



Contract Number

22-139

SAP Number

Innovation and Technology Department

Department Contract Representative
Telephone Number

Lea Rademaker

909-388-0672

Contractor
Contractor Representative
Telephone Number
Contract Term
Original Contract Amount
Amendment Amount
Total Contract Amount
Cost Center

American Registry for Internet Numbers, LTD

Indefinite

Non-Financial

Briefly describe the general nature of the contract: This is a registration Services Agreement and Number Resource Policy Manual, including non-standard terms, with American Registry for Internet Numbers, LTD for Internet Protocol and Autonomous Systems Numbers registration in purchase amounts as authorized by County Policy effective on the date the County first receives services continuing for a period of one year, automatically renewing annually thereafter until terminated by either party.

FOR COUNTY USE ONLY

Approved as to Legal Form

► *Bonnie Uphold*
Bonnie Uphold, Deputy County Counsel

Date 2-18-2022

Reviewed for Contract Compliance

►

Date

Reviewed/Approved by Department

►

Date

**AMERICAN REGISTRY FOR INTERNET NUMBERS, LTD.
REGISTRATION SERVICES AGREEMENT**

This REGISTRATION SERVICES AGREEMENT ("Agreement") is made by and between the AMERICAN REGISTRY FOR INTERNET NUMBERS, LTD. ("ARIN"), a Virginia nonprofit corporation, and

_____, ("Holder").

1. INTRODUCTION

(a) ARIN is a Regional Internet Registry serving the United States, Canada, and specific designated islands in the Caribbean Sea and North Atlantic Ocean. ARIN is responsible for the registration, administration, and stewardship of Internet number resources in these geographic areas.

(b) For purposes of this Agreement (i) the term "Included Number Resources" means the Internet number resources, which include without limitation registration rights for Internet Protocol ("IP") address space and Autonomous System Numbers ("ASN's"), issued or to be issued to Holder by ARIN, and any other number resources issued to Holder or its predecessor in interest prior to ARIN's inception on December 22, 1997 ("Legacy Number Resources") and specifically identified by Holder as subject to this Agreement; and, (ii) the term "Services" means the services that ARIN provides pursuant to this Agreement with respect to the Included Number Resources to Holder, including, without limitation, the inclusion of the registry entries for IP address space and/or ASN's, reverse name service on network blocks, Resource Public Key Infrastructure ("RPKI"), maintenance of resource records, and administration of IP address space; and (iii) any reference to "number resources" shall mean both IP address space and ASN's.

(c) In addition to the Agreement, the Services are subject to the terms and conditions of ARIN's Number Resource Policy Manual (as amended, supplemented, or otherwise modified as provided under Section 5), and other policies, guidelines and procedures adopted by ARIN (collectively, the "Policies") and published on ARIN's Website located at <http://www.arin.net> (the "Website"). This Agreement and the Policies are referred to collectively as the "Service Terms." In the event of any inconsistency between the Policies and this Agreement, the terms of this Agreement will prevail but solely to the extent of the inconsistency. This Agreement supersedes any prior or contemporaneous agreement between Holder and ARIN for Included Number Resources.

d) Because of the necessary role that ARIN performs for the Internet community, ARIN reserves the right, in its sole and absolute discretion, to amend, supplement, restate or otherwise modify any or all Policies at any time and from time to time, including the right to implement new Policies and/or make some or all Policies obsolete. ARIN will provide notice (pursuant to Section 14(i)) of Policy changes to Holder. ARIN will also publish Policy changes on its Website. Policy changes are effective immediately and binding on Holder upon the earlier of ARIN's notice to Holder or publication on ARIN's Website, at which time the Policy changes shall constitute a part of the Policies. Holder's continued access to or use of any Services after such notice or publication constitutes Holder's acceptance of such Policy changes.

(e) ARIN may only modify the terms of this Agreement under the following circumstances:

(1) The Board finds an immediate and compelling need to amend the Agreement due to a definable, discrete, identifiable change in relevant statute or caselaw; or

(2) Upon recommendation of the Board and ratification by Member vote.

Upon ARIN changing the terms of this Agreement, ARIN will provide notice of change in writing delivered by any of the following methods: (i) hand delivery, (ii) certified U.S. or registered international mail, return receipt requested, postage prepaid, (iii) reputable overnight courier. The effective date of such a change shall be no earlier than 90 days from the notice. ARIN will also publish the revised terms of the Agreement on its Website. Holder's continued access to or use of any Services after such notice or publication constitutes Holder's acceptance of the revised terms.

2. CONDITIONS OF SERVICE

(a) Compliance. In receiving or using any of the Services, Holder must comply with the Service Terms.

(b) Provision of Services and Rights. Subject to Holder's on-going compliance with its obligations under the Service Terms, including, without limitation, the payment of the fees (as set forth in Section 4), ARIN shall (i) provide the Services to Holder in accordance with the Service Terms and (ii) grant to Holder the following specified rights:

- (1) The exclusive right to be the registrant of the Included Number Resources within the ARIN database;
- (2) The right to use the Included Number Resources within the ARIN database; and
- (3) The right to transfer the registration of the Included Number Resources pursuant to the Policies.

Holder acknowledges that other registrants with ARIN have rights that intersect or otherwise impact Holder's rights and/or use of the Included Number Resources, including, but not limited to, other registrants benefiting from visibility into the public portions of registrations of the Included Number Resources as further described in the Policies.

(c) Information and Cooperation. Holder has completed an application provided by ARIN for one or more Services (the "Application"). Holder must (i) promptly notify ARIN if any information provided in the Application changes during the term of this Agreement, and (ii) make reasonable efforts to promptly, accurately, and completely provide any information or cooperation required pursuant to the Service Terms or in response to any inquiry or request made to Holder by ARIN during the term of this Agreement. In addition, Holder shall promptly provide ARIN with complete and accurate information, and cooperation as required by any Service Terms or that ARIN requests in connection with ARIN's provision of any of the Services to Holder. If Holder does not provide ARIN with such information or cooperation that ARIN requests, ARIN may take such failure into account in evaluating Holder's subsequent requests for transfer, allocation or assignment of additional number resources, or requests for changes to any Services.

(d) Prohibited Conduct By Holder. In using any of the Services, Holder shall not: (i) disrupt or interfere with the security or use of any of the Services; (ii) violate any applicable laws, statutes, rules, or regulations; or (iii) assist any third party in engaging in any activity prohibited by any Service Terms.

(e) Cooperation With Government Authority. ARIN shall have the right, without liability or notice to Holder, to cooperate and comply with all applicable laws, statutes, rules, or regulations and all government or judicial inquiries or orders ("Orders") with respect to Holder's use of any Service. ARIN shall have the right, without liability or notice to Holder, to follow any Order concerning any number resources or Holder's use of any Service, including an Order to stop any Service or to terminate this Agreement. ARIN shall, when legally permitted and to the extent allowed by an Order, notify Holder within a reasonable amount of time after receipt of an Order.

(f) Content Control. Holder acknowledges that ARIN does not have the ability to control or influence content accessible through or facilitated by those who receive number resources, directly or indirectly, from ARIN.

3. USE OF THE ARIN DATABASE

(a) Authorization. The Administrative Point of Contact ("POC") will be an employee designated by Holder who will be the principal point of contact between Holder and ARIN with respect to the Included Number Resources in the ARIN registry database, and have the sole right to designate other qualifying POCs of Holder with authority to modify the Included Number Resources in the ARIN registry database ("Authority"). The Administrative POC will also facilitate Holder's compliance with the terms and conditions of this Section 3. Upon ARIN's request, Holder will promptly provide ARIN with accurate documentation and information regarding the identity of the Administrative POC and any other POCs with the authority to act on behalf of Holder. Holder must notify ARIN promptly if: (i) the relationship between a POC and Holder is terminated; (ii) a POC's Authority is to be revoked; (iii) Holder has any reason to believe that a POC has granted or will grant a third party unauthorized access to the ARIN registry database or any portion thereof; or (iv) if Holder wants to designate a different Administrative POC. Notices to ARIN under this Section 3(a) must be given by email to hostmaster@arin.net or submitted through an authorized account via ARIN Online and will be effective when acknowledged as received by ARIN.

(b) Responsibility for Directory Services Data. Holder is responsible for the timely and accurate maintenance of directory services data (Whois) with respect to the Included Number Resources, as well as data concerning any organization to which Holder further sub-delegates the Included Number Resources.

(c) Holder Liability for Acts and Omissions. Holder is solely and exclusively responsible for all acts and omissions of its POCs and/or others acting by or on behalf of Holder, whether or not authorized in law or in fact. Holder is solely and exclusively responsible for the security of its access to and use of Included Number Resources in the ARIN registry database and for any loss or damage that Holder suffers based on its access or use of the ARIN registry database.

4. FEES AND PAYMENTS

(a) Fee Schedule. As a condition precedent to ARIN's duty to provide any Services, Holder shall pay ARIN for

providing the Services in accordance with ARIN's Fee Schedule for Included Number Resources, which is available on the Website. ARIN will have the right to change the Fee Schedule applicable to one or more Services, which change will be posted on the Website, provided that ARIN must set its fees in an open and transparent manner through the ARIN community consultation process. Any change to the Fee Schedule shall be effective upon publication on the Website and shall not be applied retroactively. Legacy maintenance fees cannot exceed the fees charged to comparable non-legacy holders for registration services as set forth in ARIN's Fee Schedule for comparable number resources.

(b) Initial Fees in Advance of Service. Prior to ARIN providing Holder with Services, Holder shall pay ARIN any applicable "initial fees" as set forth in the Fee Schedule, as well as any presently outstanding fees due to ARIN.

(c) Fee Notices and Outcomes. Holder will be notified in writing by an invoice from ARIN to pay its fees. Such invoice will be sent at least 30 days before payment is due. If Holder does not pay the fees due to ARIN under this Agreement when due, ARIN shall provide a second written notice to the Holder that will constitute the notice of delinquency (the "Delinquency Notice"). If Holder fails to make payment in response to the Delinquency Notice within thirty (30) days after the date of such Delinquency Notice, ARIN shall provide Holder with a final delinquency notice and make reasonable efforts to reach Holder telephonically (the "Final Delinquency Notice"). If, for any reason, Holder has not made such payment within thirty (30) days after ARIN provides the Final Delinquency Notice, ARIN has the right to: (i) stop providing Services, and/or (ii) if any invoice remains unpaid six (6) months after payment was due, terminate this Agreement and revoke the Included Number Resources. If the Services are stopped, Holder may have the Services restored if it brings its account current before revocation. To the extent the Included Number Resources have been revoked but not reissued by ARIN, Holder may seek to have such Included Number Resources restored if it contacts ARIN, brings its account current, pays an additional fee that ARIN may prescribe on its Fee Schedule, and signs the then-current Registration Services Agreement.

(d) No Refunds. All fees paid by Holder to ARIN are deemed fully earned upon receipt and are nonrefundable.

5. CURRENT AND FUTURE POLICIES

Pursuant to ARIN's Policy Development Process ("PDP"), ARIN maintains the Policies and may at any time in its sole and absolute discretion amend the Policies, implement new policies (which once amended or implemented, becomes part of the Policies), or revoke existing Policies. Such amendments or new Policies shall be binding upon Holder immediately upon publication on ARIN's Website. Holder acknowledges and agrees to be bound by and comply with the Policies (as amended from time to time), except to the extent the Policies conflict with the terms of this Agreement.

6. REVIEW OF HOLDER'S NUMBER RESOURCES

Whenever a transfer or additional IP address space is requested by Holder, ARIN may review Holder's utilization of previously allocated or assigned number resources and other Services received from ARIN to determine if Holder is complying with the Service Terms. Except as set forth in this Agreement, (i) ARIN will take no action to reduce the Services currently provided for Included Number Resources due to lack of utilization by the Holder, and (ii) ARIN has no right to revoke any Included Number Resources under this Agreement due to lack of utilization by Holder. However, ARIN may refuse to permit transfers or additional allocations of number resources to Holder if Holder's Included Number Resources are not utilized in accordance with Policy.

7. NO PROPERTY RIGHTS

Holder acknowledges and agrees that: (a) the Included Number Resources are not property (real, personal, or intellectual) of Holder; (b) Holder does not and will not have or acquire any property rights in or to Included Number Resources by virtue of this Agreement; (c) Holder will not attempt, directly or indirectly, to obtain or assert any patent, trademark, service mark or copyright in any number resources in the United States or any other country; and (d) Holder will transfer or receive Included Number Resources in accordance with the Policies.

8. IMPACT OF VOLUNTARY RETURN OF NUMBER RESOURCES

Holder may voluntarily return to ARIN any portion of the Included Number Resources. If Holder returns any portion of the Included Number Resources, it may be eligible for certain benefits, including partial or permanent reduction in ARIN fees, as ARIN may from time to time prescribe.

9. REPRESENTATIONS AND WARRANTIES

Each party represents and warrants to the other party that: (a) it has the full power and authority to enter into and perform its obligations under this Agreement; (b) the assent to and performance by it of its obligations under this

Agreement do not breach or conflict with any other agreement or arrangement by which it is bound; (c) it will comply with this Agreement, the Policies and all applicable laws, regulations or rules, and (d) this Agreement constitutes a legal, valid, binding, and an executory obligation of the parties executing or assenting to this Agreement, enforceable in accordance with its terms and conditions.

