



Beyond The Database

The RESTful API

Problem Statement

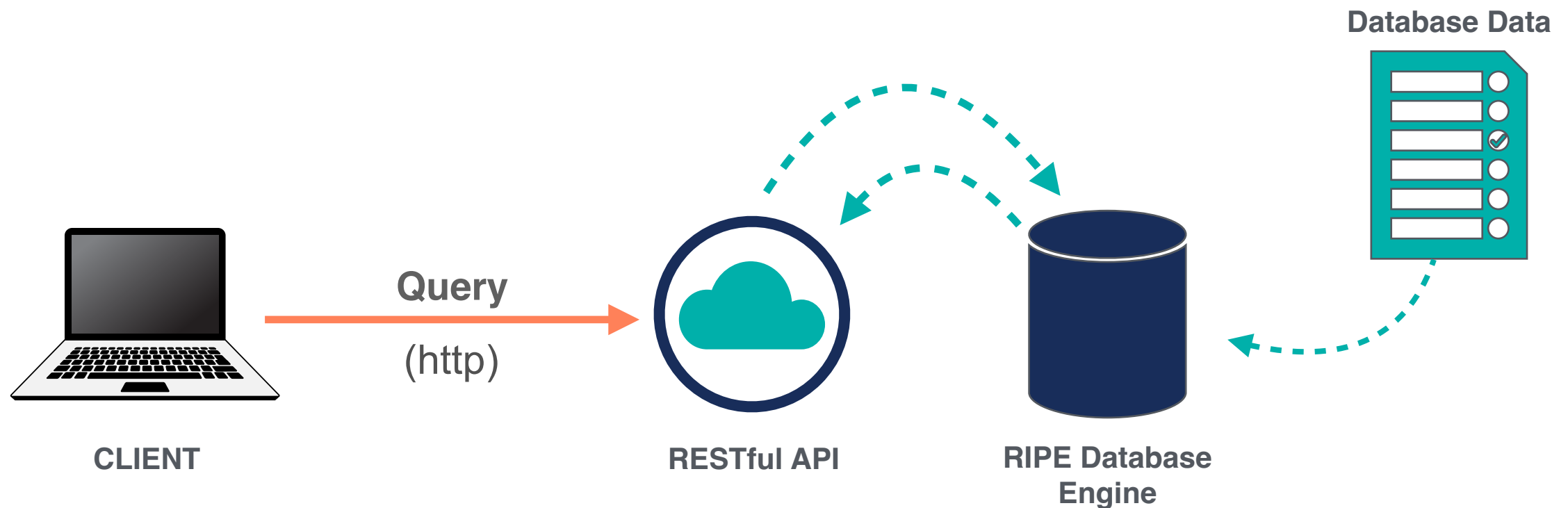


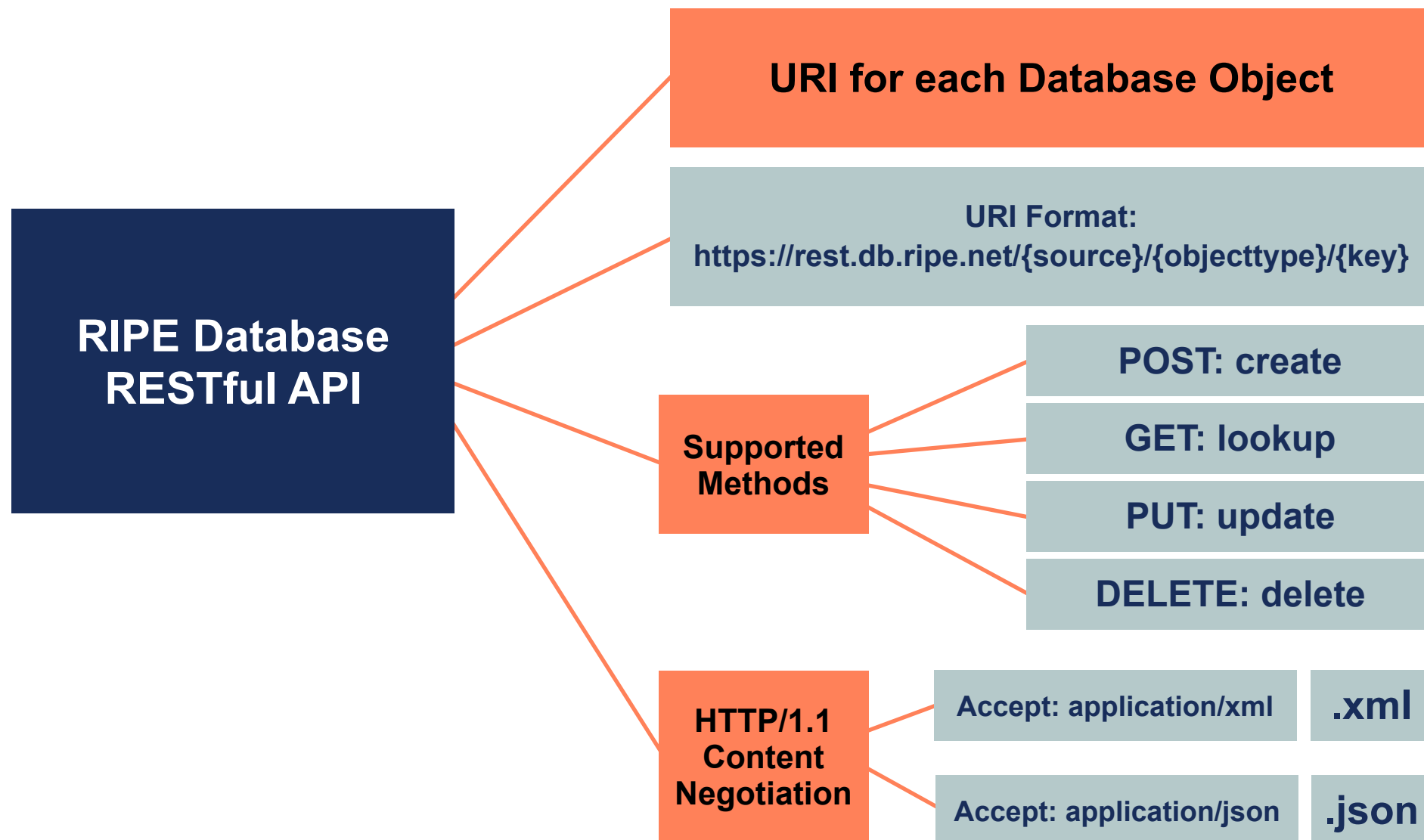
- Your company has a provisioning software that **assigns** address blocks to customers from a pool
- The RIPE policies require you to **register** these blocks with contact data in the RIPE Database
- Can you **save time** by letting the software create the required objects in the RIPE Database?

