LACNIC POLICY MANUAL (v2.16 – 03/08/2022)

ABSTRACT

For the region of Latin America and the Caribbean, IP address space is allocated by IANA to LACNIC for its subsequent allocation and assignment to National Internet Registries (NIRs), Internet Service Providers (ISPs), and end users. In addition, administration of Autonomous System Numbers and reverse resolution space are critical components for the efficient operation of the Internet on a global level. This document describes the policies and procedures relating to the allocation, assignment and administration of IPv4 and IPv6 address space, ASN, and the delegation of the reverse resolution space assigned to Latin America and the Caribbean. These policies must be followed by NIRs, ISPs, and end users.

Change Log:
Version 1.0 - Original Version.
Version 1.1 - Global ASNs Policy (LAC-2007-08) added.
Version 1.2 - Global Policy for the Allocation of the Remaining IPv4 Address Space (LAC-2008-01) added.
Version 1.3 - IPv6 Allocations to ISPs or LIRs with previous IPv4 allocations (LAC-2009-02) added.
ASPLAIN notation for 32-bit ASNs (LAC-2009-03) added.
Allocation of 16-bit only ASNs (LAC-2009-05) added.
Modification of the minimum initial IPv4 allocation size for ISPs to a /22 (LAC-2009-07) added.
Version 1.4 - Transfers of IPv4 Blocks within the LACNIC Region (LAC-2009-04) added.
Resource recovery (LAC-2009-06) added.
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Version 1.5 - Modification: 2.3.3.3. Direct Allocations to Internet Service Providers (LAC-2009-09) added.
Initial allocation and assignment of IPv4 addresses for ISPs (LAC-2010-05) added.
Assignment to End Users with need of interconection (LAC-2010-06) added.
Version 1.5.1 – Typing error in chapter 7 corrected.
Version 1.6 - Inclusion of ASN in the whois when available (LAC-2010-03) added.
Version 1.7 - Elimination of technical restrictions on IPv6 prefix de-aggregation (LAC-2011-01) added.
Modification of Section 2.3.3 - Initial IPv4 Address Allocation and Assignment (LAC-2011-02) added.
Version 1.7.1 – Reference to IPv4 Resources Distribution Report added in section 2.3.4.
Version 1.8 – Modification of Section 2.3.4 - Policies for the Distribution of Additional IPv4 Address Space (LAC-2011-03) added.
Add line 6 to Section 11.1 of the Policy Manual on IPv4 address exhaustion (LAC-2011-04) added.
Distributions / Allocations for a smooth finish of IPv4 resources (LAC-2011-06) added.
Version 1.9 - Global Policy for post exhaustion IPv4 allocation mechanisms by the IANA (LAC-2011-05) added.
Version 1.10 - Registering assignments (LAC-2012-02) added.
Special IPv4 Allocations/Assignments Reserved for New Members (LAC-2012-02) added.

Version 1.11 - Post-Exhaustion IPv4 IANA-distributed Allocations/Assignments (LAC-2012-05) added
Update RIRs-on-48 (LAC-2012-09) added
Allocation of IPv6 address blocks larger than a /32 (LAC-2012-10) added
Eliminating Requirement for Initial IPv4 End-User Requests (LAC-2012-12) added
Version 1.12 – Appendix 5, Requirements for ASO AC nominees
Version 2.0 – Add changes of proposal LAC-2013-02 Principles of Governing the Distribution of Number Resources
Version 2.1 – Add changes of proposal LAC-2013-03v2 - Adapting the allocation / assignment policy for IPv4 exhaustion.
Version 2.2 – Add changes of proposal LAC – 2013-4 – Management of Returned Internet Resources.
Version 2.3 – Add changes of proposal LAC – 2014-2 – Modification to the text describing ASN distribution requirements.
Version 2.4 – Add changes of proposal LAC – 2015-6 – Modify the scope of IPv4 Exhaustion Phase 2 for the region.
Version 2.5 – Add changes of proposal LAC –2015-4: Resource Recovery Timeline.

Add changes of proposal LAC –2015-5: Increase the minimum period of time required before a block can be transferred under section 2.3.2.18
Version 2.5.1 – Add changes of proposal Trigger 2.3.2.18 when a justified request larger than /22 is received which can not be allocated from any remaining pool of addresses at LACNIC.
Version 2.6 - Add changes of proposal LAC-2016-4: Modify direct IPv6 address assignments to end users.
Add changes of proposal LAC-2016-6: Modify the initial assignment size and the requirements for subsequent direct IPv6 assignments to end sites
Version 2.7 - Add changes of proposal LAC-2016-2: IPv4 reserve pool for critical Internet infrastructure in the region.
Version 2.8 - Add changes of proposal LAC-2016-7: Modify the size of initial IPv6 allocations
Add changes of proposal LAC-2017-1: Rectifying the size of initial allocations
Add changes of proposal LAC-2017-4: Modify the minimum size of initial allocations to ISPs
Add changes of proposal LAC-2017-5: Addenda − Resource revocation

Version 2.9 – Add changes of proposal LAC-2017-9: Modifying "Subsequent Allocation" for IPv6

Add changes of proposal LAC-2017-8: Modifying initial allocations to End User
Add changes of proposal LAC-2017-6: Modify the Resource Recovery Process

Version 2.10 - Add changes of proposals:
- **LAC-2018-3: IP-Based Geolocation**
- **LAC-2018-4: Review and correction of errors in the IPv6 policy**
- **LAC-2018-9: Update to the Policy on Initial IPv4 Allocations to ISPs**

Version 2.11 - Add changes of proposals:

- **LAC-2018-8: Update to the Policy on IPv4 Assignments to End Users**
- **LAC-2018-11: Remove the reference to an applicant's multihomed status from the policy on IPv4 assignments to end users**

Version 2.12 – Add changes of proposals:
- **LAC-2018-7: Clarifications of Sub-Assignments**
- **LAC-2019-1: IPv4 Resource Transfer Policy (comprehensive)**

Version 2.13 – Add changes of proposals:
- **LAC-2018-5: Registration and validation of abuse contact**
- **LAC-2019-2: IPv4 Mergers, Acquisitions, Reorganizations and Relocations**

- **LAC-2019-3: IPv6 Mergers, Acquisitions, Reorganizations and Relocations**
- **LAC-2019-4: ASN Mergers, Acquisitions, Reorganizations and Relocations**
- **LAC-2019-6: Resources Are Assigned in a Unique and Exclusive Capacity**

Versión 2.13.1 – The following text in section 2.3.2.18 is eliminated " * Currently, only intra-RIR transfers are implemented. Inter-RIR transfers are in the process of implementation".

Versión 2.14 – Add changes of the proposal:

- **LAC-2019-9: Update to "Resource Recovery and Return" and consistency with the rest of the Manual**
- **LAC-2019-12: ROAs RPKI con ASN 0**

Versión 2.15 – Add changes of the proposal:

- **LAC-2021-1: Modify section "2.3.2.19 and 4.3 Inclusion of origin ASN in WHOIS responses when available"**

Versión 2.16 – Add changes of the proposal:

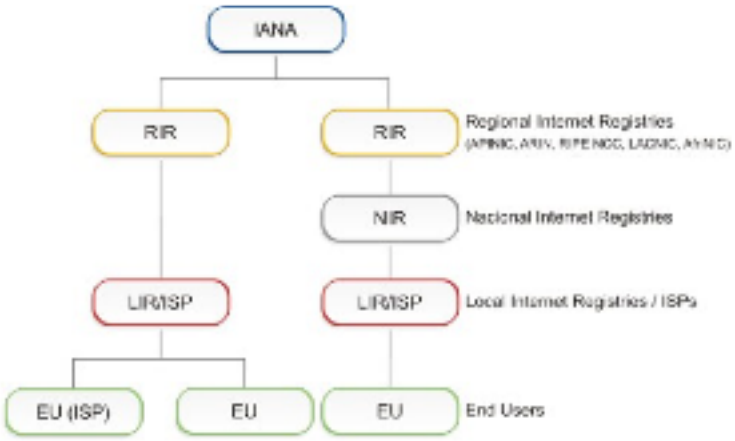
- **LAC-2021-4: Permission to Transfer and Non-Return of Resources**

Table of Contents

1. DEFINITIONS

The following terms and their definitions are of great importance for the correct comprehension of the objectives, context and policies described herein.

IP address allocation follows a hierarchical scheme. Responsibility for the administration of number resources is distributed globally in accordance with the hierarchical structure shown below.



1.1.IANA (Internet Assigned Number Authority)

IANA is responsible for allocating part of the global IP address space and autonomous system numbers to Regional Registries according to established needs.

1.2.Internet Registry (IR)

An Internet Registry (IR) is an organization responsible for allocating IP address space to its members or customers and for registering those allocations. IRs are classified according to their main function and geographic area of coverage as indicated in the hierarchical structure defined in the figure above.

1.3.Regional Internet Registry (RIR)

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

1.4.National Internet Registry (NIR)

A National Internet Registry (NIR) primarily allocates Internet resources to its members or constituents, which are generally LIRs.

1.5.Local Internet Registry (LIR)

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

1.6.Internet Service Provider (ISP)

Internet Service Providers mainly assign IP address space to end users of the network services they provide. Their clients may be other ISPs. ISPs do not have geographical restrictions as do NIRs.

1.7.End Site or End User (EU)

An end site is defined as an end user (subscriber) that has a legal or commercial relationship (the same or associated entities) with an Internet service provider which involves:

- the service provider assigning address space to the end user
- the service provider offering transit services for the end user towards other sites
- the service provider transporting the end user's traffic
- the service provider announcing an aggregated route prefix which contains the address space assigned by LACNIC to the end user

1.8.Allocate

To allocate means to distribute address space to IRs for the purpose of subsequent distribution by them.

1.9.Assign

To assign means to delegate address space to an end user, to be exclusively used within the infrastructure operated by said end user, as well as for interconnection purposes.

The assigned address space must only be used by the original recipient of the assignment, as well as for third-party devices provided they are operating within said infrastructure.

Therefore, sub-assignments to third parties outside said infrastructure (for example, the use of end-user assignments for ISPs or similar clients) and providing addresses to third parties in data centers (and others) are not allowed.

1.10.The Internet Registry System

The Internet registry system has been established with the aim of enforcing the objectives of exclusivity, preservation, routability and information. This system consists of hierarchically organized Internet registries (IRs). Internet number resources (addresses, ASNs, others) are typically assigned to end users by ISPs or NIRs.

These resources are previously allocated to NIRs and ISPs by the Regional Internet Registries.

Under this system, end users are organizations that operate networks that use the resources. Just as LACNIC, NIRs maintain resources for making assignments to end users or allocations to Internet Service Providers. Assigned resources are used to operate networks, whereas allocated resources are kept by Internet Registries for their future assignment to end users.

Note that the resources allocated or assigned by LACNIC or by the NIRs are to be used exclusively by their recipient or by third parties authorized by the recipient, provided that the policies currently in force allow such use. We recommend that such authorizations can be verified using RPKI.

1.11.Non-Guaranteed Routability

Neither LACNIC nor the NIRs will guarantee the routability of allocated or assigned addresses.

Resource recipients are responsible for negotiating such routability with their connectivity providers. LACNIC shall provide the corresponding guidance when necessary.

However, allocated or assigned resources must be announced within a maximum of 90 days, except in those cases where the need not to announce the resources is justified.

RIRs must apply operational procedures that reduce the possibility of fragmentation of the address space to minimize the risk of loss of routability.

