



Beyond The Database

The RESTful API

Problem Statement

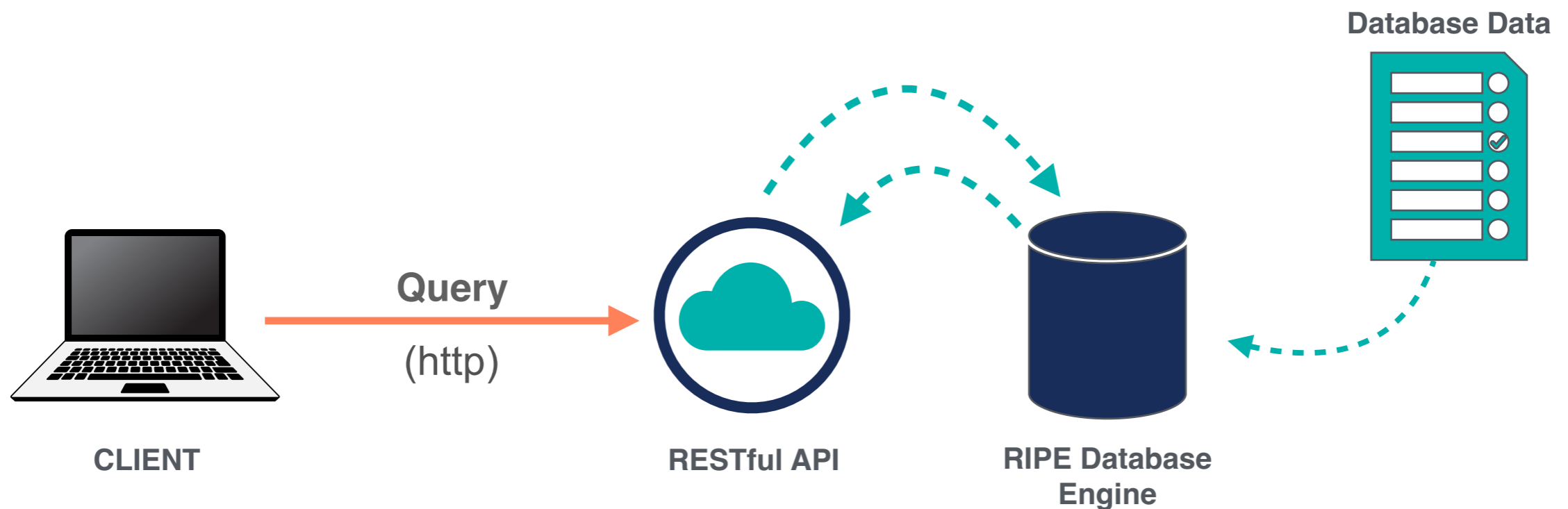


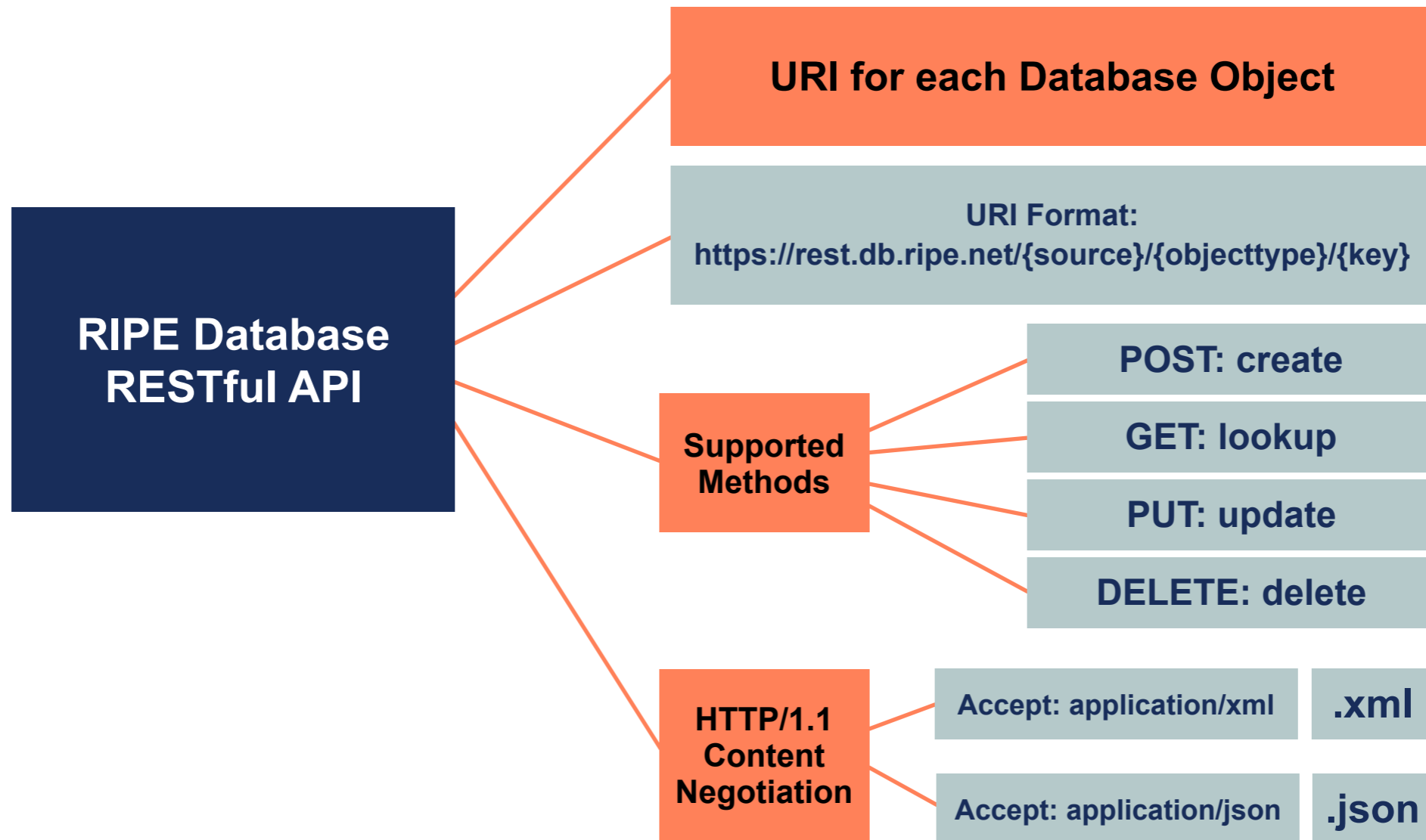
- Your company has a provisioning software that **assigns** address blocks to customers from a pool
- The RIPE policies require you to **register** these blocks with contact data in the RIPE Database
- Can you **save time** by letting the software create the required objects in the RIPE Database?

RIPE Database RESTful API



- Allows **REST-compliant** systems to access the RIPE Database
- Data is exchanged in **XML** or **JSON** format
- Standard **query limits** apply





