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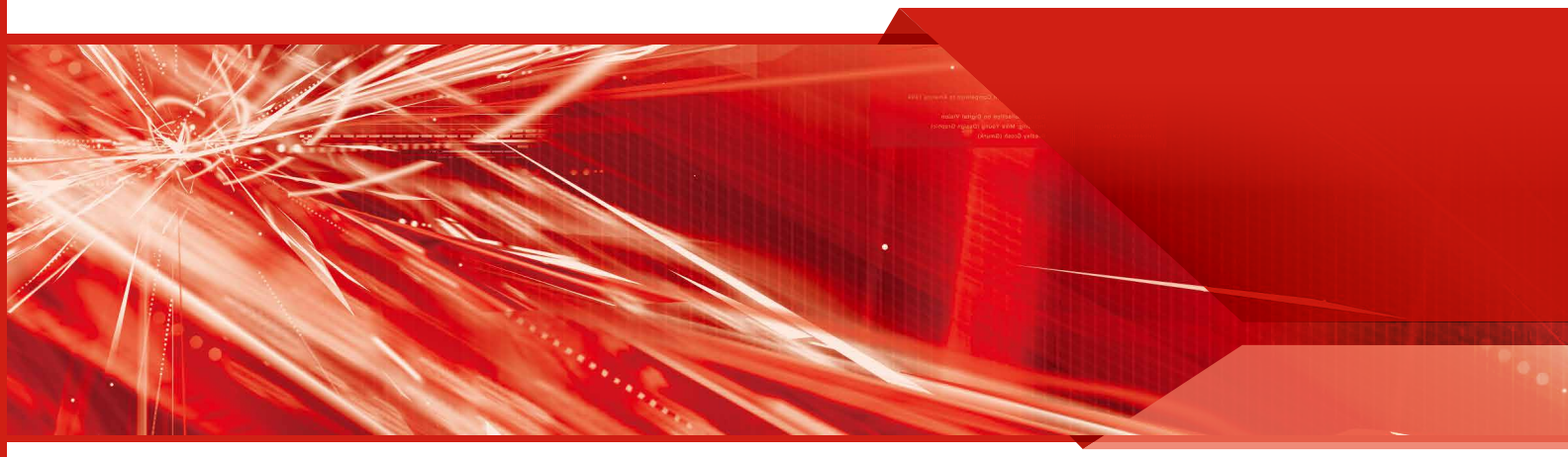
!Jp

JP Domain Name Registry Report



JPRS
JAPAN REGISTRY SERVICES

Japan Registry Services Co.,Ltd.

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 1.5 million in February 2018. Over 400,000 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.

The domain name industry saw the total number of registered 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.

In addition to the above, JPRS is committed to its ongoing operations 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 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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01·1 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 services including the management and administration of JP domain names.

Reliability: establishing services with the public trust
Stability: operating and administering the stable systems
Usability: providing accessible services which meet users needs
Fee Performance: providing services at reasonable 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 2018

In 2018, 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 2018" 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 2018 edition, "Internet White Paper 2018 (subtitle: Dawn of the New Era of Digital Economy)," 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/2018/180209.html (in Japanese)**

Addition of "Internet White Paper 2017" to "Internet White Paper ARCHIVES" (February)

"Internet White Paper 2017" published in 2017 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/2018/180215.html (In Japanese)**

Support for the 20th Japan Junior/Senior High School Web Contest (February)

JPRS supported the "20th 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 160 General-use JP domain names (both in Japanese and ASCII) free of charge for the works of 80 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/2018/180219.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)
https://webcon.japias.jp/ (in Japanese)

*5 JAPIAS: Japan Association for Promotion of Internet Application in School Education
http://japias.jp/ (in Japanese)

Support for SECCON 2018 (May)

“SECCON 2018*6” was a series of events held from May to December in 2018 with the aim of recruiting and training information security personnel and providing a place for hands-on experience with related technologies. JPRS supported SECCON 2018 as a sponsor. JPRS also provides a JPRS Server Certificate to the official website of the event.

Free Cartoon Booklet on the Internet System Sent to Junior and Senior High Schools and Technical Colleges across Japan (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 “https://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 nine years exceeds 250,000.

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/2018/180515.html (In Japanese)**
- **https://jprs.co.jp/en/ponta.pdf**

Participation in Interop Tokyo 2018 (June)

JPRS ran a booth at Interop Tokyo 2018 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 “Relationship between DNS and Server Certificates in Light of Security and Recent Incidents” 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/2018/0628_interop.html (In Japanese)**

*6 SECCON 2018
https://2018.seccon.jp/ (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 Asahi Shimbun. JPRS also provided the program with educational materials regarding domain names.

Oshigoto Nenkan 2018

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 64,000 copies of the 2018 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.”

● **https://jprs.co.jp/topics/2018/180626.html (in Japanese)**

Cooperation with the Production of “Professional IPv6,” a Practical Guide to IPv6 Technologies (July)

“Professional IPv6” is a book that helps readers understand IPv6. It was written by Mr. Akimichi Ogawa and is published by Lambda Note. The book explains the status of standardization of IPv6, which is a rapidly spreading protocol, and its associated technologies. JPRS supports the book’s concept of broad publication of IPv6- and DNS-related technical information and so cooperated in its production.

The book was crowdfunded: its e-book (PDF) is publicly available for free, while the print edition is available for purchase.

● **https://jprs.co.jp/topics/2018/180705.html (in Japanese)**

JPRS Held 9th “.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, a key ceremony, or .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 2, two External Witnesses observed and confirmed the process.

● **https://jprs.co.jp/en/topics/2018/181003.html**

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

Start of Accepting General Registration Applications for Japanese JP Domain Names Representing School Names (November)

JPRS started accepting General registration applications for Japanese JP domain names representing the names of elementary and secondary educational institutions (school names) such as “○○小学校.jp” and “○○高校.東京.jp” on November 1, 2018.

Following its announcement in October 2016 about the launch, JPRS solicited comments from school officials about the service and improved the registration rule to address the actual situation in the field of education. As part of the effort, JPRS amended the rule concerning the following two school categories that have a specific abbreviation: “中学” for “中学校” and “高校” for “高等学校.” Under the revised rule, only those schools and founding entities that have already registered either the string of their official school category name or the abbreviation can register the other string.

JPRS also extended the Concurrent Registration Application Period, a time frame designed to minimize competition that occurs in a first-come, first-served registration, longer than originally planned. The purpose of the extension was to give each school enough time to consider and an equal opportunity to register desired domain names.

