RIPE NCC
RIPE NETWORK COORDINATION CENTRE

RIPE Database Basics

Webinar

March 2026

RIPE NCC Learning & Development



This webinar is being recorded

Take the poll!

What do you know about the **RIPE Database**?



2 min.

The RIPE Database

Purpose of the Database

RIPE Database Objects

Contact Objects

Network Objects

Query the RIPE Database

Available interfaces

Default query results

Using flags and options

Inverse Lookups

Full Text Search

Create and update objects

Maintainer Objects

Authentication Mechanisms

Best practices

Updating objects



The RIPE Database

Purpose and Objects

RIPE Database

- Public Internet resource and routing registry database
  - Registry of **WHO** holds IPs and ASNs
  - Keep **contact information**
    - For troubleshooting, notifying of outages
  - Publishing **routing policies**
  - Provisioning **reverse DNS**





Try it out!

Go to *apps.db.ripe.net*

Search for **193.0.24.10**

What did you find in the RIPE Database?

3 min.

IPs and ASNs

inetnum

inet6num

aut-num

Contact Information

organisation

person

role

Routing

route

route6

as-set

Reverse DNS

domain

Object Protection

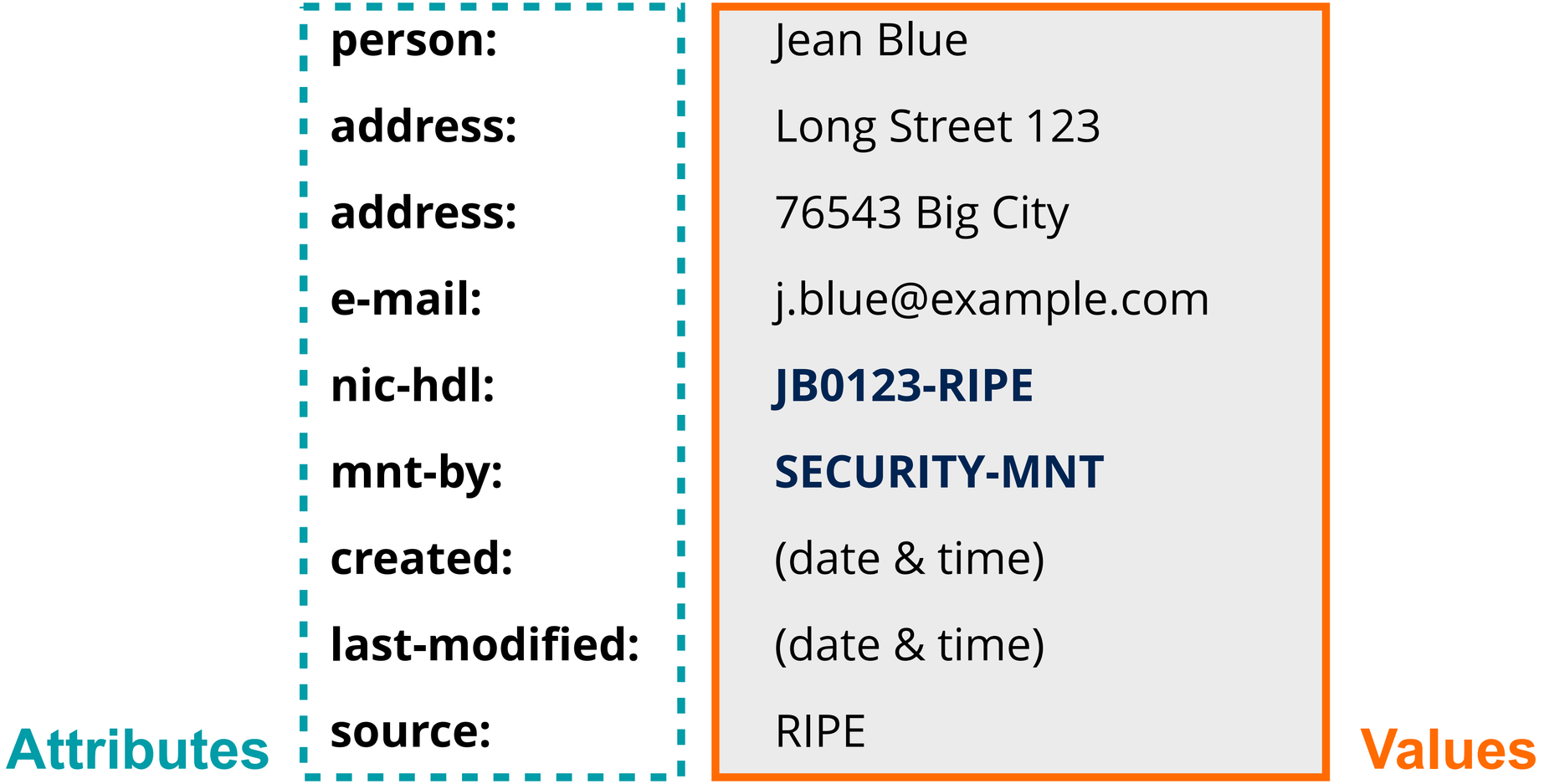
mntner

Demo

Let’s do a quick search
in the RIPE Database...

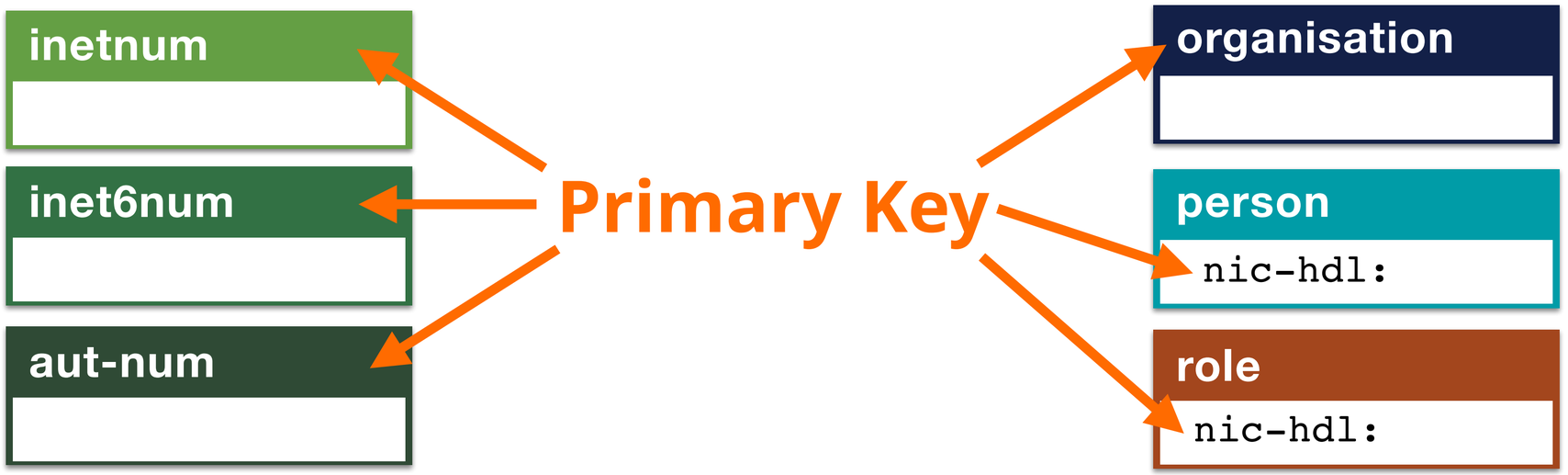


Anatomy of an Object



Primary Key

- Every object has one Primary Key
- It makes the object unique
  - Different from other objects of the same type

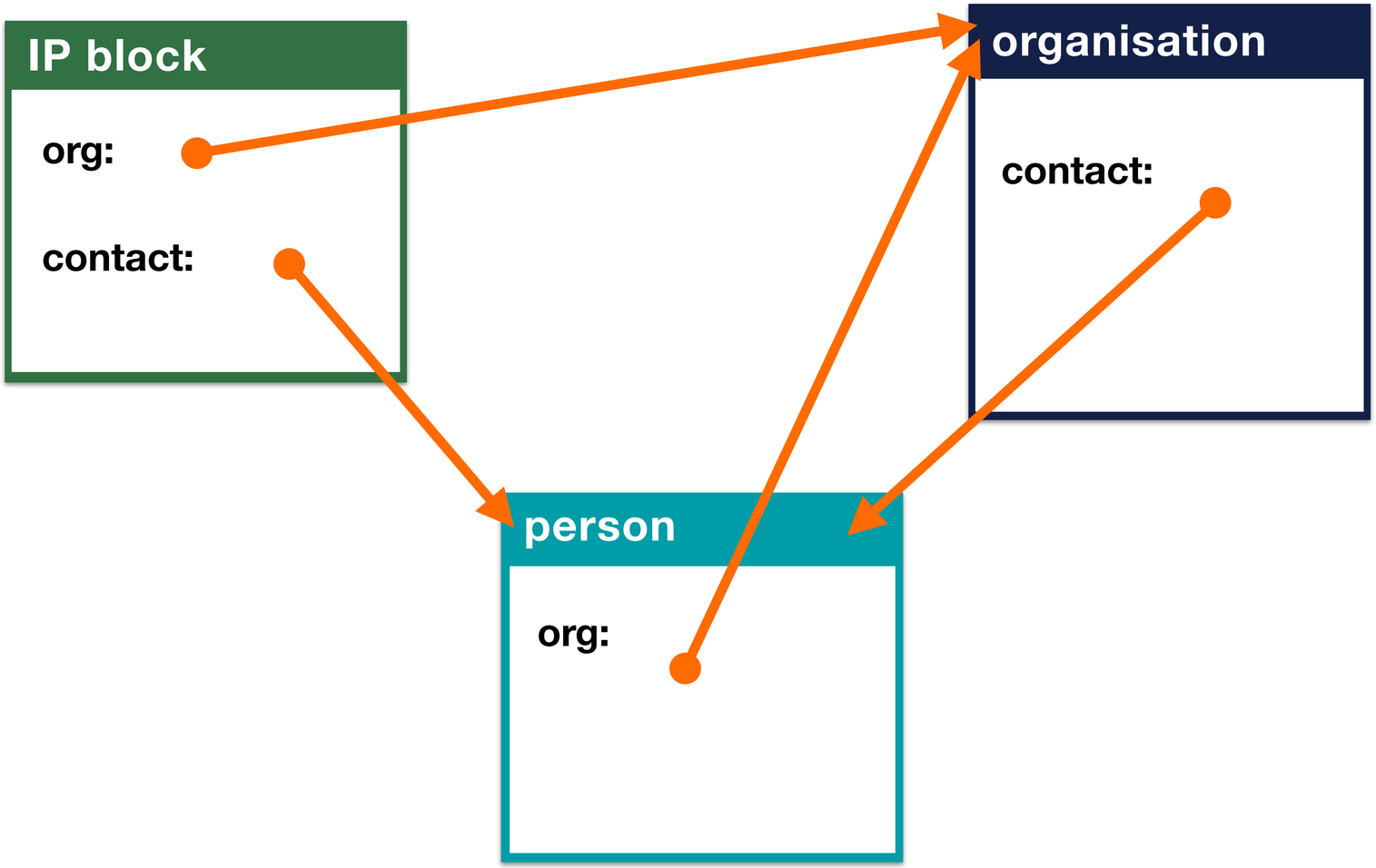


Lookup Keys



person:	**Jean Blue**
address:	Long Street 123
address:	76543 Big City
e-mail:	**j.blue@example.com**
nic-hdl:	**JB0123-RIPE**
mnt-by:	SECURITY-MNT
created:	(date & time)
last-modified:	(date & time)
source:	RIPE

Objects are Linked to Each Other



Questions



Take the poll!

What do you do when you have **Internet problems**?



2 min.



Contact Objects

How contact data is registered

ORGANISATION object

Has data about a company, institution or any other kind of organisation that has IP addresses and AS Numbers.

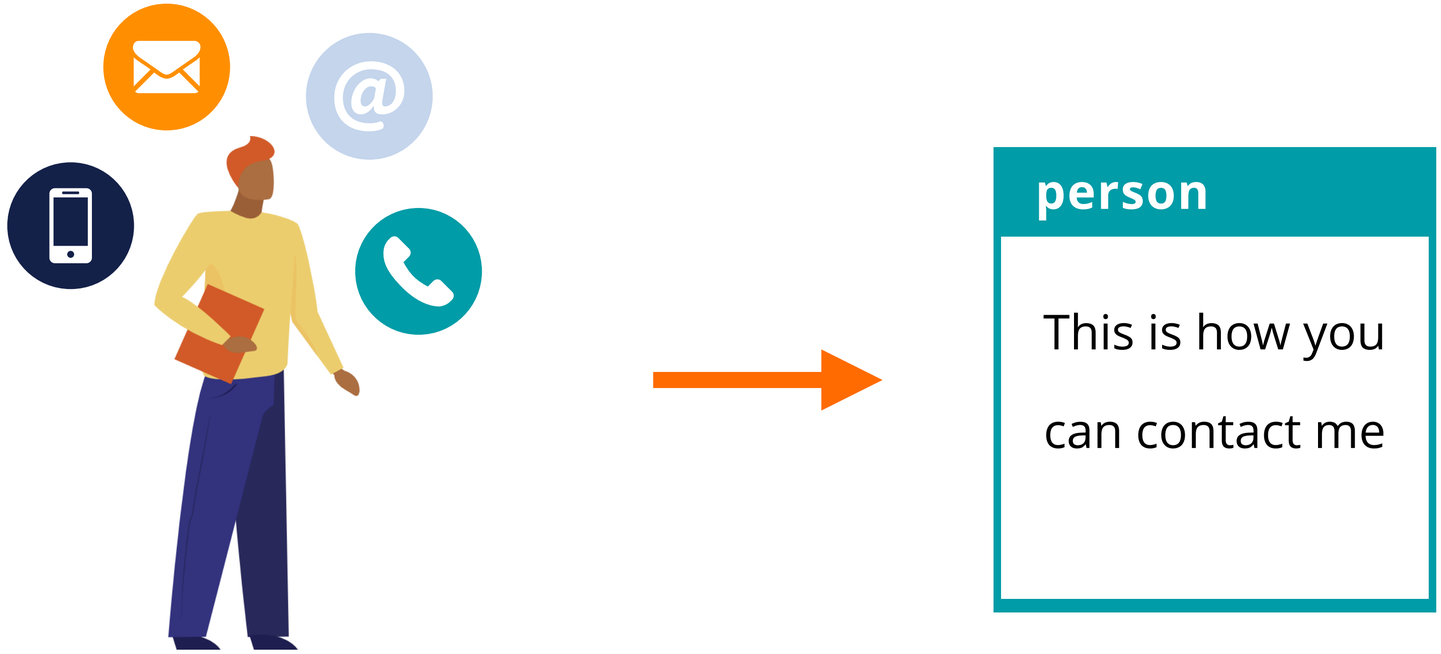


organisation

This is how you can contact ORG and who is responsible

PERSON object

Has data that can be used to contact a real person.



