

THE DOMAIN NAME INDUSTRY BRIEF

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VERISIGN®

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As a global provider of domain name registry services and internet infrastructure, Verisign reviews the state of the domain name industry each quarter through a variety of statistical and analytical research, as well as relevant industry insight. Verisign provides this brief to highlight important trends in domain name registrations, including key performance indicators and growth opportunities, to industry analysts, media and businesses.

EXECUTIVE SUMMARY

The second quarter of 2021 closed with 367.3 million domain name registrations across all top-level domains (TLDs), an increase of 3.8 million domain name registrations, or 1.0%, compared to the first quarter of 2021.^{1,2} Domain name registrations have decreased by 2.8 million, or 0.7%, year over year.^{1,2}

The .com and .net TLDs had a combined total of 170.6 million domain name registrations in the domain name base³ at the end of the second quarter of 2021, an increase of 2.6 million domain name registrations, or 1.5%, compared to the first quarter of 2021. The .com and .net TLDs had a combined increase of 8.5 million domain name registrations, or 5.2%, year over year. As of June 30, 2021, the .com domain name base totaled 157.0 million domain name registrations, and the .net domain name base totaled 13.6 million domain name registrations.

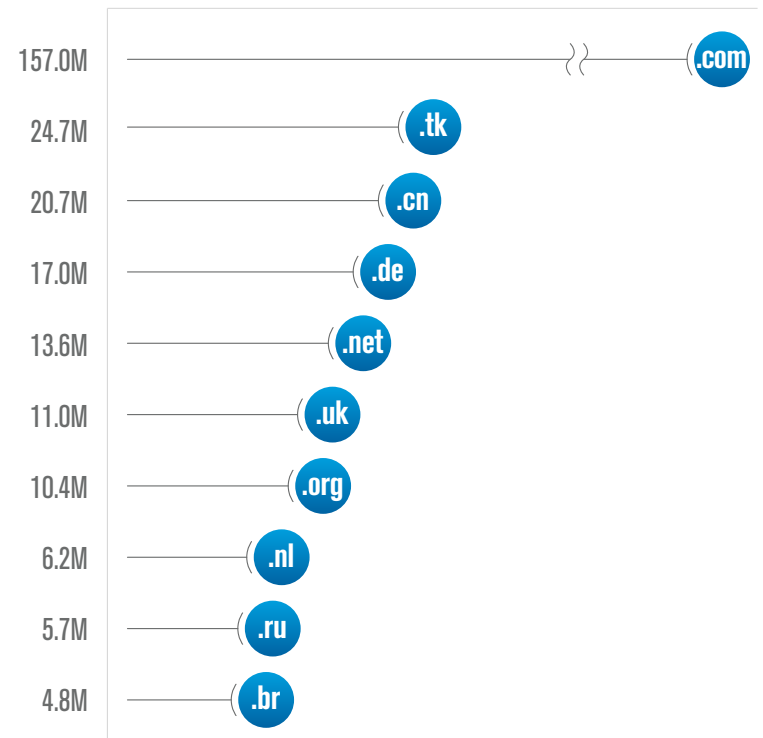
New .com and .net domain name registrations totaled 11.7 million at the end of the second quarter of 2021, compared to 11.1 million domain name registrations at the end of the second quarter of 2020.

Total country-code TLD (ccTLD) domain name registrations were 157.7 million at the end of the second quarter of 2021, an increase of 1.2 million domain name registrations, or 0.8%, compared to the first quarter of 2021.^{1,2} ccTLDs decreased by 2.4 million domain name registrations, or 1.5%, year over year.^{1,2}

Total new gTLD (ngTLD) domain name registrations were 22.9 million at the end of the second quarter of 2021, an increase of less than 0.1 million domain name registrations, or 0.2%, compared to the first quarter of 2021. ngTLDs decreased by 8.8 million domain name registrations, or 27.8%, year over year.

