[Version: 3]

**Although just one of three operational communities served by the IANA contract, the Names community presents the most complex set of issues and requirements.**

**A large, and growing, number of companies and organizations are reliant on services provided by IANA for their very presence on the Internet. To the individual organization, these services are critical yet infrequent; in the whole, they represent the single most significant connection between the global network and Internet users.**

**In large part IANA performs a checking function to the Names community. Much of the work is *pro forma*. However due to the inherent complexities of names, which have diverse and culturally specific meanings, those functions do not lend themselves well to a general set of rules or precise processes.**

**Within the Names community are a number of sub-groups that have the same broad requirements and relationship to both IANA and current operator of the IANA contract, ICANN. However these groups have marked differences between them.**

**It is important for the overall stability of the Internet that each group, regardless of its size, is able to approach and use the IANA functions on its own terms. As such, the Names community comes with a number of related but varied proposals for the IANA contract transition.**

**Community use of IANA functions**

The Naming community incorporates a number of different groups, each with its own needs and requirements. These differences are significant enough that within the Domain Name System industry, they have their own representatives, organizations, meetings, policy processes and are almost always referred with different prefixes.

The most significant division comes in the form of "country code" top-level domains (ccTLDs) and "generic" top-level domains (gTLDs).

In large part, the ccTLDs, which as the "country code" name implies are representative of individual countries, are autonomous both within global Internet bodies and their own group. Each ccTLD is in a position to develop its own policies and as a result, many of the decisions made about the functioning of the ccTLD are culturally specific. It is a requirement that a ccTLD's Administrative Contract reside in the country or territory associated with that ccTLD.

That is not to say all ccTLDs are different: in many cases, information sharing between them has led to large numbers adopting similar approaches to a multitude of different issues. However, each ccTLD will insist on its right to decide upon and develop its own approach.

The situation is very different with generic top-level domains. The operators of gTLDs are, almost without exception, bound by a single set of policies that are developed collectively within ICANN. An operator's rights to a specific gTLD are also designated by ICANN.

These fundamental differences between ccTLDs and gTLDs impact not only the use of IANA functions but also the relationship and underlying understanding of the role of IANA and its contractor, ICANN. Where there may be opportunities to simplify processes for gTLDs given the tight relationship between a gTLD operator, the IANA functions and ICANN, such simplification would be anathema to a ccTLD community that has consistently rejected a contractual relationship with ICANN.

Within the ccTLD and gTLD groupings, there are a number of significant sub-groups whose main characteristics are unlikely to change and so must be considered equally.

While the ccTLDs were originally developed with reference to an international standard for two-letter representations for countries[[1]](#footnote-1), in recent years a number of new top-level domains have been introduced that represent local-language versions of a country's online namespace[[2]](#footnote-2). These "internationalized" names, or 'IDN ccTLDs' have broadly adopted the same legal and philosophical approach as other ccTLDs (particularly in terms of autonomy from IANA and ICANN). However they can also present unique issues due to their non-Latin-language nature.

Within the ccTLDs, there are also two broad groups of operators who, for cultural or historical reasons, are either happy to collectively organize, or who continue to insist on a large degree of individual autonomy[[3]](#footnote-3).

In pragmatic terms, the more autonomous a top-level domain operator wishes to be, the less willing they will be to accept changes to the current IANA arrangements without adequate consultation and additional safeguards.

Within the gTLD community, there are subtle differences that may need to be accounted for. For example, a specific category of 15 top-level domains, so-called "sponsored" top-level domains (sTLDs), were created between 2001-2002 that have different contractual agreements with ICANN as well as different policy processes. Likewise, in the current wave of gTLD additions under the "new gTLD" program, there are a number of subtly different categories, from community-based applications, to so-called "brand" applications that will exert greater control over their domains, to applications that have agreed to stricter registration requirements either after pressure from governments or in order to differentiate themselves in the market.

While many of these variations are unlikely to impact day-to-day IANA functions, the fact that IANA is often required to check changes against specifically agreed policies, any transitional arrangements would need to account for such complexities.

