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JP Domain Name Registry Report



Japan Registry Services Co.,Ltd.

Introduction

As the Internet is being used in increasingly diverse areas of society, the need for domain names is growing and the area of domain name use is getting broader. With this background, the total number of registered JP domain names topped 1.45 million in January 2017. Especially, about 390,000 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 companies regard “co.jp” as the suitable domain for corporate websites.

In 2016, JPRS made progress on the launching and developing new services to improve the security and reliability of domain names in order to meet the increasing demand for domain names. As part of this effort, it started the JPRS Digital Certificates Issuance Services.

With respect to the trend of the global domain name industry, the New gTLD Program of ICANN*¹ enabled a number of new gTLDs to start operation one after another. More than 1,200 new gTLDs emerged on the Internet by the end of 2016, which led to the launch of websites with those 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 the domain name system (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
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Japan Registry Services Co., Ltd.

*1 ICANN: Internet Corporation for Assigned Names and Numbers
<https://www.icann.org/>

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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 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 2016

In 2016, 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.

Announcement of a Joint Research Using the New gTLD “.jprs” with Telecom Carriers Backed by Electrical Power Companies (January)

JPRS announced on January 18 a joint empirical research with telecom carriers backed by electrical power companies on the uninterrupted use of the Internet in case of a large-scale disaster and has since been working on a series of studies. Using “.jprs” DNS servers under JPRS’s management set up within the participating carriers’ networks, this research evaluates the continuous availability of various services on the Internet in the case where TLD DNS outside of the service providers’ network becomes inaccessible due to a large-scale disaster.

● <https://jprs.co.jp/press/2016/160118.html> (In Japanese)

Publication of “Internet White Paper 2016, 20th Anniversary Edition” (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 2016, 20th Anniversary Edition (subtitle: Innovation Spins Along)” was published on January 29 with the Internet White Paper Editorial Committee as the editor.

“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/2016/160129.html> (In Japanese)

Addition of “Internet White Paper 2015” to “Internet White Paper ARCHIVES” (February)

“Internet White Paper 2015” published in 2015 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/2016/160204.html> (In Japanese)

*1 Impress R&D
<http://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/>

18th Japan Junior/Senior High School Web Contest (February)

JPRS supported the “18th 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 646 General-use JP domain names (both in Japanese and ASCII) free of charge for the works of 323 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/2016/160222.html> (In Japanese)

Publication of a Guide Explaining ICANN’s Final Report on the Name Collision Issue (April)

The introduction of new gTLDs by ICANN aroused concern over the issue of name collision, which refers to the state in which a gTLD name overlaps with an existing name used within an organization’s private network. Name collisions pose a risk of intra-system troubles and information leakage. ICANN produced and published a guidance document in December 2013 to address this issue.

To promote measures to cope with this problem, JPRS participated in the “Expert Team on reviewing risks and developing countermeasures on introduction of large scale new gTLDs” established by JPNIC and produced a Japanese translation of the above-mentioned ICANN document. The translation was published in June 2014. After further analysis, ICANN posted its final report on the name collision issue in October 2015. In response, JPRS drew up and published an explanatory guide of the final report to ensure the safety of the domain name environment in the Japanese Internet community.

- <https://jprs.co.jp/topics/2016/160407.html> (In Japanese)

Service Change Related to ED.JP Domain Name Registration of “Compulsory Education School” (April)

The revision of the School Education Act enabled the establishment of “Compulsory Education Schools” from April 1, 2016. Accordingly, JPRS changed its service to make the ED.JP Domain Name available to compulsory education schools.

- <https://jprs.jp/whatsnew/notice/2016/160401.html> (In Japanese)

^{*4} Japan Junior/Senior High School Web Contest (formerly Think Quest JAPAN)
<http://webcon.japias.jp/> (in Japanese)

^{*5} JAPIAS: Japan Association for Promotion of Internet Application in School Education
<http://japias.jp/en/index.html>

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 “<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 seven years exceeds 200,000. 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.



Ponta’s Great Adventure in the Network

- <https://jprs.co.jp/press/2016/160516.html> (In Japanese)
- <https://jprs.co.jp/press/2016/160704.html> (In Japanese)

Interop Tokyo 2016 (June)

JPRS ran a booth at Interop Tokyo 2016 to provide information on domain names and DNS. The basics of domain names and DNS, technical information including “insufficient zone transfer configuration for the authoritative DNS servers” and “malwares that exploit DNS as a medium for communication” along with the latest developments of new gTLDs were shared through its seminars and panel exhibition.



JPRS booth

- <https://jprs.jp/related-info/event/2016/0622interop.html> (In Japanese)

JPRS Submitted a Notification of the Telecommunications Business with the Enforcement of the Law for Partial Revision to the Telecommunications Business Act, etc. (June)

The law to partially amend the Telecommunications Business Law took effect in May 2016, and DNS fell within the telecommunications services defined in the amended law. Accordingly, JPRS as the operator of JP DNS submitted a notification of its telecommunications business to the Ministry of Internal Affairs and Communications on June 13.

SECCON 2016 (June)

“SECCON 2016*6” was a series of events held from June 2016 to January 2017 with the aim of recruiting and training information security personnel and providing a place for hands-on experience with related technologies. JPRS supported SECCON 2016 as a sponsor and ran a booth at SECCON 2016 Final held in January 2017.

*6 SECCON 2016
<http://2016.seccon.jp/> (in Japanese)

JPRS Announced the Start of Registration of Japanese JP Domain Names Representing School Names from October 2017 (October)

JPRS announced that it would start accepting applications for Japanese JP domain names reserved for the names of elementary and secondary educational institutions (school names) such as “〇〇小学校.jp” and “〇〇高校.東京.jp” on October 2, 2017. JPRS also published the details including the service outline, schedule and application procedure.

- <https://jprs.co.jp/press/2016/161003.html> (In Japanese)

JPRS Held 7th “.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 the External Witnesses, who are not affiliated with JPRS, to the .jp DNSSEC Key Ceremony. In the .jp DNSSEC Key Ceremony held on October 4, two External Witnesses observed and confirmed the process.

- <https://jprs.co.jp/en/topics/2016/161005.html>

Cooperation with the Company Visit of Itoigawa High School, Niigata Prefecture (October)

JPRS assisted the School Support Center*7 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 Itoigawa High School, Niigata Prefecture, who visited JPRS's head office in Tokyo.

- <https://jprs.co.jp/topics/2016/161006.html> (In Japanese)



Company Visit to JPRS

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

Internet Week 2016 (November-December)

JPRS supported Internet Week 2016 as a sponsor, and 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 following programs. Kazunori Fujiwara served as the instructor of the tutorial entitled “DNS Hands-on: DNS Operation 101” with the support of Yoshitaka Aharen as the teaching assistant. In the “DNS DAY” program, Yoshiro Yoneya, Tomoya Sakaguchi, Takaharu Ui and Kazunori Fujiwara outlined the trends related to DNSSEC, JP DNS and domain names along with the latest developments in IETF. At the Lunch Seminar, Yasuhiro Morishita and Katsuyoshi Ozaki illustrated the incidents that had occurred in 2016 and explained the key points in DNS server operations in the presentation entitled “Gaining Insight into DNS Operation – Incident Case Study and Necessary Elements/Items: Lunch with DNS.”



Lunch Seminar at Internet Week 2016

At the Lunch Seminar, Yasuhiro Morishita and Katsuyoshi Ozaki illustrated the incidents that had occurred in 2016 and explained the key points in DNS server operations in the presentation entitled “Gaining Insight into DNS Operation – Incident Case Study and Necessary Elements/Items: Lunch with DNS.”

