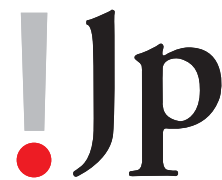2019.1-12

.Jp

JP Domain Name
Registry Report

Introduction

The Internet is being used in increasingly broad and diverse areas of society as technology advances. Along with that, the need for domain names and the importance of the domain name system (DNS) are also being strengthened.

With this background, the number of JP domain names surpassed 1.57 million in January 2020. Over 420,000 names are registered under "co.jp," making it the most registered category in the Organizational Type JP Domain Name, the domain name space categorized by organizational type of registrants. 97% of publicly-listed companies in Japan have already registered "co.jp" domain names.

JPRS is committed to its ongoing effort 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.

The domain name industry saw the number of domain names across TLDs increase. On the other hand, various challenges have continued to threaten the Internet infrastructure, such as domain hijacking that exploits falsified DNS configurations and detection of vulnerabilities in DNS software. As a company supporting the basis of the Internet society through domain names and DNS, JPRS is striving to make the Internet safe for everyone to use. To this end, JPRS promptly provides information and deals with risks and challenges related to domain names and DNS as they arise. JPRS also actively contributes to discussions of global issues and conveys relevant information to the communities in Japan.

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.

Registry Report
Index

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　Activities in 2019

In 2019, 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 the Best Current Practice RFC Co-Authored by a JPRS Engineer (January)

RFC 8499, "DNS Terminology," was issued as Best Current Practices. Kazunori Fujiwara of JPRS contributed to the development of the RFC as one of the co-authors. RFC 8499 replaced the previous version of the DNS glossary called RFC 7719, adding new words, compiling a number of different terminologies used in DNS and proposing current definitions.

● **https://jprs.co.jp/topics/2019/190104.html (in Japanese)**

Publication of "Internet White Paper 2019" with JPRS Participating in Planning and Editing (January)

"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 2019 edition, "Internet White Paper 2019 (subtitle: Grand Transformation into a Digital First Society)," was published. JPRS has been collaborating with Impress R&D[1], IAjapan[2] and JPNIC[3] in the Internet White Paper Editorial Committee in the planning and steering of the White Paper since 2013.

● **https://jprs.co.jp/topics/2019/190131.html (in Japanese)**

Addition of "Internet White Paper 2018" to "Internet White Paper ARCHIVES" (February)

"Internet White Paper 2018" published in 2018 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/2019/190207.html (in Japanese)**

Support for the 21st Japan Junior/Senior High School Web Contest (February)

JPRS supported the "21st Japan Junior/Senior High School Web Contest[4]," a Web contest that was held by JAPIAS[5] for junior and senior high school students. JPRS provided 118 General-use JP domain names (both in Japanese and ASCII) free of charge for the works of 59 teams so that they could have original domain names. 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/2019/190218.html (in Japanese)**

---

*1 Impress R&D
　 https://www.impressrd.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 (formerly Think Quest JAPAN)
　 http://webcon.japias.jp/ (in Japanese)
*5 JAPIAS: Japan Association for Promotion of Internet Application in School Education
　 http://japias.jp/ (in Japanese)

Effort to Prevent JP Domain Name Transfers Unintended by Registrants (from April)

In April 2019, a JP domain name was hijacked through domain name transfer unintended by the registrant. In response, JPRS alerted both JP domain name registrants and JP Registrars and stepped up its effort to educate them in order to prevent recurrence.

JPRS called on the registrants to keep their contact information up to date so that they could receive correspondence from their registrars. It also asked the registrants to make sure to read and properly respond to the registrars' messages regarding domain name registration. On the other hand, JPRS requested the JP Registrars to fully communicate with the registrants to specifically confirm an intention to transfer.

- **https://jprs.jp/whatsnew/notice/2019/190925.html (in Japanese)**
- **https://jprs.jp/whatsnew/notice/2019/190925_2.html (in Japanese)**

Measures against Domain Name Abuse (from April)

In April 2019, following the incident in which a JP domain name was registered in bad faith by an ineligible party, JPRS received a request from the Ministry of Internal Affairs and Communications to make greater efforts to ensure the credibility of JP Domain Name. In response, JPRS reinforced its information provisions and educational activities to ensure proper domain name management and operation while improving its work processes. In addition, in October 2019 it set up a point of contact to receive domain name abuse reports.

- **https://jprs.jp/whatsnew/notice/2019/190426.html (in Japanese)**
- **https://jprs.jp/whatsnew/notice/2019/191002.html (in Japanese)**

Support for SECCON 2019 (from April)

SECCON 2019[6] was a series of events held from April to December 2019 with the aim of recruiting and training information security personnel and providing a place for hands-on experience with related technologies. JPRS supported SECCON 2019 as a sponsor.

For "SECCON 2019 Akihabara" organized in Akihabara, Tokyo in December, Shotaro Koshoji of JPRS designed, built and operated the network for competitions as a member of the Working Group for Infrastructure & NOC.

- **https://jprs.co.jp/topics/2019/191211.html (in Japanese)**

*6 SECCON 2019
    https://2019.seccon.jp/ (in Japanese)

Free Cartoon Booklet on the Internet System Sent to Junior and Senior High Schools and Technical Colleges across Japan (from May)

"Info-Communications Promotion Month" is a nationwide initiative that has been conducted as part of Internet-related educational activities. In line with this, from May 15 to June 30, JPRS set up channels including a special website "http://マンガで学ぶ.jp" (learn from Manga) where junior and senior high schools and technical colleges could apply for the distribution of educational material produced by JPRS. JPRS distributed the material free of charge to those who applied. Recognizing the growing importance of Internet-related education and the shortage of teaching materials in schools, JPRS has worked on this project since 2010. The number of copies distributed in the last ten years exceeds 290,000.

Ponta's Great Adventure in the Network

The material that JPRS distributed 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 how to reach particular websites and how a "Domain Name," which is the Internet address, works. In addition, it describes HTTPS, a scheme for ensuring secure telecommunications, in a simple manner.

● **https://jprs.co.jp/press/2019/190515.html (in Japanese)**

Development of Rules for Verifying Registration Data for General-use and Prefecture Type JP Domain Names (May)

JPRS introduced a new process called "Automatic Termination of Registration." Under this system, a domain name registration will be terminated when JPRS cannot verify the data related to its eligibility through submitted documents or information and when JPRS's content-certified notification sent by mail to the registered address is returned.

A similar rule has already been in place for Organizational/Geographic Type JP Domain Name. For the General-use and Prefecture Type Domain Name spaces, on the other hand, the previous rule specified the procedure for terminating a domain name when a revocation notice sent by JPRS via postal mail reached the registrant. Accordingly, JPRS set the above-mentioned new rule to address cases where notifications do not reach the registrant.

● **https://jprs.jp/whatsnew/notice/2019/20190325-rule.html (in Japanese)**

Support for Internet Week Showcase in Sendai (May)

Internet Week Showcase is a charge-free event that JPNIC organizes outside the metropolitan area by carefully selecting and reconstructing the programs of the Internet Week of the previous year. JPRS supported the Internet Week Showcase in Sendai as a sponsor. In addition, Yasuhiro Morishita of JPRS held a seminar entitled "DNS Abuse and What DNS Operators Should Do: Let's Make DNS Securer by Knowing Domain Hijacking" at the event. He described the trends in domain name hijacking, a form of DNS abuse, and shared the key points to watch out for in DNS administration.

● **https://jprs.co.jp/topics/2019/190516.html (in Japanese)**

Participation in Interop Tokyo 2019 (June)

JPRS ran a booth at Interop Tokyo 2019 to provide information on domain names and DNS. It held seminars such as "The Basics of Domain Names and DNS," "Essentials of Switching to HTTPS and Server Certificates" and "DDoS Attacks against DNS and Countermeasures" at the booth to share technical information related to domain names, DNS and server certificates. JPRS also provided information to visitors through a panel exhibition and by distributing technical documents.

JPRS booth

● **https://jprs.jp/related-info/event/2019/0627_interop.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*7 (Occupations Museum)," a career education support program conducted by the 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 67,000 copies of the 2019 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 website "Oshigoto Hakubutsukan Kids."

Oshigoto Nenkan 2019

● **https://jprs.co.jp/topics/2019/190617.html (in Japanese)**

JPRS Acquired ISO 27001 Certification, an International Standard for Information Security Management Systems (September)

As a company dedicated to maintain basis the network infrastructure, JPRS is keenly aware of its social responsibility and engages in properly handling information and maintaining information security. In September 2019, JPRS acquired certification under "ISO/IEC 27001:2013," an international standard for information security management systems (ISMS), for its domain registry business.

