2017.1-12

!.Jp

JP Domain Name
Registry Report

JPRS
JAPAN REGISTRY SERVICES

Japan Registry Services Co.,Ltd.

Introduction

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

With this background, the number of registered General-use JP domain names surpassed one million in September 2017. In addition, the number of JP domain names marked 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, which indicates that many businesses are using "co.jp" names for their corporate websites.

With respect to the trend of the global domain name industry, the new gTLD introduced through the New gTLD Program of ICANN are becoming popular; increase the chance of seeing the websites using the new gTLD domain names. On the other hand, various challenges have continued to threaten the Internet infrastructure such as DDoS attacks exploiting the mechanism of DNS 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.

Registry Report
Index

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 the registration and administration of JP domain names.

Reliability: establishing domain name space with the public trust
Stability: operating and administering the stable domain name system (DNS)
Usability: providing accessible domain name 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 2017

In 2017, JPRS continued to contribute to the development of the Internet society and worked to enhance its registry services and the value of JP domain names in cooperation with the JP Registrars and other related organizations.

Publication of "Internet White Paper 2017" (January)

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. "Internet White Paper 2017 (subtitle: New Real Market Created by IoT)" was published on January 31, 2017 with the Internet White Paper Editorial Committee as the editor. It first came out in digital and on-demand print versions, soon followed by the release of printed copies in bookstores throughout the country on February 17, 2017.

"Internet White Paper" is a yearbook that summarizes the current state of the Internet from various perspectives including that of business, society and technology, and it has reported on the trend of the Internet in Japan since 1996.

- ● **https://jprs.co.jp/topics/2017/170201.html (in Japanese)**
- ● **https://jprs.co.jp/topics/2017/170217.html (in Japanese)**

Addition of "Internet White Paper 2016" to "Internet White Paper ARCHIVES" (February)

"Internet White Paper 2016" published in 2016 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/2017/170207.html (In Japanese)**

Support for the 19th Japan Junior/Senior High School Web Contest (February)

JPRS supported the "19th 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 612 General-use JP domain names (both in Japanese and ASCII) free of charge for the works of 306 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/2017/170220.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/en/index.html

Revision of Free Cartoon Booklet on "How the Internet Works" and Distribution to Educational Institutions 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 16 to July 31, 2017, 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 shortage of teaching materials in schools, JPRS has worked on this project since 2010. The number of copies distributed in these eight years surpassed 240,000.

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 2017, JPRS revised the booklet by adding an explanation about "https," a means for secure communication.

● **https://jprs.co.jp/press/2017/170515.html (In Japanese)**
● **https://jprs.co.jp/press/2017/170620.html (In Japanese)**

Participation in Interop Tokyo 2017 (June)

JPRS ran a booth at Interop Tokyo 2017 to provide information on domain names and DNS. The basics of domain names and DNS, and technical information including "Key Considerations for Security and Recent DNS-Related Incidents" were shared through its seminars and panel exhibition.

● **https://jprs.jp/related-info/event/2017/0621_interop.html (In Japanese)**

JPRS booth

Support for SECCON 2017 (June)

"SECCON 2017[6]" was a series of events held from June 2017 to February 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 2017 as a sponsor.

---

*6 SECCON 2017
   https://2017.seccon.jp/ (in Japanese)

Launch of ".jprs TLD Labs," a Website about Research and Development Using the gTLD ".jprs" (June)

JPRS launched ".jprs TLD Labs[7]," a website related to research and development using the gTLD[8] ".jprs." ".jprs" has been used not only for studies carried out by JPRS, but also for collaborative research and development activities with the relevant technical communities, academic 8 institutions and business partners including the registrars. ".jprs TLD Labs" was launched as a platform for accumulating new knowledge, technologies and ideas and for showcasing trials and practical activities for new innovations on the Internet.

● **https://jprs.co.jp/topics/2017/170627_2.html (in Japanese)**

Issuance of a Standards Track RFC Co-authored by a JPRS Engineer (July)

RFC 8198 ("Aggressive Use of DNSSEC-Validated Cache") co-authored by Kazunori Fujiwara of JPRS, Mr. Akira Kato of Keio University/WIDE Project[9] and Mr. Warren Kumari of Google Inc. in the U.S., was issued as a Standards Track.

RFC 8198 updates RFC 4035 that specifies protocol modifications of DNSSEC. It increases performance and decreases latency as well as loads in name resolutions.

● **https://jprs.co.jp/en/topics/2017/170727.html**

Start of Accepting Concurrent Registration Applications for Japanese JP Domain Names Representing School Names (October)

JPRS started accepting 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 October 2, 2017.

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 name or the abbreviation can register the other string. JPRS also extended the Concurrent Registration Application Period longer than originally planned, to give each school enough time to consider and an equal opportunity to register desired domain names.

● **https://jprs.co.jp/press/2017/171002.html (in Japanese)**

---

*7 https://tldlabs.jprs/
*8 gTLD: Generic Top Level Domain
*9: WIDE Project
  http://www.wide.ad.jp/index_e.html

Publication of the Results of the Joint Research Using the gTLD ".jprs" with ISPs of the Electric Power Corporation Group (October)

JPRS and eight Internet service providers (ISPs) of the electric power corporation group drew up and published a report as a result of their joint empirical research carried out since February 2016 on the uninterrupted use of the Internet in the event of a large-scale disaster.

Using authoritative DNS servers of ".jprs" under JPRS's management set up within the participating ISPs' networks, this research evaluated the continuous availability of various Internet services with the TLD even when a large-scale disaster strikes.

The research also assessed the installation configurations of the authoritative DNS servers of ".jprs" within the participants' networks, which provided specialized knowledge about how DNS queries changed when those authoritative DNS servers were deployed in the participating companies.

● **https://jprs.co.jp/press/2017/171031.html (in Japanese)**

JPRS Held 8th ".jp DNSSEC Key Ceremony" (October)

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

It is vital to ensure 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 3, two External Witnesses observed and confirmed the process.

● **https://jprs.co.jp/en/topics/2017/171005.html**

Cooperation with the Company Visit of Hokkaido Kitahiroshima-Nishi High School (October)

JPRS assisted the School Support Center[*10] 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 Hokkaido Kitahiroshima-Nishi High School, who visited JPRS's head office in Tokyo.

● **https://jprs.co.jp/topics/2017/171027.html (In Japanese)**

company visit to JPRS

Internet Week 2017 (November)

JPRS supported Internet Week 2017 held from November 28 to December 1, 2017 as a sponsor. In addition, Kazunori Fujiwara of JPRS contributed to the planning of the DNS-related sessions as a member of the Program Committee. JPRS staff members also gave presentations in the subsequent programs. Yuri Hirabayashi, Takaharu Ui, Yoshiro Yoneya and Kazunori Fujiwara talked about domain names, DNS, the Root Zone KSK Rollover and other related topics in the "DNS DAY."

