



## Registration Data Access Protocol (RDAP)

Manual v1.4

### SIDN BV

#### Contact

T +31 (0)26 352  
5500  
support@sidn.nl  
www.sidn.nl

#### Offices

Meander 501  
6825 MD Arnhem  
The Netherlands

#### Mailing address

PO Box 5022  
6802 EA Arnhem  
The Netherlands

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## 1 Introduction

This document describes SIDN's support for the RDAP protocol.

RDAP was designed by based on the RFC's the Internet Engineering Task Force (*IETF*). RDAP returns data similar to that provided by the Whois service, but in a JSON-structured format.

With RDAP, you can look up the following object classes:

1. Domains
2. Name servers
3. Entities

RDAP is intended to address deficiencies in the Whois protocol [RFC3912] that have been identified over time, including:

Lack of standardised command structures

Lack of standardised output and error structures

Lack of support for internationalisation and localisation

Lack of support for user identification, authentication and access control

RDAP builds upon HTTP and the ["REST" \(REpresentational State Transfer\)](#) architectural style.

RDAP servers are web servers, and RDAP clients are web clients (including web browsers). RDAP responses are encoded in [JSON \(JavaScript Object Notation\)](#) and are machine-readable rather than human-readable.



## 2 How to use RDAP

If you are developing an RDAP client, configure it to send HTTP requests.

- The URL for RDAP for the .amsterdam domain is <https://rdap.nic.amsterdam/>
- The URL for RDAP for the .politie domain is <https://rdap.nic.politie/>
- The URL for RDAP for the .nl domain is <https://rdap.sidn.nl/>

| GET                            | Domain name                             | Name Server                                      | Entity (registrar)                 |
|--------------------------------|-----------------------------------------|--------------------------------------------------|------------------------------------|
| HTTP Method                    | GET HEAD                                | GET HEAD                                         | GET HEAD                           |
| HTTP Response                  | See <a href="#">data output</a>         | See <a href="#">data output</a>                  | See <a href="#">data output</a>    |
| (Responses are in JSON format) |                                         |                                                  |                                    |
| HTTP                           | <RDAP domain name>/domain/<domain name> | <RDAP domain name>/nameserver/<name server name> | <RDAP domain name>/entity/<handle> |

### 2.1 HTTP Error Codes

- 400: Occurs when we receive an invalid request (malformed path, unsupported object type, TLD, etc).
- 401: Occurs when we cannot authorise the interface for the TLD <TLD>
- 404: #domainname# is free
- 200: #domainname# is excluded from registration (in case of NNDN or withheld)
- 404: Name server <nameservername> does not exist
- 404: Entity <IANA id> does not exist

### 2.2 RDAP Clients

A number of client support RDAP for example:

- CentralNic maintains the `Net : : RDAP` library for the Perl programming language. This library is a full implementation of the complete RDAP specification. It can be installed from CPAN, and more information may be found at: <https://gitlab.centralnic.com/centralnic/perl-net-rdap>
- rdapper is a command-line program which uses `Net : : RDAP` to implement an interface similar to traditional Whois clients. It can also be downloaded from CPAN, but more information may be found here: <https://github.com/gbxyz/rdapper>

### 2.3 References

- [RFC 7480: HTTP Usage in the Registration Data Access Protocol \(RDAP\)](#)
- [RFC 7481: Security Services for the Registration Data Access Protocol \(RDAP\)](#)
- [RFC 9082: Registration Data Access Protocol \(RDAP\) Query Format](#)
- [RFC 9083 JSON Responses for Registration Data Access Protocol \(RDAP\)](#)
- [RFC 9224 Finding the Authoritative Registration Data Access Protocol \(RDAP\) Service](#)
- [RFC 8056: Extensible Provisioning Protocol \(EPP\) and Registration Data Access Protocol \(RDAP\) Status Mapping](#)



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## 2.4 Future of Port 43 Whois

Once RDAP has been deployed, ICANN no longer requires gTLD registries to provide a port-43 Whois service. However, in order to reduce disruption to users, SIDN will carry out a phased sunset plan to give users time to upgrade their systems to use RDAP. We will provide more information about our plans to phase out the port-43 service in due course.

## 2.5 Feedback and questions

If you have any feedback or questions, please e-mail [support@sidn.nl](mailto:support@sidn.nl).



