ICANN Registry Interfaces
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Abstract

   This document describes the technical details of the interfaces
   provided by the Internet Corporation for Assigned Names and Numbers
   (ICANN) to its contracted parties in order to fulfill reporting
   requirements. The interfaces provided by ICANN to Data Escrow Agents
   and Registry Operators to fulfill the requirements of Specifications
   2 and 3 of the gTLD Base Registry Agreement are also described in
   this document.

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1. Introduction

   This document describes the technical details of the interfaces
   provided by the Internet Corporation for Assigned Names and Numbers
   (ICANN) to other contracted parties in order to fulfill reporting
   requirements. The interface provided by ICANN to Registry Operators
   and Data Escrow Agents in order to fulfill the requirements of
   Specifications 2 and 3 of the gTLD Base Registry Agreement
   [ICANN-GTLD-BASE-RA] are also described in this document.

1.1. Terminology

   The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT",
   "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this
   document are to be interpreted as described in RFC 2119 [RFC2119].

   XML is case sensitive. Unless stated otherwise, XML specifications
   and examples provided in this document MUST be interpreted in the
   character case presented in order to develop a conforming
   implementation.

1.2. Date and Time

   Numerous fields indicate "date and time", such as the creation and
   receipt dates for data escrow deposits. These fields SHALL contain
   timestamps indicating the date and time in UTC as specified in
   [RFC3339], with no offset from the zero meridian.

1.3. Object Description

   This section describes the base objects supported by this
   specification.

1.3.1. <iirdea:result> object

   The ICANN interfaces for registries and data escrow agents (IIRDEA)
   <iirdea:result> object is used to provide information on the result
   of a verification process when interacting with the interfaces.

   The <iirdea:result> object contains the following attribute and child
   elements:

o   A "code" attribute whose value is a four-digit decimal number that
    identifies the result of a process. Available result code values
    MUST be defined for the corresponding process.

o   An OPTIONAL "domainCount" attribute to indicate the number of
    domain names related to the reported result.

o   A <msg> element containing a human-readable description of the
    result code.

o   An OPTIONAL <description> element that includes additional details
    on the result conditions.

An example of a <iirdea:result> object is presented below:

```
<result code="2001">
    <msg>The structure of the report is invalid.</msg>
    <description>
       'XX' could not be parsed as a number (line: 2 column:3)
    </description>
</result>
```

1.3.2. <rdeReport:report> object

The contents of a data escrow deposit are described using a
<rdeReport:report> object. The <rdeReport:report> object contains
the following child elements:

o   An <id> element that contains the identifier assigned to this
    report. The report identifier MUST be the same as the "id"
    attribute from the <deposit>. If the data escrow deposit does not
    include a unique identifer, the Data Escrow Agent MUST generate a
    unique identifier to reference the data escrow deposit and use it
    in the <id> element.

o   A <version> element contains the version of the specification
    used. This value MUST be 1.

o   A <rydeSpecEscrow> element contains the version of the Data Escrow
    Specification (e.g. draft-arias-noguchi-registry-data-escrow-06)
    used to create the deposit. After the specification is published
    as an RFC, the value MUST be the RFC number assigned by IANA.

o   An OPTIONAL <rydeSpecMapping> element contains the version of the
    Domain Name Registration Data (DNRD) Objects Mapping (e.g. draft-
    arias-noguchi-dnrd-objects-mapping-05) used to create the deposit.
    After the specification is published as an RFC, the value MUST be
    the RFC number assigned by IANA. The <rydeSpecMapping> element

MUST be included if the deposit was created using any version of
the DNRD objects mapping specification (see,
[I-D.arias-noguchi-dnrd-objects-mapping]).

o A <resend> element contains the value of the "resend" attribute of
   the <deposit>.

o A <crDate> element contains the date and time that the deposit was
   created by the Registry Operator.

o A <kind> element is used to identify the kind of deposit: FULL,
   INCR (Incremental) or DIFF (Differential).

o A <watermark> element contains the date and time corresponding to
   the Timeline Watermark (<watermark> element) of the <deposit>.

o A <rdeHeader:header> element contains the header of the <deposit>
   as defined in [I-D.arias-noguchi-dnrd-objects-mapping]

An example of a <rdeReport:report> object is available in
Section 2.1.

1.3.3. <rdeNotification:notification> object

The <rdeNotification:notification> object is used by Data Escrow
Agents to document the result of the data escrow deposit verification
process. The <rdeNotification:notification> object contains the
following child elements:

o A <deaName> element contains the name of the Data Escrow Agent.

o A <version> element contains the version of the specification
   used. This value MUST be 1.

o A <repDate> element contains the reported date. In case of a DVPN
   or DVFN notification this value MUST be the date of the
   <watermark> element of the <deposit>. In case of a DRFN deposit
   notification, this value MUST be the date for which no deposit was
   received from the Registrar or Registry Operator.

o A <status> element is used to specify the status of <repDate>.
   The possible values of status are: DVPN, DVFN and DRFN. The value
   for the <status> element is determined by the three types of
   notices:

   * Deposit Receipt Failure Notice (DRFN): generated by the Data
      Escrow Agent when no deposit is received pursuant to the data
      escrow deposit schedule.

* Deposit Verification Failure Notice (DVFN): generated by the Data Escrow Agent when a deposit is received, but the final result of the verification process is failure.

