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Domain Name Registration Data (DNRD) Objects Mapping
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Abstract

This document specifies the format, contents and semantics of Domain Name Registration Data (DNRD) Escrow deposits for a Domain Name Registry.

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Table of Contents

1. Introduction 4
2. Models 4
3. Terminology 5
4. General Conventions 6
4.1. Date and Time 6
4.2. Country names 6
4.3. Telephone numbers 6
4.4. Checksum 6
4.5. IP addresses 6
4.6. CSV elements 6
4.7. Internationalized and Localized Elements 11
5. Object Description 13
5.1. Domain Name Object 13
5.2. Host Object 36
5.3. Contact Object 45
5.4. Registrar Object 64
5.5. IDN Table Reference Object 72
5.6. NNDN Object 75
5.7. EPP Parameters Object 80
5.8. Policy Object 82
5.9. Header Object 82
6. RDE IDN Variants handling 84
7. Profile 85
8. Data escrow agent extended verification process 85
9. Formal Syntax 86
9.1. RDE CSV Schema 86
9.2. RDE Domain Object 95
9.3. CSV Domain Object 98
9.4. RDE Host Object 102
9.5. CSV Host Object 104
9.6. RDE Contact Object 108
9.7. CSV Contact Object 110
9.8. RDE Registrar Object 117
9.9. CSV Registrar Object 121
9.10. RDE IDN Table Reference Objects 125
9.11. CSV IDN Language Object 127
9.12. EPP Parameters Object 129
9.13. NNDN Object 130
9.14. CSV NNDN Object 133
9.15. Policy Object 135
9.16. Header Object 137

10. Internationalization Considerations 140
11. IANA Considerations 140
12. Security Considerations 145
13. Acknowledgments 146
14. Change History 146
14.1. Changes from draft-arias-noguchi-registry-data-escrow-02 to -dnrd-objects-mapping-00 146
14.2. Changes from version 00 to 01 147
14.3. Changes from version 01 to 02 147
14.4. Changes from version 02 to 03 147
14.5. Changes from version 03 to 04 147
14.6. Changes from version 04 to 05 149
15. Example of a full deposit using the XML model 149
16. Example of differential deposit using the XML model 155
17. Example of a full deposit using the CSV model 156
18. Example of differential deposit using the CSV model 165
19. References 174
19.1. Normative References 174
19.2. Informative References 175
Authors' Addresses 175

1. Introduction

This document defines the data escrow structure of the standard set of objects for a Domain Name Registry which include:

- o Domain: Internet domain names that are typically provisioned in a Domain Name Registry using the EPP domain name mapping [RFC5731]. The attributes defined in the EPP domain name mapping [RFC5731] are fully supported by this document.

- o Host: Internet host names that are typically provisioned in a Domain Name Registry using the EPP host mapping [RFC5732]. The attributes defined in the EPP host mapping [RFC5732] are fully supported by this document.

- o Contact: Individual or organization social information provisioned in a Domain Name Registry using the EPP contact mapping [RFC5733]. The attributes defined in the EPP contact mapping [RFC5733] are fully supported by this document.

- o Registrar: The organization that sponsors objects like domains, hosts, and contacts in a Domain Name Registry.

- o NNDN (NNDN's not domain name): A lightweight domain-like object that is not linked to a Registrar.

This document defines the following pseudo-objects:

- o IDN Table Reference: Internationalized Domain Names (IDN) included in the Domain Object Data Escrow include references to the IDN Table and Policy used in IDN registration.

- o EPP parameters: Definition of the specific EPP parameters supported by the Registry Operator.

- o Header: Used to specify counters of objects in the database at a certain point in time (watermark).

- o Policy: Used to specify OPTIONAL elements from this specification that are REQUIRED based on the business model of the registry.

2. Models

This document defines two different models that can be used to deposit data escrow objects:

- o XML: The XML model includes all of the deposit information (meta-data and data) in an XML document. The definition of the XML format is fully defined in the XML schemas. As a convention, the objects represented using the XML model are referenced using RDE and an XML namespace that is prefixed with "rde". For example, the Domain Name object represented using the XML model can be referred to as the RDE Domain Name with the XML namespace including rdeDomain (urn:ietf:params:xml:ns:rdeDomain-1.0).

- o CSV: The CSV model uses XML to define the data escrow format of the data contained in referenced Comma-Separated Values (CSV) files. As a convention, the objects represented using the CSV model are referenced using CSV and an XML namespace that is prefixed with "csv". For example, the Domain Name object represented using the CSV model can be referred to as the CSV Domain Name with the XML namespace including csvDomain (urn:ietf:params:xml:ns:csvDomain-1.0).

The data escrow deposit MAY contain a mix of both models but an object MUST be escrowed only in one model.

3. 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 BCP 14, [RFC2119].

REGISTRY. In the context of this draft the definition will be overloaded (from the definition in the base protocol) to indicate an organization providing Registry Services for a REGISTRY-CLASS DOMAIN NAME.

REGISTRY-CLASS DOMAIN NAME (RCDN): Refers to a top-level domain (TLD) or any other domain name at any level in the DNS tree for which a Registry (either directly or through and affiliate company) provides Registry Services for other organizations or individuals. For example: .COM, .ORG, .BIZ, .CO.JP, .B.BR.

REGISTRY SERVICES. Services offered by the Registry critical to the following tasks: the provisioning of domain names on receipt of requests and data from registrars; responding to registrar queries for status information relating to the DNS servers for the RCDN; dissemination of RCDN zone files; operation of the Registry DNS servers; and responding to queries for contact and other information concerning DNS registrations in the RCDN. Any other products or services that only a Registry is capable of providing, by reason of its designation as the Registry. Typical examples of Registry

Services are: DNS resolution for the RCDN, WHOIS and EPP.

ALLOCATED. A status of some label with respect to a zone, whereby the label is associated administratively to some entity that has requested the label. This term (and its cognates "allocation" and "to allocate") may represents the first step on the way to delegation in the DNS.

4. General Conventions

4.1. Date and Time

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

4.2. Country names

Country identifiers SHALL be represented using two character identifiers as specified in [ISO-3166-1].

4.3. Telephone numbers

Telephone numbers (both voice and facsimile) SHALL be formatted based on structures defined in [ITU-E164]. Telephone numbers described in this specification are character strings that MUST begin with a plus sign ("+", ASCII value 0x002B), followed by a country code defined in [ITU-E164], followed by a dot (".", ASCII value 0x002E), followed by a sequence of digits representing the telephone number.

4.4. Checksum

Checksum of the CSV data escrow files MUST use CRC32, that is the algorithm used in the ISO 3309 standard and in section 8.1.1.6.2 of ITU-T recommendation V.42.

4.5. IP addresses

IP addresses syntax MUST conform to the text representation of either of, Internet Protocol [RFC0791], for IPv4 addresses, or IP Version 6 Addressing Architecture [RFC4291], for IPv6 addresses.

4.6. CSV elements

4.6.1. <rdeCsv:csv> element

To support a CSV model with the Registry Data Escrow Specification [1], an element is defined for each object that substitutes for the <rde:content> element and for the <rde:delete> element, that contains one or more <rdeCsv:csv> elements. For example, the Domain Name Object (Section 5.1) defines the <csvDomain:contents> element, that substitutes for the <rde:content> element, and the <csvDomain:deletes> element, that substitutes for the <rde:delete> element. Both the <csvDomain:contents> element and the <csvDomain:deletes> elements contain one or more <rdeCsv:csv> elements. The <rdeCsv:csv> element has the following child elements:

<rdeCsv:fields> Ordered list of CSV fields used in the CSV files. There is one or more child elements that substitute for the <rdeCsv:field> abstract element. Each element defines the format of the CSV field contained in the CSV files. The <rdeCsv:field> elements support the "type" attribute that defines the XML simple data type of the field element. The <rdeCsv:field> elements support the "isRequired" attribute, with a default value of "false", when set to "true" indicates that the field must be non-empty in the CSV files and when set to "false" indicates that the field MAY be empty in the CSV files. The "isRequired" attribute MAY be specifically set for the field elements within the XML schema and MAY be overridden when specifying the fields under the <rdeCsv:fields> element. The <rdeCsv:field> element supports an OPTIONAL "parent" attribute that identifies the field as a reference to a parent object. For example, the <rdeCsv:csv name="domainStatuses"> <csvDomain:fName> field SHOULD set the "parent" attribute to "true" to identify it as the parent domain name of the domain status.

<rdeCsv:files> A list of one or more CSV files using the <rdeCsv:file> child element. The <rdeCsv:file> child element defines a reference to the CSV file name and has the following optional attributes:

compression If the CSV file is compressed, the "compression" attribute defines the compression format like "gzip" or "zip".

encoding Defines the encoding of the CSV file with the default encoding of "UTF-8".

cksum Defines the checksum of the CSV file using CRC32, as defined in Section 4.4. This attribute is used to validate that the full CSV file exists and has not been tampered with.

The <rdeCsv:csv> elements requires a "name" attribute that defines the purpose of the CSV file with values like "domain", "host", "contact". The supported "name" attribute values are defined for each object type. The OPTIONAL "sep" attribute defines the CSV separator character with the default separator character of ",".

The following is an example of the <csvDomain:contents> <rdeCsv:csv> element for domain name records where the <rdeCsv:fRegistrant> is set as required with isRequired="true".

```
<csvDomain:contents>
...
  <rdeCsv:csv name="domain" sep=",">
    <rdeCsv:fields>
      <csvDomain:fName/>
      <rdeCsv:fRoid/>
      <rdeCsv:fIdnTableId/>
      <csvDomain:fOriginalName/>
      <rdeCsv:fRegistrant isRequired="true"/>
      <rdeCsv:fClID/>
      <rdeCsv:fCrRr/>
      <rdeCsv:fCrID/>
      <rdeCsv:fCrDate/>
      <rdeCsv:fUpRr/>
      <rdeCsv:fUpID/>
      <rdeCsv:fUpDate/>
      <rdeCsv:fExDate/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="75E2D01F">
        domain-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvDomain:contents>
```

The following is example of the "domain-YYYYMMDD.csv" file with one record matching the <rdeCsv:fields> definition.

```
domain1.test,Ddomain2-TEST,,,registrantid,registrarX,registrarX,
clientY,2009-04-03T22:00:00.0Z,registrarX,clientY,
2009-12-03T09:05:00.0Z,2015-04-03T22:00:00.0Z
```

The following is an example of the <csvDomain:deletes> <rdeCsv:csv> element for domain name records.

```
<csvDomain:deletes>
...
  <rdeCsv:csv name="domain">
    <rdeCsv:fields>
      <csvDomain:fName/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="6F2B988F">
        domain-delete-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvDomain:deletes>
```

The following is example of the "domain-delete-YYYYMMDD.csv" file with three records that matches the single <csvDomain:fName> field.

```
domain1.test
domain2.test
domainN.test
```

4.6.2. CSV common field elements

The <rdeCsv:fields> element defined in the <rdeCsv:csv> element (Section 4.6.1) section has child elements that substitute for the abstract <rdeCsv:field> element. By convention <rdeCsv:field> elements include an 'f' prefix to identify them as field definition elements. There are a set of common field elements that are used across multiple data escrow objects. The common field elements are defined using the "urn:ietf:params:xml:ns:rdeCsv-1.0" namespace and using the "rdeCsv" sample namespace prefix. The CSV common field elements include:

<rdeCsv:fUName> UTF-8 encoded name field with type="eppcom:labelType".

<rdeCsv:fRoid> Repository Object IDentifier (ROID) field with type="eppcom:roidType" and isRequired="true".

<rdeCsv:fRegistrant> Registrant contact identifier with type="eppcom:clIDType".

<rdeCsv:fStatusDescription> The object status description, which is free form text describing the rationale for the status, with type="normalizedString".

<rdeCsv:fClID> Identifier of client (registrar) that sponsors the object with type="eppcom:clIDType" and isRequired="true".

<rdeCsv:fCrRr> Identifier of the registrar, defined in Section 5.4, of the client that created the object with type="eppcom:clIDType".

<rdeCsv:fCrID> Identifier of client that created the object with type="eppcom:clIDType".

<rdeCsv:fUpRr> Identifier of the registrar, defined in Section 5.4, of the client that updated the object with type="eppcom:clIDType".

<rdeCsv:fUpID> Identifier of client that updated the object with type="eppcom:clIDType".

<rdeCsv:fReRr> Identifier of the registrar, defined in Section 5.4, of the client that requested the transfer with type="eppcom:clIDType".

<rdeCsv:fReID> Identifier of client that requested the transfer with type="eppcom:clIDType".

<rdeCsv:fAcRr> Identifier of the registrar, defined in Section 5.4, of the client that should take or took action with type="eppcom:clIDType".

<rdeCsv:fAcID> Identifier of client that should take or took action for transfer with type="eppcom:clIDType".

<rdeCsv:fCrDate> Created date of object with type="dateTime".

<rdeCsv:fUpDate> Updated date of object with type="dateTime".

<rdeCsv:fExDate> Expiration date of object with type="dateTime".

<rdeCsv:fReDate> Date that transfer was requested with type="dateTime".

<rdeCsv:fAcDate> Date that transfer action should be taken or has been taken with type="dateTime".

<rdeCsv:fTrDate> Date of last transfer with type="dateTime".

<rdeCsv:fTrStatus> State of the most recent transfer request with type="eppcom:trStatusType".

<rdeCsv:fTokenType> General token field with type="token".

<rdeCsv:fLang> General language field with type="language".

<rdeCsv:fIdnTableId> IDN Table Identifier used for IDN domain names with type="token".

<rdeCsv:fPositiveIntegerType> General positive integer field with type="positiveInteger".

<rdeCsv:fUrl> Contains the URL of an object like a registrar object with type="anyURI".

<rdeCsv:fCustom> Custom field with name attribute that defines the custom field name" with type="token".

4.7. Internationalized and Localized Elements

Some elements MAY be provided in either internationalized form ("int") or provided in localized form ("loc"). Those elements use a field value or "isLoc" attribute to specify the form used. If an "isLoc" attribute is used, a value of "true" indicates the use of the localized form and a value of "false" indicates the use of the internationalized form. This MAY override the form specified for a parent element. A value of "int" is used to indicate the internationalized form and a value of "loc" is used to indicate the localized form. When the internalized form ("int") is provided, the field value MUST be represented in a subset of UTF-8 that can be represented in the 7-bit US-ASCII character set. When the localized form ("loc") is provided, the field value MAY be represented in unrestricted UTF-8. Some of the field elements below of the "registrar" <rdeCsv:csv"> <rdeCsv:fields> element specify the internationalized form with the isLoc="false" attribute:

```
...
<csvRegistrar:contents>
...
  <rdeCsv:csv name="registrar" sep=",">
    <rdeCsv:fields>
      <csvRegistrar:fId/>
      <rdeCsv:fRoid/>
      <csvRegistrar:fName isLoc="false"/>
      <csvRegistrar:fGurid/>
      <csvRegistrar:fStatus/>
      <csvContact:fStreet isLoc="false" index="0"/>
      <csvContact:fStreet isLoc="false" index="1"/>
      <csvContact:fStreet isLoc="false" index="2"/>
      <csvContact:fCity isLoc="false" />
      <csvContact:fSp isLoc="false" />
      <csvContact:fPc isLoc="false" />
      <csvContact:fCc isLoc="false" />
      <csvContact:fVoice/>
      <csvContact:fVoiceExt/>
      <csvContact:fFax/>
      <csvContact:fFaxExt/>
      <csvContact:fEmail/>
      <rdeCsv:fUrl/>
      <csvRegistrar:fWhoisUrl/>
      <rdeCsv:fCrRr/>
      <rdeCsv:fCrID/>
      <rdeCsv:fCrDate/>
      <rdeCsv:fUpRr/>
      <rdeCsv:fUpID/>
      <rdeCsv:fUpDate/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="306178BB">
        registrar-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvRegistrar:contents>
...
```

The following is an example of using the <csvContact:fPostalType> field value to define the internationalized or localized form of the remainder of the "contactPostal" field values.

```
...
<csvContact:contents>
...
  <rdeCsv:csv name="contactPostal">
    <rdeCsv:fields>
      <csvContact:fId parent="true"/>
      <csvContact:fPostalType/>
      <csvContact:fName/>
      <csvContact:fOrg/>
      <csvContact:fStreet index="0"/>
      <csvContact:fStreet index="1"/>
      <csvContact:fStreet index="2"/>
      <csvContact:fCity/>
      <csvContact:fSp/>
      <csvContact:fPc/>
      <csvContact:fCc/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="02CC2504">
        contactPostal-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvContact:contents>
...
```

5. Object Description

This section describes the base objects supported by this specification:

5.1. Domain Name Object

The domain name object is based on the EPP domain name mapping specified in [RFC5731]. The domain name object supports both the XML Model and the CSV Model, defined in the Models (Section 2) section. The elements used for both models are defined in the following sections.

5.1.1. XML Model

There are two elements used in the data escrow of the domain name objects for the XML model including the <rdeDomain:domain>, under the <rde:contents> element, and the <rdeDomain:delete> element, under the <rde:deletes> element.

5.1.1.1. <rdeDomain:domain> object

The domain element is based on the EPP domain <info> response for an authorized client (see Section 3.1.2. of [RFC5731]) with additional data from an EPP <transfer> Query Response, see Section 3.1.3. of [RFC5731], RGP status from [RFC3915], and data from the EPP <secDns: create> command, see Section 5.2.1. of [RFC5910].

A <domain> element substitutes for the <abstractDomain> abstract element to define a concrete definition of a domain. The <abstractDomain> element can be replaced by other domain definitions using the XML schema substitution groups feature.

The <domain> element contains the following child elements:

- A <name> element that contains the fully qualified name of the domain name object. If the domain name is an IDN, the ASCII Compatible Encoding (ACE) MUST be used.

- A <roid> element that contains the repository object identifier assigned to the domain name object when it was created.

- An OPTIONAL <uName> element that contains the fully qualified name of the domain name in Unicode character set. It MUST be provided if available.

- An OPTIONAL <idnTableId> element that references the IDN Table used for the IDN. This corresponds to the "id" attribute of the <idnTableRef> element. This element MUST be present if the domain name is an IDN.

- An OPTIONAL <originalName> element is used to indicate that the domain name is an IDN variant. This element contains the domain name used to generate the IDN variant.

- One or more <status> elements that contain the current status descriptors associated with the domain name.

- Zero or more OPTIONAL <rgpStatus> element to represent "pendingDelete" sub-statuses, including "redemptionPeriod", "pendingRestore", and "pendingDelete", that a domain name can be in as a result of grace period processing as specified in [RFC3915].

- An OPTIONAL <registrant> element that contain the identifier for the human or organizational social information object associated as the holder of the domain name object.

- o Zero or more OPTIONAL <contact> elements that contain identifiers for the human or organizational social information objects associated with the domain name object.

- o An OPTIONAL <ns> element that contains the fully qualified names of the delegated host objects or host attributes (name servers) associated with the domain name object. See Section 1.1 of [RFC5731] for a description of the elements used to specify host objects or host attributes.

- o A <clID> element that contains the identifier of the sponsoring registrar.

- o A <crRr> element that contains the identifier of the registrar that created the domain name object. An OPTIONAL client attribute is used to specify the client that performed the operation.

- o An OPTIONAL <crDate> element that contains the date and time of the domain name object creation. This element MUST be present if the domain name has been allocated.

- o An OPTIONAL <exDate> element that contains the date and time identifying the end (expiration) of the domain name object's registration period. This element MUST be present if the domain name has been allocated.

- o An OPTIONAL <upRr> element that contains the identifier of the registrar that last updated the domain name object. This element MUST NOT be present if the domain has never been modified. An OPTIONAL client attribute is used to specify the client that performed the operation.

- o An OPTIONAL <upDate> element that contains the date and time of the most recent domain-name-object modification. This element MUST NOT be present if the domain name object has never been modified.

- o An OPTIONAL <secDNS> element that contains the public key information associated with Domain Name System security (DNSSEC) extensions for the domain name as specified in [RFC5910].

- o An OPTIONAL <trDate> element that contains the date and time of the most recent domain object successful transfer. This element MUST NOT be present if the domain name object has never been transfered.

- o An OPTIONAL <trnData> element that contains the following child elements related to the last transfer request of the domain name

object. This element MUST NOT be present if a transfer request for the domain name has never been created.

* A <trStatus> element that contains the state of the most recent transfer request.

* A <reRr> element that contains the identifier of the registrar that requested the domain name object transfer. An OPTIONAL client attribute is used to specify the client that performed the operation.

* A <reDate> element that contains the date and time that the transfer was requested.

* An <acRr> element that contains the identifier of the registrar that SHOULD act upon a PENDING transfer request. For all other status types, the value identifies the registrar that took the indicated action. An OPTIONAL client attribute is used to specify the client that performed the operation.

* An <acDate> element that contains the date and time of a required or completed response. For a PENDING request, the value identifies the date and time by which a response is required before an automated response action will be taken by the registry. For all other status types, the value identifies the date and time when the request was completed.

* An OPTIONAL <exDate> element that contains the end of the domain name object's validity period (expiry date) if the transfer caused or causes a change in the validity period.

Example of a domain object:

```
...
<rdeDom:domain>
  <rdeDom:name>example1.test</rdeDom:name>
  <rdeDom:roid>Dexample1-TEST</rdeDom:roid>
  <rdeDom:status s="ok"/>
  <rdeDom:registrant>jd1234</rdeDom:registrant>
  <rdeDom:contact type="admin">sh8013</rdeDom:contact>
  <rdeDom:contact type="tech">sh8013</rdeDom:contact>
  <rdeDom:ns>
    <domain:hostObj>ns1.example.com</domain:hostObj>
    <domain:hostObj>ns1.example1.test</domain:hostObj>
  </rdeDom:ns>
  <rdeDom:clID>RegistrarX</rdeDom:clID>
  <rdeDom:crRr client="jdoe">RegistrarX</rdeDom:crRr>
  <rdeDom:crDate>1999-04-03T22:00:00.0Z</rdeDom:crDate>
  <rdeDom:exDate>2015-04-03T22:00:00.0Z</rdeDom:exDate>
</rdeDom:domain>
...
```

5.1.1.2. <rdeDomain:delete> object

The <rdeDomain:delete> element contains the fully qualified domain name that was deleted and purged.

Example of <rdeDomain:delete> object:

```
...
<rde:deletes>
  ...
  <rdeDomain:delete>
    <rdeDomain:name>foo.test</rdeDomain:name>
    <rdeDomain:name>bar.test</rdeDomain:name>
  </rdeDomain:delete>
  ...
</rde:deletes>
...
```

5.1.2. CSV Model

For the CSV Model of the domain name object, the <csvDomain:contents> child element of the <rde:contents> element is used to hold the new or updated domain name objects for the deposit. The <csvDomain: deletes> child element of the <rde:deletes> element is used to hold the deleted or purged domain name objects for the deposit. Both the <csvDomain:contents> and <csvDomain:deletes> elements contain one or more <rdeCsv:csv> elements with the following supported "name" attribute values:

"domain" Defines the fields and CSV file references used for the domain name object records.

The following "csvDomain" field elements, defined for the "domain" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "domain" <rdeCsv:csv> <rdeCsv:fields> element:

<csvDomain:fName> Domain name field with type="eppcom:labelType" and isRequired="true".

"domain" Defines the fields and CSV file references used for the domain name object records.

The following "csvDomain" field elements, defined for the "domain" <rdeCsv:csv> <rdeCsv:fields> element, MAY be used in the "domain" <rdeCsv:csv> <rdeCsv:fields> element:

<csvDomain:fOriginalName> Fully qualified name of the original IDN domain name object related to the variant domain name object with type="eppcom:labelType".

The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MUST be used in the "domain" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fRoid> Registry Object IDentifier (ROID) for the domain name object.

<rdeCsv:fClID> Identifier of client that sponsors the domain name object.

<rdeCsv:fCrRr> Identifier of the registrar, defined in Section 5.4, of the client that created the object.

<rdeCsv:fCrDate> Created date and time of the domain name object.

<rdeCsv:fUpRr> Identifier of the registrar, defined in Section 5.4, of the client that updated the object.

<rdeCsv:fUpDate> Date and time of the last update to the domain name object.

<rdeCsv:fExDate> Expiration date and time for the domain name object.

The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MAY be used in the "domain" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fUName> UTF8 encoded domain name for the <csvDomain: fName> field element.

<rdeCsv:fIdnTableId> IDN Table Identifier used for the IDN domain name object that MUST match a <rdeCsv:fIdnTableId> field element in the "idnLanguage" CSV files, as defined in Section 5.5.2.

<rdeCsv:fRegistrant> Registrant contact identifier for the domain name object.

<rdeCsv:fCrID> Identifier of client that created the domain name object.

<rdeCsv:fUpID> Identifier of the client that last updated the domain name object.

<rdeCsv:fTrDate> Date and time of the last transfer for the domain name object.

Example of a "domain" <csvDomain:contents> <rdeCsv:csv> element:

```
...
<csvDomain:contents>
...
  <rdeCsv:csv name="domain">
    <rdeCsv:fields>
      <csvDomain:fName/>
      <rdeCsv:fRoid/>
      <rdeCsv:fIdnTableId/>
      <csvDomain:fOriginalName/>
      <rdeCsv:fRegistrant/>
      <rdeCsv:fClID/>
      <rdeCsv:fCrRr/>
      <rdeCsv:fCrID/>
      <rdeCsv:fCrDate/>
      <rdeCsv:fUpRr/>
      <rdeCsv:fUpID/>
      <rdeCsv:fUpDate/>
      <rdeCsv:fExDate/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="75E2D01F">
        domain-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvDomain:contents>
...
```

Example of the corresponding domain-YYYYMMDD.csv file. The file contains four records (active ASCII domain, pendingDelete domain, original IDN with LANG-1 language rules, and variant IDN with LANG-1 language rules).

```
domain1.test,Ddomain2-TEST,,,registrantid,registrarX,registrarX,
clientY,2009-04-03T22:00:00.0Z,registrarX,clientY,
2009-12-03T09:05:00.0Z,2015-04-03T22:00:00.0Z
domain2.test,Ddomain1-TEST,,,registrantid,registrarX,registrarX,
clientY,1999-04-03T22:00:00.0Z,registrarX,clientY,
2009-12-03T09:05:00.0Z,2015-04-03T22:00:00.0Z
xn--abc123.test,Dxnabc123-TEST,LANG-1,,registrantid,registrarX,
registrarX,clientY,2009-04-03T22:00:00.0Z,registrarX,clientY,
2009-12-03T09:05:00.0Z,2015-04-03T22:00:00.0Z
xn--abc321.test,Dxnabc321-TEST,LANG-1,xn--cbc321.test,
registrantid,registrarX,registrarX,clientY,2009-04-03T22:00:00.0Z,
```

```
registrarX,clientY,2009-12-03T09:05:00.0Z,2015-04-03T22:00:00.0Z
```

Example of a "domain" <csvDomain:deletes> <rdeCsv:csv> element:

```
...
<csvDomain:deletes>
...
 <rdeCsv:csv name="domain">
  <rdeCsv:fields>
    <csvDomain:fName/>
  </rdeCsv:fields>
  <rdeCsv:files>
    <rdeCsv:file
     cksum="E19349E0">
     domain-delete-YYYYMMDD.csv
    </rdeCsv:file>
  </rdeCsv:files>
 </rdeCsv:csv>
...
</csvDomain:deletes>
...
```

Example of the corresponding domain-delete-YYYYMMDD.csv file. The file contains three domain name records.

```
domain1.test
domain2.test
domainN.test
```

"domainContacts" Defines the fields and CSV file references used for the domain name object link records to contact objects, as described in Section 5.3.

