

## **IANA NAMING FUNCTION AGREEMENT**

This IANA Naming Function Agreement (this “**Agreement**”) is dated as of [●] 2016 and is entered into by and between Internet Corporation for Assigned Names and Numbers, a California nonprofit public benefit corporation (“**ICANN**”) and [PTI], a California nonprofit public benefit corporation (the “**Contractor**”), and is effective as of the last date on which all of the conditions set out in Section 1 have been satisfied (the “**Effective Date**”). ICANN and Contractor are referred to herein individually as a “**Party**” and collectively as the “**Parties.**”

WHEREAS, on 14 March 2014, the U.S. National Telecommunications and Information Administration (“**NTIA**”) announced the transition of NTIA’s stewardship role of key Internet domain name functions to the global multi-stakeholder community (the “**Transition**”);

WHEREAS, following the Transition, ICANN will continue to serve as the Internet Assigned Numbers Authority (“**IANA**”) functions operator; and

WHEREAS, ICANN and Contractor desire to enter into this Agreement pursuant to which Contractor will serve as the operator for the IANA naming function after the Transition.

NOW, THEREFORE, for good and valuable consideration, the sufficiency of which is hereby acknowledged, the Parties agree as follows:

### **ARTICLE I: CONDITIONS PRECEDENT**

Section 1.1 Condition Precedent. This Agreement shall be effective as of the last date on which the following conditions have been satisfied: (i) the agreement between ICANN and the United States Department of Commerce (“**DOC**”), effective as of 01 October 2012 (including any extension thereof) has terminated or expired and (ii) ICANN has accepted the responsibility to coordinate and administer the services that were previously provided thereunder.

### **ARTICLE II: REPRESENTATIONS AND WARRANTIES**

Section 2.1 ICANN’s Warranties. ICANN represents and warrants that (i) it has all necessary rights and powers to enter into and perform its obligations under this Agreement, and (ii) the execution, delivery and performance of this Agreement by ICANN has been duly authorized by all necessary corporate action and will not conflict with, or result in any violation of or default under, any agreement between ICANN and a third party.

Section 2.2 Contractor Warranties. Contractor represents and warrants that (i) it has all necessary rights and powers to enter into and perform its obligations under this Agreement; and (ii) the execution, delivery and performance of this Agreement by Contractor has been duly authorized by all necessary corporate action and will not conflict with, or result in any violation of or default under, any agreement between Contractor and a third party.

## ARTICLE III: SERVICES AND REQUIREMENTS

Section 3.1 Designation. ICANN hereby designates Contractor as the operator of the IANA Naming Function, and authorizes Contractor to perform the IANA Naming Function in accordance with the terms of this Agreement. Contractor hereby accepts such designation and agrees to perform the IANA Naming Function in accordance with the terms of this Agreement.

Section 3.2 U.S. Presence.

(a) Contractor shall be a wholly U.S. owned and operated firm or fully operating in one of the 50 states of the United States or District of Columbia; (ii) incorporated within the state of California, United States of America; and (iii) organized under the nonprofit public benefit corporation laws of the state of California.

(b) Contractor shall perform the IANA Naming Function (as defined below) in the United States and possess and maintain, throughout the performance of this Agreement, a physical address within the United States. Contractor must be able to demonstrate that all primary operations and systems will remain within the United States (including the District of Columbia). ICANN reserves the right to inspect the premises, systems, and processes of all security and operational components used for the performance of the IANA Naming Function.

Section 3.3 Scope of the IANA Naming Function. The “IANA Naming Function” is comprised of:

(a) Management of the DNS Root Zone (“**Root Zone Management**”) in accordance with the Statement of Work attached as Annex A to this Agreement (“**SOW**”);

(b) Management of the .INT top-level domain;

(c) Maintenance of a repository of IDN tables and label generation rulesets; and

(d) Provision of the other services and implement modifications in performance of the IANA Naming Function, in each case upon ICANN’s request.

Section 3.4 Performance of IANA Naming Function.

(a) Contractor shall perform the IANA Naming Function in a stable and secure manner and in accordance with the SOW.

(b) Contractor shall treat the IANA Naming Function with equal priority as the other IANA functions performed by Contractor, and process all requests promptly and efficiently.

(c) The Contractor shall make decisions by applying documented policies consistently, neutrally, objectively, and fairly, without singling out any particular

customer for discriminatory treatment (i.e., making an unjustified prejudicial distinction between or among different customers).

(d) The Contractor shall respect the diversity of customers of the IANA Naming Function and shall provide service to its customers in conformance with technical norms and in support of the global security, stability and resilience of the DNS.

Section 3.5 Separation of Policy Development and Operational Roles. Contractor shall ensure that its staff performing the IANA Naming Function does not publicly initiate, advance or advocate any policy development related to the IANA Naming Function. Notwithstanding the foregoing, Contractor's staff may (i) respond to requests for information requested by its customers and, at Contractor's volition, provide objective information to such customers, in each case, to inform ongoing policy discussions, (ii) request guidance or clarification as necessary for the performance of the IANA Naming Function, and (iii) publish, contribute to or comment on any document related to ongoing policy discussions, provided that, in the case of clause (iii), the primary purpose of such publication, contribution or commentary is to supply relevant IANA Naming Function experience and insight.

Section 3.6 User Instructions. Contractor shall, in collaboration with its customers, maintain user instructions, including technical requirements for the IANA Naming Function. Contractor shall post such instructions at [iana.org](http://iana.org) (the "**IANA Website**").

Section 3.7 Responsibility and Respect for Stakeholders. Contractor shall apply the policies for the Root Zone Management component of the IANA Naming Function that have been defined by the Generic Names Supporting Organization ("**GNSO**") and the Country Code Names Supporting Organization ("**ccNSO**"), the Framework of Interpretation of Current Policies and Guidelines Pertaining to the Delegation and Redelelegation of Country-Code Top Level Domain Names, dated October 2014, and the Governmental Advisory Committee (GAC) Principles And Guidelines For The Delegation And Administration Of Country Code Top Level Domains ("**GAC ccTLD Principles**"). Contractor shall publish documentation pertaining to the implementation of these policies and other directives to the IANA Website.

Section 3.8 Management of the .INT TLD.

(a) Contractor shall operate the .INT TLD within the current registration policies for the .INT TLD.

(b) Upon designation of a successor registry by ICANN, if any, Contractor shall cooperate with ICANN to facilitate the smooth transition of operation of the .INT TLD. Such cooperation shall, at a minimum, include timely transfer to the successor registry of the then-current top-level domain registration data.

