Staff Report of Public Comment Proceeding

Section I: General Overview and Next Steps

The public comment proceeding sought to obtain community input on the Registration Data Access Protocol (RDAP) Operational Profile for gTLD Registries and Registrars, which covers the features within the RDAP protocol that are mandatory, the basic parameters, the mandatory set of objects to be implemented, and other allowed optional objects.

ICANN developed the Registration Data Access Protocol (RDAP) Operational Profile in order to define the features within the RDAP protocol that are mandatory, the basic parameters, the mandatory set of objects to be implemented, and other allowed optional objects.

ICANN plans to publish a new version of the Registration Data Access Protocol (RDAP) Operational Profile, in order to address the comments received from the community.

Section II: Contributors

At the time this report was prepared, a total of twenty (18) community submissions had been posted to the forum. The contributors, both individuals and organizations/groups, are listed below in chronological order by posting date with initials noted. To the extent that quotations are used in the foregoing narrative (Section III), such citations will reference the contributor's initials.

Organizations and Groups:

Name	Submitted by	Initials
Dyn	Adam Coughlin	Dyn
Internet Architecture Board	Andrew Sullivan	IAB
At-Large Advisory Committee	ICANN Supporting Staff	ALAC
Association française pour le nommage Internet en coopération	Régis MASSÉ	AFNIC
united-domains AG	Tobias Sattler	united-domains
Japan Registry Services	Kentaro Mori	JPRS
Intellectual Property Constituency	Steve Metalitz	IPC
Blacknight Solutions	Michele Neylon	Blacknight
Neustar	Donna Austin	Neustar
Registry Stakeholder Group	Stephane Van Gelder	RySG
Google	Stephanie Duchesneau (16 Feb.)	Google
Web.com	Jennifer Gore Standiford	Web.com
DiaMatrix CC	Wayne Diamond	DiaMatrix
Realtime Register B.V.	Theo Geurts	Realtime
Key-Systems GmbH	Volker Greimann	Key Systems
Minds + Machines	Reg Levy	M+M
Tucows	Graeme Bunton	Tucows
Registrar Stakeholder Group	John Berryhill	RrSG
Endurance International Group Inc.	Darcy Southwell	Endurance
Business Constituency	Steve DelBianco	BC

Section III: Summary of Comments

General Disclaimer: *This section intends to summarize broadly and comprehensively the comments submitted to this public comment proceeding but does not address every specific position stated by each contributor. The preparer recommends that readers interested in specific aspects of any of the summarized comments, or the full context of others, refer directly to the specific contributions at the link referenced above (View Comments Submitted).*

1) **Mixture of A-labels and U-labels in RDAP lookups**

   Input received from the RySG and Neustar indicates that there is a perceived inconsistency between the requirements of the gTLD Profile and RFC 7482 regarding the mixture of A-labels and U-labels in RDAP lookup queries.

2) **The RDAP profile should be defined in the IETF**

   The RySG and Neustar suggested that the IETF might be a better forum to develop the gTLD RDAP profile.

3) **Use of a TLS certificate, signed by a CA trusted by the major browsers, should not be required**

   Neustar suggested that using a TLS certificate signed by a Certificate Authority supported by browsers should not be a requirement.

4) **Sample RDAP outputs in the gTLD profile**

   JPRS suggested adding outputs for each profile item in JSON format to the gTLD RDAP profile.

5) **Several technical and editorial comments from JPRS**

   The following technical and editorial comments were received from JPRS:
   - Typo in the numbering of the new fields in the Registry Functions Activity Report.
   - TLSA support is not a requirement for clients, but a requirement for servers.
   - Clarification on which RDDS fields have the requirement to preserve case.
   - Clarification on what to show when the contact ROID is not available to ICANN considers
   - Requirement-level words for the "last changed" event.
   - Information on how to register the base URL of the RDAP service is missing.
   - Section 1.4.14 might refer to data, which is never retrieved by users (for example, data for system administration).
   - Adding two new columns to the table "Data Elements Mappings" in Appendix B: related section and the mandatory level (MUST, SHOULD, MAY, etc).

