JP Domain Name Registry Report

Introduction

As technology advances, the Internet is being used in more broad and diverse areas of society. The Internet has become an integral part of society as services provided over the Internet, such as teleworking, online learning, and telemedicine, have taken root in people's lives. As the type and volume of information exchanged over the Internet continues to increase, the communications infrastructure supporting Internet-based services and technologies, as well as the Domain Name System (DNS) and domain names underpinning the Internet, are becoming even more important.

With this background, the total number of JP domain name registrations surpassed 1.70 million in June 2022 and 1.72 million as of January 2023. Of those, 1.16 million are registered as General-use JP domain names, accounting for about 70% of total registrations. 540,000 names are Organizational Type JP domain names, the domain name space categorized by organizational type of registrants. Over 460,000 names are registered under "co.jp," making it the most registered category in Organizational Type JP domain names; many companies are using "co.jp" domain names.

JPRS continued its efforts in 2022 to improve JP domain name services, develop systems and carry out promotional activities to facilitate the use of JP domain names and deliver greater value to users.

Incidents and crises that threaten the stable operation of the Internet, such as vulnerabilities in DNS software, continue to occur. In such circumstances, JPRS, as a company that supports the basis of the Internet society through domain names and DNS, tackles the challenges and risks and provides information in a timely manner. JPRS also actively contributes to discussions on global issues and conveys relevant information to the community in Japan to make the Internet safe for everyone to use.

The management and administration of JP domain names require a high level of commitment to enhancing the public interest and getting ahead in the competition. Recognizing this vital nature of its services and influence on society, JPRS carries out its tasks and publishes the annual "JP Domain Name Registry Report" on its management and administration of JP domain names.

JPRS will continue to ensure that JP domain names remain useful and contribute to the development of the Internet society.

Koki Higashida
President
Japan Registry Services Co., Ltd.

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01 Registry Activities

02 Statistical Information

03 Reference

01·1   Goal of JPRS as the JP Domain Name Registry

Our main objectives as the registry are: to continuously improve the value of JP domain names; to gain stronger support from the local and global Internet community; and to provide domain names as well as management and administration services that contribute to society in an environment where JPRS competes and collaborates with other registries of TLDs[1] and similar service providers.

JPRS defines the following as the core concepts for its services including the management and administration of JP domain names.

Reliability: establishing services with social credibility
Stability: operating and administering stable systems
Usability: providing user-friendly services
Fee Performance: setting reasonable service fees

With the mission of supporting the Internet infrastructure, JPRS considers it important to ensure reliability and stability while pursuing a good balance with usability and fee performance.

[1] TLD: Top Level Domain

01·2 Major Topics of 2022

In 2022, JPRS continued to contribute to the development of the Internet and worked to enhance its JP registry services and the value of JP domain names in cooperation with the JP Registrars and other related organizations.

Publication of "Internet White Paper 2022" with JPRS Participating in Planning and Editing (February)

"Internet White Paper" is a yearbook that summarizes the current state of the Internet from various perspectives including that of business, society and technology. Its 2022 edition, "Internet White Paper 2022 (subtitle: Path to Digital Twin)," was published. JPRS has been collaborating with Impress R&D (now Impress[1]), IAjapan[2] and JPNIC[3] in the Internet White Paper Editorial Committee in the planning and steering the White Paper since 2013.

● **https://jprs.co.jp/topics/2022/220207.html (in Japanese)**

Internet White Paper 2022

Addition of "Internet White Paper 2021" to "Internet White Paper ARCHIVES" (February)

"Internet White Paper 2021" published in 2021 was added to "Internet White Paper ARCHIVES," the website organized and operated by the Internet White Paper Editorial Committee.
"Internet White Paper ARCHIVES" is a compendium of Internet White Papers, which are published annually and span from 1996 to the previous year's edition. The archive is publicly available free of charge. Going forward, the white paper that becomes a back issue in the year following its publication will also be added to the archive.

● **https://jprs.co.jp/topics/2022/220214.html (in Japanese)**

Support for the 24th Japan Junior/Senior High School Web Contest (February)

JPRS supported the "24th Japan Junior/Senior High School Web Contest[4]," a Web contest that was held by JAPIAS[5] for junior and senior high school students. Forty-six General-use JP domain names (ASCII and Japanese) were provided free of charge to the 23 semi-finalist teams.
JPRS also presented the "Best Domain Naming Award" to the team who had chosen the most effective domain name to increase the appeal of their work.

● **https://jprs.co.jp/press/2022/220222.html (in Japanese)**

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*1 Impress Corporation
   https://www.impress.co.jp/ (in Japanese)
*2 IAjapan: Internet Association Japan
   https://www.iajapan.org/index-en.html
*3 JPNIC: Japan Network Information Center
   https://www.nic.ad.jp/en/
*4 Japan Junior/Senior High School Web Contest
   https://webcon.japias.jp/ (in Japanese)
*5 JAPIAS: Japan Association for Promotion of Internet Application in School Education
   http://japias.jp/ (in Japanese)

Conclusion of Industry-Academia Collaboration Agreement with Tokyo Metropolitan College of Industrial Technology (March)

JPRS and Tokyo Metropolitan College of Industrial Technology[6] signed an industry-academia collaboration agreement on human resource development in advanced ICT. The purpose of this agreement is to work together on projects for the development of information security engineers, ICT and information architects, as well as in educational activities related to information security and ICT targeting a wide range of generations.

● **https://jprs.co.jp/press/2022/220301.html (in Japanese)**

Free Graphical Comic-style Booklet on the Internet System Sent to Junior and Senior High Schools and Technical Colleges across Japan (May–June)

As part of its Internet-related educational activities, JPRS set up channels including a special website "https://マンガで学ぶ.jp/" (Learn from Manga) where junior and senior high school and technical colleges could apply to receive educational materials from May 16 to June 30, 2022. Recognizing the growing importance of Internet-related education and the shortage of teaching materials in schools, JPRS has worked on this project since 2010. A total of over 350,000 copies have been distributed through this activity to date.

The material that JPRS gave out is a graphical comic-style booklet entitled "Ponta's Great Adventure in the Network." It contains a story with many illustrations to help readers learn easily how to reach websites and how a "domain name," an Internet address, as well as HTTPS, a secure means of communication for exchanging information, work.

Ponta's Great Adventure in the Network

JPRS also launched "Ponta's Internet Class," a website dedicated to information education linked to the contents of the booklet. The website has new episodes about the birth of the Internet, domain names and DNS, as well as some explanatory videos.

● **https://jprs.co.jp/press/2022/220516.html (in Japanese)**

Ponta's Internet Class

Participation in Interop Tokyo 2022 (June)

JPRS ran a booth at the "Interop Tokyo 2022" exhibition, an event where visitors can experience the latest ICT and related solutions. The JPRS booth provided information, including the basics of domain names, DNS and server certificates as well as HTTPS records in DNS. In addition, JPRS provided information to visitors through a panel exhibition and by distributing technical documents.

● **https://jprs.jp/related-info/event/2022/0630_interop.html (in Japanese)**

JPRS booth

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[6] Tokyo Metropolitan College of Industrial Technology
https://www.metro-cit.ac.jp.e.aiz.hp.transer.com/

Support for SECCON 2022 (from June)

SECCON 2022[7] was a series of events held from June 2022 to February 2023 with the aim of recruiting and training information security personnel and providing a place for hands-on experience with related technologies. JPRS supported SECCON 2022 as a sponsor. It agrees with the purpose of SECCON and has cosponsored it since 2014.

● **https://jprs.co.jp/topics/2022/221227.html (in Japanese)**

Support for "Oshigoto Hakubutsukan," a Career Education Support Program by Asahi Shimbun (June)

Recognizing the importance of career education for the children who will lead the next generation and the benefits of understanding the Internet infrastructure at an early age, JPRS co-sponsored "Oshigoto Hakubutsukan[8] (Occupations Museum)," a career education support program conducted by Asahi Shimbun Company. JPRS also provided the program with educational materials regarding domain names.

Under the program, "Oshigoto Nenkan (Occupations Yearbook)" is distributed to schools free of charge, and clearly explains to students how businesses and institutions work. The yearbook complies with government guidelines on education and can be used as a teaching tool. A total of 75,000 copies of the 2022 yearbook were donated to about 20,000 elementary schools and 10,000 junior high schools across the country, and the contents are also published on the web version of "Oshigoto Hakubutsukan."

Oshigoto Nenkan 2022

● **https://jprs.co.jp/topics/2022/220614.html (in Japanese)**

Support for Internet Week Showcase in Tokushima/Online (June)

Internet Week Showcase is a free event that features carefully selected programs of the previous year's Internet Week, a conference held by JPNIC in Tokyo every year around November. JPRS supported Internet Week Showcase in Tokushima/Online as a sponsor and gave presentations entitled "Domain Names, Certificates and TLS: Preparedness for Signature and Verification" and "Let's Think about 'DNS of Tomorrow'.

● **https://jprs.co.jp/topics/2022/220620.html (in Japanese)**

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*7 SECCON 2022
   https://www.seccon.jp/2022/ (in Japanese)
*8 Oshigoto Hakubutsukan
   https://www.oshihaku.jp/ (in Japanese)

JPRS Held 13th ".jp DNSSEC Key Ceremony" (October)

In public-key cryptography, a key ceremony is a procedure in which a unique pair of private and public keys is generated. In JPRS, ".jp DNSSEC Key Ceremony" is a procedure for creating key- and zone-signing keys and signing the jp zone.

It is vital for the reliability and stability of DNSSEC that the procedure for generating and managing the key pairs is properly and securely executed. For this reason, JPRS invites External Witnesses, who are not affiliated with JPRS, to the .jp DNSSEC Key Ceremony.

Like in 2021, two External Witnesses observed and confirmed the process in the 13th ceremony held on October 4, 2022. Due to COVID-19, the ceremony was observed via live streaming rather than the usual on-site examination.

● **https://jprs.co.jp/en/topics/2022/221005.html**

Distribution of a Free Poster to Educational Institutions across Japan to Help Students Enjoy Learning about ccTLDs (October)

As part of its Internet-related educational support activities, JPRS produced two posters, "World Domain Workbook" and "Traveling Domains," to enable students to enjoy learning about ccTLDs[9]. It distributed these posters free of charge to educational institutions such as junior high schools, high schools and technical colleges nationwide.

