

# INDIAN REGISTRY FOR INTERNET NAMES AND NUMBERS (IRINN)

IRINN Policy Version 1.1

NIXI

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# CHAPTER 1

## Objectives

- i. To provide the service of delegating and registering Internet Resources (IPv4, IPv6 & AS Numbers) for the purpose of enabling communications via open system network protocols and to assist in the development and growth of the Internet in India.
- ii. To assist the Indian Internet community in the development of procedures, mechanisms, and standards to efficiently delegate Internet Resources as a service to the community as a whole;
- iii. To operate in a way that is consistent with regional and global Resource management policies taking into account the local and statutory requirement.
- iv. To conduct training and skill development program towards growth and promotion of Internet in the country.
- v. To develop local policies and take public positions in the best interest of the Affiliates.
- vi. To create mailing lists for facilitating local knowledge sharing and discuss Internet Number resource policies.
- vii. To disseminate information relevant to the Internet communities in the country from global and regional conferences, forums, meetings, etc. through IRINN mailing list/s.

## CHAPTER 2

### Activities

#### I. Primary Activities

Primary activities of IRINN will be the management and fair distribution of

- a) IPv4 Addresses
- b) IPv6 Addresses
- c) AS Numbers

#### II. Secondary Activities

Over and above the primary activities, IRINN will be responsible for the following;

- a) Coordination with global policy makers
- b) Organizing programs towards Internet Resources knowledge proliferation
- c) Organizing Training for LIR/ISPs/Affiliates/Users
- d) Providing support system.
- e) Provide local whois database
- f) Organize local open policy meetings to carry forward Indian stakeholder views to the regional and global open policy forums.

## CHAPTER 3

### Internet Resources Management Policy

#### I. General Policy

The policies are based on the principles of uniqueness, conservation, aggregation and fairness to facilitate the management of Internet Resources.

- a) All applicants for Internet Resources and existing affiliates of IRINN should follow the rules of this document.
- b) To become an Affiliate, organization must submit their allocation proposal with supporting information (documents like copy of company registration documents, PAN, TIN & TDS registration details PAN in case of an individual, who is a Resident of India) to justify the requirement.
- c) IRINN evaluates and approves every application as per the current policies and criteria.
- d) From 28 February, 2019, each IRINN account holder is eligible to request and receive a maximum of /23 IPv4 address space from an APNIC 103/8 IPv4 address pool. New companies can obtain some IPv4 address space in the IRINN service region without the need to trade for address space and can make the preparation for the subsequent IPv6 migration. To receive a delegation they must meet IRINN criteria as specified in this policy.
- e) Minimum delegation size for IPv6 address is /32 for LIRs & /48 for Corporate Affiliates as per APNIC current policies.
- f) Other Internet users shall be provided with the required IP address by the LIR.

#### II. Affiliation Structure:

There shall be two categories of IRINN Affiliates:

- a) **Affiliates** – Individuals, Body Corporate, Academic Institutions, incorporated or established in India, under the Indian laws, as the case may be, shall become a direct Affiliate of IRINN, provided such organizations do not operate any business

similar to a LIR. Affiliates will receive IP resources for their own networks. This is referred as Portable Assignments.

- b) **LIR (ISP) Affiliates** - A Local Internet Registry (LIR) is an IR that primarily assigns address space to the users of the network services that it provides. LIRs are generally ISPs licensed by the Department of Technology (DoT), Government of India and Data Centre Operations whose customers are primarily end users and possibly other ISPs. LIR Affiliates will receive IP resources for their own infrastructure and for further distribution to their customers. This is referred as Portable Allocation.

### III. **Affiliation Guidelines;**

#### a. **Procedure of Internet Resource Application**

- i. Applicants should fill online request forms at [www.irinn.in](http://www.irinn.in) .
- ii. Applicants should submit clear, detailed, and truthful request forms, as well as a backbone network topology, pop network topology and present deployments status which are subject to IRINN's inspection. A unique Ticket Number will be generated with the application.
- iii. IRINN will examine the forms within three working days and inform the status to the applicant by email.
- iv. If there is any mistake or incomplete information in the application forms, IRINN will notify the applicants by email. The applicants should correct the mistakes and revert back by email on the same Ticket Number.
- v. If the number of Internet Resources applied for exceeds the limit of allocation window (Given at the end of Para in Notes), then the applicants should fill the Second Opinion Request Form and submit it to IRINN for consideration. Once approved the applicants will be delegated the Internet Resources by IRINN.
- vi. All new affiliates should submit the Second Opinion Request Form to IRINN for every delegation.
- vii. Affiliates should provide required information to IRINN for registering Whois database. Affiliates should use MyIRINN portal to register information in IRINN Whois database and ensure the information is correct and up-to-date.
- viii. For any support queries affiliate shall open a Ticket through MYIRINN portal or shall send an e-mail to [helpdesk@irinn.in](mailto:helpdesk@irinn.in).

