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R. Carney
GoDaddy Inc.
R. Wilhelm
Public Interest Registry (PIR)
G. Brown
ICANN

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Domain Registry Grace Period Mapping for the Extensible Provisioning Protocol (EPP)
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Abstract

This document describes an Extensible Provisioning Protocol (EPP) [RFC5730] extension mapping for the management of Domain Name System (DNS) domain names subject to "grace period" policies. Grace period policies exist to allow protocol actions to be reversed or otherwise revoked during a short period of time after the protocol action has been performed. This mapping extends the EPP domain name mapping [RFC5731] to provide additional features required for grace period processing.

This document replaces the extension mapping for grace periods described in [RFC3915], rendering that document obsolete.

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1. Introduction

This document describes an extension mapping for the Extensible Provisioning Protocol (EPP) described in [RFC5730]. This mapping extends the domain name mapping described in [RFC5731].

The EPP core protocol specification [RFC5730] provides a complete description of EPP command and response structures. A thorough understanding of the base protocol specification is necessary to understand the mapping described in this document.

1.1. Registry Grace Periods

This mapping extends the EPP domain <update> command to initiate the redemption process for a domain name that has entered the Redemption Grace Period (RGP) and it extends the EPP domain <info> response to identify the status of domains that have entered various grace periods defined by policy, including:

* An "add grace period" after the initial registration of a domain name. If the domain name is deleted by the registrar during this period, the registry provides a credit to the registrar for the cost of the registration.

* An "auto-renew grace period" after a domain name registration period expires and is extended (renewed) automatically by the registry. If the domain name is deleted by the registrar during this period, the registry provides a credit to the registrar for the cost of the renewal.

* A "renew grace period" after a domain name registration period is explicitly extended (renewed) by the registrar. If the domain name is deleted by the registrar during this period, the registry provides a credit to the registrar for the cost of the renewal.

* A "transfer grace period" after the successful transfer of domain name registration sponsorship from one registrar to another registrar. If the domain name is deleted by the new sponsoring registrar during this period, the registry provides a credit to the registrar for the cost of the transfer.

Each grace period exists for a specific period of time that is typically measured in days. The duration of each grace period is a matter of registry operational policy that is not addressed in this document.

1.2. Conventions Used In This Document

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in BCP 14 [RFC2119] [RFC8174] when, and only when, they appear in all capitals, as shown here.

In examples, "C:" represents lines sent by a protocol client and "S:" represents lines returned by a protocol server. Indentation and white space in examples are provided only to illustrate element relationships and are not required features of this protocol.

A protocol client that is authorized to manage an existing object is described as a "sponsoring" client throughout this document.

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

EPP uses XML namespaces to provide an extensible object management framework and to identify schemas required for XML instance parsing and validation. These namespaces and schema definitions are used to identify both the base protocol schema and the schemas for managed objects.

The XML namespace prefixes used in examples (such as the string rgp in rgp:infData) are solely for illustrative purposes. A conforming implementation MUST NOT require the use of these or any other specific namespace prefixes.

In accordance with Section 3.2.2.1 of XML Schema Part 2: Datatypes [XSD-DATATYPES], the allowable lexical representations for the xs:boolean datatype are the strings "0" and "false" for the concept ’false’ and the strings "1" and "true" for the concept ’true’. Implementations MUST support both styles of lexical representation.

2. Redemption Grace Period State Diagram

The Redemption Grace Period (RGP) involves several domain state transitions as a domain name moves through the redemption process:

1. A domain is initially in the EPP "ok" status, or some other status that allows processing of the EPP <delete> command.

2. A <delete> command is received and processed for the domain name.

3. RGP begins once the <delete> command is processed successfully. The EPP status changes to "pendingDelete", and the RGP status is initialized to "redemptionPeriod". The domain remains in this state until either a <restore> operation is requested or the redemption period elapses.

4. A <restore> operation can be requested using the extended EPP <update> command. Go to step 8 if the redemption period elapses before a <restore> request is received.

