

Mission Statement

Applying the principles of stewardship, ARIN, a nonprofit corporation, allocates Internet Protocol resources; develops consensus-based policies; and facilitates the advancement of the Internet through information and educational outreach

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Register for ARIN IX Today!

It is not too late to join your colleagues in Las Vegas, Nevada on April 7-10 for the ARIN IX Public Policy and Members meeting. Visit the [ARIN website](#) for meeting details and to [register now](#).



Reasons you should attend:

- Excellent opportunity to network with your peers.
- Take advantage of Sunday tutorials featuring:
 - An introduction to ARIN's new templates rolling out in June
 - An explanation how Certification Authority may work with ARIN members
- An overview of BGP – what it is, how it works, and why it is used
- To participate in important IPv6 allocation policy discussions.
- Hear the latest on the ARIN database conversion and new template design
- Join in the discussion on lame delegations, RWHOIS and a new WHOIS display
- Because you didn't win the 1st Place Foosball Tournament trophy last spring and you want another chance!

If you are unable to attend, be sure to check the website to read the minutes and view the presentation slides that will be posted shortly after the meeting.

New Website for ARIN

Features easier navigation, search engine, and new content.

On March 26 ARIN unveiled its new website. Incorporating suggestions from members, the IP user community, and the public at large the new site offers the following:

ARIN's new logo and mission statement prominently featured

Easier and more logical navigation

New content categories and pages

A policy section – pulls policy out from within guidelines to provide a quick reference

Mailing list archives updated and date order reserved to most recent at top

New announcement archives

Added a Search Engine

Streamlined and updated About Us section

Top fixed buttons for instance access to:

Contact Us, Mailing Lists, Site Map, Statistics, Network Abuse, and the latest Newsletter

WHOIS search available from every page



Better organized Library

ARIN
3635 Concorde Parkway
Suite 200
Chantilly, VA 20151

Comments or questions about the new website can be sent to webmaster@arin.net.

Internet Community Calendar

- ARIN IX**, April 7-10, Las Vegas, Nevada, US
RIPE 42, April 29 – May 3, Amsterdam, The Netherlands
AfriNIC, May 14, Lome, Togo
NANOG 25, June 9-11, Toronto, Canada
ICANN, June 24-28, Bucharest, Romania
IETF 54, July 14-19, Yokohama, Japan
APNIC 14, September 3-6, Kita-kyushu City, Fukuoka, Japan
RIPE 43, September 9-13, Rhodes, Greece
ICANN, October 22-26, Shanghai, China

Internet Community Meeting Reports

NANOG February 10-12, Miami, FL

Tutorial sessions began on Sunday afternoon, and included presentations on IS-IS Deployment and Design, Inter-Domain Traffic Engineering, Deploying IP Multi-Cast, and Routing Policy Implementation. The General Session dealt with topics such as Internet Measurement: Myths About Internet Data, DNS Damage: Measurements at the Root Server, MPLS, IP Network Traffic Engineering, Internet Expansion, Refinement, and Churn, and NOC Theory and Practice. ARIN staff attended and delivered presentations at the UWHO BOF and the Route Registry BOF. Details of the meeting can be found at: <http://www.nanog.org/mtg-0202/>.

RIPE 41 January 14-18, Amsterdam, the Netherlands

IPv4 and IPv6 policies were the primary focus of this meeting. A revision of the RIPE IPv4 policy document had been underway in the months leading up to this meeting. A revision schedule was established with a final draft date of 28 February, 2002. The IPv6 policy discussion held at the RIPE meeting was well attended and generated much feedback from the RIPE community. Consensus was lacking on sections of the IPv6 policy document draft and it was suggested it be modified to allow any organization who becomes an LIR to obtain a /32 allocation from the RIPE NCC. This gained consensus at the meeting, as many thought there shouldn't be any criteria associated with receiving a /32 from the NCC that could be perceived as

restrictive. It was agreed this new viewpoint on IPv6 allocation policy would be discussed on the global IPv6 mailing list hosted by APNIC before any further action was taken. In addition, many other topics were covered during the meeting. Some of the issues discussed were related to the RIPE WHOIS database, routing, tools, DNS, Test Traffic Measurement (TTM), and anti-spam. Further details can be found at the following URL: <http://www.ripe.net/ripe/meetings/archive/ripe-41/index.html>.

