



Localhost: What 127.0.0.1 means and when to use it

What it is Localhost is the hostname used to refer to the same computer where a request originates. It normally resolves to a loopback address: 127.0.0.1 in IPv4 or ::1 in IPv 6. Traffic sent to a loopback address stays inside the local...

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What it is

Localhost is the hostname used to refer to the same computer where a request originates. It normally resolves to a loopback address: 127.0.0.1 in IPv4 or ::1 in IPv6. Traffic sent to a loopback address stays inside the local network stack and is not routed to another device.

How it works

Developers use localhost to run web servers, databases, and test services without exposing them to a physical network. A program can bind only to the loopback interface or to all interfaces. That distinction matters: a service reachable at 127.0.0.1 may be private, while one bound to 0.0.0.0 can be reachable from other devices if a firewall permits it.

Key points

- Localhost is a name, while 127.0.0.1 and ::1 are addresses reserved for loopback use.
- Editing the hosts file can change name resolution, but it should not redefine the standard loopback addresses.
- Malware can still connect to or abuse a local service, so loopback is not an authentication mechanism.

Safe use

- Bind development services to loopback unless remote access is specifically required.
- Protect local admin panels with authentication even when they are not intentionally public.
- Check listening addresses with operating-system networking tools before changing firewall rules.
- Do not expose a database or debug server to all interfaces simply to solve a local connection error.

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