5. If the <restore> is successful, the Registry waits to receive a restore report from the registrar for a period of time defined by the Registry. The EPP status remains "pendingDelete" and the RGP status changes to "pendingRestore". While this extension defines a method to deliver a restore report via EPP, an out-of-band mechanism (such as a web site) can also be used to deliver restore reports.

6. The domain name returns to the redemption period state (state 3) if a restore report is not received.

7. If a restore report is received the EPP status returns to "ok" (or whatever it was prior to processing the <delete> command), and the RGP status is removed completely.

8. The redemption period elapses before a <restore> request is received.

9. The EPP status remains "pendingDelete" and the RGP status changes to "pendingDelete". The domain name remains in this state for a period of time defined by the Registry.

10. The domain name is purged once the pending delete period elapses.

11. The domain name is available for re-registration.

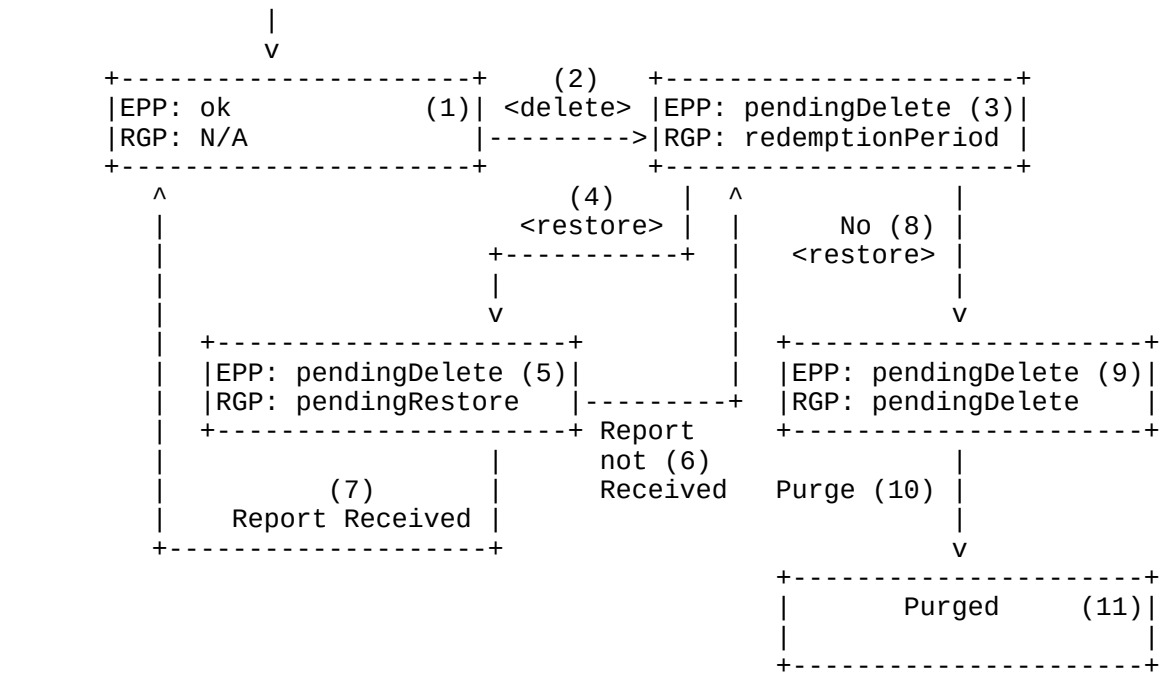

Figure 1: RGP State Diagram

3. Object Attributes

This extension adds additional elements to the EPP domain name mapping [RFC5731]. Only new element descriptions are described here.