10. BANKRUPTCY

(a) If Holder: (i) files any petition under any chapter of the Title 11 of the United States Bankruptcy Code (the "Bankruptcy Code") or other insolvency or bankruptcy law; or (ii) has a petition filed against it under any insolvency or bankruptcy law; or (iii) makes a general assignment for the benefit of creditors, has a receiver appointed for it, or a trustee takes possession of all or substantially all of Holder's assets; or (iv) dissolves, liquidates or ceases its normal business, or indicates its intent to dissolve, liquidate, or cease its normal business operations (each of the foregoing, a "Bankruptcy Event"), Holder will promptly provide written notice thereof to ARIN. Upon such notice, or if ARIN otherwise learns of the occurrence of a Bankruptcy Event, ARIN may take such appropriate or lawful action, including, but not limited to, intervening in such Bankruptcy Event, to preserve its rights under this Agreement, including, but not limited to, ARIN's rights under Section 7. Holder agrees to consent to ARIN intervening in any such Bankruptcy Event and taking such other appropriate or lawful actions as ARIN determines, in its sole and absolute discretion, so that ARIN can protect its rights under this Agreement, including, but not limited to, Section 7.

(b) Holder acknowledges and agrees that this Agreement is executory.

(c) Holder further hereby acknowledges and agrees that none of the number resources, none of the Services, or nothing else provided by or on behalf of ARIN in connection therewith is or will be the property (real, personal, or intellectual) of Holder's bankruptcy estate within the meaning of Section 541 of the Bankruptcy Code.

(d) Upon the occurrence of a Bankruptcy Event, such Bankruptcy Event or any other event of default or breach under this Agreement shall constitute "cause" pursuant to Section 362(d) of the Bankruptcy Code for granting ARIN relief from the automatic stay or any other applicable injunction to exercise ARIN's rights and remedies under this Agreement, and Holder shall, and hereby does, consent to such relief.

11. INDEMNIFICATION

(a) Holder shall indemnify, defend, and hold harmless ARIN, each of their respective predecessors, successors and assigns, each of their respective employees, representatives, agents, attorneys, advisors, trustees, directors, officers, managers, and members (collectively, the "Indemnified Parties") from any and all claims, demands, disputes, actions, suits, proceedings, judgments, damages, injuries, losses, expenses, costs and fees (including costs and fees associated with attorneys, accountants, investigators and experts), interests, fines and penalties of whatever nature, character or description, whether known or unknown, anticipated or unanticipated, fixed or contingent, now existing or which may hereafter accrue (collectively, "Claims") brought or asserted by a third party against any of the Indemnified Parties alleging facts or circumstances that, directly or indirectly, relate to or arise from or in connection with: (1) any authorized or unauthorized access to or use of any Service or any Included Number Resources by Holder or any of Holder's parent, subsidiaries or other affiliates, or any of their respective predecessors, successors or assigns, or any of their respective directors, officers, managers, shareholders, members, partners, employees, representatives, agents, advisors, or other persons acting by, through, under or in concert with any of them (each, a "Holder Party" and collectively the "Holder Parties"); (2) any authorized or unauthorized access to or use of any Service or any Included Number Resources by any person who acquired authorized or unauthorized access to or use of any Service or any Included Number Resources by or through a Holder Party; and/or (3) any breach of any Service Terms by Holder or any other Holder Party.

(b) Holder shall keep ARIN informed of and consult with ARIN in connection with the progress of any such Claim. Holder shall not settle, compromise, or in any other manner dispose of any Claim without the prior written consent of ARIN. Holder shall not engage in any action or omit to take any action in connection with any Claim that would likely result in harm or have an adverse consequence to ARIN, any of ARIN's rights pursuant to any Service Terms, or any Included Number Resources or other number resources. ARIN shall have the right to participate in the settlement, compromise and/or disposition of any Claim. Holder may retain counsel to defend against any Claims provided Holder may retain such counsel only upon prior written approval by ARIN, such approval not to be unreasonably withheld. If, in ARIN's reasonable judgment, (i) a potential or actual conflict exists or arises between the interest of ARIN and Holder in any such Claim or (ii) Holder fails to diligently and fully perform its obligations under this Section 11, ARIN shall have the right to (i) retain its own counsel, whose reasonable fees and costs will be paid by Holder, to defend the Indemnified Parties and (ii) control the disposition of any Claim at Holder's sole cost and expense.

(c) Holder shall provide written notice to ARIN promptly of the assertion against Holder or any other person of any Claim or the commencement of any Claim, whether or not an Indemnified Party is named or identified in the Claim, alleging facts or circumstances that, in any way, whether directly or indirectly, relate to, arise from, or may be connected with any Service Terms.

12. DISCLAIMERS, EXCLUSIONS, AND LIMITATIONS

(a) **DISCLAIMER OF WARRANTIES.** HOLDER ACKNOWLEDGES AND AGREES THAT THE SERVICES, INCLUDING, WITHOUT LIMITATION, THE INCLUDED NUMBER RESOURCES AND THE REGISTRATION THEREOF, ARE PROVIDED ON AN "AS-IS" BASIS WITH ALL RISKS AND FAULTS ASSOCIATED THEREWITH. EXCEPT AS PROVIDED IN SECTION 9 (REPRESENTATIONS AND WARRANTIES) ABOVE, ARIN MAKES NO REPRESENTATION, WARRANTY OR COVENANT OF ANY KIND WITH RESPECT TO ANY SERVICES OR ANY INCLUDED NUMBER RESOURCES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, SATISFACTION OF REQUIREMENTS, NON-INFRINGEMENT, OR ANY WARRANTY ARISING OUT OF A COURSE OF PERFORMANCE, DEALING, TRADE OR USAGE. AND ANY AND ALL SUCH REPRESENTATIONS, WARRANTIES AND COVENANTS ARE HEREBY DISCLAIMED BY ARIN AND WAIVED BY HOLDER. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, ARIN DOES NOT REPRESENT, WARRANT OR COVENANT THAT ANY SERVICE OR INCLUDED NUMBER RESOURCE, OR ANY ACCESS OR USE THEREOF: (i) WILL BE UNINTERRUPTED, (ii) WILL BE FREE OF DEFECTS, INACCURACIES, OR ERRORS, (iii) WILL MEET HOLDER'S REQUIREMENTS, OR (iv) WILL OPERATE IN THE CONFIGURATION OR WITH OTHER HARDWARE OR SOFTWARE THAT HOLDER USES.

(b) **EXCLUSION OF LIABILITIES AND DAMAGES.** NOTWITHSTANDING ANYTHING TO THE CONTRARY, NEITHER PARTY WILL BE LIABLE TO THE OTHER OR TO ANY THIRD PARTY, INCLUDING, WITHOUT LIMITATION, ANY CLIENTS OR CUSTOMERS OF HOLDER, FOR ANY LIABILITIES AT LAW OR IN EQUITY OR FOR ANY DAMAGES, INCLUDING, WITHOUT LIMITATION, CONSEQUENTIAL, INCIDENTAL, INDIRECT, PUNITIVE, EXEMPLARY, OR SPECIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LIABILITIES OR DAMAGES RELATING TO LOST PROFITS, OR LOSS OF GOODWILL) ARISING OUT OF, RELATING TO, OR CONNECTED WITH ANY SERVICES, ANY INCLUDED NUMBER RESOURCES, OR OTHERWISE IN CONNECTION THEREWITH, WHETHER BASED ON CONTRACT, TORT OR ANY CAUSE OF ACTION, EVEN IF THE OTHER PARTY IS ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

(c) **LIMITATION OF LIABILITY.** IN NO EVENT, WHETHER BASED ON CONTRACT, TORT, STATUTE, OR ANY CAUSE OF ACTION, WILL A PARTY'S LIABILITY TO THE OTHER PARTY OR ANY THIRD PARTY, INCLUDING, WITHOUT LIMITATION, ANY CLIENTS OR CUSTOMERS OF HOLDER, EXCEED IN THE AGGREGATE THE GREATER OF (i) THE AMOUNT PAID BY HOLDER TO ARIN FOR THE SERVICES DURING THE SIX (6) MONTHS IMMEDIATELY PRECEDING THE EVENT THAT GIVES RISE TO SUCH LIABILITY OR (ii) ONE HUNDRED U.S. DOLLARS (US\$100.00).

13. TERM AND TERMINATION

(a) **Term.** Unless earlier terminated in accordance with the termination provisions of this Agreement, the term of this Agreement shall commence on the date Holder first receives any Service and shall continue for one (1) year thereafter. This Agreement shall renew automatically unless earlier terminated in accordance with the termination provisions of this Agreement.

(b) **Suspension of Services or Termination of Agreement for Cause by ARIN.** ARIN shall have the right to suspend Services without notice to Holder if Holder breaches any of Sections 2(c), 2(d), 4 or 7. In addition, ARIN may immediately suspend Services upon written notice to Holder pursuant to Section 2(e) or if Holder breaches Section 2(d) or Section 11. Upon ARIN's written notice to Holder, ARIN shall have the right to immediately terminate this Agreement for cause for: (i) Holder's failure to pay fees pursuant to Section 4; (ii) Holder's material breach of Section 2(c), Section 2(d) or Section 7; or (iii) pursuant to Section 2(e). If Holder breaches any other provision of this Agreement and such breach remains uncured by Holder (as determined by ARIN in its reasonable determination) for sixty (60) days after the date of ARIN's written notice of the breach, ARIN shall have the right to terminate this Agreement for cause. Holder may utilize Section 14(k) to dispute any ARIN termination or suspension of Services.

ARIN shall provide notice of termination of this Agreement in writing to Holder, delivered by any of the following methods: (i) hand delivery, (ii) certified U.S. or registered international mail, return receipt requested, postage prepaid, or (iii) reputable overnight courier.

(c) Termination for Cause by Holder. Holder may terminate this Agreement for cause, by giving written notice thereof to ARIN, if: (i) ARIN materially breaches this Agreement and such material breach remains uncured for sixty (60) days after ARIN's receipt of written notice of the breach from Holder; (ii) ARIN refuses to provide the Services with respect to Holder's Included Number Resources, except where ARIN has stopped the Services or terminates this Agreement as permitted herein; (iii) ARIN enforces any Policy against Holder which has been applied in violation of this Agreement and does not remedy any material adverse effect caused by such action within sixty (60) days' after written notice thereof; or (iv) ARIN assesses a Maintenance Fee in violation of Section 4(a) and does not cure such violation within sixty (60) days' after written notice thereof. If ARIN formally disputes Holder's right to terminate this Agreement, ARIN shall respond in writing to Holder and may deny its actions are a breach or alternatively indicate its corrective action. Any failure of ARIN to respond to Holder in writing shall constitute a denial of the breach and create a dispute between the parties which will be resolved pursuant to Section 14(k). If the Holder still seeks to terminate this Agreement for cause after receiving a response from ARIN, it must bring action pursuant to Section 14(k), and obtain a judgment by the Arbitrator chosen for this purpose that such cause to terminate exists. If such a cause for termination is found by the Arbitrator against ARIN, this Agreement will be terminated, ARIN will be under no obligation to provide any of the Services under this Agreement. Upon termination, Included Number Resources that were Legacy Number Resources immediately prior to being brought under this Agreement shall resume their status as Legacy Number Resources, and all other Included Number Resources shall be returned to ARIN.

(d) Voluntary Termination by Holder with Return of Included Number Resources to ARIN. Holder shall have the right to terminate this Agreement at any time if it returns to ARIN, without limitation, all rights to Included Number Resources. If Holder wishes to terminate this Agreement in accordance with this Section 13(d), the Holder must submit written notice to ARIN of its intent to return, in total, all Included Number Resources, and ARIN will accept the return of the Included Number Resources thirty (30) days after such notice being provided.

(e) Effect of Termination. Except as described in Section 13(c) and 14(k), if this Agreement is terminated, then (i) ARIN will immediately revoke the Included Number Resources and otherwise cease providing the Services and will have no liability for doing so, and (ii) Holder remains liable for all fees payable to ARIN for Services rendered up to and including the date of termination.

(f) Survival. The defined terms and the following sections of this Agreement, as well as any other provision which by its nature survives termination, will survive termination of this Agreement and remain in effect: 2(e), 2(f), 4(d), 7, 10, 11, 12, 13(e), 13(f) and 14.

14. GENERAL PROVISIONS

(a) Assignment.

(i) Holder may not assign or transfer, whether voluntarily or by operation of law, this Agreement or any of its rights or obligations under it, without ARIN's prior written permission, which may not be unreasonably withheld if such assignment and/or transfer is consistent with ARIN's Transfer Policies as included in the Policies. The event of any transaction (whether a merger, acquisition, or sale) in which Holder's controlling managerial and/or voting interest changes during the term of this Agreement shall be considered an assignment. Any attempt by Holder to assign or transfer this Agreement or any rights or obligations under it, other than as provided in this Section 14(a)(i), will be of no force or effect.

(ii) ARIN shall have the right to freely assign this Agreement upon written notice to Holder if ARIN is changing its corporate organization to permit a successor organization to provide the Services contemplated by this Agreement.

(b) Relationship of Parties. The relationship between the parties is and will be that of independent contractors. No joint venture, partnership, employment, agency, or similar arrangement is created between the parties. Neither party has the right or power to act for or on behalf of the other or to bind the other in any respect other than as expressly provided for in this Agreement.

(c) Entire Agreement. This Agreement and the Policies (which are hereby incorporated by reference to the extent they do not conflict with this Agreement) constitute the entire understanding between the parties and replaces and supersedes any and all prior and contemporaneous agreements and understandings, whether oral or written, express or implied, between the parties with respect to the Included Number Resources or any Services which are the subject matter of this Agreement. All other agreements between Holder and ARIN for number resources other than the Included Number Resources or any Services associated with such number resources, if any, remain unchanged by this Agreement.

(d) Waiver. No waiver of any provision or consent to any action under this Agreement will constitute a waiver of

any other provisions or consent to any other action, nor will such waiver or consent constitute a continuing waiver or consent or commit any party to provide past or future a waiver or consent.

