RDAP Reference Manual

Table of Contents

[1. Introduction 2](#_Toc417025006)

[1.1. RDAP Modules 2](#_Toc417025007)

[2. Install 3](#_Toc417025008)

[2.1. Supported Operating Systems 3](#_Toc417025009)

[2.2. RDAP-service 3](#_Toc417025010)

[2.3. RDAP-proxy43 4](#_Toc417025011)

[3. Configuration 6](#_Toc417025012)

[3.1. Database Configuration 6](#_Toc417025014)

[3.2. Common Configuration 6](#_Toc417025015)

[3.3. Bootstrap Configuration 7](#_Toc417025016)

[4. Query API 8](#_Toc417025017)

[4.1. Introduction 8](#_Toc417025019)

[4.2. Response Code 9](#_Toc417025020)

[4.3. API 9](#_Toc417025021)

[5. Update API 11](#_Toc417025022)

[5.1. Introduction 11](#_Toc417025024)

[5.2. Common Request Format 12](#_Toc417025025)

[5.3. Common Response Format 12](#_Toc417025026)

[5.4. Response Code 13](#_Toc417025027)

[5.5. Request Body Parameter 14](#_Toc417025028)

[Domain 17](#_Toc417025029)

[Nameserver 20](#_Toc417025030)

[Entity 20](#_Toc417025031)

[Network 22](#_Toc417025032)

[As number 23](#_Toc417025033)

[6. Proxy43 24](#_Toc417025034)

[6.1. Introduction 24](#_Toc417025036)

[6.2. API 24](#_Toc417025037)

[7. Customization and Development 27](#_Toc417025038)

[7.1. Use Registry’s Database 27](#_Toc417025040)

[7.2. Function Customization 27](#_Toc417025041)

[7.3. Validator Customization 28](#_Toc417025042)

[7.4. Enable/Disable Access Control 28](#_Toc417025043)

[7.5. Enable/Disable Redirect 28](#_Toc417025044)

[7.6. Add Custom Features 28](#_Toc417025045)

[7.7. VCARD Extension 28](#_Toc417025046)

[8. Other 28](#_Toc417025047)

# Introduction

This project is a starting point for registries to build restful WHOIS service so that they need not to start from scratch.

RDAP: Registration Data Access Protocol. The term ‘RDAP’ will be used for this project name in following sections.

## RDAP Modules

The project is written in JAVA. Modules:

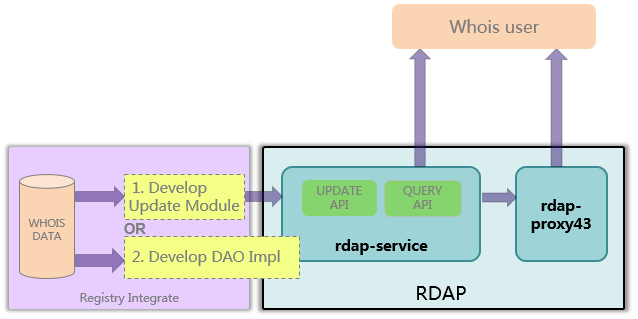


Figure 1.1-1 RDAP Modules

1. RDAP-service

RDAP-service is a HTTP service, can be deployed in SERVLET container, such as Tomcat or Jetty. It loads data from MYSQL database by default.

It has two kinds of API:

1. Query API

Registrar user can query WHOIS data from this API.

1. Update API

Registry can update WHOIS data from this API.

There are two approaches for registries to implement:

1. Update RDAP service data via data update API.
2. Develop DAO module of RDAP-service to access the DB of the registry.
3. RDAP-proxy43

TCP 43 port service, as a standalone server, has the same function with old WHOISD.

# Install

## Supported Operating Systems

Tested operating environment:

1. Red Hat Enterprise Linux Server release 5.3
2. CentOS release 5.7
3. Win7
4. Win8
5. OS X 10.8.4.

## RDAP-service

1. Install [JDK7](http://www.oracle.com/technetwork/java/javase/downloads/jdk7-downloads-1880260.html), or higher version. (Skip this step if already installed)
2. Install [Mysql5](http://dev.mysql.com/downloads/mysql), or higher version. (Skip this step if already installed)

Create user 'rdap' and grant privilege.