● **https://jprs.co.jp/press/2018/181101.html (in Japanese)**

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

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 Aomori Prefectural Sanbongi Junior High School, who visited JPRS’s head office in Tokyo.

● **https://jprs.co.jp/topics/2018/181120.html (in Japanese)**

Company visit to JPRS

Publication of “Textbook to understand DNS well,” a Book Written by JPRS Engineers (November)

“Textbook to understand DNS well,” an instruction book authored by JPRS engineers, was published by SB Creative*9.

This book is intended for novices in Internet technology and engineers wishing to study it again from the basics. It explains the fundamentals of DNS, one of the vital structures underpinning the Internet, and provides related knowledge.

JPRS participated in the publication with the view that generating interest in and ensuring an accurate understanding of DNS will help enhance the stable operation of the Internet.

● **https://jprs.co.jp/topics/2018/181122.html (in Japanese)**

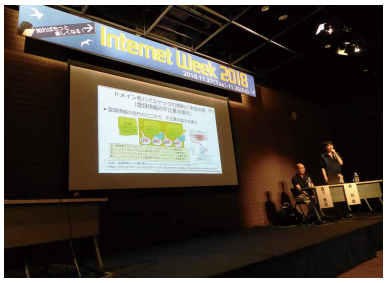
Textbook to understand DNS well

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

*9 SB Creative Corp.
https://www.softbankcr.co.jp/en/index.html

Support for Internet Week 2018 (November)

JPRS supported Internet Week 2018 as a sponsor and sent Kazunori Fujiwara to serve on the Program Committee and contribute to the planning of DNS-related sessions. In addition, Takaharu Ui, Kazunori Fujiwara and Kazuki Ikeda of JPRS discussed domain names, DNS and other related topics in the program called “DNS DAY.”



Lunch Seminar at Internet Week 2018

At the Lunch Seminar, Yasuhiro Morishita and Kunitaka Kakoi gave a presentation entitled “DNS Abuse and How DNS Operators Should Respond – Make DNS Securer by Understanding Domain Hijacking – Lunch with DNS” and shared the current trend of domain hijacking, which constitutes a DNS abuse, and the points to consider in DNS operation.

- **https://jprs.co.jp/topics/2018/181015.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 Partners’ Meeting” (October)
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.

As for the current status of the domain name industry, JPRS talked about the impact of the EU’s General Data Protection Regulation (GDPR) that had come into effect in May 2018. It also outlined the DNS flag day carried out on February 1, 2019 and the Root Zone KSK Rollover happening from 2017 to 2019.

01·3 International Relations

1. Participation in ICANN

ICANN*1 is a non-profit corporation established in the United States in 1998 for global coordination of the resources such as domain names and IP addresses which underpin the Internet.

ICANN63
(photo provided by ICANN)

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."

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 2018, ICANN61 was held in San Juan, Puerto Rico in March, ICANN62 in Panama City, Republic of Panama in June, and ICANN63 in Barcelona, Spain in October.

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 2018.

ICANN is serving as an important forum for SOs/ACs to exchange views on different topics of interest, with a focus on Internet resources. The key topics of the discussion in 2018 included the range of public WHOIS data and that of non-public WHOIS data. The participants shared information on the response of each country regarding this matter and discussed the common policies to be applied to gTLDs.

*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

The community discussion that had continued since 2014 resulted in the completion of the IANA*4 stewardship transition in October 2016. Currently, SOs/ACs are working on improving not only their structure but also transparency underpinning the structure, by publishing the materials and records of their meetings. The effort is bringing about tangible effects, such as the improved frequency and quality of providing information to members.

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

(1) ccNSO

ccNSO*5 is one of the Supporting Organizations set up in ICANN to assist its activities. The role of ccNSO is to 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.

In 2018, ccNSO listened to the activity reports made by the committees established after the IANA stewardship transition, exchanged information and held question-and-answer sessions with its internal working groups (WGs) on various issues including reviewing the existing guidelines and developing new guiding principles. In addition, it held sessions at which the participants shared the latest topics and recent developments unique to each ccTLD registry.

In the discussion about the use of country and territory names as TLDs, ccNSO was required to formulate a collective opinion best representing the whole ccTLD community, including ccTLDs not belonging to ccNSO. Therefore, ccNSO teamed up with the regional ccTLD associations and worked hard to carry out publicity activities and consultations by sharing information in the face-to-face meetings and on the mailing list.

In the wake of frequent natural disasters such as earthquakes and tsunamis across the globe in recent years, ccNSO members actively shared information about diverse measures in each country including equipment, employees and external collaboration, with a view to ensuring business continuity. In March 2018, Hirofumi Hotta of JPRS shared information on past disasters in Japan as well as the company's response.

*4 IANA: Internet Assigned Numbers Authority
https://www.iana.org/

*5 ccNSO: Country Code Names Supporting Organisation
https://ccnso.icann.org/

(2) IDN Variant TLD Program

The IDN*6 Variant TLD Program is a series of activities to develop Label Generation Rules (LGR) for the root zone and aims to establish procedures to add 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. Currently, the Japanese GP is making final arrangements with the IP to incorporate the result of the two-party consultation. The final adjustment is expected to continue into 2019.

*6 IDN: Internationalized Domain Name

(3) RSSAC

RSSAC*7 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 RSSAC in collaboration with the WIDE Project*8, the other operator. Hirofumi Hotta of JPRS plays an active role in the committee representing both of the two M-Root DNS server operators.

In 2018, RSSAC continued efforts to make its activities more transparent by organizing the open sessions in each ICANN meeting to describe the role and function of the root servers and by discussing the accountability of the root server operators. It also discussed the new governance model for the DNS Root Server System and submitted the proposed model to the ICANN Board. Shinta Sato, Kazunori Fujiwara and Yoshitaka Aharen of JPRS serve as members of the RSSAC Caucus, which is tasked with considering and developing the documents that RSSAC proposes to the ICANN Board and the community. They are actively participating in the Resolver Study Work Party and the Service Coverage 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 serves on the DNSSEC Workshop Program Committee as a member representing Asia and plays a part by planning the workshops and informing the other members of the situation in Japan.

*7 RSSAC: Root Server System Advisory Committee
https://www.icann.org/groups/rssac

*8 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*9. 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*10. Yoshiro Yoneya of JPRS participated in the design team as a member.