- <https://jprs.co.jp/topics/2016/161011.html> (In Japanese)

Publication of Japanese Translation of the RFCs Related to RDAP (December)

JPRS published a reference Japanese translation of a series of RFCs concerning RDAP*⁸, a protocol that is being developed as a replacement for the WHOIS protocol. RDAP explores ways to solve a number of issues identified in the WHOIS protocol. The technical specifications of RDAP are currently being discussed in IETF.

- <https://jprs.co.jp/topics/2016/161215.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.

“JPRS Technical Seminar” held concurrently with “15th JP Partners’ Meeting” (October)

In the Technical Seminar for engineers, JPRS spoke about topics related to DNS security and shared technical information including the characteristics of RDAP. JPRS also highlighted the necessity of obtaining server certificates and the importance of HTTPS Everywhere.

In the 15th JP Partners’ Meeting, 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.

*8 RDAP: Registration Data Access Protocol

01 · 3 International Relations

1. Participation in ICANN

ICANN 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*¹ Sponsorship Agreement” with ICANN, and has since been entrusted by ICANN to serve as the registry of Japan’s ccTLD “.jp.”



ICANN55

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 policies and rules for Internet resource management. In 2016, ICANN held its 55th meeting in Marrakech, Morocco in March, the 56th meeting in Helsinki, Finland in June and the 57th meeting in Hyderabad, India in November.

With the participation of numerous parties interested in ccTLD and gTLD*², 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) actively held a number of joint sessions in 2016 to promote greater understanding of each other’s perspective. ICANN has come to serve as an important forum for SOs/ACs to exchange views on different topics of interest, with a focus on Internet resources.

Discussion on the IANA*³ stewardship transition and the enhancement of ICANN’s accountability which started in 2014 progressed through not only ICANN meetings but also other related sessions and mailing lists. This came to fruition in October 2016, when the transition to the new framework was completed.

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

*1 ccTLD: Country Code Top Level Domain

*2 gTLD: Generic Top Level Domain

*3 IANA: Internet Assigned Numbers Authority
<https://www.iana.org/>

(1) ccNSO

ccNSO^{*4} 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. He was re-elected as the councilor in 2016 through the election at the expiration of his term of office.

ccNSO spent a great deal of time discussing the topics regarding the IANA stewardship transition and the accountability of ICANN. In the ccNSO members meeting held in conjunction with the ICANN meetings, ccNSO not only shared the status and the services of each ccTLD but also held a number of sessions for information-sharing and opinion exchange regarding the IANA stewardship transition.

With regards to the IANA stewardship transition and ICANN accountability, the ccNSO Council was required to form an opinion of the whole ccTLD community, not limited to ccNSO members. Accordingly, ccNSO actively held a number of physical meetings and online seminars in order to disseminate information and gather opinions in collaboration with the regional ccTLD associations. As the ccNSO councilor, Hirofumi Hotta of JPRS participated in the formation of opinions of the ccTLD community.

As ICANN has been focusing on ensuring the accountability of its activities, ccNSO, as one of ICANN's Supporting Organizations, started several initiatives to improve the accountability of its own activities. It worked on providing updates on the activities of the ccNSO Council, establishing a team to review various guidelines and developing a policy regarding retirement of TLDs, in addition to the process of formulating a policy on the mechanism for reviewing the delegation, revocation and retirement of TLDs.

^{*4} ccNSO: Country Code Names Supporting Organisation
<https://ccnso.icann.org/>

(2) IDN Variant TLD Program

The IDN*⁵ 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. Hitherto, the Arabic and Armenian LGRs have respectively been proposed, and 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 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 as well as Yoshitaka Murakami are participating as members to contribute their expertise gained through designing, providing and operating the Japanese JP Domain Name services and knowledge related to trademarks.

The Japanese, Chinese and Korean GPs will continue to coordinate with each other and then respectively propose the LGRs for their own scripts to ICANN. The three-party coordination and the arrangement with the IP were originally planned to be complete by mid 2015, but development of the Chinese and Korean LGRs and coordination with ICANN are still under way. Accordingly, the JGP will continue to collaborate with the Chinese and Korean GPs, IP as well as ICANN to consider the Japanese LGR in 2017.

*5 IDN: Internationalized Domain Name

(3) RSSAC

RSSAC*⁶ 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*⁷, 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 2016, RSSAC worked on clarifying its own accountability and improving the transparency of related activities. As part of this, RSSAC compiled and published a history of the operation of each root from the start to the present as RSSAC023 “History of the Root Server System”^{*8}. It also held an open session at every ICANN meeting to explain the role and function of root servers.

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) SSAC

SSAC*⁹, one of the Advisory Committees in ICANN, advises the ICANN community and the ICANN Board on issues related to Internet security and stability. SSAC consists mainly of technical experts such as registries, registrars, DNS operators and Internet-related researchers.

Shinta Sato of JPRS participated in SSAC as a member from 2007 to the end of 2016 when his term of office expired. In SSAC, he worked on the stable operation of the whole Internet, utilizing his experience of working in a ccTLD registry. In the “Community Recognition Program” session held during ICANN57 in November 2016, he received an award in recognition of his contributions to the activities of ICANN as one of the SSAC members.

(5) 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.

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

*7 WIDE Project
<http://www.wide.ad.jp/index.html>

*8 RSSAC Publications | By Date
<https://www.icann.org/groups/rssac/documents>

*9 SSAC: Security and Stability Advisory Committee
<https://www.icann.org/groups/ssac>

(6) Root 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*¹⁰. In February 2015, ICANN set up a design team (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*¹¹. 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 KSK rollover will be conducted from July 2017 to March 2018.

(7) 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*¹².

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*¹³ Group. Yoshiro Yoneya of JPRS is on the Registry Group.

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

Although development of the draft was behind schedule, currently it is planned to come out for public comment in 2017.

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

*11 DNSSEC Root Zone KSK Recommendations
<https://www.iana.org/reports/2016/root-ksk-rollover-design-20160307.pdf>

*12 REGISTRY AGREEMENT
<https://newgtlds.icann.org/sites/default/files/agreements/agreement-approved-09jan14-en.pdf>

*13 GAC: Governmental Advisory Committee
<https://gacweb.icann.org/>

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 make Internet 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.

In 2016, IETF 95 was held in Buenos Aires, Argentina, IETF 96 in Berlin, Germany and IETF 97 in Seoul, Korea. 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:



IETF 95

(1) precis WG

Internationalized identifiers generally refer to identifiers containing non-alphanumeric (internationalized) characters that uniquely identify domain names, email addresses and website addresses on the Internet.

To use internationalized identifiers, preprocessing is necessary to unify or normalize character cases and compatible characters so that character strings can be matched up correctly.

In IETF, the way for standardization had been discussed in the precis WG*³ set up in June 2010. precis consists of a framework that defines the outline of the processing order, mode and the individual options, along with the profiles that define the options in the framework to be used in each protocol.

The guideline co-authored by Yoshiro Yoneya of JPRS to complement the framework was issued as RFC 7790 in 2016.

RFC 7790 Mapping characters for PRECIS classes

IAB is conducting a program in IETF to consider the policy for internationalization of the protocols*⁴, and Yoshiro Yoneya of JPRS joined the program as a member in June 2016.