1.12.Multihomed

A site is considered to be multihomed if it receives full-time connectivity from more than one Internet service provider and has one or more routing prefixes announced by at least two of its upstream providers. Independent providers refer to the fact that one does not reach the Internet through the other.

1.13.RPKI ASN 0 ROA

LACNIC will create specific Routing Origin Authorizations (ROAs) in the RPKI infrastructure with AS 0 in the Origin ASN field and the list of unallocated or unassigned Internet Number Resources exclusively under LACNIC administration in the Prefixes list such ROAs.

The number of the before mentioned ROAs and any other technical parameter of it will be under LACNIC discretion

Only LACNIC would have authority to create RPKI ROAs for Internet Number Resources not yet allocated or assigned or either recovered or returned, to which LACNIC is the rightful custodian.

Once an Internet Number Resource is allocated or assigned, LACNIC will invalidate ROAs that contain such resources and will issue new ROAs that do not include them, as necessary.

1.14.Principles for Proper Administration and Stewardship

The fundamental principle is to distribute unique Internet numbering resources according to the technical and operational needs of the networks currently using, or that will use, these numbering resources, allowing the sustainable growth of the Internet.

The numbering resources under the stewardship of LACNIC must be distributed among organizations legally constituted within its service region [COBERTURA] and mainly *serving networks and services operating in this region. External clients connected directly to main infrastructure located in the region are allowed.

*“Mainly” is understood to mean more than 50%.

"Anycast" services that use numbering resources outside said region are acceptable as long as they are provided by an organization legally constituted within the service region [COBERTURA] and at least one copy of the service is hosted on local infrastructure.

Upon obtaining any type of resources from LACNIC or from the corresponding NIR, any legacy resources held by the recipient will no longer be considered legacy resources.

1.14.1.Rational Distribution

Internet numbering resources must be distributed ensuring their uniqueness and considering the technical and operational needs of the networks and infrastructure that use them. Considerations must be made to take into account potential limitations on the availability of each numbering resource at the time of their distribution.

1.14.2.Public Information Registry

Providing a public registry of information relating to the numbering resources that have been distributed is a fundamental requirement for the Internet numbering resources distribution system.

Aimed mainly at ensuring the resources' uniqueness while providing usage and contact information in case operational or security problems arise. Also, to allow analyzing the use of these resources.

1.14.3.Hierarchical Distribution

The hierarchical distribution of Internet numbering resources seeks to contribute to the Internet routing system's scalability, allowing resources to be grouped and announced as concisely as possible.

In some cases, the goals mentioned above may be in conflict with each other or with the particular interests of the requesting organizations. In these cases, a careful analysis of each particular situation is required so that an appropriate compromise can be reached among the conflicting parties.

1.15.Resource Requests

Resource requests to LACNIC or to the corresponding NIRs will be made under the systems in force.

Any request that is considered incomplete will be returned to the applicant with the appropriate instructions so that it can be completed.

2. IPv4 ADDRESSES

2.1.SCOPE

This chapter describes the Internet resource management system in the region of Latin America and the Caribbean. In particular, it describes the rules and guidelines that govern the allocation of the IPv4 address blocks assigned to Latin America and the Caribbean. In the case of IP addresses, the rules established in this chapter apply to all IPv4 address blocks allocated or assigned through LACNIC as well as to those previously allocated and assigned by ARIN.

This chapter does not describe private Internet address space or multicast address space. Neither does this chapter describe IPv6 address space management, a topic that is dealt with in the chapter titled "IPv6 Address Allocation and Assignment Policies." A distinction is made in this document between IP address **allocation** and **assignment**. IP addresses are **allocated** to NIRs and ISPs so that they may in turn **assign** them to their end users.

2.2.IPv4 ADDRESS SPACE AND THE INTERNET REGISTRY SYSTEM

2.2.1.Types of IPv4 Addresses

For the purpose of this chapter, IPv4 addresses are 32-bit binary numbers that are used as addresses in IPv4 protocols used in the Internet. There are three types of IPv4 addresses.

2.2.1.1.Public IPv4 Addresses

Public IPv4 addresses constitute the Internet address space. These addresses are globally unique and allocated in accordance with the objectives that will later be described herein. The main objective of this address space is to allow communication using IPv4 on the Internet.

A secondary objective is to allow communication between interconnected private networks.

2.2.1.2.Private IPv4 Addresses

Certain IPv4 address ranges have been reserved for the operation of private networks. Any organization may use these IPv4 addresses in their private networks without the need of requesting them from an Internet Registry. The main requirement established for the use of private IPv4 addresses is that the hosts that use these IPv4 addresses do not need to be reached through the Internet.

For a more detailed description of the private IPv4 address space, see **RFC 1918**.

2.2.1.3.Special and Reserved IPv4 Addresses

These are IPv4 address ranges reserved for applications such as multicasting. These IPv4 addresses are described in **RFC 1112** and are beyond the scope of this chapter.

2.3.IPv4 ADDRESS ALLOCATION AND ASSIGNMENT POLICIES

2.3.1.Introduction

This chapter describes how an Internet Registry (for future reference, this concept encompasses Internet Service Providers and National Internet Registries) may obtain an IPv4 address allocation and how that allocated space must be administered.

IPv4 address space is allocated to Internet Registries (IR) using a slow-start model. Allocations are based on justifiable need, not only on the grounds of client prediction. Due to the fact that the number of IPv4 addresses is limited, many factors must be considered for the delegation of IPv4 address space. The idea is to allocate IPv4 address space to Internet Registries in the same proportion as they will assign the IPv4 addresses to their users.

The size of an allocation to a particular IR is based on the rate with which it has previously assigned IPv4 address space to its clients. The aim is to avoid the existence of large blocks that are not assigned to end users. Due to technical restrictions and the possibility of overloading routing tables, certain policies must be implemented in order to ensure that the preservation and routability objectives are fulfilled.

This chapter mentions prefix sizes and block sizes. Standard notation implies that longer prefixes reference blocks of smaller size. For example, when it is said that a certain policy applies to a prefix longer than a /20, this means that a block smaller than 16 /24s is being discussed.

2.3.2.Aspects to Consider in Relation to IPv4 Address Administration

This section describes a number of aspects on which the relationships both between Internet Registries and their clients as well as between Internet Registries and LACNIC must be based.

2.3.2.1.IPv4 Addresses are Delegated

LACNIC shall allocate Internet resources according to a delegation plan. This resource allocation plan shall be valid for one year. This allocation is renewable, and shall be subject to the conditions established at the time of renewal.

2.3.2.2.Slow-Start Policy

IPv4 address blocks are allocated to IRs using a slow-start procedure. Internet Service Providers applying for portable (provider-independent) IPv4 address blocks for the first time shall receive a minimal amount based on immediate requirement, with the exceptions established in Section 2.3.3.3 ("Direct Allocations to Internet Service Providers".)

After this initial allocation, allocated blocks may be increased based on the verification of block utilization according to information provided to LACNIC. Thus, LACNIC shall be responsible for determining initial and subsequent allocations. Initial IPv4 address allocations shall enable IRs to operate for at least twelve months without requiring further allocations.

Initial allocations shall not be based on any current or future routing restrictions, but on actual and demonstrated use of IPv4 addresses.

Likewise, the number of IPv4 addresses projected by the applicant is useful for planning future requirements.

2.3.2.3.Allocated Blocks

In order to ensure an efficient implementation and use of classless technologies (CIDR), LACNIC shall allocate IPv4 address blocks based on the limits supported by this technology. In order to facilitate the efficient deployment of CIDR, Internet Service Providers (ISPs) and End Users are encouraged to initially request IP address space from their upstream providers. Upstream providers shall maintain control of the assigned blocks upon termination of their clients' contracts.

2.3.2.4.Avoid Block Fragmentation

Under the CIDR scheme, IP addresses are allocated to IRs in blocks. It is recommended that the publication of these blocks on the routing tables remain intact. More specifically, ISPs shall treat IP address assignments to their clients as a loan for the duration of the connectivity. Upon termination of the Internet connectivity contract, e.g., if a customer moves to another ISP, the client shall return the IPv4 addresses currently in use and renumber its systems using the new IPv4 addresses of the new provider. New requests for IP addresses shall be conditioned to the completion of this task. The IR shall allow sufficient time for the renumbering process to be completed before these IP addresses can be used again by another client.

2.3.2.5.Documentation

Internet Registries shall use the IPv4 addresses they have been allocated in an efficient manner. To this end, IRs shall document the justification for each IPv4 address assignment. At the request of LACNIC, the corresponding IR shall make this information available. LACNIC shall not make complementary allocations to those Internet Registries that have not properly documented the use of the blocks already allocated. In these cases, existing allocations may also be reviewed.

The documentation LACNIC may require includes:

- Engineering plans.
- Subnetting and aggregation plan.
- Description of network topology.
- Description of network routing plans.
- Receipts documenting investments (equipment).
- Other relevant documents.

2.3.2.6.Use of Classless Technology (CIDR)

Due to the requirement to increase the efficiency in the use of IPv4 address space, all allocations and/or assignments are made under the assumption that organizations use variable-length subnet masks (VLSMs) and classless technology (CIDR) within their networks.

The use of classful technologies is generally unacceptable due to the limited availability of free IPv4 address space.

2.3.2.7.Static Addressing

Due to restrictions on the availability of IPv4 addresses, LACNIC shall in no way endorse the use of static IPv4 address assignments for dial-up users (e.g., one address per customer). It is understood that the use of static addressing may simplify certain administrative aspects. However, the current rate of consumption of IPv4 addresses does not allow the assignment of static addresses for administrative reasons. Because of this,

organizations that are considering the use of static IPv4 address assignment are encouraged to investigate and implement dynamic assignment technologies.

2.3.2.8.Web Hosting

The development of the HTTP 1.1 protocol has eliminated the need of reserving an IP address for each web domain in case of multiple websites on the same server. LACNIC promotes the development of webpage hosting based on name usage, as opposed to IPv4 addresses.

Therefore, this latter case shall not be accepted as justification for IPv4 address utilization. LACNIC shall consider exceptions where applications require the use of web hosting based on IPv4 addresses, which must be duly described and justified.

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2.3.2.11.This item has intentionally been left blank.

2.3.2.12.Supervision of Assignments

2.3.2.12.1.**Assignment Window**

ISPs may assign to their clients blocks smaller than 16 /24s, i.e. prefixes longer than /20, in accordance with the policy defined by LACNIC in the present document. In some cases, the assignment shall be consulted with LACNIC or with the corresponding NIR in order to ensure optimization of the use of IP address space and the correct application of LACNIC policies.

LACNIC defines an allocation window as the assignment of blocks larger than or equal to 2 /24s, i.e. prefixes shorter than or equal to /23. These assignments shall be consulted with LACNIC or the corresponding NIR. Communication between the ISPs and LACNIC or the corresponding NIR shall include the same information and justifications required in this document for end users.

2.3.2.12.2.**Allocations to NIRs**

NIRs are exempt from complying with Section 3.2.12.1. Instead, they shall be subject to more severe audit programs in accordance with the provisions of the contracts between LACNIC and the NIRs.

These audits shall be carried out at least once a year and, if necessary, with greater frequency.

*2.3.2.13. **Registering assignments***

All IPv4 address block assignments of a /29 or larger block made by an ISP to customers connected to their network and users of services provided must be registered on LACNIC's WHOIS database no more than 7 days after the assignment.

The information available in the WHOIS database will also be used by LACNIC when analyzing additional IPv4 address block requests made by the ISP.