(e) Severability. If any provision of this Agreement is determined to be illegal, invalid, or otherwise unenforceable by a court or tribunal of competent jurisdiction, then to the extent necessary to make such provision and/or this Agreement legal, valid, or otherwise enforceable, such provision will be limited, construed, or severed and deleted from this Agreement, and the remaining portion of such provision and the remaining other provisions hereof will survive, remain in full force and effect, and continue to be binding, and will be interpreted to give effect to the intention of the parties insofar as possible.

(f) Successors and Assigns. This Agreement will be binding upon and inure to the benefit of the parties and with respect to ARIN, its successors and permitted assigns, and with respect to Holder, its permitted successors and permitted assigns.

(g) No Third-Party Rights. This Agreement is made solely for the benefit of the parties and does not, and will not, be construed to grant any rights or remedies to any other person or entity other than as expressly provided for in this Agreement.

(h) Construction. This Agreement will be construed as if it was jointly drafted by both parties and may not be construed against either one. The word "including" means "including, without limitation." The terms "herein," "hereof" and "hereunder" and other words of similar import refer to this Agreement as a whole and not to any particular article, section or other subdivision. Unless the context of this Agreement otherwise requires, words using singular or plural number also include the plural or singular number, respectively. The headings contained in this Agreement are for the purposes of convenience only and are not intended to define or limit the contents of the provisions contained therein.

(i) Written Notice. All "written notice" or notice required or permitted to be given in writing under this Agreement will be delivered to the other party by any of the following methods: (i) hand delivery, (ii) certified U.S. or registered international mail, return receipt requested, postage prepaid, (iii) reputable overnight courier, (iv) electronic mail, (v) electronic messaging via ARIN Online, or (vi) facsimile. If Holder gives notice to ARIN, it must use ARIN's current address, which is currently: ARIN, Attention: Financial and Legal Services Department, PO Box 232290, Centreville, VA 20120, or the following email address: compliance@arin.net. ARIN shall update Holder with any changes to this address by written notice pursuant to this Section. If ARIN provides notice to Holder, ARIN must use the contact information provided by Holder to ARIN during the application process or other contact information provided by Holder in accordance with the terms of this Section. All notices will be deemed received and effective as follows: (i) if by hand-delivery, on the date of delivery, (ii) if by delivery via U.S. or registered international mail, on the date of receipt appearing on a return receipt card, (iii) if by overnight courier, on the date receipt is confirmed by such courier service, (iv) if by electronic mail, 24 hours after the message was sent, if no "system error" or other notice of non-delivery is generated, or (v) if by electronic messaging, at the next successful login to ARIN Online by the notified contact.

(j) Force Majeure. Neither party shall be deemed in default hereunder, nor shall either party be responsible for any cessation, interruption, or delay in the performance of its obligations under this Agreement where such failure of performance is the result of any force majeure event, including, but not limited to, earthquake, flood, fire, storm, natural disaster, act of God, civil disturbances, war, terrorism, armed conflict, riots, failure of contractors or subcontractors to perform, labor strike, lockout, boycott, or acts of governmental authorities or any event similar to the foregoing (each a "Force Majeure Event"). In the event a Force Majeure Event extends for a period in excess of thirty (30) days in the aggregate and prevents a party from performing its obligations under this Agreement, the other party may, in its discretion, terminate this Agreement immediately upon written notice to the party affected by the force majeure event. If, pursuant to this force majeure provision, a party terminates this Agreement, ARIN will cease to provide Services under this Agreement and the Included Number Resources will resume the status they had prior to this Agreement.

(k) Governing Law, Jurisdiction, Venue and Dispute Resolution.

(i) This Agreement and the parties' performance under it shall be governed in all respects by, and construed in accordance with, the laws of the Commonwealth of Virginia and, as applicable, the United States of America.

(ii) In the event of any dispute(s) regarding any term or condition or provision or performance or conduct arising out of or relating to this Agreement, the parties each agree to first seek resolution through cooperative settlement negotiations involving themselves or their representatives as they each deem appropriate; and, second, in the event cooperative settlement negotiations are not successful, or do not occur, within thirty (30) days after a party initiates such negotiations, the parties agree that upon the request

of either party any unresolved dispute(s) shall be submitted to binding and final arbitration for resolution. If Holder's principal place of business is in the United States, such arbitration shall be held in Washington, D.C., or by agreement of both parties at any other location, in accordance with the rules of the American Arbitration Association ("AAA") then in effect. If the Holder's principal place of business is in Canada, such arbitration shall be held in Ottawa, Canada, or by agreement of both parties at any other location, in accordance with the rules of the locally prevalent equivalent of AAA arbitration rules then in effect. If Holder's principal place of business is in any country other than the United States or Canada but otherwise within ARIN's service region, such arbitration shall be held in Miami, Florida, or by agreement of both parties at any other location, in accordance with the rules of the AAA then in effect. A single arbitrator shall be selected by the parties by striking in turn from a list of arbitrators supplied by the AAA or, as applicable, the locally prevalent equivalent of AAA. Each party shall bear their own attorneys' fees, and the initiating party shall initially bear the costs of the arbitration's expenses. Any judgment upon the award rendered pursuant to the arbitration proceeding may be entered in any court having competent jurisdiction. Notwithstanding the foregoing in this Paragraph, either party may bring an action before the United States District Court for the Eastern District of Virginia or the Circuit Court for Fairfax County, Virginia for a temporary restraining order, preliminary injunction and/or other injunctive relief to seek to maintain the status quo between the parties pending resolution of the dispute(s) in accordance with the terms of this Paragraph; provided that, for a Canadian domiciled entity, such action may also be brought in the above listed US courts, the Ontario Superior Court of Justice for those domiciled in Ontario, or the equivalent court in the Canadian province where the entity is headquartered.

(iii) If Holder is part of a national, state, or local government authority whose laws or regulations strictly require that the laws of that particular jurisdiction or domicile must apply to this Agreement and ARIN is provided with written substantiation of such requirement reasonably acceptable to ARIN, this Agreement shall also be governed pursuant to such laws. If there is a dispute regarding applicability of such laws to this Agreement, it shall be resolved in accordance with Section 14(k)(ii).

(l) Subsequent Version(s). If any subsequent version(s) of the Registration Services Agreement is authorized by ARIN, the parties may choose to substitute a signed copy of the then-existing subsequent version, with all its terms, instead of this Agreement, and the Included Number Resources and other Services will then be governed by the subsequent version. The consideration for such change is the original agreement and the agreement to abide by the revised terms. There is no requirement for a Holder who has signed this Agreement to engage in any subsequent version.

(m) Expenses. Except as specifically set forth in this Agreement, the parties agree to pay their own expenses related to this Agreement.

(n) Amendment. Except as set forth in Section 1(d), no amendment of any provision of this Agreement shall be valid unless in writing and signed or authorized in writing by ARIN, which writing specifically references such as an amendment to this Agreement.

(o) Execution. This Agreement may be executed by a party's signature and copies of this Agreement so executed and delivered shall have the same force and effect as an original. This Agreement may be executed in two (2) or more counterpart signature pages, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

Each party hereby accepts, without modification, all of the terms and conditions of this Registration Services Agreement.

Agreed: (This section to be completed by Holder)		Authorized Officer	
Legal Name of Company (Holder):		Name (Print):	Curt Hagman
D/B/A (if any):		Title (Print):	Chairman, Board of Supervisors
ORG ID:		Signature:	
Ticket Number:		Date:	MAR 01 2022
Billing Contact Information if different from authorized officer		Contact Information of Authorized Officer	
Name (Print):		Phone:	
Title (Print):		Email:	
Phone:		Street Address:	
Email:		City and State:	
Street Address		Postal Code:	
City and State		Country:	
Postal Code:			
Country:			

American Registry for Internet Numbers, LTD. By: (This section to be completed by ARIN)

ARIN's Authorized Contracting Agent	
Name (Print):	Signature:
	Date:

SIGNED AND CERTIFIED THAT A COPY OF THIS DOCUMENT HAS BEEN DELIVERED TO THE CHAIRMAN OF THE BOARD LYNNA MONELL
Clerk of the Board of Supervisors of the County of San Bernardino

By

Deputy



Number Resource Policy Manual

Version 2021.2 – 12 August 2021

This is ARIN's Number Resource Policy Manual (NRPMP). It is available at: <https://www.arin.net/policy/>. This version supersedes all previous versions.

Number resource policies in the ARIN region are created in accordance with the "Policy Development Process" (<https://www.arin.net/policy/pdp.html>). The status of current and historical policy proposals can be found on the "Draft Policies and Proposals" page (<https://www.arin.net/policy/proposals/>).

Each policy consists of a number of component parts separated by dots. The first figure to the far left and preceding the first dot (.), refers to the chapter number. The figure following the first dot indicates a policy section. Any subsequent figures are for the purpose of identifying specific parts of a given policy.

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Appendix A - Change Log

1. Principles and Goals of the American Registry for Internet Numbers (ARIN)

1.1. Registration

The principle of registration guarantees the uniqueness of Internet number resources. Provision of this public registry documenting Internet number resource allocation, reallocation, assignment, and reassignment is necessary:

- a. to ensure uniqueness,
- b. to provide a contact in case of operational/security problems,
- c. to provide the transparency required to ensure that Internet number resources are efficiently utilized, and
- d. to assist in IP allocation studies.

1.2. Conservation

The principle of conservation guarantees sustainability of the Internet through efficient utilization of unique number resources.

Due to the requirement for uniqueness, Internet number resources of each type are drawn from a common number space. Conservation of these common number spaces requires that Internet number resources be efficiently distributed to those organizations who have a technical need for them in support of operational networks.

1.3. Routability

The principle of routability guarantees that Internet number resources are managed in such a manner that they may be routed on the Internet in a scalable manner.

While routing scalability is necessary to ensure proper operation of Internet routing, allocation or assignment of

Internet number resources by ARIN in no way guarantees that those addresses will be routed by any particular network operator.

1.4. Stewardship

The principle of stewardship guarantees the application of these principles when managing Internet number resources.

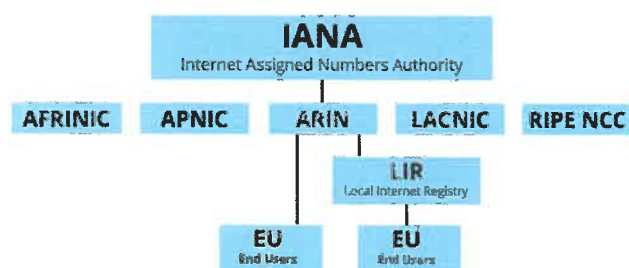
The fundamental purpose of Internet number stewardship is to distribute unique number resources to entities building and operating networks thereby facilitating the growth and sustainability of the Internet for the benefit of all.

It should be noted that the above goals may sometimes be in conflict with each other and with the interests of individual end-users or network operators. Care must be taken to ensure balance with these conflicting goals given the resource availability, relative size of the resource, and number resource specific technical dynamics, for each type of number resource.

2. Definitions

Responsibility for management of number resources is distributed globally in accordance with the following procedures:

- Global number resource management is performed by the Internet Assigned Numbers Authority (IANA). IANA distributes number resources to RIRs (AfriNIC, APNIC, ARIN, LACNIC, and the RIPE NCC), but not directly to LIRs (Local Internet Registries) or end users.
- RIRs, such as ARIN, distribute number resources to LIRs and directly to end-user organizations.
- LIRs may further delegate number resources to other LIRs, as well as to other end-user organizations.



2.1. Internet Registry (IR)

An Internet Registry (IR) is an organization that is responsible for distributing IP address space to its members or customers and for registering those distributions.

2.2. Regional Internet Registry (RIR)

Regional Internet Registries (RIRs) are established and authorized by respective regional communities, and recognized by the IANA to serve and represent large geographical regions. The primary role of RIRs is to manage and distribute public Internet address space within their respective regions.

2.3. [Retired]

2.4. Local Internet Registry (LIR)

A Local Internet Registry (LIR) is an IR that primarily assigns address space to the users of the network services that it provides. LIRs are generally Internet Service Providers (ISPs), whose customers are primarily end users and possibly other ISPs.

2.5. Allocation, Assignment, Reallocation, Reassignment

Allocation - Address space delegated to an organization directly by ARIN for the purpose of subsequent distribution by the recipient organization to other parties.

Assignment - Address space delegated to an organization directly by ARIN for the exclusive use of the recipient organization.

Reallocation - Address space sub-delegated to an organization by an upstream provider for the purpose of subsequent distribution by the recipient organization to other parties.

Reassignment - Address space sub-delegated to an organization by an upstream provider for the exclusive use of the recipient organization.

Note that the authorized incidental or transient use by third parties of address space delegated to an organization shall not be considered a reassignment or a violation of the exclusive use provision.

2.6. End-user

An end-user is an organization receiving assignments of IP addresses exclusively for use in its operational networks.

2.7. Multihomed

An organization is multihomed if it receives full-time connectivity from more than one ISP and has one or more routing prefixes announced by at least two of its upstream ISPs.

2.8. Registration Services Agreement (RSA)

Number resources allocated or assigned by ARIN under these policies are subject to a contractual agreement between ARIN and the resource holder. Throughout this document, any and all forms of this agreement, past or future, are simply referred to as the Registration Services Agreement (RSA).

2.9. [Retired]

2.10. End Site

The term End Site shall mean a single structure or service delivery address, or, in the case of a multi-tenant structure, a single tenant within said structure (a single customer location).

2.11. Community Network

A community network is deployed, operated, and governed by its users, for the purpose of providing free or low-cost connectivity to the community it services. Users of the network or other volunteers must play a primary role in the governance of the organization, whereas other functions may be handled by either paid staff or volunteers.