**List of IANA functions used by the Naming communities**

The table below uses a key part of the existing IANA contract[[4]](#footnote-4) to identify functions and direct customers, split between ccTLD and gTLD operators[[5]](#footnote-5). A CWG number has be given to each to identify the function in the rest of the document:

| **Contract** | **CWG** | **Function** | **ccTLDs** | **gTLDs** |
| --- | --- | --- | --- | --- |
| C.2.9.2 | 1 | Perform Administrative Functions Associated With Root Zone Management | Yes | Yes |
| a | 2 | Root Zone File Change Request Management | Yes | Yes |
| b | 3 | Root Zone “WHOIS” Change Request and Database Management | Yes | Yes |
| c | 4 | Delegation and Re-delegation of a Country Code Top Level -Domain (ccTLD) | Yes | No |
| d | 5 | Delegation and Re-delegation of a Generic Top Level Domain (gTLD) | No | Yes |
| e | 6 | Root Zone Automation | Yes | Yes |
| f | 7 | Root Domain Name System Security Extensions (DNSSEC) Key Management | Yes | Yes |
| g | 8 | Customer Service Complaint Resolution Process (CSCRP) | Yes | Yes |

Note: the key aspect in terms of use here is that there are separate processes for selecting or changing the operator of a ccTLD or gTLD, developed due to the fundamental differences between the two, as noted earlier.

There are a number of additional functions and services that are not listed in the NTIA services contract but which are used by the Names communities. The table below outlines them: [Note: this remains a work in progress.]

| **CWG** | **Function** | **ccTLDs** | **gTLDs** |
| --- | --- | --- | --- |
| 9 | Repository of IDN Practices[[6]](#footnote-6) | Yes | Yes |
| 10 | Retirement of ccTLD codes | Yes | No |
| 11 | Revocations of ccTLD delegations | Yes | No |
| 12 | IANA reports in Delegations, Transfers, revocations and retirement | Yes | No |

**Description of Functions**

1: Perform Administrative Functions Associated With Root Zone Management

The "root zone" is the highest level of the domain name system and lists all of the top-level domains available under that system, complete with associated technical details.

There are a range of different details that each operator can provide with respect to their top-level domain (TLD)[[7]](#footnote-7), although as a bare minimum they must provide two name server (NS) addresses, which provide details to all the domains underneath that TLD e.g., 'example.com', and a glue record (A) that provides a machine-readable IP address for the same servers.

In addition, TLD operators provide details over who to contact if there are any issues, security details such as "signing keys" that are used to verify that the data is coming from the right person, and the name(s) of those authorized to make changes to these details.

IANA is responsible (among other root zone tasks[[8]](#footnote-8)) for keeping this data up to date and making the relevant parts of it available continuously all of the time.

The process by which new top-level domains are added to the root zone, and changes are made to existing TLDs is a three-stage process, with each stage currently operated by a different entity. If a TLD operator wishes to make a change, this is the process followed[[9]](#footnote-9):

1. It is sent to the IANA functions Operator (ICANN). The request is validated (does it come from the right person?) and checked (does it fit with the TLD's policy?). If all is fine, the request is sent on to the root zone Administrator.
2. The Administrator (US government) reviews the request to make sure the IANA functions operator has done its job properly and then authorizes it. The request is then sent to the root zone Maintainer.
3. The Maintainer (Verisign) checks that the request is technically correct, for example that a new name server is actually online, and then makes the change to the root zone itself. Once done, a notification is sent to the Operator.

This process is carried out through two separate contracts: between the Operator and the Administrator; and between the Administrator and the Maintainer.

2: Root Zone File Change Request Management

This is the process by which changes are made to the root zone (see function 1 above for more detail). For an existing top-level domain, the majority of requests will come in the form of an update of existing information, such as the address for a new name server (and its corresponding 'glue record'). This is reflected in the "root zone file" that lists all top-level domains.

Sometimes, there are changes to the person that is authorized to make future changes as in the case of someone moving jobs or changing responsibilities. There are reflected in the 'Whois' listings which provide the contact details for each TLD operator[[10]](#footnote-10). Occasionally there are minor technical changes such as how frequently a TLD file is updated.

Recently the two most significant *additions* to the root zone file have been the creation of "signing keys" for existing registries due to the implementation of the security protocol DNSSEC on individual top-level domains, and the creation of entire new top-level domains as ICANN's new gTLD process has become a reality. In 2014 so far (up to 25 October), there have been over 400 new top-level domains added to the root zone.

3: Root Zone “WHOIS” Change Request and Database Management

Although this is listed as a separate function in the current IANA contract, in reality it is no more than part of function 2: managing change requests from TLD operators.

The Whois comprises contact details for each TLD operator, including: the TLD name and creation date; its primary and secondary name servers; the name, postal and email address, and telephone and fax numbers for its administrative and technical contacts; and when the record was last updated.

