Response to the IANA Stewardship Transition Coordination Group Request for Proposals on the IANA Stewardship Transition from the Cross Community Working Group (CWG) on Naming Related Functions

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Response to the IANA Stewardship Transition Coordination Group Request for Proposals on the IANA Stewardship Transition from the Cross Community Working Group (CWG) on Naming Related Functions

Abstract

This document is a response from the Internet Names Community to the IANA Stewardship Transition Coordination Group (ICG) Request for Proposals made on September 8, 2014.

Please note that an appendix, including uncommon acronyms and defined terms, is included at the end of this document.

Proposal type

Identify which category of the IANA functions this submission proposes to address:

[X] Names [] Numbers [ ] Protocol Parameters

I. The Community's Use of the IANA

This section should list the specific, distinct IANA services or activities your community relies on. For each IANA service or activity on which your community relies, please provide the following:

- *A description of the service or activity.*
- *A description of the customer of the service or activity.*
- *What registries are involved in providing the service or activity.*
- *A description of any overlaps or interdependencies between your IANA requirements and the functions required by other customer communities*

I.A Root Zone Change Request Management – not including delegation and redelegation (NTIA IANA Functions Contract: C.2.9.2.a)

- **Description of the function:** Receive and process root zone 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.
- **Customers of the function:** TLD registries.
- **What registries are involved in providing the function:** Root Zone database.
- **Overlaps or interdependencies:** The DNS requires IP addresses to function (both IPV4 and IPV6) from the Address Registries and offers its services based on a large number of protocols

I.B Root Zone "WHOIS" Change Request and Database Management (NTIA IANA Functions Contract: C.2.9.2.b)

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- **Description of the function:** IANA maintains, updates, and make publicly accessible a Root Zone "WHOIS" database with current and verified contact information for all TLD registry operators. The Root Zone "WHOIS" database, at a minimum, shall consist of the TLD name; the IP address of the TLD's nameservers; the corresponding names of such nameservers; the creation date of the TLD; the name, postal address, email address, and telephone and fax numbers of the TLD registry operator; the name, postal address, email address, and telephone and fax numbers of the technical contact for the TLD registry operator; and the name, postal address, email address, and telephone and fax numbers of the administrative contact for the TLD registry operator; reports; date the "WHOIS" record was last updated; and any other information relevant to the TLD requested by the TLD registry operator. IANA shall receive and process root zone "WHOIS" change requests for TLDs.
- **Customers of the function:** TLD registries.
- **What registries are involved in providing the function:** Root Zone WHOIS database.
- **Overlaps or interdependencies:** Root Zone database (indirect for nameservers).

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I.C Delegation and Redelegation of a Country Code Top Level-Domain (ccTLD) (NTIA IANA Functions Contract: C.2.9.2.c)

- **Description of the function:** Assigning or re-assigning a manager (sponsoring organization) for a ccTLD registry (including IDN ccTLDs). IANA applies existing policy frameworks in processing requests related to the delegation and redelegation of a ccTLD, such as RFC 1591 Domain Name System Structure and Delegation, the Governmental Advisory Committee (GAC) Principles And Guidelines For The Delegation And Administration Of Country Code Top Level Domains, and any further clarification of these policies by interested and affected parties. If a policy framework does not exist to cover a specific instance, ICANN will consult with the interested and affected parties, relevant public authorities and governments on any recommendation that is not within or consistent with an existing policy framework. In making its recommendations, ICANN shall also take into account the relevant national frameworks and applicable laws of the jurisdiction that the TLD registry serves.
- **Customers of the function:** ccTLD registries.
- **What registries are involved in providing the function:** Root Zone, Root Zone WHOIS database.
- **Overlaps or interdependencies:** The DNS requires IP addresses to function (both IPV4 and IPV6) from the Address Registries and offers its services based on a large number of protocols developed and maintained by the IETF.

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I.D Delegation and Redelegation of a Generic Top Level Domain (gTLD) (NTIA IANA Functions Contract: C.2.9.2.d)

- **Description of the function:** Assigning or re-assigning a Sponsoring Organization for a gTLD registry. IANA verifies that all requests related to the delegation and redelegation of gTLDs are consistent with the procedures developed by ICANN. In making a delegation or redelegation recommendation IANA must provide documentation in the form of a Delegation and Redelegation Report verifying that ICANN followed its own policy framework including specific documentation demonstrating how the

process provided the opportunity for input from relevant stakeholders and was supportive of the global public interest.

- **Customers of the function:** gTLD registries
- **What registries are involved in providing the function:** Root Zone, Root Zone WHOIS database.
- **Overlaps or interdependencies:** The DNS requires IP addresses to function (both IPV4 and IPV6) from the Address Registries and offers its services based on a large number of protocols developed and maintained by the IETF.

I.E Redelegation and Operation of the .INT TLD (NTIA IANA Functions Contract: C.2.9.4)

- **Description of the function:** Operate the .INT TLD within the current registration policies for the TLD (act as the registry operator). Upon designation of a successor registry by the Government, if any, IANA shall cooperate with NTIA 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.
- **Customers of the function:** .INT TLD registrants.
- **What registries are involved in providing the function:** Root Zone database, Root Zone WHOIS, .INT Zone database, .INT WHOIS database.
- **Overlaps or interdependencies:** The DNS requires IP addresses to function (both IPV4 and IPV6) from the Address Registries and offers its services based on a large number of protocols developed and maintained by the IETF.

I.F Root Domain Name System Security Extensions (DNSSEC) Key Management (NTIA IANA Functions Contract: C.2.9.2.f)

- **Description of the function:** The IANA Functions Operator is responsible for generating the KSK (key signing key) and publishing its public portion. The KSK used to digitally sign the root zone ZSK (zone signing key) that is used by the Root Zone Maintainer to DNSSEC-sign the root zone.
- **Customers of the function:** Root Zone Maintainer, DNS validating resolver operators.
- **What registries are involved in providing the function:** The Root Zone Trust Anchor.
- **Overlaps or interdependencies:** The DNS requires IP addresses to function (both IPV4 and IPV6) from the Address Registries and offers its services based on a large number of protocols developed and maintained by the IETF.

I.G Root Zone Automation (NTIA IANA Functions Contract: C.2.9.2.e)

- **Description of the function:** A fully automated system that includes a secure (encrypted) system for customer communications; an automated provisioning protocol allowing customers to manage their interactions with the root zone management system; 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; a test system, which customers can use to test

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the technical requirements for a change request; and an internal interface for secure communications between the IANA Functions Operator; the Administrator, and the Root Zone Maintainer..

- **Customers of the function:** TLD registries
- **What registries are involved in providing the function:** Root Zone database, Root Zone WHOIS.
- **Overlaps or interdependencies:** The DNS requires IP addresses to function (both IPV4 and IPV6) from the Address Registries and offers its services based on a large number of protocols developed and maintained by the IETF.

I.H Customer Service Complaint Resolution Process (CSCRP) (NTIA IANA Functions Contract: C.2.9.2.g)

- **Description of the function:** A process for IANA function customers to submit complaints for timely resolution that follows industry best practice and includes a reasonable timeframe for resolution.
- **Customers of the function:** TLD registries
- **What registries are involved in providing the function:** n/a
- **Overlaps or interdependencies:** All IANA functions that are customer facing for the names registries.

I.I Management of the Repository of IDN Practices (IANA service or activity beyond the scope of the IANA functions contract)

- **Description of the function:** The IANA Repository of TLD IDN Practices, also known as the "IDN Language Table Registry", was created to support the development of the IDN technology as described in the "Guidelines for the Implementation of Internationalized Domain Names (IDNs)". In addition to making the IDN Tables publicly available on TLD registry websites, the TLD registries may register IDN Tables with the IANA Functions Operator, which in turn will display them online for public access.
- **Customers of the function:** TLD registries
- **What registries are involved in providing the function:** IDN Language Table Registry
- **Overlaps or interdependencies:** IDNs are based on standards developed and maintained by the IETF.

I.J Retirement of the Delegation of De-Allocated ISO 3166-1 ccTLD Codes (IANA service or activity beyond the scope of the IANA functions contract)

- **Description of the function:** Retire ISO3166-1 entries from active use as ccTLDs if the ISO3166-1 entry is no longer allocated.
- **Customers of the function:** ccTLD registries
- **What registries are involved in providing the function:** Root Zone database, Root Zone WHOIS database.
- **Overlaps or interdependencies:** ISO-3166-1 Alpha 2, the DNS requires IP addresses to function (both IPV4 and IPV6) from the Address Registries and offers its services based on a large number of protocols developed and maintained by the IETF.

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II. Existing Pre-Transition Arrangements

This section should describe how existing IANA-related arrangements work, prior to the transition.

II.A Policy Sources

This section should identify the specific source(s) of policy which must be followed by the IANA functions operator in its conduct of the services or activities described above. If there are distinct sources of policy or policy development for different IANA activities, then please describe these separately. For each source of policy or policy development, please provide the following:

- *Which IANA service or activity (identified in Section I) is affected.*
- *A description of how policy is developed and established and who is involved in policy development and establishment.*
- *A description of how disputes about policy are resolved.*
- *References to documentation of policy development and dispute resolution processes.*

II.A.1 RFC1591 and Interpretations

- **Which IANA functions (identified in Section 1) are affected:** All functions which apply to ccTLDs and can modify the Root Zone database or its WHOIS database.
- **A description of how policy is developed and established and who is involved in policy development and establishment:**

This document was written in 1994 as a "Request For Comments" (RFC) by the original IANA Functions Operator Jon Postel. It is a short document intended to outline how the domain name system was structured at that time and what rules were in place to decide on its expansion. The longest part of it outlines selection criteria for the manager of a new TLD and what was expected of such a manager.

This document was not meant to be a policy document but came to be regarded as such over time. Although like all RFCs, this is a static document (RFCs are updated by the issuance of a new RFC) there have been two significant attempts to "interpret" it so it can be more easily applied to the current context:

- Internet Coordination Policy 1 (ICP-1)

  This document from the "Internet Coordination Policy" group of ICANN was one of three such documents unilaterally created by ICANN shortly after its creation. It attempted to clarify key details over how the DNS was structured and should be run.

  The ICP-1 document was a source of significant friction between ICANN and the ccTLD community and the ccNSO formally rejected the ICP-1 document (final report of the ccNSO's DRD working group or DRDWG) arguing that it modified policy but did not meet the requirements for doing so at the time of its introduction in 1999.

- Framework Of Interpretation Working Group (FOIWG) Recommendations

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A follow on to the ccNSO's Delegation and Redelegation Working Group (DRDWG), the FOIWG was joint effort between the ccNSO and the GAC that also involved representatives from a number of ICANN communities to interpret RFC1591 in light of the Internet of today. In its final report it made a number of recommendations which clarify the applicatioin of RFC1591 within the current context.

The ccNSO formally endorsed the FOIWG's Final Report in February 2015 and transmitted it to the ICANN Board.

- **A description of how disputes about policy are resolved:**

Section 3.4 of RFC1591 provided for a dispute resolution mechanism however the body listed in the document does not currently exist.

Currently RFC1591 only applies to ccTLDs, .GOV, and .MIL and most of these do not have any contracts which specify a dispute resolution mechanism with ICANN.

For those ccTLDs that do not have a contract with ICANN which specifies dispute resolution mechanisms the only options available to them are the ICANN Ombudsman or the ICANN Bylaws relating to the Independent Review of ICANN Board Actions (which would only apply to the relevant Board action i.e. delegations and redelegations in this case). Given these mechanisms are non-binding on the Board or ICANN they are perceived by many ccTLDs as being of limited value.

There are additional sources of accountability for the limited number of ccTLDs that have formal Sponsorship Agreements or Frameworks of Accountability with ICANN. These types of agreements have dispute resolution clauses to settle disagreements between the parties which are relevant to all actions and activities by the Operator for ccTLDs. These typically use the ICC.

- **References to documentation of policy development and dispute resolution processes**

  - RFC1591 - https://www.ietf.org/rfc/rfc1591.txt
  - ICP 1 - https://www.icann.org/icp/icp-1.htm
  - FOIWG Final Report - http://ccnso.icann.org/workinggroups/foi-final-resolutions-11feb15-en.pdf
  - Independent Review Panel (IRP) - https://www.icann.org/resources/pages/irp-2012-02-25-en
  - ICANN Ombudsman - https://www.icann.org/resources/pages/governance/bylaws-en#AnnexB

II.A.2 Government Advisory Committee (GAC) - Principles and Guidelines for the Delegation and Administration of Country Code Top Level Domains 2005

The GAC's '*Principles and Guidelines for the Delegation and Administration of Country Code Top Level Domains*' (also known as the GAC Principles 2005), which the GAC regards as formal "Advice" to the ICANN Board and as such is subject to the Bylaws provisions regarding such Advice at the time of submission[1].