person

This is how you can contact me

ROLE object

Group of Persons



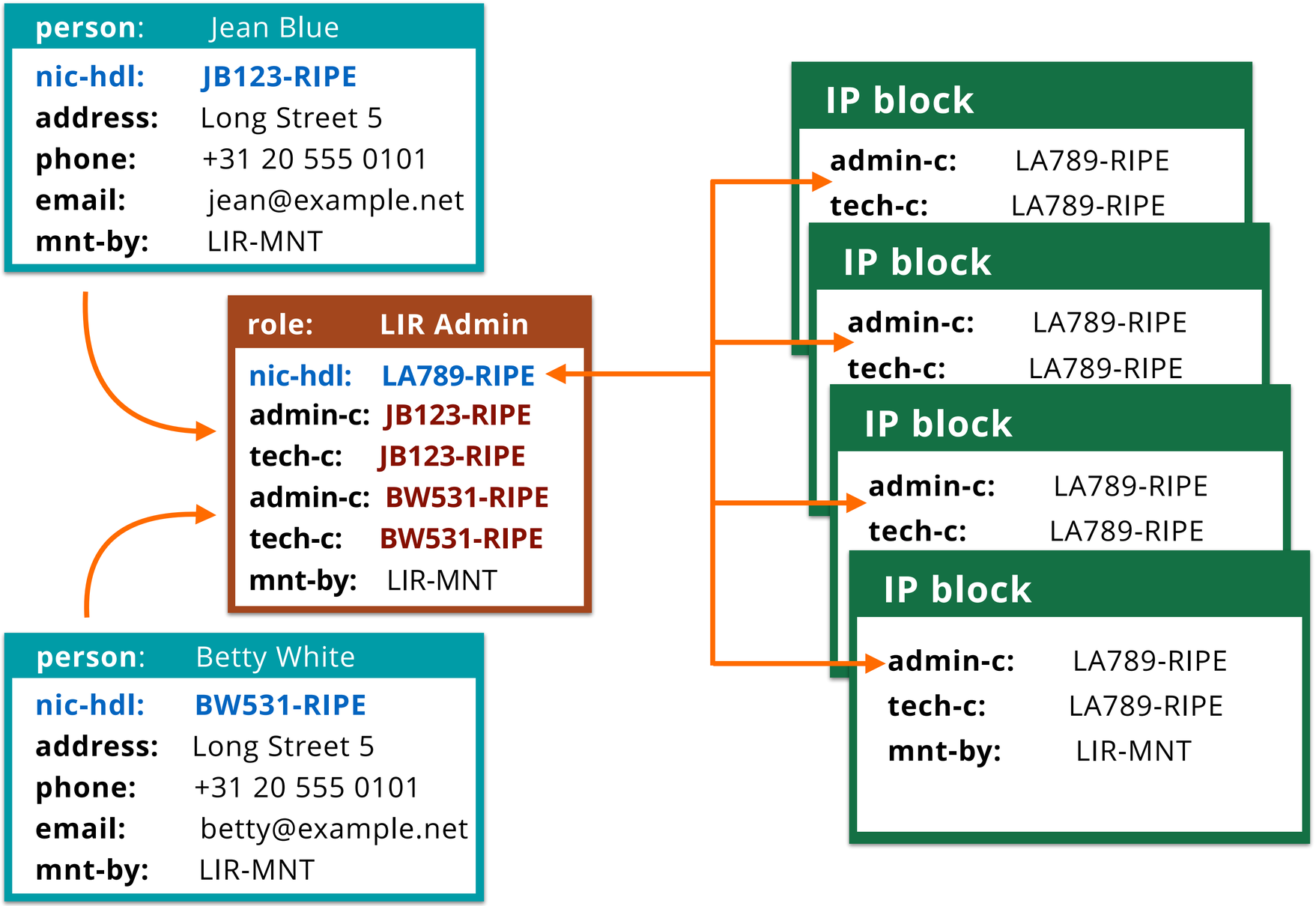
role

admin-c:
tech-c:

abuse-mailbox:

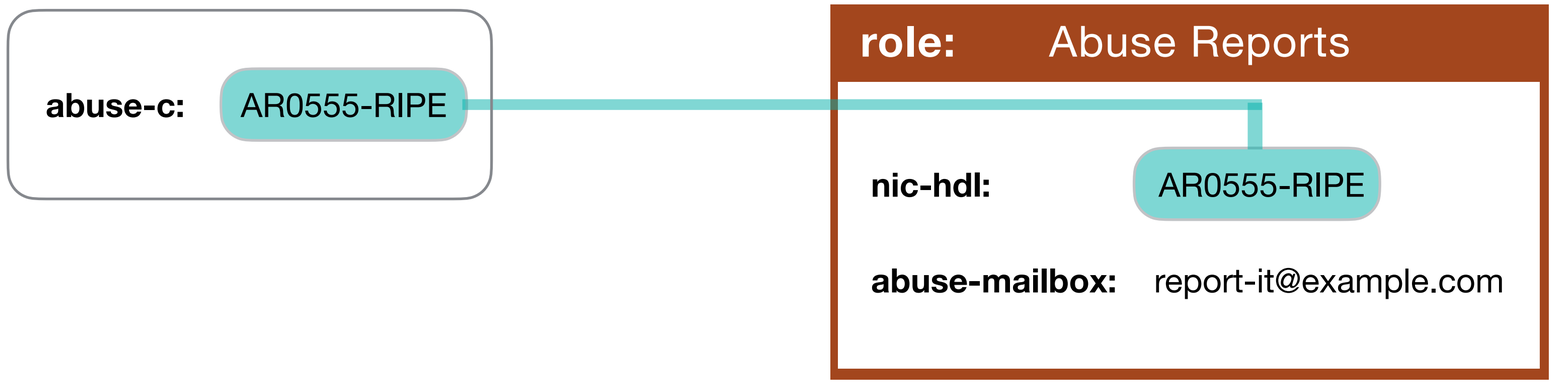
Abuse Contact




person: Jean Blue
nic-hdl: JB123-RIPE
address: Long Street 5
phone: +31 20 555 0101
email: jean@example.net
mnt-by: LIR-MNT
role: LIR Admin
nic-hdl: LA789-RIPE
admin-c: JB123-RIPE
tech-c: JB123-RIPE
admin-c: BW531-RIPE
tech-c: BW531-RIPE
mnt-by: LIR-MNT
person: Betty White
nic-hdl: BW531-RIPE
address: Long Street 5
phone: +31 20 555 0101
email: betty@example.net
mnt-by: LIR-MNT
IP block
admin-c: LA789-RIPE
tech-c: LA789-RIPE
IP block
admin-c: LA789-RIPE
tech-c: LA789-RIPE
IP block
admin-c: LA789-RIPE
tech-c: LA789-RIPE
IP block
admin-c: LA789-RIPE
tech-c: LA789-RIPE
mnt-by: LIR-MNT

ROLE object: Abuse Contact

- The **role** object contains the “abuse-mailbox:”
- Objects reference the **role** in “abuse-c:”
- RIPE Database shows the abuse contact in WHOIS query results



Demo

Let’s search for a **role** in the RIPE Database…





Network objects

How networks are registered

Network objects

IPv4 = inetnum

inetnum: 192.30.0.0 - 192.30.3.255

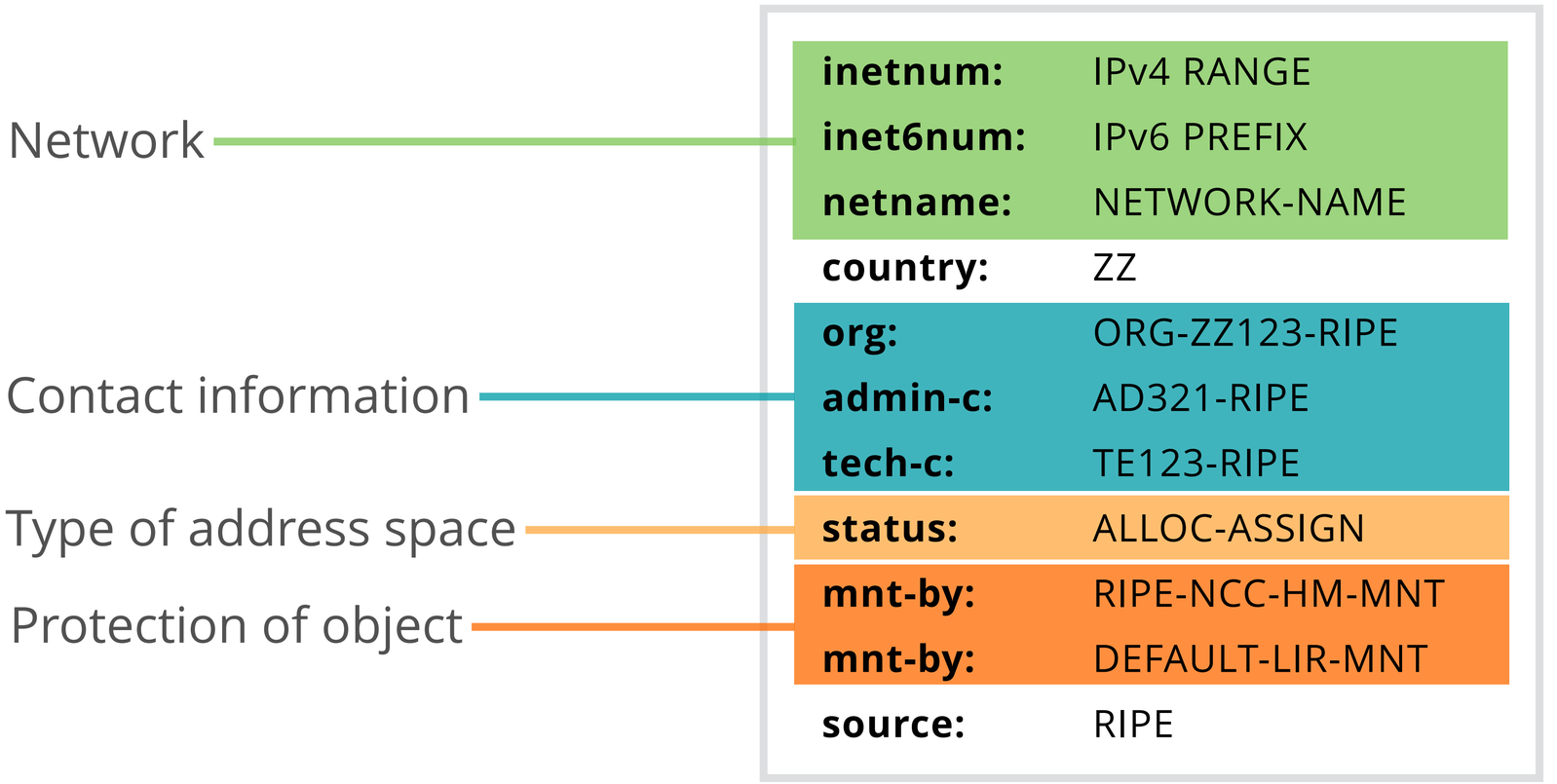
netname:	NL-NETWORK-20170101
country:	NL
org:	ORG-EE2-RIPE
admin-c:	DV789-RIPE
tech-c:	JS123-RIPE
status:	ALLOCATED PA
mnt-by:	RIPE-NCC-HM-MNT
mnt-by:	DEFAULT-LIR-MNT
source:	RIPE

IPv6 = inet6num

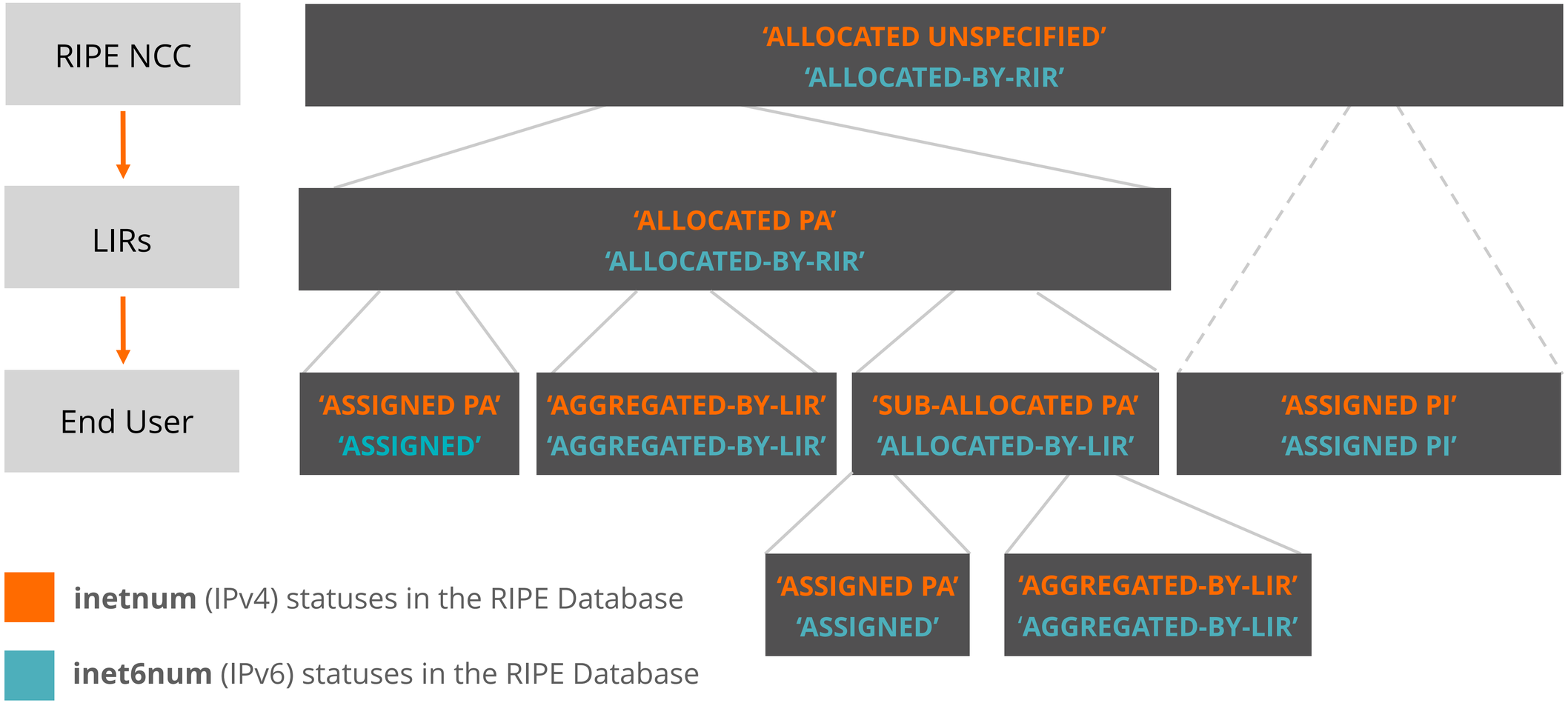
inet6num: 2001:db8::/32

netname:	NL-NETWORK-20170101
country:	NL
org:	ORG-EE2-RIPE
admin-c:	DV789-RIPE
tech-c:	JS123-RIPE
status:	ALLOCATED-BY-RIR
mnt-by:	RIPE-NCC-HM-MNT
mnt-by:	DEFAULT-LIR-MNT
source:	RIPE

