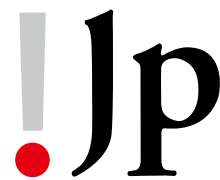
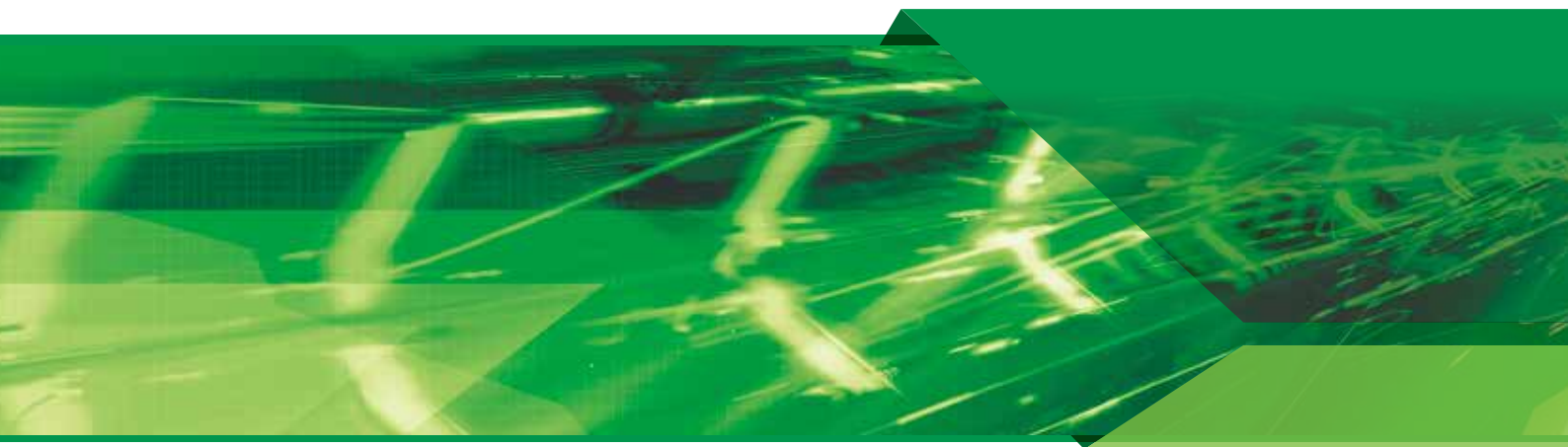


2020.1-12



JP Domain Name Registry Report



jPRS

Japan Registry Services Co.,Ltd.

Introduction

As technology advances the Internet is being used in more broad and diverse areas of society. Especially in 2020, the spread of COVID-19 accelerated the trend toward working from home as well as streaming and viewing video online, changing both people's lifestyles and the dynamics of industries. These shifts highlighted the importance of the communication infrastructure that underpins Internet services and technologies and the significance of the Domain Name System (DNS) and domain names that form the basis of the Internet.

With this background, the number of JP domain names surpassed 1.6 million in October 2020. As of January 2021, JP domain name registrations exceeded 1.62 million. Of that, 1.09 million are registered as General-use JP domain names, accounting for about 70% of total registrations. 510,000 names are Organizational Type JP domain names, the domain name space categorized by organizational type of registrants. Over 440,000 names are registered under "co.jp," making it the most registered category in Organizational Type JP domain names; many companies are using "co.jp" domain names.

JPRS celebrated its 20th anniversary on December 26, 2020. We profoundly thank our customers, the Internet community, JP Registrars and all those who have supported us.

JPRS is committed to its ongoing effort to improve JP domain name services, develop systems and carry out promotional activities to facilitate the use of JP domain names and deliver greater value to users.

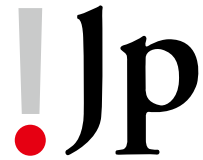
The domain name industry saw the number of domain names across TLDs increase in 2020. On the other hand, various challenges continue to threaten the Internet infrastructure, including domain hijacking and detection of vulnerabilities in DNS software. As a company supporting the basis of the Internet society through domain names and DNS, JPRS tackles the risks and challenges and provides information in a timely manner. JPRS also actively contributes to discussions on global issues and conveys relevant information to the community in Japan in order to make the Internet safe for everyone to use.

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

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

Koki Higashida
President
Japan Registry Services Co., Ltd.

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

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

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

Reliability: establishing services with social credibility

Stability: operating and administering stable systems

Usability: providing user-friendly services

Fee Performance: setting reasonable service fees

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

*1 TLD: Top Level Domain

01・2 Major Topics of 2020

In 2020, JPRS continued to contribute to the development of the Internet and worked to enhance its JP registry services and the value of JP domain names in cooperation with the JP Registrars and other related organizations.

Publication of “Internet White Paper 2020” with JPRS Participating in Planning and Editing (February)

“Internet White Paper” is a yearbook that summarizes the current state of the Internet from various perspectives including that of business, society and technology. Its 2020 edition, “Internet White Paper 2020 (subtitle: The World beyond 5G),” was published. JPRS has been collaborating with Impress R&D^{*1}, IAJapan^{*2} and JPNIC^{*3} in the Internet White Paper Editorial Committee in the planning and steering the White Paper since 2013.



Internet White Paper 2020

- <https://jprs.co.jp/topics/2020/200207.html> (in Japanese)

Addition of “Internet White Paper 2019” to “Internet White Paper ARCHIVES” (February)

“Internet White Paper 2019” published in 2019 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/2020/200214.html> (In Japanese)

Review of the Cryptographic Algorithms That Can Be Specified in DNSSEC (February)

As part of its efforts to increase the reliability of its entire service, JPRS reexamined the cryptographic algorithms that could be specified in DNSSEC (DNS Security Extensions), an expanded security capability for DNS. JPRS conducted the review in response to RFC 8624^{*4} issued by IETF^{*5}. RFC 8624 newly specifies the algorithms/digest algorithms that are not recommended for DS records in order to maintain the safety of DNSSEC over the long term.

- <https://jprs.jp/whatsnew/topics/2020/200207.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} RFC 8624
<https://tools.ietf.org/html/rfc8624>

^{*5} IETF: Internet Engineering Task Force
<https://www.ietf.org/>

Support for the 22nd Japan Junior/Senior High School Web Contest (February)

JPRS supported the “22nd Japan Junior/Senior High School Web Contest”^{*6}, a Web contest that was held by JAPIAS^{*7} for junior and senior high school students. JPRS provided 136 General-use JP domain names (both in Japanese and ASCII) free of charge for the works of 68 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/2020/200217.html> (In Japanese)

Support for SECCON 2020 (from May)

SECCON 2020^{*8} was a series of events held from May to December 2020 with the aim of recruiting and training information security personnel and providing a place for hands-on experience with related technologies. JPRS supported SECCON 2020 as a sponsor.

For “SECCON CTF 2020” organized online in October 2020, Shotaro Koshoji of JPRS designed, built and operated the network for competitions as a member of the Working Group (WG) for Infrastructure & NOC.

- <https://jprs.co.jp/topics/2020/201006.html> (In Japanese)

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

As part of its Internet-related educational activities, JPRS set up channels including a special website “<https://マンガで学ぶ.jp/>” (Learn from Manga) where junior and senior high school and technical colleges could apply to receive educational materials from June 15 to August 31, 2020. Recognizing the growing importance of Internet-related education and the shortage of teaching materials in schools, JPRS has worked on this project since 2010. The number of copies distributed in the last ten years exceeds 300,000.

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 an Internet address, works. In addition, it describes HTTPS, a scheme for ensuring secure telecommunications, in a simple manner.



