

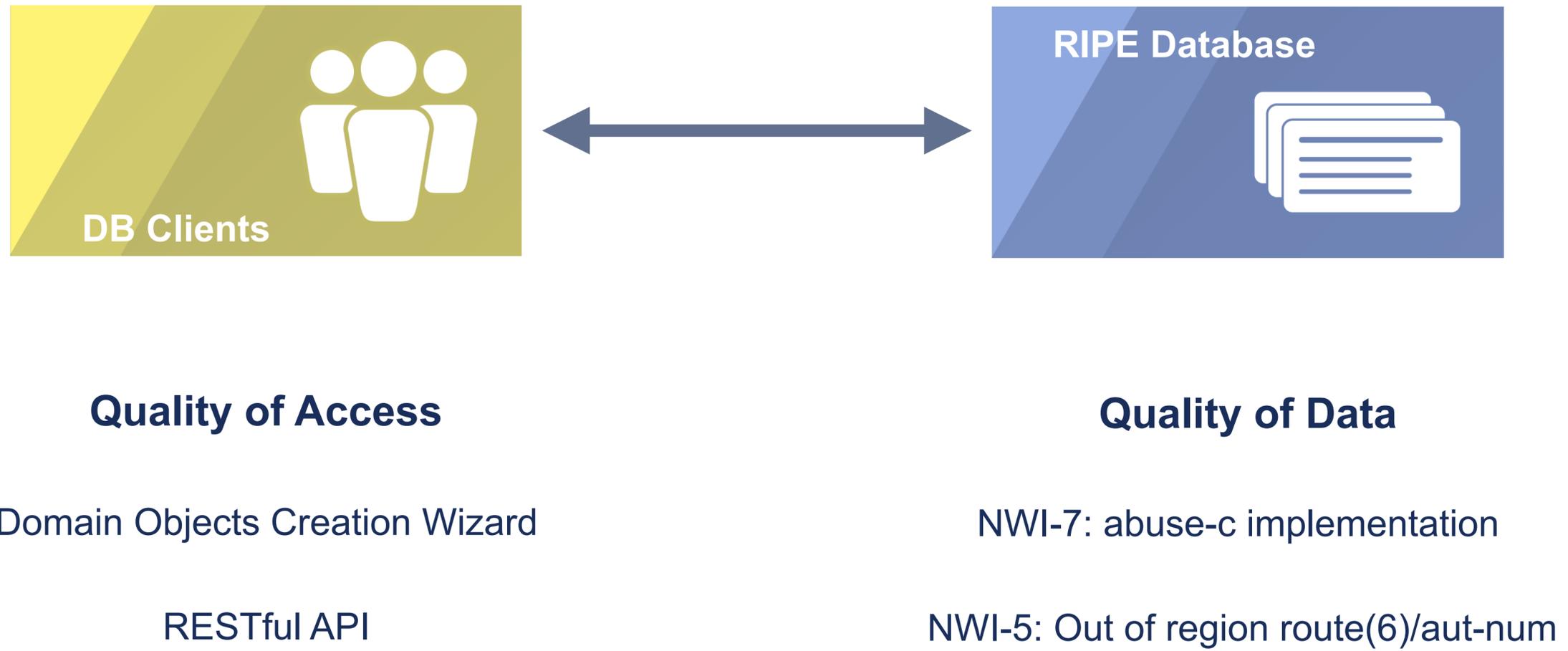


**RIPE NCC**

RIPE NETWORK COORDINATION CENTRE

# RIPE Database

Updates and Extras





# **Domain Objects Creation Wizard**

# What is Reverse DNS?



- Mapping of IP addresses to host names

193.2.6.139

2001:67c:2e8:22::c100:68b



[www.ripe.net](http://www.ripe.net)

# Reverse Delegation Basics



- IPv4
  - in-addr.arpa zone
  - /24 or /16 blocks only
- IPv6
  - ip6.arpa zone
  - Blocks multiple of 4 bits (/28, /32, /36, /40, /44, /48)

# Setting Up Reverse Delegation



- Configure your DNS servers
  - at least two name servers in different subnets
  - create a zone file on each for each chunk
- Check your zones: <http://dnscheck.ripe.net>

A screenshot of the dnscheck.ripe.net web interface. It features a form with several sections: 'Domain name' with a text input field and a play button; 'Nameservers' with a '+' sign and two input fields labeled 'NS' and 'IP'; 'Digests' with a '+' sign; a 'Fetch data from parent zone' button; and an 'Advanced options' checkbox.