● **https://jprs.co.jp/en/press/2019/190926.html**

JPRS Held 10th ".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. In the .jp DNSSEC Key Ceremony held on October 1, two External Witnesses observed and confirmed the process.

● **https://jprs.co.jp/en/topics/2019/191002.html**

*7 Oshigoto Hakubutsukan
   https://www.oshihaku.jp/ (in Japanese)

Cooperation with the Company Visit of Junior High School Students (October)

JPRS assisted the School Support Center[8] in its company visit program intended to provide career training for high school and junior high school students. JPRS outlined its business and domain name services as well as the mechanism of DNS to the students of Ishikawa Prefectural Kanazawa Nishikigaoka Junior High School, who visited JPRS's head office in Tokyo.

● **https://jprs.co.jp/en/topics/2019/191025.html**

Company visit to JPRS

Satsuki Hori of JPRS Selected as a Backup TCR for the Root Zone DNSSEC Operation (November)

In 2019, Satsuki Hori of JPRS was selected as a "Backup TCR" representing the technical community that plays a part in the Root Zone DNSSEC key management. About ten persons who satisfy all the requirements for Active TCRs are selected as Backup TCRs. They will take over the position of Active TCR when any of the 21 Active TCRs leave their position. As an engineer of the ccTLD registry operator, Hori has engaged in the design, construction and operation of the servers and networks for the JP DNS as well as the M-Root DNS server (see below for further details) since 2012. Going forward, he will draw on his expertise and contribute to the global Internet community.

● **https://jprs.co.jp/en/topics/2019/191115.html**

Distribution of a charge-free Poster to Educational Institutions across Japan to Help Students Enjoy Learning about ccTLDs (November)

As part of its efforts to support education regarding the Internet, JPRS produced a poster listing the ccTLDs all around the world and distributed copies for charge-free to junior and senior high schools as well as technical colleges across Japan.
Students use ccTLDs on a daily basis without realizing it. So, JPRS produced the poster to help them learn and understand the ccTLDs in a fun way. It presents the two-letter ccTLDs, the names of the countries and territories to which respective ccTLDs are allocated, and an interesting story about each of them.

Poster: ccTLDs of the World

● **https://jprs.co.jp/press/2019/191125.html (in Japanese)**

---

*8 Specified Non-Profit Corporation School Support Center
  http://npossc.net/ (in Japanese)

Support to Internet Week 2019 (November)

JPRS supported Internet Week 2019 as a sponsor and sent Kazunori Fujiwara to serve on the Program Committee and contribute to the planning of DNS-related sessions. In addition, Kazuki Ikeda, Takaharu Ui and Kazunori Fujiwara of JPRS discussed domain names, DNS and other related topics in the program called "DNS DAY."

At the Lunch Seminar, Yoshiro Yoneya and Shotaro Koshoji of JPRS gave a presentation entitled "Root Management." They talked about the rules and governance model used by relevant organizations for the operation of the Root DNS that involves two separate aspects, namely, administration of the DNS servers and generation of the root zone.

Lunch Seminar at Internet Week 2019

● **https://jprs.co.jp/topics/2019/191017.html (in Japanese)**

Events and Seminars for JP Registrars

"JP Registrar Seminar – An Introduction to Domain Name Registration and Administration –" (May)
JPRS explained the basics of 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 Technical Seminar" and "JPRS Partners' Meeting" jointly convened (October)
At the JPRS Technical Seminar, JPRS talked about the design and operation of domain names and DNS, DNS server migration as well as DNSSEC along the lines of the "Textbook to Understand DNS Well," a book for engineers authored by JPRS staff members.

At the JPRS Partners' Meeting, JPRS described the latest developments in the domain name industry, plans for the JP Domain Name including 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. In addition, JPRS illustrated its work related to domain name transfer, eligibility requirements for domain name registration and registration data.

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*[2] Sponsorship Agreement" with ICANN and has since been entrusted by ICANN to serve as the registry of Japan's ccTLD ".jp."
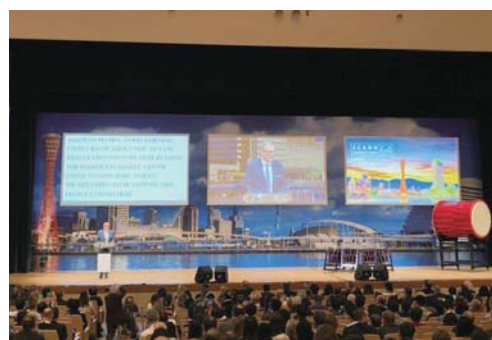
ICANN64

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. Also, via ICANN, JPRS is sharing its experience in JP registry operations with the global community, thereby contributing to the development of the Internet as a whole.

ICANN holds three public meetings each year in different regions of the world to enable global stakeholders to participate in person and discuss Internet resource management and related rules. In 2019, ICANN64 was held in Kobe City, Hyogo Prefecture in March, ICANN65 in Marrakech, Morocco in June and ICANN66 in Montreal, Canada in November. Before and during ICANN64, JPRS played a key role in the ICANN64 Local Host Committee and contributed to the success of the meeting.

With the participation of numerous parties interested in ccTLD and gTLD*[3], ICANN has always functioned as an important forum for information-sharing and discussion on issues on policies and governance concerning domain name management. The ICANN Supporting Organizations (SOs) and the Advisory Committees (ACs) continued active discussions between different SOs/ACs to promote a better understanding of each other in 2019. ICANN is serving as an important forum for SOs/ACs to exchange opinions on different topics of interest, including Internet resources. The key topics in 2019 included the range of public data and the extent of accessibility to non-public data on WHOIS. The participants also discussed a broad range of subjects such as the common rules for gTLDs, evolution of ICANN's multistakeholder model, DNS privacy including DoH (DNS over HTTPS) and DoT (DNS over TLS), Universal Acceptance, Internationalized Domain Names (IDNs) and DNS Abuse.

The following reports JPRS's activities in the Supporting Organizations and the Advisory Committees within ICANN.

*1 ICANN: Internet Corporation for Assigned Names and Numbers
   https://www.icann.org/
*2 ccTLD: Country Code Top Level Domain
*3 gTLD: Generic Top Level Domain

(1) ccNSO

ccNSO[4] 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 has been a member of ccNSO since its inception in 2003, and Hirofumi Hotta of JPRS has served as a ccNSO Council member during the same time.

ccNSO held sessions to hear updates from the committees related to the operation of the IANA[5] function. It also organized meetings to share information, ask and answer questions and discuss issues with the working group on the process for retiring ccTLDs as well as the other working groups and committees within ccNSO. Additionally, ccNSO participants had meetings to discuss topics of interest and trends unique to ccTLD registries.

On the issue of how to handle country or territory names in TLDs, TLD-OPS[6], a community of ccTLD managers including non-ccNSO members, exchanged knowledge on emergency response and compiled a manual for business continuity (play book). They actively shared information and expertise among themselves by holding half-day workshops at the ICANN meetings.

At ICANN64 held in Kobe in March 2019, JPRS represented the local host and shared with ccNSO members an update on JP Domain Name and its activities including the collaborative research using the ".jprs" gTLD for continuous Internet services in case of a large-scale disaster[7]. It also held a networking event for exchanging opinions and interaction among ccNSO members and enhanced the visibility and understanding of JPRS and JP Domain Name.

JPRS gave a presentation on its efforts to detect DNSSEC validation failures in JP DNS servers and contributed to the active discussions in the DNSSEC and Security Workshop as well as TechDay held for engineers during the ICANN66 Montreal Meeting in November 2019.

---

*4 ccNSO: Country Code Names Supporting Organisation
　https://ccnso.icann.org/
*5 IANA: Internet Assigned Numbers Authority
　https://www.iana.org/
*6 TLD-OPS: Top Level Domain operators
　https://ccnso.icann.org/en/resources/tld-ops-secure-communication.htm
*7 .jprs TLD Labs
　https://tldlabs.jprs/en/

(2) IDN Variant TLD Program

The IDN*8 Variant TLD Program is a project to develop Label Generation Rules (LGR) for the root zone. It aims to establish rules for adding labels that include non-ASCII scripts to the root zone.

The following two panels are engaged in the activities of the IDN Variant TLD Program:

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. The other Asian language communities are also making progress.

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 is leading the initiative as the chair, and Yoshiro Yoneya is participating as a member of the JGP. They are contributing their expertise gained through designing, providing and operating the Japanese JP Domain Name services.