- ix. All assignments by affiliates should follow the regulations mentioned in the following Va.

**b. The rights of Affiliates**

- i. Affiliates are allowed to submit to IRINN Internet Resource request directly.
- ii. Affiliates are allowed to submit comments and suggestions to IRINN on the process for application and administration of Internet Resources. IRINN will evaluate the practicability of the suggestions provided and may accept the same.
- iii. IRINN will provide all relevant information related to the Internet Resources application and administration.
- iv. Affiliates are allowed to submit changes in policy related to Internet Resources at local, regional and global level for consideration.

**c. The obligations of Affiliates**

- i. Affiliates are required to observe all applicable rules and regulations of IRINN and amendments thereof from time-to-time.
- ii. Affiliates are required to register all relevant information of the delegated Internet Resources in IRINN's Whois database and update regularly to ensure that the information is correct and up-to-date.
- iii. LIRs should guarantee normal functioning of DNS and the Routing table.
- iv. Subsequent allocation will be provided when an organization (ISPs/LIRs/Ordinary internet users) satisfies the evaluation threshold of past address utilization in terms of the number of sites in units of/56 assignments for IPv6.
- v. The HD-Ratio [RFC 3194] is used to determine the utilization thresholds that justify the allocation of additional address as described below.
- vi. The HD-Ratio value of 0.94 is adopted as indicating an acceptable address for justifying the allocation of additional address space.

$$HD = \frac{\text{Log (number of allocated objects)}}{\text{Log (maximum number of allocatable objects)}}$$

- vii. While applying for Internet Resources, affiliates should carryout an accurate evaluation of the exact need beforehand, and submit all required forms and related information. Also, affiliates should fully cooperate with IRINN on all necessary inspections and investigations, and provide required information as stated in para III a) ii.
- viii. As and when APNIC changes the policies for Internet Resources management, IRINN has to follow the new policies and would be required to modify the existing rules. All affiliates are expected to adhere to the changes made on policies from time to time on the lines of APNIC policy within the stipulated time period.
- ix. Affiliates are strictly prohibited to apply to both APNIC and IRINN for Internet Resources at the same time. In such an event IRINN reserves the Right to reject that application.
- x. To make the timely payments and taxes against all the invoices raised for providing the services.

#### **IV. The Rights and Obligations of IRINN to the affiliates**

##### **a) The rights of IRINN**

- i. If the affiliates are not utilizing the assigned Internet Resources in accordance with the projections made at the time of application, IRINN has the right to take back the addresses after giving notice of 30 days.
- ii. Applicants are not allowed to engage in trading, buying, selling, barter exchange, hoarding/stockpiling, reservations etc. of the Internet Resources. If they are found engaging/engaged in such activities during any investigation, then all such affiliates are liable to forfeit all the allocated Internet Resources and related rights by IRINN under this Agreement, and will never be allowed to apply to IRINN for assignments again.
- iii. **To claim the payments and taxes against all the invoices raised for providing the services and in case of non payment, to discontinue the rendering of services as per the defined procedure**

**b) The obligations of IRINN**

- i. IRINN shall keep confidential all the information submitted by the applicants, and not release any information to outsiders without permission from the applicants. However IRINN will disclose public information of applicants in WHOIS database and share other documents to APNIC and Law enforcement authorities wherever required.
- ii. IRINN shall respond to applicants' submissions within 3 working days by email.
- iii. IRINN may consider and accept reasonable opinions and suggestions from the applicants for improvements.

