How do billions of connected devices find each other?

Each device visible on the Internet has a unique address – a telephone number.

DNS and IP Addresses

- DNS infrastructure in your country, territory, or region.
- Running an instance helps improve the security, stability, and resiliency of the Internet's root server system.
- Other root server operators have similar programs that allow network operators to manage a root zone instance locally.
- ICANN encourages qualified network operators or organizations to host machines in your country, territory, or region to serve root data.
- This is also known as instances of the IMRS.

The Lookup Process

1. Your laptop asks the DNS resolver for, “Where is w w w. icann. org?”

2. The DNS resolver tells the root DNS server, “Where is w w w. icann. org?”

3. The root DNS server asks a TLD DNS server, for example, “Where is w w w. org?”

4. The domain name system (DNS) makes a lookup to a TLD DNS server to type in familiar letters – the domain name – instead of the IP address.

5. The TLD DNS server tells the DNS resolver referral information about the entire website address, not just the domain (TLD) names.

6. The DNS resolver asks the .org server, “Where is w w w. .org?”

Follow us on social media:

- https://www.linkedin.com/company/icann
- https://soundcloud.com/icann
- https://twitter.com/icann
- https://www.instagram.com/icannorg/
- https://www.youtube.com/user/ICANNnews
- https://www./flickr.com/photos/icann
- https://www.facebook.com/icannorg

Learn More

Read ICANN's Overview of the Root Server System: https://go.icann.org/rootserversystem

Visit ICANN's Website: https://icann.org

What is the root zone?

The root zone holds referral information for the TLDs, which points to their respective DNS servers to help resolve your device's request.

The Root Server System

There are 13 independent root server operators that manage 13 root identities across the globe. The ICANN organization runs one of those root identities – the ICANN Managed Root Server (IMRS). These identities represent over 1,000 individual servers, each providing identical information from the root zone to resolvers all over the world.

Root Server and You

- ICANN encourages qualified network operators to host machines in your country, territory, or region to serve root data.
- This is also known as instances of the IMRS.
- Other root server operators have similar programs that allow network operators to manage a root zone instance locally.
- A root zone is at IP address: 192.0.43.7.
- The Domain Name System (DNS) makes a lookup to a TLD DNS server to type in familiar letters – the domain name – instead of an IP address.

For example, you only need to type https://icann.org instead of 203.0.113.1.