3.1. Status Values

This extension defines new status values to represent the different states that a domain name can be in as a result of grace period processing. These are:

addPeriod This grace period is provided after the initial registration of a domain name. If the domain name is deleted by the registrar during this period, the registry provides a credit to the registrar for the cost of the registration.

autoRenewPeriod This grace period is provided after a domain name registration period expires and is extended (renewed) automatically by the registry. If the domain name is deleted by the registrar during this period, the registry provides a credit to the registrar for the cost of the renewal.

renewPeriod This grace period is provided after a domain name registration period is explicitly extended (renewed) by the registrar. If the domain name is deleted by the registrar during this period, the registry provides a credit to the registrar for the cost of the renewal.

transferPeriod This grace period is provided after the successful transfer of domain name registration sponsorship from one registrar to another registrar. If the domain name is deleted by the new sponsoring registrar during this period, the registry provides a credit to the registrar for the cost of the transfer.

redemptionPeriod This status value is used to describe a domain for which a <delete> command has been received, but the domain has not yet been purged because an opportunity exists to restore the domain and abort the deletion process.

pendingRestore This status value is used to describe a domain that is in the process of being restored after being in the "redemptionPeriod" state.

pendingDelete This status value is used to describe a domain that has entered the purge processing state after completing the "redemptionPeriod" state. A domain in this status MUST also be in the "pendingDelete" status described in Section 2.3 of the EPP domain mapping [RFC5731].

3.2. Registration Data and Supporting Information

This extension allows a client to provide copies of registration data (whois [RFC954] data, for example) and supporting information in a restore report as required by the RGP process. No specific format is required by this extension; both free text and XML markup MAY be used.

Operators of servers that provide registration data might find it useful to provide grace period status values in their responses to client queries. This information can be useful to people who want to understand the operations that can be performed on a domain name at any give time.

3.3. Dates and Times

Date and time attribute values MUST be represented in Universal Coordinated Time (UTC) using the Gregorian calendar. The extended date-time form using upper case "T" and "Z" characters defined in [RFC3339] MUST be used to represent date-time values as XML Schema does not support truncated date-time forms or lower case "T" and "Z" characters.

3.4. Client Statements

The RGP process requires a client to make two statements regarding the data included in a restore report. No specific format is required by this extension; both free text and XML markup MAY be used. English is the default language used within the statements, but other languages MAY be used.

4. EPP Command Mapping

A detailed description of the EPP syntax and semantics can be found in the EPP core protocol specification [RFC5730]. The command mappings described here are specifically for use in implementing redemption grace period processes via EPP.

4.1. EPP Query Commands

EPP provides three commands to retrieve object information: <check> to determine if an object is known to the server, <info> to retrieve detailed information associated with an object, and <transfer> to retrieve object transfer status information.

4.1.1. EPP <check> Command

This extension does not add any elements to the EPP <check> command or <check> response described in Section 3.1.1 of the EPP domain mapping [RFC5730].

4.1.2. EPP <info> Command

This extension does not add any elements to the EPP <info> command described in Section 3.1.2 of the EPP domain mapping [RFC5731]. Additional elements are defined for the <info> response.

When an <info> command has been processed successfully, the EPP <resData> element MUST contain child elements as described in Section 3.1.2 of [RFC5731]. In addition, the EPP <extension> element MUST contain a child <rgp:infData> element that identifies the registry grace period namespace and the location of the registry

grace period schema. The <rgp:infData> element contains one or more <rgp:rgpStatus> elements that contain a single attribute "s" whose values describe the current grace period status of the domain. Possible status values are described in Section 3.1.

Example <info> response for "addPeriod" status:

```
S:<?xml version="1.0" encoding="UTF-8" standalone="no"?>
S:<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
S:  <response>
S:    <result code="1000">
S:      <msg>Command completed successfully</msg>
S:    </result>
S:    <resData>
S:      <domain:infData
S:       xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
S:        <domain:name>example.com</domain:name>
S:        <domain:roid>EXAMPLE1-REP</domain:roid>
S:        <domain:status s="ok"/>
S:        <domain:ns>
S:          <domain:hostObj>ns1.example.com</domain:hostObj>
S:          <domain:hostObj>ns1.example.net</domain:hostObj>
S:        </domain:ns>
S:        <domain:clID>ClientX</domain:clID>
S:        <domain:crID>ClientX</domain:crID>
S:        <domain:crDate>2003-11-26T22:00:00.0Z</domain:crDate>
S:        <domain:exDate>2005-11-26T22:00:00.0Z</domain:exDate>
S:        <domain:authInfo>
S:          <domain:pw>2fooBAR</domain:pw>
S:        </domain:authInfo>
S:      </domain:infData>
S:    </resData>
S:    <extension>
S:      <rgp:infData xmlns:rgp="urn:ietf:params:xml:ns:epp:rgp-1.1">
S:        <rgp:rgpStatus s="addPeriod"/>
S:      </rgp:infData>
S:    </extension>
S:    <trID>
S:      <clTRID>ABC-12345</clTRID>
S:      <svTRID>54322-XYZ</svTRID>
S:    </trID>
```

