

Ruby Socket Programming Cheat Sheet

Server Lifecycle

```
server = Socket.new(:INET, :STREAM) # create
addr = Socket.sockaddr_in(1337, '0.0.0.0')
server.bind(addr) # bind
server.listen(Socket::SO_MAXCONN) # listen
connection, _ = server.accept # accept

# The Ruby Way
server = TCPServer.new(1337)
```

Client Lifecycle

```
client = Socket.new(:INET, :STREAM) # create
addr = Socket.sockaddr_in(80, 'google.com')
client.connect(addr) # connect

# The Ruby Way
client = TCPSocket.new('google.com', 80)
```

Reading

```
socket.read # read until EOF
socket.read(1024) # read until EOF or 1024 bytes received
socket.readpartial(1024) # read <= 1024 bytes or until EOF
socket.read_nonblock(1024) # read <= 1024 bytes. raises Errno::EAGAIN when there's no data
```

Writing

```
socket.write('stuff') # write data, returns number of bytes written
socket.write_nonblock('stuff') # same as above, but raises Errno::EAGAIN if write(2) would block
```

Timeouts

```
timeout = 5
begin
  socket.read_nonblock(1024)
rescue Errno::EAGAIN # raised when the read(2) would otherwise block
  if IO.select([socket], nil, nil, timeout)
    retry
  else
    raise Timeout::Error
  end
end
```

Socket Options

```
socket.getsockopt(:SOCKET, :TYPE) # Get the type (:STREAM, :DGRAM, etc)
socket.setsockopt(:TCP, :NODELAY, true) # Turn off Nagle's algorithm
socket.setsockopt(:SOCKET, :SNDBUF, 10) # That's a tiny send buffer!
socket.setsockopt(:SOCKET, :REUSEADDR, true) # Reuse recently closed ports
```

Reminders

EOF: a condition where no more data can be sent on an IO.

Errno::EAGAIN: the one that gets raised when a non-blocking operation would otherwise block.

Socket::SOMAXCONN: the maximum number of connections that may be queued on a socket. Pass this to `listen()`.

IO.select: can tell you when a socket is readable or writable. Use this to implement socket timeouts.

Manpage Sections

- Section 1: General Commands
- Section 2: System Calls
- Section 3: C Library Functions
- Section 4: Special Files (Devices)
- Section 5: File Formats
- Section 6: Games/Screensavers
- Section 7: Miscellaneous
- Section 8: Admin Commands

Use them! And try `man 2 intro`.