

## AMENDMENT NO. 1 TO SERVICE LEVEL AGREEMENT FOR THE IANA NUMBERING SERVICES

This Amendment No. 1 to the Service Level Agreement for the IANA Numbering Services, dated as of [INSERT DATE] (the “**Amendment**”), by and between:

**Internet Corporation for Assigned Names and Numbers**

of 12025 Waterfront Drive, Suite 300, Los Angeles, CA 90094-2536, USA (“ICANN” or “Operator”)

AND

**AFRINIC Ltd**

of 11th Floor, Standard Chartered Tower, Cybercity Ebene, Mauritius (“AFRINIC”)

**APNIC Pty Ltd, for the Asia Pacific Network Information Centre**

of 6 Cordelia Street, South Brisbane, Queensland, 4101, Australia (“APNIC”)

**American Registry for Internet Numbers, Ltd**

of 3635 Concorde Parkway, Suite 200, Chantilly, VA 20151-1125, USA (“ARIN”)

**Latin American and Caribbean Internet Addresses Registry**

of Rambla República de México 6125 CP 11400, Montevideo, Uruguay (“LACNIC”)

**Réseaux IP Européens Network Coordination Centre**

of Singel 258, 1016 AB Amsterdam, The Netherlands (“RIPE NCC”)

AFRINIC, APNIC, ARIN, LACNIC and RIPE NCC are, collectively, “**RIRs**” and the RIRs, together with the ICANN, the “**Parties**”;

hereby amends, effective as of the date hereof, the Service Level Agreement for the IANA Number Services, dated 29 June 2016 (the “**Agreement**”), by and between the Operator and the RIRs. All capitalized terms not defined will have the meaning given to them in the Agreement.

1. Amendments

With effect from the date of this Amendment, the terms and conditions of the Agreement are amended as follows:

- (l) Article 1: Definitions and Interpretation – the definition of “IANA Numbering Services” is deleted and replaced as follows:

**IANA Numbering Services:** The administration of the IANA Number Registries in accordance with Global Policies and any applicable and mutually acceptable and agreed upon guidelines and procedures, including allocation of Internet Number Resources to RIRs, the management of returned Internet Number Resources,

general IANA Number Registries maintenance, and the administration of the Reverse DNS Resolution Services.

- (II) Article 1: Definitions and Interpretation is amended to include the following definition:

**Reverse DNS Resolution Services:** DNS resolution services for unicast portion of the special-purpose “IN-ADDR.ARPA” and “IP6.ARPA” DNS zones.

The scope of this definition in this document includes:

- The operation of the zones relevant to the reverse resolution process. This includes “IP6.ARPA”, “IN-ADDR.ARPA”, “IP6-SERVERS.ARPA” and “IN-ADDR-SERVERS”.
- The operation of the distribution servers used by the authoritative public servers listed in the NS-set of the zones mentioned above.
- The provisioning interface used by the RIRs to update their DNS records in the “IP6.ARPA” and “IN-ADDR.ARPA” zones.

- (III) Article 4.3 IANA Numbering Service Operational Requirements – the section referencing the “Process for handling of requests to the Operator by an RIR:” shall now be numbered 4.3.1. Additionally, the following section is incorporated as into Article 4.3, to be inserted directly after paragraph 4.3(d):

4.3.2 Operational Requirements for the Reverse DNS Resolution Services:

- a) The Operator must maintain a redundant and distributed set of Reverse DNS Distribution Servers for the zones in scope of this agreement.
- b) The Operator must ensure that the Reverse DNS Distribution Servers will answer requests only to queries sent from the known authoritative servers for the zone and not be open to queries from other servers.
- c) The Operator must implement the necessary arrangements for the authoritative NS-set servers of the zones in scope of this agreement to be:
  - a. Geographically distributed. Seek at least one authoritative nameserver for the aforementioned zones in every RIR service region that is provisioned in coordination with that region’s RIR. The Operator should not unreasonably decline a request from an RIR to host one authoritative nameserver within their region that conforms with requirements.
  - b. Have an heterogeneous configuration across the aggregate.

These arrangements can include both servers operated by the Operator and servers operated by third parties. The RIRs and the Operator will cooperate in reviewing the need for additional NS-set servers periodically.