This is the fourth consecutive year since 2019 that JPRS has conducted this initiative, using the posters to deepen students' understanding of ccTLDs, which they use daily with little thought.

The "World Domain Workbook," newly created in 2022, is a poster that places ccTLDs on a world map, while the "Traveling Domains," which lists the ccTLDs, includes stories and photos about each country and region of the world. These two posters can be used in combination for classroom and self-study.
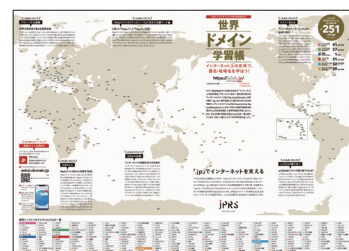
World Domain Workbook

Traveling Domains

● **https://jprs.co.jp/press/2022/221006.html (in Japanese)**

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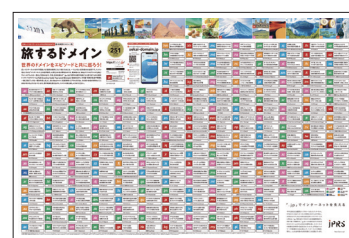
*9 ccTLD: Country Code Top Level Domain

AuthCode Introduced for the JP Registrar Change Process (November)

To improve the reliability of the JP domain name services overall, JPRS introduced "AuthCode," a measure to prevent changes of JP Registrar (including domain name transfers with a change of JP Registrar) from occurring without the intention of the registrant of the domain name.
A registrant can obtain an AuthCode through the current JP Registrar and use it to make sure that a request for a change of JP Registrar has been made genuinely and in accordance with the registrant's intent.

● **https://jprs.jp/about/dom-rule/agent-change/index.html (in Japanese)**

Support for Internet Week 2022 (November)

JPRS supported Internet Week 2022 as a sponsor and sent Kazunori Fujiwara to serve on the Program Committee and contribute to the planning of DNS-related sessions.
In addition, Yoshitaka Aharen, Kazuki Ikeda, Yuri Takamatsu and Kazunori Fujiwara of JPRS introduced domain names, DNS and other related topics in the program called "DNS DAY." At the lunchtime seminar, Yasuhiro Morishita and Kento Gatto of JPRS gave a presentation titled "Looking Back at DNS's Weaknesses and Looking Ahead to Its Future: Lunch with DNS."
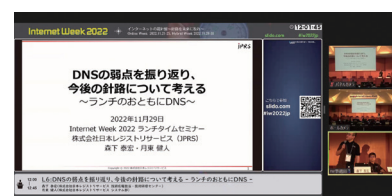
Lunch Time Seminar at Internet Week 2022

● **https://jprs.co.jp/topics/2022/221107.html (in Japanese)**

Events and Seminars for JP Registrars

JPRS organized the events and seminars for JP Registrars in a hybrid format, with both in-person and online attendees. Video recordings and handouts were published for JP Registrars after each session.

"JP Registrar Seminar: An Introduction to Domain Name Registration and Administration" (May)
JPRS explained the basics of JP domain names, how to register and administer them, as well as the fundamental structure of DNS to newly accredited JP Registrars and the staff of JP Registrars who recently started handling JP domain names.

"JPRS Partners' Meeting" (October)
JPRS described the latest developments in the domain name industry, future service changes as well as information useful for day-to-day operations to those staff members who were handling domain names in JP Registrars.

01·3 International Relations

1. Participation in ICANN

ICANN[1] is a private non-profit organization established in the United States in 1998 to coordinate globally the resources underpinning the Internet, such as domain names and IP addresses.

Since its foundation, JPRS has been actively participating in the organization of ICANN and various policy discussions and supporting the facilitation of Internet resource management led by the private sector, with ICANN playing the central role. In 2002, JPRS signed a "ccTLD Sponsorship Agreement" with ICANN and has since been entrusted by ICANN to serve as the registry of Japan's ccTLD ".jp."

ICANN 75

By participating in various organizations established within ICANN, as well as by giving presentations and information exchanges at various sessions, JPRS participates in policy development and implementation planning to cope with issues facing ICANN and registries. As the .JP registry and one of the operators of the M-Root DNS server, JPRS is sharing its experience with the global community via ICANN, thereby contributing to the development of the Internet as a whole.

ICANN holds three public meetings each year to enable stakeholders from every country and region of the world to participate and discuss Internet resource management and related rules. Due to COVID-19, ICANN73 was held fully online in March 2022. Subsequent ICANN meetings were organized in a hybrid format (in-person and online), with an emphasis on face-to-face gatherings and direct exchange of ideas. As such, COVID-19 prevention measures, such as the requirement to present a vaccination certificate and wear a mask, were taken in the venue of those meetings. ICANN74 was held in June in Hague, Netherlands, and ICANN75 was held in October in Kuala Lumpur, Malaysia, both in a hybrid format.

With the participation of numerous parties interested in ccTLD and gTLD[2], ICANN meetings have long been an important forum for information-sharing and discussions on policies and governance concerning domain name management. The meetings provide a platform for the cross-community exchange of ideas on topics of interest to individual Supporting Organizations (SOs) and Advisory Committees (ACs), as well as subjects related to Internet resources. In 2022, the participants shared the latest information on a wide range of topics, including efforts related to DNS abuse, efforts to prevent abuse, Internet-related regulations in various countries and regions as well as Internet fragmentation. They also discussed how ICANN should respond to these issues.

The following reports JPRS's activities in the SOs and ACs within ICANN.

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[1] ICANN: Internet Corporation for Assigned Names and Numbers
https://www.icann.org/
[2] gTLD: Generic Top Level Domain

(1) ccNSO

ccNSO[3] is one of the Supporting Organizations set up in ICANN to assist its activities. The role of ccNSO as an alliance of ccTLD managers is to cooperate with the other Supporting Organizations in ICANN, form a consensus in the ccTLD community on global issues concerning the entire ccTLD space and to make recommendations to the ICANN Board. JPRS prepared for the establishment of the ccNSO in 2003 and has been a member since then. Hirofumi Hotta of JPRS served as a member of the ccNSO Council from its establishment to March 2020. Also, Atsushi Endo of JPRS is a member of the SOPC (ccNSO Strategic and Operational Planning Standing Committee)[4] which submits a petition regarding ICANN's "Five-Year Operating and Financial Plan" and "Annual Operating Plan and Budget." Endo also serves on the subgroup within the ccNSO Guidelines Review Committee (GRC)[5], which re-examines the guidelines for the operation of ccTLDs, and contributes to the development of proposed revisions. Yuri Takamatsu is taking part in the MPC (ccNSO Meetings Programme Standing Committee) [6] which designs programs for the ccNSO-related meetings as well as ccPDP4[7] which develops policy proposals for IDN[8] ccTLDs.

Considering the burden on ccTLD registries participating remotely from different time zones, the ccNSO held its online meetings during an ICANN meeting week that focused on the subjects suitable for cross-ccTLD engagement and discussion. On the other hand, the sessions featuring topics and trends related to specific ccTLD registries were organized before the ICANN meeting period. However, ICANN has since moved to a hybrid format for meetings, and these specific ccNSO sessions also went back into the ICANN meeting week. As such, the ccNSO is now returning its meeting program to a face-to-face format.

In 2022, the ccNSO considered at the ICANN meetings a proposed roadmap of activities related to DNS abuse which an ad-hoc group convened by the ccNSO had developed. The ccNSO also discussed the creation of a new study group to implement the roadmap, which later resulted in the ccNSO Council's approval to establish the group. In addition, the ccNSO meetings in 2022 featured a Q&A session between the ccNSO-appointed ICANN Board members and the ccNSO members, a discussion on the draft revision to the ccNSO internal Rules, a discussion on the requirements for applying for an IDN ccTLD, as well as a deliberation of ccTLDs' involvement in the planning and budgeting process of ICANN.

The discussion on ccTLDs' involvement in the planning and budgeting process of ICANN focused on subjects in which ccTLDs should be involved and matters which were important for ICANN to remain a sound and stable organization. The session participants supported the idea that ccTLDs should provide quality input to ICANN from their own standpoint, following which the SOPC set to work on the comments.

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[3] ccNSO: Country Code Names Supporting Organisation
   https://ccnso.icann.org/
[4] SOPC
   https://ccnso.icann.org/en/workinggroups/sopiwg.htm
[5] GRC
   https://ccnso.icann.org/en/workinggroups/grc.htm
[6] MPC
   https://ccnso.icann.org/en/workinggroups/mpwg.htm
[7] ccPDP4
   https://ccnso.icann.org/en/workinggroups/idn-cctld-strings.htm
[8] IDN: Internationalized Domain Name

(2) Label Generation Rules for the Root Zone

Label Generation Rules for the Root Zone (LGR) aim to establish rules for adding labels that include non-ASCII scripts to the root zone. Each language community leads the development of its respective LGR.

The following two types of panels are working on developing the LGRs for the DNS root zone:

1. Generation Panel (GP)
Each GP is composed of key figures of each language community and experts in linguistics and domain names. Each GP creates a proposed LGR for a given script and is organized for each script to be added in the root zone.

2. Integration Panel (IP)
IP is a panel of experts in character encoding or IDNs and is tasked with integrating rules developed by the GPs into a consistent set of LGRs.

The IP was established in 2014, and several GPs for different scripts were formed in 2015. Developments have been under way in each language community.

The cultural community that uses Han (Kanji) script includes the Chinese, Korean and Japanese communities, so it is necessary to develop the LGRs that are consistent across those language communities. Therefore, the Japanese community has been working on its LGR in consideration of such necessity. The study is being conducted in the Japanese Generation Panel (JGP) involving IDN experts representing the Japanese language community, linguists and registry experts, with JPNIC and JPRS serving as the secretariat. Hirofumi Hotta of JPRS led the initiative as the chair, and Yoshiro Yoneya along with Yuri Takamatsu participated as members of the JGP. They contributed their expertise gained through designing, providing and operating the Japanese JP Domain Name services.

The JGP completed the coordination with the Chinese GP and Korean GP by 2019, and individual consultation with the IP by September 2021. It submitted the final proposal of the Japanese LGR to ICANN in September 2021, which was followed by ICANN's public comment period until November of the same year. Several comments were received, but none of them was deemed to affect the proposal. As a result, the Japanese LGR was finalized in December 2021.