TOP 10 LARGEST TLDs BY NUMBER OF REPORTED DOMAIN NAMES

Source: ZookNIC, Q2 2021; Verisign, Q2 2021; Centralized Zone Data Service, Q2 2021



As of June 30, 2021, the largest TLDs by number of reported domain names were .com, .tk, .cn, .de, .net, .uk, .org, .nl, .ru and .br.^{1,2,4}



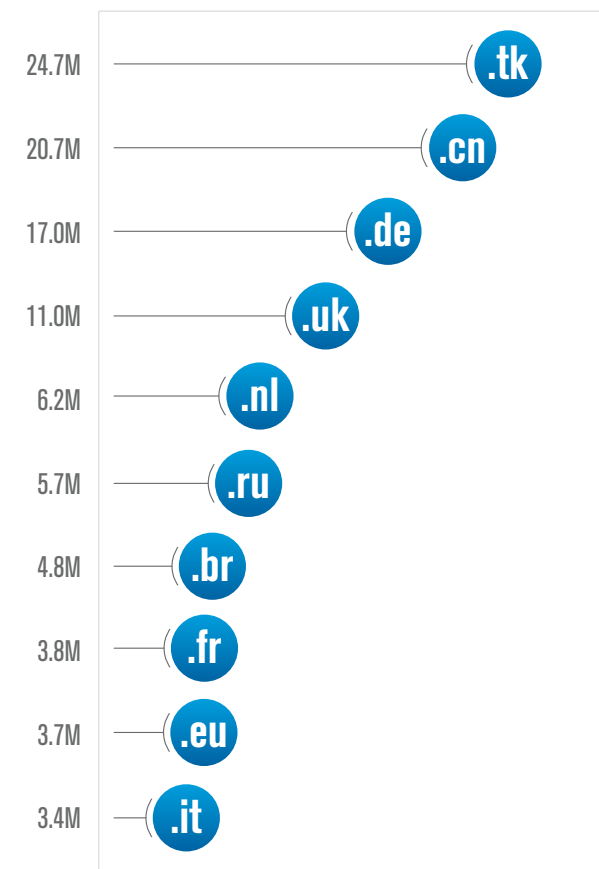
TOP 10 LARGEST ccTLDs BY NUMBER OF REPORTED DOMAIN NAMES

Source: ZookNIC, Q2 2021

For further information on *The Domain Name Industry Brief* methodology, please refer to the last page of this brief.

Total ccTLD domain name registrations were 157.7 million at the end of the second quarter of 2021, an increase of 1.2 million domain name registrations, or 0.8%, compared to the first quarter of 2021.^{1,2} ccTLDs decreased by 2.4 million domain name registrations, or 1.5%, year over year.^{1,2} Excluding .tk, ccTLD domain name registrations increased by 1.2 million in the second quarter of 2021, or 0.9%, compared to the first quarter of 2021. ccTLDs, excluding .tk, increased by 0.4 million domain name registrations, or 0.3%, year over year.

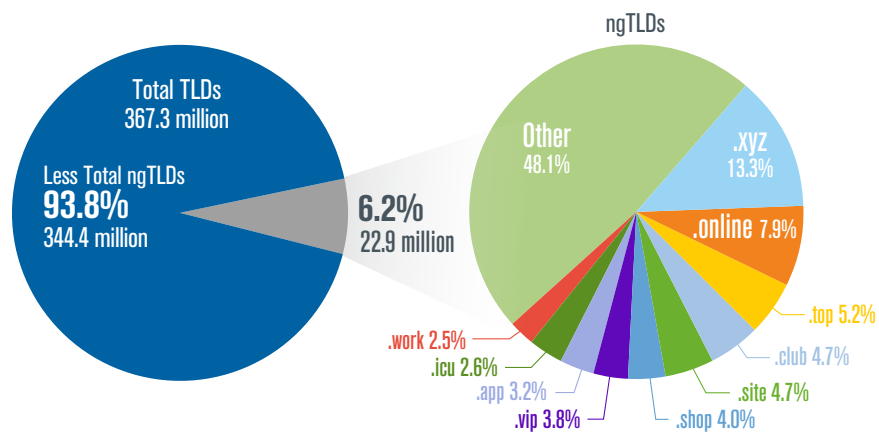
The top 10 ccTLDs, as of June 30, 2021, were .tk, .cn, .de, .uk, .nl, .ru, .br, .fr, .eu and .it.^{1,2} As of June 30, 2021, there were 308 global ccTLD extensions delegated in the root zone, including IDNs, with the top 10 ccTLDs comprising 64.0% of all ccTLD domain name registrations.^{1,2}



ngTLDs AS PERCENTAGE OF TOTAL TLDs

Source: ZookNIC, Q2 2021; Verisign, Q2 2021; and Centralized Zone Data Service, Q2 2021