* Deposit Verification Pass Notice (DVPN): generated by the Data Escrow Agent when a deposit is received and the final result of the verification process is success.

o An OPTIONAL <results> element contains the errors detected during the data escrow deposit verification process performed by the Data Escrow Agent. The <results> element includes one or more <iirdea:result> elements as defined in Section 1.3.1. In case of a DRFN or DVPN deposit notification the <results> element MUST NOT be present.

o An OPTIONAL <reDate> element contains the date and time that the deposit was successfully received by the Data Escrow Agent. In case of a DRFN deposit notification this element MUST NOT be present.

o An OPTIONAL <vaDate> element contains the date and time that the deposit was processed for validation by the Data Escrow Agent. In case of a DRFN deposit notification this element MUST NOT be present.

o An OPTIONAL <lastFullDate> element contains the date of the Timeline Watermark (<watermark> element) of the most recent FULL deposit that was successfully validated by the Data Escrow Agent. This element MUST NOT be present if a successfully validated full deposit has never been deposited.

o An OPTIONAL <rdeReport:report> element is used by the Data Escrow Agent to provide extended information about the deposit. In case of a DRFN deposit notification this element MUST NOT be present. In case of a DVPN or DVFN deposit notification this element MUST be present. When this element is present, the <rdeHeader:header> element MUST be generated by the Data Escrow Agent for the Timeline Watermark (<watermark> element) of the deposit being processed. If the deposit being processed is a differential or incremental deposit, the Data Escrow Agent MUST process the last full plus all differentials or last full plus last incremental escrow deposits from the same repository (e.g. TLD) to generate the <rdeHeader:header> element.

o Note: In case of a DVPN or DVFN deposit notification, the <id> is used as unique identifier.

An example of a <rdeNotification:notification> object is available in
Section 2.2.

1.3.4. <rriReporting:summary> Object

Interfaces that support monitoring the reporting status for a
specific repository, provide a <rriReporting:summary> object as
defined by the schema in Section 6 in the HTTP Entity-body when a
HTTP/200 code is sent by the interface.

The <rriReporting:summary> element includes the following child
elements:

o A choice of one of the elements as defined in the
   "rdeHeader:repositoryTypeGroup" (see
   [I-D.arias-noguchi-dnrd-objects-mapping]) that indicates the
   unique identifier for the repository being escrowed.

o A <creationDate> element with the date and time in which the
   queried repository was created in the system.

o A <depositSchedule> OPTIONAL element indicating the current Data
   Escrow Deposit schedule for the queried repository. Possible
   values are "None", "Weekly", and "Daily".

o An OPTIONAL <lastFullDate> element indicating the date of the
   Timeline Watermark (<watermark> element) of the most recent FULL
   deposit that was successfully validated for the queried repository
   as notified by the Data Escrow Agent.

o A <statusReports> element with a <statusReport> element for each
   report type for the queried repository. Each <statusReport>
   element includes the following child elements:

   * <type> : a string value indicating the report type to which the
      information provided pertains.

   * <enabled> : a boolean value indicating if the report type is
      enabled for the repository.

   * <status> : a string value indicating the reporting status. A
      value of "ok" indicates there are no reporting issues in the
      corresponding report type, otherwise the value of
      "unsatisfactory" is shown.

   * An OPTIONAL <issues> element included only when the <status>
      element has a value of "unsatisfactory", and includes an empty
      <issue> element for each date with a reporting problem found in

the corresponding report type. Each <issue> element includes a
REQUIRED "date" attribute in "YYYY-MM-DD" format and a REQUIRED
"description" attribute to describe the issue. The possible
values to describe each reporting issue are:

+ "Missing_Deposit_Full": If the latest notification received
   from the Data Escrow Agent for the date indicates that a
   scheduled "Full" deposit was not submitted by the repository
   owner.

+ "Missing_Deposit_Diff": If the latest notification received
   from the Data Escrow Agent for the date indicates that a
   scheduled "Differential" deposit was not submitted by the
   repository owner.

+ "Invalid_Deposit_Full": If the latest notification received
   from the Data Escrow Agent for the date indicates that a
   "Full" deposit was received by the Data Escrow Agent, but
   failed the verification process.

+ "Invalid_Deposit_Diff": If the latest notification received
   from the Data Escrow Agent for the date indicates that a
   "Differential" deposit was received by the Data Escrow
   Agent, but failed the verification process.

+ "No_Report_Received" If no report has been received for the
   date.

o A <timestamp> element to indicate the date and time in which the
   reporting status response was created.

1.3.5. <rdeReports:reports> Object

Interfaces that support monitoring and retrieving Data Escrow Reports
received, provide a <rdeReports:reports> object as defined by the
schema in Section 6 in the HTTP Entity-body when a HTTP/200 code is
sent by the interface.

The <rdeReports:reports> element includes a list of
<rdeReports:receivedReport> objects, one for each <rdeReport:report>
successfully received by ICANN. Each <rdeReports:receivedReport>
object includes the following child elements:

o A <received> element to indicate the date and time in which the
   report was received by ICANN.

o A <rdeReport:report> element as defined in Section 1.3.2 as
   received by ICANN.

1.3.6. <rdeNotifications:notifications> Object

Interfaces that support monitoring and retrieving Data Escrow
Notifications received from Data Escrow Agents, provide a
<rdeNotifications:notifications> object as defined by the schema in
Section 6 in the HTTP Entity-body when a HTTP/200 code is sent by the
interface.

The <rdeNotifications:notifications> element includes a list of
<rdeNotifications:receivedNotification> objects, one for each
<rdeNotification:notification> successfully received by ICANN. Each
<rdeNotifications:receivedNotification> object includes the following
child elements:

o A <received> element to indicate the date and time in which the
   notification was received by ICANN.

o A <rdeNotification:notification> element as defined in
   Section 1.3.3 as received by ICANN.

2. Interfaces for Specification 2 - Data Escrow Reporting

This section describes the interfaces provided by ICANN to Registry
Operators and Data Escrow Agents in order to fulfill the reporting
requirements detailed in Specification 2 of the gTLD Base Registry
Agreement [ICANN-GTLD-BASE-RA].

2.1. Registry Operator Reporting

The gTLD Base Registry Agreement [ICANN-GTLD-BASE-RA], Specification
2, Part A, Section 7 requires Registry Operators to provide ICANN
with a written statement that includes a copy of the report generated
upon creation of a deposit and a statement that the deposit has been
inspected by the Registry Operator and is complete and accurate.