Section 3.9 Key Personnel.

(a) Contractor shall provide trained, knowledgeable technical personnel according to the requirements of this Agreement, including a President, a Manager of IANA Services, a Director of Security and a Conflict of Interest Officer. All Contractor personnel who interface with ICANN must have excellent oral and written communication skills. "Excellent oral and written communication skills" is defined as the capability to converse fluently, communicate effectively, and write intelligibly in the English language.

(b) The President of Contractor shall organize, plan, direct, staff, and coordinate the overall performance of the IANA Naming Function; manage contract and subcontract activities as the authorized interface with ICANN and ensure compliance with applicable rules and regulations. The President of Contractor shall be responsible for the overall performance of Contractor under this Agreement and shall meet and confer with ICANN (including the Customer Standing Committee ("**CSC**") and IANA Function Review teams ("**IFRT**"), as such terms are used in ICANN's Bylaws) regarding the status of specific Contractor activities and problems, issues, or conflicts requiring resolution. The President of Contractor must possess the following skills:

- (i) demonstrated communication skills with all levels of management;
- (ii) capability to negotiate and make binding decisions for Contractor (subject to any requirements of Contractor's Bylaws and the authority delegated to such person by the Contractor's Board of Directors (the "**PTI Board**"));
- (iii) extensive experience and proven expertise in managing similar multi-task agreements of this type and complexity;
- (iv) extensive experience supervising personnel; and
- (v) a thorough understanding and knowledge of the principles and methodologies associated with operations management and contract management.

(c) Contractor shall obtain the approval of the ICANN, after consultation with the PTI Board, prior to making key personnel substitutions. Replacements for key personnel must possess qualifications reasonably equal to or exceeding the qualifications of the personnel being replaced, unless an exception is approved by ICANN.

#### Section 3.10 Inspection Of All Deliverables And Reports Before Publication.

(a) Prior to publication or posting of reports and other deliverables anticipated under this Agreement, Contractor shall obtain approval from ICANN, which will not be unreasonably withheld.

(b) ICANN reserves the right to inspect the premises, systems and processes of all security and operational components used for the performance of all the requirements and obligations set forth in this Agreement.

#### ARTICLE IV: PERFORMANCE

Section 4.1 Constructive Working Relationship. Contractor shall maintain a close constructive working relationship with ICANN, TLD registry operators, the root zone maintainer, the Root Zone Evolution Review Committee (“**RZERC**”), the CSC and (if formed and while in existence) each IFRT to ensure quality and satisfactory performance of the IANA Naming Function.

Section 4.2 Continuity of Operations.

(a) Either ICANN or the Contractor shall provide, at a minimum, redundant sites in at least two geographically dispersed sites within the United States as well as multiple resilient communication paths to TLD registry operators to ensure continuation of the IANA Naming Function in the event of cyber or physical attacks, emergencies, or natural disasters.

(b) Contractor shall collaborate with ICANN to develop and implement a Contingency and Continuity of Operations Plan (“**CCOP**”) for the IANA Naming Function.<sup>1</sup> Contractor in collaboration with ICANN shall from time to time update and annually test the CCOP as necessary to maintain the security and stability of the IANA Naming Function. The CCOP shall include details on plans for continuation of the IANA Naming Function in the event of cyber or physical attacks, emergencies, or natural disasters. Contractor shall submit the CCOP to ICANN after each update and publish on the IANA Website a report documenting the outcomes of the CCOP tests within 90 calendar days of the annual test.

Section 4.3 Performance Exclusions

(a) Unless specifically authorized by ICANN in writing, Contractor shall not make modifications, additions or deletions to the root zone file or associated information.

(b) Contractor shall not make changes in the policies and procedures developed by the relevant entities associated with the performance of the IANA Naming Function.

(c) The performance of the services under this Agreement, shall not be, in any manner, predicated upon or conditioned by Contractor on the existence or entry into

---

<sup>1</sup> Note to CWG: The reference to the Root Zone Maintainer included in Section C.7.2 of ICANN’s IANA contract with the DOC has been deleted because ICANN will enter into a separate agreement with the Root Zone Maintainer, which will specify each party’s obligations related to performance of the Root Zone Maintainer role.

any contract, agreement or negotiation between Contractor and any TLD registry operator requesting such changes or any other third-party.

## **ARTICLE V: TRANSPARENCY OF DECISION-MAKING**

Section 5.1 Transparency. To enhance consistency, predictability and integrity in Contractor's decision-making related to IANA Naming Function, Contractor shall:

- (a) Publish reports pursuant to Article 6 and Section 3 of the SOW.
- (b) Make public all recommendations by Contractor on naming-related decisions unless, upon the determination of the PTI Board, such decision (i) relates to confidential personnel matters, (ii) is covered by attorney-client privilege, work product doctrine or other recognized legal privilege, (iii) is subject to a legal obligation that Contractor maintain its confidentiality or otherwise would result in the disclosure of confidential information of Contractor's customers, (iv) would disclose trade secrets, or (v) would present a material risk of negative impact to the security, stability or resiliency of the IANA Naming Function or the Internet.
- (c) Agree not to redact any PTI Board minutes related to decisions concerning the IANA Naming Function, provided that the PTI Board may redact such minutes on the determination that such redacted information (i) relates to confidential personnel matters, (ii) is covered by attorney-client privilege, work product doctrine or other recognized legal privilege, (iii) is subject to a legal, obligation that Contractor maintain its confidentiality, (iv) would disclose trade secrets, or (v) would present a material risk of negative impact to the security, stability or resiliency of the IANA Naming Function or the Internet.
- (d) Have the President of Contractor and chairperson of the PTI Board sign an annual attestation that Contractor has complied with the requirements of this Agreement.

## **ARTICLE VI: AUDITS, MONITORING AND REVIEWS**

Section 6.1 Audits.

- (a) Contractor shall generate and publish via the IANA Website a monthly audit report identifying (i) each root zone file and root zone "WHOIS" database change request and the status thereof and (ii) each delegation, redelegation and transfer of a TLD and the status thereof. Such audit report shall be due to ICANN no later than 15 calendar days following the end of each month.
- (b) Contractor shall annually perform a specialized compliance audit of Contractor's security provisions relating to the IANA Naming Function against existing best practices. This specialized compliance audit shall be performed by an external, independent auditor.

Section 6.2 Performance Monitoring.