The Chinese LGR finalized in May 2020 was already included in the DNS Root Zone LGR Version 4 (RZ-LGR-4) released in November 2020, and the Korean LGR finalized in May 2021 along with the Japanese LGR was integrated into the DNS Root Zone LGR Version 5 (RZ-LGR-5) released in May 2022. With that, the JGP completed its task.

(3) RSSAC

The RSSAC[8] is one of the Advisory Committees within ICANN that advises the ICANN community and the Board on matters relating to operation, administration, security, and integrity of the Root DNS Server (Root Server) System. As one of the operators of the M-Root DNS server, JPRS has been participating in the activities of the RSSAC in collaboration with the WIDE Project[9], the other operator.

The RSSAC continued its work in each ICANN meeting and via its own regular conference calls in 2022, where the discussions of the new governance model have been continued. In addition, as part of the review of existing documents, progress was made on updating "Advisory on Service Expectation of Root Servers" (RSSAC001), "Advisory on Measurements of the Root Server System" (RSSAC002), and "RSSAC Advisory on Metrics for the DNS Root Servers and the Root Server System" (RSSAC047).

Hirofumi Hotta of JPRS has been playing an active role in these discussions representing both two M-Root DNS server operators. Moreover, Yoshitaka Aharen, Shinta Sato, Kazunori Fujiwara and Hirofumi Hotta of JPRS are on the RSSAC Caucus tasked with considering and drafting proposals to the ICANN Board and the community. They were involved in the publication of RSSAC047v2[10] as well as the activities of the RSSAC001v2 Work Party and the RSSAC002v5 Work Party.

Moreover, Hirofumi Hotta was appointed by the RSSAC to the 2023 ICANN NomCom for a one-year term beginning at the conclusion of the annual general meeting during ICANN75 held in September 2022.

The NomCom is an independent committee, in accordance with the ICANN Bylaws, tasked with selecting key ICANN leadership positions, including some members of the ICANN Board of Directors and the PTI[11] Board, as well as the ALAC[12], the ccNSO Council and the GNSO[13] Council. The RSSAC elects one member to the NomCom as the RSSAC Liaison from the RSSAC Caucus which is in charge of developing RSSAC documents, such as reports and recommendations regarding the Root DNS Servers.

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[8] RSSAC: Root Server System Advisory Committee
　 https://www.icann.org/groups/rssac
[9] WIDE Project
　 https://www.wide.ad.jp/index_e.html
[10] RSSAC047v2
　 www.icann.org/en/system/files/files/rssac-047-03feb22-en.pdf
[11] PTI: Public Technical Identifiers
　 https://pti.icann.org/
[12] ALAC: At-Large Advisory Committee
　 https://atlarge.icann.org/
[13] GNSO: Generic Names Supporting Organization
　 https://gnso.icann.org/en

(4) Discussions on the Development of a Future Governance Model for the Root Server System

The Root Server System consists of 13 sets of root DNS servers called A-M and is comprised of over 1,300 instances. These root DNS servers are operated stably by 12 Root Server Operators working together on a voluntary basis.

As the importance of the Internet continues to grow, there are increasing calls for improved stability and assured reliability for the operation of the Root Server System. Against this backdrop, the Root Server Operators took the initiative in the RSSAC, one of ICANN's Advisory Committees, to propose a more robust governance model that could underpin the foundation of the Internet into the future.

The results of the discussion were submitted to the ICANN Board as document RSSAC037[14] in June 2018, whereupon the direction for deliberation based on RSSAC037 was approved by the ICANN Board. Subsequently, the ICANN Root Server Governance Working Group (RSS GWG) was established in January 2020 to develop a concrete governance model according to the direction for deliberation.

The RSS GWG initially consisted of ten members (two each from the ccNSO, ICANN Registry Stakeholder Group and the IAB[15]/IETF[16]; three from the Root Server Operators and one from the ICANN SSAC[17]) and three liaisons (one each from IANA, the ICANN Board and the Root Zone Maintainer). However, as the discussions progressed, some Root Server Operators demanded that all the operators should participate in the discussions in the RSS GWG as parties concerned. As such, all Root Server Operators have been taking part in the RSS GWG since March 2022. Hirofumi Hotta of JPRS engaged in the RSS GWG representing the M-Root DNS server operator.

The RSS GWG has so far compiled an interim report on how the future Root Server System should be governed. The report will be made more detailed going forward.

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*14 RSSAC037
    https://www.icann.org/en/system/files/files/rssac-037-15jun18-en.pdf
*15 IAB: Internet Architecture Board
    https://www.iab.org/
*16 IETF: Internet Engineering Task Force
    https://www.ietf.org/
*17 SSAC: Security and Stability Advisory Committee
    https://www.icann.org/groups/ssac

(4) DNSSEC and Security Workshop

A session called the DNSSEC and Security Workshop is part of every ICANN meeting. It was previously called the DNSSEC Workshop but was renamed to cover a broader range of topics, including routing security. Yoshiro Yoneya of JPRS is a member of the program committee of the DNSSEC and Security Workshop and is involved in planning and running the event.

Yoneya gave a presentation titled "Are we ready for nsec3-guidance?" at the DNSSEC and Security Workshop in ICANN74. He discussed the impact on zone publishers (authoritative DNS side) and DNSSEC validator operators (full resolver side) of the change in the recommended value of NSEC3PARAM, an important operational parameter set of DNSSEC. He also urged the TLD operators to start on the recommended value as soon as possible.

2. Participation in the IETF

The IETF was established in 1986 by the IAB to promote standardization of Internet technologies. There are a number of working groups (WGs) in the IETF that are developing standards in various technology areas. Discussion and other activities of the IETF are handled via its mailing lists. The IETF also holds meetings three times per year, and engineers gather from every region across the world to attend these meetings.
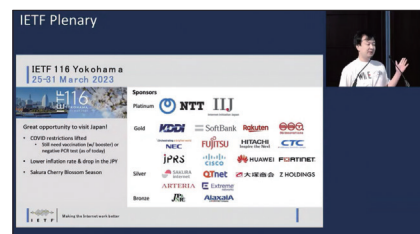
IETF 115

In 2022, IETF 113 was held in Vienna, Austria in March, IETF 114 in Philadelphia, USA in July, and IETF 115 in London, UK in November.

JPRS is participating in the standardization activities in the IETF by suggesting solutions to the issues related to DNS operations and proposing standardization of the technologies employed by registries. The following reports on JPRS's activities in the IETF.

(1) dnsop WG

The name of the dnsop WG[1] derives from DNS Operations. The working group aims to compile a guideline for DNS operation in general, including administration of DNS servers and registration data.

JPRS has actively participated in the dnsop WG with its expertise as the JP DNS operator to point out the ambiguity in the DNS protocol, present the issues caused by misconfigurations of DNS servers and discuss the operational method of DNSSEC. Besides that, JPRS engineers co-authored RFC 4074, RFC 7719, RFC 8198 and RFC 8499, and these RFCs were issued thus far.

In 2022, discussions progressed on "draft-ietf-dnsop-avoid-fragmentation," a proposal co-authored by Kazunori Fujiwara of JPRS and Paul Vixie to avoid IP fragmentation in DNS. The proposal was revised in July, August and December.

Deliberations also progressed on "draft-ietfdnsop-rfc8499bis," a revision of RFC 8499 co-authored by Paul Hoffman of ICANN and Kazunori Fujiwara of JPRS, and the proposal was amended in July.

(2) art area directorate

The art area is an area where WGs working on standardization of applications and real-time communication protocols are organized. A review team (directorate) organized for each area reviews Internet Drafts, to which the IETF Last Call is applied, from the perspective of the experts in each area. The directorate of the art area is named ARTART[2], and Yoshiro Yoneya of JPRS is participating in it as a member.

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*1 dnsop WG: Domain Name System Operations Working Group
   https://datatracker.ietf.org/wg/dnsop/
*2 ARTART: ART Area Review Team
   https://datatracker.ietf.org/group/artart/about/

3. Participation in Registry Associations

(1) APTLD

APTLD[1] is an association composed of ccTLD registries mainly in the Asia Pacific (AP) region. JPRS has been a member of APTLD since 2002. As the JP registry, JPRS proposes improvements of APTLD activities, provides information and exchanges views at presentations and discussions so that the ccTLD community in the AP region can gain experience and expertise and raise the level of service standards. In addition, Yuri Takamatsu of JPRS was appointed to serve on the APTLD Board of Directors for the term from 2022 to the 2024 Annual General Meeting.

In the APTLD meetings held twice a year, the groups and the organizations related to the region introduced their activities and the participants explained what they were implementing and considering, such as the service of each ccTLD registry and efforts to improve the security of domain names, which led to active discussions.

At the session to share the members' activities in the APTLD meeting that took place in February 2022, Shinta Sato of JPRS outlined his company's DNS-related activities, including the installation of .JP's local node carried out for the Tokyo 2020 Olympic and Paralympic Games. In the October APTLD meeting, Atsushi Endo of JPRS illustrated the transfer of the management and administration of .JP in the session about changes in registry organization and management; Hirofumi Hotta and Yuri Takamatsu of JPRS each moderated a session, thereby

(2) CENTR

CENTR[2] is an association consisting of ccTLD registries mainly in Europe. As an Associate member, JPRS shares information and exchanges opinions with other CENTR members. In addition, CENTR conducts surveys and information-sharing among members, so JPRS is actively taking part in these activities to consider its future services in the light of what it learns in CENTR.

CENTR held a seminar to discuss registries' efforts to build good relationships with registrars in February 2022, in which Sumika Uchikawa of JPRS showcased its cash-back campaign for JP domain names. In October, Sumika Uchikawa and Keisuke Mii of JPRS shared JPRS's recent initiatives at the Marketing Workshop and the Admin Workshop, respectively.

*1 APTLD: Asia Pacific Top Level Domain Association
  https://www.aptld.org/
*2 CENTR: Council of European National Top Level Domain Registries
  https://www.centr.org/

4. Other International Activities

(1) Participation in the Internet Governance Forum (IGF)

IGF*1 is an international conference organized under the auspices of the United Nations (UN) and has been held annually since 2006. The IGF 2022 was held from November 28 to December 2 as a hybrid event with in-person participation in Addis Ababa, Ethiopia as well as online attendance. Hirofumi Hotta and Yuri Takamatsu of JPRS participated in the event.