The following "csvDomain" field elements, defined for the "domainContacts" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "domainContacts" <rdeCsv:csv> <rdeCsv:fields> element:

<csvDomain:fContactType> The contact type for the contact object link with type="domain:contactAttrType". The supported contact type values include "admin" for the administration contact, "billing" for the billing contact, and "tech" for the technical contact.

The following "csvDomain" field elements, defined for the "domain" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "domainContacts" <rdeCsv:csv> <rdeCsv:fields> element:

<csvDomain:fName> The name of the domain object that is linked to the contact object.

The following "csvContact" fields, defined for the "contact" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "domainContacts" <rdeCsv:csv> <rdeCsv:fields> element:

<csvContact:fId> The server-unique contact identifier.

Example of a "domainContacts" <csvDomain:contents> <rdeCsv:csv> element:

```
...
<csvDomain:contents>
...
  <rdeCsv:csv name="domainContacts">
    <rdeCsv:fields>
      <csvDomain:fName parent="true"/>
      <csvContact:fId/>
      <csvDomain:fContactType/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="6BC9F9E8">
        domainContacts-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvDomain:contents>
...
```

Example of the corresponding domainContacts-YYYYMMDD.csv file. The file contains an admin, tech, and billing contact for the two domain names domain1.test and domain2.test.

```
domain1.test,sh8013,admin
domain1.test,mycontactid,tech
domain1.test,mycontactid,billing
domain2.test,mycontactid,admin
domain2.test,sh8013,tech
domain2.test,mycontactid,billing
```

Example of a "domainContacts" <csvDomain:deletes> <rdeCsv:csv> element:

```
...
<csvDomain:deletes>
...
 <rdeCsv:csv name="domainContacts">
  <rdeCsv:fields>
      <csvDomain:fName parent="true"/>
      <csvContact:fId/>
      <csvDomain:fContactType/>
  </rdeCsv:fields>
  <rdeCsv:files>
    <rdeCsv:file
     cksum="6BC9F9E8">
     domainContacts-delete-YYYYMMDD.csv
    </rdeCsv:file>
  </rdeCsv:files>
 </rdeCsv:csv>
...
</csvDomain:deletes>
...
```

Example of the corresponding domainContacts-delete-YYYYMMDD.csv file. The file contains two tech contact records.

```
domain1.test,mycontactid,tech
domain2.test,sh8013,tech
```

"domainStatuses" Defines the fields and CSV file references used for the domain name object statuses.

The following "csvDomain" field elements, defined for the "domainStatuses" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "domainStatuses" <rdeCsv:csv> <rdeCsv:fields> element:

<csvDomain:fStatus> The status of the domain name with type="domain:statusValueType".

<csvDomain:fRgpStatus> The Registry Grace Period (RGP) status, as a sub-status of the <csvDomain:fStatus> "pendingDelete" status value, with type="rgp:statusValueType" as defined in [RFC3915].

The following "csvDomain" fields, defined for the "domain" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "domainStatuses" <rdeCsv:csv> <rdeCsv:fields> element:

<csvDomain:fName> Domain name of status.

The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MAY be used in the "domainStatuses" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fStatusDescription> Domain object status description which is free form text describing the rationale for the status.

<rdeCsv:fLang> Language of the <rdeCsv:fStatusDescription> field.

Example of a "domainStatuses" <csvDomain:contents> <rdeCsv:csv> element:

```
...
<csvDomain:contents>
...
  <rdeCsv:csv name="domainStatuses">
    <rdeCsv:fields>
      <csvDomain:fName parent="true"/>
      <csvDomain:fStatus/>
      <rdeCsv:fStatusDescription/>
      <rdeCsv:fLang/>
      <csvDomain:fRgpStatus/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="EB8C548E">
        domainStatuses-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvDomain:contents>
...
```

Example of the corresponding domainStatuses-YYYYMMDD.csv file. The file contains the statuses for the two domain names domain1.test and domain2.test.

```
domain1.test,clientUpdateProhibited,"Disallow update",
en,
domain1.test,clientDeleteProhibited,"Disallow delete",
en,
domain2.test,clientUpdateProhibited,"Disallow update",
en,
domain2.test,pendingDelete,,,
redemptionPeriod
```

Example of a "domainStatuses" <csvDomain:deletes> <rdeCsv:csv> element:

```
...
<csvDomain:deletes>
...
 <rdeCsv:csv name="domainStatuses">
  <rdeCsv:fields>
    <csvDomain:fName parent="true"/>
    <csvDomain:fStatus/>
  </rdeCsv:fields>
  <rdeCsv:files>
    <rdeCsv:file
     cksum="F54AADF6">
     domainStatuses-delete-YYYYMMDD.csv
    </rdeCsv:file>
  </rdeCsv:files>
 </rdeCsv:csv>
...
</csvDomain:deletes>
...
```

Example of the corresponding domainStatuses-delete-YYYYMMDD.csv file. The file contains two status records.

```
domain1.test,clientUpdateProhibited
domain2.test,pendingDelete
```

"domainNameServers" Defines the fields and CSV file references used for the domain name delegated hosts (name servers). The "domainNameServers" CSV files define the relationship between a domain name object and a delegated host. To support both the <domain:hostAttr> and the <domain:hostObj> model, defined in [RFC5731], the host <rdeCsv:fRoid> field element is used to reference the host.

The following "csvDomain" fields, defined for the "domain" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "domainNameServers" <rdeCsv:csv> <rdeCsv:fields> element:

<csvDomain:fName> Domain name using the delegated host with host <rdeCsv:fRoid>.

The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MUST be used in the "domainNameServers" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fRoid> Registry Object IDentifier (ROID) used to uniquely reference a delegated host record.

Example of a "domainNameServers" <csvDomain:contents> <rdeCsv:csv> element.

```
...
<csvDomain:contents>
...
  <rdeCsv:csv name="domainNameServers">
    <rdeCsv:fields>
      <csvDomain:fName parent="true"/>
      <rdeCsv:fRoid parent="true"/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="569D4638">
        domainNameServers-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvDomain:contents>
...
```

Example of the corresponding domainNameServers-YYYYMMDD.csv file. The file contains the delegated hosts (name servers) for the two domain names domain1.test and domain2.test referenced via the <rdeCsv:fRoid> field element.

```
domain1.test,Dns1domain2test-TEST
domain1.test,Dns2domain2test-TEST
domain2.test,Dns1domainexample-TEST
domain2.test,Dns2domainexample-TEST
```

Example of a "domainNameServers" <csvDomain:deletes> <rdeCsv:csv> element.

```
...
<csvDomain:deletes>
...
 <rdeCsv:csv name="domainNameServers">
  <rdeCsv:fields>
      <csvDomain:fName parent="true"/>
      <rdeCsv:fRoid parent="true"/>
  </rdeCsv:fields>
  <rdeCsv:files>
    <rdeCsv:file
     cksum="569D4638">
     domainNameServers-delete-YYYYMMDD.csv
    </rdeCsv:file>
  </rdeCsv:files>
 </rdeCsv:csv>
...
</csvDomain:deletes>
...
```

Example of the corresponding domainNameServers-delete-YYYYMMDD.csv file. The file contains two records.

```
domain1.test,Dns1domain2test-TEST
domain1.test,Dns2domain2test-TEST
domain2.test,Dns1domainexample-TEST
domain2.test,Dns2domainexample-TEST
```

"dnssec" Defines the fields and CSV file references used for the domain name object DNSSEC records (DS or Key Data).

The following "csvDomain" field elements, defined for the "dnssec" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "dnssec" <rdeCsv:csv> rdeCsv:fields> element when the DS Data Interface per [RFC5910] is used:

<csvDomain:fKeyTag> Contains the DS key tag value per [RFC5910] with type="unsignedShort".

<csvDomain:fDsAlg> Contains the DS algorithm value per [RFC5910] with type="unsignedByte".

<csvDomain:fDigestType> Contains the DS digest type value per [RFC5910] with type="unsignedByte".

<csvDomain:fDigest> Contains the DS digest value per [RFC5910] with type="hexBinary".

The following "csvDomain" field elements, defined for the "dnssec" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "dnssec" <rdeCsv:csv> rdeCsv:fields> element when the Key Data Interface per [RFC5910] is used:

<csvDomain:fFlags> Contains the flags field value per [RFC5910] with type="unsignedShort".

<csvDomain:fProtocol> Contains the Key protocol value per [RFC5910] with type="unsignedByte".

<csvDomain:fKeyAlg> Contains the Key algorithm value per [RFC5910] with type="unsignedByte".

<csvDomain:fPubKey> Contains the public key value per [RFC5910] with type="secDNS:keyType".

The following "csvDomain" field elements, defined for the "dnssec" <rdeCsv:csv> <rdeCsv:fields> element, MAY be used in the "dnssec" <rdeCsv:csv> rdeCsv:fields> element:

<csvDomain:fMaxSigLife> Indicates a child's preference for the number of seconds after signature generation when the parent's signature on the DS information provided by the child will expire with type="secDNS:maxSigLifeType" defined in [RFC5910].

The following "domain" fields, defined for the "domain" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "dnssec" <rdeCsv:csv> <rdeCsv:fields> element:

<csvDomain:fName> Domain name of the domain object associated with the DNSSEC record.

Example of a "dnssec" <csvDomain:contents> <rdeCsv:csv> element with the DS Data Interface of [RFC5910]:

```
<csvDomain:contents>
...
  <rdeCsv:csv name="dnssec">
    <rdeCsv:fields>
      <csvDomain:fName parent="true"/>
      <csvDomain:fMaxSigLife/>
      <csvDomain:fKeyTag/>
      <csvDomain:fDsAlg/>
      <csvDomain:fDigestType/>
      <csvDomain:fDigest/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
       cksum="AA15CB43">
       dnssec-ds-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvDomain:contents>
...
```

Example of the corresponding dnssec-ds-YYYYMMDD.csv file. The file contains two DS records for domain1.test.

```
domain1.test,604800,12345,3,1,49FD46E6C4B45C55D4AC
domain1.test,604800,12346,3,1,38EC35D5B3A34B44C39B
```

Example of a "dnssec" <csvDomain:contents> <rdeCsv:csv> element with the Key Data Interface of [RFC5910]:

```
<csvDomain:contents>
...
  <rdeCsv:csv name="dnssec">
    <rdeCsv:fields>
      <csvDomain:fName parent="true"/>
      <csvDomain:fMaxSigLife/>
      <csvDomain:fFlags/>
      <csvDomain:fProtocol/>
      <csvDomain:fKeyAlg/>
      <csvDomain:fPubKey/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
       cksum="1B16F334">
       dnssec-key-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvDomain:contents>
...
```

Example of the corresponding dnssec-key-YYYYMMDD.csv file. The file contains two key records for domain1.test.

```
domain1.test,604800,257,3,1,AQPJ////4Q==
domain1.test,604800,257,3,1,AQPJ////4QQQ
```

Example of a "dnssec" <csvDomain:deletes> <rdeCsv:csv> element with the DS Data Interface of [RFC5910]:

```
...
<csvDomain:deletes>
...
  <rdeCsv:csv name="dnssec">
    <rdeCsv:fields>
      <csvDomain:fName parent="true"/>
      <csvDomain:fKeyTag/>
      <csvDomain:fDsAlg/>
      <csvDomain:fDigestType/>
      <csvDomain:fDigest/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
       cksum="ADB014A2">
       dnssec-ds-delete-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvDomain:deletes>
...
```

Example of the corresponding dnssec-ds-delete-YYYYMMDD.csv file. The file contains two DS records for domain1.test.

```
domain1.test,12345,3,1,49FD46E6C4B45C55D4AC
domain1.test,12346,3,1,38EC35D5B3A34B44C39B
```

Example of a "dnssec" <csvDomain:deletes> <rdeCsv:csv> element with the Key Data Interface of [RFC5910]:

```
...
<csvDomain:deletes>
...
  <rdeCsv:csv name="dnssec">
    <rdeCsv:fields>
      <csvDomain:fName parent="true"/>
      <csvDomain:fFlags/>
      <csvDomain:fProtocol/>
      <csvDomain:fKeyAlg/>
      <csvDomain:fPubKey/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
       cksum="B3E06C5C">
       dnssec-key-delete-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvDomain:deletes>
...
```

Example of the corresponding dnssec-key-delete-YYYYMMDD.csv file. The file contains two key records for domain1.test.

```
domain1.test,257,3,1,AQPJ////4Q==
domain1.test,257,3,1,AQPJ////4QQQ
```

"domainTransfer" Defines the fields and CSV file references used for the domain name object pending and completed transfer records. No additional field elements were added for use in the "domainTransfer" <rdeCsv:csv> <rdeCsv:fields> element.

The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MUST be used in the "domainTransfer" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fTrStatus> State of the most recent transfer request.

<rdeCsv:fReRr> Identifier of the registrar, defined in Section 5.4, of the client that requested the transfer.

<rdeCsv:fReDate> Date and time that the transfer was requested.

<rdeCsv:fAcRr> Identifier of the registrar, defined in Section 5.4, of the client that should take or took action.

<rdeCsv:fAcDate> Date and time that the transfer action should be taken or has been taken.

The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MAY be used in the "domainTransfer" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fExDate> Expiration date if the transfer command caused or causes a change in the validity period.

<rdeCsv:fReID> Identifier of client that requested the transfer.

<rdeCsv:fAcID> Identifier of client that should take or took action for transfer.

The following "csvDomain" fields, defined for the "domain" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "domainTransfer" <rdeCsv:csv> <rdeCsv:fields> element:

<csvDomain:fName> Domain name of the domain object involved in the transfer.

Example of a "domainTransfer" <csvDomain:contents> <rdeCsv:csv> element:

```
...
<csvDomain:contents>
...
  <rdeCsv:csv name="domainTransfer">
    <rdeCsv:fields>
      <csvDomain:fName parent="true"/>
      <rdeCsv:fTrStatus/>
      <rdeCsv:fReRr/>
      <rdeCsv:fReID/>
      <rdeCsv:fReDate/>
      <rdeCsv:fAcRr/>
      <rdeCsv:fAcID/>
      <rdeCsv:fAcDate/>
      <rdeCsv:fExDate/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
       cksum="71170194">
       domainTransfer-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvDomain:contents>
...
```

Example of the corresponding domainTransfer-YYYYMMDD.csv file. The file contains two domain transfer records, with one in pending status and the second in clientApproved status.

```
domain1.test,pending,registrarX,clientY,
2011-03-08T19:38:00.0Z,registrarY,,2011-03-13T23:59:59.0Z,
2016-04-03T22:00:00.0Z
domain2.test,clientApproved,registrarX,clientY,
2012-03-08T19:38:00.0Z,registrarY,clientY,
2012-03-09T23:59:59.0Z,2016-05-04T23:00:00.0Z
```

Example of a "domainTransfer" <csvDomain:deletes> <rdeCsv:csv> element:

```
...
<csvDomain:deletes>
...
  <rdeCsv:csv name="domainTransfer">
    <rdeCsv:fields>
      <csvDomain:fName parent="true"/>
      <rdeCsv:fReDate/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
       cksum="10C3EDA8">
       domainTransfer-delete-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvDomain:deletes>
...
```

Example of the corresponding domainTransfer-delete-YYYYMMDD.csv file. The file contains two domain transfer records.

```
domain1.test,2011-03-08T19:38:00.0Z
domain2.test,2012-03-08T19:38:00.0Z
```

5.2. Host Object

The host object is based on the EPP host name mapping in [RFC5732]. The host object supports both the XML Model and the CSV Model, defined in Models (Section 2) section. The elements used for both models are defined in the following sections.

5.2.1. XML Model

There are two elements used in the data escrow of the host objects for the XML model including the <rdeHost:host>, under the <rdeHost:contents> element, and the <rdeHost:delete> element, under the <rde:deletes> element.

A <rdeHost:host> element substitutes for the <rdeHost:abstractHost> abstract element to define a concrete definition of a host. The <rdeHost:abstractHost> element can be replaced by other host definitions using the XML schema substitution groups feature.

5.2.1.1. <rdeHost:host> element

The RDE host object is based on the EPP host <info> response for an authorized client (Section 3.1.2. of [RFC5732]).

The OPTIONAL <host> element contains the following child elements:

- o A <name> element that contains the fully qualified name of the host object.

- o A <roid> element that contains the repository object identifier assigned to the host object when the object was created.

- o One or more <status> elements that describe the status of the host object.

- o Zero or more <addr> elements that contain the IP addresses associated with the host object.

- o A <clID> element that contains the identifier of the sponsoring registrar.

- o A <crRr> element that contains the identifier of the registrar that created the host object. An OPTIONAL client attribute is used to specify the client that performed the operation.

- o A <crDate> element that contains the date and time of host-object creation.

- o An OPTIONAL <upRr> element that contains the identifier of the registrar that last updated the host object. This element MUST NOT be present if the host object has never been modified. An OPTIONAL client attribute is used to specify the client that performed the operation.

- o An OPTIONAL <upDate> element that contains the date and time of the most recent host-object modification. This element MUST NOT be present if the host object has never been modified.

- o An OPTIONAL <trDate> element that contains the date and time of the most recent host object successful transfer. This element MUST NOT be present if the domain name object has never been transfered.

Example of <host> object:

```
...
<rdeHost:host>
  <rdeHost:name>ns1.example1.test</rdeHost:name>
  <rdeHost:roid>Hns1_example_test-TEST</rdeHost:roid>
  <rdeHost:status s="ok"/>
  <rdeHost:status s="linked"/>
  <rdeHost:addr ip="v4">192.0.2.2</rdeHost:addr>
  <rdeHost:addr ip="v4">192.0.2.29</rdeHost:addr>
  <rdeHost:addr ip="v6">1080:0:0:0:8:800:200C:417A</rdeHost:addr>
  <rdeHost:clID>RegistrarX</rdeHost:clID>
  <rdeHost:crRr>RegistrarX</rdeHost:crRr>
  <rdeHost:crDate>1999-05-08T12:10:00.0Z</rdeHost:crDate>
  <rdeHost:upRr>RegistrarX</rdeHost:upRr>
  <rdeHost:upDate>2009-10-03T09:34:00.0Z</rdeHost:upDate>
</rdeHost:host>
...
```

5.2.1.2. <rdeHost:delete> object

The <rdeHost:delete> element contains the fully qualified domain name of a host that was deleted. The <rdeHost:delete> element also supports host removal based on roid to support SRS systems in which different hosts with the same fully qualified domain name are active at the same time.

Example of <rdeHost:delete> object:

```
...
<rde:deletes>
  ...
  <rdeHost:delete>
    <rdeHost:name>ns1.example.test</rdeHost:name>
  </rdeHost:delete>
  ...
</rde:deletes>
...
```

5.2.1.3. CSV Model

For the CSV Model of the host object, the <csvHost:contents> child element of the <rde:contents> element is used to hold the new or updated host objects for the deposit. The <csvHost:deletes> child element of the <rde:deletes> element is used to hold the deleted or purged host objects for the deposit. Both the <csvHost:contents> and <csvHost:deletes> elements contain one or more <rdeCsv:csv> elements with the following supported "name" attribute values:

"host" Defines the fields and CSV file references used for the host object records.

The following "csvHost" field elements, defined for the "host" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "host" <rdeCsv:csv> <rdeCsv:fields> element:

<csvHost:fName> Host name field with type="eppcom:labelType" and isRequired="true".

The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MUST be used in the "host" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fRoid> Repository Object IDentifier (ROID) assigned to the host object.

The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MAY be used in the "host" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fClID> Identifier of the sponsoring client.

<rdeCsv:fCrRr> Identifier of the registrar, defined in Section 5.4, of the client that created the object.

<rdeCsv:fCrID> Identifier of client that created the host object.

<rdeCsv:fCrDate> Date and time that the host object was created.

<rdeCsv:fUpRr> Identifier of the registrar, defined in Section 5.4, of the client that updated the object.

<rdeCsv:fUpID> Identifier of client that last updated the host object.

<rdeCsv:fUpDate> Date and time that the host object was last updated.

<rdeCsv:fTrDate> Date and time that the host was last transferred.

Example of a "host" <csvHost:contents> <rdeCsv:csv> element:

```
...
<csvHost:contents>
...
  <rdeCsv:csv name="host">
   <rdeCsv:fields>
     <csvHost:fName/>
     <rdeCsv:fRoid/>
     <rdeCsv:fClID/>
     <rdeCsv:fCrRr/>
     <rdeCsv:fCrID/>
     <rdeCsv:fCrDate/>
     <rdeCsv:fUpRr/>
     <rdeCsv:fUpID/>
     <rdeCsv:fUpDate/>
     <rdeCsv:fTrDate/>
   </rdeCsv:fields>
   <rdeCsv:files>
     <rdeCsv:file
      cksum="120938E3">
      host-YYYYMMDD.csv
     </rdeCsv:file>
   </rdeCsv:files>
  </rdeCsv:csv>
...
</csvHost:contents>
...
```

Example of the corresponding host-YYYYMMDD.csv file. The file contains two host records with one being an internal host and the second being an external host.

```
ns1.example.test,Hns1_example_test-TEST,registrarX,registrarX,
clientY,1999-05-08T12:10:00.0Z,registrarX,
clientY,2009-10-03T09:34:00.0Z,2007-01-08T09:19:00.0Z
ns1.example.test2,Hns1_example_test2-TEST,clientY,
clientX,2009-05-08T12:10:00.0Z,clientX,
2010-10-03T09:34:00.0Z,
```

Example of a "host" <csvHost:deletes> <rdeCsv:csv> element:

```
...
<csvHost:deletes>
...
 <rdeCsv:csv name="host">
  <rdeCsv:fields>
    <rdeCsv:fRoid/>
  </rdeCsv:fields>
  <rdeCsv:files>
    <rdeCsv:file
     cksum="E3408F5E">
     host-delete-YYYYMMDD.csv
    </rdeCsv:file>
  </rdeCsv:files>
 </rdeCsv:csv>
...
</csvHost:deletes>
...
```

Example of the host-delete-YYYYMMDD.csv file. The file contains two host records.

```
Hns1_example_test-TEST
Hns1_example_test2-TEST
```

"hostStatuses" Defines the fields and CSV file references used for the host object statuses.

The following "csvHost" fields, defined for the "host" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "hostStatuses" <rdeCsv:csv> <rdeCsv:fields> element:

<csvHost:fStatus> The status of the host with type="host:statusValueType"/>.

The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MUST be used in the "hostStatuses" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fRoid> Host object Registry Object IDentifier (ROID) assigned to the host object.

The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MAY be used in the "hostStatuses" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fStatusDescription> Host object status description which is free form text describing the rationale for the status.

<rdeCsv:fLang> Language of the <rdeCsv:fStatusDescription> field.

Example of a "hostStatuses" <csvHost:contents> <rdeCsv:csv> element:

```
...
<csvHost:contents>
...
  <rdeCsv:csv name="hostStatuses">
    <rdeCsv:fields>
      <rdeCsv:fRoid parent="true"/>
      <csvHost:fStatus/>
      <rdeCsv:fStatusDescription/>
      <rdeCsv:fLang/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="0BA504FC">
        hostStatuses-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvHost:contents>
...
```

Example of the corresponding hostStatuses-YYYYMMDD.csv file. The file contains the statuses for the two host names ns1.domain1.test and ns1.domain2.test.

```
ns1domain1test-TEST,clientUpdateProhibited,"Disallow update",en
ns1domain1test-TEST,clientDeleteProhibited,"Disallow delete",en
ns1domain2test-TEST,ok,,
```

Example of a "hostStatuses" <csvHost:deletes> <rdeCsv:csv> element:

```
...
<csvHost:deletes>
...
 <rdeCsv:csv name="hostStatuses">
  <rdeCsv:fields>
      <rdeCsv:fRoid parent="true"/>
      <csvHost:fStatus/>
  </rdeCsv:fields>
  <rdeCsv:files>
    <rdeCsv:file
     cksum="055696AF">
     hostStatuses-delete-YYYYMMDD.csv
    </rdeCsv:file>
  </rdeCsv:files>
 </rdeCsv:csv>
...
</csvHost:deletes>
...
```

Example of the corresponding hostStatuses-delete-YYYYMMDD.csv file. The file contains two status records.

```
ns1domain1test-TEST,clientUpdateProhibited
ns1domain1test-TEST,clientDeleteProhibited
```

"hostAddresses" Defines the fields and CSV file references used for the host object IP addresses.

The following "csvHost" field elements, defined for the "hostAddresses" <rdeCsv:csv> rdeCsv:fields> element, MUST be used in the "hostAddresses" <rdeCsv:csv> <rdeCsv:fields> element:

<csvHost:fAddr> IP addresses associated with the host object with type="host:addrStringType".

<csvHost:fAddrVersion> IP addresses version associated with the host object with type="host:ipType". "host:ipType" has the enumerated values of "v4" or "v6".

The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MUST be used in the "hostAddresses" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fRoid> Host object Registry Object IDentifier (ROID) assigned to the host object.

Example of a "hostAddresses" <csvHost:contents> <rdeCsv:csv> element.

```
...
<csvHost:contents>
...
  <rdeCsv:csv name="hostAddresses">
    <rdeCsv:fields>
      <rdeCsv:fRoid parent="true"/>
      <csvHost:fAddr/>
      <csvHost:fAddrVersion/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="17888F02">
        hostAddresses-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvHost:contents>
...
```

Example of the corresponding hostAddressesObj-YYYYMMDD.csv file. The file contains the IP addresses for the host name ns1.domain1.test.

```
ns1domain1test-TEST,192.0.2.2,v4
ns1domain1test-TEST,192.0.2.29,v4
ns1domain1test-TEST,1080:0:0:0:8:800:200C:417A,v6
```

Example of a "hostAddresses" <csvHost:deletes> <rdeCsv:csv> element:

```
...
<csvHost:deletes>
...
 <rdeCsv:csv name="hostAddresses">
  <rdeCsv:fields>
      <rdeCsv:fRoid parent="true"/>
      <csvHost:fAddr/>
  </rdeCsv:fields>
  <rdeCsv:files>
    <rdeCsv:file
     cksum="BF5D53B0">
     hostAddresses-delete-YYYYMMDD.csv
    </rdeCsv:file>
  </rdeCsv:files>
 </rdeCsv:csv>
...
</csvHost:deletes>
...
```

Example of the corresponding hostAddresses-delete-YYYYMMDD.csv file. The file contains three IP address records.

```
ns1domain1test-TEST,192.0.2.2
ns1domain1test-TEST,192.0.2.29
ns1domain1test-TEST,1080:0:0:0:8:800:200C:417A
```

5.3. Contact Object

The contact object is based on the EPP contact name mapping in [RFC5733]. The contact object supports both the XML Model and the CSV Model, defined in Models (Section 2) section. The elements used for both models are defined in the following sections.

5.3.1. XML Model

There are two elements used in the data escrow of the contact objects for the XML model including the <rdeContact:contact>, under the <rdeContact:contents> element, and the <rdeContact:delete> element, under the <rde:deletes> element.

A <contact> element substitutes for the <abstractContact> abstract element to define a concrete definition of a contact. The <abstractContact> element can be replaced by other contact definitions using the XML schema substitution groups feature.

5.3.1.1. <rdeContact:contact> object

The contact object is based on the EPP contact <info> response for an authorized client (Section 3.1.2. of [RFC5733]) with some additions including the data from an EPP <transfer> Query Response, see Section 3.1.3. of [RFC5733].

The OPTIONAL <contact> element contains the following child elements:

- o A <id> element that contains the server-unique identifier of the contact object

- o A <roid> element that contains the Repository Object IDentifier assigned to the contact object when the object was created.

- o One or more <status> elements that describe the status of the contact object.

