

任务 8: Airplay

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实现目的:

掌握 Acadia 或 RPi 或 WRTnode 和 PC 建立音频交互的方式。

实验器材:

硬件:

Acadia 或 RPi 或 WRTnode 板一块;

5V/1A 电源一个;

microUSB 线一根;

USB-TTL 串口线一根 (FT232RL 芯片或 PL2303 芯片)。

以下为自备 (可选) 器材:

PC (Windows/Mac OS/Linux) 一台;

声卡一个;

以太网线一根 (可能还需要路由器等)。

软件:

PC 上的 USB-TTL 串口线配套的驱动程序;

PC 上的串口终端软件, 如 minicom、picocom、putty 等;

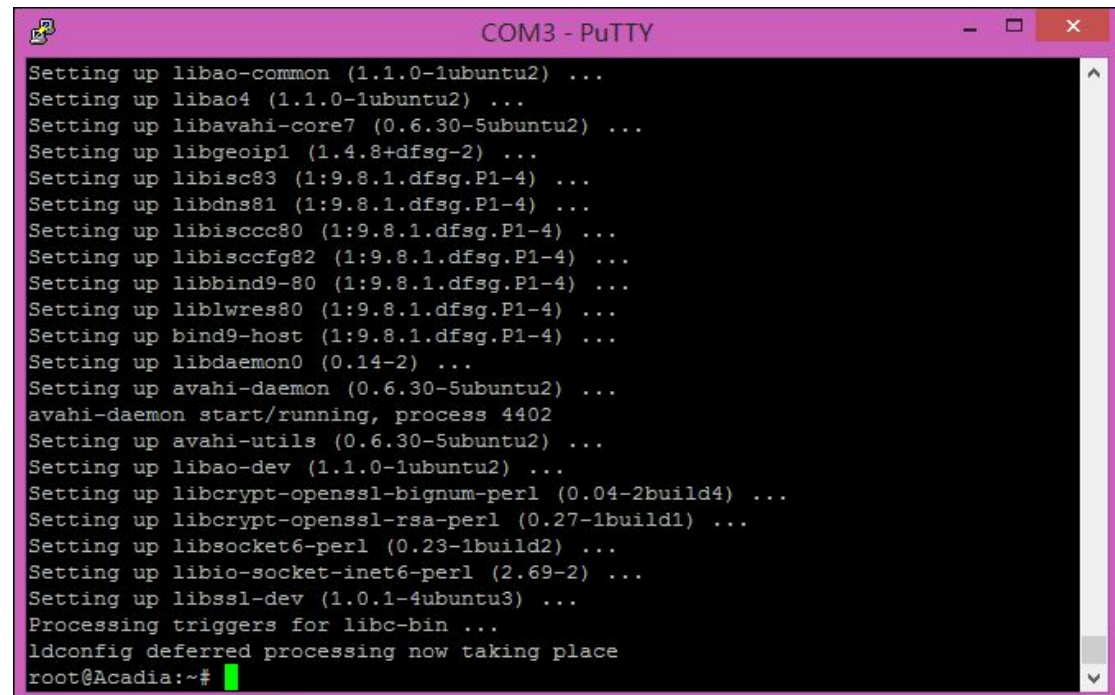
PC 上的 SSH 软件, 如 putty 等。

实验步骤

1、安装 AirPlay 仿真器;

安装 shairport 依赖的包:

```
sudo apt-get install build-essential libssl-dev libcrypto-openssl-rsa-perl libao-dev  
libio-socket-inet6-perl libwww-perl avahi-utils pkg-config
```



```
COM3 - PuTTY
Setting up libao-common (1.1.0-1ubuntu2) ...
Setting up libao4 (1.1.0-1ubuntu2) ...
Setting up libavahi-core7 (0.6.30-5ubuntu2) ...
Setting up libgeoip1 (1.4.8+dfsg-2) ...
Setting up libisc83 (1:9.8.1.dfsg.P1-4) ...
Setting up libdns81 (1:9.8.1.dfsg.P1-4) ...
Setting up libisccc80 (1:9.8.1.dfsg.P1-4) ...
Setting up libisccfg82 (1:9.8.1.dfsg.P1-4) ...
Setting up libbind9-80 (1:9.8.1.dfsg.P1-4) ...
Setting up liblwres80 (1:9.8.1.dfsg.P1-4) ...
Setting up bind9-host (1:9.8.1.dfsg.P1-4) ...
Setting up libdaemon0 (0.14-2) ...
Setting up avahi-daemon (0.6.30-5ubuntu2) ...
avahi-daemon start/running, process 4402
Setting up avahi-utils (0.6.30-5ubuntu2) ...
Setting up libao-dev (1.1.0-1ubuntu2) ...
Setting up libcrypto-openssl-bignum-perl (0.04-2build4) ...
Setting up libcrypto-openssl-rsa-perl (0.27-1build1) ...
Setting up libio-socket6-perl (0.23-1build2) ...
Setting up libio-socket-inet6-perl (2.69-2) ...
Setting up libssl-dev (1.0.1-4ubuntu3) ...
Processing triggers for libc-bin ...
ldconfig deferred processing now taking place
root@Acadia:~#
```