2.12. Organizational Information

When required, organization Information must include at a minimum: Legal name, street address, city, state, zip code equivalent and at least one valid technical and one valid abuse POC. Each POC shall be designated by the organization and must include at least a verifiable email address and phone number.

2.13. Residential Customer

End-users who are individual persons and not organizations and who receive service at a place of residence for personal use only are considered residential customers.

2.14. Serving Site (IPv6)

When applied to IPv6 policies, the term serving site shall mean a location where an ISP terminates or aggregates customer connections, including, but, not limited to Points of Presence (POPs), Datacenters, Central or Local switching office or regional or local combinations thereof.

2.15. Provider Assignment Unit (IPv6)

When applied to IPv6 policies, the term "provider assignment unit" shall mean the prefix of the smallest block a given ISP assigns to end sites (recommended /48).

2.16. Utilized (IPv6)

The term utilized shall have the following definitions when applied to IPv6 policies:

1. A provider assignment unit shall be considered fully utilized when it is assigned to an end-site.
2. Larger blocks shall have their utilization defined by dividing the number of provider assignment units assigned from the containing block by the total number of provider assignment units. This ratio will often be expressed as a percentage (e.g. $a/t \times 100$, for $a/36\ 3072/4096 \times 100 = 75\%$ utilization)

3. Directory Services

3.1. Bulk Copies of ARIN's Whois

ARIN will provide a bulk copy of Whois output, including point of contact information, on the ARIN site for download by any organization that wishes to obtain the data providing they agree to ARIN's acceptable use policy. This point of contact information will not include data marked as private.

[The Request Form for ARIN Bulk Whois Data, which contains the Acceptable Use Policy (AUP) for Bulk Copies of ARIN Whois Data, can be found at:

<https://www.arin.net/resources/agreements/bulkwhois.pdf>

3.2. Distributed Information Service Use Requirements

The minimal requirements for an organization to setup a distributed information service to advertise reassignment and reallocation information are:

- The distributed information service must be operational 24 hours a day, 7 days a week to both the general public and ARIN staff. The service is allowed reasonable downtime for server maintenance according to generally accepted community standards.
- The distributed information service must allow public access to reassignment and reallocation information. The service may restrict the number of queries allowed per time interval from a host or subnet to defend against DDOS attacks, remote mirroring attempts, and other nefarious acts.
- The distributed information service must return reassignment and reallocation information for the IP address queried. The service may allow for privacy protections for customers. For residential users, the service may follow ARIN's residential privacy policy that includes displaying only the city, state, zip code, and country. For all other reassignments and reallocations, the service shall follow ARIN's privacy policy for publishing data in a public forum.
- The distributed information service may return results for non-IP queries.
- The distributed information service must respond to a query with the minimal set of attributes per object as defined by ARIN staff.
- The distributed information service may include optional attributes per object that are defined locally. The distributed information service must return results that are up-to-date on reassignment and reallocation information.

3.3. Privatizing POC Information

Organizations may designate certain points of contact as private from ARIN Whois, with the exception that, at the minimum, one point of contact must be viewable.

3.4. Routing Registry

3.4.1. Acceptable Use Policy

- The ARIN Routing Registry data is for Internet operational purposes only. Mirroring is only allowed by other routing registries.
- The user may only distribute this data using a Whois service unless prior, written permission from ARIN has been obtained.
- To protect those registered in the ARIN routing registry, ARIN may need to specify additional conditions on access permissions for this data in the future. The permission to access the data is based on agreement to the conditions stipulated in this document in addition to any others that may be added in the future.

- Please see the <http://www.irr.net/docs/list.html> URL for information about the replicated Routing Registry data.

3.5. Autonomous System Originations

3.5.1. Collection

ARIN will collect an optional field in all IPv4 and IPv6 address block transactions (allocation and assignment requests, reallocation and reassignment actions, transfer and experimental requests). This additional field will be used to record a list of the ASes that the user permits to originate address prefixes within the address block.

3.5.2. Publication

3.5.2.1. Description of Data

ARIN will produce a collection of the mappings from address blocks to ASes permitted to originate that address block. The collection will consist of a list where each entry will consist, at a minimum, of an address block, a list of AS numbers, and a tag indicating the type of delegation of the address block. This collection will be produced at least daily.

3.5.2.2. Bulk Publication of Data

ARIN will make the collected mappings from address blocks to AS numbers available for bulk transfer in one or more formats chosen at its own discretion, informed by the community's current needs. This data will not be subject to any redistribution restrictions -- it may be republished or repackaged in any form. Should ARIN choose to use Whois bulk transfer as the bulk form of data access required by this paragraph, the address block to AS mappings will not be subject to any redistribution restrictions, but the remainder of the Whois data will remain subject to the terms of the then-current AUP regarding bulk access to Whois data.

3.5.2.3. Other Formats

ARIN may also make the collected or individual mappings from address blocks to AS numbers available in other forms, possibly query services, chosen at its own discretion, informed by the community's current needs. ARIN may require agreement to an acceptable use policy for access to the data in these forms.

3.6. Annual Validation of ARIN's Public Whois Point of Contact Data

3.6.1. Annual POC Verification

ARIN will perform an annual verification of specific Points of Contact registered in the public Whois using the criteria and procedures outlined in sections 3.6.2, 3.6.3, and 3.6.4.

3.6.2. Specified Public Whois Points of Contact for Verification

Each of the following Points of Contact are to be verified annually, and will be referred to as Point of Contact or POC throughout this policy, and should be understood to be both organization and resource POCs:

- Admin
- Tech
- NOC
- Abuse

3.6.3. Organizations Covered by this Policy

This policy applies to every Organization that has a direct assignment, direct allocation, or AS number from ARIN (or one of its predecessor registries) or a reallocation from an upstream ISP. This includes but is not limited to upstream ISPs and their downstream ISP customers (as defined by NRPM 2.5 and 2.6), but not reassignments made to their downstream end user customers.

3.6.4. Procedure for Verification

An annual email notification will be sent to each of the Points of Contact outlined in section 3.6.2 on an annual basis. Each Point of Contact will have up to sixty (60) days from the date of the notification in which to respond with an affirmative that their Whois contact information is correct and complete or to submit new data to correct and complete it. If after careful analysis, ARIN staff deems a POC to be completely and permanently abandoned or otherwise illegitimate, the POC record shall be marked invalid in Whois.

3.6.5. Non-Responsive Point of Contact Records

An invalid POC is restricted to payment and contact update functionality within ARIN Online. As a result, an organization without any valid POCs will be unable to access further functionalities within ARIN Online until at least one Admin or Tech POC validates that their information is accurate or modifies a POC to contain accurate information.

3.7. POC Notification and Validation Upon Reassignment or Reallocation

When a request for reallocation or detailed reassignment is made to ARIN, the receiving organization must already be in the ARIN database and associated with at least one validated POC object. If there are no validated POC objects associated with the receiving organization, ARIN shall reject the request.

In addition to notifying the requester, ARIN will also notify, via email, all POCs associated with the receiving organization, whether the request was successful or not, and will request validation of any invalid POC objects associated with the receiving organization.

Note: Simple reassignments are made without any linkage to an organization or POC objects in the ARIN database.

3.8. Directory Service Records

3.8.1 Organization Record Creation

New organization records shall be created upon ARIN receiving a request directly from an authorized contact representing an entity that ARIN is able to validate. Organization records shall not be created upon the request of third-parties.

4. IPv4

4.1. General Principles

4.1.1., 4.1.2., 4.1.3., 4.1.4. [Retired]

4.1.5. Resource Request Size

Determining the validity of the amount of requested IP address resources is the responsibility of ARIN.

4.1.6. Aggregation

In order to preserve aggregation, ARIN attempts to issue blocks of addresses on appropriate "CIDR-supported" bit boundaries. ARIN may reserve space to maximize aggregation possibilities until the implementation of section 10.4.2.2, at which time ARIN will make each allocation and assignment as a single continuous range of addresses.

4.1.7. Reserved Pool Replenishment

4.1.7.1. Disposition of Resources

Any resources allocated from a reserved pool created in Sections 4.4 or 4.10, or any other reserved pools created in the future, that become available for re-issuance will be returned to the reserved pool they were originally allocated from, regardless of the current level of each pool. Further, any other resources which become available for re-issuance will be prioritized for the replenishment of any reserved pool that falls below a running three-year supply, which is based on the previous three years of allocations from each pool.

4.1.7.2. Precedence for Replenishment

Staff shall return groups of blocks to the pools in scheduled batches (staff shall set a reasonable schedule). Each available block in a batch shall be returned in order from largest to smallest to the pool which at that point has the lowest percentage of a 3-year supply for that particular pool.

4.1.8. ARIN Waitlist

ARIN will only issue future IPv4 assignments/allocation (excluding 4.4 and 4.10 space) from the ARIN Waitlist. The maximum size aggregate that an organization may qualify for at any one time is a /22. Organizations will be able to elect a smaller block size than they qualify for down to a /24. Organizations which hold more than a /20 equivalent of IPv4 space in aggregate are not eligible to apply. Address space distributed from the waitlist will not be eligible for transfer, with the exception of Section 8.2 transfers, for a period of 60 months. This policy will be applied to all future distributions from the waitlist to include those currently listed.

Multiple requests are not allowed: an organization currently on the waitlist must wait 90 days after receiving a distribution from the waitlist or IPv4 number resources as a recipient of any transfer before applying for additional space. ARIN, at its sole discretion, may waive this requirement if the requester can document a change in circumstances since their last request that could not have been reasonably foreseen at the time of the original request, and which now justifies additional space. Qualified requesters will also be advised of the availability of the transfer mechanism in section 8.3 as an alternative mechanism to obtain IPv4 addresses.

Restrictions apply for entities who have conducted recent resource transfers. These restrictions are specified in Section 8 for each relevant transfer category.

4.1.8.1. Sequencing

The position of each qualified request on the waiting list will be determined by the date it was approved. Each organization may have one approved request on the waiting list at a time.

4.1.8.2. Fulfillment

ARIN will fulfill requests on a first-approved basis, subject to the size of each available address block as address blocks become available for distribution. A timely review of the original request may be conducted by ARIN staff. Requests will not be partially filled. Any requests met through a transfer will be considered fulfilled and removed from the waiting list.

4.1.9. [Retired]

4.2. Allocations to ISPs (Requirements for Requesting Initial Address Space)

4.2.1. Principles

4.2.1.1. Purpose

ARIN allocates blocks of IP addresses to ISPs for the purpose of reassigning and reallocating that space to their customers.

4.2.1.2. [Retired]

4.2.1.3. Utilization Rate

Utilization rate of address space is a key factor, among others, in determining address allocation.

4.2.1.4. Slow Start

Because the number of available IP addresses on the Internet is limited, many factors must be considered in the determination of address space allocations. Therefore, IP address space is allocated to ISPs using a slow-start model. Allocations are based on justified need, not solely on a predicted customer base.

4.2.1.5. Minimum Allocation

In general, ARIN allocates /24 and larger IP address prefixes to ISPs. If allocations smaller than /24 are needed, ISPs should request address space from their upstream provider.

4.2.1.6. [Retired]

4.2.2. Initial Allocation to ISPs

All ISP organizations without direct assignments or allocations from ARIN qualify for an initial allocation of up to a /22, subject to ARIN's minimum allocation size.

All ISP organizations without direct allocations, direct assignments, re-allocations or reassignments automatically qualify for a /24. These organizations are exempt from requirements of showing the efficient utilization of previously held IPv4 space. These organizations may qualify for a larger than a /24 by documenting how the requested allocation will be utilized within the request size specified in 4.2.4.3.

ISPs holding re-allocations and/or reassignments must show the efficient utilization of their resources consistent with the requirements in sections 4.2.3 and 4.2.4.

4.2.3. Reassigning and Reallocating Address Space to Customers

4.2.3.1. Efficient Utilization

ISPs are required to apply a utilization efficiency criterion in providing address space to their customers. To this end, ISPs should have documented justification available for each reassignment and reallocation. ARIN may request this justification at any time. If justification is not provided, future receipt of allocations may be impacted.

4.2.3.2. VLSM

To increase utilization efficiency of IPv4 address space, ISPs reassigning IP address space to their customers should require their customers to use variable length subnet mask (VLSM) and classless technologies (CIDR) within their networks. ISPs should issue blocks smaller than /24 wherever feasible.

4.2.3.3. Contiguous Blocks

IP addresses are allocated to ISPs in contiguous blocks, which should remain intact. Fragmentation of blocks is discouraged. To avoid fragmentation, ISPs are encouraged to require their customers to return address space if they change ISPs. Therefore, if a customer moves to another service provider or otherwise terminates a contract with an ISP, it is recommended that the customer return the network addresses to the ISP and renumber into the new provider's address space. The original ISP should allow sufficient time for the renumbering process to be completed before requiring the address space to be returned.

4.2.3.4. Downstream Customer Adherence

ISPs must require their downstream customers to adhere to the following criteria:

4.2.3.4.1. Utilization

A downstream customer requesting address space from an upstream ISP must document a plan to the allocating ISP for their utilization to conform to Section 4.3.3. Reassignment and reallocation information for prior allocations must show that each customer meets the 80% utilization criteria and must be available via SWIP / a distributed service which meets the standards set forth in section 3.2 prior to issuing them additional space.

4.2.3.4.2. Downstream ISPs

Customers must follow ARIN policy for ISPs.