In order to satisfy this requirement, the Registry Operator sends to
ICANN a <rdeReport:report> object as defined in Section 1.3.2 for
each deposit successfully sent to the Data Escrow Agent, using the
PUT HTTP verb in the interface provided by ICANN at:

   https://ry-api.icann.org/report/registry-escrow-report/<tld>/<id>

   Where:

   * <tld> MUST be substituted by the TLD for which the report is
      being provided. In case of an IDN TLD, the A-label (see
      [RFC5890]) MUST be used.

* <id> MUST be substituted by the identifier assigned to this
  report, which MUST be the same as the "id" attribute from the
  <deposit>.

Note: the interface supports overwriting the information of a
particular report <id> to support asynchronous interfaces between
Registry Operators and Data Escrow Agents.

Example of a <rdeReport:report> object for a data escrow deposit
corresponding to a TLD Registry repository:

```
<?xml version="1.0" encoding="UTF-8"?>
<rdeReport:report
  xmlns:rdeReport="urn:ietf:params:xml:ns:rdeReport-1.0"
  xmlns:rdeHeader="urn:ietf:params:xml:ns:rdeHeader-1.0">
  <rdeReport:id>20101017001</rdeReport:id>
  <rdeReport:version>1</rdeReport:version>
  <rdeReport:rydeSpecEscrow>
    draft-arias-noguchi-registry-data-escrow-06
  </rdeReport:rydeSpecEscrow>
  <rdeReport:rydeSpecMapping>
    draft-arias-noguchi-dnrd-objects-mapping-05
  </rdeReport:rydeSpecMapping>
  <rdeReport:resend>0</rdeReport:resend>
  <rdeReport:crDate>2010-10-17T00:15:00.0Z</rdeReport:crDate>
  <rdeReport:kind>FULL</rdeReport:kind>
  <rdeReport:watermark>2010-10-17T00:00:00Z</rdeReport:watermark>
  <rdeHeader:header>
    <rdeHeader:tld>test</rdeHeader:tld>
    <rdeHeader:count
      uri="urn:ietf:params:xml:ns:rdeDomain-1.0">2</rdeHeader:count>
    <rdeHeader:count
      uri="urn:ietf:params:xml:ns:rdeHost-1.0">1</rdeHeader:count>
    <rdeHeader:count
      uri="urn:ietf:params:xml:ns:rdeContact-1.0">1</rdeHeader:count>
    <rdeHeader:count
      uri="urn:ietf:params:xml:ns:rdeRegistrar-1.0">1
    </rdeHeader:count>
    <rdeHeader:count
      uri="urn:ietf:params:xml:ns:rdeIDN-1.0">1</rdeHeader:count>
    <rdeHeader:count
      uri="urn:ietf:params:xml:ns:rdeNNDN-1.0">1</rdeHeader:count>
    <rdeHeader:count
      uri="urn:ietf:params:xml:ns:rdeEppParams-1.0">1
    </rdeHeader:count>
  </rdeHeader:header>
</rdeReport:report>
```

2.2. Data Escrow Agent Reporting

The gTLD Base Registry Agreement [ICANN-GTLD-BASE-RA], Specification
2, Part B, Section 7 requires Data Escrow Agents, to deliver ICANN
with a notification object every time a successfully processed
deposit is received from the Registry Operator regardless of the
final status of the verification process.

In order to satisfy this requirement, the Data Escrow Agent sends to
ICANN a <rdeNotification:notification> object as defined in
Section 1.3.3, using the POST HTTP verb in the interface provided by
ICANN at:

   https://ry-api.icann.org/report/escrow-agent-notification/<tld>

   Where:

   * <tld> MUST be substituted by the TLD for which the notification
      is being provided. In case of an IDN TLD, the A-label (see
      [RFC5890]) MUST be used.

If by 23:59:59 UTC, a deposit has not been successfully processed
regardless of the final status of the verification process, a
<rdeNotification:notification> object with DRFN status MUST be send
to ICANN.

Example of a <rdeNotification:notification> object of a Data Escrow
Agent notification corresponding to a Registry repository Data Escrow
Deposit:

```
<?xml version="1.0" encoding="UTF-8"?>
<rdeNotification:notification
 xmlns:rdeNotification="urn:ietf:params:xml:ns:rdeNotification-1.0"
 xmlns:rdeReport="urn:ietf:params:xml:ns:rdeReport-1.0"
 xmlns:rdeHeader="urn:ietf:params:xml:ns:rdeHeader-1.0">
 <rdeNotification:deaName>Escrow Agent Inc.</rdeNotification:deaName>
 <rdeNotification:version>1</rdeNotification:version>
 <rdeNotification:repDate>2010-10-17</rdeNotification:repDate>
 <rdeNotification:status>DVPN</rdeNotification:status>
 <rdeNotification:reDate>
   2010-10-17T03:15:00.0Z
 </rdeNotification:reDate>
 <rdeNotification:vaDate>
   2010-10-17T05:15:00.0Z
 </rdeNotification:vaDate>
 <rdeNotification:lastFullDate>
   2010-10-14
 </rdeNotification:lastFullDate>
```

```
   <rdeReport:report>
     <rdeReport:id>20101017001</rdeReport:id>
     <rdeReport:version>1</rdeReport:version>
     <rdeReport:rydeSpecEscrow>
        draft-arias-noguchi-registry-data-escrow-06
     </rdeReport:rydeSpecEscrow>
     <rdeReport:rydeSpecMapping>
        draft-arias-noguchi-dnrd-objects-mapping-03
     </rdeReport:rydeSpecMapping>
     <rdeReport:resend>0</rdeReport:resend>
     <rdeReport:crDate>2010-10-17T00:15:00.0Z</rdeReport:crDate>
     <rdeReport:kind>FULL</rdeReport:kind>
     <rdeReport:watermark>2010-10-17T00:00:00Z</rdeReport:watermark>
     <rdeHeader:header>
      <rdeHeader:tld>test</rdeHeader:tld>
      <rdeHeader:count
       uri="urn:ietf:params:xml:ns:rdeDomain-1.0">1</rdeHeader:count>
      <rdeHeader:count
       uri="urn:ietf:params:xml:ns:rdeHost-1.0">3</rdeHeader:count>
      <rdeHeader:count
       uri="urn:ietf:params:xml:ns:rdeContact-1.0">1</rdeHeader:count>
      <rdeHeader:count
       uri="urn:ietf:params:xml:ns:rdeRegistrar-1.0">3</rdeHeader:count>
      <rdeHeader:count
       uri="urn:ietf:params:xml:ns:rdeIDN-1.0">1</rdeHeader:count>
      <rdeHeader:count
       uri="urn:ietf:params:xml:ns:rdeNNDN-1.0">10</rdeHeader:count>
      <rdeHeader:count
       uri="urn:ietf:params:xml:ns:rdeEppParams-1.0">0</rdeHeader:count>
     </rdeHeader:header>
   </rdeReport:report>
  </rdeNotification:notification>
```

