CPSC 526 Assignment 3
Port forwarding and logging server

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To compile

```
gcc -pthread -o proxy a3.c
```

To run

```
./proxy [logOptions] [replaceOptions] srcPort server dstPort
```

where: `logOptions` and `replaceOptions` are described below
                `srcPort` is the port for the server to listen on
                `server` is the hostname for the destination server
                `dstPort` is the port to connect to the destination server on

Logging options

None specified   The server does not log any traffic

`--raw, -w`   All traffic is logged as is
                        Incoming and outgoing are specified

`--strip, -s`   All traffic is logged, but with non-printable characters replaced with '.'
                        Incoming and outgoing traffic are specified

`--hex, -h`   All traffic is logged in a format identical to the linux utility "hexdump -C"
                        Incoming and outgoing traffic are specified

`--auto N, -aN`   All traffic is divided into `N`-byte segments and displayed separately
                        Backslash, tab, newline, and carriage return are logged in escaped form
                        Bytes in the range 32-127 are displayed in raw format
                        All other bytes are displayed as a hex value with a leading backslash
                        Incoming and outgoing traffic are specified

Replace options

```
--replace [text] [with], -r [text] [with]
```

This option can be used multiple times when running the server. It replaces all occurrences of the string `[text]` with the string `[with]` in both incoming and outgoing traffic.

Examples of formatting

(All examples use my backdoor server from assignment 2)

<u>None</u>

```
$ ./proxy 2222 localhost 1111
Port forwarding/logging server 1.0
Listening for connections...

Accepted a new connection
Connected to destination server
Connection terminated
```

<u>Raw</u>

```
$ ./proxy --raw 2222 localhost 1111
Port forwarding/logging server 1.0
Listening for connections...

Accepted a new connection
Connected to destination server
<-- Backdoor Server 1.0
Enter password:

--> password

<-- Login successful
%
--> ps

<--
<--    PID TTY          TIME CMD
  13822 pts/17   00:00:00 a.out
  13957 pts/17   00:00:00 ps
  27556 pts/17   00:00:00 bash

<--

<-- %
--> logout

<--
<-- Logging out
Connection terminated
```

Strip

```
$ ./proxy --strip 2222 localhost 1111
Port forwarding/logging server 1.0
Listening for connections...

Accepted a new connection
Connected to destination server
<-- Backdoor Server 1.0.Enter password:.
--> password.
<-- Login successful.
<-- %
--> ps.
<--
<--    PID TTY          TIME CMD.  13822 pts/17   00:00:00 a.out.
<--
<-- 14050 pts/17   00:00:00 ps.
<-- 27556 pts/17   00:00:00 bash.
<-- .
<-- %
--> logout.
<--    Logging out
Connection terminated
```

Hex

```
$ ./proxy --hex 2222 localhost 1111
Port forwarding/logging server 1.0
Listening for connections...

Accepted a new connection
Connected to destination server
<-- 00000000  42 61 63 6B 64 6F 6F 72  20 53 65 72 76 65 72 20   |Backdoor Server |
<-- 00000010  31 2E 30 0A 45 6E 74 65  72 20 70 61 73 73 77 6F   |1.0.Enter passwo|
<-- 00000020  72 64 3A 0A                                        |rd:.|
--> 00000000  70 61 73 73 77 6F 72 64  0A                        |password.|
<-- 00000000  4C 6F 67 69 6E 20 73 75  63 63 65 73 73 66 75 6C   |Login successful|
<-- 00000010  0A                                                 |.|
<-- 00000000  25 20                                              |% |
--> 00000000  70 73 0A                                           |ps.|
<-- 00000000  20 20                                              |  |
<-- 00000000  20 20 50 49 44 20 54 54  59 20 20 20 20 20 20 20   |  PID TTY       |
<-- 00000010  20 20 20 54 49 4D 45 20  43 4D 44 0A 20 20 31 33   |   TIME CMD. 13|
<-- 00000020  38 32 32 20 70 74 73 2F  31 37 20 20 20 30 30 3A   |822 pts/17   00:|
<-- 00000030  30 30 3A 30 30 20 61 2E  6F 75 74 0A               |00:00 a.out.|
<-- 00000000  20 20                                              |  |
<-- 00000000  31 34 31 39 35 20 70 74  73 2F 31 37 20 20 20 30   |14195 pts/17   0|
<-- 00000010  30 3A 30 30 3A 30 30 20  70 73 0A                  |0:00:00 ps.|
<-- 00000000  20 20 32 37 35 35 36 20  70 74 73 2F 31 37 20 20   |  27556 pts/17  |
<-- 00000010  20 30 30 3A 30 30 3A 30  30 20 62 61 73 68 0A      | 00:00:00 bash.|
<-- 00000000  0A                                                 |.|
<-- 00000000  25 20                                              |% |
--> 00000000  6C 6F 67 6F 75 74 0A                               |logout.|
<-- 00000000  20 20                                              |  |
<-- 00000000  4C 6F 67 67 69 6E 67 20  6F 75 74                  |Logging out|
Connection terminated
```

Auto 32

```
$ ./proxy --auto 32 2222 localhost 1111
Port forwarding/logging server 1.0
Listening for connections...

Accepted a new connection
Connected to destination server
<-- Backdoor Server 1.0\nEnter passwo
<-- rd:\n
--> password\n
<-- Login successful\n
<-- %
--> ps\n
<--
<--    PID TTY          TIME CMD\n
<-- 13822 pts/17   00:00:00 a.out\n
<--
<-- 14386 pts/17   00:00:00 ps\n
<-- 27556 pts/17   00:00:00 bash\n
<-- \n
<-- %
--> logout\n
<--
<-- Logging out
Connection terminated
```

Replace

```
$ ./proxy -s -r Backdoor "The Best" -r S $ -r ps pwd 2222 localhost 1111
Port forwarding/logging server 1.0
Listening for connections...

Accepted a new connection
Connected to destination server
<-- The Best $erver 1.0.Enter password:.
--> password.
<-- Login successful.
<-- %
--> pwd.          ← Note: user entered "ps"
<--
<-- /home/ugb/taitg/526/a3.
<-- %
--> logout.
<--
<-- Logging out
Connection terminated
```