The Root Zone KSK Rollover was originally scheduled to occur on October 11, 2017. However, a postponement was announced because a certain number of resolvers were found not to have the new KSK. During the public comment period conducted by ICANN from February to April 2018, the DNS operators' community indicated that ICANN should proceed. Hence, the Rollover was carried out on October 11, 2018, one year later than originally scheduled. As a consequence, no major trouble was reported, and ICANN issued a statement to announce that the switch to the new KSK had been successfully completed*11.

In Japan, Yoshiro Yoneya of JPRS carried out a survey on the readiness for the Root Zone KSK Rollover and shared the result with ICANN and the Japanese community*12.

The series of steps related to the Root Zone KSK Rollover will be concluded upon the revocation of the old KSK that will occur from January 11 to March 22, 2019.

*9 DNSSEC Practice Statement for the Root Zone KSK Operator
https://www.iana.org/dnssec/icann-dps.txt

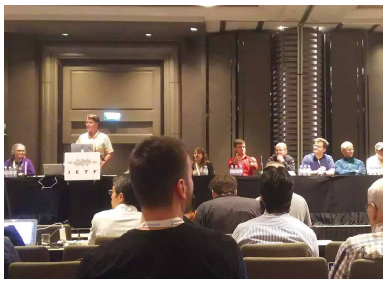
*10 Root Zone KSK Rollover Plan
https://www.iana.org/reports/2016/root-ksk-rollover-design-20160307.pdf

*11 First Root KSK Rollover Successfully Completed
https://www.icann.org/news/announcement-2018-10-15-en

*12 Looking Back at Root Zone KSK Rollover (in Japanese)
https://dnsops.jp/bof/20181129/RootKSKRO-postmortem-01+.pdf

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 103

In 2018, IETF 101 was held in London, the United Kingdom, IETF 102 in Montreal, Canada, and IETF 103 in Bangkok, Thailand. 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, and 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.

Kazunori Fujiwara of JPRS, Mr. Paul Hoffman of ICANN and Mr. Andrew Sullivan, the former IAB chair, co-authored the DNS Terminology (glossary), which was then issued as RFC 7719 in December 2015. In 2018, they continued to collect words for the glossary and make suggestions for improvement. The DNS Terminology was approved as the Best Current Practice in September 2018 and issued as RFC 8499 on January 2, 2019.

*1 IETF: Internet Engineering Task Force
https://www.ietf.org/

*2 IAB: Internet Architecture Board
https://www.iab.com/

*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 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 Asia Pacific 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 Kathmandu Meeting held in Nepal in February, Hirofumi Hotta of JPRS moderated the session on domain drop catching and shared the situation in the JP domain name space. He also moderated the meeting on registries' response to natural disasters in the APTLD Tashkent Meeting organized in Uzbekistan in September and talked about the countermeasures taken in .JP. In addition, Hotta participated in the session on IDN as a panelist. On the other hand, Yuri Takamatsu of JPRS took part in the panel on the response of registries in the case of a registrar's bankruptcy and explained JPRS's measures. In 2018, APTLD meetings also focused on formulating its position about the use of country and territory names and other geographical names as TLDs. In September, APTLD published its position statement concerning this issue.

(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. IGF 2018 was organized at the United Nations Educational, Scientific and Cultural Organization (UNESCO) in Paris, France in November. 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.

This particular forum held multiple sessions on the countermeasures against attacks and rights violations via the Internet that have been increasing in line with the expanding use of the Internet, and the participants discussed the need for related regulations. In addition, the attendees actively debated and exchanged opinions about the necessity and the effect of producing an outcome backed by a certain level of consensus at the global IGF as well as the regional and local discussion fora.

(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 APrIGF.

The 2018 APrIGF was held in Port Vila, the Republic of Vanuatu in August, and Hirofumi Hotta and Yuri Takamatsu of JPRS participated in the event. As the first APrIGF organized in the Pacific region, it gathered a number of Pacific ccTLDs. Hirofumi Hotta had proposed a session on registries' response to and countermeasures against natural disasters and talked about the case of Japan as a panelist at the session. He also sat on the panel in the session on e-government service and its usage condition and shared the situation in Japan. The 2018 APrIGF continued to develop an outcome document to deliver to the global IGF as a collective voice formed in the APrIGF, which was put into practice in 2015 for the first time. As part of the effort, several sessions were held in the 2018 APrIGF to hear opinions about the draft outcome document. The secretariat and the volunteers first developed the draft outcome. Then, following the review carried out during the APrIGF and the subsequent public comment period, the outcome document was released to the public.

*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/

(3) Efforts Related to Internet Governance

The IGF recognizes the efforts being made at local and regional levels to promote discussions pertaining to Internet governance as the NRIs, provided they fulfill certain requirements. In the case of Japan, Internet Governance Conference Japan (IGCJ)*4 and IGF-Japan*5 jointly applied to the IGF under the name of Japan IGF*6, a single national IGF they established for the purpose of mutual cooperation and evolution of both initiatives. The Japan IGF was recognized by the global IGF in November 2016.

Hirofumi Hotta of JPRS was involved in forming the Japan IGF as a member of the IGCJ Coordination Team and has been discussing its operation and the information that the Japan IGF should publish. In the session to share the situation in each regional and national IGF that was held in Paris in November, the Japan IGF described the platforms where the local community was discussing the topics at IGF. It also explained the challenge of establishing a single forum where experts from various backgrounds could get together and discuss issues.

(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 advancement initiatives of the DotAsia Organisation include the APrIGF Secretariat alongside the "NetMission Ambassadors Program" and "Youth IGF," which are capacity-building programs for young people who are expected to play a 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/
*5 IGF-Japan Archive
https://www.jaipa.or.jp/topics/igf-japan/ (in Japanese)
*6 Japan IGF
https://japanigf.jp/
*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 2018, AP* Retreat was held in Kathmandu, Nepal in February and then in Noumea, New Caledonia in September. Hirofumi Hotta and Atsushi Endo of JPRS participated in the meeting in February, and Hotta took part in the meeting in September.

(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.

(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.

DNS-OARC has held workshops twice a year. In the workshop organized in San Juan, Puerto Rico in March 2018, Kazunori Fujiwara of JPRS gave a presentation entitled “Evaluation and consideration of multiple responses.”

*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

(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 an active 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.