Ponta's Great Adventure in the Network

- <https://jprs.co.jp/press/2020/200615.html> (In Japanese)

^{*6} Japan Junior/Senior High School Web Contest (formerly Think Quest JAPAN)
<http://webcon.japias.jp/> (in Japanese)

^{*7} JAPIAS: Japan Association for Promotion of Internet Application in School Education
<http://japias.jp/> (in Japanese)

^{*8} SECCON 2020
<https://www.seccon.jp/2020/> (in Japanese)

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

Recognizing the importance of career education for the children who will lead the next generation and the benefits of understanding the Internet infrastructure at an early age, JPRS co-sponsored “Oshigoto Hakubutsukan”^{*9} (Occupations Museum), a career education support program conducted by Asahi Shimbun Company. JPRS also provided the program with educational materials regarding domain names. Under the program, “Oshigoto Nenkan (Occupations Yearbook)” is distributed to schools free of charge, and clearly explains to students how businesses and institutions work. The yearbook complies with government guidelines on education and can be used as a teaching tool. A total of 70,000 copies of the 2020 yearbook were donated to about 20,000 elementary schools and 10,000 junior high schools across the country, and the contents are also published on the web version of “Oshigoto Hakubutsukan.”



Oshigoto Nenkan 2020

● <https://jprs.co.jp/topics/2020/200629.html> (in Japanese)

Agreement to Establish a New Partnership to Deploy M-Root DNS Server Anycast Instances (August)

In August 2020, JPRS, the WIDE Project^{*10} and APNIC^{*11} agreed and signed a Memorandum of Understanding to build a new cooperative relationship to expand M-Root DNS services in the Asia Pacific and beyond.

JPRS, jointly with the WIDE Project, has operated and deployed M-Root DNS server instances since 2005. Acting as part of the Root Server Operator, JPRS provides a better user experience of both Root DNS and JP DNS to the Internet community.

By working together, the WIDE Project, JPRS and APNIC will greatly expand M-Root’s footprint throughout the region to improve DNS reachability, resilience and response time for Asia Pacific ISPs and end users, which will elevate the overall performance of the DNS.

In December 2020, M-Root DNS server anycast instance launched in Brisbane, Australia and started its operation based on the cooperative relationship.

● <https://jprs.co.jp/en/press/2020/200831.html>

● <https://jprs.co.jp/en/press/2020/201218.html>

^{*9} Oshigoto Hakubutsukan
<https://www.oshihaku.jp/> (in Japanese)

^{*10} WIDE Project
https://www.wide.ad.jp/index_e.html

^{*11} APNIC: Asia Pacific Network Information Centre
<https://www.apnic.net/>

JPRS Held 11th “.jp DNSSEC Key Ceremony” (October)

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

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

In the 11th ceremony held on October 6, 2020, two External Witnesses observed and confirmed the process. Due to COVID-19, this particular ceremony was observed via live streaming rather than the usual on-site examination.

- <https://jprs.co.jp/en/topics/2020/201007.html>

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

As part of its efforts to support education regarding the Internet, JPRS produced a poster listing the ccTLDs ^{*12} all around the world and distributed copies for charge-free to junior and senior high schools as well as technical colleges across Japan.

Students use ccTLDs on a daily basis without realizing it. So, JPRS produced the poster to help them learn and understand the ccTLDs in a fun way. It presents the two-letter ccTLDs, the names of the countries and territories to which respective ccTLDs are allocated, and an interesting story about each of them.

In 2020, JPRS launched a dedicated website that visualized on the globe which ccTLD was allocated to which part of the world in order to help viewers gain a deeper understanding about ccTLDs.

- <https://jprs.co.jp/press/2020/201105.html> (in Japanese)
- <https://sekai-domain.jp/> (in Japanese)



Poster: ccTLDs of the World

Service Change Related to Definition of Organizational Type and Eligibility for ED.JP Domain Name (November)

On November 12, 2020, JPRS changed its service so that a national and public university corporation having multiple organizations eligible for an ED.JP domain name such as elementary schools and junior high schools under its umbrella could register an ED.JP domain name.

- <https://jprs.jp/whatsnew/notice/2020/201112.html> (in Japanese)

*12 ccTLD: Country Code Top Level Domain

Support for Internet Week 2020 (November)

JPRS supported Internet Week 2020 as a sponsor and sent Kazunori Fujiwara and Naoto Shimada to serve on the Program Committee. They contributed to the planning of DNS-related sessions and video streaming of Internet Week 2020. Shimada also served as a member of the Distribution Team.

In addition, Kazuki Ikeda, Yuri Takamatsu and Kazunori Fujiwara of JPRS introduced domain names, DNS and other related topics in the program called “DNS DAY.” At the session entitled “Supporting First-Ever Online IW2020 – Behind the Scenes of Video Streaming –,” Naoto Shimada of JPRS talked about “Streaming Environment of Internet Week 2020.”

At the Lunch Time Webinar, Yasuhiro Morishita and Shotaro Koshiji of JPRS gave a presentation entitled “DNS Administration in the Era of Managed Service – Featuring DNS Takeover – Lunch with DNS.” They illustrated potential sticking points in the administration of DNS and highlighted recent cases of troubles and security incidents.



Lunch Time Webinar at Internet Week 2020

- <https://jprs.co.jp/topics/2020/201019.html> (In Japanese)

Introduction of JP Registrar Transfer Lock and Domain Name Transfer Lock (December)

As part of its efforts to improve the reliability of JP Domain Name services, JPRS introduced the JP Registrar Transfer Lock and Domain Name Transfer Lock functions to prevent unintended changes of JP Registrars and JP domain name registrants.

By activating the lock function for a JP domain name, the registrant can have the registry reject any application for domain name transfer and JP Registrar transfer for a General-use JP domain name as well as JP Registrar transfer for an Organizational/Geographic Type JP domain name.

Users of this service need to deactivate the lock in order to transfer their domain name or change their registrar, thus preventing unintended JP Registrar transfer and JP domain name transfer by a malicious third party.

- <https://jprs.jp/about/dom-rule/transfer-lock/> (in Japanese)

JPRS's 20th Anniversary and Change of Corporate Logo (December)

JPRS celebrated its 20th anniversary on December 26, 2020. In the run-up to the anniversary, it changed its corporate logo on December 7, 2020. The new logo expresses JPRS's commitment to supporting the infrastructure of the Internet more strongly.

Furthermore, in 2021, JPRS launched the 20th anniversary website “History of 20 Years.” The website illustrates the challenges JPRS has taken on and the contributions it has made to the evolution of the Internet since its foundation.



The new corporate logo

- <https://jprs.co.jp/en/press/2021/210226.html>
- <https://jprs.co.jp/20th/en/>

Events and Seminars for JP Registrars

Considering the spread of COVID-19, all events and seminars held by JPRS for JP Registrars in 2020 were via remote participation only.

“JP Registrar Seminar – An Introduction to Domain Name Registration and Administration –” (September)

JPRS explained the basics of domain names, how to register and administer them, as well as the fundamental structure of DNS to newly accredited JP Registrars and the staff of JP Registrars who recently started handling JP domain names.

“JPRS Partners’ Meeting” (October)

JPRS described the latest developments in the domain name industry, plans for the JP Domain Name including future service changes as well as information useful for day-to-day operations to those staff members who were handling domain names in JP Registrars.

“JPRS Technical Seminar” (November)

JPRS talked to engineers involved in the operation of domain names and DNS about the latest hot topics related to DNS, security incidents, and preventive measures and operational responses.

01 · 3 International Relations

1. Participation in ICANN

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

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



ICANN67

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

ICANN holds three public meetings each year to enable stakeholders from every country and region of the world to participate and discuss Internet resource management and related rules. For 2020, ICANN had planned to organize a meeting in Cancun, Mexico in March, another in Kuala Lumpur, Malaysia in June, and another in Hamburg, Germany in October. However, due to the spread of COVID-19, it ended up holding all three meetings online.