- (a) So long as the CSC exists pursuant to the ICANN's Bylaws, Contractor acknowledges and agrees that the CSC may monitor Contractor's performance under this Agreement and the SOW in accordance with the ICANN's Bylaws.
- (b) Contractor shall provide reports to the CSC as contemplated by the SOW.
- (c) Contractor shall act in good faith to resolve issues identified by the CSC.
- (d) Contractor acknowledges that the CSC shall be empowered to escalate identified areas of concern as set forth in "Escalation Mechanisms" below.

Section 6.3 IANA Naming Function Reviews.

- (a) Contractor acknowledges that ICANN's Board of Directors (the "**ICANN Board**") may cause a review by an IFRT of Contractor's performance against the requirements of this Agreement and the SOW (an "**IFR**") in accordance with ICANN's Bylaws.
- (b) Contractor shall use commercially reasonable efforts to facilitate any IFR. Contractor shall cooperate with any site visit conducted by an IFRT that has been previously approved by ICANN in accordance with ICANN's Bylaws.
- (c) Contractor agrees that ICANN may unilaterally amend this Agreement and the SOW in accordance with an approved IFR Recommendation, an approved Special IFR Recommendation or an approved SCWG Recommendation (as such terms are defined in ICANN's Bylaws), subject to the limitations set forth in ICANN's Bylaws.

**ARTICLE VII: ESCALATION MECHANISMS**

Section 7.1 IANA Customer Service Complaint Resolution Process

- (a) If Contractor receives a customer service complaint (a "**Complaint**"), Contractor will review the Complaint and attempt to resolve it to the reasonable satisfaction of the person or entity who brought the Complaint (the "**Complainant**"). If the Complaint is not so resolved, the Complainant may escalate the matter in writing to Contractor's management team, in which case Contractor shall notify the CSC]. If the Complaint is still not resolved, the Complainant or the President of Contractor may escalate the matter in writing to ICANN's Ombudsman.
- (b) If (i) a Complainant is a TLD registry operator and (ii) after completing the escalation process provided for in Section 7.2(a), the Complaint is still not resolved, then (A) the CSC may conduct a review to determine whether the Complaint is subject of a persistent performance issue of Contractor or an indication of a systemic problem with Contractor's performance of the IANA Naming Function pursuant to the terms of this Agreement (a "**Performance Issue**") and (B) the Complainant may (x) request mediation,

which shall be conducted in a manner consistent with the terms and process set forth below in Section 7.1(c) and (y) if the issue is not resolved following such mediation and the Complaint meets the requirements of the Independent Review Process, initiate an Independent Review Process (as defined in the ICANN's Bylaws). If the CSC determines that a Performance Issue exists, the CSC may seek remediation of the Performance Issue through the IANA Problem Resolution Process described in Section 7.2.

(c) TLD Registry Operator Mediation Process.

(i) If a Complainant is a TLD registry operator and after completing the escalation process provided for in Section 7.2(a), the TLD registry operator may initiate mediation by delivering a written notice to the President of Contractor and the Secretary of ICANN.

(ii) There shall be a single mediator who shall be selected by the agreement of the TLD registry operator and ICANN. ICANN shall propose a slate of at least five potential mediators, and the TLD registry operator shall select a mediator from the slate or request a new slate until a mutually agreed mediator is selected. The TLD registry operator may recommend potential mediators for inclusion on the slates selected by ICANN. ICANN shall not unreasonably decline to include mediators recommended by the TLD registry operator on proposed slates and the TLD registry operator shall not unreasonably withhold consent to the selection of a mediator on slates proposed by ICANN.

(iii) The mediator shall be a licensed attorney with general knowledge of contract law and general knowledge of the DNS and ICANN. The mediator may not have any ongoing business relationship with ICANN, Contractor or the TLD registry operator. The mediator must confirm in writing that he or she is not, directly or indirectly, and will not become during the term of the mediation, an employee, partner, executive officer, director, consultant or advisor of ICANN, Contractor or the TLD registry operator.

(iv) The mediator shall conduct the mediation in accordance with this Section 7.1(c), the laws of California and the rules and procedures of a well-respected international dispute resolution provider.

(v) The arbitration will be conducted in the English language and will occur in Los Angeles County, California, unless another location is mutually agreed between ICANN, Contractor and the TLD registry operator.

(vi) ICANN, Contractor and the TLD registry operator shall discuss the dispute in good faith and attempt, with the mediator's assistance, to reach an amicable resolution of the dispute.

(vii) ICANN shall bear all costs of the mediator.

(viii) If ICANN, Contractor and the TLD registry operator have engaged in good faith participation in the mediation but have not resolved the dispute for any reason, ICANN, Contractor and the TLD registry operator may terminate the mediation at any time by declaring an impasse.

(ix) If a resolution to the dispute is reached by ICANN, Contractor and the TLD registry operator, ICANN, Contractor and the TLD registry operator shall document such resolution.

Section 7.2 IANA Problem Resolution Process. If the CSC determines that a Performance Issue exists, the CSC may seek resolution of the Performance Issue with Contractor, in which case Contractor shall comply with the following “Remedial Action Procedures” if and to the extent the CSC also complies with such procedures:

(a) [To be developed by the CSC and PTI prior to the Effective Date]

Section 7.3 Notice and Mitigation Plan.

(a) Contractor shall promptly inform ICANN of any issue or dispute arising from its performance of the requirements and services contemplated by this Agreement prior to the Complaint being escalated pursuant to Section 7.1(a), and shall agree with ICANN on a plan to resolve the Complaint.

(b) If, for any reason, Contractor fails to meet any of the requirements of this Agreement, Contractor shall (i) conduct an analysis of its operations to determine the root cause of such failure, (ii) develop a mitigation plan to avoid the root cause of such failure from occurring in the future, and (iii) deliver the report to ICANN upon its completion. Contractor shall modify and update any mitigation plan as directed by ICANN.

## **ARTICLE VIII: TERM; RENEWAL; TRANSITION AND TERMINATION**

Section 8.1 Initial Term; Renewal. The initial term of this Agreement will be [five] years from the Effective Date (the “**Initial Term**”).

Section 8.2 Renewal.

(a) This Agreement will be automatically renewed for successive periods of [five years] (each, a “**Renewal Term**”) upon the expiration of the Initial Term and each successive Renewal Term, unless (i) ICANN terminates this Agreement in connection with an SCWG Recommendation arising from an IANA Naming Function Separation Process (as defined in ICANN’s Bylaws) or (ii) ICANN elects not to renew the Initial Term or any Renewal Term thereafter [pursuant to an IFR Recommendation or Special IFR Recommendation (as such terms are defined in ICANN’s Bylaws)] by providing Contractor with not less than twelve months prior written notice. Any termination or

election by ICANN to not renew this Agreement under this Section 8.2 must be approved by the ICANN Board to be effective hereunder.