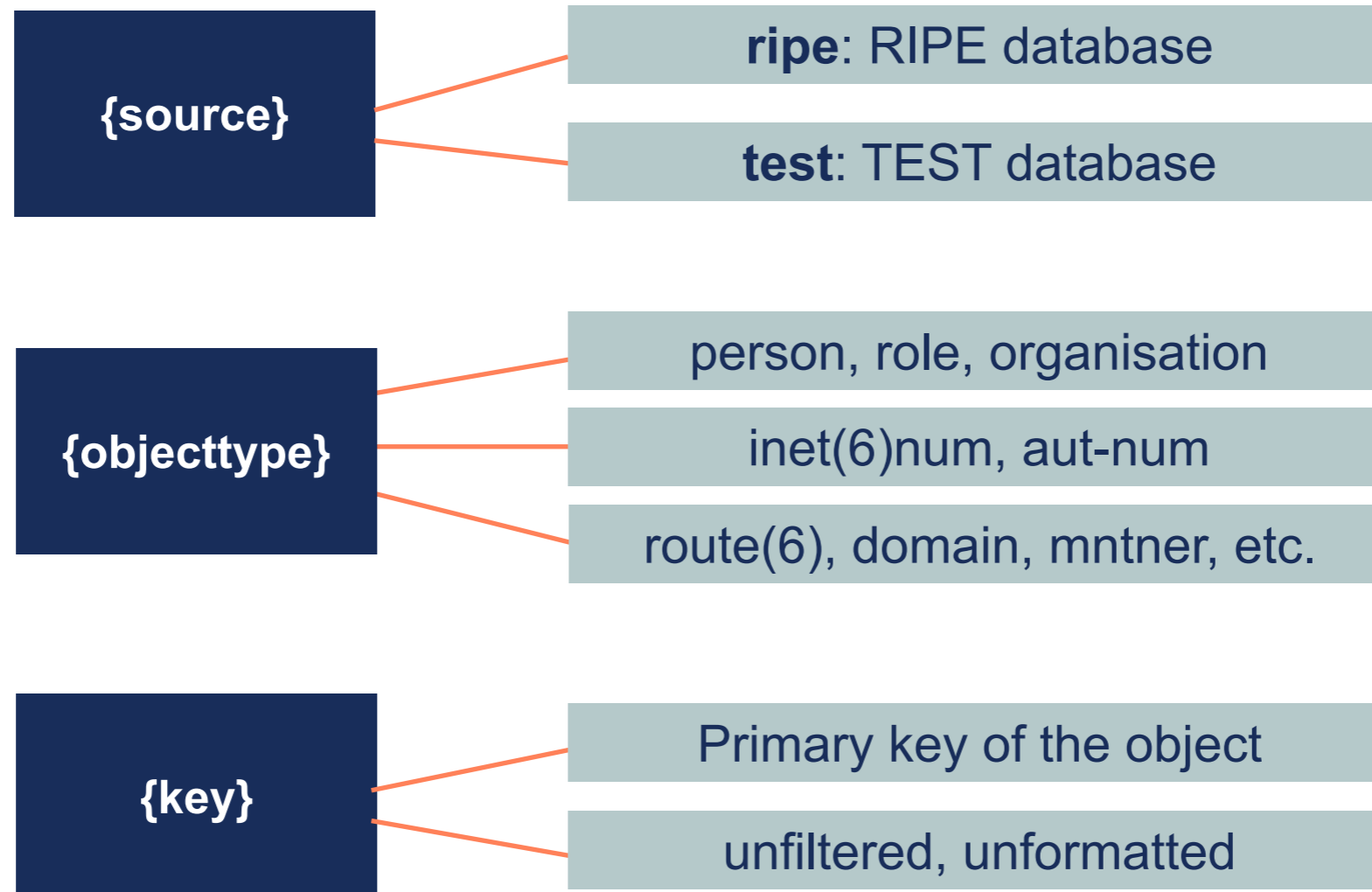
Environments

Environment	Protocol	Client cert	Endpoint
TEST	HTTP	No	http://rest-test.db.ripe.net
TEST	HTTPS	No	https://rest-test.db.ripe.net
TEST	HTTPS	Yes	https://rest-cert-test.db.ripe.net
RIPE	HTTP	No	http://rest.db.ripe.net
RIPE	HTTPS	No	https://rest.db.ripe.net
RIPE	HTTPS	Yes	https://rest-cert.db.ripe.net



URI Format:

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



HTTP Status Codes



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

Method: GET



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



200 Object found

400 Bad request

404 No valid object



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'
```

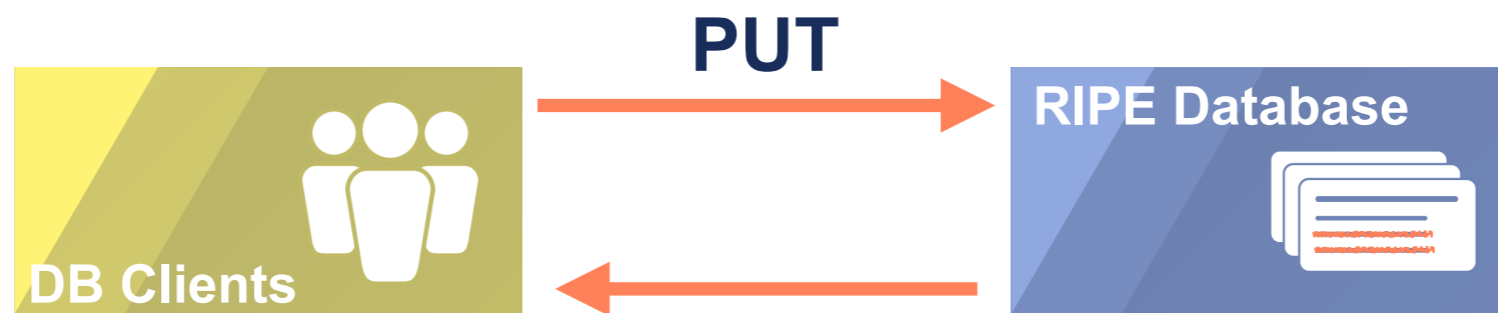
```
curl 'http://rest.db.ripe.net/ripe/inetnum/193.0.0.0%20-%20193.0.7.255.json'
```

```
curl -H 'Accept: text/plain' 'http://rest-test.db.ripe.net/test/person/JB1-TEST?unfiltered'
```

Method: PUT



<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



Examples

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

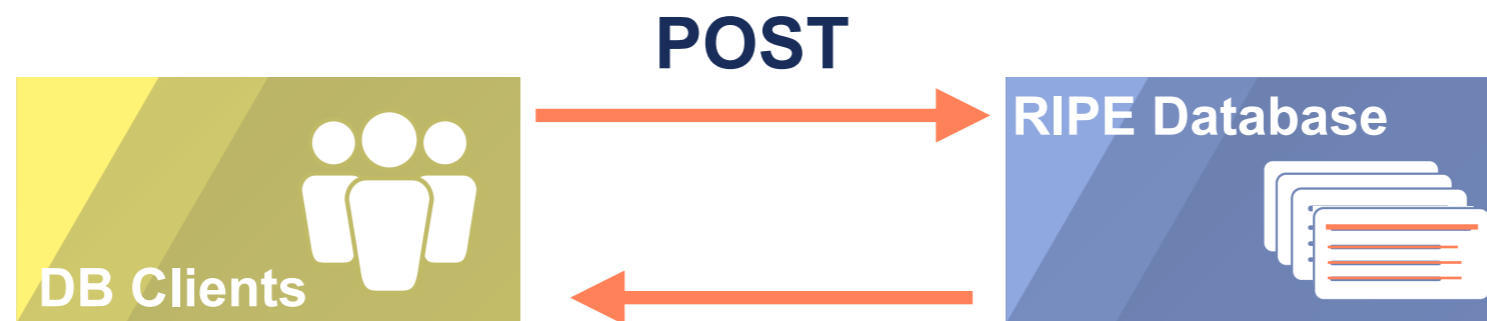
```
curl -X PUT -H 'Content-Type: application/json' -H 'Accept:application/json' --data @form.txt 'https://rest.db.ripe.net/ripe/person/PP1-RIPE?password=...'
```

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

Method: POST



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



200 Success (object created)

400 Bad request

401 Incorrect password

409 Object already exists



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=...'
```

Method: 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



Example

```
curl -X DELETE 'https://rest.db.ripe.net/ripe/person/pp1-ripe?password=123'
```

Updating Objects - Without MD5



Sends the request with a header specifying the data format as JSON

```
$ curl -v --header "Content-type: application/json"
```

Send the content of "file.json" using the PUT method

```
-d @file.json -X PUT
```

Use "client-key.pem" file for authentication

```
--key client-key.pem
```

Use "client-cert.pem" file for client certificate verification

```
--cert client-cert.pem
```

```
https://rest-cert.db.ripe.net/ripe/person/XY12345-RIPE.json
```

Specifies the REST API endpoint to interact with

*** MD5 authentication will be deprecated in 2025**

Additional Services



Search	RIPE database whois search service
Metadata	List available sources Object type template
Geolocation	Geolocation and language attributes for IPv4/IPv6 Address
Abuse Contact	Lookup abuse contact for Internet Resource