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. The ICANN Supporting Organizations (SOs) and the Advisory Committees (ACs) continued active discussions between different SOs/ACs to promote a better understanding of each other in 2020. ICANN is serving as an important forum for SOs/ACs to exchange opinions on different topics of interest, including Internet resources. Especially in 2020, the participants discussed wide-ranging topics including common rules for gTLDs, shared understanding of the concept of “DNS Abuse” among SOs/ACs, education about the historical background, and the current state of the domain name business. They also talked about how future ICANN public meetings should be held, considering the need to change the meeting format because of the spread of COVID-19. In addition, ICANN and the community started to discuss the governance model for ensuring stable Root DNS service that underpin all domain names worldwide.

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

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

*2 gTLD: Generic Top Level Domain

(1) ccNSO

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

The ccNSO cancelled its member meeting in ICANN67 because the entire ICANN meeting had been moved online hastily due to COVID-19. After ICANN67, ICANN changed the format of its public meetings from face-to-face to online. Accordingly, ccNSO altered the structure of its own sessions to be held during ICANN meetings and organized the member meetings based on the new arrangement. Taking into consideration the burden of the ccTLD registries participating from different time zones, the ccNSO organized sessions that were more focused on the issues to be addressed by the whole ccTLD community during ICANN meetings, and information-sharing sessions specific to ccTLD registries were set up outside of the term of the ICANN meetings. Prior to ICANN67, ICANN held the meetings physically, and the sessions of the ccNSO WGs were organized as an open session during an ICANN meeting to allow the participants to gather and discuss matters face-to-face. In 2020, however, the ccNSO decided not to arrange their sessions that way, as the ICANN meetings shifted to online.

In 2020, the ccNSO organized a Q&A session where ccNSO-appointed ICANN Board members answered questions from the members, a meeting to talk about governance models of ccTLD managers and a forum to share knowledge and ideas about the efforts and challenges of ccTLDs amid COVID-19. At ICANN68 held in June 2020, Atsushi Endo of JPRS represented the ccTLD manager run by a for profit company in the panel to discuss various governance models of ccTLD registries, which were operated by an academic institution, company, government or non-profit organization. The attendees of the session appreciated that they could gain a better understanding of the different characteristics of different governance models. At ICANN69 held in October 2020, Yuri Takamatsu of JPRS worked together with Ms. Irina Danelia (.ru), the moderator, to conduct a session to discuss the efforts of each ccTLD in response to COVID-19.

At the Annual General Meeting held during ICANN69, Hirofumi Hotta of JPRS received recognition from ICANN for his many years of contribution to the ccNSO^{*8}.

^{*3} ccNSO: Country Code Names Supporting Organisation
<https://ccnso.icann.org/>

^{*4} SOPC
<https://ccnso.icann.org/en/workinggroups/sopiwg.htm>

^{*5} MPC
<https://ccnso.icann.org/en/workinggroups/mpwg.htm>

^{*6} ccPDP4
<https://ccnso.icann.org/en/workinggroups/idn-cctld-strings.htm>

^{*7} IDN: Internationalized Domain Name

^{*8} <https://jprs.co.jp/en/press/2020/201026.html>

(2) Label Generation Rules for the Root Zone

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

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

1. Generation Panel (GP)

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

2. Integration Panel (IP)

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

The IP was established in 2014, and several GPs for different scripts were formed in 2015. The other language communities are also making progress.

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

After mutual coordination among the Japanese, Chinese and Korean GPs, they respectively proposed the LGRs for their own scripts to ICANN and moved onto separate discussions with the IP. The Chinese GP has already completed the discussion, while the Korean and Japanese GPs are presently making final adjustments.

In 2020, the JGP submitted to ICANN and relevant parties the “Proposal for a Japanese Script Root Zone LGR” incorporating the results of field research conducted jointly by ICANN and the JGP to examine the recognition of visually identical characters. The JGP also summarized the proposal for the Japanese community at the ICANN Readout Session in December 2020 and checked whether there were any comments. It is currently continuing the work of finalizing the proposal and expects to complete the LGR for the Japanese community in 2021.

(3) RSSAC

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

In 2020, the RSSAC held a discussion at the ICANN meetings as well as their regular conference calls. As a result, it made a decision to newly start taking part in ICANN's decision-making process. It also continued to work on improving the transparency of activities related to the RSSAC and Root Server Operators.

Hirofumi Hotta of JPRS has been playing an active role in these discussions representing both of the two M-Root DNS server operators. Moreover, Yoshitaka Aharen, Shinta Sato, Kazunori Fujiwara and Hirofumi Hotta of JPRS are on the RSSAC Caucus tasked with considering and drafting proposals to the ICANN Board and the community. They completed the work in the Resolver Study Work Party, which researched the behavior of resolvers, and also in the RSS Metrics Work Party, which defined measurements to assess the performance of the root servers. Presently, they are taking part in the Local Perspective Tools Work Party tasked with defining a set of measurements to determine the level of service provided by the Root Server System at a location, and the Rogue RSO Work Party charged with defining different types of rogue operations of Root Server Operators.

(4) Participation in the Discussion to Propose a New Governance Model for the Root Server System

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

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

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

The GWG comprises ten representatives: two from ccNSO, two from ICANN Registries Stakeholder Group, two from IAB/IETF, three from Root Server Operators and one from the ICANN Security and Stability Advisory Committee. The GWG also comprises three liaisons: one from IANA, one from the ICANN Board and one from Root Zone Maintainer. Hirofumi Hotta of JPRS is participating in the GWG as one of the three representatives for the Root Server Operators. The work of the GWG will continue and is expected to produce an outcome by the beginning of 2022.

^{*9} RSSAC: Root Server System Advisory Committee
<https://www.icann.org/groups/rssac>

2. Participation in IETF

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



IETF 108

All the IETF meetings scheduled for 2020 had to be held online due to COVID-19. IETF 107 was organized in March, IETF 108 in July and IETF 109 in November.

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

(1) dnsop WG

The name of the dnsop WG*² derives from DNS Operations. The working group aims to compile a guideline for DNS operation in general, including administration of DNS servers and registration data.

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

In 2020, the dnsop WG continued to discuss “draft-fujiwara-dnsop-avoid-fragmentation,” a proposal to prevent IP fragmentation in DNS that had been submitted by Kazunori Fujiwara of JPRS in 2019. The proposal became a draft for standardization in the dnsop WG, and then “draft-ietf-dnsop-avoid-fragmentation-00” was posted in June. The draft was revised in July, September and November, reflecting the comments received. Fujiwara also posted in November “draft-fujiwara-dnsop-delegation-information-signer-00,” a new proposal to sign NS and glue records that are delegation information, and presented it at the dnsop WG session in IETF 109. Then Paul Hoffman of ICANN and Kazunori Fujiwara of JPRS started co-authoring the revised version of RFC 8499, resulting in “draft-ietf-dnsop-rfc8499bis” being posted in November.

*1 IAB: Internet Architecture Board
<https://www.iab.org/>

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

3. Participation in Registry Associations

(1) APTLD

APTLD*¹ is an association composed of ccTLD registries mainly in the Asia Pacific (AP) region. JPRS has been a member of APTLD since 2002. As the .JP registry, JPRS proposes improvements of APTLD activities, provides information and exchanges views at presentations and discussions so that the ccTLD community in the AP region can gain experience and expertise and raise the level of service standards.

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

At the APTLD meeting held in Melbourne, Australia in February, JPRS outlined the .jp DNSSEC Key Ceremony and Backup TCRs (Trusted Community Representatives) in ICANN. Also, Hirofumi Hotta of JPRS talked about the Root Server System Governance Working Group (GWG) of which he was a member. In the APTLD online meeting in September, Yuri Takamatsu of JPRS shared the recent work items of the company at the session where the members gave updates on their projects and the latest developments. In addition, Hirofumi Hotta attended as a panelist in the panel discussion to share the challenges that ccTLD registries were facing and to discuss various governance models of ccTLDs. He explained that JPRS carried out measures focusing on providing services to many different registrants and end users residing in diverse places even in times of a natural disaster or pandemic.

In addition, Yuri Takamatsu of JPRS contributed to the evaluation of the APTLD Secretariat's performance as a member of the Secretariat Performance Review Working Group.