Under the overarching theme of "Resilient Internet for a Safe, Sustainable and Common Future," the IGF 2022 featured approximately 300 sessions based on six themes, including "Connecting All People and Safeguarding Human Rights," "Avoiding Internet Fragmentation" and "Governing Data and Protecting Privacy." The sessions focused on the importance of the Internet in the economy and daily life, which has increased in the wake of COVID-19, and the problems and challenges that have grown and diversified as a result. The participants engaged in a lively exchange of ideas in each session. In addition, it was announced that the IGF 2023 would be held in Kyoto, Japan.

JPRS will make good use of the information gained from the discussion in the IGF and will stimulate related discussions in Japan.

(2) Participation in AP* Retreat

AP* (APstar*2) Retreat is a meeting that is held twice a year in principle and gathers the Internet-related associations in the Asia Pacific region as well as the participants representing the organizations playing key roles in the Internet in each country and region. At the AP* Retreat meetings the participants share the activities and concerns of each participating organization and discuss how the Asia Pacific community as a whole should address the issues related to the Internet.

In 2022, AP* Retreat was held online in February and in a hybrid format with online and in-person participation in Singapore in September. Hirofumi Hotta of JPRS participated in both retreats.

*1 IGF: Internet Governance Forum
 https://www.intgovforum.org/
*2 APstar: The Community of Asia Pacific Internet Organizations
 https://www.apstar.org/

(3) Participation in Root DNS Server Operation

JPRS and the WIDE Project collaboratively operate the M-Root DNS server, one of the root DNS servers, for the purpose of ensuring the reliability and stability of DNS operations.

The 12 root DNS server operator organizations from around the world meet in conjunction with IETF meetings which are held three times a year, and JPRS has been participating in these meetings as one of the organizations in charge of the operation of the M-Root DNS server. At these meetings, attendees share information principally on the stability of server operations and topics related to the latest technology.

The M-Root DNS server has been expanding its deployment in the AP region with the cooperation of APNIC and APNIC Foundation since 2020. In 2022, the M-Root DNS server started operating in Guam, Malaysia, Thailand and Singapore.

Making good use of its experience as the .JP registry, JPRS has been contributing to the global and the AP regional Internet communities while also building on the JP Domain Name services with the knowledge it has gained in the operation of the root DNS server.

(4) Participation in DNS-OARC

DNS-OARC[3] is an international organization established in 2004 for the purpose of improving the stability and quality of DNS through various activities related to operation, analysis and study of DNS, the system widely used on the Internet. DNS-OARC conducts the annual DITL[4], which involves collecting and evaluating server packets of DNS including the root servers once a year for 50 hours.

In 2022, DNS-OARC held workshops in February, July, and October. At OARC 37 held in February, Kazunori Fujiwara of JPRS gave a presentation entitled "An idea of IP anycast analysis using DITL dataset" and shared the results of analyzing the data obtained through a 50-hour packet capture carried out once a year at the root DNS servers. He also described the average Round Trip Time (RTT) to the M-Root DNS server by continent and country, distribution of RTT from clients and the findings of analyzing the impact of launching a node in Brisbane.

In addition, Yoshiro Yoneya of JPRS delivered a presentation titled "Are we ready for nsec3-guidance?" at OARC 38 that took place in July 2022. He explained that the change of the recommended value of NSEC3PARAM, an important operational parameter set of DNSSEC, would become a BCP RFC, and discussed how that would affect zone publishers (on the authoritative DNS side) and validator operators (on the full resolver side). He then suggested that respective operators and DNS software developers should consider when best to proceed with the transition and that milestones such as DNS flag day should be established by the community.

*3 DNS-OARC: The DNS Operations, Analysis, and Research Center
   https://www.dns-oarc.net/
*4 DITL: Day In The Life of the Internet
   https://www.dns-oarc.net/oarc/data/ditl

(5) Participation in W3C

W3C[5] is a non-profit organization founded in 1994 to develop a series of technical standards for the World Wide Web. JPRS participates in W3C and plays an active role in enhancing Web security and internationalization of identifiers.

(6) Activities in Academic Societies

JPRS continues to participate in academic societies through its study and research on DNS and other related areas of study. Takeshi Mitamura of JPRS sits on the Special Interest Group on Business Informatics within the Japanese Society of Artificial Intelligence as an expert member, while Kazunori Fujiwara serves as an expert member of the Technical Committee on Internet Architecture of EIC Communication Society.

*5 W3C: World Wide Web Consortium
   https://www.w3.org/

01·4 Activities in Japan

(1) Participation in JANOG

JANOG[1] is the organization established to promote the smooth operation of networks through discussions and information-sharing among network operators to contribute to Internet users and engineers. The members discuss various issues on the mailing list and gather at JANOG Meetings held twice a year. JANOG also convenes Interim Meetings as necessary between regular JANOG meetings.

JANOG50 Meeting

In 2022, both JANOG meetings were held in a hybrid format accommodating in-person and online attendance. The JANOG49 Meeting was held in Kagoshima City, Kagoshima Prefecture in January and the JANOG50 Meeting in Hakodate City, Hokkaido in July.

JPRS participates in discussions in JANOG and continues to support the JANOG meetings as a sponsor. It also runs an exhibition booth at the meeting venue to distribute technical information materials about domain names, DNS and server certificates.

(2) Participation in DNSOPS.JP

DNS Operators Group, Japan (DNSOPS.JP)[2] was established in 2006 with the intention of contributing to the stable operation of the Internet through the administration of DNS. Yasuhiro Morishita of JPRS participated in the establishment as one of the founding members. DNSOPS.JP serves as a forum for DNS operators where they can exchange and share information and discuss related issues. Yoshiro Yoneya of JPRS is a member of the Executive Committee that manages the organization of DNSOPS.JP. JPRS also plays a role in DNSOPS.JP as the secretariat.

DNSOPS.JP holds a BoF (Birds of a Feather) annually for technical presentations and discussions. It has also organized "DNS Summer Day," in which participants share their efforts related to DNS and give lightning talks, every summer since 2012.

Yasuhiro Morishita of JPRS gave a lecture entitled "Mystery of the arpa Zone: Why "j" is Not Included in the arpa Server" at the DNS Summer Day 2022 held in a hybrid format in June 2022. He described the changes to the arpa zone configuration that had been carried out from April to May in 2022 and shared the background behind the changes. He also gave a presentation titled "Technical Information Provided by JPRS (July 2021–June 2022)," in which he looked back on the technical information, including vulnerability information related to DNS, that JPRS had disseminated over the past year.

DNSOPS.JP has a volunteer Managed DNS Service Survey Team that has been active since 2020. The work of the team was shared at the Managed DNS Service Survey Debriefing in April, DNS Summer Day 2022 in June, the JANOG50 Meeting in July and the DNSOPS.JP BoF in November 2022.

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[1] JANOG: JApan Network Operators' Group
https://www.janog.gr.jp/en/html/
[2] DNSOPS.JP: DNS Operators Group, Japan
https://dnsops.jp/ (in Japanese)

(3) Participation in ICANN Readout Sessions

ICANN Readout Session is the event that has been organized jointly by JPNIC and IAjapan from 2001 to 2017 and by JPNIC from April 2017 onward. JPRS has been participating in the ICANN Readout Sessions and reporting to the Japanese community about the development of the ccNSO and other relevant topics.

In 2022, ICANN Readout Sessions were held in April, July, and October. Yuri Takamatsu of JPRS gave an update on the ccNSO and related efforts, and Hirofumi Hotta as a Root Server Operator reported on the status of discussion on the future governance model of the DNS Root Server System. Furthermore, as a member of the Japanese Generation Panel (JGP), Hirofumi Hotta spoke about the development of the Label Generation Rules (LGR) in the Japanese community which was completed in May. He provided the background on the deliberation of the Japanese LGR in the JGP and outlined the finalized rules. Hotta also reported on the status of discussions between the JGP and ICANN on the proposed rules for Japanese one-character TLDs and Japanese labels at the second level, after which he solicited feedback from the participants of the readout session.

(4) Participation in ISOC-JP

ISOC-JP[3] was established in August 1994 and has made various efforts to promote the Internet in Japan as the Japan Chapter of the Internet Society (ISOC[4]). Yoshiro Yoneya of JPRS has been taking part in the Internet Standardization Promotion Committee (ISPC) of ISOC-JP since 2017 and served as the ISPC Vice Chair from 2019 to December 2022.

ISOC-JP and JPNIC jointly organized three IETF Update Meetings in 2022. At the IETF 113 Update Meeting, Yoshiro Yoneya of JPRS discussed the impact of Post Quantum Cryptography (PQC) on protocol design, product development and service operation, based on his experience in the standardization of Internet protocols. He also reminded the audience to prepare for the transition.

(5) Participation in ICT-ISAC

ICT-ISAC[5] was established in 2016 to contribute to the formation of a secure society underpinned by information and communication technology (ICT). It has been working together with businesses and organizations from a wide range of fields related to ICT to keep distribution and communication of information stable, thereby improving security countermeasures and achieving a higher level of responses. JPRS has been participating in ICT-ISAC as a member since 2017.

ICT-ISAC undertakes activities through various working groups consisting of its members. JPRS is taking part mainly in the Cyber Attack Defense Exercise WG (CAE-WG), Rapid Response to DoS Attacks WG (DoS-WG), Special Interest Group for DNS Operators (DNS-SiG) and Society of Network Abuse Response WG (SoNAR-WG) to contribute to enhancing the security related to ICT.

*3 ISOC-JP: The Internet Society Japan Chapter
   https://www.isoc.jp/
*4 ISOC: Internet Society
   https://www.internetsociety.org/
*5 ICT-ISAC: ICT Information Sharing And Analysis Center Japan
   https://www.ict-isac.jp/english/index.html

(6) Participation in the Rejuvenation Team of the National IGF in Japan

The Rejuvenation Team of the National IGF in Japan for the IGF 2023 was formed in May 2021 to prepare for the Internet Governance Forum (IGF) to be held in Japan in 2023. The team meets about once every three weeks to stimulate IGF activities in Japan through planning and organizing events and encouraging various Internet-related stakeholders to participate.

In 2022, the team held the IGF 2021 readout session in February and organized the "Japan Internet Governance Forum 2022" in October. Hirofumi Hotta and Yuri Takamatsu of JPRS actively participated in the planning of the February readout, and Hotta gave a report on his participation in the IGF 2021 in the actual session.