Examples

```
curl -H 'Accept: application/json' 'http://rest-test.db.ripe.net/search?source=test&query-string=tp19-test'
```

```
curl http://rest.db.ripe.net/metadata/templates/person.xml
```

```
curl http://rest.db.ripe.net/abuse-contact/AS3333
```

References



- RESTful API documentation:

<https://apps.db.ripe.net/docs/How-to-Query-the-RIPE-Database/RESTful-API-Queries/>

- REST API Data model:

<https://apps.db.ripe.net/docs/RIPE-Database-Structure/REST-API-Data-model/>



Doing it for real!

Demo

Create an inet6num object



TEST Database	Location: rest-test.db.ripe.net Source: test
Object Type	Type: inet6num (ASSIGNED)
Key	Key: 2001:ff29:1234::/48
Format	XML

Query and Fail



```
curl 'http://rest-test.db.ripe.net/test/inet6num/2001:ff29:1234::/48'
```

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<whois-resources xmlns:xlink="http://www.w3.org/1999/xlink">
  <link xlink:type="locator" xlink:href="http://rest-
test.db.ripe.net/test/inet6num/2001:ff29:1234::/48"/>
  <errormessages>
    <errormessage severity="Error" text="ERROR:101: no entries
found&#xA;&#xA;No entries found in source %s.&#xA;">
      <args value="TEST"/>
    </errormessage>
  </errormessages>
  <terms-and-conditions xlink:type="locator" xlink:href="http://
www.ripe.net/db/support/db-terms-conditions.pdf"/>
</whois-resources>
```

XML Template



```
<?xml version="1.0" encoding="UTF-8" standalone="no" ?>
<whois-resources>
  <objects>
    <object type="inet6num">
      <source id="ripe"/>
      <attributes>
        <attribute name="inet6num" value="2001:ff29:1234::/48"/>
        <attribute name="netname" value="MyNewNET"/>
        <attribute name="country" value="NL"/>
        <attribute name="admin-c" value="TP29-TEST"/>
        <attribute name="tech-c" value="TP29-TEST"/>
        <attribute name="status" value="ASSIGNED"/>
        <attribute name="mnt-by" value="CM29-MNT"/>
        <attribute name="source" value="TEST"/>
      </attributes>
    </object>
  </objects>
</whois-resources>
```

Create inet6num Object



```
curl -X POST -H 'Content-Type: application/xml' --data @form-create.txt
'https://rest-test.db.ripe.net/test/inet6num?password=secret29'
```

```
<?xml version="1.0" encoding="UTF-8"?>
<whois-resources xmlns:xlink="http://www.w3.org/1999/xlink">
  <link xlink:type="locator" xlink:href="http://rest-test.db.ripe.net/test/inet6num"/>
  <objects>
    <object type="inet6num">
      <link xlink:type="locator" xlink:href="http://rest-test.db.ripe.net/test/inet6num/2001:ff29:1234::/48"/>
      <source id="test"/>
      <primary-key>
        <attribute name="inet6num" value="2001:ff29:1234::/48"/>
      </primary-key>
      <attributes>
        <attribute name="inet6num" value="2001:ff29:1234::/48"/>
        <attribute name="netname" value="MyNewNET"/>
        <attribute name="country" value="NL"/>
        <attribute name="admin-c" value="TP29-TEST" referenced-type="person">
          <link xlink:type="locator" xlink:href="http://rest-test.db.ripe.net/test/person/TP29-TEST"/>
        </attribute>
        <attribute name="tech-c" value="TP29-TEST" referenced-type="person">
          <link xlink:type="locator" xlink:href="http://rest-test.db.ripe.net/test/person/TP29-TEST"/>
        </attribute>
        <attribute name="status" value="ASSIGNED"/>
        <attribute name="mnt-by" value="CM29-MNT" referenced-type="mntner">
          <link xlink:type="locator" xlink:href="http://rest-test.db.ripe.net/test/mntner/CM29-MNT"/>
        </attribute>
        <attribute name="created" value="2019-02-08T11:16:16Z"/>
        <attribute name="last-modified" value="2019-02-08T11:16:16Z"/>
        <attribute name="source" value="TEST"/>
      </attributes>
    </object>
  </objects>
  <terms-and-conditions xlink:type="locator" xlink:href="http://www.ripe.net/db/support/db-terms-conditions.pdf"/>
</whois-resources>
```


Query and Succeed!