Domain name

Nameservers +

NS IP -

Digests +

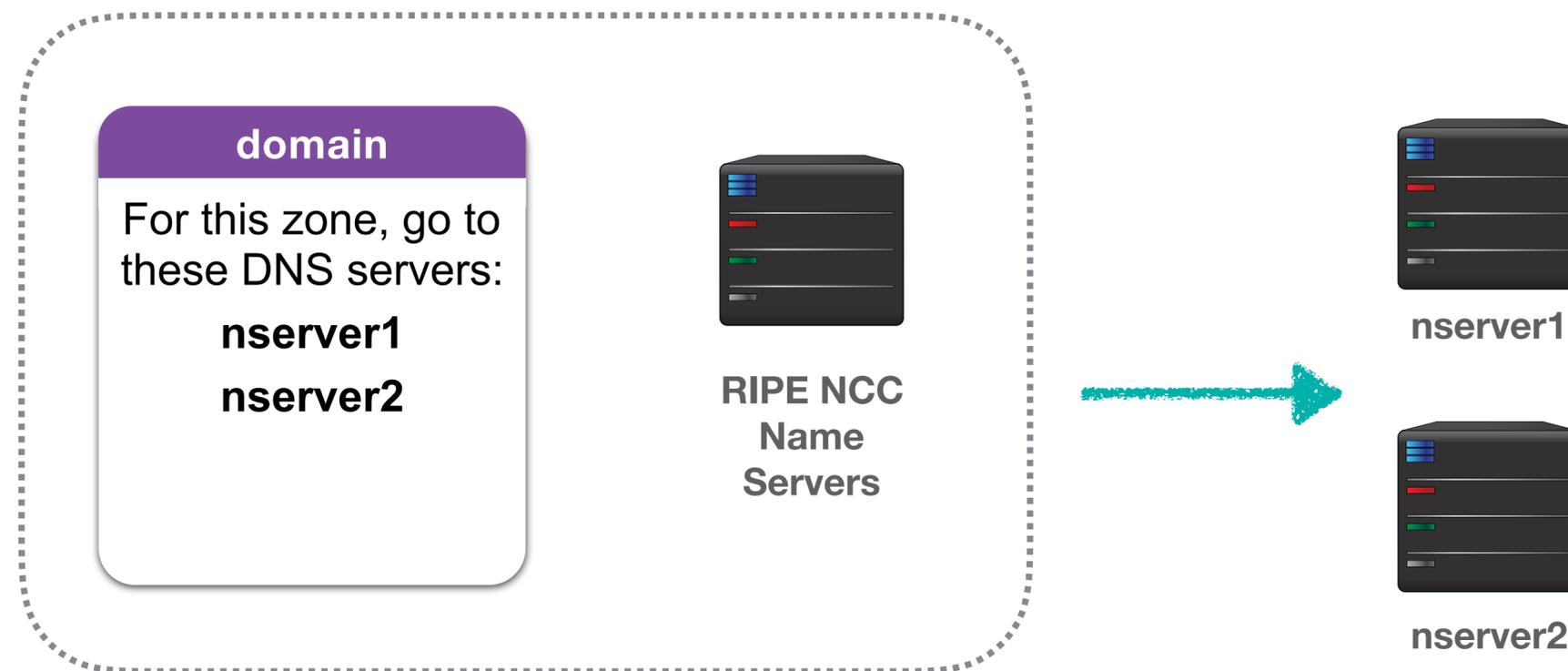
Fetch data from parent zone

Advanced options

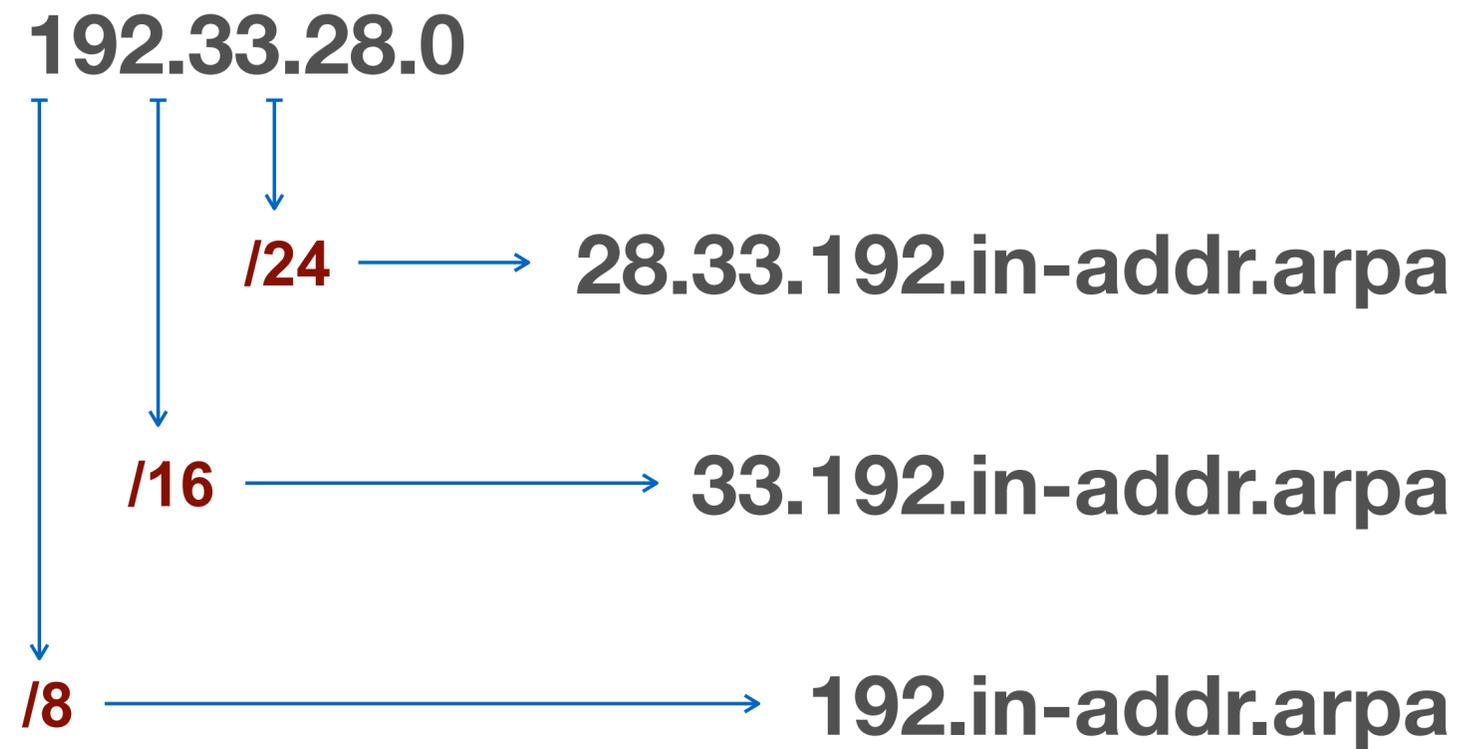
# Domain Objects



- Create records on RIPE NCC DNS servers
- Pointing to authoritative name servers



# Reverse DNS for IPv4



# Domain Object for 192.33.28.0/24

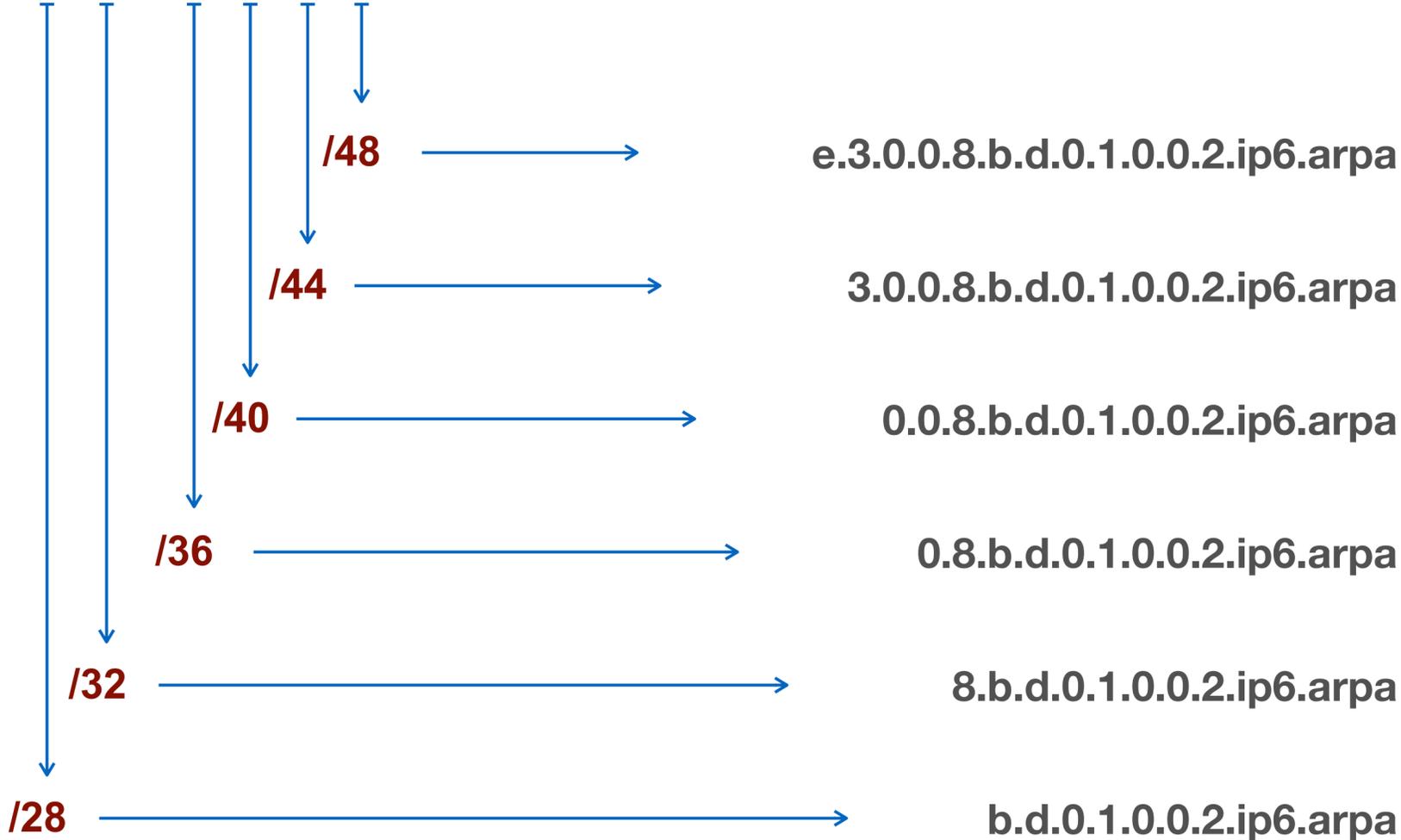


```
domain:      28.33.192.in-addr.arpa
descr:      rDNS for my IPv4 network
admin-c:    NOC12-RIPE
tech-c:     NOC12-RIPE
zone-c:     NOC12-RIPE
nserver:    pri.example.net
nserver:    sns.company.org
ds-rdata:   45062 8 2 275d9acbf3d3fec11b6d6...
mnt-by:     EXAMPLE-LIR-MNT
created:    2015-01-21T13:52:29Z
last-modified: 2016-02-07T15:09:46Z
source:     RIPE
```

# Reverse DNS for IPv6



2001:0db8:003e:ef11:0000:0000:c100:004d



# Domain object for 2001:db8::/32



```
domain:      8.b.d.0.1.0.0.2.ip6.arpa
descr:      rDNS for my IPv6 network
admin-c:    NOC12-RIPE
tech-c:     NOC12-RIPE
zone-c:     NOC12-RIPE
nserver:    pri.example.net
nserver:    sns.company.org
ds-rdata:   45062 8 2 275d9acbf3d3fec11b6d6...
mnt-by:     EXAMPLE-LIR-MNT
created:    2015-01-21T13:52:29Z
last-modified: 2016-02-07T15:09:46Z
source:    RIPE
```

# Create Domain Objects Wizard



## Create "domain" objects

Please enter the maintainers you would like to use as mnt-by

EXAMPLE-MNT x

prefix 10.155.16.0/22 Prefix looks OK

nserver tinnie.arin.net Server looks OK

nserver sec3.apnic.net Server looks OK

Reverse zones

- 16.155.10.in-addr.arpa
- 17.155.10.in-addr.arpa
- 18.155.10.in-addr.arpa
- 19.155.10.in-addr.arpa

admin-c EX9999-RIPE

tech-c

```
domain: 16.155.10.in-addr.arpa
domain: 17.155.10.in-addr.arpa
domain: 18.155.10.in-addr.arpa
domain: 19.155.10.in-addr.arpa

mnt-by: EXAMPLE-MNT
nserver: tinnie.arin.net
nserver: sec3.apnic.net
```



DNS Check (8.e.2.0.c.7.6.0.1.0.0.2.ip6.arpa) BETA

Reload this widget by entering a resource here

Choose a test result

2018-10-04 08:18:38 | INFO

✓ All tests are okay! For details see below.

