

Arena Web Security

**Unlocking the Mysteries of URLs: A Journey Through Protocol,
Domain Names, Paths, and Query Parameters**

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What is a URL?

Components of a URL

Using URLs in Web Browsers

URLs in Internet Protocols

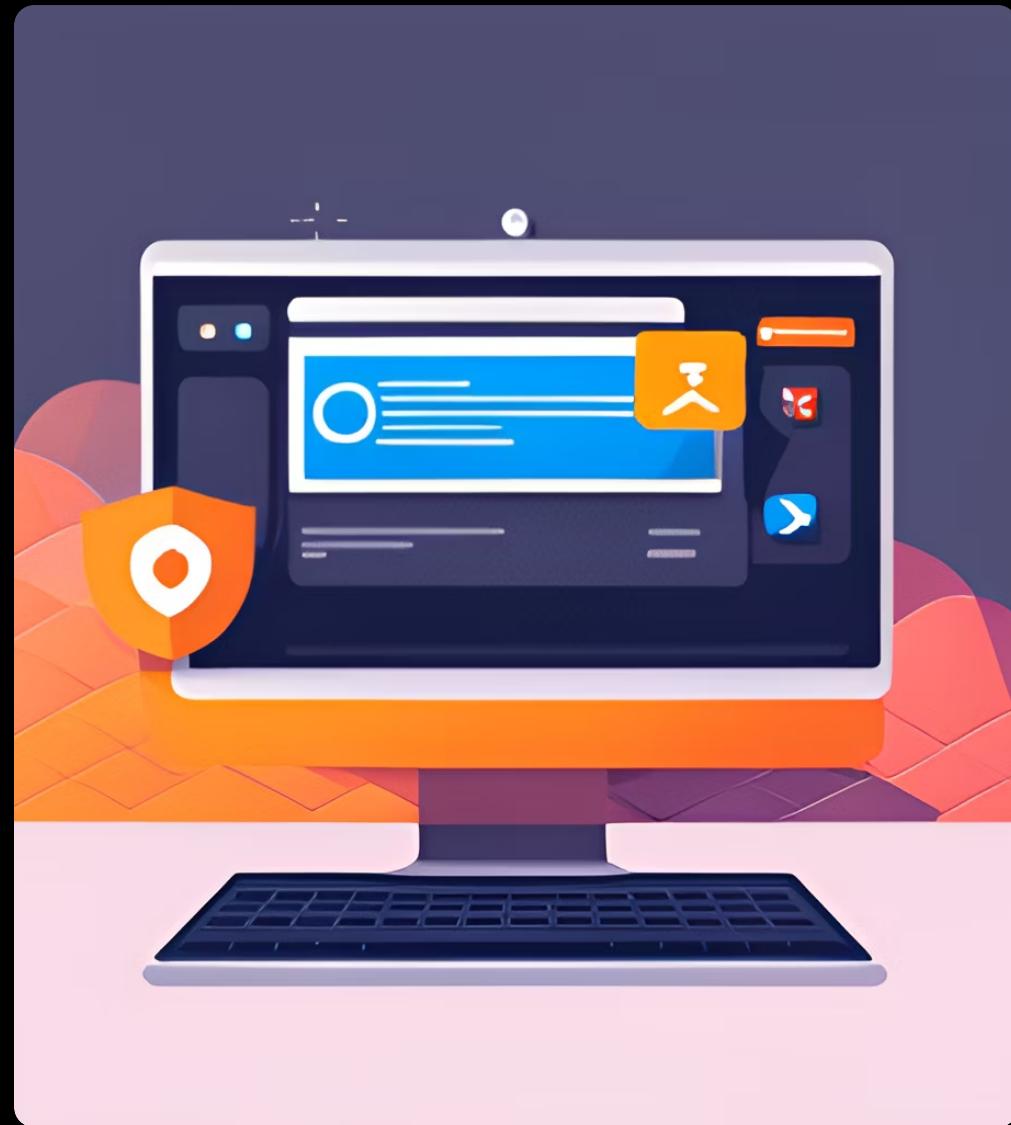
Common URL Protocols

Path & Query Parameters

What is a URL?

A URL, or Uniform Resource Locator, is a string of characters used to identify a resource on the internet. It is essentially the address of a webpage or file that can be accessed using a web browser or other internet-enabled application.

The purpose of a URL is to provide a unique identifier for each resource on the internet, making it easy for users to locate and access the information they need. URLs can also be used to link to specific resources from other web pages, allowing for efficient navigation between different sites and resources.