- o One or two <postalInfo> elements that contain postal-address information. Two elements are provided so that address information can be provided in both internationalized and localized forms; a "type" attribute is used to identify the two forms. If an internationalized form (type="int") is provided, element content MUST be represented in a subset of UTF-8 that can be represented in the 7-bit US-ASCII character set. If a localized form (type="loc") is provided, element content MAY be represented in unrestricted UTF-8. The <postalInfo> element contains the following child elements:

  - * A <name> element that contains the name of the individual or role represented by the contact.

  - * An OPTIONAL <org> element that contains the name of the organization with which the contact is affiliated.

* An <addr> element that contains address information associated with the contact. An <addr> element contains the following child elements:

  + One, two, or three OPTIONAL <street> elements that contain the contact's street address.

  + A <city> element that contains the contact's city.

  + An OPTIONAL <sp> element that contains the contact's state or province.

  + An OPTIONAL <pc> element that contains the contact's postal code.

  + A <cc> element that contains the contact's two-letter country code.

- An OPTIONAL <voice> element that contains the contact's voice telephone number.

- An OPTIONAL <fax> element that contains the contact's facsimile telephone number.

- An <email> element that contains the contact's email address.

- A <clID> element that contains the identifier of the sponsoring registrar.

- A <crRr> element that contains the identifier of the registrar that created the contact object. An OPTIONAL client attribute is used to specify the client that performed the operation.

- A <crDate> element that contains the date and time of contact-object creation.

- An OPTIONAL <upRr> element that contains the identifier of the registrar that last updated the contact object. This element MUST NOT be present if the contact has never been modified. An OPTIONAL client attribute is used to specify the client that performed the operation.

- An OPTIONAL <upDate> element that contains the date and time of the most recent contact-object modification. This element MUST NOT be present if the contact object has never been modified.

- An OPTIONAL <trDate> element that contains the date and time of the most recent contact object successful transfer. This element

MUST NOT be present if the contact object has never been transferred.

- o An OPTIONAL <trnData> element that contains the following child elements related to the last transfer request of the contact object:

  - * A <trStatus> element that contains the state of the most recent transfer request.

  - * A <reRr> element that contains the identifier of the registrar that requested the domain name object transfer. An OPTIONAL client attribute is used to specify the client that performed the operation.

  - * An <acRr> element that contains the identifier of the registrar that SHOULD act upon a PENDING transfer request. For all other status types, the value identifies the registrar that took the indicated action. An OPTIONAL client attribute is used to specify the client that performed the operation.

  - * A <reDate> element that contains the date and time that the transfer was requested.

  - * An <acDate> element that contains the date and time of a required or completed response. For a PENDING request, the value identifies the date and time by which a response is required before an automated response action will be taken by the registry. For all other status types, the value identifies the date and time when the request was completed.

- o An OPTIONAL <disclose> element that identifies elements that requiring exceptional server-operator handling to allow or restrict disclosure to third parties. See Section 2.9 of [RFC5733] for a description of the child elements contained within the <disclose> element.

Example <contact> object:

```
...
<rdeContact:contact>
  <rdeContact:roid>Csh8013-TEST</rdeContact:roid>
  <rdeContact:id>sh8013</rdeContact:id>
  <rdeContact:status s="linked"/>
  <rdeContact:status s="clientDeleteProhibited"/>
  <rdeContact:postalInfo type="int">
    <contact:name>John Doe</contact:name>
    <contact:org>Example Inc.</contact:org>
    <contact:addr>
      <contact:street>123 Example Dr.</contact:street>
      <contact:street>Suite 100</contact:street>
      <contact:city>Dulles</contact:city>
      <contact:sp>VA</contact:sp>
      <contact:pc>20166-6503</contact:pc>
      <contact:cc>US</contact:cc>
    </contact:addr>
  </rdeContact:postalInfo>
  <rdeContact:voice x="1234">+1.7035555555</rdeContact:voice>
  <rdeContact:fax>+1.7035555556</rdeContact:fax>
  <rdeContact:email>jdoe@example.test</rdeContact:email>
  <rdeContact:clID>RegistrarX</rdeContact:clID>
  <rdeContact:crRr client="jdoe">RegistrarX</rdeContact:crRr>
  <rdeContact:crDate>2009-09-13T08:01:00.0Z</rdeContact:crDate>
  <rdeContact:upRr client="jdoe">RegistrarX</rdeContact:upRr>
  <rdeContact:upDate>2009-11-26T09:10:00.0Z</rdeContact:upDate>
  <rdeContact:trDate>2009-12-03T09:05:00.0Z</rdeContact:trDate>
  <rdeContact:trnData>
    <rdeContact:trStatus>pending</rdeContact:trStatus>
    <rdeContact:reRr client="jstiles">clientW</rdeContact:reRr>
    <rdeContact:reDate>2011-03-08T19:38:00.0Z</rdeContact:reDate>
    <rdeContact:acRr client="rmiles">RegistrarX</rdeContact:acRr>
    <rdeContact:acDate>2011-03-13T23:59:59.0Z</rdeContact:acDate>
  </rdeContact:trnData>
  <rdeContact:disclose flag="0">
    <contact:voice/>
    <contact:email/>
  </rdeContact:disclose>
</rdeContact:contact>
...
```

5.3.1.2. <rdeContact:delete> object

The <rdeContact:delete> element contains the id of a contact that was deleted.

Example of <rdeContact:delete> object:

```
...
<rde:deletes>
  ...
  <rdeContact:delete>
    <rdeContact:id>sh8013-TEST</rdeContact:id>
    <rdeContact:id>co8013-TEST</rdeContact:id>
  </rdeContact:delete>
  ...
</rde:deletes>
...
```

5.3.2. CSV Model

For the CSV Model of the contact object, the <csvContact:contents> child element of the <rde:contents> element is used to hold the new or updated contact objects for the deposit. The <csvContact:deletes> child element of the <rde:deletes> element is used to hold the deleted or purged contact objects for the deposit. Both the <csvContact:contents> and <csvContact:deletes> elements contain one or more <rdeCsv:csv> elements with the following supported "name" attribute values:

"contact" Defines the fields and CSV file references used for the contact object records.

The following "csvContact" field elements, defined for the "contact" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "contact" <rdeCsv:csv> <rdeCsv:fields> element:

<csvContact:fId> Contains the server-unique contact identifier with type="eppcom:clIDType" and isRequired="true".

<csvContact:fEmail> Contains the contact's email address with type="eppcom:minTokenType" and isRequired="true".

The following field elements MAY be used in the "contact" <rdeCsv:csv> <rdeCsv:fields> element:

<csvContact:fVoice> Contains the contact's voice telephone number with type="contact:e164StringType".

<csvContact:fVoiceExt> Contains the contact's voice telephone number extension with type="token".

<csvContact:fFax> Contains the contact's facsimile telephone number with type="contact:e164StringType".

<csvContact:fFaxExt> Contains the contact's facsimile telephone number extension with type="token".

The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MUST be used in the "contact" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fRoid> The Registry Object IDentifier (ROID) for the contact object.

<rdeCsv:fClID> Identifier of client (registrar) that sponsors the contact object.

<rdeCsv:fCrRr> Identifier of the registrar, defined in Section 5.4, of the client that created the object.

<rdeCsv:fCrDate> Created date and time of the contact object

<rdeCsv:fUpRr> Identifier of the registrar, defined in Section 5.4, of the client that updated the object.

<rdeCsv:fUpDate> Date and time of the last update to the contact object.

The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MAY be used in the "contact" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fCrID> Identifier of client that created the contact object.

<rdeCsv:fUpID> Identifier of the client that last updated the contact object.

<rdeCsv:fTrDate> Date and time of the last transfer for the contact object.

Example of a "contact" <csvContact:contacts> <rdeCsv:csv> element:

```
...
<csvContact:contents>
...
  <rdeCsv:csv name="contact">
    <rdeCsv:fields>
     <csvContact:fId/>
     <rdeCsv:fRoid/>
     <csvContact:fVoice/>
     <csvContact:fVoiceExt/>
     <csvContact:fFax/>
     <csvContact:fFaxExt/>
     <csvContact:fEmail/>
     <rdeCsv:fClID/>
     <rdeCsv:fCrRr/>
     <rdeCsv:fCrID/>
     <rdeCsv:fCrDate/>
     <rdeCsv:fUpRr/>
     <rdeCsv:fUpID/>
     <rdeCsv:fUpDate/>
    </rdeCsv:fields>
    <rdeCsv:files>
     <rdeCsv:file
      cksum="D7F106A5">
      contact-YYYYMMDD.csv
     </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvContact:contents>
...
```

Example of the contact-YYYYMMDD.csv file. The file contains two object contact records.

```
sh8013,Csh8013-TEST,+1.7035555555,1234,+1.7035555556,,
jdoe@example.test,registrarX,registarX,
clientY,2009-09-13T08:01:00.0Z,registarX,clientY,
2009-11-26T09:10:00.0Z
mycontactid,Cmycontactid-TEST,+1.7034444444,1234,
+1.7033333333,,jsmith@example.test,registrarX,registarX,clientY,
2010-09-13T08:01:00.0Z,registarX,clientY,2011-11-26T09:10:00.0Z
```

Example of a "contact" <csvContact:deletes> <rdeCsv:csv> element:

```
...
<csvContact:deletes>
...
  <rdeCsv:csv name="contact">
    <rdeCsv:fields>
      <csvContact:fId/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="6F2B988F">
        contact-delete-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvContact:deletes>
...
```

Example of the contact-delete-YYYYMMDD.csv file. The file contains two contact records.

```
sh8013
mycontactid
```

"contactStatuses" Defines the fields and CSV file references used for the contact object statuses.

The following "csvContact" field elements, defined for the "contact" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "contactStatuses" <rdeCsv:csv> <rdeCsv:fields> element:

<csvContact:fId> Server-unique contact identifier of status.

<csvContact:fStatus> The status of the contact with type="contact:statusValueType".

The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MAY be used in the "contactStatuses" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fStatusDescription> The contact object status description which is free form text describing the rationale for the status.

<rdeCsv:fLang> Language of the <rdeCsv:fStatusDescription> field.

Example of a "contactStatuses" <csvContact:contents> <rdeCsv:csv> element:

```
...
<csvContact:contents>
...
  <rdeCsv:csv name="contactStatuses">
    <rdeCsv:fields>
      <csvContact:fId parent="true"/>
      <csvContact:fStatus/>
      <rdeCsv:fStatusDescription/>
      <rdeCsv:fLang/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="2AAF99D4">
        contactStatuses-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvContact:contents>
...
```

Example of the corresponding contactStatuses-YYYYMMDD.csv file. The file contains the statuses for the two contact identifiers sh8013 and mycontactid.

```
sh8013,clientUpdateProhibited,"Disallow update",en
sh8013,clientDeleteProhibited,"Disallow delete",en
mycontactid,ok,,
```

Example of a "contactStatuses" <csvContact:deletes> <rdeCsv:csv> element:

```
...
<csvContact:deletes>
...
 <rdeCsv:csv name="contactStatuses">
  <rdeCsv:fields>
      <csvContact:fId parent="true"/>
      <csvContact:fStatus/>
  </rdeCsv:fields>
  <rdeCsv:files>
    <rdeCsv:file
     cksum="CBEE0AB6">
     contactStatuses-delete-YYYYMMDD.csv
    </rdeCsv:file>
  </rdeCsv:files>
 </rdeCsv:csv>
...
</csvContact:deletes>
...
```

Example of the corresponding contactStatuses-delete-YYYYMMDD.csv file. The file contains two status records.

```
sh8013,clientUpdateProhibited
sh8013,clientDeleteProhibited
```

"contactPostal" Defines the fields and CSV file references used for the contact postal info object records.

The following "csvContact" field elements, defined for the "contactPostal" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "contactPostal" <rdeCsv:csv> <rdeCsv:fields> element:

<csvContact:fName> Contains the contact's name of the individual or role represented by the contact with type="contact: postalLineType" and isRequired="true". An OPTIONAL "isLoc" attribute to used to indicate the localized or internationalized form as defined in section Section 4.7.

<csvContact:fStreet> Contains the contact's contact's street address line with type="contact:fPostalLineType". An index attribute is required to indicate which street address line the field represents with index "0" for the first line and index "2" for the last line. An OPTIONAL "isLoc" attribute to used to indicate the localized or internationalized form as defined in section Section 4.7.

<csvContact:fCity> Contains the contact's city with type="contact:postalLineType" and isRequired="true". An OPTIONAL "isLoc" attribute to used to indicate the localized or internationalized form as defined in section Section 4.7.

<csvContact:fCc> Contains the contact's country code with type="contact:ccType". An OPTIONAL "isLoc" attribute to used to indicate the localized or internationalized form as defined in section Section 4.7.

"contactPostal" Defines the fields and CSV file references used for the contact postal info object records.

The following "csvContact" field elements, defined for the "contactPostal" <rdeCsv:csv> <rdeCsv:fields> element, MAY be used in the "contactPostal" <rdeCsv:csv> <rdeCsv:fields> element:

<csvContact:fPostalType> Contains the form of the postal-address information with type="contact:postalLineType". This field specifies the form ("int" or "loc"), as defined in Section 4.7, of the <csvContact:fName>, <csvContact:fOrg>, <csvContact:fStreet>, <csvContact:fCity>, <csvContact:fSp>, <csvContact:fPc>, <csvContact:fCc> fields.

<csvContact:fOrg> Contains the name of the organization with which the contact is affiliated with type="contact:optPostalLineType". An OPTIONAL "isLoc" attribute to used to indicate the localized or internationalized form as defined in section Section 4.7.

<csvContact:fSp> Contains the contact's state or province with type="contact:optPostalLineType". An OPTIONAL "isLoc" attribute to used to indicate the localized or internationalized form as defined in section Section 4.7.

<csvContact:fPc> Contains the contact's postal code with type="contact:pcType". An OPTIONAL "isLoc" attribute to used to indicate the localized or internationalized form as defined in section Section 4.7.

The following "csvContact" fields, defined for the "contact" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "contactPostal" <rdeCsv:csv> <rdeCsv:fields> element:

<csvContact:fId> Server-unique contact identifier for the contact object.

Example of a "contactPostal" <csvContact:contents> <rdeCsv:csv> element:

```
...
<csvContact:contents>
...
  <rdeCsv:csv name="contactPostal">
    <rdeCsv:fields>
      <csvContact:fId parent="true"/>
      <csvContact:fPostalType/>
      <csvContact:fName/>
      <csvContact:fOrg/>
      <csvContact:fStreet index="0"/>
      <csvContact:fStreet index="1"/>
      <csvContact:fStreet index="2"/>
      <csvContact:fCity/>
      <csvContact:fSp/>
      <csvContact:fPc/>
      <csvContact:fCc/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="02CC2504">
        contactPostal-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvContact:contents>
...
```

Example of the contactPostal-YYYYMMDD.csv file. The file contains two contact postal records.

```
sh8013,int,"John Doe","Example Inc.",
"123 Example Dr.","Suite 100",,Reston,VA,20190,US
mycontactid,int,"John Smith","Acme Inc.",
"123 Sample Dr.",,,Reston,VA,20190,US
```

Example of a "contactPostal" <csvContact:deletes> <rdeCsv:csv> element:

```
...
<csvContact:deletes>
...
  <rdeCsv:csv name="contactPostal">
    <rdeCsv:fields>
      <csvContact:fId parent="true"/>
      <csvContact:fPostalType/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="9A47B820">
        contactPostal-delete-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvContact:deletes>
...
```

Example of the contactPostal-delete-YYYYMMDD.csv file. The file contains two contact postal records.

```
sh8013,int
mycontactid,int
```

"contactTransfer" Defines the fields and CSV file references used for the contact object pending and completed transfer records. No additional field elements were added for use in the "contactTransfer" <rdeCsv:csv> <rdeCsv:fields> element. The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MUST be used in the "contactTransfer"

<rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fTrStatus> State of the most recent transfer request.

<rdeCsv:fReRr> Identifier of the registrar, defined in Section 5.4, of the client that requested the transfer.

<rdeCsv:fReDate> Date and time that the transfer was requested.

<rdeCsv:fAcRr> Identifier of the registrar, defined in Section 5.4, of the client that should take or took action.

<rdeCsv:fAcDate> Date and time that the transfer action should be taken or has been taken

The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MAY be used in the "contactTransfer" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fReID> Identifier of client that requested the transfer.

<rdeCsv:fAcID> Identifier of client that should take or took action for transfer.

The following "csvContact" fields, defined for the "contact" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "contactTransfer" <rdeCsv:csv> <rdeCsv:fields> element:

<csvContact:fId> Server-unique contact identifier for the contact object.

Example of a "contactTransfer" <csvContact:contents> <rdeCsv:csv> element:

```
...
<csvContact:contents>
...
  <rdeCsv:csv name="contactTransfer">
    <rdeCsv:fields>
      <csvContact:fId parent="true"/>
      <rdeCsv:fTrStatus/>
      <rdeCsv:fReRr/>
      <rdeCsv:fReID/>
      <rdeCsv:fReDate/>
      <rdeCsv:fAcRr/>
      <rdeCsv:fAcID/>
      <rdeCsv:fAcDate/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="D0929632">
        contactTransfer-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvContact:contents>
...
```

Example of the contactTransfer-YYYYMMDD.csv file. The file contains two contact transfer records with one in pending status and the second in clientApproved status.

```
sh8013,pending,registrarX,clientX,2011-03-08T19:38:00.0Z,
registrarY,,2011-03-13T23:59:59.0Z
mycontactid,clientApproved,registrarX,clientX,2011-04-08T19:38:00.0Z,
registrarY,clientY,2011-04-09T20:38:00.0Z
```

Example of a "contactTransfer" <csvContact:deletes> <rdeCsv:csv> element:

```
...
<csvContact:deletes>
...
  <rdeCsv:csv name="contactTransfer">
    <rdeCsv:fields>
      <csvContact:fId parent="true"/>
      <rdeCsv:fReDate/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="AF1479BD">
        contactTransfer-delete-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvContact:deletes>
...
```

Example of the contactTransfer-delete-YYYYMMDD.csv file. The file contains two contact transfer records.

```
sh8013,2011-03-08T19:38:00.0Z
mycontactid,2011-04-08T19:38:00.0Z
```

"contactDisclose" Defines the fields and CSV file references used for the contact disclose object records.

The following "csvContact" field elements, defined for the "contactDisclose" <rdeCsv:csv> <rdeCsv:fields> element, MAY be used in the "contactDisclose" <rdeCsv:csv> <rdeCsv:fields> element:

<csvContact:fDiscloseFlag> Contains flag with a value of "true" or "1" (one) notes the preference to allow disclosure of the specified elements as an exception to the stated data-collection policy. A value of "false" or "0" (zero) notes a client preference to not allow disclosure of the specified elements as an exception to the stated data-collection policy with type="boolean". The additional fields define specific exceptional disclosure preferences based on the <csvContact:fDiscloseFlag> field.

<csvContact:fDiscloseNameLoc> Exceptional disclosure preference flag for the localized form of the contact name with type="boolean".

<csvContact:fDiscloseNameInt> Exceptional disclosure preference flag for the internationalized form of the contact name with type="boolean".

<csvContact:fDiscloseOrgLoc> Exceptional disclosure preference flag for the localized form of the contact organization with type="boolean". with type="boolean".

<csvContact:fDiscloseOrgInt> Exceptional disclosure preference flag for the internationalized form of the contact organization with type="boolean". with type="boolean".

<csvContact:fDiscloseAddrLoc> Exceptional disclosure preference flag for the localized form of the contact address with type="boolean".

<csvContact:fDiscloseAddrInt> Exceptional disclosure preference flag for the internationalized form of the contact address with type="boolean".

<csvContact:fDiscloseVoice> Exceptional disclosure preference flag of the contact voice telephone number with type="boolean".

<csvContact:fDiscloseFax> Exceptional disclosure preference flag of the contact facsimile telephone number with type="boolean".

<csvContact:fDiscloseEmail> Exceptional disclosure preference flag of the contact email address with type="boolean".

The following "csvContact" fields, defined for the "contact" <rdeCsv:csv> <rdeCsv:fields> element, is used in the "contactDisclose" <rdeCsv:csv> <rdeCsv:fields> element:

<csvContact:fId> Server-unique contact identifier for the contact object.

Example of a "contactDisclose" <csvContact:contents> <rdeCsv:csv> element:

```
...
<csvContact:contents>
...
  <rdeCsv:csv name="contactDisclose">
    <rdeCsv:fields>
      <csvContact:fId parent="true"/>
      <csvContact:fDiscloseFlag/>
      <csvContact:fDiscloseNameLoc/>
      <csvContact:fDiscloseNameInt/>
      <csvContact:fDiscloseOrgLoc/>
      <csvContact:fDiscloseOrgInt/>
      <csvContact:fDiscloseAddrLoc/>
      <csvContact:fDiscloseAddrInt/>
      <csvContact:fDiscloseVoice/>
      <csvContact:fDiscloseFax/>
      <csvContact:fDiscloseEmail/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="89043A90">
        contactDisclose-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvContact:contents>
...
```

Example of the contactDisclose-YYYYMMDD.csv file. The file contains two disclosure records. The first contact disables disclosure of voice, fax, and email. The second contact enables disclosure of the localized and internationalized form of the name.

```
sh8013,0,0,0,0,0,0,0,1,1,1
mycontactid,1,1,1,0,0,0,0,0,0,0
```

Example of a "contactDisclose" <csvContact:deletes> <rdeCsv:csv> element:

```
...
<csvContact:deletes>
...
  <rdeCsv:csv name="contactDisclose">
    <rdeCsv:fields>
      <csvContact:fId parent="true"/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="6F2B988F">
        contactDisclose-delete-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvContact:deletes>
...
```

Example of the contactDisclose-delete-YYYYMMDD.csv file. The file contains two disclosure records.

```
sh8013
mycontactid
```

5.4. Registrar Object

The registrar object represents the sponsoring client for other objects, for operational purposes MAY be the registry operator. The registrar object supports both the XML Model and the CSV Model, defined in Section 2. The elements used for both models are defined in the following sections.

5.4.1. XML Model

There are two elements used in the data escrow of the registrar objects for the XML model including the <rdeRegistrar:registrar>, under the <rdeRegistrar:contents> element, and the <rdeRegistrar:delete> element, under the <rde:deletes> element.

A <rdeRegistrar:registrar> element substitutes for the <rdeRegistrar:abstractRegistrar> abstract element to define a concrete definition of a registrar. The <rdeRegistrar:abstractRegistrar> element can be replaced by other domain definitions using the XML schema substitution groups feature.

5.4.1.1. <rdeRegistrar:registrar> element

The <registrar> element contains the following child elements:

- An <id> element that contains the Registry-unique identifier of the registrar object. This <id> has a superordinate relationship to a subordinate <clID>, <crRr> or <upRr> of domain, contact and host objects.

- An <name> element that contains the name of the registrar.

- An OPTIONAL <gurid> element that contains the ID assigned by ICANN.

- A <status> element that contains the operational status of the registrar. Possible values are: ok, readonly and terminated.

- One or two <postalInfo> elements that contain postal- address information. Two elements are provided so that address information can be provided in both internationalized and localized forms; a "type" attribute is used to identify the two forms. If an internationalized form (type="int") is provided, element content MUST be represented in a subset of UTF-8 that can be represented in the 7-bit US-ASCII character set. If a localized form (type="loc") is provided, element content MAY be represented in unrestricted UTF-8. The <postalInfo> element contains the following child elements:

  * A <addr> element that contains address information associated with the registrar. The <addr> element contains the following child elements:

    + One, two, or three OPTIONAL <street> elements that contain the registrar's street address.

    + A <city> element that contains the registrar's city.

    + An OPTIONAL <sp> element that contains the registrar's state or province.

    + An OPTIONAL <pc> element that contains the registrar's postal code.

    + A <cc> element that contains the registrar's country code.

- An OPTIONAL <voice> element that contains the registrar's voice telephone number.

- An OPTIONAL <fax> element that contains the registrar's facsimile telephone number.

- An <email> element that contains the registrar's email address.

- An OPTIONAL <url> element that contains the registrar's URL.

- An OPTIONAL <whoisInfo> elements that contains whois information. The <whoisInfo> element contains the following child elements:

  * An OPTIONAL <name> element that contains the name of the registrar WHOIS server listening on TCP port 43 as specified in [RFC3912].

  * An OPTIONAL <url> element that contains the name of the registrar WHOIS server listening on TCP port 80/443.

- A <crDate> element that contains the date and time of registrar-object creation.

- An OPTIONAL <upDate> element that contains the date and time of the most recent RDE registrar-object modification. This element MUST NOT be present if the rdeRegistrar object has never been modified.

Example of <registrar> object:

```
...
<rdeRegistrar:registrar>
  <rdeRegistrar:id>RegistrarX</rdeRegistrar:id>
  <rdeRegistrar:name>Registrar X</rdeRegistrar:name>
  <rdeRegistrar:gurid>123</rdeRegistrar:gurid>
  <rdeRegistrar:status>ok</rdeRegistrar:status>
  <rdeRegistrar:postalInfo type="int">
    <rdeRegistrar:addr>
      <rdeRegistrar:street>123 Example Dr.</rdeRegistrar:street>
      <rdeRegistrar:street>Suite 100</rdeRegistrar:street>
      <rdeRegistrar:city>Dulles</rdeRegistrar:city>
      <rdeRegistrar:sp>VA</rdeRegistrar:sp>
      <rdeRegistrar:pc>20166-6503</rdeRegistrar:pc>
      <rdeRegistrar:cc>US</rdeRegistrar:cc>
    </rdeRegistrar:addr>
  </rdeRegistrar:postalInfo>
  <rdeRegistrar:voice x="1234">+1.7035555555</rdeRegistrar:voice>
  <rdeRegistrar:fax>+1.7035555556</rdeRegistrar:fax>
  <rdeRegistrar:email>jdoe@example.test</rdeRegistrar:email>
  <rdeRegistrar:url>http://www.example.test</rdeRegistrar:url>
  <rdeRegistrar:whoisInfo>
    <rdeRegistrar:name>whois.example.test</rdeRegistrar:name>
    <rdeRegistrar:url>http://whois.example.test</rdeRegistrar:url>
  </rdeRegistrar:whoisInfo>
  <rdeRegistrar:crDate>2005-04-23T11:49:00.0Z</rdeRegistrar:crDate>
  <rdeRegistrar:upDate>2009-02-17T17:51:00.0Z</rdeRegistrar:upDate>
</rdeRegistrar:registrar>
...
```

5.4.1.2. <rdeRegistrar:delete> object

The <rdeRegistrar:delete> element contains the id of a registrar that was deleted.

Example of <rdeRegistrar:delete> object:

```
...
<rde:deletes>
  ...
  <rdeRegistrar:delete>
    <rdeRegistrar:id>agnt0001-TEST</rdeRegistrar:id>
  </rdeRegistrar:delete>
  ...
</rde:deletes>
...
```

5.4.2. CSV Model

For the CSV Model of the registrar object, The <csvRegistrar:contents> child element of the <rde:contents> element is used to hold the new or updated registrar objects for the deposit. The <csvRegistrar:deletes> child element of the <rde:deletes> element is used to hold the deleted or purged registrar objects for the deposit. Both the <csvRegistrar:contents> and <csvRegistrar:deletes> elements contain one or more <rdeCsv:csv> elements with the following supported "name" attribute values:

"registrar" Defines the fields and CSV file references used for the registrar object records.

The following "csvRegistrar" field elements, defined for the "registrar" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "registrar" <rdeCsv:csv> <rdeCsv:fields> element:

<csvRegistrar:fId> Contains the server-unique registrar identifier with type="eppcom:clIDType" and isRequired="true".