This Advice was developed privately by the GAC and the first version of these principles was published in 2000 and later revised to produce the 2005 version.

Section 1.2 of this document highlights one of the key principles for governments with respect to the management of the ccTLDs associated with their country or territory code:

[1] Details at https://www.icann.org/resources/pages/bylaws-2012-02-25-en#XI

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1.2. The main principle is the principle of subsidiarity. ccTLD policy should be set locally, unless it can be shown that the issue has global impact and needs to be resolved in an international framework. Most of the ccTLD policy issues are local in nature and should therefore be addressed by the local Internet Community, according to national law.

Also section 7.1 of this document can be directly relevant to delegation and redelegation of a ccTLD:

7.1. Principle

Delegation and redelegation is a national issue and should be resolved nationally and in accordance with national laws, taking into account the views of all local stakeholders and the rights of the existing ccTLD Registry. Once a final formal decision has been reached, ICANN should act promptly to initiate the process of delegation or redelegation in line with authoritative instructions showing the basis for the decision.

- **Which IANA functions (identified in Section 1) are affected.**

Delegation and redelegation of ccTLDs.

- **A description of how policy is developed and established and who is involved in policy development and establishment:**

Local laws applicable to ccTLDs, or IDN ccTLDs, associated with a specific country or territory are developed by the governments of those countries or territories.

- **A description of how disputes about policy are resolved:**

Disputes can be handled in courts of competent jurisdiction.

- **References to documentation of policy development and dispute resolution processes**

- GAC Principles 2005 - https://gacweb.icann.org/download/attachments/28278844/ccTLD_Principles_0.pdf?version=1&modificationDate=1312385141000&api=v2

II.A.3 New gTLD Applicant Guidebook

- **Which IANA functions (identified in Section 1) are affected.**

Delegation and redelegation of gTLDs.

- **A description of how policy is developed and established and who is involved in policy development and establishment:**

This is a complex and well-described process that would dwarf this document and as such will not be included.

Details can be found at: https://www.icann.org/resources/pages/governance/bylaws-en#AnnexA

- **A description of how disputes about policy are resolved:**

This is a complex and well-described process that would dwarf this document and as such will not be included.

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Details can be found at: http://newgtlds.icann.org/EN/APPLICANTS/AGB

- **References to documentation of policy development and dispute resolution processes:**

- GNSO PDP: https://www.icann.org/resources/pages/governance/bylaws-en#AnnexA
- New gTLD Applicant Guidebook: http://newgtlds.icann.org/EN/APPLICANTS/AGB

II.A.4 Fast Track (for IDN ccTLDs)

Application process for obtaining country and territory names in local scripts (IDN ccTLDs).

This was not developed using the ccNSO PDP for timing reasons. The ccNSO used a cross community working group approach which generated a recommendation to the ICANN Board which accepted it.

- **Which IANA functions (identified in Section 1) are affected.**

Delegations and redelegation of IDN ccTLDs.

- **A description of how policy is developed and established and who is involved in policy development and establishment.**

Fast Track Methodology: http://ccnso.icann.org/workinggroups/idnc-wg-board-proposal-25jun08.pdf

- **A description of how disputes about policy are resolved:**

The only options that are available are the ICANN Ombudsman or the ICANN Bylaws relating to the Independent Review of ICANN Board Actions (which only apply to delegations and redelegations). Given these mechanisms are non-binding on the Board or ICANN they are perceived by many ccTLDs as being of limited value.

- **References to documentation of policy development and dispute resolution processes**

- Fast Track Methodology: http://ccnso.icann.org/workinggroups/idnc-wg-board-proposal-25jun08.pdf
- Implementation Planfor IDN ccTLDs: https://www.icann.org/en/resources/idn/fast-track/idn-cctld-implementation-plan-05nov13-en.pdf
- And Board resolution on methodology: https://www.icann.org/resources/board-material/resolutions-2008-06-26-en#_Toc76113172
- Independent Review Panel (IRP) - https://www.icann.org/resources/pages/irp-2012-02-25-en
- ICANN Ombudsman - https://www.icann.org/resources/pages/governance/bylaws-en#AnnexB

II.B Oversight and Accountability

This section should describe all the ways in which oversight is conducted over IANA's provision of the services and activities listed in Section I and all the ways in which IANA is currently held accountable for the provision of those services. For each oversight or accountability mechanism, please provide as many of the following as are applicable:

- *Which IANA service or activity (identified in Section I) is affected.*
- *If the policy sources identified in Section II.A are affected, identify which ones are affected and explain in what way.*
- *A description of the entity or entities that provide oversight or perform accountability functions, including how individuals are selected or removed from participation in those entities.*
- *A description of the mechanism (e.g., contract, reporting scheme, auditing scheme, etc.). This should include a description of the consequences of the IANA functions operator not meeting the standards established by the mechanism, the extent to which the output of the mechanism is transparent and the terms under which the mechanism may change.*
- *Jurisdiction(s) in which the mechanism applies and the legal basis on which the mechanism rests.*

II.B.1 Definitions of Oversight and Accountability

For the purposes of this section, oversight and accountability of the IANA Functions Operator refers to independent oversight and accountability. Specifically, oversight and accountability are defined as:

- Oversight (of the IANA Functions Operator performing root zone-related actions and activities) – Oversight is performed by an entity that is independent of the Operator and has access to all relevant information to monitor or approve the actions and activities which are being overseen
- Accountability – Accountability provides the ability for an independent entity to impose binding consequences to ensure the IANA Functions Operator meets its formally documented and accepted agreements, standards and expectations.

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II.B.2 Oversight and Accountability - IANA Functions Contract for NTIA

The following is a list of oversight mechanisms found in the NTIA IANA Functions Contract:

	Ongoing Obligations
○	*C.2.12.a Program Manager. The contractor shall provide trained, knowledgeable technical personnel according to the requirements of this contract. All contractor personnel who interface with the CO and COR 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. The IANA Functions Program Manager organizes, plans, directs, staffs, and coordinates the overall program effort; manages contract and subcontract activities as the authorized interface with the CO and COR and ensures compliance with Federal rules and regulations and responsible for the following:…*
○	*C.4.1 Meetings -- Program reviews and site visits shall occur annually.*
○	*C.4.2 Monthly Performance Progress Report -- The Contractor shall prepare and submit to the COR a performance progress report every month (no later than 15 calendar days following the end of each month) that contains statistical and narrative information on the performance of the*

IANA functions (i.e., assignment of technical protocol parameters; administrative functions associated with root zone management; and allocation of Internet numbering resources) during the previous calendar month. The report shall include a narrative summary of the work performed for each of the functions with appropriate details and particularity. The report shall also describe major events, problems encountered, and any projected significant changes, if any, related to the performance of requirements set forth in C.2.9 to C.2.9.4.
○ *C.4.3 Root Zone Management Dashboard -- The Contractor shall work collaboratively with NTIA and the Root Zone Maintainer, and all interested and affected parties as enumerated in Section C.1.3, to develop and make publicly available via a website, a dashboard to track the process flow for root zone management within nine (9) months after date of contract award.*
○ *C.4.4 Performance Standards Reports -- The Contractor shall develop and publish reports for each discrete IANA function consistent with Section C.2.8. 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) starting no later than six (6) months after date of contract award.*
○ *C.4.5 Customer Service Survey (CSS) --The Contractor shall collaborate with NTIA to develop and conduct an annual customer service survey consistent with the performance standards for each of the discrete IANA functions. The survey shall include a feedback section for each discrete IANA function. No later than 30 days after conducting the survey, the Contractor shall submit the CSS Report to the COR.*
○ *C.5.1 Audit Data -- The Contractor shall generate and retain security process audit record data for one year and provide an annual audit report to the CO and the COR. All root zone management operations shall be included in the audit, and records on change requests to the root zone file. The Contractor shall retain these records in accordance with the clause at 52.215-2. The Contractor shall provide specific audit record data to the CO and COR upon request.*
○ *C.5.2 Root Zone Management Audit Data -- The Contractor shall generate and publish via a website a monthly audit report based on information in the performance of Provision C.9.2 (a-g) Perform Administrative Functions Associated With Root Zone Management. The audit report shall identify each root zone file and root zone "WHOIS" database change request and the relevant policy under which the change was made as well as identify change rejections and the relevant policy under which the change request was rejected. The Report shall start no later than nine (9) months after date of contract award and thereafter is due to the COR no later than 15 calendar days following the end of each month.*
○ *C.5.3 External Auditor - - The Contractor shall have an external, independent, specialized compliance audit which shall be conducted annually and it shall be an audit of all the IANA functions security provisions against existing best practices and Section C.3 of this contract.*

- **Which IANA service or activity (identified in Section I) is affected:**

Affects all IANA functions described section I of this document.

- **If the policy sources identified in Section II.A are affected, identify which ones are affected and explain in what way.**

These oversight and accountability mechanisms in the IANA Functions contract do not affect the policies listed in section 2.1.

- **A description of the entity or entities that provide oversight or perform accountability functions, including how individuals are selected or removed from participation in those entities.**

The NTIA is currently responsible for providing this oversight. There is no description regarding how the individuals who perform these functions are selected, removed or replaced.

- **A description of the mechanism (e.g., contract, reporting scheme, auditing scheme, etc.). This should include a description of the consequences of the IANA functions operator not meeting the**

standards established by the mechanism, the extent to which the output of the mechanism is transparent and the terms under which the mechanism may change.

The only official accountability mechanism included in the IANA Functions contract is the ability to cancel or not renew. Although there is only one accountability mechanism in the contract one would expect that there are a number of escalation steps between the parties for dealing with any issues.

- **Jurisdiction(s) in which the mechanism applies and the legal basis on which the mechanism rests.**

The Jurisdiction of the mechanism is the United States of America.

II.B.3 Oversight and Accountability - NTIA acting as Root Zone Management Process Administrator

The oversight function can be resumed as the NTIA reviewing all requests and documentation provided by the IANA Contractor for changes to the root zone or its WHOIS database to validate that IANA has met its obligations in recommending a change. If the NTIA does not believe IANA has met its obligations it can refuse to authorize the request.

- **Which IANA service or activity (identified in Section I) is affected:**

Affects all IANA functions which modify the root zone database or its WHOIS database.

- **If the policy sources identified in Section II.A are affected, identify which ones are affected and explain in what way.**

This does not affect the policies listed in section II.A

- **A description of the entity or entities that provide oversight or perform accountability functions, including how individuals are selected or removed from participation in those entities.**

The NTIA is currently responsible for providing this oversight. There is no description regarding how the individuals who perform these functions are selected, removed or replaced.

- **A description of the mechanism (e.g., contract, reporting scheme, auditing scheme, etc.). This should include a description of the consequences of the IANA functions operator not meeting the standards established by the mechanism, the extent to which the output of the mechanism is transparent and the terms under which the mechanism may change.**

The accountability can be resumed as the NTIA not approving a change request for the root zone or its WHOIS database.

- **Jurisdiction(s) in which the mechanism applies and the legal basis on which the mechanism rests.**

The Jurisdiction of the mechanism is the United States of America.

II.B.4 Oversight and Accountability – Binding arbitration included in TLD contracts

All gTLD registries and a few ccTLD registries have contracts (also called Sponsorship Agreements or Frameworks of Accountability) with ICANN. All of these contracts provide for binding arbitration of disputes (The standard gTLD contract language begins with: "*Disputes arising under or in connection with this Agreement that are not resolved pursuant to Section 5.1, including requests for specific performance, will be resolved through binding arbitration conducted pursuant to the rules of the International Court of Arbitration of the International Chamber of Commerce*.")

- **Which IANA service or activity (identified in Section I) is affected:**

All IANA functions which modify the Root Zone or its WHOIS database (TBCONFIRMED)

- **If the policy sources identified in Section II.A are affected, identify which ones are affected and**

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explain in what way.

This does not affect the policies listed in section II.A

- **A description of the entity or entities that provide oversight or perform accountability functions, including how individuals are selected or removed from participation in those entities.**

For gTLDs the language is: *Disputes arising under or in connection with this Agreement that are not resolved pursuant to Section 5.1, including requests for specific performance, will be resolved through binding arbitration conducted pursuant to the rules of the International Court of Arbitration of the International Chamber of Commerce. Any arbitration will be in front of a single arbitrator, unless (i) ICANN is seeking punitive or exemplary damages, or operational sanctions, (ii) the parties agree in writing to a greater number of arbitrators, or (iii) the dispute arises under Section 7.6 or 7.7. In the case of clauses (i), (ii) or (iii) in the preceding sentence, the arbitration will be in front of three arbitrators with each party selecting one arbitrator and the two selected arbitrators selecting the third arbitrator.*

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For ccTLDs the language relating to this is usually a version of the following: *Each party shall nominate one arbitrator, and the two arbitrators so nominated shall, within 30 days of the confirmation of their appointment, nominate the third arbitrator, who will act as Chairman of the Arbitral Tribunal.*

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- **A description of the mechanism (e.g., contract, reporting scheme, auditing scheme, etc.). This should include a description of the consequences of the IANA functions operator not meeting the standards established by the mechanism, the extent to which the output of the mechanism is transparent and the terms under which the mechanism may change.**

The results of the arbitration are binding on both parties.