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

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

*3 precis WG: Preparation and Comparison of Internationalized Strings Working Group
<https://datatracker.ietf.org/wg/precis/>

*4 Internationalization Program I Internet Architecture Board
<https://www.iab.org/activities/programs/internationalization-program/>

(2) dnsop WG

The name of the dnsop WG*⁵ 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. JPRS also played an active role in developing RFC 4074 and RFC 7719 as an author.

In 2016, Kazunori Fujiwara of JPRS, Mr. Akira Kato of the Graduate School of Keio University and Mr. Warren Kumari of Google Inc. in the U.S. made progress in standardizing 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 are now under final review in the dnsop WG. Following the standardization within the WG, the documents will be submitted to IESG*⁶.

Kazunori Fujiwara of JPRS, Mr. Paul Hoffman of ICANN and Mr. Andrew Sullivan of Dyn Inc. in the U.S., who is also the 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.

Furthermore, Fujiwara pointed out the defects in the name resolution algorithm defined in RFC 1034 as well as RFC 2181 and presented a suggestion for improvement. However, some said that his proposal required careful consideration, and so the WG agreed to continue discussing the issue.

*5 dnsop WG: Domain Name System Operations Working Group
<https://datatracker.ietf.org/wg/dnsop/>

*6 IESG: Internet Engineering Steering Group
<https://www.ietf.org/iesg/>

(3) regext WG

The regext WG^{*7} is a working group formed in March 2016 as a result of integration of the eppext WG organized for functional extension of EPP^{*8} and the weirds WG^{*9} set up to consider the standardization and functional extension of RDAP. The regext WG is also tasked with discussing the registry-related protocols in addition to the concerns of the predecessor WGs.

Following the new gTLD application round held in 2012, standardization of data escrow^{*10} also went ahead. JPRS contributed to the standardization activity as one of the co-authors of the related Internet Draft. The Internet Draft had not been issued as an RFC by the end of 2016. The authors therefore called on the regext WG to include data escrow standardization in its scope.

Registry Data Escrow Specification

(draft-arias-noguchi-registry-data-escrow)

Domain Name Registration Data (DNRD) Objects Mapping

(draft-arias-noguchi-dnrd-objects-mapping)

*7 regext WG: Registration Protocols Extensions Working Group

<https://datatracker.ietf.org/wg/regext/>

*8 EPP: Extensible Provisioning Protocol. A protocol designed to allow the exchange of domain name registration information between registries and registrars.

*9 weirds WG: Web Extensible Internet Registration Data Service Working Group

<https://datatracker.ietf.org/wg/weirds/>

*10 data escrow: a mechanism to deposit registration data stored by registries or registrars with a third party in preparation for the possible transfer of operation.

3. Participation in Registry Associations

(1) APTLD

APTLD*¹ is a confederation 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.

The groups and the organizations related to the region introduced their activities in the APTLD meetings, 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 among the participants.

At the APTLD meeting held in Auckland in February, Hirofumi Hotta of JPRS shared the update of ccNSO of ICANN as a member of the ccNSO Council. He also represented APTLD and gave a presentation about its organization and activities at the APECTEL54 (54th APEC Telecommunication and Information Working Group Meeting)*², one of the working groups within the Asia-Pacific Economic Cooperation (APEC)*³, held in Kyoto in October. APEC is a framework for economic cooperation among 21 countries and economies in the AP region.

(2) CENTR

CENTR*⁴ 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.

In the R&D Workshop held during the CENTR Jamboree in Brussels, Belgium in May, JPRS responded to the chair's request and outlined the research using the new gTLD “.jprs” which JPRS had applied for. Hirofumi Hotta of JPRS also summarized the revision of the Telecommunications Business Law and its impact on JPRS.

At the General Assembly organized in Belgrade, Serbia in October, Hirofumi Hotta of JPRS talked about the activities related to Internet governance being undertaken in Japan. In addition, Yuichi Yokoi of JPRS illustrated its branding activities to enhance awareness of the registry in the Marketing Workshop held in Trondheim, Norway in October.

*1 APTLD: Asia Pacific Top Level Domain Association
<http://www.aptd.org/>

*2 Venue of APECTEL54 (54th APEC Telecommunication and Information Working Group Meeting) Determined
http://www.soumu.go.jp/menu_news/s-news/01tsushin06_02000079.html (in Japanese)

*3 APEC: Asia Pacific Economic Cooperation
<http://www.mofa.go.jp/mofaj/gaiko/apec/soshiki/gaiyo.html> (in Japanese)

*4 CENTR: Council of European National Top Level Domain Registries
<https://www.centri.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 2016 was organized in a venue near Guadalajara, Mexico in December. Hirofumi Hotta and Yuri Takamatsu of JPRS took part in the event and made a positive contribution to various sessions, including the one on the National and Regional IGF Initiatives, by giving presentations and participating in discussions.

This particular IGF was the first to be held since the UN General Assembly decided to extend IGF for ten years after 2016. The participants of IGF 2016 reconfirmed the significance of multi-stakeholder discussions. They also confirmed 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*² 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 global Internet governance issues and other issues specific to the region. Hirofumi Hotta of JPRS is on the Multi-Stakeholder Steering Group (MSG) that considers the policy of APrIGF.

The 2016 APrIGF was organized in Taipei, Taiwan in July, and Hirofumi Hotta and Yuri Takamatsu of JPRS participated in the event. Hotta took part in the session on IDN as a panel member and outlined the Japanese LGR. The 2016 APrIGF not only dealt with various current topics like cybersecurity, but also held several sessions to produce an outcome document to submit to the global IGF as a collective voice formed in the APrIGF, which was put into practice in 2015 for the first time. Following the review carried out during the APrIGF 2016 and the subsequent public comment period, the outcome paper, originally drafted by the secretariat and the volunteer participants, was released to the public*³.

*1 IGF: Internet Governance Forum
<https://www.intgovforum.org/>

*2 APrIGF: Asia Pacific Regional Internet Governance Forum
<http://www.rigf.asia/>

*3 APrIGF 2016 Taipei Synthesis Document
<https://2016.aprigf.asia/2016/09/10/aprigf-2016-taipei-synthesis-document-now-available/>

(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 12 September 2016, JPRS submitted its comments in response to the online consultation run by the Council Working Group on international Internet-related public policy issues (CWG-Internet).

This open consultation sought public comments from all stakeholders on the theme “Building an enabling environment for access to the Internet,” prior to holding a physical meeting on that theme on October 11, 2016. In the meeting, Hirofumi Hotta of JPRS gave a presentation on the position statement that JPRS had put forward.

Since its foundation, JPRS has strongly supported an open and multi-stakeholder Internet, from operation to utilization, entirely led by the private sector. The comment that JPRS submitted to the CWG-Internet reiterated this stance.

● <https://jprs.co.jp/en/topics/2015/150803.html>

b) Participation in the Formation of Japan IGF

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^{*4}, provided they fulfil certain requirements. In the case of Japan, Internet Governance Conference Japan (IGCJ)^{*5} and IGF-Japan^{*6} jointly applied to the IGF under the name of Japan IGF^{*7}, 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.” In the IGF held in December, he served as the moderator of the session proposed in collaboration between ISOC^{*8} and IGCJ to discuss the security measures being undertaken at local and regional levels^{*9}. In addition, Yuri Takamatsu of JPRS represented and introduced the Japan IGF at the session for sharing the activities related to Internet governance that were conducted in each country and region^{*10}.

