



Intro to Web

Lesson Overview

- Explain how web protocols work
- Identify web directories

What is a website?



Files on a Server

```
224 #upstats { display: none; }
225
226 .sticky {
227   margin-bottom: 50px;
228 }
229
230
231 .sticky .content-inner {
232   margin-bottom: 0px !important;
233   padding-bottom: 5px !important;
234   border-bottom: 0px !important;
235   -o-box-shadow: 0 1px 2px rgba(0,0,0,0.3);
236   -moz-box-shadow: 0 1px 2px rgba(0,0,0,0.3);
237   -webkit-box-shadow: 0 1px 2px rgba(0,0,0,0.3);
238   box-shadow: 0 1px 2px rgba(0,0,0,0.3);
239   background-color: #fff;
240   padding: 25px !important;
241   position: relative;
242 }
243
244 .side-box {
245   padding: 10px 0;
246   margin-bottom: 10px;
247   border: 1px solid #ccc;
248   background-color: #e6e6e6;
249   text-align: center;
250 }
251
252 .side-box a:link,
253 .side-box a:visited {
254   font-weight: normal;
255   color: #06c59b;
256   font-size: 12px;
257 }
```

```
34 const events = [
35   'dragenter',
36   'dragleave',
37   'dragover', // to allow drop
38   'drop'
39 ];
40 events.forEach(e => {
41   fileDropZone.addEventListener(e, (ev) => {
42     ev.preventDefault();
43     if (ev.type === 'dragenter') {
44       fileDropZone.classList.add('solid-border');
45     }
46     if (ev.type === 'dragleave') {
47       fileDropZone.classList.remove('solid-border');
48     }
49     if (ev.type === 'drop') {
50       fileDropZone.classList.remove('solid-border');
51       handleFiles(ev.dataTransfer.files);
52       .then(values => values.map(tag => {
53         tag.setAttribute('class', 'border rounded img-preview');
54         fileDropZone.appendChild(tag)
55       })
56     )
57   })
58 }
```

HTML



CSS



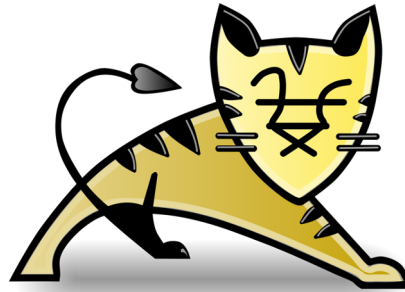
JavaScript



Webserver



APACHE
HTTP SERVER



NGINX



Off-Premise Hosting



- + Headers
- + Requests
- + Response
- + Browsers
- + Sessions
- + HTTPS

HTTP Protocol

Headers

Highlights

Method Directory



GET / HTTP/1.1



Host

Host: ine.com

Sec-Ch-Ua: "(Not(A:Brand";v="8", "Chromium";v="98"

Sec-Ch-Ua-Mobile: ?0

Sec-Ch-Ua-Platform: "macOS"

Upgrade-Insecure-Requests: 1

User-agent

User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko)

Chrome/98.0.4758.82 Safari/537.36

Accept:

text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9

Sec-Fetch-Site: none

Sec-Fetch-Mode: navigate

Sec-Fetch-User: ?1

Sec-Fetch-Dest: document

Accept-Encoding: gzip, deflate

Accept-Language: en-US,en;q=0.9

Connection: close

Request

Response

Status Code

HTTP/2 200 OK

Date: Wed, 16 Feb 2022 19:12:46 GMT

Content-Type: text/html; charset=utf-8

X-Matched-Path: /

Cache-Control: public, max-age=0, must-revalidate

Content-Disposition: inline

Access-Control-Allow-Origin: *

Etag: W/"53ce07178ce8c46425e95f75f030e46fc04f2cd3940b4fe2ef5c4eb9210633b3"