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





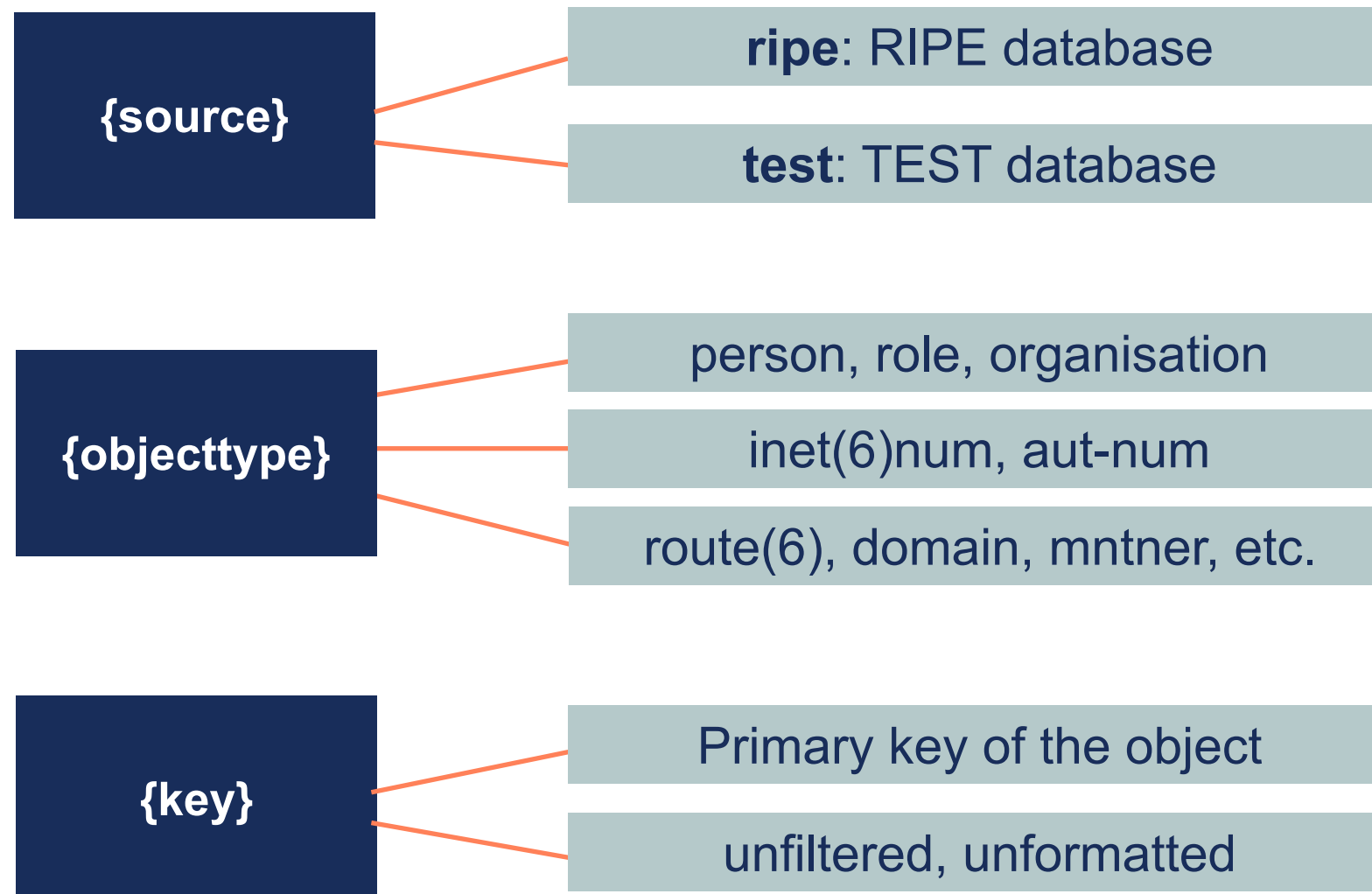
Environments

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'
```

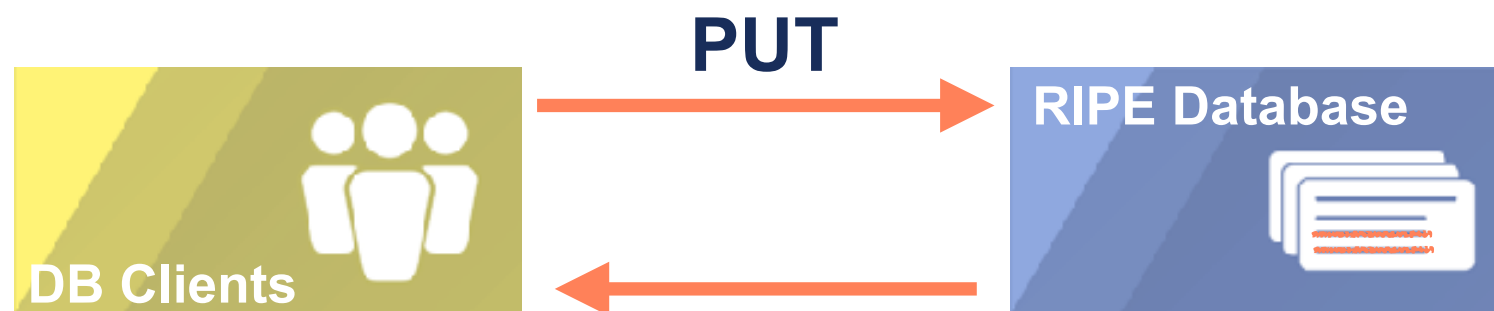
```
curl 'http://rest.db.ripe.net/ripe/inetnum/193.0.0.0%20-%20193.0.7.255.json'
```