4.2.3.5. [Retired]

4.2.3.6. Reassignments to Multihomed Downstream Customers

If a downstream customer has a requirement to multihome, that requirement alone will serve as justification for a /24 allocation. Downstream customers must provide contact information for all of their upstream providers to the ISP from whom they are requesting a /24, and utilize a border routing protocol between the customer and the ISP. Customers may receive a /24 from only one of their upstream providers under this policy without providing additional justification. ISPs may demonstrate they have made an assignment to a downstream customer under this policy by supplying ARIN with the information they collected from the customer, as described above, or by identifying the AS number of the customer.

4.2.3.7. Registration

ISPs are required to demonstrate efficient use of IP address space allocations by providing appropriate documentation, including but not limited to assignment histories, showing their efficient use.

4.2.3.7.1. Reassignment and Reallocation Information

Each IPv4 reassignment or reallocation containing a /29 or more addresses shall be registered in the WHOIS directory via SWIP or a distributed service which meets the standards set forth in section 3.2. Reassignment and reallocation registrations shall include each client's organizational information, except where specifically exempted by this policy.

4.2.3.7.2. Reassignments and Reallocations Visible Within Seven Days

All reassignments and reallocations shall be made visible as required in section 4.2.3.7.1 within seven calendar days of reassignment or reallocation.

4.2.3.7.3. Residential Subscribers

4.2.3.7.3.1. [Retired]

4.2.3.7.3.2. Residential Customer Privacy

To maintain the privacy of their residential customers, an organization with downstream residential customers holding /29 and larger blocks may substitute that organization's name for the customer's name, e.g. 'Private Customer - XYZ Network', and the customer's street address may read 'Private Residence'. Each private downstream residential reassignment must have accurate upstream Abuse and Technical POCs visible on the WHOIS or Distributed Information Service record for that block.

4.2.3.8. Reassignments for Third Party Internet Access (TPIA) over Cable

IP addresses reassigned by an ISP to an incumbent cable operator for use with Third Party Internet Access (TPIA) will be counted as fully used once they are assigned to equipment by the underlying cable carrier provided they meet the following requirements:

- initial assignments to each piece of hardware represent the smallest subnet reasonably required to deploy service to the customer base served by the hardware
- additional assignments to each piece of hardware are made only when all previous assignments to that specific piece of hardware are at least 80% used and represent a 24 month supply
- IP allocations issued through 4.2.3.8 are non-transferable via section 8.3 and section 8.4 for a period of 36 months. In the case of a section 8.2 transfer the IP assignment must be utilized for the same purpose or needs based justification at a rate consistent with intended use.

4.2.4. ISP Additional Requests

4.2.4.1. Utilization Percentage (80%)

ISPs must have efficiently utilized all allocations, in aggregate, to at least 80% and at least 50% of every allocation in order to receive additional space. This includes all space reassigned or reallocated to their customers.

4.2.4.2. Return Address Space as Agreed

Return prior address space designated for return as agreed.

4.2.4.3. Request Size

ISPs may request up to a 24-month supply of IPv4 addresses.

4.2.4.4. [Retired]

4.2.5., 4.2.6. [Retired]

4.3. End-users - Assignments to End-users

4.3.1. End-users

ARIN assigns blocks of IP addresses to end-users who request address space for their internal use in running their own networks, but not for sub-delegation of those addresses outside their organization. End-users must meet the requirements described in these guidelines for justifying the assignment of an address block.

4.3.2. Minimum Assignment

ARIN's minimum assignment for end-user organizations is a /24.

End-user organizations without direct assignments or allocations from ARIN qualify for an initial assignment of ARIN's minimum assignment size.

4.3.3. Utilization Rate

Organizations may qualify for a larger initial allocation by providing appropriate details to verify their 24-month growth projection.

The basic criterion that must be met is a 50% utilization rate within 24 months.

A greater utilization rate may be required based on individual network requirements.

4.3.4. Additional Considerations

End-users may qualify for address space under other policies such as Micro-allocation [4.4].

4.3.5. Non-connected Networks

End-users not currently connected to an ISP and/or not planning to be connected to the Internet are encouraged to use private IP address numbers reserved for non-connected networks (see RFC 1918). When private, non-connected networks require interconnectivity and the private IP address numbers are ineffective, globally unique addresses may be requested and used to provide this interconnectivity.

4.3.6. Additional Assignments

4.3.6.1. Utilization Requirements for Additional Assignment

End-users must have efficiently utilized all assignments, in aggregate, to at least 80% and at least 50% of every assignment in order to receive additional space, and must provide ARIN with utilization details.

4.4. Micro-allocation

ARIN will make IPv4 micro-allocations to critical infrastructure providers of the Internet, including public exchange points, core DNS service providers (e.g. ICANN-sanctioned root and ccTLD operators) as well as the RIRs and IANA. These allocations will be no smaller than a /24. Multiple allocations may be granted in certain situations.

Exchange point allocations MUST be allocated from specific blocks reserved only for this purpose. All other micro-allocations WILL be allocated out of other blocks reserved for micro-allocation purposes. ARIN will make a list of these blocks publicly available.

Exchange point operators must provide justification for the allocation, including: connection policy, location, other participants (minimum of three total), ASN, and contact information. ISPs and other organizations receiving these micro-allocations will be charged under the ISP fee schedule, while end-users will be charged under the fee schedule for end-users. This policy does not preclude exchange point operators from requesting address space under other policies.

ARIN will place an equivalent of a /15 of IPv4 address space in a reserve for Critical Infrastructure, as defined in section 4.4.

ICANN-sanctioned gTLD operators may justify up to the equivalent of an IPv4 /23 block for each authorized gTLD, allocated from the free pool or received via transfer, but not from the above reservation. This limit of a /23 equivalent per gTLD does not apply to gTLD allocations made under previous policy.

4.5. Multiple Discrete Networks

Organizations with multiple discrete networks desiring to request new or additional address space under a single Organization ID must meet the following criteria:

1. The organization shall be a single entity and not a consortium of smaller independent entities.
2. The organization must have compelling criteria for creating discrete networks. Examples of a discrete network might include:
 1. Regulatory restrictions for data transmission,
 2. Geographic distance and diversity between networks,
 3. Autonomous multihomed discrete networks.
3. The organization must keep detailed records on how it has allocated space to each location, including the date of each allocation.
4. When applying for additional internet address registrations from ARIN, the organization must demonstrate utilization greater than 50% of both the last block allocated and the aggregate sum of all blocks allocated from ARIN to that organization. If an organization is unable to satisfy this 50% minimum utilization criteria, the organization may alternatively qualify for additional internet address registrations by having all unallocated blocks of addresses smaller than ARIN's current minimum allocation size.

5. The organization may not allocate additional address space to a location until each of that location's address blocks are 80% utilized.
6. The organization should notify ARIN at the time of the request their desire to apply this policy to their account.
7. Upon verification that the organization has shown evidence of deployment of the new discrete network site, the new network(s) shall be allocated the minimum allocation size under section 4.2.1.5.

4.6., 4.7., 4.8., 4.9. [Retired]

4.10. Dedicated IPv4 block to Facilitate IPv6 Deployment

ARIN shall allocate a contiguous /10 from its last /8 IPv4 allocation from IANA. This IPv4 block will be set aside and dedicated to facilitate IPv6 deployment. Allocations and assignments from this block must be justified by immediate IPv6 deployment requirements. Examples of such needs include: IPv4 addresses for key dual stack DNS servers, and NAT-PT or NAT464 translators. ARIN staff will use their discretion when evaluating justifications.

This block will be subject to a minimum and maximum size allocation of /24. ARIN should use sparse allocation when possible within that /10 block.

In order to receive an allocation or assignment under this policy:

- the applicant may not have received resources under this policy in the preceding six months, except to the extent that the applicant is requesting resources for a discrete network in respect of which it has not received any resources under this policy in the preceding six months;
- previous allocations/assignments under this policy must continue to meet the justification requirements of this policy;
- previous allocations/assignments under this policy must be utilized to at least 80% to obtain an additional allocation or assignment;
- the applicant must demonstrate that no other allocations or assignments will meet this need.
- An applicant requesting multiple allocations under this policy to support Multiple Discrete Networks, as defined under Section 4.5, may not receive more than the equivalent of a /21 of IPv4 address space in any one six-month period hereunder.

5. AS Numbers

There are a limited number of available Autonomous System Numbers (AS Numbers), therefore, it is important to determine which sites require unique AS Numbers and which

do not. Sites that do not require a unique AS Number should use one or more of the AS Numbers reserved for private use. Those numbers are: 64512 through 65534 and 4200000000 through 4294967294 inclusive.

In order to be assigned an AS Number, each requesting organization must provide ARIN with verification that it has one of the following:

1. A unique routing policy (its policy differs from its border gateway peers)
2. A multihomed site.

AS Numbers are issued based on current need. An organization should request an AS Number only when it is already multihomed or will immediately become multihomed.

5.1. [Retired]

6. IPv6

6.1. Introduction

6.1.1. Overview

This document describes policies for the allocation and assignment of globally-unique Internet Protocol Version 6 (IPv6) address space. It updates and obsoletes the existing Provisional IPv6 Policies in effect since 1999. Policies described in this document are intended to be adopted by each registry. However, adoption of this document does not preclude local variations in each region or area.

RFC 2373, RFC 2373bis designate 2000::/3 to be global unicast address space that IANA may allocate to the RIRs. In accordance with RFC 2928, RFC 2373bis, IAB-Request, IANA has allocated initial ranges of global unicast IPv6 address space from the 2001::/16 address block to the existing RIRs. This document concerns the initial and subsequent allocations of the 2000::/3 unicast address space, for which RIRs formulate allocation and assignment policies.

6.2. [Retired]

6.3. Goals of IPv6 Address Space Management

6.3.1. Goals

IPv6 address space is a public resource that must be managed in a prudent manner with regards to the long-term interests of the internet. Responsible address space management involves balancing a set of sometimes competing goals. The following are the goals relevant to IPv6 address policy.

6.3.2. Uniqueness

Every assignment and/or allocation of address space must guarantee uniqueness worldwide. This is an absolute requirement for ensuring that every public host on the Internet can be uniquely identified.

6.3.3. Registration

Internet address space must be registered in a registry database accessible to appropriate members of the Internet community. This is necessary to ensure the uniqueness of each Internet address and to provide reference information for Internet troubleshooting at all levels, ranging from all RIRs and IRs to end users.

The goal of registration should be applied within the context of reasonable privacy considerations and applicable laws.

6.3.4. Aggregation

Wherever possible, address space should be distributed in a hierarchical manner, according to the topology of network infrastructure. This is necessary to permit the aggregation of routing information by ISPs, and to limit the expansion of Internet routing tables.

This goal is particularly important in IPv6 addressing, where the size of the total address pool creates significant implications for both internal and external routing.

IPv6 address policies should seek to avoid fragmentation of address ranges.

Further, RIRs should apply practices that maximize the potential for subsequent allocations to be made contiguous with past allocations currently held. However, there can be no guarantee of contiguous allocation.

6.3.5. Conservation

Although IPv6 provides an extremely large pool of address space, address policies should avoid unnecessarily wasteful practices. Requests for address space should be supported by appropriate documentation and stockpiling of unused addresses should be avoided.

6.3.6. Fairness

All policies and practices relating to the use of public address space should apply fairly and equitably to all existing and potential members of the Internet community, regardless of their location, nationality, size or any other factor.

6.3.7. Minimized Overhead

It is desirable to minimize the overhead associated with obtaining address space. Overhead includes the need to go back to RIRs for additional space too frequently, the overhead associated with managing address space that grows through a number of small successive incremental expansions rather than through fewer, but larger, expansions.

6.3.8. Conflict of Goals

The goals described above will often conflict with each other, or with the needs of individual IRs or end users. All IRs evaluating requests for allocations and assignments must make judgments, seeking to balance the needs of the applicant with the needs of the Internet community as a whole.

In IPv6 address policy, the goal of aggregation is considered to be the most important.

6.4. IPv6 Policy Principles

To address the goals described in the previous section, the policies in this document discuss and follow the basic principles described below.

6.4.1. Address Space Not to be Considered Property

It is contrary to the goals of this document and is not in the interests of the Internet community as a whole for address space to be considered freehold property.

The policies in this document are based upon the understanding that globally-unique IPv6 unicast address space is allocated/assigned for use rather than owned.

6.4.2. Routability Not Guaranteed

There is no guarantee that any address allocation or assignment will be globally routable.

However, RIRs must apply procedures that reduce the possibility of fragmented address space which may lead to a loss of routability.

6.4.3. [Retired]

6.4.4. Consideration of IPv4 Infrastructure

Where an existing IPv4 service provider requests IPv6 space for eventual transition of existing services to IPv6, the number of present IPv4 customers may be used to justify a larger request than would be justified if based solely on the IPv6 infrastructure.

6.5. Policies for Allocations and Assignments

6.5.1. Terminology

- a. The terms ISP and LIR are used interchangeably in this document and any use of either term shall be construed to include both meanings.
- b. The term nibble boundary shall mean a network mask which aligns on a 4-bit boundary (in slash notation, /n, where n is evenly divisible by 4, allowing unit quantities of X such that $2^n = X$ where n is evenly divisible by 4, such as 16, 256, 4096, etc.)

6.5.2. Initial allocation to LIRs

6.5.2.1. Size

- a. All allocations shall be made on nibble boundaries.
- b. In no case shall an LIR receive smaller than a /32 unless they specifically request a /36 or /40.

In order to be eligible for a /40, an ISP must meet the following requirements:

- Hold IPv4 direct allocations totaling a /24 or less (to include zero)
- Hold IPv4 reassignments/reallocations totaling a /22 or less (to include zero)

In no case shall an ISP receive more than a /16 initial allocation.