($RDAP\_SERVER\_IP must change to rdap server IP, $MYSQL\_PASSWORD change to 'rdap' user's password)

GRANT ALL PRIVILEGES ON \*.\* TO 'rdap'@'$RDAP\_SERVER\_IP' IDENTIFIED BY '$MYSQL\_PASSWORD';

FLUSH PRIVILEGES;

More details please refer [here](https://github.com/cnnic/rdap/wiki/%5Binstall%5D-Mysql-privilege).

1. Install Tomcat7, or higher version. (Skip this step if already installed)

[Download](http://tomcat.apache.org/download-70.cgi) and [Install Tomcat7](http://tomcat.apache.org/tomcat-7.0-doc/setup.html) or higher version, and HTTP port use default port 8080 (see [here](http://tomcat.apache.org/tomcat-7.0-doc/RUNNING.txt) if use other ports).  
Installed Tomcat root folder called '$TOMCAT\_HOME', which contains folders:bin,conf,lib,webapps,etc.

1. Get RDAP war file.  
   There are two methods to get RDAP war file:
   * You can get [war file](https://github.com/cnnic/rdap/raw/dev/rdap-service/build/rdap-service-1.0.war) building by JDK7.
   * Or [Build war file from source](https://github.com/cnnic/rdap/wiki/%5Binstall%5DBuild-war-file-from-source)
2. Deploy RDAP war to tomcat.
   * Create folder 'rdap' in dir $TOMCAT\_HOME/webapps/
   * Unzip RDAP war file to $TOMCAT\_HOME/webapps/rdap/
   * Edit database configuration file [jdbc.properties](https://github.com/cnnic/rdap/wiki/jdbc.properties)
   * Edit global configuration file [rdap.properties](https://github.com/cnnic/rdap/wiki/rdap.properties)
3. Init database.  
   This step will create database named 'rdap', and you can insert test data into it.

This step will use database info in jdbc.properties you have configured before.

WARN: this step will DROP database of 'jdbc.url.dbName' if it is existing, and then recreate it.

cd $TOMCAT\_HOME/webapps/rdap/WEB-INF/classes

CLASSPATH=.:$CLASSPATH #in windows this command can be ignored

java -Djava.ext.dirs=../lib org.restfulwhois.rdap.init.Init initschema #DROP database 'jdbc.url.dbName', and recreate it, and create table.

1. Start up tomcat
   * Start up tomcat

[in Linux/OS X, open a shell and execute command:]

cd $TOMCAT\_HOME #$TOMCAT\_HOME must be replaced by real dir

bin/startup.sh

[in Windows, open command prompt window and execute command:]

cd $TOMCAT\_HOME/bin #$TOMCAT\_HOME must be replaced by real dir

startup.bat

* + Test if it is ok

curl -H Accept:application/rdap+json http://$RDAP\_SERVER\_IP:$RDAP\_SERVER\_PORT/rdap/autnum/2100

It's ok if response contains 'rdapConformance'.

## RDAP-proxy43

1. Get executable jar file 'rdap-proxy43-jar-with-dependencies.jar'.

There are two methods to get this file:

* + Get from [here](https://github.com/cnnic/rdap/raw/dev/rdap-proxy43/build/rdap-proxy43-jar-with-dependencies.jar) for jar build with JDK7.
  + [Build from source](https://github.com/cnnic/rdap/wiki/Proxy43-install:build-from-source)

1. Copy rdap-proxy43-jar-with-dependencies.jar to proxy43 install directory, and we call it $PROXY43\_INSTALL\_DIR.
2. Download configuration file "proxy43.properties" from [here](https://raw.githubusercontent.com/cnnic/rdap/dev/rdap-proxy43/src/main/resources/proxy43.properties), and copy it to $PROXY43\_INSTALL\_DIR.