C.2.9.2.c Delegation and Re-delegation of a Country Code Top Level-Domain (ccTLD)

The IANA applies existing policies and guidelines in processing requests related to the delegation and re-delegation 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 or guidelines by interested and affected parties as enumerated in Section C.1.3 of the Contract between NTIA and ICANN to perform IANA functions (such as the ccNSO’s FOIWG recommendations on interpretation). If a policy framework does not exist to cover a specific instance, the IANA will consult with the interested and affected parties, as enumerated in Section C.1.3 of the Contract between NTIA and ICANN to perform IANA functions; relevant public authorities; and governments and other significantly interested parties on any recommendation that is not within or consistent with an existing policy framework. In making its recommendations, the IANA shall also take into account the relevant national frameworks and applicable laws of the jurisdiction that the TLD registry serves.

C.2.9.2d Delegation and Re-delegation of a Generic Top Level Domain (gTLD)

The IANA verifies that all requests related to the delegation and re-delegation of gTLDs are consistent with the procedures developed by ICANN. In making a delegation or re-delegation recommendation, the 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.

C.2.9.2.e Root Zone Automation

The IANA is required to work with NTIA and the Root Zone Maintainer, and collaborate with all interested and affected parties as enumerated in Section C.1.3 of the Contract between NTIA and ICANN to perform IANA functions, to deploy a fully automated root zone management system. 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.

C.2.9.2.f Root Domain Name System Security Extensions (DNSSEC) Key Management

The IANA is 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 of the Contract between NTIA and ICANN to perform IANA functions, Baseline Requirements for DNSSEC in the Authoritative Root Zone. The IANA shall work collaboratively with NTIA and the Root Zone Maintainer, in the performance of this function.

C.2.9.2.g Customer Service Complaint Resolution Process (CSCRP)

The IANA works with NTIA and collaborates with all interested and affected parties as enumerated in Section C.1.3 of the Contract between NTIA and ICANN to perform IANA functions to establish and implement a process for IANA function customers to submit complaints for timely resolution that follows industry best practice and includes a reasonable timeframe for resolution.

Other

Management of the Repository of IDN Practices (also for gTLDs)?

IANA maintains a collection of “IDN tables”, which represent permitted code points (letters) allowed for Internationalised Domain Name registrations in particular registries such as IDN ccTLDs and gTLDs.

Retirement of ccTLD codes

The ISO3166-1 list is a dynamic list which follows international political changes with respect to country and territory names being added or modified or being retired (The Dissolution of Czechoslovakia, which took effect on 1 January 1993, was an event that saw the self-determined split of the federal state of Czechoslovakia into the Czech Republic and Slovakia). As such IANA oversaw the Retirement of the .CS country code from active use (although currently there is no official ICANN policy for the retirement of ccTLDs this action was completed based on a specific motion of the ICANN Board).

Revocation of ccTLD delegations

The Framework of Interpretation Working Group (FOIWG) of the ccNSO has interpreted Revocation to mean (section 3.5 of RFC1591) to refer to the process by which the IANA Operator rescinds responsibility for management of a ccTLD from an incumbent manager. Although revocations are a rare occurrence they do exist as in the case of .UM which currently has the status ‘not assigned’.

Publishing IANA Reports for Delegations, Transfers, revocations and retirement

Although one could argue that this service is covered in other items it is of critical importance to the ccTLD community because of the variability of IANA/ICANN decisions when it comes to ccTLD delegations and transfers. In many cases the only publicly available details regarding the delegation or transfer of a ccTLD beyond the WHOIS database is the IANA Report.

**I.c Registries Involved in Providing the Functions**

The registries involved in providing the functions are: Root Zone File and Root Zone Whois databse.

**I.d Overlaps or interdependencies between IANA requirements and other customer community functions**

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.

**II. Existing, Pre-Transition Arrangements**

The information in this section varies for ccTLDs and gTLDs so it is presented separately for each.

**II.A Policy Sources**

**ccTLDs**

(This is being written.)

**gTLDs**

The specific source(s) of policy for gTLDs which must be followed by the IANA functions operator in its conduct of the services or activities described in Section I above are shown in the following tables along with the services performed by the IANA functions operator and NTIA and the associated IANA functions. Steps done by NTIA and IANA are highlighted in blue and green respectively.

