

NetCat, Ncat, or nc

Overview

- Operates in one of two modes
 - Connect mode - like a network client
 - Listen Mode - like a network server
- Defaults to TCP
- Default port 31337 (Some implementations still require that you enter a port number.)

Ncat echodemo

- Open two terminal windows

- Create a ncat server

\$ nc -l 4444

Note: that's a lower-case L

or

\$ nc -l 4444 -k

-k keeps server alive for another client

- Create a ncat client

\$ nc localhost 4444

- Type text in either terminal window
 - Type knock-knock jokes or play the high-low guessing game
 - Ctrl-c in either window to exit

Ncat File Transfer

- Server to client

- `$ nc -l 4444 < file.txt`

Server reads file.txt

- `$ nc localhost 4444 > file.copy.txt`

Client redirects output to copy

- `$ diff file.txt file.copy.txt`

In either window

- Client to server

- `$ nc -l 4444 > file.copy.txt`

Server redirects output to copy

- `$ nc localhost 4444 < file.txt`

Client reads file.txt

- `$ diff file.txt file.copy.txt`

In either window

Ncat as a web browser

- `$ nc -C <web site> <site's port number>`
- `GET / HTTP/1.0`
- Press return twice
- Only works if web site uses HTTP, not HTTPS

Ncat as a web server

- Create a file containing HTTP response, file.http

HTTP/1.0 200 OK

```
<html>  
  <body>  
    <h1>Hello, world</h1>  
  </body>  
</html>
```

- Start Ncat in server mode
 - \$ nc -l 8080 < file.http
- Use a browser to access <http://localhost:8080/>
- Look at the Ncat window to see what the browser sent

Ncat as a dev tool

- HW1. Do you develop the client or server first?
- How do you test when you do not have both programs?
- Ncat can be a stand-in during early development.

Ncat as Test Client

- Start the EchoServer
 - `$ java -cp build EchoServer 4444`
- Start the Ncat client
 - `$ nc localhost 4444`
- Type a message in the client window. What happened?

Ncat as Test Server

- Start a Ncat server
 - `$ nc -l 4444`
- Start the EchoClient
 - `$ java -cp build EchoClient localhost 4444`
- Type a message in the client window. What happened?