After mutual coordination among the Japanese, Chinese and Korean GPs, they respectively proposed the LGRs for their own scripts to ICANN and moved onto separate discussions with the IP. These distinct discussions with the IP concluded in the first half of 2017, as the consultation between the Chinese and Korean GPs took longer than expected. Based on the result of coordination between the Chinese and Korean GPs, the JGP made a final adjustment with the IP and reached an agreement with it about the direction in 2018. In 2019, the JGP consulted with the Chinese and Korean GPs as well as the IP on how to handle visually similar characters and then built a consensus about conducting a field test and reflecting its results to the rules. The JGP also shared the development with the Japanese community at the ICANN Readout in December 2019. The LGR for the Japanese community is expected to be complete in 2020.

---

*8 IDN: Internationalized Domain Name

(3) RSSAC

The RSSAC[9] 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 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[10], the other operator.

In 2019, the RSSAC continued to work on proactively improving the transparency of its activities by holding an open session at every ICANN meeting to explain the role and function of the Root Server System and to discuss the accountability of root server operators. In addition, the RSSAC conducted a detailed study of the proposed new governance model for the Root Server System.

Hirofumi Hotta of JPRS has been playing an active role in these discussions representing both of the 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 are taking part in the Resolver Study Work Party and the RSS Metrics Work Party.

(4) DNSSEC Workshop Program Committee

As part of its efforts to promote DNSSEC, ICANN holds the DNSSEC Workshop in every ICANN meeting. This DNSSEC Workshop functions as a forum for registries, registrars, Internet service providers and businesses to share their experience of deploying DNSSEC and to learn the latest technological trends related to DNSSEC.

Yoshiro Yoneya of JPRS has been serving on the DNSSEC Workshop Program Committee as a member from Asia. The committee is tasked with planning the program and evaluating workshop proposals. Yoneya is engaged in developing the workshop programs and informing the other members of the situation in Japan.

Yoneya gave a presentation entitled "DNSSEC Deployment activities in Japan" at the DNSSEC Workshop held during the ICANN64 meeting in Kobe in March 2019. He also gave a talk entitled "Towards detecting DNSSEC validation failure with passive measurements at TLD DNS servers" at the DNSSEC Workshop that took place in Montreal, Canada in November 2019.

---

[9] RSSAC: Root Server System Advisory Committee
   https://www.icann.org/groups/rssac
[10] WIDE Project
    http://www.wide.ad.jp/index_e.html

(5) Root Zone KSK Rollover Design Team

DNSSEC deployment in the root zone began in July 2010. It is specified that a Rollover of the Root Zone Key Signing Key (KSK) should be carried out when necessary or every five years[11]. In February 2015, ICANN set up a design team (Root Zone KSK Rollover Design Team) that was tasked with planning the Root Zone KSK Rollover. The team produced and published for comment a document that defined the roles of the related parties and the Rollover process. The draft was approved by the ICANN Board, which was followed by publication of the finalized version in March 2016[12]. Yoshiro Yoneya of JPRS participated in the design team as a member.

The operation for the Root Zone KSK Rollover was launched in 2017. Signing with the new KSK began on October 11, 2018, and then the old KSK was revoked during the period from January 11 to March 22 in 2019. This completed all the work steps for the Root Zone KSK Rollover affecting the configuration of the root servers.

No major problem attributable to this particular Root Zone KSK Rollover was reported. The review of the Rollover that was published by ICANN in March 2019[13] also described it as "an overwhelming success." On November 1, 2019, ICANN issued a proposal concerning how future Root Zone KSK Rollover should be conducted[14].

Currently, a review of the performance and development of the process for subsequent Rollover are underway. The operational plan for the next Rollover will also be formulated.

---

*11 DNSSEC Practice Statement for the Root Zone KSK Operator
　　https://www.iana.org/dnssec/icann-dps.txt
*12 Root Zone KSK Rollover Plan
　　https://www.iana.org/reports/2016/root-ksk-rollover-design-20160307.pdf
*13 Review of the 2018 DNSSEC KSK Rollover
　　https://www.icann.org/review-2018-dnssec-ksk-rollover.pdf
*14 Proposal for Future Root Zone KSK Rollovers
　　https://www.icann.org/news/announcement-2-2019-11-01-en

2. Participation in IETF

IETF[1] was established in 1986 by IAB[2] to promote standardization of Internet technologies. There are a number of Working Groups in IETF that are developing standards in various technology areas. Discussion and other activities of IETF are handled via its mailing lists. IETF also holds meetings three times per year, and engineers gather from every region across the world to attend these meetings.

IETF 105

In 2019, IETF 104 was held in Prague, Czech Republic, IETF 105 in Montreal, Canada and IETF 106 in Singapore. JPRS is participating in the standardization activities in IETF by working on internationalization of the identifiers to be used in each protocol, 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 IETF.

(1) dnsop WG

The name of the dnsop WG[3] 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 and RFC 8198, and these RFCs were issued thus far.

In February 2019, Kazunori Fujiwara of JPRS submitted "draft-fujiwara-dnsop-fragment-attack" to the dnsop WG to raise the issue of DNS cache poisoning attacks using IP fragmentation and propose countermeasures. Then in July, he posted "draft-fujiwara-dnsop-avoid-fragmentation," a proposal to address the issue by avoiding IP fragmentation in DNS. He also wrote the updated version of the document in collaboration with Mr. Paul Vixie of Farsight Security and posted it in September.

---

[1] IETF: Internet Engineering Task Force
    https://www.ietf.org/
[2] IAB: Internet Architecture Board
    https://www.iab.org/
[3] dnsop WG: Domain Name System Operations Working Group
    https://datatracker.ietf.org/wg/dnsop/

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 registry operator for JP domain names, 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 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 APTLD meeting held in Dubai, the UAE in February, Hirofumi Hotta of JPRS outlined the laws and regulations affecting JPRS and shared its own rules and obligations. In addition, Yuri Takamatsu of JPRS explained why local presence was included in the eligibility criteria for the registration of JP domain names. In the APTLD Iskandar Puteri Meeting held in Malaysia in September, Takamatsu talked about the registry's measures to cope mainly with phishing at a session on countermeasures against domain name abuse. Many ccTLDs highly evaluated JPRS's mechanism where the registry handles abuse cases not by exercising judgement about domain name usage on its own but by collaborating with other authoritative entities.

(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.

---

*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. In 2019, the IGF was organized in Berlin, Germany in December. Hirofumi Hotta and Yuri Takamatsu of JPRS participated in the event and joined the sessions including the one related to the IGF Regional and National Initiatives (NRIs)[2].

The IGF 2019 held multiple sessions to discuss cybersecurity norms and measures against attacks via the Internet as well as rights violations that are increasing in line with the expanding use of the Internet. The participants of the forum considered the feasibility of having one globally shared vision to address these issues. In addition, the attendees actively debated and exchanged opinions about the importance and effect of producing an outcome backed by a solid consensus at the global IGF as well as the regional and local discussion fora. JPRS will make good use of the knowledge gained by participating in these discussions and promote debate in Japan.

(2) Participation in Asia Pacific Regional Internet Governance Forum (APrIGF)

APrIGF[3] has been held annually since 2010, with the participation of mainly the members of the community in the Asia Pacific. It has been a forum for discussing issues related to Internet governance in not only the AP region but also the entire world. Hirofumi Hotta of JPRS is on the Multi-Stakeholder Steering Group (MSG) that considers the policy direction of the APrIGF.

The APrIGF 2019 was held in Vladivostok, Russia in July, and Yuri Takamatsu of JPRS participated. The year 2019 marked the 10th anniversary of the APrIGF and the 20th anniversary of Coordination Center for TLD .RU/.РФ, the Russian ccTLD manager and one of the local host organizations of the APrIGF 2019. As such, several meetings were held during the event to review past activities and discuss how to encourage dialogue on future Internet governance, and the participants enjoyed a lively exchange of opinions.

(3) Efforts Related to Internet Governance

a) JPRS Submitted its Comments to the Report of the High-level Panel on Digital Cooperation (HLPDC)
On October 2, 2019, JPRS submitted its comments to the report of the UN Secretary-General's High-level Panel on Digital Cooperation (HLPDC).

---

*1 IGF: Internet Governance Forum
   https://www.intgovforum.org/
*2 IGF Regional and National Initiatives
   https://www.intgovforum.org/multilingual/content/igf-regional-and-national-initiatives
*3 APrIGF: Asia Pacific Regional Internet Governance Forum
   https://www.rigf.asia/

The HLPDC was established by UN Secretary-General Antonio Guterres in July 2018 to address the issue of the current methods and levels of international cooperation being inadequate for the pace of development of digital technologies. After a year of discussion, the panel published a report in June 2019.

The report became part of the debate in the 14th IGF held in Berlin, Germany in November 2019 and was posted for public comment before the forum to inform the discussion.