<csvRegistrar:fName> Contains the name of the registrar with type="normalizedString" and isRequired="true".

<csvRegistrar:fStatus> Contains the status of the registrar with type="csvRegistrar:statusValueType".

The following field elements MAY be used in the "registrar" <rdeCsv:csv> <rdeCsv:fields> element:

<csvRegistrar:fGurid> Contains the ID assigned by ICANN with type="positiveInteger".

<csvRegistrar:fWhoisUrl> Contains the Whois URL of the registrar with type="anyURI".

The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MUST be used in the "registrar" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fCrDate> Created date and time of the registrar object.

<rdeCsv:fUpDate> Date and time of the last update to the registrar object.

<rdeCsv:fUrl> URL for the registrar web home page.

The following "csvContact" fields, defined in section Section 5.3, MUST be used in the "registrar" <rdeCsv:csv> <rdeCsv:fields> element:

<csvContact:fStreet> Registrar street address line with an "index" attribute that represents the order of the street address line from "0" to "2". An OPTIONAL "isLoc" attribute that is used to indicate the localized or internationalized form, as defined in Section 4.7.

<csvContact:fCity> Registrar city with an OPTIONAL "isLoc" attribute that is used to indicate the localized or internationalized form, as defined in Section 4.7.

<csvContact:fCc> Registrar country code with an OPTIONAL "isLoc" attribute that is used to indicate the localized or internationalized form, as defined in Section 4.7.

<csvContact:fEmail> Registrar email address.

The following "csvContact" fields, defined in section Section 5.3, MAY be used in the "registrar" <rdeCsv:csv> <rdeCsv:fields> element:

<csvContact:fSp> Registrar state or province with an OPTIONAL "isLoc" attribute that is used to indicate the localized or internationalized form, as defined in Section 4.7.

<csvContact:fPc> Registrar postal code with an OPTIONAL "isLoc" attribute that is used to indicate the localized or internationalized form, as defined in Section 4.7.

<csvContact:fVoice> Registrar voice telephone number.

<csvContact:fVoiceExt> Registrar voice telephone number extension.

<csvContact:fFax> Registrar facsimile telephone number.

<csvContact:fFaxExt> Registrar facsimile telephone number extension.

Example of a "registrar" <csvRegistrar:contents> <rdeCsv:csv> element.

```
...
<csvRegistrar:contents>
...
  <rdeCsv:csv name="registrar">
    <rdeCsv:fields>
      <csvRegistrar:fId/>
      <csvRegistrar:fName isLoc="false"/>
      <csvRegistrar:fGurid/>
      <csvRegistrar:fStatus/>
      <csvContact:fStreet isLoc="false" index="0"/>
      <csvContact:fStreet isLoc="false" index="1"/>
      <csvContact:fStreet isLoc="false" index="2"/>
      <csvContact:fCity isLoc="false" />
      <csvContact:fSp isLoc="false" />
      <csvContact:fPc isLoc="false" />
      <csvContact:fCc isLoc="false" />
      <csvContact:fVoice/>
      <csvContact:fVoiceExt/>
      <csvContact:fFax/>
      <csvContact:fFaxExt/>
      <csvContact:fEmail/>
      <rdeCsv:fUrl/>
      <csvRegistrar:fWhoisUrl/>
      <rdeCsv:fCrDate/>
      <rdeCsv:fUpDate/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="306178BB">
        registrar-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvRegistrar:contents>
```

```
...
```

Example of the registrar-YYYYMMDD.csv file. The file contains one registrar record.

```
EXAMPLE,"Example Inc.",1234,ok,"123 Example Dr.",
"Suite 100",,Dulles,VA,20166-6503,US,+1.7035555555,1234,
+1.7035555556,,jdoe@example.test,http://www.example.test,
http://whois.example.test,2005-04-23T11:49:00.0Z,
2009-02-17T17:51:00.0Z
```

Example of a "registrar" <csvRegistrar:deletes> <rdeCsv:csv> element:

```
...
<csvRegistrar:deletes>
...
  <rdeCsv:csv name="registrar">
    <rdeCsv:fields>
      <csvRegistrar:fId/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="307B87AE">
        registrar-delete-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvRegistrar:deletes>
...
```

Example of the registrar-delete-YYYYMMDD.csv file. The file contains two registrar records.

```
EXAMPLE
EXAMPLE2
```

5.5. IDN Table Reference Object

The Internationalized Domain Names (IDN) table reference object is a pseudo-object that is used to provide a short reference to the IDN Table and Policy used in IDN registrations. The IDN reference object supports both the XML and the CSV Model, defined in the Models (Section 2) section. The elements used for both models are defined in the following sections.

5.5.1. XML Model

There is one element used in the data escrow of the IDN table reference objects for the XML model that is the <rdeIDN:idnTableRef>, under the <rde:contents> element.

5.5.1.1. <rdeIDN:idnTableRef> object

The <rdeIDN:idnTableRef> contains the following elements. An "id" attribute is used to specify an identifier for the IDN table.

- o An <url> element that contains the URL of the IDN table that is being referenced.

- o A <urlPolicy> element that contains the URL of the IDN policy document. If IDN variants are generated algorithmically, the policy document MUST define the algorithm and the state of the implicit generated IDN variants. For a list of suggested states for implicit IDN variants, please see [variantTLDsReport].

Example of <idnTableRef> object:

```
...
<rdeIDN:idnTableRef id="pt-BR">
  <rdeIDN:url>
    http://www.iana.org/domains/idn-tables/tables/br_pt-br_1.0.html
  </rdeIDN:url>
  <rdeIDN:urlPolicy>
    http://registro.br/dominio/regras.html
  </rdeIDN:urlPolicy>
</rdeIDN:idnTableRef>
...
```

5.5.2. CSV Model

The IDN domain names, defined in Section 5.1, MAY have references to the IDN language identifier using the <rdeCsv:fIdnTableId> field element. The IDN table reference object defines the mapping of a

language identifier to a language table URL. The language table URL defines the character code points that can be used for the language identifier. The elements used for the IDN table reference object is defined in this section. The <csvIDN:contents> child element of the <rde:contents> element is used to hold the new or updated IDN table reference objects for the deposit. The <csvIDN:deletes> child element of the <rde:deletes> element is used to hold the deleted or purged IDN table reference objects for the deposit. Both the <csvIDN:contents> and <csvIDN:deletes> elements contain one or more <rdeCsv:csv> elements with the following supported "name" attribute values:

"idnLanguage" Defines the fields and CSV file references used for the IDN table reference object records.

The following "rdeCsv" fields, defined in Section 4.6.2, MUST be used in the "idnLanguage" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fIdnTableId> The language identifier that matches the values for the <rdeCsv:fIdnTableId> field element in the "domain" CSV files, as defined in Section 5.1.

<rdeCsv:fUrl> URL that defines the character code points that can be used for the language defined by the <rdeCsv:fLang> field element.

Example of a "idnLanguage" <csvIDN:contents> <rdeCsv:csv> element:

```
...
<csvIDN:contents>
...
  <rdeCsv:csv name="idnLanguage">
    <rdeCsv:sep>,</rdeCsv:sep>
    <rdeCsv:fields>
      <rdeCsv:fIdnTableId/>
      <rdeCsv:fUrl/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="D462EAD0">
        idnLanguage-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvIDN:contents>
...
```

Example of the corresponding idnLanguage-YYYYMMDD.csv file. The file contains two IDN language records.

```
LANG-1,
http://www.iana.org/domains/idn-tables/tables/test_tab1_1.1.txt
LANG-2,
http://www.iana.org/domains/idn-tables/tables/test_tab2_1.1.txt
```

Example of a "idnLanguage" <csvIDN:deletes> <rdeCsv:csv> element:

```
...
<csvIDN:deletes>
...
 <rdeCsv:csv name="idnLanguage">
    <rdeCsv:fields>
      <rdeCsv:fIdnTableId/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="757B573A">
        idnLanguage-delete-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvIDN:deletes>
...
```

Example of the idnLanguage-delete-YYYYMMDD.csv file. The file contains two IDN language records.

```
LANG-1
LANG-2
```

5.6. NNDN Object

A NNDN (NNDN's not domain name) can be used to store registry reserved names or (blocked, withheld or mirrored) IDN variants.

A NNDN is a lightweight domain-like object that is not linked directly to a Registrar (a mirroring NNDN is linked to a Registrar via the original name).

A domain name can only exist as a domain name object or NNDN object, but not both.

The NNDN object supports both the XML and the CSV Model, defined in the Models (Section 2) section. The elements used for both models are defined in the following sections.

5.6.1. XML Model

There are two elements used in the data escrow of the NNDN objects for the XML model including the <rdeNNDN:NNDN>, under the <rde:contents> element, and the <rdeNNDN:delete> element, under the <rde:deletes> element.

A <rdeNNDN:NNDN> element substitutes for the <rdeNNDN:abstractNNDN> abstract element to define a concrete definition of a NNDN. The <rdeNNDN:abstractDomain> element can be replaced by other NNDN definitions using the XML schema substitution groups feature.

5.6.1.1. <rdeNNDN:NNDN> object

The <rdeNNDN:NNDN> element contains the following child elements:

- An <aName> element that contains the fully qualified name of the NNDN. If the NNDN is an IDN, the ASCII Compatible Encoding (ACE) MUST be used.

- An OPTIONAL <uName> element that contains the fully qualified name of the NNDN in Unicode character set. It MUST be provided if available.

- An OPTIONAL <idnTableId> element that references the IDN Table used for the NNDN. This corresponds to the "id" attribute of the <idnTableRef> element. This element MUST be present if the NNDN is an IDN.

- An OPTIONAL <originalName> element is used to indicate that the NNDN is used for an IDN variant. This element contains the domain name used to generate the IDN variant.

- A <nameState> element that indicates the state of the NNDN: blocked, withheld or mirrored.

  * If a NNDN is considered undesirable for registration (i.e., unavailable for allocation to anyone), then the NNDN will be tagged as "blocked".

  * If a NNDN is considered a potential registration of a domain object for a particular registrant, then the NNDN will be tagged as "withheld". This status is only used when the NNDN is used for an IDN variant.

  * If a NNDN is considered a mirrored IDN variant of a domain object, then the NNDN will be tagged as "mirrored". A mirroringNS attribute is used to specify if the mirrored IDN variant use the NS mirror mechanism. The default value of mirroringNS is true. If another mechanism such as DNAME is used, the value of mirroringNS attribute MUST be false.

- A <crDate> element that contains the date and time of the NNDN object creation.

Example of <rdeNNDN:NNDN> object:

```
...
<rdeNNDN:NNDN>
  <rdeNNDN:aName>xn--exampl-gva.test</rdeNNDN:aName>
  <rdeNNDN:idnTableId>pt-BR</rdeNNDN:idnTableId>
  <rdeNNDN:originalName>example1.test</rdeNNDN:originalName>
  <rdeNNDN:nameState>withheld</rdeNNDN:nameState>
  <rdeNNDN:crDate>2005-04-23T11:49:00.0Z</rdeNNDN:crDate>
</rdeNNDN:NNDN>
...
```

5.6.1.2. <rdeNNDN:delete> object

The <rdeNNDN:delete> element contains the ACE of a NNDN that was deleted, i.e., the <aName>.

Example of <rdeNNDN::delete> object:

```
...
<rde:deletes>
  ...
  <rdeNNDN:delete>
    <rdeNNDN:aName>xn--pingino-q2a.test</rdeNDN:aName>
  </rdeNNDN:delete>
  ...
</rde:deletes>
...
```

5.6.2. CSV Model

For the CSV Model of the NNDN object, the <csvNNDN:contents> child element of the <rde:contents> element is used to hold the new or updated NNDN objects for the deposit. The <csvNNDN:deletes> child element of the <rde:deletes> element is used to hold the deleted or purged NNDN objects for the deposit. Both the <csvNNDN:contents> and <csvNNDN:deletes> elements contain one or more <rdeCsv:csv> elements with the following supported "name" attribute values:

"NNDN" Defines the fields and CSV file references used for the NNDN object records.

The following "csvNNDN" field elements, defined for the "NNDN" <rdeCsv:csv> <rdeCsv:fields> element, MUST be used in the "NNDN" <rdeCsv:csv> <rdeCsv:fields> element:

<csvNNDN:fAName> ASCII Compatible Encoding (ACE) field of the NNDN with type="eppcom:labelType" and isRequired="true".

<csvNNDN:fOriginalName> Domain name used to generate the IDN variant with type="eppcom:labelType".

<csvNNDN:fNameState> State of the NNDN: blocked or withheld with type="rdeNNDN:nameState". See Section 5.6.1.1 for a description of the possible values for the <rdeNNDN:nameState> element.

The following field elements MAY be used in the "NNDN" <rdeCsv:csv> <rdeCsv:fields> element:

<csvNNDN:fOriginalName> Domain name used to generate the IDN variant with type="eppcom:labelType".

<csvNNDN:fMirroringNS> Defines whether the "mirroring" <csvNNDN:fNameState> uses the NS mirror mechanism, as described for the <rdeNNDN:nameState> "mirroringNS" attribute in Section 5.6.1.1, with type="boolean". If the field element is not defined the default value is "true".

The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MUST be used in the "domain" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fCrDate> Created date and time of the domain name object.

The following "rdeCsv" fields, defined in section CSV common field elements (Section 4.6.2), MAY be used in the "domain" <rdeCsv:csv> <rdeCsv:fields> element:

<rdeCsv:fUName> Name of the NNDN in Unicode character set for the <csvNNDN:fAName> field element.

<rdeCsv:fIdnTableId> IDN Table Identifier for the NNDN that matches an IDN Table Reference Object record, as defined in Section 5.5.2.

Example of a "NNDN" <csvNNDN:contents> <rdeCsv:csv> element:

```
...
<csvNNDN:contents>
...
  <rdeCsv:csv name="NNDN" sep=",">
    <rdeCsv:fields>
      <csvNNDN:fAName isRequired="true"/>
      <rdeCsv:fIdnTableId/>
      <csvNNDN:fOriginalName/>
      <csvNNDN:fNameState/>
      <csvNNDN:fMirroringNS/>
      <rdeCsv:fCrDate/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="11C80D60">
        NNDN-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvNNDN:contents>
...
```

Example of the corresponding NNDN-YYYYMMDD.csv file. The file contains two NNDN records for an IDN with one blocked variant and one mirrored variant.

```
xn--exampl-gva.test,pt-BR,xn--exampl.test,
blocked,,2005-04-23T11:49:00.0Z
xn--exampl2-gva.test,pt-BR,xn--exampl.test,
mirrored,1,2005-04-23T11:49:00.0Z
```

Example of a "NNDN" <csvNNDN:deletes> <rdeCsv:csv> element:

```
...
<csvNNDN:deletes>
...
  <rdeCsv:csv name="NNDN">
    <rdeCsv:fields>
      <csvNNDN:fAName isRequired="true"/>
    </rdeCsv:fields>
    <rdeCsv:files>
      <rdeCsv:file
        cksum="FF104E83">
        NNDN-delete-YYYYMMDD.csv
      </rdeCsv:file>
    </rdeCsv:files>
  </rdeCsv:csv>
...
</csvNNDN:deletes>
...
```

Example of the corresponding NNDN-delete-YYYYMMDD.csv file. The file contains one NNDN record.

xn--pingino-q2a.test

5.7. EPP Parameters Object

The EPP Parameters Object is a pseudo-object that defines the set of object and object extension services supported by the registry, as defined in [RFC5730]. The EPP Parameters Object is only defined as XML but could be used in the the XML model or CSV model. The EPP Parameters Object is defined using the the <rdeEppParams:eppParams> element. The EPP Parameters Object SHOULD be included if the registry supports EPP. Only one EPP Parameters Object MUST exist at a certain point in time (watermark).

The syntax and content of the <rdeEppParams:eppParams> children elements is as explained in section 2.4 of [RFC5730]. The children of the <eppParams> are as follows:

- One or more <version> elements that indicate the EPP versions supported by the registry.

- One or more <lang> elements that indicate the identifiers of the text response languages supported by the registry's EPP server.

- One or more <objURI> elements that contain namespace URIs representing the objects that the registry's EPP server is capable

of managing.

- An OPTIONAL <svcExtension> element that contains one or more <extURI> elements that contain namespace URIs representing object extensions supported by the registry's EPP server.

- A <dcp> element that contains child elements used to describe the server's privacy policy for data collection and management. See section 2.4 of [RFC5730] for more details.

Example of <eppParams> element object:

```
...
<rdeEppParams:eppParams>
  <rdeEppParams:version>1.0</rdeEppParams:version>
  <rdeEppParams:lang>en</rdeEppParams:lang>
  <rdeEppParams:objURI>urn:ietf:params:xml:ns:domain-1.0
    </rdeEppParams:objURI>
  <rdeEppParams:objURI>urn:ietf:params:xml:ns:contact-1.0
    </rdeEppParams:objURI>
  <rdeEppParams:objURI>urn:ietf:params:xml:ns:host-1.0
    </rdeEppParams:objURI>
  <rdeEppParams:svcExtension>
    <epp:extURI>urn:ietf:params:xml:ns:rgp-1.0</epp:extURI>
    <epp:extURI>urn:ietf:params:xml:ns:secDNS-1.1</epp:extURI>
  </rdeEppParams:svcExtension>
  <rdeEppParams:dcp>
  <epp:access><epp:all/></epp:access>
    <epp:statement>
      <epp:purpose>
        <epp:admin/>
        <epp:prov/>
      </epp:purpose>
      <epp:recipient>
        <epp:ours/>
        <epp:public/>
      </epp:recipient>
      <epp:retention>
        <epp:stated/>
      </epp:retention>
    </epp:statement>
  </rdeEppParams:dcp>
</rdeEppParams:eppParams>
...
```

5.8. Policy Object

The Policy object is a pseudo-object that is used to specify which OPTIONAL elements from the XML Model are REQUIRED based on the business model of the registry. For the CSV Model, the OPTIONAL "isRequired" attribute of the <rdeCsv:field> elements, defined in Section 4.6.1, is used to specify which OPTIONAL fields are REQUIRED based on the business model of the registry.

5.8.1. <rdePolicy:policy> object

The OPTIONAL <policy> contains the following attributes:

- An <element> that defines that the referenced <element> is REQUIRED.

- <scope> that defines the XPath of the element referenced by <element>.

Example of <rdePolicy:policy> object:

```
...
<rdePolicy:policy scope="//rde:deposit/rde:contents/rdeDomain:domain"
  element="rdeDom:registrant" />
...
```

5.9. Header Object

The Header Object is a pseudo-object that is used to specify the number of objects in the SRS at a specific point in time (watermark) regardless of the type of deposit: differential, full or incremental. The Header Object is only defined as XML but one header object MUST always be present per escrow deposit regardless of using XML Model or CSV Model. The Header Object is defined using the <rdeHeader:header> element.

5.9.1. <rdeHeader:header> object

The <rdeHeader:header> contains the following attributes:

- A <tld> element that defines TLD being escrowed.

- A <count> element that contains the number of objects in the SRS at a specific point in time (watermark) regardless of the type of deposit: differential, full or incremental. The "uri" attributes reflects the XML namespace URI of the primary objects for the XML Model and CSV Model. For example, the "uri" is set to

"urn:ietf:params:xml:ns:rdeDomain-1.0" for domain name objects using the XML Model, and the "uri" is set to "urn:ietf:params:xml:ns:csvDomain-1.0" for domain name objects using the CSV Model.

Example of <rdeHeader:header> object referencing only the XML Model objects:

```
...
<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>
...
```

Example of <rdeHeader:header> object referencing the CSV and XML Model objects:

```
...
<rdeHeader:header>
  <rdeHeader:tld>test</rdeHeader:tld>
  <rdeHeader:count
    uri="urn:ietf:params:xml:ns:csvDomain-1.0">2</rdeHeader:count>
  <rdeHeader:count
    uri="urn:ietf:params:xml:ns:csvHost-1.0">1</rdeHeader:count>
  <rdeHeader:count
    uri="urn:ietf:params:xml:ns:csvContact-1.0">1</rdeHeader:count>
  <rdeHeader:count
    uri="urn:ietf:params:xml:ns:csvRegistrar-1.0">1
  </rdeHeader:count>
  <rdeHeader:count
    uri="urn:ietf:params:xml:ns:csvIDN-1.0">1</rdeHeader:count>
  <rdeHeader:count
    uri="urn:ietf:params:xml:ns:csvNNDN-1.0">1</rdeHeader:count>
  <rdeHeader:count
    uri="urn:ietf:params:xml:ns:rdeEppParams-1.0">1
  </rdeHeader:count>
</rdeHeader:header>
...
```

6. RDE IDN Variants handling

Depending on the Registration Policy of the Registry; for a particular domain name there may be multiple variant names. See [variantTLDsReport] for further detail on IDN variants.

A registry could choose to escrow IDN variants as domains or NNDN objects. An specific IDN variant can be represented in the escrow deposit, as a domain or as a NNDN object, but not both.

If using domain objects to represent IDN variants, the normal behavior during restoration of a SRS based on an escrow deposit is to restore the IDN variants as a mirrored variant. If the registration data of the IDN variant is different from the original name, the details of this specific implementation MUST be described in the IDN policy document.

A NNDN or a domain name are explicit representations of an IDN variant while an IDN variant computed based on an algorithm is an implicit representation. Explicit representation of an IDN variant takes precedence over an implicit representation.

7. Profile

Different business models of registries exist, therefore the registry is responsible to define a profile that matches its particular business model. The profile mechanism allows a registry to extend this specification.

A profile is the process of:

1. Extending base objects with the mechanisms defined for XML and CSV models.

   * In the case of the XML model, abstract elements could be use to extend the following objects: <domain>, <host>, <contact>, <NNDN> and <registrar> using XML schema substitution groups feature.

2. Defining a <policy> object to specify which OPTIONAL elements of this base specification are required based on the business model of the registry. An example is the <registrant> element that is usually REQUIRED but it is specified as OPTIONAL in this specification to support existing business models.

3. Adding new escrowed objects using the <rde:contents> and <rde:deletes> elements.

4. Providing the XML schemas to third parties that require them to validate the escrow deposits.

8. Data escrow agent extended verification process

The Data Escrow Agent MUST perform a extended verification process using the contents of the data escrow deposits to a point in time (watermark), last full plus all differentials or last full plus last incremental escrow deposits. The following are the minimum suggested tests:

o Validate the escrow deposits using the definition agreed with the registry.

  * In the case of the XML model, the contents of the escrow deposits MUST be validated using the XML schemas of the profile.

o Count the objects and validate that the number of objects is equal to the number objects reported in the <header> element of the escrow deposit of that point in time (watermark).

- All contacts objects linked to domain names MUST be present.
- All registrars objects linked to other objects MUST be present.
- A domain name exists as a domain name or NNDN, but not both.
- The elements listed as required in the <policy> element MUST be present.
- All idnTableRef definitions linked from other objects MUST be present.
- If an EPP Parameters Object was escrowed in the past, one and only one EPP Parameters Object MUST be present.
- The watermark is not in the future.

9. Formal Syntax

Schemas are presented here.

9.1. RDE CSV Schema

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```
BEGIN
<?xml version="1.0" encoding="UTF-8"?>

<schema targetNamespace="urn:ietf:params:xml:ns:rdeCsv-1.0"
       xmlns:rdeCsv="urn:ietf:params:xml:ns:rdeCsv-1.0"
       xmlns:rde="urn:ietf:params:xml:ns:rde-1.0"
       xmlns:eppcom="urn:ietf:params:xml:ns:eppcom-1.0"
       xmlns="http://www.w3.org/2001/XMLSchema"
       elementFormDefault="qualified">

  <!--
  Import common element types
  -->
  <import namespace="urn:ietf:params:xml:ns:eppcom-1.0"
       schemaLocation="eppcom-1.0.xsd"/>
  <import namespace="urn:ietf:params:xml:ns:rde-1.0"
       schemaLocation="rde-1.0.xsd"/>

  <annotation>
   <documentation>
    Registry Data Escrow Comma-Seperated Values (CSV)
   </documentation>
  </annotation>

  <!-- csv content element -->
  <element name="csv" type="rdeCsv:csvType"/>


  <!-- Definition of CSV file -->
  <complexType name="csvType">
    <sequence>
     <element name="fields" type="rdeCsv:fieldsType"/>
     <element name="files" type="rdeCsv:filesType"/>
    </sequence>
    <attribute name="name" type="token" use="required"/>
    <attribute name="sep" type="token" default=","/>
  </complexType>


 <!-- Abstract field type -->
```

```
    <element name="field" type="rdeCsv:fieldType"
     abstract="true"/>

    <complexType name="fieldType">
     <sequence/>
    </complexType>

    <!-- fieldType with optional value (isRequired=false) -->
    <complexType name="fieldOptionalType">
     <complexContent>
       <extension base="rdeCsv:fieldType">
         <sequence/>
         <attribute name="isRequired" type="boolean"
           default="false"/>
         <attribute name="parent" type="boolean"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- fieldType with required value (isRequired=false) -->
    <complexType name="fieldRequiredType">
     <complexContent>
       <extension base="rdeCsv:fieldType">
         <sequence/>
         <attribute name="isRequired" type="boolean"
           default="true"/>
         <attribute name="parent" type="boolean"/>
       </extension>
     </complexContent>
    </complexType>


    <!-- Concrete field types -->

    <!-- UTF-8 Name field (e.g. domain name) -->
    <element name="fUName" type="rdeCsv:fNameType"
      substitutionGroup="rdeCsv:field"/>
    <complexType name="fNameType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
           default="eppcom\:labelType"/>
       </extension>
     </complexContent>
    </complexType>
    <complexType name="fNameRequiredType">
     <complexContent>
```

```
      <extension base="rdeCsv:fieldRequiredType">
        <sequence/>
        <attribute name="type" type="token"
          default="eppcom\:labelType"/>
      </extension>
    </complexContent>
   </complexType>


   <!-- Registry Object IDentifier (roid) field -->
   <element name="fRoid" type="rdeCsv:fRoidType"
    substitutionGroup="rdeCsv:field"/>
   <complexType name="fRoidType">
    <complexContent>
      <extension base="rdeCsv:fieldRequiredType">
        <sequence/>
        <attribute name="type" type="token"
          default="eppcom\:roidType"/>
      </extension>
    </complexContent>
   </complexType>

   <!-- Registrant field -->
   <element name="fRegistrant" type="rdeCsv:fRegistrantType"
    substitutionGroup="rdeCsv:field"/>
   <complexType name="fRegistrantType">
    <complexContent>
      <extension base="rdeCsv:fieldOptionalType">
        <sequence/>
        <attribute name="type" type="token"
          default="eppcom\:clIDType"/>
      </extension>
    </complexContent>
   </complexType>

   <!-- Object Status Description -->
   <element name="fStatusDescription"
    type="rdeCsv:fNormalizedStringType"
    substitutionGroup="rdeCsv:field"/>

   <!-- clID fields (fClID, fCrID, fUpID) -->
   <!-- Identifier of client that sponsors the object -->
   <element name="fClID" type="rdeCsv:fClIDRequiredType"
    substitutionGroup="rdeCsv:field"/>
   <!-- Identifier of registrar of client
   that created the object -->
   <element name="fCrRr" type="rdeCsv:fClIDType"
    substitutionGroup="rdeCsv:field"/>
```