(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.aptd.org/>

*2 CENTR: Council of European National Top Level Domain Registries
<https://www.centr.org/>

4. Other International Activities

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

IGF^{*1} is an international conference organized under the auspices of the United Nations (UN) and has been held annually since 2006. The IGF for 2020 had originally been scheduled to take place in Katowice, Poland in November, but had to be held entirely online. Hirofumi Hotta and Yuri Takamatsu of JPRS participated in the IGF 2020.

The IGF 2020 was organized on the main theme of “Internet for human resilience and solidarity,” offering four main thematic tracks – “data,” “environment,” “inclusion” and “trust.” It convened various sessions centering around “Digital Cooperation,” the subject featured prominently according to the “Roadmap for Digital Cooperation” that UN Secretary-General António Guterres had released in June 2020.

The spread of COVID-19 forced many different activities related to livelihoods and the economy to go online, highlighting the importance of the Internet; this became the center of talks throughout the IGF 2020. Going forward, JPRS will make good use of the information gained from the discussion in the IGF 2020 and will stimulate related discussions in Japan.

(2) Participation in the 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 issues related to Internet governance in not only the AP region but also the entire world. Hirofumi Hotta of JPRS is on the Multi-Stakeholder Steering Group (MSG) that considers the policy direction of the APrIGF.

APrIGF2020 had been due to take place in Nepal but ended up being held online in September. Yuri Takamatsu of JPRS participated in the forum. Several sessions related to COVID-19 were organized, and many participants emphasized in their comments the importance of the Internet and universal access to it.

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

^{*2} APrIGF: Asia Pacific Regional Internet Governance Forum
<https://www.rigf.asia/>

(3) Participation in the DotAsia Organisation

The DotAsia Organisation^{*3} 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 and the Universal Acceptance Steering Group (UASG) Secretariat alongside “NetMission Ambassadors Program” and “Youth IGF,” which are capacity-building programs for young people who are expected to play a 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 played a role in organizing and operating it as one of the Board Directors until June 2020.

(4) Participation in AP* Retreat

AP* (APstar^{*4}) 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 2020, AP* Retreat was held in Melbourne, Australia in February and then organized online in September. Hirofumi Hotta and Kazuhiro Kitamura of JPRS took part in the meeting in February, while Hotta and Atsushi Endo participated in September. In the February retreat, Hotta shared the activities of APTLD as its former Board Director.

(5) Participation in Root DNS Server Operation

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

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

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

^{*3} DotAsia Organisation
<https://www.dot.asia/>

^{*4} APstar: The Community of Asia Pacific Internet Organizations
<http://www.apstar.org/>

(6) Participation in DNS-OARC

DNS-OARC^{*5} 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^{*6}, which involves collecting and evaluating server packets of DNS including the root servers once a year for 50 hours.

In 2020, DNS-OARC held a workshop in San Francisco, the United States in February and then an online-only workshop in August due to COVID-19.

(7) Participation in W3C

W3C^{*7} is a non-profit organization founded in 1994 to develop a series of technical standards for the World Wide Web. JPRS participates in W3C and plays an active role in enhancing Web security and internationalization of identifiers. Yoshiro Yoneya of JPRS served as a co-chair until 2020 in the HTTPS in Local Network Community Group^{*8} that had been established in 2017.

(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 on the Technical Committee on Internet Architecture of EIC Communication Society as an expert member.

In 2020, “Cardinality Analysis to Classify Malicious Domain Names,” a paper co-authored by Kazunori Fujiwara of JPRS, Akira Sato and Kenichi Yoshida of the University of Tsukuba, was adopted for COMPSAC 2020^{*9} that took place in July. The paper classifies Malicious Domain Names by using the data collected by the University of Tsukuba and analyzing the communication destinations of users.

Moreover, Yoshiro Yoneya of JPRS presented his paper entitled “Proposal for scoring and indicating malicious use of domain names by using domain name related information” at the 13th Internet and Operation Technology Symposium (IOTS 2020)^{*10} of the Information Processing Society of Japan that was held online in December 2020.

^{*5} DNS-OARC: The DNS Operations, Analysis, and Research Center
<https://www.dns-oarc.net/>

^{*6} DITL: Day In The Life of the Internet
<https://www.dns-oarc.net/oarc/data/ditl>

^{*7} W3C: World Wide Web Consortium
<https://www.w3.org/>

^{*8} HTTPS in Local Network Community Group
<https://www.w3.org/community/httpslocal/>

^{*9} COMPSAC 2020
<https://ieeecompsac.computer.org/2020/>

^{*10} The 13th Internet and Operation Technology Symposium (IOTS 2020), Information Processing Society of Japan
<https://www.iot.ipsj.or.jp/symposium/iots2020/> (in Japanese)

01 · 4 Activities in Japan

(1) Participation in JANOG

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



JANOG45 Meeting

In 2020, JANOG45 Meeting was held in Sapporo City, Hokkaido in January. JANOG46 Meeting, which had been due to take place in Okinawa City, Okinawa Prefecture in July, was pushed back to August and was held mainly online due to the spread of COVID-19.

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

(2) Participation in DNSOPS.JP

DNS Operators Group, Japan (DNSOPS.JP)^{*2} was established in 2006 with the intention of contributing to the stable operation of the Internet through the administration of DNS. Yasuhiro Morishita of JPRS participated in the establishment as one of the founding members. DNSOPS.JP serves as a forum for DNS operators where they can exchange and share information and discuss related issues.

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

At DNS Summer Day 2020 held in June 2020, Yoshitaka Aharen of JPRS gave a presentation entitled “Overview of NXNSAttack” and outlined the new scheme of DoS attack against DNS and the countermeasures that had been published by researchers at Tel Aviv University in Israel in May 2020. Yasuhiro Morishita of JPRS summarized a year’s worth of JPRS’s technical information services related to DNS vulnerabilities and talked about the publication of JPRS’s translation of DNS-related RFCs in his presentation entitled “Technical Information Provided by JPRS (July 2019–June 2020).” In addition, JPRS presented “DNSSEC Key Ceremony in Times of Covid-19” and outlined the DNSSEC Key Ceremony for the root zone that had been conducted partly remotely in April 2020.

Moreover, at the BoF held in November 2020, Yoshiro Yoneya of JPRS and Masayuki Okada of the University of Nagasaki made a presentation entitled “Research Report on Authoritative DNS Services” and shared the outcomes of their research on the confidentiality and availability of different DNS services.

^{*1} JANOG: Japan Network Operators’ Group
<https://www.janog.gr.jp/en/html/>

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

(3) Participation in ICANN Readout Sessions

“ICANN Readout Session” is the event that has been organized jointly by JPNIC and IAJapan from 2001 to 2017 and by JPNIC from April 2017 onward. JPRS has been participating in the ICANN Readout Sessions as the .JP registry and reporting to the Japanese community about the trend of ccTLDs and other relevant topics.

The ICANN Readout Sessions were held in April, August and December in 2020. In these events, JPRS reported on the development and issues in the ccNSO and, as a Root Server Operator, gave a status update on the deliberations of the future governance model for the DNS Root Server System. As a member of the Japanese Generation Panel (JGP), JPRS also talked about the development of the Label Generation Rule (LGR) for the Japanese community and called for comments on the draft proposal of LGR.

(4) Participation in ISOC-JP

ISOC-JP^{*3} was established in August 1994 and has made various efforts to promote the Internet in Japan as the Japan Chapter of the Internet Society (ISOC^{*4}). Atsushi Endo of JPRS contributed to the activities of ISOC-JP as one of the officers for two years from 2019 to 2020. In addition, Yoshiro Yoneya of JPRS has been taking part in the Internet Standardization Promotion Committee (ISPC) of ISOC-JP since 2017 and served as the ISPC Vice Chair in 2019.