ISOC - NDSS '02 February 6-8, San Diego, CA

This was the ninth Annual Symposium on Network and Distributed SystemSS'02. The general purpose of the symposium is to bring together researchers, implementers, and users of network and distributed system security technologies to discuss security issues and challenges. This symposium provided a mix of technical papers and panel presentations in eight sessions. Session topics included Wireless Security and Attacks, Defending Against Network Attacks, Detecting Steganographic Content on the Internet, and Software Security in Practice. Details are available at the following URL: <http://www.isoc.org/isoc/conferences/ndss/02/index.shtml>.

APRICOT 2002 / APNIC 13 March 3-7, Bangkok, Thailand

The 13th APNIC Open Policy Meeting was held in conjunction with APRICOT 2002. The key discussions were about the criteria for the minimum allocation of IPv6 address space. Consensus was reached about the proposed criteria. The proposal will be further discussed and acted on at the ARIN IX meeting April 7-10, 2002, in Las Vegas, NV and subsequently at RIPE 42, April 29 - May 3, 2002 in Amsterdam, the Netherlands. Details of APNIC 13 can be found at the following URL: <http://www.apnic.net/meetings/index.html>.

ASO General Assembly March 5, Bangkok, Thailand

The meeting was led by ASO AC chair, Barbara Roseman and started with an update on the activities of the AC. This was followed by presentations by the RIRs describing the policy process and status in their regions. A presentation of the statistics of the registration activities of the RIRs was next. Then there was a discussion on the importance of the IPv6 allocation policy that is currently being discussed in the three regions. The

nominees to fill the seat on the ICANN Board of Directors that will become open this October were then identified. Pindar Wong, vice chair of the ICANN At Large Study Committee (ALSC), presented a report on the efforts of the committee. The last item was the presentation by ICANN President & CEO M. Stuart Lynn on the case for reform of ICANN. It was noted that both the ALSC report and the ICANN reform proposal would be discussed in detail at the ICANN meeting to be held in Accra, Ghana. Minutes of the ASO GA will be made available at: <http://www.aso.icann.org>.

**ICANN
March 10 - 14, Accra, Ghana**

The Budget Advisory Group provided input and guidance to the ICANN Finance Committee regarding the priorities for the ICANN budget for the upcoming year. The Address Supporting Organization Address Council conducted an information and outreach session. Of particular interest to the attendees of this session was the progress being made by the emerging RIR, LACNIC. During the ICANN Board's Public Forum there were detailed discussions of the ICANN reform proposal and the At Large Study Committee report. Raul Echeberria, the Chairman of the Interim LACNIC board gave a report describing the progress of LACNIC. The ICANN Board of Director's meeting was held on the last day. The Board granted provisional approval for LACNIC. Details of the meeting can be found at: <http://www.icann.org/meetings>.

**IETF 53
March 17-21, Minneapolis, MN**

In a departure from previous meetings, there were no sessions held on Friday. In addition to participating in the regular DNSOP, DNSExt, IPv6 and IPNG working groups, ARIN staff attended several birds-of-a-feather (BOF) sessions considering possible working group charters in various areas including: the RPSEC, SIKED, and CRISP BOFs. During the Internet Architecture Board (IAB) Plenary on Wednesday night, outgoing Chair John Klensin announced the appointment of Leslie Daigle as the new IAB Chair for a two-year term. Details of the meeting will be available at: <http://www.ietf.org/meetings/meetings.html>.

New Templates Rolling Out in June

ARIN will transition to a new database and templates in June of 2002. Over the past year, ARIN has developed requirements for the new database with input from members of the ARIN user community at ARIN meetings and on the Database Working Group mailing list, dbwg@arin.net. The Engineering and Registration Services Departments have incorporated these comments into the design of the new templates.

As previously announced, the new templates are available for review at: <ftp://ftp.arin.net/pub/new-templates/>. ARIN is providing these templates well in advance of the conversion to allow those ISPs that have auto-generated SWIPs to revise those scripts and submit templates as beta testers.

Look for the announcement requesting beta testers.

ARIN will solicit beta testers from the community for the new database and templates. Participation will be open to all interested parties. Information about beta testing will soon become available.

Following is a brief description of each new template, outlining its purpose and defining who can submit it.

Org-Detailed: Used to register, modify, or remove an organization in ARIN's database. The organization may also register a POC with this template. Submitted by the Administrative POC.

Org-Simple: Used to register, modify, or remove an organization in ARIN's database. The organization must already have a registered POC handle. Submitted by the Administrative POC.