```
    <!-- Identifier of client that created the object -->
    <element name="fCrID" type="rdeCsv:fClIDType"
     substitutionGroup="rdeCsv:field"/>
    <!-- Identifier of registrar of client that
    updated the object -->
    <element name="fUpRr" type="rdeCsv:fClIDType"
     substitutionGroup="rdeCsv:field"/>
    <!-- Identifier of client that updated the object -->
    <element name="fUpID" type="rdeCsv:fClIDType"
     substitutionGroup="rdeCsv:field"/>
    <!-- Identifier of registrar of client that
    requested the transfer -->
    <element name="fReRr" type="rdeCsv:fClIDType"
     substitutionGroup="rdeCsv:field"/>
    <!-- Identifier of client that requested
    the transfer -->
    <element name="fReID" type="rdeCsv:fClIDType"
     substitutionGroup="rdeCsv:field"/>
    <!-- Identifier of registrar client that
    should take or took action -->
    <element name="fAcRr" type="rdeCsv:fClIDType"
     substitutionGroup="rdeCsv:field"/>
    <!-- Identifier of client that should take or
    took action -->
    <element name="fAcID" type="rdeCsv:fClIDType"
     substitutionGroup="rdeCsv:field"/>
    <complexType name="fClIDType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
           default="eppcom\:clIDType"/>
       </extension>
     </complexContent>
    </complexType>
    <complexType name="fClIDRequiredType">
     <complexContent>
       <extension base="rdeCsv:fieldRequiredType">
         <sequence/>
         <attribute name="type" type="token"
           default="eppcom\:clIDType"/>
       </extension>
     </complexContent>
    </complexType>


    <!-- dateTime fields (fCrDate, fUpDate, fExDate) -->
    <element name="fCrDate" type="rdeCsv:fDateTimeType"
```

```
     substitutionGroup="rdeCsv:field"/>
    <element name="fUpDate" type="rdeCsv:fDateTimeType"
     substitutionGroup="rdeCsv:field"/>
    <element name="fExDate" type="rdeCsv:fDateTimeType"
     substitutionGroup="rdeCsv:field"/>
    <!-- Date and time that transfer was requested -->
    <element name="fReDate" type="rdeCsv:fDateTimeType"
     substitutionGroup="rdeCsv:field"/>
    <!-- Date and time of a required or completed response -->
    <element name="fAcDate" type="rdeCsv:fDateTimeType"
     substitutionGroup="rdeCsv:field"/>
    <element name="fTrDate" type="rdeCsv:fDateTimeType"
     substitutionGroup="rdeCsv:field"/>
    <complexType name="fDateTimeType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
           default="dateTime"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- boolean type -->
    <complexType name="fBooleanType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
           default="boolean"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- unsignedByte type -->
    <complexType name="fUnsignedByteType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
           default="unsignedByte"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- unsignedShort type -->
    <complexType name="fUnsignedShortType">
     <complexContent>
```

```
      <extension base="rdeCsv:fieldOptionalType">
        <sequence/>
        <attribute name="type" type="token"
          default="unsignedShort"/>
      </extension>
    </complexContent>
   </complexType>

   <!-- hexBinary type -->
   <complexType name="fHexBinaryType">
    <complexContent>
      <extension base="rdeCsv:fieldOptionalType">
        <sequence/>
        <attribute name="type" type="token"
          default="hexBinary"/>
      </extension>
    </complexContent>
   </complexType>


   <!-- language type -->
   <element name="fLang" type="rdeCsv:fLangType"
    substitutionGroup="rdeCsv:field"/>
   <complexType name="fLangType">
    <complexContent>
      <extension base="rdeCsv:fieldOptionalType">
        <sequence/>
        <attribute name="type" type="token"
          default="language"/>
      </extension>
    </complexContent>
   </complexType>

   <!-- IDN Table Identifier -->
   <element name="fIdnTableId" type="rdeCsv:fTokenType"
    substitutionGroup="rdeCsv:field"/>

   <!-- State of the most recent transfer request -->
   <element name="fTrStatus" type="rdeCsv:fTrStatusType"
    substitutionGroup="rdeCsv:field"/>
   <complexType name="fTrStatusType">
    <complexContent>
      <extension base="rdeCsv:fieldOptionalType">
        <sequence/>
        <attribute name="type" type="token"
          default="eppcom\:trStatusType"/>
      </extension>
    </complexContent>
```

```
    </complexType>

    <!-- General token type -->
    <complexType name="fTokenType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
           default="token"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- General normalizedString type -->
    <complexType name="fNormalizedStringType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
           default="normalizedString"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- positive integer type -->
    <complexType name="fPositiveIntegerType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
           default="positiveInteger"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- Custom / extension field type -->
    <element name="fCustom" type="rdeCsv:fCustomType"
     substitutionGroup="rdeCsv:field"/>
    <complexType name="fCustomType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="name" type="token"/>
         <attribute name="type" type="token"
           default="token"/>
       </extension>
     </complexContent>
    </complexType>
```

```
    <!-- Ordered list of field definitions for the csv -->
    <complexType name="fieldsType">
     <sequence maxOccurs="unbounded">
       <element ref="rdeCsv:field"/>
     </sequence>
    </complexType>

    <!-- List of files -->
    <complexType name="filesType">
     <sequence>
       <element name="file" type="rdeCsv:fileType"
         maxOccurs="unbounded"/>
     </sequence>
    </complexType>

    <!-- File definition -->
    <complexType name="fileType">
     <simpleContent>
       <extension base="token">
         <attribute name="compression" type="token"/>
         <attribute name="encoding" type="token"
           default="UTF-8"/>
         <attribute name="cksum" type="token"/>
       </extension>
     </simpleContent>
    </complexType>

    <!-- URL fields -->
    <element name="fUrl" type="rdeCsv:anyURIType"
     substitutionGroup="rdeCsv:field"/>
    <complexType name="anyURIType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
         default="anyURI"/>
       </extension>
     </complexContent>
    </complexType>

     <!--
     End of schema.
     -->
   </schema>
   END
```

9.2. RDE Domain Object

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```
BEGIN
<?xml version="1.0" encoding="UTF-8"?>
<schema targetNamespace="urn:ietf:params:xml:ns:rdeDomain-1.0"
  xmlns:rdeDomain="urn:ietf:params:xml:ns:rdeDomain-1.0"
  xmlns:rde="urn:ietf:params:xml:ns:rde-1.0"
  xmlns:rdeIDN="urn:ietf:params:xml:ns:rdeIDN-1.0"
  xmlns:rgp="urn:ietf:params:xml:ns:rgp-1.0"
  xmlns:secDNS="urn:ietf:params:xml:ns:secDNS-1.1"
  xmlns:domain="urn:ietf:params:xml:ns:domain-1.0"
  xmlns:eppcom="urn:ietf:params:xml:ns:eppcom-1.0"
  xmlns="http://www.w3.org/2001/XMLSchema"
  elementFormDefault="qualified">

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

```
<import namespace="urn:ietf:params:xml:ns:domain-1.0"/>
<import namespace="urn:ietf:params:xml:ns:secDNS-1.1"/>
<import namespace="urn:ietf:params:xml:ns:rgp-1.0"/>
<import namespace="urn:ietf:params:xml:ns:rde-1.0"/>
<import namespace="urn:ietf:params:xml:ns:rdeIDN-1.0"/>

<annotation>
  <documentation>
    Registry Data Escrow Domain provisioning schema
  </documentation>
</annotation>

<element name="abstractDomain"
  type="rdeDomain:abstractContentType"
  substitutionGroup="rde:content" abstract="true"/>
<element name="domain"
  substitutionGroup="rdeDomain:abstractDomain"/>
<element name="delete"
  type="rdeDomain:deleteType"
  substitutionGroup="rde:delete"/>

<!-- Content Type -->
<complexType name="abstractContentType">
  <complexContent>
    <extension base="rde:contentType">
      <sequence>
        <element name="name"
          type="eppcom:labelType"/>
        <element name="roid"
          type="eppcom:roidType"/>
        <element name="uName"
          type="eppcom:labelType" minOccurs="0"/>
        <element name="idnTableId"
          type="rdeIDN:idType" minOccurs="0"/>
        <element name="originalName"
          type="eppcom:labelType" minOccurs="0"/>
        <element name="status"
          type="domain:statusType" maxOccurs="11"/>
        <element name="rgpStatus"
          type="rgp:statusType" minOccurs="0"
          maxOccurs="unbounded"/>
        <element name="registrant"
          type="eppcom:clIDType" minOccurs="0"/>
        <element name="contact"
          type="domain:contactType"
          minOccurs="0" maxOccurs="unbounded"/>
        <element name="ns"
          type="domain:nsType" minOccurs="0"/>
```

```
            <element name="clID"
              type="eppcom:clIDType"/>
            <element name="crRr"
              type="rde:rrType"/>
            <element name="crDate"
              type="dateTime" minOccurs="0"/>
            <element name="exDate"
              type="dateTime" minOccurs="0"/>
            <element name="upRr"
              type="rde:rrType" minOccurs="0"/>
            <element name="upDate"
              type="dateTime" minOccurs="0"/>
            <element name="secDNS"
              type="secDNS:dsOrKeyType" minOccurs="0"/>
            <element name="trDate"
              type="dateTime" minOccurs="0"/>
            <element name="trnData"
              type="rdeDomain:transferDataType"
              minOccurs="0"/>
          </sequence>
        </extension>
      </complexContent>
    </complexType>

    <complexType name="transferDataType">
      <sequence>
        <element name="trStatus"
          type="eppcom:trStatusType"/>
        <element name="reRr"
          type="rde:rrType"/>
        <element name="reDate"
          type="dateTime"/>
        <element name="acRr"
          type="rde:rrType"/>
        <element name="acDate"
          type="dateTime"/>
        <element name="exDate"
          type="dateTime" minOccurs="0"/>
      </sequence>
    </complexType>

    <!-- Delete Type -->
    <complexType name="deleteType">
      <complexContent>
        <extension base="rde:deleteType">
          <sequence>
            <element name="name"
              type="eppcom:labelType" minOccurs="0"
```

```
              maxOccurs="unbounded"/>
          </sequence>
        </extension>
      </complexContent>
    </complexType>
  </schema>
  END
```

9.3. CSV Domain Object

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```
BEGIN
<?xml version="1.0" encoding="UTF-8"?>

<schema targetNamespace="urn:ietf:params:xml:ns:csvDomain-1.0"
       xmlns:csvDomain="urn:ietf:params:xml:ns:csvDomain-1.0"
       xmlns:rde="urn:ietf:params:xml:ns:rde-1.0"
```

```
          xmlns:rdeCsv="urn:ietf:params:xml:ns:rdeCsv-1.0"
          xmlns:rgp="urn:ietf:params:xml:ns:rgp-1.0"
          xmlns:secDNS="urn:ietf:params:xml:ns:secDNS-1.1"
          xmlns:domain="urn:ietf:params:xml:ns:domain-1.0"
          xmlns:eppcom="urn:ietf:params:xml:ns:eppcom-1.0"
          xmlns="http://www.w3.org/2001/XMLSchema"
          elementFormDefault="qualified">

     <!--
     Import common element types
     -->
     <import namespace="urn:ietf:params:xml:ns:eppcom-1.0"
          schemaLocation="eppcom-1.0.xsd"/>
     <import namespace="urn:ietf:params:xml:ns:domain-1.0"
          schemaLocation="domain-1.0.xsd"/>
     <import namespace="urn:ietf:params:xml:ns:secDNS-1.1"
          schemaLocation="secDNS-1.1.xsd"/>
     <import namespace="urn:ietf:params:xml:ns:rgp-1.0"
          schemaLocation="rgp-1.0.xsd"/>
     <import namespace="urn:ietf:params:xml:ns:rde-1.0"
          schemaLocation="rde-1.0.xsd"/>
     <import namespace="urn:ietf:params:xml:ns:rdeCsv-1.0"
          schemaLocation="rdeCsv-1.0.xsd"/>

     <annotation>
      <documentation>
       Domain Name Comma-Separated Values (CSV) Object
      </documentation>
     </annotation>

     <!--
     Child elements of the <rde:contents> object
     -->
     <element name="contents" type="csvDomain:contentType"
     substitutionGroup="rde:content"/>

     <complexType name="contentType">
      <complexContent>
       <extension base="rde:contentType">
          <sequence>
            <element ref="rdeCsv:csv" maxOccurs="unbounded"/>
          </sequence>
       </extension>
      </complexContent>
     </complexType>

     <!--
     Child elements of the <rde:deletes> object
```

```
     -->
     <element name="deletes" type="csvDomain:deleteType"
     substitutionGroup="rde:delete"/>

     <complexType name="deleteType">
      <complexContent>
       <extension base="rde:deleteType">
          <sequence>
            <element ref="rdeCsv:csv" maxOccurs="unbounded"/>
          </sequence>
       </extension>
      </complexContent>
     </complexType>



    <!-- Domain name field -->
    <element name="fName" type="rdeCsv:fNameRequiredType"
     substitutionGroup="rdeCsv:field"/>


    <!-- RGP status field -->
    <element name="fRgpStatus"
    type="csvDomain:fRgpStatusType"
     substitutionGroup="rdeCsv:field"/>
    <complexType name="fRgpStatusType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
         default="rgp\:statusValueType"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- Contact type field -->
    <element name="fContactType" type="csvDomain:fContactsTypeType"
     substitutionGroup="rdeCsv:field"/>

    <complexType name="fContactsTypeType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
         default="domain\:contactAttrType"/>
       </extension>
     </complexContent>
    </complexType>
```

```
    <!-- DNSSEC field types -->

    <!-- Maximum signature lifetime field -->
    <element name="fMaxSigLife" type="csvDomain:fMaxSigLifeType"
     substitutionGroup="rdeCsv:field"/>
    <complexType name="fMaxSigLifeType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
         default="secDNS\:maxSigLifeType"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- Key tag field -->
    <element name="fKeyTag" type="rdeCsv:fUnsignedShortType"
     substitutionGroup="rdeCsv:field"/>

    <!-- DS Algorithm field -->
    <element name="fDsAlg" type="rdeCsv:fUnsignedByteType"
     substitutionGroup="rdeCsv:field"/>

    <!-- Digest type field -->
    <element name="fDigestType" type="rdeCsv:fUnsignedByteType"
     substitutionGroup="rdeCsv:field"/>

    <!-- Digest field -->
    <element name="fDigest" type="rdeCsv:fHexBinaryType"
     substitutionGroup="rdeCsv:field"/>

    <!-- Flags field -->
    <element name="fFlags" type="rdeCsv:fUnsignedShortType"
     substitutionGroup="rdeCsv:field"/>

    <!-- Protocol field -->
    <element name="fProtocol" type="rdeCsv:fUnsignedByteType"
     substitutionGroup="rdeCsv:field"/>

    <!-- Key Algorithm field -->
    <element name="fKeyAlg" type="rdeCsv:fUnsignedByteType"
     substitutionGroup="rdeCsv:field"/>

    <!-- Public Key field -->
    <element name="fPubKey" type="csvDomain:fPubKeyType"
     substitutionGroup="rdeCsv:field"/>
    <complexType name="fPubKeyType">
     <complexContent>
```

```
      <extension base="rdeCsv:fieldOptionalType">
        <sequence/>
        <attribute name="type" type="token"
        default="secDNS\:keyType"/>
      </extension>
    </complexContent>
   </complexType>

   <!-- Original Domain Name for Variant field -->
   <element name="fOriginalName" type="rdeCsv:fNameType"
    substitutionGroup="rdeCsv:field"/>

   <!-- Domain status field -->
   <element name="fStatus" type="csvDomain:fStatusType"
    substitutionGroup="rdeCsv:field"/>

   <!-- Domain status based on domain-1.0.xsd  -->
   <complexType name="fStatusType">
    <complexContent>
      <extension base="rdeCsv:fieldOptionalType">
        <sequence/>
        <attribute name="type" type="token"
          default="domain\:statusValueType"/>
      </extension>
    </complexContent>
   </complexType>

    <!--
    End of schema.
    -->
  </schema>
  END
```

9.4. RDE Host Object

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BEGIN

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

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

  <annotation>
    <documentation>
      Registry Data Escrow Host provisioning schema
    </documentation>
  </annotation>

  <element name="abstractHost" type="rdeHost:abstractContentType"
    substitutionGroup="rde:content" abstract="true"/>
  <element name="host" substitutionGroup="rdeHost:abstractHost" />
  <element name="delete" type="rdeHost:deleteType"
    substitutionGroup="rde:delete"/>

  <!-- Content Type -->
  <complexType name="abstractContentType">
    <complexContent>
```

```
        <extension base="rde:contentType">
          <sequence>
            <element name="name"
              type="eppcom:labelType"/>
            <element name="roid"
              type="eppcom:roidType"/>
            <element name="status"
              type="host:statusType" maxOccurs="7"/>
            <element name="addr"
              type="host:addrType" minOccurs="0"
              maxOccurs="unbounded"/>
            <element name="clID"
              type="eppcom:clIDType"/>
            <element name="crRr"
              type="rde:rrType"/>
            <element name="crDate"
              type="dateTime"/>
            <element name="upRr"
              type="rde:rrType" minOccurs="0"/>
            <element name="upDate"
              type="dateTime" minOccurs="0"/>
            <element name="trDate"
              type="dateTime" minOccurs="0"/>
          </sequence>
        </extension>
      </complexContent>
    </complexType>

    <!-- Delete Type -->
    <complexType name="deleteType">
      <complexContent>
        <extension base="rde:deleteType">
          <choice minOccurs="0" maxOccurs="unbounded">
            <element name="name"
              type="eppcom:labelType"/>
            <element name="roid"
              type="eppcom:roidType"/>
          </choice>
        </extension>
      </complexContent>
    </complexType>
  </schema>
  END
```

9.5. CSV Host Object

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BEGIN

```
<?xml version="1.0" encoding="UTF-8"?>

<schema targetNamespace="urn:ietf:params:xml:ns:csvHost-1.0"
      xmlns:csvHost="urn:ietf:params:xml:ns:csvHost-1.0"
      xmlns:rde="urn:ietf:params:xml:ns:rde-1.0"
      xmlns:rdeCsv="urn:ietf:params:xml:ns:rdeCsv-1.0"
      xmlns:host="urn:ietf:params:xml:ns:host-1.0"
      xmlns:eppcom="urn:ietf:params:xml:ns:eppcom-1.0"
      xmlns="http://www.w3.org/2001/XMLSchema"
      elementFormDefault="qualified">

  <!--
  Import common element types
  -->
  <import namespace="urn:ietf:params:xml:ns:eppcom-1.0"
       schemaLocation="eppcom-1.0.xsd"/>
  <import namespace="urn:ietf:params:xml:ns:host-1.0"
       schemaLocation="host-1.0.xsd"/>
```

```
     <import namespace="urn:ietf:params:xml:ns:rde-1.0"
          schemaLocation="rde-1.0.xsd"/>
     <import namespace="urn:ietf:params:xml:ns:rdeCsv-1.0"
          schemaLocation="rdeCsv-1.0.xsd"/>

     <annotation>
      <documentation>
       Host Comma-Separated Values (CSV) Object
      </documentation>
     </annotation>

     <!--
     Child elements of the <rde:contents> object
     -->
     <element name="contents" type="csvHost:contentType"
     substitutionGroup="rde:content"/>

     <complexType name="contentType">
      <complexContent>
       <extension base="rde:contentType">
          <sequence>
            <element ref="rdeCsv:csv" maxOccurs="unbounded"/>
          </sequence>
       </extension>
      </complexContent>
     </complexType>

     <!--
     Child elements of the <rde:deletes> object
     -->
     <element name="deletes" type="csvHost:deleteType"
     substitutionGroup="rde:delete"/>

     <complexType name="deleteType">
      <complexContent>
       <extension base="rde:deleteType">
          <sequence>
            <element ref="rdeCsv:csv" maxOccurs="unbounded"/>
          </sequence>
       </extension>
      </complexContent>
     </complexType>


    <!-- Host name field -->
    <element name="fName" type="rdeCsv:fNameRequiredType"
     substitutionGroup="rdeCsv:field"/>
```

```
    <!-- IP address field -->
    <element name="fAddr" type="csvHost:fAddrType"
     substitutionGroup="rdeCsv:field"/>
    <complexType name="fAddrType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
           default="host\:addrStringType"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- IP address version field -->
    <element name="fAddrVersion" type="csvHost:fAddrVersionType"
     substitutionGroup="rdeCsv:field"/>
    <complexType name="fAddrVersionType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
           default="host\:ipType"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- Host status field -->
    <element name="fStatus" type="csvHost:fStatusType"
     substitutionGroup="rdeCsv:field"/>

    <!-- Host status based on host-1.0.xsd  -->
    <complexType name="fStatusType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
           default="host\:statusValueType"/>
       </extension>
     </complexContent>
    </complexType>

     <!--
     End of schema.
     -->
   </schema>
   END
```

9.6. RDE Contact Object

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

  <!-- Import common element types. -->
  <import namespace="urn:ietf:params:xml:ns:eppcom-1.0"/>
  <import namespace="urn:ietf:params:xml:ns:contact-1.0"/>
  <import namespace="urn:ietf:params:xml:ns:rde-1.0"/>
```

```
     <annotation>
       <documentation>
         Registry Data Escrow contact provisioning schema
       </documentation>
     </annotation>

     <element name="abstractContact"
       type="rdeContact:abstractContentType"
       substitutionGroup="rde:content" abstract="true"/>
     <element name="contact"
       substitutionGroup="rdeContact:abstractContact"/>
     <element name="delete"
       type="rdeContact:deleteType"
       substitutionGroup="rde:delete"/>

     <!-- Contact Type -->
     <complexType name="abstractContentType">
       <complexContent>
         <extension base="rde:contentType">
           <sequence>
             <element name="id"
               type="eppcom:clIDType"/>
             <element name="roid"
               type="eppcom:roidType"/>
             <element name="status"
               type="contact:statusType" maxOccurs="7"/>
             <element name="postalInfo"
               type="contact:postalInfoType" maxOccurs="2"/>
             <element name="voice"
               type="contact:e164Type" minOccurs="0"/>
             <element name="fax"
               type="contact:e164Type" minOccurs="0"/>
             <element name="email"
               type="eppcom:minTokenType"/>
             <element name="clID"
               type="eppcom:clIDType"/>
             <element name="crRr"
               type="rde:rrType"/>
             <element name="crDate"
               type="dateTime"/>
             <element name="upRr"
               type="rde:rrType" minOccurs="0"/>
             <element name="upDate"
               type="dateTime" minOccurs="0"/>
             <element name="trDate"
               type="dateTime" minOccurs="0"/>
             <element name="trnData"
               type="rdeContact:transferDataType" minOccurs="0"/>
```

```
            <element name="disclose"
              type="contact:discloseType" minOccurs="0"/>
          </sequence>
        </extension>
      </complexContent>
    </complexType>

    <complexType name="transferDataType">
      <sequence>
        <element name="trStatus" type="eppcom:trStatusType"/>
        <element name="reRr" type="rde:rrType"/>
        <element name="reDate" type="dateTime"/>
        <element name="acRr" type="rde:rrType"/>
        <element name="acDate" type="dateTime"/>
      </sequence>
    </complexType>


    <!-- Delete Type -->
    <complexType name="deleteType">
      <complexContent>
        <extension base="rde:deleteType">
          <sequence>
            <element name="id"
              type="eppcom:clIDType" minOccurs="0"
              maxOccurs="unbounded"/>
          </sequence>
        </extension>
      </complexContent>
    </complexType>
  </schema>
  END
```

9.7. CSV Contact Object

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```
BEGIN
<?xml version="1.0" encoding="UTF-8"?>

<schema targetNamespace="urn:ietf:params:xml:ns:csvContact-1.0"
    xmlns:csvContact="urn:ietf:params:xml:ns:csvContact-1.0"
    xmlns:rde="urn:ietf:params:xml:ns:rde-1.0"
    xmlns:rdeCsv="urn:ietf:params:xml:ns:rdeCsv-1.0"
    xmlns:contact="urn:ietf:params:xml:ns:contact-1.0"
    xmlns:eppcom="urn:ietf:params:xml:ns:eppcom-1.0"
    xmlns="http://www.w3.org/2001/XMLSchema"
    elementFormDefault="qualified">

<!--
Import common element types.
-->
<import namespace="urn:ietf:params:xml:ns:eppcom-1.0"
      schemaLocation="eppcom-1.0.xsd"/>
<import namespace="urn:ietf:params:xml:ns:contact-1.0"
      schemaLocation="contact-1.0.xsd"/>
<import namespace="urn:ietf:params:xml:ns:rde-1.0"
      schemaLocation="rde-1.0.xsd"/>
<import namespace="urn:ietf:params:xml:ns:rdeCsv-1.0"
      schemaLocation="rdeCsv-1.0.xsd"/>

<annotation>
  <documentation>
    Contact Comma-Separated Values (CSV) Object
  </documentation>
</annotation>
```

```
     <!--
     Child elements of the <rde:contents> object
     -->
     <element name="contents" type="csvContact:contentType"
     substitutionGroup="rde:content"/>

     <complexType name="contentType">
      <complexContent>
       <extension base="rde:contentType">
          <sequence>
            <element ref="rdeCsv:csv" maxOccurs="unbounded"/>
          </sequence>
       </extension>
      </complexContent>
     </complexType>

     <!--
     Child elements of the <rde:deletes> object
     -->
     <element name="deletes" type="csvContact:deleteType"
     substitutionGroup="rde:delete"/>

     <complexType name="deleteType">
      <complexContent>
       <extension base="rde:deleteType">
          <sequence>
            <element ref="rdeCsv:csv" maxOccurs="unbounded"/>
          </sequence>
       </extension>
      </complexContent>
     </complexType>


    <!-- Server-unique contact identifier field -->
    <element name="fId" type="csvContact:fIdType"
     substitutionGroup="rdeCsv:field"/>
    <complexType name="fIdType">
     <complexContent>
       <extension base="rdeCsv:fieldRequiredType">
         <sequence/>
         <attribute name="type" type="token"
         default="eppcom\:clIDType"/>
       </extension>
     </complexContent>
    </complexType>


    <!-- Is Registrar Contact field -->
```

```
    <element name="fIsRegistrarContact"
     type="rdeCsv:fBooleanType"
     substitutionGroup="rdeCsv:field"/>


    <!-- voice and fax telephone number fields -->
    <element name="fVoice" type="csvContact:fE164StringType"
     substitutionGroup="rdeCsv:field"/>
    <element name="fFax" type="csvContact:fE164StringType"
     substitutionGroup="rdeCsv:field"/>
    <complexType name="fE164StringType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
         default="contact\:e164StringType"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- voice and fax telephone extension fields -->
    <element name="fVoiceExt" type="rdeCsv:fTokenType"
     substitutionGroup="rdeCsv:field"/>
    <element name="fFaxExt" type="rdeCsv:fTokenType"
     substitutionGroup="rdeCsv:field"/>

    <!-- contact email address field -->
    <element name="fEmail" type="csvContact:fEmailType"
     substitutionGroup="rdeCsv:field"/>
    <complexType name="fEmailType">
     <complexContent>
       <extension base="rdeCsv:fieldRequiredType">
         <sequence/>
         <attribute name="type" type="token"
         default="eppcom\:minTokenType"/>
       </extension>
     </complexContent>
    </complexType>



    <!--
      Postal type field
      ("loc" = localized, "int" = internationalized)
    -->
    <element name="fPostalType" type="csvContact:fPostalTypeType"
     substitutionGroup="rdeCsv:field"/>
    <complexType name="fPostalTypeType">
```

```
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
         default="contact\:postalInfoEnumType"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- Standard postal line field -->
    <complexType name="fPostalLineType">
     <complexContent>
       <extension base="rdeCsv:fieldRequiredType">
         <sequence/>
         <attribute name="type" type="token"
         default="contact\:postalLineType"/>
         <attribute name="isLoc" type="boolean"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- Standard optional postal line field -->
    <complexType name="fOptPostalLineType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
         default="contact\:optPostalLineType"/>
         <attribute name="isLoc" type="boolean"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- Name of the individual or role field -->
    <element name="fName" type="csvContact:fPostalLineType"
     substitutionGroup="rdeCsv:field"/>