Assignment registration is also necessary for the following reasons:

. To ensure that the IR has completed or is close to completing address space allocation such that the allocation of additional space is justified.

. To inform the Internet community which organization is using the IPv4 address space, including the point of contact in case of operation problems, security issues, etc.
. To assist in the study of IPv4 address allocation within the region.
. To facilitate the geolocation of sub-assignments made by members in our region.

2.3.2.13.1.Required Information

Assignments registered on LACNIC's WHOIS database must include the following information regarding the assignee: organization name; address; administrative contact, technical contact, and contact in case of abuse, with their updated telephone numbers and email addresses.

2.3.2.13.1.1. Residential Customers

ISPs that provide services to residential customers may register on LACNIC's WHOIS database address blocks that are being used by equipment or customer service areas, by service.

Registered information must specify the service area, address of the ISP's main offices, its administrative contact, technical contact, and contact in case of abuse, including their updated telephone numbers and email addresses.

Assignments must be made in address blocks totalizing the number of customers served in the area or by the equipment.

2.3.2.13.1.2. Residential Customer Privacy

Residential customers receiving /29 and larger IPv4 block assignments do not need to have their data registered on LACNIC's WHOIS database.

The ISP whose residential customer receives an IPv4 assignment of a /29 or larger block may choose to register the assignment on LACNIC's WHOIS database by entering its own data or a code used as internal reference. The administrative contact, technical contact, and contact in case of abuse must be those of the ISP.

2.3.2.13.2.Geolocation

In addition to the information available in the WHOIS database, the assignments made by LACNIC and the sub-assignments made by its members will be published in a file along with information on the country in which the prefix was assigned. This file will be available for the community to download freely. Among other uses, this file may be used to geolocate an IP address. The file's format and the place where it will be published will be defined by the LACNIC staff.

2.3.2.14.Security and Confidentiality

LACNIC shall maintain systems and practices that oversee and protect the confidentiality of all information entrusted to LACNIC in the documentation submitted to justify the allocation or assignment of IPv4 addresses.

2.3.2.15.Equal Processing of All Applications

LACNIC shall process every application strictly in the order in which they are received, regardless of geographical factors, demographic factors, language, etc. Under no circumstance shall LACNIC grant special treatment or make exceptions to the norm established for application processing. For this purpose, LACNIC shall use an application numbering system that will allow their proper administration.

2.3.2.16.Micro-Assignments

LACNIC shall make micro-assignments of prefixes longer than the standard (smaller blocks) in the special cases listed in Section 2.3.3 - "Initial IPv4 Address Space Allocation Policies."

2.3.2.17.Mergers, Acquisitions, Reorganizations or Relocations

Because LACNIC's policies do not recognize the non-authorized sale or transfer of assigned or allocated resources, such transfers will be considered invalid, with the exception of those subject to the provisions of section 2.3.2.18.

Nevertheless, LACNIC will process and register any IPv4 resource transfer that occurs as a result of a partial or complete merger, acquisition, business reorganization or relocation, regardless of whether the resources are held by an ISP or an end-user.

To initiate this change and proceed with the registration, legal documentation must be submitted which, at the discretion of LACNIC, supports the operation. Examples of such documentation include:

- A copy of the legal document validating the transfer of assets.
- A detailed inventory of all the assets used by the applicant for maintaining the resources in use.
- A list of the applicant's clients using the resources.

In addition, the need to maintain all the resources must also be justified, forcing the return of the surplus resources if applicable or, alternatively, the transfer of such surplus resources to third parties under the policies in force (2.3.3 and 2.3.4.). When resources are to be returned, LACNIC will determine the corresponding conditions and deadline.

2.3.2.18.IPv4 address transfers

IPv4 block transfers shall be allowed between LIRs and/or End Users (hereinafter organizations) in accordance with the conditions set forth in this section.
This policy applies both to transfers where one of the organizations involved is part of another region (inter-RIR transfers) as well as to transfers within the LACNIC region (intra-RIR transfers).

2.3.2.18.1. The minimum block size that may be transferred is a /24.

2.3.2.18.2. In order for an organization within the LACNIC region to qualify for receiving a transfer, it must first go through the process of justifying its IPv4 resources before LACNIC. That is to say, the organization must justify before LACNIC the initial/additional allocation/ assignment, as applicable, according to the policies in force.

If the receiving organization is part of another region, it will be subject to the criteria, verifications and requirements of the corresponding RIR.

2.3.2.18.3. LACNIC or the corresponding RIR (depending on whether the transfer is inbound or outbound) will verify the holder of the resources to be transferred and check that they are not involved in any dispute.

In the case of intra-RIR transfers, both organizations must submit to LACNIC a signed copy of the legal document supporting the transfer.

In the case of inter-RIR transfers, the documentation supporting the operation will be agreed between the two RIRs.

2.3.2.18.4. LACNIC shall maintain a publicly accessible transfer log of all IPv4 address block transfers registered before LACNIC. This log will be used to record the date on which the transaction took place, the organization that originated the transfer, the receiving organization, the transferred addresses and, in the case of inter-RIR transfers, the source and destination RIRs.

2.3.2.18.5. The organization that originated the transfer shall automatically be ineligible to receive IPv4 resource allocations and/or assignments from LACNIC for a period of one year as of the transaction date registered in the transfer log.

2.3.2.18.6. Addresses that have previously been transferred may not subsequently be transferred again (in full or in part) for a period of one year as of the transaction date specified in the transfer log.

2.3.2.18.7. Once the transfer is complete, LACNIC shall modify the information on the transferred resource in order to reflect the change of holder.

2.3.2.18.8. Both the transferring and the receiving organizations will be subject to the policies and membership terms and conditions of the corresponding RIR.

2.3.2.18.9. Addresses from allocations or assignments from LACNIC, whether initial or additional, may not be transferred (in full or in part) for a period of three years as of the allocation or assignment date.

2.3.2.18.10. Legacy resources transferred into the LACNIC region will no longer be considered legacy resources.

2.3.3.Initial IPv4 Address Allocation and Assignment

LACNIC shall allocate IPv4 addresses to organizations covered by the following cases:

- Allocations to Internet Service Providers.
- Micro-assignments to Critical Infrastructure.
- Direct allocations to Internet Service Providers.
- End user Assignments.

This section contains a detailed description of the policies LACNIC shall apply for the initial allocation of portable (provider-independent) IPv4 addresses in each of the cases listed above.

Due to the fact that the number of IPv4 addresses available on the Internet is limited, many factors must be considered for determining IPv4 address space allocation. Therefore, IPv4 address space is allocated to ISPs based on a slow-start model. Allocations are based on current justifiable need, not on prediction of number of clients, market research, etc.

2.3.3.1.Initial Allocations to ISPs

The minimum initial allocation size applicable to Internet Service Providers established within LACNIC's service region is a /24.

2.3.3.1.1.Requirements for a /24 to /22 prefix

In order to qualify for the allocation of a /24 to /22 prefix, the requesting ISP must satisfy the following requirements:
1. Prove utilization or immediate necessity of at least 25% of the requested prefix.
2. Submit a detailed one-year utilization plan for at least 50% of the requested prefix.
3. If a block has already been assigned by a provider and the user wishes to keep this block to avoid renumbering, such block may be handed over[1] (changing the resource holder in LACNIC´s whois database) provided that both parties agree.

If additional address space has been justified and its distribution is possible, the recipient may decide whether they prefer to receive the block that is handed over plus an additional block to complete the total required space, or whether they prefer to receive a single block for the total space and proceed to renumber their network. Should they choose to renumber, the block that had previously been assigned must be returned within 12 months. Exceptionally, this period may be extended by an additional 6 months if it can be justified that there was not enough time to obtain the required resources and complete the renumbering process.
4. If the applicant does not already have an IPv6 block assigned by LACNIC, simultaneously request an IPv6 block in accordance with the applicable policy.

2.3.3.1.2.Requirements for a /21 or shorter prefix (block of 8 /24s or more)

Should the requesting ISP require an initial IPv4 address allocation of a /21 prefix or larger space, the following requirements must be satisfied:

1. Provide information on assignments with prefixes equal to or shorter than /29 (more than 8 IPv4 addresses) on LACNIC's WHOIS database.
2. Provide documentation that justifies the initial address space allocation (Completion of the IPv4 address application template for ISPs). This must include detailed information showing how this resource will be used within a period of three, six and twelve months.

[1] For the purpose of LACNIC operations, "hand over" (ceder in the Spanish original) is equivalent to a simplification of the transfer process, under which section 2.3.2.18.5 does not apply. In any case, it would not be possible to apply this section as LACNIC has no resources available for organizations other than new-entrants.

3. If a block has already been assigned by a provider and the user wishes to keep this block to avoid renumbering, such block may be handed over[2] (changing the resource holder in Lacnic's whois database) provided that both parties agree.

   If additional address space has been justified and its distribution is possible, the recipient may decide whether they prefer to receive the block that is handed over plus an additional block to complete the total required space, or whether they prefer to receive a single block for the total space and proceed to renumber their network. Should they choose to renumber, the block that had previously been assigned must be returned within 12 months. Exceptionally, this period may be extended by an additional 6 months if it can be justified that there was not enough time to obtain the required resources and complete the renumbering process.
4. If the applicant does not already have an IPv6 block assigned by LACNIC, simultaneously request an IPv6 block in accordance with the corresponding applicable policy.

In addition, depending of the multihomed or non-multihomed status of the applying ISP, the following requirements shall be considered:

If the applicant is a multihomed ISP, is planning to become one, or has interconnection needs:

Efficient utilization of at least 25% of the requested address space (contiguous or not).

If the applicant is multihomed, specify the names and autonomous system numbers of its providers.

If the applicant is planning to become multihomed or needs to interconnect with other autonomous systems, describe in detail the corresponding plan and timeline (presenting signed contracts or letters of intent is recommended).

If the applicant is a non-multihomed ISP:

Efficient utilization of at least 50% of the requested address space (contiguous or not).

2.3.3.2.Micro-Assignments to Critical Infrastructure

Micro-assignment is the name given to those assignments that involve prefixes longer or equal than /22 but shorter than or equal to /24.

LACNIC may grant this type of assignment in case of projects and network infrastructure that are key or critical for the region, such as IXPs (Internet Exchange Points), NAPs (Network Access Points), RIRs, ccTLDs, among others.

In the case of IXPs or NAPs, in order to be eligible for this type of assignment, the organization must meet the following requirements:

1. Duly document the following aspects:

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[2] For the purpose of LACNIC operations, "hand over" (ceder in the Spanish original) is equivalent to a simplification of the transfer process, under which section 2.3.2.18.5 does not apply. In any case, it would not be possible to apply this section as LACNIC has no resources available for organizations other than new-entrants.

1. Prove by means of their bylaws their IXP or NAP capacity. The organization shall have at least three members and an open policy for the association of new members.
2. Submit a diagram of the organization's network structure.
3. Document the numbering plan to be implemented.

2. Provide a utilization plan for the following three and six months.

The rest of the applications shall be studied based on the analysis of the documentation justifying the critical and/or key aspects of the project.

3. If the applicant does not already have an IPv6 block assigned by LACNIC, simultaneously request an IPv6 block in accordance with the corresponding applicable policy.

Organizations receiving micro-assignments shall not sub-assign these IPv4 addresses.

2.3.3.3.Direct Allocations to Internet Service Providers

LACNIC acknowledges that there may exist circumstances under which there is justifiable need for an initial allocation of a /20 or smaller prefix.