3. Interfaces of Specification 3 - Registry Operator Monthly Reporting

Specification 3 of the gTLD Base Registry Agreement
[ICANN-GTLD-BASE-RA] requires Registry Operators to provide a set of
monthly reports per gTLD. Two type of reports are required to be
sent by Registries: Per-Registrar Transactions Report and Registry
Functions Activity Report. This section specifies the interfaces
provided by ICANN to automate the upload of these reports by Registry
Operators.

The cut-off date for the reception of the reports specified in
specification 3 is defined in the gTLD Base Registry Agreement
[ICANN-GTLD-BASE-RA]. Before the cut-off date the Registry Operator

could replace a successfully validated report as many times as it
needs.

3.1. Per-Registrar Transactions Report

The Per-Registrar Transactions Report is a CSV report described in
Section 1 of Specification 3.

In order to satisfy this requirement, the Registry Operator sends a
CSV report on a monthly basis as described in the gTLD Base Registry
Agreement [ICANN-GTLD-BASE-RA], using the PUT HTTP verb in the
interface provided by ICANN at:

   https://ry-api.icann.org/report/registrar-
   transactions/<tld>/<date>

   Where:

   * <tld> MUST be substituted by the TLD for which the reports is
      being provided. In case of an IDN TLD, the A-label (see
      [RFC5890]) MUST be used.

   * <date> MUST be substituted by the month for which the reports
      is being provided in the form of YYYY-MM. Where 'YYYY' is the
      year and 'MM' is the two digit month number. For example:
      2013-03

3.2. Registry Functions Activity Report

The Registry Functions Activity Report is a CSV report described in
Section 2 of Specification 3 of the gTLD Base Registry Agreement
[ICANN-GTLD-BASE-RA].

In order to satisfy this requirement, the Registry Operator sends a
CSV report on a monthly basis as described in the gTLD Base Registry
Agreement [ICANN-GTLD-BASE-RA], using the PUT HTTP verb in the
interface provided by ICANN at:

   https://ry-api.icann.org/report/registry-functions-
   activity/<tld>/<date>

   Where:

   * <tld> MUST be substituted by the TLD for which the report is
      being provided. In case of an IDN TLD, the A-label (see
      [RFC5890]) MUST be used.

* <date> MUST be substituted by the month for which the reports
  is being provided in the form of YYYY-MM. Where 'YYYY' is the
  year and 'MM' is the two digit month number. For example:
  2013-03

4. Technical details of the interfaces

Content-type value in the HTTP header:

o The client MUST set "text/xml" in the HTTP header Content-type
   when using the Data Escrow Agent Reporting and Registry Operator
   Reporting interfaces described in Section 2.

o The client MUST set "text/csv" in the HTTP header Content-type
   when using the Per-Registrar Transactions Report Registry
   Functions Activity Report interfaces described in Section 3.

The interfaces support HTTP streams only (HTTP multi-part forms are
not supported).

After successfully receiving an input in any of the interfaces, ICANN
validates it and provides a <response> object with an result element
in the same HTTP transaction.

The following HTTP status codes are standard across all interfaces:

o The interface provides a HTTP/200 status code and sets the HTTP
   header Content-type: text/xml, if the interface was able to
   receive the input sucessfully, the client MUST review the response
   object to verify the result code after processing the input.

o The interface provides a HTTP/400 status code and sets the HTTP
   header Content-type: text/xml, if the input is incorrect or the
   syntax of the input is invalid. A response object is included
   with the input validation failure details.

o The interface provides a HTTP/401 status code and sets the HTTP
   header Content-type: text/plain, if the credentials provided does
   not authorize the Registry Operator to upload a report for that
   <tld>.

o The interface provides a HTTP/403 status code and sets the HTTP
   header Content-type: text/plain, if the credentials provided are
   valid but are being used to access a resource that permission is
   not granted for or the connecting IP address is not whitelisted
   for the <tld>.

o The interface provides a HTTP/405 status code if the interface
   does not support the request method.

o The interface provides a HTTP/500 status code and sets the HTTP
   header Content-type: text/plain, if the system is experiencing a
   general failure. The sending party is responsible to send the
   input again.

o The interface provides a HTTP/501 status code and sets the HTTP
   header Content-type: text/plain, if the functionality has not yet
   been implemented.

After sending the response, the interfaces closes the TCP connection.

4.1. Response Object

After processing the input provided in any of the interfaces, a
response object as defined by the schema in Section 6 is provided in
the HTTP Entity-body when an HTTP/200 or HTTP/400 status code is sent
by the interface.