6) **Mature specifications**

JPRS suggested that if there are different potential solutions for the open issues in Appendix A, a solution to be implemented should not be included in the profile. The RySG expressed concerns about the additional protocol specifications needed as described in Appendix A depending on the IETF's standards development process. The IPC questions if the "open issues" in Appendix A should be resolved before the final version of the RDAP profile.

7) **Updates to Registry Functions Activity Report**

The RySG suggested that updates to the Registry Functions Activity Report should be negotiated with the registries, and not be part of an operational profile.

8) **RSEP requests for extensions that are RFC standards**

The RySG suggested that RDAP extensions defined as RFC standards may be applicable to all gTLDs, and requiring each gTLD to submit an RSEP for authorization to implement such standard may not be commercially viable.

9) **Portions of sections 1.4.1 and 1.5.4 are inapplicable to registrars**

The RrSG commented that portions of section 1.4.1 and 1.5.4 are not applicable to Registrars, because they refer to nameserver objects.

10) **RDAP implementation by Registrars**

Some community members, including united-domains, JPRS, Blacknight, Google, Web.com, DiaMatrix, Key Systems, Tucows and Endurance, noted that RDAP should not be required to be supported by Registrars, because all gTLDs will be "thick". Additionally, the RrSG suggests that RDAP should not be required for names that currently are not required to be supported under (port-43) WHOIS.

11) **Require the adoption of RDAP after policy development is completed**

The RySG and Neustar suggested that RDAP should not be required if there is Whois policy in development. Dyn, Key Systems and the RrSG noted that a requirement to implement RDAP by Registrars should wait for the conclusion of the Registration Directory Services Policy Development Process.

12) **Require the implementation of differentiated access functionality even if policy development has not completed**

Some community members, including Dyn, the IAB, the ALAC, and the BC suggested to require all Registries to implement differentiated access in the gTLD profile, even if they are not required to offer differentiated access in their agreements.

13) Experimental RDAP pilots

The RySG and Google suggested that Registries should be allowed to deploy experimental RDAP pilots in order to test functionality not required in the gTLD profile, for example, differentiated access.

14) Confusing wording of section 1.2

The IPC finds the wording of section 1.2 confusing, and argues that labeling fields such as postal code and organization as OPTIONAL is different from the requirements in the registry agreement.

15) Strategic plan for all existing Whois-related activities

Some community members suggested that all Whois-related activities should be integrated into an implementation plan in order to have a comprehensive, phased, and synchronized approach to implementing the Whois related initiatives.

16) Thick Whois efforts should not be impacted by the deployment of RDAP

The IPC and the BC noted that the deployment of RDAP should not impact the timeline for having the "thick" Whois model implemented in the remaining "thin" registries.

Section IV: Analysis of Comments

General Disclaimer: *This section intends to provide an analysis and evaluation of the comments submitted along with explanations regarding the basis for any recommendations provided within the analysis.*

1) **Mixture of A-labels and U-labels in RDAP lookups**

   Input received, in the public comment period, indicates that there is a perceived inconsistency between the requirements of the gTLD Profile and RFC 7482 regarding the mixture of A-labels and U-labels in RDAP lookup queries.

   The text referenced from RFC 7482 appears to be related to RDAP clients, and RFC 7482 describes a scenario in which a client could send a lookup mixing A-labels and U-labels to the server.

   For servers there is a "MAY" later on: "An RDAP server that receives a query string with a mixture of A-labels and U-labels MAY convert all the U-labels to A-labels …", which allows the profile's tighter requirement for a given implementation.

   ICANN will update section 1.4.1 as follows: The RDAP server MUST support Internationalized Domain Name (IDN) RDAP lookup queries using A-label or U-label format [RFC5890] for domain names, and in the case of Registries, also for name server objects. An RDAP server that receives a query string with a mixture of A-labels and U-labels MUST convert all the U-labels to A-labels, perform IDNA processing, and proceed with exact-match lookup. ~~The RDAP server MUST accept a mixture of the two (i.e. A-label and U-label format) in the same RDAP lookup query.~~

2) **The RDAP profile should be defined in the IETF**

   The RDAP profile is a document that applies to gTLDs, and maps ICANN policy, requirements from the Registry Agreement and the Registrar Accreditation Agreement with the technical requirements of RDAP. Stakeholders from the different communities, and specialties (e.g. policy and technical specialists) participate in the ICANN forum; therefore this forum should capture the comments from the diverse community.