ISOC-JP and JPNIC jointly organized two IETF Update Meetings in 2020. At the IETF 106 Update Meeting, Yoshiro Yoneya of JPRS gave an overview of IETF 106 from the standpoint of the ISPC. Yoneya also shared the status of development in the add (Adaptive DNS Discovery) WG at the IETF 107 Update Meeting.

(5) Participation in ICT-ISAC

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

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

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

^{*4} ISOC: Internet Society
<https://www.internetsociety.org>

^{*5} ICT-ISAC: ICT Information Sharing And Analysis Center Japan
<https://www.ict-isac.jp/english/index.html>

(6) Participation in the Efforts Related to Internet Governance

The IGF has held an annual meeting since 2006 and organized the IGF 2019 in Berlin, Germany. In Japan, the participants at the IGF 2019 took the lead in planning a local event, which resulted in the IGF 2019 Readout Session co-organized by JAIPA*⁶ and JPNIC. The session was originally scheduled for March 2020 but was postponed until October due to COVID-19. As such, it was convened as an event for the IGF 2019/2020. Those gathered at the session shared key issues as well as the outcomes of the debates in the IGF 2019 from their own viewpoint and then discussed the workshops of IGF 2020 that were most interesting for each speaker. Hirofumi Hotta and Yuri Takamatsu of JPRS contributed to plan the event as core members.

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

The Council of Anti-Phishing Japan*⁷ is a council tasked mainly with collecting and providing information on phishing and issuing alerts. Atsushi Endo of JPRS took Kazumitsu Shiraiwa's place as Steering Committee member in June 2020 and has since been contributing to the operation of the entire council.

The Council has published the "Anti-Phishing Guidelines" for service providers and consumers. It also organizes a working group to discuss refining the guidelines every year, taking into consideration the current threats. Takaharu Ui of JPRS took part in the working group as a member for the development of the 2020 edition*⁸ of the guidelines. He also engaged in the awareness campaign and educational activities about domain name abuse. In addition, Atsushi Endo and Toshihiro Sasaki of JPRS are participating in drawing up the 2021 edition.

Kazumitsu Shiraiwa of JPRS is a member of the working group tasked mainly with promoting knowledge about server certificates. Moreover, Shiraiwa and Yoshiro Yoneya of JPRS have been participating in the working group charged with sharing information about phishing scams and discussing collaboration between organizations.

*6 JAIPA: Japan Internet Providers Association
<https://www.jaipa.or.jp/en/message.php>

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

*8 Anti-Phishing Guidelines (released in June 2020, in Japanese)
https://www.antiphishing.jp/report/guideline/antiphishing_guideline2020.html

(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 use environment by exchanging opinions and information on the laws and regulations related to network services and the challenges facing providers. Takaharu Ui of JPRS has been participating in the committee.

(9) Participation in KEIDANREN (Japan Business Federation)

The Committee on Digital Economy of KEIDANREN (Japan Business Federation)^{*10} is the body tasked with deliberating and making policy proposals about issues such as promoting the use of personal data and measures to ensure the free flow of data across national borders. In 2020, Hirofumi Hotta of JPRS participated in the private-sector meeting of the Japan-U.S. Policy Cooperation Dialogue on the Internet Economy as a member of KEIDANREN. In addition, Hotta and Takaharu Ui of JPRS engaged in wide-ranging discussions in the Planning Subcommittee of the Committee on the Digital Economy.

^{*9} Telecom Services Association
<https://www.telesa.or.jp/en>

^{*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.

In 2020, JPRS introduced the JP Registrar Transfer Lock and Domain Name Transfer Lock functions to prevent unintended changes of JP Registrars and JP domain name registrants, in an effort to improve the reliability of the JP Domain Name services. It also reexamined the cryptographic algorithms that could be specified in DNSSEC, an expanded security capability of DNS.

JPRS also tapped into its expertise as the .JP registry to provide information related to domain names and DNS and promote understanding of industry trends at events and meetings, many of which were held online using video conferencing services due to the spread of COVID-19.

The year 2020 continued to see a number of challenges threatening the stable operation of the Internet, such as new DNS attack techniques and serious DNS software vulnerabilities. JPRS has responded to these problems by collaborating with various organizations on information provision activities such as issuing alerts and offering educational programs.

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 eleven years in a row, with the total number of copies distributed exceeding 300,000. It also produced a poster to help students learn about ccTLDs in a fun way and distributed copies free of charge to educational institutions across Japan like it did in 2019. Moreover, JPRS continued to provide domain names free of charge at the website creation contest for junior and senior high school students to support children who will lead the next generation.

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

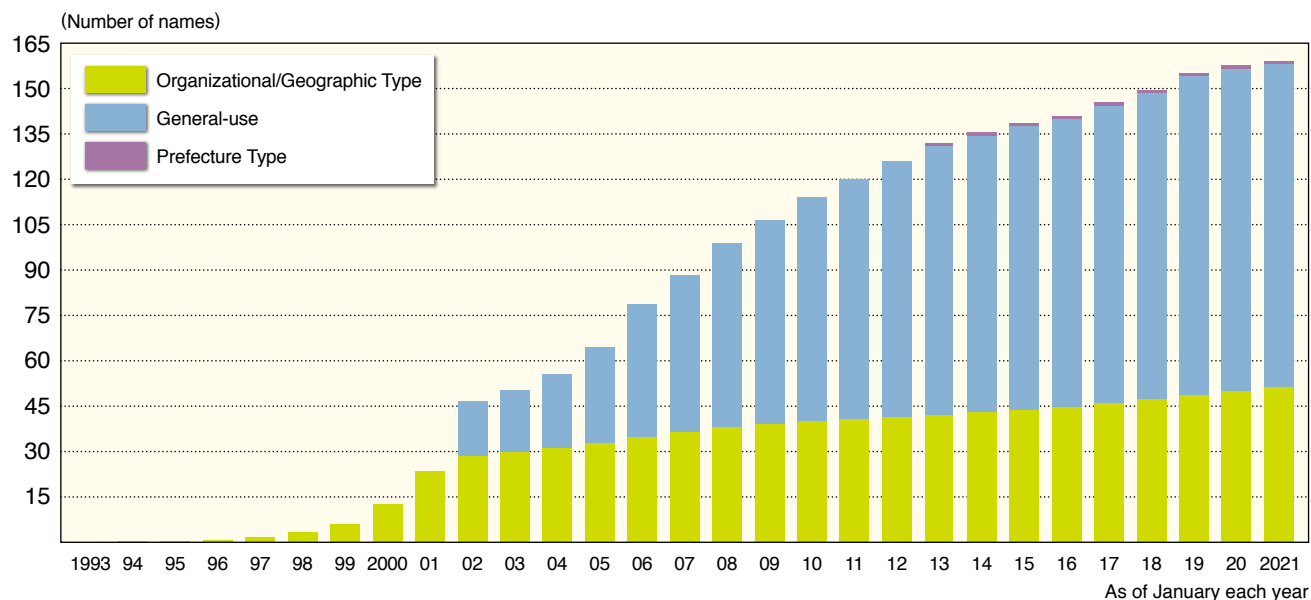
The COVID-19 pandemic has accelerated and expanded the use of the Internet and brought about changes in corporate and social activities. Consequently, public demand for stable communications infrastructure has risen significantly. Recognizing the circumstances, JPRS will ensure greater continuity of the service in times of disaster by ensuring faster recovery and improved reliability through exercises assuming various situations.

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

02・1

Change in the Number of Registered JP Domain Names

As of January 1, 2021, the number of registered JP domain names reached 1,620,203, an increase of 43,796 in one year.