(b) Subject to Section 8.2(a), the first Renewal Term shall commence immediately following the end of the Initial Term and each Renewal Term thereafter shall commence immediately following the end of the preceding Renewal Term. Each Renewal Term shall end on the [fifth] anniversary of the commencement of the Renewal Term.

**Section 8.3**    Transition and Termination.

(a) Contractor shall develop and maintain a plan in place for transitioning the IANA Naming Function to a successor provider to ensure an orderly transition while maintaining continuity and security of operations, including the in connection with the nonrenewal of this Agreement and/or divestiture or other reorganization of PTI by ICANN in case as contemplated by ICANN's Bylaws. The transition plan shall be posted to the IANA Website.

(b) Contractor shall provide support and cooperation to ICANN, and to any successor provider of the IANA Naming Function, in order to effect an orderly, stable, secure and efficient transition of the performance of the IANA Naming Function.

(c) Contractor agrees to be engaged in the transition plan and to provide appropriate transition staff and expertise to facilitate a stable and secure transition of the IANA Naming Function to a successor provider.

(d) ICANN, in conjunction with the CSC as necessary, shall review the transition plan at least every five years.

**Section 8.4**    Survival of Terms. Upon the expiration or termination of this Agreement under this Section 8, this Agreement shall become wholly void and of no further force and effect, and following such expiration or termination no party shall have any liability under this Agreement to the other party, except that each party hereto shall remain liable for any breaches of this Agreement that occurred prior to its expiration or termination; provided, however, that the following provisions shall survive the expiration or termination of this Agreement: Section 8.3, Article XI, Article XII, Sections 13.2 through 13.14 and this Section 8.4.

**ARTICLE IX: RESOURCES, FEES AND BUDGET**

**Section 9.1**    Resources and Fees.

(a) ICANN shall provide or make available to Contractor the necessary personnel, material, equipment, services and facilities to perform Contractor's obligations under this Agreement.

(b) Contractor may not charge or collect fees from third parties related to the performance of the IANA Naming Function without the prior written consent of ICANN.

(c) Any fees approved by ICANN and charged by Contractor relating to the IANA Naming Function will be based on direct costs and resources incurred by Contractor to perform the IANA Naming Function.

Section 9.2 Budget. Contractor shall comply with the requirements set forth in its Bylaws relating to preparing, submitting and monitoring an annual budget. ICANN will meet annually with the President of Contractor to review and approve the annual budget for the IANA Naming Function.

## **ARTICLE X: SECURITY REQUIREMENTS**

Section 10.1 Computing Systems. With respect to the performance of the IANA Naming Function, Contractor shall install and operate all computing and communications systems in accordance with best business and security practices. ICANN and Contractor shall implement a secure system for authenticated communications to TLD registry operators when carrying out the IANA Naming Function pursuant to the terms of this Agreement. ICANN and Contractor shall document practices and configuration of all systems.

Section 10.2 Notification Systems. Contractor shall implement and thereafter operate and maintain a secure notification system at a minimum, capable of notifying TLD registry operators, of such events as outages, planned maintenance, and new developments. In all cases, Contractor shall notify ICANN of any outages.

Section 10.3 Data. Contractor shall ensure the authentication, integrity, and reliability of the [service] data in performing the IANA Naming Function.

Section 10.4 Security Plan. ICANN shall coordinate with Contractor to develop and execute a security plan. ICANN and Contractor shall document in the security plan the process used to ensure information systems including hardware, software, applications, and general support systems have effective security safeguards, which have been implemented, planned for, and documented. Contractor shall, in coordination with ICANN, perform periodic reviews of the security plan and update the plan as necessary.

Section 10.5 Director of Security. Contractor's Director of Security shall be responsible for ensuring the technical and physical security measures and requirements of this Agreement.

## **ARTICLE XI: CONFIDENTIALITY**

Section 11.1 Confidentiality. Contractor agrees, in the performance of this Agreement, to keep the information furnished by ICANN or acquired or developed by Contractor in performance of this Agreement and designated by ICANN, in the strictest confidence. Contractor also agrees not to publish or otherwise divulge such information, in whole or in part, in any manner or form, nor to authorize or permit others to do so, and shall take reasonable measures to restrict access to such information while in Contractor's possession, to those employees needing such information to perform the work described herein, i.e., on a "need to

know” basis. Contractor agrees to immediately notify ICANN in writing in the event that Contractor determines or has reason to suspect a breach of this requirement has occurred.

Section 11.2 Consent. Contractor agrees that it will not disclose any information described in Section 11.1 to any person unless prior written approval is obtained from ICANN. Contractor agrees to insert the substance of this clause in any consultant agreement or similar agreement.

## **ARTICLE XII: INTELLECTUAL PROPERTY**

Section 12.1 Ownership. ICANN shall own all intellectual property conceived, reduced to practice, created or otherwise developed by Contractor under this Agreement.

Section 12.2 Assignment. Contractor shall assign, and shall cause all of its employees and contractors to assign, all rights in any patentable subject matter, patent applications, copyrights, trade secrets and all other intellectual property created by the Contractor, its employees or contractors pursuant to this Agreement to ICANN.

Section 12.3 Work for Hire. With respect to copyright, all work performed by Contractor pursuant to this Agreement and the SOW is a “work for hire” agreement and ICANN shall be deemed the author and shall own all copyrightable works created by Contractor hereunder, and all copyright rights thereto. In the event this is not deemed a work for hire agreement, Contractor shall assign ownership of the copyrightable works and copyrights to ICANN.

Section 12.4 License. ICANN shall license back any patents, patent applications, copyrights and trade secrets to Contractor for the duration of the Term solely to the extent necessary for Contractor to perform its obligations under this Agreement. This license shall be non-exclusive, non-assignable, non-sublicensable, non-transferable and royalty-free.

## **ARTICLE XIII: MISCELLANEOUS**

Section 13.1 Indemnification. So long as Contractor is an affiliate of ICANN, ICANN shall hold and save Contractor, its officers, agents, and employees harmless from liability of any nature or kind, including costs and expenses to which they may be subject, for or on account of any or all third-party claims, suits or damages of any character whatsoever resulting from injuries or damages sustained by any person or persons or property by virtue of Contractor’s performance of this Agreement, arising or resulting in whole or in part from the fault, negligence, wrongful act or wrongful omission of ICANN or any of its subcontractors (other than Contractor), or their respective employees or agents.