(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 2018, the Institute of Electronics, Information and Communication Engineers (IEICE) accepted the expanded version of the research paper entitled “Cache Effect of Shared DNS Resolver” that had been co-authored by Kazunori Fujiwara of JPRS along with Mr. Akira Sato and Mr. Kenichi Yoshida of the University of Tsukuba and been adopted for “COMPSAC 2017*13.” The updated version was then published in December 2018 as an advance publication article of the IEICE Transactions on Communications. In their analysis of a full-service resolver in a university network, they removed the shared DNS cache and let each node carry out name resolutions. As a result, the queries from the university to the root and TLDs increased by about ten times. Based on this finding, they concluded in the paper that the shared DNS cache worked effectively.

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

*12 https://www.w3.org/community/httpslocal/

*13 COMPSAC 2017
https://www.computer.org/web/compsac2017/

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 its Interim Meeting between the regular JANOG meetings.

The JANOG Meetings were held in January and July in 2018. JANOG also organized the Interim Meetings in April and October.

JPRS supports JANOG Meetings as one of the sponsors. Also, it is participating in the discussion on the mailing list as well as in the meetings.

JANOG42 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 2018” held in June 2018, Yasuhiro Morishita of JPRS talked about the company’s initiative to disseminate technical information. In addition, Yoshitaka Aharen of JPRS and Mr. Yoshibumi Suematsu of QTnet*3 gave a presentation entitled “Key Point of Migration from BIND9.9 to 9.11 – Three Days to Go before End of Life (EOL) of 9.9” and explained the points to note when migrating from BIND9.9, the soon-to-be EOL version, to BIND9.11, the next long-term support version.

Beside these, Kentaro Mori of JPRS gave a lightning talk entitled “gTLD Update – Comply with GDPR through RDAP” and outlined RDAP as a means to incorporate GDPR, and Kazunori Fujiwara illustrated ED25519, an algorithm of elliptic curve cryptography used for DNSSEC signing, in his presentation entitled “An Encouragement of ED25519.”

In the BoF held in November, Yoshiro Yoneya of JPRS recapitulated the Root Zone KSK Rollover occurred in October 2018 from the operational viewpoint, using a slide deck entitled “Looking Back at Root Zone KSK Rollover.” The response of the participants in this particular session and the information about the survey on the readiness for the KSK Rollover conducted mainly in DNSOPS.JP and JANOG were conveyed to ICANN as well.

*1 JANOG: JApan Network Operators’ Group
https://www.janog.gr.jp/en/
*2 DNSOPS.JP: DNS Operators Group, Japan
https://dnsops.jp/ (in Japanese)
*3 QTnet, Inc.
https://www.qtnet.co.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 April, September and December in 2018. In these events, JPRS reported on the development and issues in ccNSO and the draft governance model of the Root Server System proposed by RSSAC to the ICANN Board.

(4) Participation in ISOC-JP

ISOC-JP*4 was established in August 1994 and made various efforts to promote the Internet in Japan as the Japan Chapter of ISOC*5.

Takaharu Ui of JPRS has contributed to the activities of ISOC-JP as the chair of the 2018 Nominating Committee of ISOC-JP. In addition, Yoshiro Yoneya of JPRS has been contributing to ISOC-JP as a member of the Internet Standardization Promotion Committee since 2017.

ISOC-JP and JPNIC jointly organized IETF Update Meetings three times in 2018. Yoshiro Yoneya of JPRS gave a presentation entitled "IETF Hot Topics" and shared the topics that had attracted a lot of attention among all the IETF meetings. Kazunori Fujiwara of JPRS reported on the development in the DNS-related working groups and on the discussion about IP fragmentation, using a slide deck entitled "DNS and Other Topics."

(5) Participation in ICT-ISAC

ICT-ISAC*6 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.

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

(6) Participation 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

The IGCJ's key agenda topics for 2018 included the situation both at home and abroad in the lead-up to the effectuation of the EU's GDPR as well as the panel on measures against online piracy. The IGCJ introduced the outline of cyber norms.

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.

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

The Council of Anti-Phishing Japan*7 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.

*7 Council of Anti-Phishing Japan
https://www.antiphishing.jp/ (in Japanese)

(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. Takaharu Ui of JPRS has been participating in the committee.

(9) Participation in KEIDANREN (Japan Business Federation)

The Committee on Information and Telecommunication Policy of KEIDANREN (Japan Business Federation)*9 is the body tasked with deliberating and making policy proposals about issues including the promotion of personal data utilization, use of open data, trade environment surrounding the major technology companies, enhanced cybersecurity and the whole concept of industries in the era of Society 5.0. Hirofumi Hotta, Takaharu Ui and Atsushi Endo of JPRS have been taking part in the discussion in the Planning Subcommittee within the Committee on Information and Telecommunication Policy.

*8 Telecom Services Association
http://www.telesa.or.jp/ (in Japanese)

*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.

In 2018, JPRS started accepting general registration applications for Japanese JP domain names representing the names of elementary and secondary educational institutions (school names) such as "○○小学校.jp" and "○○高校.東京.jp." This service was introduced in the wake of the increased use of ICT in the field of education in recent years and the growing importance of straightforward domain names that are user-friendly and capable of disseminating information. During the period from the announcement on the service outline and the registration schedule in 2016 to the start of accepting General registration applications in November 2018, JPRS improved the registration rule to bring the service more into line with the actual situation in classrooms.

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. In October 2018, the signing with the new KSK in the Root Zone KSK Rollover started. Throughout the process leading up to the event, JPRS disseminated information outlining the procedure and promoting advance preparations in order to support smooth implementation of the KSK Rollover. Moreover, engineers of JPRS authored a book explaining DNS with the view that generating interest in and ensuring an accurate understanding of DNS will help enhance the stable operation of the Internet.

The year 2018 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.