- SYSTEM INFO x 3
- BASIC INFO x 31
- ADDRESS INFO x 3
- CONNECTIVITY INFO x 31
- CONSISTENCY INFO x 5
- DNSSEC INFO x 11
- DELEGATION INFO x 9
- NAMESERVER INFO x 33, NOTICE x 2
- SYNTAX INFO x 13
- ZONE INFO x 6, NOTICE x 3

Request a new test

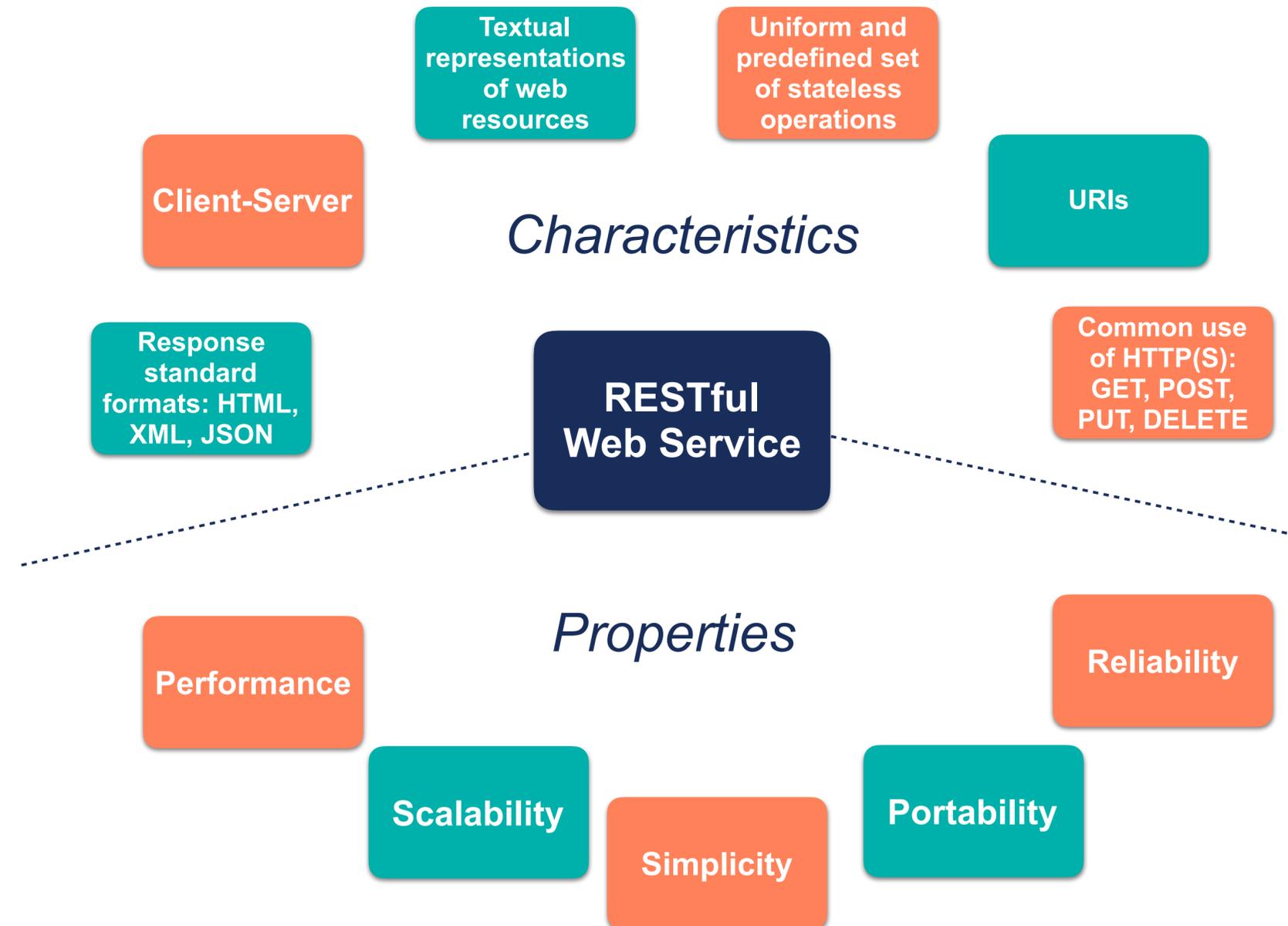
Start Test

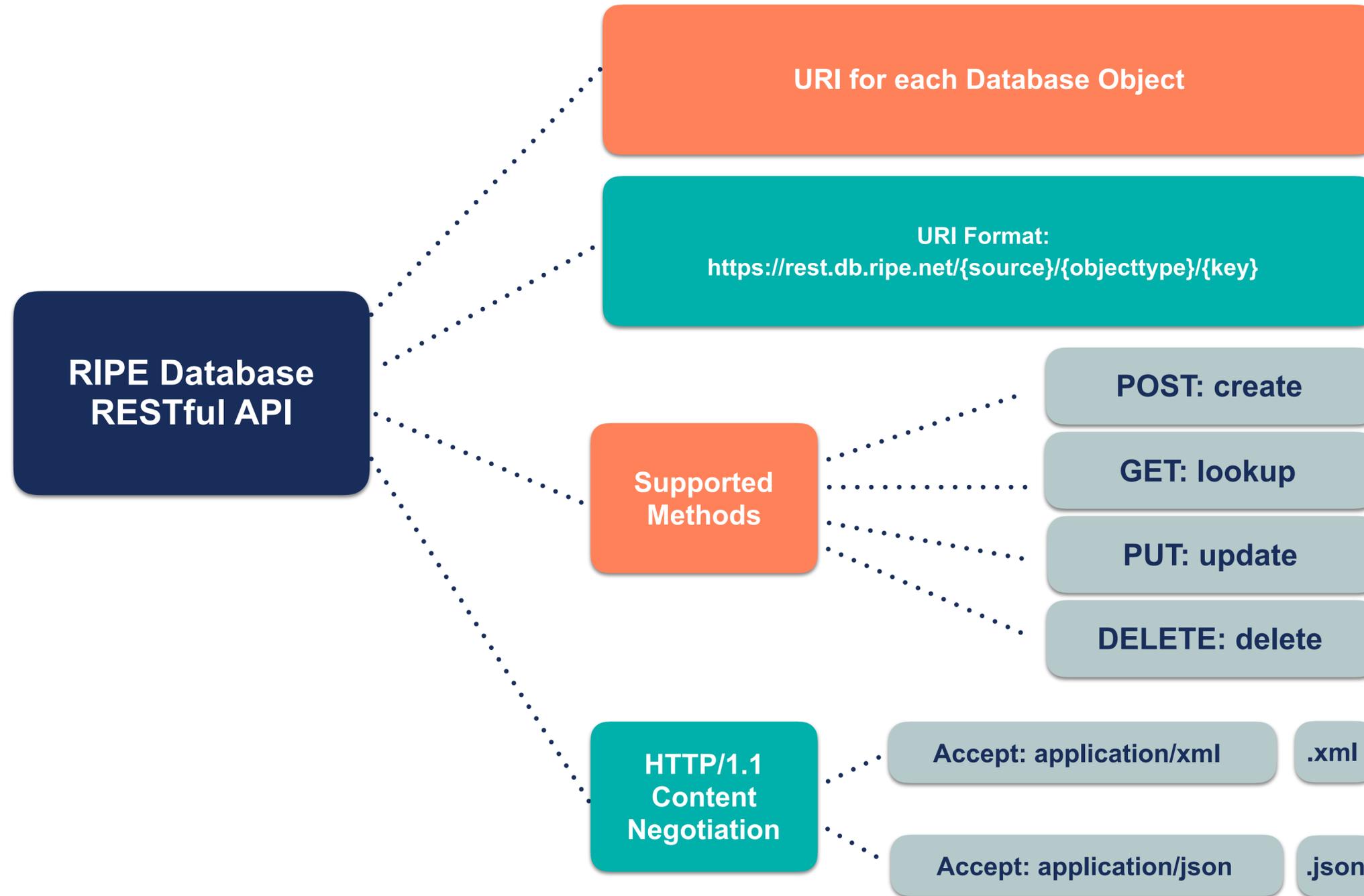
source data embed code permalink info

[stat.ripe.net](https://stat.ripe.net)