3) **Use of a TLS certificate, signed by a CA trusted by the major browsers, should not be required**

   Neustar suggested that using a TLS certificate signed by a Certificate Authority, supported by browsers, should not be a requirement. RDAP clients should support DANE, and only DANE should be required.

   ICANN acknowledges the concerns expressed in Neustar's comments, however notes that DANE is still not supported in the major browsers, which could potentially be used as a platform to consume Registration Data information using RDAP. ICANN encourages RDAP

clients to support DANE, and ICANN could review the implementation status of DANE in the major browsers in the future, in order to update this requirement once the implementation of DANE is ubiquitous in the major browsers.

4) **Sample RDAP outputs in the gTLD profile**

JPRS suggested adding outputs for each profile item in JSON format to the gTLD RDAP profile.

ICANN plans to develop a conformance suite for the gTLD RDAP profile, and make it available to the community.

5) **Several technical and editorial comments from JPRS**

- JPRS found a typo in the numbering of the new fields in the Registry Functions Activity Report.

  ICANN will fix the typo in section 2.6.1.

- JPRS suggested clarifying that TLSA support is not a requirement for clients, but a requirement for servers.

  ICANN intends to address this issue by updating this section 1.3.3 as follows: *A client must~~MUST~~ be able to successfully validate the TLS certificate used for the RDAP service with a TLSA record ~~(published by the Registry)~~ from the DNS (RFC 6698 and RFC 7671) published by the RDAP service provider. The Certificate Usage field of the TLSA record MUST have a value of 1 or 3.*

- JPRS suggested clarifying which RDDS fields have the requirement to preserve case.

  In order to accommodate new RDDS fields and future RDAP extensions, ICANN will update section 1.4.3 the RDAP profile to change this requirement from MUST to SHOULD.

- JPRS requested clarification on what to show when the contact ROID is not available to registrars (e.g., thin registries) since the profile seems to change what the Whois Clarification advisory says.

  ICANN considers that it is better to show the id from the Registrar, in order to provide a unique identifier to the Whois user that could be used to reference the object. There is no plan to update the profile in this regard.

- JPRS suggested adding requirement-level words for the "last changed" event.

  ICANN intends to update section 3.1.5 as follows: *The eventAction type last changed MUST reflect~~s~~ the date and time of the latest successful update known to the Registrar. Registrars are not required to constantly refresh this date from the Registry.*

- JPRS suggested that information on how to register the base URL of the RDAP service is missing.

  The Bootstrap Service Registry for Domain Name Space can be updated using the IANA Root Zone Management system.

  ICANN plans to update section 2.7.1 as follows: The base URL of RDAP services MUST be registered in the IANA's Bootstrap Service registry for Domain Name Space (https://www.iana.org/assignments/rdap-dns/rdap-dns.xhtml), as described in RFC7484, through the IANA Root Zone Management. A separate entry is required for each TLD.

- JPRS suggested that section 1.4.14 might refer to data, which is never retrieved by users (for example, data for system administration).

  The language in section 1.4.14 refers to registration data (e.g. contact information), and not to data related to the management of the system itself.

  Proposed clarifying update in section 1.4.14: *The RDAP database (i.e. separate database used to generate the RDAP responses) MUST only include registration data (e.g. contact fields)from synchronized from the Registry or Registrar database, as the case may be. The RDAP database must be updated within the allowed Service Level Requirement (SLR) (e.g. RDDS update time, ≤60 minutes). In a case where the contracted party is querying its database directly, and therefore, using real-time data, the eventAction type "last update of RDAP database" MUST show the timestamp of the response to the query.*

- JPRS suggested adding two new columns to the table "Data Elements Mappings" in Appendix B: related section and the mandatory level (MUST, SHOULD, MAY, etc).

  ICANN plans to update Appendix B to add a column indicating the related section, however adding a column with the requirement level will be duplicating information, and therefore, only the suggested column indicating the related section will be added to the final profile.