(Number of names)

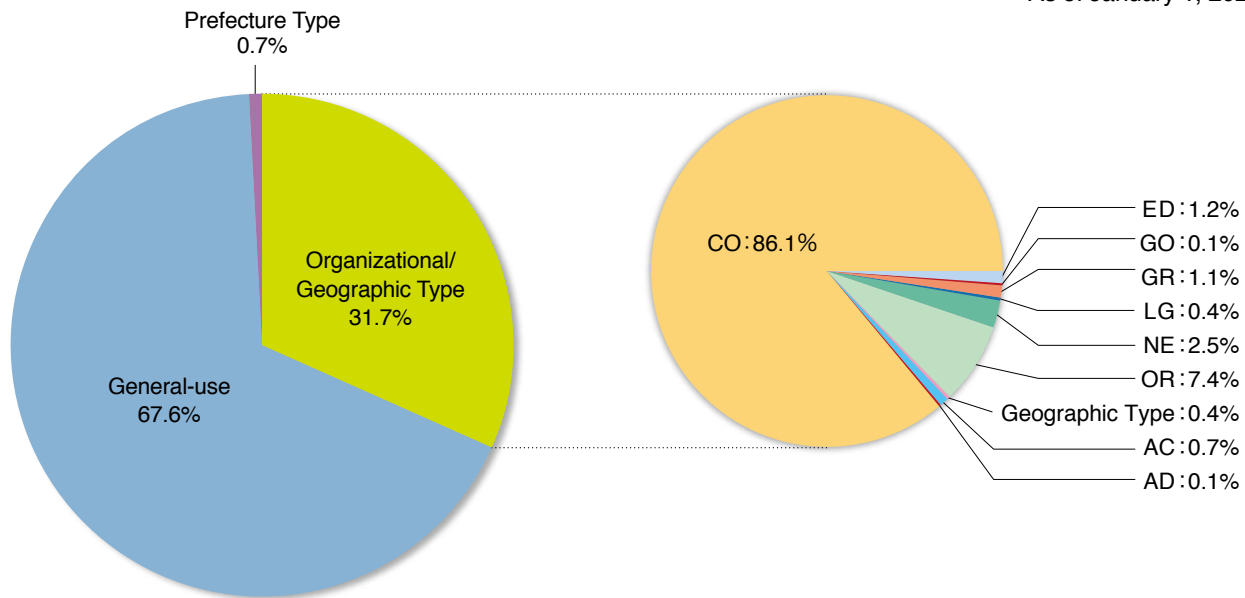
Month/Year	Organizational/ Geographic Type	General-use (Japanese domain name)	Prefecture Type (Japanese domain name)	Total
1993/1	953	—	—	953
1994/1	1,341	—	—	1,341
1995/1	2,206	—	—	2,206
1996/1	4,781	—	—	4,781
1997/1	15,477	—	—	15,477
1998/1	33,739	—	—	33,739
1999/1	58,549	—	—	58,549
2000/1	124,573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

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

02.2

Breakdown of JP Domain Name Registrations by Name Space

*As of January 1, 2021



(Number of names)

JP Domain Name Types		1 Jan 2021 Number of Registrations	1 Jan 2020 Number of Registrations	Difference
Organizational/ Geographic Type	AC: Higher education institution	3,727	3,655	+72
	AD: JPNIC Member	253	255	-2
	CO: Company	441,688	429,226	+12,462
	ED: Primary school, junior and senior high school	5,979	5,406	+573
	GO: Japanese government	628	583	+45
	GR: Group	5,696	5,863	-167
	LG: Japanese local authority	1,894	1,891	+3
	NE: Network service	12,866	13,048	-182
	OR: Corporation other than company	38,158	37,252	+906
	Geographic Type	2,149	2,187	-38
General-use (Japanese domain name)		1,095,928 (90,494)	1,065,561 (95,123)	+30,367 (-4,629)
Prefecture Type (Japanese domain name)		11,237 (1,612)	11,480 (1,829)	-243 (-217)
Total JP Domain Name Registration		1,620,203	1,576,407	+43,796

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

02・3

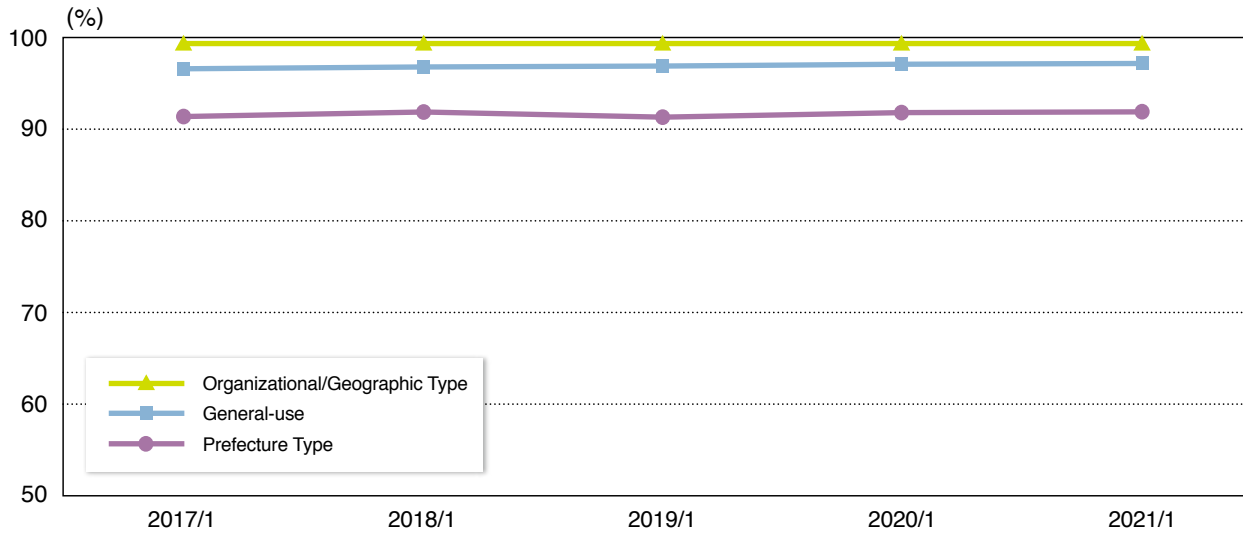
Number of JP Domain Name Registrations
by Prefecture

*As of January 1, 2021

Prefecture	Organizational/ Geographic Type	General-use	Prefecture Type
Hokkaido	2.8%	2.0%	2.8%
Aomori	0.5%	0.3%	0.5%
Iwate	0.4%	0.3%	0.5%
Miyagi	1.3%	0.8%	0.9%
Akita	0.4%	0.3%	0.6%
Yamagata	0.6%	0.3%	0.4%
Fukushima	0.9%	0.5%	0.5%
Ibaraki	1.4%	1.0%	0.6%
Tochigi	1.0%	0.6%	0.8%
Gunma	1.1%	0.7%	1.7%
Saitama	4.4%	2.7%	2.5%
Chiba	3.3%	2.3%	2.5%
Tokyo	32.5%	42.7%	37.7%
Kanagawa	6.6%	4.8%	3.3%
Niigata	1.1%	0.7%	0.8%
Toyama	0.6%	0.4%	0.5%
Ishikawa	0.7%	0.5%	0.6%
Fukui	0.5%	0.4%	0.4%
Yamanashi	0.5%	0.4%	0.4%
Nagano	1.3%	0.8%	1.4%
Gifu	1.1%	0.7%	1.1%
Shizuoka	2.1%	1.5%	1.3%
Aichi	5.4%	3.7%	2.4%
Mie	0.8%	0.5%	1.1%
Shiga	0.6%	0.5%	1.0%
Kyoto	2.0%	2.6%	6.1%
Osaka	9.5%	15.3%	10.1%
Hyogo	3.2%	2.3%	1.8%
Nara	0.6%	0.7%	1.4%
Wakayama	0.4%	0.4%	0.4%
Tottori	0.2%	0.2%	0.4%
Shimane	0.3%	0.3%	0.3%
Okayama	1.1%	0.7%	0.7%
Hiroshima	1.6%	1.0%	1.2%
Yamaguchi	0.5%	0.3%	0.2%
Tokushima	0.3%	0.2%	0.3%
Kagawa	0.5%	0.3%	0.5%
Ehime	0.6%	0.4%	0.6%
Kochi	0.3%	0.2%	0.4%
Fukuoka	3.2%	2.5%	4.2%
Saga	0.3%	0.2%	0.5%
Nagasaki	0.5%	0.4%	0.7%
Kumamoto	0.8%	0.6%	0.9%
Oita	0.4%	0.4%	0.8%
Miyazaki	0.4%	0.3%	0.4%
Kagoshima	0.5%	0.4%	0.7%
Okinawa	0.7%	0.6%	1.3%