**V. Rules of IP address Allocation and Assignment**

**a) Rules of affiliates assignment**

IP addresses will be delegated to customers according to the number of the hosts in use, instead of the bandwidth. The rules for delegation by the number of hosts are as follows:



Total number of internet hosts Quantity of IPv4 addresses assigned (Prefix)



IPv4 Prefix	IPv4 Addresses
/30	2
/29	6
/28	14
/27	30
/26	62
/25	126
/24	254
/23	510
/22	1022

Total number of internet hosts Quantity of IPv6 addresses assigned (Prefix)

IPv6 Address	End Site /56 Addresses
/56	1
/55	2
/54	4
/53	8
/52	16
/51	32

IPv6 Address	End Site /56 Addresses
/40	65,536
/39	131,072
/38	262,144
/37	524,288
/36	1,048,576
/35	2,097,152

/50	64	/34	4,194,304
/49	128	/33	8,388,608
/48	256	/32	16,777,216
/47	512	/31	33,554,432
/46	1,024	/30	67,108,864
/45	2,048	/29	134,217,728
/44	4,096	/28	268,435,456
/43	8,192	/27	536,870,912
/42	16,384	/26	1,073,741,824
/41	32,768	/25	2,147,483,648

**b) Application for Assignment of IP addresses-Requirements**

- i. Applicants should submit clear, detailed, and truthful request forms, as well as a backbone network topology, pop network topology, and other related certifications (such as receipts for purchase of equipment, purchase order ...etc.), which are subject to IRINN's inspection.
- ii. All assignments by LIRs should follow the regulations in preceding section **Va**.

**VI. Rule for change of ISP/LIR or revised address Allocation**

End users should return the IP addresses to LIRs (ISPs) as and when they change ISPs, and they should apply for new IP addresses from new ISPs. Such Internet users, who have obtained IP addresses from IRINN shall continue to use their blocks through the new ISP.

## VII. IP address Migration

### a) Transfer of Affiliation from APNIC to IRINN

- i. APNIC allows Indian LIRs to join IRINN in India and to receive address registry services from IRINN (including resource allocation and registration). The details of existing APNIC transfer policy is available at “**Operational policies for National Internet Registries in the APNIC region**” [“http://www.apnic.net/policy/transfer-policy”](http://www.apnic.net/policy/transfer-policy).
- ii. In these cases, management responsibility for the LIR's address space and registration records will be transferred from APNIC to IRINN. The LIR will no longer receive any service from APNIC in relation to the address space received from APNIC.
- iii. APNIC does not impose a per-address fee for the transfer. Likewise, APNIC does not impose any further charges on the LIR in relation to Internet resources previously allocated to that LIR.
- iv. If the LIR chooses to maintain its Affiliation with APNIC while receiving new allocations from IRINN, the LIR may choose whether and when resources are transferred to IRINN.
- v. Although an LIR may be an affiliate of both IRINN and APNIC, it may only obtain resource services from one source.

### b) Transfer of Affiliation from IRINN to APNIC

- i. IRINN shall freely allow LIR affiliates to join APNIC and to receive all address registry services from APNIC (including resource allocation and registration), wherever this is preferred.
- ii. In these cases, management responsibility for the LIR's address space and registration records will be transferred from IRINN to APNIC. The LIR will no longer receive any service from IRINN in relation to the address space received from IRINN.
- iii. The existing address space holdings of the LIR will be transferred to the management of APNIC.

- iv. IRINN will not impose a per-address fee for the transfer. Likewise, IRINN will not impose any further charges on the LIR in relation to Internet resources previously allocated to that LIR.
- v. If the LIR chooses to maintain its Affiliation with IRINN while receiving new allocations from APNIC, the LIR may choose whether and when resources are transferred to APNIC and inform IRINN accordingly.
- vi. Although an LIR may be an affiliate of both APNIC and IRINN, it shall only obtain resource services from one source.
- vii. LIR's APNIC Affiliation tier will be assessed at the next Affiliation renewal, based on all of their APNIC-managed address space (including both the transferred address space and any other address space they have received from APNIC).

**This document may be reviewed and modified as and when necessary based on the recommendations of Affiliates.**

**NOTES:**

i. **Assignment Window**

In order to apply best current practices and achieve efficient assignments of Internet Resources by the LIRs, IRINN is obliged to set a limit on assignment quantities. LIRs are free to assign Internet Resources if the quantity applied for is within the limit. If not, applicants should fill a Second Opinion Request Form and submit it to IRINN. Once admitted, the LIRs can assign the Internet resources to their customer.

ii. **Second Opinion Request Form**

The form can be found by login to MyIRINN portal: <https://myirinn.in>

iii. **Request forms**

a) **ISP Internet Resources Request Form:**

All ISP should mandatorily use this form to apply to IRINN for Internet Resources.

The form can be found at the IRINN website for new Affiliate: Affiliation & resource Request form: [www.irinn.in](http://www.irinn.in) . Existing affiliate can logging to <https://myirinn.in> and can apply.