Lunch Seminar at Internet Week 2017

At the Lunch Seminar, Yasuhiro Morishita and Naoto Shimada of JPRS shared a slide deck entitled "Let's Face DNS and Server Certificate – What DNS Operators Should Do Based on the Current Relationship between DNS and Server Certificate" and explained the points to keep in mind in DNS operation in light of the relationship between DNS and server certificates, both of which are key underlying technologies.

● **https://jprs.co.jp/topics/2017/171016.html (In Japanese)**

Donation of "Secret of the Internet (New Edition)" of 'Gakken Series – Understanding through Manga' to Elementary Schools and Public Libraries across Japan (December)

'Gakken Series – Understanding through Manga' is a series of learning materials for elementary school students published by Gakken Plus[11] (Gakken). JPRS collaborated with Gakken to produce "Secret of the Internet (New Edition)" in the series and donated copies to about 20,000 elementary schools and around 3,100 public libraries throughout Japan.

"Secret of the Internet (New Edition)" is a comic-style book that describes in easy terms how the Internet works and explains the organizations that support the Internet on a daily basis. This book is published for free in 'Manga Secret Library' of Gakken Kidsnet[12] and an e-book store called 'Beyond Publishing[13].'

Secret of the Internet
(New Edition)

● **https://jprs.co.jp/press/2017/171219.html (in Japanese)**
● **https://jprs.co.jp/topics/2017/171227.html (in Japanese)**

Events and Seminars for JP Registrars

"JP Registrar Seminar – An Introduction to Domain Name Registration and Administration –" (May)
JPRS provided basic information on domain names and outlined how to register and administer them to the newly accredited JP Registrars and those staff of JP Registrars who recently started handling JP domain names.

"JP Partners' Meeting" (October)
JPRS described 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. JPRS also shared basic knowledge about DNS that is necessary for doing business in the domain name industry, along with the status of the Root Zone KSK Rollover.

---

*11 Gakken Plus Co., Ltd.
    https://gakken-plus.co.jp/ (in Japanese)
*12 Gakken Kidsnet
    https://kids.gakken.co.jp/ (in Japanese)
*13 Beyond Publishing
    https://bpub.jp/ (in Japanese)

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."

ICANN58

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.

In June 2017, JPRS submitted a statement to ICANN regarding the Japanese Label Generation Rules for the second level of gTLD domains, based on its 16 years of experience of providing Japanese label services in ".jp." Currently, ICANN is working on finalizing the rule, taking the statement into consideration.

ICANN holds three public meetings each year in different regions of the world to enable global stakeholders to participate in person and discuss policies and rules for Internet resource management. In 2017, ICANN held its 58th meeting in Copenhagen, Denmark in March, the 59th meeting in Johannesburg, South Africa in June and the 60th meeting in Abu Dhabi, United Arab Emirates in October.

With the participation of numerous parties interested in ccTLD and gTLD, ICANN has always functioned as an important forum for information-sharing and discussion on issues on policies and governance concerning domain name management. In addition, Supporting Organizations (SOs) and Advisory Committees (ACs) continued active discussions between different SOs/ACs to gain a better understanding of each other in 2017, like they did in 2016. ICANN is serving as an important forum for SOs/ACs to exchange views on different topics of interest, with a focus on Internet resources.

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

In June 2017, Hirofumi Hotta of JPRS was awarded the Multistakeholder Ethos Award by ICANN. He was recognized as a well-qualified recipient who has devoted himself to the activities in ICANN and demonstrated the spirit of collaboration for promoting community consensus through his 18 years of active participation and dedication[3].

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 the transparency that underpins the structure, by publishing the materials and records of their meetings.

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 the ccNSO Council member during the same time.

In 2017, ccNSO listened to the activity reports made by the new framework that had been established after the IANA stewardship transition, exchanged information and had question-and-answer sessions with the Cross Community Working Group on Enhancing ICANN Accountability as well as other relevant working groups within ccNSO. In doing so, ccNSO made an effort to incorporate the views of as many ccNSO members as possible.

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 lists.

While ICANN is focusing on enhancing the accountability of its own operations, ccNSO as one of ICANN's Supporting Organizations is also working on ensuring its accountability. To that end, ccNSO is making available information on the ccNSO Council's work along with its activity status and establishing a team to review the guidelines related to ccNSO issues. It is also developing policies on the retirement of ccTLDs and policies on the review mechanism for decisions relating to the ccTLD delegation, revocation and retirement.

---

[3] https://jprs.co.jp/en/press/2017/170627.html
[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. Each language community has been making progress to date.

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 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 to contribute his expertise gained through designing, providing and operating the Japanese JP Domain Name services.

After mutual coordination, the Japanese, Chinese and Korean GPs respectively proposed the LGRs for their own scripts to ICANN and moved onto separate discussions with the IP. The three-party coordination and the arrangement with the IP were originally planned to be complete by mid 2015. However, they actually concluded in the first half of 2017, as the consultation between the Chinese and Korean GPs took longer than expected. Upon seeing the results of the consultation, the Japanese GP decided to continue its final arrangement with the IP into 2018.

---

*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, 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 2017, RSSAC made positive efforts to make its activities more transparent by organizing the open sessions in ICANN meetings to describe the role and function of the root servers and by discussing the whole concept of accountability that the root server operators should ensure.

In addition, Shinta Sato of JPRS serves as a member of the RSSAC Caucus, which is tasked with assisting the development of RSSAC documents.

(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

(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[8]. 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[9]. Yoshiro Yoneya of JPRS participated in the design team as a member.

The document is intended for the first KSK Rollover and proposes that the signature algorithm and key size should be maintained; the KSK should be rolled over on a 90-day window that is set for the Zone Signing Key (ZSK) Rollover; and a fallback should be performed in case of emergency.

The Root Zone KSK Rollover was originally scheduled to take place from July 2017 to March 2018, and so ICANN started a series of processes in July. However, it found in September that a certain number of resolvers did not have the new KSK, and so moved forward the date to start signing with the new KSK. The timeline of the KSK Rollover is yet to be finalized as of the end of January 2018[10].

(6) RA Spec11 Security Framework Drafting Team

The new gTLD Registry Agreement (RA) requires the registries to periodically assess whether the registered domain names are being used for malicious purposes and provide statistical reports to ICANN[11].

The report is called "Spec11 3b" or simply "Spec11," after the relevant part in the RA. ICANN established a team to draft a guideline for the new gTLD registries (Spec11 Security Framework Drafting Team) in July 2015, so that ICANN could respond to the inquiries from the registries as to how they should implement the Spec11. Currently the Drafting Team is drawing up a document containing the points to be considered by the new gTLD registries.The Team consists of three groups, namely, the Registry Group, the Registrar Group and the GAC[12] Group. Yoshiro Yoneya of JPRS participated in the Registry Group.

