- Introduction
- Hello World
- Request Method
- Request Header
- Request Body
- Response Header
- Response Body
- Status Code
- Cache
- Authentication
- Hypermedia
- Idempotent
- Safe
- Versioning
- Security
- Content Negotiation
- Conditional Request
- Partial Response
- Rate Limiting
- Batch
- Asynchronous
- Partial Update
- Cross Origin Resource Sharing
- Hypertext Transfer Protocol (HTTP) 2.0
- Hypertext Transfer Protocol Secure (HTTPS)

HTTP

HTTP is the foundation of data communication for the World Wide Web. Hypertext is structured text that uses logical links (hyperlinks) between nodes containing text. HTTP was developed to facilitate hypertext and the World Wide Web.

HTTP functions as a request-response protocol in the client-server computing model. A web browser, for example, may be the client and an application on a computer that hosts a website may be the server. A client submits an HTTP request message to a server. The server, which stores or creates resources such as HTML files, returns a response message to the client. The response contains completion status information about the request and may also contain requested content in its message body.

Hello HTTP server

The curl command is a command line tool for transferring data specified with URL syntax. Find more examples of curl at: http://www.cs.sunysb.edu/~cse/cheat/curl.txt

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Generate a new server

Find more examples of curl at: http://www.cs.sunysb.edu/~cse/cheat/curl.txt

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Generate a new server

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

The Postman is a Google Chrome extension that helps you to create HTTP requests in a user-friendly interface.

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

The Postman is a Google Chrome extension that helps you to create HTTP requests in a user-friendly interface.

Hosting your HTTP server

Create a simple HTTP server in Node.js.

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Create a simple HTTP server in Node.js.

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Request Method

The request method indicates the method to be performed on the resource identified by the Request-URI. The methods are case-sensitive.

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

The request method indicates the method to be performed on the resource identified by the Request-URI. The methods are case-sensitive.

HTTP Request

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Request Header

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Request Body

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Response Header

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Response Body

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Status Code

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Cache

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Authentication

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Hypermedia

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Idempotent

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Safe

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Versioning

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Security

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Content Negotiation

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Conditional Request

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Partial Response

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Rate Limiting

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Batch

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Asynchronous

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Partial Update

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Cross Origin Resource Sharing

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Hypertext Transfer Protocol (HTTP) 2.0

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```

Hypertext Transfer Protocol Secure (HTTPS)

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
```

```
$ curl -v -X GET -H "Accept: text/plain" http://www.cs.sunysb.edu/~cse/cheat/curl.txt
* Trying 130.245.27.5...
* TCP_NODELAY set
* Connection failed
* connect to 130.245.27.5 port 80 failed: Connection timeout
* Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
* Closing connection 0
curl: (7) Failed to connect to www.cs.sunysb.edu port 80: Connection timeout
```