- d) The Operator’s DNS server must run software which correctly implements all the applicable DNS IETF RFCs.

- e) The zones IP6.ARPA and IN-ADDR.ARPA must be signed in accordance with all applicable IETF RFCs for DNSSEC.
- f) The Operator will provide and maintain a software interface (API) for the RIRs to use allowing them to automate the changes and updates they need to make to records in the in-addr.arpa and ip6.arpa zones. Additionally:
  - a. The network transport for this API will be encrypted.
  - b. The endpoints of this API will implement mutual authentication.
  - c. The Operator will maintain and periodically update the documentation of this software interface.
  - d. The Operator must ensure the API uptime of at least **99.9%** excluding scheduled maintenance activity.
  - e. Each acknowledgement, where configured to do so, is sent from the provisioning interface of the operator **within 5 minutes**.
- g) Every reverse DNS Resolution Zone must be delegated to its related Registry, as it is defined in **RFC3172**.
- h) The Operator must maintain a set of DNS **distribution servers** able to service DNS zone transfer requests at least 99% of a calendar month. Measurable every month.
- i) The Operator will conduct **its best efforts** to maintain a set of DNS servers able to attend **99%** of DNS queries. The operator shall measure availability and report it every month.
- j) The Operator will ensure that the time from final API command acknowledgement to the requestor is visible in the Reverse DNS Distribution Servers will be under **10 minutes for 99.9%** of the API requests issued.
- k) In the event of failure to meet above operation requirements, the Operator must produce a post mortem report and share it to the RIRs, such report must contain at least:
  - a. that explanation of the situation.
  - b. the perceived damage caused.
  - c. the cause which prevented the compliance of this SLA.
  - d. The measures that were implemented in order to avoid that problem in the future.
  - e. The calendar of future measures that will be implemented to avoid that problem in the future.

(IV) Article 6.2.1 Obligation to Issue Reports is deleted and replaced as follows:

6.2.1 Public Informational Performance Standards Reports – The Operator shall collaborate with the RIRs to produce a monthly information report on compliance with the SLAs defined in this document. The Performance Standards Metric Reports will be published by the Operator via the Operator’s web site every month (no later than fifteen (15) calendar days following the end of each month) starting no later than six (6) months after the Commencement Date.

(V) A new Article 6.2.4 is incorporated as follows:

6.2.4 Nameserver Diversity — The Operator shall collaborate with the RIRs to perform an annual inventory of authoritative nameservers for the Reverse DNS Resolution Services, that includes the software used, the version numbers of the DNS software and operating system, and the geographic location of the servers that host them. The Operator and the RIRs will jointly review this data to identify any undesirable homogeneity in the configuration and develop a remediation plan as needed.

2. Except as previously modified herein in accordance with paragraph 1 above, all other terms of the Agreement shall remain unchanged and shall continue in full effect.

The Parties shall indicate their acceptance of this Amendment by signing in the appropriate space provided below.

**ACCEPTED AND AGREED:**

**SIGNED** for and on behalf of the )  
**INTERNET CORPORATION FOR** )  
**ASSIGNED NAMES AND NUMBERS** by )  
GÖRAN MARBY, its President and Chief )  
Executive Officer: )  
.....

**SIGNED** for and on behalf of **AFRINIC** )  
**LTD** by EDDY KAYIHURA, its Chief )  
Executive Officer: )  
.....

**SIGNED** for and on behalf of the **APNIC** )  
**PTY LTD, FOR THE ASIA PACIFIC** )  
**NETWORK INFORMATION CENTRE** by )  
PAUL WILSON, its Director General: )  
.....

**SIGNED** for and on behalf of the )  
**AMERICAN REGISTRY FOR INTERNET** )  
**NUMBERS, LTD** by JOHN CURRAN, its )  
President & CEO: )  
.....

**SIGNED** for and on behalf of the **LATIN** )  
**AMERICAN AND CARIBBEAN** )  
**INTERNET ADDRESSES REGISTRY** by )  
OSCAR ROBLES, its CEO/Executive )  
Director: )  
.....

**SIGNED** for and on behalf of the )  
**RÉSEAUX IP EUROPÉENS NETWORK** )  
**COORDINATION CENTRE** by HANS PETTER )  
HOLEN, its Managing Director: )  
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