In the Team, mainly the Registry Group prepared the outline of the document, and then the Registrar Group and the GAC Group reviewed the draft.

The team finished drafting the guideline in June 2017. Following the public comment period, the guideline was approved by the ICANN Board and was officially published in October 2017[13].

---

*8 DNSSEC Practice Statement for the Root Zone KSK Operator
   https://www.iana.org/dnssec/icann-dps.txt
*9 DNSSEC Root Zone KSK Recommendations
   https://www.iana.org/reports/2016/root-ksk-rollover-design-20160307.pdf
*10 KSK Rollover is planned on October 11, 2018 as of the end of May 2018.
*11 REGISTRY AGREEMENT
   https://newgtlds.icann.org/sites/default/files/agreements/agreement-approved-09jan14-en.pdf
*12 GAC: Governmental Advisory Committee
   https://gacweb.icann.org/
*13 Community-developed Framework for Registry Operator's Response to Security Threats Now Available
   https://www.icann.org/news/announcement-2-2017-10-20-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 these meetings are attended by engineers gathering from around the world.

IETF 98

In 2017, IETF 98 was held in Chicago, U.S., IETF 99 in Prague, Czech Republic and IETF 100 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 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, and has pointed out the ambiguity in the DNS protocol, presented the issues caused by misconfigurations of DNS servers and discussed the operational method of DNSSEC. In addition, JPRS engineers coauthored RFC 4074, RFC 7719 and RFC 8198, and these RFCs were issued.

In 2017, Kazunori Fujiwara of JPRS, Mr. Akira Kato of Keio University/the WIDE Project and Mr. Warren Kumari of Google Inc. in the U.S. worked together to standardize the proposals that they had co-authored to use DNSSEC as a method to streamline name resolutions and as a countermeasure against random sub-domain attacks (DNS water torture attacks). These proposals were approved by IESG*[4] and then issued as RFC 8198.

Kazunori Fujiwara of JPRS, Mr. Paul Hoffman of ICANN and Mr. Andrew Sullivan of Oracle Corporation in the U.S., who is also the former IAB chair, co-authored the DNS Terminology (glossary), which was then issued as RFC 7719 in December 2015. Since then, efforts have been made to collect words for the terminology and to make suggestions for improvement.

---

*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/
*4 IESG: Internet Engineering Steering Group
  https://www.ietf.org/iesg/

Hitherto several proposals to receive multiple responses to one DNS query were made in the dnsop WG. However, these proposals could not gain a consensus and so did not reach standardization. The WG restarted the discussion in 2017, and Kazunori Fujiwara of JPRS proposed an alternative method and illustrated the technical features of his proposal in comparison to the other suggestions that had previously been submitted.

Fujiwara's proposal is different from the other ones in that it is not a new protocol but is a combination of existing mechanisms. Also, it differs in using RFC 8198 that was standardized in July and enables the efficient handling of information such as non-existence of IPv6. Going forward, the WG will consider the addition of specifications and the next step, taking into consideration the abovementioned comparison.

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 Ho Chi Minh Meeting held in February, Hirofumi Hotta of JPRS shared the update of ccNSO of ICANN as a member of the ccNSO Council. He also reported about ccNSO and served as a panelist in the IDN session in the APTLD Tbilisi Meeting in September. In 2017, APTLD meetings focused on the discussion on country and territory names and other geographic names as TLDs. The participants shared information and discussed the issue in both the February and September meetings, which resulted in the publication of the statement of APTLD.

(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 2017 was organized at the United Nations Office at Geneva, Switzerland 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].

This particular IGF was the second forum to be held since the UN General Assembly decided to extend IGF for ten years after 2016. The participants of IGF 2017 reconfirmed the significance of multi-stakeholder dialogues and the importance of putting the discussions and opinions exchanged locally and regionally onto the agenda of the global IGF.

(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 of APrIGF.

The 2017 APrIGF was held in Bangkok, Thailand in July, and Hirofumi Hotta and Yuri Takamatsu of JPRS participated in the event. Hotta took part as a panelist in the session on IDN, where he shared the background to the introduction of Japanese domain names and talked about the latest trends in Japan as well as the Japanese Label Generation Rule for the DNS root zone. The 2017 APrIGF not only dealt with various current topics like cybersecurity, but also continued to develop an outcome document to deliver to the global IGF as a collective voice formed in the APrIGF, which was introduced in 2015 for the first time. As part of the effort, several sessions were held in the 2017 APrIGF to hear opinions about the draft outcome document. First, the secretariat and volunteers developed the draft outcome. Then, following the review carried out during the 2017 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

a) JPRS Submitted Comments to the Council Working Group on International Internet-Related Public Policy Issues (CWG-Internet)

On January 10, 2017, JPRS submitted its comments in response to the consultation run by the Council Working Group on international Internet-related public policy issues (CWG-Internet).

This consultation sought inputs from all stakeholders under the theme "Developmental Aspects of the Internet." In its comment, JPRS supported the multistakeholder process that was essential for the Internet's "equally connecting every corner of the world" nature, in the layer of technical infrastructure and the upper layers including applications and contents.

● **https://jprs.co.jp/en/topics/2017/170110.html**

b) Participation in the Activities of Japan IGF

The IGF recognizes the efforts being made at local and regional levels to promote discussions pertaining to Internet governance as the IGF Regional and National Initiatives, 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. In the IGF held in December, he ran the session proposed by the Japan IGF to share the current status of IPv6 deployment in each country and exchange opinions.

As for the activities of the Japan IGF after 2018, IGCJ and IGF-Japan discussed how they could collaborate going forward.

*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/

(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.

(5) Participation in AP* Retreat

AP* (APstar[8]) Retreat is a meeting that is held twice a year in principle and gathers the Internetrelated 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 2017, AP* Retreat was held in Ho Chi Minh, Vietnam in February and then in Taichung, Taiwan in October. Hirofumi Hotta and Atsushi Endo of JPRS participated in the meeting in February, and Hotta took part in the meeting in October.

(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 root DNS server operator organizations 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. In addition, tabletop exercises are held as preparation for a large-scale failure.

---

*7 DotAsia Organisation
   https://www.dot.asia/
*8 APstar: The Community of Asia Pacific Internet Organizations
   http://www.apstar.org/

(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 Jose in the U.S. in September 2017, Kazunori Fujiwara of JPRS gave a presentation entitled "Cache Effect of Shared DNS Resolver."

(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 internationalizing identifiers.

Yoshiro Yoneya of JPRS co-chairs the HTTPS in Local Network Community Group[12] established in 2017. The group is collecting examples of use of 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 the Technical Committee on Internet Architecture of EIC Communication Society as an expert member.