You can edit this file for production use, see [here](https://github.com/cnnic/rdap/wiki/proxy43.properties)

1. Start up. **Must use root user**.
   * Start up

[in Linux/OS X, open a shell and execute command:]

cd $PROXY43\_INSTALL\_DIR #$PROXY43\_INSTALL\_DIR must be replaced by real dir

nohup java -jar rdap-proxy43-jar-with-dependencies.jar start &

[in Windows, open command prompt window and execute command:]

cd $PROXY43\_INSTALL\_DIR #$PROXY43\_INSTALL\_DIR must be replaced by real dir

java -jar rdap-proxy43-jar-with-dependencies.jar start

* + Test if it is ok

Run jwhois command, in Linux/OS X for example:

whois -h $PROXY43\_HOST cnnic.cn #$PROXY43\_HOST must be replaced by real proxy43 host

It's ok if response contains 'rdapConformance'.

* + Shutdown

cd $PROXY43\_INSTALL\_DIR #$PROXY43\_INSTALL\_DIR must be replaced by real dir

java -jar rdap-proxy43-jar-with-dependencies.jar shutdown

# Configuration



## Database Configuration

$TOMCAT\_HOME/webapps/rdap/WEB-INF/classes/jdbc.properties

For test purpose, the first 4 properties - 'jdbc.url.hostPort','jdbc.url.dbName','jdbc.username','jdbc.password' must be configured.

(Lines start with '#' are comments)

#jdbc url host and port.

#MUST change $MYSQL\_HOST\_OR\_IP to Mysql host or ip

jdbc.url.hostPort=jdbc:mysql://$MYSQL\_HOST\_OR\_IP:3306/

#database name

jdbc.url.dbName=rdap

#value change to jdbc username

jdbc.username=\*\*

#value change to jdbc password

jdbc.password=\*\*

#jdbc url params

jdbc.url.params=useUnicode=true&characterEncoding=UTF-8

# jdbc driver class name

jdbc.driverClassName=com.mysql.jdbc.Driver

#jdbc max pool size

jdbc.maxPoolSize=100

#jdbc min pool size

jdbc.minPoolSize=3

## Common Configuration

$TOMCAT\_HOME/webapps/rdap/WEB-INF/classes/rdap.properties

For test purpose, the first 3 properties - 'localServiceUrl','inTlds','notInTlds' must be configured.

(Lines start with ‘#’ are comments)

#local service url, without scheme. This value is used in redirect service,

#to check if redirect url is local service url, and ignore the redirect

#if is local service url.

localServiceUrl=http://rdap.restfulwhois.org

#puny name of tlds in this registry, splited by ';'.Only in this list can

#be query.

inTlds=cn;xn--fiqs8s;arpa

#tlds not in this registry, splited by ';'.

#tlds in this list can not be query,and will query redirect instead.

#NOT-IN-TLDS has higher priority than IN-TLDs.

notInTlds=edu.cn

#max size for search.

maxsizeSearch=5

#batch size for search.

batchsizeSearch=100

#minSecondsAccessInterval for anonymous request. <=0 means no limit.

minSecondsAccessIntervalAnonymous=-1

#minSecondsAccessInterval for authenticated request. <=0 means no limit.

minSecondsAccessIntervalAuthed=-1

#max concurrent query count. 0 means no limit. Should less than web container's max threads.

maxConcurrentCount=0

#ipWhiteListForAccessInterval.proxy43'ip may put into this list.

ipWhiteListForAccessInterval=127.0.0.1;

#Requests from these IPs can be handled, and others will return 403 error.

ipWhiteListForUpdateApi=127.0.0.1;0:0:0:0:0:0:0:1

#not implemented uri,splited by ';'

#if this valid values not null ,it must be a combination of '/help' '/domains' '/domain/'

#'/entity/' '/entities' '/nameserver/' '/nameservers' '/autnum/' '/ip/' and splited by ';' .

# else the valid values is null

notImplementedUri=

#custom property prefix, NIC name is recommended.

customPropertyPrefix=cnnic\_

## Bootstrap Configuration

$TOMCAT\_HOME/webapps/rdap/WEB-INF/classes/bootstrap.properties

This is used for bootstrap service in RDAP service. It will synchronize data from IANA periodically.