Since its foundation, JPRS has supported the development of the Internet based on an open, bottom-up, multistakeholder model led by the private sector. JPRS responded to the call for comments to voice this standpoint.

b) Information Exchange with Other NRIs at the IGF
As part of its efforts to promote local and regional discussions about Internet governance, the IGF recognizes the initiatives that meet certain criteria as NRIs. In Japan, Internet Governance Conference Japan (IGCJ)[4] and IGF-Japan[5] played a central role in applying for NRI status as Japan IGF[6] . As a result, Japan IGF was recognized as the national IGF for Japan in November 2016.

Hirofumi Hotta and Yuri Takamatsu of JPRS took part in the formation of Japan IGF and the discussion about its operations and activities both at home and abroad. At the IGF 2019 held in Berlin, Germany in November, NRIs from around the world exchanged their experiences and opinions in different thematic sessions. Japan IGF contributed to the exchange of knowledge with other NRIs in the session on harmful contents and cybersecurity.

(4) Participation in the DotAsia Organisation

The DotAsia Organisation[7] is the sponsoring organization and registry for the ".asia" top level domain. It is a not-for-profit organization incorporated in Hong Kong and contributes its proceeds of the .asia registration services toward promoting the Internet in the Asia Pacific region by carrying out various community projects.

Internet development initiatives of the DotAsia Organisation including the APrIGF Secretariat and the Universal Acceptance Steering Group (UASG) Secretariat alongside "NetMission Ambassadors Program" and "Youth IGF," which are capacity-building programs for young people who are expected to play a key role in the evolution of the Internet.

JPRS has participated in the DotAsia Organisation as a Sponsor Member since its foundation, and Atsushi Endo of JPRS plays a role in its organizational operation as one of the Board Directors.

---

*4 Internet Governance Conference Japan (IGCJ)
   https://igcj.jp/ (in Japanese)
*5 IGF-Japan Archive
   https://www.jaipa.or.jp/topics/igf-japan/ (in Japanese)
*6 Japan IGF
   https://japanigf.jp/ (in Japanese)
*7 DotAsia Organisation
   https://www.dot.asia/

(5) Participation in AP* Retreat

AP* (APstar[8]) 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 2019, AP* Retreat was held in Daejeon, South Korea in February and then in Chiang Mai, Thailand in September. Hirofumi Hotta and Atsushi Endo of JPRS participated in the meeting in February, and Hotta and Kazuhiro Kitamura took part in the meeting in September. As a former member of the APTLD Board, Hotta gave an overview of the activities of APTLD in both meetings. In the September retreat, Hotta shared and discussed the plan to globally roll out the M-Root DNS server instances operated jointly by JPRS and the WIDE Project.

(6) 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 on the first day of 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 M-Root DNS server operations. At these meetings, attendees share information principally on the stability of server operations and topics related to the latest technology.

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

(7) Participation in DNS-OARC

DNS-OARC[9] 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[10], which involves collecting and evaluating server packets of DNS including the root servers once a year for 50 hours.

---

[8] APstar: The Community of Asia Pacific Internet Organizations
　　http://www.apstar.org/
[9] DNS-OARC: The DNS Operations, Analysis, and Research Center
　　https://www.dns-oarc.net/
[10] DITL: Day In The Life of the Internet
　　https://www.dns-oarc.net/oarc/data/ditl

DNS-OARC has held workshops twice a year. In May 2019, Kazunori Fujiwara of JPRS gave a presentation entitled "Measures against DNS cache poisoning attacks using IP fragmentation" at the workshop held in Bangkok, Thailand. In addition, Yoshiro Yoneya of JPRS gave a talk entitled "Towards detecting DNSSEC validation failure with passive measurements at TLD DNS servers," and Fujiwara delivered a lecture on "DNS and RFC 8085 UDP Usage Guidelines - Avoid fragmentation, Again" at the workshop held in Austin, USA in November 2019.

(8) Participation in W3C

W3C[11] 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 a role in enhancing Web security and internationalization of identifiers. Yoshiro Yoneya of JPRS co-chairs the HTTPS in Local Network Community Group[12] established in 2017. The group is assembling case examples of using HTTPS communications in local environments and the applicable technologies that are in existence.

At W3C TPAC2019 held in Fukuoka City, Fukuoka Prefecture in September, Yoshiro Yoneya of JPRS and Professor Tatsuya Mori of Waseda University jointly presented a proposal to develop guidelines by compiling the measures to mitigate IDN homograph attacks using visually similar characters at the user interface. They then started working on the establishment of the Community Group.

(9) Activities in Academic Societies

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

In 2019, "Spread of Anycast and GSLB," a paper co-authored by Kazunori Fujiwara of JPRS, Mr. Akira Sato and Mr. Kenichi Yoshida of the University of Tsukuba, was adopted for the COMPSAC 2019[13] ADMNET Workshop that took place in July. The paper reports on a study that assessed the prevalence of Anycast and GSLB by analyzing user traffic with the data collected by the University of Tsukuba.

In addition, Yoshiro Yoneya of JPRS presented "Prediction of Domain Name Renewal Rate by Machine Learning: Focusing on Registered Domain Name String," a research paper that he, Kentaro Mori and Osamu Inomoto of JPRS had co-authored, at the SIG Internet and Operation Technology (IOT) workshop of the Information Processing Society of Japan held in Otaru City, Hokkaido in June 2019.

---

*11 W3C: World Wide Web Consortium
　　https://www.w3.org/
*12 HTTPS in Local Network Community Group
　　https://www.w3.org/community/httpslocal/
*13 COMPSAC 2019
　　https://ieeecompsac.computer.org/2019/

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.

In 2019, the JANOG Meetings were held in January and July. JANOG also organized the Interim Meetings in April and October.

JPRS continues to support the JANOG Meetings as one of the sponsors and is participating in the discussion on the mailing list as well as in the meetings. It also runs an exhibition booth at the meeting venue to distribute technical information materials about domain names, DNS and server certificates.

JANOG44 Meeting

(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.

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.

In the "DNS Summer Day 2019" held in June 2019, Kazunori Fujiwara of JPRS discussed DNS cache poisoning attacks exploiting IP fragmentation and countermeasures against them in the presentation entitled "Measures against DNS cache poisoning attacks using IP fragmentation." In addition, Yasuhiro Morishita of JPRS summarized a year's worth of JPRS's information services related to DNS vulnerability and talked about the Root Zone KSK rollover, DNS flag day and so on entitled "Key Events in DNS (July 2018–June 2019): Technical Information Provided by JPRS".

At the BoF in November 2019, Kazunori Fujiwara of JPRS gave a presentation entitled "DNS over TLS/HTTPS over CGN."

*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 as the .JP registry and reporting to the Japanese community about the trend of ccTLDs and other relevant topics.

The ICANN Readout Sessions were held in May, August and December in 2019. In these events, JPRS reported on the development and issues in the ccNSO and the deliberation of the future governance model for the Root Server System. It also informed the community of the discussions in the Japanese language community about the label generation rules on behalf of the Japanese Generation Panel.

(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]). Atsushi Endo of JPRS has been contributing to the activities of ISOC-JP as one of the officers since 2019. In addition, 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 in 2019.

ISOC-JP and JPNIC jointly organized two IETF Update Meetings in 2019. At the IETF 104 Update Meeting, Yoshiro Yoneya of JPRS gave an overview of IETF 104 from the standpoint of the ISPC. Moreover, Hirofumi Hotta of JPRS gave a presentation entitled "Root DNS Servers" in the 31st ISOC-JP Workshop held in September. He explained the role and operational framework of the root servers and explained the discussions in recent years about the governance model for the Root Server System.

(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 Cyber Attack Defense Exercise-WG (CAE-WG), Rapid Response to DoS Attacks-WG (DoS-WG), Special Interest Group for DNS Operators (DNS-SiG), Society of Network Abuse Response-WG (SoNAR-WG) and IoT Security-WG to contribute to enhancing the security related to ICT.

---

*3 ISOC-JP: The Internet Society Japan Chapter
   https://www.isoc.jp/ (in Japanese)
*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 Efforts Related to Internet Governance

a) Engagement in Internet Governance Conference Japan

Internet Governance Conference Japan (IGCJ) defines the following as its objectives and holds discussions and information exchanges through the mailing list as well as at the meetings organized every couple of months. JPRS has participated in the IGCJ since its inception.

1. To construct a platform in Japan for well-informed considerations of Internet governance issues
2. As appropriate, to make recommendations on Internet governance issues for in-country stakeholders and the global arena

In the IGCJ meeting held in July 2019, the participants raised topics such as the development in the G20 Ministerial Meeting on Trade and Digital Economy organized in Tsukuba City in June, the G20 Osaka Summit held also in June and the B20 Tokyo Summit in July.