POC: Used to register, modify, or remove a Point Of Contact record in ARIN's database. Submitted by the Point Of Contact.

Net-ISP: Used by Internet Service Providers to request IP addresses for use in their operational networks as well as for sub-delegation to their customers. Submitted by the organization's Administrative or Technical POC.

Continued from page 3

Net-End-User: Used by organizations to request IP addresses for their internal networks. Submitted by the organization's Administrative or Technical POC.

Net-Name-Change: Used for changing the network name of an IP address registration. Submitted by the organization's Administrative or Technical POC for direct allocations or by the upstream organization's Administrative or Technical POC or the upstream's Technical POC on the network for sub-delegations.

Net-Mod: Used to perform several registration actions. First, used to change the in-addr servers listed for either direct or sub-delegated networks. Second, used to change the Point Of Contact handles associated with either direct or sub-delegated networks. Third, used to remove sub-delegations from downstream customers. These three actions may be submitted by the Administrative or Technical POC of the organization associated with the network, or the Technical POC directly associated with the network. Fourth, used to return directly allocated/assigned IP addresses back to ARIN. This action may only be submitted by the organization's Administrative POC.

ASN-Request: Used to request an Autonomous System Number. Submitted by the organization's Administrative or Technical POC.

ASN-Mod: Used to change POC associated with the AS Number registration, modify an Autonomous System Name or return an Autonomous System number to ARIN. Submitted by the organization's Administrative or Technical POC or the Technical POC on the AS Number registration. The organization's Administrative POC is the only contact authorized to return an AS Number.

Reallocate: Used to reallocate IP addresses to a downstream ISP for further sub-delegation. This template may also be used to establish the downstream ISP's Organization ID, its associated Point Of Contact handle and network Technical Point Of Contact for the downstream ISP. Submitted by the parent organization's Administrative or Technical POC or the Technical POC on the parent's network record.

Reassign-Detailed: Used to reassign IP addresses to a downstream organization. This

template enables the parent organization to create a downstream organization ID and its associated Point Of Contact handle. By doing so, the downstream organization is then able to maintain their own in-addr servers and a separate Point Of Contact. Submitted by the parent organization's Administrative or Technical POC or the Technical POC on the parent's network record.

Reassign-Simple: Used to reassign IP addresses to an end user customer, change the existing customer (of a simple reassignment), modify the customer's address information and remove simple reassignments. Submitted by the parent organization's Administrative or Technical POC or the Technical POC on the parent's network record.

Transfer: Used to request the transfer of IP address space and/or Autonomous System Numbers from one organization name to another due to a merger, acquisition, reorganization, or organizational name change. Submitted by the Administrative or Technical Point Of Contact for the organization requesting the transfer.

This material, with added descriptions of the various points of contact, is available online at: http://www.arin.net/library/training/2002_templates/.

In addition, a tutorial describing the new database and templates will be offered Sunday, April 7 at the upcoming ARIN IX meeting in Las Vegas and will be available online following the meeting.

New Policies Ratified

During its December 11, 2001 meeting the ARIN Board of Trustees ratified the following policy. This was done in accordance with the Internet Policy Evaluation Process, which includes a recommendation from the ARIN Advisory Council recognizing community consensus.

2001-7: Bulk WHOIS Data

ARIN will provide a bulk copy of WHOIS output, minus point of contact information, on the ARIN site for download by any organization that wishes to obtain the data providing they agree to ARIN's acceptable use policy. To obtain a bulk copy of WHOIS data, print [ARIN's Bulk WHOIS AUP](#), and complete it in full. Once a signed copy of this

document is received by ARIN staff, a bulk copy of ARIN's WHOIS data will be made available to you.

To find discussion background see:
http://www.arin.net/policy/2001_7.html

During its January 22, 2002 meeting the ARIN Board of Trustees ratified the following policies. This was done in accordance with the Internet Policy Evaluation Process, which includes a recommendation from the ARIN Advisory Council recognizing community consensus.

2001-2: Reassignments to multi-homed downstream customers

Under normal circumstances an ISP is required to determine the prefix size of their reassignment to a downstream customer according to the guidelines set forth in RFC 2050. Specifically, a downstream customer justifies their reassignment by demonstrating they have an immediate requirement for 25% of the IP addresses being assigned, and that they have a plan to utilize 50% of their assignment within one year of its receipt.