*4 IGF Regional and National Initiatives
<https://www.intgovforum.org/multilingual/content/igf-regional-and-national-initiatives>

*5 Internet Governance Conference Japan (IGCJ)
<http://igcj.jp/>

*6 IGF-Japan Archive
<https://www.jaipa.or.jp/topics/igf-japan/> (in Japanese)

*7 Japan IGF
<https://japanigf.jp/>

*8 ISOC: Internet Society
<https://www.internetsociety.org/>

*9 WS152: Working Together: Collaborative Security in local contexts
<https://igf2016.intgovforum.org/>

*10 National and Regional IGFs (NRIs)
<https://igf2016.sched.com/event/8ht6/>

(4) Participation in the DotAsia Organisation

The DotAsia Organisation^{*11} 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^{*12}) 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 2016, AP* Retreat was held in Auckland, New Zealand in February and then in Dacca, Bangladesh in October. Hirofumi Hotta and Yuri Takamatsu of JPRS participated in the Auckland meeting.

(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.

*11 DotAsia Organisation
<http://www.dot.asia/>

*12 APstar: The Community of Asia Pacific Internet Organizations
<http://www.apstar.org/>

(7) Participation in DNS-OARC

DNS-OARC^{*13} is the 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^{*14}, 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 2016, Kazunori Fujiwara of JPRS identified the problems in the name resolution algorithms defined in RFC 1034 and RFC 2181 and proposed a method for improvement that would surely enable names to be resolved.

(8) 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.

*13 DNS-OARC: The DNS Operations, Analysis, and Research Center
<https://www.dns-oarc.net/>

*14 DITL: Day In The Life of the Internet
<https://www.dns-oarc.net/oarc/data/ditl>

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 2016. JANOG also held “JANOG 37.5 Interim Meeting” in April. In addition, “JANOG US Regional Meeting #2” was organized in San Jose in the U.S. with the objective of exchanging information among the JANOG members residing overseas.

JPRS supports these 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 JANOG 37.5 Interim Meeting, Kazunori Fujiwara of JPRS conducted a DNS-OARC Workshop report and talked about the change of the Root Zone ZSK size scheduled for July 2016.



JANOG38 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) twice a year for technical presentations and discussions. It has also organized “DNS Summer Days,” an event consisting of tutorials and workshops relating to DNS, every summer since 2012.

In the “DNS Summer Day 2016” held on June 24, 2016, Yoshitaka Aharen of JPRS gave a presentation entitled “Findings of the Study on Zone Transfer Access Limitation” and outlined the access restriction carried out by JPRS and reported the results. In addition, Kazunori Fujiwara of JPRS outlined the trends in DNS queries from the viewpoints of JP DNS and Root DNS, using a slide deck entitled “DNS query trends seen at Root and JP, (the analysis of packet capture data of root DNS servers and JP DNS servers).”

*1 JANOG: JApan Network Operators' Group
<https://www.janog.gr.jp/en/>

*2 DNSOPS.JP: DNS Operators Group, Japan
<http://dnsops.jp/> (in Japanese)

(3) Participation in ICANN Readout Sessions

Since 2001, JPRS has been reporting the latest topics including ccTLD trends to the Japanese Internet community at “ICANN Readout Sessions” held jointly by JPNIC and IAJapan. The sessions were held in March and August in 2016, where JPRS reported latest developments and issues of the following organizations, along with the status of the New gTLD Program and Root Zone LGR (Label Generation Rules) and so on. JPRS also discussed the key agenda matters of ICANN with the other participants.

- ccNSO (Country Code Names Supporting Organisation)
- RySG (Registries Stakeholder Group)
- RSSAC (Root Server System Advisory Committee)
- GNSO (Generic Names Supporting Organization)

(4) Participation in IETF Update Meeting

ISOC-JP*³ was established in August 1994 and made various efforts to promote the Internet in Japan as the Japan Chapter of ISOC. Takaharu Ui of JPRS has contributed to the activities of ISOC-JP as a board member since 2014.

ISOC-JP and JPNIC jointly organized IETF Update Meetings three times in 2016. At the meetings, Kazunori Fujiwara of JPRS gave a presentation entitled “Topics Related to DNS” and reported on developments in the working groups related to DNS.

*3 ISOC-JP: The Internet Society Japan Chapter
<https://www.isoc.jp/> (in Japanese)

(5) 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 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 2016 were the IANA stewardship transition, net neutrality and Internet security.

Concerning Internet security, IGCJ expanded the discussion in the meetings and on the mailing list, which later resulted in the publication of the document "Concept for security – What is needed when considering the security of the Internet –^{*4}." Hirofumi Hotta and Yuri Takamatsu of JPRS participated in creating the document.

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

The Council of Anti-Phishing Japan^{*5} 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 have been participating in the working group tasked mainly with promoting knowledge about server certificates.

^{*4} Concept for security – What is needed when considering the security of the Internet –
<http://igcj.jp/meetings/concept-for-security-en.pdf>

^{*5} Council of Anti-Phishing Japan
<https://www.antiphishing.jp/> (in Japanese)

(7) Participation in Telecom Services Association

Telecom Services Association*⁶ 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. In 2016, the committee worked on improving the Internet usage environment by providing information on the laws and regulations related to the Internet and the challenges the providers were facing. Takaharu Ui of JPRS has been participating in the committee.

(8) Participation in KEIDANREN (Japan Business Federation)

The Committee on Information and Telecommunication Policy, KEIDANREN (Japan Business Federation)*⁷ carries out various activities such as coordination between personal information protection and utilization of big data, improving usability of the My Number system and enhancing cybersecurity. Hirofumi Hotta and Takaharu Ui of JPRS have been taking part in the discussion in the Planning Subcommittee within the Committee on Information and Telecommunication Policy.

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

*7 KEIDANREN (Japan Business Federation)
<http://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 2016, JPRS fully migrated its application processing environment for JP Registrars into a system operating under the authentication method based on digital certification, with a view to further improving the security and reliability of its service. It also made progress in studying and developing the new service to enhance the security and reliability of domain names, and started the JPRS Digital Certificates Issuance Services in April.

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. Its continuous collaboration with various related communities and active contributions including the standardization of Internet technologies proved fruitful, as it published a Japanese guide to ICANN’s final report on the name collision issue that resurfaced as a concern upon the introduction of new gTLDs, and had the RFCs issued with its engineers as co-authors.

The year 2016 saw incidents threatening the stable operation of the Internet, such as a number of 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.

Recognizing the growing necessity of Internet-related education in schools, JPRS has distributed a free booklet on how the Internet works to educational institutions across Japan for seven years in a row as part of its Internet-related educational support activities. As a result, the number of copies distributed in these seven years exceeds 200,000. JPRS also provided domain names free of charge at a website creation contest for junior and senior high school students.

The Great East Japan Earthquake that occurred in 2011 has added further weight to need for the reliability and stability of the Internet infrastructure. To ensure service continuity and improve the operational infrastructure against this backdrop, JPRS enhanced its ability to restore service by using the disaster recovery site established in the Kansai area to fully duplicate the operation base and registry system. It also compiled manuals and conducted test drills along the same lines. Furthermore, JPRS conducted a joint research with eight telecom carriers backed by electrical power companies on continued use of the Internet in case of a large-scale disaster, using “.jprs,” a new gTLD for research and development.