- **Jurisdiction(s) in which the mechanism applies and the legal basis on which the mechanism rests.**

For gTLDs the arbitration will be conducted in the English language and will occur in Los Angeles County, California, USA.

For ccTLDs with contracts the jurisdiction needs to be agreed to by both parties. If no agreement can be reached the jurisdiction is usually New York, New York, USA.

II.B.5 Oversight and Accountability – Applicability of local law for the administration by the IANA Functions Operator of ccTLDs associated with a specific country or territory (ccTLDs).

The IANA Functions Contract clearly establishes the importance of the GAC Principles 2005 in the delegation and redelegation of ccTLDs.

As such section 1.7 of the GAC Principles 2005 clearly sets the stage for such oversight by governments:

> *1.7. It is recalled that the WSIS Plan of action of December 2003 invites "Governments to manage or supervise, as appropriate, their respective country code top-level domain name". Any such involvement should be based on appropriate national laws and policies. It is recommended that governments should work with their local Internet community in deciding on how to work with the ccTLD Registry.*

Within the context provided by section 1.2 of the same document:

> *1.2. The main principle is the principle of subsidiarity. ccTLD policy should be set locally, unless it can be shown that the issue has global impact and needs to be resolved in an international framework. Most of the ccTLD policy issues are local in nature and should therefore be addressed by the local Internet Community, according to national law.*

Given the IANA Functions Operator currently seeks government approval for all ccTLD delegations and redelegations governments usually limit the use of their power in these matters to redelegations where the local government is requesting a change of ccTLD manager which is not supported by the current manager.

- **Which IANA service or activity (identified in Section I) is affected:**

  ccTLD delegations and redelegations.

- **If the policy sources identified in Section II.A are affected, identify which ones are affected and explain in what way.**

  This does not affect the policies listed in section II.A

- **A description of the entity or entities that provide oversight or perform accountability functions, including how individuals are selected or removed from participation in those entities.**

  Local law should prevail unless the decision has global impacts.

- **A description of the mechanism (e.g., contract, reporting scheme, auditing scheme, etc.). This should include a description of the consequences of the IANA functions operator not meeting the standards established by the mechanism, the extent to which the output of the mechanism is transparent and the terms under which the mechanism may change.**

  Variable depending on the specific government.

- **Jurisdiction(s) in which the mechanism applies and the legal basis on which the mechanism rests.**

  Jurisdiction is that of the country or territory concerned.

III. Proposed Post-Transition Oversight and Accountability

This section should describe what changes your community is proposing to the arrangements listed in Section II.B in light of the transition. If your community is proposing to replace one or more existing arrangements with new arrangements, that replacement should be explained and all of the elements listed in Section II.B should be described for the new arrangements. Your community should provide its rationale and justification for the new arrangements.

If your community's proposal carries any implications for the interface between the IANA functions and existing policy arrangements described in Section II.A, those implications should be described here.

If your community is not proposing changes to arrangements listed in Section II.B, the rationale and justification for that choice should be provided here.

III.A Review of existing oversight and accountability mechanisms post-transition.

III.A.1 Oversight and Accountability - IANA Functions Contract for NTIA

Given this contract is between NTIA and ICANN some changes will be required.

The NTIA IANA Functions Contract can essentially be broken down as follows:

III.A.1.1 Contract extension, cancellation and renewal.
III.A.1.2 Relationship between NTIA, IANA and the Root Zone Maintainer
III.A.1.3 Administration/oversight of Statement of Work (SOW)
III.A.1.4 Statement of Work (SOW)
- III.A.1.4.1 IANA functions which can change the root zone or its WHOIS database.
- III.A.1.4.2 Accountability functions which require IANA to report on specific aspects of its performance.
- III.A.1.4.3 IANA administrative functions which support IANA functions which can change the root zone or its WHOIS database or accountability functions.

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The sections below describe how the transition will affect each of these and what changes, if any, the CWG recommends addressing these effects:

III.A.1.1 Contract extension, cancellation and renewal.

III.A.1.1.1 [Design Team L] CWG ISSUE – Should there be a mechanism to move the IANA Functions away from ICANN and if so what should that mechanism be? (Note: given the NTIA requirement for a complete and implementable transition proposals any proposal which has such a separation mechanism would have to include a significant level of detail to meet this requirement).

III.A.1.1.2 [Design Team M] CWG ISSUE – Although there were no formal escalation mechanisms described in the IANA Functions Contract for the NTIA any new arrangement will require these. In addition, is this a necessary point of coordination with the CCWG in ICANN Accountability and if so, how should this be done.

III.A.1.1.3 [Design Team B] CWG ISSUE – If there is no mechanism selected to move the IANA function away from ICANN should there be additional accountability measures (e.g. an Independent Appeals Panel)? If so, what should these be they should this be coordinated with

the CCWG?

III.A.1.2 Relationship between NTIA, IANA and the Root Zone Maintainer.

III.A.1.2.1 [Design Team F] CWG ISSUE – The IANA functions contract describes and uses the current tri-party arrangement to get changes to the Root Zone and its WHOIS database implemented. Assuming that the NTIA is no longer part of the process, a revised mechanism for getting these changes implemented post transition will have to be developed as well as ensuring that the Root Zone Maintainer, currently Verisign, continues to perform that function.

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III.A.1.3 Administration/oversight of SOW

III.A.1.3.1 [Design Team C] NTIA currently provides resources to ensure the administration of the SOW – these resources will have to be replaced. What should replace these resources (MRT, CSC, etc.)?

III.A.1.3.2 [Design Team C / I / J] CWG ISSUE – Some of the performance and issues reporting provided to the NTIA by IANA is registry specific which is not a problem for NTIA given they are not involved in any commercial DNS activity. This implies that if members of the community are given access to this information as part of the transition proposal there may be the possibility that those members would be seen as being in a conflict of interest position. Is there a need for a conflict of interest guidelines or requirement for members of the community that will be given access to this information?

III.A.1.3.3 [Design Team K] ICANN and IANA have to offer services to TLDs which are located in all countries – to do so it must have an OFAC license for those countries which are on this list. As pointed out in SAC069 the fact that NTIA was responsible for the oversight of IANA probably contributed to facilitating ICANN/IANA obtaining these licenses. As such there is a requirement for the CWG to consider this as part of its transition proposal. Work is required to produce an initial document detailing the current status of OFAC licensing as well as initial expectations of such licensing post transition.

III.A.1.4 Statement of Work (SOW)

Administration/oversight of SOW [Design Team N] CWG ISSUE – Regardless of the model selected to implement the transition the SOW will have to be reviewed on a regular basis. This requirement brings on several additional requirements:

- What period (duration) should be covered by the first SOW post transition?
- What should be the standard period for reviewing SOWs post transition?
- What should be the process for reviewing or amending SOWS (including approval by the community and acceptance by ICANN)?

III.A.1.4.1 Administration/oversight of SOW IANA functions which can change the root zone or its WHOIS database.

- CWG ISSUE – The current description of these functions includes references to the NTIA and associated entities such as the CORE. Each function has to be reviewed to ensure the description would be applicable post-transition.
- Note: Staff is working on a draft text for this section which the CWG may want to evaluate before deciding whether or not a DT is needed for this section. See proposed text hereunder.

III.A.1.4.1.1. – Working relationship with all affected parties
Background / Current State
Currently section C.1.3 of the NTIA IANA Functions Contract requires the Contractor to develop constructive working relationships with all affected parties: ICANN stakeholders, IETF, IAF, RIRs and TLDs.

Issues Identified & Rationale for Changes, if any	
• The CWG recommends that this requirement is maintained post-transition but notes that the current use of 'Contractor' could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • The CWG also notes that the current requirement also includes address and protocol references, which are beyond the scope of the CWG. As such, the CWG recommends that this language is updated as follows:	
Current Language – section C.1.3 of the IANA Functions Contract	**Proposed Language**
The Contractor, in the performance of its duties, must have or develop a close constructive working relationship with all interested and affected parties to ensure quality and satisfactory performance of the IANA functions. The interested and affected parties include, but are not limited to, the multi-stakeholder, private sector led, bottom-up policy development model for the domain name system (DNS) that the Internet Corporation for Assigned Names and Numbers (ICANN) represents; the Internet Engineering Task Force (IETF) and the Internet Architecture Board (IAB); Regional Internet Registries (RIRs); top-level domain (TLD) operators/managers (e.g., country codes and generic); governments; and the Internet user community.	~~The Contractor~~ **IANA**, in the performance of its duties, must have or develop a close constructive working relationship with all interested and affected parties to ensure quality and satisfactory performance of the IANA functions. The interested and affected parties include, but are not limited to, the multi-stakeholder, private sector led, bottom-up policy development model for the domain name system (DNS) that the Internet Corporation for Assigned Names and Numbers (ICANN) represents; ~~the Internet Engineering Task Force (IETF) and the Internet Architecture Board (IAB); Regional Internet Registries (RIRs);~~ top-level domain (TLD) operators/managers (e.g., country codes and generic); governments; and the Internet user community. **The interested and affected parties also include the Internet Engineering Task Force (IETF), the Internet Architecture Board (IAB) and the Regional Internet Registries (RIRs) in matters that are directly relevant to them.**

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III.A.1.4.1.2. – Root Zone File Change Request Management	
Background / Current State	
Currently section C.2.9.2.a of the NTIA IANA Functions Contract describes the Root Zone File Change Request Management requirements referring to the 'Contractor'.	
Issues Identified & Rationale for Changes, if any	
• As identified before, 'Contractor' could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. As a result, the CWG recommends that this section is updated and should read as follows in the statement of work post-transition	
Current Language – section C.2.9.2.a of the IANA Functions Contract	**Proposed Language**

The 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. The Contractor shall process root zone file changes as expeditiously as possible.	~~The Contractor~~ **IANA** 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. ~~The Contractor~~ **IANA** shall process root zone file changes as expeditiously as possible.

Note: If the CWG decides that IANA requires authorization to implement these changes to the Root Zone it will be dealt with as a requirement in section III.A.2 (Oversight and Accountability - NTIA acting as Root Zone Management Process Administrator) of the CWG Transition proposal (Design Teams D and F)].

III.A.1.4.1.3. – Root Zone WHOIS Change Request and Database Management	
Background / Current State	
Currently section C.2.9.2.b of the NTIA IANA Functions Contract describes the Root Zone "WHOIS" Change Request and Database Management requirements	
Issues Identified & Rationale for Changes, if any	
• As identified before, 'Contractor' could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. As a result, the CWG recommends that this section is updated and should read as follows in the statement of work post-transition	
Current Language – section C.2.9.2.b of the IANA Functions Contract	**Proposed Language**
The Contractor shall maintain, update, and make publicly accessible a Root Zone "WHOIS" database with current and verified contact information for all TLD registry operators. The Root Zone "WHOIS" database, at a minimum, shall consist of the TLD name; the IP address of the primary nameserver and secondary nameserver for the TLD; the corresponding names of such nameservers; the creation date of the TLD; the name, postal address, email address, and telephone and fax numbers of the TLD registry operator; the name, postal address, email address, and telephone and fax numbers of the technical contact for the TLD registry operator; and the name, postal address, email address, and telephone and fax numbers of the administrative contact for the TLD registry operator; reports; and date record last updated; and any other information relevant to the TLD requested by the TLD registry operator. The Contractor shall receive and process root zone "WHOIS"	~~The Contractor~~ **IANA** shall maintain, update, and make publicly accessible a Root Zone "WHOIS" database with current and verified contact information for all TLD registry operators. The Root Zone "WHOIS" database, at a minimum, shall consist of the TLD name; the IP address of the primary nameserver and secondary nameserver for the TLD; the corresponding names of such nameservers; the creation date of the TLD; the name, postal address, email address, and telephone and fax numbers of the TLD registry operator; the name, postal address, email address, and telephone and fax numbers of the technical contact for the TLD registry operator; and the name, postal address, email address, and telephone and fax numbers of the administrative contact for the TLD registry operator; reports; and date record last updated; and any other information relevant to the TLD requested by the TLD registry operator. ~~The Contractor~~ **IANA** shall receive and process root zone

change requests for TLDs.	"WHOIS" change requests for TLDs.

[Note: If IANA requires authorization to implement changes to the Root Zone WHOIS it will be dealt with as a requirement in section III.A.2 (Oversight and Accountability - NTIA acting as Root Zone Management Process Administrator) of the CWG Transition proposal (Design Teams D and F).