1. **Delegation and Re-delegation of gTLDs**

| **Step #** | **Process Step Description** | **Currently Done by** | **IANA Functions** |
| --- | --- | --- | --- |
| 1.a | Development of Consensus Policies for gTLDs | GNSO |  |
| 1.b | Approval of Consensus Policies for gTLDs | ICANN Board |  |
| 1.c | Implementation of Consensus Policies for gTLDs including: | ICANN Staff & GNSO |  |
| 1.c.i | Finalization of the Registry Agreement, including terms for delegation, re-delegation and modification of name server and contact information for gTLDs | ICANN Staff, ICANN Board & GNSO |  |
| 1.c.ii | Approval of gTLDs for delegation | ICANN Staff |  |
| 1.c.iii | Execution of Registry Agreements | ICANN Staff & gTLD Registry Operators |  |
| 1.d | Pre-delegation testing of approved gTLDs with an executed agreement | ICANN Staff & gTLD Registry Operators |  |
| 1.e | Request for delegation by registry operators or by ICANN in the case of an EBERO action | Registry Operators or ICANN |  |
| 1.f | Verification that process, policy and technical checks were successfully confirmed | IANA & NTIA | C.2.9.2.a, d, e, f, & g |
| 1.g | Approval of delegation of gTLDs | NTIA |  |
| 1.h | Delegation/re-delegation of gTLDs into the root | Root Zone Maintainer |  |
| 1.i | Updating Root-Zone Whois | IANA | C.2.9.2.b, e & g |

1. **Modification of Root Zone File**

| **Step #** | **Process Step Description** | **Currently Done by** | **IANA Functions** |
| --- | --- | --- | --- |
| 2.a | Submission of modification request | gTLD Registry Operator |  |
| 2.b | Validation of the change request | ICANN Staff |  |
| 2.c | Verification of compliance with established policies and procedures | IANA & NTIA | C.2.9.2.b, e & g |
| 2.d | Implementation of the modification in the root zone file if applicable | Root Zone Maintainer |  |
| 2.e | Updating Root-Zone Whois | IANA | C.2.9.2.b, e & g |

(Descriptions and links to relevant sources will be added for each of the steps later.)

**Description of gTLD Policy Development & Implementation Processes**

The following table lists documents that provide descriptions of each of the above processes along with URL links to those documents. Note that references for implementation of gTLD policies are for the current round of new gTLDs. Also note that a GNSO Working Group is presently underway regarding Policy and Implementation, which may impact how policies are implemented in the future.

| **Step #** | **Process Step Description** | **Reference(s)** | **URL Link** |
| --- | --- | --- | --- |
| 1.a | Development of Consensus Policies for gTLDs | ICANN Bylaws, Annex A | <https://www.icann.org/resources/pages/bylaws-2012-02-25-en#AnnexA>  |
| 1.b | Approval of Consensus Policies for gTLDs | Section 9 of Bylaws, Annex A | See link above |
| 1.c | Implementation of Consensus Policies for gTLDs including: | Section 10 of Bylaws, Annex A | See link above |
| 1.c.i | Finalization of the Registry Agreement, including terms for delegation, re-delegation and modification of name server and contact information for gTLDs | New gTLD Applicant Guidebook, Module 5, Section 5.1 | <http://newgtlds.icann.org/en/applicants/agb>  |
| 1.c.ii | Approval of gTLDs for delegation | Same as for 1.c.i | Same as for 1.c.i |
| 1.c.iii | Execution of Registry Agreements | Same as for 1.c.i | Same as for 1.c.i |
| 1.d | Pre-delegation testing of approved gTLDs with an executed agreement | New gTLD Applicant Guidebook, Module 5, Section 5.2 | Same as for 1.c.i |
| 1.e | Request for delegation by registry operators or by ICANN in the case of an EBERO action | New gTLD Applicant Guidebook, Module 5, Section 5.2 | Same as for 1.c.i |
| 1.f | Verification that process, policy and technical checks were successfully confirmed | IANA Functions Contract Sections C.2.9.2, C.2.9.2.a, & C.2.9.2.d | <http://www.ntia.doc.gov/files/ntia/publications/sf_26_pg_1-2-final_award_and_sacs.pdf>  |
| 1.g | Approval of delegation of gTLDs | IANA Functions Contract Section C.2.9.2.d | Same as 1.f |
| 1.h | Delegation/re-delegation of gTLDs into the root | IANA Functions Contract Sections C.2.9.2.d & C.2.9.2.f | Same as 1.f |
| 1.i | Updating Root-Zone Whois | IANA Functions Contract Section C.2.9.2.b | Same as 1.f |
| 2.a | Submission of modification request | IANA Functions Contract Sections C.2.9.2, C.2.9.2.a, & C.2.9.2.b  | Same as 1.f |
| 2.b | Validation of the change request | IANA Functions Contract Section C.2.9.2.b | Same as 1.f |
| 2.c | Verification of compliance with established policies and procedures | IANA Functions Contract Section C.2.9.2.b | Same as 1.f |
| 2.d | Implementation of the modification in the root zone file if applicable | IANA Functions Contract Section C.2.9.2.b | Same as 1.f |
| 2.e | Updating Root-Zone Whois | IANA Functions Contract Section C.2.9.2.b | Same as 1.f |