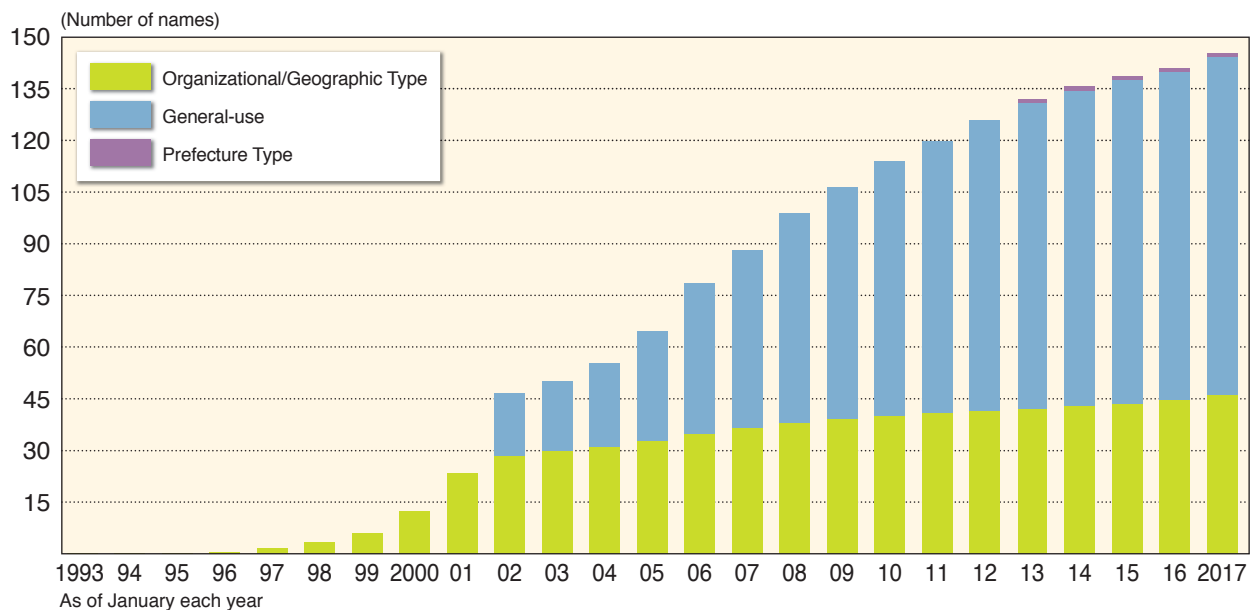
Going forward, JPRS plans to reinforce the disaster recovery capability of all of its services by implementing a more robust recovery scheme. It will also consolidate its operational infrastructure to improve the system monitoring function and security. In addition, JPRS will continue to enhance the security and reliability of its services and disseminate information on DNS technology by issuing advisories on vulnerabilities and security alerts to ensure 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, 2017, the cumulative number of registered JP domain names reached 1,454,636, an increase of 44,389 in one year.



(Number of names)

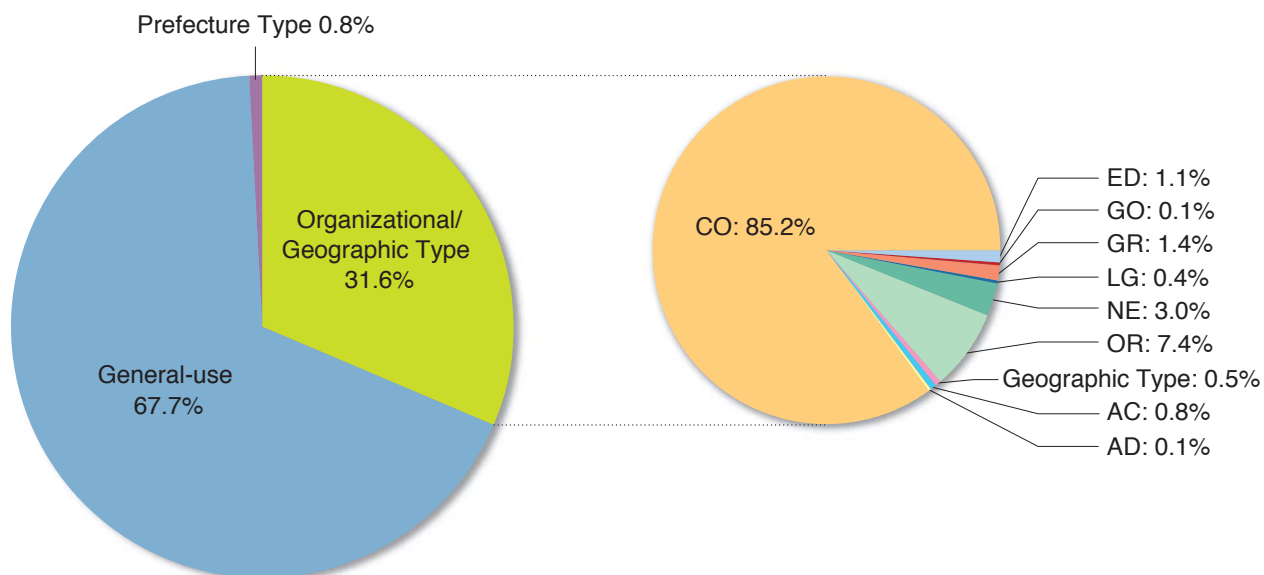
Month/Year	Organizational/Geographic Type	General-use (Japanese domain name)	Prefecture Type (Japanese domain name)	Total
1993/01	953	—	—	953
1994/01	1,341	—	—	1,341
1995/01	2,206	—	—	2,206
1996/01	4,781	—	—	4,781
1997/01	15,477	—	—	15,477
1998/01	33,739	—	—	33,739
1999/01	58,549	—	—	58,549
2000/01	124,573	—	—	124,573
2001/01	234,294	—	—	234,294
2002/01	283,340	183,499 (61,507)	—	466,839
2003/01	297,413	205,493 (51,544)	—	502,906
2004/01	309,193	245,100 (45,402)	—	554,293
2005/01	327,742	317,455 (63,324)	—	645,197
2006/01	346,340	439,784 (116,602)	—	786,124
2007/01	363,768	518,557 (124,153)	—	882,325
2008/01	378,903	609,983 (141,858)	—	988,886
2009/01	389,598	674,133 (134,921)	—	1,063,731
2010/01	399,339	740,820 (133,754)	—	1,140,159
2011/01	406,856	791,249 (123,711)	—	1,198,105
2012/01	413,332	845,054 (119,337)	—	1,258,386
2013/01	421,606	888,657 (122,394)	8,452 (1,915)	1,318,715
2014/01	428,467	915,854 (126,182)	11,781 (2,948)	1,356,102
2015/01	435,390	940,427 (120,801)	11,684 (3,117)	1,387,501
2016/01	446,004	953,041 (113,521)	11,202 (2,612)	1,410,247
2017/01	458,947	984,270 (114,130)	11,419 (2,524)	1,454,636

*Please refer to "Domain Name 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, 2017



(Number of names)

JP Domain Name Types		1 Jan 2017 Number of Registrations	1 Jan 2016 Number of Registrations	Difference
Organizational/ Geographic Type	AC: Higher education institution	3,576	3,561	+ 15
	AD: JPNIC Member	261	260	+ 1
	CO: Company	391,089	379,056	+ 12,033
	ED: Primary school, junior and senior high school	5,124	4,998	+ 126
	GO: Japanese government	585	594	- 9
	GR: Group	6,396	6,570	- 174
	LG: Japanese local authority	1,879	1,843	+ 36
	NE: Network service	13,821	14,214	- 393
	OR: Corporation other than company	33,904	32,541	+ 11,363
	Geographic Type	2,312	2,367	- 55
General-use (Japanese domain name)		984,270 (114,130)	953,041 (113,521)	+31,229 (+609)
Prefecture Type (Japanese domain name)		11,419 (2,524)	11,202 (2,612)	+217 (- 88)
Total JP Domain Name Registration		1,454,636	1,410,247	+44,389

*Please refer to "Domain Name Statistics" (<http://jprs.co.jp/en/stat/>) for the latest information.