- b) Second Opinion Request Form: In the event the request exceeds the allocation window NIR will use the second opinion request form. The form can be found at the IRINN website: [www.irinn.in](http://www.irinn.in) .

iv. **Allocation Window.**

In order to administrate effective allocations of Internet Resources by IRINN (National Internet Registry), APNIC will set an Allocation Window for IRINN. IRINN is free to handle IPv4 and IPv6 requests within their Allocation Window. Any requests above IRINN Allocation Window should be forwarded to APNIC for further evaluation.

## Chapter 4

### IRINN Policy for AS Number Allocation and Transfer

#### I. About AS Number

- a) Autonomous System (AS) is collection of network with the same routing policy, usually under single ownership, trust and administrative control. If LIRs network uses EGP (Exterior Gateway Protocol), BGP (Border Gateway Protocol) or IDRP (OSI Inter-Domain Routing protocol) routing protocols, LIR can request an AS Number.
- b) If your network is a large network or will be a large network and multi-home to different providers, you need an AS Number.
- c) If your network is a small network and only one upstream, you can use static routing or other routing protocols. You don't need an AS Number.
- d) We recommend reading RFC1930 for AS number request.

#### II. Conditions of AS number request

- a) Multi-homed network to different providers.
- b) Fill in AS number request form conscientiously.
- c) The AS number must be used in 3 months.

#### III. IRINN AS number management

- a) IRINN will update APNIC Whois Database before allocating an AS number.
- b) IRINN has the right to ask the applicant return the AS number if they have not used that AS number in 3 months since they received the AS number.

#### IV. IRINN AS Numbers Transfer Policy

The transfer of AS Numbers is permitted within the APNIC/IRINN region and between regions with compatible inter-regional AS Number transfer policies.

No other Regional Internet Registry (RIR) currently has an inter-RIR AS Number transfer policy that would permit the transfer of AS Numbers between regions.

## **Chapter 5**

### **Fee Structure**

#### **I. Annual Affiliation fees**

Annual Affiliation fee is calculated based on the total address resources held by the affiliate organization at the time of the anniversary of the Affiliation. The annual Affiliation fee shall not be refunded during the Affiliation period of one year, even if the affiliate withdraws its Affiliation or IRINN terminates the Affiliation.

Annual fee for IPv4 and IPv6 components are calculated separately, based on the total address holdings of the affiliate. The annual Affiliation fee is then charged as the greater of these two components.

In case of migration from APNIC to IRINN, No transfer charges shall be levied. The anniversary date for the concerned affiliate as per APNIC records shall be maintained by IRINN. The first invoicing by IRINN to affiliate in case of migration shall be done on the first anniversary date falling after the migration to IRINN.

The applicable taxes shall be charged separately to the applicable annual Affiliation fees.

Failure to pay the annual Affiliation fee on time shall result in cancellation of Affiliation.

#### **a) IPv4 Component**

The affiliate's total IPv4 address holdings, including that were transferred from APNIC to IRINN and those of IRINN-allocated address space, will be used to assess the IPv4 component of the annual Affiliation fee as follows:

$$\text{FeeV4} = 25000 \times 1.35^{(\log_2 (\text{Addresses}) - 8)}$$

#### **b) IPv6 Component**

The affiliate's total IPv6 address holdings, including that were transferred from APNIC to IRINN and those of IRINN-allocated address space, will be used to assess the IPv6 component of the annual Affiliation fee as follows:

$$\text{Feev6} = 21999 \times 1.35^{(\log_2 (\text{Addresses}) - 22)}$$

## **II. Resource Application Fee**

A new affiliate shall be charged with Resource application fee of Rs. 25,000 (Twenty Five Thousand only/-) plus applicable Taxes. Irrespective of whether the applicant avails the IP resources immediately or later than the period of application, this application fee will be charged for all new affiliates. The same is not applicable for those affiliates who transfer from APNIC and become a new affiliate of IRINN.

Experimental IP block (/24 for IPv4 & /48 for IPv6) will be exempted for Research purpose for First year

## **III. Affiliation Reactivation Fee**

An Affiliate who has been terminated from the Affiliation for non-payment of Affiliation fees may be returned to Affiliation by paying a " Affiliation Reactivation fee" of Rs. 25,000 plus applicable Taxes in addition to payment of any outstanding unpaid fees. This option is available for a limited period of three months from the date of Affiliation termination, after which time all previously allocated and assigned resources are subject to reallocation.



