



THE IANA FUNCTIONS

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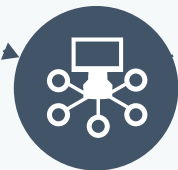
The Internet depends on **unique identifiers**. When you want to visit a website, you type or paste the site's **domain name** into your browser, or click on an HTML link. That domain name is a **"unique identifier."**



That **domain name** is sent to a server which translates the name into a number – the Internet Protocol or **IP Address** – which the server uses to direct your request to the website's network location. This address is also a **"unique identifier."**



These **"unique identifiers"** are aligned with a standard set of **protocol parameters** that ensure computers can talk to and understand each other.



The **Internet Assigned Numbers Authority (IANA) functions**, which are managed by ICANN, play a role in ensuring you get to where you want to go by coordinating unique identifiers. The three core IANA functions are described below.



The History

The IANA functions were developed during the administration of the ARPANET, a U.S.-government-funded Department of Defense network.

Originally, just one person - Jon Postel - performed the functions. Since then, the Internet has grown tremendously and the IANA functions are now managed by ICANN.

Stewardship in Transition

To support and enhance the multistakeholder model of Internet policymaking and governance, NTIA announced its intent to transition its stewardship of the IANA functions to the global multistakeholder community. To learn more about this transition, visit: <https://www.icann.org/stewardship>.

Acronyms

- ICANN:** Internet Corporation for Assigned Names and Numbers
- IETF:** Internet Engineering Task Force
- NTIA:** National Telecommunications and Information Administration
- DNS:** Domain Name System
- DNSSEC:** Domain Name System Security Extensions
- AS number:** Autonomous System Number
- TLD:** Top-Level Domain

NUMBER RESOURCES

Number resources refers to the global coordination of the Internet Protocol addressing systems, commonly known as IP Addresses. There are two types in active use:



192.0.2.53



2001:db8:582::ae33

Autonomous System (AS) numbers are another part of this function. AS numbers are used to identify the networks that manage their own routing by connecting to multiple networks managed by other organizations.

The allocation of IP addresses and AS numbers to Regional Internet Registries (RIRs) is performed by ICANN according to global policies. The five RIRs, each of which services a defined region, use open, multi-stakeholder processes to reach consensus on the policies that ICANN implements when allocating number resources to the RIRs.

PROTOCOL PARAMETERS

The Protocol Parameters management function involves maintaining registries for many of the codes and numbers used in Internet protocols. This is done in coordination with the IETF.

These protocol parameters define how things like pictures, audio, or video are attached to e-mails, or embedded in web pages. For example, the protocol parameter for MP4 audio looks like this:

(RFC 4337 published March 2006, RFC 6381 published August 2011, subtype last updated August 2011)

MIME media type name: audio

MIME subtype name: mp4

Required parameters: none

Optional parameters: none

These protocol parameters aren't just limited to audio or video. Almost every activity carried out in making the Internet work has protocol parameters involved.

DOMAIN NAMES

Maintaining the Root Zone Database is a key IANA function. It contains the authoritative record of all the Top Level Domains (TLDs - the ".org" part of "icann.org"). Part of that function is processing routine updates for TLD operators (such as changes to nameservers, DNSSEC DNS records, or contact information for the operators), as well as adding new TLDs into the root of the DNS.

Root DNS Key Signing Key (KSK) management is also part of that function. The KSK enables DNSSEC, which is important to the security of the Internet root zone file.



Root Zone Management Partners

ICANN performs the IANA functions on behalf of the global Internet community under contract with the United States' Department of Commerce (DoC). NTIA, an agency of the DoC, verifies that ICANN followed established policies and procedures in processing changes before authorizing Verisign, the Root Zone Maintainer, to make edits and publish the authoritative root zone file.