

HTTP

COMS10012 / COMSM0085

Software Tools

HTTP

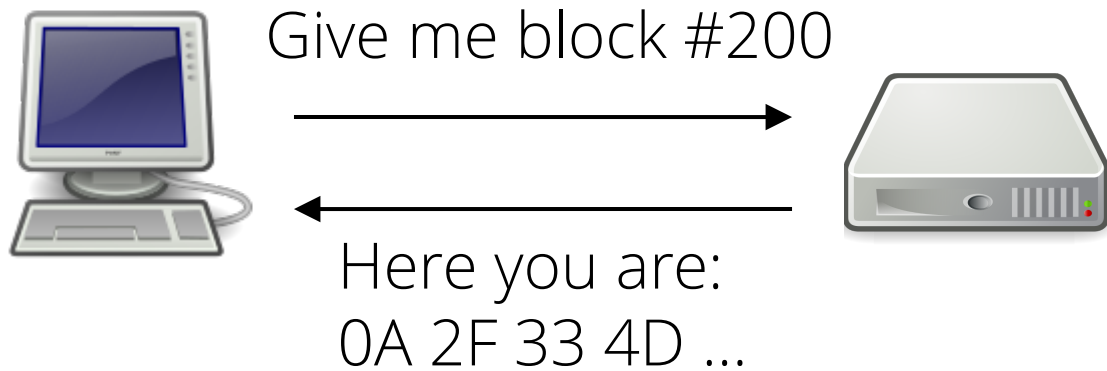
HTTP

HyperText Transfer Protocol

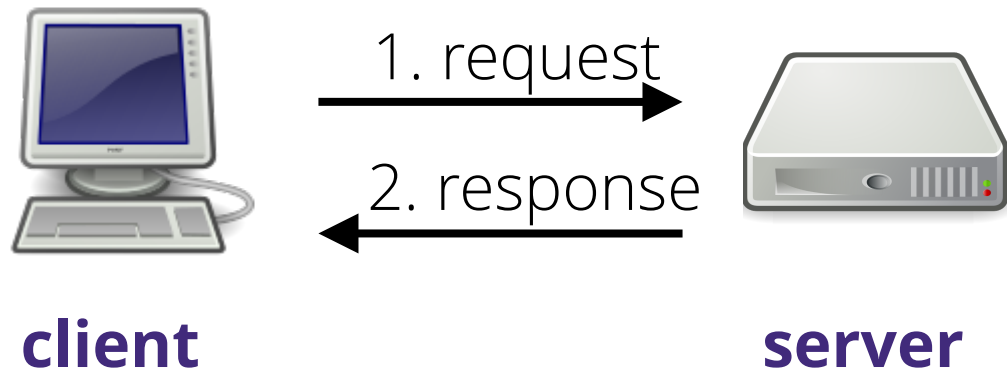
Tim Berners-Lee, CERN, 1989

version 1.1, RFC 7230-7235

Protocols



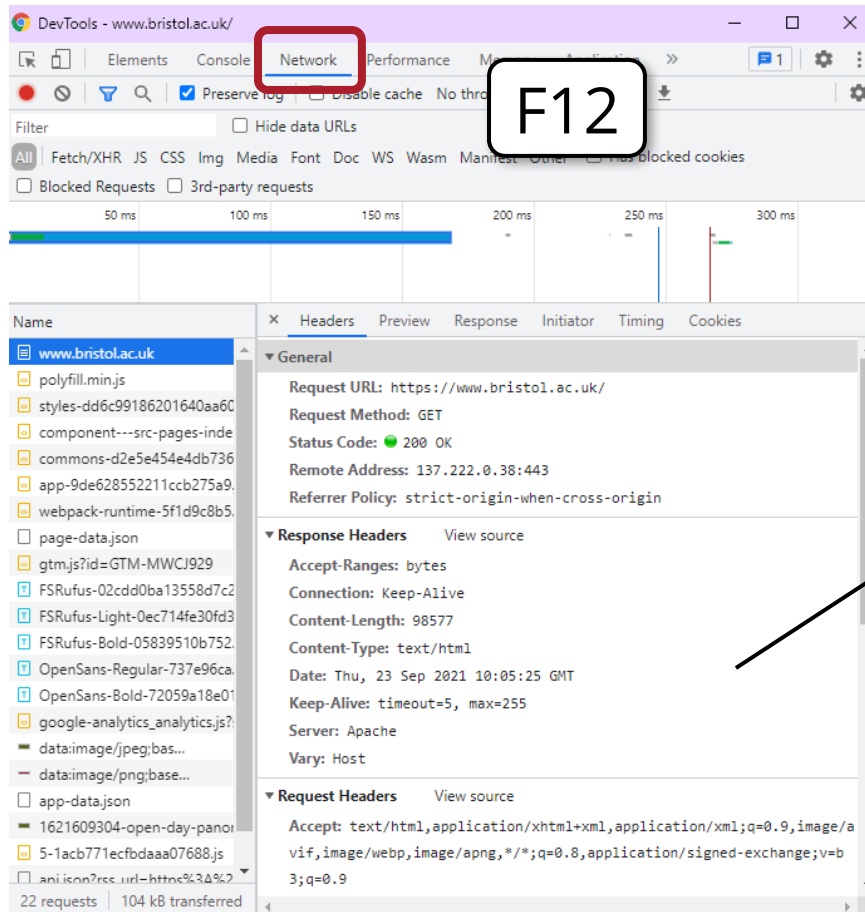
Client-Server



Server

```
while (1) {  
    req = read();  
    resp = serve(req);  
    write(resp);  
}
```