6) **Mature specifications**

JPRS suggested that if there are different potential solutions for the open issues in Appendix A, a solution to be implemented should not be included in the profile. The RySG expressed concerns about the additional protocol specifications needed as described in Appendix A depending on the IETF's standards development process. The IPC questions if the "open issues" in Appendix A should be resolved before the final version of the RDAP profile.

Appendix A of the gTLD profile describes four issues to be solved:

1. Status Codes for Domains

The current Whois requirements (see, Additional Whois Information Policy, https://www.icann.org/resources/pages/policy-awip-2014-07-02-en) require the use the EPP domain statuses codes in responses.

This issue is discussed in the IETF document "Extensible Provisioning Protocol (EPP) and Registration Data Access Protocol (RDAP) Status Mapping" (https://tools.ietf.org/html/draft-gould-epp-rdap-status-mapping). This Internet Draft suggests new RDAP status codes to cover the EPP domain statuses that cannot be mapped to the currently defined RDAP statuses.

2. Last update of RDAP database
   The base RDAP specification does not define an element to specify the last date and time that the RDDS database used by the RDAP service was updated from the SRS. This element is required to map the "Last update of WHOIS database" RDDS field.

3. Multiple host objects for the same name server name
   Items 29, 30, 32 of the RDDS Clarification Advisory (https://www.icann.org/resources/pages/registry-agreement-raa-rdds-2015-04-27-en) cover the case of the existence of multiple host objects for the same name server name. This requirement is not supported by the RDAP specification.

4. Registrar expiration date
   RDAP does not include an event to specify the registrar registration expiration date as described in the RAA 2013.

Internet Drafts proposing solutions for issue 1 and 3 have been published. Issues 2 and 4 have been solved by the addition of the required events to the RDAP JSON Values Registry.

ICANN will work with the REGEXT WG of the IETF, and the author of draft-gould-epp-rdap-status-mapping in order to move this document through the IETF process.

The gTLD profile specifies that issue 3 should be implemented once an RFC has been published, and a few Registries appear to support name sharing between the external hosts.

7) Updates to Registry Functions Activity Report

The RySG suggested that updates to the Registry Functions Activity Report should be negotiated with the registries, and not be part of an operational profile.

ICANN notes that (port-43) WHOIS will be phased out over time, and the extra RDAP fields in the Registry Functions Activity Report are analogous to the fields already required for WHOIS.

The updates to the Registry Functions Activity Report will provide the community with the necessary information to understand the technical operational aspects of the RDAP service,

and help make a decision regarding when (port-43) WHOIS should be phased out. Additionally, this information is necessary for the ICANN EBERO providers, in order to understand the load of the RDAP service, once RDAP is included as a supported service in the EBERO program. The objective of the RDAP Operational Profile is to aggregate all the requirements regarding RDAP; therefore it appears to be the appropriate place to define such requirements.

8) RSEP requests for extensions that are RFC standards

The RySG suggested that RDAP extensions defined as RFC standards may be applicable to all gTLDs, and requiring each gTLD to submit an RSEP for authorization to implement such standard may not be commercially viable.

The gTLD profile lists the RFCs that Registries need to comply regarding RDAP implementation. Registries shall comply with the provisions in the Registry Agreement when implementing future RDAP standards published by the IETF.

In addition, ICANN plans to update section 1.3.6: RDAP extensions, if used, MUST be registered in the IANA's RDAP Extensions registry (https://www.iana.org/assignments/rdapextensions/rdap-extensions.xhtml), as defined in RFC7480. Additional RDDS fields are subject to approval by ICANN, as described in section 1.4 of Specification 4 of the Registry Agreement. ~~Deployment of RDAP extensions in gTLD Registries operated under agreement with ICANN, are subject to approval by ICANN via the RSEP process.~~

9) Portions of sections 1.4.1 and 1.5.4 are inapplicable to registrars

The RrSG commented that portions of section 1.4.1 and 1.5.4 are not applicable to Registrars, because they refer to nameserver objects.