JPRS participates in event planning and discussions about team operations on the team's mailing list and at every meeting.

(7) Participation in the Council of Anti-Phishing Japan

The Council of Anti-Phishing Japan[6] is a council tasked mainly with collecting and providing information on phishing and issuing alerts. Atsushi Endo of JPRS has been contributing to the overall operation of the Council as a member of its steering committee since 2020.

The Council has published the "Anti-Phishing Guidelines" for service providers and consumers. It also has a working group (Technology and Legal System WG) to consider refining the guidelines every year, taking into consideration the current threats. Atsushi Endo and Toshihiro Sasaki of JPRS took part in the working group as members for drawing up the 2022 edition of the guidelines[7] and engaged in the awareness campaign and educational activities about domain name abuse.

In addition, Kazumitsu Shiraiwa and Yoshiro Yoneya of JPRS have been on the working group charged with sharing information about phishing scams and discussing collaboration between organizations (Hazard Info WG). Moreover, Yoneya and Hayato Machida of JPRS participated in the working group for promoting knowledge about server certificates (Certificate Promotion WG).

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*6 Council of Anti-Phishing Japan
    https://www.antiphishing.jp/ (in Japanese)
*7 Anti-Phishing Guidelines (released in June 2022, in Japanese)
    https://www.antiphishing.jp/report/guideline/antiphishing_guideline2022.html

(8) Participation in Telecom Services Association

Telecom Services Association*8 was founded for the purpose of promoting the sound evolution of information and telecommunication businesses in the competitive market, thereby contributing to the development of the industry as a whole and enhancing the benefits to citizens as well as public welfare.

The Service Ethics Committee within the Telecom Services Association is tasked with addressing ethics and other related issues in network services. It works on improving the Internet use environment by exchanging opinions and information on the laws and regulations related to network services and the challenges facing providers. In 2022, Takaharu Ui of JPRS participated as a member of the committee in discussions on various issues, including the response to the amendments to the Provider Liability Limitation Act.

(9) Participation in KEIDANREN (Japan Business Federation)

The Committee on Digital Economy of KEIDANREN (Japan Business Federation)*9 is the body tasked with deliberating and making policy proposals about issues such as promoting the use of personal data and measures to ensure the free flow of data across national borders. In 2022, Hirofumi Hotta and Takaharu Ui of JPRS took part in wide-ranging discussions in the Planning Subcommittee within the Committee on the Digital Economy.

*8 Telecom Services Association
   https://www.telesa.or.jp/en
*9 KEIDANREN (Japan Business Federation)
   https://www.keidanren.or.jp/en/

01·5 Overview of this Term's Activities and Challenges for the Future

JPRS has constantly worked to strike a proper balance among reliability, stability, usability and fee performance, which constitute the basis of JP domain name registry services and JP DNS operation, while also improving each of the four values.

To improve the reliability and convenience of the JP domain name services, JPRS introduced AuthCode in 2022 to ensure that JP Registrar change requests do not occur without the intention of the registrant.

JPRS also continued to tap into its expertise as the .JP registry to disseminate information related to domain names and DNS and to promote understanding of industry trends at domestic and international events and meetings. Moreover, JPRS contributed to the establishment of industry standards. For example, it participated in the development of the proposed rules for Japanese-language labels to be applied to the new gTLDs, which would later be approved by ICANN.

The year 2022 continued to witness many challenges threatening the stable operation of the Internet, such as vulnerabilities in DNS software. JPRS has responded to these problems through its information provision activities, including security alerts and educational programs.

As part of its Internet-related educational support activities, JPRS continued to distribute a free booklet on how the Internet works to educational institutions across Japan. It also launched a website to assist Internet education for junior high and high school students, and distributed free posters to educational institutions across the country to help students learn about ccTLDs in a fun way. Furthermore, JPRS continued to provide domain names free of charge at the website creation contest for junior and senior high school students.

With the ongoing digital transformation of society, JPRS will continue to improve the security of its system while reinforcing its equipment and administrative structure. In doing so, JPRS aims to foster an environment where people can use the Internet more safely. JPRS will also continue to work with other relevant organizations and the JP Registrars to disseminate information on DNS technology and issue security alerts to address vulnerabilities in the entire DNS.

The expanding use of the Internet and changes in corporate and social activities have led to ever-increasing societal demands for the stability of communications infrastructure. Recognizing this, JPRS will enhance the continuity of its services by conducting drills for various contingencies and strengthening system stability to speed up service restoration and improve reliability.
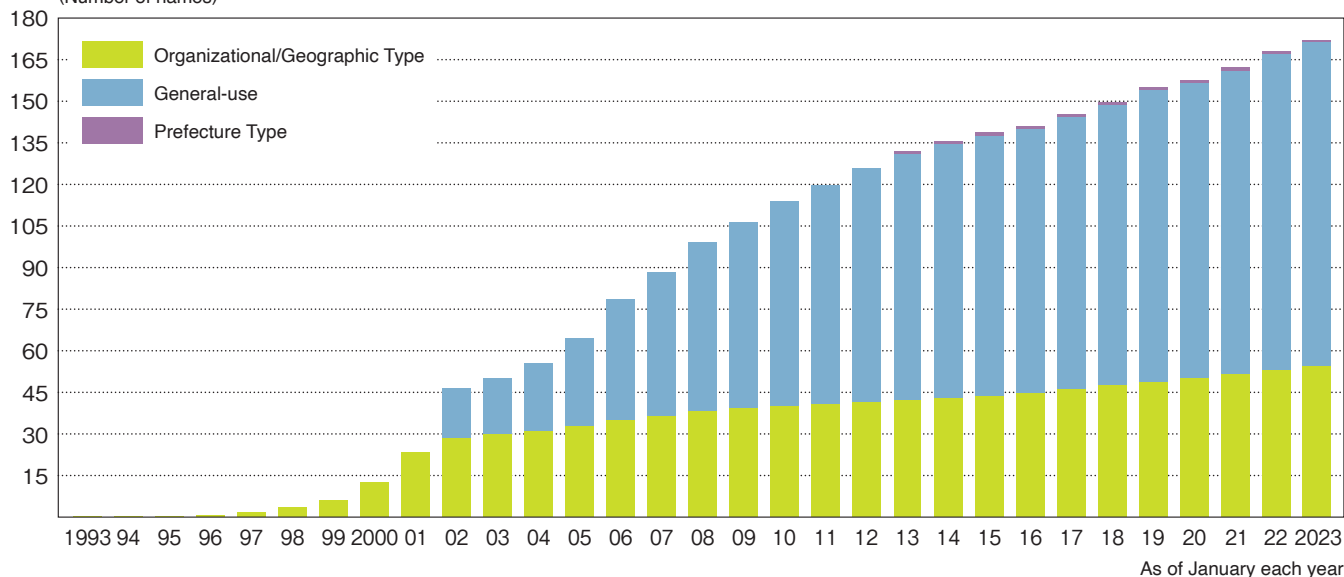
As the JP registry, JPRS will continue its efforts to provide better and stable services.

02·1 Change in the Cumulative Number of Registered JP Domain Names

As of January 1, 2023, the number of registered JP domain names reached 1,721,137, an increase of 40,464 in one year.

(Number of names)

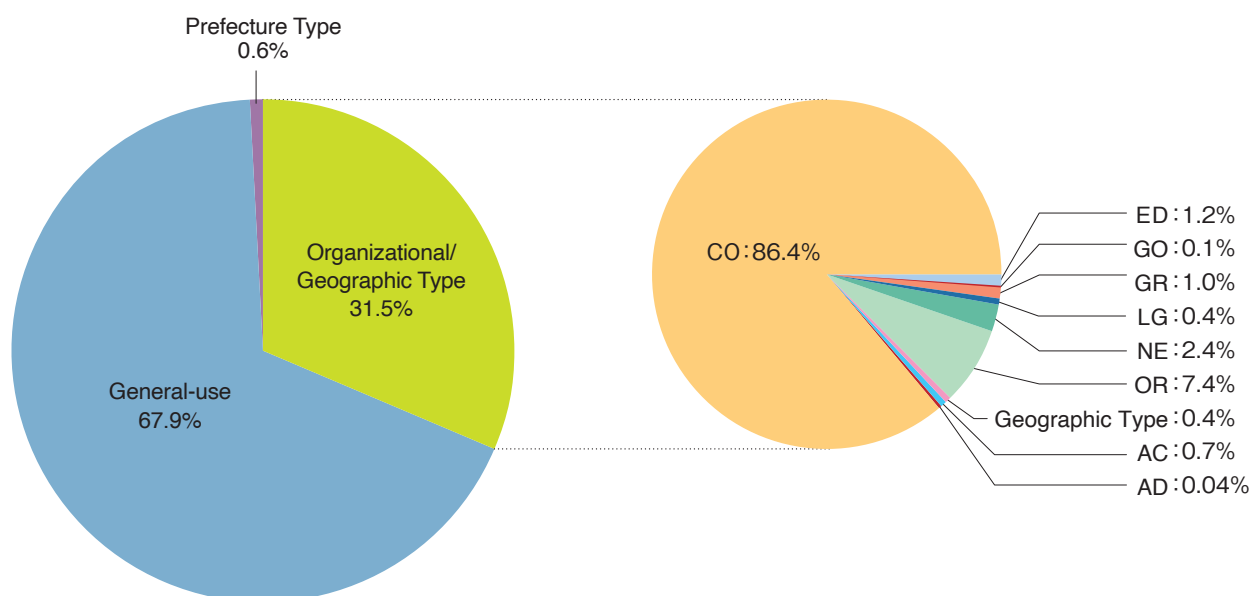| Month/Year	Organizational/ Geographic Type	General-use (Japanese domain name)	Prefecture Type (Japanese domain name)	Total
1993/1	953	———	———	953
1994/1	1,341	———	———	1,341
1995/1	2,206	———	———	2,206
1996/1	4,781	———	———	4,781
1997/1	15,477	———	———	15,477
1998/1	33,739	———	———	33,739
1999/1	58,549	———	———	58,549
2000/1	124,573	———	———	124,573
2001/1	234,294	———	———	234,294
2002/1	283,340	183,499 (61,507)	———	466,839
2003/1	297,413	205,493 (51,544)	———	502,906
2004/1	309,193	245,100 (45,402)	———	554,293
2005/1	327,742	317,455 (63,324)	———	645,197
2006/1	346,340	439,784 (116,602)	———	786,124
2007/1	363,768	518,557 (124,153)	———	882,325
2008/1	378,903	609,983 (141,858)	———	988,886
2009/1	389,598	674,133 (134,921)	———	1,063,731
2010/1	399,339	740,820 (133,754)	———	1,140,159
2011/1	406,856	791,249 (123,711)	———	1,198,105
2012/1	413,332	845,054 (119,337)	———	1,258,386
2013/1	421,606	888,657 (122,394)	8,452 (1,915)	1,318,715
2014/1	428,467	915,854 (126,182)	11,781 (2,948)	1,356,102
2015/1	435,390	940,427 (120,801)	11,684 (3,117)	1,387,501
2016/1	446,004	953,041 (113,521)	11,202 (2,612)	1,410,247
2017/1	458,947	984,270 (114,130)	11,419 (2,524)	1,454,636
2018/1	472,906	1,010,615 (107,363)	11,956 (2,524)	1,495,477
2019/1	486,956	1,052,832 (99,869)	11,569 (1,953)	1,551,357
2020/1	499,366	1,065,561 (95,123)	11,480 (1,829)	1,576,407
2021/1	513,038	1,095,928 (90,494)	11,237 (1,612)	1,620,203
2022/1	529,032	1,139,718 (87,921)	11,923 (1,733)	1,680,673
2023/1	541,212	1,169,261 (85,536)	10,664 (1,400)	1,721,137