02.3

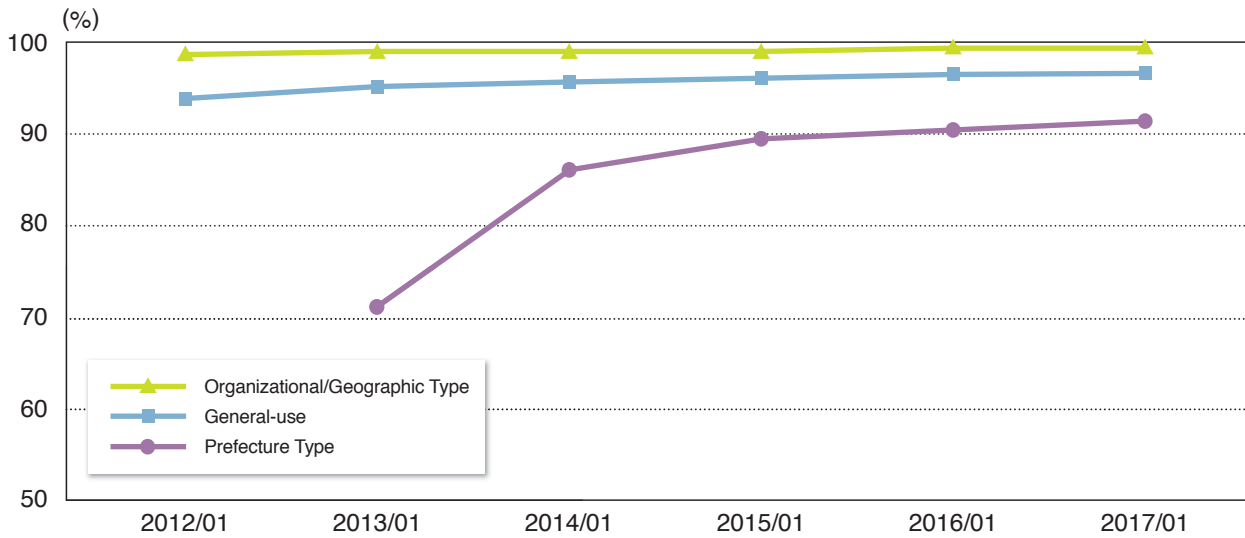
Number of JP Domain Name Registrations by Prefecture

*As of January 1, 2017

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%	0.4%
Miyagi	1.3%	0.8%	0.8%
Akita	0.4%	0.2%	0.3%
Yamagata	0.6%	0.3%	0.4%
Fukushima	0.9%	0.5%	0.5%
Ibaraki	1.4%	1.0%	0.6%
Tochigi	1.0%	0.5%	0.8%
Gunma	1.1%	0.7%	1.5%
Saitama	4.3%	2.8%	2.9%
Chiba	3.2%	2.3%	2.1%
Tokyo	32.5%	43.1%	39.3%
Kanagawa	6.7%	5.1%	4.1%
Niigata	1.1%	0.7%	0.7%
Toyama	0.7%	0.4%	0.7%
Ishikawa	0.7%	0.5%	0.5%
Fukui	0.5%	0.4%	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%	1.1%
Aichi	5.4%	3.6%	2.7%
Mie	0.8%	0.5%	1.0%
Shiga	0.6%	0.5%	2.7%
Kyoto	2.0%	3.2%	6.2%
Osaka	9.5%	14.6%	9.4%
Hyogo	3.1%	2.3%	1.7%
Nara	0.6%	0.6%	1.6%
Wakayama	0.4%	0.3%	0.3%
Tottori	0.2%	0.2%	0.3%
Shimane	0.3%	0.3%	0.2%
Okayama	1.1%	0.9%	0.6%
Hiroshima	1.6%	1.0%	1.1%
Yamaguchi	0.5%	0.4%	0.3%
Tokushima	0.3%	0.3%	0.2%
Kagawa	0.5%	0.4%	0.4%
Ehime	0.6%	0.4%	0.5%
Kochi	0.3%	0.2%	0.3%
Fukuoka	3.1%	2.5%	3.9%
Saga	0.3%	0.2%	0.3%
Nagasaki	0.5%	0.4%	0.4%
Kumamoto	0.7%	0.6%	0.8%
Oita	0.4%	0.4%	0.6%
Miyazaki	0.4%	0.4%	0.4%
Kagoshima	0.5%	0.4%	0.6%
Okinawa	0.6%	0.5%	1.4%

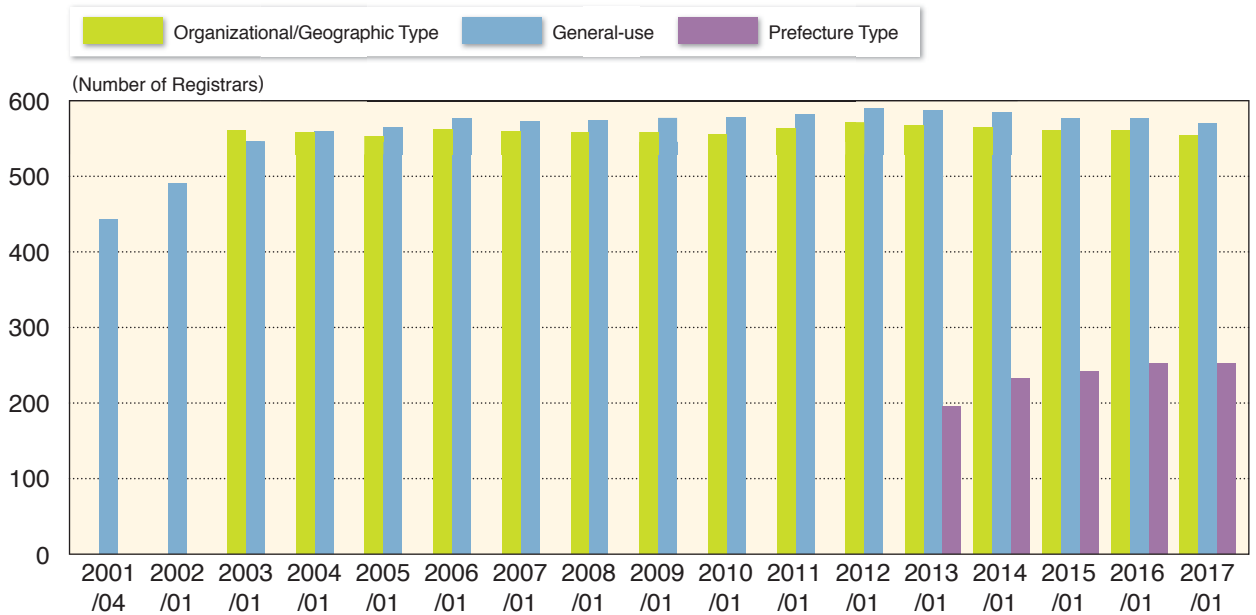
02·4 Transition of DNS Configuration Rate