```
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=...'
```

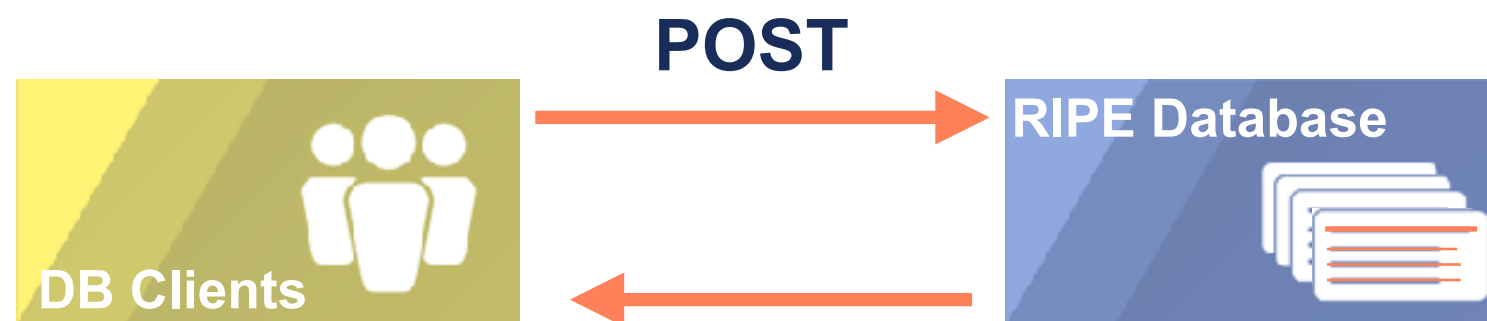
```
curl -X PUT -H 'Content-Type: application/json' -H 'Accept:application/json' --data @form.txt 'https://rest.db.ripe.net/ripe/person/PP1-RIPE?password=...'
```

```
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

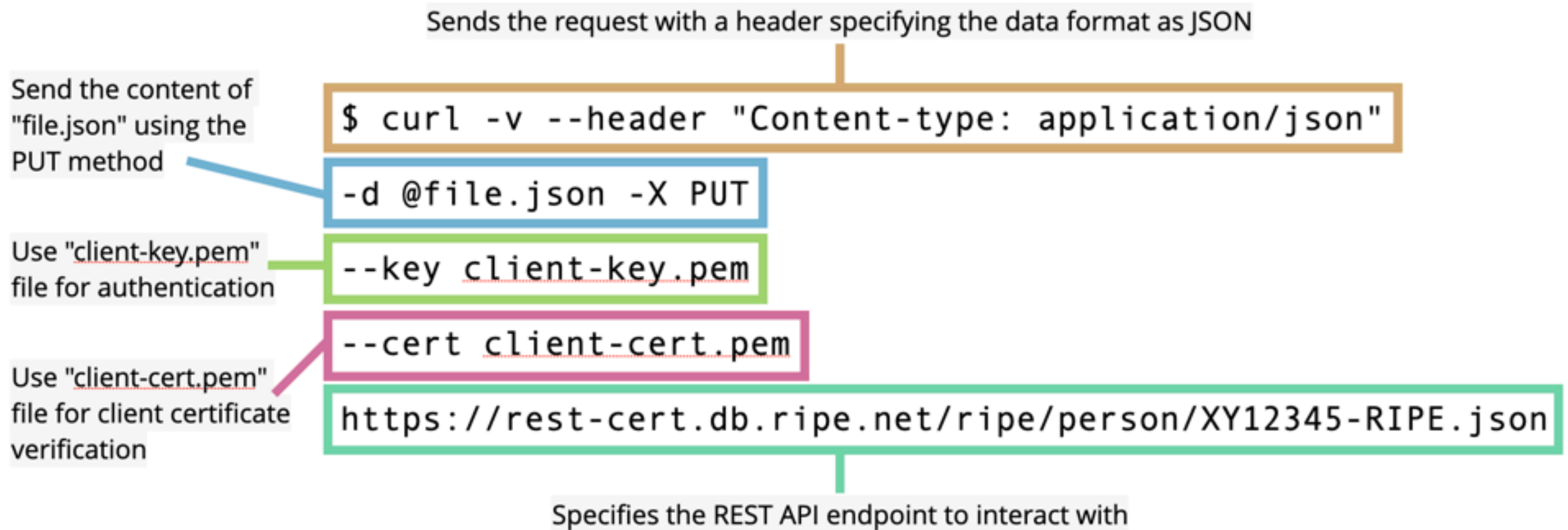
404 Object not found



Example

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

Updating Objects - Without MD5



*** 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
```

```
curl https://rest.db.ripe.net/geolocation?ipkey=10.0.0.0
```

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>
```