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III.A.1.4.1.4. – Delegation and Redelegation of a Country Code Top Level Domain	
Background / Current State	
Currently section C.2.9.2.c of the NTIA IANA Functions Contract describes Delegation and Redelegation of a Country Code Top Level Domain (ccTLD) requirements.	
Issues Identified & Rationale for Changes, if any	
• This section refers to the 'Contractor'. As identified before, 'Contractor' could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • The section also refers the requirement for NTIA authorization via the Contracting Officer's Representative (COR). To deal with these issues, the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language – section C.2.9.2.c of the IANA Functions Contract	**Proposed Language**
The Contractor shall apply existing policy frameworks in processing requests related to the delegation and redelegation of a ccTLD, such as RFC 1591 Domain Name System Structure and Delegation, the Governmental Advisory Committee (GAC) Principles And Guidelines For The Delegation And Administration Of Country Code Top Level Domains, and any further clarification of these policies by interested and affected parties as enumerated in Section C.1.3. If a policy framework does not exist to cover a specific instance, the Contractor will consult with the interested and affected parties, as enumerated in Section C.1.3; relevant public authorities; and governments on any recommendation that is not within or consistent with an existing policy framework. In making its recommendations, the Contractor shall also take into account the relevant national frameworks and applicable laws of the jurisdiction that the TLD registry serves. The Contractor shall submit its recommendations to the COR via a Delegation and Redelegation Report.	~~The Contractor~~ **IANA** shall apply existing policy frameworks in processing requests related to the delegation and redelegation of a ccTLD, such as RFC 1591 Domain Name System Structure and Delegation, the Governmental Advisory Committee (GAC) Principles And Guidelines For The Delegation And Administration Of Country Code Top Level Domains, and any further clarification of these policies by interested and affected parties as enumerated in Section ~~C.1.3~~. **III.A.1.4.1.4 of the CWG Transition Proposal.** If a policy framework does not exist to cover a specific instance, ~~the Contractor~~ **IANA** will consult with the interested and affected parties, as enumerated in Section **III.A.1.4.1.4 of the CWG Transition Proposal** ; relevant public authorities; and governments on any recommendation that is not within or consistent with an existing policy framework. In making its recommendations, the ~~Contractor~~ IANA shall also take into account the relevant national frameworks and applicable laws of the jurisdiction that the TLD registry serves. ~~The Contractor~~ IANA shall ~~submit~~ **publish** its recommendations ~~to the COR via~~ **on its website in** a Delegation and Redelegation Report.

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[Note: If IANA requires authorization to implement delegations or redelegations it will be dealt with as a requirement in section III.A.2 (Oversight and Accountability - NTIA acting as Root Zone Management Process Administrator) of the CWG Transition proposal (Design Teams D and F).]

III.A.1.4.1.5. – Delegation And Redelegation of a Generic Top Level Domain (gTLD)	
Background / Current State	
Currently section C.2.9.2.d of the NTIA IANA Functions Contract describes Delegation And Redelegation of a Generic Top Level Domain (gTLD) requirements.	
Issues Identified & Rationale for Changes, if any	
• This section refers to the 'Contractor'. As identified before, 'Contractor' could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • The section also refers the requirement for NTIA authorization via the Contracting Officer's Representative (COR). To deal with these issues, the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language – section C.2.9.2.d of the IANA Functions Contract	**Proposed Language**
The Contractor shall verify that all requests related to the delegation and redelegation of gTLDs are consistent with the procedures developed by ICANN. In making a delegation or redelegation recommendation, the Contractor must provide documentation verifying that ICANN followed its own policy framework including specific documentation demonstrating how the process provided the opportunity for input from relevant stakeholders and was supportive of the global public interest. The Contractor shall submit its recommendations to the COR via a Delegation and Redelegation Report.	~~The Contractor~~ IANA shall verify that all requests related to the delegation and redelegation of gTLDs are consistent with the procedures developed by ICANN. In making a delegation or redelegation recommendation, ~~the Contractor~~ IANA must provide documentation verifying that ICANN followed its own policy framework including specific documentation demonstrating how the process provided the opportunity for input from relevant stakeholders and was supportive of the global public interest. ~~The Contractor~~ IANA shall **publish** ~~submit~~ its recommendations **in** ~~to the COR via~~ a Delegation and Redelegation Report.

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[Note: If IANA requires authorization to implement delegations or redelegations it will be dealt with as a requirement in section III.A.2 (Oversight and Accountability - NTIA acting as Root Zone Management Process Administrator) of the CWG Transition proposal (Design Teams D and F)].

III.A.1.4.1.6. – Root Zone Automation	
Background / Current State	
Currently section C.2.9.2.e of the NTIA IANA Functions Contract describes Root Zone Automation requirements.	
Issues Identified & Rationale for Changes, if any	
• The CWG notes that this section refers to creating a system, which has now been deployed. • Furthermore, this section refers to as well as referring to 'contractor' and NTIA and the Administrator. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language – section C.2.9.2.e of the IANA Functions Contract	**Proposed Language**
The Contractor shall work with NTIA and the Root Zone Maintainer, and collaborate	~~The Contractor shall work with NTIA and the Root Zone Maintainer, and collaborate~~

with all interested and affected parties as enumerated in Section C.1.3, to deploy a fully automated root zone management system within nine (9) months after date of contract award. The fully automated system must, at a minimum, include a secure (encrypted) system for customer communications; an automated provisioning protocol allowing customers to manage their interactions with the root zone management system; 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 a test system, which customers can use to meet the technical requirements for a change request ; an internal interface for secure communications between the IANA Functions Operator; the Administrator, and the Root Zone Maintainer.	~~with all interested and affected parties as enumerated in Section C.1.3, to deploy~~ **IANA will continue to operate** a fully automated root zone management system ~~within nine (9) months after date of contract award.~~ (The fully automated system must, at a minimum, include a secure (encrypted) system for customer communications; an automated provisioning protocol allowing customers to manage their interactions with the root zone management system; 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 a test system, which customers can use to meet the technical requirements for a change request ; an internal interface for secure communications between the IANA Functions Operator~~;~~ [~~, the Administrator~~], and the Root Zone Maintainer).

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Note If IANA requires authorization to implement delegations or redelegations it will be dealt with as a requirement in section III.A.2 (Oversight and Accountability - NTIA acting as Root Zone Management Process Administrator) of the CWG Transition proposal (Design Teams D and F). If authorization is required the optional [; the Administrator,] would be added back into the text.]

III.A.1.4.1.7. – Root Domain Name System Security Extensions (DNSSEC) Key Management	
Background / Current State	
Currently section C.2.9.2.f of the NTIA IANA Functions Contract describes the Root Domain Name System Security Extensions (DNSSEC) Key Management requirements	
Issues Identified & Rationale for Changes, if any	
• The CWG observes that the section currently refers to the 'Contractor'. • This section also refers to Appendix 2 of the NTIA IANA Functions Contract as well as other references to NTIA. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language – section C.2.9.2.f of the IANA Functions Contract	**Proposed Language**

The Contractor shall be responsible for the management of the root zone Key Signing Key (KSK), including generation, publication, and use for signing the Root Keyset. As delineated in the Requirements at Appendix 2 entitled Baseline Requirements for DNSSEC in the Authoritative Root Zone that is incorporated by reference herein as if fully set forth. The Contractor shall work collaboratively with NTIA and the Root Zone Maintainer, in the performance of this function.	~~The Contractor~~ **IANA** shall be responsible for the management of the root zone Key Signing Key (KSK), including generation, publication, and use for signing the Root Keyset. As delineated in the Requirements at ~~Appendix 2~~ **Appendix 1 of the CWG Transition proposal** entitled Baseline Requirements for DNSSEC in the Authoritative Root Zone that is incorporated by reference herein as if fully set forth. ~~The Contractor~~ **IANA** shall work collaboratively with ~~NTIA and~~ the Root Zone Maintainer, in the performance of this function.

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[Note: Appendix 2 of the NTIA IANA Function contract is quite complete and generic. It would have to be edited to remove references to the NTIA and reference to other sections of the NTIA IANA Functions contract].
[**Note**: If IANA requires authorization to implement changes to the root key Signing Key (KSK) it will be dealt with as a requirement in section III.A.2 (Oversight and Accountability - NTIA acting as Root Zone Management Process Administrator) of the CWG Transition proposal (Design Teams D and F).]

III.A.1.4.1.8 – Retirement of ccTLDs	
Background / Current State	
Currently the NTIA IANA Functions Contract does not contain any requirements concerning the retirement of ccTLDs	
Issues Identified & Rationale for Changes, if any	
• To address the fact that the NTIA IANA Functions Contract currently does not contain any requirements concerning the retirement of ccTLDs, the CWG recommends that a new section is introduced that is identical to III.1.4.1.4 and which would read:	
Current Language	**Proposed Language**
None	IANA should continue with its current processes and practices with respect to the retirement of ccTLDs until such a time a policy framework has been developed for the retirement of ccTLDs. If current processes and practices do not exist to cover a specific instance, IANA will consult with the interested and affected parties, as enumerated in Section III.A.1.4.1.4 of the CWG Transition Proposal ; relevant public authorities; and governments on any recommendation that is not within or consistent with current processes and practices. In making its recommendations, IANA shall also take into account the relevant national frameworks and applicable laws of the jurisdiction that the TLD registry serves. IANA shall publish its recommendations on its website in a format similar to a Delegation and Redelegation Report. Once a policy for the retirement of ccTLDs is developed and adopted IANA will adapt its practices and

	procedures to comply with this new policy.

[**Note**: The core of the text is a cut and paste, with minor edits, from the proposed text from Section III.A.1.4.1.4 which deals with the delegation and redelegation of ccTLDs.]

III.A.1.4.2 Accountability functions which require IANA to report on specific aspects of its performance.

- [Design Team A] CWG ISSUE – The current definition and operational parameters for these functions in the IANA Functions contract and IANA Response have to be reviewed to ensure they meet all the post transition requirements (this may include adding new functions).
- Note: Staff is working on a draft text for this section to deal with the non-SLE elements that are associated with DT A that the CWG may want to evaluate before deciding whether or not a DT is needed for this section. See proposed text hereunder.

III.A.1.4.2.1 – Performance Standards Requirements	
Background / Current State	
Currently section C.2.8 of the NTIA IANA Functions Contract describes the Performance Standards requirements	
Issues Identified & Rationale for Changes, if any	
• This section refers to the 'Contractor'. As identified before, 'Contractor' could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • Furthermore the section references the development of the function which is completed as well as including address reporting which the CWG considers beyond its scope. • The Section also references specific sections of the NTIA IANA Functions contract which are not expected to be included in the CWG Transition proposal. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.2.8 of the IANA Functions Contract	**Proposed Language**

Performance Standards -- Within six (6) months of award, the Contractor shall develop performance standards, in collaboration with all interested and affected parties as enumerated in Section C.1.3, for each of the IANA functions as set forth at C.2.9 to C.2.9.4 and post via a website.	Performance Standards -- ~~Within six (6) months of award, the Contractor~~ **IANA** shall ~~develop performance standards, in collaboration with all interested and affected parties as enumerated in Section C.1.3, for each of the IANA functions as set forth at C.2.9 to C.2.9.4 and~~ post via a website **its performance standards for the functions from section for III.A.1.4.1 of the CWG Transition proposal**.

Note: This is indirectly linked to the DT A on SLEs.