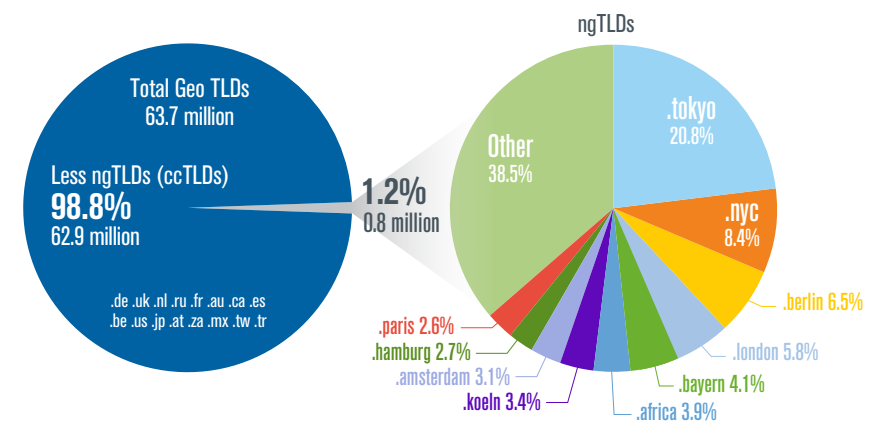
The top 10 ngTLDs represented 51.9% of all ngTLD domain name registrations. The following chart shows ngTLD domain name registrations as a percentage of overall TLD domain name registrations, of which they represent 6.2%. In addition, the chart on the right highlights the top 10 ngTLDs as a percentage of all ngTLD domain name registrations for the second quarter of 2021.



GEOGRAPHICAL ngTLDs AS PERCENTAGE OF TOTAL CORRESPONDING GEOGRAPHICAL TLDs

Source: ZookNIC, Q2 2021 and Centralized Zone Data Service, Q2 2021

As of June 30, 2021, there were 47 ngTLDs delegated that met the following criteria: 1) had a geographical focus and 2) had more than 1,000 domain name registrations since entering general availability (GA). The chart on the left summarizes the domain name registrations as of June 30, 2021, for the listed ccTLDs and the corresponding geographical ngTLDs within the same geographic region. In addition, the chart on the right highlights the top 10 geographical ngTLDs as a percentage of the total geographical TLDs.





FROM THE VERISIGN BLOG / April – June 2021



Verisign Support for AAPI Communities and COVID Relief in India

As part of our commitment to making a positive and lasting impact on the global internet community, and on the communities in which we live and work, earlier this year Verisign made significant contributions to the Asian Pacific Fund, Direct Relief and GiveIndia.



IRP Panel Dismisses Afilias' Claims to Reverse .WEB Auction and Award .WEB to Afilias

In May 2021, a final decision was issued in the Independent Review Process (IRP) brought by Afilias against the Internet Corporation for Assigned Names and Numbers (ICANN), rejecting Afilias' petition to nullify the results of the July 27, 2016 public auction for the .web new generic top level domain (gTLD) and to award .web to Afilias at a substantially lower, non-competitive price.



Industry Insights: Verisign, ICANN and Industry Partners Collaborate to Combat Botnets

Addressing DNS abuse and maintaining a healthy DNS ecosystem are important components of Verisign's commitment to being a responsible steward of the internet.

INDUSTRY INSIGHTS: RDAP BECOMES INTERNET STANDARD

Author: Scott Hollenbeck, Fellow

Earlier this year, the Internet Engineering Task Force's (IETF's) Internet Engineering Steering Group (IESG) announced that several Proposed Standards related to the Registration Data Access Protocol (RDAP), including three that I co-authored, were being promoted to the prestigious designation of Internet Standard. Initially accepted as proposed standards six years ago, [RFC 7480](#), [RFC 7481](#), [RFC 9082](#) and [RFC 9083](#) now comprise the new [Standard 95](#). RDAP allows users to access domain registration data and could one day replace its predecessor the WHOIS protocol. RDAP is designed to address some widely recognized deficiencies in the WHOIS protocol and can help improve the registration data chain of custody.

