Domain Name Basics
Registration Data Access Protocol

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What is RDAP?

Registration Data Access Protocol (RDAP) is a **protocol** standardized by the Internet Engineering Task Force (IETF) in 2015. It is a **successor** to the **WHOIS** protocol to **look up** relevant **registration data** from such Internet resources as **domain** names, **IP** addresses, and **autonomous system** numbers.

Since 2019 it is obligated to run an RDAP service for all Internet Corporation for Assigned Names and Numbers (ICANN) accredited Registrars and Registry Operators.

History of RDAP #1

2010

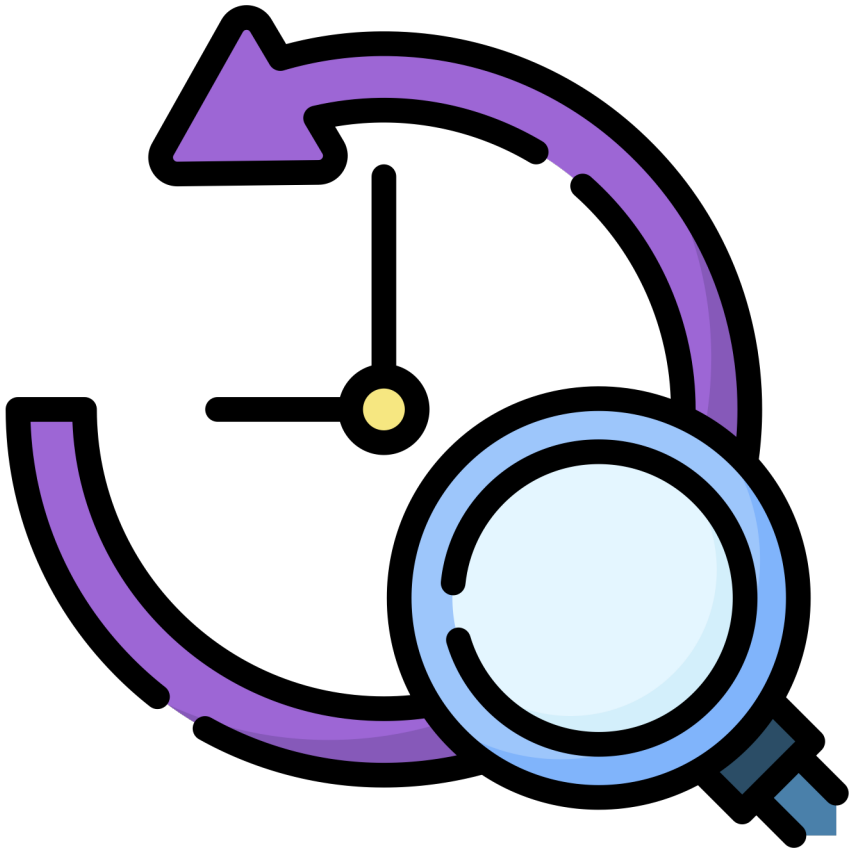
- The **ICANN** community holds discussions about the need for technical **evolution** of the **WHOIS** service

2011

- The Security and Stability Advisory Committee (**SSAC**) **advises** the ICANN community to evaluate and adopt a **replacement** for the existing domain name registration data access protocol (WHOIS).

2012

- The Web Extensible Internet Registration Data Service (**WEIRDS**) working group within the **IETF begins** developing the Registration Data Access Protocol.