Example <info> response for "redemptionPeriod" status:

```
S:<?xml version="1.0" encoding="UTF-8" standalone="no"?>
S:<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
S:  <response>
S:    <result code="1000">
S:      <msg>Command completed successfully</msg>
S:    </result>
S:    <resData>
S:      <domain:infData
S:       xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
S:        <domain:name>example.com</domain:name>
S:        <domain:roid>EXAMPLE1-REP</domain:roid>
S:        <domain:status s="pendingDelete"/>
S:        <domain:ns>
S:          <domain:hostObj>ns1.example.com</domain:hostObj>
S:          <domain:hostObj>ns1.example.net</domain:hostObj>
S:        </domain:ns>
S:        <domain:clID>ClientX</domain:clID>
S:        <domain:crID>ClientY</domain:crID>
S:        <domain:crDate>1999-04-03T22:00:00.0Z</domain:crDate>
S:        <domain:upID>ClientX</domain:upID>
S:        <domain:upDate>1999-12-03T09:00:00.0Z</domain:upDate>
S:        <domain:exDate>2005-04-03T22:00:00.0Z</domain:exDate>
S:        <domain:trDate>2000-04-08T09:00:00.0Z</domain:trDate>
S:        <domain:authInfo>
S:          <domain:pw>2fooBAR</domain:pw>
S:        </domain:authInfo>
S:      </domain:infData>
S:    </resData>
S:    <extension>
S:      <rgp:infData xmlns:rgp="urn:ietf:params:xml:ns:epp:rgp-1.1">
S:        <rgp:rgpStatus s="redemptionPeriod"/>
S:      </rgp:infData>
S:    </extension>
S:    <trID>
S:      <clTRID>ABC-12345</clTRID>
S:      <svTRID>54322-XYZ</svTRID>
S:    </trID>
S:  </response>
S:</epp>
```

Example <info> response extension for "pendingRestore" status (note that only the extension element changes from the first example):

```
S:<extension>
S:  <rgp:infData xmlns:rgp="urn:ietf:params:xml:ns:epp:rgp-1.1">
S:    <rgp:rgpStatus s="pendingRestore"/>
S:  </rgp:infData>
S:</extension>
```

Example <info> response extension for "pendingDelete" status (note that only the extension element changes from the first example):

```
S:<extension>
S:  <rgp:infData xmlns:rgp="urn:ietf:params:xml:ns:epp:rgp-1.1">
S:    <rgp:rgpStatus s="pendingDelete"/>
S:  </rgp:infData>
S:</extension>
```

4.1.3. EPP <transfer> Command

This extension does not add any elements to the EPP <transfer> command or <transfer> response described in Section 3.1.3 of the EPP domain mapping [RFC5731].

4.2. EPP Transform Commands

EPP provides five commands to transform objects: <create> to create an instance of an object, <delete> to delete an instance of an object, <renew> to extend the validity period of an object, <transfer> to manage object sponsorship changes, and <update> to change information associated with an object.

4.2.1. EPP <create> Command

This extension does not add any elements to the EPP <create> command or <create> response described in Section 3.2.1 of the EPP domain mapping [RFC5731].

4.2.2. EPP <delete> Command

This extension does not add any elements to the EPP <delete> command or <delete> response described in Section 3.2.2 of the EPP domain mapping [RFC5731].

4.2.3. EPP <renew> Command

This extension does not add any elements to the EPP <renew> command or <renew> response described in Section 3.2.3 of the EPP domain mapping [RFC5731].