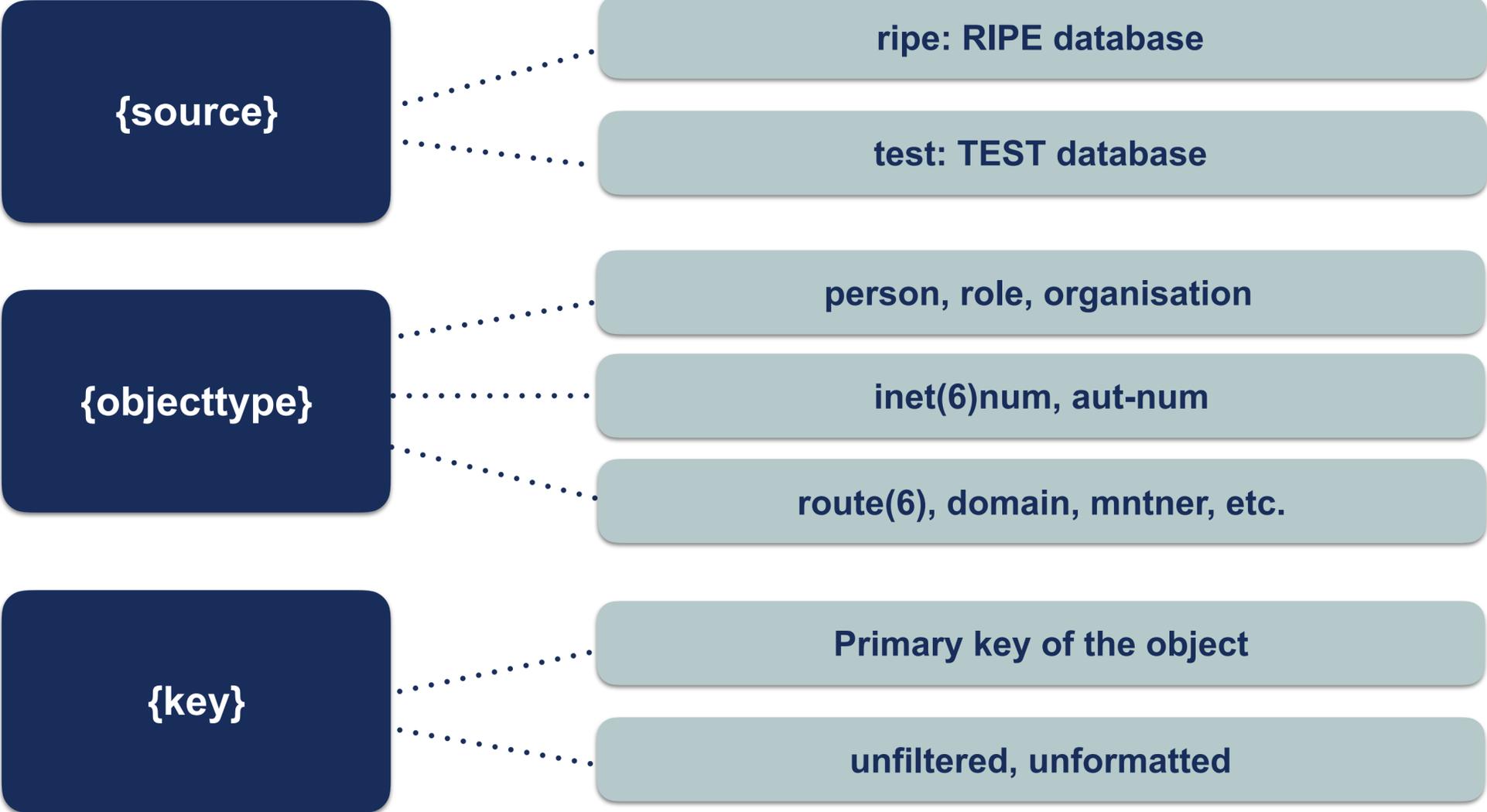
# RESTful API







**URI Format:**  
`https://rest.db.ripe.net/{source}/{objecttype}/{key}`





HTTP Status Code	Cause
<b>Bad Request (400)</b>	The service is unable to understand and process the request.
<b>Forbidden (403)</b>	Query limit exceeded.
<b>Not Found (404)</b>	No results were found (on a search request), or object specified in URI does not exist.
<b>Conflict (409)</b>	Integrity constraint was violated (e.g. when creating, object already exists).
<b>Internal Server Error (500)</b>	The server encountered an unexpected condition which prevented it from fulfilling the request.

# WHOIS REST API Lookup



`http(s)://rest.db.ripe.net/{source}/{objectType}/{key}`



200 Object found  
400 Bad request  
404 No valid object





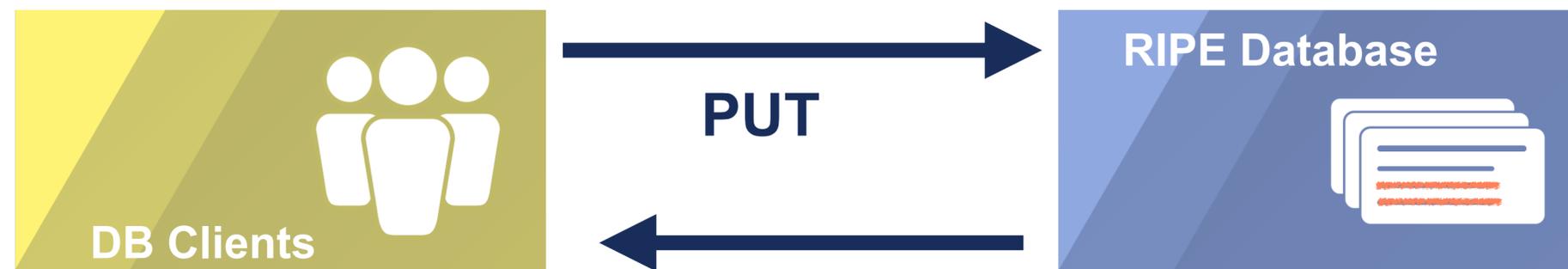
# Lookup Examples

- `curl 'http://rest.db.ripe.net/ripe/mntner/RIPE-DBM-MNT'`
- `curl -H 'Accept: application/json' 'http://rest.db.ripe.net/ripe/mntner/RIPE-DBM-MNT'`
- `curl 'http://rest-test.db.ripe.net/test/person/AA1-TEST?unfiltered'`
- `curl 'http://rest.db.ripe.net/ripe/inetnum/193.0.0.0%20-%20193.0.7.255.json'`

# WHOIS REST API Update



`https://rest.db.ripe.net/{source}/{objectType}/{key}?password={password}...`



**200 Successful update**

400 Bad request: incorrect object type or key

401 Incorrect password

404 Object not found

# Lookup Examples



- `curl -X PUT -H 'Content-Type: application/xml' --data @form.txt 'https://rest.db.ripe.net/ripe/person/PP1-RIPE?password=...'`
- `curl -X PUT -H 'Content-Type: application/json' -H 'Accept:application/json' --data @form.txt 'https://rest.db.ripe.net/ripe/person/PP1-RIPE?password=...'`
- `curl -X PUT --data @form.txt 'https://rest.db.ripe.net/ripe/person/TP1-RIPE?dry-run&password=...'`

# WHOIS REST API Create



`https://rest.db.ripe.net/{source}/{objectType}?password={password}...`



**200 Success (object created)**

400 Bad request

401 Incorrect password

409 Object already exists



# Create Examples

- `curl -X POST -H 'Content-Type: application/xml' --data @form.txt 'https://rest.db.ripe.net/ripe/person?password=...'`
- `curl -X POST -H 'Content-Type: application/json' -H 'Accept: application/json' --data @form.txt 'https://rest.db.ripe.net/ripe/person?password=...'`
- `curl -X POST --data @form.txt 'https://rest.db.ripe.net/ripe/person?dry-run&password=...'`

# WHOIS REST API Delete



`https://rest.db.ripe.net/{source}/{objectType}/{key}?password={password}...&reason={reason}`



**200 Successful delete**

400 Bad request: invalid object type or key

401 Incorrect password

404 Object not found



# Delete Examples

- `curl -X DELETE 'https://rest.db.ripe.net/ripe/person/pp1-ripe?password=123'`
- `curl -X PUT --data @form.txt 'https://rest.db.ripe.net/ripe/person/TP1-RIPE?dry-run&password=...'`



# Demo

Doing it for real!