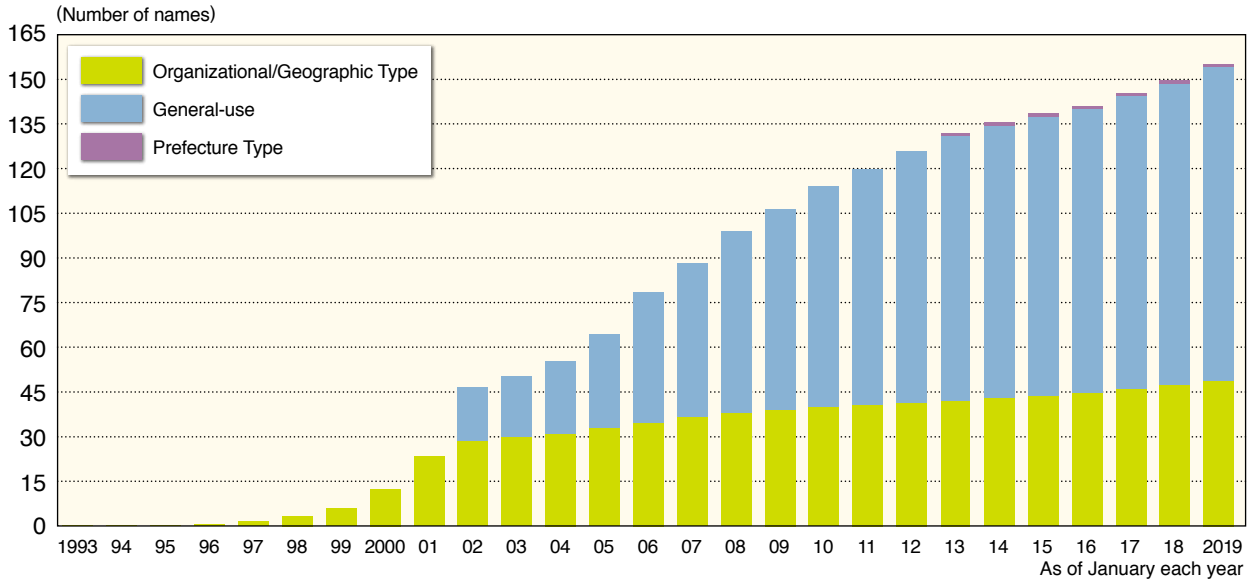
As part of its Internet-related educational support activities, JPRS has distributed a free booklet on how the Internet works to educational institutions across Japan for nine years in a row. The number of copies distributed in the last nine years exceeds 250,000. To help children who will lead the next generation, JPRS also supported a career education project undertaken by a newspaper publisher and provided domain names free of charge at a website creation contest for junior and senior high school students.

Going forward, JPRS will reinforce its facility to improve the fault tolerance of DNS and enhance the security of its system in order to ensure continuity of the services. JPRS will also 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 Cumulative Number of Registered JP Domain Names

As of February 1, 2018, the cumulative number of registered JP domain names surpassed 1.5 million. As of January 1, 2019, the cumulative number of registered JP domain names reached 1,551,357 an increase of 55,880 in one year.



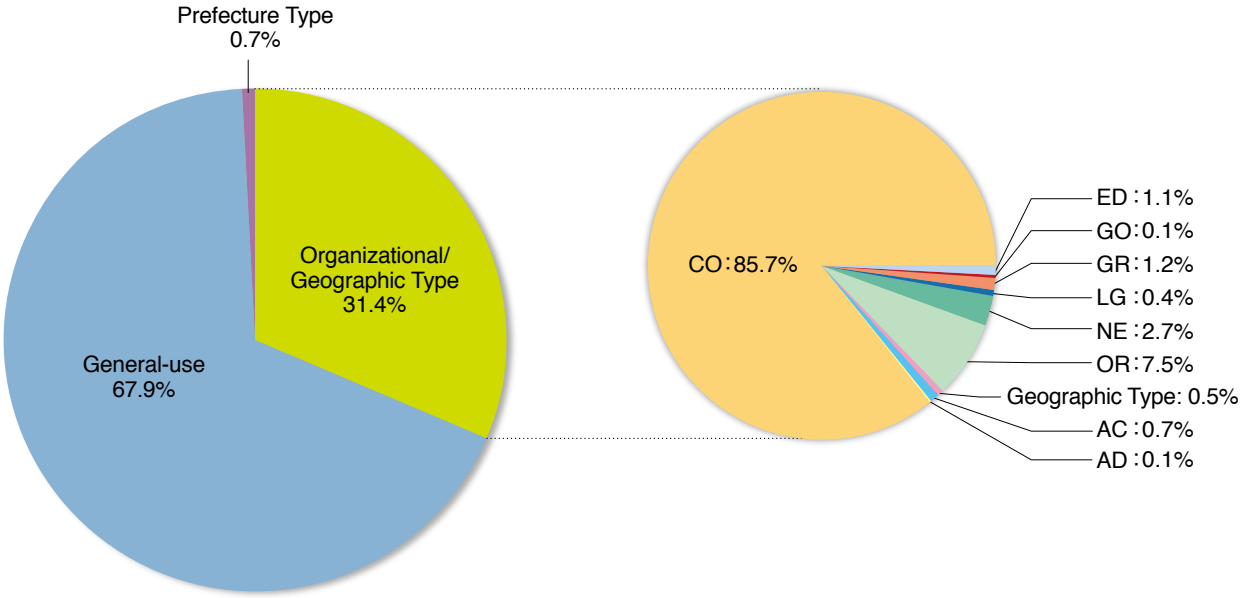
(Number of names)

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

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

02·2 Breakdown of the Cumulative Number of Registered JP Domain Names

*As of January 1, 2019



(Number of names)

JP Domain Name Types		1 Jan 2019 Number of Registrations	1 Jan 2018 Number of Registrations	Difference
Organizational/ Geographic Type	AC: Higher education institution	3,643	3,603	+40
	AD: JPNIC Member	255	257	−2
	CO: Company	417,440	404,222	+13,218
	ED: Primary school, junior and senior high school	5,321	5,262	+59
	GO: Japanese government	578	586	−8
	GR: Group	6,024	6,193	−169
	LG: Japanese local authority	1,888	1,885	+3
	NE: Network service	13,272	13,524	−252
	OR: Corporation other than company	36,313	35,112	+1,201
	Geographic Type	2,222	2,262	−40
General-use (Japanese domain name)		1,052,832 (99,869)	1,010,615 (107,363)	+42,217 (−7,494)
Prefecture Type (Japanese domain name)		11,569 (1,953)	11,956 (2,524)	−387 (−571)
Total JP Domain Name Registration		1,551,357	1,495,477	+55,880