History of RDAP #2

2015

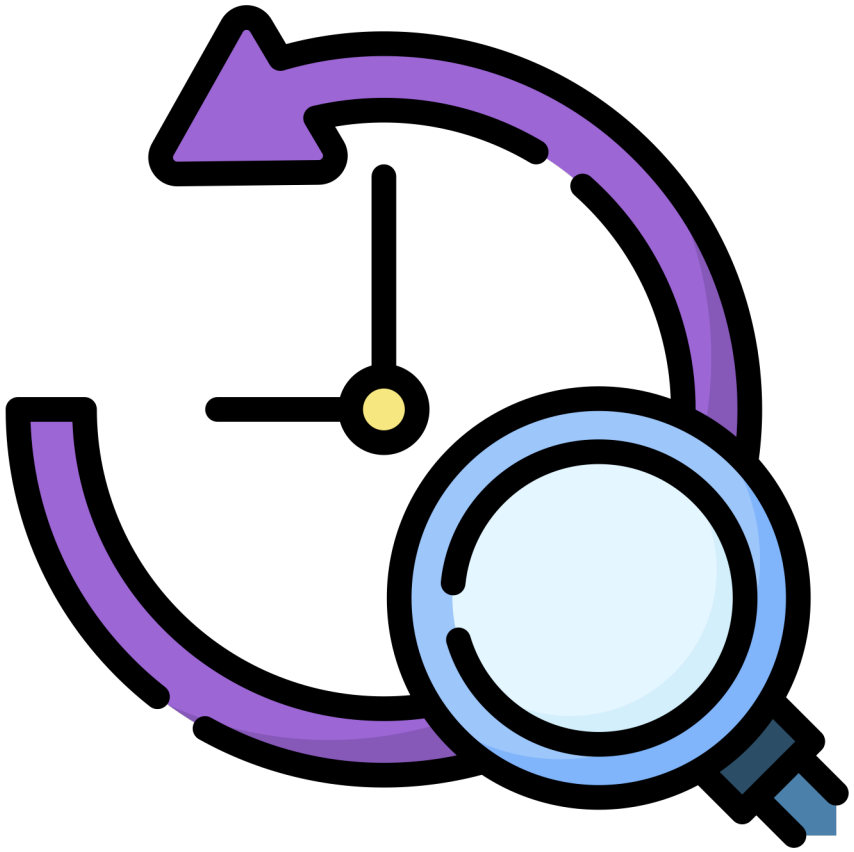
- The WEIRDS working group **finalizes** five **RFCs** on RDAP
- **ICANN** begins consulting the Internet community on a draft version of the RDAP gTLD **Profile**

2016

- ICANN publishes version 1.0 of an RDAP gTLD profile

2017

- The Registry Stakeholder Group, with support from the Registrar Stakeholder Group, submits a proposal to **initiate** an **RDAP pilot,** which will conclude on 31 July 2018.