# Demo Lookup



**RIPE Database**

Location: rest.db.ripe.net

Source: ripe

**Object Type**

Type: inet6num

**Key**

Key: 2001:67c:64::/48

**Format**

XML and JSON

# Demo: Update



<b>TEST Database</b>	Location: rest-test.db.ripe.net Source: test
<b>Object Type</b>	Type: person
<b>Key</b>	Key: TP29-TEST
<b>Format</b>	XML

# Demo: Create



**TEST Database**

Location: rest-test.db.ripe.net

Source: test

**Object Type**

Type: inet6num

(ASSIGNED)

**Key**

Key: 2001:ff29:1234::/48

**Format**

XML

# Demo: Delete



**TEST Database**

Location: rest-test.db.ripe.net

Source: test

**Object Type**

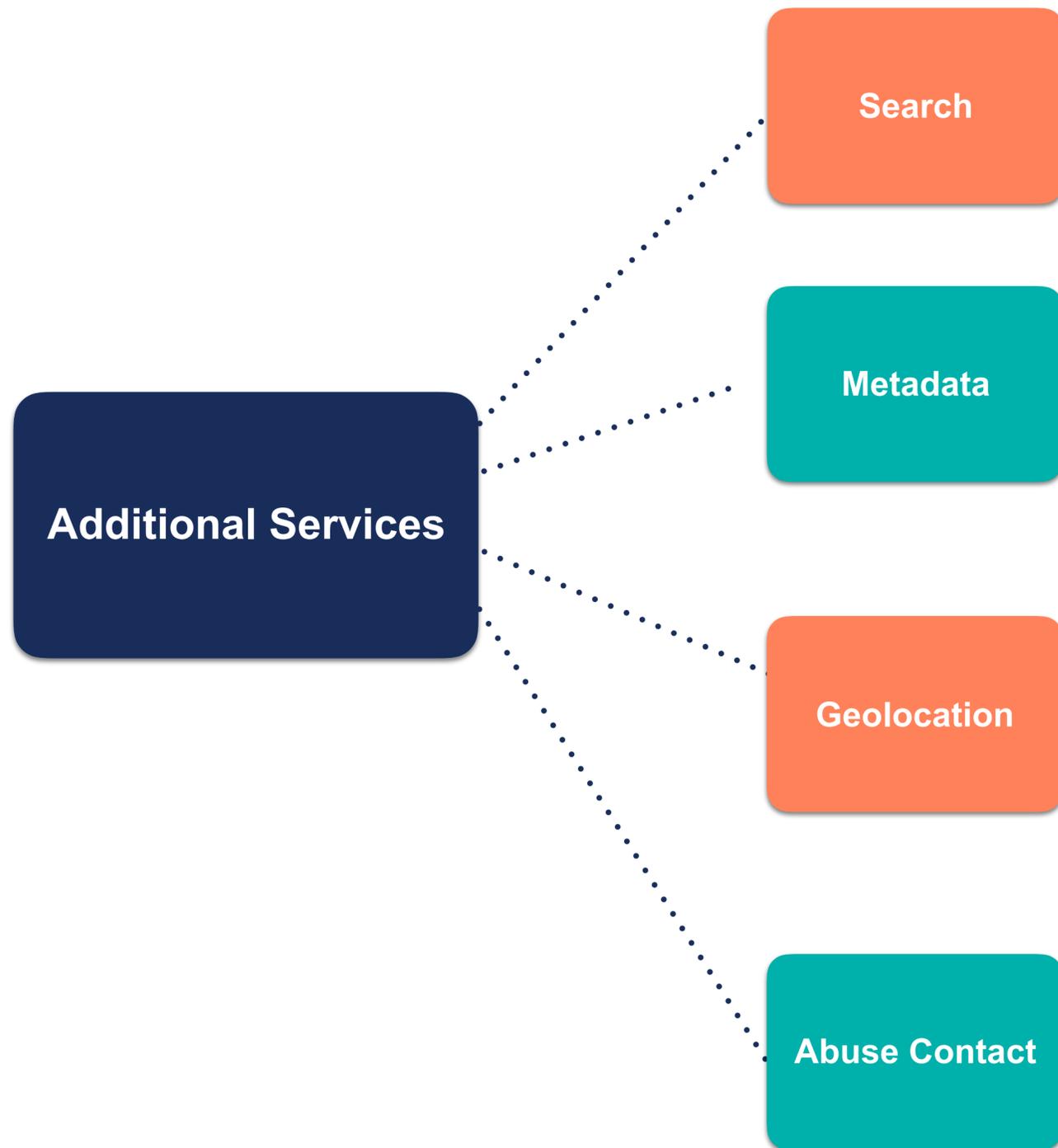
Type: inet6num (ASSIGNED)

**Key**

Key: 2001:ff29:1234::/48

**Format**

XML





# References

- GitHub WHOIS REST API:  
<https://github.com/RIPE-NCC/whois/wiki/WHOIS-REST-API>
- GitHub WHOIS REST API WhoisResources:  
<https://github.com/RIPE-NCC/whois/wiki/WHOIS-REST-API-WhoisResources>