(Lines start with '#' are comments)

#IANA bootstrap registry base URL

bootstrapRegistryBaseUrl=

#bootstrap URI for domain

bootstrapRegistryUriForDomain=domain.jsp

#bootstrap URI for as

bootstrapRegistryUriForAs=as.jsp

#bootstrap URI for ipv4

bootstrapRegistryUriForIpv4=ipv4.jsp

#bootstrap URI for ipv6

bootstrapRegistryUriForIpv6=ipv6.jsp

#CronExpression

cron.bootstrap=0 0 0 1 1 ?

(for CronExpression, please refer [Quartz cron expression](http://quartz-scheduler.org/api/2.2.0/org/quartz/CronExpression.html))

# Query API



## Introduction

* Only support HTTP 'GET' method
* Media type must be 'application/rdap+json' or ‘application/json’, in 'Accept' header.
* URI and parameters must be encoded in UTF-8.
* Unknown parameters will be ignored.
* Support HTTP BASIC authentication. When using BASIC authentication, HTTPS must be used.
* Response is in JSON format. See 'Response Code' section for Response code.

Examples:

* Request without authentication:

Request URL: http://rdap.restfulwhois.org/entity/et-1

Request Method:GET

Accept:application/rdap+json

* Request with HTTP BASIC authentication:

Request URL: https://rdap.restfulwhois.org/entity/et-1

Request Method:GET

Accept:application/rdap+json

Authorization: BASIC $BASE64\_ENCODED\_USERNAME\_PASSWORD

($BASE64\_ENCODED\_USERNAME\_PASSWORD must be replaced by base64 encoded "username:password" string. Certificate for rdap.restfulwhois.org is [here](https://github.com/cnnic/rdap/raw/master/rdap-service/build/rdap.cer))

## Response Code

| **Response Code** | **Description** |
| --- | --- |
| 200 | Ok |
| 404 | Not found for query |
| 400 | Request URI is invalid, or parameter is invalid |
| 422 | Unsupported search string : more than one '\*' in queries, or a query starts with '\*', or a query is '\*' |
| 415 | Request with invalid media type: 'Accept' header is not 'application/rdap+json' |
| 401 | Unauthorized: authentication failed |
| 403 | Forbidden: the query object is forbidden for this client |
| 405 | Method Not Allowed. Only 'GET' method is allowed |
| 500 | Internal Server Error |
| 301 | Moved Permanently, client should request for the url by 'Location' in Response header |
| 429 | Too Many Requests, client should wait for a moment before query |
| 509 | Bandwidth Limit Exceeded: server is busy, client should try later |

## API

#### Query Entity

URI: /entity/<handle>

Example: http://rdap.restfulwhois.org/entity/et-1

[Click here](https://github.com/cnnic/rdap/wiki/The-response-of-the-entity-query) for the response body.

#### Query Nameserver

URI: /nameserver/<name server name>

Example: http://rdap.restfulwhois.org/nameserver/xn--1-dr6av31f.xn--0zwm56d.xn--fiqs8s

[Click here](https://github.com/cnnic/rdap/wiki/The-response-of-the-nameserver-query) for the response body.

#### Query Domain

URI: /domain/<domain name>

Example: http://rdap.restfulwhois.org/domain/cnnic.cn

[Click here](https://github.com/cnnic/rdap/wiki/The-response-of-the-domain-query) for the response body.

#### Query IP Network

URI: /ip/<IP address> or ip/<CIDR prefix>/<CIDR length>

Example:

http://rdap.restfulwhois.org/ip/218.0.0.3

http://rdap.restfulwhois.org/ip/218.241.0.0/30

[Click here](https://github.com/cnnic/rdap/wiki/The-response-of-the-IP-network-query) for the response body.

#### Query Autonomous System Number

URI: /autnum/<autonomous system number>

Example: http://rdap.restfulwhois.org/autnum/1

[Click here](https://github.com/cnnic/rdap/wiki/The-response-of-the-autnum-query) for the response body.

#### Query Help

URI: /help

Example: http://rdap.restfulwhois.org/help

[Click here](https://github.com/cnnic/rdap/wiki/The-response-of-the-help) for the response body.