HTTP



▼ Response Headers	View parsed
HTTP/1.1 200 OK	
Date: Thu, 23 Sep 2021 10:05:25 GMT	
Server: Apache	
Vary: Host	
Accept-Ranges: bytes	
Content-Length: 98577	
Keep-Alive: timeout=5, max=255	
Connection: Keep-Alive	
Content-Type: text/html	
▼ Request Headers	View parsed
GET / HTTP/1.1	
Host: www.bristol.ac.uk	
Connection: keep-alive	
Cache-Control: max-age=0	

HTTP Request

GET /index.html HTTP/1.1

Host: www.bristol.ac.uk

Connection: close

Methods

GET

HEAD

POST 

PUT, DELETE, ...



HTTP Response

HTTP/1.1 200 OK

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

Content-Length: 1009

<!DOCTYPE html>

<html lang="en">

...

Response codes

1xx: information

2xx: success (200 OK, 201 Created, ...)

3xx: redirect (301 Moved Permanently, ...)

4xx: client error (400 Bad Request, 403 Forbidden, 404 Not Found, ...)

5xx: server error (500 Internal Server Error ...)

Content-type

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

text/plain, text/html, ...
image/jpeg, application/pdf, video/mp4 ...

First priority for the browser!

Encoding



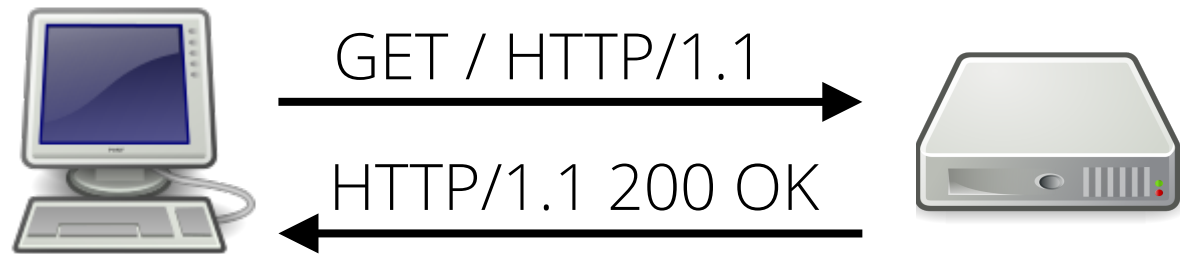
François Dupressoir



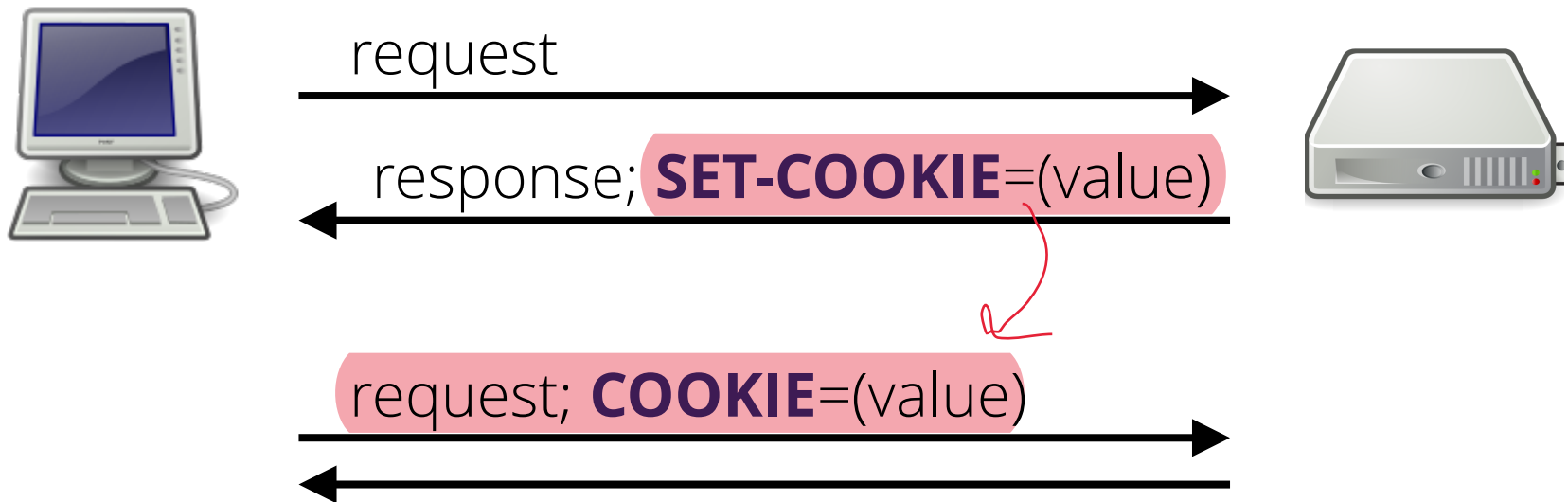
François Dupressoir

Cookies

Stateless



Cookie protocol



(RFC 6265)

Sessions



login?name=david&pass=****

ok; SET-COOKIE=1x33ad4

view page; COOKIE=1x33ad4

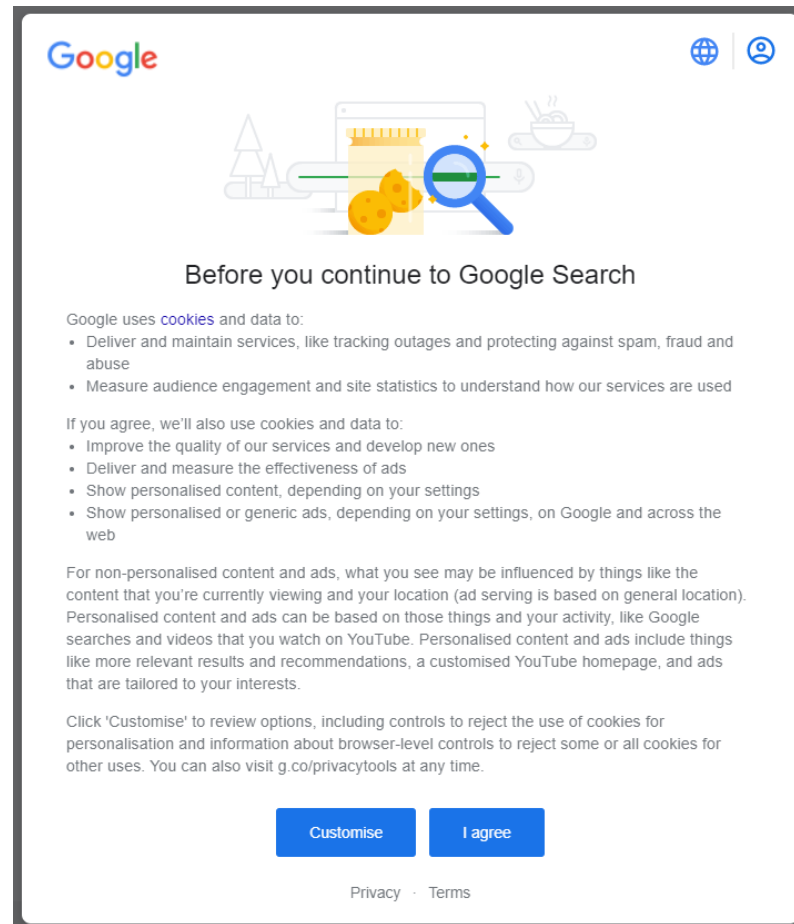
ok; (page)



server	cookie
bristol	1x33ad4
...	...

sessions	
user	cookie
david	1x33ad4
...	...

Tracking cookies

