

Draft Response to the Internet Coordination Group Request for Proposals on IANA from the RIR community

0. Proposal type

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

Names

Numbers

Protocol Parameters

I. Description of Community's Use of 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(s) 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*

The Regional Internet Registries (RIRs) manage the registration and distribution of Internet number resources (IPv4 and IPv6 addresses and Autonomous System Numbers) to members within their service regions. The five RIRs in operation at this point in time are:

AFRINIC	Serving Africa	Founded in 2005
APNIC	Serving the Asia Pacific region	Founded in 1993
ARIN	Serving North America	Founded in 1997
LACNIC	Serving South America and the Caribbean	Founded in 2001
RIPE NCC	Serving Europe, Central Asia and the Middle East	Founded in 1992

The five Regional Internet Registries (RIRs) have a long-standing and straightforward operational relationship with IANA. IANA maintains the global pools of Internet number resources from which the RIRs receive allocations to distribute to their communities. The RIRs also coordinate with IANA to correctly register any resources that are returned to the global pools. Collectively, the system for administering Internet number resources is referred to as the "Internet Number Registry System" and is described in detail in RFC 7020.

The specific registries that are administered by the IANA per the authority delegated to the Internet Number Registry System are "Autonomous System (AS) Numbers", "IANA IPv4 Address Space Registry", and "IPv6 Global Unicast Address Assignments". Note that within each IANA registry, there are also special-purpose values, and those special-purpose values are outside the Internet Numbers Registry System and instead administered under the direction of the IETF. The delineation of the specific ranges delegated to the Internet Number Registry system is provided in RFC 7249.

The five open regional RIR communities develop the global policies under which allocations from the IANA-managed pools are made. The RIRs facilitate the open, transparent and bottom-up processes via which the communities develop and agree these policies. There are currently three global policies relating to management of the global pools of IPv4 addresses, IPv6 addresses and AS Numbers. There is a fourth global policy agreed by the RIR communities, ICP-2, "Criteria for Establishment of New Regional Internet Registries".

The global Internet community also depends upon the IANA operator for administration of the special-purpose "IN-ADDR.ARPA" and "IPv6.ARPA" DNS zones which is associated with IPv4 and IPv6 number resources respectively. It is the understanding of the Regional Internet Registry community that the IANA operator administers these zones per request of the Internet Architecture Board ("IAB")³ as "agreed technical work items" per the IETF- ICANN IANA MOU.

Relevant links:

IETF-ICANN MoU Concerning the Technical Work of the Internet Assigned Numbers Authority: <https://www.icann.org/resources/unthemed-pages/ietf-icann-mou-2000-03-01-en>
"The Internet Numbers Registry System", RFC 7020: <https://tools.ietf.org/html/rfc7020>
"Internet Numbers Registries", RFC 7249: <https://tools.ietf.org/html/rfc7249>

II. Existing, Pre-Transition Arrangements

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

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.*

The policies under which the IANA operator manages the global pools of Internet number resources (excluding those address ranges reserved by the IETF for specific technical purposes) are developed and agreed by the five RIR communities via open, transparent and bottom-up policy development processes. Each RIR community engages in its own regional policy development process – these processes are open to all stakeholders regardless of specific background or interest.

A global policy relating to the operation of the IANA function must be discussed in all five regions, with consensus agreement on the same policy text in all five communities. Each regional community has a distinct Policy Development Process (PDP), and a global policy proposal must progress through each of these regional PDPs to reach consensus. Links to each of the five regional PDPs are included under in the **RIR Governance Matrix** published on the NRO website.

The global Policy Development Process (gPDP) is formally described in "Attachment A" of the **ICANN Address Supporting Organization Memorandum of Understanding (ASO MoU)**, signed by ICANN and the RIRs in 2004 (and signed by AFRINIC when it was established as the fifth RIR in 2005). This MoU includes provisions for resolving disputes between ICANN and the RIRs or their communities. It is important to note that while the gPDP allows for the ICANN Board to dispute the outcome of a consensus community decision (escalating to mediation between ICANN and the RIRs), it does not include any role for the IANA contract holder (currently the NTIA). The ASO MoU is an agreement between the RIR communities and ICANN, as the IANA functions operator; NTIA has no oversight role in policy-making as regards management of the global Internet number resource pools, and its transition out of its current role would have minimal effect on the policy-making framework.

A separate MoU, the **Number Resource Organization MoU (NRO MoU)**, establishes the NRO as "a coordinating mechanism of the RIRs to act collectively on matters relating to the interests of the RIRs", and includes provisions for dispute resolutions between RIRs on issues relating to global policy development or implementation.