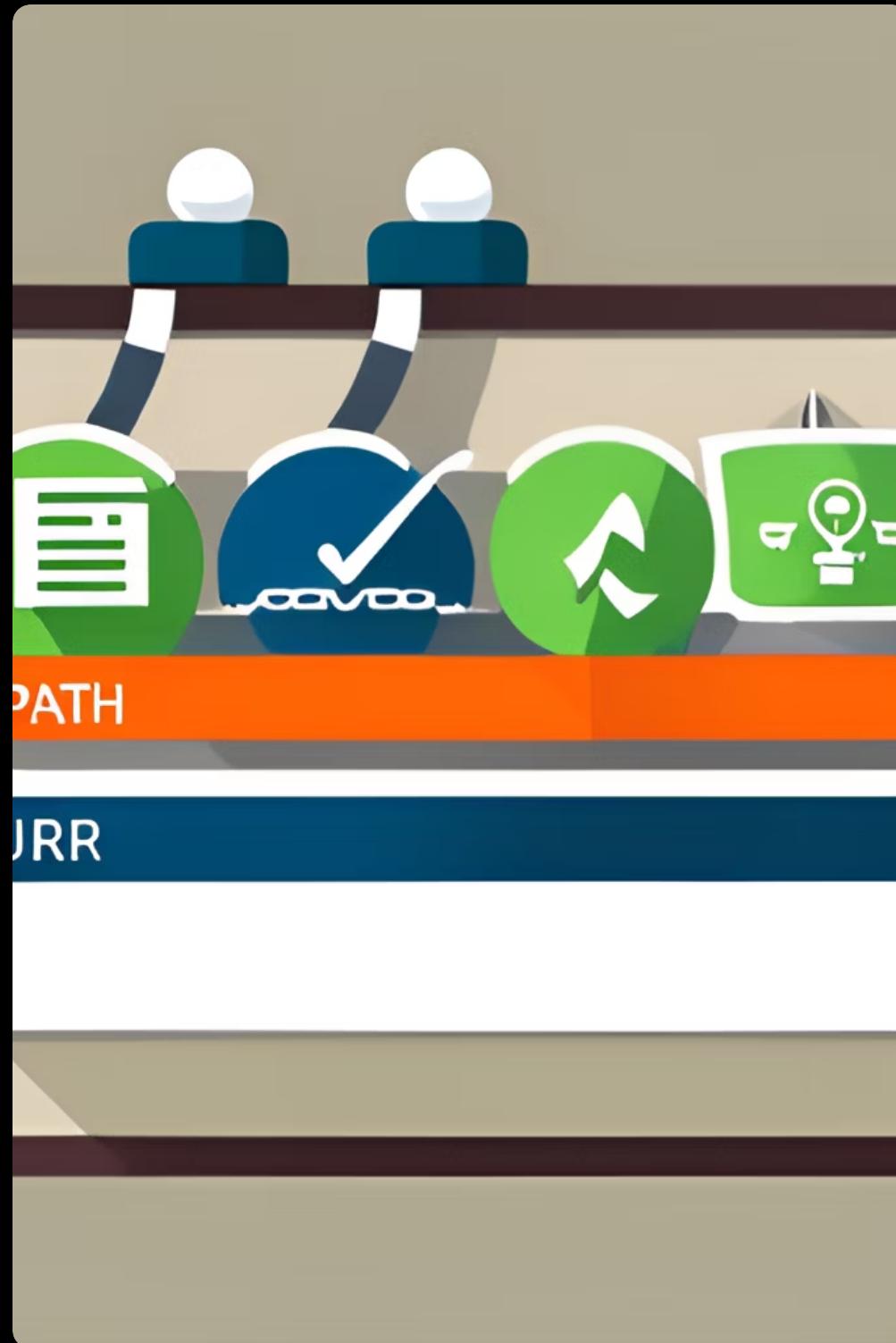
Components of a URL

A URL consists of several components that work together to identify a resource on the internet. The first component is the protocol, which specifies how the resource should be accessed. The most common protocols are HTTP and HTTPS for web pages, FTP for file transfer, and mailto for email addresses.

The second component is the domain name, which identifies the server where the resource is located. Domain names are hierarchical, with the top-level domain (TLD) at the end (such as .com, .org, or .edu) and the subdomain at the beginning (such as www or blog). The domain name may also include a port number if the resource is accessed through a non-standard port.

The third component is the path, which specifies the location of the resource on the server. The path can include directories and filenames, separated by slashes (/).