In 2017, the research paper entitled "Cache Effect of Shared DNS Resolver," co-authored by Kazunori Fujiwara of JPRS along with Mr. Akira Sato and Mr. Kenichi Yoshida of the University of Tsukuba, was adopted for "COMPSAC 2017[13]," a conference organized by the IEEE Computer Society[14]. They participated in the conference to give a talk on their research. 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.

---

*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
*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/
*14 IEEE Computer Society
    https://www.computer.org/

01·4   Activities in Japan

(1) Participation in JANOG

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

The JANOG Meetings were held in January and July in 2017. JANOG also organized "JANOG39.5 Interim Meeting" in April and "JANOG BoF & LT Night #2" in September.

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. At the JANOG39 meeting held in January, Yoshiro Yoneya of JPRS called the participants' attention to IP fragmentation that might occur along with the Root Zone KSK Rollover. In the JANOG40 meeting in July, Kazunori Fujiwara of JPRS collaborated with Mr. Takanori Yamaguchi of Internet Initiative Japan Inc. (IIJ[2]) to discuss the shift of opinion about DNS. They pointed out that the configurations that had been recommended over ten years ago were not necessarily valid today and emphasized the importance of constantly reviewing and readjusting the configuration in line with the times.

JANOG40 Meeting

(2) Participation in DNSOPS.JP

DNS Operators' Group, Japan (DNSOPS.JP)[3] 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) twice a year for technical presentations and discussions. It has also organized "DNS Summer Day," an event consisting of tutorials and workshops relating to DNS, every summer since 2012.

In the "DNS Summer Day 2017" held in June 2017, Shinta Sato of JPRS gave a presentation entitled "Consideration of DNS and Local Internet Services in Natural Disasters" and shared the outcome of the joint research conducted by JPRS and the other participating companies to study the uninterrupted use of the Internet in the event of a large-scale disaster. In addition, Yoshiro Yoneya of JPRS explained the Root Zone KSK Rollover in collaboration with Mr. Yoshibumi Suematsu of QTnet[4].

---

[1] JANOG: JApan Network Operators' Group
    https://www.janog.gr.jp/en/
[2] IIJ: Internet Initiative Japan Inc.
    https://www.iij.ad.jp/en/
[3] DNSOPS.JP: DNS Operators Group, Japan
    https://dnsops.jp/ (in Japanese)
[4] QTnet
    http://www.qtnet.co.jp/ (in Japanese)

(3) Participation in ICANN Readout Sessions

"ICANN Readout Session" is an 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 to fulfill its commitment as the .JP registry by reporting to the Japanese community on the trend of ccTLDs and other relevant topics.

The ICANN Readout Sessions were held in January, April, August and December in 2017. In these events, JPRS shared the developments and matters under consideration in ccNSO and discussed with the other participants the issues concerning ICANN, along with the timeline and the points related to the next new gTLD round.

(4) Participation in ISOC-JP

ISOC-JP[5] was established in August 1994 and made various efforts to promote the Internet in Japan as the Japan Chapter of ISOC[6]. Takaharu Ui of JPRS has contributed to the activities of ISOC-JP as a board member since 2014. 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 2017. 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. In addition, Kazunori Fujiwara reported on the developments in the working groups related to DNS in his talk entitled "Topics Related to DNS," and Yui Watanabe outlined the IETF meeting from the viewpoint of a newcomer, using a slide deck entitled "Report of My First Time Participation in IETF."

(5) Participation in ICT-ISAC

ICT-ISAC[7] 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 maintain the stability of the distribution and communication of information, thereby improving security countermeasures and achieving a higher level of response. 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 ICT-related security.

*5 ISOC-JP: The Internet Society Japan Chapter
  https://www.isoc.jp/ (in Japanese)
*6 ISOC: Internet Society
  https://www.internetsociety.org/
*7 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

IGCJ's key agenda topics for the year 2017 included the EU General Data Protection Regulation (GDPR) and fake news. It also talked about the activities and efforts of the technical communities relating to the Internet (ICANN, APNIC, APTLD, W3C, ISOC, etc.).

The meeting reports and materials are publicly available on the IGCJ website. Hirofumi Hotta of JPRS has been helping to edit the reports.

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

The Council of Anti-Phishing Japan[8] is a council tasked mainly with collecting and providing information on phishing and issuing alerts.

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.

Meanwhile, Kazumitsu Shiraiwa and Ryo Arai of JPRS participated in the working group tasked mainly with promoting knowledge about server certificates.

---

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

(8) Participation in Telecom Services Association

Telecom Services Association[9] 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 usage 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)[10] is the body tasked with considering how personal information protection ought to be, drafting a strategy to promote data utilization, working on improving usability of the My Number system and enhancing cybersecurity. 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.

---

*9 Telecom Services Association
　http://www.telesa.or.jp/ (in Japanese)
*10 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.

JPRS announced the service outline and the launch schedule of the Japanese JP domain names representing school names in 2016. Following the announcement, JPRS solicited the views of school officials and improved the registration rule to address the actual situation in the field of education. It started accepting applications for concurrent registration in October 2017.

JPRS has also strived to make JP domain names easier to register and use. As part of the effort, it has lowered the registration fee applied to JP Registrars in a phased manner, while continuing a balanced enhancement of reliability, stability and usability. In 2017, JPRS reduced the fee for the registration of General-use and Prefecture Type JP domain names.

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. It continued to collaborate with the various communities relating to the Internet and actively contributed to relevant activities including standardization of Internet technologies. Issuance of RFCs co-authored by JPRS engineers exemplifies these efforts.

The year 2017 continued to see a number of incidents threatening the stable operation of the Internet, such as urgent and serious DNS software vulnerabilities and large-scale DDoS attacks exploiting the mechanism of DNS. JPRS collaborated with other relevant organizations and responded to these problems by alerting the community with a summary of the incidents as well as countermeasures against them.

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 eight years in a row. In 2017, it revamped the booklet to reflect the trend of Internet usage of recent years. The number of copies distributed in these eight years exceeded 240,000. JPRS also collaborated with Gakken to produce a learning material for elementary school students and donated copies to elementary schools and public libraries throughout Japan. Furthermore, JPRS provided domain names free of charge at a website creation contest for junior and senior high school students.

To ensure service continuity and improve the operational infrastructure, JPRS enhanced its ability to restore services more quickly, conducted test drills and optimized its personnel positioning, taking into account disasters hitting Tokyo. It is also making efforts to improve the operational environment of the bases outside of Tokyo to keep providing services. In addition, JPRS partnered up with eight ISPs of the electric power corporation group to carry out a joint research and compile a report on the uninterrupted use of the Internet in the event of a large-scale disaster. The report was published in 2017.

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 service. 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 January 1, 2018, the cumulative number of registered JP domain names reached 1,495,477, an increase of 40,841 in one year.