This policy allows a downstream customer's multi-homing requirement to serve as justification for a /24 reassignment from their upstream ISP, regardless of host requirements. Downstream customers must provide contact information for all of their upstream providers to the ISP from whom they are requesting a /24. The ISP will then verify the customer's multi-homing requirement and may assign the customer a /24, based on this policy. Customers may receive a /24 from only one of their upstream providers under this policy without providing additional justification. ISPs may demonstrate they have made an assignment to a downstream customer under this policy by supplying ARIN with the information they collected from the customer, as described above, or by identifying the AS number of the customer. This information may be requested by ARIN staff when reviewing an ISP's utilization during their request for additional IP addresses space.

To find discussion background see:
http://www.arin.net/policy/2001_2.html

2001-6: Multiple Discrete Networks – Single Maintainer ID

Policy: Organizations with multiple discrete networks desiring to request new or additional

address space under a single maintainer ID must meet the following criteria:

- The organization shall be a single entity, and not a consortium of smaller independent entities.
- The organization must have been previously granted address space by an RIR. This policy does not apply to organizations with only legacy address space.
- The organization must have multiple (at least two) discrete multi-homed networks.
- The organization must have compelling criteria for creating discrete networks.
- The organization must show greater than 50% utilization of the last block of address space granted to them by the RIR.
- The organization must show greater than 50% utilization of all previously allocated address space.
- The organization must not allocate additional space to discrete network unless all the blocks allocated to that network show utilization greater than 80% individually and as a whole.
- The organization must apply for this policy to be applied to its existing account.

Some organizations have requirements for multiple discrete networks that need individual address allocations. Discrete networks must often have separate unique globally routable address space and will often grow at different rates. In order for organizations with multiple discrete networks to request additional address space under a single maintainer ID, the organization must use the following criteria:

- The organization should be a single entity, and not a consortium of smaller independent entities.
- This policy applies only to organizations that have been previously granted address space by an RIR. This policy does not apply to organizations with only legacy address space.

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- The organization must have multiple (at least two) discrete multi-homed networks.
- The organization must have compelling criteria for creating discrete networks.

Examples:

- regulatory restrictions for data transmission
- geographic distance and diversity between networks
- autonomous multi-homed discrete networks
- The organization must apply for this policy to be applied to their account.

These organizations must adhere to the following guidelines when requesting additional address space:

- When applying for additional address space from an RIR for new networks or additional space for existing networks the organization must show greater than 50% utilization for the last block granted by the RIR and their allocations as a whole.

- The organization must not allocate additional space to a discrete network unless all the blocks allocated to that network show utilization greater than 80% individually and as a whole.

- The organization must not allocate a CIDR block larger than the current minimum assignment size of the RIR (currently /20 for ARIN) to a new network.

- The organization must not allocate an additional CIDR block larger than the current minimum assignment size of the RIR (currently /20 for ARIN) to an existing network, unless previous growth rates for that network indicate that it is likely to utilize a larger CIDR block before the time the organization will be requesting an additional block from the RIR.

- When allocating a block larger than the minimum assignment size to an existing network the organization should use the smallest allocation possible out of a larger reserved block. This requirement is to reduce the number of routes the

organization will announce from that autonomous system.

- The organization must follow guidelines of RFC 2050 (or its replacement) and the policy of the granting RIR for allocations that are assigned or allocated to downstream networks. This includes record keeping of allocation requests and network utilization documents for audits by the RIR.

- Organizations with 'multiple maintainers' should request that this policy apply to their accounts, their existing allocations be merged, and that additional allocations will fall under this policy.

- The organization must record allocations or assignments down to the current RIR bit boundary (currently /29 for ARIN) and record them in an approved RIR public database.

- The organization must keep detailed records of how it has allocated space to each discrete network. This should include the block allocated, any reserved blocks, and date of allocation/reservation. The discrete network allocation information should also be present in a public database (Example: routing registry, RWhois, or SWIP).

To find discussion background see:
http://www.arin.net/policy/2001_6.html.

ARIN Board of Trustees Activities

Since last reported, the Board held one teleconference meeting on January 22, 2002 and one face-to-face meeting on March 19, 2002 in Minneapolis, MN. Activities of these meetings include:

- Ratified the policies outlined above
- Elected officers for the current fiscal year: John Curran, Chairman of the Board; Scott Bradner, Secretary; Lee Howard, Treasurer.

- IPv6 allocation policy discussions from recent RIPE NCC and APNIC meetings were reviewed in preparation for discussion during the upcoming ARIN Public Policy meetings.

- The Board discussed the ICANN Reform Proposal.

