World Wide Web lifecycle

Websites are collections of files, often HTML, CSS, Javascript, and images, that tell your browser how to display the site, images, and data. They need to be accessible to anyone from anywhere at anytime, so hosting them on your computer at home isn't be scalable or reliable. A powerful external computer connected to the Internet, called a server, stores these files.

When you point your browser at a URL like https://emag.ro, your browser has to figure out which server on the Internet is hosting the site. It does this by looking up the domain, emag.ro, to find the address.

Each device on the Internet — servers, cell phones, your smart refrigerator — all have a unique address called an IP address. An IP address contains four numbered parts: 203.0.113.0

But numbers like this are hard to remember! That's where domain names come in emag.ro is much easier to remember than 203.0.113.0

We do the same on the Internet. The domain name system, or DNS, is like the Contacts app on our phone. DNS helps our browser find servers on the Internet. We can do a DNS lookup to find the IP address of the server based on the domain name, emag.ro.

To be more specific we have 6 steps which explain to us how world wide web works.

1. You type a URL in your browser and press Enter
2. Browser looks up IP address for the domain
3. Browser initiates TCP connection with the server
4. Browser sends the HTTP request to the server
5. Server processes request and sends back a response
6. Browser renders the content

1.You type a URL in your browser and press Enter

This step is self explained.

2. Browser looks up IP address for the domain

After you've typed the URL into your browser and pressed enter, the browser needs to figure out which server on the Internet to connect to. To do that, it needs to look up the IP address of the server hosting the website using the domain you typed in. It does this using a DNS lookup.

3. Browser initiates TCP connection with the server

Using the public Internet routing infrastructure, packets from a client browser request get routed through the router, the ISP, through an internet exchange to switch ISPs or networks, all using transmission control protocol, more commonly known as TCP, to find the server with the IP address to connect to. Once the browser finds the server on the Internet, it establishes a TCP connection with the server and if HTTPS is being used, a TLS handshake takes place to secure the communication. Once the browser has established a connection with the server, the next step is to send the HTTP request to get the resource, or the page.

4. Browser sends the HTTP request to the server

Now that the browser has a connection to the server, it follows the rules of communication for the HTTP(s) protocol. It starts with the browser sending an HTTP request to the server to request the contents of the page. The HTTP request contains a request line, headers (or metadata about the request), and a body. The request line contains information that the server can use to determine what the wants to do.

5. Server processes request and sends back a response

The server takes the request and based on the info in the request line, headers, and body, decides how to process the request. For the request, `GET /hello-world/ HTTP/1.1`, the server gets the content at this path, constructs the response and sends it back to the client.

6. Browser renders the content

Once the browser has received the response from the server, it inspects the response headers for information on how to render the resource. The `Content-Type` header above tells the browser it received an HTML resource in the response body.