**NWI-7**

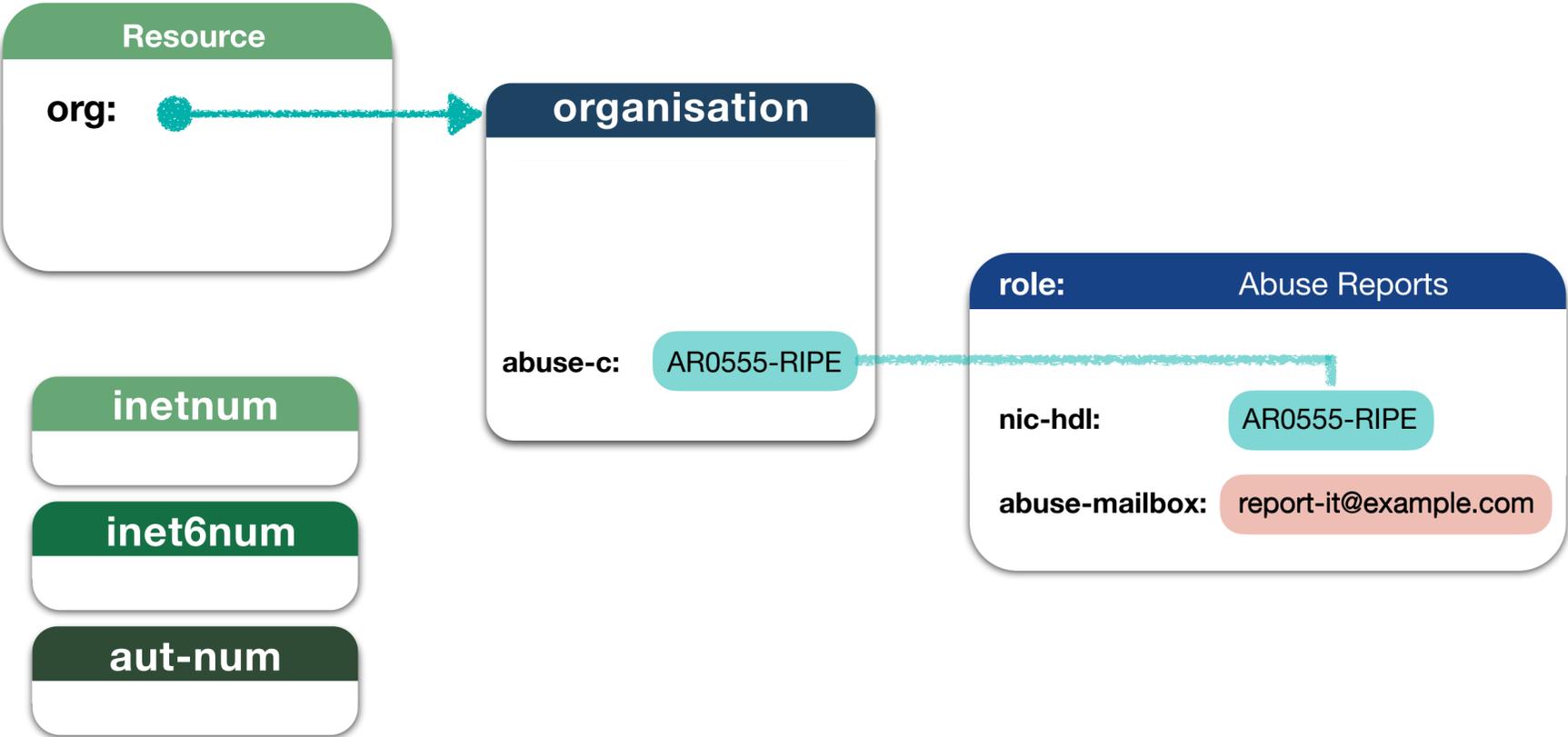
**Abuse-c implementation**



Internet **resource** holders need to be **contactable** in case of **problems**.



# Before...



# How abuse-c is displayed



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

Update [RIPEstat](#)

Highlight RIPE NCC managed values

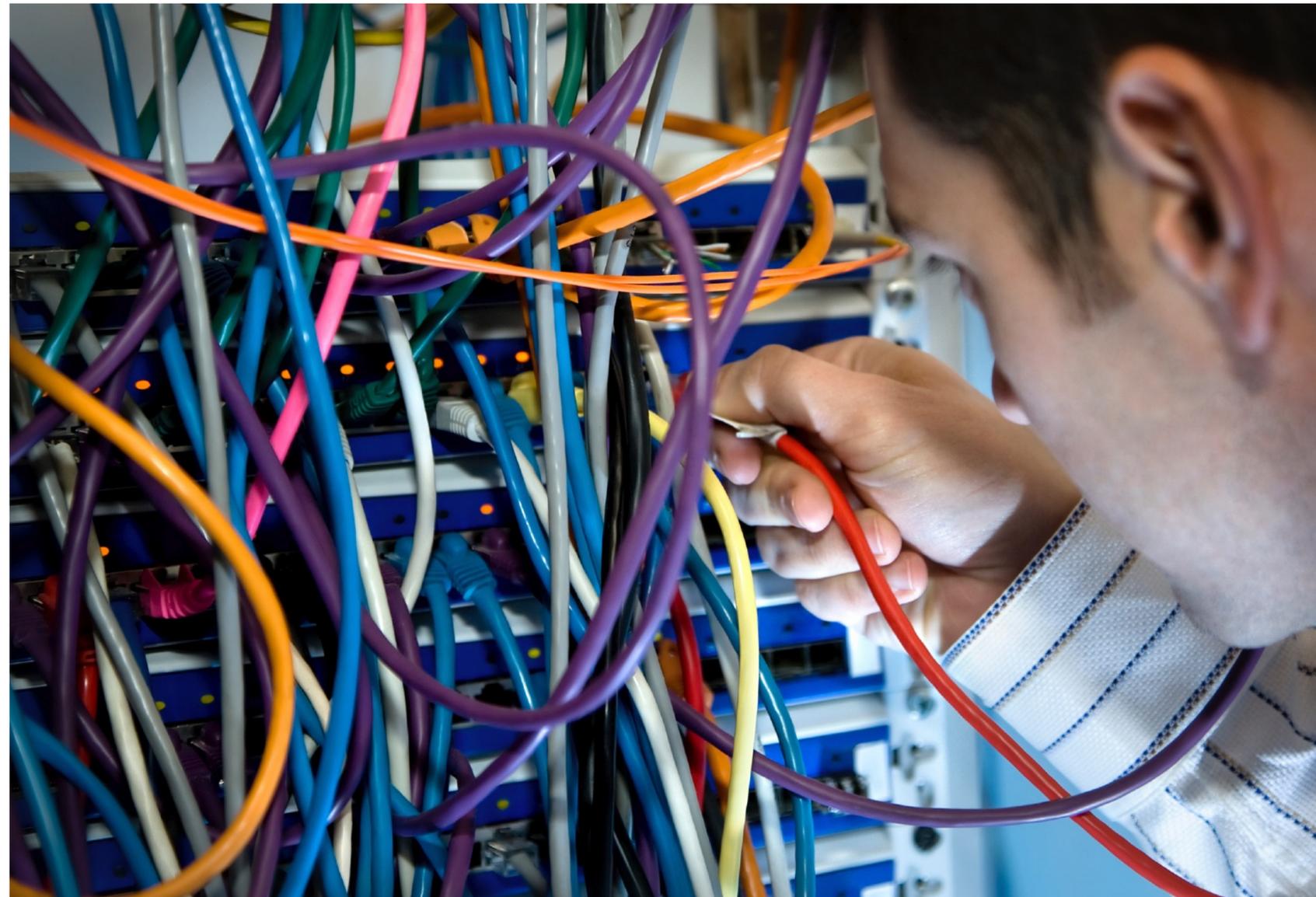
inet6num:	2001:67c:2e8::/48
netname:	RIPE-NCC-NET
org:	ORG-RIEN1-RIPE
country:	NL
admin-c:	JDR-RIPE
admin-c:	BRD-RIPE
tech-c:	OPS4-RIPE
status:	ASSIGNED PI
mnt-by:	RIPE-NCC-END-MNT
mnt-by:	RIPE-NCC-MNT
mnt-routes:	RIPE-NCC-MNT
mnt-domains:	RIPE-NCC-MNT
created:	2010-09-17T13:18:51Z
last-modified:	2016-04-14T08:40:13Z
source:	RIPE

# Problem Statement



- Can't specify other abuse contacts for different resources from the same organisation
- Can't specify alternative abuse contacts for resources assigned to organisations other than the parent organisation
- After introduction of "abuse-c", "abuse-mailbox:" in **person**, **mntner**, **organisation** and **irt** objects was intended to be deprecated