## Annexure 1

### Sample Fee Structure

<b>FeeV4 = 25000x1.35<sup>(log<sub>2</sub> (Addresses)-8)</sup></b>		
<b>Addresses</b>	<b>IPv4 Block</b>	<b>IRINN fee in INR</b>
256	/24	25,000
512	/23	33,750
1,024	/22	45,563
2,048	/21	61,509
4,096	/20	83,038
8,192	/19	112,101
16,384	/18	151,336
32,768	/17	204,304
65,536	/16	275,810
131,072	/15	372,344
262,144	/14	502,664
524,288	/13	678,596
1,048,576	/12	916,105
2,097,152	/11	1,236,742
4,194,304	/10	1,669,601
8,388,608	/9	2,253,962
16,777,216	/8	3,042,848

$$\text{Feev6} = 21999 \times 1.35^{(\log_2(\text{Addresses}) - 22)}$$

End Site Addresses (/56)	IPv6 Block	IRINN fee in INR
256	/48	21,999
512	/47	21,999
1,024	/46	21,999
2,048	/45	21,999
4,096	/44	21,999
8,192	/43	21,999
16,384	/42	21,999
32,768	/41	21,999
65,536	/40	21,999
1,31,072	/39	21,999
2,62,144	/38	21,999
5,24,288	/37	21,999
10,48,576	/36	21,999
20,97,152	/35	21,999
41,94,304	/34	21,999
83,88,608	/33	29,699
1,67,77,216	/32	40,093
3,35,54,432	/31	54,126

6,71,08,864	/30	73,070
13,42,17,728	/29	98,644
26,84,35,456	/28	1,33,170
53,68,70,912	/27	1,79,779
1,07,37,41,824	/26	2,42,702
2,14,74,83,648	/25	3,27,647
4,29,49,67,296	/24	4,42,324
8,58,99,34,592	/23	5,97,138
17,17,98,69,184	/22	8,06,136
34,35,97,38,368	/21	10,88,283
68,71,94,76,736	/20	14,69,182
1,37,43,89,53,472	/19	19,83,396
2,74,87,79,06,944	/18	26,77,585
5,49,75,58,13,888	/17	36,14,739
10,99,51,16,27,776	/16	48,79,898

## APPENDIX

a) **Uniqueness**

Every assignment and allocation of address space must be guaranteed as globally unique. This is an absolute requirement for ensuring that every public host on the Internet can be uniquely identified.

b) **Conservation**

To maximize the lifetime of the available resource, address space must be distributed according to actual need and for immediate use. Stockpiling address space and maintaining reservations are contrary to this goal. Conservation also implies efficiency. Therefore, all users of address space should adopt techniques such as Variable Length Subnet Masking (VLSM) and appropriate technologies that ensure the address space is not used wastefully.

c) **Aggregation**

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

d) **No guarantee of contiguous delegations**

IRINN will attempt to make any subsequent delegations contiguous with previous delegations, but cannot guarantee that this will be possible.

e) **Internet Registry**

An Internet Registry (IR) is an organization that is responsible for distributing IP address space to its affiliates or customers and for registering those distributions. IRs are classified according to their primary function and territorial scope.

IRs include:

- APNIC and other Regional Internet Registries (RIRs)
- National Internet Registries (NIRs)
- Local Internet Registries (LIRs), unless the specific context of the reference requires otherwise.

**i. Regional Internet Registry**

Regional Internet Registries (RIRs) are established under the authority of IANA to serve and represent large geographical regions. Their primary role is to manage, distribute, and register public Internet address space within their respective regions. Currently, there are five RIRs: AfriNIC, APNIC, ARIN, LACNIC, and the RIPE NCC although a small number of additional RIRs may be established in the future.

**ii. National Internet Registry**

A National Internet Registry (NIR) primarily allocates address space to its affiliates or constituents, which are generally LIRs organized at a national level. NIRs are expected to apply their policies and procedures fairly and equitably to all affiliates of their constituency.

The policies in this document apply to NIRs; however, this document does not describe the entire roles and responsibilities of NIRs with respect to their formal relationship with APNIC. Such roles and responsibilities may be described in other documents and agreements, subject to APNIC Document review procedure.

**iii. Local Internet Registry**

A Local Internet Registry (LIR) is generally an Internet Service Provider (ISP), and may assign address space to its own network infrastructure and to users of its network services. LIR customers may be other "downstream" ISPs, which further assign address space to their own customers.