It is the responsibility of the **Number Resource Organization (NRO) Number Council**, a group comprising three community members selected by each of the five communities, to confirm that the documented RIR PDPs have been followed in the development and approval of a new policy or policy change. Further, this group reviews the policy followed by each of the RIR communities to assure itself that the significant viewpoints of interested parties were adequately considered, and only after this confirmation does it then consider forwarding global policy proposals to the ICANN Board for ratification.

The NRO Number Council also acts in the role of the **ICANN Address Supporting Organization Address Council**, and as such, presents the agreed global policy proposal to the ICANN Board for ratification and operational implementation.

The ICANN Board reviews the received global number resource policy proposals and may ask questions and otherwise consult with the ASO Address Council and/or the individual RIRs acting collectively through the NRO. The ICANN Board may also consult with other parties as the Board considers appropriate. If the ICANN Board rejects the proposed policy, it delivers to the ASO Address Council a statement of its concerns with the proposed policy, including in particular an explanation of the significant viewpoints that were not adequately considered during the regular RIR processes. By agreement of all RIRs, the ASO Address Council may

forward a new proposed policy (either reaffirming the previous proposal or a modified proposal) to the ICANN Board. If the resubmitted proposed policy is rejected for a second time by ICANN, then the RIRs or ICANN shall refer the matter to mediation.

In case of disputes where mediation has failed to resolve the dispute, the ICANN ASO MoU agreement provides for arbitration via ICC rules in the jurisdiction of Bermuda or such other location as is agreed between the RIRs and ICANN. It is also worth noting that the Regional Internet Registries have been participating (as the ASO) in the periodic independent review processes for Accountability and Transparency (ATRT) that is called for per ICANN's Bylaws.

Relevant links:

ICANN ASO MoU: <https://www.nro.net/documents/icann-address-supporting-organization-aso-mou>

NRO MoU: <https://www.nro.net/documents/nro-memorandum-of-understanding>

About the NRO Number Council: <https://www.nro.net/about-the-nro/the-nro-number-council>

RIR Governance Matrix: <https://www.nro.net/about-the-nro/rir-governance-matrix>

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.*

All institutional actors with a role in management of Internet number resources are accountable to the open communities that make and agree on the policies under which those resources are distributed and registered. The mechanisms used to ensure and enforce this accountability differ for each of these actors.

1. ICANN

ICANN, as the current operator of the IANA functions, is obligated by the NTIA agreement to carry out management of the global IP address and AS Number pools according to policies developed by the communities. Administration consists predominantly of processing of requests from the Regional Internet Registries for issuance of additional number resources. The five Regional Internet Registries are intimately familiar with global number resource policies under which the requests are made and maintain communications with the IANA operations team throughout the request process. This obligation is specifically noted in section C.2.9.3 of the NTIA agreement:

*C.2.9.3 Allocate Internet Numbering Resources --The Contractor shall have responsibility for allocated and unallocated IPv4 and IPv6 address space and Autonomous System Number (ASN) space **based on established guidelines and policies as developed by interested and affected parties as enumerated in Section C.1.3.***

The NTIA agreement also lays out specific deliverables for the IANA operator (ICANN) to produce as a condition of the agreement (see "Section F – Deliveries and Performance"), including performance standards developed in cooperation with the affected parties (in the case of the Internet number resource pools, the affected parties include the RIRs and their communities), customer complaint procedures and regular performance reporting.

These deliverables are met by ICANN via monthly reporting on their performance in processing requests for the allocation of Internet number resources; these reports include IANA operator performance against key metrics of accuracy, timeliness, and transparency, as well as the performance metrics for individual requests. The IANA operations team also provides escalation procedures for use in resolving any issues with requests, as per the "IANA Customer Service Complaint Resolution Process".

While the IANA operator escalation and reporting mechanisms are public in nature, the Internet number community is primarily represented in oversight of the IANA operator performance by the Regional Internet Registries, which are member-based based organizations with elected governance boards.

There is no contractual obligation directly to the Internet number resource community for the IANA operator to provide IANA registry services for the Internet number registries; IANA services for the Internet number registries are provided by ICANN since its formation as a result of the NTIA IANA Functions contract and hence IANA services for the Internet number registries are presently subject to change per that agreement.

The ultimate consequence of failing to meet the performance standards or reporting requirements is understood to be a decision by the contracting party (the NTIA) to terminate or not renew the IANA functions agreement with the current contractor (ICANN). Jurisdiction for this current mechanism is in the United States of America under applicable Federal government contracting laws and regulations.

