

Assignment 5 – minissh with socket

Use socket to write a client/server application to simulate the basic functionality of secure shell. Once the client is connected to the server, it can keep sending shell commands to the server. For each command, the server will return the result of executing the shell command.

- The server and client programs can be run on different machines.
- The server program is started first, waiting for client to connect.
- When the server program is terminated with CTRL-C, the client program is also terminated.
- When the client program is terminated with CTRL-C, the server program will wait for the next connection from client.

Simplification:

- The shell commands from the client are simple ones without arguments.
- The commands from the client can be executed on the server side by different shell processes.

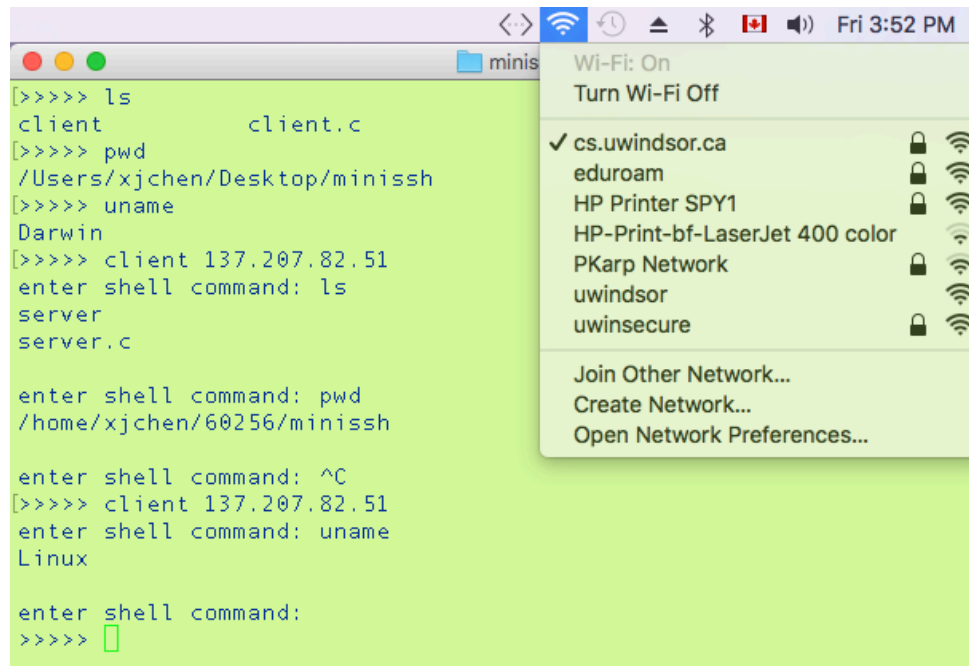
Sample run:

server program - executed on CS server (alpha)



```
[xjchen@alpha:~/60256/minissh$ ls
server.c
[xjchen@alpha:~/60256/minissh$ pwd
/home/xjchen/60256/minissh
[xjchen@alpha:~/60256/minissh$ uname
Linux
[xjchen@alpha:~/60256/minissh$ hostname -I
137.207.82.51
[xjchen@alpha:~/60256/minissh$ server
Waiting for connection ...
Connected.
received command: ls
received command: pwd
Waiting for connection ...
Connected.
received command: uname
^C
xjchen@alpha:~/60256/minissh$
```

client program - executed on a local machine with wifi connection: cs.uwindsor.ca



The screenshot shows a macOS terminal window with a light green background. The terminal output is as follows:

```
[>>>> ls
client      client.c
[>>>> pwd
/Users/xjchen/Desktop/minissh
[>>>> uname
Darwin
[>>>> client 137.207.82.51
enter shell command: ls
server
server.c

enter shell command: pwd
/home/xjchen/60256/minissh

enter shell command: ^C
[>>>> client 137.207.82.51
enter shell command: uname
Linux

enter shell command:
>>>> 
```

Overlaid on the right side of the terminal is the macOS Wi-Fi menu. It shows 'Wi-Fi: On' and 'Turn Wi-Fi Off'. Below this, a list of available networks is shown with their status (locked/unlocked) and signal strength:

Network Name	Status	Signal
✓ cs.uwindsor.ca	Locked	Full
eduroam	Locked	Full
HP Printer SPY1	Locked	Full
HP-Print-bf-LaserJet 400 color	Locked	Full
PKarp Network	Locked	Full
uwindsor	Locked	Full
uwinsecure	Locked	Full

At the bottom of the menu are options: 'Join Other Network...', 'Create Network...', and 'Open Network Preferences...'.

Marking Scheme:

- 0.5 logically clear, follow all instructions and correctly use sockets
- 0.5 successfully compile
- 0.5 pass some tests
- 0.5 pass all tests