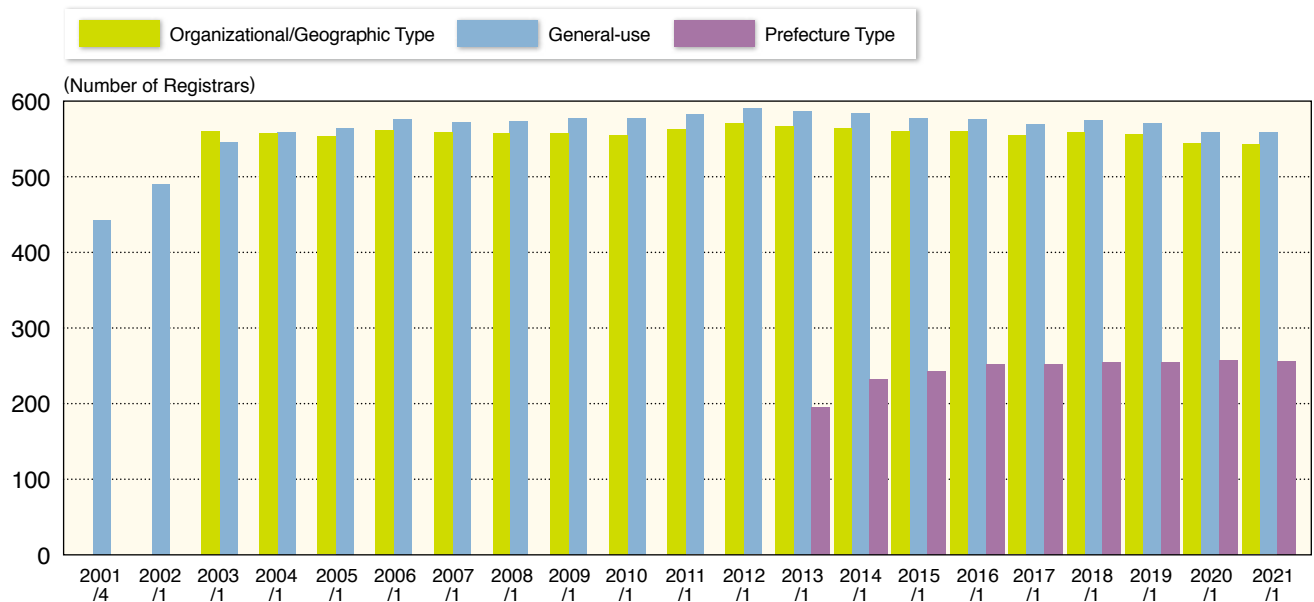
02 · 4 Transition of DNS Configuration Rate

*As of January 1, 2021



Month/Year	Organizational/Geographic Type	General-use	Prefecture Type
2017/1	99.4%	96.6%	91.4%
2018/1	99.4%	96.8%	91.9%
2019/1	99.4%	96.9%	91.3%
2020/1	99.4%	97.1%	91.8%
2021/1	99.4%	97.2%	91.9%

02・5 Number of Accredited JP Registrars



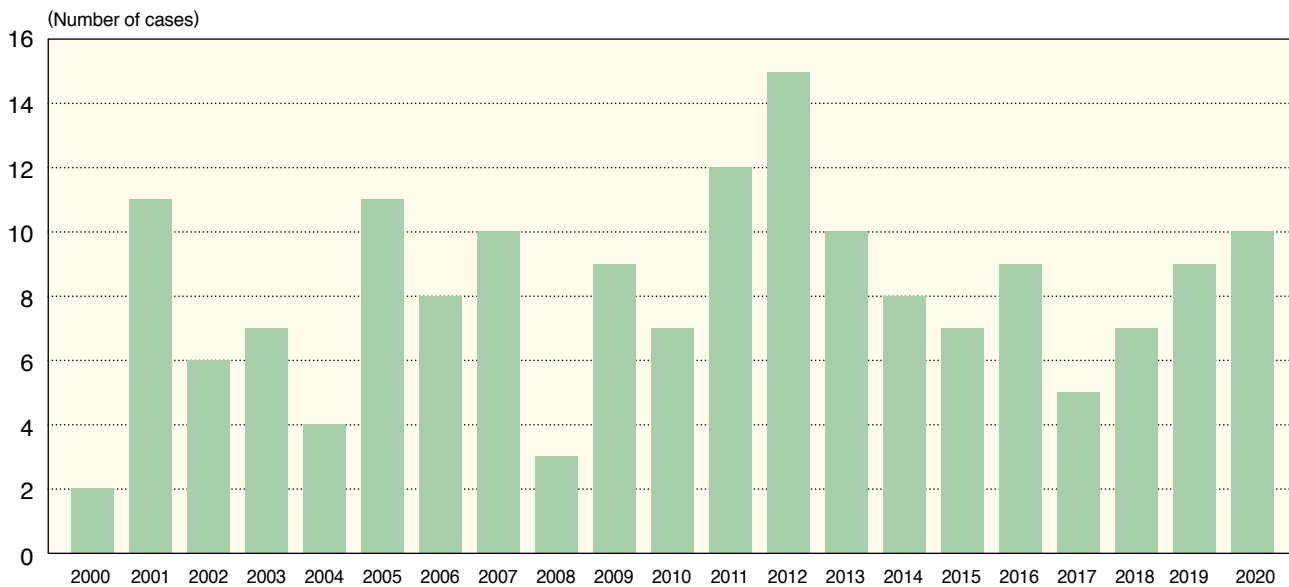
(Number of Registrars)

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
2019/1	556	571	254	1,381
2020/1	544	559	257	1,360
2021/1	542	558	256	1,356

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

02・6

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



(Number of cases)

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

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

03・1 History

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

03 · 2 JP Domain Name Advisory Committee

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

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

(1) Advisory Committee Meetings

Jun. 4 **67th JP Domain Name Advisory Committee**

It was reported that Ryoji Yamazaki had become a member representing the Japanese government in the 10th JP Domain Name Advisory Committee, following a personnel change in the Ministry of Internal Affairs and Communications.

JPRS outlined the status of .JP and other TLDs, the circumstances surrounding domain names and its most recent activities. It also gave an update on the management and administration of the .JP top-level domain amid COVID-19 and its response to the pandemic. The committee then exchanged opinions about these topics.

The JPRS Board of Directors submitted an inquiry entitled “Treatment of a JP Domain Name That Was Eligible When Registered and Subsequently Lost its Eligibility” (JPRS-ADV-2020001). The committee members expressed their opinions on the content of the inquiry and then agreed on the direction of the advisory report.

The committee members reviewed and finalized the outline of the advisory report after the committee meeting.

Sep. 29 **68th JP Domain Name Advisory Committee**

It was reported that Ken Umemura had become a member representing the Japanese government in the 10th JP Domain Name Advisory Committee, following a personnel change in the Ministry of Internal Affairs and Communications.

The committee members reviewed the draft advisory report entitled “Treatment of a JP Domain Name That Was Eligible When Registered and Subsequently Lost its Eligibility” that had been developed on the basis of the outline finalized after the 67th committee meeting. The advisory report was confirmed and then delivered to JPRS on September 29.

Dec. 8 **69th JP Domain Name Advisory Committee**

JPRS gave a status update on its response to the advisory report entitled “Treatment of a JP Domain Name That Was Eligible When Registered and Subsequently Lost its Eligibility” (JPRS-ADVRPT-2020001).