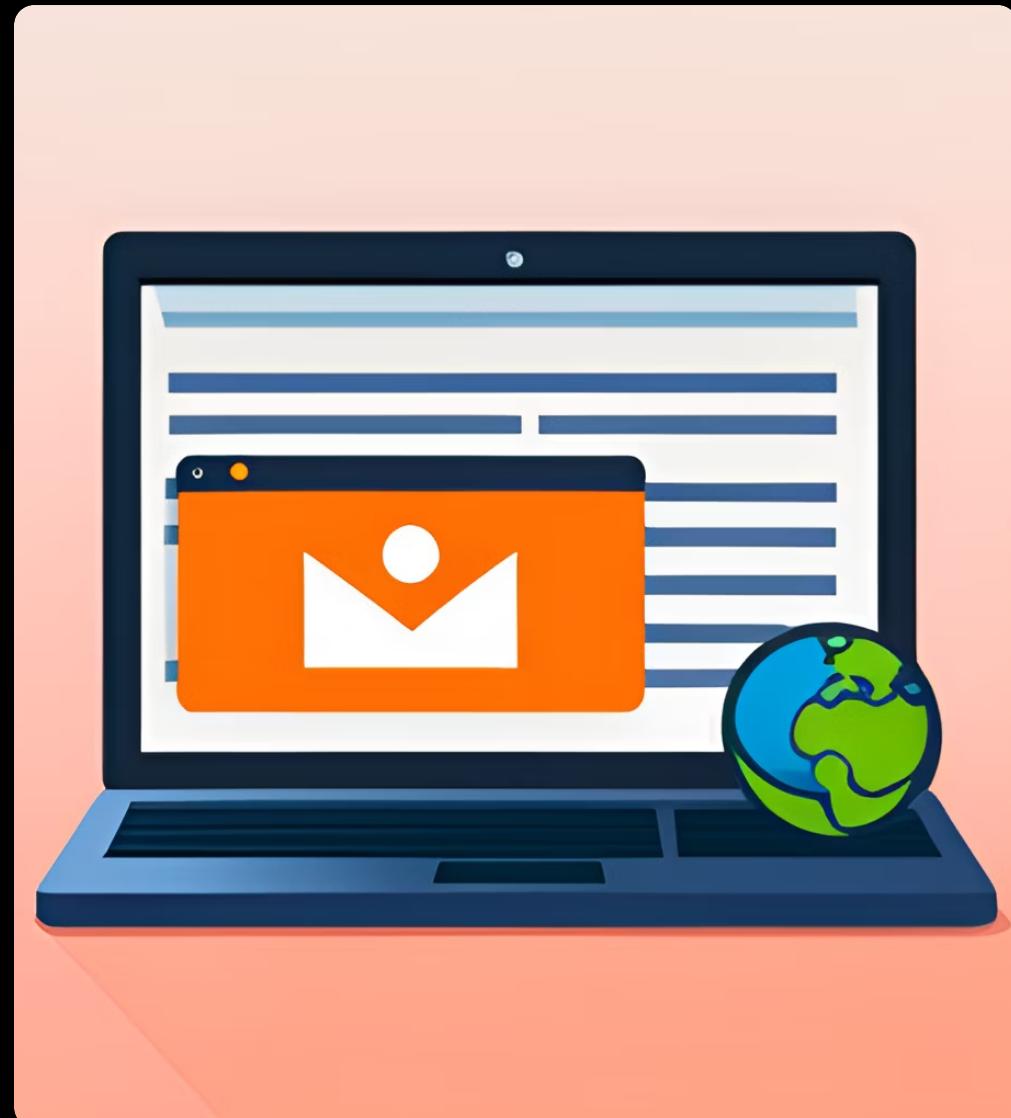
Finally, the query parameters allow additional information to be passed to the server, such as search terms or user preferences. Query parameters are separated from the rest of the URL by a question mark (?) and individual parameters are separated by ampersands (&).



Using URLs in Web Browsers

When you type a URL into your web browser's address bar, the browser sends a request to the server hosting that website. The server then responds with the appropriate HTML, CSS, and JavaScript files that make up the webpage. The browser then renders these files to display the webpage on your screen.

URLs can also be used to access specific resources on a webpage, such as images, videos, or other files. By including the path to the resource in the URL, the browser can retrieve and display that resource directly.



URLs in Internet Protocols

URLs are a fundamental part of the internet infrastructure, allowing users to access resources located on remote servers. They are used in various internet protocols, including HTTP, HTTPS, FTP, and others, to fetch or upload resources.

