

CS1115/CS5002

Web Development 1

Dr Derek Bridge

School of Computer Science & Information Technology
University College Cork

URLs

- In general, URLs consist of eight parts:
scheme://**user**:**password**@**host**:**port**/**pathname**?**query**#**fragment**
- Most are optional; several have defaults, e.g.:
 - Scheme: http
 - Port: 80
- E.g. http://en.wikipedia.org/wiki/Ernest_Hemingway

Class exercise

The scheme

- The scheme tells your browser what action to take when, e.g., a user clicks on the link
- http (the default):
 - Tells browser to send out a request using HTTP
- https:
 - Same as http but HTTP request and response are encrypted

The scheme, continued

- file, e.g. `My page`
 - Tells browser to load web page typically from user's local disk
 - Question: Why three slashes?
 - Question: Why should you **never** use this kind of URL in a web page?
- mailto, e.g. `Mail me`
 - Tells browser to launch an email program
 - Question: Why should you be very wary of using this?
- chrome, e.g. `chrome://version`
 - Tells Chrome browsers to display 'internal' information

The host: hostname

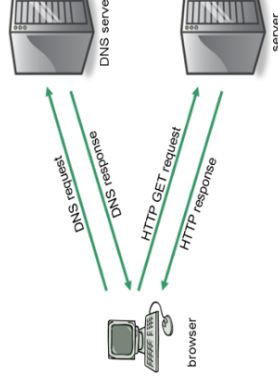
- Numeric IP addresses are cumbersome for humans
- Hence, most computers (hosts) that are connected to the Internet also have one (or more) names (**hostnames**)
- E.g. `www.cs.ucc.ie`, `cs1.ucc.ie`, `www.rte.ie`
- In a URL, you can give the hostname instead of its IP address
- Your browser will ask *DNS* to convert the hostname to its IP address

The host: IP address

- Every device that is connected to the Internet is assigned a unique **IP address** (Simplification!)
- The Internet is moving from IPv4 (32-bit IP addresses) to IPv6 (128-bit IP addresses)
 - Enough for 340 trillion, trillion, trillion devices
 - E.g. in hexadecimal
2001:0db8:85a3:0000:0000:8a2e:0370:7334
- In a URL, the host specifies the IP address of the server that will receive your request

The Domain Name System (DNS)

- DNS acts like a directory enquiries system: it automatically takes hostnames and translates them into IP addresses



The port number

- One server might be offering ('hosting') more than one service
- E.g. a server computer may be running web server software and email server software
- How does a client indicate which server program is to handle its requests?
- Each server program is assigned an identification number, called a **port number**
- A client request includes the port number of the server program that should respond

The pathname

- Directories/folders are organised hierarchically
- A **pathname** is typically a sequence of directories/folders
- E.g. `/var/www/html/index.html`

Summary

- What does your browser do when you click on this link?
`Web Dev 1`
- In the lecture, we will discuss how **caching** affects this