III.A.1.4.2.2 – Performance Standards Requirements	
Background / Current State	
Currently section C.4.2 of the NTIA IANA Functions Contract describes the Monthly Performance Progress Report Requirements.	
Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • There will be no COR post transition to receive the report. • Currently, the section includes address reporting which is beyond the scope of the CWG. • The section references to specific sections of the NTIA IANA Functions contract which should not be included in the CWG Transition proposal. • This is a private report for the NTIA and is not accessible by the public. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.4.2 of the IANA Functions Contract	**Proposed Language**
Monthly Performance Progress Report -- The Contractor shall prepare and submit to the COR a performance progress report every month (no later than 15 calendar days following the end of each month) that contains statistical and narrative information on the performance of the IANA functions (i.e., assignment of technical protocol parameters; administrative functions associated with root zone management; and allocation of Internet numbering resources) during the previous calendar month. The report shall include a narrative summary of the work performed for each of the functions with appropriate details and particularity. The report shall also describe major events, problems encountered, and any projected significant changes, if any, related to the performance of requirements set forth in C.2.9 to C.2.9.4.	Monthly Performance Progress Report -- ~~The Contractor~~ **IANA** shall prepare and submit to the ~~COR~~ **CSC** a performance progress report every month (no later than 15 calendar days following the end of each month) that contains statistical and narrative information on the performance of the IANA functions ~~(i.e., assignment of technical protocol parameters; administrative functions~~ associated with root zone management; and allocation of Internet numbering resources) during the previous calendar month. The report shall include a narrative summary of the work performed ~~for each of the functions~~ with appropriate details and particularity. The report shall also describe major events, problems encountered, and any projected significant changes, if any, related to the performance of requirements set forth in ~~C.2.9 to C.2.9.4.~~ **section for III.A.1.4.1 of the CWG Transition proposal**

[**Note:** Potential post-transition issue**:** The Monthly Performance Progress Report may contain sensitive information regarding issues with specific TLDs which the operators of those TLDs may wish to keep confidential. This was not an issue with NTIA as it was not a competitor to any registry but may be an issue with the CSC if registries are members. This will have to be addressed in the Transition proposal of the CWG. Possibly to be addressed by DT I, competition and conflict of interest or DT J, CSC/MRT confidential information and conflict of Interest,

III.A.1.4.2.3 – Root Zone Management Dashboard Requirements	
Background / Current State	
Currently section C.4.3 of the NTIA IANA Functions Contract describes the Root Zone Management dashboard Requirements.	
Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • Refers to NTIA which will not be present post transition. • The section refers to the creation of the dashboard, which is completed, but does not refer to its ongoing operation. • The section also references to specific sections of the NTIA IANA Functions contract which should not be included in the CWG Transition proposal. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.4.3 of the IANA Functions Contract	**Proposed Language**
Root Zone Management Dashboard -- The Contractor shall work collaboratively with NTIA and the Root Zone Maintainer, and all interested and affected parties as enumerated in Section C.1.3, to develop and make publicly available via a website, a dashboard to track the process flow for root zone management within nine (9) months after date of contract award.	Root Zone Management Dashboard -- ~~The Contractor~~ **IANA** shall **continue to** ~~work collaboratively with NTIA and the Root Zone Maintainer, and all interested and affected parties as enumerated in Section C.1.3, to develop and~~ make publicly available via a website, a dashboard to track the process flow for root zone management ~~within nine (9) months after date of contract award~~.

III.A.1.4.2.4 – Performance Standards Reports	
Background / Current State	
Currently section C.4.4 of the NTIA IANA Functions Contract describes the Performance Standards Reports Requirements.	
Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • The section furthermore refers to the creation of the Performance Standards Reports, which is completed, but does not refer to its ongoing production of these. • The section also references to specific sections of the NTIA IANA Functions contract which should not be included in the CWG Transition proposal. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.4.4 of the IANA Functions Contract	**Proposed Language**

Performance Standards Reports -- The Contractor shall develop and publish reports for each discrete IANA function consistent with Section C.2.8. 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) starting no later than six (6) months after date of contract award.	Performance Standards Reports -- ~~The Contractor~~ **IANA** shall develop and publish reports for each discrete IANA function consistent with Section ~~C.2.8~~. **III.A.1.4.2.1 of the CWG transition proposal**. 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) ~~starting no later than six (6) months after date of contract award~~.

III.A.1.4.2.5 – Customer Service Survey	
Background / Current State	
Currently section C.4.5 of the NTIA IANA Functions Contract describes the Customer Service Survey Requirements.	
Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • The section furthermore refers to NTIA, which will not be present post transition. Also, there will be no COR post transition to receive the report. • The section also Includes address reporting which is beyond the scope of the CWG. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.4.5 of the IANA Functions Contract	**Proposed Language**
Customer Service Survey (CSS) --The Contractor shall collaborate with NTIA to develop and conduct an annual customer service survey consistent with the performance standards for each of the discrete IANA functions. The survey shall include a feedback section for each discrete IANA function. No later than 30 days after conducting the survey, the Contractor shall submit the CSS Report to the COR.	Customer Service Survey (CSS) --~~The Contractor~~ **IANA** shall collaborate with ~~NTIA~~ **the CSC** to develop and conduct an annual customer service survey consistent with the performance standards for each of the ~~discrete~~ IANA functions **associated with the Root Zone management**. ~~The survey shall include a feedback section for each discrete IANA function.~~ No later than 30 days after conducting the survey, ~~the Contractor~~ **IANA** shall submit the CSS Report to the ~~COR~~ **CSC**.

III.A.1.4.2.6 – Audit Data	
Background / Current State	
Currently section C.5.1 of the NTIA IANA Functions Contract describes the Audit Data Requirements.	
Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • There are no CO or COR post transition to receive the report. • The section furthermore references to specific sections of the NTIA IANA Functions contract, which should not be included in the CWG Transition proposal. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.5.1 of the IANA Functions Contract	**Proposed Language**

Audit Data -- The Contractor shall generate and retain security process audit record data for one year and provide an annual audit report to the CO and the COR. All root zone management operations shall be included in the audit, and records on change requests to the root zone file. The Contractor shall retain these records in accordance with the clause at 52.215-2. The Contractor shall provide specific audit record data to the CO and COR upon request.	Audit Data -- ~~The Contractor~~ **IANA** shall generate and retain security process audit record data for one year and provide an annual audit report to ~~the CO and the COR~~ **CSC**. All root zone management operations shall be included in the audit, and records on change requests to the root zone file. ~~The Contractor~~ **IANA** shall retain these records in accordance with **best practices for maintaining such records.** ~~the clause at 52.215-2~~. ~~The Contractor~~ **IANA** shall provide specific audit record data to the ~~CO and COR~~ **CSC** upon request.

[Note: To a certain extend dependent on outcome of discussion DT B CSC

Potential post-transition issue: These reports and records may contain sensitive information regarding issues with specific TLDs which the operators of those TLDs may wish to keep confidential from potential competitors. This was not an issue with NTIA as it was not a competitor to any registry but may be an issue with the CSC if registries are members. This will have to be addressed in the Transition proposal of the CWG. Possibly to be addressed by DT I, competition and conflict of interest or DT J, CSC/MRT confidential information and conflict of Interest.]

III.A.1.4.2.7 – Root Zone Management Audit Data	
Background / Current State	
Currently section C.5.2 of the NTIA IANA Functions Contract describes the Root Zone Management Audit Data Requirements.	
Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • There are no COR post transition to receive the report. The section does not factor in that reports have already started. • Furthermore it references specific sections of the NTIA IANA Functions contract, which should not be included in the CWG Transition proposal. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.5.2 of the IANA Functions Contract	**Proposed Language**
Root Zone Management Audit Data -- The Contractor shall generate and publish via a website a monthly audit report based on information in the performance of Provision C.9.2 (a-g) Perform Administrative Functions Associated With Root Zone Management. The audit report shall identify each root zone file and root zone "WHOIS" database change request and the relevant policy under which the change was made as well as identify change rejections and the relevant policy under which the change request was rejected. The Report shall start no later than nine (9) months after date of	Root Zone Management Audit Data -- ~~The Contractor~~ **IANA** shall generate and publish via a website a monthly audit report based on information in the performance of ~~Provision C.9.2 (a-g) Perform~~ Administrative Functions Associated With Root Zone Management. The audit report shall identify each root zone file and root zone "WHOIS" database change request and the relevant policy under which the change was made as well as identify change rejections and the relevant policy under which the change request was rejected. The Report ~~shall start no later than nine (9) months after~~

contract award and thereafter is due to the COR no later than 15 calendar days following the end of each month.	~~date of contract award and thereafter~~ is due to the ~~COR~~ **CSC** no later than 15 calendar days following the end of each month.

[Note: To a certain extend dependent on outcome of discussion DT B CSC]

III.A.1.4.2.8 – External Auditor	
Background / Current State	
Currently section C.5.3 of the NTIA IANA Functions Contract describes the External Auditor Requirements.	
Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • Furthermore it references specific sections of the NTIA IANA Functions contract, which should not be included in the CWG Transition proposal. • There is currently no requirement to deliver or publish the audit report. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.5.3 of the IANA Functions Contract	**Proposed Language**
External Auditor - - The Contractor shall have an external, independent, specialized compliance audit which shall be conducted annually and it shall be an audit of all the IANA functions security provisions against existing best practices and Section C.3 of this contract.	External Auditor - - ~~The Contractor~~ **IANA** shall have an external, independent, specialized compliance audit which shall be conducted annually and it shall be an audit of all the IANA functions security provisions against existing best practices and ~~Section C.3 of this contract~~ the **security requirements from section III.A.1.4.3 of the CWG Transition proposal.**

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[Note: As this is relevant for all functions (address, protocols and names), consolidated approach required (task of ICG?)]

II.A.1.4.3 IANA administrative functions which support IANA functions which can change the root zone or its WHOIS database or accountability functions.

- CWG ISSUE – The IANA Functions contract goes into significant details with respect to administrative functions. Should the CWG transition proposal continue in the same fashion, with all the associated verification requirements, or adopt a lighter approach?
- Note: Staff is working on a draft text for this section which the CWG may want to evaluate before deciding whether or not a DT is needed for this section. See hereunder.

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III.A.1.4.3.1 Transparency and Accountability
Background / Current State
Currently section C.2.6 of the NTIA IANA Functions Contract describes the Transparency and Accountability Requirements.
Issues Identified & Rationale for Changes, if any
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • The user instructions for each corresponding IANA function described in this section has already been developed. As such the CWG recommends that this section is updated and should read as follows in

the statement of work post-transition:	
Current Language section C.2.6 of the IANA Functions Contract	**Proposed Language**
Transparency and Accountability -- Within six (6) months of award, the Contractor shall, in collaboration with all interested and affected parties as enumerated in Section C.1.3, develop user instructions including technical requirements for each corresponding IANA function and post via a website.	Transparency and Accountability -- ~~Within six (6) months of award, the Contractor shall, in collaboration with all interested and affected parties as enumerated in Section C.1.3, develop~~ **IANA shall post via a website** user instructions including technical requirements for each corresponding IANA function ~~and post via a website~~ listed in section III.A.1.4.1 of the CWG Transition Proposal.

III.A.1.4.3.2 Responsibility and Respect for Stakeholders	
Background / Current State	
Currently section C.2.7 of the NTIA IANA Functions Contract describes the Responsibility and Respect for Stakeholders Requirements.	
Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • The process for documenting the source of the policies and procedures and how it will apply the relevant policies and procedures for the corresponding IANA Function have already been developed. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.2.7 of the IANA Functions Contract	**Proposed Language**
Responsibility and Respect for Stakeholders – Within six (6) months of award, the Contractor shall, in collaboration with all interested and affected parties as enumerated in Section C.1.3, develop for each of the IANA functions a process for documenting the source of the policies and procedures and how it will apply the relevant policies and procedures for the corresponding IANA function and post via a website.	Responsibility and Respect for Stakeholders – ~~Within six (6) months of award, the Contractor shall, in collaboration with all interested and affected parties as enumerated in Section C.1.3, develop~~ **IANA shall continue to provide** for each of the ~~IANA~~ functions **listed in section III.A.1.4.1 of the CWG Transition Proposal via a website** ~~a process for~~ document**ation**~~ing~~ **of** the source of the policies and procedures and how it will apply the relevant policies and procedures for the corresponding IANA function**s** ~~and post via a website.~~ **(such documentation having been developed with all interested and affected parties as enumerated in section III.A.1.4.1.1).**

III.A.1.4.3.3 Qualified Program Manager
Background / Current State
Currently section C.2.12.a of the NTIA IANA Functions Contract describes the

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requirement for contractor to provide a qualified program manager.

Issues Identified & Rationale for Changes, if any

- The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities.
- The section refers to a contract which there may not be post transition.
- The section also refers to the CO and COR which will not be applicable post transition.
- Ensuring compliance with Federal rules and regulations is no longer required if there is no contract with the US Federal government.
- Requiring a thorough understanding and knowledge of the principles and methodologies associated with program management and contract management may no longer be required at the same level if there is no contract with the US Federal government.

As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:

Current Language section C.2.12.a of the IANA Functions Contract	**Proposed Language**
Program Manager. The contractor shall provide trained, knowledgeable technical personnel according to the requirements of this contract. All contractor personnel who interface with the CO and COR 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. The IANA Functions Program Manager organizes, plans, directs, staffs, and coordinates the overall program effort; manages contract and subcontract activities as the authorized interface with the CO and COR and ensures compliance with Federal rules and regulations and responsible for the following: • Shall be responsible for the overall contract performance and shall not serve in any other capacity under this contract. • Shall have demonstrated communications skills with all levels of management. • Shall meet and confer with COR and CO regarding the status of specific contractor activities and problems, issues, or conflicts requiring resolution. • Shall be capable of negotiating and making binding decisions for the company. • Shall have extensive experience and proven expertise in managing	Program Manager. ~~The contractor~~ **IANA** shall provide trained, knowledgeable technical personnel according to the requirements of ~~this contract~~ **the CWG Transition Proposal**. All ~~contractor~~ **IANA** personnel who interface with the ~~CO and COR~~ **CSC** 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. The IANA Functions Program Manager organizes, plans, directs, staffs, and coordinates the overall program effort; manages contract and subcontract activities as the authorized interface with the ~~CO and COR~~ **CSC** and ~~ensures compliance with Federal rules and regulations and~~ **is** responsible for the following: • Shall be responsible for the overall ~~contract~~ **Transition Proposal** performance and shall not serve in any other capacity under this ~~contract~~ **Transition Proposal**. • Shall have demonstrated communications skills with all levels of management. • Shall meet and confer with ~~COR and CO~~ **CSC** regarding the status of specific contractor activities and problems, issues, or conflicts requiring resolution. • Shall be capable of negotiating

similar multi-task contracts of this type and complexity. • Shall have extensive experience supervising personnel. • Shall have a thorough understanding and knowledge of the principles and methodologies associated with program management and contract management.	and making binding decisions for the company. • Shall have extensive experience and proven expertise in managing similar multi-task contracts of this type and complexity. • Shall have extensive experience supervising personnel. • Shall have a thorough understanding and knowledge of the ~~principles and methodologies associated with program management and contract management~~ **best practices for the management of this type of entity.**

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[**Note:** the proposed text assumes that the main interface for IANA will be the CSC].