#### Search Domain

URI:

/domains?name=<domain search pattern>

/domains?nsLdhName=<ns ldhName search pattern>

/domains?nsIp=<ns IP>

Example:

http://rdap.restfulwhois.org/domains?name=c\*

http://rdap.restfulwhois.org/domains?nsLdhName=ns1.host\*.cn

http://rdap.restfulwhois.org/domains?nsIp=218.241.111.96

[Click here](https://github.com/cnnic/rdap/wiki/The-response-of-the-domain-search) for the response body.

#### Search Name Server

URI: /nameservers?name=<nameserver search pattern>

URI: /nameservers?ip=<IP Network search pattern>

Example:

http://rdap.restfulwhois.org/nameservers?name=n\*cn

http://rdap.restfulwhois.org/nameservers?ip=218.241.111.96

[Click here](https://github.com/cnnic/rdap/wiki/The-response-of-the-nameserver-search) for the response body.

#### Search Entity

URI: /entities?fn=<entity name search pattern>

URI: /entities?handle=<entity handle search pattern>

Example:

http://rdap.restfulwhois.org/entities?fn=Jo\*n

http://rdap.restfulwhois.org/entities?handle=et\*

[Click here](https://github.com/cnnic/rdap/wiki/The-response-of-the-entity-search) for the response body.

# Update API

The RDAP data can be updated by update API.



## Introduction

* All Update API prefix: /u/
* Content type must be 'application/rdap+json' or 'application/json', in 'Content-Type' header.
* URI and parameters must be encoded in UTF-8.
* Unknown parameters will be ignored.
* Security consideration: Update API supports IP authentication. Only the IP in the white list is allowed to be requested.
* Request and Response body is in JSON format.
* About 'handle': only contains ASCII chars or “- \_”.
* Max length of columns: for 'handle' value is 100, all others are 255 if not specified in the following tables.

## Common Request Format

#### create

* HTTP METHOD: POST
* URI: /u/{objectType}  
  objectType: domain, nameserver, ip, autnum, entity
* CONTENT TYPE: 'application/rdap+json' or 'application/json'
* BODY: JSON formatted key-value parameters.

#### update

* HTTP METHOD: PUT
* URI: /u/{objectType}/{handle}  
  handle: object handle
* CONTENT TYPE: 'application/rdap+json' or 'application/json'
* BODY: the same with 'create'

#### delete

* HTTP METHOD: DELETE
* URI: /u/{objectType}/{handle}  
  handle: object handle

## Common Response Format

|  |  |  |  |
| --- | --- | --- | --- |
| **HTTP status code** | **Service code** | **Body** | **Description** |
| 200 |  | {"handle":"xxx"} | Success response |
| not 200 |  | {"handle":"domain-1",  "errorCode":400,  "subErrorCode":4002,  "description":["Property can’t be empty:ldhName"]} | Failure response |

## Response Code

|  |  |  |
| --- | --- | --- |
| **HTTP status code** | **Service code** | **Description** |
| 200 |  | Success response |
| 400 | 4001 | Request data is not valid JSON or has invalid date type |
| 400 | 4002 | Property can't be empty |
| 400 | 4003 | Property exceed max length |
| 400 | 4007 | Property must be valid date |
| 400 | 4008 | Property value is not valid |
| 400 | 4009 | Unrecognized request URI |
| 400 | 40010 | Property value must between [start,end] |
| 403 | 4031 | Forbidden |
| 404 | 4041 | Object not found with handle |
| 409 | 4091 | Object already exist for handle |
| 405 |  | Method not allowed |
| 415 |  | Unsupported media type |
| 500 |  | Internal server error |

## Request Body Parameter

Request body parameters are used for CREATE and UPDATE request.

#### Common Parameter

All update API can have these parameters:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Type** | **Length/Range** | **Not empty** | **Description** |
| handle | string | 1-100 | Y | Registry-unique identifiers of a referenced object. Should be ASCII and '-'/'\_'. |
| entities | array |  | N | Arrays of inner-entity object |
| status | array | 0-20 | N | Status array, each status length must be [0-20]. e.g: [“validated”,”redacted”] |
| remarks | array |  | N | Arrays of remark object |
| links | array |  | N | Arrays of link object |
| events | array |  | N | Arrays of event object |
| lang | string | 0-64 | N | Language Identifier, e.g: "en" |
| port43 | string | 0-4096 | N | Port 43 WHOIS Server |
| customProperties | object |  | N | e.g: {"customKey1":"value1","customKey2":"value2" } |