Same object structure for IPv4 and IPv6



Object Status Hierarchy



inetnum (IPv4) statuses in the RIPE Database

inet6num (IPv6) statuses in the RIPE Database

Questions





Querying

Default results, flags and options

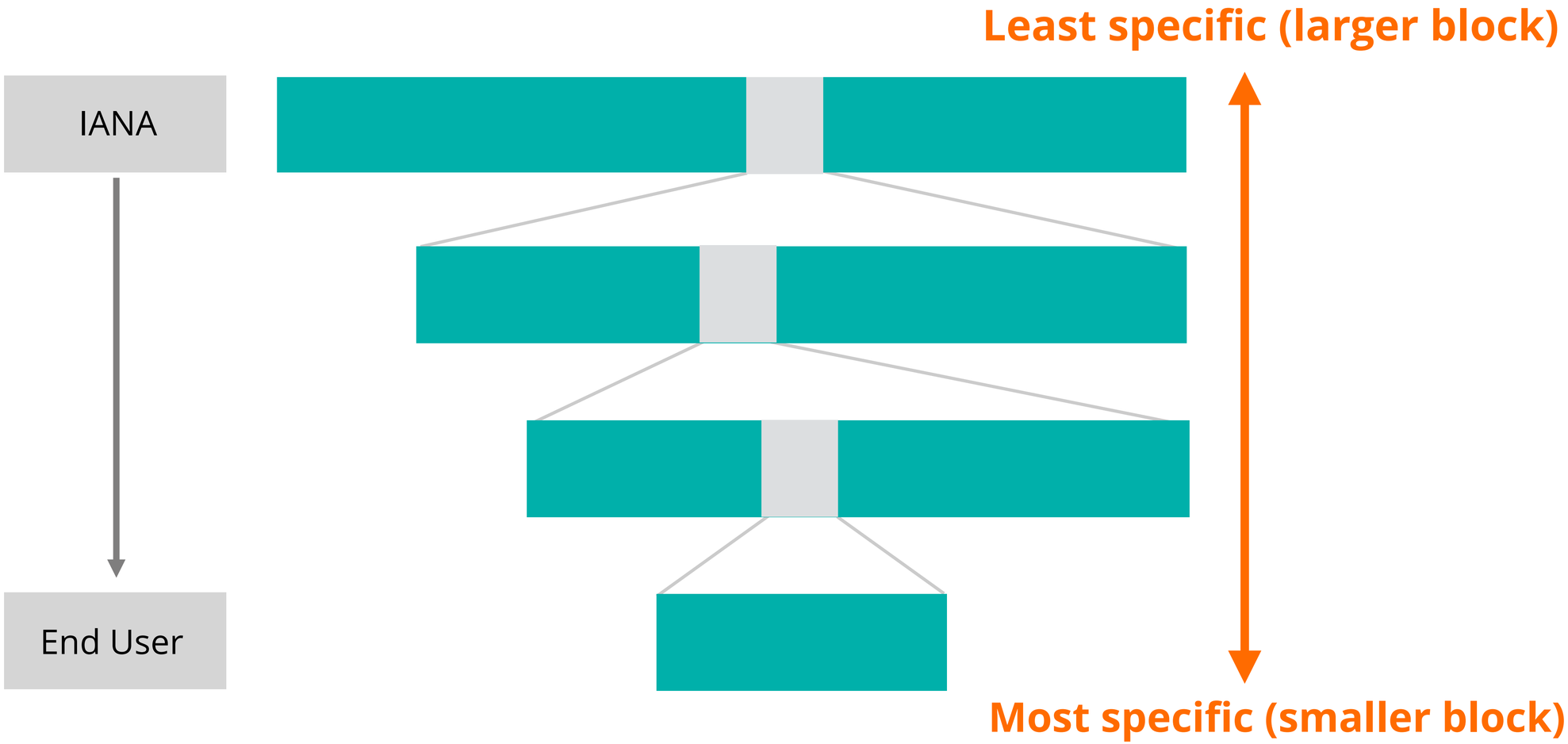
Querying the RIPE Database

- Web interface
- Command line
- Full Text Search
- RESTful API
- RIPEstat



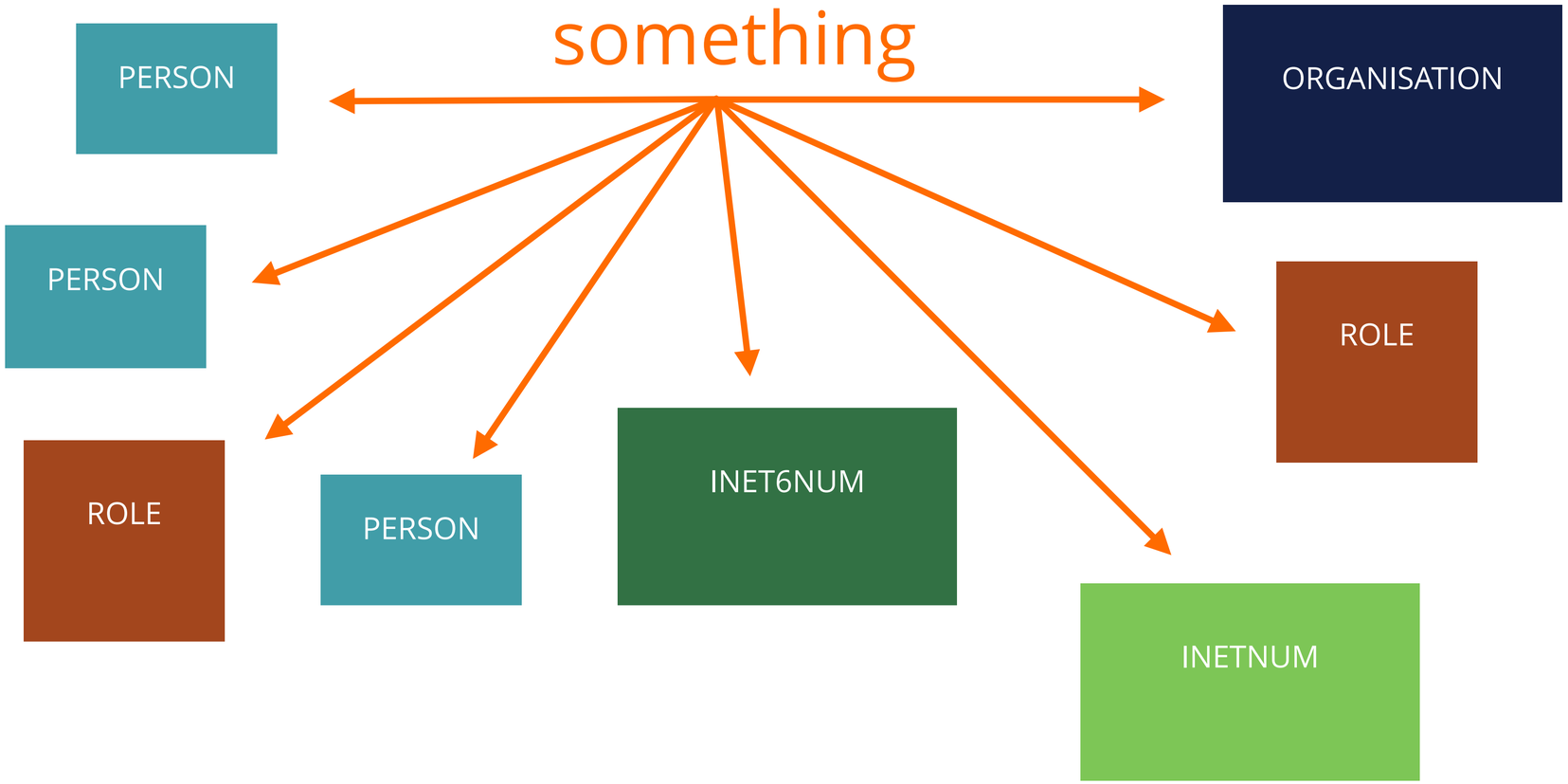
Default Query Results

When you query for an **IP address** or **prefix**...



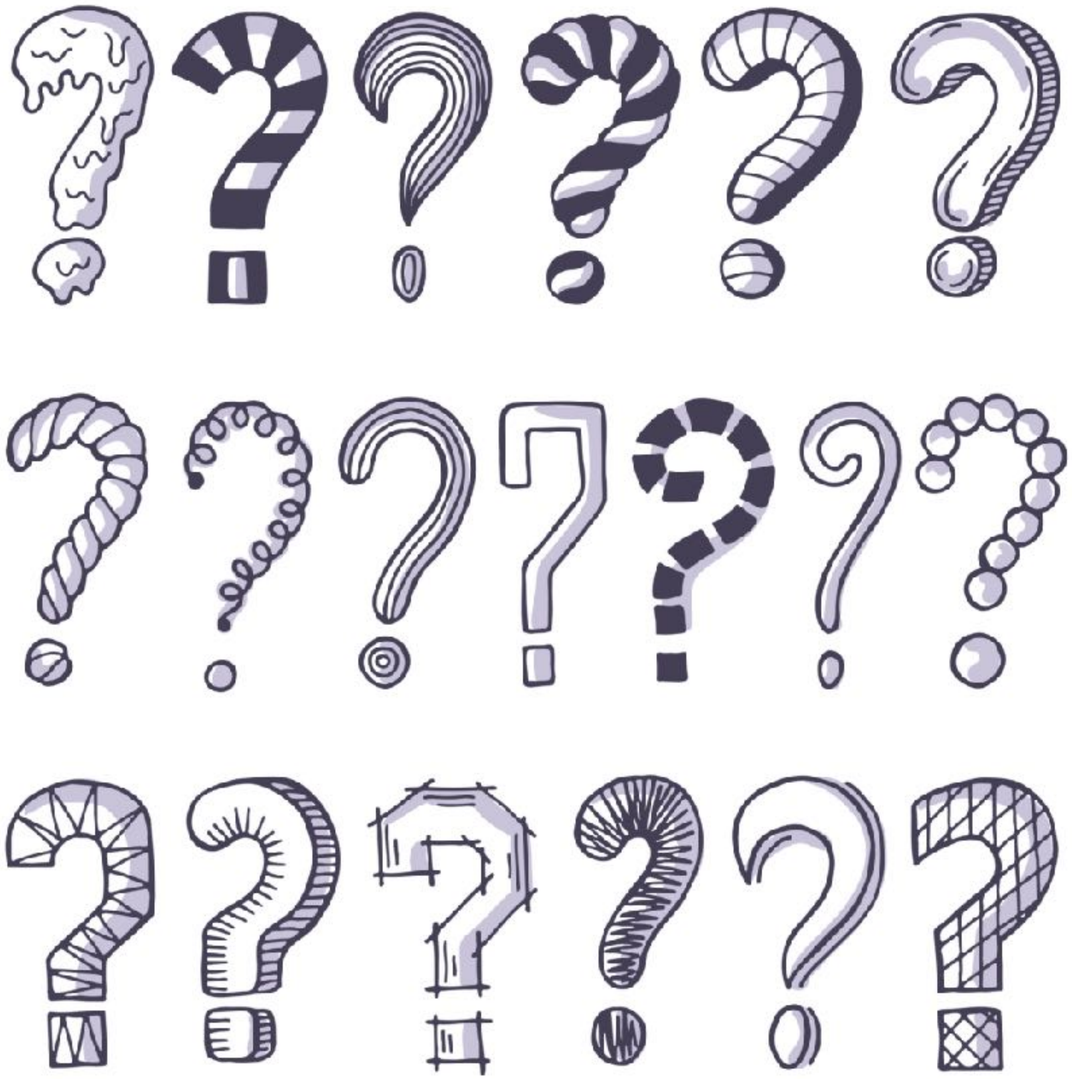
Default Query Results

When you query for simple **text**...



Take the poll!

How can you make **better queries** in the RIPE Database?



2 min.

Making Better Queries

- Reduce the amount of objects returned
- Use options and flags to optimise the results.
- Avoid getting blocked!



Filtered Query Results

- All email addresses **are filtered**
- Show them with **-B** flag in query
  - Or turn on “Show full object details”
- “auth:” attribute values are always filtered

person:	Jean Blue
nic-hdl:	JB123-RIPE
address:	Long Street 5
phone:	+31 20 555 0101
mnt-by:	LIR-MNT
source:	RIPE **# Filtered**

mntner:	LIR-MNT
admin-c:	JB123-RIPE
auth:	SSO **# Filtered**
auth:	SSO **# Filtered**
auth:	PGP-KEY-54321
mnt-by:	LIR-MNT
source:	RIPE **# Filtered**

Results Without Related Objects

Search term: -r 193.0.24.1



inetnum: 193.0.24.0 - 193.0.30.255

admin-c:	MDIR-RIPE
tech-c:	OPS4-RIPE

route: 193.0.24.0/21

origin:	AS2121

Results With Related Objects

Search term: 193.0.24.1



inetnum: 193.0.24.0 - 193.0.30.255

admin-c: MDIR-RIPE

tech-c: OPS4-RIPE

role: RIPE NCC Operations

admin-c: MDI

tech-c: SO2

tech-c: MEN

tech-c: RCC

tech-c: RDM

tech-c: CNA

nic-hdl: OPS4-RIPE

person: Managing Director

address: Stationsplein 11

address: 1012 AB Amsterdam

phone: +31 20 535 4444

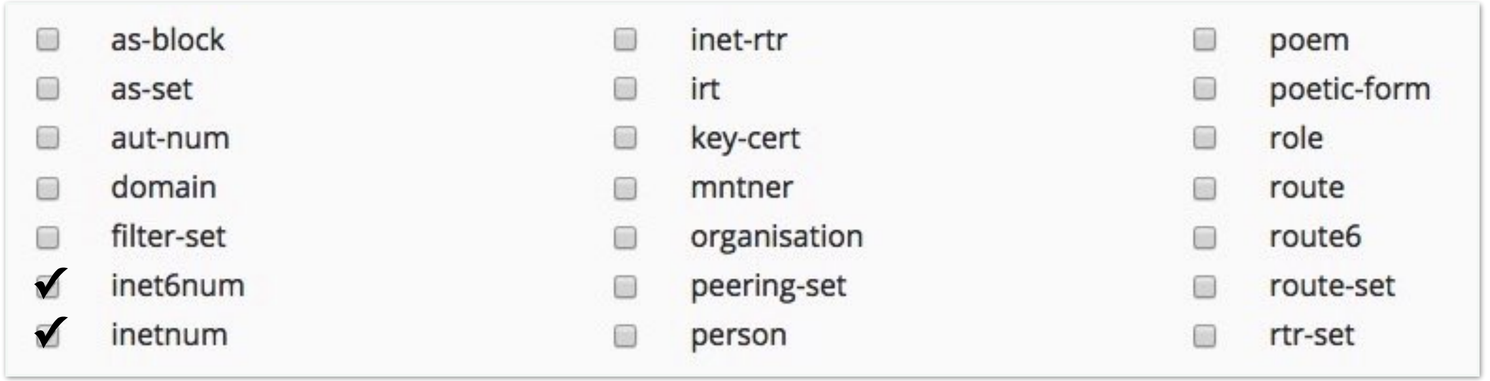
e-mail: ncc@ripe.net

nic-hdl: MDIR-RIPE

route: 193.0.24.0/21

origin: AS2121

Selecting Object Types



- Choose the types of objects you want to see
- This results in fewer objects to process
- Using a flag: **-T {object type}**
  - i.e. -T inetnum 192.168.0.0/21