# What did we improve?

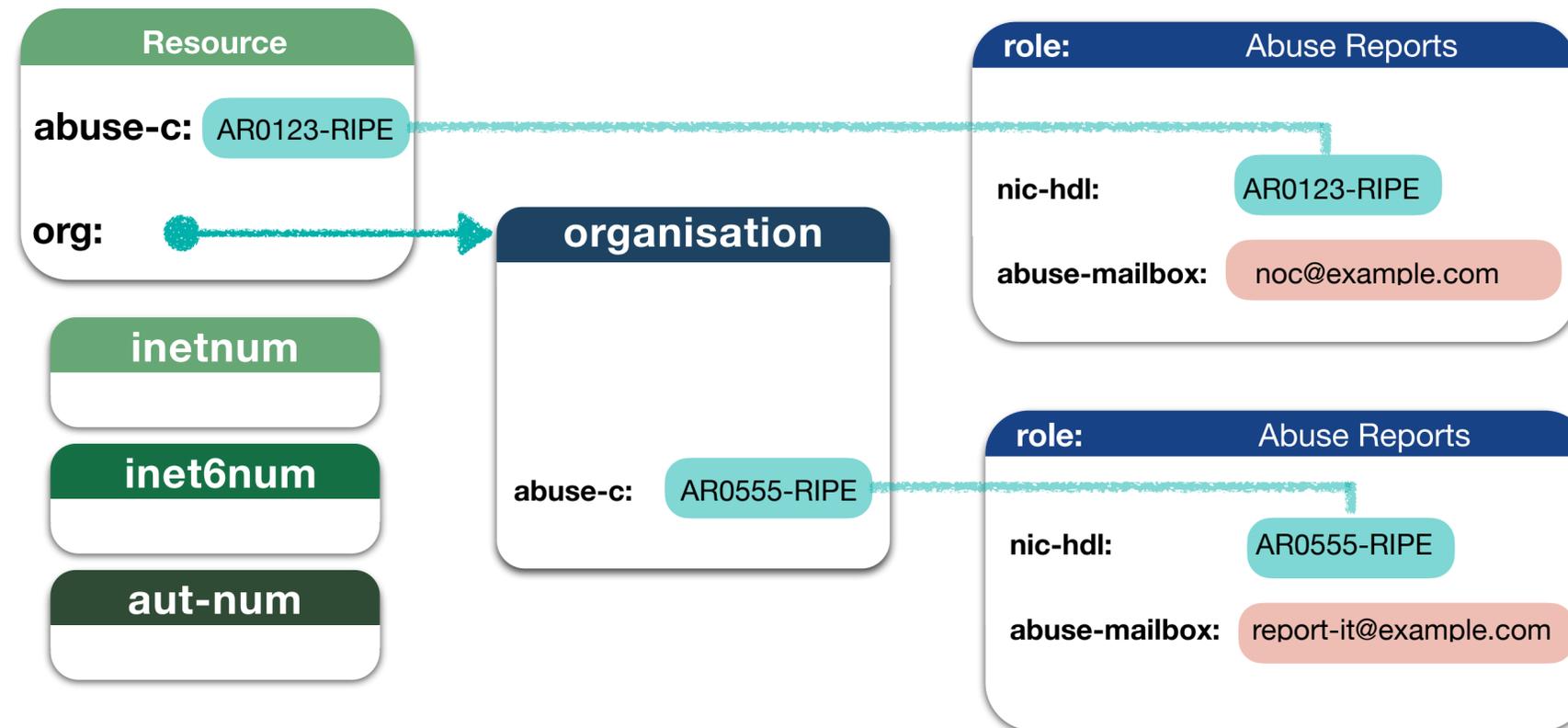


# Changes in the Database



- Clean legacy/temporal information:
  - Removed “abuse-mailbox:” from **person**, **mntner**, **organisation**, **irt** objects (NWI-7)
  - “abuse-mailbox:” only allowed in **role** objects
- “abuse-c:” allowed in **inetnum**, **inet6num** and **aut-num** objects

# ...After



# RIPE NCC Mandate



- Regular validation of all “abuse-mailbox:” attributes
- First trial soon after RIPE meeting
- Start with initial validation beginning of 2019
- Presentation in the Anti-abuse WG
  - Thursday, 18 October 11:00 - 12:30

# References



- Abuse Contact Management in the RIPE Database - RIPE-705
- <https://www.ripe.net/publications/docs/ripe-705>



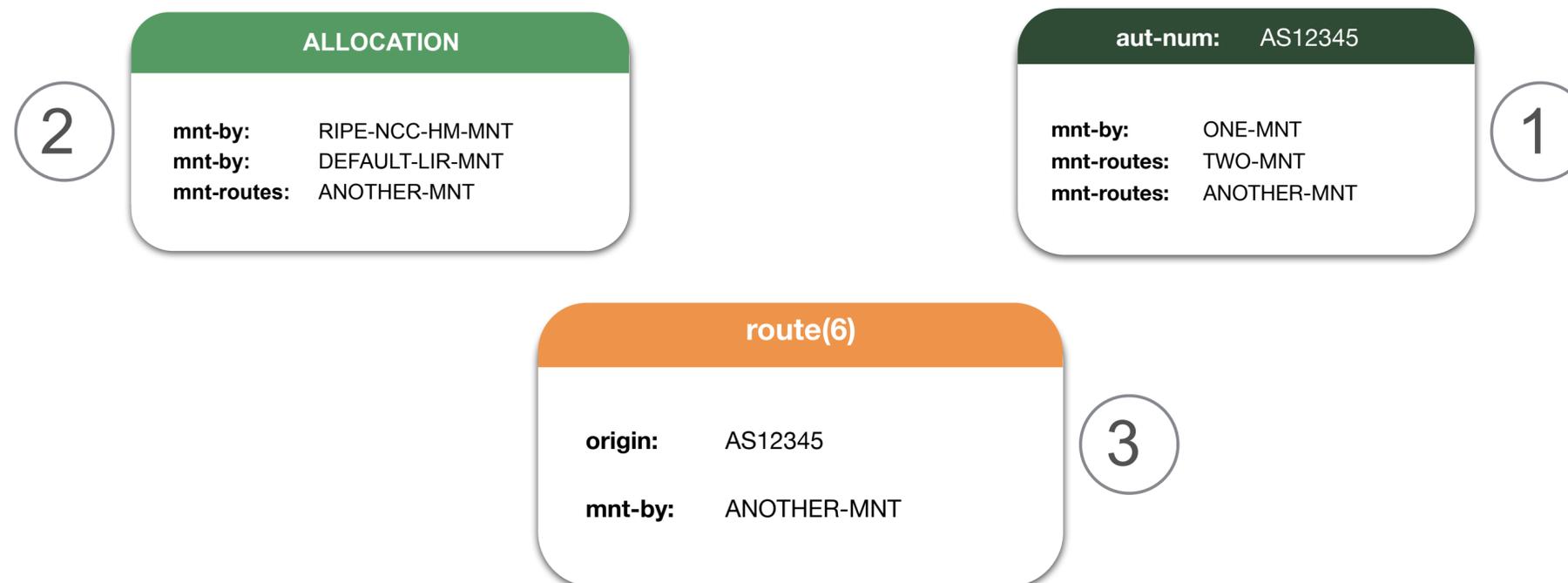
## **NWI-5**

Out of region Route(6)/ AUT-NUM objects



# How route(6) objects used to be created

- You needed permission from:
  1. aut-num
  2. inetnum or inet6num
  3. route or route6





# Out of Region Resources

- Because:
  - Need for route(6) objects
  - No authoritative alternative IRR available
  - No proper mntners
- RIPE community allowed placeholder objects
  - Using RIPE-NCC-RPSL-MNT

```
inet(6)num
mnt-by: RIPE-NCC-HM-MNT
mnt-routes: RIPE-NCC-RPSL-MNT
```

```
as-block
mnt-by: RIPE-NCC-HM-MNT
mnt-lower: RIPE-NCC-RPSL-MNT
```

# Some numbers...



- 68,343 out-of-region ROUTE objects (28/6/18)
- 1,902 out-of-region ROUTE6 objects (28/6/18)

# Problem Statement



- Out-of-region objects authorisation is anecdotal
- Globally duplicate AUT-NUM objects are required for out-of-region ASNs, confusing contact information, policy, etc.
- This facilitates hijacking for out-of-region resources and RIPE NCC is neither mandated nor well-staffed enough to deal with these issues
- Detailed placeholders need maintenance, causing overhead especially with inter-RIR transfers



# What changed? (I)

- Removed ASN authorisation requirement for **route(6)**
- Deprecated "mnt-routes:" attribute in **aut-num**
- Removed 'pending object creation' functionality for route creation



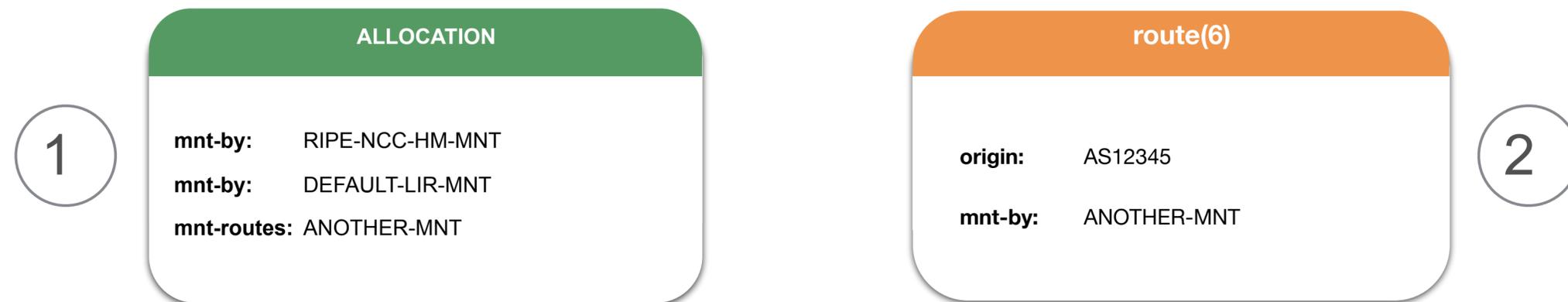
## What changed? (II)

- Created new source 'RIPE-NONAUTH'
- Moved all **route(6)** objects relating to non-RIPE-managed address space to new source
- Moved all non-RIPE managed **aut-num** objects to new source
- Disallowed creation of new **aut-num/route(6)** objects for non-RIPE-managed resources
- Removed "mnt-routes:" from placeholder **inet(6)num** objects for non-RIPE-managed address space