(Number of names)

As of January each year
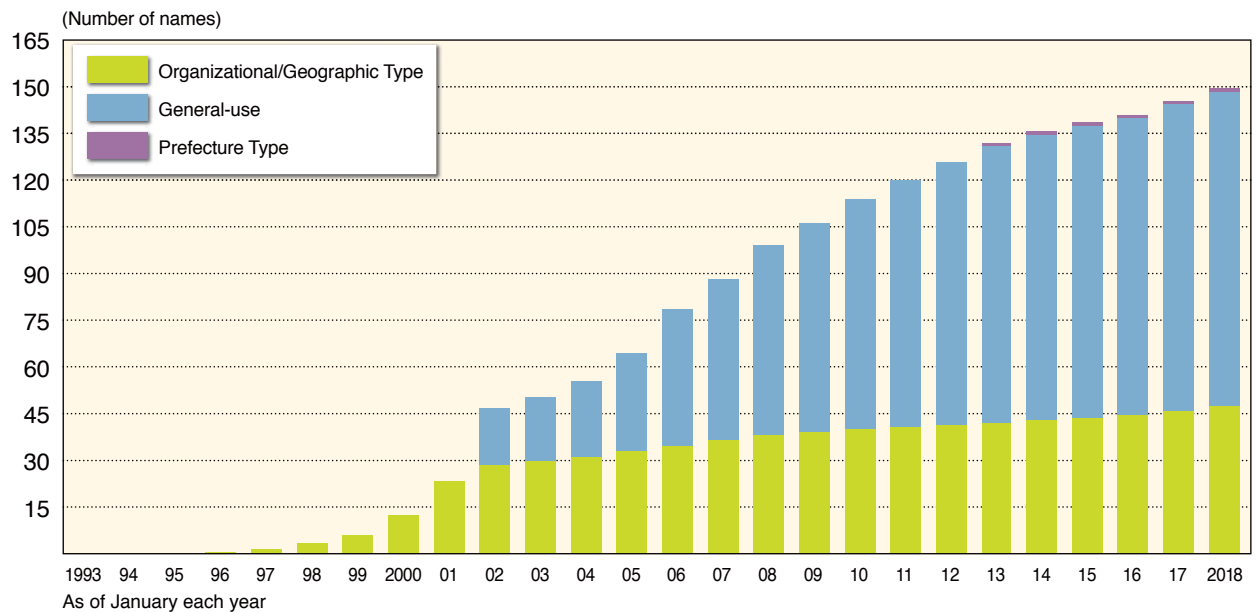
(Number of names)

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

*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, 2018

Prefecture
Type 0.8%

Organizational/
Geographic Type
31.6%

General-use 67.6%

CO：85.5%

ED：1.1%
GO：0.1%
GR：1.3%
LG：0.4%
NE：2.9%
OR：7.4%
Geographic Type: 0.5%
AC：0.8%
AD：0.02%
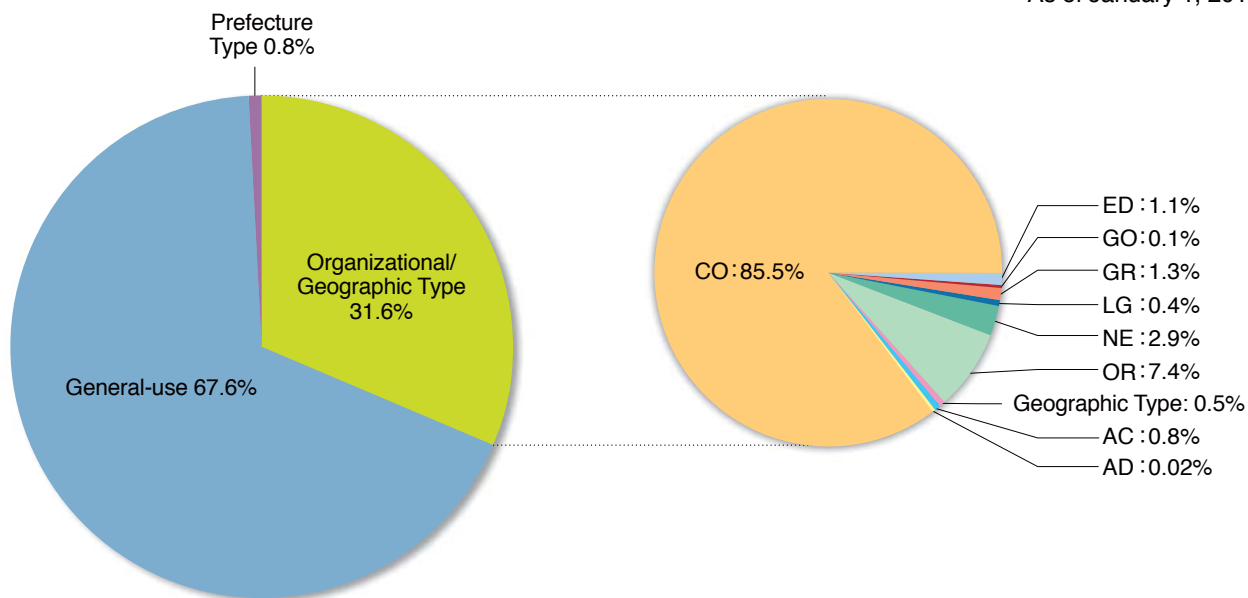
(Number of names)

JP Domain Name Types		1 Jan 2018 Number of Registrations	1 Jan 2017 Number of Registrations	Difference
Organizational/ Geographic Type	AC: Higher education institution	3,603	3,576	+27
	AD: JPNIC Member	257	261	−4
	CO: Company	404,222	391,089	+13,133
	ED: Primary school, junior and senior high school	5,262	5,124	+138
	GO: Japanese government	586	585	+1
	GR: Group	6,193	6,396	−203
	LG: Japanese local authority	1,885	1,879	+6
	NE: Network service	13,524	13,821	−297
	OR: Corporation other than	35,112	33,904	+1,208
	Geographic Type	2,262	2,312	−50
General-use (Japanese domain name)		1,010,615 （107,363）	984,270 （114,130）	+26,345 （−6,767）
Prefecture Type (Japanese domain name)		11,956 (2,524)	11,419 (2,524)	+537 (±0)
Total JP Domain Name Registration		1,495,477	1,454,636	+40,841