2. The Regional Internet Registries

The five Regional Internet Registries (RIRs) manage the distribution and registration of Internet number resources at the regional level, having received blocks of unused resources from the global pools managed by the IANA operator. The RIRs also facilitate the policy development processes of their respective communities.

The RIRs are not-for-profit membership associations, and as such are accountable to their members by law. The specific governance processes for each RIR differ depending on where they have been established and the decisions made by their membership, but in all RIRs, members have the right to vote individuals onto the governing Board and to vote on specific funding or operational resolutions.

At the same time, an RIR's registration and allocation practices are directed by policies developed by its community. Each RIR community's Policy Development Process defines how these policies are developed, agreed and accepted for operational implementation.

The corporate governance documents and Policy Development Processes of each RIR and its community are accessible via the RIR Governance Matrix, published on the NRO website.

Relevant links:

NTIA IANA Agreement: <http://www.ntia.doc.gov/page/iana-functions-purchase-order>

ICANN ASO MoU: <https://www.nro.net/documents/icann-address-supporting-organization-aso-mou>

NRO MoU: <https://www.nro.net/documents/nro-memorandum-of-understanding>

IANA Customer Service Complaint Resolution Process: <http://www.iana.org/help/escalation-procedure>

IANA Performance Standards Metrics Report:

<http://www.iana.org/performance/metrics>

RIR Governance Matrix: <https://www.nro.net/about-the-nro/rir-governance-matrix>

III. Proposed Post-Transition Oversight and Accountability Arrangements

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.

A decision by the NTIA to discontinue its stewardship of the IANA functions, and therefore its contractual relationship with the IANA functions operator, would not have any significant impact on the continuity of Internet number-related IANA services currently provided by ICANN or the ongoing community processes for development of policies relating to those services. However, it would remove a significant element of oversight from the current system.

The following is a proposal to replace the current NTIA IANA agreement with a new contract that more directly reflects and enforces the IANA functions operator's accountability to the open, bottom-up numbers community.

The Internet numbering community proposes that a new contract be established between the IANA functions operator and the five Regional Internet Registries (RIRs). The contract, essentially an **IANA Service Level Agreement**, would obligate the IANA functions operator to carry out those IANA functions relating to the global Internet number pools according to policies developed by the regional communities via the global Policy Development Process (gPDP). The agreement would include specific requirements for performance and reporting commensurate with current mechanisms, and would specify consequences should the contractor fail to meet those requirements, the means for the resolution of disputes between the parties, and the terms for renewal or termination of the contract. IANA operations should be reliable and consistent, with any registry changes made in an open and transparent manner to the global community. The agreement should also require the IANA operator to appropriately coordinate with any other operator of IANA-related registry services.

As noted in numerous NRO communications over the past decade, the RIRs have been very satisfied with the performance of ICANN in the role of IANA functions operator. Taking this into account, and considering the strong desires expressed in the five RIR communities' IANA stewardship discussions for stability and a minimum of operational change, the Internet numbering community believes that ICANN should remain in the role of IANA functions operator for at least the initial term of the new contract.

The processes for developing, agreeing and implementing policy relating to management of the global Internet number resource pools would require no change to accommodate this new arrangement. The text in "Attachment A" of the ICANN ASO MoU meets the current and anticipated requirements for a community-driven global policy development process. Ensuring the stability and continuity of the current global Policy Development Process is a further argument for retaining ICANN in its current role as the IANA functions operator for the immediate future.

As an additional measure of security and stability, the RIRs have documented their individual accountability and governance mechanisms, and asked the community-based Number Resource Organization Number Council (NRO NC) to undertake a review of these mechanisms and make recommendations for improvements that may be warranted given the nature of the stewardship transition for Internet number resources.

IV. Transition Implications

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.*

The intent of the proposal described above is to:

1. Minimise risks to operational continuity of the management of the Internet number-related IANA functions, and;
2. Retain the existing framework for making those policies that describe the management of the global Internet number resource pools, as this framework is already structured to ensure open, bottom-up development of such policies.

The shift from the existing contractual arrangement to another contractual arrangement (perhaps relying on a set of distinct contracts) covering the IANA functions operator's ongoing management of all the IANA functions should result in no operational change for management of the global Internet number resource pools. This will help minimise any operational or continuity risks associated with stewardship transition.

Under current arrangements, the NTIA is responsible for extending or renewing the IANA functions agreement, and setting the terms of that contract. A new contract with the five RIRs and the IANA functions operator as signatories would shift the responsibility for renewing, setting terms or terminating the contract to the RIRs, who would coordinate their decisions via the NRO Executive Council (made up of the RIR Directors and Chief Executives). Decisions made regarding the contract would be based on operational circumstances, past performance and input from open, regional communities.