安装 git 和 per-net-sdp:

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

```
root@Acadia:~# sudo apt-get install git
Reading package lists... Done
Building dependency tree
Reading state information... Done
git is already the newest version.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
root@Acadia:~#
```

git clone https://github.com/njh/perl-net-sdp.git perl-net-sdp

cd perl-net-sdp

perl Build.PL

sudo ./Build

sudo ./Build test

sudo ./Build install

cd ..

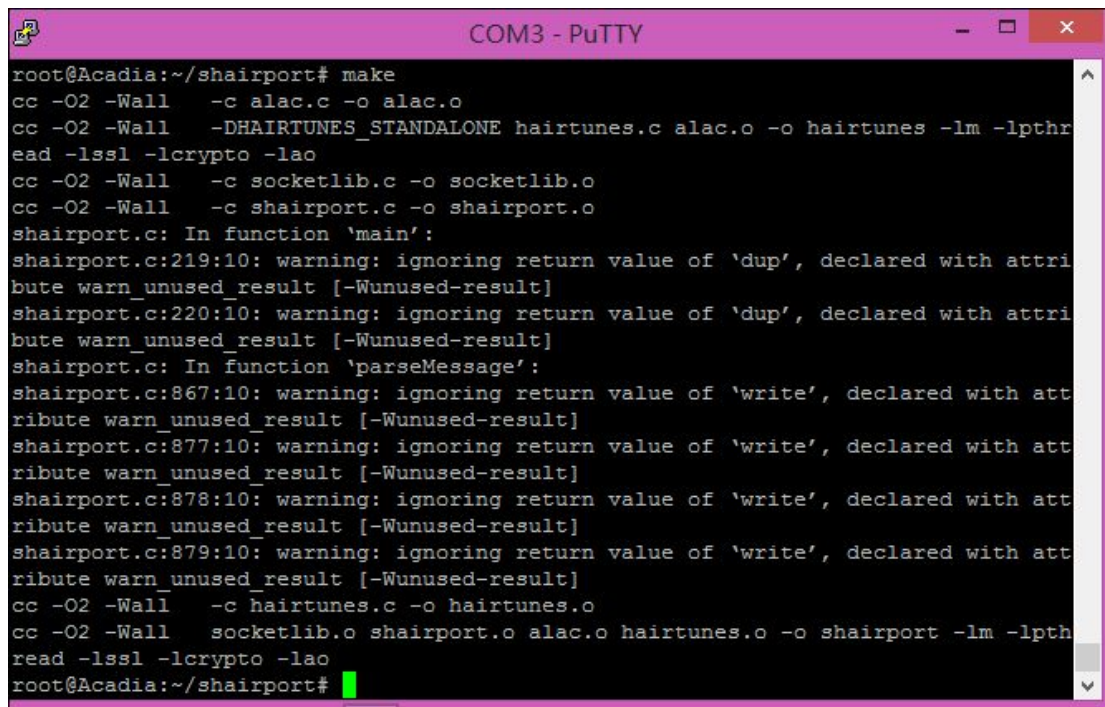
```
COM3 - PuTTY
root@Acadia:~/perl-net-sdp# sudo ./Build
Building Net-SDP
root@Acadia:~/perl-net-sdp# sudo ./Build test
t/00use.t ..... ok
t/10generate.t .. ok
t/10parse.t ..... ok
t/20repeat.t .... ok
t/30asString.t .. ok
All tests successful.
Files=5, Tests=69, 1 wallclock secs ( 0.18 usr 0.04 sys + 0.63 cusr 0.05 csy
s = 0.90 CPU)
Result: PASS
root@Acadia:~/perl-net-sdp# sudo ./Build install
Building Net-SDP
Installing /usr/local/man/man1/sdp2rat.1p
Installing /usr/local/share/perl/5.14.2/Net/SDP.pm
Installing /usr/local/share/perl/5.14.2/Net/SDP/Media.pm
Installing /usr/local/share/perl/5.14.2/Net/SDP/Time.pm
Installing /usr/local/man/man3/Net::SDP::Media.3pm
Installing /usr/local/man/man3/Net::SDP::Time.3pm
Installing /usr/local/man/man3/Net::SDP.3pm
Installing /usr/local/bin/sdp2rat
root@Acadia:~/perl-net-sdp# cd ..
root@Acadia:~#
```