```
curl 'http://rest-test.db.ripe.net/test/inet6num/2001:ff29:1234::/48'
```

```
<?xml version="1.0" encoding="UTF-8"?>
<whois-resources xmlns:xlink="http://www.w3.org/1999/xlink">
<objects>
<object type="inet6num">
  <link xlink:type="locator" xlink:href="http://rest-test.db.ripe.net/test/inet6num/2001:ff29:1234::/48"/>
  <source id="test"/>
  <primary-key>
    <attribute name="inet6num" value="2001:ff29:1234::/48"/>
  </primary-key>
  <attributes>
    <attribute name="inet6num" value="2001:ff29:1234::/48"/>
    <attribute name="netname" value="MyNewNET"/>
    <attribute name="country" value="NL"/>
    <attribute name="admin-c" value="TP29-TEST" referenced-type="person">
      <link xlink:type="locator" xlink:href="http://rest-test.db.ripe.net/test/person/TP29-TEST"/>
    </attribute>
    <attribute name="tech-c" value="TP29-TEST" referenced-type="person">
      <link xlink:type="locator" xlink:href="http://rest-test.db.ripe.net/test/person/TP29-TEST"/>
    </attribute>
    <attribute name="status" value="ASSIGNED"/>
    <attribute name="mnt-by" value="CM29-MNT" referenced-type="mntner">
      <link xlink:type="locator" xlink:href="http://rest-test.db.ripe.net/test/mntner/CM29-MNT"/>
    </attribute>
    <attribute name="created" value="2019-02-08T11:16:16Z"/>
    <attribute name="last-modified" value="2019-02-08T11:16:16Z"/>
    <attribute name="source" value="TEST"/>
  </attributes>
</object>
</objects>
<terms-and-conditions xlink:type="locator" xlink:href="http://www.ripe.net/db/support/db-terms-conditions.pdf"/>
</whois-resources>
```

Questions, feedback & dialogue



Help To Shape Our Services



- Get involved in discussions - on mailing lists, forum, at meetings, etc.
- Give feedback on services or activities, even if that's just a "carry on as you are", an "I don't like this" or a "+1"
- Register for a RIPE Meeting - if you haven't done it before, register for free as an online attendee and join the sessions that look interesting
- Vote at the RIPE NCC General Meeting and see what's involved - even if the next one isn't interesting for you, it's good to see what's involved and how it impacts you
- Not all discussions are about policy or governance - suggest improvements to tools like RIPE Atlas, the LIR Portal, the **RIPE Database** etc. to help the RIPE NCC understand what's important for you so we prioritise correctly

Let us know what you miss!



- Various mailing lists covering all activities and services (including RIPE Database!)
- RIPE community pages
- RIPE Meetings
- Regional Meetings and other events
- RIPE NCC General Meeting
- Training Courses and Webinars
- RIPE NCC Forum
- RIPE Labs
- All the usual social media platforms
- We come to NOG/IXP meetings and other events
- Everything is geared for remote participation!

Events



- RIPE 89: attend also online!
 - <https://ripe89.ripe.net/attend/>
- Join the Green Tech Hackathon (in Amsterdam and online)
 - <https://www.ripe.net/participate/forms/apply/green-tech-20234/>
- All upcoming events
 - <https://www.ripe.net/meetings/>

RIPE NCC will develop its services in line with the **guidance** they receive **from the community** - so make sure they develop in ways that benefit you and benefit the Internet

Languages



- We now have content on www.ripe.net in Spanish
 - <https://www.ripe.net/languages/es/>
- We've launched a campaign to find operators in local communities who can help translate RIPE NCC material into their language
- If you're interested, [see the article](#) and fill out the volunteer form at:
 - <https://www.ripe.net/participate/forms/apply/ripe-community-translators/>