X-Vercel-Cache: HIT

Age: 7176

Server: Vercel

X-Vercel-Id: iad1:hhzg9-1645038766899-41add9b179ef

Strict-Transport-Security: max-age=63072000

Content Type

Requests

- + Client
- + Interacts with Server
 - + Methods
 - + GET
 - + HEAD
 - + POST
 - + PUT
 - + DELETE
 - + CONNECT
 - + OPTIONS
 - + TRACE
 - + PATCH
- + User-Agent

```
POST /collect HTTP/2
Host: h.clarity.ms
Cookie: MUID=198DB6F0FEA3669418D7A7BDFF6167F0
Content-Length: 625
Sec-Ch-Ua: "(Not(A:Brand";v="8", "Chromium";v="98"
Accept: application/x-clarity-gzip
Sec-Ch-Ua-Mobile: ?0
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64)
AppleWebKit/537.36 (KHTML, like Gecko) Chrome/98.0.4758.82
Safari/537.36
Sec-Ch-Ua-Platform: "macOS"
Origin: https://my.ine.com
Sec-Fetch-Site: cross-site
Sec-Fetch-Mode: cors
Sec-Fetch-Dest: empty
Accept-Encoding: gzip, deflate
Accept-Language: en-US,en;q=0.9
```

Response

- + Server
- + Sends Resources
- + Status Codes
 - + 200
 - + 302
 - + 404
 - + etc.

HTTP/2 405 Method Not Allowed

Allow: GET, OPTIONS, POST

Server: Microsoft-IIS/10.0

Request-Context: appId=cid-v1:b1d896b3-bec7-448b-b764-240152e813e8

Access-Control-Allow-Origin: *

X-Powered-By: ASP.NET

Date: Wed, 16 Feb 2022 20:25:02 GMT

HTTP/2 404 Not Found

Server: Microsoft-IIS/10.0

Request-Context: appId=cid-v1:b1d896b3-bec7-448b-b764-240152e813e8

Access-Control-Allow-Origin: *

X-Powered-By: ASP.NET

Date: Wed, 16 Feb 2022 20:25:53 GMT

HTTP/2 200 OK

Content-Type: text/html

Date: Wed, 16 Feb 2022 20:27:19 GMT

Last-Modified: Wed, 16 Feb 2022 16:51:21 GMT

Etag: W/"321dd757947577ff6f59c4feba03c6f0"

Cache-Control: no-store

X-Amz-Version-Id: TW03y7.W3oQU1qJQih71..4LaCI5J5eT

Server: AmazonS3

Strict-Transport-Security: max-age=31536000; includeSubdomains; preload

Content-Security-Policy: frame-ancestors 'none';

X-Content-Type-Options: nosniff

X-Xss-Protection: 1; mode=block

Referrer-Policy: same-origin

Vary: Accept-Encoding

X-Cache: Error from cloudfront

Via: 1.1 b7a66b6616123855c5af2d7cdf2b099e.cloudfront.net (CloudFront)

X-Amz-Cf-Pop: EWR52-C1

X-Amz-Cf-Id: A05G4uGNMgsn4QIVEixjbZQWRxIrbDxPR7Ju7UQHWayiJJipWJBJA==

<!DOCTYPE html><html lang=en>



Browsers

Interpret and Process

Sessions

```
POST /collect HTTP/2
Host: d.clarity.ms
Cookie: MUID=198DB6F0FEA3669418D7A7BDFF6167F0
Content-Length: 674
Sec-Ch-Ua: "(Not(A:Brand";v="8", "Chromium";v="98"
Accept: application/x-clarity-gzip
Sec-Ch-Ua-Mobile: ?0
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64)
AppleWebKit/537.36 (KHTML, like Gecko)
Chrome/98.0.4758.82 Safari/537.36
```

Cookies



HTTPS

Cleartext

```
POST /login.php HTTP/1.1
Host: demo.ine.local
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:91.0) Gecko/20100101 Firefox/91.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Content-Type: application/x-www-form-urlencoded
Content-Length: 51
Origin: http://demo.ine.local
Connection: keep-alive
Referer: http://demo.ine.local/login.php
Cookie: PHPSESSID=n9o897cbc8q5b4gs2pnftjf7t1
Upgrade-Insecure-Requests: 1
```

```
login=bee&password=bug&security_level=0&form=submitGET /portal.php HTTP/1.1
```

Encrypted

```
.....6...1.....k.q.&F/.....0'.[.Kj. .1&.....A.....$...K>.n1Dt.z...f0.$.....+./.....,.0.
. ....../.5.
.....demoss1.ine.local.....
.....#.....h2.http/1.1.....".
.....3.k.i... ..lf9.g.J.=..9...\"r[.TN....>...A.....I.T..\"./!3...3.6N..XG6C..;Mr+.....L ..
[$. ....U.}ATMKH....+.....
.....@.....
```



Let's get hands-on!



