

What is a web server?

Web Server Overview

A web server can refer to both hardware and software working together to deliver website to users.

Hardware: A computer that store website files (HTML, CSS, JS, images. Etc.) and connects to the internet

Software: Primarily an HTTP server that understands URLs and HTTP protocol, delivering requested content to browsers.

How it Works

When a browser requests a file via HTTP:

1. The request reaches the hardware server.
2. The HTTP server processes it
3. If the file exists, it sends it back, if not, it returns a 404 error.

Types of Web Servers

Static Web Server: Send files as-is. Simple and ideal for beginners.

Dynamic Web Server: Includes an application server and database. It generates content on-the-fly, offering flexibility but requiring a more complex setup.

Hosting Files

Web servers store all website assets. While you can host files on your own computer, using a dedicated hosting provider is more reliable and convenient.

Benefits include

- Constant Internet connection
- Fixed IP address
- Professional maintenance

HTTP Communication

Http is a textual, stateless protocol:

Textual: Human-readable commands.

Stateless: No memory of previous interactions.

Clients (browsers) send HTTP request; Servers respond with files or errors.

Static vs. Dynamic Content

Static Content: Served without changes.

Dynamic Content: Generated or modified before delivery, often using templates and databases.

Dynamic sites (like Wikipedia) use fewer templates and large databases for scalability and easier maintenance.

Building Dynamic Servers

Most developers use existing application servers or frameworks. Building one from scratch is rare and usually done for specialized needs (e.g., embedded systems).