LACNIC may grant this type of allocation to those organizations that meet the following requirements:

1.The organization is multi-homed or an Internet Service Provider and demonstrates the possibility of interconnecting with other providers or network access points (NAP/IXP).

2.Submit a detailed description of their network topology.

3.Submit a portfolio with a detailed description of the services the organization will offer.

4.Submit a detailed plan of the deployment of address space utilization for three, six, and twelve months.

5.If the applicant does not already have an IPv6 block assigned by LACNIC, simultaneously request an IPv6 block in accordance with the corresponding applicable policy.

For these allocations LACNIC may, at any time, request additional information to help justify a minimal allocation.

2.3.3.4. Assignments to End Users

LACNIC shall assign IPv4 address blocks to end users requiring IPv4 address space for internal use, for the operation of their networks.

Typically, end users receive IPv4 address space from their upstream providers, not directly from LACNIC. Portable (provider-independent) IPv4 addresses obtained directly from LACNIC or other Regional Registries are not guaranteed to be globally routable.

For this reason, end users should contact their Internet Service Providers to ensure their connectivity within the network.

End users not connected to an ISP and/or not planning to be connected to the Internet are advised to use private IPv4 addresses. The description of these IP addresses may be found in **RFC 1918**.

2.3.3.4.1.Required Information

LACNIC shall request the following information from all end users requesting IPv4 address blocks:

1. Provide detailed information showing how the requested block will be used within the following three, six and twelve months.
2. Submit subnetting plans for a period not shorter than one year, including subnet masks and host numbers on each subnet. Use of VLSM is required.
3. Submit a detailed description of the network topology.
4. Prepare a detailed description of the network routing plans, including the routing protocols to be used as well as any existing limitations.
5. If the applicant does not already have an IPv6 block assigned by LACNIC, simultaneously request an IPv6 block in accordance with the corresponding applicable policy.

2.3.3.4.2.Utilization Rate

Utilization rate is a key factor that must be justified in order to dimension the size of the assignment. Utilization rate is the percentage of IPv4 addresses that the organization will use within a specified period of time. The rate adopted by LACNIC is:

25% immediate utilization rate of the requested block.
50% utilization rate of the requested block within one year.

A higher utilization rate may be required based on individual requirements. Should the organization presenting the application fail to comply with these parameters, addresses may be withdrawn and a reasonable period negotiated for their renumbering.

2.3.3.4.3.Assignment size and procedure

The applicant must justify that the assigned space will be announced from the applicant's own autonomous system to at least one other autonomous system.

The minimum size of an IPv4 assignment to an end user is a /24 block; the maximum size is a /20, which must be justified according to the utilization rate (section 2.3.3.4.2).

If a block had already been assigned by a provider and the user wishes to keep this block to avoid renumbering, such block may be handed over (changing the resource holder in Lacnic's whois database) provided that both parties agree. If additional address space has been justified and its assignment is possible, the recipient may decide whether they prefer to receive the block that is handed over plus an additional block to complete the total required space, or whether they prefer to receive a single block for the total space and

proceed to renumber. Should they choose to renumber, the block that had been previously assigned must be returned within 6 months.

Additional assignments shall follow the policies set forth in Section 2.3.4 applicable to end users.

2.3.4. Policies for the Distribution of Additional IPv4 Address Space

This policy is presented with the aim of assisting Internet Registries in the process of applying for additional IPv4 address space. The most important factor in the evaluation of additional IPv4 address space applications is the revision of the current IPv4 address space of the organization presenting an application.

In order to receive additional space, the organization presenting an application must have used at least 80% of the IPv4 address space previously assigned by the corresponding RIR or NIR. This includes the space assigned to its clients. Therefore, it is important that IRs demand that their clients follow the efficient utilization practices described in these policies.

The steps that must be completed for the allocation of new IPv4 address blocks are the following:

1. The first step of the process is to verify the utilization of at least 80% of previous allocations. This utilization percentage shall be based solely on announced networks with IPv4 addresses connected to the Internet. For IRs that have assigned IPv4 addresses to their clients, the method available to prove this utilization is through the records kept in LACNIC's WHOIS database. Consideration of the application shall not continue until utilization of at least 80% of the previously allocated block is verified. Use of 80% of previously allocated IP addresses also covers those addresses dedicated to internal use and dial-up clients of the company. In this latter case, utilization may be justified through the report included in Appendix 3 [Additional Report for IPv4 Address Space Allocation]. Organization making static assignments, may justify utilization through the report included in Appendix 4 [IPv4 Resources Distribution Report].

   The application process for additional space shall continue once the utilization of at least 80% of the previously assigned space has been verified.

2. Organizations shall prove they are using LACNIC policies in assigning space to their clients, particularly in relation to:

   - Issuing prefixes longer than /24, wherever possible.
   - Verifying that the assignment of blocks within the allocation window were previously submitted to LACNIC for approval.

3. Organizations shall demand that their clients adhere to the following criteria:

   - The information on assignments smaller than a /29 must be available through WHOIS and they must comply with the 80% space utilization requirement before assigning additional space to their clients.
   - LACNIC policies for the Internet community in general are communicated to and followed by their clients.

4. When reviewing applications for additional IPv4 addresses, LACNIC shall also review whether the space designated for its return was actually returned in due time as described in this document.

5. Maintain the reverse resolution registry of the administered IPv4 address space up-to-date. The reverse resolution registry shall also comply with 80% utilization.
6. For the allocation of additional blocks, LACNIC shall verify that the organization presenting the application is in compliance with its contractual obligations.
7. The applicant must already have at least one IPv6 block assigned by LACNIC or, if not, must simultaneously request an initial IPv6 block in accordance with the corresponding applicable policy. If an applicant has already been assigned an IPv6 block, they shall submit to LACNIC a brief document describing their progress in the implementation of IPv6.
8. The final step is to determine the appropriate allocation. In order to determine the size of the allocation, detailed information must be provided showing how the IPv4 address space will be used within the following three, six and twelve-month periods. The policy for determining the size of additional allocations is based on the efficient utilization of space within a time frame of 12 months.

2.3.5. Special IPv4 reserve pool for critical Internet infrastructure in the region.

1. This reserve will be used once the address space for Phase 3 of the regional IPv4 Exhaustion Plan runs out.
2. LACNIC will create an IPv4 reserve equivalent to a /15 to facilitate the deployment of infrastructure considered to be critical or essential for the operation of the Internet in the region, where critical infrastructure has the meaning defined in section 2.3.3.2 of the Policy Manual.
3. Address requests for critical infrastructure may be submitted at any time.
4. Assignments from this reserve will be limited to the following sizes:
minimum assignment size: /24
maximum assignment size: /22
5. The size of these assignments will be subject to verification of use and an analysis by LACNIC or by the corresponding NIR.
6. Once they are no longer needed for the purpose for which they were originally requested, the addresses assigned under this section must be returned to LACNIC or to the corresponding NIR.
7. Addresses assigned from this reserve may not be used for a purpose other than that which generated the request. Failure to comply with the above will result in revocation of the assignment and the subsequent return of the addresses to LACNIC or to the corresponding NIR.

2.3.6. Permission to Transfer and Non-Return of Resources

While address allocation and assignment policies are initially based on the justification of need, the implementation of transfers eliminates the need to maintain this justification. Therefore, returning the resources to LACNIC will no longer be required in case of failed transfers or mergers and acquisitions.

3. ALLOCATION OF AUTONOMOUS SYSTEM NUMBERS (ASN)

An Autonomous System (AS) is a group of IP address networks managed by one or more network operators having a clear and unique routing policy. Each Autonomous System (AS) has an associated number that is used as the Autonomous System's identifier when exchanging external routing information. Exterior routing protocols, such as BGP, are used for exchanging routing information among Autonomous Systems.

The term "Autonomous System" is frequently misinterpreted as merely a convenient way to refer to a group networks that are under the same management. However, if there is more than one routing policy in the group, then more than one AS is necessary. On the other hand, if the group of networks has the same policy as the other groups, they fall within the same AS regardless of their management structure. Thus, by definition, all networks that make up an Autonomous System share the same routing policy.

In order to simplify global routing tables, a new Autonomous System Number (ASN) should only be assigned when a new routing policy is necessary.

Sharing the same ASN among a group of networks that are not under the same management will require additional coordination among network administrators and, in some cases, will require redesigning the network to a certain degree. However, this is probably the only way to implement the desired routing policy.

LACNIC shall allocate Autonomous System Numbers to those organizations that meet the following requirements:

1. The organization must have the need to interconnect with other independent Autonomous Systems at the time of the application, or be planning to interconnect within a period of no more than six (6) month as of the moment of the application. After this period, LACNIC may revoke the assigned ASN if it has not been used.

2. Detail the applicant's routing policy, specifying the ASNs with which the organization will interconnect and the IP addresses that will be announced through the requested ASN.

It is the obligation of the organization receiving an Autonomous System Number from LACNIC to maintain updated records of postal addresses and points of contact.

LACNIC's WHOIS system allows representing up to three different points of contact, namely:

owner−c, which represents the administrative contact of the organization to which the ASN was assigned;

routing−c, contact who, by means of the IP and ASN administration system, may register the routing policies adopted by the Autonomous System;

abuse−c, security contact (Abuse Contact).

3.1. Terminology

16-bit AS numbers were defined in RFC 1930 and integers ranging from 0 to 65535 will be used for their identification. Likewise, 32-bit AS numbers were defined by RFC 4893 and, integers ranging from 0 to 4294967295 will be used for their identification. In both cases the "asplain" decimal value representation defined in RFC 5396 will be used.

Consequently, the following terminology will be adopted to refer to 16-bit and 32-bit ASNs:

- "16-bit only AS Numbers" refers to AS numbers in the range 0 – 65535

- "32-bit only AS Numbers" refers to AS Numbers in the range 65536 − 4294967295
- "32-bit AS Numbers" refers to AS Numbers in the range 0 – 4294967295

3.2.AS Allocation Phases

There shall be three phases for ASN allocation on the part of LACNIC:

1. On 1 January 2007, the registry will process applications that specifically request 32-bit only AS Numbers and allocate such AS Numbers as requested by the applicant. In the absence of any specific request for a 32-bit only AS Number, a 16-bit only AS Number will be allocated by the registry.
2. On 1 January 2009, the registry will process applications that specifically request 16-bit only AS Numbers and allocate such AS Numbers as requested by the applicant. In the absence of any specific request for a 16-bit only AS Number, a 32-bit only AS Number will be allocated by the registry
3. As of January 1st, 2010, LACNIC shall allocate 32-bit AS numbers by default. 16-bit AS numbers shall be allocated, if available, in response to applications specifically requesting said resource and that duly justify the technical reasons why a 32-bit AS number would not be appropriate for its needs.

3.3.Mergers, Acquisitions, Reorganizations or Relocations

Because LACNIC's policies do not recognize the non-authorized sale or transfer of assigned or allocated resources, such transfers will be considered invalid.

Nevertheless, LACNIC will process and register any ASN resource transfer that occurs as a result of a partial or complete merger, acquisition, business reorganization or relocation, regardless of whether the resources are held by an ISP or an end-user.

To initiate this change and proceed with the registration, legal documentation must be submitted which, at the discretion of LACNIC, supports the operation. Examples of such documentation include:
• A copy of the legal document validating the transfer of assets.
• A detailed inventory of all the assets used by the applicant for maintaining the resources in use.
• A list of the applicant's clients using the resources.

The need to maintain all the resources must also be justified, forcing the return of the surplus resources if applicable or, alternatively, the transfer of such surplus resources to third parties under the policies in force (3.). When resources are to be returned, LACNIC will determine the corresponding conditions and deadline.