*As of January 1, 2017



Month/Year	Organizational/Geographic Type	General-use	Prefecture Type
2012/01	98.9%	93.9%	—
2013/01	99.0%	95.3%	71.0%
2014/01	99.0%	95.6%	86.9%
2015/01	99.0%	96.0%	89.9%
2016/01	99.4%	96.3%	90.5%
2017/01	99.4%	96.6%	91.4%

02.5 Number of Accredited JP Registrars



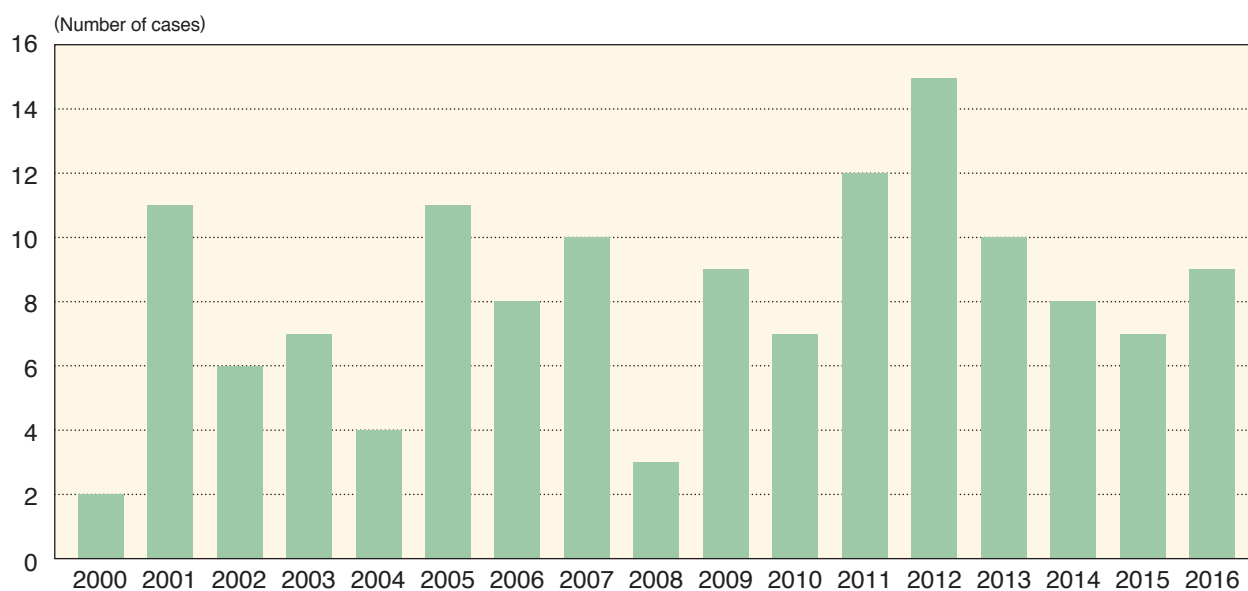
(Number of Registrars)

Month/Year	Organizational/Geographic Type	General-use	Prefecture Type	Total
2001/04	—	443	—	443
2002/01	—	490	—	490
2003/01	560	546	—	1,106
2004/01	557	559	—	1,116
2005/01	553	564	—	1,117
2006/01	562	576	—	1,138
2007/01	559	572	—	1,131
2008/01	557	573	—	1,130
2009/01	558	577	—	1,135
2010/01	555	577	—	1,132
2011/01	563	582	—	1,145
2012/01	571	590	—	1,161
2013/01	566	586	197	1,349
2014/01	564	582	227	1,373
2015/01	560	577	241	1,378
2016/01	560	576	252	1,388
2017/01	554	569	252	1,375

*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

*For details of domain name disputes, please refer to the “Domain Name Dispute Resolution Policy (DRP)” posted by Japan Network Information Center (<http://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.
		JPRS started distributing a plug-in for Microsoft Internet Explorer®, “i-Nav™.”
2003	Jan.	The cumulative number of JP domain names exceeded 500,000.
	Jun.	JPRS received the approval from ICANN to start IDN service.
	Jul.	RFC-based Japanese JP Domain Name registration service started.
	Dec.	“Japanese JP Access Site (http://jajp.jp/)” for mobile phones was established.
2004	Feb.	IP Anycast technology was introduced in JP DNS service ([a.dns.jp] [d.dns.jp]).
		“Nihongo JP Navl” 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” (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.
	Sep.	JPRS changed the number of GO.JP domain names which each government organization can register.
		Japanese JP domain names (for public administration, judiciary and legislative process) reserved for the government were released for relevant government organizations.
	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 exceeded 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 exceeded 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.
	Sep.	JPRS decided to establish “Prefecture Type JP Domain Name.”
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 JPNIC on Japanese translation of ICANN materials.
	Oct.	The cumulative number of registered JP domain names exceeded 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 the JPRS Digital Certificates Issuance Services.
	Jun.	JPRS submitted a notification of the telecommunication business with the enforcement of the Law for Partial Revision to the Telecommunications Business Act, etc.

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 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.
Response as the registry to the misuse of JP domain names	Sep. 15, 2015 JPRS-ADV-2015001	Feb. 23, 2015 JPRS-ADVRPT-2014002
Method for appointing the members of the 9th JP Domain Name Advisory Committee	Sep. 15, 2015 JPRS-ADV-2015001	2016001

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

(2) Advisory Committee Meetings

Feb. 25 **55th JP Domain Name Advisory Committee meeting**

The committee members presented their views on the draft outline of the advisory report entitled “Response as the registry to the misuse of JP domain names,” which was drawn up following the discussion at the 53rd and 54th Advisory Committee meetings.

The outline was finalized after the 55th Advisory Committee meeting, when the committee members confirmed the proposed amendment.

Jun. 20 **56th JP Domain Name Advisory Committee meeting**

The committee agreed in principle on the draft advisory, “Response as the registry to the misuse of JP domain names,” produced on the basis of the outline finalized after the 55th Advisory Committee meeting.

JPRS explained the status of JP domain names and its response to the partial amendment to the Telecommunications Business Law. It also reported on the “JPRS Digital Certificates Issuance Services” launched in April 2016.

Oct. 20 **57th JP Domain Name Advisory Committee meeting**

JPRS gave an account of its response to the advisory report entitled “Response as the registry to the misuse of JP domain names” (JPRS-ADVRPT-2015001).

The JPRS Board of Directors submitted an inquiry entitled “Method for appointing the members of the 9th JP Domain Name Advisory Committee” (JPRS-ADV-2016001). The committee members expressed their opinions on the content of the inquiry. The advisory report was confirmed by the committee members following the 57th Advisory Committee meeting. The report was finalized on December 9 and then delivered to JPRS.

JPRS explained server certificates and outlined the JPRS Digital Certificates Issuance Services. It also outlined the IANA stewardship transition and the registration of Japanese JP domain names reserved for elementary and secondary educational institutions (e.g., “〇〇小学校.jp” and “〇〇高校.東京.jp”). The committee members exchanged opinions on those topics.