By building on the existing Internet registry system (which is open to participation from all interested parties) and its structures, the proposal reduces the risk associated with creating new organizations whose accountability is unproven.

The necessary agreement proposed for IANA operation services for the Internet number registries can be established well before the NTIA target date for transition (September 2015), as there are no changes to existing service levels or reporting that are being proposed, only a change in contracting party to align with the delegated policy authority.

V. NTIA Requirements

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.

The proposal for the IANA stewardship transition for the Internet number registries builds upon the existing, successful framework used by the Internet number community today. The major characteristics of this approach include:

1. Global number policy development which is open and transparent to any and all participants
2. Continuance of existing IANA service levels, escalation processes, and reporting mechanisms
3. Maintenance of independent review and ratification for developed global Internet number resource policy
4. Continued use of periodic third-party independent reviews of accountability and transparency of processes
5. No change of the existing IANA operator for maximum stability and security of operational processes and systems
6. Accountable, member-based, globally-distributed Regional Internet Registry organizations providing routine IANA operational oversight for the Internet number registries

As a result of the approach taken (and its characteristics as outlined above), it is clear that the proposal from the Internet number community meets the stated NTIA requirements.

VI. Community Process

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.*

Steps and timeline for proposal development and links to announcements, mailing lists, and proceedings - <https://www.nro.net/nro-and-internet-governance/iana-oversight/timeline-for-rirs-engagement-in-iana-stewardship-transition-process>

Assessment of consensus level – *TBD*

Each of the five RIR communities is discussing the IANA stewardship issues via mailing lists, at their RIR meetings and in other community forums. While these discussions have been uniformly open and transparent, with all discussions archived on mailing lists and meeting records, each community has adopted a specific process of their own choosing to reach an agreed community output.

AFRINIC:

APNIC:

ARIN:

LACNIC:

RIPE:

The RIPE community agreed at the RIPE 68 Meeting in May 2014 that the development of a community position on IANA stewardship should take place in the RIPE Cooperation Working Group, and via that working group's public mailing list: <https://www.ripe.net/ripe/mail/wg-lists/cooperation>

The RIPE NCC, as secretariat for the RIPE community, also facilitated discussions on the IANA stewardship in national and regional forums across the RIPE NCC service region. Summaries of

these discussions were posted to the RIPE Cooperation Working Group mailing list and on the RIPE website:

<https://www.ripe.net/iana-discussions>

Between September and November 2014, RIPE community discussion centered around developing a set of principles reflecting the communities primary concerns in the development of an alternative IANA stewardship arrangement. These discussions are reflected in the discussions on the mailing list from that time: <http://www.ripe.net/ripe/mail/archives/cooperation-wg/>

Discussions at the RIPE 69 Meeting in November 2014 saw general community consensus on the principles discussed on the mailing list, and support expressed for the three community members selected to join the Consolidated RIR IANA Stewardship Proposal (CRISP) team.

RIPE Cooperation Working Group Session: <https://ripe69.ripe.net/programme/meeting-plan/coop-wg/#session1>

RIPE 69 Closing Plenary Session: <https://ripe69.ripe.net/archives/video/10112/>

On 16 October 2014, the NRO Executive Council proposed the formation of a Consolidated RIR IANA Stewardship Proposal (CRISP) team to develop a single Internet numbering community proposal to the IANA Stewardship Coordination Group (ICG). Each RIR community selected three members (two community members and one RIR staff) to participate in the team. The participants selected were:

AFRINIC Region

Alan P. Barrett – Independent Consultant
Mwendwa Kivuva – Network Infrastructure Services, University of Nairobi
Ernest Byaruhanga (Appointed RIR staff)

ARIN Region

Bill Woodcock – President and Research Director of Packet Clearing House
John Sweeting – Sr. Director, Network Architecture & Engineering at Time Warner Cable
Michael Abejuela (Appointed RIR staff)

APNIC Region

Dr Govind – CEO NIXI
Izumi Okutani – Policy Liaison JPNIC
Craig Ng (Appointed RIR staff)

LACNIC Region

Nico Scheper - Curacao IX
Esteban Lescano - Cabase Argentina
Andrés Piazza (Appointed RIR staff)

RIPE NCC Region

Nurani Nimpuno – Head of Outreach & Communications at Netnod
Andrei Robachevsky – Technology Programme Manager at the Internet Society
Paul Rendek (Appointed RIR staff)