An example of a response object upon successful input receipt is
presented below:

```
HTTP/1.1 200 OK
Content-Type: text/xml
Content-Length: 248

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<response xmlns="urn:ietf:params:xml:ns:iirdea-1.0">
  <result code="1000">
    <msg>No ERRORs were found and the report has been
         accepted by ICANN.</msg>
    <description></description>
  </result>
</response>
```

An example of a response object in the event of input error is
presented below:

```
HTTP/1.1 400 Bad Request
Content-Type: text/xml
Content-Length: 279

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<response xmlns="urn:ietf:params:xml:ns:iirdea-1.0">
    <result code="2001">
        <msg>The structure of the report is invalid.</msg>
        <description>
            'XX' could not be parsed as a number (line: 2 column:3)
        </description>
    </result>
</response>
```

The following sections provide the IIRDEA Result Codes per interface:

4.1.1. Registry Operator Reporting

The following table lists the result codes of the interface:

Result Code	Message
1000	No ERRORs were found and the report has been accepted by ICANN.
2001	The request did not validate against the schema.
2004	Report for a date in the future. The <crDate> and <watermark> date should not be in the future.
2005	Version is not supported.
2006	The <id> in the <report> element and the <id> in the URL path do not match.
2007	Interface is disabled for this TLD.
2008	The <crDate> and <watermark> date should not be before the creation date of the TLD in the system.
2202	The <tld> in the <header> and the TLD in the URL path do not match.
2205	Report regarding a differential deposit received for a Sunday (<watermark>).
2206	csvDomain and rdeDomain count provided in the <header>.
2209	Missing required <tld> element in the <header>.
2210	The value of the "rcdn" attribute in the <count> element does not match the same or lower level names in the <tld> in the URL path.
2211	Multiple count elements with the same "uri", "rcdn", and "registrarId" attribute values provided in the <header>.
2212	An invalid NR-LDH label or A-label was found or the domain name syntax is invalid in the "rcdn" attribute.

Data Escrow Reporting Result Codes

4.1.2. **Data Escrow Agent Reporting**

   The following table lists the result codes of the interface:

```
+--------+-----------------------------------------------------------+
| Result | Message                                                   |
| Code   |                                                           |
+--------+-----------------------------------------------------------+
| 1000   | No ERRORs were found and the notification has been        |
|        | accepted by ICANN.                                        |
| 2001   | The request did not validate against the schema.          |
| 2002   | A DVPN notification exists for that date (<repDate>).      |
| 2004   | Notification for a date in the future. The <crDate> and   |
|        | <watermark> and <repDate> date should not be in the       |
|        | future.                                                   |
| 2005   | Version is not supported.                                 |
| 2007   | Interface is disabled for this TLD.                       |
| 2008   | The <crDate> and <watermark> and <repDate> date should    |
|        | not be before the creation date of the TLD in the        |
|        | system.                                                   |
| 2201   | The <repDate> and <watermark> in the notification do not  |
|        | match.                                                    |
| 2202   | The <tld> in the <header> and the TLD in the URL path do  |
|        | not match.                                                |
| 2203   | A Deposit Verification Pass Notice (DVPN) notification     |
|        | was received, but the Domain Name count is missing in     |
|        | the <header>.                                             |
| 2204   | The notification for the report "id" already exists.      |
| 2205   | Notification regarding a differential deposit received    |
|        | for a Sunday (<repDate>).                                 |
| 2206   | csvDomain and rdeDomain count provided in the <header>.   |
| 2207   | A DVPN or DVFN was received, but the <report> element is  |
|        | missing in the notification.                              |
| 2208   | A DRFN was received, but a <report> element exists in     |
|        | the notification.                                         |
| 2209   | Missing required <tld> element in the <header>.           |
| 2210   | The value of the "rcdn" attribute in the <count> element  |
|        | does not match the same or lower level names in the       |
|        | <tld> in the URL path.                                    |
| 2211   | Multiple count elements with the same "uri", "rcdn", and  |
|        | "registrarId" attribute values provided in the <header>.  |
| 2212   | An invalid NR-LDH label or A-label was found or the       |
|        | domain name syntax is invalid in the "rcdn" attribute.    |
+--------+-----------------------------------------------------------+
```

                    Data Escrow Reporting Result Codes

4.1.3. Per-Registrar Transactions Report

   The following table lists the result codes of the interface:

```
   +----------+--------------------------------------------------------+
   | Result   | Message                                                |
   | Code     |                                                        |
   +----------+--------------------------------------------------------+
   | 1000     | No ERRORs were found and the report has been accepted  |
   |          | by ICANN.                                              |
   | 2001     | The structure of the report is invalid.                |
   | 2002     | A report for that month already exists, the cut-off    |
   |          | date already passed.                                   |
   | 2003     | Negative numeric value present in the report.          |
   | 2004     | Report for a month in the future.                      |
   | 2007     | Interface is disabled for this TLD.                    |
   | 2008     | Reported month before the creation date of the TLD in  |
   |          | the system.                                            |
   | 2101     | Incorrect totals present in the report.                |
   | 2102     | A non ICANN-accredited registrar is present in the     |
   |          | report.                                                |
   | 2103     | Values found in the second field of the totals line.   |
   | 2105     | The report is not encoded in UTF-8. Note: reports      |
   |          | encoded in US-ASCII are accepted.                      |
   +----------+--------------------------------------------------------+
```

                 Per-Registrar Transactions Report Result Codes

4.1.4. **Registry Functions Activity Report**

   The following table lists the result codes of the interface:

```
+----------+-----------------------------------------------------+
| Result   | Message                                             |
| Code     |                                                     |
+----------+-----------------------------------------------------+
| 1000     | No ERRORs were found and the report has been accepted |
|          | by ICANN.                                           |
| 2001     | The structure of the report is invalid.             |
| 2002     | A report for that month already exists, the cut-off |
|          | date already passed.                                |
| 2003     | Negative numeric value present in the report.       |
| 2004     | Report for a month in the future.                   |
| 2007     | Interface is disabled for this TLD.                 |
| 2008     | Reported month before the creation date of the TLD in |
|          | the system.                                         |
| 2105     | The report is not encoded in UTF-8. Note: reports   |
|          | encoded in US-ASCII are accepted.                   |
+----------+-----------------------------------------------------+
```