03 · 3 Proposals and Presentations

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

Date	Title	At	Hosted by
Jan. 31	DNS Security Update 2015	SECCON 2015 National Contest Conference	SECCON 2015 Steering Committee*1
Feb. 18	ccNSO Update	APTLD Auckland Meeting	APTLD
Mar. 8	Community Translation in Japan and ICANN -JPNIC-JPRS MoU on Translation Collaboration	ICANN55	ICANN
Mar. 8	Conveying Brand Image of .jp	ICANN55	ICANN
Mar. 9	JapaneseGP (JGP) update	ICANN55	ICANN
Mar. 30	Report on ICANN Root Server System Advisory Committee (in Japanese)	45th ICANN Readout Session	JPNIC, IAjapan
Mar. 30	ccNSO Update (in Japanese)	45th ICANN Readout Session	JPNIC, IAjapan
Apr. 3	Internationalized Domain Name (IDN) query trends seen at JP and Root	IEPG Meeting	IEPG*2
Apr. 15	Report on DNS-OARC Workshop (Change of the Root Zone ZSK Size) (in Japanese)	JANOG 37.5 Interim Meeting	JANOG
May 10	Report on IETF95 – Topics Related to DNS (in Japanese)	IETF Update Meeting (95th, Buenos Aires)	ISOC-JP, JPNIC
May 17	TLD labs – .jprs R&D Platform	CENTR Jamboree 2016 R&D Workshop	CENTR
May 17	DDoS attack to JPRS - What can TLDs do against DDoS attacks? -	CENTR Jamboree 2016 Security workshop	CENTR
May 18	Definitions of "Domain in Use"	CENTR Jamboree 2016 Interactive sessions	CENTR
May 18	Foreign Court Orders ?	CENTR Jamboree 2016 Interactive sessions	CENTR
May 18	Revision of Japanese Telecommunications Business Law	CENTR Jamboree 2016 Interactive sessions	CENTR
Jun. 14	DNS query trends seen at Root and JP	NANOG 67	NANOG
Jun. 24	Findings of the Study on Zone Transfer Access Limitation (in Japanese)	DNS Summer Day 2016	DNSOPS.JP
Jul. 28	Japanese Generation Panel (JGP)	2016 APriGF Taipei	APriGF
Aug. 4	ccNSO Update (in Japanese)	46th ICANN Readout Session	JPNIC, IAjapan
Aug. 4	Report on ICANN Root Server System Advisory Committee (in Japanese)	46th ICANN Readout Session	JPNIC, IAjapan
Aug. 10	Governance Models in Japan - .JP ccTLD and the Internet -	Asia Pacific Internet Governance Academy (APIGA)	KISA, ICANN
Sep. 12	Report on IETF95 – Topics Related to DNS (in Japanese)	IETF Update Meeting (96th, Berlin)	ISOC-JP, JPNIC
Sep. 15	Japanese Generation Panel (JGP) and Chinese -Japanese-Korean coordination	APTLD Bangkok Meeting	APTLD
Oct. 3	Analysis of RD=0 and RD=1 queries seen at Root, JP	APNIC 42	APNIC
Oct. 6	Internet Governance Initiatives in Japan	56th CENTR General Assembly	CENTR
Oct. 13	Branding Activities of .jp and JPRS - Emphasis on Surveys for Improving Efficacy -	21st CENTR Marketing workshop	CENTR
Oct. 16	RFC 2181 Ranking data and referrals/ glue importance	DNS-OARC 2016 Fall Workshop	DNS-OARC
Oct. 31	An APTLD Update - focusing on outreach and capacity building efforts	APECTEL54	APEC
Nov. 7	Amendment of Japanese Telecommunications Business Law	ICANN57	ICANN
Nov. 7	Root KSK rollover outreach activities in Japan and findings	ICANN57	ICANN

*1 SECCON 2015 Steering Committee
<http://2015.secon.jp/committee.html> (in Japanese)

*2 IEPG: Internet Engineering and Planning Group
<http://www.iepg.org/>

Date	Title	At	Hosted by
Nov. 15	draft-fujiwara-dnsop-resoler-update-00	IETF 97 dnsop WG	IETF
Nov. 30	DNS Hands-on (1) Domain Name Registration, DNS Service, Authoritative DNS Server and DNSSEC (in Japanese)	Internet Week 2016 DNS Hands-on	JPNIC
Dec. 1	Gaining Insight into DNS Operation – Incident Case Study and Necessary Elements /Items: Lunch with DNS (in Japanese)	Internet Week 2016 DNS DAY	JPNIC
Dec. 1	DNSSEC Update (in Japanese)	Internet Week 2016 DNS DAY	JPNIC
Dec. 1	JP DNS Update (in Japanese)	Internet Week 2016 DNS DAY	JPNIC
Dec. 1	DNS Update, Domain Name Overview (in Japanese)	Internet Week 2016 DNS DAY	JPNIC
Dec. 2	DNS Session Wrap-up (in Japanese)	Internet Week 2016 IP Meeting 2016	JPNIC
Dec. 13	Key Management in DNSSEC – For Root Zone Key Rollover – (in Japanese)	Workshop on DNS threats and improving DNS security	Gandi.net* ³
Dec. 16	Report on IETF 97 – Topics Related to DNS (in Japanese)	IETF Update Meeting (97th, Seoul)	ISOC-JP, JPNIC

*3 Gandi.net
<https://www.gandi.net/>

03 · 4 Press Releases

Date	Title
Jan. 18	JPRS Conducts Joint Research with Seven Telecom Carriers Backed by Electrical Power Companies (in Japanese)
Feb. 22	JPRS Supports “18th 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 2015” (in Japanese)
Apr. 26	JPRS Starts the "JPRS Digital Certificates Issuance Services" since April 26 (In Japanese)
May 16	JPRS Distributes Free Graphic Comic-style Booklet on “How the Internet Works” to Educational Institutions in Japan (in Japanese)
Jul. 4	JPRS’s Distribution of Free Comic-style Booklet on “How the Internet Works” to Educational Institutions Exceeds 200,000 (in Japanese)
Oct. 3	JPRS Starts Accepting Applications for Registration of Japanese JP Domain Names Representing School Names from October 2017 (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.

Date	Title
Jan. 12	Danger of Leaked Information Caused by Configuration Flaw of Authoritative DNS Servers and Recommendation to Recheck Settings (Published on January 12, 2016)
Jan. 12	Configuration Guides: How to Restrict Responses to Zone Transfer Requests [for BIND]
Jan. 20	(Urgent) Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2015-8704)
Jan. 20	Vulnerability of BIND 9.10.x (DNS Service Outage) (CVE-2015-8705)
Feb. 23	(Urgent) Vulnerability of GNU C Library (glibc) (CVE-2015-7547)
Mar. 10	(Urgent) Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2016-1285)
Mar. 10	(Urgent) Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2016-1286)
Mar. 10	Vulnerability of BIND 9.10.x (DNS Service Outage) (CVE-2016-2088)
Mar. 24	Change of Settings in Response to the IP Address Change for l.root-servers.net (L-Root)
Apr. 6	Mitigating the Risk of DNS Namespace Collisions – A Study on Namespace Collisions in the Global Internet DNS Namespace and a Framework for Risk Mitigation, Final Report (Japanese Explanatory Guide)
May 23	JPRS Conducts a Status Survey on Zone Transfer Settings and Accepts Requests for Opting Out of the Survey (Published on May 23, 2016 and updated on September 30, 2016)
Jun. 17	(Urgent) Vulnerability of Microsoft Windows DNS (Remote Code Execution) (CVE-2016-3227)
Jul. 19	Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2016-2775)
Aug. 31	Change of Settings in Response to the IPv6 Address Addition for e.root-servers.net (E-Root)
Sep. 28	(Urgent) Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2016-2776)
Oct. 21	(Urgent) Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2016-2848)
Oct. 26	Change of Settings in Response to the IPv6 Address Addition for g.root-servers.net (G-Root)
Nov. 2	(Urgent) Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2016-8864)

*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 “http://○○○.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 24/7/365 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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