#### inner-object

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Type** | **Length/Range** | **Not empty** | **Description** |
| handle | string | 1-100 | Y | Object handle. Non-exist handle will be ignored. |

#### inner-entity

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Type** | **Length/Range** | **Not empty** | **Description** |
| handle | string | 1-100 | Y | Entity handle.  Non-exist handle will be ignored. |
| roles | array |  | N | e.g: [“registrant”, “administror”] |

#### remark or notice

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Not empty** | **Description** |
| title | string | N | Title of the object |
| description | array | N | Each description length must be [0-2048] |
| links | array | N | Arrays of link object |

#### link

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Not empty** | **Description** |
| value | string | N | [0-2048]. e.g: "<http://example.com/context_uri>" |
| rel | string | N | e.g: "self" |
| href | string | N | e.g: "<http://example.com/target_uri>" |
| hreflang | array | N | e.g: [ "en", "ch" ] |
| title | string | N | <http://tools.ietf.org/html/rfc5988#section-5> |
| media | string | N | e.g: "screen" |
| type | string | N | e.g: "application/json" |

#### publicId

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Not empty** | **Description** |
| type | string | N | A string denoting the type of public identifier |
| identifier | string | N | A public identifier of the type denoted by 'type' |

#### event

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Not empty** | **Description** |
| eventAction | string | Y | A string denoting the reason for the event |
| eventActor | string | N | Denoting the actor responsible for the event |
| eventDate | string | Y | UTC date time. Format example: 2015-01-01T01:01:01Z |
| links | array | N | Arrays of link object |

### Domain

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Not empty** | **Description** |
| ldhName | string | Y | Puny name of domain. Can't contain last '.' of domain. Must be lowercased. |
| unicodeName | string | N | [0,1024]. Unicode name of domain. If is ASCII domain then it is the same with ldhName |
| variants | array | N | Array of variant object |
| nameservers | array | N | Arrays of inner-object object |
| secureDNS | object | N | secureDNS object |
| publicIds | array | N | Arrays of publicId, e.g: [{"type":"IANA Registrar ID", "identifier":"1"}] |
| type | string | N | "dnr" for DNR domain, or "arpa" for ARPA domain |
| networkHandle | string | N | Network handle for ARPA domain. This value will be ignored if network not exist. |

#### variant

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Not empty** | **Description** |
| relation | array | N | Array of relation string. e.g: [ "registered", "conjoined" ] |
| idnTable | string | N | The name of the IDN table of code points |
| variantNames | array | N | Array of variant name object |

#### variantName

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Not empty** | **Description** |
| ldhName | string | N | Variant's ldhName. Can't contain last '.' of domain. Must be lowercased. |
| unicodeName | string | N | Variant's Unicode Name |

#### secureDNS

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Not empty** | **Description** |
| zoneSigned | boolean | N | True if the zone has been signed, false otherwise. |
| delegationSigned | boolean | N | Boolean true if there are DS records in the parent, false otherwise. |
| maxSigLife | int | N | The signature life time in seconds will be used when creating the RRSIG DS record |
| dsData | array | N | Array of dsData object |
| keyData | array | N | Array of keyData object |

#### dsData

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Not empty** | **Description** |
| keyTag | int | Y | The key tag field of a DNS DS record as specified by RFC 4034 |
| algorithm | int | Y | The algorithm field of a DNS DS record as described by RFC 4034 |
| digest | string | Y | [0-2048]. The digest field of a DNS DS record as specified by RFC 4034 |
| digestType | int | Y | The digest type field of a DNS DS record as specified by RFC 4034 |
| links | array | N | Arrays of link object |
| events | array | N | Arrays of event object |

#### keyData

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Not empty** | **Description** |
| flags | int | Y | The flags field value in the DNSKEY record as specified by RFC 4034 |
| protocol | int | Y | The protocol field value of the DNSKEY record as specified by RFC 4034 |
| publicKey | string | N | The public key in the DNSKEY record as specified by RFC 4034 |
| algorithm | int | Y | The algorithm field of a DNSKEY record as specified by RFC 4034 |
| links | array | N | Arrays of link object |
| events | array | N | Arrays of event object |