### 3 Roles

#### RDAP role

#### Details

|                |                                                                                                                                                 |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| registrant     | The entity object instance is the registrant.                                                                                                   |
| technical      | The entity object instance is a technical contact for the registration.                                                                         |
| administrative | The entity object instance is an administrative contact for the registration.                                                                   |
| abuse          | The entity object instance handles network abuse issues on behalf of the registrant.                                                            |
| billing        | The entity object instance handles payment and billing issues on behalf of the registrant.                                                      |
| registrar      | The entity object instance represents the authority responsible for the registration.                                                           |
| reseller       | The entity object instance represents a third party through which the registration was conducted (i.e. neither the registry nor the registrar). |
| sponsor        | The entity object instance represents a domain policy sponsor, such as an ICANN-approved sponsor.                                               |
| proxy          | The entity object instance represents a proxy for another entity object, such as a registrant.                                                  |
| notifications  | An entity object instance designated to receive notifications about associated object instances.                                                |
| noc            | The entity object instance handles communications related to a network operations centre (NOC).                                                 |

### 4 Statutes

#### Status

#### Details

|                     |                                                                                                                                                                                                                  |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| validated           | Signifies that the data regarding the object instance has been found to be accurate. This type of status is usually assigned to entity object instances to note the validity of identifying contact information. |
| renew prohibited    | Renewal or reregistration of the object instance is forbidden.                                                                                                                                                   |
| update prohibited   | Updates to the object instance are forbidden.                                                                                                                                                                    |
| transfer prohibited | Transfers of the registration from one registrar to another are forbidden. This type of status normally applies to DNR domain names.                                                                             |
| delete prohibited   | Deletion of the registration of the object instance is forbidden. This type of status normally applies to DNR domain names.                                                                                      |
| proxy               | The registration of the object instance has been performed by a third party. This is most commonly applied to entities.                                                                                          |
| private             | The information regarding the object instance is not designated for public consumption. This is most commonly applied to entities.                                                                               |
| removed             | Some of the information regarding the object instance has not been made available and has been removed. This is most commonly applied to entities.                                                               |
| obscured            | Some of the information regarding the object instance has been altered to prevent immediate disclosure. This is most commonly applied to entities.                                                               |



|                  |                                                                                                                                                                                                                                                                                                                           |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| associated       | The object instance is associated with other object instances in the registry. This is most commonly used to signify that a name server is associated with a domain or that an entity is associated with a network resource or domain.                                                                                    |
| active           | The object instance is in use. For domain names, it signifies that the domain name is published in the DNS. For network and autnum registrations, it signifies that they are allocated or assigned for use in operational networks. This maps to the "OK" status of the Extensible Provisioning Protocol (EPP) [RFC5730]. |
| inactive         | The object instance is not in use. See "active".                                                                                                                                                                                                                                                                          |
| locked           | Changes to the object instance, including the association of other object instances, cannot be made.                                                                                                                                                                                                                      |
| pending create   | A request has been received for the creation of the object instance, but this action is not yet complete.                                                                                                                                                                                                                 |
| pending renew    | A request has been received for the renewal of the object instance, but this action is not yet complete.                                                                                                                                                                                                                  |
| pending transfer | A request has been received for the transfer of the object instance, but this action is not yet complete.                                                                                                                                                                                                                 |
| pending update   | A request has been received for the update or modification of the object instance, but this action is not yet complete.                                                                                                                                                                                                   |
| pending delete   | A request has been received for the deletion or removal of the object instance, but this action is not yet complete. For domains, this might mean that the name is no longer published in the DNS, but has not yet been purged from the registry database.                                                                |

## 5 Data output

The output is in three parts, which can be requested separately:

- Domain name
- Registrar
- Name server

### 5.1 Domain name

Fields and responses for 'domain name'.

| Field                           | RDAP response element             |
|---------------------------------|-----------------------------------|
| Domain name                     | ldhName                           |
| Registry Domain ID              | handle                            |
| Registrar WHOIS Server (port43) |                                   |
| Updated Date                    | events.eventAction "last changed" |
| Creation Date                   | events.eventAction "Registration" |
| Registry Expiry Data            | events.eventAction "expiration"   |
| Domain status                   | status object                     |
| Name server                     | nameservers.ldhname               |
| DNSSEC                          | secureDNS object                  |