- c. The maximum allowable allocation shall be the smallest nibble-boundary aligned block that can provide an equally sized nibble-boundary aligned block to each of the requesters serving sites large enough to satisfy the needs of the requesters largest single serving site using no more than 75% of the available addresses.

This calculation can be summarized as $/N$ where $N = P \cdot (X+Y)$ and P is the organization's Provider Allocation Unit X is a multiple of 4 greater than $4/3 \cdot \text{serving sites}$ and Y is a multiple of 4 greater than $4/3 \cdot \text{end sites served by largest serving site}$.

- d. For purposes of the calculation in (c), an end site which can justify more than a /48 under the end-user assignment criteria in 6.5.8 shall count as the appropriate number of /48s that would be assigned under that policy.
- e. For purposes of the calculation in (c), an LIR which has subordinate LIRs shall make such reallocations according to the same policies and criteria as ARIN. In such a case, the prefixes necessary for such a reallocation should be treated as fully utilized in determining the block sizing for the parent LIR. LIRs which do not receive resources directly from ARIN will not be able to make such reallocations to

subordinate LIRs and subordinate LIRs which need more than a /32 shall apply directly to ARIN.

- f. An LIR is not required to design or deploy their network according to this structure. It is strictly a mechanism to determine the largest IP address block to which the LIR is entitled.
- g. An LIR that requests a smaller /36 or /40 allocation is entitled to expand the allocation to any nibble aligned size up to /32 at any time without renumbering or additional justification. /40 allocations shall be automatically upgraded to /36 if at any time said LIR's IPv4 direct allocations exceed a /24. Expansions up to and including a /32 are not considered subsequent allocations, however any expansions beyond /32 are considered subsequent allocations and must conform to section 6.5.3. Partial returns of any IPv6 allocation that results in less than a /36 of holding are not permitted regardless of the ISP's current or former IPv4 number resource holdings.

6.5.2.2. Qualifications

An organization qualifies for an allocation under this policy if they meet any of the following criteria:

- a. Have a previously justified IPv4 ISP allocation from ARIN or one of its predecessor registries or can qualify for an IPv4 ISP allocation under current criteria.
- b. Are currently multihomed for IPv6 or will immediately become multihomed for IPv6 using a valid assigned global AS number.

In either case, they will be making reassignments or reallocations from allocation(s) under this policy to other organizations.

- c. Provide ARIN a reasonable technical justification indicating why an allocation is necessary. Justification must include the intended purposes for the allocation and describe the network infrastructure the allocation will be used to support. Justification must also include a plan detailing anticipated reassignments and reallocations to other organizations or customers for one, two and five year periods, with a minimum of 50 assignments within 5 years.

6.5.3. Subsequent Allocations to LIRs

- a. Where possible ARIN will make subsequent allocations by expanding the existing allocation.
- b. An LIR qualifies for a subsequent allocation if they meet any of the following criteria:
 - Shows utilization of 75% or more of their total address space

- Shows utilization of more than 90% of any serving site
 - Has allocated more than 90% of their total address space to serving sites, with the block size allocated to each serving site being justified based on the criteria specified in section 6.5.2
- c. If ARIN can not expand one or more existing allocations, ARIN shall make a new allocation based on the initial allocation criteria above. The LIR is encouraged, but not required to renumber into the new allocation over time and return any allocations no longer in use.
- d. If an LIR has already reached a /12 or more, ARIN will allocate a single additional /12 rather than continue expanding nibble boundaries.

6.5.3.1. Subsequent Allocations for Transition

Subsequent allocations will also be considered for deployments that cannot be accommodated by, nor were accounted for, under the initial allocation. Justification for the subsequent subnet size will be based on the plan and technology provided with a /24 being the maximum allowed for a transition technology. Justification for transitional allocations will be reviewed every 3 years and reclaimed if they are no longer in use for transitional purposes. All such allocations for transitional technology will be made from a block designated for this purpose.

6.5.4. Reassignments from LIRs/ISPs

Reassignments to end users shall be governed by the same practices adopted by the community in section 6.5.8 except that the requirements in 6.5.8.1 do not apply.

6.5.4.1. Reassignment to Operator's Infrastructure

An LIR may reassign up to a /48 per PoP as well as up to an additional /48 globally for its own infrastructure.

6.5.5. Registration

ISPs are required to demonstrate efficient use of IP address space allocations by providing appropriate documentation, including but not limited to reassignment and reallocation histories, showing their efficient use.

6.5.5.1. Reassignment Information

Each static IPv6 reassignment or reallocation containing a /47 or more addresses, or subdelegation of any size that will be individually announced, shall be registered in the WHOIS directory via SWIP or a distributed service which meets the standards set forth in section 3.2. Reassignment registrations

shall include each client's organizational information, except where specifically exempted by this policy.

6.5.5.2. Reassignments and Reallocations Visible Within Seven Days

All reassignments and reallocations shall be made visible as required in section 6.5.5.1 within seven calendar days of reassignment or reallocation.

6.5.5.3. Residential Subscribers

6.5.5.3.1. Residential Customer Privacy

To maintain the privacy of their residential customers, an organization with downstream residential customers may substitute that organization's name for the customer's name, e.g. 'Private Customer - XYZ Network', and the customer's street address may read 'Private Residence'. Each private downstream residential reassignment must have accurate upstream Abuse and Technical POCs visible on the WHOIS or Distributed Information Service record for that block.

6.5.5.4. Registration Requested by Recipient

If the downstream recipient of a static assignment of /64 or more addresses requests publishing of that assignment in ARIN's registration database, the ISP shall register that assignment as described in section 6.5.5.1.

6.5.6. [Retired]

6.5.7. Existing IPv6 Address Space Holders

LIRs which received an allocation under previous policies which is smaller than what they are entitled to under this policy may receive a new initial allocation under this policy. If possible, ARIN will expand their existing allocation.

6.5.8. Direct Assignments from ARIN to End-user Organizations

6.5.8.1. Initial Assignment Criteria

Organizations may justify an initial assignment for addressing devices directly attached to their own network infrastructure, with an intent for the addresses to begin operational use within 12 months, by meeting one of the following criteria:

- a. Having a previously justified IPv4 end-user assignment from ARIN or one of its predecessor registries, or;
- b. Currently being IPv6 Multihomed or immediately becoming IPv6 Multihomed and using an assigned valid global AS number, or;

- c. By having a network that makes active use of a minimum of 2000 IPv6 addresses within 12 months, or;
- d. By having a network that makes active use of a minimum of 200 /64 subnets within 12 months, or;
- e. By having a contiguous network that has a minimum of 13 active sites within 12 months, or;
- f. By providing a reasonable technical justification indicating why IPv6 addresses from an ISP or other LIR are unsuitable.

Examples of justifications for why addresses from an ISP or other LIR may be unsuitable include, but are not limited to:

- An organization that operates infrastructure critical to life safety or the functioning of society can justify the need for an assignment based on the fact that renumbering would have a broader than expected impact than simply the number of hosts directly involved. These would include: hospitals, fire fighting, police, emergency response, power or energy distribution, water or waste treatment, traffic management and control, etc.
- Regardless of the number of hosts directly involved, an organization can justify the need for an assignment if renumbering would affect 2000 or more individuals either internal or external to the organization.
- An organization with a network not connected to the Internet can justify the need for an assignment by documenting a need for guaranteed uniqueness, beyond the statistical uniqueness provided by ULA (see RFC 4193).
- An organization with a network not connected to the Internet, such as a VPN overlay network, can justify the need for an assignment if they require authoritative delegation of reverse DNS.

6.5.8.2. Initial Assignment Size

Organizations that meet at least one of the initial assignment criteria above are eligible to receive an initial assignment of /48. Requests for larger initial assignments, reasonably justified with supporting documentation, will be evaluated based on the number of sites in an organization's network and the number of subnets needed to support any extra-large sites defined below.

The initial assignment size will be determined by the number of sites justified below. An organization qualifies for an assignment on the next larger nibble boundary when their sites exceed 75% of the /48s available in a prefix. For example:

More than 1 but less than or equal to 12 sites justified, receives a /44 assignment;

More than 12 but less than or equal to 192 sites justified, receives a /40 assignment;

More than 192 but less than or equal to 3,072 sites justified, receives a /36 assignment;

More than 3,072 but less than or equal to 49,152 sites justified, receives a /32 assignment; etc...

6.5.8.2.1. Standard Sites

A site is a discrete location that is part of an organization's network. A campus with multiple buildings may be considered as one or multiple sites, based on the implementation of its network infrastructure. For a campus to be considered as multiple sites, reasonable technical documentation must be submitted describing how the network infrastructure is implemented in a manner equivalent to multiple sites.

An organization may request up to a /48 for each site in its network, and any sites that will be operational within 12 months.

6.5.8.2.2. Extra-large Sites

In rare cases, an organization may request more than a /48 for an extra-large site which requires more than 16,384 /64 subnets. In such a case, a detailed subnet plan must be submitted for each extra-large site in an organization's network. An extra-large site qualifies for the next larger prefix when the total subnet utilization exceeds 25%. Each extra-large site will be counted as an equivalent number of /48 standard sites.

6.5.8.3. Subsequent Assignments

Requests for subsequent assignments with supporting documentation will be evaluated based on the same criteria as an initial assignment under 6.5.8.2 with the following modifications:

- a. A subsequent assignment is justified when the total utilization based on the number of sites justified exceeds 75% across all of an organization's assignments. If the organization received an assignment per section 6.11 IPv6 Multiple Discrete Networks, such assignments will be evaluated as if they were to a separate organization.
- b. When possible subsequent assignments will result in the expansion of an existing assignment by one or more nibble boundaries as justified.
- c. If it is not possible to expand an existing assignment, or to expand it adequately to meet the justified need, then a separate new assignment will be made of the size justified.

6.5.8.4. Consolidation and Return of Separate Assignments

Organizations with multiple separate assignments should consolidate into a single aggregate, if feasible. If an organization stops using one or more of its separate assignments, any unused assignments must be returned to ARIN.

6.5.9. Community Network Allocations

While community networks would normally be considered to be ISP type organizations under existing ARIN criteria, they tend to operate on much tighter budgets and often depend on volunteer labor. As a result, they tend to be much smaller and more communal in their organization rather than provider/customer relationships of commercial ISPs. This section seeks to provide a policy that is more friendly to those environments by allowing community network to receive a smaller allocation than other LIRs or commercial ISPs.

Community networks may also qualify under section 6.5.2 as a regular LIR.

6.5.9.1. Qualification Criteria

To qualify under this section, a community network must demonstrate to ARIN's satisfaction that it meets the definition of a community network under section 2.11 of the NRPM.

6.5.9.2. Allocation Size

Community networks are eligible only to receive an allocation of /40 of IPv6 resources under this section. Community networks that wish to receive a larger initial allocation or any subsequent allocations must qualify as a regular LIR, see sections 6.5.2 or 6.5.3 respectively.

6.5.9.3. Reassignments by Community Networks

Similar to other LIRs, Community networks shall make reassignments to end-users in accordance with applicable policies, in particular, but not limited to sections 6.5.4 and 6.5.5. However, they shall not reallocate resources under this section.

6.6., 6.7., 6.8., 6.9. [Retired]

6.10. Micro-allocations

6.10.1. Micro-allocations for Critical Infrastructure

ARIN will make micro-allocations to critical infrastructure providers of the Internet, including public exchange points,

core DNS service providers (e.g. ICANN-sanctioned root, gTLD, and ccTLD operators) as well as the RIRs and IANA. These allocations will be no longer than a /48. Multiple allocations may be granted in certain situations. - Exchange point allocations MUST be allocated from specific blocks reserved only for this purpose. All other micro-allocations WILL be allocated out of other blocks reserved for micro-allocation purposes. ARIN will make a list of these blocks publicly available. - Exchange point operators must provide justification for the allocation, including: connection policy, location, other participants (minimum of two total), ASN, and contact information. ISPs and other organizations receiving these micro-allocations will be charged under the ISP fee schedule, while end-users will be charged under the fee schedule for end-users. This policy does not preclude exchange point operators from requesting address space under other policies.

6.10.2. Micro-allocations for Internal Infrastructure

Organizations that currently hold IPv6 allocations may apply for a micro-allocation for internal infrastructure. Applicant must provide technical justification indicating why a separate non-routed block is required. Justification must include why a sub-allocation of currently held IP space cannot be utilized. Internal infrastructure allocations must be allocated from specific blocks reserved only for this purpose.

6.11. IPv6 Multiple Discrete Networks

Organizations with multiple discrete IPv6 networks desiring to request new or additional address space under a single Organization ID must meet the following criteria:

1. The organization shall be a single entity and not a consortium of smaller independent entities.
2. The organization must have compelling criteria for creating discrete networks. Examples of a discrete network might include:
 - Regulatory restrictions for data transmission,
 - Geographic distance and diversity between networks,
 - Autonomous multihomed discrete networks.
3. The organization must keep detailed records on how it has allocated space to each location, including the date of each allocation.
4. The organization should notify ARIN at the time of the request their desire to apply this policy to their account.
5. Requests for additional space:
 - Organization must specify on the application which discrete network(s) the request applies to
 - Each network will be judged against the existing utilization criteria specified in 6.5.2

and 6.5.3 as if it were a separate organization, rather than collectively as would be done for requests outside of this policy.

7. [Retired]

8. Transfers

8.1. Principles

Number resources are nontransferable and are not assignable to any other organization unless ARIN has expressly and in writing approved a request for transfer. ARIN is tasked with making prudent decisions on whether to approve the transfer of number resources.

It should be understood that number resources are not 'sold' under ARIN administration. Rather, number resources are assigned to an organization for its exclusive use for the purpose stated in the request, provided the terms of the Registration Services Agreement continue to be met and the stated purpose for the number resources remains the same. Number resources are administered and assigned according to ARIN's published policies.