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

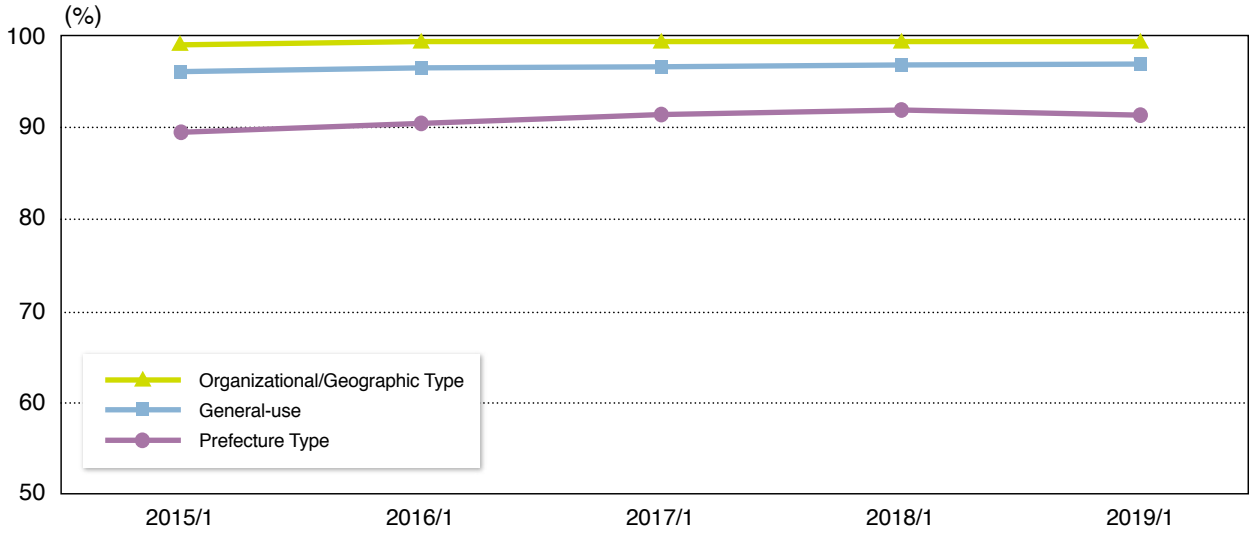
02·3 Number of JP Domain Name Registrations by Prefecture

*As of January 1, 2019

Prefecture	Organizational/ Geographic Type	General-use	Prefecture Type
Hokkaido	2.8%	1.9%	2.3%
Aomori	0.5%	0.3%	0.7%
Iwate	0.4%	0.3%	0.6%
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%	0.9%	0.5%
Tochigi	1.0%	0.5%	0.7%
Gunma	1.1%	0.7%	1.6%
Saitama	4.3%	2.6%	2.8%
Chiba	3.3%	2.3%	2.5%
Tokyo	32.6%	43.1%	38.4%
Kanagawa	6.6%	4.9%	3.2%
Niigata	1.1%	0.7%	0.8%
Toyama	0.6%	0.4%	0.7%
Ishikawa	0.7%	0.5%	0.5%
Fukui	0.5%	0.3%	0.3%
Yamanashi	0.5%	0.4%	0.4%
Nagano	1.3%	0.8%	1.2%
Gifu	1.2%	0.7%	1.0%
Shizuoka	2.1%	1.5%	1.2%
Aichi	5.4%	3.6%	2.5%
Mie	0.8%	0.5%	1.0%
Shiga	0.6%	0.5%	1.3%
Kyoto	2.0%	3.0%	6.0%
Osaka	9.4%	15.2%	11.1%
Hyogo	3.1%	2.3%	1.6%
Nara	0.6%	0.7%	1.4%
Wakayama	0.4%	0.3%	0.3%
Tottori	0.2%	0.3%	0.3%
Shimane	0.3%	0.3%	0.3%
Okayama	1.1%	0.8%	0.6%
Hiroshima	1.6%	1.0%	1.1%
Yamaguchi	0.5%	0.3%	0.3%
Tokushima	0.3%	0.2%	0.3%
Kagawa	0.5%	0.4%	0.4%
Ehime	0.6%	0.4%	0.7%
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%	0.6%
Kumamoto	0.7%	0.6%	0.8%
Oita	0.4%	0.4%	0.8%
Miyazaki	0.4%	0.3%	0.3%
Kagoshima	0.5%	0.4%	0.6%
Okinawa	0.7%	0.5%	1.3%

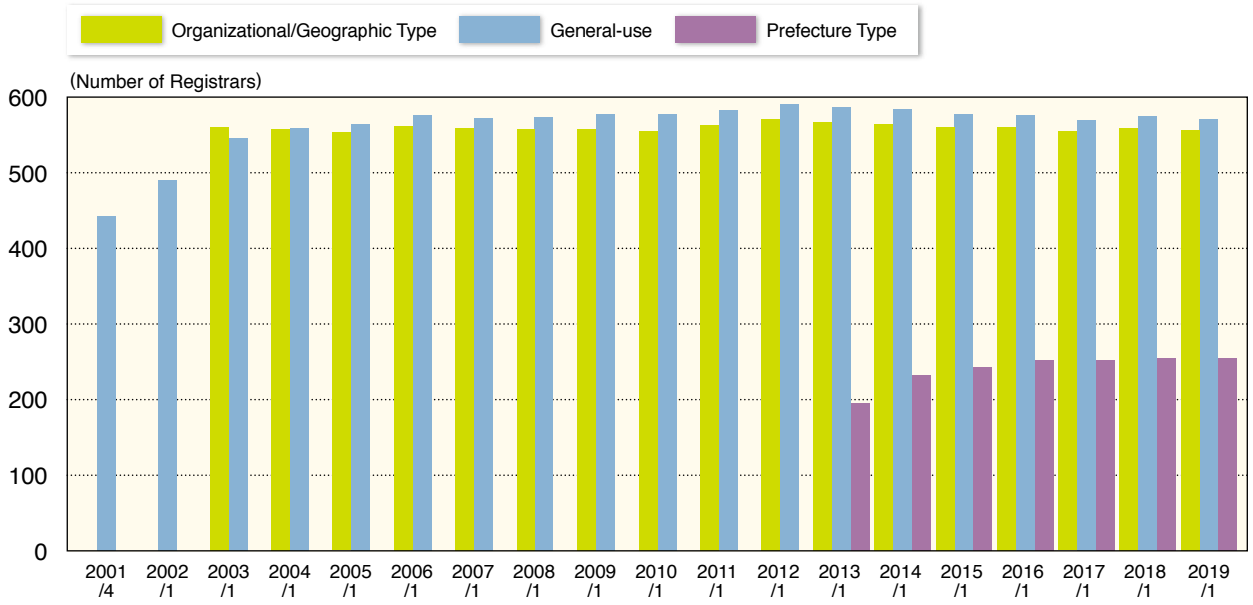
02·4 Transition of DNS Configuration Rate