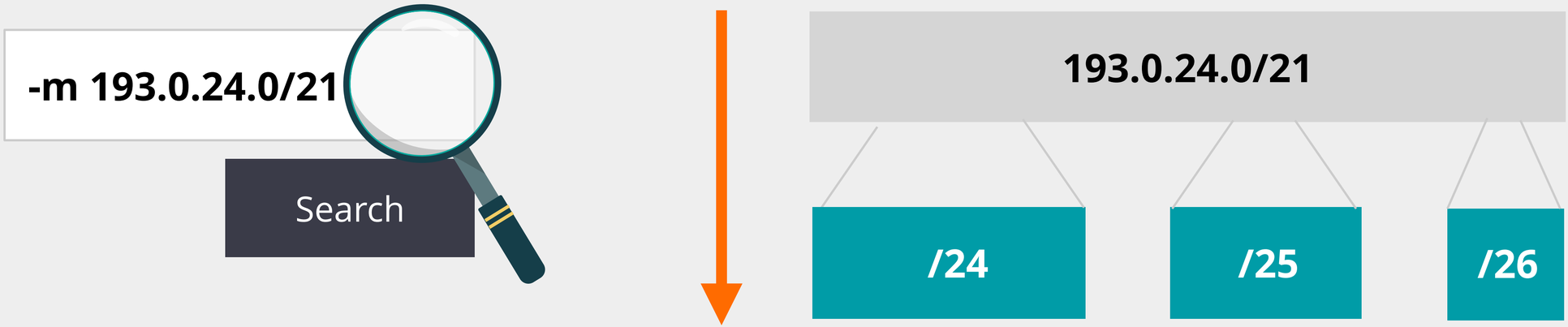
Navigating the Hierarchy

- Using flags, you can find what is under or above an inet(6)num object
  - Under = More Specific
  - Above = Less Specific

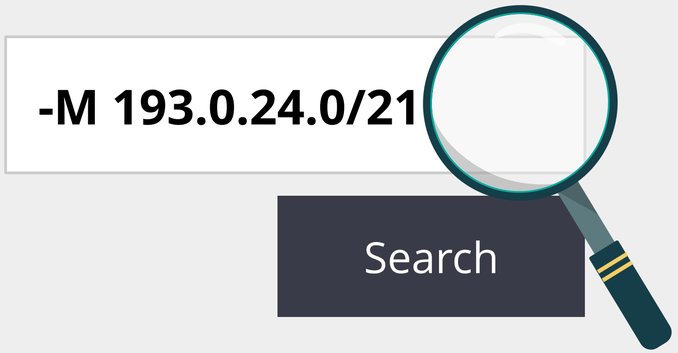
- The flags: -m, -M, -l, -L
- Also found in the “Hierarchy Flags” tab

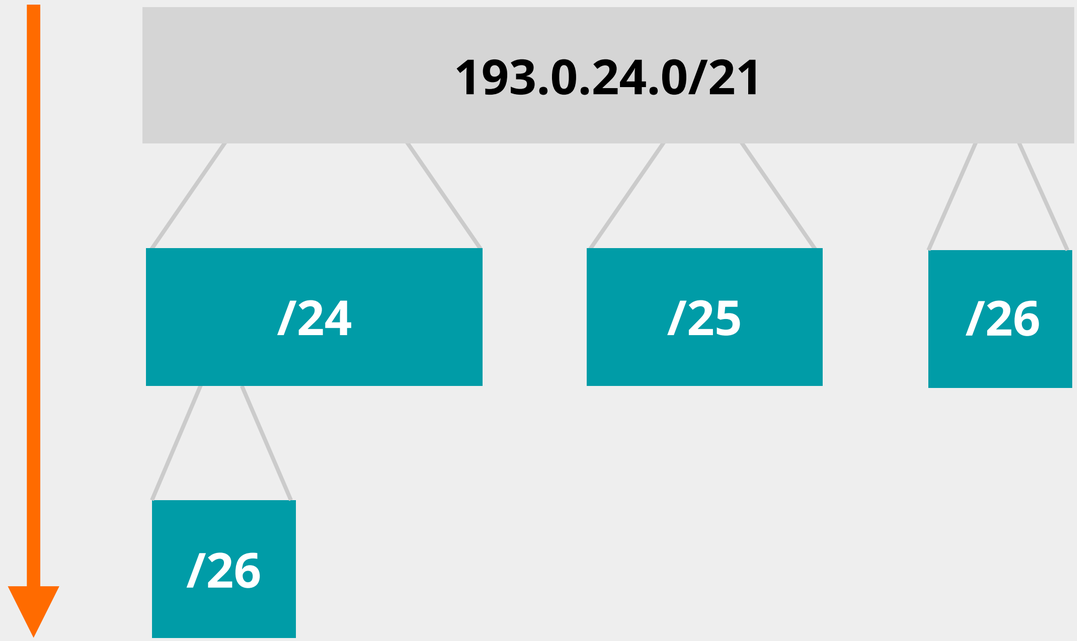


More Specific inetnums: -m

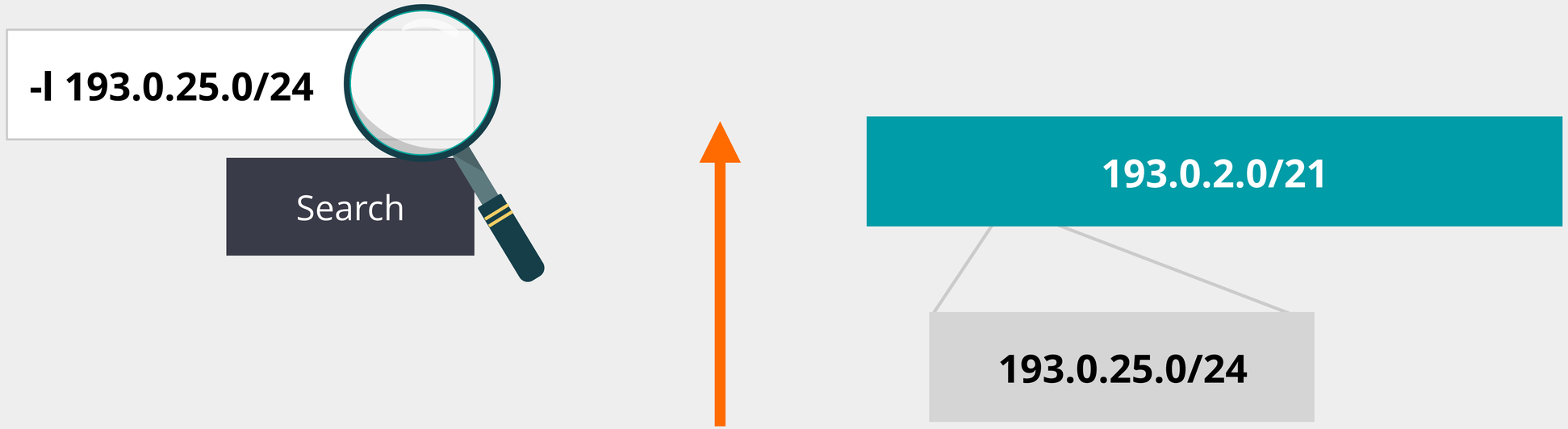


More Specific inetnums: -M

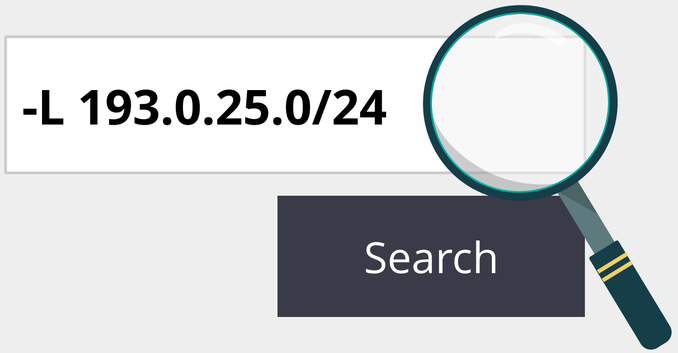


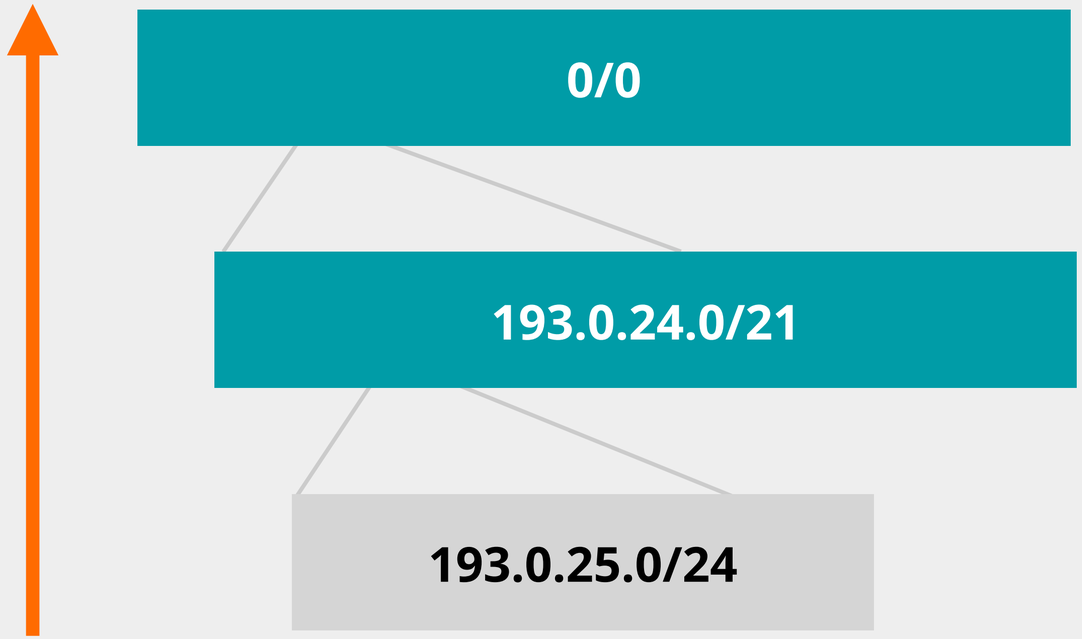


Less Specific inetnums: -l



Less Specific inetnums: -L





Let’s practice! (1)

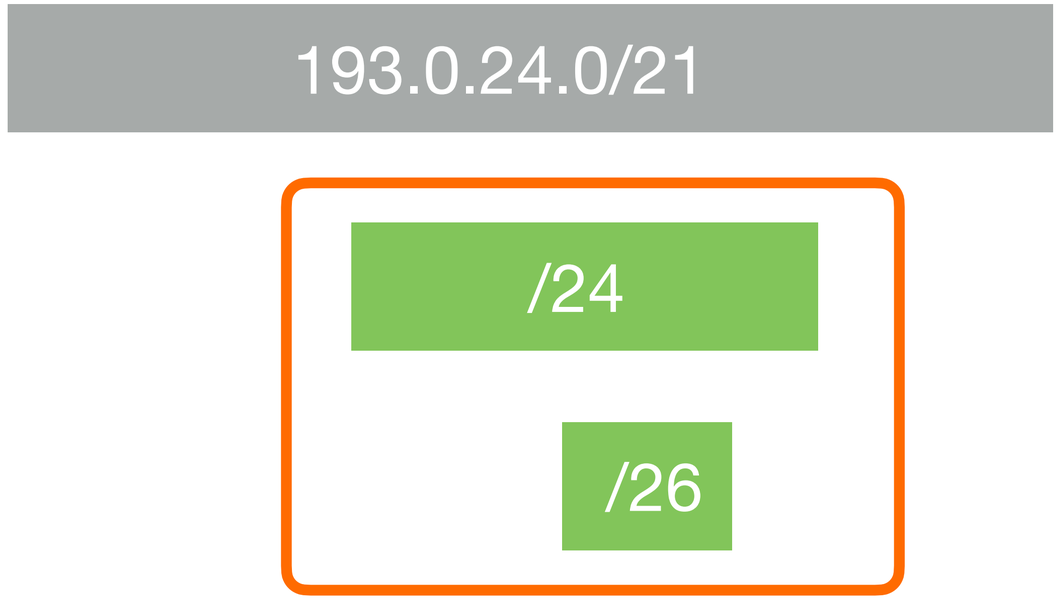
Which **flag** would give you this object as a result?

person:	Jean Blue
nic-hdl:	JB123-RIPE
address:	Long Street 5
phone:	+31 20 555 0101
e-mail:	j.blue@example.net
mnt-by:	LIR-MNT
source:	RIPE

2 min.

Let’s practice! (2)

Which **flag** would give you these objects as a result?



2 min.

Let’s practice! (3)

Which **flag** would give you this object as a result?

route6:	2001:db8::/32
origin:	AS65530

2 min.

Questions





We will continue in 5 minutes!

Welcome back!



Take the poll!

Are you enjoying the RIPE NCC webinar?



2 min.



Inverse Lookups

Searching for references

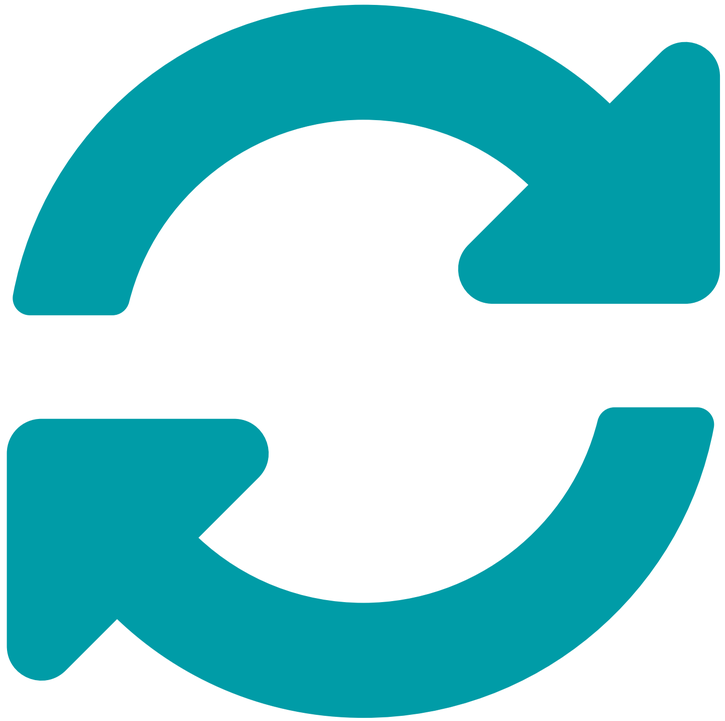
Take the poll!

What is an **“inverse lookup”**?