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|                                        |                                                   |
|----------------------------------------|---------------------------------------------------|
| Internationalized Domain Name          | unicodeName                                       |
| IP Address                             | nameserver.ipAddresses                            |
| Last update of RDS Database            | Events.eventAction "last update of RDAP database" |
| (sponsoring) Registrar                 | Entities.roles.registrar                          |
| (sponsoring) Registrar IANA ID         | publicIDs.identifier                              |
| Registrar Registration Expiration Date | events.eventAction "registrar expiration"         |
| Reseller                               | Entities.roles reseller                           |
| Registrar Abuse Contact Email          | Entities.role abuse email                         |
| Registrar Abuse Contact Phone          | Entities.role abuse phone                         |
| Registry Registrant ID                 | Entity.handle                                     |
| Registrant Name                        | jCard "fn"                                        |
| Registrant Organization                | Org                                               |
| Registrant Street                      | Grouped into adr member                           |
| Registrant City                        |                                                   |
| Registrant State/Province              |                                                   |
| Registrant Postal Code                 |                                                   |
| Registrant Country                     |                                                   |
| Registrant Phone                       | Tel type parameter voice                          |
| Registrant Phone Ext                   | Ext                                               |
| Registrant Fax                         | Tel type parameter fax                            |
| Registrant Fax Ext                     | Ext                                               |
| Registrant Email                       | Email                                             |
| Registry Admin ID                      | Entity.handle                                     |
| Admin Name                             | jCard "fn"                                        |
| Admin Organization                     | Org                                               |
| Admin Street                           | Grouped into adr member                           |
| Admin State/Province                   |                                                   |
| Admin City                             |                                                   |
| Admin Postal Code                      |                                                   |
| Admin Country                          |                                                   |
| Admin Phone                            | Tel type parameter voice                          |
| Admin Phone Ext                        | Ext                                               |
| Admin Fax                              | Tel type parameter Fax                            |
| Admin Fax Ext                          | Ext                                               |
| Admin Email                            | Email                                             |
| Registry Tech ID                       | entity.handle                                     |
| Tech Name                              | jCard "fn"                                        |
| Tech Organization                      | Org                                               |
| Tech City                              | Grouped into adr member                           |
| Tech street                            |                                                   |
| Tech State/Province                    |                                                   |
| Tech Postal Code                       |                                                   |
| Tech Country                           |                                                   |
| Tech Phone                             | Tel type parameter voice                          |
| Tech Phone Ext                         | Ext                                               |



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|              |                        |
|--------------|------------------------|
| Tech Fax     | Tel type parameter Fax |
| Tech Fax Ext | Ext                    |
| Tech Email   | Email                  |

## 5.2 Registrar

### Field

Registrar

Registrar IANA ID

Street

City

State/Province

Country

Phone Number

Phone Number Ext

Fax Number

Fax Number Ext

Email

Registrar URL

Admin Contact

Phone Number

Phone Number Ext

Fax Number

Fax Number Ext

Email

Technical Contact

Phone Number

Phone Number Ext

Fax Number

Fax Number Ext

Email

Last update of RDS Database

### RDAP response element

jCard fn

entities.publicIDs.identifier

Grouped into the adr member

Tel with a type parameter voice

Tel with a type parameter fax

email

Referral URL

jCard fn

Tel with a type parameter voice

Tel with a type parameter fax

email

jCard fn

Tel with a type parameter voice

Tel with a type parameter fax

email

Events.eventAction "last update of RDAP database"

## 5.3 Name server

### Field

Server name

IP Address

Registrar

Registrar IANA ID

Referral URL

Last update of RDS Database

### RDAP response element

ldhName

ipAddresses

jcard fn

entities.publicIDs.identifier

Events.eventAction "last update of RDAP database"



## 5.4 DNSSEC

DelegationSigned means that at least one DNSkey is associated with the domain name.

| DelegationSigned? | DNSSEC status | Example                                  |
|-------------------|---------------|------------------------------------------|
| Yes               | 'true'        | "secureDNS": {"delegationSigned": true}  |
| No                | 'false'       | "secureDNS": {"delegationSigned": false} |

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