Hirofumi Hotta of JPRS has been participating in the discussion on the mailing list and in the meetings of the IGCJ. He also serves as a member of the IGCJ Coordination Team and contributes to the planning of each meeting.

b) Engagement in the IGF-related Activities in Japan

The IGF has held an annual meeting since 2006 and organized the IGF 2018 in Paris in December 2018. In Japan, the participants of the IGF 2018 took the lead in planning a local event, which resulted in the IGF 2018 Readout Session co-organized by JAIPA and JPNIC in February 2019. Those gathered at the readout session shared the key issues as well as the outcome of the debates in the IGF and the APrIGF. They also discussed the future prospects and challenges related to Internet governance at home and abroad. Hirofumi Hotta and Yuri Takamatsu of JPRS engaged in planning the event as core members. Especially, Takamatsu made an important contribution to the arrangements, and took the podium as a speaker at the readout session.

Prior to the IGF 2019 of November, the Pre-IGF 2019 Meeting was held in October as a joint event of JAIPA and JPNIC. JPRS played a key role in designing the meeting. The participants of the Pre-IGF 2019 Meeting reviewed the items on the IGF 2019 agenda and exchanged opinions about the main topics for Japan. They also discussed the report of the High-level Panel on Digital Cooperation (HLPDC) because it had been preannounced that the report would be considered in the IGF 2019.

(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. Kazumitsu Shiraiwa of JPRS took up a post as Steering Committee member in 2018 and has since been contributing to the activities of the council.

The Council has published the "Anti-Phishing Guidelines" for service providers and consumers. It also organizes a working group to consider refining the guidelines, taking into consideration the current threats. Takaharu Ui of JPRS is taking part in the working group as a member.

In addition, Kazumitsu Shiraiwa of JPRS is a member of the working group tasked mainly with promoting knowledge about server certificates.

In 2019, the Council established a HazardInfo Task Force (later re-organized into a working group) to share the abuse situation, and Kazumitsu Shiraiwa as well as Yoshiro Yoneya of JPRS have been participating in it.

(8) Participation in Telecom Services Association

Telecom Services Association*7 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. Takaharu Ui of JPRS has been participating in the committee.

(9) Participation in KEIDANREN (Japan Business Federation)

The Committee on Digital Economy of KEIDANREN (Japan Business Federation)*8 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 2019, Hirofumi Hotta, Takaharu Ui and Atsushi Endo of JPRS took part in its Planning Subcommittee and engaged in wide-ranging discussions including the development of the draft U.S.-Japan Internet Economy Private Working Group Joint Statement.

Moreover, JPRS helped to convene the joint meeting of the KEIDANREN Data Strategy WG, International Strategy WG and the key members of ICANN in March 2019 and contributed to the increased awareness of Internet resources such as domain names in the Japanese business community.

---

*6 Council of Anti-Phishing Japan
    https://www.antiphishing.jp/ (in Japanese)
*7 Telecom Services Association
    https://www.telesa.or.jp/en
*8 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.

In 2019, JPRS's domain registry service acquired ISO 27001 certification, an international standard for information security management systems. This is because JPRS, as an enterprise whose mission is to support the foundation of the network infrastructure, recognizes its social responsibility and strives to properly handle and safely manage information.

As part of its effort to improve the reliability of the service, JPRS refined the rules related to verification of registered data on General-use and Prefecture Type JP domain names.

In response to the case of JP domain hijacking where a domain name was transferred without the intent of the registrant, JPRS ran an awareness campaign to encourage proper management and operation of domain names. It also called on the registrants and JP Registrars to fully communicate with each other and requested the registrars to obtain explicit consent from registrants for domain name transfer. Following the incident in which a domain name was registered in bad faith by an ineligible party, JPRS received a request from the Ministry of Internal Affairs and Communications regarding the management and operation of JP domain names. To tackle the problem of domain name abuse, JPRS stepped up its information provisions and educational activities for proper domain name management and operation. It also improved its work process and set up a point of contact to receive domain name abuse reports.

JPRS also tapped into its expertise as the JP domain name registry to provide information related to domain names and DNS and promote understanding of industry trends at events and meetings held in Japan and overseas. Especially, JPRS continued to contribute to ICANN by engaging in various activities and leading discussions. It also played a key role in the organization of the ICANN64 Meeting held in Kobe in March 2019 as a member of the ICANN64 Local Host Committee.

The year 2019 continued to see a number of incidents threatening the stable operation of the Internet, such as domain hijacking through DNS tampering and serious DNS software vulnerabilities that required an urgent response. JPRS collaborated with other relevant organizations and responded to these problems by alerting the community.

As part of its Internet-related educational support activities, JPRS has distributed a free booklet on how the Internet works to educational institutions across Japan for ten years in a row, with the number of copies distributed in the last ten years exceeding 290,000. It also produced a poster to help students learn ccTLDs in a fun way and distributed copies for free to educational institutions across Japan. Moreover, JPRS continued to provide domain names free of charge at the website creation contest for junior and senior high school students to support children who will lead the next generation.

Going forward, JPRS will continue to improve its services, increase the security and robustness of the system and reinforce its facility to enhance robustness against faults and attacks. It will also strive to ensure faster recovery and continuity of the service through disaster drills. Moreover, JPRS will continue to disseminate information on DNS technology by issuing advisories on vulnerabilities and security alerts to support the stable operation of DNS.

As the registry of JP domain names, JPRS will continue its efforts to provide better and stable services.

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

As of January 1, 2020, the number of registered JP domain names reached 1,576,407, an increase of 25,050 in one year.

(Number of names)

As of January each year
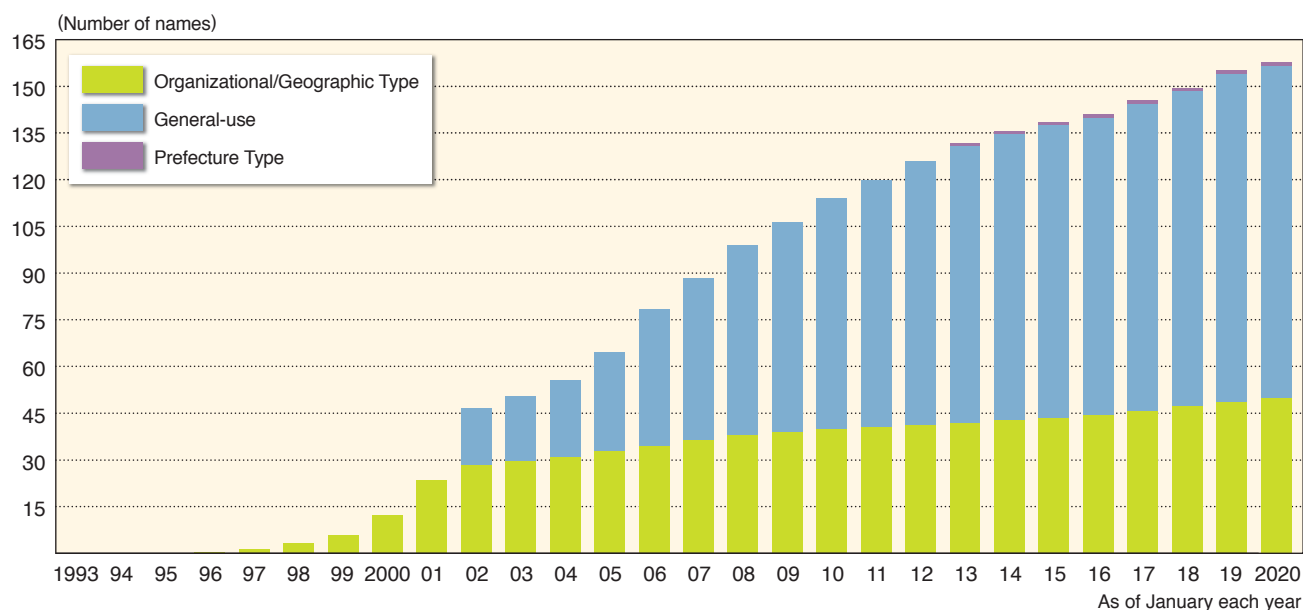
(Number of names)