The full minutes for these meetings are available at: <http://www.arin.net/library/minutes/bot/>.

E-Commerce Update

ARIN is now accepting American Express credit cards, along with Visa and MasterCard for payment of all registration services and annual maintenance fees. Meeting registrations may also be charged.

- Be able to access the ARIN website, as you might be referred there in order to walk through the details with the analyst.

If you are unsure if a request has been completed:

- Check email to see if you have received a response (we always try to respond in less than 2 days).

- Check ARIN's WHOIS database to see if the request has been completed

- Have the ticket number of the request ready before calling the help desk

- Be able to access the ARIN website, as you might be referred there in order to walk through the details with the analyst.

If you are receiving spam or unwanted messages:

- Locate the IP number of the unwanted message (in header of message)

- Search on the IP number in ARIN's WHOIS database

- Contact the organization to whom that the IP number is registered

- Contact the upstream ISP if applicable

If you believe a POC is invalid in ARIN's database:

- Send a message to hostmaster@arin.net detailing the POC handle, registration information on the POC of the resource, and summary of the information you have.

- ARIN will do it's best to try to get updated information for the stale data and will also attempt to contact the upstream ISP (if applicable).

ARIN Completes Move

ARIN has completed the move to its new location, which is at 3635 Concorde Parkway, in Chantilly, Virginia. It's roughly two miles from our former location.

Tips on Calling ARIN's Help Desk

ARIN's Registration Services helpdesk is open Monday through Friday, 7:00 AM to 7:00 PM Eastern Time. Our goal is to answer your questions as thoroughly and efficiently as possible. If your call is not answered immediately, please stay on the line until one of our analysts is available to answer your questions.

After dialing (703) 227-0660 please first identify the nature of the call. Most fit into the bulleted topics below. In order to help serve you better, please use the tips for each category of question.

Checking on the status of a pending request or supplying additional information regarding a pending request:

- Have your ticket number available
- If you have spoken to someone previously, provide that analyst's name
- Have a copy of the request you submitted in front of you
- Have access to the ARIN website, as you might be referred to it

Need assistance completing a template:

- Have the template in front of you
- Have access to the ARIN website, as you might be referred to guidelines or instructions while speaking to an analyst.

Need assistance on how to make a modification to an existing record:

- Have an example IP number available from the network you want to change. If requesting modification to an AS Number, have the AS Number available.

Development of the Regional Internet Registry System

By: Daniel Karrenberg, RIPE-NCC; Gerard Ross, APNIC; Paul Wilson, APNIC; Leslie Nobile, ARIN

Abridged version of article from the Cisco Internet Protocol Journal, December 2001

Full article is available at: http://www.cisco.com/warp/public/759/ipj_4-4/ipj_4-4_regional.html

The current system of managing Internet address space involves Regional Internet Registries (RIRs), which together share a global responsibility delegated to them by the Internet Assigned Numbers Authority (IANA). This regime is now well established, but it has evolved over ten years from a much simpler, centralized system. Internet number spaces were originally managed by a single individual "authority," namely the late Jon Postel, co-inventor of some of the most important technical features of today's Internet.

In a relatively short time, the Regional Internet Registry system has evolved into a stable, robust environment for Internet address management. It is maintained today through self-regulatory practices that are well established elsewhere in the Internet and other industries, and it maintains its legitimacy and relevance by firmly adhering to open, transparent, participatory decisionmaking processes.

Before the RIRs:

Early Registration Models

In the 1980s, the American National Science Foundation's (NSF) high-speed network, NSFNET, was connected to the ARPANET, a U.S. Defense Advanced Research Projects Agency (ARPA, now DARPA) wide-area network, which essentially formed the infrastructure that we now know as the Internet.

From these early days of the Internet, the task of assigning addresses was a necessary administrative duty, to ensure simply that no two

networks would attempt to use the same network address in the Internet.

At first, the elementary task of maintaining a list of assigned network addresses was carried out voluntarily by Jon Postel, using (according to legend) a paper notebook.

As the Internet grew, and particularly as classful addressing was established, the administrative task grew accordingly. The IANA was established, and within it the Internet Registry (IR). But as the task of the IR outgrew Postel's notebook, it was passed to SRI International in Menlo Park, California, under a NSF contract, and was called the Defense Data Network (DDN) Network Information Center (NIC).