*Please refer to "Statistics" (https://jprs.co.jp/en/stat/) for the latest information.

02·2 Breakdown of JP Domain Name Registrations by Name Space

*As of January 1, 2023

Prefecture Type 0.6%

Organizational/ Geographic Type 31.5%

General-use 67.9%

CO：86.4%

ED：1.2%
GO：0.1%
GR：1.0%
LG：0.4%
NE：2.4%
OR：7.4%
Geographic Type：0.4%
AC：0.7%
AD：0.04%

(Number of names)

JP Domain Name Types		1 Jan 2023 Number of Registrations	1 Jan 2022 Number of Registrations	Difference
Organizational/ Geographic Type	AC: Higher education institution	3,816	3,779	+37
	AD: JPNIC Member	251	250	+1
	CO: Company	467,842	456,727	+11,115
	ED: Primary school, junior and senior high school	6,348	6,258	+90
	GO: Japanese government	773	679	+94
	GR: Group	5,543	5,516	+27
	LG: Japanese local authority	1,898	1,895	+3
	NE: Network service	12,839	12,766	+73
	OR: Corporation other than company	39,811	39,045	+766
	Geographic Type	2,091	2,117	−26
General-use (Japanese domain name)		1,169,261 (85,536)	1,139,718 (87,921)	+29,543 (−2,385)
Prefecture Type (Japanese domain name)		10,664 (1,400)	11,923 (1,733)	−1,259 (−333)
Total JP Domain Name Registration		1,721,137	1,680,673	+40,464

*Please refer to "Statistics" (https://jprs.co.jp/en/stat/) for the latest information.

02·3 Number of JP Domain Name Registrations by Prefecture

*As of January 1, 2023

Prefecture	Organizational/ Geographic Type	General-use	Prefecture Type
Hokkaido	2.8%	2.1%	2.6%
Aomori	0.5%	0.3%	0.6%
Iwate	0.4%	0.3%	0.6%
Miyagi	1.3%	0.8%	0.8%
Akita	0.4%	0.3%	0.6%
Yamagata	0.6%	0.3%	0.4%
Fukushima	0.9%	0.5%	0.5%
Ibaraki	1.4%	1.0%	0.6%
Tochigi	1.0%	0.6%	0.9%
Gunma	1.1%	0.7%	2.2%
Saitama	4.4%	2.8%	2.6%
Chiba	3.3%	2.3%	2.5%
Tokyo	32.4%	42.1%	36.0%
Kanagawa	6.6%	4.9%	3.3%
Niigata	1.1%	0.7%	0.8%
Toyama	0.6%	0.5%	0.6%
Ishikawa	0.7%	0.6%	0.6%
Fukui	0.5%	0.4%	0.4%
Yamanashi	0.5%	0.4%	0.4%
Nagano	1.3%	0.9%	1.5%
Gifu	1.1%	0.7%	1.1%
Shizuoka	2.1%	1.5%	1.4%
Aichi	5.4%	3.7%	2.5%
Mie	0.8%	0.5%	1.2%
Shiga	0.6%	0.5%	1.2%
Kyoto	2.0%	2.5%	6.6%
Osaka	9.4%	15.0%	9.7%
Hyogo	3.1%	2.3%	1.7%
Nara	0.6%	0.7%	1.5%
Wakayama	0.4%	0.4%	0.5%
Tottori	0.2%	0.2%	0.4%
Shimane	0.3%	0.3%	0.3%
Okayama	1.1%	0.7%	0.9%
Hiroshima	1.6%	1.0%	1.2%
Yamaguchi	0.6%	0.4%	0.2%
Tokushima	0.3%	0.3%	0.3%
Kagawa	0.5%	0.3%	0.6%
Ehime	0.6%	0.4%	0.7%
Kochi	0.3%	0.2%	0.4%
Fukuoka	3.3%	2.6%	3.3%
Saga	0.3%	0.2%	0.6%
Nagasaki	0.5%	0.4%	0.8%
Kumamoto	0.8%	0.6%	0.9%
Oita	0.4%	0.4%	0.9%
Miyazaki	0.4%	0.4%	0.5%
Kagoshima	0.6%	0.4%	0.7%
Okinawa	0.7%	0.7%	1.6%

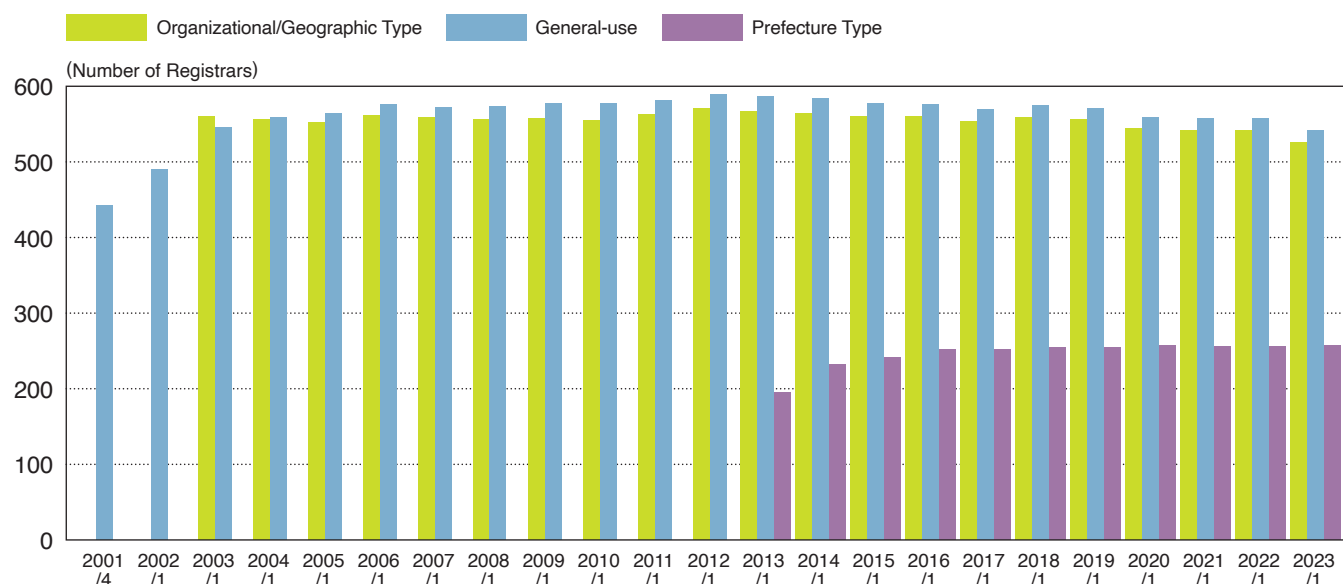# 02·4 Transition of DNS Configuration Rate

*As of January 1, 2023
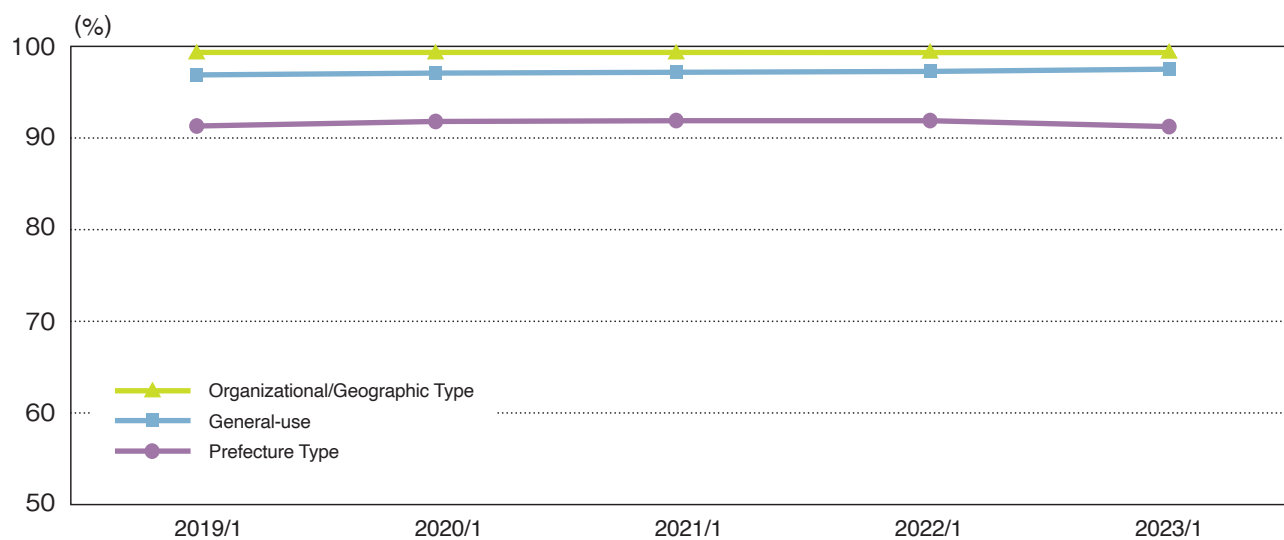
Month/Year	Organizational/Geographic Type	General-use	Prefecture Type
2019/1	99.4%	96.9%	91.3%
2020/1	99.4%	97.1%	91.8%
2021/1	99.4%	97.2%	91.9%
2022/1	99.5%	97.3%	91.9%
2023/1	99.5%	97.5%	91.1%