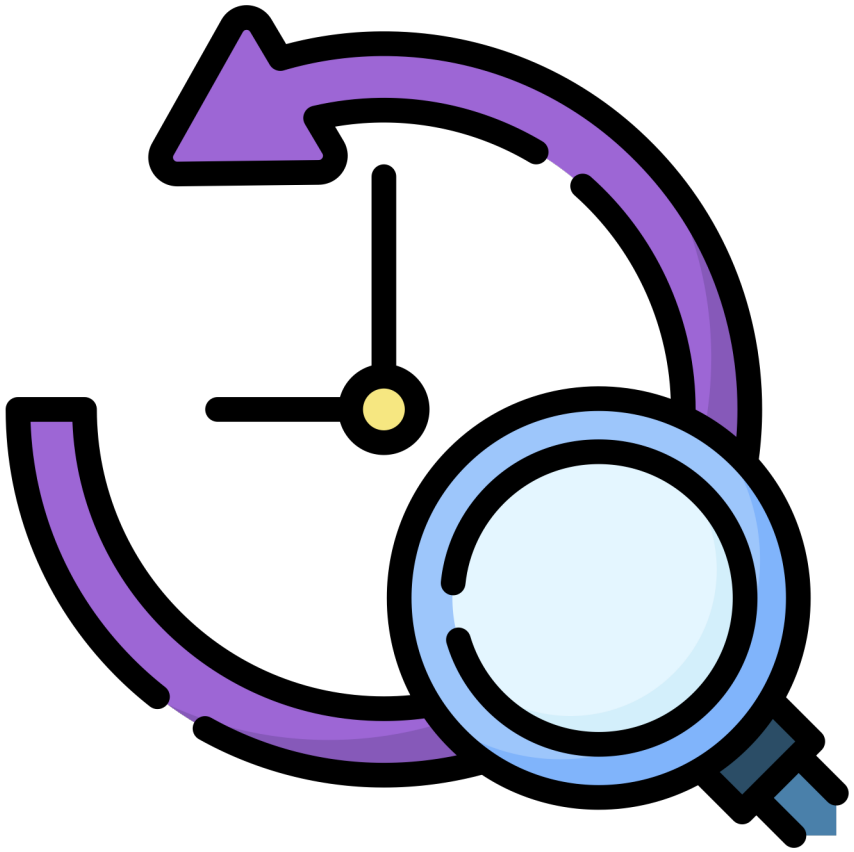
History of RDAP #3

2019

- ICANN notified all accredited registries and registrars of the requirement to implement an RDAP service by August 2019.

2020

- Recent studies show that the uptake of RDAP is still behind expectations, but this might be because that ICANN has not sunset WHOIS yet.

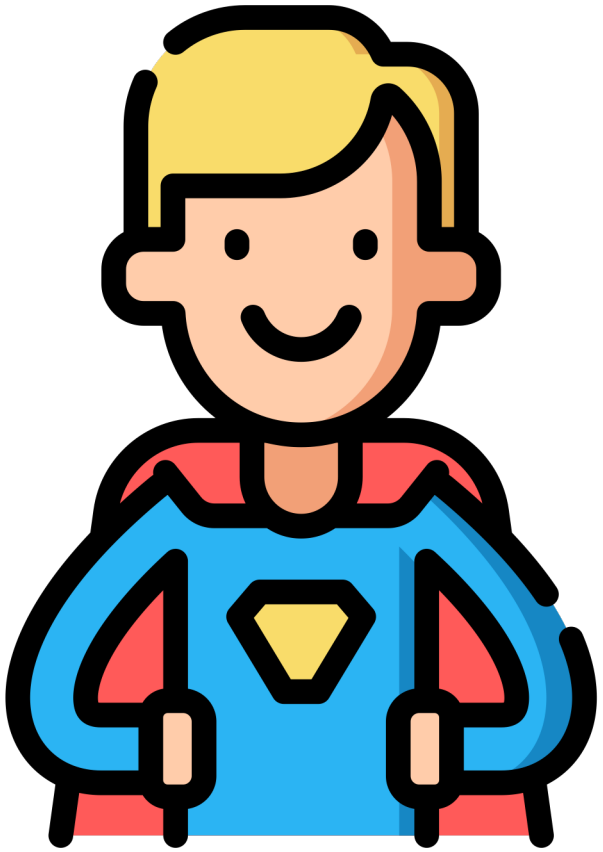


RDAP as a savior?

There have always been **privacy concerns** with **WHOIS** because Registrar and Registry Operators are contractually bound by ICANN to provide this service. At the same time, data was published without any additional layer of authentication.

Due to the European Union (EU) General Data Protection Regulation (**GDPR**), which came into force on **25 May 2018**, the public output of WHOIS data was severely **restricted**.

However, some stakeholders demand access to the registration data; therefore, **RDAP** is picking up speed because **layered access** is one of the key features of RDAP.