Number resources are issued, based on justified need, to organizations, not to individuals representing those organizations. Thus, if a company goes out of business, regardless of the reason, the point of contact (POC) listed for the number resource does not have the authority to sell, transfer, assign, or give the number resource to any other person or organization. The POC must notify ARIN if a business fails so the assigned number resources can be returned to the available pool of number resources if a transfer is not requested and justified.

8.2. Mergers, Acquisitions, and Reorganizations

ARIN will consider requests for the transfer of number resources in the case of mergers, acquisitions, and reorganizations under the following conditions:

- The current registrant must not be involved in any dispute as to the status of the resources to be transferred.
- The new entity must sign an RSA covering all resources to be transferred.
- The resources to be transferred will be subject to ARIN policies.
- The minimum transfer size is the smaller of the original allocation size or the applicable minimum allocation size in current policy.
- The Internet number resources being transferred as part of an 8.2 transfer will not be subject to a needs-based assessment during the process of the 8.2 transfer.

-

AND one or more of the following:

- The recipient must provide evidence that they have acquired the assets that use the resources to be transferred from the current registrant.

OR

- The recipient must show that they have acquired the entire entity which is the current registrant.

An organization which serves as the source of an 8.2 IPv4 transfer will not be allowed to apply for IPv4 address space under section 4.1.8 ARIN Waitlist for a period of 36 months following said transfer unless the recipient organization remains a subsidiary, parent company, or under common ownership with the source organization.

Mergers, acquisitions, and reorganization activity resulting in the surviving entity ceasing to have a real and substantial connection with the ARIN region shall be permitted to continue holding any numbering resources issued (directly or indirectly) by ARIN prior to the merger, acquisition or reorganization activity, but shall not qualify for any additional numbering resources (directly or indirectly) from ARIN, unless and until it once again has a real and substantial connection with the ARIN region as required by the Numbering Resource Policy Manual.

8.3. Transfers Between Specified Recipients Within the ARIN Region

In addition to transfers under section 8.2, IPv4 numbers resources and ASNs may be transferred according to the following conditions.

Conditions on source of the transfer:

- The source entity must be the current registered holder of the IPv4 address resources, and not be involved in any dispute as to the status of those resources.
- The source entity must not have received a transfer, allocation, or assignment of IPv4 number resources from ARIN for the 12 months prior to the approval of a transfer request. Number resources received as the result of an 8.2 transfer are out of scope for the purposes of this restriction.
- Address resources from a reserved pool (including those designated in Section 4.4 and 4.10) are not eligible for transfer.
- The source entity will not be allowed to apply for IPv4 address space under Section 4.1.8. ARIN

Waitlist for a period of 36 months following the transfer of IPv4 address resources to another party.

Conditions on recipient of the transfer:

- The recipients must meet the transfer requirements as defined in section 8.5.
- The resources transferred will be subject to current ARIN policies.
- If applicable the recipient will be removed from the ARIN Waitlist and will not be allowed to reapply under section 4.1.8. ARIN Waitlist for a period of 90 days.

8.4. Inter-RIR Transfers to Specified Recipients

Inter-regional transfers of IPv4 number resources and ASNs may take place only via RIRs who agree to the transfer and share reciprocal, compatible needs-based policies.

Conditions on source of the transfer:

- The source entity must be the current rights holder of the IPv4 address resources recognized by the RIR responsible for the resources, and not be involved in any dispute as to the status of those resources.
- Source entities outside of the ARIN region must meet any requirements defined by the RIR where the source entity holds the registration.
- Source entities within the ARIN region must not have received a transfer, allocation, or assignment of IPv4 number resources from ARIN for the 12 months prior to the approval of a transfer request, unless either the source or recipient entity owns or controls the other, or both are under common ownership or control. Number resources received as the result of an 8.2 transfer are out of scope for the purposes of this restriction.
- Address resources from a reserved pool (including those designated in Section 4.4 and 4.10) are not eligible for transfer.
- The source entity will not be allowed to apply for IPv4 address space under Section 4.1.8. ARIN Waitlist for a period of 36 months following the transfer of IPv4 address resources to another party.

Conditions on recipient of the transfer:

- The conditions on a recipient outside of the ARIN region will be defined by the policies of the receiving RIR.
- Specified recipients within the ARIN region must meet the transfer requirements as defined in section 8.5.
- Recipients within the ARIN region will be subject to current ARIN policies.

- If applicable the recipient will be removed from the ARIN Waitlist and will not be allowed to reapply under section 4.1.8. ARIN Waitlist for a period of 90 days.

8.5. Specified Transfer Recipient Requirements

8.5.1. Registration Services Agreement

The receiving entity must sign an RSA covering all resources to be transferred unless that entity has a current (within the last two versions) RSA on file.

8.5.2. Operational Use

ARIN allocates or assigns number resources to organizations via transfer solely for the purpose of use on an operational network.

8.5.3. Minimum Transfer Size

ARIN's minimum IPv4 transfer size is a /24.

8.5.4. Initial Block

Organizations without direct assignments or allocations from ARIN qualify for transfer of an initial IPv4 block of ARIN's minimum transfer size.

8.5.5. Block Size

Organizations may qualify for the transfer of a larger initial block, or an additional block, by providing documentation to ARIN which details the use of at least 50% of the requested IPv4 block size within 24 months. An officer of the organization shall attest to the documentation provided to ARIN.

8.5.6. Efficient Utilization of Previous Blocks

Organizations with direct assignments or allocations from ARIN must have efficiently utilized at least 50% of their cumulative IPv4 address blocks in order to receive additional space. This includes all space reassigned to their customers.

8.5.7. Alternative Additional IPv4 Address Block Criteria

In lieu of 8.5.5 and 8.5.6, organizations may qualify for additional IPv4 address blocks by demonstrating 80% utilization of their currently allocated space. If they do so, they qualify to receive one or more transfers up to the total size of their current ARIN IPv4 address holdings, with a maximum size of /16.

An organization may qualify via 8.5.7 for a total of a /16 equivalent in any 6 month period.

8.6 Wait List Restrictions

Any organization which is on the wait list and submits a request to be the source of a transfer under any provision in section 8 will be removed from the wait list.

9. Out of Region Use

ARIN registered resources may be used outside the ARIN service region. Out of region use of ARIN registered resources are valid justification for additional number resources, provided that the applicant has a real and substantial connection with the ARIN region which applicant must prove (as described below) and is using the same type of resources (with a delegation lineage back to an ARIN allocation or assignment) within the ARIN service region as follows:

- IPv4: At least a /22 used in region
- IPv6: At least a /44 used in region
- ASN: At least one ASN present on one or more peering sessions and/or routers within the region.

A real and substantial connection shall be defined as carrying on business in the ARIN region in a meaningful manner. The determination as to whether an entity is carrying on business in the ARIN region in a meaningful manner shall be made by ARIN. Simply being incorporated in the ARIN region shall not be sufficient, on its own, to prove that an entity is carrying on business in the ARIN region in a meaningful manner. Methods that entities may consider using, including cumulatively, to prove that they are carrying on business in the ARIN region in a meaningful manner include:

- Demonstrating a physical presence in the ARIN region through a bricks and mortar location that is actually used for the purposes of conducting business in the ARIN region in a meaningful manner. That is to say, the location is not merely a registered office that serves no other business purpose.
- Demonstrating that the entity has staff in the ARIN region. The greater the number of staff, the stronger this connecting factor is.
- Demonstrating that the entity holds assets in the ARIN region. The greater the asset value, the stronger this connecting factor is.
- Demonstrating that the entity provides services to and solicits sales from residents of the ARIN region.
- Demonstrating that the entity holds periodic meetings in the ARIN region.
- Demonstrating that the entity raises investment capital from investors in the ARIN region.

- Demonstrating that the entity has a registered corporation in the ARIN region, although this factor on its own shall not be sufficient.
- Other fact based criterion that the entity considers appropriate and submits for ARIN's review.

The weight accorded to any of the above-noted factors, if any, shall be determined solely by ARIN.

The services and facilities used to justify the need for ARIN resources that will be used out of region cannot also be used to justify resource requests from another RIR. When a request for resources from ARIN is justified by need located within another RIR's service region, an officer of the application must attest that the same services and facilities have not been used as the basis for a resource request in the other region(s). ARIN reserves the right to obtain from the applicant a listing of all the applicant's number holdings in the region(s) of proposed use, when there are factual reasons to support the request.

10. Global Number Resource Policy

10.1. IANA to RIR Allocation of IPv4 Address Space

This document describes the policies 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 these policies. Such requirements should be specified by appropriate agreements among the RIRs and ICANN.

1. Allocation Principles

- The IANA will allocate IPv4 address space to the RIRs in /8 units.
- The IANA will allocate sufficient IPv4 address space to the RIRs to support their registration needs for at least an 18 month period.
- The IANA will allow for the RIRs to apply their own respective chosen allocation and reservation strategies in order to ensure the efficiency and efficacy of their work.

2. Initial Allocations

Each new RIR shall, at the moment of recognition, be allocated a new /8 by the IANA. 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.

3. Additional Allocations

A RIR is eligible to receive additional IPv4 address space from the IANA when either of the following conditions are met.

- The RIR's AVAILABLE SPACE of IPv4 addresses is less than 50% of a /8 block.
- The RIR's AVAILABLE SPACE of IPv4 addresses is less than its established NECESSARY SPACE for the following 9 months.

In either case, IANA shall make a single allocation of a whole number of /8 blocks, sufficient to satisfy the established NECESSARY SPACE of the RIR for an 18 month period.

3.1 Calculation of AVAILABLE SPACE

The AVAILABLE SPACE of IPv4 addresses of a RIR shall be determined as follows:

AVAILABLE SPACE = CURRENTLY FREE ADDRESSES +
RESERVATIONS EXPIRING DURING THE FOLLOWING 3
MONTHS - FRAGMENTED SPACE

FRAGMENTED SPACE is determined as the total amount of available blocks smaller than the RIR's minimum allocation size within the RIR's currently available stock.

3.2 Calculation of NECESSARY SPACE

If the applying Regional Internet Registry does not establish any special needs for the period concerned, NECESSARY SPACE shall be determined as follows:

NECESSARY SPACE = AVERAGE NUMBER OF ADDRESSES
ALLOCATED MONTHLY DURING THE PAST 6 MONTHS *
LENGTH OF PERIOD IN MONTHS

If the applying RIR anticipates that due to certain special needs the rate of allocation for the period concerned will be greater than the previous 6 months, it may determine its NECESSARY SPACE as follows:

A) Calculate NECESSARY SPACE as its total needs for that period according to its projection and based on the special facts that justify these needs.

B) Submit a clear and detailed justification of the above mentioned projection (Item A).

If the justification is based on the allocation tendency prepared by the Regional Internet Registry, data explaining said tendency must be enclosed.

If the justification is based on the application of one or more of the Regional Internet Registry's new allocation policies, an impact analysis of the new policy/policies must be enclosed.

If the justification is based on external factors such as new infrastructure, new services within the region, technological advances or legal issues, the corresponding analysis must be enclosed together with references to information sources that will allow verification of the data.

If IANA does not have elements that clearly question the Regional Internet Registry's projection, the special needs projected for the following 18 months, indicated in Item A above, shall be considered valid.

4. Announcement of IANA Allocations

When address space is allocated to a RIR, the IANA will send a detailed announcement to the receiving RIR. The IANA will also make announcements to all other RIRs, informing them of the recent allocation. The RIRs will coordinate announcements to their respective membership lists and any other lists they deem necessary.

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.

10.2. Allocation of IPv6 Address Space by the Internet Assigned Numbers Authority (IANA) Policy to Regional Internet Registries

This document describes the policy governing the allocation of IPv6 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 will be specified by appropriate agreements between ICANN and the NRO.

1. Allocation Principles

- The unit of IPv6 allocation (and therefore the minimum IPv6 allocation) from IANA to an RIR is a /12
- The IANA will allocate sufficient IPv6 address space to the RIRs to support their registration needs for at least an 18 month period.
- The IANA will allow for the RIRs to apply their own respective chosen allocation and reservation strategies in order to ensure the efficiency and efficacy of their work.

2. Initial Allocations

- On inception of this policy, each current RIR with less than a /12 unallocated address space, shall receive an IPv6 allocation from IANA
- Any new RIR shall, on recognition by ICANN receive an IPv6 allocation from the IANA

3. Additional Allocations

A RIR is eligible to receive additional IPv6 address space from the IANA when either of the following conditions are met.

- The RIR's AVAILABLE SPACE of IPv6 addresses is less than 50% of a /12.
- The RIR's AVAILABLE SPACE of IPv6 addresses is less than its established NECESSARY SPACE for the following 9 months.

In either case, IANA shall make a single IPv6 allocation, sufficient to satisfy the established NECESSARY SPACE of the RIR for an 18 month period.

3.1 Calculation of AVAILABLE SPACE

The AVAILABLE SPACE of IPv6 addresses of a RIR shall be determined as follows:

AVAILABLE SPACE = CURRENTLY FREE ADDRESSES +
RESERVATIONS EXPIRING DURING THE FOLLOWING 3
MONTHS - FRAGMENTED SPACE

FRAGMENTED SPACE is determined as the total amount of available blocks smaller than the RIR's minimum allocation size within the RIR's currently available stock.