During this time, under the classful address architecture, networks were allocated liberally and to any organization that fulfilled the simple request requirements. However, with the accelerating growth of the Internet during the late 1980s, two problems loomed: the rapid depletion of address space, due

to the crude classful divisions; and the uncontrolled growth of the Internet routing table, due to unaggregated routing information.

Conservation vs. Aggregation

The problems of "three sizes fit all" highlight the basic dilemma of address space assignment: conservation versus aggregation. On the one hand, one wants to conserve the address space by assigning as little as possible; on the other hand, one wants to ease routing-table pressures by aggregating as many addresses as possible in one routing-table entry.

This can be illustrated by looking at a typical networking setup of the time. Within organizations having a single Internet connection, buildings, departments, or campuses would have their own local networks. Often the use of multiple networks was dictated by distance limitations inherent in the emerging local-area networking technologies, such as Ethernet.

These networks typically had to accommodate more than the 254 hosts addressable by a Class C address, but would rarely exceed 1000 hosts. Using pure classful addressing, one could either

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subdivide networks artificially to remain below the 254 host limit, or use a Class B address for each local network, possibly wasting more than 60,000 addresses in each. Whereas the latter solution is obviously wasteful in terms of address space, the former is obviously cumbersome. Less obviously, the former also puts an additional burden on the Internet routing system, because each of these networks would require a separate route propagated throughout the whole Internet.

This basic dilemma persists to this day. Assigning address space generously tends to reduce the routing-table size, but wastes address space. Assigning conservatively will waste less, but cause more stress for the routing system.

Emergence of the RIRs: Internationalization

While the engineering-driven need for topological address space assignment was becoming clear, there was also an emerging recognition that the administrative mechanisms of address space distribution needed further development. A central system just would not scale for numerous reasons, including: sheer volume; distance from the address space consumers; lack of an appropriate global funding structure; lack of local community support.

The need to change administrative procedures was formally recognized by August 1990, when the Internet Activities Board published a message it had sent to the U.S. Federal Networking Council, stating "it is timely to consider further delegation of assignment and registration authority on an international basis" (RFC 1174).

The increasing cultural diversity of the Internet also posed administrative challenges for the central IR. In October 1992, the Internet Engineering Task Force (IETF) published RFC 1366, which described the "growth of the Internet and its increasing globalization" and set out the basis for an evolution of the registry process, based on a regionally distributed registry model. This document stressed the need for a single registry to exist in each geographical region of the world (which would be of

"continental dimensions"). Registries would be "unbiased and widely recognized by network providers and subscribers" within their region. Each registry would be charged with allocating remaining address space in a manner "compatible with potential address aggregation techniques" (or CIDR).

RIPE-NCC

In Europe, IP network operators cooperating in *Réseaux IP Européens* (RIPE) realized the need for professional coordination and registration functions. Establishment of the *RIPE Network Coordination Centre* (NCC) was proposed in the same month that RFC 1174 was published.

APNIC

Asia Pacific Network Information Centre (APNIC), the second RIR, was established in Tokyo in 1993, as a pilot project of APCCIRN (Asia Pacific Coordination Committee for Intercontinental Research Networks, now *Asia Pacific Networking Group* [APNG]).

ARIN

In 1991, the contract to perform the IR function was awarded to Network Solutions, Inc. in Herndon, Virginia. This included the transition of services including IP address registration, domain name registration and support, Autonomous System Number (AS) registration, user

registration, online information services, help-desk operations, and RFC and Internet-Draft archive and distribution services (RFC 1261).

With explosive Internet growth in the early 1990s, the U.S. Government and the NSF decided that network support for the commercial Internet should be separated from the U.S. Department of Defense. The NSF originated a project named InterNIC under a cooperative agreement with Network Solutions, Inc. (NSI) in 1993 to provide registration and allocation of domain names and IP address numbers for Internet users.

Over time, after lengthy consultation with the IANA, the IETF, RIPE NCC, APNIC, the NSF, and the Federal Networking Council (FNC), a further consensus was reached in the general Internet community to separate the management of domain names from the management of IP numbers. This consensus was based on the

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recognition that the stability of the Internet relies on the careful management of IP address space.

Following the examples of RIPE NCC and APNIC, it was recommended that management of IP address space then administered by the InterNIC should be under the control of, and administered by, those that use it, including ISPs, end-user organizations, corporate entities, universities, and individuals.

As a result, ARIN (American Registry for Internet Numbers) was established in December 1997, as an independent, nonprofit corporation, with a membership structure open to all interested entities or individuals.