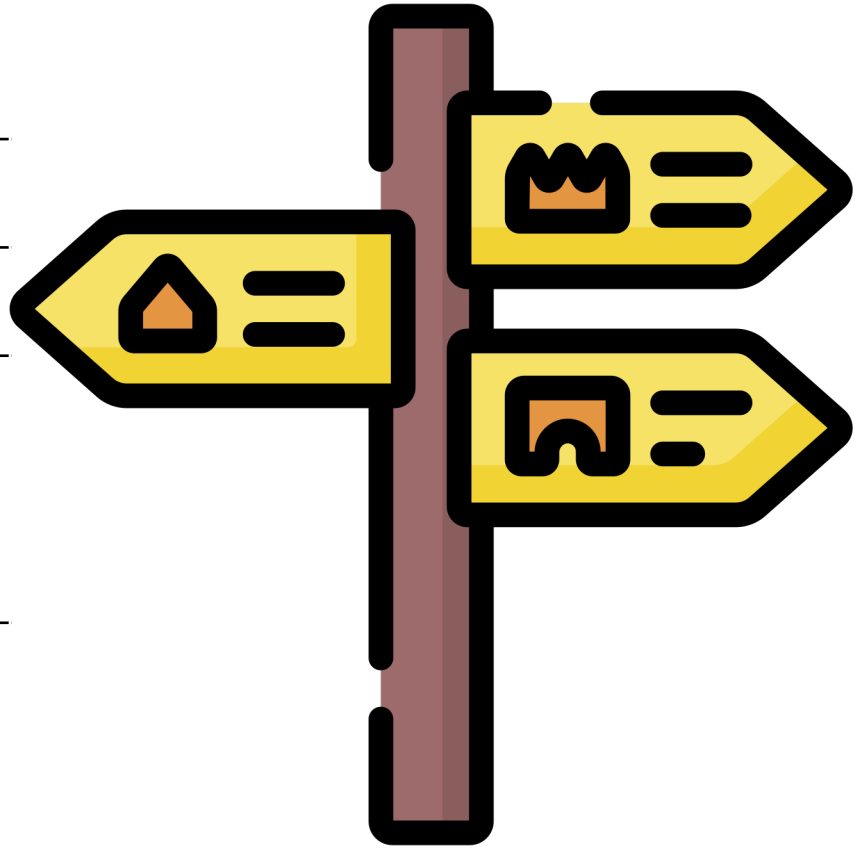


Advantages of RDAP

- **Standardized** query, response and error messages
- **Secure access** to data (i.e., over HTTPS)
- Extensibility (e.g., makes it easy to add output elements)
- A **bootstrapping** mechanism that makes it easy to find the authoritative server for a given query
- **Redirection**/reference mechanism (e.g., from a thin registry to a registrar)
- Builds on top of the well-known web protocol **HTTP**
- **Internationalization** support for registration data
- Provides the option to enable **differentiated access** (e.g., limited
  access for anonymous users and full access for authenticated users)

Comparing WHOIS and RDAP

WHOIS	RDAP
Textual	HTTP-based
No coding schemes	Standardized JSON format
Output data is in plain text and therefore cannot easily be processed by machine	Output data is machine-readable and easy to translate
Answers do not contain any further register information	Answers are automatically forwarded to other registries / registrars
Differentiated access to data is not possible	Ability to define access rights for different groups



RDAP Example Output


```
{
  "rdapConformance":[
    "rdap_level_0",
    "rdap_objectTag_level_0",
    "rdap_openidc_level_0"
  ],
  "handle":"1872082327-VRSN",
  "secureDNS":{
    "dsData":[
      {
        "keyTag":53659,
        "digestType":4,
        "digest":"A8AAE081188E628D615887A9E3749B0825BD492DBEA1D5F394AD760B57C7908F12A433DDCB7BF4BB944DB443EB47F900",
        "algorithm":8
      },
      {
        "keyTag":53659,
        "digestType":1,
        "digest":"31D7C01E2D2C5CD7ECC55A3328CC9F4E2F5448CD",
        "algorithm":8
      },
      {
        "keyTag":53659,
        "digestType":2,
        "digest":"9111A6BAD1FAC39363BDBDC86714C18D40DA268A0AA7662248268BD6B0C3CE79",
        "algorithm":8
      }
    ],
    "delegationSigned":true
  },
  "objectClassName":"domain",
```


Source: https://rdap-pilot.verisignlabs.com/rdap/v1/domain/tobiassattler.com - Effective 07/2018

Future of RDAP

Since August 2019, running an RDAP service is an obligation for ICANN accredited registrars and registries.

At the same time, the EU GDPR restricts the output.

There is an ICANN **policy developing** process going on whether or how data can be present to the public and make a **legitimate request** to get more detailed information.

Thank you!

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