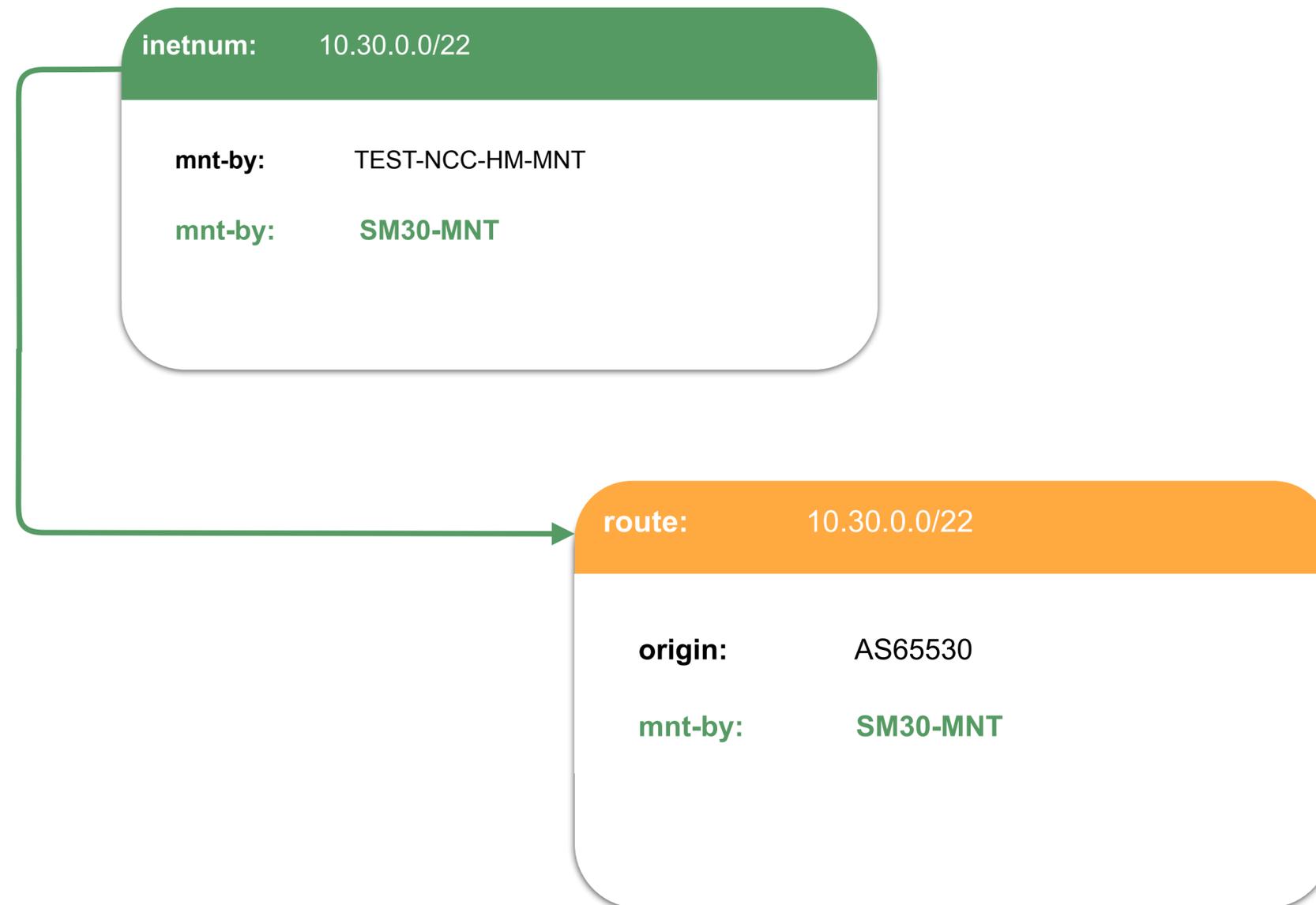


# How to create route(6) objects

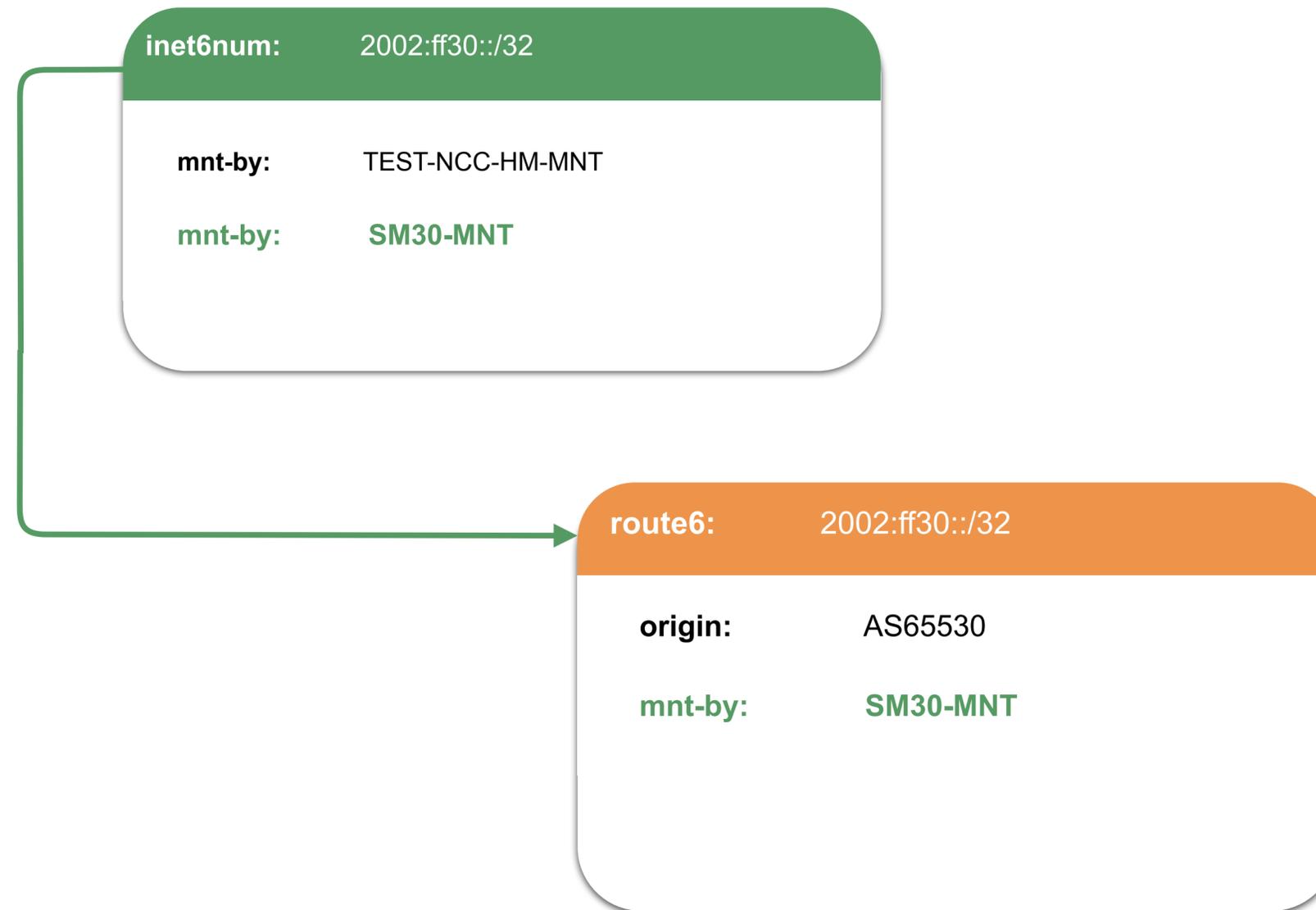
- You needed permission from:
  1. **inetnum** or **inet6num**
  2. **route** or **route6**



# Registering IPv4 Routes



# Registering IPv6 Routes



# References



- Out-of-Region ROUTE(6) and AUT-NUM Objects in the RIPE Database
  - <https://labs.ripe.net/Members/denis/out-of-region-route-6-and-aut-num-objects-in-the-ripe-database>
- Impact Analysis for NWI-5 Implementation Using RIPE-NCC-RPSL-MNT
  - <https://www.ripe.net/manage-ips-and-asns/db/impact-analysis-for-nwi-5-implementation>



# Questions



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