    <!-- Name organization field -->
    <element name="fOrg" type="csvContact:fOptPostalLineType"
     substitutionGroup="rdeCsv:field"/>


    <!-- Street address line field with required index attribute  -->
    <!-- starting with index 0.  -->
    <element name="fStreet" type="csvContact:fStreetType"
     substitutionGroup="rdeCsv:field"/>
    <complexType name="fStreetType">
```

```
     <complexContent>
       <extension base="csvContact:fOptPostalLineType">
         <sequence/>
         <attribute name="index" type="int"
         use="required"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- Contact's city field -->
    <element name="fCity" type="csvContact:fPostalLineType"
     substitutionGroup="rdeCsv:field"/>

    <!-- Contact's state or province field -->
    <element name="fSp" type="csvContact:fOptPostalLineType"
     substitutionGroup="rdeCsv:field"/>

    <!-- Contact's postal code field -->
    <element name="fPc" type="csvContact:fPcType"
     substitutionGroup="rdeCsv:field"/>
    <complexType name="fPcType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
         default="contact\:pcType"/>
         <attribute name="isLoc" type="boolean"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- Contact's country code field -->
    <element name="fCc" type="csvContact:fCcType"
     substitutionGroup="rdeCsv:field"/>
    <complexType name="fCcType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
         default="contact\:ccType"/>
         <attribute name="isLoc" type="boolean"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- Disclosure element fields -->
    <!-- Flag of "1" to allow disclosure
         and "0" to disallow disclosure -->
```

```
    <element name="fDiscloseFlag" type="csvContact:fBoolean"
     substitutionGroup="rdeCsv:field"/>
    <!-- Disclosure of localized name
         based on fDiscloseFlag? -->
    <element name="fDiscloseNameLoc" type="csvContact:fBoolean"
     substitutionGroup="rdeCsv:field"/>
    <!-- Disclosure of internationalized name
         based on fDiscloseFlag? -->
    <element name="fDiscloseNameInt" type="csvContact:fBoolean"
     substitutionGroup="rdeCsv:field"/>
    <!-- Disclosure of localized org
         based on fDiscloseFlag? -->
    <element name="fDiscloseOrgLoc" type="csvContact:fBoolean"
     substitutionGroup="rdeCsv:field"/>
    <!-- Disclosure of internationalized org
         based on fDiscloseFlag? -->
    <element name="fDiscloseOrgInt" type="csvContact:fBoolean"
     substitutionGroup="rdeCsv:field"/>
    <!-- Disclosure of localized address
         based on fDiscloseFlag? -->
    <element name="fDiscloseAddrLoc" type="csvContact:fBoolean"
     substitutionGroup="rdeCsv:field"/>
    <!-- Disclosure of internationalized address
         based on fDiscloseFlag? -->
    <element name="fDiscloseAddrInt" type="csvContact:fBoolean"
     substitutionGroup="rdeCsv:field"/>
    <!-- Disclosure voice telephone number
         based on fDiscloseFlag? -->
    <element name="fDiscloseVoice" type="csvContact:fBoolean"
     substitutionGroup="rdeCsv:field"/>
    <!-- Disclosure facsimile telephone number
         based on fDiscloseFlag? -->
    <element name="fDiscloseFax" type="csvContact:fBoolean"
     substitutionGroup="rdeCsv:field"/>
    <!-- Disclosure email address
         based on fDiscloseFlag? -->
    <element name="fDiscloseEmail" type="csvContact:fBoolean"
     substitutionGroup="rdeCsv:field"/>
    <complexType name="fBoolean">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
         default="boolean"/>
       </extension>
     </complexContent>
    </complexType>
```

```
 <!-- Contact status field -->
 <element name="fStatus" type="csvContact:fStatusType"
  substitutionGroup="rdeCsv:field"/>

 <!-- Host status based on contact-1.0.xsd  -->
 <complexType name="fStatusType">
  <complexContent>
    <extension base="rdeCsv:fieldOptionalType">
      <sequence/>
      <attribute name="type" type="token"
        default="contact\:statusValueType"/>
    </extension>
  </complexContent>
 </complexType>


<!--
End of schema.
-->
</schema>
END
```

9.8. RDE Registrar Object

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

  <!-- Import common element types. -->
  <import namespace="urn:ietf:params:xml:ns:eppcom-1.0"/>
  <import namespace="urn:ietf:params:xml:ns:domain-1.0"/>
  <import namespace="urn:ietf:params:xml:ns:contact-1.0"/>
  <import namespace="urn:ietf:params:xml:ns:rde-1.0"/>

  <annotation>
    <documentation>
      Registry Data Escrow registrar provisioning schema
    </documentation>
  </annotation>

  <element name="abstractRegistrar"
    type="rdeRegistrar:abstractContentType"
    substitutionGroup="rde:content" abstract="true"/>
  <element name="registrar"
    substitutionGroup="rdeRegistrar:abstractRegistrar"/>
  <element name="delete" type="rdeRegistrar:deleteType"
    substitutionGroup="rde:delete"/>

  <!-- Content Type -->
  <complexType name="abstractContentType">
    <complexContent>
      <extension base="rde:contentType">
        <sequence>
          <element name="id"
            type="eppcom:clIDType"/>
          <element name="name"
            type="rdeRegistrar:nameType"/>
```

```
            <element name="gurid"
              type="positiveInteger" minOccurs="0"/>
            <element name="status"
              type="rdeRegistrar:statusType"/>
            <element name="postalInfo"
              type="rdeRegistrar:postalInfoType"
              maxOccurs="2"/>
            <element name="voice"
              type="contact:e164Type" minOccurs="0"/>
            <element name="fax"
              type="contact:e164Type" minOccurs="0"/>
            <element name="email"
              type="eppcom:minTokenType"/>
            <element name="url"
              type="anyURI" minOccurs="0"/>
            <element name="whoisInfo"
              type="rdeRegistrar:whoisInfoType" minOccurs="0"/>
            <element name="crDate"
              type="dateTime"/>
            <element name="upDate"
              type="dateTime" minOccurs="0"/>
          </sequence>
        </extension>
      </complexContent>
    </complexType>

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

    <simpleType name="statusType">
      <restriction base="token">
        <enumeration value="ok"/>
        <enumeration value="readonly"/>
        <enumeration value="terminated"/>
      </restriction>
    </simpleType>

    <complexType name="postalInfoType">
      <sequence>
        <element name="addr"
          type="rdeRegistrar:addrType" />
      </sequence>
      <attribute name="type"
        type="rdeRegistrar:postalInfoEnumType"
```

```
        use="required" />
    </complexType>

    <simpleType name="postalInfoEnumType">
      <restriction base="token">
        <enumeration value="loc" />
        <enumeration value="int" />
      </restriction>
    </simpleType>

    <complexType name="addrType">
      <sequence>
        <element name="street"
          type="rdeRegistrar:optPostalLineType"
          minOccurs="0" maxOccurs="3" />
        <element name="city"
          type="rdeRegistrar:postalLineType" />
        <element name="sp"
          type="rdeRegistrar:optPostalLineType"
          minOccurs="0" />
        <element name="pc"
          type="rdeRegistrar:pcType" minOccurs="0" />
        <element name="cc"
          type="rdeRegistrar:ccType" />
      </sequence>
    </complexType>

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

    <simpleType name="optPostalLineType">
      <restriction base="normalizedString">
        <maxLength value="255" />
      </restriction>
    </simpleType>

    <simpleType name="pcType">
      <restriction base="token">
        <maxLength value="16" />
      </restriction>
    </simpleType>

    <simpleType name="ccType">
      <restriction base="token">
```

```
        <length value="2" />
      </restriction>
    </simpleType>

    <complexType name="whoisInfoType">
      <sequence>
        <element name="name"
          type="eppcom:labelType" minOccurs="0"/>
        <element name="url"
          type="anyURI" minOccurs="0"/>
      </sequence>
    </complexType>

    <!-- Delete Type -->
    <complexType name="deleteType">
      <complexContent>
        <extension base="rde:deleteType">
          <sequence>
            <element name="id"
              type="eppcom:clIDType" minOccurs="0"
              maxOccurs="unbounded"/>
          </sequence>
        </extension>
      </complexContent>
    </complexType>
  </schema>
  END
```

9.9. CSV Registrar Object

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BEGIN

```
<?xml version="1.0" encoding="UTF-8"?>

<schema targetNamespace="urn:ietf:params:xml:ns:csvRegistrar-1.0"
      xmlns:csvRegistrar="urn:ietf:params:xml:ns:csvRegistrar-1.0"
      xmlns:rde="urn:ietf:params:xml:ns:rde-1.0"
    xmlns:rdeCsv="urn:ietf:params:xml:ns:rdeCsv-1.0"
      xmlns:contact="urn:ietf:params:xml:ns:contact-1.0"
      xmlns:domain="urn:ietf:params:xml:ns:domain-1.0"
      xmlns:eppcom="urn:ietf:params:xml:ns:eppcom-1.0"
      xmlns="http://www.w3.org/2001/XMLSchema"
      elementFormDefault="qualified">

  <!--
  Import common element types.
  -->
  <import namespace="urn:ietf:params:xml:ns:eppcom-1.0"
       schemaLocation="eppcom-1.0.xsd"/>
  <import namespace="urn:ietf:params:xml:ns:domain-1.0"
       schemaLocation="domain-1.0.xsd"/>
  <import namespace="urn:ietf:params:xml:ns:contact-1.0"
       schemaLocation="contact-1.0.xsd"/>
  <import namespace="urn:ietf:params:xml:ns:rde-1.0"
       schemaLocation="rde-1.0.xsd"/>
  <import namespace="urn:ietf:params:xml:ns:rdeCsv-1.0"
        schemaLocation="rdeCsv-1.0.xsd"/>

  <annotation>
   <documentation>
    Registar Comma-Separated Values (CSV) Object
   </documentation>
  </annotation>

  <!--
```

```
     Child elements of the <rde:contents> object
     -->
     <element name="contents" type="csvRegistrar:contentType"
     substitutionGroup="rde:content"/>

     <complexType name="contentType">
      <complexContent>
       <extension base="rde:contentType">
          <sequence>
            <element ref="rdeCsv:csv" maxOccurs="unbounded"/>
          </sequence>
       </extension>
      </complexContent>
     </complexType>

     <!--
     Child elements of the <rde:deletes> object
     -->
     <element name="deletes" type="csvRegistrar:deleteType"
     substitutionGroup="rde:delete"/>

     <complexType name="deleteType">
      <complexContent>
       <extension base="rde:deleteType">
          <sequence>
            <element ref="rdeCsv:csv" maxOccurs="unbounded"/>
          </sequence>
       </extension>
      </complexContent>
     </complexType>


    <!-- Registrar unique identifier (short name / id) -->
    <element name="fId" type="rdeCsv:fClIDRequiredType"
     substitutionGroup="rdeCsv:field"/>

    <!-- Registrar name (full name) -->
    <element name="fName" type="csvRegistrar:fNameType"
     substitutionGroup="rdeCsv:field"/>

    <!-- Registrar name field -->
    <complexType name="fNameType">
     <complexContent>
       <extension base="rdeCsv:fieldRequiredType">
         <sequence/>
         <attribute name="type" type="token"
         default="normalizedString"/>
         <attribute name="isLoc" type="boolean" default="false"/>
```

```
      </extension>
    </complexContent>
   </complexType>


   <!-- Registrar GURID field -->
   <element name="fGurid"
    type="rdeCsv:fPositiveIntegerType"
    substitutionGroup="rdeCsv:field"/>

   <!-- Registrar status field -->
   <element name="fStatus" type="csvRegistrar:fStatusType"
    substitutionGroup="rdeCsv:field"/>
   <element name="fStatusName" type="rdeCsv:fTokenType"
    substitutionGroup="rdeCsv:field"/>
   <complexType name="fStatusType">
    <complexContent>
      <extension base="rdeCsv:fieldOptionalType">
        <sequence/>
        <attribute name="type" type="token"
        default="csvRegistrar\:statusType"/>
      </extension>
    </complexContent>
   </complexType>

   <!-- Registrar status type with optional name attr -->
   <complexType name="statusType">
     <simpleContent>
       <extension base="csvRegistrar:statusValueType">
         <attribute name="name" type="token"/>
       </extension>
     </simpleContent>
   </complexType>

   <!-- Registrar status enumerated values -->
   <simpleType name="statusValueType">
     <restriction base="token">
       <enumeration value="ok"/>
       <enumeration value="readonly"/>
       <enumeration value="terminated"/>
     </restriction>
   </simpleType>

   <!-- Whois URL field -->
   <element name="fWhoisUrl"
    type="rdeCsv:anyURIType"
    substitutionGroup="rdeCsv:field"/>
```

```
  <!--
  End of schema.
  -->
</schema>
END
```

9.10. RDE IDN Table Reference Objects

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```
BEGIN
<?xml version="1.0" encoding="UTF-8"?>
<schema targetNamespace="urn:ietf:params:xml:ns:rdeIDN-1.0"
  xmlns:rdeIDN="urn:ietf:params:xml:ns:rdeIDN-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"/>

     <annotation>
       <documentation>
      Registry Data Escrow IDN provisioning schema
       </documentation>
     </annotation>

     <element name="idnTableRef" type="rdeIDN:contentType"
       substitutionGroup="rde:content"/>
     <element name="delete" type="rdeIDN:deleteType"
       substitutionGroup="rde:delete"/>

     <!-- Content Types -->
     <complexType name="contentType">
       <complexContent>
         <extension base="rde:contentType">
           <sequence>
             <element name="url" type="anyURI"/>
             <element name="urlPolicy" type="anyURI"/>
           </sequence>
             <attribute name="id" type="rdeIDN:idType" use="required"/>
         </extension>
       </complexContent>
     </complexType>

     <complexType name="deleteType">
       <complexContent>
         <extension base="rde:deleteType">
           <sequence>
             <element name="id" type="rdeIDN:idType"/>
           </sequence>
         </extension>
       </complexContent>
     </complexType>

     <!-- Simple Types -->
     <simpleType name="idType">
       <restriction base="token">
       <minLength value="1"/>
       <maxLength value="64"/>
       </restriction>
     </simpleType>

   </schema>
   END
```

9.11. CSV IDN Language Object

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```
BEGIN
<?xml version="1.0" encoding="UTF-8"?>

<schema targetNamespace="urn:ietf:params:xml:ns:csvIDN-1.0"
      xmlns:csvIDN="urn:ietf:params:xml:ns:csvIDN-1.0"
      xmlns:rde="urn:ietf:params:xml:ns:rde-1.0"
      xmlns:rdeCsv="urn:ietf:params:xml:ns:rdeCsv-1.0"
      xmlns="http://www.w3.org/2001/XMLSchema"
      elementFormDefault="qualified">

  <!--
  Import common element types
  -->
  <import namespace="urn:ietf:params:xml:ns:rde-1.0"
```

```
     schemaLocation="rde-1.0.xsd"/>
     <import namespace="urn:ietf:params:xml:ns:rdeCsv-1.0"
          schemaLocation="rdeCsv-1.0.xsd"/>

     <annotation>
      <documentation>
       IDN Language Comma-Separated Values (CSV) Object
      </documentation>
     </annotation>

     <!--
     Child elements of the <rde:contents> object
     -->
     <element name="contents" type="csvIDN:contentType"
     substitutionGroup="rde:content"/>

     <complexType name="contentType">
      <complexContent>
       <extension base="rde:contentType">
          <sequence>
            <element ref="rdeCsv:csv" maxOccurs="unbounded"/>
          </sequence>
       </extension>
      </complexContent>
     </complexType>

     <!--
     Child elements of the <rde:deletes> object
     -->
     <element name="deletes" type="csvIDN:deleteType"
     substitutionGroup="rde:delete"/>

     <complexType name="deleteType">
      <complexContent>
       <extension base="rde:deleteType">
          <sequence>
            <element ref="rdeCsv:csv" maxOccurs="unbounded"/>
          </sequence>
       </extension>
      </complexContent>
     </complexType>

     <!--
     End of schema.
     -->
   </schema>
   END
```

9.12. EPP Parameters Object

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

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

```
    <annotation>
      <documentation>
        Registry Data Escrow EPP Parameters schema
      </documentation>
    </annotation>

    <!-- Content Type -->
    <element name="eppParams"
      substitutionGroup="rdeEppParams:abstractEppParams"/>

    <!-- Abstract Content Type -->
    <element name="abstractEppParams"
      type="rdeEppParams:abstractContentType"
      substitutionGroup="rde:content" abstract="true"/>
    <complexType name="abstractContentType">
      <complexContent>
        <extension base="rde:contentType">
          <sequence>
            <element name="version" type="epp:versionType"
              maxOccurs="unbounded"/>
            <element name="lang"
              type="language" maxOccurs="unbounded"/>
            <element name="objURI"
              type="anyURI" maxOccurs="unbounded"/>
            <element name="svcExtension"
              type="epp:extURIType"
              minOccurs="0"/>
            <element name="dcp"
              type="epp:dcpType"/>
          </sequence>
        </extension>
      </complexContent>
    </complexType>
  </schema>
  END
```

9.13. NNDN Object

```
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```

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

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

  <annotation>
    <documentation>
      Registry Data Escrow NNDN provisioning schema
    </documentation>
  </annotation>

  <element name="abstractNNDN" type="rdeNNDN:abstractContentType"
    substitutionGroup="rde:content" abstract="true"/>
  <element name="NNDN" substitutionGroup="rdeNNDN:abstractNNDN"/>
  <element name="delete" type="rdeNNDN:deleteType"
    substitutionGroup="rde:delete"/>
```

```
<!-- Content Type -->
<complexType name="abstractContentType">
  <complexContent>
    <extension base="rde:contentType">
      <sequence>
        <element name="aName"
          type="eppcom:labelType"/>
        <element name="uName"
          type="eppcom:labelType" minOccurs="0"/>
        <element name="idnTableId"
          type="rdeIDN:idType" minOccurs="0"/>
        <element name="originalName"
          type="eppcom:labelType" minOccurs="0"/>
        <element name="nameState"
          type="rdeNNDN:nameState"/>
        <element name="crDate"
          type="dateTime"/>
      </sequence>
    </extension>
  </complexContent>
</complexType>

<simpleType name="nameStateValue">
  <restriction base="token">
    <enumeration value="withheld" />
    <enumeration value="blocked" />
    <enumeration value="mirrored" />
  </restriction>
</simpleType>

<complexType name="nameState">
  <simpleContent>
    <extension base="rdeNNDN:nameStateValue">
      <attribute name="mirroringNS"
        type="boolean" default="true"/>
    </extension>
  </simpleContent>
</complexType>

<!-- Delete Type -->
<complexType name="deleteType">
  <complexContent>
    <extension base="rde:deleteType">
      <sequence>
        <element name="aName"
          type="eppcom:labelType" minOccurs="0"
          maxOccurs="unbounded"/>
      </sequence>
```

```
        </extension>
      </complexContent>
    </complexType>
  </schema>
  END
```

9.14. CSV NNDN Object

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```
BEGIN
<?xml version="1.0" encoding="UTF-8"?>

<schema targetNamespace="urn:ietf:params:xml:ns:csvNNDN-1.0"
       xmlns:csvNNDN="urn:ietf:params:xml:ns:csvNNDN-1.0"
       xmlns:rde="urn:ietf:params:xml:ns:rde-1.0"
       xmlns:rdeCsv="urn:ietf:params:xml:ns:rdeCsv-1.0"
       xmlns:rdeNNDN="urn:ietf:params:xml:ns:rdeNNDN-1.0"
```

```
          xmlns="http://www.w3.org/2001/XMLSchema"
          elementFormDefault="qualified">

     <!--
     Import common element types
     -->
     <import namespace="urn:ietf:params:xml:ns:rde-1.0"
          schemaLocation="rde-1.0.xsd"/>
     <import namespace="urn:ietf:params:xml:ns:rdeCsv-1.0"
          schemaLocation="rdeCsv-1.0.xsd"/>
     <import namespace="urn:ietf:params:xml:ns:rdeNNDN-1.0"
          schemaLocation="rde-nndn-1.0.xsd"/>

     <annotation>
      <documentation>
       NNDN (NNDN's not domain name) (CSV) Object
      </documentation>
     </annotation>

     <!--
     Child elements of the <rde:contents> object
     -->
     <element name="contents" type="csvNNDN:contentType"
     substitutionGroup="rde:content"/>

     <complexType name="contentType">
      <complexContent>
       <extension base="rde:contentType">
          <sequence>
            <element ref="rdeCsv:csv" maxOccurs="unbounded"/>
          </sequence>
       </extension>
      </complexContent>
     </complexType>

     <!--
     Child elements of the <rde:deletes> object
     -->
     <element name="deletes" type="csvNNDN:deleteType"
     substitutionGroup="rde:delete"/>

     <complexType name="deleteType">
      <complexContent>
       <extension base="rde:deleteType">
          <sequence>
            <element ref="rdeCsv:csv" maxOccurs="unbounded"/>
          </sequence>
       </extension>
```

```
      </complexContent>
     </complexType>

    <!-- ASCII Compatible Encoding (ACE) name field -->
    <element name="fAName" type="rdeCsv:fNameRequiredType"
     substitutionGroup="rdeCsv:field"/>


    <!-- domain name used to generate the IDN variant field -->
    <element name="fOriginalName" type="rdeCsv:fNameType"
     substitutionGroup="rdeCsv:field"/>

    <!-- RGP status field -->
    <element name="fNameState"
    type="csvNNDN:fNameStateType"
     substitutionGroup="rdeCsv:field"/>
    <complexType name="fNameStateType">
     <complexContent>
       <extension base="rdeCsv:fieldOptionalType">
         <sequence/>
         <attribute name="type" type="token"
         default="rdeNNDN\:nameState"/>
       </extension>
     </complexContent>
    </complexType>

    <!-- Mirroring uses NS mirror mechanism? -->
    <element name="fMirroringNS"
     type="rdeCsv:fBooleanType"
     substitutionGroup="rdeCsv:field"/>

     <!--
     End of schema.
     -->
   </schema>
   END
```

9.15. Policy Object

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

  <annotation>
    <documentation>
      Registry Data Escrow Policy schema
    </documentation>
  </annotation>

  <import namespace="urn:ietf:params:xml:ns:rde-1.0"/>
  <element name="policy" type="rdePolicy:policyType"
    substitutionGroup="rde:content"/>

  <complexType name="policyType">
    <complexContent>
      <extension base="rde:contentType">
        <attribute name="scope" type="token" use="required"/>
        <attribute name="element" type="anyURI" use="required"/>
      </extension>
    </complexContent>
  </complexType>
</schema>
END
```

9.16. Header Object

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

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

  <annotation>
    <documentation>
      Registry Data Escrow Header schema
    </documentation>
  </annotation>

  <!-- Root Element -->
  <element name="header" type="rdeHeader:contentType"
    substitutionGroup="rde:content"/>

  <!-- Content Type -->
  <complexType name="contentType">
    <complexContent>
      <extension base="rde:contentType">
        <sequence>
          <element name="tld" type="eppcom:labelType"/>
          <element name="count" type="rdeHeader:countType"
            maxOccurs="unbounded"/>
        </sequence>
      </extension>
    </complexContent>
  </complexType>