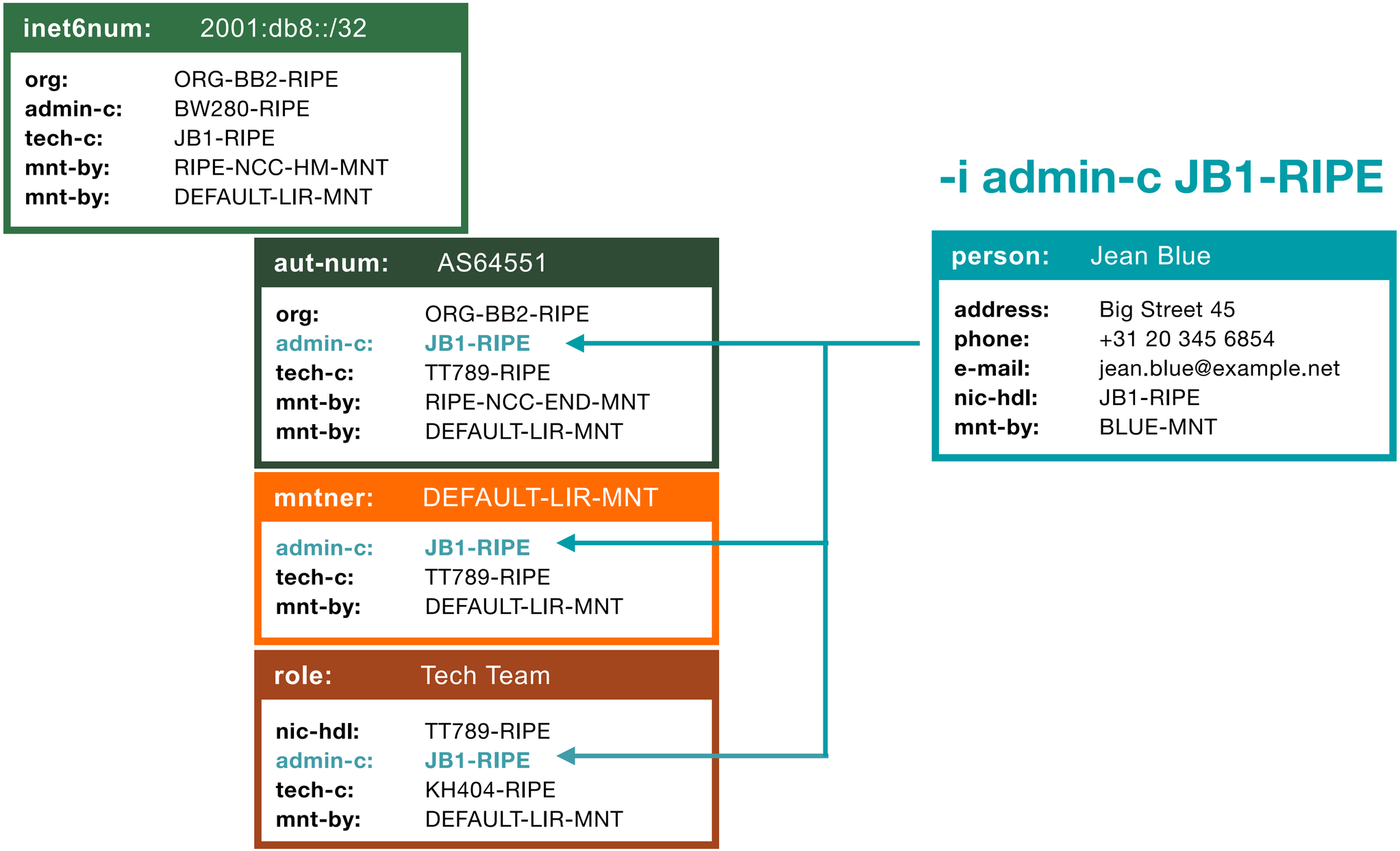
2 min.

Inverse Lookup

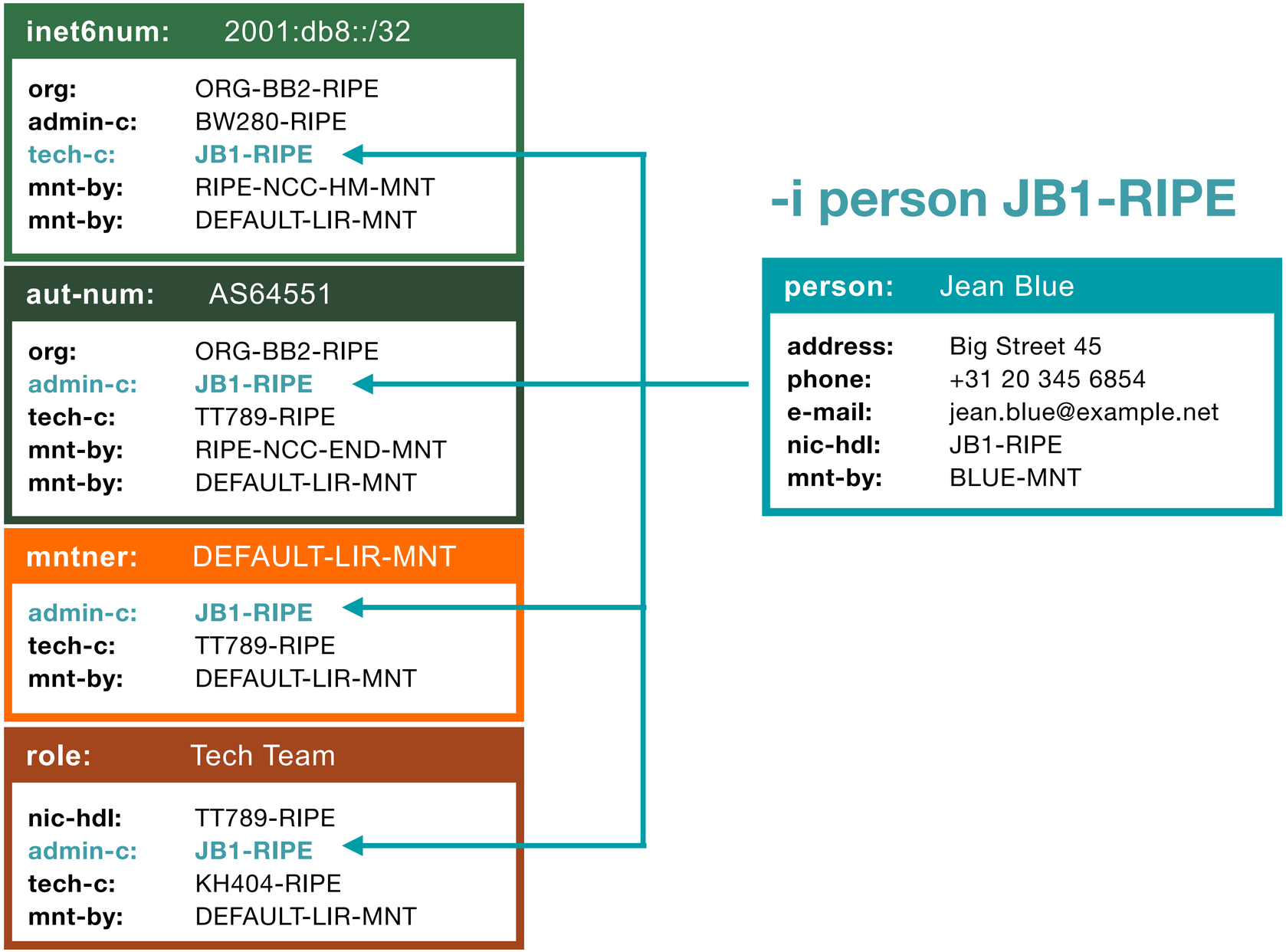


Finding all other objects in which your object is **referenced**.

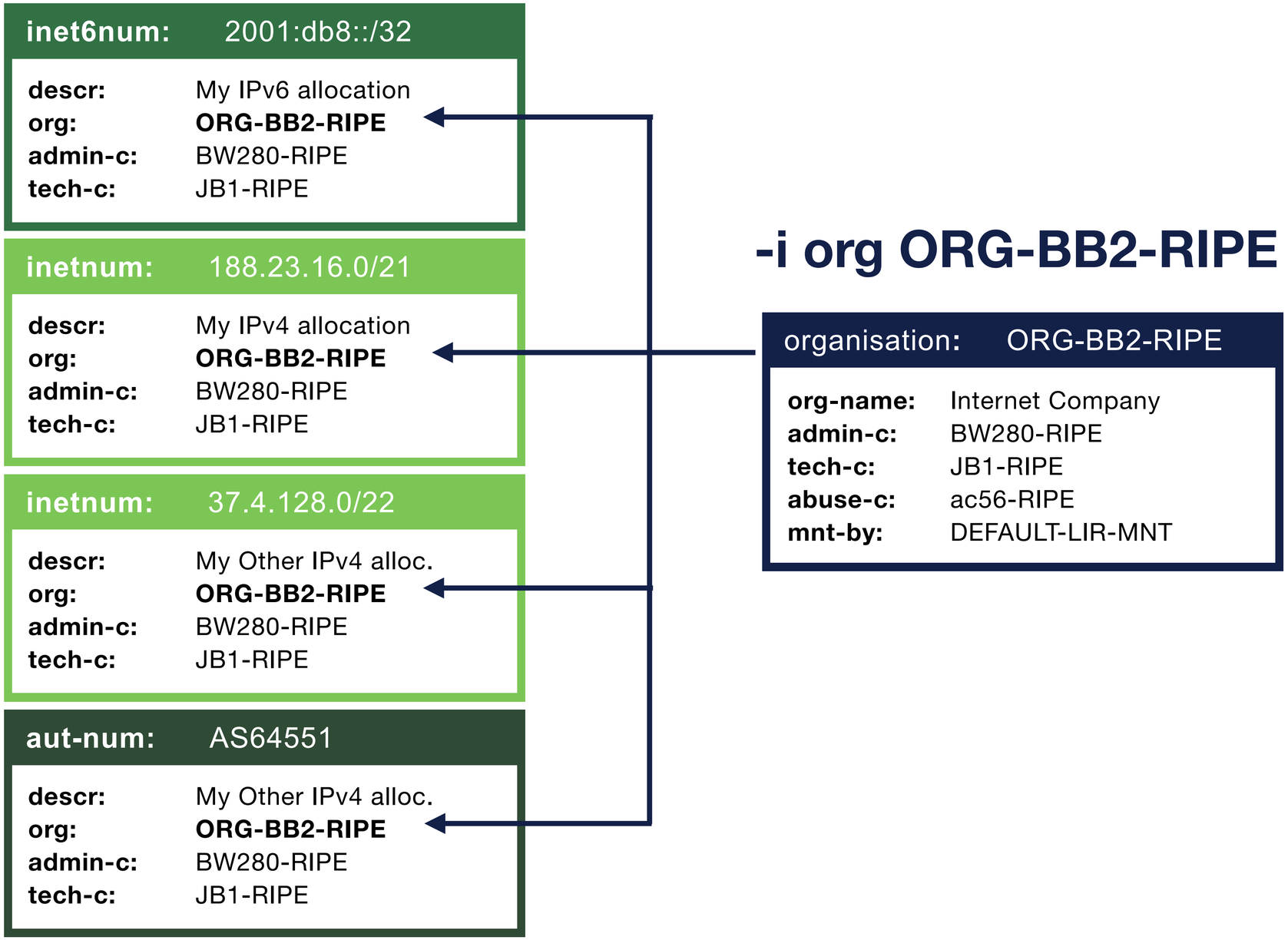
Inverse Lookup: admin-c



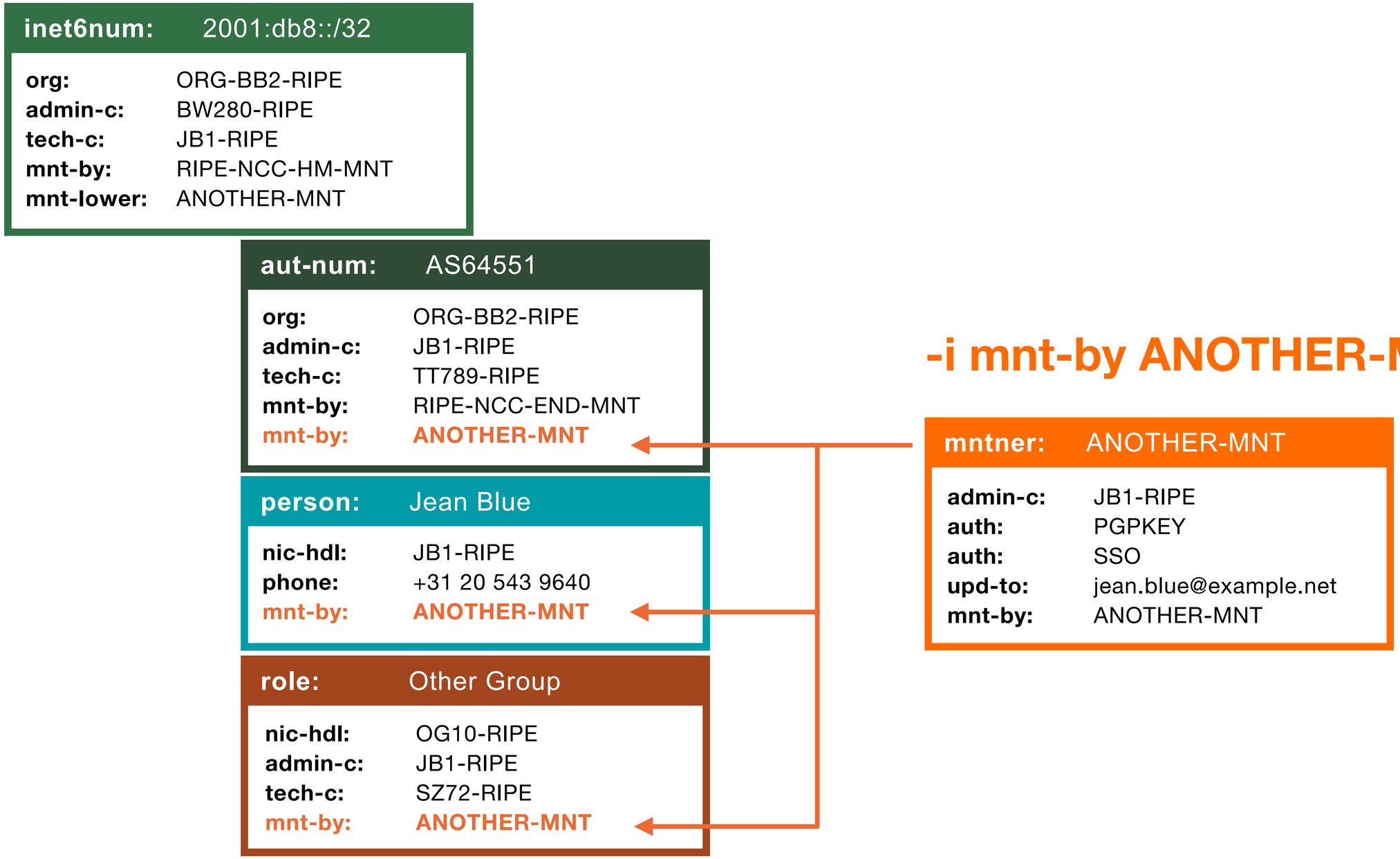
Inverse Lookup: person



Inverse Lookup: organisation



Inverse Lookup: mnt-by





Full Text Search

Looking for text everywhere



RIPE Database Text Search

This service allows searches over the full text of the RIPE Database object data.

The search is done on object text without regard for any relationships. Multiple search terms should be separated with a space.

bluelight

Advanced Search

By submitting this form you explicitly express your agreement with the RIPE Database Terms and Conditions

Search



Search results

This is the RIPE Database full text search service.
The RIPE Database is subject to Terms and Conditions.