3.4. Inclusion of origin ASN in WHOIS responses when available

Provided that this information is available, LACNIC shall include the origin ASN of the queried prefixes in its WHOIS responses.

The origin ASN of the assigned block may be extracted from the RPKI repository, considering the origin specified in the ROA as the origin ASN.

If a block’s origin ASN is not specified, the WHOIS response shall explicitly state this fact.

4. IPv6 ADDRESS ALLOCATION AND ASSIGNMENT POLICIES

4.1. Scope

This chapter describes policies for the allocation and assignment of the globally-unique IPv6 address space.

[RFC2373, RFC2373bis] designate 2000::/3 to be the global unicast address space that IANA may allocate to RIRs. This chapter concerns initial and subsequent allocations of the 2000::/3 unicast address space, for which RIRs formulate allocation and assignment policies. Because end sites will generally be given /48 assignments [RFC 6177], the particular emphasis of this document is on recommendations to LIRs/ISPs regarding their assignments to connected users and customers.

4.2.Definitions

The following terms are specific to IPv6 allocation policies.

4.2.1.Utilization

Unlike IPv4, IPv6 is generally assigned to end sites in fixed amounts.
The actual utilization of addresses within each assignment will be quite low when compared to IPv4 assignments.
In IPv6, "utilization" is only measured in terms of the number of prefixes assigned to end users, not their size or the number of addresses actually used in those prefixes. This is how it should be understood throughout this document.

4.2.2.HD-Ratio

HD-Ratio is a way of measuring the efficiency of address assignment [RFC 3194]. It is an adaptation of the HD-Ratio originally defined in [RFC1715] and is expressed as follows:

$$HD = \frac{\text{Log (number of assigned objects)}}{\text{Log (maximum number of assignable objects)}}$$

where, in the case of this document, the objects are IPv6 site addresses (/48s) assigned from an IPv6 prefix of a given size (see Appendix 2).

4.3.IPv6 Policy Principles

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

4.3.1.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 chapter are based upon the understanding that globally-unique IPv6 unicast address space is licensed for use rather than owned. Specifically, IP addresses will be allocated and assigned on a license basis, with licenses subject to renewal on a periodic basis. The granting of a license is subject to specific conditions applied at the start or renewal of the license.

RIRs will generally renew licenses automatically, provided requesting organizations are making a good-faith effort at meeting the criteria under which they qualified for or were granted an allocation or assignment. However, in those cases where a requesting organization is not using the address space as intended, or is showing bad faith in following through on the associated obligation, RIRs reserve the right to not renew the license.

Note that when a license is renewed, the new license will be evaluated under and governed by the applicable IPv6 address policies in place at the time of renewal, which may differ from the policy in place at the time of the original allocation or assignment.

4.3.2. Minimum allocation

RIRs will apply a minimum size for IPv6 allocations, to facilitate prefix-based filtering.

The minimum allocation size for IPv6 address space is /32.

4.3.3. 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.

4.4. Policies for Allocations and Assignments

4.4.1. Initial Allocation

4.4.1.1. IPv6 allocation to a LIR or ISP with a previous IPv4 allocation from LACNIC

LACNIC will allocate IPv6 address blocks to a LIR or ISP that has already received an IPv4 allocation from LACNIC. If the allocation would be announced in the Internet inter-domain routing system, the organization must announce the allocated block with the minimum possible level of disaggregation to the one that is publishing the IP blocks. LACNIC will allocate a single /32 when received a request from a LIR or ISP with a previous IPv4 allocation. In case that the organization request the allocation of an address block larger than a /32, the LIR or ISP must present the documentation required in section 4.4.1.3.

4.4.1.2. IPv6 allocation to a LIR or ISP without a previous IPv4 allocation from LACNIC.

To qualify for an initial allocation of IPv6 address space, an organization must:

- Be an LIR or ISP.
- Document a detailed plan for the services and IPv6 connectivity to be offered

to other organizations (clients) or self-owned/related departments/entities/sites to which it will assign /48s.

- Announce the allocated block in the Internet inter-domain routing system, with the minimum possible level of disaggregation to the one that is publishing the IP blocks, within a period no longer than 12 months.
- Offer IPv6 services to clients or self-owned/related entities (including departments and/or sites) physically located in the region covered by LACNIC within a period not longer than 24 months.

4.4.1.3.Initial Allocation Size

Organizations may qualify for an initial allocation larger than a /32 by submitting documentation that justifies the request.

In this case, the initial allocation shall be based on the space needed to serve the organization's clients, number of users, extent of its infrastructure, hierarchical and/or geographic structure, infrastructure segmentation for security or other reasons, and the longevity anticipated for the initial allocation.

In order to comply with the requirements mentioned above, the prefix assigned to the ISP must be within the binary "boundaries" of the IP address.

4.4.1.4.Rectifying the size of initial allocations

During IPv6 deployment, if an organization finds that the size of the initial allocation it requested no longer satisfies its needs, the organization may submit a new addressing plan to LACNIC, without having to wait until it can fulfill the requirements for a subsequent allocation, and therefore the organization will not have to prove utilization thresholds, but, instead the desire to apply a different addressing plan that is better suited to the reality of the deployment.
The new size will be adjusted according to the new addressing plan as specified in section 4.4.1.3., and will thus qualify for extending the current prefix the necessary number of bits. If it were not possible to provide this prefix length because the adjacent space is already being used by another organization, or if making the allocation would not leave sufficient space for subsequent allocations, LACNIC shall inform the applicant, who may choose to:
a) receive a new prefix with the new requested size and renumber their network and return "original" initial allocation to LACNIC within 6 months, or
b) receive a complementary prefix to complete their addressing plan, and announce both the "original" initial prefix and the new prefix resulting from the new allocation. For all effects and purposes, in the case of subsequent allocations, both allocations shall be considered as if they were a single allocation.

Each organization may only use this procedure once, so for this "second opportunity" they should carefully study the final medium and long term network addressing plan.

4.4.2.Subsequent Allocation

Organizations that hold an existing IPv6 allocation may receive a subsequent allocation in accordance with the following policies.

4.4.2.1.Subsequent Allocation Criteria

Subsequent allocation will be provided when an organization (ISP/LIR) satisfies the evaluation threshold of past address utilization in terms of the number of sites in units of /48 assignments. The HD-Ratio [RFC 3194] is used to determine the utilization thresholds that justify the allocation of additional address as described below.

4.4.2.2.Applied HD-Ratio

The HD-Ratio value of 0.94 is adopted as indicating an acceptable address utilization for justifying the allocation of additional address space. Appendix 2 provides a table showing the number of assignments that are necessary to achieve an acceptable utilization value for a given address block size.

4.4.2.3.Subsequent Allocation Size

When an organization has achieved an acceptable utilization for its allocated address space, it is immediately eligible to obtain an additional allocation that results in a doubling of the address space allocated to it. Where possible, the allocation will be made from an adjacent address block, meaning that its existing allocation is extended by one bit to the left.

If an organization requires more address space, the organization shall provide documentation justifying the space it needs to serve its clients, number of users, extent of its infrastructure, hierarchical and/or geographic structure, infrastructure segmentation for security or other reasons, and the longevity anticipated for the initial allocation.

4.4.2.4.LIR-to-ISP Allocation

There is no specific policy for an organization (LIR) to allocate address space to subordinate ISPs. Each LIR organization may develop its own policy for subordinate ISPs to encourage optimum utilization of the total address block allocated to the LIR. However, all /48 assignments to End Users sites are required to be registered either by the LIR or its subordinate ISPs in such a way that the RIR/NIR can properly evaluate the HD-Ratio when a subsequent allocation becomes necessary.

4.4.3. Assignments by ISPs

LIRs must make IPv6 assignments in accordance with the following provisions.

4.4.3.1.Assignment address space size

Assignment of address space. Assignments are to be made in accordance with the need specified by the ISP's user as well as with existing recommendations [RIPE-690, https://www.ripe.net/publications/docs/ripe-690], highlights of which are summarized below:

* End sites or users must be assigned a prefix that is a multiple of "n" /64's which must be enough to meet their current and planned needs, considering existing protocols and future possibilities and thus avoiding possible renumbering scenarios.

* The size of the prefix to be assigned is an operational decision of the LIR/ISP, although the selection of /48s is recommended for simpler and more functional infrastructure for all the endpoints of the network.

* Persistent prefix assignments are recommended to avoid undesired failures.

* Using a /64 prefix for point-to-point with GUAs is recommended.

The size of LIRs/ISPs assignments does not concern RIRs/NIRs.

Accordingly, RIRs/NIRs will not request detailed information on IPv6 user networks as they did in IPv4, except for the cases described in Section 4.4.2 and for the purpose of measuring utilization as defined in this chapter.

4.4.3.2.Assignment to Operator's Infrastructure

An organization (ISP/LIR) may assign a /48 per PoP as the service infrastructure of an IPv6 service operator. Each assignment to a PoP is regarded as one assignment regardless of the number of users using the PoP. A separate assignment can be obtained for the in-house operations of the operator.

4.4.4. Direct Assignments to End Sites

LACNIC will assign portable (provider-independent) IPv6 addresses directly to end sites in accordance with the two policies detailed in Sections 4.4.4.1 and 4.4.4.2, depending on whether or not the organization holds portable IPv4 addresses previously assigned by LACNIC.

4.4.4.1. Direct assignment of portable IPv6 addresses to End Sites having portable IPv4 addresses previously assigned by LACNIC

LACNIC will assign portable IPv6 address blocks directly to end sites if they hold portable IPv4 addresses previously assigned by LACNIC.

In case of announcing the assignment on the Internet inter-domain routing system, the receiving organization shall announce the block maintaining de-aggregation to a minimum in accordance with the announcing organization's needs.

Assignments will be made in blocks always greater than or equal to a /48.

Subsequent assignments must be duly documented and justified. Where possible, such assignments will be made from a contiguous address block (i.e., extending the existing assignment "n" bits to the left).

4.4.4.2. Direct assignment of portable IPv6 addresses to End sites not having portable IPv4 addresses previously assigned by LACNIC

LACNIC will assign portable IPv6 address blocks directly to end sites that satisfy the following requirements:

a. Not be an LIR or ISP.
b. In case of announcing the assignment on the Internet inter-domain routing system, the receiving organization shall announce the block maintaining de-aggregation to a minimum in accordance with the announcing organization's needs.
c. Provide detailed information showing how the requested block will be used within the following three, six and twelve months.
d. Submit addressing plans for at least a year.

Assignments will be made in blocks always greater than or equal to a /48.

Subsequent assignments must be duly documented and justified. Where possible, such assignments will be made from a contiguous address block (i.e., extending the existing assignment "n" bits to the left).

4.4.4.3. Rectifying the size of an initial assignment

An End User organization may submit a new addressing plan to LACNIC if the plan initially submitted and used to justify the initial assignment no longer satisfies their current needs. This applies on a one-time basis.

The new prefix will be consistent with the new plan and shall comply with Sections 4.4.4.1 or 4.4.4.2.

If it were not possible to provide a prefix of that size, either because the adjacent prefixes are already being used by other organizations or because such an assignment would

leave insufficient space for subsequent assignments, LACNIC shall inform this to the requesting organization, which will have the following options:

- receiving a new block with the requested prefix that fully covers the need justified by the user in the new plan, with the commitment to renumber its network and return the original block to LACNIC within a period of 6 months;

- receiving a new block which, together with the block that has already been assigned, covers the need justified by the user in the new plan, and maintaining both blocks.