  <complexType name="countType">
    <simpleContent>
      <extension base="long">
        <attribute name="uri" type="anyURI"/>
      </extension>
    </simpleContent>
  </complexType>
</schema>
END
```

10. Internationalization Considerations

Data Escrow deposits are represented in XML, which provides native support for encoding information using the Unicode character set and its more compact representations including UTF-8. Conformant XML processors recognize both UTF-8 and UTF-16. Though XML includes provisions to identify and use other character encodings through use of an "encoding" attribute in an <?xml?> declaration, use of UTF-8 is RECOMMENDED.

11. IANA Considerations

This document uses URNs to describe XML namespaces and XML schemas conforming to a registry mechanism described in [RFC3688]. Fourteen URI assignments have been registered by the IANA.

Registration request for the RDE CSV namespace:

URI: urn:ietf:params:xml:ns:rdeCsv-1.0

Registrant Contact: See the "Author's Address" section of this document.

XML: None. Namespace URIs do not represent an XML specification.

Registration request for the RDE CSV XML schema:

URI: urn:ietf:params:xml:schema:rdeCsv-1.0

Registrant Contact: See the "Author's Address" section of this document.

See the "Formal Syntax" section of this document.

Registration request for the RDE domain namespace:

URI: urn:ietf:params:xml:ns:rdeDomain-1.0

Registrant Contact: See the "Author's Address" section of this document.

XML: None. Namespace URIs do not represent an XML specification.

Registration request for the RDE domain XML schema:

URI: urn:ietf:params:xml:schema:rdeDomain-1.0

Registrant Contact: See the "Author's Address" section of this document.

See the "Formal Syntax" section of this document.

Registration request for the CSV domain namespace:

URI: urn:ietf:params:xml:ns:csvDomain-1.0

Registrant Contact: See the "Author's Address" section of this document.

XML: None. Namespace URIs do not represent an XML specification.

Registration request for the CSV domain XML schema:

URI: urn:ietf:params:xml:schema:csvDomain-1.0

Registrant Contact: See the "Author's Address" section of this document.

See the "Formal Syntax" section of this document.

Registration request for the RDE host namespace:

URI: urn:ietf:params:xml:ns:rdeHost-1.0

Registrant Contact: See the "Author's Address" section of this document.

XML: None. Namespace URIs do not represent an XML specification.

Registration request for the RDE host XML schema:

URI: urn:ietf:params:xml:schema:rdeHost-1.0

Registrant Contact: See the "Author's Address" section of this document.

See the "Formal Syntax" section of this document.

Registration request for the CSV host namespace:

URI: urn:ietf:params:xml:ns:csvHost-1.0

Registrant Contact: See the "Author's Address" section of this document.

XML: None. Namespace URIs do not represent an XML specification.

Registration request for the CSV host XML schema:

URI: urn:ietf:params:xml:schema:csvHost-1.0

Registrant Contact: See the "Author's Address" section of this document.

See the "Formal Syntax" section of this document.

Registration request for the RDE contact namespace:

URI: urn:ietf:params:xml:ns:rdeContact-1.0

Registrant Contact: See the "Author's Address" section of this document.

XML: None. Namespace URIs do not represent an XML specification.

Registration request for the RDE contact XML schema:

URI: urn:ietf:params:xml:schema:rdeContact-1.0

Registrant Contact: See the "Author's Address" section of this document.

See the "Formal Syntax" section of this document.

Registration request for the CSV contact namespace:

URI: urn:ietf:params:xml:ns:csvContact-1.0

Registrant Contact: See the "Author's Address" section of this document.

XML: None. Namespace URIs do not represent an XML specification.

Registration request for the CSV contact XML schema:

URI: urn:ietf:params:xml:schema:csvContact-1.0

Registrant Contact: See the "Author's Address" section of this document.

See the "Formal Syntax" section of this document.

Registration request for the RDE registrar namespace:

URI: urn:ietf:params:xml:ns:rdeRegistrar-1.0

Registrant Contact: See the "Author's Address" section of this document.

XML: None. Namespace URIs do not represent an XML specification.

Registration request for the RDE registrar XML schema:

URI: urn:ietf:params:xml:schema:rdeRegistrar-1.0

Registrant Contact: See the "Author's Address" section of this document.

See the "Formal Syntax" section of this document.

Registration request for the CSV registrar namespace:

URI: urn:ietf:params:xml:ns:csvRegistrar-1.0

Registrant Contact: See the "Author's Address" section of this document.

XML: None. Namespace URIs do not represent an XML specification.

Registration request for the CSV registrar XML schema:

URI: urn:ietf:params:xml:schema:csvRegistrar-1.0

Registrant Contact: See the "Author's Address" section of this document.

See the "Formal Syntax" section of this document.

Registration request for the RDE IDN namespace:

URI: urn:ietf:params:xml:ns:rdeIDN-1.0

Registrant Contact: See the "Author's Address" section of this document.

XML: None. Namespace URIs do not represent an XML specification.

Registration request for the RDE IDN XML schema:

URI: urn:ietf:params:xml:schema:rdeIDN-1.0

Registrant Contact: See the "Author's Address" section of this document.

See the "Formal Syntax" section of this document.

Registration request for the CSV IDN namespace:

URI: urn:ietf:params:xml:ns:csvIDN-1.0

Registrant Contact: See the "Author's Address" section of this document.

XML: None. Namespace URIs do not represent an XML specification.

Registration request for the CSV IDN XML schema:

URI: urn:ietf:params:xml:schema:csvIDN-1.0

Registrant Contact: See the "Author's Address" section of this document.

See the "Formal Syntax" section of this document.

Registration request for the RDE NNDN namespace:

URI: urn:ietf:params:xml:ns:rdeNNDN-1.0

Registrant Contact: See the "Author's Address" section of this document.

XML: None. Namespace URIs do not represent an XML specification.

Registration request for the RDE NNDN XML schema:

URI: urn:ietf:params:xml:schema:rdeNNDN-1.0

Registrant Contact: See the "Author's Address" section of this document.

See the "Formal Syntax" section of this document.

Registration request for the CSV NNDN namespace:

URI: urn:ietf:params:xml:ns:csvNNDN-1.0

Registrant Contact: See the "Author's Address" section of this document.

XML: None. Namespace URIs do not represent an XML specification.

Registration request for the CSV NNDN XML schema:

URI: urn:ietf:params:xml:schema:csvNNDN-1.0

Registrant Contact: See the "Author's Address" section of this document.

See the "Formal Syntax" section of this document.

Registration request for the RDE EPP parameters namespace:

URI: urn:ietf:params:xml:ns:rdeEppParams-1.0

Registrant Contact: See the "Author's Address" section of this document.

XML: None. Namespace URIs do not represent an XML specification.

Registration request for the RDE EPP parameters XML schema:

URI: urn:ietf:params:xml:schema:rdeEppParams-1.0

Registrant Contact: See the "Author's Address" section of this document.

See the "Formal Syntax" section of this document.

12. Security Considerations

This specification does not define the security mechanisms to be used in the transmission of the data escrow deposits, since it only specifies the minimum necessary to enable the rebuilding of a Registry from deposits without intervention from the original Registry.

Depending on local policies, some elements or most likely, the whole deposit will be considered confidential. As such the Registry transmitting the data to the Escrow Agent SHOULD take all the necessary precautions like encrypting the data itself and/or the transport channel to avoid inadvertent disclosure of private data.

It is also of the utmost importance the authentication of the parties passing data escrow deposit files. The Escrow Agent SHOULD properly authenticate the identity of the Registry before accepting data escrow deposits. In a similar manner, the Registry SHOULD

authenticate the identity of the Escrow Agent before submitting any data.

Additionally, the Registry and the Escrow Agent SHOULD use integrity checking mechanisms to ensure the data transmitted is what the source intended. Validation of the contents by the Escrow Agent is RECOMMENDED to ensure not only the file was transmitted correctly from the Registry, but also the contents are also "meaningful".

13. Acknowledgments

Parts of this document are based on EPP [RFC5730] and related RFCs by Scott Hollenbeck.

TBD

14. Change History

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

14.1. Changes from draft-arias-noguchi-registry-data-escrow-02 to -dnrd-objects-mapping-00

1. Added definition for child elements under the <domain> element.

2. Added definition for child elements under the <host> element.

3. Added definition for child elements under the <contact> element.

4. Rewrote the IDN Variants Handling section to use the variant states as described in ICANN's Study of Issues Related to the Management of IDN Variant TLDs.

5. Renamed <icannID> to <gurid> in the <rdeRegistrar>.

6. Renamed <dnssec> to <secDNS> in the <domain> element.

7. Renamed <transfData> to <trnData> in the <domain> element.

8. Added <whoisInfo> element under <rdeRegistrar> element.

9. Fixed some typographical errors and omissions.

14.2. Changes from version 00 to 01

1. Specify OPTIONAL elements in the draft.

2. Added NNDN object to support list of reserved names and different IDN variants models.

3. Removed subordinated host element from the domain object.

4. Added eppParams object.

5. Added variantGenerator element to the domain object.

6. Added lgr to the IDN table object.

14.3. Changes from version 01 to 02

1. Updates to the all objects based on feedback from the list.

2. Start of XML and CSV drafts merge.

3. Added header object.

4. Added report object.

5. Added notification object.

6. Added Data Escrow Agent Extended Verification Process section.

7. Added Notifications from Registries to Third Parties.

8. Added Notifications from Data Escrow Agents to Third Parties.

9. Added FULL, DIFF deposit examples using the XML model only.

14.4. Changes from version 02 to 03

1. Remove authinfo from the XML Schema.

2. Resend attribute is now an element

3. Scope attribute added to policy object.

14.5. Changes from version 03 to 04

1. Merged draft-gould-thippeswamy-dnrd-csv-mapping-03 into draft-arias-noguchi-dnrd-objects-mapping-02.

2. Changed the cksum attribute of <rdeCsv:file> to use CRC32 and changed all of the sample cksum values to use CRC32, based on feedback from David Kipling.

3. Changed the optional <rdeCsv:sep> element to be an optional "sep" attribute value of the <rdeCsv:csv> element with a default value of "," based on feedback from David Kipling.

4. Added support for the optional "parent" attribute for the to the CSV fields to indicate a field as a reference to a parent object, based on feedback from David Kipling.

5. Added support for the CSV model for the NNDN.

6. Added support to delete hosts based on roid.

7. Added mirrored state to NNDN

8. Minor fixes to XML XSDs.

9. The Report and Notification objects were moved to draft-lozano-icann-registry-interfaces

10. The section Data escrow notifications was moved to draft-lozano-icann-registry-interfaces

11. Removed references to the <rdeCsv:fCrRr>, <rdeCsv:fCrID>, and <rdeCsv:fCrDate> from the "hostStatuses" and "hostAddresses" CSV files.

12. Removed references to the <rdeCsv:fCrRr>, <rdeCsv:fCrID>, and <rdeCsv:fCrDate> from the "contactStatuses" CSV file.

13. Removed references to the <rdeCsv:fCrRr>, <rdeCsv:fCrID>, and <rdeCsv:fCrDate> from the "domainContacts", "domainStatuses", and "domainNameServers" CSV files.

14. Changed <rdeCsv:fLanguage> to <rdeCsv:fLang>.

15. Replaced use of <rdeCsv:fLang> to new <rdeCsv:fIdnTableId> field in the "domain", "idnLanguage", and "NNDN" CSV files.

16. Replaced use of <csvHost:fName> with <rdeCsv:fRoid> in the "host" <csvHost:deletes> <rdeCsv:csv> element.

17. Changed the foreign key of the hosts to use <rdeCsv:fRoid> instead of <csvHost:fName> and removed use of <csvHost:fName> in the "domainNameServers", "hostStatuses", and "hostAddresses" CSV

files.

18. Added use of the MUST keyword for CSV fields that are required to be supported in an EPP based system.

19. Removed use of the <rdeCsv:fRoid> field element for the "registrar" CSV file.

20. Added definition of <csvNNDN:fMirroringNS> field element.

14.6. Changes from version 04 to 05

1. Updated the examples of the full and differential deposits using the CSV and XML model.

2. Made <rdeCsv:fExDate> optional for the "domainTransfer" CSV file to match the XML definition.

3. Made <csvDomain:fOriginalName> optional for the "domain" CSV file to match the XML definition.

4. Made <rdeCsv:fTrDate> optional for the "domain" and "contact" CSV files to match the XML definition.

5. Change <idnTableId> from IDREF to idType.

6. Minor editorial changes.

15. Example of a full deposit using the XML model

Example of a full deposit using the XML model:

```
<?xml version="1.0" encoding="UTF-8"?>
<rde:deposit type="FULL" id="20101017001" prevId="20101010001"
  xmlns:domain="urn:ietf:params:xml:ns:domain-1.0"
  xmlns:contact="urn:ietf:params:xml:ns:contact-1.0"
  xmlns:secDNS="urn:ietf:params:xml:ns:secDNS-1.1"
  xmlns:rde="urn:ietf:params:xml:ns:rde-1.0"
  xmlns:rdeHeader="urn:ietf:params:xml:ns:rdeHeader-1.0"
  xmlns:rdeDom="urn:ietf:params:xml:ns:rdeDomain-1.0"
  xmlns:rdeHost="urn:ietf:params:xml:ns:rdeHost-1.0"
  xmlns:rdeContact="urn:ietf:params:xml:ns:rdeContact-1.0"
  xmlns:rdeRegistrar="urn:ietf:params:xml:ns:rdeRegistrar-1.0"
  xmlns:rdeIDN="urn:ietf:params:xml:ns:rdeIDN-1.0"
  xmlns:rdeNNDN="urn:ietf:params:xml:ns:rdeNNDN-1.0"
  xmlns:rdeEppParams="urn:ietf:params:xml:ns:rdeEppParams-1.0"
```

```
     xmlns:rdePolicy="urn:ietf:params:xml:ns:rdePolicy-1.0"
     xmlns:epp="urn:ietf:params:xml:ns:epp-1.0">

     <rde:watermark>2010-10-17T00:00:00Z</rde:watermark>
     <rde:rdeMenu>
       <rde:version>1.0</rde:version>
       <rde:objURI>urn:ietf:params:xml:ns:rdeHeader-1.0
       </rde:objURI>
       <rde:objURI>urn:ietf:params:xml:ns:rdeContact-1.0
       </rde:objURI>
       <rde:objURI>urn:ietf:params:xml:ns:rdeHost-1.0
       </rde:objURI>
       <rde:objURI>urn:ietf:params:xml:ns:rdeDomain-1.0
       </rde:objURI>
       <rde:objURI>urn:ietf:params:xml:ns:rdeRegistrar-1.0
       </rde:objURI>
       <rde:objURI>urn:ietf:params:xml:ns:rdeIDN-1.0
       </rde:objURI>
       <rde:objURI>urn:ietf:params:xml:ns:rdeNNDN-1.0
       </rde:objURI>
       <rde:objURI>urn:ietf:params:xml:ns:rdeEppParams-1.0
       </rde:objURI>
     </rde:rdeMenu>

     <!-- Contents -->
     <rde:contents>
       <!-- Header -->
       <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>

        <!-- Domian: example1.test -->
        <rdeDom:domain>
          <rdeDom:name>example1.test</rdeDom:name>
          <rdeDom:roid>Dexample1-TEST</rdeDom:roid>
          <rdeDom:status s="ok"/>
          <rdeDom:registrant>jd1234</rdeDom:registrant>
          <rdeDom:contact type="admin">sh8013</rdeDom:contact>
          <rdeDom:contact type="tech">sh8013</rdeDom:contact>
          <rdeDom:ns>
            <domain:hostObj>ns1.example.com</domain:hostObj>
            <domain:hostObj>ns1.example1.test</domain:hostObj>
          </rdeDom:ns>
          <rdeDom:clID>RegistrarX</rdeDom:clID>
          <rdeDom:crRr client="jdoe">RegistrarX</rdeDom:crRr>
          <rdeDom:crDate>1999-04-03T22:00:00.0Z</rdeDom:crDate>
          <rdeDom:exDate>2015-04-03T22:00:00.0Z</rdeDom:exDate>
        </rdeDom:domain>

        <!-- Domian: example2.test -->
        <rdeDom:domain>
          <rdeDom:name>example2.test</rdeDom:name>
          <rdeDom:roid>Dexample2-TEST</rdeDom:roid>
          <rdeDom:status s="ok"/>
          <rdeDom:status s="clientUpdateProhibited"/>
          <rdeDom:registrant>jd1234</rdeDom:registrant>
          <rdeDom:contact type="admin">sh8013</rdeDom:contact>
          <rdeDom:contact type="tech">sh8013</rdeDom:contact>
          <rdeDom:clID>RegistrarX</rdeDom:clID>
          <rdeDom:crRr>RegistrarX</rdeDom:crRr>
          <rdeDom:crDate>1999-04-03T22:00:00.0Z</rdeDom:crDate>
          <rdeDom:exDate>2015-04-03T22:00:00.0Z</rdeDom:exDate>
        </rdeDom:domain>

        <!-- Host: ns1.example.test -->
        <rdeHost:host>
          <rdeHost:name>ns1.example1.test</rdeHost:name>
          <rdeHost:roid>Hns1_example_test-TEST</rdeHost:roid>
          <rdeHost:status s="ok"/>
          <rdeHost:status s="linked"/>
          <rdeHost:addr ip="v4">192.0.2.2</rdeHost:addr>
          <rdeHost:addr ip="v4">192.0.2.29</rdeHost:addr>
          <rdeHost:addr ip="v6">1080:0:0:0:8:800:200C:417A
          </rdeHost:addr>
          <rdeHost:clID>RegistrarX</rdeHost:clID>
```

```
          <rdeHost:crRr>RegistrarX</rdeHost:crRr>
          <rdeHost:crDate>1999-05-08T12:10:00.0Z</rdeHost:crDate>
          <rdeHost:upRr>RegistrarX</rdeHost:upRr>
          <rdeHost:upDate>2009-10-03T09:34:00.0Z</rdeHost:upDate>
        </rdeHost:host>

        <!-- Contact: sh8013 -->
        <rdeContact:contact>
          <rdeContact:id>sh8013</rdeContact:id>
          <rdeContact:roid>Csh8013-TEST</rdeContact:roid>
          <rdeContact:status s="linked"/>
          <rdeContact:status s="clientDeleteProhibited"/>
          <rdeContact:postalInfo type="int">
            <contact:name>John Doe</contact:name>
            <contact:org>Example Inc.</contact:org>
            <contact:addr>
              <contact:street>123 Example Dr.</contact:street>
              <contact:street>Suite 100</contact:street>
              <contact:city>Dulles</contact:city>
              <contact:sp>VA</contact:sp>
              <contact:pc>20166-6503</contact:pc>
              <contact:cc>US</contact:cc>
            </contact:addr>
          </rdeContact:postalInfo>
          <rdeContact:voice x="1234">+1.7035555555
          </rdeContact:voice>
          <rdeContact:fax>+1.7035555556
          </rdeContact:fax>
          <rdeContact:email>jdoe@example.test
          </rdeContact:email>
          <rdeContact:clID>RegistrarX</rdeContact:clID>
          <rdeContact:crRr client="jdoe">RegistrarX
          </rdeContact:crRr>
          <rdeContact:crDate>2009-09-13T08:01:00.0Z
          </rdeContact:crDate>
          <rdeContact:upRr client="jdoe">RegistrarX
          </rdeContact:upRr>
          <rdeContact:upDate>2009-11-26T09:10:00.0Z
          </rdeContact:upDate>
          <rdeContact:trDate>2009-12-03T09:05:00.0Z
          </rdeContact:trDate>
          <rdeContact:disclose flag="0">
            <contact:voice/>
            <contact:email/>
          </rdeContact:disclose>
        </rdeContact:contact>

        <!-- Registrar: RegistrarX -->
```

```
      <rdeRegistrar:registrar>
        <rdeRegistrar:id>RegistrarX</rdeRegistrar:id>
        <rdeRegistrar:name>Registrar X</rdeRegistrar:name>
        <rdeRegistrar:gurid>123</rdeRegistrar:gurid>
        <rdeRegistrar:status>ok</rdeRegistrar:status>
        <rdeRegistrar:postalInfo type="int">
          <rdeRegistrar:addr>
            <rdeRegistrar:street>123 Example Dr.
            </rdeRegistrar:street>
            <rdeRegistrar:street>Suite 100
            </rdeRegistrar:street>
            <rdeRegistrar:city>Dulles</rdeRegistrar:city>
            <rdeRegistrar:sp>VA</rdeRegistrar:sp>
            <rdeRegistrar:pc>20166-6503</rdeRegistrar:pc>
            <rdeRegistrar:cc>US</rdeRegistrar:cc>
          </rdeRegistrar:addr>
        </rdeRegistrar:postalInfo>
        <rdeRegistrar:voice x="1234">+1.7035555555
        </rdeRegistrar:voice>
        <rdeRegistrar:fax>+1.7035555556
        </rdeRegistrar:fax>
        <rdeRegistrar:email>jdoe@example.test
        </rdeRegistrar:email>
        <rdeRegistrar:url>http://www.example.test
        </rdeRegistrar:url>
        <rdeRegistrar:whoisInfo>
          <rdeRegistrar:name>whois.example.test
          </rdeRegistrar:name>
          <rdeRegistrar:url>http://whois.example.test
          </rdeRegistrar:url>
        </rdeRegistrar:whoisInfo>
        <rdeRegistrar:crDate>2005-04-23T11:49:00.0Z
        </rdeRegistrar:crDate>
        <rdeRegistrar:upDate>2009-02-17T17:51:00.0Z
        </rdeRegistrar:upDate>
      </rdeRegistrar:registrar>

      <!-- IDN Table -->
      <rdeIDN:idnTableRef id="pt-BR">
        <rdeIDN:url>
   http://www.iana.org/domains/idn-tables/tables/br_pt-br_1.0.html
        </rdeIDN:url>
        <rdeIDN:urlPolicy>
          http://registro.br/dominio/regras.html
        </rdeIDN:urlPolicy>
      </rdeIDN:idnTableRef>

      <!-- NNDN: pinguino.test -->
```

```
      <rdeNNDN:NNDN>
        <rdeNNDN:aName>xn--exampl-gva.test</rdeNNDN:aName>
        <rdeNNDN:idnTableId>pt-BR</rdeNNDN:idnTableId>
        <rdeNNDN:originalName>example1.test</rdeNNDN:originalName>
        <rdeNNDN:nameState>withheld</rdeNNDN:nameState>
        <rdeNNDN:crDate>2005-04-23T11:49:00.0Z</rdeNNDN:crDate>
      </rdeNNDN:NNDN>

      <!-- EppParams -->
      <rdeEppParams:eppParams>
        <rdeEppParams:version>1.0</rdeEppParams:version>
        <rdeEppParams:lang>en</rdeEppParams:lang>
        <rdeEppParams:objURI>
          urn:ietf:params:xml:ns:domain-1.0
        </rdeEppParams:objURI>
        <rdeEppParams:objURI>
          urn:ietf:params:xml:ns:contact-1.0
        </rdeEppParams:objURI>
        <rdeEppParams:objURI>
          urn:ietf:params:xml:ns:host-1.0
        </rdeEppParams:objURI>
        <rdeEppParams:svcExtension>
          <epp:extURI>urn:ietf:params:xml:ns:rgp-1.0
          </epp:extURI>
          <epp:extURI>urn:ietf:params:xml:ns:secDNS-1.1
          </epp:extURI>
        </rdeEppParams:svcExtension>
        <rdeEppParams:dcp>
        <epp:access><epp:all/></epp:access>
          <epp:statement>
            <epp:purpose>
              <epp:admin/>
              <epp:prov/>
            </epp:purpose>
            <epp:recipient>
              <epp:ours/>
              <epp:public/>
            </epp:recipient>
            <epp:retention>
              <epp:stated/>
            </epp:retention>
          </epp:statement>
        </rdeEppParams:dcp>
      </rdeEppParams:eppParams>
    <rdePolicy:policy
       scope="//rde:deposit/rde:contents/rdeDomain:domain"
       element="rdeDom:registrant" />
    </rde:contents>
```

```
</rde:deposit>
```

16. Example of differential deposit using the XML model

Example of a differential deposit using the XML model:

```
<?xml version="1.0" encoding="UTF-8"?>
<rde:deposit type="DIFF" id="20101017002" prevId="20101017001"
  xmlns:domain="urn:ietf:params:xml:ns:domain-1.0"
  xmlns:contact="urn:ietf:params:xml:ns:contact-1.0"
  xmlns:secDNS="urn:ietf:params:xml:ns:secDNS-1.1"
  xmlns:rde="urn:ietf:params:xml:ns:rde-1.0"
  xmlns:rdeHeader="urn:ietf:params:xml:ns:rdeHeader-1.0"
  xmlns:rdeDom="urn:ietf:params:xml:ns:rdeDomain-1.0"
  xmlns:rdeHost="urn:ietf:params:xml:ns:rdeHost-1.0"
  xmlns:rdeContact="urn:ietf:params:xml:ns:rdeContact-1.0"
  xmlns:rdeRegistrar="urn:ietf:params:xml:ns:rdeRegistrar-1.0"
  xmlns:rdeIDN="urn:ietf:params:xml:ns:rdeIDN-1.0"
  xmlns:rdeNNDN="urn:ietf:params:xml:ns:rdeNNDN-1.0"
  xmlns:rdeEppParams="urn:ietf:params:xml:ns:rdeEppParams-1.0"
  xmlns:epp="urn:ietf:params:xml:ns:epp-1.0">

  <rde:watermark>2010-10-17T00:00:00Z</rde:watermark>
  <rde:rdeMenu>
    <rde:version>1.0</rde:version>
    <rde:objURI>urn:ietf:params:xml:ns:rdeHeader-1.0
    </rde:objURI>
    <rde:objURI>urn:ietf:params:xml:ns:rdeContact-1.0
    </rde:objURI>
    <rde:objURI>urn:ietf:params:xml:ns:rdeHost-1.0
    </rde:objURI>
    <rde:objURI>urn:ietf:params:xml:ns:rdeDomain-1.0
    </rde:objURI>
    <rde:objURI>urn:ietf:params:xml:ns:rdeRegistrar-1.0
    </rde:objURI>
    <rde:objURI>urn:ietf:params:xml:ns:rdeIDN-1.0
    </rde:objURI>
    <rde:objURI>urn:ietf:params:xml:ns:rdeNNDN-1.0
    </rde:objURI>
    <rde:objURI>urn:ietf:params:xml:ns:rdeEppParams-1.0
    </rde:objURI>
  </rde:rdeMenu>

  <!-- Deletes -->
  <rde:deletes>
    <rdeDom:delete>
```

```
        <rdeDom:name>example2.test</rdeDom:name>
      </rdeDom:delete>
    </rde:deletes>

    <!-- Contents -->
    <rde:contents>
      <!-- Header -->
      <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">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>
    </rde:contents>
  </rde:deposit>
```

17. Example of a full deposit using the CSV model

Example of a full deposit using the CSV model:

```
<?xml version="1.0" encoding="UTF-8"?>
<rde:deposit
   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
   xmlns:epp="urn:ietf:params:xml:ns:epp-1.0"
   xmlns:rde="urn:ietf:params:xml:ns:rde-1.0"
   xmlns:rdeCsv="urn:ietf:params:xml:ns:rdeCsv-1.0"
   xmlns:csvDomain="urn:ietf:params:xml:ns:csvDomain-1.0"
   xmlns:csvHost="urn:ietf:params:xml:ns:csvHost-1.0"
```

```
      xmlns:csvContact="urn:ietf:params:xml:ns:csvContact-1.0"
      xmlns:csvRegistrar="urn:ietf:params:xml:ns:csvRegistrar-1.0"
      xmlns:csvIDN="urn:ietf:params:xml:ns:csvIDN-1.0"
      xmlns:rdeHeader="urn:ietf:params:xml:ns:rdeHeader-1.0"
      xmlns:csvNNDN="urn:ietf:params:xml:ns:csvNNDN-1.0"
      xmlns:rdeEppParams="urn:ietf:params:xml:ns:rdeEppParams-1.0"
       xsi:schemaLocation="
       urn:ietf:params:xml:ns:rde-1.0 rde-1.0.xsd
       urn:ietf:params:xml:ns:csvDomain-1.0 csvDomain-1.0.xsd
       urn:ietf:params:xml:ns:csvHost-1.0 csvHost-1.0.xsd
       urn:ietf:params:xml:ns:csvContact-1.0 csvContact-1.0.xsd
       urn:ietf:params:xml:ns:csvRegistrar-1.0 csvRegistrar-1.0.xsd
       urn:ietf:params:xml:ns:csvIDN-1.0 csvIDN-1.0.xsd
       urn:ietf:params:xml:ns:rdeHeader-1.0 rde-header-1.0.xsd
       urn:ietf:params:xml:ns:csvNNDN-1.0 csvNNDN-1.0.xsd
       urn:ietf:params:xml:ns:rdeEppParams-1.0 rde-epp-param-1.0.xsd
       urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd"
       type="FULL"
      id="20101017001" prevId="20101010001">
      <rde:watermark>2010-10-18T00:00:00Z</rde:watermark>
      <rde:rdeMenu>
       <rde:version>1.0</rde:version>
       <rde:objURI>urn:ietf:params:xml:ns:csvDomain-1.0</rde:objURI>
       <rde:objURI>urn:ietf:params:xml:ns:csvHost-1.0</rde:objURI>
       <rde:objURI>urn:ietf:params:xml:ns:csvContact-1.0</rde:objURI>
       <rde:objURI>urn:ietf:params:xml:ns:csvRegistrar-1.0</rde:objURI>
       <rde:objURI>urn:ietf:params:xml:ns:csvIDN-1.0</rde:objURI>
       <rde:objURI>urn:ietf:params:xml:ns:csvNNDN-1.0</rde:objURI>
       <rde:objURI>urn:ietf:params:xml:ns:rdeEppParams-1.0</rde:objURI>
      </rde:rdeMenu>
      <rde:contents>
        <rdeHeader:header>
         <rdeHeader:tld>test</rdeHeader:tld>
         <rdeHeader:count uri="urn:ietf:params:xml:ns:csvDomain-1.0">
         4
         </rdeHeader:count>
         <rdeHeader:count uri="urn:ietf:params:xml:ns:csvHost-1.0">
         2
         </rdeHeader:count>
         <rdeHeader:count uri="urn:ietf:params:xml:ns:csvContact-1.0">
         2
         </rdeHeader:count>
         <rdeHeader:count uri="urn:ietf:params:xml:ns:csvRegistrar-1.0">
         1
         </rdeHeader:count>
         <rdeHeader:count uri="urn:ietf:params:xml:ns:csvIDN-1.0">
         2
         </rdeHeader:count>
```

```
          <rdeHeader:count uri="urn:ietf:params:xml:ns:csvNNDN-1.0">
          2
          </rdeHeader:count>
          <rdeHeader:count uri="urn:ietf:params:xml:ns:rdeEppParams-1.0">
          1
          </rdeHeader:count>
         </rdeHeader:header>
         <csvDomain:contents>
           <rdeCsv:csv name="domain" sep=",">
             <rdeCsv:fields>
               <csvDomain:fName/>
               <rdeCsv:fRoid/>
               <rdeCsv:fIdnTableId/>
               <csvDomain:fOriginalName/>
               <rdeCsv:fRegistrant isRequired="true"/>
               <rdeCsv:fClID/>
               <rdeCsv:fCrRr/>
               <rdeCsv:fCrID/>
               <rdeCsv:fCrDate/>
               <rdeCsv:fUpRr/>
               <rdeCsv:fUpID/>
               <rdeCsv:fUpDate/>
               <rdeCsv:fExDate/>
             </rdeCsv:fields>
             <rdeCsv:files>
               <rdeCsv:file
                 cksum="75E2D01F">
                 domain-YYYYMMDD.csv
               </rdeCsv:file>
             </rdeCsv:files>
           </rdeCsv:csv>
           <rdeCsv:csv name="domainContacts" sep=",">
             <rdeCsv:fields>
               <csvDomain:fName parent="true"/>
               <csvContact:fId/>
               <csvDomain:fContactType/>
             </rdeCsv:fields>
             <rdeCsv:files>
               <rdeCsv:file
                 cksum="70A7C17B">
                 domainContacts-YYYYMMDD.csv
               </rdeCsv:file>
             </rdeCsv:files>
           </rdeCsv:csv>
           <rdeCsv:csv name="domainStatuses" sep=",">
             <rdeCsv:fields>
               <csvDomain:fName parent="true"/>
               <csvDomain:fStatus/>
```

