

# **2009-3: Allocation of IPv4 Blocks to Regional Internet Registries**

## 2009-3: The Problem Statement

- Once the IANA IPv4 free pool is exhausted, there is no policy for IANA to redistribute any returned address blocks smaller than /8 back to RIRs, or for RIRs to transfer them to other RIRs directly.

## 2009-3: What does it do?

- Provides a mechanism for the RIRs to set local policy to return recovered IPv4 address space to the IANA, and provides the IANA the policy by which it can allocate it back to the RIRs.
- Creates a new global pool of IPv4 address space that can be allocated where it is needed on a global basis without a transfer of address space between the RIRs.

## **2009-3: Previous discussion**

- There were a number of concerns (among the community, AC, and ARIN staff) about the original version of this policy, mostly related to the mandatory requirement to return all reclaimed space to IANA.
- The legacy-only compromise discussed in San Antonio only partially addressed these problems.

## **2009-3: What did we change?**

- To address these concerns, we revised 2009-3 such that recovered space would be returned only if it is designated for return under local policies or procedures.
- Any space designated for return would still be redistributed according to the original formula.

# 2009-3: The Proposal (1 of 2)

This document describes the policy governing the allocation of IPv4 address space from the IANA to the Regional Internet Registries (RIRs). This document does not stipulate performance requirements in the provision of services by IANA to an RIR in accordance with this policy. Such requirements should be specified by appropriate agreements among the RIRs and ICANN.

This policy is to be implemented in two phases.

## A. Phase I: Recovery of IPv4 Address Space

Upon ratification of this policy by the ICANN Board of Directors the IANA shall establish a mechanism to receive IPv4 address space which is returned to it by the RIRs, and hold that address space in a 'recovered IPv4 pool'.

Each RIR through their respective chosen policies and strategies may recover IPv4 address space which is under their administration **and designate any such space for return to the IANA**. Each RIR shall at quarterly intervals return any such **designated** address space to the IANA in aggregated blocks of /24 or larger, for inclusion in the recovered IPv4 pool.

During Phase I, no allocations will be made from the recovered IPv4 pool. **Return of recovered address space (as described above) will continue throughout Phase II.**

## B. Phase II: Allocation of Recovered IPv4 address space by the IANA

Upon ratification of this policy by the ICANN Board of Directors and a declaration by the IANA that its existing free pool of unallocated IPv4 address space is depleted; Global Addressing Policy ASO-001-2 (adopted by ICANN Board 8 April 2005) is rescinded. IANA will then commence to allocate the IPv4 address space from the recovered IPv4 pool.

### 1. The following definitions apply to this policy:

- a. **Recovered Address Space.** Recovered address space is that address space that is returned to an RIR as a result of any activity that seeks to reclaim unused address space or is voluntarily returned to the RIR or is reclaimed by the RIR as a result of legal action or abuse determination. Recovered address space does not include that address space that is reclaimed because of non-payment of contractual fees whose reclamation date is less than 1 year at the time of the report.
- b. **IPv4 Address Holdings.** IPv4 address holdings are all unallocated IPv4 address space held by an RIR to include recovered address space not yet returned less that address space that is committed in accordance with the RIR's reservation policy and practices.
- c. **Aggregated address blocks.** Aggregated address blocks are contiguous prefixes that can be aggregated on natural bit boundaries. 10.0.0.0/24 and 10.0.1.0/24 are two contiguous prefixes that can be combined to form an aggregated address block. 10.0.0.0/24 and 10.0.1.0/25 are two contiguous prefixes that cannot be combined on a natural bit boundary to form an aggregated block.
- d. ~~Legacy address space. IPv4 address space allocated or assigned prior to the creation of the RIR.~~

# 2009-3: The Proposal (2 of 2)

## 2. Allocation of IPv4 Address Space

- a. For the purposes of this policy, an 'IPv4 allocation period' is defined as a 6-month period following 1 March or 1 September in each year.
- b. At the beginning of each IPv4 allocation period, the IANA will determine the 'IPv4 allocation unit' for that period, as 1/10 of its IPv4 address pool, rounded down to the next CIDR (power-of-2) boundary. The minimum 'IPv4 allocation unit' size will be a /24.
- c. In each allocation period, each RIR may issue one IPv4 request to the IANA. Providing that the RIR satisfies the allocation criteria described in paragraph B.2, the IANA will allocate a single allocation unit, composed of the smallest possible number of blocks available in its IPv4 address pool.

## 3. IPv4 Address Space Allocation Criteria

A RIR is eligible to receive additional IPv4 address space from the IANA when the total of its IPv4 address holdings is less than 50% of the current IPv4 allocation unit, and providing that it has not already received an IPv4 allocation from the IANA during the current IPv4 allocation period.

## 4. Initial Allocation of IPv4 Address Space

Each new RIR shall, at the moment of recognition, be allocated one (1) allocation unit by the IANA. If an allocation unit is not available, then the IANA will issue this block as soon as one is available. This allocation will be made regardless of the newly formed RIR's projected utilization figures and shall be independent of the IPv4 address space that may have been transferred to the new RIR by the already existing RIRs as part of the formal transition process.

## 5. Reporting

- a. All returned space is to be recorded in an IANA-published log of IPv4 address space transactions, with each log entry detailing the returned address block, the date of the return, and the returning RIR.
- b. All allocated space is also to be recorded in this IANA-published log of IPv4 address space transactions, with each log entry detailing the address blocks, the date of the allocation and the recipient RIR.
- c. The IANA will maintain a public registry of the current disposition of all IPv4 address space, detailing all reservations and current allocations and current IANA-held address space that is unallocated.
- d. The IANA may make public announcements of IPv4 address block transactions that occur under this policy. The IANA will make appropriate modifications to the "Internet Protocol V4 Address Space" page of the IANA website and may make announcements to its own appropriate announcement lists. The IANA announcements will be limited to which address ranges, the time of allocation and to which Registry they have been allocated.

# **2009-3 Cons:**

## **What about other concerns?**

- Reverse DNS implications (ARIN staff concern)
- General concern about fragmenting recovered space between RIRs
- Possibility that this policy won't get much use, so "why bother?"
- Others?



## **2009-3 Pros:**

### **(Why) should we move it forward?**

- Avoid having returned space (smaller than /8) getting stuck in limbo at IANA
- Provide a mechanism to redistribute IPv4 space between RIRs if/when one RIR has a surplus, and another has need
- Continue global inter-RIR cooperation, and demonstrate good stewardship
- Provide future flexibility for ARIN and other RIRs to reclaim space and do the right thing with it

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## **Questions/Comments?**