Section 13.2 Notices. All notices to be given under or in relation to this Agreement will be given either (i) in writing at the address of the appropriate party as set forth below or (ii) via electronic mail as provided below, unless that party has given a notice of change of postal or email address, as provided in this Agreement.

If to ICANN:

Internet Corporation for Assigned Names and Numbers  
12025 Waterfront Drive, Suite 300  
Los Angeles, CA 90094-2536  
Attn: President and Chief Executive Officer  
Phone: +1-310-301-5800  
Email: [●]

With a copy to (which shall not constitute notice):

Internet Corporation for Assigned Names and Numbers  
12025 Waterfront Drive, Suite 300  
Los Angeles, CA 90094-2536  
Attn: General Counsel  
Phone: +1-310-301-5800  
Email: [●]

With a copy to (which shall not constitute notice):

Internet Corporation for Assigned Names and Numbers  
12025 Waterfront Drive, Suite 300  
Los Angeles, CA 90094-2536  
Attn: President, Global Domains Division  
Phone: +1-310-301-5800  
Email: [●]

If to Contractor:

[Contractor]  
12025 Waterfront Drive, Suite 300  
Los Angeles, CA 90094-2536  
Attn: [●]  
Phone: [●]  
Email: [●]

With a copy to (which shall not constitute notice):

Internet Corporation for Assigned Names and Numbers  
12025 Waterfront Drive, Suite 300  
Los Angeles, CA 90094-2536  
Attn: General Counsel  
Phone: +1-310-301-5800  
Email: [●]

Any notice required by this Agreement will be deemed to have been properly given (i) if in paper form, when delivered in person or via courier service with confirmation of receipt or (ii) if

by electronic mail, upon confirmation of receipt by the recipient's email server, provided that such notice via electronic mail shall be followed by a copy sent by regular postal mail service within three calendar days. In the event other means of notice become practically achievable, such as notice via a secure website, the parties will work together to implement such notice means under this Agreement.

Section 13.3 Amendments and Waiver. Except as provided in Section 6.3(c), any term or provision of this Agreement may be amended, and the observance of any term of this Agreement may be waived only by a physical writing referencing this Agreement, and either (a) manually signed by the Parties to be bound or (b) digitally signed by the Parties to be bound. Nothing herein shall limit ICANN's obligations under ICANN's Bylaws to the extent related to ICANN's commitments related to the amendment or modification of this Agreement.

Section 13.4 Severability. If any provision of this Agreement should be found by a court of competent jurisdiction to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not be affected or impaired thereby.

Section 13.5 Assignment and Subcontracting.

- (a) Neither Party may assign or transfer this Agreement, or any obligation under this Agreement (in whole or in part, and whether voluntarily, involuntarily, or by operation of Law).
- (b) PTI shall not subcontract all or any portion of its rights or obligations under this Agreement.

Section 13.6 Governing Law. The Parties agree that this Agreement, and any and all disputes arising out of or related to this Agreement resolved in accordance with Section 7(f), shall be governed by, construed, and enforced in all respects in accordance with the Laws of the State of California, United States of America, excluding its conflict of laws rules. Each Party expressly waives any claim that the jurisdiction of such court with respect to personal jurisdiction is improper or that the venue is inconvenient or improper.

Section 13.7 Third-Party Beneficiaries. No provision of this Agreement is intended to, nor shall be interpreted to, provide or create any rights, benefits or any other interest of any kind in any third party or create any obligations of ICANN or Contractor to any third party.

Section 13.8 English Version. If this Agreement is translated into any language other than English, and if there is a conflict between the English version and the translated version, then the English version shall prevail in all respects.

Section 13.9 Savings Clause. Any delay, nonperformance or other breach by a Party of its obligations under this Agreement and any liability therefor, shall be excused to the extent such failure is related to or caused by the other Party's acts or omissions or the acts or omissions of

such Party's employees or contractors, including such Party's failure to perform its obligations under this Agreement.

Section 13.10 Cumulative Remedies. Except as otherwise expressly provided, all remedies provided for in this Agreement shall be cumulative and in addition to, and not in lieu of, any other remedies available to either Party.

Section 13.11 Counterparts. The Agreement may be executed in counterparts, all of which taken together shall constitute one single agreement between the Parties.

Section 13.12 Headings. The Parties agree that the headings used in this Agreement are for ease of reference only and shall not be taken into account in interpreting the Agreement.

Section 13.13 Further Assurances. Subject to the terms and conditions of this Agreement, each of ICANN and Contractor agrees to use commercially reasonable best efforts to take, or cause to be taken, all appropriate action, and to do, or cause to be done, all things reasonably necessary, proper or advisable under applicable laws to make effective the transactions contemplated by this Agreement.

Section 13.14 Entire Agreement. This Agreement, including all statements of work, schedules, exhibits or other attachments hereto, constitutes the entire understanding and agreement between ICANN and Contractor with respect to the subject matter of this Agreement, and supersedes any and all prior or contemporaneous oral or written representation, understanding, agreement or communication relating thereto.

*[Signature Page Follows]*

Discussion Draft as of 15 July 2016

IN WITNESS WHEREOF, the Parties have caused this Agreement to be duly executed as of the date set forth below.

**INTERNET CORPORATION FOR ASSIGNED  
NAMES AND NUMBERS**

**[CONTRACTOR]**

By: \_\_\_\_\_  
(Signature)

By: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
Name (print)

\_\_\_\_\_  
Name (print)

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

## **ANNEX A: STATEMENT OF WORK FOR MANAGEMENT OF THE DNS ROOT ZONE**<sup>2</sup>

### 1. Root Zone Management

- a. The Root Zone Management component of the IANA Naming Function is the administration of certain responsibilities associated with the Internet DNS root zone management.
- b. Contractor shall collaborate with TLD registry operators to develop, maintain, enhance and post performance standards for Root Zone Management. Specifically, Contractor shall perform Root Zone Management in accordance with the service levels set forth in Section 2.
- c. Contractor shall also implement DNSSEC in all zones for which ICANN has technical administration authority.
- d. Contractor shall facilitate and coordinate the root zone of the domain name system, and maintain 24 hour-a-day/7 days-a-week operational coverage. Contractor shall work collaboratively with the Root Zone Maintainer, in the performance of this function.
  - i. Contractor shall receive and process root zone file change requests for TLDs. These change requests include addition of new or updates to existing TLD name servers (“**NS**”) and delegation signer (“**DS**”) resource record (“**RR**”) information along with associated “glue” (A and AAAA RRs). A change request may also include new TLD entries to the root zone file. Contractor shall process root zone file changes as specified in Section 2 of this Annex A.
  - ii. Contractor shall maintain, update, and make publicly accessible a Root Zone registration database with current and verified contact information for all TLD registry operators. The Root Zone registration database, at a minimum, shall consist of the following data fields: domain status and contact points for resolving issues relating to the operation of the domain (comprised of at least organizational name, postal address, email address and telephone number). Contractor shall receive and process root zone registration data change requests for TLDs.
  - iii. Contractor shall apply existing policy frameworks in processing requests related to the delegation and transfer of a ccTLD, such as RFC 1591, the GAC ccTLD Principles and any further clarification of these policies by