                  Registry Functions Activity Report Result Codes

5. Monitoring the reporting status

Registries MAY monitor the status of the reports described in
Specification 2 and Specification 3 of the gTLD Base Registry
Agreement [ICANN-GTLD-BASE-RA] using the following interfaces that
supports the HEAD HTTP verb:

5.1. Monitoring the status of Data Escrow Reports

Registries MAY monitor the status of Data Escrow Reports using the
following interface:

   https://ry-api.icann.org/info/report/registry-escrow-
   report/<tld>/<date>

   Where:

   * <tld> MUST be substituted by the TLD being queried. In case of
      an IDN TLD, the A-label (see [RFC5890]) MUST be used.

   * <date> MUST be substituted by the day being queried. For
      example: 2013-03-02

   Possible results are:

   * The interface provides a HTTP/200 status code, if a
      syntactically valid data escrow report was received for the
      queried date.

   * The interface provides a HTTP/404 status code, if a
      syntactically valid data escrow report has not been received
      for the queried date.

5.2. Monitoring the status of Data Escrow Notifications

Registries and Data Escrow Agents MAY monitor the status of Data
Escrow Notifications using the following interface:

   https://ry-api.icann.org/info/report/escrow-agent-
   notification/<tld>/<date>

   Where:

   * <tld> MUST be substituted by the TLD being queried. In case of
      an IDN TLD, the A-label (see [RFC5890]) MUST be used.

   * <date> MUST be substituted by the day being queried. For
      example: 2013-03-02

Possible results are:

*   The interface provides a HTTP/200 status code, if a
    syntactically valid data escrow notification was received for
    the queried date.

*   The interface provides a HTTP/404 status code, if a
    syntactically valid data escrow notification has not been
    received for the queried date.

5.3. Monitoring the status of Registry Functions Activity Report

Registries MAY monitor the status of Registry Functions Activity
Report using the following interface:

https://ry-api.icann.org/info/report/registry-functions-
activity/<tld>/<date>

Where:

*   <tld> MUST be substituted by the TLD being queried. In case of
    an IDN TLD, the A-label (see [RFC5890]) MUST be used.

*   <date> MUST be substituted by the month being queried. For
    example: 2013-03

Possible results are:

*   The interface provides a HTTP/200 status code, if a
    syntactically valid registry functions activity report was
    received for the queried month.

*   The interface provides a HTTP/404 status code, if a
    syntactically valid registry functions activity report has not
    been received for the queried month.

5.4. Monitoring the status of the Per-Registrar Transactions Report

Registries MAY monitor the status of Per-Registrar Transactions
Report using the following interface:

https://ry-api.icann.org/info/report/registrar-
transactions/<tld>/<date>

Where:

*   <tld> MUST be substituted by the TLD being queried. In case of
    an IDN TLD, the A-label (see [RFC5890]) MUST be used.

* <date> MUST be substituted by the month being queried. For
  example: 2013-03

Possible results are:

* The interface provides a HTTP/200 status code, if a
  syntactically valid per-registrar transactions report was
  received for the queried month.

* The interface provides a HTTP/404 status code, if a
  syntactically valid per-registrar transactions report has not
  been received for the queried month.

[6](#). **Formal Syntax**

   The schema of the IIRDEA Result, Report, Notification, RRI Reporting,
   Notifications, and Reports objects described in [Section 1.3](#) are
   presented here.

   The BEGIN and END tags are not part of the schema; they are used to
   note the beginning and ending of the schema for URI registration
   purposes.

[6.1](#). **IIRDEA Result Schema**

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   of the code. All rights reserved.

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   modification, is permitted pursuant to, and subject to the license
   terms contained in, the Simplified BSD License set forth in
   [Section 4](#).c of the IETF Trust's Legal Provisions Relating to IETF
   Documents (http://trustee.ietf.org/license-info).

```
BEGIN
<?xml version="1.0" encoding="UTF-8"?>
<schema targetNamespace="urn:ietf:params:xml:ns:iirdea-1.0"
  xmlns:iirdea="urn:ietf:params:xml:ns:iirdea-1.0"
  xmlns="http://www.w3.org/2001/XMLSchema"
  elementFormDefault="qualified">

  <annotation>
    <documentation>
      ICANN interfaces for registries and data escrow agents
    </documentation>
  </annotation>

  <element name="response" type="iirdea:responseType"/>
  <element name="result" type="iirdea:resultType"/>

  <complexType name="responseType">
    <sequence>
      <element ref="iirdea:result" />
    </sequence>
  </complexType>

  <complexType name="resultType">
    <sequence>
      <element name="msg" type="token"/>
      <element name="description" type="string"
       minOccurs="0"/>
    </sequence>
    <attribute name="code" type="iirdea:codeType"
     use="required"/>
    <attribute name="domainCount" type="unsignedInt"/>
  </complexType>

  <simpleType name="codeType">
    <restriction base="unsignedShort">
      <minInclusive value="1000"/>
      <maxInclusive value="9999"/>
    </restriction>
  </simpleType>

</schema>
END
```