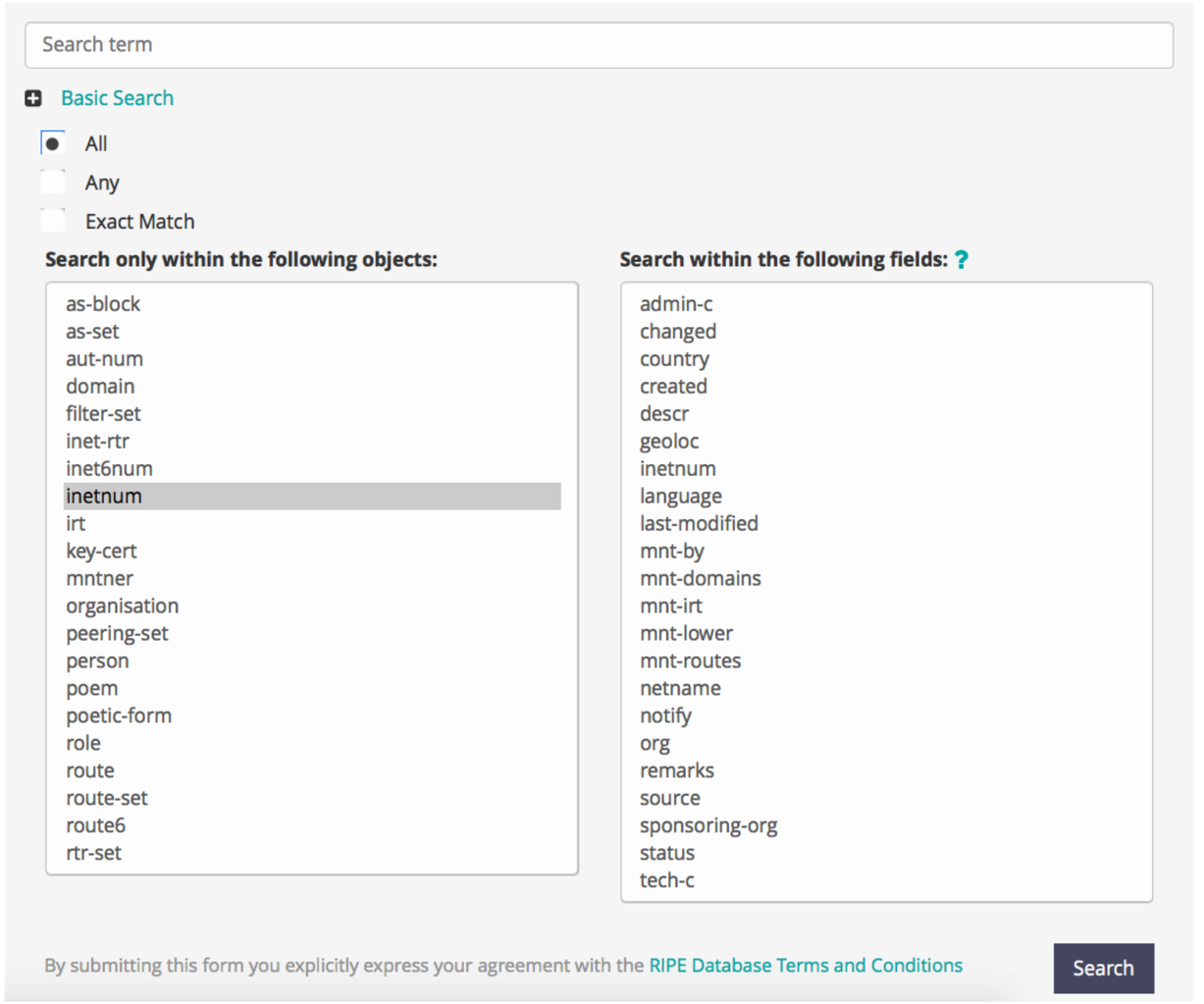
Number of results - all object types	15
key-cert	6
person	3
domain	2
mntner	2
inet6num	1
inetnum	1

« 1 2 »

domain: 201.156.178.IN-ADDR.ARPA
descr=**BLUELIGHT** , mnt-by=RO-**BLUELIGHT**

domain: 200.156.178.IN-ADDR.ARPA
descr=**BLUELIGHT** , mnt-by=RO-**BLUELIGHT**

inet6num: 2a01:4f8:201:31ea::/64
netname=**BLUE-LIGHT**



Advanced search

Take the poll!

How would **you** use the **Full Text Search**?



2 min.

Questions





Creating Objects

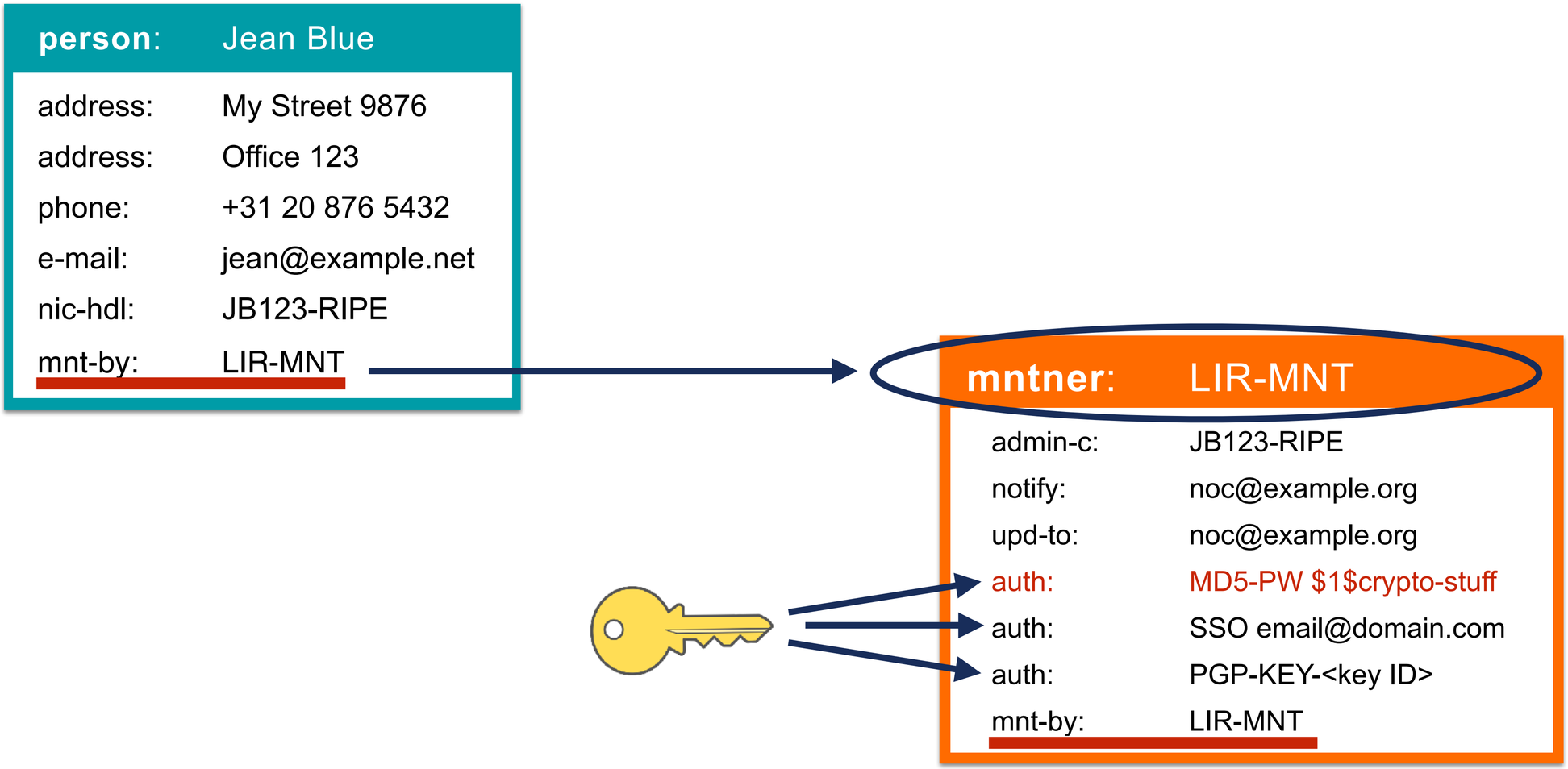
How to put data in the RIPE Database

Demo

Let’s create a **role** object.



Maintainers: Protecting Objects



* Will be deprecated in 2025

Authentication

- RIPE NCC Access (Single Sign-On)
- Password (MD5-PW) (will be deprecated in 2025)
- Private key/public key (PGP and x509)



auth: SSO

mntner: NCCTS-MNT

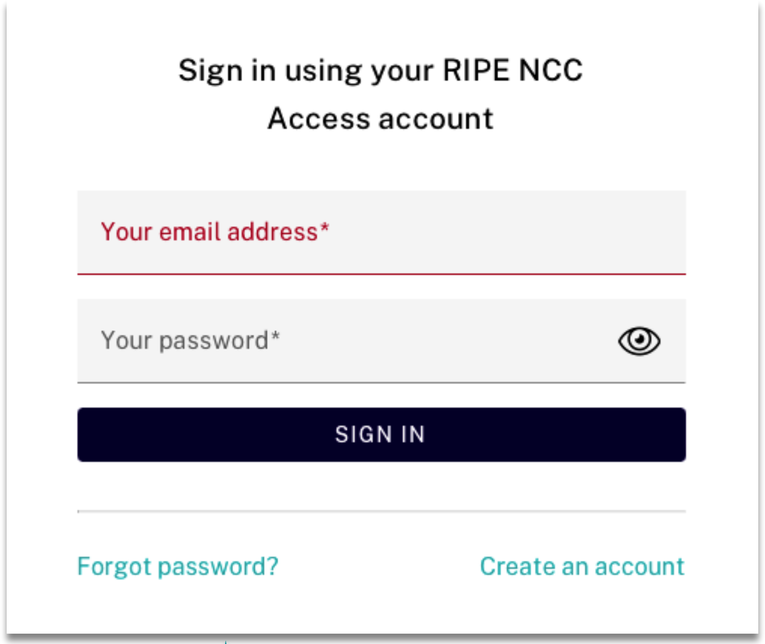
admin-c: JB123-RIPE

upd-to: noc@example.org

auth: SSO email@domain.com

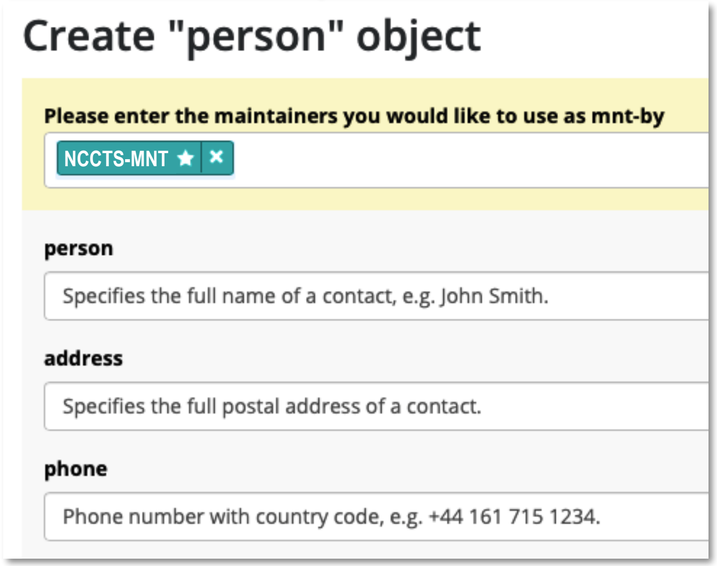
mnt-by: NCCTS-MNT

Maintainer with SSO



Sign in to Access

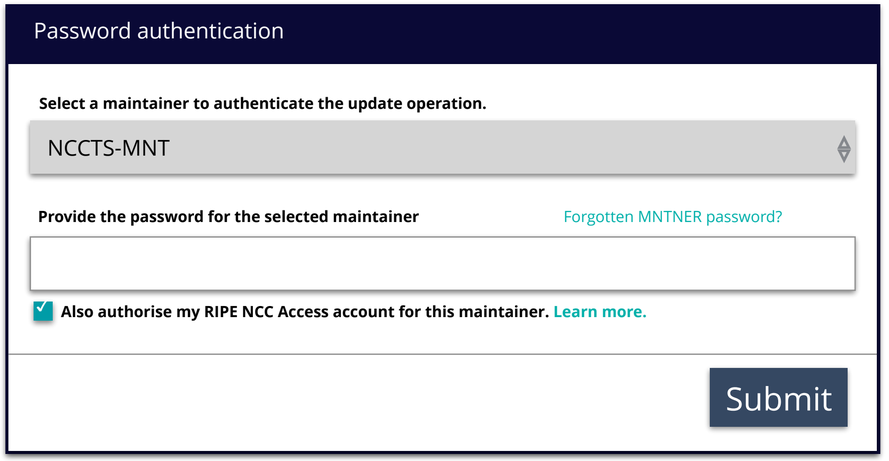
Create object!



auth: MD5-PW

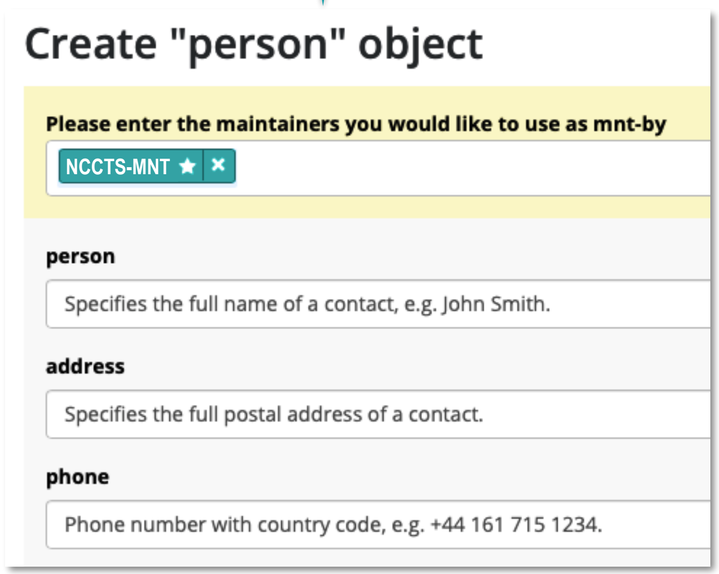
mntner:	NCCTS-MNT
admin-c:	JB123-RIPE
upd-to:	noc@example.org
auth:	**MD5-PW 1crypto-stuff**
mnt-by:	NCCTS-MNT

Maintainer with MD5



Provide password

Create object!