02·5 Number of Accredited JP Registrars

Legend: Organizational/Geographic Type · General-use · Prefecture Type

(Number of Registrars)

(Number of Registrars)

Month/Year	Organizational/Geographic Type	General-use	Prefecture Type	Cumulative Total
2001/4	——	443	——	443
2002/1	——	490	——	490
2003/1	560	546	——	1,106
2004/1	557	559	——	1,116
2005/1	553	564	——	1,117
2006/1	562	576	——	1,138
2007/1	559	572	——	1,131
2008/1	557	573	——	1,130
2009/1	558	577	——	1,135
2010/1	555	577	——	1,132
2011/1	563	582	——	1,145
2012/1	571	590	——	1,161
2013/1	566	586	197	1,349
2014/1	564	582	227	1,373
2015/1	560	577	241	1,378
2016/1	560	576	252	1,388
2017/1	554	569	252	1,375
2018/1	559	574	255	1,388
2019/1	556	571	254	1,381
2020/1	544	559	257	1,360
2021/1	542	559	256	1,357
2022/1	522	538	254	1,314
2023/1	526	541	257	1,324

*The number of JP Registrars for the Organizational/Geographic Type JP domain names is the figure after April 2002 when management and administration was transferred from JPNIC to JPRS.

02·6 Number of Complaints Based on JP Domain Name Dispute Resolution Policy (JP-DRP)
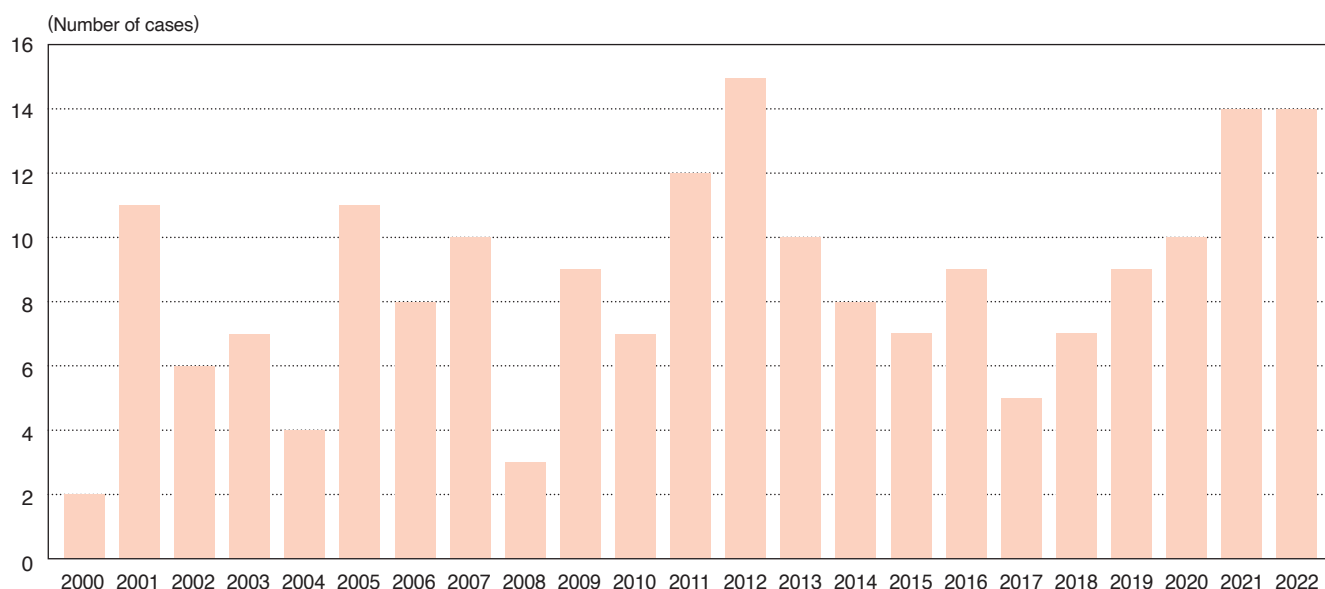
(Number of cases)

Year	Number
2000	2
2001	11
2002	6
2003	7
2004	4
2005	11
2006	8
2007	10
2008	3
2009	9
2010	7
2011	12
2012	15
2013	10
2014	8
2015	7
2016	9
2017	5
2018	7
2019	9
2020	10
2021	14
2022	14

(Number of cases)

*For details of domain name disputes, please refer to the "Domain Name Dispute Resolution Policy (DRP)" posted by Japan Network Information Center (https://www.nic.ad.jp/en/drp/).

03·1 History

2000	Dec.	JPRS was established.
2001	Feb.	General-use JP Domain Priority Registration Application started.
	Apr.	General-use JP Domain Concurrent Registration Application started.
	May	General-use JP Domain First-Come First-Served Registration Application started.
2002	Feb.	ccTLD Sponsorship Agreement was concluded with ICANN.
	Apr.	Management and administration of .JP TLD was transferred from JPNIC to JPRS.
	Oct.	LG.JP was established.
2003	Jan.	The number of registered JP domain names surpassed 500,000.
	Jun.	JPRS received the approval from ICANN to start IDN service.
	Jul.	RFC-based Japanese JP Domain Name registration service started.
2004	Feb.	IP Anycast technology was introduced in JP DNS service ([a.dns.jp] [d.dns.jp]).
	Jul.	JP domain name started full support for IPv6, for the first time in the world as a TLD.
	Dec.	The portal site "Nihongo dot JP" (https://日本語.jp/) for promoting Japanese JP Domain Name was launched.
2005	Jan.	The portal site "Jinmei Jiten dot JP" (https://人名事典.jp/) to introduce Japanese JP domain names using personal names was launched.
	Dec.	"Eki Machi Guide" (https://駅街ガイド.jp/), which provides information on areas around stations using Japanese JP domain names consisting of station names throughout Japan, started.
		JPRS started operation of the M-Root DNS server in cooperation with the WIDE Project.
2006	Jan.	JPRS started deleting improper DNS server registrations.
	Apr.	JPRS shortened the processing time for JP DNS update.
	Nov.	The number of registered General-use JP domain names surpassed 500,000.
	Dec.	JPRS published guidelines for making URLs consisting of Japanese domain names clickable in email text.
2007	Mar.	"Procedure for recovering deleted domain name registration" was introduced for General-use JP Domain Name.
	Dec.	IP Anycast technology was introduced to the JP DNS service ([e.dns.jp]).
2008	Mar.	The number of registered JP domain names surpassed 1 million.
	Jun.	JPRS started the real-time application process service for CO.JP Domain Name.
	Oct.	The JP DNS server configuration was changed (c.dns.jp and g.dns.jp added).
2009	Apr.	JPRS announced its participation in the "BIND 10" development project.
	Nov.	JPRS extended the coverage of the real-time application process service.
2010	May	JPRS started distributing a graphical comic-style booklet "How the Internet Works" free of charge to junior and senior high schools across Japan.
2011	Jan.	JPRS deployed DNSSEC to the JP domain name service.
	Feb.	JPRS started providing "gTLD Registration Services."
	May	JPRS published "DNS Practices," a book on DNS, written by JPRS engineers.
2012	Jul.	Priority Registration Application of the Prefecture Type JP Domain Name started.
	Sep.	Concurrent Registration Application of the Prefecture Type JP Domain Name started.
	Nov.	General Registration Application of the Prefecture Type JP Domain Name started.
2013	Mar.	The number of registered Prefecture Type JP domain names surpassed 10,000.
	Nov.	The TTL value of the DS RR for JP DNS servers was changed.
2014	Nov.	JPRS introduced Japanese characters into the Prefecture Labels of the Prefecture Type JP Domain Name.
2015	Jun.	JPRS signed an MoU with ICANN and JPNIC on Japanese translation of ICANN materials.
	Oct.	JPRS started providing JP Registrars with "JP Domain Name Usage Support Program for Students."
2016	Apr.	JPRS Started Digital Certificates Issuance Services.
	Jun.	JPRS submitted a notification of its telecommunications business in response to the enactment of the partial amendment to the Telecommunications Business Law.
2017	Sep.	The number of registered General-use JP domain names surpassed 1 million.
	Oct.	JPRS started accepting Concurrent Registration Applications for Japanese JP domain names representing school names.
		JPRS published the report of joint research with 8 ISPs of the electric power corporation group on continued use of the Internet in case of a large-scale disaster.
2018	Feb.	The number of registered JP domain names surpassed 1.5 million.
	Nov.	"Textbook to understand DNS well," a practical guide to DNS authored by JPRS engineers, was published.
2019	Sep.	JPRS acquired ISO 27001 certification (for the domain registry business).
2020	Jan.	JPRS attained full compliance with the WebTrust criteria that ensure the reliability of Certificate Authorities.
	Aug.	JPRS, the WIDE Project and APNIC agreed to establish a new cooperative relationship for the deployment of M-Root instances.
	Oct.	The number of registered JP domain names surpassed 1.6 million.
2021	Jul.	JPRS, HOTnet and QTnet commenced operation of the local nodes for the JP DNS servers.
2022	Jun.	The number of registered JP domain names surpassed 1.7 million.

03·2 JP Domain Name Advisory Committee

The JP Domain Name Advisory Committee was established in 2002 to maintain fairness and neutrality of the .JP registry operations. The committee members from outside of JPRS with various viewpoints consider policies for JP domain name services.

JP Domain Name Advisory Committee meetings are open to the public, and the minutes and documents are publicly accessible on the JPRS website.

(1) Advisory Committee Meetings

Oct. 6   **72nd JP Domain Name Advisory Committee**

Mitsunori Tsuruta and Shuichi Sasakura, members of the 11th JP Domain Name Advisory Committee, resigned. Accordingly, the JPRS Board of Directors appointed Yasutoshi Kikuchi and Toshio Kanai as their successors, following the committee's recommendation. It was reported at this meeting that Kikuchi and Kanai had been inducted as members.