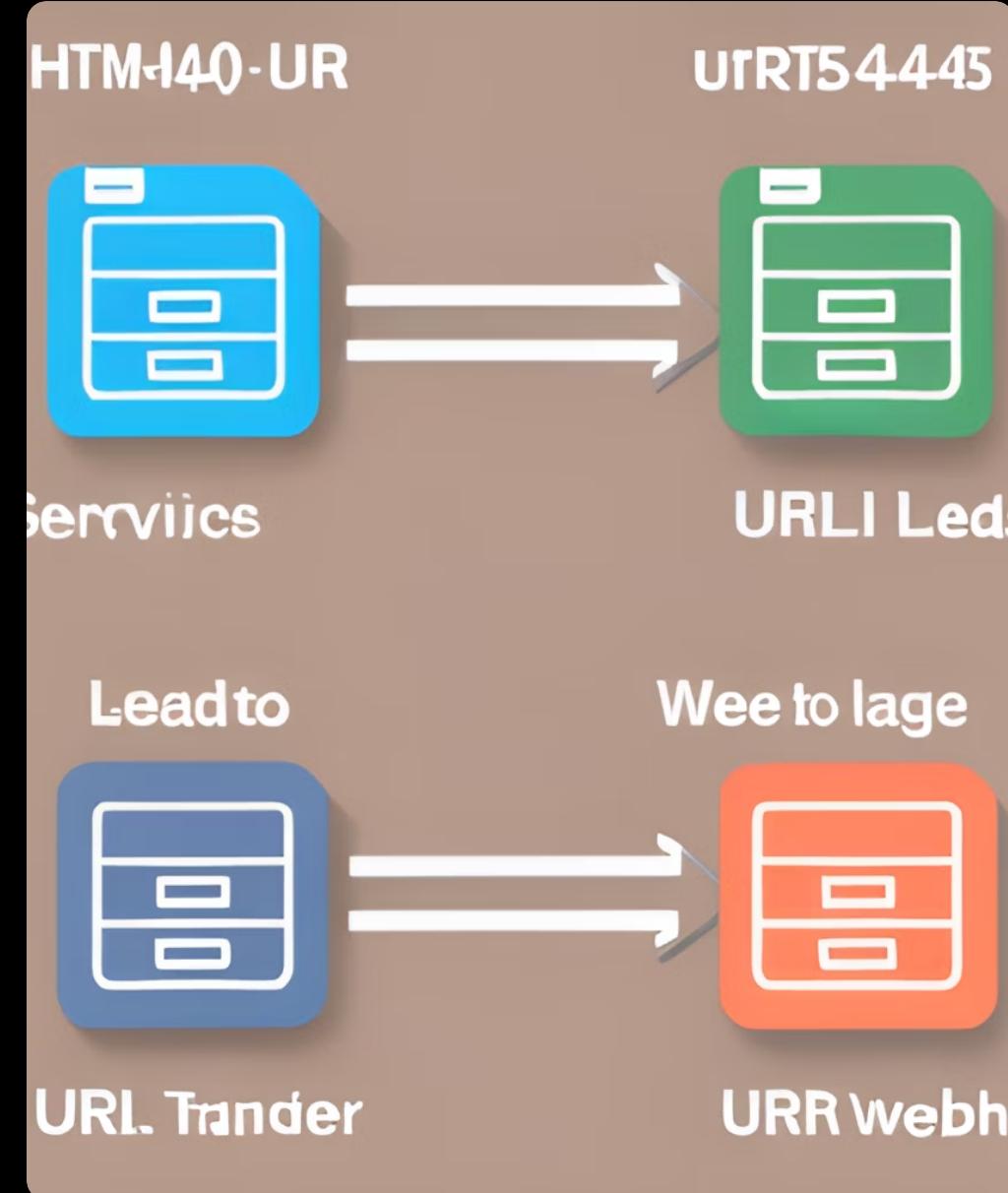
In HTTP and HTTPS, for example, URLs are used to specify the location of web pages and other resources, such as images, videos, and scripts, that are needed to render those pages. Similarly, in FTP, URLs are used to specify the location of files that need to be uploaded or downloaded from a server.



Common URL Protocols

There are several common URL protocols that you may encounter when browsing the internet. The most well-known are "http://" and "https://", which are used to access web pages. These protocols allow your web browser to communicate with web servers and retrieve the content of web pages. "Http://" is an unencrypted protocol, while "https://" uses encryption to protect sensitive information such as passwords and credit card details.

Another common URL protocol is "ftp://", which stands for File Transfer Protocol. This protocol is used to transfer files between computers over the internet. You can use an FTP client to connect to an FTP server and download or upload files. Finally, there's "mailto://", which is used to create links to email addresses. When you click on a "mailto:" link, your default email client will open with a new message addressed to the email address in the link.



Parameters

Query parameters are a way to pass data to a web server as part of a URL. They allow you to send additional information along with the URL, which can be used by the server to process the request and provide a customized response. Query parameters are commonly used in web applications to filter, sort, search, or personalize content.

Query parameters are appended to the end of a URL after a question mark "?" and are specified as key-value pairs separated by an ampersand "&".

Here's a breakdown of the components:

- `http://www.example.com`: The base URL of the web server.
- `/path/to/resource`: The path to the specific resource or endpoint on the server.
- `?`: The question mark marks the beginning of the query parameters.
- `parameter1=value1`: The first parameter and its corresponding value.
- `&`: The ampersand separates multiple parameters.
- `parameter2=value2`: The second parameter and its value.
- `parameter3=value3`: The third parameter and its value.