### Nameserver

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Not empty** | **Description** |
| ldhName | string | Y | Puny name of nameserver. Can't contain last '.' of domain. Must be lowercased. |
| unicodeName | string | N | [0,1024]. If is ASCII nameserver then it is the same with ldhName |
| ipAddresses | object | N | ipAddresses object |

#### ipAddresses

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Not empty** | **Description** |
| ipList | array | N | Arrays of IP. IP can be v4 or v6. e.g: [“218.1.1.1”, “2001:db8::”] |

### Entity

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Type** | **Length/Range** | **Not empty** | **Description** |
| fn | string |  | Y | Entity name |
| kind | string |  | N | <http://tools.ietf.org/html/rfc6350#section-6.1.4> |
| email | string |  | N | Email |
| title | string |  | N | <http://tools.ietf.org/html/rfc6350#section-6.6.1> |
| org | string |  | N | org |
| url | string | 0-4096 | N | <http://tools.ietf.org/html/rfc6350#section-6.7.8> |
| addresses | array |  | N | Array of address object |
| telephones | array |  | N | Array of telephone telephones |
| publicIds | array |  | N | The same with domain |

#### address

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Not empty** | **Description** |
| pref | string | N | <http://tools.ietf.org/html/rfc6350#section-5.3> |
| types | string | N | Multiple type strings separated by ';'.<http://tools.ietf.org/html/rfc6350#section-5.6> |
| postbox | string | N | Postbox |
| extendedAddress | string | N | The extended address |
| streetAddress | string | N | Street address |
| locality | string | N | The locality. e.g: city |
| region | string | N | The region. e.g:state or province |
| postalcode | string | N | The postal code |
| country | string | N | The country name |

#### telephone

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Not empty** | **Description** |
| pref | string | N | <http://tools.ietf.org/html/rfc6350#section-5.3> |
| types | string | N | String of type for multiple <http://tools.ietf.org/html/rfc6350#section-5.6>, separated by';' |
| number | string | Y | telephone number |
| extNumber | string | N | extended number |

### Network

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Not empty** | **Description** |
| startAddress | string | Y | The starting number in the block of network |
| endAddress | string | Y | The ending number in the block of network |
| ipVersion | string | N | 'v4' or 'v6'. This value will not affect the real type for startAddress and endAddress. |
| name | string | N | An identifier assigned to the network registration by the registration holder |
| type | string | N | A string containing an RIR-specific classification of the network |
| country | string | N | A string containing the two-character country code of the network |
| parentHandle | string | N | Parent network of this network registration |
| cidr | string | Y | Formatted network used to generate self link for query. <http://tools.ietf.org/html/rfc4632>. e.g: 92.168.99.0/24 |

### As number

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Not empty** | **Description** |
| startAutnum | string | Y | The starting number in the block of autonomous system numbers |
| endAddress | string | Y | The ending number in the block of autonomous system numbers |
| name | string | N | An identifier assigned to the autnum registration by the registration holder |
| type | string | N | A string containing an RIR-specific classification of the autnum |
| country | string | N | A string containing the name of the 2 character country code of the autnum |

# Proxy43



## Introduction

* Only support jwhois client
* Response is JSON formatted

Usage:

whois [type] [parameter]

type: query type. Values are: ""(empty), nameserver, entity, as, domains, nameservers, entities.

parameter: query parameter.

## API

#### Query IP

whois {IP}

type: empty

parameter: IP address

examples:

whois 218.241.111.44

whois 218.241.111.44/8

whois 3000:0DB8:0000:0000:0000:0000:1428:0000/128

#### Query Domain

whois {domain name}

type: empty

parameter: domain name, not IP formatted

examples:

whois cnnic.cn

#### Search Domain by Domain Name

whois domains {domain name search pattern}

type: domains

parameter: domain name search pattern

examples:

whois domains cnnic\*.cn

#### Search Domain by Domain's Nameserver Name

whois domains nsLdhName={nameserver name search pattern}

type: domains

parameter: nameserver name search pattern

examples:

