What is /etc/hosts?

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/etc/hosts is a simple text file used to map hostnames to IP addresses before DNS (Domain Name System) resolution occurs. It's essentially a local DNS equivalent that allows you to specify mappings between IP addresses and hostnames on your local machine.

Each line in the **/etc/hosts** file typically contains an IP address followed by one or more hostnames separated by whitespace. For example:

Copy code

This line maps the IP address **127.0.0.1** to the hostname **localhost**.

The **/etc/hosts** file is often used for various purposes such as:

1. Testing: Developers may use it to test websites or applications by mapping domain names to local IP addresses.
2. Network configuration: It can be used to define local network settings and aliases.
3. Blocking: Users can block access to certain websites by redirecting their domain names to localhost or other invalid IP addresses.

Modifying the **/etc/hosts** file usually requires administrative privileges, as it's a system-wide configuration file.

More –

The /etc/hosts file is a plain text file used in matching a fully qualified domain name (FQDN) with the server IP hosting a specific domain.

Before DNS became a network standard, the /etc/hosts file was used to resolve an IP address to a fully qualified domain name (FQDN). This file can be used to manually link an FQDN to an IP address, such as a test server or internal network workstation, without editing DNS server entries. Care should be taken when editing this file. Browsers use it prior to DNS server lookups, and any mistakes can cause issues connecting to a domain or cause users to connect to the wrong server if it isn't formatted correctly.

What Is the /etc/hosts File in Linux?

The /etc/hosts file is a plain text file used in matching an FQDN with the server IP hosting a specific domain. It's useful if a DNS server is not available when a user wants to access a domain from their browser. When the DNS server cannot be reached, Linux uses the /etc/hosts file to resolve the domain name.

Note that occasionally the /etc/hosts file is misspelled as /ect/hosts in documentation. This misspelling can be confusing for new developers or operating system users, but know that the correct spelling is /etc/hosts.

Why Would Someone Modify the /etc/hosts File in Linux?

Suppose that you have a production server available to the public internet, but you need to test a new upcoming version of your website on a publicly available server. The test server is also available on the internet, but you can't change DNS settings to point the current domain to the new server IP before you test the new server. Using the /etc/hosts file, you can point your local development workstation only to the new server IP address and associate it with the production domain name without interrupting service for everyone else.

System administrators must format the /etc/hosts file properly for it to function on a Linux workstation. Any errors in the /etc/hosts file will leave the

user unable to access certain domains, so any changes to Linux machines on an environment should be tested prior to deployment.

What Is the Correct /etc/hosts Format?

The /etc/hosts file stores plain text content, but it requires a specific format. The format is:

<IP_address> <fully_qualified_domain_name>

Notice that a tab is used in this template. A tab is preferred for ease of reading, but a single whitespace character will also work. Every entry should be on its own line, so a carriage return indicates the end of a host entry.

Also, host entries should have comments added to the file explaining their usage in the interest of clarity for administrators and workstation users. Comments are preceded by a hash character. The following is the template for DNS entries with comments:

 # comments to here

 # more comments here

<IP_address> <fully_qualified_domain_name>

Comments don't require any standard format provided the hash character precedes the comment entry. You can have multiple comments, but every line must start with a hash character.

An Example of the /etc/hosts File in Linux

You might already have entries in your /etc/hosts file, but you can add more using a simple text editor. You can also remove entries, but remember that the DNS server must be available to reach the domain from a web browser.

The following is an example of a Linux /etc/hosts file:

 # My example host file entries

185.233.11.1 myapp.mydomain.com

185.233.11.2 mydomain.com

185.233.11.3 production-db.mydomain.com

The above example points the mydomain.com domain to 185.233.11.2 and then points two subdomains to two other IP addresses. When users type mydomain.com into their browser with the above /etc/hosts file stored on

their local machine, the browser uses 185.233.11.2 to query the remote server for a web response. The IP address can be any server or workstation on the network, but it must be accessible from the user's local machine.

Conclusion

Editing the /etc/hosts file is common, especially for network administrators or developers testing a new server or application hosted on a new server. Take care to follow the format and don't forget comments so that entries are easily understood by other administrators. Back up the file before editing it so that you can recover if the file gets corrupted after changes.

Interview Question and Answer of /etc/hosts file.

Here are the questions with their respective answers:

1. **How does the order of entries in the `/etc/hosts` file affect hostname resolution?**
    - The system reads the `/etc/hosts` file sequentially from top to bottom. If multiple entries match a hostname, the system uses the IP address specified in the first matching entry.
2. **What happens if a hostname is listed multiple times with different IP addresses in the `/etc/hosts` file?**
    - The system uses the IP address specified in the first matching entry for that hostname. Subsequent entries for the same hostname are ignored.
3. **Can you explain how wildcard entries work in the `/etc/hosts` file?**
    - Wildcard entries in the `/etc/hosts` file use an asterisk (*) to match multiple hostnames. For example, `192.168.1.1 *.example.com` would map any subdomain of `example.com` to the specified IP address.
4. **What are some common use cases for modifying the `/etc/hosts` file?**
    - Common use cases include local development/testing, blocking access to certain websites, defining custom local domain names, and configuring network settings for internal resources.
5. **How can you verify if changes made to the `/etc/hosts` file are taking effect without restarting the system?**

- You can use the `ping` or `nslookup` command to check if the hostname resolves to the correct IP address. Alternatively, you can use the `getent` command to query the system's name resolution configuration.

6. **What precautions should be taken when editing the `/etc/hosts` file?**
    - It's essential to make sure that the entries are correctly formatted and that you have appropriate permissions to edit the file. Additionally, take care not to accidentally remove essential entries, such as the localhost entry.
7. **Can you explain how to set up virtual hosts using the `/etc/hosts` file?**
    - Virtual hosts can be set up by mapping different hostnames to the same IP address in the `/etc/hosts` file, allowing you to simulate multiple websites on a local development server.
8. **What is the significance of the loopback address (127.0.0.1) in the `/etc/hosts` file?**
    - The loopback address allows a system to refer to itself. Entries mapping the loopback address to hostnames such as "localhost" are commonly used for internal testing and services running on the local machine.