*As of January 1, 2019



Month/Year	Organizational/Geographic Type	General-use	Prefecture Type
2015/1	99.0%	96.0%	89.9%
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%

02·5 Number of Accredited JP Registrars

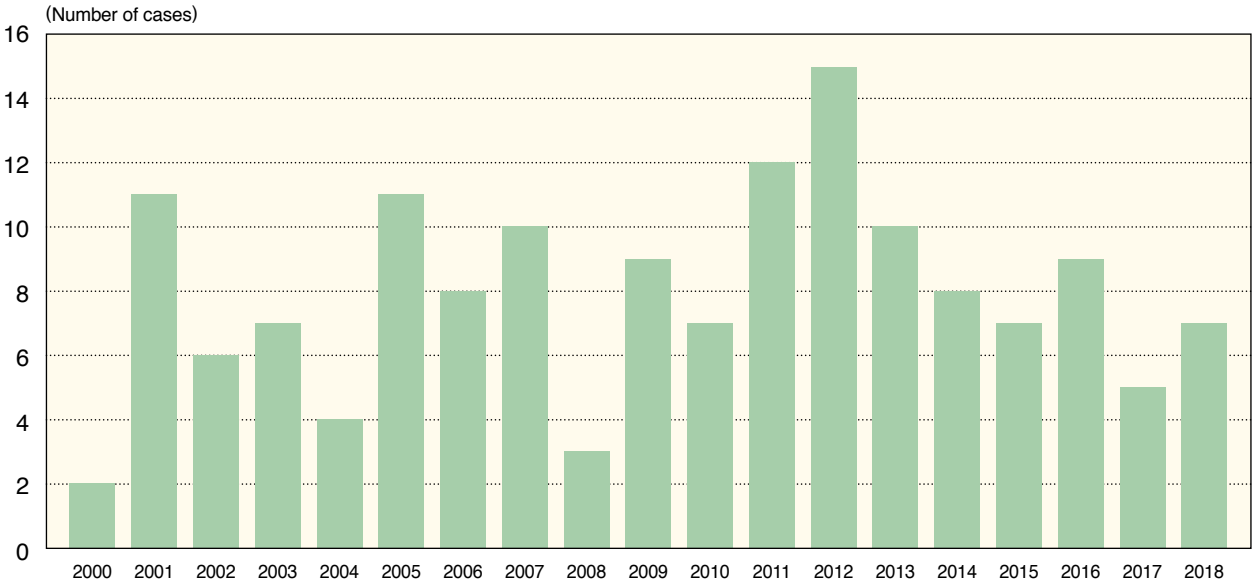


(Number of Registrars)

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

*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

*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 cumulative number of 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 cumulative 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 cumulative number of registered JP domain names surpassed one 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 distributed 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 cumulative 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 cumulative number of JP domain names surpassed 1.5 million.
	Nov.	“Textbook to understand DNS well,” a practical guide to DNS authored by JPRS engineers, was published.

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) Consultations and Advisories

Consultation / Advisory	Consultation Date Document No.	Advisory Date Document No.
Rules of JP Domain Name Advisory Committee	Dec. 6, 2017 JPRS-ADV-2017001	Dec. 11, 2018 JPRS-ADVRPT-2017001
Method for appointing members of the 10th JP Domain Name Advisory Committee	Dec. 11, 2018 JPRS-ADV-2018001	Dec. 21, 2018 JPRS-ADVRPT-2018001

*For details about consultation and advisory themes, please refer to “JP Domain Name Advisory Committee” (https://jprs.jp/advisory/) (in Japanese).

(2) Advisory Committee Meetings

May. 9

61st JP Domain Name Advisory Committee meeting

The committee summed up the discussion in the 60th Advisory Committee meeting about the inquiry entitled “Rules of JP Domain Name Advisory Committee.” In addition, JPRS explained the background to the establishment of the JP Domain Name Advisory Committee. The committee members expressed their opinions and then agreed in principle on the specific review of the Rules of JP Domain Name Advisory Committee.

JPRS outlined the status of .JP and other TLDs, circumstances surrounding domain names, and the recent activities of JPRS. The committee members then exchanged opinions on the matters reported in the presentation.

Sep. 6

62nd JP Domain Name Advisory Committee meeting

It was reported that Mr. Eisaku Yamaji had replaced Mr. Shigeo Naito as the member representing the Japanese government in the 9th JP Domain Name Advisory Committee, following a personnel change in the Ministry of Internal Affairs and Communications.

The committee members reviewed and finalized the draft outline of the advisory report entitled “Rules of JP Domain Name Advisory Committee,” which was drawn up following the discussion at the 60th and 61st Advisory Committee meetings.

Dec. 11

63rd JP Domain Name Advisory Committee meeting

The committee reviewed the draft advisory report, “Rules of JP Domain Name Advisory Committee” that had been produced on the basis of the outline finalized at the 62nd Advisory Committee meeting. The advisory report was confirmed and then delivered to JPRS on December 11.

The JPRS Board of Directors submitted an inquiry entitled “Method for appointing the members of the 10th JP Domain Name Advisory Committee” (JPRS-ADV-2018001). The committee members expressed their opinions on the content of the inquiry. It then agreed in principle on the method. Following the 63rd Advisory Committee meeting, the committee reviewed the advisory report. The report was finalized on December 21 and then was delivered to JPRS.

JPRS reported that it had started accepting applications for the General registration of the Japanese JP domain names representing school names, which was followed by a question and answer session. In addition, a committee member asked how JPRS was responding to domain name abuses, and the committee members exchanged opinions on the topic.