---

<sup>2</sup> Note to CWG: ICANN anticipates subcontracting to Contracting ICANN’s performance obligations under the Root Zone Maintainer Agreement.

interested and affected parties. If a policy framework does not exist to cover a specific instance, Contractor will consult with interested and affected parties on any request that is not within or consistent with an existing policy framework.

- iv. Contractor shall verify that all requests related to the delegation and transfer of generic TLDs are consistent with the procedures developed by ICANN.
- v. Contractor shall maintain an automated root zone management system that, at a minimum, includes (A) a secure (encrypted) system for customer communications; (B) an automated provisioning protocol allowing customers to manage their interactions with the root zone management system; (C) an online database of change requests and subsequent actions whereby each customer can see a record of their historic requests and maintain visibility into the progress of their current requests; and (D) an internal interface for secure communications between the Contractor and the Root Zone Maintainer.

## 2. Service Levels

- a. Contractor shall perform the Services in accordance with the following “Service Levels”. The expectation is that Contractor will normally perform within the threshold. The thresholds will be modified over time as part of periodic reviews of the service level expectation. A subset of the following measures relate to measurement of non-routine changes where it is not applicable to set a specific threshold for performance. It is expected for measurements of non-routine process steps these will only be reported with no applicable service level expectation.
- b. Services Definitions
  - i. Category I (Routine updates impacting Root Zone File). Routine change requests that alter the technical data published in the DNS root zone (e.g. changes to NS records, DS records and glue records). A third party may be engaged to compile, publish and distribute the root zone.
  - ii. Category II (Routine updates not impacting Root Zone File). Routine change requests that do not alter the DNS root zone (e.g., contact data and metadata). These changes do not require changes to the root zone.
  - iii. Category III (Creating or Transferring a gTLD). Requests to create (“delegate”) or transfer (“redelegate” or “assign”) a generic TLD. These changes require additional processing by Contractor to ensure policy and contractual requirements associated with a change of control for the TLD

are met.

- iv. Category IV (Creating or Transferring a ccTLD). Requests to create or transfer a country-code TLD. These changes require additional processing by Contractor to ensure policy requirements are met. This processing includes additional analysis on the change request, production of a report, and review of the report (including verification that all existing registration data has been successfully transferred from the old to new registry operator).
- v. Category V (Other change requests). Other non-routine change requests. Contractor is required to process change requests that may have special handling requirements, or require additional documentary evidence or clarifications from the customer or third parties, that prevent automating the handling of the request. These requests include, but are not limited to:
  - 1. Customers that require requests to be handled outside the online self-service platform, such as those lodging change requests through the exchange of postal mail;
  - 2. Customers that have placed special handling instructions on file with Contractor, or have otherwise asked for special handling for a request that deviates from the normal process, resulting in the request being executed manually;
  - 3. Unique legal or regulatory encumbrances that must be satisfied that require additional processing;
  - 4. Removing a TLD from service (i.e. retirement or revocation); and
  - 5. Changes that relate to the operation of the root zone itself, including changing the Root Key Signing Key, altering the set of authoritative name servers for the root zone (i.e. the “root servers”), and changes to the “root hints”.

c. Service Levels

- i. The fields in the following tables are as follows:
  - 1. Process. The business process that Contractor is requested to perform.
  - 2. Metric. The individual metric that will be measured as part of the completion of the business process.

3. **Threshold.** The specified target for each individual change request.
  4. **Type.** Whether the threshold specified is a minimum target (compliance must not be less than the target) or a maximum target (compliance must not be more than the target).
  5. **Compliance.** The percentage that the target goal in aggregate must be met or exceeded within the specified time period for all requests in the specified category.
  6. **Period.** The time over which compliance is measured. (The period of collecting measurements to meet the Service Level Agreement (SLA)).
- ii. **Process Performance.** Total Contractor transaction time for emergency changes should be completed within a target of 12 hours until reviewed by the CSC with Contractor.

Process Category	Metric	Threshold	Type	Compliance	Period
<b>Category I — Routine updates impacting Root Zone File (NS, DS and glue records)</b>	<b>Submission</b>				
	Time for ticket confirmation to be sent to requester following receipt of change request via automated submission interface				
	Time for lodgment of change request into RZMS by Contractor on behalf of request sent by email				
	<b>Technical Checks</b>				
	Time to return results for technical checks following submission of request via automated submission interface				
	Time to return results for subsequent performance of technical checks during retesting due to earlier failed tests				
	<b>Contact Confirmation</b>				

Process Category	Metric	Threshold	Type	Compliance	Period
	Time for authorization contacts to be asked to approve change request after completing previous process phase				
	Time for response to be affirmed by Contractor				
	<b>Contractor Review and Processing</b>				
	Time to complete all other validations and reviews by Contractor and release request for implementation				
	<b>Supplemental Technical Checks</b>				
	Time to return results for performance of technical checks during Supplemental Technical Check phase				
	<b>Implementation of Changes</b>				
	Time for root zone changes to be published following completion of validations and reviews by Contractor				
	Time to notify requester of change completion following publication of requested changes				
	<b>Category II — Routine updates not impacting Root Zone File (Contact details and metadata)</b>	<b>Submission</b>			
Time for ticket confirmation to be sent to requester following receipt of change request via automated submission interface					
Time for lodgment of change request into RZMS by Contractor on behalf of request sent by email					
<b>Technical Checks</b>					