III.A.1.4.3.4 Key Personnel	
Background / Current State	
Currently section C.12.b of the NTIA IANA Functions Contract describes the assignment of key personnel Requirements.	
Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • The section refers to a contract which there may not be post transition. • The section also refers to sections of the NTIA IANA Functions Contract • Furthermore, the section refers to elements dealing with protocols and addressing. • The section does not refer to a Director of security which C.3.5 states "The Director of Security shall be one of the key personnel assigned to this contract" • It also does not refer to the Conflict of Interest Officer. Yet section 6.2 states 'The Conflict of Interest Officer shall be one of the key personnel assigned to this contract'. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.12.b of the IANA Functions Contract	**Proposed Language**
The Contractor shall assign to this contract the following key personnel: IANA Functions Program Manager (C.2.9); IANA Function Liaison for Technical Protocol Parameters Assignment (C.2.9.1); IANA Function Liaison for Root Zone Management (C.2.9.2); IANA Function Liaison for Internet Number Resource Allocation (C.2.9.3).	~~The Contractor~~ **IANA** shall assign ~~to this contract~~ the following key personnel **to the tasks described in the CWG Transition Proposal**: IANA Functions Program Manager ~~(C.2.9)~~; IANA Function Liaison for Technical Protocol Parameters Assignment (C.2.9.1); IANA Function Liaison for Root Zone Management ~~(C.2.9.2); IANA Function Liaison for Internet Number Resource Allocation (C.2.9.3).~~ **Director of Security; Conflict of Interest Officer.**

III.A.1.4.3.5 Secure Systems
Background / Current State
Currently section C.3.1 of the NTIA IANA Functions Contract describes the Secure

System Requirements.	
Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.3.1 of the IANA Functions Contract	**Proposed Language**
Secure Systems -- The Contractor shall install and operate all computing and communications systems in accordance with best business and security practices. The Contractor shall implement a secure system for authenticated communications between it and its customers when carrying out all IANA function requirements. The Contractor shall document practices and configuration of all systems.	Secure Systems -- ~~The Contractor~~ **IANA** shall install and operate all computing and communications systems in accordance with best business and security practices. ~~The Contractor~~ **IANA** shall implement a secure system for authenticated communications between it and its customers when carrying out all IANA function requirements. ~~The Contractor~~ **IANA** shall document practices and configuration of all systems.

III.A.1.4.3.6 Secure Systems	
Background / Current State	
Currently section C.3.2 of the NTIA IANA Functions Contract describes the Secure System Notification requirements.	
Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • The system referred to in this section has already been implemented. • The section refers to the COR which will not be applicable post transition. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.3.2 of the IANA Functions Contract	**Proposed Language**
Secure Systems Notification -- The Contractor shall implement and thereafter operate and maintain a secure notification system at a minimum, capable of notifying all relevant stakeholders of the discrete IANA functions, of such events as outages, planned maintenance, and new developments. In all cases, the Contractor shall notify the COR of any outages.	Secure Systems Notification -- ~~The Contractor~~ **IANA** shall ~~implement and thereafter~~ operate and maintain a secure notification system at a minimum, capable of notifying all relevant stakeholders of the discrete IANA functions, of such events as outages, planned maintenance, and new developments. In all cases, ~~the Contractor~~ **IANA** shall notify the ~~COR~~ **CSC** of any outages.

[Note: The proposed text assumes that the main interface with IANA will be the CSC].

III.A.1.4.3.7 Secure Data
Background / Current State
Currently section C.3.3 of the NTIA IANA Functions Contract describes the Secure Data requirements.
Issues Identified & Rationale for Changes, if any
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities.

As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.3.3 of the IANA Functions Contract	**Proposed Language**
Secure Data -- The Contractor shall ensure the authentication, integrity, and reliability of the data in performing each of the IANA functions.	Secure Data -- ~~The Contractor~~ **IANA** shall ensure the authentication, integrity, and reliability of the data in performing each of the IANA functions.

III.A.1.4.3.8 Security Plan	
Background / Current State	
Currently section C.3.4 of the NTIA IANA Functions Contract describes the Security Plan requirements.	
Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • The section refers to sections of the NTIA IANA Functions Contract. • The section refers to the COR which will not be applicable post transition	
As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.3.4 of the IANA Functions Contract	**Proposed Language**
Security Plan - The Contractor shall develop and execute a Security Plan that meets the requirements of this contract and Section C.3. The 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. The Contractor shall deliver the plan to the COR after each annual update.	Security Plan - ~~The Contractor~~ **IANA** shall develop and execute a Security Plan that meets the requirements of this ~~contract and Section C.3~~ **CWG Transition Plan**. ~~The Contractor~~ **IANA** 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. ~~The Contractor~~ **IANA** shall deliver the plan to the ~~COR~~ **CSC** after each annual update.

[Note: The proposed text assumes that the main interface with IANA will be the CSC].

III.A.1.4.3.9 Director of Security	
Background / Current State	
Currently section C.3.5 of the NTIA IANA Functions Contract describes the Director of Security requirements.	
Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • The section refers to the COR which will not be applicable post transition	
As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.3.5 of the IANA Functions Contract	**Proposed Language**
Director of Security - The Contractor shall designate a Director of Security who shall	Director of Security - ~~The Contractor~~ **IANA** shall designate a Director of Security who

be responsible for ensuring technical and physical security measures, such as personnel access controls. The Contractor shall notify and consult in advance the COR when there are personnel changes in this position. The Director of Security shall be one of the key personnel assigned to this contract.	shall be responsible for ensuring technical and physical security measures, such as personnel access controls. ~~The Contractor~~ **IANA** shall notify and consult in advance the ~~COR~~ **CSC** when there are personnel changes in this position. The Director of Security shall be one of the key personnel assigned to this contract.

[Note: The proposed text assumes that the main interface with IANA will be the CSC].

III.A.1.4.3.10 Conflict of Interest	
Background / Current State	
Currently section C.6.1 of the NTIA IANA Functions Contract describes the conflict of interest requirements.	
Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • The section refers to a contract which may not be there post transition. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.6.1 of the IANA Functions Contract	**Proposed Language**
Conflict of Interest Requirements - The Contractor shall take measures to avoid any activity or situation that could compromise, or give the appearance of compromising, the impartial and objective performance of the contract (e.g., a person has a conflict of interest if the person directly or indirectly appears to benefit from the performance of the contract). The Contractor shall maintain a written, enforced conflict of interest policy that defines what constitutes a potential or actual conflict of interest for the Contractor. At a minimum, this policy must address conflicts based on personal relationships or bias, financial conflicts of interest, possible direct or indirect financial gain from Contractor's policy decisions and employment and post-employment activities. The conflict of interest policy must include appropriate sanctions in case of non-compliance, including suspension, dismissal and other penalties.	Conflict of Interest Requirements - ~~The Contractor~~ **IANA** shall take measures to avoid any activity or situation that could compromise, or give the appearance of compromising, the impartial and objective performance of ~~the contract~~ **its responsibilities** (e.g., a person has a conflict of interest if the person directly or indirectly appears to benefit from the performance of the contract). ~~The Contractor~~ **IANA** shall maintain a written, enforced conflict of interest policy that defines what constitutes a potential or actual conflict of interest for ~~the Contractor~~ **IANA**. At a minimum, this policy must address conflicts based on personal relationships or bias, financial conflicts of interest, possible direct or indirect financial gain from ~~Contractor~~ **IANA**'s policy decisions and employment and post-employment activities. The conflict of interest policy must include appropriate sanctions in case of non-compliance, including suspension, dismissal and other penalties.

III.A.1.4.3.11 Conflict of Interest Officer
Background / Current State
Currently section C.6.2 of the NTIA IANA Functions Contract describes the conflict of interest officer requirements.

Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.6.2 of the IANA Functions Contract	**Proposed Language**
Conflict of Interest Requirements - The Contractor shall designate a senior staff member to serve as a Conflict of Interest Officer who shall be responsible for ensuring the Contractor is in compliance with the Contractor's internal and external conflict of interest rules and procedures. The Conflict of Interest Officer shall be one of the key personnel assigned to this contract.	Conflict of Interest Requirements - ~~The Contractor~~ **IANA** shall designate a senior staff member to serve as a Conflict of Interest Officer who shall be responsible for ensuring ~~the Contractor~~ **IANA** is in compliance with ~~the Contractor's~~ **IANA's** internal and external conflict of interest rules and procedures. The Conflict of Interest Officer shall be one of the key personnel assigned ~~to this contract~~.

III.A.1.4.3.12 Additional Conflict of Interest Requirements	
Background / Current State	
Currently sub-sections of C.6.2 (C.6.2.1-5) of the NTIA IANA Functions Contract describe additional conflict of interest requirements.	
Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • Clause H.5 of the NTIA IANA Functions Contract relates to indemnification of the USG. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.6.2.1-5 of the IANA Functions Contract	**Proposed Language**
Conflict of Interest Requirements - The Contractor shall designate a senior staff member to serve as a Conflict of Interest Officer who shall be responsible for ensuring the Contractor is in compliance with the Contractor's internal and external conflict of interest rules and procedures. The Conflict of Interest Officer shall be one of the key personnel assigned to this contract. (sub sections to C.6.2) • The Conflict of Interest Officer shall be responsible for distributing the Contractor's conflict of interest policy to all employees, directors, and subcontractors upon their election, re-election or appointment and annually thereafter. • The Conflict of Interest Officer shall be responsible for requiring that each of the Contractor's employees, directors and	Conflict of Interest Requirements - ~~The Contractor~~ **IANA** shall designate a senior staff member to serve as a Conflict of Interest Officer who shall be responsible for ensuring ~~the Contractor~~ **IANA** is in compliance with ~~the Contractor~~'**IANA's** internal and external conflict of interest rules and procedures. The Conflict of Interest Officer shall be one of the key personnel assigned ~~to this contract. (sub-sections to C.6.2~~). **The Conflict of Interest Officer shall:** • ~~The Conflict of Interest Officer shall~~ **B**e responsible for distributing the ~~Contractor~~**IANA**'s conflict of interest policy to all employees, directors, and subcontractors upon their election, re-election or appointment and annually thereafter. • ~~The Conflict of Interest Officer shall~~ **B**e responsible for requiring

subcontractors complete a certification with disclosures of any known conflicts of interest upon their election, re-election or appointment, and annually thereafter. • The Conflict of Interest Officer shall require that each of the Contractor's employees, directors, and subcontractors promptly update the certification to disclose any interest, transaction, or opportunity covered by the conflict of interest policy that arises during the annual reporting period. • The Conflict of Interest Officer shall develop and publish subject to applicable laws and regulations, a Conflict Of Interest Enforcement and Compliance Report. The report shall describe major events, problems encountered, and any changes, if any, related to Section C.6. • See also the clause at H.5. Organizational Conflict of Interest	that each of ~~the Contractor~~ **IANA**'s employees, directors and subcontractors complete a certification with disclosures of any known conflicts of interest upon their election, re-election or appointment, and annually thereafter. • ~~The Conflict of Interest Officer shall~~ **R**equire that each of the ~~Contractor~~**IANA**'s employees, directors, and subcontractors promptly update the certification to disclose any interest, transaction, or opportunity covered by the conflict of interest policy that arises during the annual reporting period. • ~~The Conflict of Interest Officer shall~~ **D**evelop and publish subject to applicable laws and regulations, a Conflict Of Interest Enforcement and Compliance Report. The report shall describe major events, problems encountered, and any changes, if any, related to Section C.6. • ~~See also the clause at H.5. Organizational Conflict of Interest~~

III.A.1.4.3.13 Redundancy	
Background / Current State	
Currently section C.7.1 of the NTIA IANA Functions Contract describes the redundancy requirements.	
Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • This section refers to sections of the NTIA IANA Functions Contract. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.7.1 of the IANA Functions Contract	**Proposed Language**
Continuity of Operations (COP) – The Contractor shall, at a minimum, maintain multiple redundant sites in at least 2, ideally 3 sites, geographically dispersed within the United States as well as multiple resilient communication paths between interested and affected parties as enumerated in Section C.1.3 to ensure continuation of the IANA functions in the event of cyber or physical attacks, emergencies, or natural disasters.	Continuity of Operations (COP) – ~~The Contractor~~ **IANA** shall, at a minimum, maintain multiple redundant sites in at least 2, ideally 3 sites, geographically dispersed within the United States as well as multiple resilient communication paths between interested and affected parties as enumerated in Section ~~C.1.3~~ **III.A.1.4.1.1. of the CWG transition proposal** to ensure continuation of the IANA functions in the event of cyber or physical attacks, emergencies, or natural

	disasters.