Until now, ARIN has carried the responsibility for maintaining registration of resources allocated before the inception of the RIRs. However, a major project is now under way to transfer these legacy records to the relevant RIRs. More information about ARIN is available at: <http://www.arin.net>.

Emerging RIRs

The existing RIRs currently serve countries outside their core regions to provide global coverage; however, new RIRs are expected to emerge, necessitating changes to the existing service regions. Because the regions are defined on continental dimensions, the number of new RIRs will be low.

Currently, two groups have made significant progress in seeking to establish new RIRs: *AfriNIC* (for the Africa region), and *LACNIC* (for Latin America and the Caribbean). In recognition of the regional support they have so far obtained, ICANN has recognized the development of these RIRs. More information about *AfriNIC* is available at <http://www.afrinic.org>, and more information about *LACNIC* is available at <http://www.lacnic.org>.

Goals of the RIRs

RFC 2050, published in November 1996, represented a collaboration of the global Internet addressing community to describe a set of goals and guidelines for the RIRs. Although IANA was to retain ultimate responsibility for the entire address pool, RFC 2050 recognizes that RIRs operate under the consensus of their respective regional Internet community. This document,

along with a history of RIR coordination, has helped to form the basis for a set of consistent global policies.

The three primary goals of the RIR system follow:

Conservation: to ensure efficient use of a finite resource and to avoid service instabilities due to market distortions (such as stockpiling or other forms of manipulation);

Aggregation (routability): to assist in maintenance of Internet routing tables at a manageable size, by supporting CIDR techniques to ensure continued operational stability of the Internet;

Registration: to provide a public registry documenting address space allocations and assignments, necessary to ensure uniqueness and provide information for Internet troubleshooting at all levels.

The Open Policy Framework

It was always recognized that these goals would often be in conflict with each other and with the interests of individuals and organizations. It was also recognized that legitimate regional interests could justify varying approaches in balancing these conflicts. Therefore, within the global framework, each regional community has always developed its own specific policies and procedures.

However, whereas the specific approaches may differ across the RIRs, all operate on a basic principle of open, transparent, consensus-based decision-making, following self-regulatory practices that exist elsewhere in the Internet and other industries. Furthermore, the RIRs all maintain not-for-profit cost-recovery systems and organizational structures that seek to be inclusive of all interested stakeholders.

The activities and services of each of the RIRs are defined, performed, discussed, and evaluated in open forums, whose participants are ultimately responsible for decision-making.

To facilitate broad participation, open policy meetings are hosted by RIRs regularly in each of the regions. Ongoing discussions are carried out on the public mailing lists of each RIR, which are open to both the RIR constituents and the broader

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community. The RIRs also participate actively in other Internet conferences and organizations and, importantly, each RIR has a strong tradition of participating in the public activities of the others.

A current example of the coordinated efforts of the RIRs is the Provisional IPv6 Assignment and Allocation Policy Document, a joint effort of the RIRs with the assistance of the IETF, The Internet Architecture Board (IAB), and the Internet Engineering Steering Group (IESG) to describe the allocation and assignment policies for the first release of IPv6 address numbers.

These documents help illustrate that the well-established combination of bottom-up decision-making and global cooperation of the RIRs has created a stable, robust environment for Internet address management.

RIR Functions

The primary function of each RIR is to ensure the fair distribution and responsible management of IP addresses and the related numeric resources that are required for the stable and reliable operation of the Internet. In particular, the resources allocated, assigned, and registered by RIRs are Internet address numbers (IPv4 and IPv6) and AS numbers. RIRs are also responsible for maintaining the reverse delegation registrations of the parent blocks within their respective ranges.

Complementing their registry function, the RIRs have an important role in educating and informing their communities. The activities carried out by the individual RIRs vary, but include open policy meetings, training courses, seminars, outreach activities, statistical reporting, and research.

Additionally, a crucial role for the RIRs is to represent the interests of their communities by participating in global forums and providing support to other organizations involved in Internet addressing issues. The RIRs remain committed to participating with these parties to achieve a consensus among the Internet community on IP address allocation issues.

RIRs and The Global Internet Community: Formation of ICANN and the ASO

The global Internet governance landscape began to undergo radical changes in mid-1998, with

the publication of a U.S. Government white paper outlining the formation of a "not-for-profit corporation formed by private sector Internet stakeholders to administer policy for the Internet name and address system." ICANN was formed later that year.