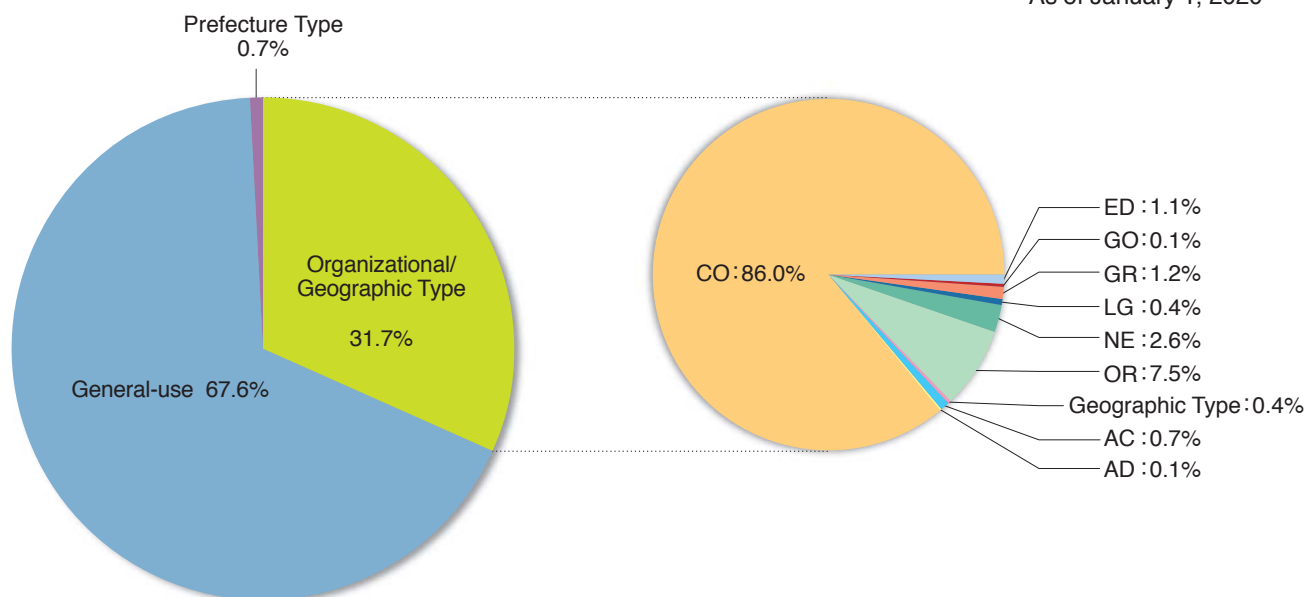| Month/Year	Organizational/ Geographic Type	General-use (Japanese domain name)	Prefecture Type (Japanese domain name)	Total
1993/1	953	——	——	953
1994/1	1,341	——	——	1,341
1995/1	2,206	——	——	2,206
1996/1	4,781	——	——	4,781
1997/1	15,477	——	——	15,477
1998/1	33,739	——	——	33,739
1999/1	58,549	——	——	58,549
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

*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, 2020

Prefecture Type 0.7%

Organizational/ Geographic Type 31.7%

General-use 67.6%

CO：86.0%

ED：1.1%
GO：0.1%
GR：1.2%
LG：0.4%
NE：2.6%
OR：7.5%
Geographic Type：0.4%
AC：0.7%
AD：0.1%

(Number of names)

JP Domain Name Types		1 Jan 2020 Number of Registrations	1 Jan 2019 Number of Registrations	Difference
Organizational/ Geographic Type	AC: Higher education institution	3,655	3,643	+12
	AD: JPNIC Member	255	255	+0
	CO: Company	429,226	417,440	+11,786
	ED: Primary school, junior and senior high school	5,406	5,321	+85
	GO: Japanese government	583	578	+5
	GR: Group	5,863	6,024	−161
	LG: Japanese local authority	1,891	1,888	+3
	NE: Network service	13,048	13,272	−224
	OR: Corporation other than company	37,252	36,313	+939
	Geographic Type	2,187	2,222	−35
General-use (Japanese domain name)		1,065,561 (95,123)	1,052,832 (99,869)	+12,729 (−4,746)
Prefecture Type (Japanese domain name)		11,480 (1,829)	11,569 (1,953)	−89 (−124)
Total JP Domain Name Registration		1,576,407	1,551,357	+25,050

*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, 2020

Prefecture	Organizational/ Geographic Type	General-use	Prefecture Type
Hokkaido	2.8%	2.0%	2.4%
Aomori	0.5%	0.3%	0.5%
Iwate	0.4%	0.3%	0.5%
Miyagi	1.3%	0.8%	0.9%
Akita	0.4%	0.3%	0.5%
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%	0.8%
Gunma	1.1%	0.7%	1.8%
Saitama	4.4%	2.7%	2.5%
Chiba	3.3%	2.3%	2.6%
Tokyo	32.6%	43.1%	38.4%
Kanagawa	6.6%	4.8%	3.0%
Niigata	1.1%	0.7%	0.8%
Toyama	0.6%	0.4%	0.5%
Ishikawa	0.7%	0.5%	0.5%
Fukui	0.5%	0.3%	0.3%
Yamanashi	0.5%	0.4%	0.3%
Nagano	1.3%	0.8%	1.3%
Gifu	1.2%	0.7%	1.1%
Shizuoka	2.1%	1.5%	1.3%
Aichi	5.4%	3.6%	2.8%
Mie	0.8%	0.5%	1.0%
Shiga	0.6%	0.5%	1.4%
Kyoto	2.0%	2.7%	6.1%
Osaka	9.4%	15.4%	10.5%
Hyogo	3.2%	2.3%	1.7%
Nara	0.6%	0.7%	1.3%
Wakayama	0.4%	0.4%	0.4%
Tottori	0.2%	0.2%	0.3%
Shimane	0.3%	0.3%	0.2%
Okayama	1.1%	0.8%	0.7%
Hiroshima	1.6%	1.0%	1.2%
Yamaguchi	0.5%	0.3%	0.2%
Tokushima	0.3%	0.2%	0.3%
Kagawa	0.5%	0.3%	0.4%
Ehime	0.6%	0.4%	0.5%
Kochi	0.3%	0.2%	0.4%
Fukuoka	3.2%	2.5%	4.0%
Saga	0.3%	0.2%	0.4%
Nagasaki	0.5%	0.4%	0.7%
Kumamoto	0.8%	0.6%	0.8%
Oita	0.4%	0.4%	0.8%
Miyazaki	0.4%	0.3%	0.4%
Kagoshima	0.5%	0.4%	0.6%
Okinawa	0.7%	0.6%	1.3%

02·4 Transition of DNS Configuration Rate
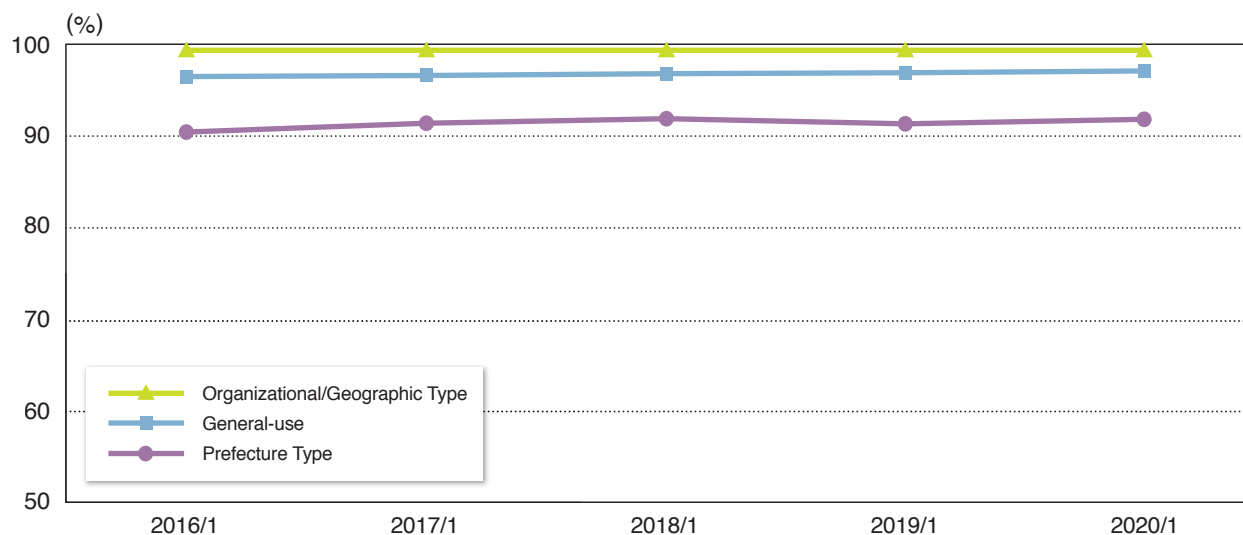
Month/Year	Organizational/Geographic Type	General-use	Prefecture Type
2016/1	99.4%	96.3%	90.5%
2017/1	99.4%	96.6%	91.4%
2018/1	99.4%	96.8%	91.9%
2019/1	99.4%	96.9%	91.3%
2020/1	99.4%	97.1%	91.8%