Each organization may use this procedure only once.

4.4.5.IPv6 Micro-Assignments

LACNIC shall make micro-assignments in case of projects and network infrastructure that are key or critical for the operation and development of IPv6 within the region, such as, among others, IXPs (Internet Exchange Points), NAPs (Network Access Points), RIRs, DNS ccTLD providers. These assignments shall be made in prefixes longer than or equal to /32 but always shorter than or equal to /48.

In the case of IXPs or NAPs, in order to be eligible for this type of assignment, the organization must meet the following requirements

1. Duly document the following aspects:
    1. Prove by means of their bylaws their IXP or NAP capacity. The organization shall have at least three members and an open policy for the association of new members
    2. Submit a diagram of the organization's network structure.
    3. Document the numbering plan to be implemented.
2. Provide a utilization plan for the following three and six months.

The rest of the applications shall be studied based on the analysis of the documentation justifying the critical and/or key aspects of the project.

All micro-assignments shall be made from address blocks specifically reserved for this type of assignments. LACNIC shall publish the list of these blocks and those micro-assignments already awarded.

4.4.6.Registration assignments

All IPv6 address block assignments of a /48 or larger block made by an ISP to customers connected to their network and users of services provided must be registered on LACNIC's WHOIS database no more than 7 days after the assignment.

The information available in the WHOIS database will also be used by LACNIC when analyzing additional IPv4 address block requests made by the ISP.

The information available in the WHOIS database will be used by LACNIC to calculate the HD-Ratio when analyzing additional IPv4 address block requests made by the ISP.

Assignment registration is also necessary for the following reasons:

. To ensure that the IR has completed or is close to completing address space allocation such that the allocation of additional space is justified.

. To inform the Internet community which organization is using the IPv6 address space, including the point of contact in case of operation problems, security issues, etc.

. To assist in the study of IPv6 address allocation within the region.

4.4.6.1.Required Information

Assignments registered on LACNIC's WHOIS database must include the organization's name; address; administrative contact, technical contact, and contact in case of abuse, with their updated telephone numbers and email addresses.

4.4.6.1.1.Residential Customers

ISPs that provide services to residential customers may register on LACNIC's WHOIS database address blocks that are being used by equipment or customer service areas, by service.

Registered information must specify the service area, address of the ISP's main offices, its administrative contact, technical contact, and contact in case of abuse, including their updated telephone numbers and email addresses.

Assignments must be made in address blocks totalizing the number of customers served in the area or by the equipment.

4.4.6.1.2.Residential Customer Privacy

Residential customers receiving /48 and smaller IPv6 block assignments do not need to have their data registered on LACNIC's WHOIS database.

The ISP whose residential customer receives an IPv6 assignment of a /48 or larger block may choose to register the assignment on LACNIC's WHOIS database by entering its own data or a code used as internal reference. The administrative contact, technical contact, and contact in case of abuse must be those of the ISP.

4.4.7.Reverse Lookup

When an RIR/NIR delegates IPv6 address space to an organization, it also delegates the responsibility to manage the reverse lookup zone that corresponds to the allocated IPv6 address space. Each organization should properly manage its reverse lookup zone. When making an address assignment, the organization must delegate to an assignee organization, upon request, the responsibility to manage the reverse lookup zone that corresponds to the assigned address.

4.4.8.Existing IPv6 Address Space Holders

Organizations that received /35 IPv6 allocations under the previous IPv6 address policy [RIRv6-Policies] are immediately entitled to have their allocation expanded to a /32 address block, without providing justification, so long as they satisfy the criteria in Section

4.4.1.1. The /32 address block will contain the already allocated smaller address block (one or multiple /35 address blocks in many cases) that was already reserved by the RIR for a subsequent allocation to the organization. Requests for additional space beyond the minimum /32 size will be evaluated as discussed elsewhere in the document.

4.5. Mergers, Acquisitions, Reorganizations or Relocations

Because LACNIC's policies do not recognize the non-authorized sale or transfer of assigned or allocated resources, such transfers will be considered invalid.

Nevertheless, LACNIC will process and register any IPv6 resource transfer that occurs as a result of a partial or complete merger, acquisition, business reorganization or relocation, regardless of whether the resources are held by an ISP or an end-user.

To initiate this change and proceed with the registration, legal documentation must be submitted which, at the discretion of LACNIC, supports the operation. Examples of such documentation include:

- A copy of the legal document validating the transfer of assets.
- A detailed inventory of all the assets used by the applicant for maintaining the resources in use.
- A list of the applicant's clients using the resources.

The need to maintain all the resources must also be justified, forcing the return of the surplus resources if applicable or, alternatively, the transfer of such surplus resources to third parties under the policies in force (4.4.1., 4.4.2., 4.4.3. y 4.4.4). When resources are to be returned, LACNIC will determine the corresponding conditions and deadline.

5. DELEGATION OF REVERSE RESOLUTION

5.1.Introduction

Most connections through the Internet use machine names instead of IP addresses. Names are obviously easier to remember than numbers. However, Internet connections between computers connected to this network are made using IP addresses. Therefore, before a connection can be made, the computer's name must be translated into its IP address. This process is known as direct DNS Resolution, i.e., converting names into IP addresses.

it is frequently also necessary to perform the reverse operation, known as Reverse Resolution.

This conversion attempts to find the name associated to an IP address.

Reverse resolution is only possible with the use of a pseudo-domain, "in.addr-arpa", an acronym for “Address and Routing Parameter Area.”

DNS delegation of this pseudo-domain is responsibility of Internet Registries, as they are responsible for allocating IP addresses.

5.2.DNS Server Registration

All allocated IP address space must have an associated DNS server, which shall be responsible for reverse resolution. In the case of LACNIC’s area of coverage [Annex 1], these servers must be registered at LACNIC, which in turn is responsible for the reverse resolution of blocks administered by this organization.

LACNIC may use information obtained through reverse resolution as an indicator of the utilization of allocated IP address blocks.

DNS server registration of the IP address space administered by LACNIC shall vary according to the size of the allocated space.

Blocks allocated by LACNIC with prefixes shorter than or equal to /16 shall have their DNS servers responsible for reverse resolution registered at LACNIC. Information shall be entered in relation to /16 blocks. Suballocations of segments with longer prefixes within these blocks shall have their DNS servers registered at the organizations that received the blocks with prefixes shorter than or equal to /16 directly from LACNIC.

Blocks allocated by LACNIC with prefixes longer than /16 shall register at LACNIC the DNS servers responsible for the reverse resolution of all blocks with the prefix /24 that account for the total IP address space allocated by LACNIC. Thus, suballocations with prefixes of up to /24 made within these blocks must have their DNS servers registered at LACNIC.

For example:

1. ISP-A receives from LACNIC a /15 prefix (200.0.0.0/15). It must report to LACNIC which DNS servers will be responsible for the reverse resolution of each one of the /16 prefixes that make up the allocated block, i.e., blocks 200.0.0.0/16 and 200.1.0.0/16. The DNS servers of suballocations of longer prefixes made within this block must be registered at the DNS servers of ISP-A, which in turn are registered at LACNIC's DNS servers as responsible for the reverse resolution of blocks 200.0.0.0/16 and 200.1.0.0/16.

2. ISP-B receives from LACNIC a /20 prefix (200.2.0.0/20). It must report to LACNIC which DNS servers will be responsible for the reverse resolution of blocks 200.2.0.0 to 200.2.15.0.

If ISP-B suballocates a block with a prefix longer than /21 and shorter than or equal to /24, it must register at LACNIC's servers the new DNS servers responsible for the reverse resolution of the suballocated block.

Thus, within LACNIC's IP address administration system, it shall not be possible to register DNS servers for suballocations made in blocks with prefixes shorter than or equal to /16 that have been directly allocated by LACNIC. The organization receiving the allocation shall maintain the registry of the DNS servers responsible for the reverse resolution of suballocations made within that block.

This shall also be reflected on the WHOIS server database. In other words, in the case of suballocations within blocks with prefixes shorter than or equal to /16 directly allocated by LACNIC, the DNS servers responsible for the reverse resolution of those suballocations shall not be visible through WHOIS. This is because these servers are not registered at LACNIC.

Should it be necessary to identify the DNS servers of suballocations made within these blocks, the use of DNS query tools is recommended.

This condition does not exist for allocations with prefixes longer than /16 made by LACNIC. In this case, suballocations of prefixes of up to /24 made within blocks allocated by LACNIC and having prefixes longer than /16 may have a DNS server delegated through LACNIC's IP address administration system.

LACNIC's IP address administration system does not accept the delegation of DNS servers for blocks with prefixes longer than /24. For these cases the adoption of BCP 20 is recommended.

To summarize:

Prefix of the block allocated by LACNIC - DNS server for suballocations made by LACNIC must be registered at:

- /16 or shorter: ISP that received the block
- /17 or longer: LACNIC.

6. LAME DELEGATION POLICY

A DNS server is considered to have a lame delegation problem when this server appears registered in the zones for reverse resolution of IP address blocks but when the server is queried it does not respond authoritatively.

The DNS server's non-authoritative response is interpreted as a server configuration error and, in accordance with LACNIC's standards, this DNS server shall be considered as having lame delegation problems.

The process for correcting lame delegations within the IP address space administered by LACNIC follows the following phases:

1. Detecting lame delegations.
2. Monitoring DNS servers with lame delegation problems.
3. Notifying the responsible parties.
4. Deactivating DNS servers.
5. Activating new DNS servers.

6.1.Detecting Lame Delegations

LACNIC shall periodically revise in-addr.arpa and ip6.arpa zones where there are DNS servers registered for reverse resolution within the region covered by LACNIC. Only those segments delegated directly by LACNIC shall be considered in DNS server monitoring and deactivation processes.

A DNS server registered in LACNIC's system shall be considered to have lame delegation problems if a query of the SOA record of the DNS server does not provide an authoritative answer for said record.

The verification will be performed for each in-addr.arpa and ip6.arpa zone delegated to each DNS server.

If there is no authoritative answer, the DNS server shall be catalogued as having lame delegation problems for the in-addr.arpa and ip6.arpa zone reviewed and therefore it will enter a monitoring process.

6.2.Monitoring DNS Servers with Lame Delegation Problems

Prior to establishing that a DNS server has permanent lame delegation problems for an in-addr.arpa or ip6.arpa zone, LACNIC shall monitor the DNS server for a period of seven days. If after this period the problems still persist, LACNIC shall notify those responsible for the IP address block.

If a DNS server that was originally detected as having lame delegation problems responds correctly for the in-addr.arpa or ip6.arpa zone before the DNS server deactivation phase, the server shall be removed from the monitoring list corresponding to these zones.

6.3.Notifying the Responsible Parties

Firstly, the administrative contact of the affected block shall be notified, together with the technical contact if this information is available. Notifications shall be sent out every fifteen days over a period of sixty days. LACNIC reserves the right to investigate other types of contacts if during the first thirty days no answer is received from the administrative and/or technical contacts.

6.4.Deactivating DNS Servers

Once the notification period defined above has ended, these servers shall be eliminated from LACNIC zones.

The DNS server will only be deactivated in those in-addr.arpa or ip6.arpa zones where it exhibited lame delegation problems. Other DNS servers providing services for those zones will not be affected.

A comment shall be added to the block's record in the WHOIS database specifying that the DNS server registered for reverse resolution of the in-addr.arpa or ip6.arpa zones corresponding to the segment was deactivated due to lame delegation problems.