whois domains nsLdhName=ns.cnnic\*.cn

#### Search Domain by IP of a Domain's Nameserver

whois domains nsIp={IP}

type: domains

parameter: IP of domain's nameserver

examples:

whois domains nsIp=218.241.111.44

#### Query Nameserver

whois nameserver {nameserver name}

type: nameserver

parameter: nameserver name

examples:

whois nameserver ns.cnnic.cn

#### Search Nameserver by Name

whois nameservers {nameserver name search pattern}

type: nameservers

parameter: nameserver name search pattern

examples:

whois nameservers ns\*.cn

#### Search Nameserver by IP of a Nameserver

whois nameservers ip={IP of nameserver}

type: nameservers

parameter: IP of nameserver

examples:

whois nameservers ip=218.241.111.44

#### Query AS Number

whois as {as number}

type: as

parameter: as number

examples:

whois as 2345

#### Query Entity

whois entity {entity handle}

type: entity

parameter: entity handle

examples:

whois entity handle\_of\_an\_entity

#### Search Entity by Entity Name

whois entities fn={entity name search pattern}

type: entities

parameter: entity name search pattern

examples:

whois entities fn=John\*

#### Search Entity by Entity Handle

whois entities fn={entity handle search pattern}

type: entities

parameter: entity handle search pattern

examples:

whois entities handle=handle\_of\_John\*

# Customization and Development



## Use Registry’s Database

Registry can modify code to use its own database and schema, instead of updating date from API periodically.

Steps:

1. If database is not MYSQL, you should change database driver:
   * Modify pom.xml, remove mysql dependency. Then add your database dependency.
   * Modify [database configuration](https://github.com/cnnic/rdap/wiki/jdbc.properties)
2. Modify JAVA code of DAO implementation.

Modify all DAO implementation JAVA class, such as DomainQueryDaoImpl:

* + Change DAO implementation according to your own database schema.
  + If you need more properties than default, you can [add your custom properties](https://github.com/cnnic/rdap/wiki/add-custom-properties-values) .

## Function Customization

RDAP server supports all 6 query functions and 3 search functions defined in draft-ietf-weirds-rdap-query-15.

* IP network query
* autonomous system number query
* domain query
* nameserver query
* entity query
* help query
* domain search
* nameserver search
* entity search

You can disable some of these functions by adding the function URI to ‘notImplementedUri’ property in [rdap.properties](https://github.com/cnnic/rdap/wiki/rdap.properties).

## Validator Customization

Query/search parameter are validated before query.

You can modify validation logic by add/remove/modify validators.

All validators extend from [Validator.java](https://github.com/cnnic/rdap/tree/master/rdap-webapp/src/main/java/org/restfulwhois/rdap/core/common/validation), such as [DomainNameValidator](https://github.com/cnnic/rdap/blob/master/rdap-service/src/main/java/org/restfulwhois/rdap/core/domain/validator/DomainNameValidator.java).

## Enable/Disable Access Control

Access Control is done in AccessControlQueryFilter.  
You can enable/disable access control by configuring 'accessControlQueryFilter' in [queryFilter](https://github.com/cnnic/rdap/wiki/query%20filter).

## Enable/Disable Redirect

Redirect is done in \*RedirectQueryFilter.

You can enable/disable redirect by configuring these filters in [queryFilter](https://github.com/cnnic/rdap/wiki/query%20filter).

## Add Custom Features

You can add custom features by adding [queryFilter](https://github.com/cnnic/rdap/wiki/query%20filter).

## VCARD Extension

We use [Jcard](https://github.com/cnnic/rdap/blob/dev/rdap-service/src/main/java/org/restfulwhois/rdap/core/entity/model/jcard/Jcard.java) to convert VCARD to JSON.

Jcard convert property by property, using [JcardPropertyConverter](https://github.com/cnnic/rdap/blob/master/rdap-service/src/main/java/org/restfulwhois/rdap/core/entity/model/jcard/JcardPropertyConverter.java).  
If you need to show more vcard information, you can add your custom converter:

* Add your own implementation, extending JcardPropertyConverter.
* Register this class to Jcard by adding it to converters in Jcard.java.

# Other

Other information can be found in project wiki: https://github.com/cnnic/rdap/wiki.