A screenshot of a Google cookie consent banner. At the top left is the Google logo. At the top right are icons for a globe and a user profile. In the center is an illustration showing a magnifying glass over a cookie, with a computer monitor and a bowl of food in the background. Below the illustration is the heading "Before you continue to Google Search". The text explains that Google uses cookies and data for various purposes, including service delivery, audience engagement, and personalization. It provides two options: "Customise" and "I agree". At the bottom are links for "Privacy" and "Terms".

Google

Before you continue to Google Search

Google uses [cookies](#) and data to:

- Deliver and maintain services, like tracking outages and protecting against spam, fraud and abuse
- Measure audience engagement and site statistics to understand how our services are used

If you agree, we'll also use cookies and data to:

- Improve the quality of our services and develop new ones
- Deliver and measure the effectiveness of ads
- Show personalised content, depending on your settings
- Show personalised or generic ads, depending on your settings, on Google and across the web

For non-personalised content and ads, what you see may be influenced by things like the content that you're currently viewing and your location (ad serving is based on general location). Personalised content and ads can be based on those things and your activity, like Google searches and videos that you watch on YouTube. Personalised content and ads include things like more relevant results and recommendations, a customised YouTube homepage, and ads that are tailored to your interests.

Click 'Customise' to review options, including controls to reject the use of cookies for personalisation and information about browser-level controls to reject some or all cookies for other uses. You can also visit g.co/privacytools at any time.

[Customise](#) [I agree](#)

[Privacy](#) · [Terms](#)