Internet Number Resources
Key Internet resources

- IPv4 addresses
- IPv6 addresses
- Autonomous System number
- Fully Qualified Domain Name
The IP resources management hierarchy

IANA

AfriNIC

ARIN

RIPE NCC

LACNIC

APNIC

Internet Number Resources

LIRs

End sites (PI)

End sites (PA)
IP resource management by region
### Who else issues IP addresses?

<table>
<thead>
<tr>
<th>Internet Number Resources</th>
<th>Details</th>
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| **Upstream**              | • Obtain blocks from RIRs  
                            • Hand to customers as part of service  
                            • Typical customer is a small ISP  
                            • Example – Internet of VSAT |
| **ISP**                   | • Obtain blocks from RIRs  
                            • Hand out to customers as part of service  
                            • Customers too small to approach RIRs directly |
| **REN**                   | Obtain blocks from RIRs  
                            Handout to universities |
Address Management Objectives

① **Conservation** (applies mainly IPv4)
   - Efficient resource usage (avoid waste)
   - Allocations are based on demonstrated need

② **Aggregation**
   - Limit growth of the routing table
   - Support provider-based routing

③ **Registration**
   - Uniqueness of addresses for each network
   - Helps with network troubleshooting
Why should an organisation get its own address resources?

① Connect to more than one upstream (multi-homing)
② Eliminate the need to re-number when you change ISP
③ Better plan and manage own addressing requirements
“Ownership” of IP resources

• Section 8 of the contract between AfriNIC and members:

  “NO PROPERTY RIGHTS. The Applicant acknowledges and agrees that the numbering resources are not property (real, personal or intellectual) and that The Applicant shall not acquire any property rights on any numbering resources by virtue of this Agreement or otherwise. ...“

  —AfriNIC could cancel the contract (and reclaim any resources) if there’s evidence of violation.
AfriNIC has issued about 38 million IPv4 addresses since 2005.
Resource Application and Membership
Resource allocation & membership

- Resources are only issued to members
  - As defined in AfriNIC public policies
  - Must be in good standing

- To request resources
  - [Existing member] – apply directly for resources
  - [Non-members] - apply for membership first
Types of membership

- Local Internet Registry (LIR)
  - Takes a block block from AfriNIC
  - Issues addresses to its customers
  - Typically ISPs

- End-site (PI)
  - Organisations that want provider independence
  - Not individuals
  - Referred to as “End-user” in policy documents
Membership advantages

① Request IP resources directly from AfriNIC
② Preferential admission to training workshops
③ Access to web portal for managing resources
④ Eligibility to vote for Board Members
⑤ Preferential access to our Public Policy meetings
Membership criteria

1. Incorporated in Africa
2. Possess IP network infrastructure in Africa
3. Individual (non-company) memberships not allowed
Supporting Documents

- Membership
  - Certificate of Incorporation
  - Proof of Address
Supporting Documents

Resources:

- Regulator’s license
- Agreements with upstream providers
- Proof of infrastructure purchase
IPv4 eligibility criteria for LIRs

- Demonstrate an immediate requirement address space
  - Existing ISP network infrastructure
  - Customers
- Prefix and numbering plan if planning to renumber from current upstream IPs
- Minimum allocation size for ISPs: /22
IPv4 eligibility criteria for end sites

- Show utilization of at least a /25 prefix from current ISP/upstream OR:
- Show that at least 50% of total size requested is required immediately (0 – 3 months)
- Minimum assignment size for End-Sites: /24
IPv6 eligibility criteria for ISPs

☑ Plan to provide IPv6 connectivity to organizations in the AfriNIC region within twelve months.

☑ Plan to announce the allocation as a single aggregated block in the inter-domain routing system within twelve months.

☑ Minimum allocation size for ISPs: /32
IPv6 eligibility criteria for End Sites

☑ Either hold an IPv4 PI prefix or qualify for it from AfriNIC (under current policy).
☑ Must justify the need for the requested v6 space.
☑ Show a plan to use and announce the IPv6 PI prefix within 12 months.
☑ Minimum assignment size for End Sites: /48
ASN eligibility criteria

- Show a plan to be multi-homed.
- Have a routing policy.
Initial online application

1. Start
2. Read all relevant policies
3. Register at https://my.afrinic.net/registration
4. System generates RSA & ticket
The AfriNIC Membership Process

**AfriNIC organisational evaluation**

1. AfriNIC Ltd evaluates membership
2. Eligible?
   - Yes → Courier original, signed RSA
   - No → C
3. C

**Notes:**
- Yes
- No
AfriNIC resource request evaluation

AfriNIC Ltd evaluates resource request

Approved?

Yes

AfriNIC sends proforma invoice

No

The AfriNIC Membership Process

B

C

D

Yes

No
Conclusion

The AfriNIC Membership Process

The flowchart shows the process for membership approval and resource allocation:

1. **Follow-up**
2. **Invoice paid?**
   - No: **Follow-up**
   - Yes: **Membership approved and resources allocated**
3. **End**
Acknowledgement and Attribution

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AFRINIC
The Internet Numbers Registry for Africa

www.afrinic.net
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