Process Category	Metric	Threshold	Type	Compliance	Period		
	Time to return results for technical checks following submission of request via automated submission interface						
	Time to return results for subsequent performance of technical checks during retesting due to earlier failed tests						
	<b>Contact Confirmation</b>						
	Time for authorization contacts to be asked to approve change request after completing previous process phase						
	Time for response to be affirmed by Contractor						
	<b>Contractor Review and Processing</b>						
	Time to complete all other validations and reviews by Contractor and release request for implementation						
	<b>Supplemental Technical Checks</b>						
	Time to return results for performance of technical checks during Supplemental Technical Check phase						
	<b>Implementation of Changes</b>						
	Time for root zone changes to be published following completion of validations and reviews by Contractor						
	Time to notify requester of change completion following publication of requested changes						
	<b>Category III — Creating or</b>	<b>Submission</b>					
		Time for ticket					

Process Category	Metric	Threshold	Type	Compliance	Period	
<b>Transferring a gTLD</b>	confirmation to be sent to requester following receipt of change request via automated submission interface					
	Time for lodgment of change request into RZMS by Contractor on behalf of request sent by email					
	<b>Technical Checks</b>					
	Time to return results for technical checks following submission of request via automated submission interface					
	Time to return results for subsequent performance of technical checks during retesting due to earlier failed tests					
	<b>Contact Confirmation</b>					
	Time for authorization contacts to be asked to approve change request after completing previous process phase					
	Time for response to be affirmed by Contractor					
	<b>Contractor Review and Processing</b>					
	Time to complete all other validations and reviews by Contractor and release request for implementation					
	<b>Supplemental Technical Checks</b>					
	Time to return results for performance of technical checks during Supplemental Technical Check phase					
	<b>Implementation of Changes</b>					

Process Category	Metric	Threshold	Type	Compliance	Period
	Time for root zone changes to be published following completion of validations and reviews by Contractor				
	Time to notify requester of change completion following publication of requested changes				
<b>Category IV — Creating or Transferring a ccTLD</b>	<b>Submission</b>				
	Time for ticket confirmation to be sent to requester following receipt of change request via automated submission interface				
	Time for lodgment of change request into RZMS by Contractor on behalf of request sent by email				
	<b>Technical Checks</b>				
	Time to return results for technical checks following submission of request via automated submission interface				
	Time to return results for subsequent performance of technical checks during retesting due to earlier failed tests				
	<b>Contact Confirmation</b>				
	Time for authorization contacts to be asked to approve change request after completing previous process phase				
	Time for response to be				

Process Category	Metric	Threshold	Type	Compliance	Period
	affirmed by Contractor				
	<b>Contractor Review and Processing</b>				
	Time to complete all other validations and reviews by Contractor and release request for implementation				
	Time for third-party review of request (e.g. by ICANN Board of Directors, PTI Board or other relevant verification parties)				
	<b>Supplemental Technical Checks</b>				
	Time to return results for performance of technical checks during Supplemental Technical Check phase				
	<b>Implementation of Changes</b>				
	Time for root zone changes to be published following completion of validations and reviews by Contractor				
	Time to notify requester of change completion following publication of requested changes				
<b>Category V — Other change requests (i.e. non-routine change requests)</b>	<b>Submission</b>				
	Time for ticket confirmation to be sent to requester following receipt of change request via automated submission interface				
	Time for lodgment of change request into RZMS by Contractor on behalf of request sent by email				
	<b>Technical Checks</b>				

Process Category	Metric	Threshold	Type	Compliance	Period
	Time to return results for technical checks following submission of request via automated submission interface				
	Time to return results for subsequent performance of technical checks during retesting due to earlier failed tests				
<b>Contact Confirmation</b>					
	Time for authorization contacts to be asked to approve change request after completing previous process phase				
	Time for response to be affirmed by Contractor				
<b>Contractor Review and Processing</b>					
	Time to complete all other validations and reviews by Contractor and release request for implementation				
<b>Supplemental Technical Checks</b>					
	Time to return results for performance of technical checks during Supplemental Technical Check phase				
<b>Implementation of Changes</b>					
	Time for root zone changes to be published following completion of validations and reviews by Contractor				
	Time to notify requester of change completion following publication of requested changes				

d. Accuracy

Metric	Measurement	Threshold	Type	Compliance	Period
Root zone file data published in the root zone matches that provided in the change request	Accuracy	100%	Min	<100%	
Root zone database is correctly updated in accordance with change requests (does not include impact of normalization and other processing standardization - which in any event shall never detrimentally impact the update)	Accuracy	100%	Min	<100%	

e. Online Services Availability and Enquiry Processing

Metric	Threshold	Type	Compliance	Period
<b>RZMS availability</b> — availability of an online interactive web service for credentialed customers to submit change requests to their root zone database entries.				
<b>Website availability</b> — availability of root zone management related documentation (i.e. on <a href="http://www.iana.org">http://www.iana.org</a> )				
<b>Directory service availability</b> — availability of the authoritative database of TLDs				
<b>Credential recovery</b> — time to dispatch confirmation email of forgotten username or password	5 min	Max	95%	Month
<b>Credential change</b> — time to implement new password within the system	5 min	Max	95%	Month
<b>Dashboard update frequency</b> — average time to update the dashboard to ensure up-to-date reporting	30 min	Max	100%	Month
<b>Dashboard accuracy</b> — the data presented on the dashboard is accurate	100%	Min	<100%	Month
<b>Dashboard availability</b> — availability of the dashboard online	99%	Min	<99%	Month
<b>SLE report production</b> — time to produce reports following the conclusion of the reporting period	Monthly			
<b>SLE report availability</b> — availability of the	<10 days after	Max	>10 days	Month

SLE reports and associated data online	month end			
<b>SLE report publication</b> — schedule of reporting periods	Monthly			
<b>Time to send acknowledge of enquiry</b> — time taken to send initial acknowledgement of receipt of a general enquiry pertaining to root zone management (but not pertaining to interactions in a change request context)				
<b>Time to send initial response to enquiry</b> — time taken for staff to respond to enquiry, either in part or in whole				

- f. These elements reflect activity areas that should be instrumented by Contractor, and reported pursuant to Article 6 and Section 3 of the SOW.