**Description of Policy Dispute Resolution Processes**

**ccTLDs**

(This is being written.)

**gTLDs**

The table below lists the dispute resolution processes for each of the process steps for gTLDs along with associated URL links as applicable.

(This will be completed later.)

| **Step #** | **Process Step Description** | **Disupute Resoluiton Process** | **URL Link** |
| --- | --- | --- | --- |
| 1.a | Development of Consensus Policies for gTLDs |  |  |
| 1.b | Approval of Consensus Policies for gTLDs |  |  |
| 1.c | Implementation of Consensus Policies for gTLDs including: |  |  |
| 1.c.i | Finalization of the Registry Agreement, including terms for delegation, re-delegation and modification of name server and contact information for gTLDs |  |  |
| 1.c.ii | Approval of gTLDs for delegation |  |  |
| 1.c.iii | Execution of Registry Agreements |  |  |
| 1.d | Pre-delegation testing of approved gTLDs with an executed agreement |  |  |
| 1.e | Request for delegation by registry operators or by ICANN in the case of an EBERO action |  |  |
| 1.f | Verification that process, policy and technical checks were successfully confirmed |  |  |
| 1.g | Approval of delegation of gTLDs |  |  |
| 1.h | Delegation/re-delegation of gTLDs into the root |  |  |
| 1.i | Updating Root-Zone Whois |  |  |
| 2.a | Submission of modification request |   |  |
| 2.b | Validation of the change request |  |  |
| 2.c | Verification of compliance with established policies and procedures |  |  |
| 2.d | Implementation of the modification in the root zone file if applicable |  |  |
| 2.e | Updating Root-Zone Whois |  |  |

**II.B Oversight and Accountability**

(To be added, including references.)

(RFP Instructions: This section should describe all the ways in which oversight is conducted over the IANA functions operator’s provision of the services and activities listed in Section I and all the ways in which the IANA functions operator 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 functions (identified in Section I) are 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.)

1. ISO 3166-1. Examples being "DE" for Germany (Deutschland) and "US" for United States. Note: there are also a number of exceptions and historical oddities such as the use of "UK" for United Kingdom, rather than "GB" for Great Britain. [↑](#footnote-ref-1)
2. Examples being  السعودية ('Al-Saudiah' in Arabic, for Saudi Arabia) and 中国 (Zhōngguó, the most common name for China) [↑](#footnote-ref-2)
3. For example, while there are 248 ccTLDs (not including IDN ccTLDs), the main organizing body for ccTLDs within ICANN, the country code Names Supporting Organizations (ccNSO), has 152 members (just under 60 percent of all ccTLDs). [Information accurate on 24 October 2014.] [↑](#footnote-ref-3)
4. Between the NTIA and ICANN and found at: <http://www.ntia.doc.gov/files/ntia/publications/sf_26_pg_1-2-final_award_and_sacs.pdf> [↑](#footnote-ref-4)
5. It is fully recognized that indirect customers of the IANA functions are very important but they are not listed in the table to conserve space. [↑](#footnote-ref-5)
6. See https://www.iana.org/domains/idn-tables [↑](#footnote-ref-6)
7. See a list of DNS record types here: http://en.wikipedia.org/wiki/List\_of\_DNS\_record\_types [↑](#footnote-ref-7)
8. The three key public files can be found here: https://www.iana.org/domains/root/files [↑](#footnote-ref-8)
9. The NTIA's official graphic for this process can be found at: http://www.ntia.doc.gov/legacy/DNS/CurrentProcessFlow.pdf [↑](#footnote-ref-9)
10. These 'Whois' details can be found online, either through IANA's Whois search box at *https://www.iana.org/whois* or its Root Database file at *http://www.iana.org/domains/root/db* [↑](#footnote-ref-10)