*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, 2018

Prefecture	Organizational/ Geographic Type	General-use	Prefecture Type
Hokkaido	2.8%	1.9%	2.1%
Aomori	0.5%	0.3%	0.6%
Iwate	0.4%	0.3%	0.3%
Miyagi	1.3%	0.8%	0.7%
Akita	0.4%	0.2%	0.4%
Yamagata	0.6%	0.3%	0.3%
Fukushima	0.9%	0.5%	0.5%
Ibaraki	1.3%	1.0%	0.5%
Tochigi	1.0%	0.5%	0.7%
Gunma	1.1%	0.7%	1.5%
Saitama	4.3%	2.6%	2.7%
Chiba	3.2%	2.3%	2.5%
Tokyo	32.5%	43.3%	41.2%
Kanagawa	6.7%	5.0%	3.3%
Niigata	1.1%	0.7%	0.7%
Toyama	0.6%	0.4%	1.0%
Ishikawa	0.7%	0.5%	0.5%
Fukui	0.5%	0.3%	0.2%
Yamanashi	0.5%	0.4%	0.4%
Nagano	1.3%	0.8%	1.1%
Gifu	1.2%	0.7%	0.9%
Shizuoka	2.2%	1.5%	1.2%
Aichi	5.4%	3.6%	2.3%
Mie	0.8%	0.5%	0.9%
Shiga	0.6%	0.5%	2.7%
Kyoto	2.0%	3.1%	5.8%
Osaka	9.5%	14.9%	9.7%
Hyogo	3.1%	2.3%	1.5%
Nara	0.6%	0.6%	1.4%
Wakayama	0.4%	0.3%	0.4%
Tottori	0.2%	0.2%	0.3%
Shimane	0.3%	0.3%	0.2%
Okayama	1.1%	0.8%	0.6%
Hiroshima	1.6%	1.0%	1.0%
Yamaguchi	0.5%	0.3%	0.2%
Tokushima	0.3%	0.2%	0.2%
Kagawa	0.5%	0.4%	0.4%
Ehime	0.6%	0.4%	0.4%
Kochi	0.3%	0.2%	0.3%
Fukuoka	3.1%	2.6%	4.0%
Saga	0.3%	0.2%	0.4%
Nagasaki	0.5%	0.3%	0.5%
Kumamoto	0.7%	0.6%	0.8%
Oita	0.4%	0.4%	0.6%
Miyazaki	0.4%	0.3%	0.3%
Kagoshima	0.5%	0.4%	0.7%
Okinawa	0.7%	0.6%	1.3%

02·4 Transition of DNS Configuration Rate

*As of January 1, 2018
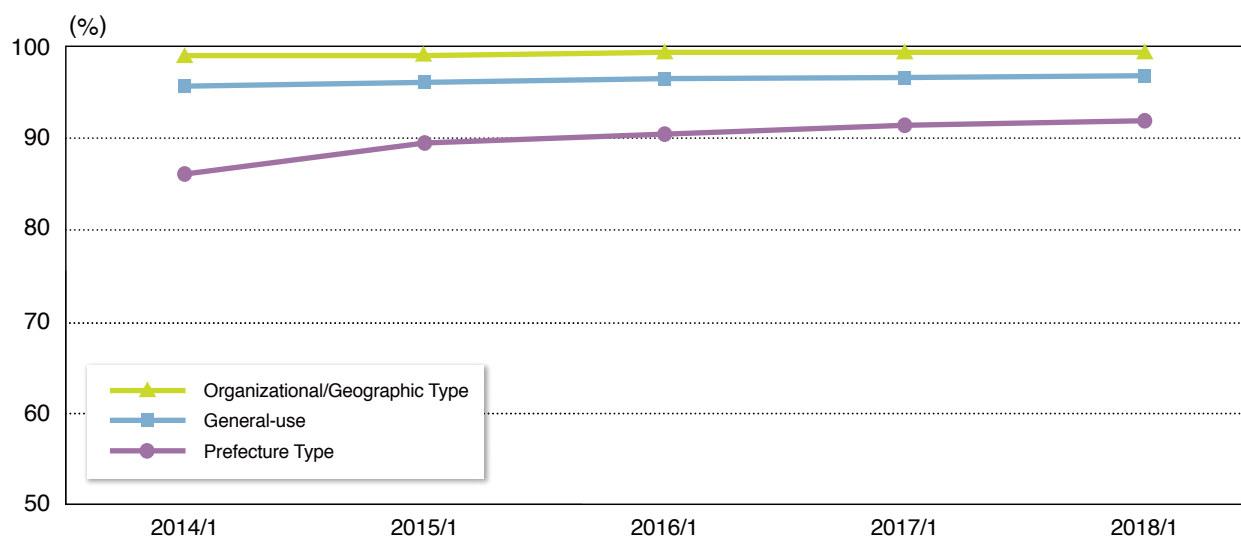
Month/Year	Organizational/Geographic Type	General-use	Prefecture Type
2014/1	99.0%	95.6%	86.9%
2015/1	99.0%	96.0%	89.9%
2016/1	99.4%	96.3%	90.5%
2017/1	99.4%	96.6%	91.4%
2018/1	99.4%	96.8%	91.9%

02·5 Number of Accredited JP Registrars
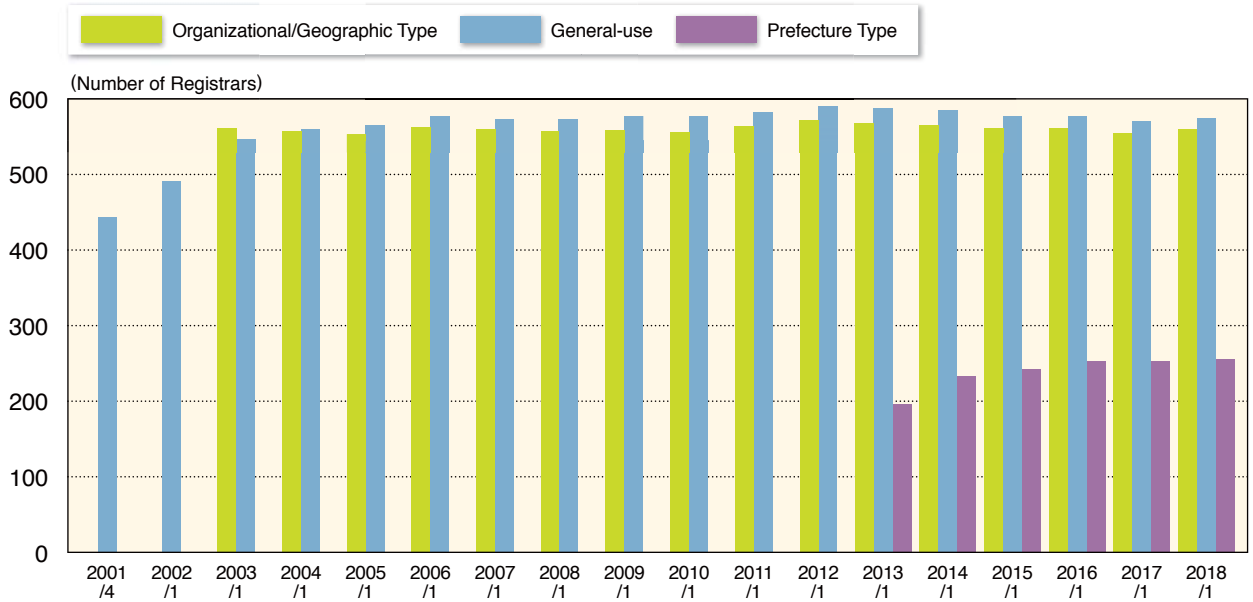
(Number of Registrars)