In the discussion that follows, I'll look back at the registry data model, given the evolution from WHOIS to the RDAP protocol, and examine how the RDAP protocol can help improve upon the more traditional, WHOIS-based registry models.

Registration Data Directory Services Evolution, Part 1: The WHOIS Protocol

In 1998, Network Solutions was responsible for providing both consumer-facing registrar and back-end registry functions for the legacy .com, .net and .org generic top-level domains (gTLDs). Network Solutions collected information from domain name registrants, used that information to process domain name registration requests, and published both collected data and data derived from processing registration requests (such as expiration dates and status values) in a public-facing directory service known as WHOIS.

From Network Solution's perspective as the registry, the chain of custody for domain name registration data involved only two parties: the registrant (or their agent) and Network Solutions. With the introduction of a Shared Registration System (SRS) in 1999, multiple registrars began to compete for domain name registration business by using the registry services operated by Network Solutions. The introduction of additional registrars and the separation of registry and registrar functions added parties

to the chain of custody of domain name registration data. Information flowed from the registrant, to the registrar, and then to the registry, typically crossing multiple networks and jurisdictions, as depicted in Figure 1.



Figure 1. Flow of information in early data registration process.

Registration Data Directory Services Evolution, Part 2: The RDAP Protocol

Over time, new gTLDs and new registries came into existence, new WHOIS services (with different output formats) were launched, and countries adopted new laws and regulations focused on protecting the personal information associated with domain name registration data. As time progressed, it became clear that WHOIS lacked several needed features, such as:

- Standardized command structures
- Output and error structures
- Support for internationalization and localization
- User identification
- Authentication and access control

INDUSTRY INSIGHTS: RDAP BECOMES INTERNET STANDARD (Cont.)

The IETF made multiple attempts to add features to WHOIS to address some of these issues, but none of them were widely adopted. A possible replacement protocol known as the Internet Registry Information Service (IRIS) was standardized in 2005, but it was not widely adopted. Something else was needed, and the IETF went back to work to produce what became known as RDAP.

RDAP was specified in a series of five IETF Proposed Standard RFC documents, including the following, all of which were published in March 2015:

- [RFC 7480](#), *HTTP Usage in the Registration Data Access Protocol (RDAP)*
- [RFC 7481](#), *Security Services for the Registration Data Access Protocol (RDAP)*
- [RFC 7482](#), *Registration Data Access Protocol (RDAP) Query Format*
- [RFC 7483](#), *JSON Responses for the Registration Data Access Protocol (RDAP)*
- [RFC 7484](#), *Finding the Authoritative Registration Data (RDAP) Service*

Only when RDAP was standardized did we start to see broad deployment of a possible WHOIS successor by domain name registries, domain name registrars and address registries.

The broad deployment of RDAP led to RFCs [7480](#) and [7481](#) becoming Internet Standard RFCs (part of [Internet Standard 95](#)) without modification in March 2021. As operators of registration data directory services implemented and deployed RDAP, they found places in the other specifications where minor corrections and clarifications were needed without changing the protocol itself. [RFC 7482](#) was updated to become Internet Standard [RFC 9082](#), which was published in June 2021. [RFC 7483](#) was updated to become Internet Standard [RFC 9083](#), which was also published in June 2021. All were added to [Standard 95](#). As of the writing of this article, [RFC 7484](#) is in the process of being reviewed and updated for elevation to Internet Standard status.

RDAP Advantages

Operators of registration data directory services who implemented RDAP can take advantage of key features not available in the WHOIS protocol. I've highlighted some of these important features in the table below.

RDAP Feature	Benefit
Standard, well-understood, and widely available HTTP transport	Relatively easy to implement, deploy and operate using common web service tools, infrastructure and applications.
Securable via HTTPS	Helps provide confidentiality for RDAP queries and responses, reducing the amount of information that is disclosed to monitors.
Structured output in JavaScript Object Notation (JSON)	JSON is well-understood and tool friendly, which makes it easier for clients to parse and format responses from all servers without the need for software that's customized for different service providers.
Easily extensible	Designed to support the addition of new features without breaking existing implementations. This makes it easier to address future function needs with less risk of implementation incompatibility.