It was also reported that Nobuhisa Nishigata had become a member representing the Japanese government in the 11th JP Domain Name Advisory Committee, due to a personnel change in the Ministry of Internal Affairs and Communications.

JPRS outlined the status of .JP and other TLDs, the circumstances surrounding domain names and its most recent activities including its efforts to improve the safety of the process for changing JP Registrars and transferring domain names. The committee held a question-and-answer session and exchanged views on these topics.

The secretariat made a presentation on the online/paperless operation of the JP Domain Name Advisory Committee. The committee then asked questions and exchanged opinions on the subject.

Dec. 22   **73rd JP Domain Name Advisory Committee**

The JPRS Board of Directors submitted an inquiry entitled "Method for Appointing the Members of the 12th JP Domain Name Advisory Committee" (JPRS-ADV-2022001). Each committee member expressed their opinion on the contents of the inquiry, and the committee then agreed on the method.

The Secretariat presented a proposal for the online/paperless operation of the JP Domain Name Advisory Committee, which had been prepared based on the discussions at the 72nd Committee meeting. After a question-and-answer period and exchange of opinions, the committee agreed that the 74th and subsequent committee meetings would be operated in accordance with the proposed method, taking into consideration the opinions expressed by the members.

(2) Consultations and Advisories

Consultation/Advisory	Consultation Date Document No.	Advisory Date Document No.
Method for appointing members of the 12th JP Domain Name Advisory Committee	Dec. 22, 2022 JPRS-ADV-2022001	(under consideration)

03·3 Proposals and Presentations

Date	Title	At	Hosted by
Feb. 17	An idea of IP anycast analysis using DITL dataset	OARC 37 Workshop	DNS-OARC
Feb. 23	JPRS Update	APTLD81	APTLD
Feb. 26	Phishing and Domain Name/DNS	7th Cyber Security Study Session 2022 in Shiojiri	Shiojiri City Security Awareness Activities Executive Committee
Apr. 26	Update of ccNSO at ICANN73	63rd ICANN Readout Session	JPNIC
May 23	Root DNS Update: Yet Another Root Server coming to Thailand	BKNIX Peering Forum 2022	BKNIX
May 24	Collaboration between JPRS and national CERT	Pre-ICANN74 ccTLD News Session - Cybersecurity	ICANN ccNSO
May 24	Toward the PQC Era	IETF 113 Update Meeting	ISOC-JP/JPNIC
Jun. 13	Are we ready for nsec3-guidance?	ICANN74 DNSSEC and Security Workshop	ICANN
Jun.15-17	"Names" Are Essential Even in the Internet: Basics of Domain Names and DNS	Interop Tokyo 2022	Interop Tokyo 2022 Steering Committee
Jun.15-17	Secure Your Internet Communications: Basics of HTTPS and Server Certificates	Interop Tokyo 2022	Interop Tokyo 2022 Steering Committee
Jun.15-17	What Is DNS HTTPS Record Being Used Even before the RFC Is Published?	Interop Tokyo 2022	Interop Tokyo 2022 Steering Committee
Jun. 24	Domain Names, Certificates and TLS: from the Viewpoint of a Private Individual Running His/Her Own Mail Server, etc.	Internet Week Showcase in Tokushima/Online	JPNIC
Jun. 24	Let's Think about "DNS of Tomorrow"	Internet Week Showcase in Tokushima/Online	JPNIC
Jun. 24	Technical Information Provided by JPRS (July 2021–June 2022)	DNS Summer Day 2022	DNSOPS.JP
Jun. 24	Mystery of the arpa Zone: Why "j" is Not Included in the arpa Server	DNS Summer Day 2022	DNSOPS.JP
Jun. 28	RSSAC & RSS GWG	APAC Space	ICANN
Jun. 28	Seminar on Always On SSL/TLS	Nagano Employers' Association Online Seminar	Nagano Employers' Association
Jul. 28	Update on ccNSO at ICANN74	64th ICANN Readout Session	JPNIC
Jul. 28	Update on Root DNS Server System	64th ICANN Readout Session	JPNIC
Jul. 28	Japanese Root Zone LGR	64th ICANN Readout Session	JPNIC
Jul. 30	Are we ready for nsec3-guidance?	DNS-OARC 38 Workshop	DNS-OARC
Oct. 6	Tour de Table	55th CENTR Administrative Workshop	CENTR
Oct. 20	Update on ccNSO at ICANN75	65th ICANN Readout Session	JPNIC
Oct. 20	One-Character IDNs in TLD and Japanese Domain Labels in SLD	65th ICANN Readout Session	JPNIC
Oct. 24	How the Internet Supports Society of Today and Tomorrow	Seisoku Gakuen High School	The Yomiuri Shimbun
Oct. 26	Transition of ccTLD Manager from Non-profit to For-profit	APTLD 82	APTLD
Nov. 11	Jobs That Support the Internet	Nagano Junior High School Attached to the Faculty of Education of Shinshu University	Japan Educational Press
Nov. 25	Relearn the Basics of How DNS Works in 1 Hour	Internet Week Basic On Demand	JPNIC
Nov. 29	Looking Back at DNS's Weaknesses and Looking Ahead to Its Future: Lunch with DNS	Internet Week 2022 Lunchtime Seminar	JPNIC
Nov. 29	DNS Update: Domain Name Overview	Internet Week 2022 DNS DAY	JPNIC

Date	Title	At	Hosted by
Nov. 29	IETF/RFC Update	Internet Week 2022 DNS DAY	JPNIC
Nov. 29	Latest DNS Software Trends	Internet Week 2022 DNS DAY	JPNIC

03·4 Press Releases

Date	Title
Feb. 22	JPRS Supports "24th Japan Junior/Senior High School Web Contest" to Provide Experience of Using JP Domain Names (in Japanese)
Mar. 1	JPRS and Tokyo Metropolitan College of Industrial Technology Conclude an Industry-Academia Collaboration Agreement for the Development of Human Resources Specializing in Advanced ICT (in Japanese)
Mar. 14	Yuri Takamatsu of JPRS Appointed to APTLD Board of Directors
Mar. 29	JPRS Publishes "JP Domain Name Registry Report 2021" (in Japanese)
May 16	JPRS Distributes Free Graphic Comic-style Booklet on Domain Names and DNS That Underpin the Internet to Educational Institutions across Japan (in Japanese)
Jun. 2	JP Domain Name Surpassed 1.7 Million
Oct. 6	JPRS Starts Distributing Free World Map Poster That Helps Students Have Fun Learning Internet ccTLDs to Educational Institutions across Japan (in Japanese)

*Please refer to "Press Release" (https://jprs.co.jp/en/press/) for the latest releases in English.

03·5 Provision of Technical Information Related to DNS

As the company supporting the basis of the Internet society through DNS and striving to ensure stable operation of the Internet, JPRS publishes technical information related to DNS such as warnings on the detection of DNS software vulnerabilities and other relevant alerts.

*Original materials are written in Japanese.

Date	Title
Mar. 30	Vulnerability Information on PowerDNS Recursor Posted (CVE-2022-27227)
Mar. 30	Vulnerability Information on PowerDNS Authoritative Server Posted (CVE-2022-27227)
Apr. 15	Vulnerability Information on Windows DNS Server Posted (18 CVE Records Including CVE-2022-24536)
May. 19	(Urgent) Vulnerability of BIND 9.18.x (DNS Service Outage) (CVE-2022-1183)
Jul. 15	Vulnerability Information on Windows DNS Server Posted (CVE-2022-30214)
Aug. 4	Vulnerability Information on Unbound Posted (CVE-2022-30698, CVE-2022-30699)
Aug. 26	Vulnerability Information on PowerDNS Recursor Posted (CVE-2022-37428)
Sep. 16	Vulnerability Information on Windows DNS Server Posted (CVE-2022-34724)
Sep. 22	(Urgent) Vulnerability of BIND 9.x (Causing Memory Leak) (CVE-2022-38178)
Sep. 22	(Urgent) Vulnerability of BIND 9.x (Causing Memory Leak) (CVE-2022-38177)
Sep. 22	(Urgent) Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2022-3080)
Sep. 22	Vulnerability of BIND 9.18.x (Improper memory reading or DNS service outage) (CVE-2022-2881)
Sep. 22	Vulnerability of BIND 9.x (Degraded Performance) (CVE-2022-2795)
Sep. 22	(Urgent)Vulnerability of BIND 9.18.x (Causing Memory Leak) (CVE-2022-2906)
Sep. 27	Vulnerability Information on Knot Resolver Posted (CVE-2022-40188)
Sep. 27	Vulnerability Information on Unbound Posted (CVE-2022-3204)

*For the latest information, please refer to the "Technical Information Related to DNS" (https://jprs.jp/tech/) (in Japanese).

About JPRS

JPRS provides domain name services such as domain name management, administration and distribution, and also performs domain name system (DNS) operations. In addition, JPRS is engaged in research and development of various Internet technologies.

● Domain Name Management and Administration

JPRS manages and administers domain names. In particular, JPRS plays an important role as the registry of JP Domain Name, or domain names of Japan. You may have seen addresses for websites and emails such as "https://○○○.jp" and "△△△@○○○.jp." JPRS manages and administers a part of these addresses, namely, strings in the form of "○○○.jp." Domain names are the key to accessing the Internet. JPRS is constantly improving its services so that JP domain names will continue to assist the activities of all kinds of Internet users, including companies, organizations, and individuals.

● DNS Operation

DNS (domain name system) is a system for identifying computers connected to the Internet using domain names, so it is sometimes referred to as the "phone book for the Internet." If DNS were to fail, people would not be able to access websites or exchange emails using domain names. To prevent such a catastrophe, JPRS has established a 24/7 system to ensure stable operation of the "JP DNS" for managing JP domain names.

● R&D of Internet Technologies and International Activities to Support the Internet

JPRS takes an active part in the research and development of advanced technologies to promptly respond to changes in the Internet environment and social needs. Specifically, JPRS engages in internationalization of the identifiers used in protocols, devises methods for resolving issues concerning DNS operations and submits proposals to standardize registry technologies. JPRS actively publishes the results of these activities and shares information at IETF and other meetings to contribute to the network society.

jPRS

Japan Registry Services Co., Ltd.

https://jprs.co.jp/en/