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

*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)
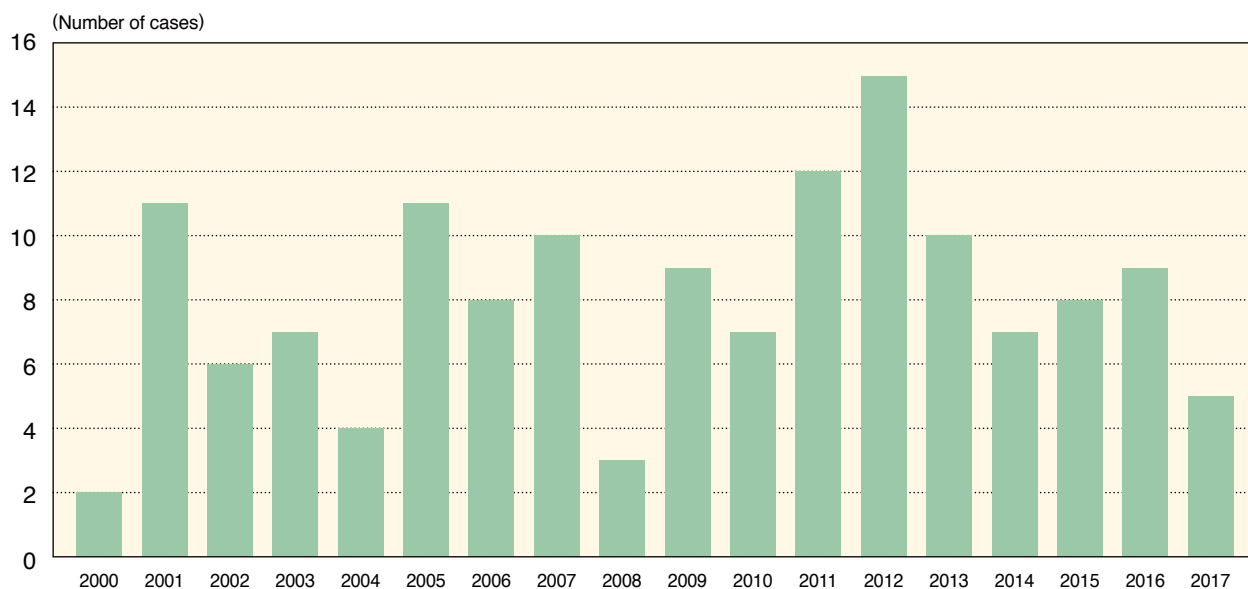
(Number of cases)

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	7
2015	8
2016	9
2017	5

*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]).	

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]).
                "Nihongo JP Navi" service was started.
        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" (http://日本語.jp/) for promoting Japanese JP Domain Name
                was launched.
2005   Jan.   The portal site" Jinmei Jiten dot JP" (http://人名辞典.jp/) to introduce Japanese JP domain names
                using personal names was launched.
        Jun.   Work on eliminating risks due to improper management of DNS servers was started.
        Dec.   "Eki Machi Guide dot JP" (http://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 exceeded 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.
                JPRS published" DNS Practices," a book on DNS, written by JPRS engineers.
        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 exceeded 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 JPRS on Japanese translation of ICANN materials.
        Oct.   The cumulative number of registered JP domain names surpassed 1.4 million.
                JPRS started providing JP Registrars with "JP Domain Name Usage Support Program for Students."
2016   Jan.   JPRS announced a joint research with telecom carriers backed by electrical power companies
                on continued use of the Internet in case of a large-scale disaster
        Apr.   JPRS Started Digital Certificates Issuance Service
        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.
                JPRS and eight ISPs of the electric power corporation group published the results of their joint
                research.

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	(under consideration)

*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

Feb. 22 **58th JP Domain Name Advisory Committee meeting**
The committee agreed in principle on the draft advisory, "Recommendation of the members of the 9th JP Domain Name Advisory Committee," adjusted on the basis of the advisory report entitled "Method for appointing the members of the 9th JP Domain Name Advisory Committee" (JPRS-ADVRPT- 2016001). Following the confirmation of the committee members who had been absent from the 58th Advisory Committee meeting, the recommendation was finalized on February 23 and delivered to JPRS.

Regarding the transition of the IANA stewardship from the U.S. government, JPRS outlined the IANA function, its stewardship, the background of the transition and the situation after the transition. The committee members exchanged opinions on the topic.

Jun. 15 **59th JP Domain Name Advisory Committee meeting**
It was reported that all the candidates who had been nominated in the recommendation delivered as of February 23 had accepted their appointment. Then Shigeki Goto was elected and appointed as Chair, and Yoshio Takeyama as Vice Chair, of the 9th JP Domain Name Advisory Committee.

JPRS explained its response to the report "Method for appointing the members of the 9th JP Domain Name Advisory Committee" (JPRS-ADVRPT-2016001).

JPRS outlined the status of JP Domain Names and the other TLDs, circumstances surrounding domain names and the recent activities including the branding initiative conducted by JPRS. The committee members then exchanged opinions on what was reported in the presentation.

Dec. 6 **60th JP Domain Name Advisory Committee meeting**
It was reported that Takashi Ooi had resigned from the 9th JP Domain Name Advisory Committee and that the JPRS Board of Directors had appointed Shuichi Sasakura as his successor, following the committee's recommendation.

In addition, it was informed that Kazuhiro Mita had resigned from the 9th JP Domain Name Advisory Committee due to a personnel change within the Ministry of Internal Affairs and Communications, and that Shigeo Naito had replaced him as the committee member representing the government of Japan.

The JPRS Board of Directors submitted an inquiry entitled "Rules of JP Domain Name Advisory Committee" (JPRS-ADV-2017001). Based on the past experience of the JP Domain Name Advisory Committee meetings, the inquiry proposed a review of the rules in order to make the committee more efficient. The committee members presented their views on the issue.

JPRS gave an update about the "registration of domain names representing elementary and secondary educational institutions," which had also been discussed in past Advisory Committee meetings.

03·3 Proposals and Presentations

*Original materials are written in English, unless otherwise specified.