Only those segments delegated directly by LACNIC shall be considered in DNS server monitoring and deactivation processes.

6.5.Activating New DNS Servers

DNS server activation shall follow the usual procedures already set forth in LACNIC's policy. Only the block's administrative or technical contact shall be able to activate new DNS servers through LACNIC's registration system. Any new DNS server registered at LACNIC must respond authoritatively to the block at the moment it is activated, otherwise server registration shall be rejected.

7. RESOURCE REVOCATION AND RETURN[3]

Resource allocations and assignments will remain valid as long as the objectives of exclusivity, preservation, routability, information, and the rest of the policies in general continue to be met.

Therefore, LACNIC may invalidate any allocation or assignment if it is determined that the requirements no longer exist or that the criteria set forth in the Policy Manual are no longer satisfied.

The following may be considered grounds for resource revocation:
o Unused or unannounced resources (where mandatory).
o Failure to maintain reverse resolution records for the assigned resources.
o Failure to update the allocation and assignment information on the whois database managed by LACNIC or the NIRs, as applicable.
o Unauthorized transfers.
o Repeated and/or continued policy violations.
o Failure to comply with contractual obligations towards LACNIC or its NIRs, including non-payment and document fraud.
o Organizations that have disappeared or fail to respond.

When the violation has been caused by a third party, without the knowledge of the organization receiving the resources, and if it is evident that there is no collusion or negligence on the part of said organization, the revocation process will not be initiated.

7.1. Resource Revocation Process

To ensure the efficient utilization of regional resources, LACNIC will verify that the organizations receiving resources are using such resources correctly. This will be done automatically whenever possible and more exhaustively when there is evidence to suggest that certain resources are not being used properly.

Once the evidence has been detected and confirmed, the resource recovery process will include the following steps:

a) LACNIC shall attempt to contact the organization and rectify the situation.

b) If the situation cannot be rectified, LACNIC shall publish the resources that are to be recovered for a maximum of three months.

During this period, the organization may rectify the situation with LACNIC.

c) In all other cases, two months after the resources are published, LACNIC shall proceed to delete the NS records pointing to the authoritative nameservers of the resources involved This information may be recovered once the organization reestablishes contact with LACNIC or with the corresponding NIR.

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[3] A phased approach is approved for its implementation. The identification and the prioritization of the different phases are delegated to the staff. Evaluating the results of the implementation of each of these phases is required before moving forward with the implementation of subsequent phases and reporting the results to the Board of Directors.

d) If three months after the resources are published the organization has not rectified the situation, the resources shall be recovered and the records of the holders of these resources shall be removed from LACNIC's database.

e) All other provisions specified in the Registration Services Agreement and Bylaws shall apply.

7.2. Exceptions

When the revocation of resources involves essential strategic infrastructure that is necessary for the operation of the Internet in the region, or in exceptional situations such as natural disasters or political instability, the LACNIC Board of Directors may extend the resource revocation period, with prior assessment by the LACNIC Staff once such an exceptional situation is detected.

7.3. Resource Return

Resource recipients may return the resources to LACNIC, in full or in part, at any time.

If all the resources are returned, all the other provisions specified in the Registration Services Agreement and Bylaws shall apply.

7.4. Publishing Recovered and Returned Resources

LACNIC shall publish the resources that have been recovered or returned so that the corresponding routing filters may be updated.

7.5. Use of Recovered or Returned Resources

IPv4 resources will be added at the "end" of the pool in use at the moment of their recovery or return, and will be used in the order in which they have been added to the pool.

IPv6 and ASN resources will be added to their respective pools in force two years after their recovery or return.

However, LACNIC may use these resources differently, applying best best practices to optimize compliance with the provisions of section 2 of RFC7020. For example, if 16-bit ASNs are recovered or returned."

8. REQUEST FOR BULK WHOIS FROM THE LATIN AMERICAN AND CARIBBEAN INTERNET ADDRESS REGISTRY

LACNIC shall provide a bulk copy of the WHOIS information only to those organizations that will use the information for technical research and/or Internet operation purposes. The request for information and LACNIC's resolution either denying or authorizing the request may be published.

In order to request this information, you must complete the following form and send the original copy, by post, to the following address:

LACNIC Subject: Bulk WHOIS Request

Rambla República de México 6125,

Montevideo Uruguay, CP 11400

Application forms sent by fax shall not be accepted. In order to be accepted, the application form must contain the following information:

Applying Organization:

_____

Address of the Organization:

_____

Point of Contact:

Name: _____

Telephone: _____

Fax: _____

E-mail: _____

Reason for the application and intended use of the information:

_____

8.1.Acceptable Use of LACNIC's Bulk Whois

LACNIC's bulk WHOIS shall only be used for technical research and/or Internet operation purposes, such as designing and developing security software, projects for improving Internet performance, and web traffic optimization. It may not be used for publicity, direct marketing, market research, or other similar purposes. The use of information contained in LACNIC's WHOIS for these purposes is expressly prohibited, and shall entitle LACNIC to discontinue the applicant's access to information and initiate the corresponding legal actions. LACNIC requests that it be notified in case of proven or suspected misuse of this information.

Redistribution or retransmission of the information by any means is expressly prohibited. Should an Applicant intend to publish all or part of the supplied information, said Applicant must request LACNIC's prior written consent.

This application form shall be governed by and interpreted in accordance with the laws of the Republic of Uruguay. In case of differences, disagreements or controversies between parties arising from this contract, said parties shall attempt to solve them by conciliation through the Center for Conciliation and Arbitrage of the Uruguayan Stock Exchange (Centro de Conciliación y Arbitraje de la Bolsa de Comercio del Uruguay), according to the regulations contained in the Conciliation Code of said Center. Should this conciliation fail, these differences, disagreements or controversies shall be definitely solved through arbitration. The arbitrators shall be three in number and for their designation, as well as for the arbitration procedure, the regulations contained in the Arbitration Code of the Center shall be observed.

In witness whereof, I have signed my name on the date set forth below:

Organization:

_____

Signature:

_____

Full Name:

_____

Position within the Organization:

_____

Date: ___ | ___ | _____ (dd | mm | yyyy)

9. GLOBAL POLICIES

9.1.POLICY FOR THE ALLOCATION OF IPv4 ADDRESS SPACE FROM IANA TO RIRs

This chapter describes the policies governing the allocation of IPv4 address space from the IANA to the Regional Internet Registries (RIRs). This chapter 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.

9.1.1. 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.

9.1.2. Initial Allocations

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

9.1.3. Additional Allocations

An 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.

9.1.3.1. Calculation of AVAILABLE SPACE

The AVAILABLE SPACE of IPv4 addresses of an 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.

9.1.3.2. 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.

9.1.4. Announcement of IANA Allocations

When address space is allocated to an 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 “IPv4 Address Space” page of the IANA website and may make announcements to its own appropriate announcement lists. The IANA announcements will be limited to informing which address ranges, the time of allocation and to which Registry they have been allocated.

9.2.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 fulfil 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:

9.2.1.Existing Policy Phase

During this phase IANA will continue allocating IPv4 addresses to he 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 will be initiated.

9.2.2.Exhaustion 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).

9.2.3.Size of the final IPv4 allocations

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

9.2.4.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 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.

9.3.POLICY FOR THE ALLOCATION OF IPv6 ADDRESS SPACE FROM IANA TO REGIONAL INTERNET REGISTRIES(RIRs)

This chapter 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.

9.3.1.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.

9.3.2.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.

9.3.3.Additional Allocations

An 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.

9.3.3.1.Calculation of AVAILABLE SPACE

The AVAILABLE SPACE of IPv6 addresses of an 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.

9.3.3.2.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.

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

If the justification is based on the application of one or more of the RIR'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.

9.3.4. Announcement of IANA Allocations

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

9.4.GLOBAL POLICY FOR ALLOCATION OF ASN BLOCKS TO REGIONAL INTERNET REGISTRIES

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).

9.4.1.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 2009, allocations of 2-byte only and 4-byte only ASN blocks will be made separately and independent of each other [1]. This means until 31 December 2009, 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.

9.4.2.Initial Allocations

Each new RIR will be allocated a new ASN block.

9.4.3.Additional Allocations

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

- The RIR has assigned or allocated 80% of the previously received ASN block; or
- The number of free ASNs currently held by the RIR is less than its two month need. This projection is based on the monthly average number of ASNs assigned or 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 rate of assignment or allocation over the previous six months, unless the RIR specifically requests fewer blocks than those for which it qualifies.

9.4.4.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.

9.5.GLOBAL POLICY FOR POST EXHAUSTION IPV4 ALLOCATION MECHANISMS BY THE IANA

Upon adoption of this IPv4 address policy by the ICANN Board of Directors, the IANA shall establish a Recovered IPv4 Pool to be utilized post RIR IPv4 exhaustion as defined in Section 1. 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.

9.5.1.Recovered IPv4 Pool

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 stated in Section 9.5.2 below.

9.5.2.Allocation of returned IPv4 address space by the IANA

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.

9.5.3. Reporting

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 [2] 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. POLICY FOR THE ALLOCATION OF INTERNET RESOURCES FOR RESEARCH AND EXPERIMENTAL NEEDS

LACNIC shall make experimental allocations with the aim of promoting research and development within the region. These allocations shall cover all of LACNIC's resources (IPv4, IPv6, ASN).

LACNIC shall promote the use of private resources (whenever possible), both for IPv4 addresses (RFC 1918) as well as for ASN (64512 -65535).

In order to qualify for an initial allocation, the experiment shall meet one of the following requirements:

- Be based on an IETF RFC designated as an experimental RFC.
- Be considered by LACNIC and by external specialists on the subject as favorable for the development of the region and technology in general.

In order to obtain an experimental allocation, the applicant shall:

- Initially submit all the information relevant to the experiment that LACNIC and external specialists on the subject consider necessary to assess the application. LACNIC shall publish the information pertaining to the experiment on a public website (which shall be defined by LACNIC), and announce the existence of the application through an open-subscription mailing list (which shall be defined by LACNIC). In order to receive comments from the community, LACNIC shall wait for a period of 30 days before making the allocation.
- Use allocated resources only for the purposes detailed in the application submitted to LACNIC.
- Not use the allocation for commercial purposes.
- The results of the experiment must be published on a public website (without access control). A link to these results will be placed on LACNIC's website.
- Present before LACNIC an annual report on the progress of the experiment. LACNIC may make these reports public through its forums, mailing lists, website and through any other means it considers relevant, respecting the sources of the information.
- Enter reallocation information in LACNIC's WHOIS database.
- Maintain the reverse resolution of allocated blocks updated.

Failure to comply with these requirements may cause the corresponding allocation to be cancelled.

Minimum allocation blocks shall be restricted by micro-assignment policies (both for IPv4 as well as for IPv6).

Although there is no maximum allocation size, LACNIC shall assign resources in such a manner as to ensure its normal operation.

During the initial assessment, LACNIC's staff shall determine the resources to be allocated.

Experimental allocations shall be for a period of one year, renewable for a period of the same duration, with no specified maximum. For the renewal, the annual report submitted by the applicant shall be considered.

At the moment of renewal, the applicant shall be able to apply for additional resources. The evaluation shall be based on the fulfillment of the requirements detailed above, together with an assessment of the additional information presented by the applicant.

LACNIC shall publish the information pertaining to the additional resource application on a public website (which shall be defined by LACNIC), and announce the existence of the application through an open-subscription mailing list (which shall be defined by LACNIC). In order to receive comments from the community, LACNIC shall wait for a period of 15 days before making the additional allocation.