03·3 Proposals and Presentations

Date	Title	At	Hosted by
Feb. 6	Recent Development in International Standardization Related to IoT (in Japanese)	ICT-ISAC IoT Security WG	ICT-ISAC
Feb. 22	ccNSO Update	APTLD Kathmandu Meeting	APTLD
Feb. 22	Dropcatching	APTLD Kathmandu Meeting	APTLD
Feb. 22	Dropcatching in JP	APTLD Kathmandu Meeting	APTLD
Mar. 14	JapaneseGP (JGP) update	ICANN61	ICANN
Mar. 14	Natural Disaster: .JP's Experience and Preparation	ICANN61	ICANN
Apr. 26	ccNSO Update (in Japanese)	51st ICANN Readout Session	JPNIC
Apr. 27	IETF 101 Hot Topics and Wrap-up (in Japanese)	IETF 101 Update Meeting	ISOC-JP, JPNIC
Jun. 1	Tour de Table	CENTR Jamboree 2018	CENTR
Jun. 1	DNS and Server Certificates – What DNS Operators Should Do Considering the Recent Relationship between DNS and Server Certificates – (in Japanese)	Internet Week Showcase in Hiroshima	JPNIC
Jun. 1	DNS flag day (flash report) (in Japanese)	Internet Week Showcase in Hiroshima	JPNIC
Jun. 27	JPRS's Effort to Disseminate Technical Information (in Japanese)	DNS Summer Day 2018	DNSOPS.JP
Jun. 27	Key Point of Migration from BIND9.9 to 9.11 (for Authoritative DNS Servers) (in Japanese)	DNS Summer Day 2018	DNSOPS.JP
Aug. 15	Japan under frequent serious disasters	APrIGF	APrIGF
Aug. 15	eGovernment in Japan	APrIGF	APrIGF
Sep. 4	ccNSO Update (in Japanese)	52nd ICANN Readout Session	JPNIC
Sep. 4	Root Server System Advisory Committee (RSSAC) Update (in Japanese)	52nd ICANN Readout Session	JPNIC
Sep. 9	APTLD: Hard Facts	AP* Retreat	AP*
Sep. 9	A Governance Model proposed for the DNS Root Server System	AP* Retreat	AP*
Sep. 20	Saving Registrants under Failed Registrar	APTLD Tashkent Meeting	APTLD
Sep. 21	Security Challenges experienced in Japanese IDNs	APTLD Tashkent Meeting	APTLD
Sep. 21	Preparing for Natural Disasters – background of the session –	APTLD Tashkent Meeting	APTLD
Sep. 21	Natural Disaster Preparedness – .JP experience and practice –	APTLD Tashkent Meeting	APTLD
Oct. 13	.jprs TLD activities (Tour de Table of Registry updates)	39th CENTR Technical workshop	CENTR
Oct. 21	.jprs Activities for preparing to the Natural Disasters	ICANN63 TLD-OPS Disaster Recovery Workshop	ccNSO TLD-OPS
Nov. 29	DNS Abuse and How DNS Operators Should Respond – Make DNS Securer by Understanding Domain Hijacking – Lunch with DNS (in Japanese)	Internet Week 2018 Lunch Seminar	JPNIC
Nov. 29	JP DNS Update (in Japanese)	Internet Week 2018 DNS DAY	JPNIC
Nov. 29	DNS Update – Domain Name Overview – (in Japanese)	Internet Week 2018 DNS DAY	JPNIC
Nov. 29	DNS and Blocking – Technology behind Anti-Blocking (Technology That Allows Secrets to Leak) (in Japanese)	Internet Week 2018 DNS DAY	JPNIC
Nov. 29	Looking Back at Root Zone KSK Rollover (in Japanese)	Internet Week 2018 DNSOPS.JP BoF	JPNIC

Date	Title	At	Hosted by
Nov. 30	The More You Learn, the More Fun You'll Have! Noteworthy Sessions in IW2018 D3 DNS DAY (in Japanese)	Internet Week 2018 IP Meeting 2018	JPNIC
Dec. 6	ccNSO Update (in Japanese)	53rd ICANN Readout Session	JPNIC
Dec. 14	Report on IETF 103 – DNS and Other Topics (in Japanese)	IETF 103 Update Meeting	ISOC-JP, JPNIC

03·4 Press Releases

Date	Title
Feb. 2	JP Domain Name Surpassed 1.5 Million
Feb. 19	JPRS Supports “20th Japan Junior/Senior High School Web Contest” to provide Experience of Using JP Domain Names (in Japanese)
Mar. 28	JPRS Publishes “JP Domain Name Registry Report 2017” (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)
Nov. 1	JPRS started accepting General Registration Applications for Japanese JP domain names representing school names (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. 17	(Urgent) Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2017-3145)
Jan. 24	Vulnerability Information on Knot Resolver Posted (CVE-2018-1000002)
Jan. 24	Vulnerability Information on PowerDNS Recursor Posted (CVE-2018-1000003)
Jan. 24	Vulnerability Information on Unbound Posted (CVE-2017-15105) (Update)
Mar. 22	Change of “Update-policy local” Specification in BIND 9.x and Its Effect
Apr. 25	Vulnerability Information on Knot Resolver Posted (CVE-2018-1110)
May 11	Vulnerability Information on PowerDNS Authoritative Server Posted (CVE-2018-1046)
May 21	Vulnerability of BIND 9.12.x (DNS Service Outage) (CVE-2018-5736)
May 21	Vulnerability of BIND 9.12.x (Degradation of Service and DNS Service Outage) (CVE-2018-5737)
Jun. 13	Vulnerability of BIND 9.x (Permission of Accesses Not Intended by Service Providers) (CVE-2018-5738)
Jun. 14	Vulnerability Information on Windows DNS Posted (CVE-2018-8225)
Jul. 5	Vulnerability Information on Knot Resolver Posted
Jul. 12	Vulnerability Information on Windows DNS Posted (CVE-2018-8304)
Jul. 13	Troubles in Transferring Extremely Large Zone Data in BIND 9.x
Aug. 1	Vulnerability Information on NSD Posted
Aug. 6	Vulnerability Information on Knot Resolver Posted (CVE-2018-10920)
Aug. 8	Vulnerability Information on Knot DNS Posted
Aug. 9	Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2018-5740)
Sep. 19	ICANN Determined the Timeline of Rolling the Root KSK
Sep. 20	Vulnerability of BIND 9.x (Permission of Dynamic Update Not Intended by Service Providers) (CVE-2018-5741)
Oct. 4	Questions and Answers about the Root Zone KSK Rollover (Update)
Oct. 11	Vulnerability Information on Windows DNS Posted (CVE-2018-8320)
Oct. 25	Impact of the Root Zone KSK Rollover and How to Check It (Updated on October 25, 2018)
Oct. 25	ICANN Announced Successful Completion of the Root KSK Rollover and the Next Steps
Nov. 8	Vulnerability Information on PowerDNS Authoritative Server Posted (CVE-2018-10851, CVE-2018-14626)
Nov. 8	Vulnerability Information on PowerDNS Recursor Posted (CVE-2018-10851, CVE-2018-14626, CVE-2018-14644)
Nov. 28	Vulnerability Information on PowerDNS Recursor Posted (CVE-2018-16855)
Dec. 13	Vulnerability Information on Windows DNS Server Posted (CVE-2018-8626)

*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.

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