6.2. Report Object

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modification, is permitted pursuant to, and subject to the license
terms contained in, the Simplified BSD License set forth in
Section 4.c of the IETF Trust's Legal Provisions Relating to IETF
Documents (http://trustee.ietf.org/license-info).

```
BEGIN
<?xml version="1.0" encoding="UTF-8"?>
<schema targetNamespace="urn:ietf:params:xml:ns:rdeReport-1.0"
  xmlns:rdeReport="urn:ietf:params:xml:ns:rdeReport-1.0"
  xmlns:rdeHeader="urn:ietf:params:xml:ns:rdeHeader-1.0"
  xmlns:rde="urn:ietf:params:xml:ns:rde-1.0"
  xmlns="http://www.w3.org/2001/XMLSchema"
  elementFormDefault="qualified">

    <import namespace="urn:ietf:params:xml:ns:rde-1.0" />
    <import namespace="urn:ietf:params:xml:ns:rdeHeader-1.0" />

  <annotation>
    <documentation>
      Data Escrow Report schema
    </documentation>
  </annotation>

  <element name="report" type="rdeReport:reportType"/>

  <complexType name="reportType">
    <sequence>
      <element name="id" type="rde:depositIdType"/>
      <element name="version" type="unsignedShort"/>
      <element name="rydeSpecEscrow" type="token"/>
      <element name="rydeSpecMapping" type="token" minOccurs="0"/>
      <element name="resend" type="unsignedShort"/>
      <element name="crDate" type="dateTime"/>
      <element name="kind" type="rde:depositTypeType"/>
      <element name="watermark" type="dateTime"/>
      <element ref="rdeHeader:header"/>
    </sequence>
  </complexType>
</schema>
END
```

6.3. Notification Object

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of the code. All rights reserved.

```
BEGIN
<?xml version="1.0" encoding="UTF-8"?>
<schema targetNamespace="urn:ietf:params:xml:ns:rdeNotification-1.0"
  xmlns:rdeNotification="urn:ietf:params:xml:ns:rdeNotification-1.0"
  xmlns:rdeReport="urn:ietf:params:xml:ns:rdeReport-1.0"
  xmlns:iirdea="urn:ietf:params:xml:ns:iirdea-1.0"
  xmlns="http://www.w3.org/2001/XMLSchema"
  elementFormDefault="qualified">

  <import namespace="urn:ietf:params:xml:ns:rdeReport-1.0"/>
  <import namespace="urn:ietf:params:xml:ns:iirdea-1.0"/>

  <annotation>
    <documentation>
      Data Escrow Notification schema
    </documentation>
  </annotation>

  <element name="notification"
  type="rdeNotification:notificationType"/>

  <complexType name="notificationType">
    <sequence>
      <element name="deaName" type="rdeNotification:nameType"/>
      <element name="version" type="unsignedShort"/>
      <element name="repDate" type="date"/>
      <element name="status" type="rdeNotification:statusType"/>
      <element name="results" type="rdeNotification:resultsType"
        minOccurs="0" />
      <element name="reDate" type="dateTime" minOccurs="0"/>
      <element name="vaDate" type="dateTime" minOccurs="0"/>
      <element name="lastFullDate" type="date" minOccurs="0"/>
      <element ref="rdeReport:report" minOccurs="0"/>
    </sequence>
  </complexType>

  <simpleType name="nameType">
    <restriction base="normalizedString">
      <minLength value="1" />
      <maxLength value="255" />
    </restriction>
  </simpleType>
```

```
<complexType name="resultsType">
  <sequence>
    <element ref="iirdea:result" maxOccurs="unbounded" />
  </sequence>
</complexType>

<simpleType name="statusType">
  <restriction base="token">
    <enumeration value="DVPN"/>
    <enumeration value="DVFN"/>
    <enumeration value="DRFN"/>
  </restriction>
</simpleType>
</schema>
END
```

6.4. RRI Reporting Summary Object

```
BEGIN
<?xml version="1.0" encoding="UTF-8"?>
<schema targetNamespace="urn:ietf:params:xml:ns:rriReporting-1.0"
  xmlns:rriReporting="urn:ietf:params:xml:ns:rriReporting-1.0"
  xmlns:rdeHeader="urn:ietf:params:xml:ns:rdeHeader-1.0"
  xmlns="http://www.w3.org/2001/XMLSchema"
  elementFormDefault="qualified">

  <import namespace="urn:ietf:params:xml:ns:rdeHeader-1.0" />

  <element name="summary" type="rriReporting:summaryType"/>

  <complexType name="summaryType">
    <sequence>
      <group ref="rdeHeader:repositoryTypeGroup"/>
      <element name="creationDate" type="dateTime" />
      <element name="depositSchedule"
          type="rriReporting:depositScheduleType" />
      <element name="lastFullDate" type="date" minOccurs="0"/>
      <element name="statusReports"
          type="rriReporting:statusReportsType" />
```

```
      <element name="timestamp" type="dateTime" />
    </sequence>
  </complexType>

  <simpleType name="depositScheduleType">
    <restriction base="token">
      <enumeration value="None" />
      <enumeration value="Weekly" />
      <enumeration value="Daily" />
    </restriction>
  </simpleType>

  <complexType name="statusReportsType">
    <sequence>
      <element name="statusReport"
        type="rriReporting:statusReportType" maxOccurs="unbounded" />
    </sequence>
  </complexType>

  <complexType name="statusReportType">
    <sequence>
     <element name="type" type="rriReporting:statusReportTypeType" />
     <element name="enabled" type="boolean" />
     <element name="status" type="rriReporting:statusType" />
     <element name="issues" type="rriReporting:issuesType"
       minOccurs="0" />
    </sequence>
  </complexType>

  <simpleType name="statusReportTypeType">
   <restriction base="token">
   <enumeration value="DEA_Notification" />
   <enumeration value="Registrar_Escrow_Report" />
   <enumeration value="Registry_Escrow_Report" />
   <enumeration value="PPSP_Escrow_Report" />
   <enumeration value="Registry_Functions_Activity_Report" />
   <enumeration value="Registry_Per_Registrar_Transactions_Report" />
   <enumeration value="PPSP_Per_Registrar_Activity_Report" />
   </restriction>
  </simpleType>

  <simpleType name="statusType">
    <restriction base="token">
      <enumeration value="ok" />
      <enumeration value="unsatisfactory" />
    </restriction>
  </simpleType>
```

```
   <complexType name="issuesType">
     <sequence>
       <element name="issue" type="rriReporting:issueType"
         maxOccurs="unbounded" />
     </sequence>
   </complexType>

   <complexType name="issueType">
     <attribute name="date" type="rriReporting:issueDateType"
         use="required" />
     <attribute name="description" type="rriReporting:descriptionType"
         use="required" />
   </complexType>

   <simpleType name="issueDateType">
     <restriction base="token">
       <pattern
         value="\d{4}-(0[1-9]|1[012])(-(0[1-9]|[12][0-9]|3[01]))?" />
     </restriction>
   </simpleType>

   <simpleType name="descriptionType">
     <restriction base="token">
       <enumeration value="Missing_Deposit_Full" />
       <enumeration value="Missing_Deposit_Diff" />
       <enumeration value="Invalid_Deposit_Full" />
       <enumeration value="Invalid_Deposit_Diff" />
       <enumeration value="No_Report_Received" />
     </restriction>
   </simpleType>
 </schema>
 END
```

