none  
Is the information correct? [Y/n] Y
```

用户名：rime

密码：link

```
pi@raspberrypi: ~  
pi@raspberrypi:~$ sudo usermod -a -G sudo rime ①  
pi@raspberrypi:~$ sudo /usr/sbin/visudo ②  
  
pi ALL=(ALL) NOPASSWD: ALL  
rime ALL=(ALL) NOPASSWD: ALL ③
```

给 rime 用户添加 sudo 权限。

2.2 安装 git client

输入以下 3 条命令，即可安装 git client，需要等待一段时间（依赖网速）。

```
sudo apt-get update
```

```
sudo apt-get upgrade
```

```
sudo apt-get install git
```

2.3 下载源程序

```
pi@raspberrypi: ~  
pi@raspberrypi:~$ git clone https://github.com/Lora-net/lora_gateway.git ①  
Cloning into 'lora_gateway'...  
remote: Counting objects: 808, done.  
remote: Total 808 (delta 0), reused 0 (delta 0), pack-reused 808  
Receiving objects: 100% (808/808), 675.75 KiB | 223.00 KiB/s, done.  
Resolving deltas: 100% (469/469), done.  
Checking connectivity... done.  
pi@raspberrypi:~$ git clone https://github.com/Lora-net/packet_forwarder.git ②  
Cloning into 'packet_forwarder'...  
remote: Counting objects: 387, done.  
remote: Total 387 (delta 0), reused 0 (delta 0), pack-reused 387  
Receiving objects: 100% (387/387), 835.48 KiB | 14.00 KiB/s, done.  
Resolving deltas: 100% (172/172), done.  
Checking connectivity... done.  
pi@raspberrypi:~$
```

git clone https://github.com/Lora-net/lora_gateway.git

git clone https://github.com/Lora-net/packet_forwarder.git

2.4 编译源程序

```
pi@raspberrypi: ~/lora_gateway  
pi@raspberrypi:~$ cd lora_gateway/ ①  
pi@raspberrypi:~/lora_gateway$ make clean all ②  
  
pi@raspberrypi: ~/packet_forwarder  
pi@raspberrypi:~/lora_gateway$ cd ../packet_forwarder/ ③  
pi@raspberrypi:~/packet_forwarder$ make clean all ④
```

2.5 运行系统

```
rime@raspberrypi: ~/packet_forwarder/lora_pkt_fwd
rime@raspberrypi:~$ cd packet_forwarder/lora_pkt_fwd/
rime@raspberrypi:~/packet_forwarder/lora_pkt_fwd$ sudo /home/rime/lora_gateway/reset_lgw.sh start 22
Accessing concentrator reset pin through GPIO22...
rime@raspberrypi:~/packet_forwarder/lora_pkt_fwd$ sudo ./lora_pkt_fwd
*** Beacon Packet Forwarder for Lora Gateway ***
Version: 4.0.1
*** Lora concentrator HAL library version info ***
Version: 5.0.1;
***
INFO: local_conf.json does contain a JSON object named gateway_conf, parsing gateway parameters
INFO: gateway MAC address is configured to AA555A0000000101
INFO: packets received with a valid CRC will be forwarded
INFO: packets received with a CRC error will NOT be forwarded
INFO: packets received with no CRC will NOT be forwarded
INFO: [main] concentrator started, packet can now be received
INFO: Disabling GPS mode for concentrator's counter...
INFO: host/sx1301 time offset=(1522737165s:118977µs) - drift=-540004863µs
INFO: Enabling GPS mode for concentrator's counter.
```

LoRaWAN网关
启动成功

解释:

`sudo /home/rime/lora_gateway/reset_lgw.sh start 22`

用于复位 SX1301

`sudo ./lora_pkt_fwd`

启动 gateway 进程

销售与服务

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