INDUSTRY INSIGHTS: RDAP BECOMES INTERNET STANDARD (Cont.)

RDAP Feature	Benefit
Internationalized output, with full support for Unicode character sets	Allows implementations to provide human-readable inputs and outputs that are represented in a language appropriate to the local operating environment.
Referral capability, leveraging HTTP constructs	Provides information to software clients that allow the client to retrieve additional information from other RDAP servers. This can be used to hide complexity from human users.
Support of standardized authentication	RDAP can take full advantage of all of the client identification, authentication and authorization methods that are available to web services. This means that RDAP can be used to provide the basic framework for differentiated access to registration data based on attributes associated with the user and the user's query.

Verisign and RDAP

Verisign's RDAP service, which was originally launched as an experimental implementation several years before gaining widespread adoption, allows users to look up records in the registry database for all registered .com, .net, .name, .cc and .tv domain names. It also supports Internationalized Domain Names (IDNs).

We at Verisign were pleased not only to see the IETF recognize the importance of RDAP by elevating it to an Internet Standard, but also that the protocol became a requirement for ICANN-accredited registrars and registries as of August 2019. Widespread implementation of the RDAP protocol makes registration data more secure, stable and resilient, and we are hopeful that the community will evolve the prescribed implementation of RDAP such that the full power of this rich protocol will be deployed.

You can learn more in the [RDAP Help section of the Verisign website](#), and access helpful documents such as the [RDAP technical implementation guide](#) and the [RDAP response profile](#).



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ABOUT VERISIGN

Verisign, a global provider of domain name registry services and internet infrastructure, enables internet navigation for many of the world's most recognized domain names. Verisign enables the security, stability and resiliency of key internet infrastructure and services, including providing root zone maintainer services, operating two of the 13 global internet root servers and providing registration services and authoritative resolution for the .com and .net top-level domains, which support the majority of global e-commerce. To learn more about what it means to be Powered by Verisign, please visit [verisign.com](https://www.verisign.com).

LEARN MORE

To view the average daily number of queries Verisign processes, please go to the "Explore our Capabilities" section at [verisign.com](https://www.verisign.com). To access the archives for *The Domain Name Industry Brief*, please go to [verisign.com/dnibarchives](https://www.verisign.com/dnibarchives). Email your comments or questions to domainbrief@verisign.com.

METHODOLOGY

The data presented in this brief, including quarter-over-quarter and year-over-year metrics, reflects information available to Verisign at the time of this brief and may incorporate changes and adjustments to previously reported periods based on additional information received since the date of such prior reports, so as to more accurately reflect the growth rate of domain name registrations. In addition, the data available for this brief may not include data for all of the 308 ccTLD extensions that are delegated to the root zone, and includes only the data available at the time of the preparation of this brief.

For gTLD and ccTLD data cited with ZookNIC as a source, the ZookNIC analysis uses a comparison of domain name root zone file changes supplemented with other authoritative data sources. For more information, see [zooknic.com](https://www.zooknic.com).

1 The figure(s) includes domain names in the .tk ccTLD. .tk is a ccTLD that provides free domain names to individuals and businesses. Revenue is generated by monetizing expired domain names. Domain names no longer in use by the registrant or expired are taken back by the registry and the residual traffic is sold to advertising networks. As such, there are no deleted .tk domain names. <https://www.businesswire.com/news/home/20131216006048/en/Freemom-Closes-3M-Series-Funding#UxeUGNJdV9s>.
2 The generic top-level domain (gTLD), ngTLD and ccTLD data cited in this brief: (i) includes ccTLD Internationalized Domain Names (IDNs), (ii) is an estimate as of the time this brief was developed and (iii) is subject to change as more complete data is received. Some numbers in this brief may reflect standard rounding.
3 The domain name base is the active zone plus the number of domain names that are registered but not configured for use in the respective TLD zone file plus the number of domain names that are in a client or server hold status. The .com and .net domain name registration figures are as reported in Verisign's most recent SEC filings.
4 Line break indicates that the .com line has been shortened for display considerations.

[Verisign.com](https://www.verisign.com)

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