socat Bidirectional byte relay

CONCEPTS

socat <addr1> <addr2> opens two endpoints and copies bytes both ways between them. Everything else is choosing the two addresses.

Address 1 TYPE:args,options
↓ both ways
socat relay loop
↓ both ways
Address 2 TYPE:args,options

An address is TYPE:arg:arg,option,option=value. Options follow the commas; the type name is case-insensitive.

The first address that fails or hits EOF ends the relay. Add fork on a listener to keep serving, and shut-down or -t if the peer needs EOF.

BASICS

socat *<addr1> <addr2>*
Relay between two addresses

socat - *<addr>*
Connect stdin/stdout to an address

socat -u *<addr1> <addr2>*
One way only: first read, second write

socat -d -d *<addr1> <addr2>*
Log more: -d notices, -d -d info

socat -v *<addr1> <addr2>*
Dump transferred text to stderr

socat -x *<addr1> <addr2>*
Dump transferred data as hex to stderr

socat -T *<secs> <addr1> <addr2>*
Quit after this much inactivity

socat -V
Print version and built-in features

TCP AND UDP

socat - TCP:*<host>*:*<port>*
Connect to a TCP port

socat TCP-LISTEN:*<port>* -
Listen for one TCP connection

TCP AND UDP (cont.)

socat TCP-LISTEN:*<port>*,fork,reuseaddr -
Serve each client in a child process

socat TCP-LISTEN:*<port>*,bind=*<ip>* -
Listen on one local address only

socat TCP-LISTEN:*<port>*,range=*<cidr>* -
Accept only peers in a network

socat - TCP4:*<host>*:*<port>*
Force IPv4 (TCP6 forces IPv6)

socat TCP:*<host>*:*<port>*,connect-timeout=*<s>* -
Give up connecting after a while

socat - UDP:*<host>*:*<port>*
Send and receive UDP datagrams

socat UDP-LISTEN:*<port>*,fork -
Receive UDP datagrams, one peer per child

UNIX SOCKETS AND FILES

socat UNIX-LISTEN:*<path>*,fork -
Listen on a Unix socket

socat - UNIX-CONNECT:*<path>*
Connect to a Unix socket

socat UNIX-LISTEN:*<path>*,mode=*<mode>* -
Set permissions of the socket file

socat UNIX-LISTEN:*<path>*,unlink-early -
Remove a stale socket file first

socat - GOPEN:*<file>*
Open a file or socket, whichever it is

socat - OPEN:*<file>*
Read an existing file

socat -u - CREATE:*<file>*
Write stdin to a new file

FORWARD AND PROXY

socat TCP-LISTEN:*<lport>*,fork,reuseaddr TCP:*<host>*:*<port>*
Forward a local port to a remote one

FORWARD AND PROXY (cont.)

socat TCP-LISTEN:*<lport>*,fork,bind=*<ip>* TCP:*<host>*:*<port>*
Forward, listening on one address only

socat UNIX-LISTEN:*<path>*,fork TCP:*<host>*:*<port>*
Expose a TCP service as a Unix socket

socat TCP-LISTEN:*<port>*,fork UNIX-CONNECT:*<path>*
Expose a Unix socket over TCP

socat -v TCP-LISTEN:*<lport>*,fork TCP:*<host>*:*<port>*
Forward and print the traffic

TLS

socat - OPENSSL:*<host>*:*<port>*
Connect over TLS (verifies the server)

socat - OPENSSL:*<host>*:*<port>*,verify=0
Connect over TLS, skip verification

socat - OPENSSL:*<host>*:*<p>*,cafile=*<c>*
Verify against a given CA file

socat OPENSSL-LISTEN:*<p>*,cert=*<f>*,verify=0 -
TLS server, no client cert needed

PROGRAMS AND TERMINALS

socat TCP-LISTEN:*<port>*,fork EXEC:*<prog>*
Run a program per connection

socat TCP-LISTEN:*<port>*,fork SYSTEM:'*<shell cmd>*'
Run a shell command per connection

RECIPES

Send a file between hosts

```
# receiver
socat -u TCP-LISTEN:5000
CREATE:in.tar
# sender
socat -u OPEN:in.tar
TCP:<host>:5000
```