LIR Walkthrough

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Before You Begin

Before you begin, determine who in your organization has access to the RIR API Keys related to the ASNs used by your organization and gather the following data:

For ARIN, you will need to gather data for the ASN, Org ID, Admin/Tech/Abuse POCs, Name Prefix, and API Keys for each ASN.

For all other RIRs, you will need information for the Maintainer, Password, and Admin/Tech Contacts per ASN.

• LIR Walkthrough

- Create LIRs
- Set up IP Associations
- SWIP

Create LIRs

First, go and set up an LIR from Admin IPAM Admin.

Click "Add / Edit / Update LIRs"

IPAM Admin		
IPAM Management Tools		
In this section you can navigate to the different pages related with the IPAN	vi Management.	
Select the link you want to edit configuration.		
IPAM Lists Management:	Holding Tank Management:	
Edit IPAM Tags	Process Holding Tank (Set to 10 days)	
Edit IPAM Regions	LIR Management	
Edit IPv4 Subnets Dropdown	Add/Edit/Update LIBs	
Edit IPv6 Subnets Dropdown	Add Edib opdate En to	
Edit IPAM Rules	Configuration Management:	
Edit Numbering Authority	IPAM Configuration	
Edit IPAM Columns	Alerts Management	
Edit VLAN Columns		

Complicated or large organizations will likely need many.

Start by adding a new LIR by clicking the "Add LIR" button at the top of the page:

Settings	IPAM Admin 👻	Data Import	Users 🗸	API -	Scheduler	Scanning -	Log	Approvals -	Constraints	Exit Admin	Search	Q
LIR M	lanager										Add LIR	\triangleright

At this point, you should have data collected for each RIR/ASN combination used in your organization.

Select the RIR, enter the Name and ASN, and then enter the relevant Org ID / POC / API Key (or Password) for the LIR. Entering the ARIN API Keys for ARIN LIRs is critical for every SWIP action. The API Key contained within an LIR object will be used to authenticate against ARIN's systems when you want to update them.

When you are done, click "Save" and continue to add other LIRs as needed.

An example of how this should look:

API	Approvais - Constraints Exit Admin
Create New LIR	
RIR	
ARIN	•
Name	
6connect	
ASN	
8038	
Org ID	Abuse POC
CONNE-81	6CONN-ARIN
Admin POC	Net Prefix
6CONN-ARIN	6CONN
Tech POC	API Key
6CONN-ARIN	******
	Add
	DUSE FOC NET PIEIIX API KEY
	Save Close

We can verify this information by querying the ARIN database, like so:

https://whois.arin.net/rest/org/CONNE-81/pft?s=conne-81 https://whois.arin.net/rest/poc/6CONN-ARIN?s=6conn-arin

Once you have an LIR in ProVision, it is trivial to query the API of its resource from the ProVision database using the resource Id number.

Set up IP Associations

From here, ensure that IP space has been entered into ProVision, along with necessary Contacts and Resources.

Associate Contacts with the Resources, and assign IP space to the necessary Resources. See: Resources, Working with Entries, Contact Manager, and Working with IP Blocks.

Make sure that you have followed the following guidelines:

- Danger #1: Make sure you own the IP space in question. ARIN knows who is supposed to be administering every bit of IP space under its domain, and you will run into issues if you do not actually own the IP space according to the RIR.
- Danger #2: Make sure the IP space is actually assignable with ARIN.

An example of why SWIPs might fail

Lets imagine that 10 years ago some network administrator did a simple assignment with ARIN which noted that a certain /26 was under management by Company A. Since then, that administrator has been fired, the company he worked for has been acquired, that company was then itself acquired, and Company A has gone bankrupt and dissolved.

Today, nobody knows about all this. But ARIN remembers that a certain /26 has been delegated to Company A, and nobody has informed them otherwise. This is a not-uncommon issue.

So today, you come along and you are doing your tests with a /28 which happens to be a sub-block of the /26. You can configure everything correctly and despite that, ARIN will completely refuse to SWIP the /28, because ARIN thinks that the /28 is part of a /26 which is already SWIP'd.

To make matters worse, ARIN won't tell you why it is refusing to SWIP the /28 -- it will just tell you its invalid. The only way to debug this situation is manually probe the ARIN database until you find the already-SWIP'd block, construct this block in ProVision, try to SWIP it (and fail, because it is already SWIP'd), then de-SWIP it, clearing the erroneous state both from ProVision and from ARIN. Due to a lack of access to the ARIN database, ProVision is limited in its methods of handling situations such as these.

<u>SWIP</u>

We've got everything together so let's do some SWIP'ing. Our happy candidate is 67.221.244.160/27, which is a slice of 6connect's very own domain. Screenshot from ARIN:

ARIN American Registry for Internet Numbers		all requests subject to term
ARIN Online enter	WHOIS-RWS	
	You searched for: 67.221.244.160/27	
	NELWORKS	
	NE167 (NE1-67-0-0-0-0)	67.U.U.U - 67.255.255.255
	6CONNECT-1 (NET-67-221-240-0-1)	67.221.240.0 - 67.221.255.255

From here we can see that the /27 is currently undivided as far as ARIN is concerned. ARIN's database is arranged in a hierarchy, so it first looks to see if that /27 exists in its

database (nope), then it looks for blocks it *does* know about it which contains it. Here we see 6connect's /20 as its immediate owner:

https://whois.arin.net/rest/net/NET-67-221-240-0-1	
--	--

And ARIN's own base allocation as the next-highest owner:

https://whois.arin.net/rest/net/NET-67-0-0-0-0

The story of this block is therefore: "ARIN was given this IP Block by ICANN, then ARIN did a Direct Allocation of a /20 to 6connect." And in a bit here, 6connect will do a detailed re-assign to MedaTeckle, a made-up company whose headquarters is the birthplace of Genghis Khan.

Here is the resource:

Contact Info			Tech Info		
Phone:	Fax:	edit	DNS Servers	ns4:	edit
Mailing Details: Delüün Boldog Dadal, Khentii 00001	Billing Details: Same as mailing details		ns2: ns2 ns3:	ns5: ns6:	
GeoIP Details: Same as mailing details			ARIN Info Org ID: Org POC:	Abuse POC: Origin AS:	
			Net POC: Residential Customer Pri	Vacy: Disabled	

And here are the contacts:

Contacts				
Select Contact: (or impo	ort via LDAP)			
Search for a Contact	Ŧ	Assign		
Name	Role	Email	ID	
Henry Jones	ARIN-NET	drjonesjr@test.com	#229	¢
Jane Doe	ARIN-ADMIN	test@test.com	#39876	\$
Jane Doe	ARIN-ADMIN	test@test.com	#39876	

Having someone in the 'ARIN-NET' and the 'ARIN-ADMIN' roles is required for a Detailed Reassign. It is currently not possible to have a single Contact with both roles, so you'll need two contacts listed.

Here is the last piece, our IP block:

IPAM	
Direct assign	
Smart assign	
IP Blocks	
11 Address	It Region
67.221.244.160/27	
Displaying 1 to 1 of 1 blocks	

So I open up the gear menu for the IP block right here on the resource page and I get this screen:

		· · · ·				
		Net Name:	6CONN-6C-060-67-22	21-244-160-27		
Re By de To ove	fault, when ARIN erride this, enter a	ne (Simple Reassign only): blocks are SWIPed th a public name to use i	ne customer name in t n this field.	he WHOIS database v	vill be set to the assigned	resource name.
	Org Handle	Admin POC	Net POC	Abuse POC	Net Name Prefix	API Key
۲	CONNE-81	6CONN-ARIN	6CONN-ARIN	6CONN-ARIN	6CONN	*****

I select the LIR in the upper-left (currently selected: 6connect), the Net Name is automatically generated from the LIR + netblock, and we are using the "CONNE-81" organization within the 6connect LIR. This will supply the ARIN API Key to make this all happen. I hit Detailed Reassign and after a few minutes of waiting for ARIN to catch up, here are the results:

ARIN Online enter	WHOIS-RWS	
	You searched for: 67.221.244.160/27	
	Maturalia	
	Networks NET67 (NET-67-0-0-0)	67.0.0.0 - 67.255.255.255
	Networks NET67 (<u>NET-67-0-0-0)</u> 6CONNECT-1 (<u>NET-67-221-240-0-1</u>)	67.0.0.0 - 67.255.255.255 67.221.240.0 - 67.221.255.255

Our /27 has been delegated to our new fake company, here:

https://whois.arin.net/rest/net/NET-67-221-244-160-1

A new ARIN entry for the fake company has been automatically made:

https://whois.arin.net/rest/org/MEDAT-1.html

https://whois.arin.net/rest/org/MEDAT-1.html

And the relevant Points of Contact have been generated:

https://whois.arin.net/rest/org/MEDAT-1/pocs

This lets everyone know that if issues arise with that / 27, they know who to contact to resolve the issue.