6.5. Notifications Object

```
BEGIN
<?xml version="1.0" encoding="UTF-8"?>
<schema targetNamespace="urn:ietf:params:xml:ns:rdeNotifications-1.0"
 xmlns:rdeNotifications="urn:ietf:params:xml:ns:rdeNotifications-1.0"
 xmlns:rdeNotification="urn:ietf:params:xml:ns:rdeNotification-1.0"
 xmlns="http://www.w3.org/2001/XMLSchema"
  elementFormDefault="qualified">

  <import namespace="urn:ietf:params:xml:ns:rdeNotification-1.0" />

  <element name="notifications"
    type="rdeNotifications:notificationsType"/>

  <complexType name="notificationsType">
    <sequence>
      <element name="receivedNotification" maxOccurs="unbounded">
        <complexType>
          <sequence>
            <element name="received" type="dateTime" />
            <element ref="rdeNotification:notification" />
          </sequence>
        </complexType>
      </element>
    </sequence>
  </complexType>
</schema>
END
```

6.6. Reports Object

```
   BEGIN
   <?xml version="1.0" encoding="UTF-8"?>
   <schema targetNamespace="urn:ietf:params:xml:ns:rdeReports-1.0"
     xmlns:rdeReport="urn:ietf:params:xml:ns:rdeReport-1.0"
     xmlns:rdeReports="urn:ietf:params:xml:ns:rdeReports-1.0"
     xmlns="http://www.w3.org/2001/XMLSchema"
     elementFormDefault="qualified">

     <import namespace="urn:ietf:params:xml:ns:rdeReport-1.0" />

     <element name="reports" type="rdeReports:reportsType"/>

     <complexType name="reportsType">
       <sequence>
         <element name="receivedReport" maxOccurs="unbounded">
           <complexType>
             <sequence>
               <element name="received" type="dateTime" />
               <element ref="rdeReport:report" />
             </sequence>
           </complexType>
         </element>
       </sequence>
     </complexType>
   </schema>
   END
```

7. Acknowledgements

Special suggestions that have been incorporated into this document
were provided by David Kipling, James Gould, Gregory Zaltsman, Brett
Carr and Harel Efraim.

8. Change History

[[RFC Editor: Please remove this section.]]

8.1. Version 00

Initial version.

8.2. Version 01

o <rdeReport:report> and <rdeNotification:notification> moved from
   escrow drafts to this draft

o Added <crDate> to <rdeReport:report>

o <reDate> element of <rdeReport:report> is now OPTIONAL

o Added <deaName> element to <rdeNotification:notification>

o <rydeSpecEscrow> and <rydeSpecMapping> added to the draft

o Several report elements are OPTIONAL to support async interfaces
   between Registry Operators and Data Escrow Agents

o Added <TLD> and <id> to registry-escrow-report interface in order
   to make the interface idempotent and support async RyO-DEA
   interfaces

o Added <TLD> to escrow-agent-notification interface

o The escrow-agent-notification uses POST and not PUT, this has been
   fixed

o Several clarifications

8.3. Version 02

o Added and updated several result codes.

o Added <version> element.

o Added Content-type definition.

8.4. Version 03

o Added several result codes.

o unsignedShort is now used for result code in iirdea schema.

o Enumeration was removed from the iirdea schema.

8.5. Version 04

o Added result codes: 2207 and 2208.

o Removed result codes: 2203.

o Added clarification regarding the support of HTTP streams.

8.6. **Version 05**

o Added result codes: 2007 and 2008.

8.7. **Version 06**

o Added clarification of error code HTTP/403 in Section 4.

8.8. **Version 07**

o Added Section 5: "Monitoring compliance with the New gTLD Base
   Agreement".

8.9. **Version 08**

o Reorganized specification structure to allow easier references
   from new specifications expanding functionality in the ICANN
   Registry Interfaces.

o Added Section 1.3 to document object definitions, previously
   defined in other sections.

o Added <rriReporting>, <notifications>, and <reports> object
   descriptions to Section 1.3, and schema definitions to Section 6.

o Renamed Section 5 title as "Monitoring the reporting status".

o Updated element <rydeSpecMapping> as OPTIONAL in the <rdeReport>
   schema.

o Added OPTIONAL attribute "domainCount" to the <iirdea:result>
   element.

o Added OPTIONAL element <results> to the <rdeNotification> schema.

o Added result codes: 2105, 2209, 2210 and 2211.

o Added "gTLD Base Registry Agreement" references.

o Added clarifications to Section 4.

8.10. **Version 09**

o Standardized XSD schema validation error message for notifications
   and reports.

o Element <lastFullDate> made optional in the <rriReporting> schema.

   o Separated example RRI interface responses for successful and
      unsuccessful input.

8.11. Version 10

   1. Ping update.

9. IANA Considerations

   TODO

10. Security Considerations

   TODO

11. References

11.1. Normative References

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