III.A.1.4.3.14 Contingency Plan	
Background / Current State	
Currently section C.7.2 of the NTIA IANA Functions Contract describes the contingency plan requirements.	
Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • The section refers to NTIA which will not be applicable post transition. • This section refers to sections of the NTIA IANA Functions Contract. • The Initial Contingency and Continuity of Operations Plan (COOP) has already been developed. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.7.2 of the IANA Functions Contract	**Proposed Language**
Contingency and Continuity of Operations Plan (The CCOP) – The Contractor shall collaborate with NTIA and the Root Zone Maintainer, and all interested and affected parties as enumerated in Section C.1.3, to develop and implement a CCOP for the IANA functions within nine (9) months after date of contract award. The Contractor in collaboration with NTIA and the Root Zone Maintainer shall update and test the plan annually. The CCOP shall include details on plans for continuation of each of the IANA functions in the event of cyber or physical attacks, emergencies, or natural disasters. The Contractor shall submit the CCOP to the COR after each annual update.	Contingency and Continuity of Operations Plan (The CCOP) – ~~The Contractor~~ **IANA** ~~shall collaborate with NTIA and the Root Zone Maintainer, and all interested and affected parties as enumerated in Section C.1.3, to develop and implement a CCOP for the IANA functions within nine (9) months after date of contract award. The Contractor~~ in collaboration with **the CSC** ~~NTIA~~ and the Root Zone Maintainer shall update and test the plan annually. The CCOP shall include details on plans for continuation of each of the IANA functions in the event of cyber or physical attacks, emergencies, or natural disasters. ~~The Contractor~~ **IANA** shall submit the CCOP to the ~~COR~~ **CSC** after each annual update.

[Note: The proposed text assumes that the main interface with IANA will be the CSC].

III.A.1.4.3.15 Transition to a Successor Contractor	
Background / Current State	
Currently section C.7.3 of the NTIA IANA Functions Contract describes the transition to a successor contractor requirements.	
Issues Identified & Rationale for Changes, if any	
• The Contractor could refer to ICANN or IANA. The CWG is only responsible for transitioning the IANA responsibilities. • This section refers to the Government and the COR which will not be applicable post transition. • An Initial plan has already been developed. As such the CWG recommends that this section is updated and should read as follows in the statement of work post-transition:	
Current Language section C.7.3 of the IANA Functions Contract	**Proposed Language**
Transition to Successor Contractor – In the event the Government selects a successor	Transition to Successor Contractor – In the event the ~~Government~~ **[CSC/MRT?]**

contractor, the Contractor shall have a plan in place for transitioning each of the IANA functions to ensure an orderly transition while maintaining continuity and security of operations. The plan shall be submitted to the COR eighteen (18) months after date of contract award, reviewed annually, and updated as appropriate.	selects a successor contractor, ~~the Contractor~~ **ICANN-IANA** shall have a plan in place for transitioning each of the IANA functions to ensure an orderly transition while maintaining continuity and security of operations. The plan shall be ~~submitted to the COR eighteen (18) months after date of contract award,~~ reviewed annually, ~~and~~ updated as appropriate **and submitted to the [CSC?]**.

[Note: Actual replacement for the Government in this text will depend on the results of Design Team L.]

III.A.1.4.4 Redelegation and Operation of the .INT TLD (NTIA Functions Contract: C.2.9.4)

- [Design Team H] CWG ISSUE – The contract foresees that the IANA functions operator operates the .INT TLD within the current registration policies for the TLD (act as the registry operator). The contract specifies that ICANN is to "develop and undertake an open process, that will include the current registrants of .INT, to identify a new registry operator and transfer responsibility for the .INT registry to it. Upon designation of a successor registry operator by the above process, IANA shall cooperate with it to facilitate the smooth transition of operation of the INT TLD. Such cooperation shall, at a minimum, include timely transfer to the successor registry operator of the then-current top-level domain registration data". With NTIA withdrawing from the IANA Functions Contract the section "upon designation of a successor registry by the Government" would no longer be valid post transition.

III.A.2 Oversight and Accountability - NTIA acting as Root Zone Management Process Administrator.

[Design Team D/F] This function was a useful tool for the NTIA while IANA was developing into its current evolved state. Given the NTIA is removing itself from Internet oversight and that IANA has advanced significantly in terms of quality, best practices and customer satisfaction there is no longer a need to have an authorization function (TBC).

This change would have no impact on the policies described in II.A.

III.A.3 Oversight and Accountability – Binding arbitration included in TLD contracts

No changes proposed. This is currently functioning well and does not involve NTIA and removing NTIA would not affect the need for this mechanism.

III.A.4 Oversight and Accountability – Applicability of local law for the administration by the IANA Functions Operator of ccTLDs associated with a specific country or territory (ccTLDs).

No changes proposed. This is currently functioning well and does not involve NTIA and removing NTIA would not affect the need for this mechanism.

IV. Transition Implications – under development

This section should describe what your community views as the implications of the changes it proposed in Section III. These implications may include some or all of the following, or other implications specific to your community:

- *Description of operational requirements to achieve continuity of service and possible new service integration throughout the transition.*
- *Risks to operational continuity and how they will be addressed.*
- *Description of any legal framework requirements in the absence of the NTIA contract.*
- *Description of how you have tested or evaluated the workability of any new technical or operational methods proposed in this document and how they compare to established arrangements.*
- *Description of how long the proposals in Section III are expected to take to complete, and any intermediate milestones that may occur before they are completed.*

IV.A Operational requirements to achieve continuity of service throughout the transition – under development

- *Describe operational requirements to achieve continuity of service and possible new service integration throughout the transition.*
- *Risks to operational continuity and how they will be addressed.*

TBD

V. NTIA Requirements - under development

Additionally, NTIA has established that the transition proposal must meet the following five requirements:

- *Support and enhance the multistakeholder model;*
- *Maintain the security, stability, and resiliency of the Internet DNS;*
- *Meet the needs and expectation of the global customers and partners of the IANA services;*
- *Maintain the openness of the Internet.*
- *The proposal must not replace the NTIA role with a government-led or an inter-governmental organization solution.*

This section should explain how your community's proposal meets these requirements and how it responds to the global interest in the IANA functions.

This proposal addresses each of the NTIA's requirements:

TBD

VI. Community Process (DRAFT and under development)

This section should describe the process your community used for developing this proposal, including:

- *The steps that were taken to develop the proposal and to determine consensus.*
- *Links to announcements, agendas, mailing lists, consultations and meeting proceedings.*
- *An assessment of the level of consensus behind your community's proposal, including a description of areas of contention or disagreement.*

VI.A The steps that were taken to develop the proposal and to determine consensus.

VI.A.1 Establishing the CWG

- CWG charter: https://community.icann.org/display/gnsocwgdtstwrdshp/Charter

VI.A.2 Members and Participants

- https://community.icann.org/pages/viewpage.action?pageId=49351381

VI.A.3 Working methods of the CWG

- TBC

VI.A.4 Determining Consensus

- TBC

VI.B Links to announcements, agendas, mailing lists, consultations and meeting proceedings

VI.B.1 Meetings

- Full CWG (meeting dates, AGENDAS, participants and meeting notes) - https://community.icann.org/display/gnsocwgdtstwrdshp/Meetings

VI.B.2 Public Consultations

- 1 December public consultation on first CWG draft transition proposal: https://www.icann.org/public-comments/cwg-naming-transition-2014-12-01-en
- February 2015 - Discussion document for ICANN52 meeting: https://community.icann.org/pages/viewpage.action?pageId=52889457

VI.B.3 Webinars and other public presentations

- `(URL TBC)

VI.B.4 Mailing list archives:
https://community.icann.org/display/gnsocwgdtstwrdshp/Mailing+List+Archives
VI.B.5 Correspondence (URL TBC)
VI.B.6 Outreach: https://community.icann.org/display/gnsocwgdtstwrdshp/Outreach+Tracking+CWG-Stewardship

VI.C An assessment of the level of consensus behind your community's proposal, including a description of areas of contention or disagreement.

Appendix A - Baseline Requirements for DNSSEC in the Authoritative Root Zone

Note: *this appendix is based on section C.2.9.2.f of the IANA Functions Contract. The proposed changes are highlighted in bold / strikethrough.*

Baseline Requirements for DNSSEC in the Authoritative Root Zone

DNSSEC at the authoritative Root Zone requires cooperation and collaboration between the root zone management partners and the CSC.[2] The baseline requirements encompass the responsibilities and requirements for both the IANA Functions Operator and the Root Zone Maintainer as described and delineated below.

General Requirements

The Root Zone system needs an overall security lifecycle, such as that described in ISO 27001, and any security policy for DNSSEC implementation must be validated against existing standards for security controls.

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.[3] It is expected that the systems referenced in this document will meet all the SP 800-53 technical security controls required by a HIGH IMPACT system.[4]

Whenever possible, references to NIST publications are given as a source for further information. These Special Publications (SP) and FIPS documents are not intended as a future auditing checklist, 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/).

- **Security Authorization and Management Policy**

  Each partner[5] in the Root Zone Signing process shall have a security policy in place; this security policy must be periodically reviewed and updated, as appropriate.

  i) Supplemental guidance on generating a Security Authorization Policy may be found in NIST SP 800-37.

  These policies shall have a contingency plan component to account for disaster recovery (both

[2] The Root Zone management partners consist of the IANA Functions Operator (per the IANA functions contract), CSC, and Root Zone Maintainer (per the Cooperative Agreement with VeriSign). This document outlines requirements for both the IANA Functions Operator and Root Zone Maintainer in the operation and maintenance of DNSSEC at the authoritative root zone.

[3] Note in particular that the use of the requirements in SP 800-53 does not imply that these systems are subject to other Federal Information Security Management Act (FISMA) processes.

[4] For the purpose of identifying SP 800-53 security requirements, the Root Zone system can be considered a HIGH IMPACT system with regards to integrity and availability as defined in FIPS 199.

[5] For this document, the roles in the Root Zone Signing process are those associated with the Key Signing Key holder, the Zone Signing Key holder, Public Key Distributor, and others to be conducted by the IANA Functions Operator and the Root Zone Maintainer.

man-made and natural disasters).[6]

Supplemental guidance on contingency planning may be found in SP 800-34.

These policies shall address Incident Response detection, handling and reporting (see 4 below).

Supplemental guidance on incident response handling may be found in NIST SP 800-61.

2) IT Access Control

a) There shall be an IT access control policy in place for each of the key management functions and it shall be enforced.

i) This includes both access to hardware/software components and storage media as well as ability to perform process operations.
ii) Supplemental guidance on access control policies may be found in NIST SP 800-12.

Users without authentication shall not perform any action in key management.

In the absence of a compelling operational requirement, remote access to any cryptographic component in the system (e.g. HSM) is not permitted.[7]

3) Security Training

a) All personnel participating in the Root Zone Signing process shall have adequate IT security training.

i) Supplemental guidance on establishing a security awareness training program may be found in NIST SP 800-50.

4) Audit and Accountability Procedures

a) The organization associated with each role shall develop, disseminate, and periodically ~~review/update: (1) a for~~mal, documented, audit and accountability policy that addresses purpose, scope, roles, responsibilities, management commitment, coordination among organizational entities, and compliance; and (2) formal, documented procedures to facilitate the implementation of the audit and accountability policy and associated audit and accountability controls.
i) Supplemental guidance on auditing and accountability policies may be found in NIST SP 800-12.
ii) Specific auditing events include the following:
- Generation of keys
- Generation of signatures
- Exporting of public key material

[6] For the IANA Functions Operator, the contingency plan must be consistent with and/or included in the "Contingency and Continuity of Operations Plan" as articulated in Section III.A.1.4.3.14 of the CWG transition proposal.
[7] Remote access is any access where a user or information system communicates through a non-organization controlled network (e.g., the Internet).