11. POLICIES RELATING TO THE EXHAUSTION OF IPv4 ADDRESS SPACE

The following policies relate to the IPv4 address space exhaustion process

11.1.Special IPv4 Allocations/Assignments Reserved for New Members

1. LACNIC will create an IPv4 reserve using the space allocated by the IANA to LACNIC post-IPv4 exhaustion, also considering the recovered and returned space mentioned in Section 7 of the Policy Manual.
2. No IPv4 allocations or assignments will be made to organizations that have already been assigned or allocated IPv4 resources by LACNIC or by the organizations that preceded LACNIC in the region currently serviced by LACNIC.
3. Under this policy, IPv4 address requests classified as critical infrastructure according to the LACNIC policies in force may receive addresses, even if they have already been assigned IPv4 resources by LACNIC.
4. LACNIC may only make IPv4 allocations or assignments greater than or equal to a /24 and smaller than or equal to a /22 from this reserve pool.
5. LACNIC will only allocate or assign resources from this reserve after approval of the first IPv4 address request that cannot be satisfied in full due to lack of IPv4 resources in the LACNIC region.
6. Once this policy comes into force, IPv4 resource applications smaller than a /22 that are pending approval may only receive a /22
7. Those organizations that receive IPv4 resources under the terms set forth in the following policy may not receive from LACNIC additional IPv4 resources that are part of this reserve, with the exception of requests for critical infrastructure.
8. Blocks received under this policy may not be transferred as specified in paragraph 2.3.2.18 of the policy manual for a period of three years. The same applies to its sub-blocks, i.e., blocks consisting of a subset of the IPv4 addresses contained in the block.
9. This policy does not replace section 11.1 of the Policy Manual. The reserve created under section 11.2 is independent from the reserve created under the following policy.
10. If the applicant has not already been assigned an IPv6 address block by LACNIC, it must also request an IPv6 address block in accordance with the applicable policy.

11.2.Allocations/Assignments for Gradual IPv4 Resource Exhaustion

1. LACNIC will create a reserve of IPv4 addresses equivalent to a /10 block for the purpose of achieving gradual exhaustion of IPv4 resources within the LACNIC region.
2. LACNIC may only make IPv4 allocations or assignments greater than or equal to a /24 and smaller than or equal to a /22 from this reserve pool.
3. LACNIC will only allocate or assign resources from this reserve after approval of the first IPv4 address request that cannot be satisfied in full due to lack of IPv4 resources in the LACNIC region.
4. Once this policy comes into force, IPv4 resource applications smaller than a /22 that are pending approval may only receive a /22.
5. Organizations receiving IPv4 resources under the terms set forth in the following policy may receive additional IPv4 resources from LACNIC after a period of six months, provided that they generate a new request that justifies the need for additional IPv4 resources according to the IPv4 address allocation or assignment policies in force. Organizations requesting address blocks for critical infrastructure may request up to a /22 at any time.
6. Blocks received under this policy may not be transferred as specified in paragraph 2.3.2.18 of the policy manual for a period of three years. The same applies to its sub-blocks, i.e., blocks consisting of a subset of the IPv4 addresses contained in the block.
7. This proposal does not replace section 11.1 of the Policy Manual. The reserve created under section 11.1 is independent from the reserve created under this proposal.

11.3.Post-Exhaustion IPv4 IANA-distributed Allocations/ Assignments

Resources allocated by IANA to LACNIC once item 11.2 of the Policy Manual becomes effective will only be allocated / assigned under the guidelines set forth on item 11.1 of the Policy Manual.

12. Registration and validation of “abuse-c” and “abuse-mailbox”

12.1.Description of “abuse-c” and “abuse-mailbox”

All resources that use LACNIC's registration systems must include a mandatory abuse-c contact attribute (abuse contact) in their corresponding WHOIS entries, with at least one valid, monitored, and actively managed abuse-mailbox that allows sending manual or automatic reports regarding abusive behavior, security issues, and the like.

Unrestricted access to the “abuse-mailbox” attribute must be available via whois, APIs and future technologies.

Considering the hierarchical nature of the objects, child objects of those directly distributed by LACNIC (for example, sub-assignments) are covered by the parent objects and their own “abuse-c” attribute is optional.

Following usual practices, other “e-mail” attributes may be included for other purposes.

12.2.About the “abuse-mailbox”

The “abuse-mailbox”:
• Must require intervention by the recipient.
• Must not require the use of a form to report abuse.
• Must guarantee that abuse reports, logs, headers, examples, etc. relating to the case of abuse are received.

12.3.Purpose of “abuse-c”/ “abuse-mailbox” validation

The procedure, to be developed by LACNIC, must meet the following objectives:

1) A simple process that guarantees its functionality and the fulfillment of its purpose.
2) It should confirm that the person performing the validation:
• understands the procedure and the LACNIC policies in force;
• regularly monitors the “abuse-mailbox”;
• takes measures in connection thereto;
• responds to the abuse report.
3) Include an “Initial” validation period of fifteen (15) days.
4) If this validation fails, “escalate”, by any possible means, to the rest of the available contacts within an additional period of fifteen (15) days.

12.4.Validation of “abuse-c”/“abuse-mailbox”

LACNIC will periodically validate compliance with the policy, at least twice a year and whenever “abuse-c” attributes are created or modified.
Failure of an organization to comply with this section occurs if it has not been validated during the “initial” or the “additional” validation periods.

12.5.Escalation to LACNIC

Fraudulent behavior (for example, an “abuse-mailbox” that only replies to emails from LACNIC or to emails having a specific subject or body) or failure to comply with the remaining aspects of this policy (ignoring or improper attention to cases of abuse) may be reported to LACNIC for re-validation according to 12.4.

A. APPENDIXES.

A.1.Appendix 1. List of countries and territories covered by LACNIC.

List of countries and territories within LACNIC's area of coverage:
Argentina
Aruba
Belize
Bolivia
Bonaire
Brazil
Chile
Colombia
Costa Rica
Cuba
Curaçao
Dominican Republic
Ecuador
El Salvador
Falkland Islands (Islas Malvinas)
French Guiana
Guatemala
Guyana
Haiti
Honduras
Mexico
Nicaragua
Panama
Paraguay
Peru
Saba
Saint Martin
Saint Eustace
South Georgia and the South Sandwich Islands
Suriname
Trinidad and Tobago
Uruguay
Venezuela

A.2.Appendix 2: HD-Ratio

The HD-Ratio is not intended to replace the traditional utilization measurement that ISPs perform with IPv4 today. Indeed, the HD-Ratio still requires counting the number of assigned objects. The primary value of the HD-Ratio is its usefulness in determining reasonable target utilization threshold values for an address space of a given size. This document uses the HD-Ratio to determine the thresholds at which a given allocation has achieved an acceptable level of utilization and the assignment of additional address space becomes justified.

The utilization threshold T, expressed as a number of individual /48 prefixes to be allocated from IPv6 prefix P, can be calculated as:

$$T = 2^{((48-P)*HD)}$$

Thus, the utilization threshold for an organization requesting subsequent allocation of IPv6 address blocks is specified as a function of the prefix size and target HD-ratio. This utilization refers to the allocation of /48s to end sites, and not the utilization of those /48s

within those end sites. It is an address allocation utilization ratio and not an address assignment utilization ratio.

In accordance with the recommendations of [RFC 3194], this document adopts an HD-Ratio of 0.94 as the utilization threshold for IPv6 address space allocations.

The following table provides equivalent absolute and percentage address utilization figures for IPv6 prefixes, corresponding to an HD-Ratio of 0.94.

P	48 – P	Total /48s	Threshold	Util %
48	0	1	1	100,0%
47	1	2	2	95,9%
46	2	4	4	92,0%
45	3	8	7	88,3%
44	4	16	14	84,7%
43	5	32	26	81,2%
42	6	64	50	77,9%
41	7	128	96	74,7%
40	8	256	184	71,7%
39	9	512	352	68,8%
38	10	1024	676	66,0%
37	11	2048	1296	63,3%
36	12	4096	2487	60,7%
35	13	8192	4771	58,2%
34	14	16384	9153	55,9%
33	15	32768	17560	53,6%
32	16	65536	33689	51,4%
31	17	131072	64634	49,3%
30	18	262144	124002	47,3%
29	19	524288	237901	45,4%
28	20	1048576	456419	43,5%
27	21	2097152	875653	41,8%
26	22	4194304	1679965	40,1%
25	23	8388608	3223061	38,4%
24	24	16777216	6183533	36,9%
23	25	33554432	11863283	35,4%
22	26	67108864	22760044	33,9%
21	27	134217728	43665787	32,5%
20	28	268435456	83774045	31,2%
19	29	536870912	160722871	29,9%
18	30	1073741824	308351367	28,7%

17	31	2147483648	591580804	27,5%
16	32	4294967296	1134964479	26,4%
15	33	8589934592	2177461403	25,3%
14	34	17179869184	4177521189	24,3%
13	35	34359738368	8014692369	23,3%
12	36	68719476736	15376413635	22,4%
11	37	1,37439E+11	29500083768	21,5%
10	38	2,74878E+11	56596743751	20,6%
9	39	5,49756E+11	108582451102	19,8%
8	40	1,09951E+12	208318498661	18,9%
7	41	2,19902E+12	399664922315	18,2%
6	42	4,39805E+12	766768439460	17,4%
5	43	8,79609E+12	1471066903609	16,7%
4	44	1,75922E+13	2822283395519	16,0%

A.3.Appendix 3: Additional Report for IP Address Space Allocation

City	Allocated IP Addresses	Number of Ports	Number of Dial-Up
City	Allocated IP Addresses	Number of Internal Hosts	Purpose

A.4.Appendix 4: IPv4 Resources Distribution Report

The purpose of the following spread sheet is to inform to LACNIC the distribution of the IPv4 blocks allocated to your organization. Please, fill in the columns with the requested information. Note that you should only detail the blocks directly allocated by LACNIC or by a NIR (Mexico or Brazil) and those with sub-assignments of blocks equal or larger than a /30 block.

IPv4 Block: e.g. 200.7.84/23		
Customer name	**IP Address**	**Network Prefix**
Customer 1	200.7.84.0	29
Customer 2	200.7.84.8	27
Customer 3	200.7.84.40	25

IPv4 Block: e.g. 200.0.88/24		
Customer name	**IP Address**	**Network Prefix**
Customer 1	200.0.88.0	29
Customer 2	200.0.88.8	27
Customer 3	200.0.88.40	25

IPv4 Block: e.g. 200.10.62/23		
Customer name	**IP Address**	**Network Prefix**
Customer 1	200.10.62.0	29
Customer 2	200.10.62.8	27
Customer 3	200.10.62.40	25

A.5.Appendix 5: Requirements for ASO AC nominees

Address Council Nominations Process

Any individual from the Lacnic region may be nominated in this process, with the exception of staff members of any Regional Internet Registry, members of Lacnic's Board of Directors, and any individual having the same nationality as one of the ASO/AC members appointed by the Lacnic community and currently in office.

Self-nominations are allowed.

In order to be accepted, candidates must state that they are aware of Lacnic's policy development process, the role of the ASO AC, and the mechanisms through which the community can participate in these processes.

If the deadline for submission of candidates expires and no candidate meeting all the requirements above has been nominated, a new 15-day nominations period will be announced during which the restriction regarding candidates' country of origin shall not apply.

Should a member of the ASO AC be elected to Lacnic's Board of Directors, said member shall resign from the ASO AC before taking office on the Board.

B. REFERENCES

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