3.2 Calculation of NECESSARY SPACE

If the applying Regional Internet Registry does not establish any special needs for the period concerned, NECESSARY SPACE shall be determined as follows:

NECESSARY SPACE = AVERAGE NUMBER OF ADDRESSES
ALLOCATED MONTHLY DURING THE PAST 6 MONTHS *
LENGTH OF PERIOD IN MONTHS

If the applying RIR anticipates that due to certain special needs the rate of allocation for the period concerned will be different from the previous 6 months, it may determine its NECESSARY SPACE as follows:

Calculate NECESSARY SPACE as its total needs for that period according to its projection and based on the special facts that justify these needs.

Submit a clear and detailed justification of the above mentioned projection (Item A).

If the justification is based on the allocation tendency prepared by the Regional Internet Registry, data explaining said tendency must be enclosed.

If the justification is based on the application of one or more of the Regional Internet Registry's new allocation policies, an impact analysis of the new policy/policies must be enclosed.

If the justification is based on external factors such as new infrastructure, new services within the region, technological advances or legal issues, the corresponding analysis must be enclosed together with references to information sources that will allow verification of the data.

If IANA does not have elements that clearly question the Regional Internet Registry's projection, the special needs projected for the following 18 months, indicated in Item A above, shall be considered valid.

4. Announcement of IANA Allocations

The IANA, the NRO, and the RIRs will make announcements and update their respective web sites regarding an allocation made by the IANA to an RIR. ICANN and the NRO will establish administrative procedures to manage this process.

10.3. IANA Policy for Allocation of ASN Blocks to RIRs

Abstract

This document describes the policy governing the allocation of Autonomous System Numbers (ASNs) from the IANA to the Regional Internet Registries (RIRs).

This policy document does not stipulate performance requirements in the provision of services by the IANA to an RIR. Such requirements will be specified by appropriate agreements between ICANN and the Number Resource Organization (NRO).

1. Allocation Principles

IANA allocates ASNs to RIRs in blocks of 1024 ASNs. In this document the term "ASN block" refers to a set of 1024 ASNs. Until 31 December 2010, allocations of 2-byte only and 4-byte only ASN blocks will be made separately and independent of each other.

This means until 31 December 2010, RIRs can receive two separate ASN blocks, one for 2-byte only ASNs and one for 4-byte only ASNs from the IANA under this policy. After this date, IANA and the RIRs will cease to make any distinction

between 2-byte only and 4-byte only ASNs, and will operate ASN allocations from an undifferentiated 4-byte ASN allocation pool.

2. Initial Allocations

Each new RIR will be allocated a new ASN block.

3. Additional Allocations

An RIR is eligible to receive (an) additional ASN block(s) from the IANA if one of the following conditions is met:

1. The RIR has assigned/allocated 80% of the previously received ASN block, or
2. The number of free ASNs currently held by the RIR is less than two months need. This projection is based on the monthly average number of ASNs assigned/allocated by the RIR over the previous six months.

An RIR will be allocated as many ASN blocks as are needed to support their registration needs for the next 12 months, based on their average assignment/allocation rate over the previous six months, unless the RIR specifically requests fewer blocks than it qualifies for.

4. Announcement of IANA Allocations

The IANA, the NRO and the RIRs will make announcements and update their respective websites/databases when an allocation is made by the IANA to an RIR. ICANN and the NRO will establish administrative procedures to manage this process.

10.4. Global Policy for the Allocation of the Remaining IPv4 Address Space

This policy describes the process for the allocation of the remaining IPv4 space from IANA to the RIRs. When a minimum amount of available space is reached, one /8 will be allocated from IANA to each RIR, replacing the current IPv4 allocation policy.

In order to fulfill the requirements of this policy, at the time it is adopted, one /8 will be reserved by IANA for each RIR. The reserved allocation units will no longer be part of the available space at the IANA pool. IANA will also reserve one /8 to any new RIR at the time it is recognized.

The process for the allocation of the remaining IPv4 space is divided in two consecutive phases:

10.4.1. Existing Policy Phase

During this phase IANA will continue allocating IPv4 addresses to the RIRs using the existing allocation policy. This phase will continue until a request for IPv4 address space from any RIR to IANA either cannot be fulfilled with the remaining IPv4 space available at the IANA pool or can be fulfilled but leaving the IANA remaining IPv4 pool empty.

This will be the last IPv4 address space request that IANA will accept from any RIR. At this point the next phase of the process (Exhaustion Phase) will be initiated.

10.4.2. Exhaustion Phase

During this phase IANA will automatically allocate the reserved IPv4 allocation units to each RIR (one /8 to each one) and respond to the last request with the remaining available allocation units at the IANA pool (M units).

10.4.2.1. Size of the Final IPv4 Allocations

In this phase IANA will automatically allocate one /8 to each RIR from the reserved space as defined in this policy. IANA will also allocate M allocation units to the RIR that submitted the last request for IPv4 addresses.

10.4.2.2. Allocation of the Remaining IPv4 Address Space

After the completion of the evaluation of the final request for IPv4 addresses, IANA MUST:

- a. Immediately notify the NRO about the activation of the second phase (Exhaustion Phase) of this policy.
- b. Proceed to allocate M allocation units to the RIR that submitted the last request for IPv4 address space.
- c. Proceed to allocate one /8 to each RIR from the reserved space.

10.5. Global Policy for Post Exhaustion IPv4 Allocation Mechanisms by the IANA

The IANA shall establish a Recovered IPv4 Pool to be utilized post RIR IPv4 exhaustion. The Recovered IPv4 Pool will initially contain any fragments that may be left over in the IANA. It will also hold any space returned to the IANA by any other means.

The Recovered IPv4 Pool will be administered by the IANA. It will contain:

- a. Any fragments left over in the IANA inventory after the last /8s of IPv4 space are delegated to the RIRs
- The IANA inventory excludes "Special use IPv4 addresses" as defined in BCP 153 and any addresses allocated by the IANA for experimental use.

b. Any IPv4 space returned to the IANA by any means.

The Recovered IPv4 Pool will stay inactive until the first RIR has less than a total of a /9 in its inventory of IPv4 address space. When one of the RIRs declares it has less than a total of a /9 in its inventory, the Recovered IPv4 pool will be declared active, and IP addresses from the Recovered IPv4 Pool will be allocated as follows:

- a. Allocations from the IANA may begin once the pool is declared active.
- b. In each "IPv4 allocation period", each RIR will receive a single "IPv4 allocation unit" from the IANA.
- c. An "IPv4 allocation period" is defined as a 6-month period following 1 March or 1 September in each year.
- d. The IANA will calculate the size of the "IPv4 allocation unit" at the following times:
 - When the Recovered IPv4 Pool is first activated
 - At the beginning of each IPv4 allocation period

To calculate the "IPv4 allocation unit" at these times, the IANA will use the following formula:

IPv4 allocation unit = $1/5$ of Recovered IPv4 pool, rounded down to the next CIDR (power-of-2) boundary.

No RIR may get more than this calculation used to determine the IPv4 allocation unit even when they can justify a need for it.

The minimum "IPv4 allocation unit" size will be a /24. If the calculation used to determine the IPv4 allocation unit results in a block smaller than a /24, the IANA will not distribute any addresses in that IPv4 allocation period.

The IANA may make public announcements of IPv4 address 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.

11. Experimental Internet Resource Allocations

ARIN will allocate Numbering Resources to entities requiring temporary Numbering Resources for a fixed period of time under the terms of recognized experimental activity.

"Numbering Resources" refers to unicast IPv4 or IPv6 address space and Autonomous System numbers.

The following are the criteria for this policy:

11.1. Documentation of Recognized Experimental Activity

A Recognized Experimental Activity is one where the experiment's objectives and practices are described in a publicly accessible document. It is a normal requirement that a Recognized Experimental Activity also includes the undertaking that the experiment's outcomes be published in a publicly accessible document at the end of the experiment. The conditions for determining the end of the experiment are to be included in the document. Applicants for an experimental allocation are expected to demonstrate an understanding that when the experiment ends, the allocation will be returned; a successful experiment may need a new allocation under normal policies in order to continue in production or commercial use, but will not retain the experimental allocation.

A "publicly accessible document" is a document that is publicly and openly available free of charges and free of any constraints of disclosure.

ARIN will not recognize an experimental activity under this policy if the entire research experiment cannot be publicly disclosed.

ARIN has a strong preference for the recognition of experimental activity documentation in the form of a document which has been approved for publication by the IESG or by a similar mechanism as implemented by the IETF.

11.2. Technical Coordination

ARIN requires that a recognized experimental activity is able to demonstrate that the activity is technically coordinated.

Technical coordination specifically includes consideration of any potential negative impact of the proposed experiment on the operation of the Internet and its deployed services, and consideration of any related experimental activity.

ARIN will review planned experimental activities to ensure that they are technically coordinated. This review will be conducted with ARIN and/or third-party expertise and will include liaison with the IETF.

11.3. Coordination over Resource Use

When the IETF's standards development process proposes a change in the use of Numbering Resources on an experimental basis the IETF should use a liaison mechanism with the Regional Internet Registries (RIRs) of this proposal.

The RIRs will jointly or severally respond to the IETF using the same liaison mechanism.

11.4. Resource Allocation Term and Renewal

The Numbering Resources are allocated for a period of one year. The allocation can be renewed on application to ARIN providing information as per Detail One. The identity and details of the applicant and the allocated Numbering Resources will be published under the conditions of ARIN's normal publication policy. At the end of the experiment, resources allocated under this policy will be returned to the available pool.

11.5. Single Resource Allocation per Experiment

ARIN will make one-off allocations only, on an annual basis to any applicant. Additional allocations to an organization already holding experimental activity resources relating to the specified activity outside the annual cycle will not be made unless justified by a subsequent complete application.

It's important for the requesting organization to ensure they have sufficient resources requested as part of their initial application for the proposed experimental use.

11.6. Resource Allocation Fees

ARIN may charge an administration fee to cover each allocation made of these experimental resources. This fee simply covers registration and maintenance, rather than the full allocation process for standard ARIN members. This administration fee should be as low as possible as these requests do not have to undergo the same evaluation process as those requested in the normal policy environment.

11.7. Resource Allocation Guidelines

The Numbering Resources requested come from the global Internet Resource space, do not overlap currently assigned space, and are not from private or other non-routable Internet Resource space. The allocation size shall be consistent with the existing ARIN minimum allocation sizes, unless smaller allocations are intended to be explicitly part of the experiment. If an organization requires more resources than stipulated by the minimum allocation size in force at the time of its request, the request must clearly describe and justify why a larger allocation is required. All research allocations must be registered publicly in whois. Each research allocation will be designated as a research allocation with a comment indicating when the allocation will end.

11.8. Commercial Use Prohibited

If there is any evidence that the temporary resource is being used for commercial purposes, or is being used for any

activities not documented in the original experiment description provided to ARIN, ARIN reserves the right to immediately withdraw the resource and reassign it to the free pool.

11.9. Resource Request Appeal or Arbitration

ARIN reserves the ability to assess and comment on the objectives of the experiment with regard to the requested amount of Numbering Resources and its technical coordination. ARIN reserves the ability to modify the requested allocation as appropriate, and in agreement with the proposer. In the event that the proposed modifications are not acceptable, the requesting organization may request an appeal or arbitration using the normal ARIN procedures. In this case, the original proposer of the experimental activity may be requested to provide additional information regarding the experiment, its objectives and the manner of technical coordination, to assist in the resolution of the appeal.

12. Resource Review

1. ARIN may review the current usage of any resources maintained in the ARIN database. The organization shall cooperate with any request from ARIN for reasonable related documentation.
2. ARIN may conduct such reviews:
 - a) when any new resource is requested,
 - b) whenever ARIN has reason to believe that the resources were originally obtained fraudulently or in contravention of existing policy, or
 - c) whenever ARIN has reason to believe that an organization is not complying with reassignment or reallocation policies, or
 - d) at any other time without having to establish cause unless a full review has been completed in the preceding 24 months.
3. At the conclusion of a review in which ARIN has solicited information from the resource holder, ARIN shall communicate to the resource holder that the review has been concluded and what, if any, further actions are required.
4. Organizations found by ARIN to be materially out of compliance with current ARIN policy shall be requested or required to return resources as needed to bring them into (or reasonably close to) compliance.
 - a) The degree to which an organization may remain out of compliance shall be based on the reasonable judgment of the ARIN staff and shall balance all facts known, including the organization's utilization rate, available address pool, and other factors as appropriate so as to avoid forcing returns

which will result in near-term additional requests or unnecessary route de-aggregation.

- b) To the extent possible, entire blocks should be returned. Partial address blocks shall be returned in such a way that the portion retained will comprise a single aggregate block.
- 5. If the organization does not voluntarily return resources as requested, ARIN may revoke any resources issued by ARIN as required to bring the organization into overall compliance. ARIN shall follow the same guidelines for revocation that are required for voluntary return in the previous paragraph.
- 6. Except in cases of fraud, or violations of policy, an organization shall be given a minimum of six months to effect a return. ARIN shall negotiate a longer term with the organization if ARIN believes the organization is working in good faith to substantially restore compliance and has a valid need for additional time to renumber out of the affected blocks.
- 7. In case of a return under paragraphs 12.4 through 12.6, ARIN shall continue to provide services for the resource(s) while their return or revocation is pending, except any maintenance fees assessed during that period shall be calculated as if the return or revocation was complete.
- 8. This policy does not create any additional authority for ARIN to revoke legacy address space. However, the utilization of legacy resources shall be considered during a review to assess overall compliance.
- 9. In considering compliance with policies which allow a timeframe (such as a requirement to assign some number of prefixes within 5 years), failure to comply cannot be measured until after the timeframe specified in the applicable policy has elapsed. Blocks subject to such a policy shall be assumed in compliance with that policy until such time as the specified time since issuance has elapsed.

Appendix A - Change Log

The Change Log can be found at:

https://www.arin.net/policy/nrpm_changelog.html