At the heart of the ICANN structure are "supporting organizations" that are formed to "assist, review and develop recommendations on Internet policy and structure" within specialized areas. In October 1999, the existing RIRs and ICANN jointly signed a Memorandum of Understanding (MoU) to establish the principles for forming and operating the Address Supporting Organization (ASO). It is intended that new RIRs will sign the MoU as they emerge.

The Future of RIRs

In Internet time it can be easy to forget that eight years is actually not long. Since it was first proposed in 1990, the RIR system has evolved rapidly, enjoyed strong community support, and has been relatively free of the political wrangling that has characterized the registration systems of other Internet resources. Without doubt, this position is largely due to the early determination to provide accessible, open forums for the interested stakeholders in the various regions.

New technologies, such as GPRS, broadband services, and IPv6 may raise operational and policy challenges to the RIRs, yet at the same time they bring opportunities for increased global cooperation, in a context where distinct regional concerns are represented more effectively than ever before.

It is hoped that the emergence of new RIRs will only serve to expand and enhance the inclusive nature of RIR activities.

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Answers from last Mystery Word Puzzle:

AUTHORIZATION, MAINTAINER, HANDLE,
WHOIS

**What satisfied ISP customers provide
ARIN? - UTILIZATION**

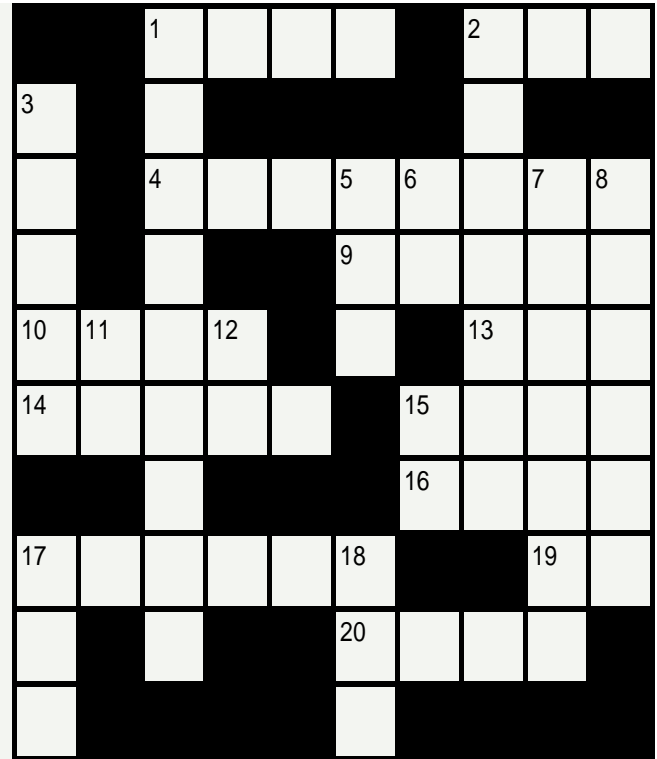
Crossword Puzzle

Across

- 1. Addition to ARIN e-commerce
- 2. Ratifies policies, abbr.
- 4. New versions coming in June, singular
- 9. Term that describes former database schema
- 10. Organization that is home to IETF and IAB
- 13. Network Security Gateway,abbr.
- 14. What you do if you don't know the answer
- 15. Looks for intelligent life, abbr.
- 16. Third RIR to be formed
- 17. New template used to perform several registration actions.
- 19. U.S. state with a unicameral state legislature, abbr.
- 20. ARIN mailing list which had input on new templates

Down

- 1. Tutorial at ARIN IX, Certification _____
- 2. Elected Secretary of ARIN Board of Trustees
- 3. Search this on every page of the new website
- 5. New template used to register, modify, or remove a Point of Contact from ARIN's database
- 6. Superman's girlfriend, initials



- 7. What will be required before the new templates and database are released
- 8. What drives a search
- 11. Bourne shell
- 12. Chat room or IM form of "good bye"
- 15. Structured Analysis, abbr.
- 17. Network Level Aggregation, for short
- 18. Used to kill bugs in new website

Solution provided in the next issue



ARIN Today, a quarterly newsletter, is produced for the ARIN membership and the Internet community. Articles and contributions dealing with IP-address issues and technology are welcome from all sources.

Each issue is filled with news highlights, descriptions of what happened at various meetings, updates on policy, and information about training and other services ARIN provides its members. Technology news and interesting applications are also covered.

So if you have an idea about an article you'd like to submit, or something you'd like to see, please contact the editor at arintoday@arin.net.

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