ICANN plans to update section 1.4.1 as follows: The RDAP server MUST support Internationalized Domain Name (IDN) RDAP lookup queries using A-label or U-label format [RFC5890] for domain names, and in the case of Registries, also for name server objects. An RDAP server that receives a query string with a mixture of A-labels and U-labels MUST convert all the U-labels to A-labels, perform IDNA processing, and proceed with exact-match lookup.

ICANN does not plan to update section 1.5.4, because the registrar is not required to show the status of the nameserver object, if the registrar does not know it.

10) RDAP implementation by Registrars

Some community members noted that RDAP should not be required to be supported by Registrars, because all gTLDs will be "thick". Additionally, the RrSG suggests that RDAP should not be required for names that currently are not required to be supported under (port-43) WHOIS. Under the RAA 2013, Registrars are required to support (port-43) WHOIS for "thin"

registries (i.e. .com, .net and .jobs), in order to allow Whois users to retrieve the registration data.

ICANN agrees that Registrar does not need to offer an RDAP service in the general case. However, in order to account for cases for which the Registrar is prevented from providing registration data to the Registry, the Registrar will be required to provide data over RDAP. To address the concerns raised in public comment, ICANN plans to revise section 3.1.1 as follows: A Registrar is REQUIRED to respond with information regarding domain names for which the Registrar is the Sponsoring Registrar, and the registration data stored in the Registry is "thin".

11) Require the adoption of RDAP after policy development is completed

Some community members suggested that RDAP should not be required if there is Whois policy in development.

ICANN considers that the implementation of RDAP and the PDP on Next-Generation gTLD Registration Directory Service (RDS) could run on parallel tracks in order to not create a dependency that could potentially delay the implementation of RDAP for years.

12) Require the implementation of differentiated access functionality even if policy development has not completed

Some community members suggested to require all Registries to implement differentiated access in the gTLD profile, even if they are not required to offer differentiated access in their agreements.

ICANN notes that the current draft gTLD RDAP profile does allow for differentiated access for those that have contracts that permit such a service, or in the event a consensus policy on differentiated access is completed.

13) Experimental RDAP pilots

Some community members suggested that Registries should be allowed to deploy experimental RDAP pilots in order to test functionality not required in the gTLD profile, for example, differential access.

ICANN plans to allow Registries and Registrars to optionally deploy an RDAP test service.

14) Confusing wording of section 1.2

The IPC finds the wording of section 1.2 confusing, and argues that labeling fields such as postal code and organization as OPTIONAL is different from the requirements in the registry agreement.

ICANN notes that the fields referred by the IPC are defined as "Optional", and the definition of "Optional" is: *RDDS fields defined as Optional in this document* **are REQUIRED to be included in a response**, *using the appropriate mapping as defined in Appendix B,* **when germane to the query and data exists in the Registry or Registrar database**, *as the case may be.*

The definition of fields as "Optional" is based on the same definition as in the "Advisory: Clarifications to the Registry Agreement, and the 2013 Registrar Accreditation Agreement (RAA) regarding applicable Registration Data Directory Service (Whois) Specifications", https://www.icann.org/resources/pages/registry-agreement-raa-rdds-2015-04-27-en, which is based on the optionality of fields in the technical standards.

15) Strategic plan for all existing Whois-related activities

Some community members suggested that all Whois-related activities should be integrated into an implementation plan in order to have a comprehensive, phased, and synchronized approach to implementing the Whois related initiatives

ICANN plans to provide an overview of the universe of ongoing Whois activities with the community. The purpose of the overview will be to provide visibility into the workload and timelines associated Whois-related policy development, implementation and program reviews

16) Thick Whois efforts should not be impacted by the deployment of RDAP

The IPC and the BC noted that the deployment of RDAP should not impact the timeline for having the "thick" Whois model implemented in the remaining "thin" registries.

ICANN does not foresee that the deployment of RDAP will impact the timeline for transitioning the remaining "thin" registries to the "thick" model. While RDAP has been identified as a potential tool to address legal challenges to the transfer of data from Registrars to Registries, RDAP is not currently considered a dependency for the transition from thin to thick Whois. For more considerations on the timeline of the Thick Whois implementation, please refer to the Staff Report of Public Comment Proceeding in the Comments Forum related to the proposed implementation of the Thick Whois Consistent Labeling and Display requirement.