

Operating Systems

Exercise F: Eventing and HTTP

Chatting is kind of lame if you have to send a message to see if someone wrote to you. This time we're going to fix that by waiting for data from both ends at the same time: The standard input and the network connection.

1. Put poll() into your chat

With the poll() system call we can ask the operating system to wait for multiple events. So let's put it into our network chat.

- T Find the read / write loop in your chat programs main() function.
- T At the start of the loop use poll() to wait for data from either standard input (STDIN_FILENO) or the network (connection_fd).
- T If there is data from standard input read it into the buffer and send it over the network connection.
- T If there is data from the network connection read it into the buffer and write it to the standard output.
- T Test your network chat with a partner (or by running the server and client on two different terminals on the same computer). You should now see a message as soon as someone send it to you.

Hints

These functions may be helpful to use. Use the manpage to get further information:

- poll()

Includes

```
#include <poll.h>
```

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2. HTTP

HTTP is the protocol browsers and webserver use to talk to each other. Big surprise: It's just a TCP network connection they use to send text messages to one another. Our network chat can send text messages over TCP channels as well. Time to chat with a webserver.

T Use your client program to connect to the host “arkanis.de” on port 80.

T Send the following messages:

```
GET /os/hello.html HTTP/1.0
Host: arkanis.de
```

You might have to hit enter 1 or 2 times until you'll get an answer.

T Connect again to arkanis.de on port 80 but this time use shell output redirection to dump the answer into a the file “deep-stuff.txt” instead of printing it on the terminal. The command should look something like that:

```
./chat arkanis.de 80 client > deep-stuff.txt
```

Also send a different message:

```
GET /os/deep-stuff HTTP/1.0
Host: arkanis.de
```

T Take a text editor and remove the HTTP header from deep-stuff.txt. That is everything up to and including the first empty line. If the text editor won't work you can use the following command to remove the first 10 lines:

```
tail -n +10 deep-stuff.txt > deep-stuff
```

T Double click on the file without the HTTP header in the file browser to open it. Thing about what you see.

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3. Motion Terminal presents...

... a surprise.

- T Grab a bit of popcorn or something else to eat or drink. Ok, that step isn't strictly necessary but it sets the right mood.
- T Use your client program to connect to `arkanis.de` on port 1337. Enjoy. :)