- Will be deprecated in 2025

auth: PGPKEY

mntner:	SPIDERMAN-MNT
admin-c:	JB123-RIPE
upd-to:	noc@example.org
auth:	**PGP-KEY-<key ID>**
mnt-by:	LIR-MNT

Maintainer with PGPKEY

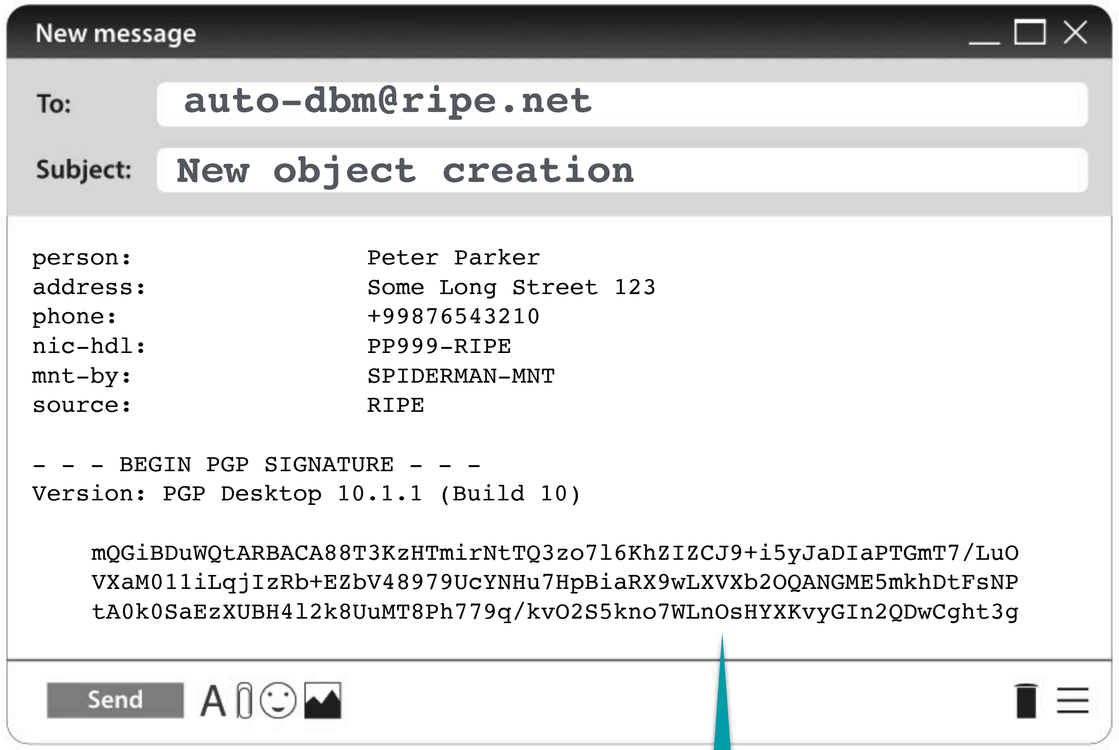
key-cert: PGP-KEY-<keyID>

```
method:   PGP
owner:    Some Body <somebody@domain.email>
fingerpr: B8C7 456D 66DD 4A26 D976 9987 79D2 7CC1
certif:    -----BEGIN PGP PUBLIC KEY BLOCK-----
certif:    Version: PGP Desktop 10.1.1 (Build 10)
certif:
certif:    mQENBE800ZIBCAC07Dj4BJ1NwWpiCOzA
certif:    aGpzuMVJB0QO6HzGvC9t8F4uBJdderTtCd
certif:    wWe2foVxMgF2upPpGmpfq6TxuEekM/5XB
certif:    jfETr4J77VsSW9Q581HyRDdVaAT9wdL8jZa
certif:    bxQbO3XZrROjmf5PPq+5/XNv7tQs1AtglEu
```

key-cert object holds the public key

- X509 certificate authentication works the same way

auth: PGPKEY

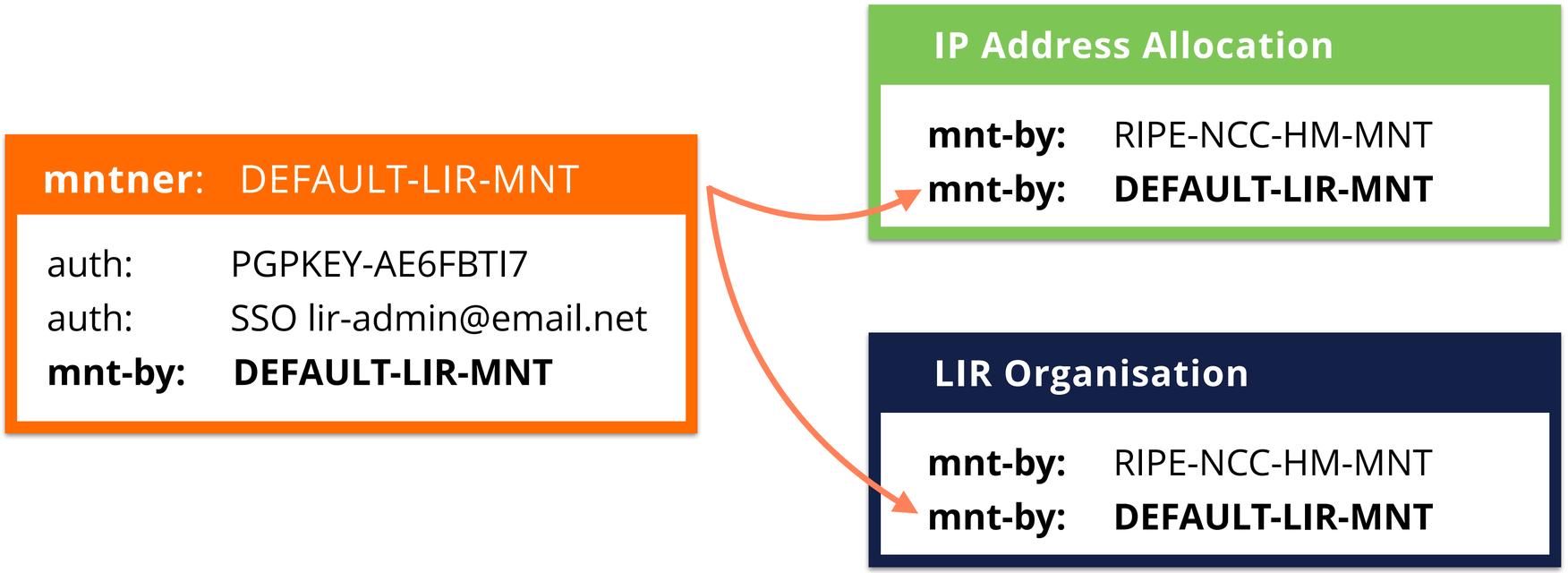


Create object!

```
person:          Peter Parker
address:         Some Long Street 123
phone:           +99876543210
nic-hdl:         PP999-RIPE
mnt-by:          SPIDERMAN-MNT
created:         2019-04-03T11:44:58Z
last-modified:   2019-04-03T11:44:58Z
source:          RIPE
```

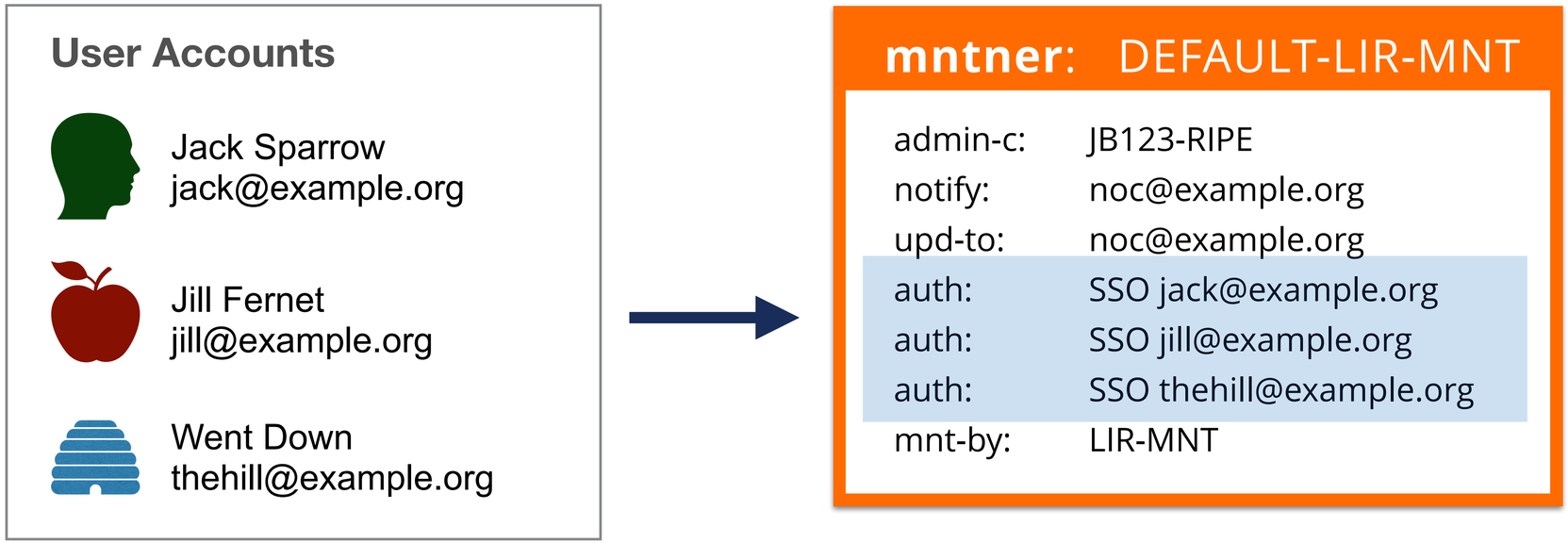
Default Maintainer for LIRs

- Allows partial control over your allocations, ASNs and ORG
- Can be selected in the LIR Account Details
- Automatically reflected in the RIPE Database



Synch With LIR Portal

- Default LIR Maintainer can be synchronised with LIR Portal
- Users added as SSO to the maintainer
- Previous “auth:” lines are removed



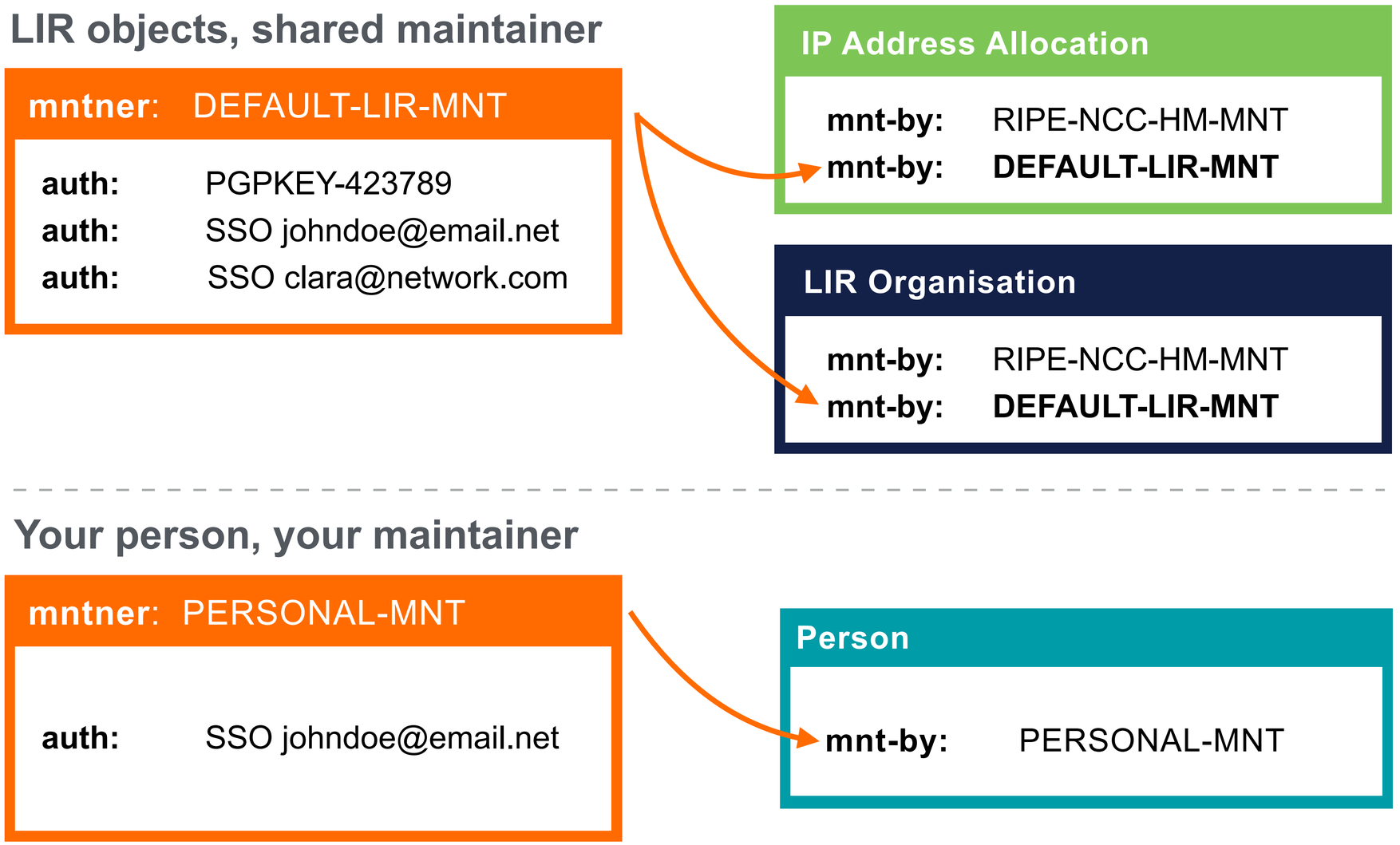
Take the poll!

Which maintainer would **you** use to protect **your own person object**?

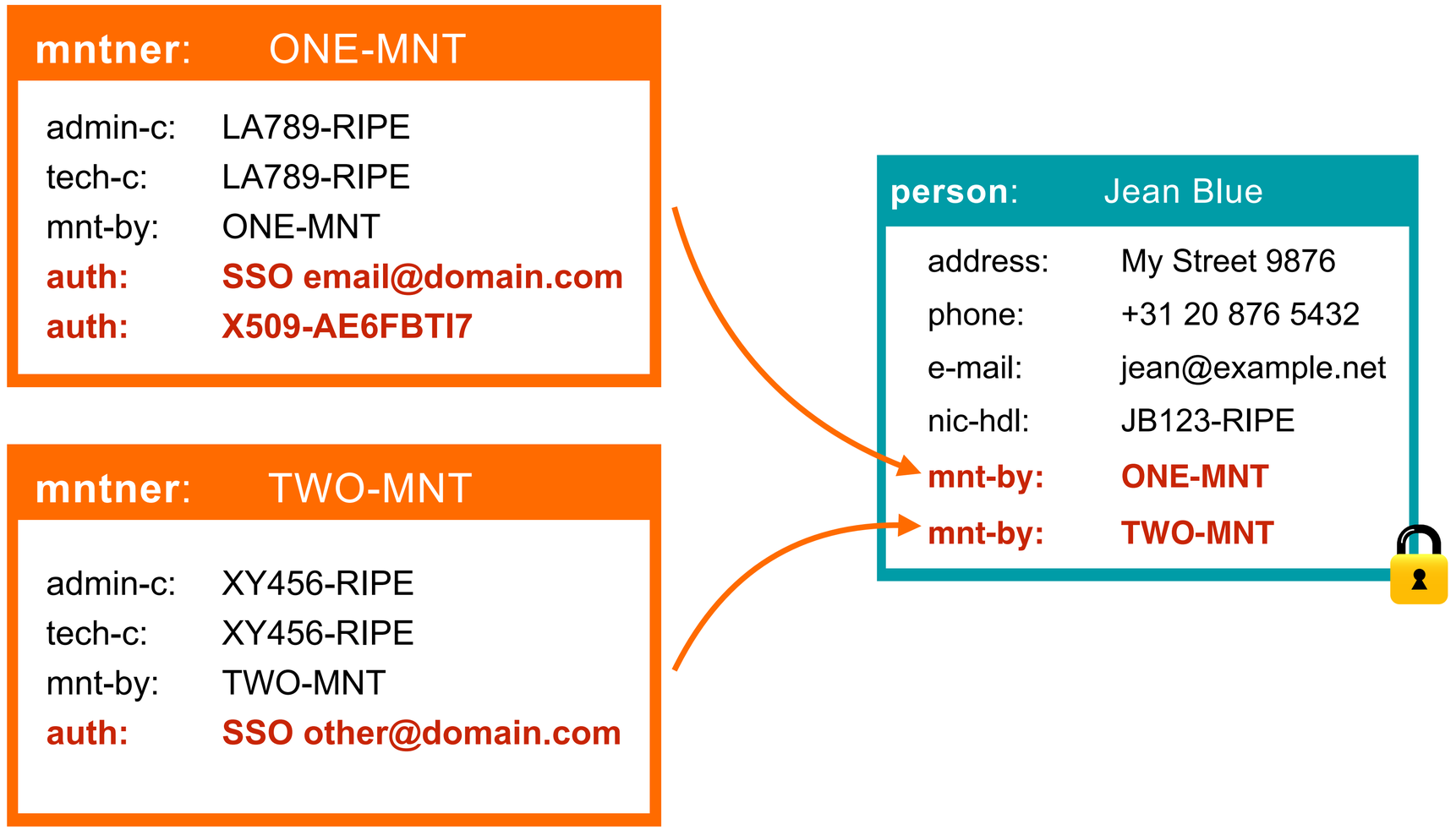


2 min.