安装 shairpoint:

git clone https://github.com/hendrikw82/shairport.git

cd shairport

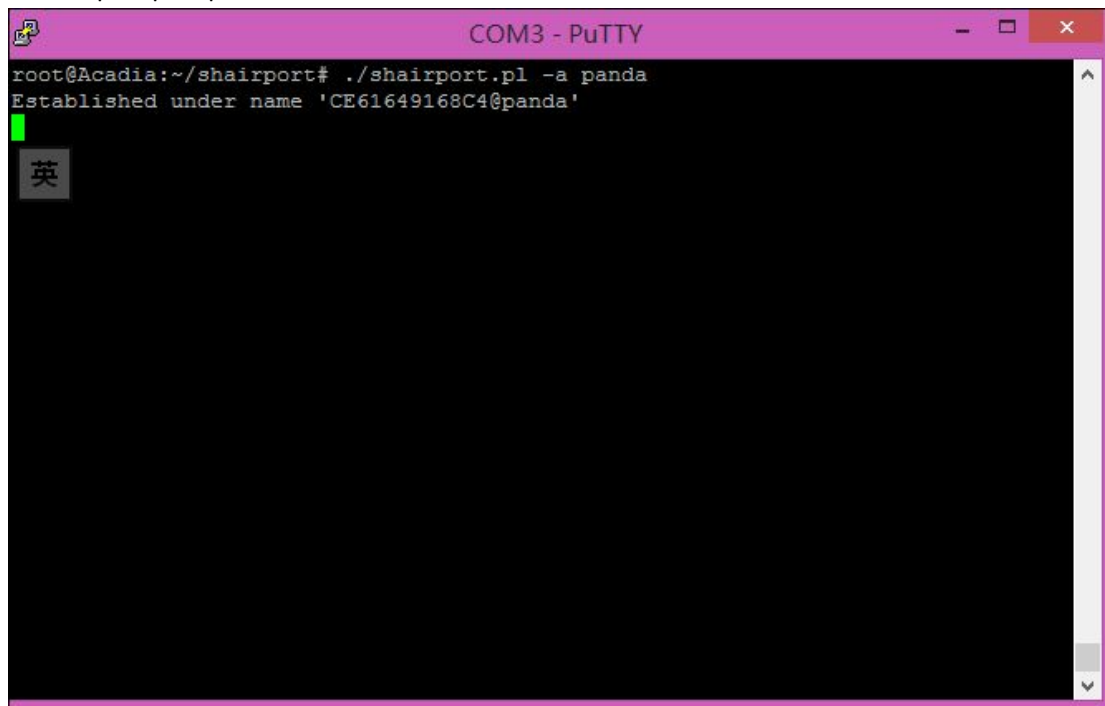
make



```
root@Acadia:~/shairport# make
cc -O2 -Wall -c alac.c -o alac.o
cc -O2 -Wall -DHAIRTUNES_STANDALONE hairtunes.c alac.o -o hairtunes -lm -lpthread -lssl -lcrypto -lao
cc -O2 -Wall -c socketlib.c -o socketlib.o
cc -O2 -Wall -c shairport.c -o shairport.o
shairport.c: In function 'main':
shairport.c:219:10: warning: ignoring return value of 'dup', declared with attribute warn_unused_result [-Wunused-result]
shairport.c:220:10: warning: ignoring return value of 'dup', declared with attribute warn_unused_result [-Wunused-result]
shairport.c: In function 'parseMessage':
shairport.c:867:10: warning: ignoring return value of 'write', declared with attribute warn_unused_result [-Wunused-result]
shairport.c:877:10: warning: ignoring return value of 'write', declared with attribute warn_unused_result [-Wunused-result]
shairport.c:878:10: warning: ignoring return value of 'write', declared with attribute warn_unused_result [-Wunused-result]
shairport.c:879:10: warning: ignoring return value of 'write', declared with attribute warn_unused_result [-Wunused-result]
cc -O2 -Wall -c hairtunes.c -o hairtunes.o
cc -O2 -Wall socketlib.o shairport.o alac.o hairtunes.o -o shairport -lm -lpthread -lssl -lcrypto -lao
root@Acadia:~/shairport#
```

2、运行 AirPlay;

./shairport.pl -a panda



```
root@Acadia:~/shairport# ./shairport.pl -a panda
Established under name 'CE61649168C4@panda'
英
```

3、在 Acadia 或 RPi 或 WRTnode 上播放音乐:

在 PC 端的 itunes 软件中就可以使用 pcDuino 的 airplay 播放歌曲:

