FREETRANSIT GUIDE

HOW-TO:
LEARN TO USE THE RIPE DATABASE

INTRO

This document provides guidance on how to properly set up your RIPE Database objects in order to receive assignments from the RIPE NCC.

NOTE: You are expected to have an account with the RIPE NCC. If you do not have this, please register one.

If you don´t know how to do this, then this guide is not for you. :-)

There are 3 sections to this document:

1. MAINTAINER and PERSON pair

2. ORG object

3. ROUTE[6] objects and RPKI

These should cover the basics to get your database side of things set up for your network.

If you´d like to learn how to more in-depth work with the RIPE Database, they provide guides and certification at the RIPE Academy:
https://academy.ripe.net/

In case you have any improvements you´d like to suggest, feel free to e-mail us: support@freetransit.ch

1. MAINTAINER and PERSON pair

In order to do anything in the RIPE Database, you need a MAINTAINER and PERSON pair.

These are what link your identity and RIPE NCC account [or e-mail / PGP key, if you wish] to your objects within the database.

To get started, visit https://my.ripe.net, and log in. You should now have the LIR portal in front of you.

Next, navigate to `RIPE Database -> Create an Object`.

You should already see "role and maintainer pair" displayed here as suggested object type to create.

Click "Create", and 4 fields should appear.

In field 1, titled "mntner":

enter your maintainer name. You can use for example your online username or FIRSTLAST name here.

Examples:

- JOHNDOE-MNT

- NETMIN-MNT

- ITANET-MNT

In the second field, titled "role":

> please first click on the "Switch to person" option presented on the right.

> Next, enter your first and last names (and middle names if you´d like).

> Example: Jans Janssens, John Doe, ...

In the third field, titled "address":

> Enter your postal address, that you´d write on letters.

> Example:

> Stationsplein 11, 1012 AB Amsterdam, THE NETHERLANDS

> Trebbiner Str. 9, 10963 Berlin, GERMANY

In the fourth and last field, titled "phone":

> Enter your phone number, either a landline, SIP / VoIP line, or mobile number.

> Example: +31 20 535 4444

Now, click "Submit", and you should see a view similar to the one shown on the next page.

I would highly suggest you write these down somewhere, as you won´t have any easy reference to them until your ASN and PI prefix have been assigned to you.

You can, if you like, make your address a bit more pretty, by going to "Query the RIPE Database" on the left, looking up your person object, and adding multiple "address" attributes.

You now have your MAINTAINER and PERSON pair!

With this, you´re now able to manage your own objects, as well as link yourself back to others, and have other operators reference you in cases where it´s needed.

Please proceed to the next page for the ORG object.

2.   ORG object

The ORG object is what links your name or
Organization to your INET[6]NUM and AUT-NUM
objects, among others.

You´re required to have one by the RIPE NCC before
being able to receive any assignments or
allocations.

It also contains important information, such as a
abuse-mailbox attribute, to give network operators
a point-of-contact to e-mail in case of any bad
traffic originating from your network.

To get started, return to https://my.ripe.net.

Now, navigate to RIPE Database -> Create an Object,
and select "Organisation".

Click "Create".

You should now have a bunch of fields in front of
you. Some of which are pretty self-explanatory, but
some might require additional information.

Please go to the next page for what to enter where.

"organisation":

Leave this as-is.

"org-name":

The displayed name of the ORG object.

Either enter your Full name, or the name of the company you´re registering for, and the company type.

Examples:

John Doe, AccounTing LLC, Deliux BV, ...

"org-type":

Cannot be changed, leave as-is.

"address":

Your full postal address.

Either on one line, or multiple.
You can create multiple lines by pressing the arrow facing downwards on the right.

Examples:

Stationsplein 11, 1012 AB Amsterdam, THE NETHERLANDS

Trebbiner Str. 9, 10963 Berlin, GERMANY

"e-mail":

Pretty straight forward, your e-mail address

"abuse-c":

Abuse Contact. To create one, click on the bell icon at the right-hand side.

Enter the e-mail address you would like to use as abuse mailbox in here, and press "Submit".

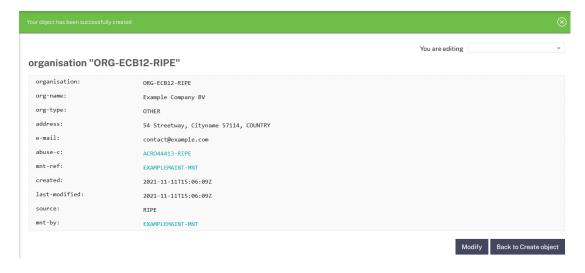There should now be a new ROLE object that´s filled in at this field.

"mnt-ref":

Give your / other maintainers access to reference this ORG object.

Enter your maintainer you made in the previous step here. As well as any other maintainers you would like to authorize to reference this ORG object.

We will ask you to add a secondary mnt-ref attribute here with "OPENFACTORY-NOC" as value in case you are receiving an Allocation or Assignment from our parent PA IPv6 prefix.

Now, click "Submit", and you should see a success page like the one below.

Your object has been successfully created	⊗

You are editing

organisation "ORG-ECB12-RIPE"

organisation:	ORG-ECB12-RIPE
org-name:	Example Company BV
org-type:	OTHER
address:	54 Streetway, Cityname 57114, COUNTRY
e-mail:	contact@example.com
abuse-c:	ACRO44413-RIPE
mnt-ref:	EXAMPLEMAINT-MNT
created:	2021-11-11T15:06:09Z
last-modified:	2021-11-11T15:06:09Z
source:	RIPE
mnt-by:	EXAMPLEMAINT-MNT

Modify   Back to Create object

3. ROUTE[6] Objects and RPKI

Route[6] objects and ROA´s are what allow networks to verify that a specific ASN can announce a specific prefix, and down to what size in the case of a ROA.

This is used to prevent unauthorized announcement of prefixes, such that the routed announcement does not get far.

For your own network, you want to make sure both a valid route[6] object and RPKI ROA are created, to make sure your space has optimal reach and is authorized by other networks to traverse their routers.

In this section you will learn how to do just that, and some examples are given to learn some edge cases and what to do to fix them.

Please proceed to the next page for a set of examples, which use documentation ASNs and IP space.

RPKI Example:

AS64501 Example Company BV announces

- 2001:db8:4c6::/48

- 2001:db8:600::/40

- 2001:db8:f0::/44

    o 2001:db8:f3::/48

    o 2001:db8:f8::/48

    o 2001:db8:fa::/46

Valid route6 objects exist for all of these.

2001:db8:600::/40 has a ROA for AS65541 down to /48

2001:db8:4c6::/48 has a ROA for AS64501 as-is.

2001:db8:f0::/44 has a ROA for AS64501 from /44 down to /46.

This means that:

- 2001:db8:600::/40 will be rejected.

- 2001:db8:4c6::/48 will be accepted.

- 2001:db8:f0::/44 will be accepted.

    o 2001:db8:fa::/46 will be accepted.

    o 2001:db8:f3::/48 will be rejected.

    o 2001:db8:f8::/48 will be rejected.

IRR Example:

AS64501 Example Company BV announces

- 2001:db8:841::/48

- 2001:db8:850::/44

A valid ROA exists for 2001:db8:850::/44

A valid route6 object exists for 2001:db8:850::/44

No route6 object exits for 2001:db8:841::/48

A valid ROA exits for 2001:db8:841::/48

This means:

- 2001:db8:841::/48 will be accepted.

- 2001:db8:850::/44 will be accepted.

Why?

Because a ROA should serve as authorization for announcing a prefix, regardless of the route6 object.

IRR / route[6] objects should be used as fallback in case a RPKI ROA is not present, or cannot be found.

However, it is still important to set up proper route[6] objects, as older networks won´t know how to filter based on RPKI yet, as this technology is relatively new compared to other filtering methods.

On the next page, you will learn to set up both.

To help along with the process, we will assume you received AS210000, and 2001:678:1000::/48

To start, go back to https://my.ripe.net.

From here go to:
RIPE Database -> Create an Object.

Now, select "route6".

In the field titled "route6":

Enter your prefix, in this example that's 2001:678:1000::/48

In the field titled "origin":

Enter your ASN, in this example that's AS210000.

Click "Submit".

Voila! A route6 object that authorized your AS to originate your network.

You should now see a result similar to below.

Your object has been successfully created	⊗

You are editing

route6 "2001:678:1000::/48AS210000"

route6:	2001:678:1000::/48
origin:	AS210000
mnt-by:	EXAMPLEMAINT-MNT
created:	2021-11-11T15:59:53Z
last-modified:	2021-11-11T15:59:53Z
source:	RIPE

Modify   Back to Create object

For RPKI, it´s a bit more work, as you will need to set up a Certificate Authority first.

Go to https://my.ripe.net/#/rpki.

This should now ask you to set up a Certificate authority, if you have received a PI assignment.

From the menu here, select "Hosted CA".

You should now have the RPKI Dashboard in front of you.

Now, go to "Route Origin Authorizations [ROAs]".

In here, press the "New ROA" button presented at the right.

Three new input boxes should appear in the table.

- For AS-Number, enter your ASN.

- For Prefix, enter your IPv6 prefix.

- For Max length, enter 48.

Press the floppy disk / save icon at the right of your column.

Now click on the button in the bottom right, labeled "Review and publish changes".

If everything looks OK to you, press "Apply the changes" to create the ROAs.

You have now set up your ROA for your space.

In case you have received multiple PI Assignments, do the same for each one to authorize them all.