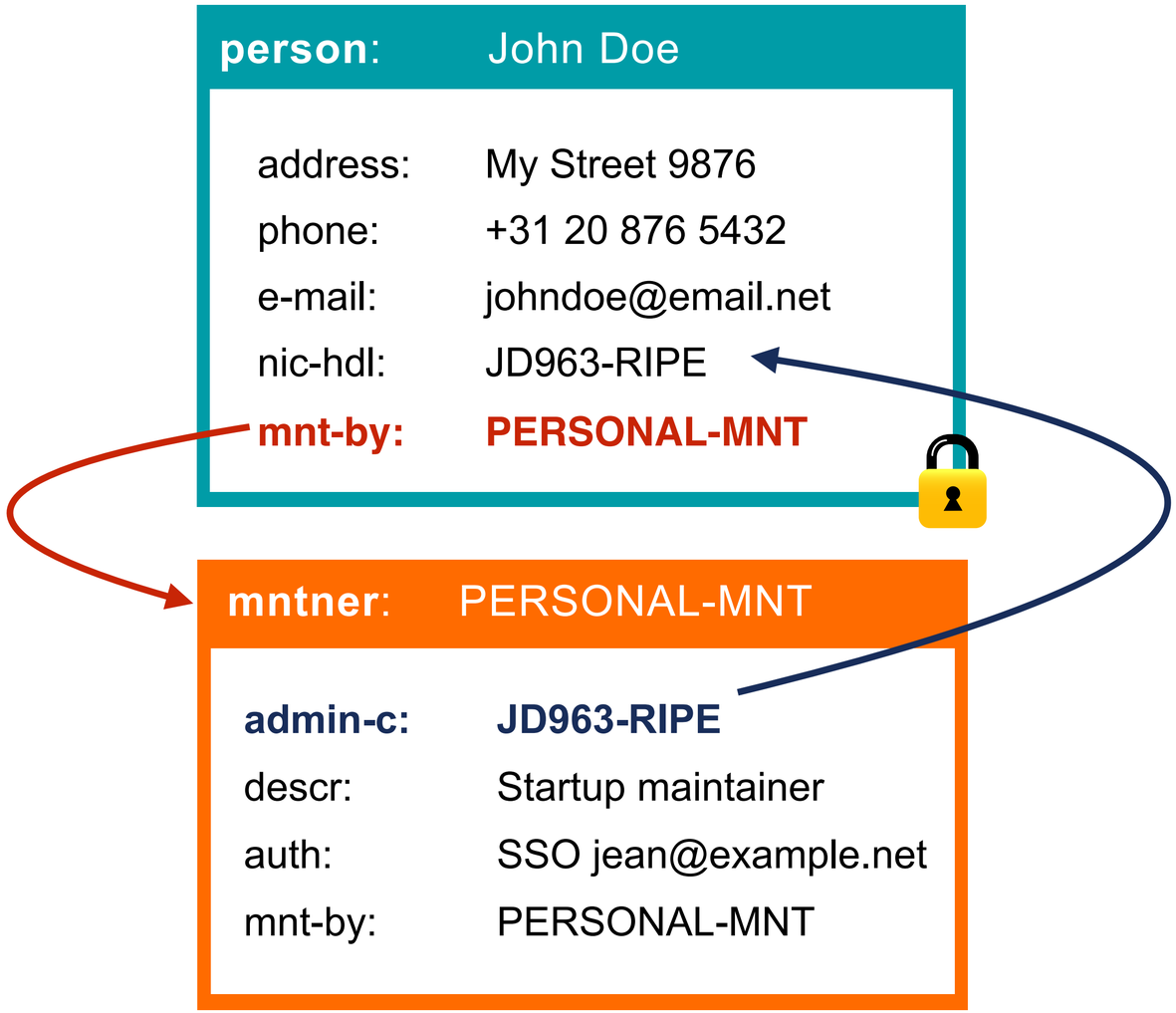
Personal vs Shared



Multiple Maintainers



MAINTAINER and PERSON



Demo

Let’s create
a **person /maintainer** pair…



Questions





Updating Objects

The easy way

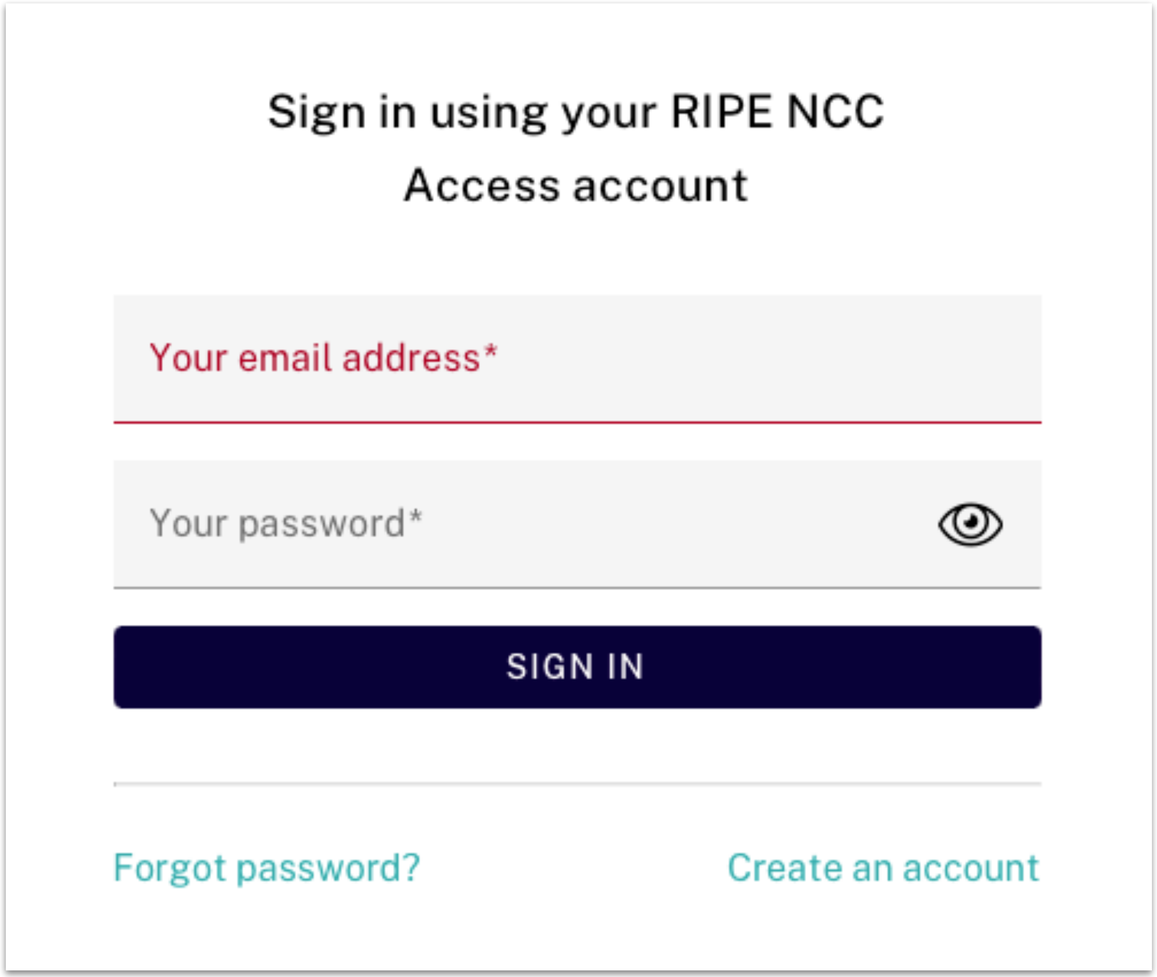
Take the poll!

In which cases would you **update** an existing object?



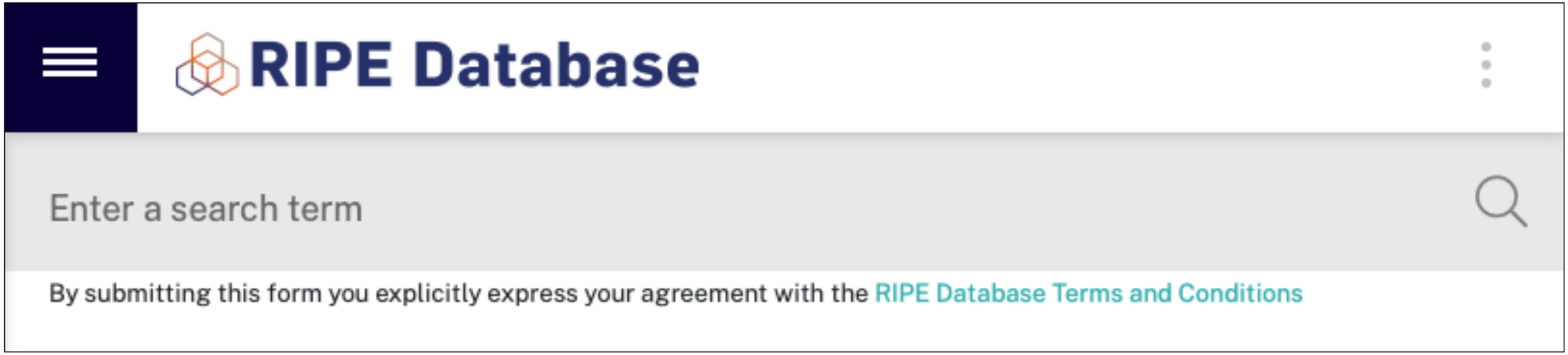
2 min.

Sign in to Access



You **always** need to be signed in to your RIPE NCC Access account to create and update objects.

Go to Webupdates



Search for the object



Search results

PERMA XML JSON

This is the RIPE Database search service. The objects are in RPSL format.
The RIPE Database is subject to Terms and Conditions.

Responsible organisation: Reseaux IP Europeens Network Coordination Centre (RIPE NCC)
Abuse contact info: abuse@ripe.net

```
inetnum:        193.0.24.0 - 193.0.30.255
netname:        LARGE-NETWORK
country:        NL
admin-c:        BRD-RIPE
tech-c:         GAV
status:         ASSIGNED PA
mnt-by:         RIPE-NCC-MNT
created:        2020-03-26T14:07:53Z
last-modified:  2020-03-26T14:07:53Z
source:         RIPE
```

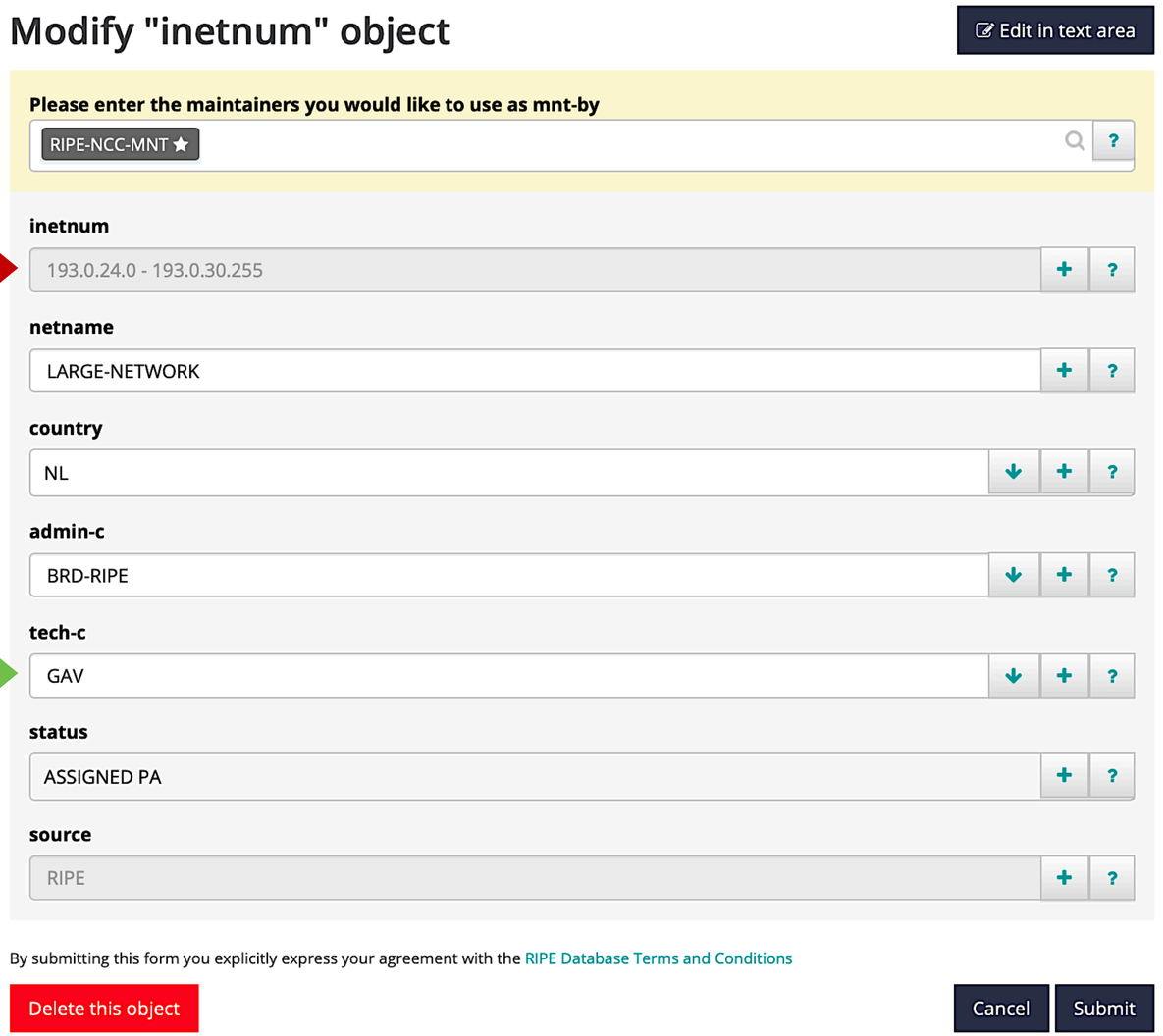
Update object RIPEstat

Click here!

Update object

Some attributes **cannot** be updated

This one **can** be updated!



Submit the changes

Your object has been successfully modified

inetnum "193.0.24.0 - 193.0.30.255"

```
   inetnum:            193.0.24.0 - 193.0.30.255
   netname:            LARGE-NETWORK
   country:            NL
   admin-c:            BRD-RIPE
-  tech-c:             GAV
+  tech-c:             OPS-RIPE
   status:             ASSIGNED PA
   mnt-by:             RIPE-NCC-MNT
   created:            2020-03-26T14:07:53Z
-  last-modified:      2020-03-26T14:07:53Z
+  last-modified:      2020-03-26T14:16:28Z
   source:             RIPE
```

Modify | Back to Create object



Questions



We want your feedback!

What did you think about this webinar? Take our survey at:

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დასასრული

הסוף

Кінець

Кінець

Finis

Lõpp

Amaia

Loppu

Tmiem

Liðugt

Kpaj

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