```
              <rdeCsv:fStatusDescription/>
              <rdeCsv:fLang/>
              <csvDomain:fRgpStatus/>
            </rdeCsv:fields>
            <rdeCsv:files>
              <rdeCsv:file
                cksum="EB8C548E">
                domainStatuses-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
          <rdeCsv:csv name="domainNameServers" sep=",">
            <rdeCsv:fields>
              <csvDomain:fName parent="true"/>
              <rdeCsv:fRoid/>
              </rdeCsv:fields>
            <rdeCsv:files>
              <rdeCsv:file
                cksum="569D4638">
                domainNameServers-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
          <rdeCsv:csv name="dnssec" sep=",">
            <rdeCsv:fields>
              <csvDomain:fName parent="true"/>
              <csvDomain:fMaxSigLife/>
              <csvDomain:fKeyTag/>
              <csvDomain:fDsAlg/>
              <csvDomain:fDigestType/>
              <csvDomain:fDigest/>
            </rdeCsv:fields>
            <rdeCsv:files>
              <rdeCsv:file
                cksum="AA15CB43">
                dnssec-ds-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
          <rdeCsv:csv name="dnssec" sep=",">
            <rdeCsv:fields>
              <csvDomain:fName parent="true"/>
              <csvDomain:fMaxSigLife/>
              <csvDomain:fFlags/>
              <csvDomain:fProtocol/>
              <csvDomain:fKeyAlg/>
              <csvDomain:fPubKey/>
            </rdeCsv:fields>
```

```
            <rdeCsv:files>
              <rdeCsv:file
                cksum="1B16F334">
                dnssec-key-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
          <rdeCsv:csv name="domainTransfer" sep=",">
            <rdeCsv:fields>
              <csvDomain:fName parent="true"/>
              <rdeCsv:fTrStatus/>
              <rdeCsv:fReRr/>
              <rdeCsv:fReID/>
              <rdeCsv:fReDate/>
              <rdeCsv:fAcRr/>
              <rdeCsv:fAcID/>
              <rdeCsv:fAcDate/>
              <rdeCsv:fExDate/>
            </rdeCsv:fields>
            <rdeCsv:files>
              <rdeCsv:file
                cksum="71170194">
                domainTransfer-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
        </csvDomain:contents>
        <csvHost:contents>
          <rdeCsv:csv name="host" sep=",">
            <rdeCsv:fields>
              <csvHost:fName/>
              <rdeCsv:fRoid/>
              <rdeCsv:fClID/>
              <rdeCsv:fCrRr/>
              <rdeCsv:fCrID/>
              <rdeCsv:fCrDate/>
              <rdeCsv:fUpRr/>
              <rdeCsv:fUpID/>
              <rdeCsv:fUpDate/>
              <rdeCsv:fTrDate/>
            </rdeCsv:fields>
            <rdeCsv:files>
              <rdeCsv:file
                cksum="120938E3">
                host-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
```

```
          <rdeCsv:csv name="hostStatuses" sep=",">
            <rdeCsv:fields>
                  <rdeCsv:fRoid parent="true"/>
              <csvHost:fStatus/>
              <rdeCsv:fStatusDescription/>
              <rdeCsv:fLang/>
            </rdeCsv:fields>
            <rdeCsv:files>
              <rdeCsv:file
                cksum="0BA504FC">
                hostStatuses-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
          <rdeCsv:csv name="hostAddresses" sep=",">
            <rdeCsv:fields>
                  <rdeCsv:fRoid parent="true"/>
              <csvHost:fAddr/>
              <csvHost:fAddrVersion/>
            </rdeCsv:fields>
            <rdeCsv:files>
              <rdeCsv:file
                cksum="17888F02">
                hostAddresses-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
        </csvHost:contents>
        <csvContact:contents>
          <rdeCsv:csv name="contact" sep=",">
            <rdeCsv:fields>
              <csvContact:fId/>
              <rdeCsv:fRoid/>
              <csvContact:fVoice/>
              <csvContact:fVoiceExt/>
              <csvContact:fFax/>
              <csvContact:fFaxExt/>
              <csvContact:fEmail/>
              <rdeCsv:fClID/>
              <rdeCsv:fCrRr/>
              <rdeCsv:fCrID/>
              <rdeCsv:fCrDate/>
              <rdeCsv:fUpRr/>
              <rdeCsv:fUpID/>
              <rdeCsv:fUpDate/>
            </rdeCsv:fields>
            <rdeCsv:files>
              <rdeCsv:file
```

```
                cksum="D7F106A5">
                contact-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
          <rdeCsv:csv name="contactStatuses" sep=",">
            <rdeCsv:fields>
                <csvContact:fId parent="true"/>
                <csvContact:fStatus/>
                <rdeCsv:fStatusDescription/>
                <rdeCsv:fLang/>
              </rdeCsv:fields>
            <rdeCsv:files>
              <rdeCsv:file
                cksum="2AAF99D4">
                contactStatuses-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
          <rdeCsv:csv name="contactPostal" sep=",">
            <rdeCsv:fields>
              <csvContact:fId parent="true"/>
              <csvContact:fPostalType/>
              <csvContact:fName/>
              <csvContact:fOrg/>
              <csvContact:fStreet index="0"/>
              <csvContact:fStreet index="1"/>
              <csvContact:fStreet index="2"/>
              <csvContact:fCity/>
              <csvContact:fSp/>
              <csvContact:fPc/>
              <csvContact:fCc/>
            </rdeCsv:fields>
            <rdeCsv:files>
              <rdeCsv:file
                cksum="02CC2504">
                contactPostal-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
          <rdeCsv:csv name="contactTransfer" sep=",">
            <rdeCsv:fields>
              <csvContact:fId parent="true"/>
              <rdeCsv:fTrStatus/>
              <rdeCsv:fReRr/>
              <rdeCsv:fReID/>
              <rdeCsv:fReDate/>
              <rdeCsv:fAcRr/>
```

```
              <rdeCsv:fAcID/>
              <rdeCsv:fAcDate/>
            </rdeCsv:fields>
            <rdeCsv:files>
              <rdeCsv:file
                cksum="D0929632">
                contactTransfer-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
          <rdeCsv:csv name="contactDisclose" sep=",">
            <rdeCsv:fields>
              <csvContact:fId parent="true"/>
              <csvContact:fDiscloseFlag/>
              <csvContact:fDiscloseNameLoc/>
              <csvContact:fDiscloseNameInt/>
              <csvContact:fDiscloseOrgLoc/>
              <csvContact:fDiscloseOrgInt/>
              <csvContact:fDiscloseAddrLoc/>
              <csvContact:fDiscloseAddrInt/>
              <csvContact:fDiscloseVoice/>
              <csvContact:fDiscloseFax/>
              <csvContact:fDiscloseEmail/>
            </rdeCsv:fields>
            <rdeCsv:files>
              <rdeCsv:file
                cksum="89043A90">
                contactDisclose-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
        </csvContact:contents>
        <csvRegistrar:contents>
          <rdeCsv:csv name="registrar" sep=",">
            <rdeCsv:fields>
              <csvRegistrar:fId/>
              <csvRegistrar:fName isLoc="false"/>
              <csvRegistrar:fGurid/>
              <csvRegistrar:fStatus/>
              <csvContact:fStreet isLoc="false" index="0"/>
              <csvContact:fStreet isLoc="false" index="1"/>
              <csvContact:fStreet isLoc="false" index="2"/>
              <csvContact:fCity isLoc="false" />
              <csvContact:fSp isLoc="false" />
              <csvContact:fPc isLoc="false" />
              <csvContact:fCc isLoc="false" />
              <csvContact:fVoice/>
              <csvContact:fVoiceExt/>
```

```
              <csvContact:fFax/>
              <csvContact:fFaxExt/>
              <csvContact:fEmail/>
              <rdeCsv:fUrl/>
              <csvRegistrar:fWhoisUrl/>
              <rdeCsv:fCrDate/>
              <rdeCsv:fUpDate/>
            </rdeCsv:fields>
            <rdeCsv:files>
              <rdeCsv:file
                cksum="306178BB">
                registrar-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
        </csvRegistrar:contents>
        <csvIDN:contents>
          <rdeCsv:csv name="idnLanguage" sep=",">
            <rdeCsv:fields>
              <rdeCsv:fIdnTableId isRequired="true"/>
              <rdeCsv:fUrl isRequired="true"/>
            </rdeCsv:fields>
            <rdeCsv:files>
              <rdeCsv:file
                cksum="D462EAD0">
                idnLanguage-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
        </csvIDN:contents>
        <csvNNDN:contents>
          <rdeCsv:csv name="NNDN" sep=",">
            <rdeCsv:fields>
              <csvNNDN:fAName isRequired="true"/>
              <rdeCsv:fIdnTableId/>
              <csvNNDN:fOriginalName/>
              <csvNNDN:fNameState/>
              <csvNNDN:fMirroringNS/>
              <rdeCsv:fCrDate/>
            </rdeCsv:fields>
            <rdeCsv:files>
              <rdeCsv:file
                cksum="11C80D60">
                NNDN-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
        </csvNNDN:contents>
```

```
        <rdeEppParams:eppParams>
           <rdeEppParams:version>1.0</rdeEppParams:version>
           <rdeEppParams:lang>en</rdeEppParams:lang>
           <rdeEppParams:objURI>urn:ietf:params:xml:ns:domain-1.0
           </rdeEppParams:objURI>
           <rdeEppParams:objURI>urn:ietf:params:xml:ns:host-1.0
           </rdeEppParams:objURI>
           <rdeEppParams:objURI>urn:ietf:params:xml:ns:contact-1.0
           </rdeEppParams:objURI>
           <rdeEppParams:svcExtension>
             <epp:extURI>urn:ietf:params:xml:ns:secDNS-1.1
             </epp:extURI>
             <epp:extURI>urn:ietf:params:xml:ns:rgp-1.0
             </epp:extURI>
           </rdeEppParams:svcExtension>
           <rdeEppParams:dcp>
             <epp:access>
               <epp:all/>
             </epp:access>
             <epp:statement>
               <epp:purpose>
                 <epp:admin/>
                 <epp:other/>
                 <epp:prov/>
               </epp:purpose>
               <epp:recipient>
                 <epp:ours/>
                 <epp:public/>
                 <epp:unrelated/>
               </epp:recipient>
               <epp:retention>
                 <epp:indefinite/>
               </epp:retention>
             </epp:statement>
           </rdeEppParams:dcp>
        </rdeEppParams:eppParams>
      </rde:contents>
   </rde:deposit>
```

18. Example of differential deposit using the CSV model

Example of a differential deposit using the CSV model:

```
   <?xml version="1.0" encoding="UTF-8"?>
   <rde:deposit
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
```

```
      xmlns:epp="urn:ietf:params:xml:ns:epp-1.0"
      xmlns:rde="urn:ietf:params:xml:ns:rde-1.0"
      xmlns:rdeCsv="urn:ietf:params:xml:ns:rdeCsv-1.0"
      xmlns:csvDomain="urn:ietf:params:xml:ns:csvDomain-1.0"
      xmlns:csvHost="urn:ietf:params:xml:ns:csvHost-1.0"
      xmlns:csvContact="urn:ietf:params:xml:ns:csvContact-1.0"
      xmlns:csvRegistrar="urn:ietf:params:xml:ns:csvRegistrar-1.0"
      xmlns:csvIDN="urn:ietf:params:xml:ns:csvIDN-1.0"
      xmlns:rdeHeader="urn:ietf:params:xml:ns:rdeHeader-1.0"
      xmlns:csvNNDN="urn:ietf:params:xml:ns:csvNNDN-1.0"
      xmlns:rdeEppParams="urn:ietf:params:xml:ns:rdeEppParams-1.0"
      xsi:schemaLocation="
       urn:ietf:params:xml:ns:rde-1.0 rde-1.0.xsd
       urn:ietf:params:xml:ns:csvDomain-1.0 csvDomain-1.0.xsd
       urn:ietf:params:xml:ns:csvHost-1.0 csvHost-1.0.xsd
       urn:ietf:params:xml:ns:csvContact-1.0 csvContact-1.0.xsd
       urn:ietf:params:xml:ns:csvRegistrar-1.0 csvRegistrar-1.0.xsd
       urn:ietf:params:xml:ns:csvIDN-1.0 csvIDN-1.0.xsd
       urn:ietf:params:xml:ns:rdeHeader-1.0 rde-header-1.0.xsd
       urn:ietf:params:xml:ns:csvNNDN-1.0 csvNNDN-1.0.xsd
       urn:ietf:params:xml:ns:rdeEppParams-1.0 rde-epp-param-1.0.xsd
       urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd"
       type="FULL"
      id="20101017001" prevId="20101010001">
      <rde:watermark>2010-10-18T00:00:00Z</rde:watermark>
      <rde:rdeMenu>
       <rde:version>1.0</rde:version>
       <rde:objURI>urn:ietf:params:xml:ns:csvDomain-1.0</rde:objURI>
       <rde:objURI>urn:ietf:params:xml:ns:csvHost-1.0</rde:objURI>
       <rde:objURI>urn:ietf:params:xml:ns:csvContact-1.0</rde:objURI>
       <rde:objURI>urn:ietf:params:xml:ns:csvRegistrar-1.0</rde:objURI>
       <rde:objURI>urn:ietf:params:xml:ns:csvIDN-1.0</rde:objURI>
      </rde:rdeMenu>
      <rde:deletes>
       <csvNNDN:deletes>
         <rdeCsv:csv name="NNDN">
           <rdeCsv:fields>
             <csvNNDN:fAName isRequired="true"/>
           </rdeCsv:fields>
           <rdeCsv:files>
             <rdeCsv:file
               cksum="FF104E83">
               NNDN-delete-YYYYMMDD.csv
             </rdeCsv:file>
           </rdeCsv:files>
         </rdeCsv:csv>
       </csvNNDN:deletes>
      </rde:deletes>
```

```
      <rde:contents>
        <rdeHeader:header>
         <rdeHeader:tld>test</rdeHeader:tld>
         <rdeHeader:count uri="urn:ietf:params:xml:ns:csvDomain-1.0">
         4
         </rdeHeader:count>
         <rdeHeader:count uri="urn:ietf:params:xml:ns:csvHost-1.0">
         2
         </rdeHeader:count>
         <rdeHeader:count uri="urn:ietf:params:xml:ns:csvContact-1.0">
         2
         </rdeHeader:count>
         <rdeHeader:count uri="urn:ietf:params:xml:ns:csvRegistrar-1.0">
         1
         </rdeHeader:count>
         <rdeHeader:count uri="urn:ietf:params:xml:ns:csvIDN-1.0">
         2
         </rdeHeader:count>
         <rdeHeader:count uri="urn:ietf:params:xml:ns:csvNNDN-1.0">
         2
         </rdeHeader:count>
         <rdeHeader:count uri="urn:ietf:params:xml:ns:rdeEppParams-1.0">
         1
         </rdeHeader:count>
        </rdeHeader:header>
       <csvDomain:contents>
         <rdeCsv:csv name="domain" sep=",">
            <rdeCsv:fields>
              <csvDomain:fName/>
              <rdeCsv:fRoid/>
              <rdeCsv:fIdnTableId/>
              <csvDomain:fOriginalName/>
              <rdeCsv:fRegistrant isRequired="true"/>
              <rdeCsv:fClID/>
              <rdeCsv:fCrRr/>
              <rdeCsv:fCrID/>
              <rdeCsv:fCrDate/>
              <rdeCsv:fUpRr/>
              <rdeCsv:fUpID/>
              <rdeCsv:fUpDate/>
              <rdeCsv:fExDate/>
            </rdeCsv:fields>
           <rdeCsv:files>
             <rdeCsv:file
               cksum="75E2D01F">
               domain-YYYYMMDD.csv
             </rdeCsv:file>
           </rdeCsv:files>
```

```
        </rdeCsv:csv>
        <rdeCsv:csv name="domainContacts" sep=",">
          <rdeCsv:fields>
            <csvDomain:fName parent="true"/>
            <csvContact:fId/>
            <csvDomain:fContactType/>
          </rdeCsv:fields>
          <rdeCsv:files>
            <rdeCsv:file
              cksum="70A7C17B">
              domainContacts-YYYYMMDD.csv
            </rdeCsv:file>
          </rdeCsv:files>
        </rdeCsv:csv>
        <rdeCsv:csv name="domainStatuses" sep=",">
          <rdeCsv:fields>
            <csvDomain:fName parent="true"/>
            <csvDomain:fStatus/>
            <rdeCsv:fStatusDescription/>
            <rdeCsv:fLang/>
            <csvDomain:fRgpStatus/>
          </rdeCsv:fields>
          <rdeCsv:files>
            <rdeCsv:file
              cksum="EB8C548E">
              domainStatuses-YYYYMMDD.csv
            </rdeCsv:file>
          </rdeCsv:files>
        </rdeCsv:csv>
        <rdeCsv:csv name="domainNameServers" sep=",">
          <rdeCsv:fields>
            <csvDomain:fName parent="true"/>
            <rdeCsv:fRoid/>
          </rdeCsv:fields>
          <rdeCsv:files>
            <rdeCsv:file
              cksum="569D4638">
              domainNameServers-YYYYMMDD.csv
            </rdeCsv:file>
          </rdeCsv:files>
        </rdeCsv:csv>
        <rdeCsv:csv name="dnssec" sep=",">
          <rdeCsv:fields>
            <csvDomain:fName parent="true"/>
            <csvDomain:fMaxSigLife/>
            <csvDomain:fKeyTag/>
            <csvDomain:fDsAlg/>
            <csvDomain:fDigestType/>
```

```
            <csvDomain:fDigest/>
          </rdeCsv:fields>
          <rdeCsv:files>
            <rdeCsv:file
              cksum="AA15CB43">
              dnssec-YYYYMMDD.csv
            </rdeCsv:file>
          </rdeCsv:files>
        </rdeCsv:csv>
        <rdeCsv:csv name="domainTransfer" sep=",">
          <rdeCsv:fields>
            <csvDomain:fName parent="true"/>
            <rdeCsv:fTrStatus/>
            <rdeCsv:fReRr/>
            <rdeCsv:fReID/>
            <rdeCsv:fReDate/>
            <rdeCsv:fAcRr/>
            <rdeCsv:fAcID/>
            <rdeCsv:fAcDate/>
            <rdeCsv:fExDate/>
          </rdeCsv:fields>
          <rdeCsv:files>
            <rdeCsv:file
              cksum="71170194">
              domainTransfer-YYYYMMDD.csv
            </rdeCsv:file>
          </rdeCsv:files>
        </rdeCsv:csv>
      </csvDomain:contents>
      <csvHost:contents>
        <rdeCsv:csv name="host" sep=",">
          <rdeCsv:fields>
            <csvHost:fName/>
            <rdeCsv:fRoid/>
            <rdeCsv:fClID/>
            <rdeCsv:fCrRr/>
            <rdeCsv:fCrID/>
            <rdeCsv:fCrDate/>
            <rdeCsv:fUpRr/>
            <rdeCsv:fUpID/>
            <rdeCsv:fUpDate/>
            <rdeCsv:fTrDate/>
          </rdeCsv:fields>
          <rdeCsv:files>
            <rdeCsv:file
              cksum="120938E3">
              host-YYYYMMDD.csv
            </rdeCsv:file>
```

```
          </rdeCsv:files>
        </rdeCsv:csv>
        <rdeCsv:csv name="hostStatuses" sep=",">
          <rdeCsv:fields>
            <rdeCsv:fRoid parent="true"/>
            <csvHost:fStatus/>
            <rdeCsv:fStatusDescription/>
            <rdeCsv:fLang/>
          </rdeCsv:fields>
          <rdeCsv:files>
            <rdeCsv:file
              cksum="0BA504FC">
              hostStatuses-YYYYMMDD.csv
            </rdeCsv:file>
          </rdeCsv:files>
        </rdeCsv:csv>
        <rdeCsv:csv name="hostAddresses" sep=",">
          <rdeCsv:fields>
            <rdeCsv:fRoid parent="true"/>
            <csvHost:fAddr/>
            <csvHost:fAddrVersion/>
          </rdeCsv:fields>
          <rdeCsv:files>
            <rdeCsv:file
              cksum="17888F02">
              hostAddresses-YYYYMMDD.csv
            </rdeCsv:file>
          </rdeCsv:files>
        </rdeCsv:csv>
      </csvHost:contents>
      <csvContact:contents>
        <rdeCsv:csv name="contact" sep=",">
          <rdeCsv:fields>
            <csvContact:fId/>
            <rdeCsv:fRoid/>
            <csvContact:fVoice/>
            <csvContact:fVoiceExt/>
            <csvContact:fFax/>
            <csvContact:fFaxExt/>
            <csvContact:fEmail/>
            <rdeCsv:fClID/>
            <rdeCsv:fCrRr/>
            <rdeCsv:fCrID/>
            <rdeCsv:fCrDate/>
            <rdeCsv:fUpRr/>
            <rdeCsv:fUpID/>
            <rdeCsv:fUpDate/>
          </rdeCsv:fields>
```

```
            <rdeCsv:files>
              <rdeCsv:file
                cksum="D7F106A5">
                contact-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
          <rdeCsv:csv name="contactStatuses" sep=",">
            <rdeCsv:fields>
                <csvContact:fId parent="true"/>
                <csvContact:fStatus/>
                <rdeCsv:fStatusDescription/>
                <rdeCsv:fLang/>
            </rdeCsv:fields>
            <rdeCsv:files>
              <rdeCsv:file
                cksum="2AAF99D4">
                contactStatuses-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
          <rdeCsv:csv name="contactPostal" sep=",">
            <rdeCsv:fields>
              <csvContact:fId parent="true"/>
              <csvContact:fPostalType/>
              <csvContact:fName/>
              <csvContact:fOrg/>
              <csvContact:fStreet index="0"/>
              <csvContact:fStreet index="1"/>
              <csvContact:fStreet index="2"/>
              <csvContact:fCity/>
              <csvContact:fSp/>
              <csvContact:fPc/>
              <csvContact:fCc/>
            </rdeCsv:fields>
            <rdeCsv:files>
              <rdeCsv:file
                cksum="02CC2504">
                contactPostal-YYYYMMDD.csv
              </rdeCsv:file>
            </rdeCsv:files>
          </rdeCsv:csv>
          <rdeCsv:csv name="contactTransfer" sep=",">
            <rdeCsv:fields>
              <csvContact:fId parent="true"/>
              <rdeCsv:fTrStatus/>
              <rdeCsv:fReRr/>
              <rdeCsv:fReID/>
```

```
            <rdeCsv:fReDate/>
            <rdeCsv:fAcRr/>
            <rdeCsv:fAcID/>
            <rdeCsv:fAcDate/>
          </rdeCsv:fields>
          <rdeCsv:files>
            <rdeCsv:file
              cksum="D0929632">
              contactTransfer-YYYYMMDD.csv
            </rdeCsv:file>
          </rdeCsv:files>
        </rdeCsv:csv>
        <rdeCsv:csv name="contactDisclose" sep=",">
          <rdeCsv:fields>
            <csvContact:fId parent="true"/>
            <csvContact:fDiscloseFlag/>
            <csvContact:fDiscloseNameLoc/>
            <csvContact:fDiscloseNameInt/>
            <csvContact:fDiscloseOrgLoc/>
            <csvContact:fDiscloseOrgInt/>
            <csvContact:fDiscloseAddrLoc/>
            <csvContact:fDiscloseAddrInt/>
            <csvContact:fDiscloseVoice/>
            <csvContact:fDiscloseFax/>
            <csvContact:fDiscloseEmail/>
          </rdeCsv:fields>
          <rdeCsv:files>
            <rdeCsv:file
              cksum="89043A90">
              contactDisclose-YYYYMMDD.csv
            </rdeCsv:file>
          </rdeCsv:files>
        </rdeCsv:csv>
      </csvContact:contents>
      <csvRegistrar:contents>
        <rdeCsv:csv name="registrar" sep=",">
          <rdeCsv:fields>
            <csvRegistrar:fId/>
            <csvRegistrar:fName isLoc="false"/>
            <csvRegistrar:fGurid/>
            <csvRegistrar:fStatus/>
            <csvContact:fStreet isLoc="false" index="0"/>
            <csvContact:fStreet isLoc="false" index="1"/>
            <csvContact:fStreet isLoc="false" index="2"/>
            <csvContact:fCity isLoc="false" />
            <csvContact:fSp isLoc="false" />
            <csvContact:fPc isLoc="false" />
            <csvContact:fCc isLoc="false" />
```

```
            <csvContact:fVoice/>
            <csvContact:fVoiceExt/>
            <csvContact:fFax/>
            <csvContact:fFaxExt/>
            <csvContact:fEmail/>
            <rdeCsv:fUrl/>
            <csvRegistrar:fWhoisUrl/>
            <rdeCsv:fCrDate/>
            <rdeCsv:fUpDate/>
          </rdeCsv:fields>
          <rdeCsv:files>
            <rdeCsv:file
              cksum="306178BB">
              registrar-YYYYMMDD.csv
            </rdeCsv:file>
          </rdeCsv:files>
        </rdeCsv:csv>
      </csvRegistrar:contents>
      <csvIDN:contents>
        <rdeCsv:csv name="idnLanguage" sep=",">
          <rdeCsv:fields>
            <rdeCsv:fIdnTableId/>
            <rdeCsv:fUrl/>
          </rdeCsv:fields>
          <rdeCsv:files>
            <rdeCsv:file
              cksum="D462EAD0">
              idnLanguage-YYYYMMDD.csv
            </rdeCsv:file>
          </rdeCsv:files>
        </rdeCsv:csv>
      </csvIDN:contents>
       <rdeEppParams:eppParams>
          <rdeEppParams:version>1.0</rdeEppParams:version>
          <rdeEppParams:lang>en</rdeEppParams:lang>
          <rdeEppParams:objURI>urn:ietf:params:xml:ns:domain-1.0
          </rdeEppParams:objURI>
          <rdeEppParams:objURI>urn:ietf:params:xml:ns:host-1.0
          </rdeEppParams:objURI>
          <rdeEppParams:objURI>urn:ietf:params:xml:ns:contact-1.0
          </rdeEppParams:objURI>
          <rdeEppParams:svcExtension>
            <epp:extURI>urn:ietf:params:xml:ns:secDNS-1.1
            </epp:extURI>
            <epp:extURI>urn:ietf:params:xml:ns:rgp-1.0
            </epp:extURI>
          </rdeEppParams:svcExtension>
          <rdeEppParams:dcp>
```

```
            <epp:access>
              <epp:all/>
            </epp:access>
            <epp:statement>
              <epp:purpose>
                <epp:admin/>
                <epp:other/>
                <epp:prov/>
              </epp:purpose>
              <epp:recipient>
                <epp:ours/>
                <epp:public/>
                <epp:unrelated/>
              </epp:recipient>
              <epp:retention>
                <epp:indefinite/>
              </epp:retention>
            </epp:statement>
          </rdeEppParams:dcp>
      </rdeEppParams:eppParams>
    </rde:contents>
  </rde:deposit>
```

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