Date	Title	At	Hosted by
Jan.19	ccNSO Update (in Japanese)	47th ICANN Readout Session	JPNIC, IAjapan
Jan.20	IP Fragmentation is Imminent – Are You Ready? (in Japanese)	JANOG 39	JANOG
Feb.28	TLD Anycast DNS servers to ISPs - to Create a More Resilient DNS Environment -	APRICOT 2017	APRICOT
Mar.2	ccNSO Update	APTLD Ho Chi Minh Meeting	APTLD
Mar.15	JapaneseGP（JGP）update	ICANN58	ICANN
Apr.20	ccNSO Update (in Japanese)	48th ICANN Readout Session	JPNIC, IAjapan
Apr.28	DNS Protocol Changes and DNS Operation Resistant to Vulnerabilities (in Japanese)	TOPIC Seminar	TOPIC*[1]
May.12	Overview of IETF98 and the Environment Surrounding IETF (in Japanese)	IETF Update Meeting (98, Chicago)	ISOC-JP, JPNIC
May.12	Report on IETF98 – Topics Related to DNS (in Japanese)	IETF Update Meeting (98, Chicago)	ISOC-JP, JPNIC
Jun.1	Root Zone KSK Rollover (in Japanese)	Internet Week Showcase in Nagoya	JPNIC
Jun.2	Gaining Insight into DNS Operation – Key Considerations for Security and Recent DNSRelated Incidents –	Internet Week Showcase in Nagoya	JPNIC
Jul.13	Introduction to APTLD – Focusing on Outreach and Capacity Building – (in Japanese)	IGCJ	IGCJ
Jul.27	Shift of Opinion about DNS (in Japanese)	JANOG 40	JANOG
Jul.28	Making Rules for Japanese TLDs and CJK Coordination	APrIGF	APrIGF
Jul.28	IDNs in Japan	APrIGF	APrIGF
Aug.8	ccNSO Update (in Japanese)	49th ICANN Readout Session	JPNIC
Aug.9	Governance Models in Japan - .JP ccTLD and the Internet -	Asia Pacific Internet Governance Academy（APIGA）	KISA*[2], ICANN
Sep.1	IETF99 Hot Topics (Part 2) (in Japanese)	IETF Update Meeting (99, Prague)	ISOC-JP, JPNIC
Sep.10	AN APTLD UPDATE	AP* Retreat	AP*
Sep.14	Country codes and names as TLDs	APTLD Tbilisi Meeting	APTLD
Sep.15	Making Rules for Japanese TLDs and CJK Coordination	APTLD Tbilisi Meeting	APTLD
Sep.28	Handling of JP Domain Name Registration Data, etc.	IGCJ	IGCJ
Sep.30	Cache Effect of Shared DNS Resolver	OARC 27	DNS-OARC
Nov.1	JapaneseGP（JGP）update	ICANN60	ICANN
Nov.13	draft-fujiwara-dnsop-additional-answers-00	IETF 100 dnsop WG	IETF
Nov.30	Let's Face DNS and Server Certificates – What DNS Operators Should Do Based on the Current Relationship between DNS and Server Certificate – Lunch with DNS (In Japanese)	Internet Week 2017 Lunch Seminar	JPNIC
Nov.30	Background of Root Zone KSK Rollover (in Japanese)	Internet Week 2017 DNS DAY	JPNIC
Nov.30	How to Obtain Information Related to DNS (+OARC/IETF Report) (in Japanese)	Internet Week 2017 DNS DAY	JPNIC
Dec.5	ccNSO Update (in Japanese)	50th ICANN Readout Session	JPNIC
Dec.15	Report on IETF 100 – Topics Related to DNS (in Japanese)	IETF Update Meeting (100, Singapore)	ISOC-JP, JPNIC
Dec.15	Report of My First Time Participation in IETF (in Japanese)	IETF Update Meeting (100, Singapore)	ISOC-JP, JPNIC

*1 TOPIC: Tohoku Open Internet Community
　http://www.topic.ad.jp/ (in Japanese)
*2 KISA: Korea Internet & Security Agency
　https://www.kisa.or.kr/eng/main.jsp

03·4 Press Releases

Date	Title
Feb. 20	JPRS Supports "19th Japan Junior/Senior High School Web Contest" to Provide Experience of Using JP Domain Names (in Japanese)
Mar. 29	JPRS Publishes "JP Domain Name Registry Report 2016" (in Japanese)
May 15	JPRS Revamps Free Graphic Comic-style Booklet on "How the Internet Works" and Distributes Copies to Educational Institutions across Japan (in Japanese)
Jun. 20	JPRS Extends Deadline of Application for Graphic Comic-style Booklet on "How the Internet Works" until July 31
Jun. 27	Hirofumi Hotta of JPRS Received the ICANN 2017 Multistakeholder Ethos Award
Sep. 4	Cumulative Number of General-use JP Domain Names Exceeded 1 Million
Oct. 2	JPRS Starts Accepting Concurrent Registration Applications for Japanese JP Domain Names Representing School Names
Oct. 31	JPRS and Eight Telecom Carriers Backed by Electrical Power Companies Publish the Results of Their Joint Research
Dec. 19	JPRS Donates "Secret of the Internet (New Edition)" in 'Gakken Series – Understanding through Manga' to Elementary Schools and Public Libraries across Japan

*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. 12	(Urgent) Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2016-9131)
Jan. 12	(Urgent) Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2016-9147)
Jan. 12	(Urgent) Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2016-9444)
Jan. 12	Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2016-9778)
Jan. 17	Vulnerabilities of PowerDNS Authoritative Server and PowerDNS Recursor (CVE-2016-7068, CVE-2016-7072, CVE-2016-7073, CVE-2016-7074, CVE-2016-2120)
Feb. 9	Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2017-3135)
Apr. 13	(Urgent) Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2017-3137)
Apr. 13	Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2017-3136)
Apr. 13	Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2017-3138)
May 16	Vulnerability of Windows DNS Server (Denial of Service) (CVE-2017-0171)
Jun. 2	Change of Settings in Response to the IPv6 Address Change for b.root-servers.net (BRoot)
Jun. 15	LMDB Integration Problems with BIND 9.11.x
Jun. 15	(Urgent) Vulnerability of BIND 9.x (Privilege Escalation) (CVE-2017-3141)
Jun. 15	Vulnerability of BIND 9.x (Degradation of Service and Continuous Transmission of Packets) (CVE-2017-3140)
Jun. 30	(Urgent) Vulnerability of BIND 9.x (Circumvention of TSIG Authentication Can Permit Zone Data Manipulations) (CVE-2017-3143)
Jun. 30	Vulnerability of BIND 9.x (Circumvention of TSIG Authentication Can Permit Unauthorized Zone Transfers) (CVE-2017-3142)
Jul. 10	Impact of the Root Zone KSK Rollover and How to Check It
Jul. 27	Setting of Name Server Host Names When Using DNS Hosting Services
Jul. 27	Technical Description: Overview of In-bailiwick and Recommendations for Its Configuration and Use
Aug. 10	Questions and Answers about the Root Zone KSK Rollover
Sep. 28	ICANN Announced Postponement of Signing of the Root Zone Keyset with the New KSK (Published on September 28, 2017)
Oct. 25	Change of Settings in Response to the IPv4 Address Change for b.root-servers.net (BRoot)
Dec. 20	ICANN Published Update on the Root KSK Rollover (Published on December 20, 2017)

*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/