3. Performance Metric Requirements

a. Program Reviews and Site Visits

- i. Reviews may be conducted by the CSC in accordance with ICANN’s Bylaws.
- ii. Site visits may be conducted by an IFRT in accordance with ICANN’s Bylaws.

b. Monthly Performance Progress Report. Contractor shall prepare and submit reports as mutually agreed between Contractor and the CSC.

c. Root Zone Management Dashboard. Contractor shall work collaboratively with ICANN and TLD registry operators to produce the dashboard to report Service Level Expectations for Root Zone Management, which will be used for real-time reporting of Contractor’s performance.

d. Performance Standards Reports. Contractor shall develop and publish performance standard metric reports for the IANA Naming Function in consultation with the CSC. The performance standards metric reports will be published via a website every month (no later than 15 calendar days following the end of each month).

e. Customer Service Survey. In accordance with ICANN’s Bylaws, Contractor shall collaborate with the CSC and ICANN to maintain and enhance the annual customer service survey consistent with the performance standards for Root Zone Management. No later than 60 calendar days after completing a customer

service survey, Contractor shall prepare a report (the “**CSS Report**”), submit the CSS Report to ICANN and publicly post the CSS Report to the IANA Website.

- f. Final Report. Contractor shall prepare and submit a final report on the performance of Root Zone Management that documents standard operating procedures, including a description of the techniques, methods, software, and tools employed in the performance of Root Zone Management. Contractor shall submit the report to the CSC and ICANN no later than 30 days after the expiration or termination of this Agreement.
- g. Inspection and acceptance. ICANN, as applicable, will perform final inspection and acceptance of all deliverables and reports articulated in this Section 3.

#### 4. Baseline Requirements For DNSSEC In The Authoritative Root Zone

- a. DNSSEC at the authoritative Root Zone requires cooperation and collaboration between the Contractor and the Root Zone Maintainer. The baseline requirements encompass the responsibilities and requirements for Contractor and these responsibilities and requirements must be implemented in cooperation with similar responsibilities and requirements defined within ICANN’s relationship with the Root Zone Maintainer.
- b. General Requirements
  - i. The Root Zone system needs an overall security lifecycle, such as that described in ISO 27001, NIST SP 800-53, etc., and any security policy for DNSSEC implementation must be validated against existing standards for security controls.
  - ii. The remainder of this section highlights security requirements that must be considered in developing any solution. ISO 27002:2005 (formerly ISO 17799:2005) and NIST SP 800-53 are recognized sources for specific controls. Note that reference to SP 800-53 is used as a convenient means of specifying a set of technical security requirements. The systems referenced in this document are assumed to meet all the SP 800-53 technical security controls or equivalent required by a HIGH IMPACT system.
  - iii. Whenever possible, references to NIST publications are given as a source for further information. These Special Publications (“**SP**”) are not intended as auditing checklists, but as non-binding guidelines and recommendations to establish a viable IT security policy. Comparable security standards can be substituted where available and appropriate. All of the NIST document references can be found on the NIST Computer Security Research Center webpage (<http://www.csrc.nist.gov/>).

- c. Security Authorization and Management Policy
  - i. Contractor shall have its own security policy in place; each security policy must be periodically reviewed and updated, as appropriate.
    - 1. Supplemental guidance on generating a Security Authorization Policy may be found in NIST SP 800-37.
  - ii. The policy shall have a contingency plan component to account for disaster recovery (both man-made and natural disasters).
    - 1. Supplemental guidance on contingency planning may be found in SP 800-34
  - iii. The policy shall address Incident Response detection, handling and reporting (see 4 below).
    - 1. Supplemental guidance on incident response handling may be found in NIST SP 800- 61.
- d. IT Access Control
  - i. There shall be an IT access control policy in place and enforced for the key management functions
    - 1. This includes both access to hardware/software components and storage media as well as ability to perform process operations.
    - 2. Supplemental guidance on access control policies may be found in NIST SP 800-12.
  - ii. Users without authentication shall not perform any action in key management.
  - iii. In the absence of a compelling operational requirement, remote access to any cryptographic component in the system (such as hardware security modules) is not permitted.
- e. Security Training
  - i. All personnel participating in the Root Zone Signing process shall have adequate IT security training.
  - ii. Supplemental guidance on establishing a security awareness training program may be found in NIST SP 800-50.
- f. Audit and Accountability Procedures

- i. Contractor shall periodically review/update: (1) its formal, documented, audit and accountability policy that addresses purpose, scope, roles, responsibilities, management commitment, coordination among organizational entities, and compliance; and (2) the formal, documented procedures to facilitate the implementation of the audit and accountability policy and associated audit and accountability controls.
    - 1. Supplemental guidance on auditing and accountability policies may be found in NIST SP 800-12.
    - 2. Specific auditing events include the following:
      - a. Generation of keys.
      - b. Generation of signatures
      - c. Exporting of public key material
      - d. Receipt and validation of public key material (i.e., from the ZSK holder or from TLDs
      - e. System configuration changes
      - f. Maintenance and/or system updates
      - g. Incident response handling
      - h. Other events as appropriate
  - ii. Incident handling for physical and exceptional cyber-attacks shall include reporting to ICANN in a timeframe and format as mutually agreed by ICANN and Contractor.
  - iii. The auditing system shall be capable of producing reports on an ad-hoc basis for ICANN or the CSC.
  - iv. A version of the reports provided to ICANN or the CSC must be made publically available.
- g. Physical Protection Requirements
- i. There shall be physical access controls in place to only allow access to hardware components and media to authorized personnel.
    - 1. Supplemental guidance on token based access may be found in NIST SP 800-73.

2. Supplemental guidance on token based access biometric controls may be found in NIST SP 800-76.
  - ii. Physical access shall be monitored, logged, and registered for all users and visitors.
  - iii. All hardware components used to store keying material or generate signatures shall have short-term backup emergency power connections in case of site power outage. (See NIST SP 800-53r3).
  - iv. Appropriate protection measures shall be in place to prevent physical damage to facilities as appropriate.
- h. All Components
- i. All hardware and software components must have an established maintenance and update procedure in place.
    1. Supplemental guidance on establishing an upgrading policy for an organization may be found in NIST SP 800-40
  - ii. All hardware and software components provide a means to detect and protect against unauthorized modifications/updates/patching.
- i. Interface Basic Functionality
- i. Contractor's interface shall have the ability to accept and process TLD DS records, including:
    1. Accept TLD DS RRs
      - a. Being able to retrieve TLD DNSKEY record from the TLD, and perform parameter checking for the TLD keys, including verifying that the DS RR has been correctly generated using the specified hash algorithm.
    2. Having procedures for:
      - a. Scheduled roll over for TLD key material;
      - b. Supporting emergency key roll over for TLD key material; and
      - c. Moving TLD from signed to unsigned in the root zone.
  - ii. Ability to submit TLD DS record updates to the Root Zone Maintainer for inclusion into the root zone.

- iii. Ability to submit RZ keyset to the Root Zone Maintainer for inclusion into the root zone.