02·5 Number of Accredited JP Registrars

Legend: Organizational/Geographic Type ■ General-use ■ Prefecture Type ■
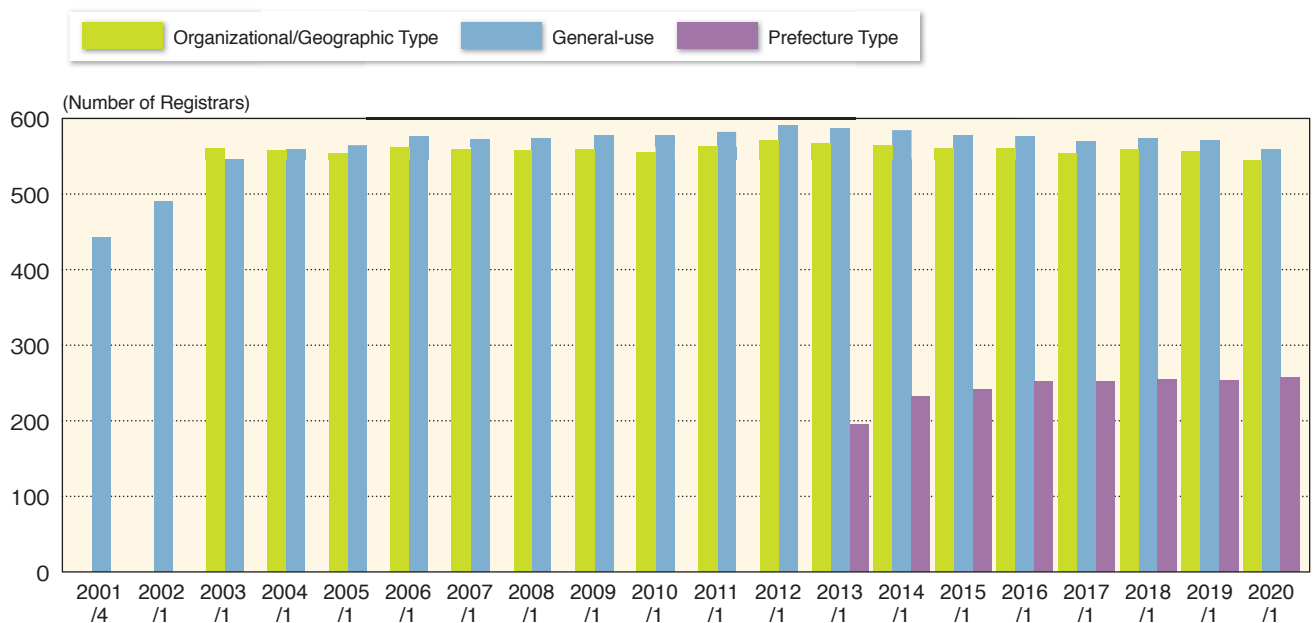
(Number of Registrars)

Month/Year	Organizational/ Geographic Type	General-use	Prefecture Type	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

*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.

Number of Complaints Based on JP Domain Name Dispute Resolution Policy (JP-DRP)

02·6
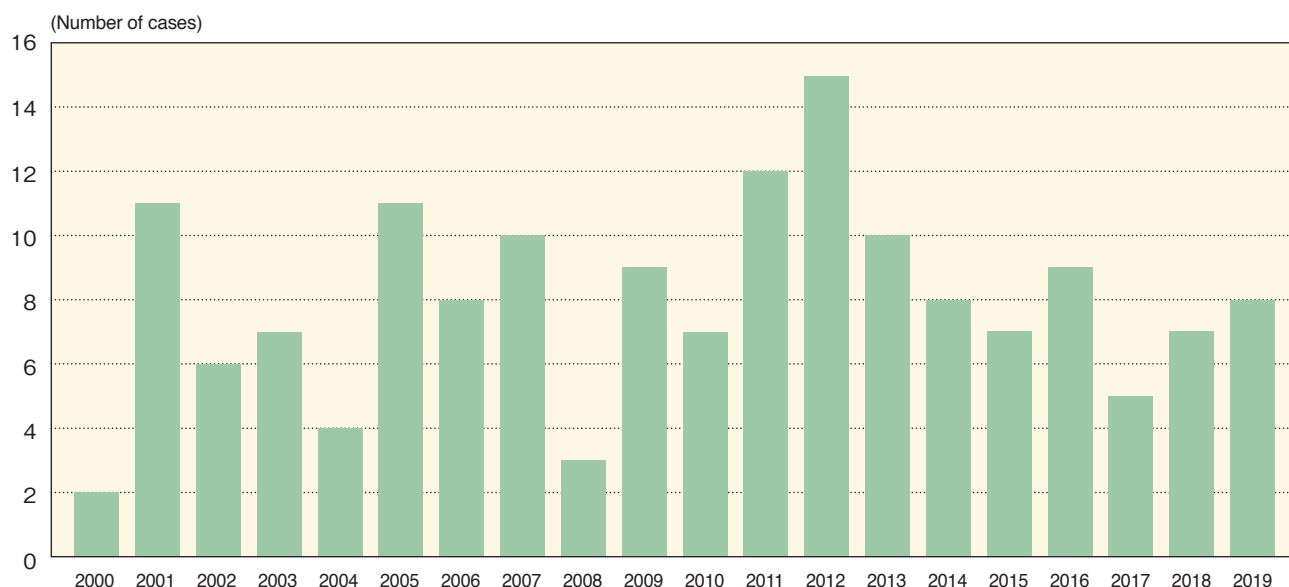
(Number of cases)

(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	8

*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	Jan.	The cumulative number of registered CO.JP domain names surpassed 300,000.
	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 cartoon 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.
	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 schools 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.

03·2 JP Domain Name Advisory Committee

The JP Domain Name Advisory Committee was established in 2002 in order 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

Feb. 13 **64th JP Domain Name Advisory Committee**

The committee members reviewed the draft recommendation that had been adjusted on the basis of the advisory report entitled "Method for appointing members of the 10th JP Domain Name Advisory Committee" (JPRS-ADVRPT-2018001). The recommendation was confirmed and then delivered to JPRS on February 13.

May 22 **65th JP Domain Name Advisory Committee**

It was reported that the JPRS Board of Directors had appointed all the nominees following the advisory report, "Method for appointing members of the 10th JP Domain Name Advisory Committee" (JPRS-ADVRPT-2018001), as well as the recommendation. It was also informed that the appointees had assumed their positions in the 10th JP Domain Name Advisory Committee. Then Mr. Shigeki Goto was elected and appointed as Chair, and Mr. Hironao Kaneko as Vice Chair, of the committee.

JPRS reported on its response to the advisory report entitled "Rules of JP Domain Name Advisory Committee" (JPRS-ADVRPT-2017001) and the amendment of the Rules of JP Domain Name Advisory Committee made as part of the response.

JPRS outlined the status of .JP and other TLDs, the circumstances surrounding domain names and its most recent activities. It also picked up "Measures to Prevent Domain Name Transfers Unintended by Registrants" and "Ineligible AC. JP Domain Name Registrations" as new topics related to JP Domain Name and shared the background as well as the response. The committee then held a question-and-answer session and exchanged opinions.

Sep. 26 **66th JP Domain Name Advisory Committee**

It was reported that Mr. Yoshio Takeyama had resigned from the 10th JP Domain Name Advisory Committee and that the JPRS Board of Directors had appointed Mr. Shinichi Urakawa as his successor, following the committee's recommendation. It was also informed that Mr. Urakawa had accepted the appointment.

JPRS gave a status update related to the "Measures to Prevent Domain Name Transfers Unintended by Registrants" and "Ineligible AC. JP Domain Name Registrations." The background of and the response to these matters had been explained in the 65th JP Domain Name Advisory Committee. The committee then held a session for questions and answers as well as opinion exchanges.

(2) Consultations and Advisories

In 2019, the JP Domain Name Advisory Committee did not receive consultations or issue advisories but focused on gaining an understanding of the actual circumstances to deepen the discussion.

*For details about the past consultations and advisory themes, please refer to "JP Domain Name Advisory Committee" (https://jprs.jp/advisory/) (in Japanese).