The JPRS Board of Directors submitted an inquiry entitled “Method for Appointing the Members of the 11th JP Domain Name Advisory Committee” (JPRS-ADV-2020002). Each committee member expressed their opinion on the contents of the inquiry, and the committee then agreed on the method. Following the 69th Advisory Committee meeting, the committee reviewed the advisory report. The report was finalized on December 21 and then was delivered to JPRS.

(2) Consultations and Advisories

Consultation / Advisory	Consultation Date Document No.	Advisory Date Document No.
Treatment of a JP Domain Name That Was Eligible When Registered and Subsequently Lost its Eligibility	Feb. 28, 2020 JPRS-ADV-2020001	Nov. 29, 2020 JPRS-ADVRPT-2020001
Method for appointing members of the 11th JP Domain Name Advisory Committee	Dec. 8, 2020 JPRS-ADV-2020002	Dec. 21, 2020 JPRS-ADVRPT-2020002

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

03 · 3 Proposals and Presentations

Date	Title	At	Hosted by
Feb. 17	The 2019 APTLD UPDATE	AP* Retreat	AP*
Feb. 20	.JP DNSSEC key signing ceremony and the role of TCR	77th APTLD Melbourne Meeting	APTLD
Feb. 20	DNS Root Server Governance	77th APTLD Melbourne Meeting	APTLD
Apr. 14	draft-fujiwara-dnsop-avoid-fragmentation-03	IETF 107 Interim dnsop WG	IETF
Apr. 21	Update of ccNSO at ICANN67	57th ICANN Readout Session	JPNIC
Apr. 21	Root Server System Advisory Committee (RSSAC) Update	57th ICANN Readout Session	JPNIC
May 25	Tour de table	CENTR Jamboree 2020 (Marketing Workshop)	CENTR
Jun. 23	ccTLD governance model "for profit company"	ICANN68 (ccNSO Members Meeting)	ICANN ccNSO
Jun. 26	Overview of NXNSAttack	DNS Summer Day 2020	DNSOPS.JP
Jun. 26	DNSSEC Key Ceremony in Times of Covid-19	DNS Summer Day 2020	DNSOPS.JP
Jun. 26	Technical Information Provided by JPRS (July 2019–June 2020)	DNS Summer Day 2020	DNSOPS.JP
Jul. 31	Proper Domain Name Management and Security	CSC Free Online Seminar	CSC Japan
Aug. 4	Update of ccNSO at ICANN68	58th ICANN Readout Session	JPNIC
Aug. 4	Update of the Discussion on the DNS Root Server System	58th ICANN Readout Session	JPNIC
Sep. 2	Recent requests regarding abusive domain names	78th APTLD Meeting	APTLD
Oct. 6	Japanese Generation Panel Update at ICANN69	ICANN69	ICANN
Nov. 12	Tour de table	CENTR Marketing Workshop	CENTR
Nov. 17	draft-ietf-dnsop-avoid-fragmentation	IETF 109 dnsop WG	IETF
Nov. 19	RSSAC & RSS GWG	APAC Space	APAC Space
Nov. 20	Delegation Information (Referrals) Signer for DNSSEC draft-fujiwara-dnsop-delegation-information-signer-00	IETF 109 dnsop WG	IETF
Nov. 26	JP DNS Update2020	Internet Week 2020 DNSDAY	JPNIC
Nov. 26	Basics of DNS	Internet Week 2020 DNSDAY	JPNIC
Nov. 26	DNS Update – Domain Name Overview –	Internet Week 2020 DNSDAY	JPNIC
Nov. 26	Evolution of DNS Protocol 2020 (Standardization in IETF)	Internet Week 2020 DNSDAY	JPNIC
Nov. 26	DNS Administration in the Era of Managed Service – Featuring DNS Takeover – Lunch with DNS	Internet Week 2020 Lunch Time Webinar	JPNIC
Dec. 3	Update of ccNSO at ICANN69	59th ICANN Readout Session	JPNIC
Dec. 3	Update of the Discussion on the DNS Root Server System	59th ICANN Readout Session	JPNIC
Dec. 3	Root Zone LGR and Japanese Generation Panel (JGP)	59th ICANN Readout Session	JPNIC
Dec. 3	Proposal for scoring and indicating malicious use of domain names by using domain name related information	13th Internet and Operation Technology Symposium (IOTS 2020)	SIG Internet and Operation Technology (IOT), Information Processing Society of Japan

03 · 4 Press Releases

Date	Title
Feb. 7	JPRS Obtains WebTrust Accreditation for Certification Authorities
Feb. 17	JPRS Supports “22nd Japan Junior/Senior High School Web Contest” to Provide Experience of Using JP Domain Names (in Japanese)
Mar. 26	JPRS Publishes "JP Domain Name Registry Report 2019" (in Japanese)
Jun. 15	JPRS Distributes Free Graphic Comic-style Booklet on Domain Names and DNS That Underpin the Internet to Educational Institutions across Japan (in Japanese)
Aug. 31	M-Root deployment to expand under new collaboration agreement
Oct. 2	JP Domain Names Surpassed 1.6 Million
Oct. 26	Hirofumi Hotta of JPRS Received Recognition from ICANN
Nov. 5	JPRS Starts Distributing Free Poster That Helps Students Have Fun Learning Internet ccTLDs to Educational Institutions across Japan (in Japanese)
Dec. 7	JPRS Celebrates Its 20th Anniversary
Dec. 18	M-Root Instance Launched in Brisbane Based on a New Cooperative Relationship with APNIC

*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
Apr. 17	Vulnerability Information on Windows DNS Posted (CVE-2020-0993)
May 20	(Urgent) Vulnerability of BIND 9.x (DNS Service Outage and Abnormal Operations) (CVE-2020-8617)
May 20	(Urgent) Vulnerability of BIND 9.x (Degraded Performance and Exploitation for Reflection Attacks) (CVE-2020-8616)
May 21	Vulnerability Information on Knot Resolver Posted (CVE-2020-12667)
May 21	Vulnerability Information on PowerDNS Recursor Posted (CVE-2020-10995, CVE-2020-12244, CVE-2020-10030)
May 21	Vulnerability Information on Unbound Posted (CVE-2020-12662, CVE-2020-12663)
Jun. 18	Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2020-8619)
Jun. 18	Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2020-8618)
Jul. 7	Vulnerability Information on PowerDNS Recursor Posted (CVE-2020-14196)
Jul. 16	Vulnerability Information on Windows DNS Server Posted (CVE-2020-1350)
Aug. 14	Vulnerability Information on Windows DNS Cache Resolver Service Posted (CVE-2020-1584)
Aug. 21	Vulnerability of BIND 9.x (Permission of Dynamic Update Not Intended by Service Providers) (CVE-2020-8624)
Aug. 21	Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2020-8623)
Aug. 21	Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2020-8622)
Aug. 21	Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2020-8621)
Aug. 21	Vulnerability of BIND 9.x (DNS Service Outage) (CVE-2020-8620)
Sep. 17	Vulnerability Information on Windows DNS Cache Resolver Service Posted (CVE-2020-0839)
Sep. 17	Vulnerability Information on Windows DNS Posted (CVE-2020-0836, CVE-2020-1228)
Sep. 24	DNS Flag Day 2020
Sep. 25	Vulnerability Information on PowerDNS Authoritative Server Posted (CVE-2020-24696, CVE-2020-24697, CVE-2020-24698)
Sep. 25	Vulnerability Information on PowerDNS Authoritative Server Posted (CVE-2020-17482)
Oct. 16	Vulnerability Information on PowerDNS Recursor Posted (CVE-2020-25829)
Dec. 3	Vulnerability Information on NSD Posted (CVE-2020-28935)
Dec. 8	Vulnerability Information on Unbound Posted (CVE-2020-28935)
Dec. 11	Security Advisory on Windows DNS Posted

*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 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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