- Receipt and validation of public key material (i.e., from the ZSK holder or from TLDs)
- System configuration changes
- Maintenance and/or system updates
- Incident response handling
- Other events as appropriate

b) Incident handling for physical and exceptional cyber attacks[8] shall include reporting to the Department's National Telecommunications and Information Administration (NTIA) in a timeframe and format as mutually agreed by the Department, IANA Functions Operator, and Root Zone Maintainer.
c) The auditing procedures shall include monthly reporting to NTIA.[99]
d) The auditing system shall be capable of producing reports on an ad-hoc basis.
e) A version of these reports must be made publically available.

5) Physical Protection Requirements

a) There shall be physical access controls in place to only allow access to hardware components and media to authorized personnel.
   i) Supplemental guidance on token based access may be found in NIST SP 800-73 and FIPS 201.
   ii) Supplemental guidance on token based access biometric controls may be found in NIST SP 800-76.
b) Physical access shall be monitored, logged, and registered for all users and visitors.
c) 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,* SP 800-53r3)
d) All organizations shall have appropriate protection measures in place to prevent physical damage to facilities as appropriate.

6) All Components

a) All commercial off the shelf hardware and software components must have an established maintenance and update procedure in place.

   i) Supplemental guidance on establishing an upgrading policy for an organization may be found in NIST SP 800-40.

b) All hardware and software components provide a means to detect and protect against unauthorized modifications/updates/patching.

Role Specific Requirements

7) Root Zone Key Signing Key (KSK) Holder[10]

[8] Non-exceptional events are to be included in monthly reporting as required Section III.A.1.4.2.2 of the CWG transition proposal.
[9] For the IANA Functions Operator, audit reporting shall be incorporated into the audit report as articulated in Section III.A.1.4.2.7 of the CWG transition.
[10] The Root Zone KSK Holder is a responsibility performed by the IANA Functions Operator.

The Root Zone KSK Holder (RZ KSK) is responsible for: (1) generating and protecting the private component of the RZ KSK(s); (2) securely exporting or importing any public key components, should this be required (3) authenticating and validating the public portion of the RZ Zone

Signing Key (RZ ZSK); and (4) signing the Root Zone's DNSKEY record (ZSK/KSK).

a) Cryptographic Requirements

i) The RZ KSK key pair shall be an RSA key pair, with a modulus of at least 2048 bits.
ii) RSA key generation shall meet the requirements specified in FIPS 186-3.[11] In particular, key pair generation shall meet the FIPS 186-3 requirements for exponent size and primality testing.
iii) The RZ KSK private key(s) shall be generated and stored on a FIPS 140-2 validated hardware cryptographic module (HSM)[12], validated at Level 4 overall.[13]
iv) RZ KSK Digital Signatures shall be generated using SHA-256.
v) All cryptographic functions involving the private component of the KSK shall be performed within the HSM; that is, the private component shall only be exported from the HSM with the appropriate controls (FIPS 140-2) for purposes of key backup.

b) Multi-Party Control

At least two persons shall be required to activate or access any cryptographic module that contains the complete RZ KSK private signing key.

i) The RZ KSK private key(s) shall be backed up and stored under at least two-person control. Backup copies shall be stored on FIPS 140-2 compliant HSM, validated at Level 4 overall, or shall be generated using m of n threshold scheme and distributed to organizationally separate parties.
ii) Backup copies stored on HSMs shall be maintained in different physical locations[14], with physical and procedural controls commensurate to that of the operational system.
iii) In the case of threshold secret sharing, key shares shall be physically secured by each of the parties.
iv) In all cases, the names of the parties participating in multi-person control shall be maintained on a list that shall be made available for inspection during compliance audits.

c) Root Zone KSK Rollover

i) Scheduled rollover of the RZ KSK shall be performed.[1515] (See Contingency planning for

[11] Note that FIPS 186-3 and FIPS 140-2 are referenced as requirements in sections a and b, rather than supplemental guidance.
[12] FIPS 140 defines hardware cryptographic modules, but this specification will use the more common HSM (for hardware security module) as the abbreviation.
[13] Note that FIPS 186-3 and FIPS 140-2 are referenced as requirements in sections a and b, rather than supplemental guidance.
[14] Backup locations are to be within the United States
[15] The CSC envisions the timeline for scheduled rollover of the RZ KSK to be jointly developed and proposed by the IANA Functions Operator and Root Zone Maintainer, based on consultation and input from the affected parties (e.g. root server operators, large-scale resolver operators, etc). Note that subsequent test plans may specify more or less frequent RZ KSK rollover to ensure adequate testing.

unscheduled rollover.)
ii) RZ KSK rollover procedures shall take into consideration the potential future need for algorithm rollover.
iii) DNSSEC users shall be able to authenticate the source and integrity of the new RZ KSK using the previously trusted RZ KSK's public key.

d) Contingency Planning

i) Procedures for recovering from primary physical facility failures (e.g., fire or flood that renders the primary site inoperable) shall be designed to reconstitute capabilities within 48 hours.
ii) Procedures for emergency rollover of the RZ KSK shall be designed to achieve key rollover and publication within 48 hours. These procedures, which are understood to address DNSSEC key provision only, should accommodate the following scenarios:
(1) The current RZ KSK has been compromised; and
(2) The current RZ KSK is unavailable, but is not believed to be compromised.

e) DNS Record Generation/Supporting RZ ZSK rollover

i) The RZ KSK Holder shall authenticate the source and integrity of RZ ZSK public key material
(1) Mechanisms must support proof of possession and verify the parameters (i.e., the RSA exponent)
ii) The signature on the root zone's DNSKEY record shall be generated using SHA-256.

f) Audit Generation and Review Procedures

i) Designated Audit personnel may not participate in the multi-person control for the RZ ZSK or RZ KSK.
ii) Audit logs shall be backed up offsite at least monthly.
iii) Audit logs (whether onsite or offsite) shall be protected from modification or deletion.
iv) Audit logs shall be made available upon request for Department review.

8) RZ KSK Public Key Distribution

a) The RZ KSK public key(s) shall be distributed in a secure fashion to preclude substitution attacks.
b) Each mechanism used to distribute the RZ KSK public key(s) shall either
i) Establish proof of possession of the RZ KSK private key (for public key distribution); or
ii) Establish proof of possession of the previous RZ KSK private key (for Root zone key rollover).

9) RZ Zone Signing Key (RZ ZSK) Holder[16]

The Root Zone ZSK Holder (RZ ZSK) is responsible for (1) generating and protecting the private component of the RZ ZSK(s); (2) securely exporting or importing any public key components, should this be required and (3) generating and signing Zone File Data in accordance to the DNSSEC

[16] The RZ ZSK holder is a function performed by the Root Zone Maintainer, NOT the IANA Functions Operator.

specifications.

a) Cryptographic Requirements

i) The RZ ZSK key pair shall be an RSA key pair, with a modulus of at least 1024 bits.[17]
ii) RSA key generation shall meet the requirements specified in FIPS 186-3.[18] In particular, key pair generation shall meet the FIPS 186-3 requirements for exponent size and primality testing.
iii) RZ ZSK Digital Signatures shall be generated using SHA-256.
iv) The RZ ZSK private key(s) shall be generated and stored on a FIPS 140-2 compliant HSM. At a minimum, the HSM shall be validated at Level 4 overall.
v) All cryptographic functions involving the private component of the RZ ZSK shall be performed within the HSM; that is, the private component shall not be exported from the HSM except for purposes of key backup.

b) Multi-Party Control

i) Activation of the RZ ZSK shall require at least two-person control. This requirement may be satisfied through a combination of physical and technical controls.
ii) If the RZ ZSK private key(s) are backed up, they shall be backed up and stored under at least two-person control. Backup copies shall be stored on FIPS 140-2 validated HSM, validated at Level 4 overall.[19]

(1) Backup copies shall be maintained both onsite and offsite[2020], with physical and procedural controls commensurate to that of the operational system.
(2) The names of the parties participating in multi-person control shall be maintained on a list and made available for inspection during compliance audits.

c) Contingency Planning

i) Procedures for recovery from failure of the operational HSM containing the RZ ZSK shall be designed to re-establish the capability to sign the zone within 2 hours.
ii) Procedures for emergency rollover of the RZ ZSK shall be designed to achieve key rollover within a technically feasible timeframe as mutually agreed among the Department, Root Zone Maintainer, and the IANA functions operator. These procedures must accommodate the following scenarios:
(1) The current RZ ZSK has been compromised; and
(2) The current RZ ZSK is unavailable (e.g. destroyed), but is not believed to be compromised.

d) Root Zone ZSK Rollover

[17] Note that these requirements correspond to those articulated in NIST SP 800-78 for authentication keys. Since there is no forward security requirement for the DNSSEC signed data, the more stringent requirements imposed on long term digital signatures do not apply.
[18] Note that FIPS 186-3 and FIPS 140-2 are referenced as requirements in sections 8a and 8 b, rather than as supplemental guidance.
[19] Note that FIPS 186-3 and FIPS 140-2 are referenced as requirements in sections 8a and 8 b, rather than as supplemental guidance.
[20] The CSC expects backup locations to be within the United States.

i) The RZ ZSK shall be rolled over every six months at a minimum.[21]
ii) DNSSEC users shall be able to authenticate the source and integrity of the new RZ ZSK using the previously trusted RZ ZSK's public key.
iii) RZ KSK holder shall be able to authenticate the source and integrity of the new RZ ZSK.

e) Audit Generation and Review Procedures

i) Designated Audit personnel may not participate in the control for the RZ ZSK or RZ KSK.
ii) Audit logs shall be backed up offsite at least monthly.
iii) Audit logs (whether onsite or offsite) shall be protected from unauthorized access, modification, or deletion.
iv) Audit logs shall be made available upon request for CSC review.

Other Requirements

10) Transition Planning

a) The IANA Functions Operator and Root Zone Maintainer shall have plans in place for transitioning the responsibilities for each role while maintaining continuity and security of operations. In the event the IANA Functions Operator or Root Zone Maintainer are no longer capable of fulfilling their DNSSEC related roles and responsibilities (due to bankruptcy, permanent loss of facilities, etc.) or in the event the [TBD - Department] selects a successor, that party shall ensure an orderly transition of their DNSSEC roles and responsibilities in cooperation with the Department.[22]

11) Personnel Security Requirements

a) Separation of Duties

i) Personnel holding a role in the multi-party access to the RZ KSK may not hold a role in the multi-party access to the RZ ZSK, or vice versa.
ii) Designated Audit personnel may not participate in the multi-person control for the RZ ZSK or KSK.
iii) Audit Personnel shall be assigned to audit the RZ KSK Holder or the RZ ZSK Holder, but not both.

b) Security Training

i) All personnel with access to any cryptographic component used with the Root Zone Signing process shall have adequate training for all expected duties.

12) Root Zone Maintainer Basic Requirements

a) Ability to receive NTIA authorized TLD Resource Record Set (RRset) updates from NTIA and IANA Functions Operator

[21] The timelines specified in this document apply to the operational system. Subsequent test plans may specify more or less frequent RZ ZSK rollover to ensure adequate testing.
[22] For the IANA Functions Operator, the transition plan shall be incorporated into that which is called for in Section III.A.1.4.3.15 of the CWG transition proposal.

b) Ability to integrate TLD RRset updates into the final zone file
c) Ability to accept NTIA authorized signed RZ keyset(s) and integrate those RRsets into the final zone file

13) IANA Functions Operator Interface Basic Functionality

a) Ability to accept and process TLD DS records. New functionality includes:
   i) Accept TLD DS RRs

      (1) Retrieve TLD DNSKEY record from the TLD, and perform parameter checking for the TLD keys, including verify that the DS RR has been correctly generated using the specified hash algorithm.

   ii) Develop with, and communicate to, TLD operators procedures for:

      (1) Scheduled roll over for TLD key material

      (2) Supporting emergency key roll over for TLD key material.
      (3) Moving TLD from signed to unsigned in the root zone.
b) Ability to submit TLD DS record updates to NTIA for authorization and inclusion into the root zone by the Root Zone Maintainer.
c) Ability to submit RZ keyset to NTIA for authorization and subsequent inclusion into the root zone by the Root Zone Maintainer.

14) Root Zone Management Requirements[23]

a) Ability and process to store TLD delegations and DS RRs
b) Ability and process to store multiple keys for a delegation with possibly different algorithms
c) Ability and process to maintain a history of DS records used by each delegation
d) Procedures for managing scheduled roll over for TLD key material
e) Procedures for managing emergency key roll over for TLD key material.[24]
f) Procedures for managing the movement of TLD from signed to unsigned.[2525]
g) Procedures for DNSSEC revocation at the root zone and returning the root zone to its pre-signed state.

[23] The CSC envisions the IANA Functions Operator and Root Zone Maintainer jointly agree to utilizing pre-existing processes and/or deciding and proposing new methods by which each of these requirements are designed and implemented, subject to CSC approval.
[24] To the extent possible, on 24 hour notice under the existing manual system and on 12 hours notice once the automated system is utilized.
[25] To the extent possible, this must be within 48 hours.