

廈門大學



信息学院软件工程系

《计算机网络》实验报告

题 目 实验二 RS232C 通信

班 级 软件工程 2018 级 1 班

姓 名 方浩南

学 号 24320182203188

实验时间 2020 年 2 月 26 日

2020 年 3 月 3 日

1 实验目的

制作通信程序，实现双机通过 RS-232 串口互联。

2 实验环境

操作系统：Ubuntu 18.04、编程语言：C。

3 实验结果

创建两 pipe，模拟两 RS-232 串口；

```
+ x C: mkfifo
hf@vader:~/Workspace/C$ mkfifo /tmp/vpipe1 /tmp/vpipe2
hf@vader:~/Workspace/C$
```

打开两个进程，分别读或写这两个设备。

```
x /serial-talker /tmp/vpipe1 /tmp/vpipe2
+ x ...lker /tmp/vpipe1 /tmp/vpipe2
hf@vader:~/Workspace/C$ mkfifo /tmp/vpipe1 /tmp/vpipe2
hf@vader:~/Workspace/C$ ./serial-talker /tmp/vpipe1 /tmp/vpipe2
[Tue Mar 3 18:34:58 2020] SENT: Hello World!
[Tue Mar 3 18:35:57 2020] SENT: My name is Li Lei, Whats your name?
[Tue Mar 3 18:36:12 2020] RECV: My name is Hanmemei.
[Tue Mar 3 18:36:19 2020] RECV: How do you do?
[Tue Mar 3 18:36:38 2020] SENT: How do you do.
[Tue Mar 3 18:37:11 2020] SENT: Do you like wan you xi?
[Tue Mar 3 18:37:24 2020] RECV: yes i do.
[Tue Mar 3 18:37:41 2020] RECV: Do you know CSGO?
[Tue Mar 3 18:37:46 2020] SENT: yeah.
[Tue Mar 3 18:38:18 2020] SENT: you meant Global Open Case?
[Tue Mar 3 18:38:49 2020] RECV: yesyes
[Tue Mar 3 18:39:46 2020] RECV: Open a case is awesome man
[Tue Mar 3 18:40:02 2020] RECV: that's what i am takling baout
[Tue Mar 3 18:40:25 2020] SENT: o wo bian bu xia qu le
[Tue Mar 3 18:40:29 2020] RECV: bai bai

x C
+ x C
hf@vader:~/Workspace/C$ ./serial-talker /tmp/vpipe2 /tmp/vpipe1
[Tue Mar 3 18:34:58 2020] RECV: Hello World!
[Tue Mar 3 18:35:57 2020] RECV: My name is Li Lei, Whats your name?
[Tue Mar 3 18:36:12 2020] SENT: My name is Hanmemei.
[Tue Mar 3 18:36:19 2020] SENT: How do you do?
[Tue Mar 3 18:36:38 2020] RECV: How do you do.
[Tue Mar 3 18:37:11 2020] RECV: Do you like wan you xi?
[Tue Mar 3 18:37:24 2020] SENT: yes i do.
[Tue Mar 3 18:37:41 2020] SENT: Do you know CSGO?
[Tue Mar 3 18:37:46 2020] RECV: yeah.
[Tue Mar 3 18:38:18 2020] RECV: you meant Global Open Case?
[Tue Mar 3 18:38:49 2020] SENT: yesyes
[Tue Mar 3 18:39:46 2020] SENT: Open a case is awesome man
[Tue Mar 3 18:40:02 2020] SENT: that's what i am takling baout
[Tue Mar 3 18:40:25 2020] RECV: o wo bian bu xia qu le
[Tue Mar 3 18:40:29 2020] SENT: bai bai
```

4 实验总结

在 Linux 中 pipe 是单向的，为了实现全双工必须使用两个。由于异步通信和缓冲区的存在，消息的接受变得十分稳定。