03·3 Proposals and Presentations

Date	Title	At	Hosted by
Feb. 21	JPRS' views on "Local Presence"	APTLD Dubai Meeting	APTLD
Feb. 21	.jp and Japanese Law	APTLD Dubai Meeting	APTLD
Feb. 24	APTLD: an Update for AP* Orgs' Retreat	AP* Retreat	AP*
Mar. 11	.jp and .jprs: Preparing for the Disaster	ICANN64 (TechDay)	ccNSO
Mar. 12	About "JPRS" and ".jp"	ICANN64 (ccNSO Members Meeting)	ccNSO
Mar. 13	Japanese Generation Panel Update at ICANN64	ICANN64	ICANN
Mar. 13	DNSSEC Deployment activities in Japan	ICANN64 (DNSSEC Workshop)	ICANN
May. 13	Measures against DNS cache poisoning attacks using IP fragmentation	OARC 30	DNS-OARC
May. 17	IETF104 Overview	IETF 104 Update Meeting	ISOC-JP/JPNIC
May. 27	Admin Working Group TdT The 3-minute update!（Tour de Table）	CENTR Jamboree 2019 (Admin Workshop)	CENTR
May. 27	L&R Working Group TdT（Tour de Table）	CENTR Jamboree 2019 (L&R Workshop)	CENTR
May. 27	.JP domain names under DRP and Obligatory Public Auction in parallel（Tour de Table）	CENTR Jamboree 2019 (L&R Workshop)	CENTR
May. 27	.jp / .jprs (Tour de Table of Registry updates)	CENTR Jamboree 2019 (Technical Workshop)	CENTR
May. 28	Update of ccNSO at ICANN64 (Kobe)	54th ICANN Readout Session	JPNIC
May. 31	DNS Abuse and What DNS Operators Should Do: Let's Make DNS Securer by Knowing Domain Hijacking	Internet Week Showcase in Sendai	JPNIC
Jun. 14	Prediction of Domain Name Renewal Rate by Machine Learning: Focusing on Registered Domain Name String	IOT46	SIG Internet and Operation Technology (IOT), Information Processing Society of Japan
Jun. 28	Measures against DNS cache poisoning attacks using IP fragmentation	DNS Summer Day 2019	DNSOPS.JP
Jun. 28	Key Events in DNS (July 2018–June 2019): Technical Information Provided by JPRS	DNS Summer Day 2019	DNSOPS.JP
Jul. 4	IPv6 Readiness of DNS and IPv6 Deployment Status	IPv6 Seminar 2019 Summer	Hiroshima Regional IPv6 Promotion Committee
Jul. 21	Attack to path MTU discovery	IEPG Meeting	IEPG
Aug. 8	Update of ccNSO at ICANN65 (Marrakech)	55th ICANN Readout Session	JPNIC
Aug. 8	Root Server System Advisory Committee (RSSAC) Update	55th ICANN Readout Session	JPNIC
Sep. 5	Coping with Abuses - as a "Domain Name" Registry -	APTLD Iskandar Puteri Meeting	APTLD
Sep. 5	Introduction to the ccNSO & current focus points	APTLD Iskandar Puteri Meeting	APTLD
Sep. 6	DRP vs. Injunction & Public Auction	APTLD Iskandar Puteri Meeting	APTLD
Sep. 8	The APTLD Update	AP*Retreat	AP*
Sep. 8	Update on the discussion about Governance Model for the Root DNS Server System	AP*Retreat	AP*
Sep. 9	M-Root DNS Server instances in AP region?	APIX Meeting #20	APIX
Sep. 17	Root DNS Servers	ISOC-JP Workshop	ISOC-JP
Sep. 18	Anti-Homograph-Attacks	W3C TPAC2019	W3C

Date	Title	At	Hosted by
Oct. 17	Prediction of Domain Name Renewal Rate by Machine Learning Focusing on Registered Domain Name String	CENTR Marketing Workshop	CENTR
Oct. 23	Deployment of M-Root servers in AP region	AI3 & SOI Asia 50th Meeting	SOI Asia and AI3
Nov. 1	Towards detecting DNSSEC validation failure with passive measurements at TLD DNS servers	OARC 31	DNS-OARC
Nov. 1	DNS and RFC 8085 UDP Usage Guidelines --- Avoid fragmentation, Again --- draft-fujiwara-dnsop-avoid-fragmentation-01	OARC 31	DNS-OARC
Nov. 4	Prediction of Domain Name Renewal Rate by Machine Learning Focusing on Registered Domain Name String	ICANN66 (TechDay)	ICANN
Nov. 6	Towards detecting DNSSEC validation failure with passive measurements at TLD DNS servers	ICANN66 (DNSSEC and Security Workshop)	ICANN
Nov. 6	Evaluation of Visually Similar Characters for JGP - Preliminary study -	ICANN66 (IDN Program Updates)	ICANN
Nov. 17	Towards detecting DNSSEC validation failure with passive measurements at TLD DNS servers	IEPG Meeting	IEPG
Nov. 21	draft-fujiwara-dnsop-avoid-fragmentation-01 Avoid Fragmentation in DNS	IETF 106	IETF
Nov. 28	Root Management	Internet Week 2019 Lunch Seminar	JPNIC
Nov. 28	JP DNS Update	Internet Week 2019 DNS DAY	JPNIC
Nov. 28	DNS Update - Domain Name Overview - (in Japanese)	Internet Week 2019 DNS DAY	JPNIC
Nov. 28	DNSSEC Deployment Status	Internet Week 2019 DNS DAY	JPNIC
Nov. 28	DNS over TLS/HTTPS over CGN	DNSOPS.JP BoF	DNSOPS.JP
Dec. 11	IGF2019 - view of a participant in Business Sector & Technical Community -	Japan-EU ICT Strategies Workshop	MIC, EU
Dec. 13	Update of ccNSO at ICANN66 (Montreal)	56th ICANN Readout Session	JPNIC
Dec. 13	Root Zone LGR and Japanese Generation Panel (JGP)	56th ICANN Readout Session	JPNIC

03·4   **Press Releases**

Date	Title
Feb. 18	JPRS Supports "21st Japan Junior/Senior High School Web Contest" to Provide Experience of Using JP Domain Names (in Japanese)
Mar. 27	JPRS Publishes "JP Domain Name Registry Report 2018" (in Japanese)
May. 15	JPRS Distributes Free Graphic Comic-style Booklet on Domain Names and DNS That Underpin the Internet to Educational Institutions across Japan (in Japanese)
Sep. 26	JPRS Acquires ISO27001 Certification
Nov. 25	JPRS Starts Distributing Free 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
Jan. 16	Impact of the Root Zone KSK Rollover and How to Check It (Updated on January 16, 2019)
Jan. 16	Questions and Answers about the Root Zone KSK Rollover (Update)
Jan. 23	Vulnerability Information on PowerDNS Recursor Posted
Jan. 28	(Urgent) Emergency Directive on DNS Tampering Posted by U.S. Department of Homeland Security
Jan. 28	Publication of Documents on DNS flag day and How to Test Your Domains (Updated on January 28, 2019)
Jan. 28	Questions and Answers about DNS flag day (Update)
Feb.22	(Urgent) Vulnerability of BIND 9.x (Causing Memory Leak) (CVE-2018-5744)
Feb.22	Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2018-5745)
Feb.22	Vulnerability of BIND 9.x (Zone Data Leak Caused by Flaw in Access Control) (CVE-2019-6465)
Mar.8	ICANN Published a Document Outlining the Root Zone KSK Rollover
Mar 20	Vulnerability Information on PowerDNS Authoritative Server Posted (CVE-2019-3871)
Apr. 25	Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2019-6467)
Apr. 25	(Urgent) Vulnerability of BIND 9.x (Overconsumption of File Descriptors) (CVE-2018-5743)
Jun. 20	Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2019-6471)
Jun. 24	Vulnerability Information on PowerDNS Authoritative Server Posted (CVE-2019-10162, CVE-2019-10163)
Jul.12	Vulnerability Information on Windows DNS Server Posted (CVE-2019-0811)
Jul.12	Vulnerability Information on Windows DNS Cache Resolver Service Posted (CVE-2019-1090)
Jul.12	Vulnerability Information on Knot Resolver Posted (CVE-2019-10190, CVE-2019-10191)
Aug. 8	Vulnerability Information on PowerDNS Authoritative Server Posted (CVE-2019-10203) (Update)
Aug. 22	Vulnerability Information on NSD Posted (CVE-2019-13207)
Oct. 4	Vulnerability Information on Unbound Posted (CVE-2019-16866)
Oct. 17	Vulnerability of BIND 9.x (Bypassing DNSSEC Validation in Mirror Zone Feature) (CVE-2019-6475)
Oct. 17	Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2019-6476)
Nov.20	Vulnerability Information on Unbound Posted (CVE-2019-18934)
Nov.21	(Urgent) Vulnerability of BIND 9.x (Overconsumption of System Resources) (CVE-2019-6477)
Dec.6	Vulnerability Information on Knot Resolver Posted (CVE-2019-19331)

*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 standardization activities through contributing to the internationalization of the identifiers used for protocols, devising methods for resolving issues concerning DNS operations and submitting 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.

Japan Registry Services Co., Ltd.

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