Report of Public Comments

Title:	Implementing the Global Policy for Post Exhaustion IPv4 Allocation Mechanisms by the IANA
Publication Date:	17 December 2012
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Open Date:	4 October 2012	**Announcement**
Close Date:	15 November 2012	**Public Comment Box**
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Section I: General Overview and Next Steps

This consultation asked for input on how ICANN should implement the "Global Policy for Post Exhaustion IPv4 Allocation Mechanisms by the IANA" (http://www.icann.org/en/news/in-focus/global-addressing/allocation-ipv4-post-exhaustion).

ICANN asked for input on how it should publish the contents on the IPv4 Recovered Pool and the mechanism it should use when selecting the addresses to be allocated from it in each allocation period.

The input received clearly requested that the IPv4 Recovered Pool should be published in its own registry, linked from the IANA IPv4 Address Space Registry and that there should be a single query interface. Based on the feedback, ICANN will publish a new registry for the IPv4 Recovered Pool and will update the *whois.iana.org* service so that it helps ordinary Internet users find the information they want in as few steps as possible.

No substantive input was received on the approach ICANN should take to selecting the prefixes to be allocated from the Recovered IPv4 Pool. In the interests of consistency and transparency, ICANN plans to use an open-source software program to perform the address selection process and to publish the source code to the software on its IANA FTP site (ftp://ftp.iana.org).

Section II: Contributors

Organizations and Groups:

Name	Submitted by	Initials
LinuxMagic Inc.	Michael Peddemors	LMI
APNIC	Byron Ellacott	APNIC
NRO	Paul Wilson (via ICANN staff)	NRO

Individuals:

Name	Affiliation (if provided)	Initials
Nicolas Antoniello	Nicolas Antoniello	NA
Andrew Dul	Andrew Dul	AD

Section III: Summary of Comments

General Disclaimer: This section is intended to broadly and comprehensively summarize the comments submitted to this Forum, but not to address every specific position stated by each contributor. Staff recommends that readers interested in specific aspects of any of the summarized comments, or the full context of others, refer directly to the specific contributions at the link referenced above (View Comments Submitted).

- NA considered the possibility of an integrated registry with additional data showing where and when address space had been returned.
- LMI commented on research into where address space is actually being used and made a proposal for a change in allocation policy by RIRs and did not address the consultation issues.
- AD commented that a single query point was most useful for users looking for information and noted that a full listing would also be useful for others as inter-RIR transfers will continue to move address space between RIRs, as the ERX process did last decade. He also noted that it was not clear how often the allocation function would need to be performed and so suggested a human-based approach. A projection based on the current size of the pool is included below and shows 10 allocation events over a five year period.
- APNIC expressed strong support for a multiple registries approach but did not take a position on the allocation mechanism.
- The NRO supported the multiple registries approach but did not take a position on the allocation mechanism.

Section IV: Analysis of Comments

General Disclaimer: This section is intended to provide an analysis and evaluation of the comments received along with explanations regarding the basis for any recommendations provided within the analysis.
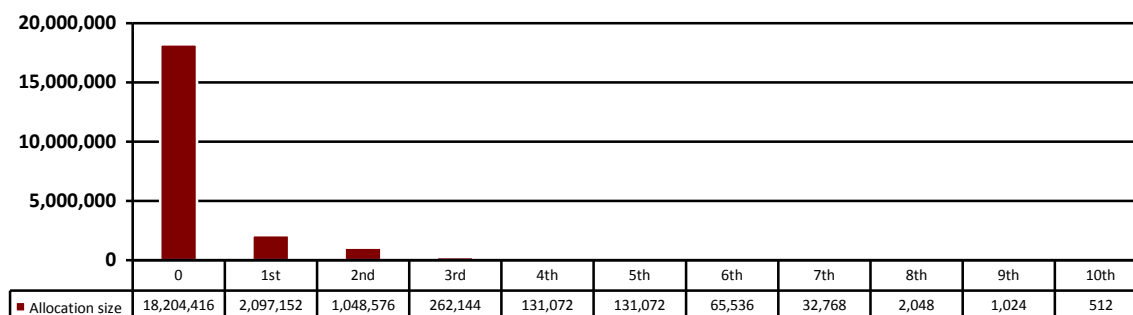
The consultation asked two questions:
- Which approach should be taken to the registration of the Recovered IPv4 Pool? and
- Which approach should be taken to selecting the prefixes to be allocated from the Recovered IPv4 Pool?

In answering the first question, the responses focused on two areas: usability for people querying the data and registry structure.

The comments on usability noted the usefulness of a single query interface for ordinary Internet users who are only interested in the status of one or two addresses. The comments on the data structure tended to favour a multiple-registries model with links from a parent to child registry and vice-versa.

In answering the second question, the responses did not specifically favour a particular approach but did ask how often the allocation function required by the policy would need to be performed. As the Recovered IPv4 Pool can grow as address space is returned to it, it is not possible to know for sure how often the allocation function will be performed. However, as the allocation mechanism is deterministic, it is possible to plot the size of the pool after each allocation event based on the current size of the pool.

In each six-month allocation period an RIR receives a single allocation unit. An allocation unit is calculated as ⅒ of the total pool, rounded down to the nearest CIDR boundary, with a minimum allocation unit of a /24. In other words, the pool is empty when it contains 1,279 or fewer addresses. The pool currently contains 18,204,416 addresses. This chart shows the current pool in position 0 with the size of each of the allocation units. The 10 allocation projected in the chart below would occur over a five-year period.

	0	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
■ Allocation size	18,204,416	2,097,152	1,048,576	262,144	131,072	131,072	65,536	32,768	2,048	1,024	512

As there is no guarantee that the pool will be expanded and the allocation process could run over the five years described in the chart, ICANN proposes to use an open-source software program to select the addresses to be allocated to each RIR in each allocation period. This mechanism will provide consistency and transparency in the decision making process. The software will be published on ICANN's IANA FTP site (ftp://ftp.iana.org).