4.2.4. EPP <transfer> Command

This extension does not add any elements to the EPP <transfer> command or <transfer> response described in Section 3.2.4 of the EPP domain mapping [RFC5731].

4.2.5. EPP <update> Command

This extension defines additional elements to extend the EPP <update> command and response described in Section 3.2.5 of the EPP domain mapping [RFC5731] for redemption grace period processing.

The EPP <update> command provides a transform operation that allows a client to change the state of a domain object. The registry grace period extension modifies base update processing to support redemption of domain names for which a <delete> command has been processed, but the name has not yet been purged.

Section 3.2.5 of the EPP domain mapping describes the elements that have to be specified within an <update> command. The requirement to provide at least one <domain:add>, <domain:rem>, or <domain:chg> element is updated by this extension such that at least one empty <domain:add>, <domain:rem>, or <domain:chg> element MUST be present if this extension is specified within an <update> command. This requirement is updated to disallow the possibility of modifying a domain object as part of redemption grace period recovery processing.

In addition to the EPP command elements described in Section 4.2.5 of the EPP domain mapping [RFC5731], the <update> command MUST contain an <extension> element. The <extension> element MUST contain a child <rgp:update> element that identifies the registry grace period namespace and the location of the registry grace period schema. The <rgp:update> element contains a single <rgp:restore> element that contains an OPTIONAL <rgp:report> element that MAY be used to deliver a redemption grace period restore report.

The <rgp:restore> element contains a REQUIRED "op" attribute that describes the redemption grace period operation being requested. Two values are defined: "request" is used to identify a restore request that does not include a restore report, and "report" is used to identify a restore request that contains a restore report. A report MAY be submitted more than once if corrections are required. If the value of the "op" attribute is "request" an <rgp:report> element MUST NOT be present. If the value of the "op" attribute is "report" an <rgp:report> element MUST be present.

The <rgp:report> element contains the following child elements:

* An <rgp:preData> element that contains a copy of the registration data that existed for the domain name prior to the domain name being deleted. This element MAY contain both text and XML markup.

* An <rgp:postData> element that contains a copy of the registration data that exists for the domain name at the time the restore report is submitted. This element MAY contain both text and XML markup.

* An <rgp:delTime> element that contains the date and time when the domain name delete request was sent to the server.

* An <rgp:resTime> element that contains the date and time when the original <rgp:restore> command was sent to the server.

* An <rgp:resReason> element that contains a brief explanation of the reason for restoring the domain name.

* An <rgp:statement> element that contains a text statement that the client has not restored the domain name in order to assume the rights to use or sell the domain name for itself or for any third party. Supporting information related to this statement MAY be supplied in the <rgp:other> element described below. An OPTIONAL "lang" attribute MAY be present to identify the language if English (value "en") is not used to represent the statement.

* A second <rgp:statement> element that contains a text statement that the information in the restore report is factual to the best of the client’s knowledge. An OPTIONAL "lang" attribute MAY be present to identify the language if English (value "en") is not used to represent the statement.

* An OPTIONAL <rgp:other> element that contains any information needed to support the statements provided by the client. This element MAY contain both text and XML markup.

Example <update> command without a restore report:

```
C:<?xml version="1.0" encoding="UTF-8" standalone="no"?>
C:<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
C:  <command>
C:    <update>
C:      <domain:update
C:       xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
C:        <domain:name>example.com</domain:name>
C:        <domain:chg/>
C:      </domain:update>
C:    </update>
C:    <extension>
C:      <rgp:update xmlns:rgp="urn:ietf:params:xml:ns:epp:rgp-1.1">
C:        <rgp:restore op="request"/>
C:      </rgp:update>
C:    </extension>
C:    <clTRID>ABC-12345</clTRID>
C:  </command>
C:</epp>
```

Example <update> command with a restore report:

```
C:<?xml version="1.0" encoding="UTF-8" standalone="no"?>
C:<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
C:  <command>
C:    <update>
C:      <domain:update
C:       xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
C:        <domain:name>example.com</domain:name>
C:        <domain:chg/>
C:      </domain:update>
C:    </update>
C:    <extension>
C:      <rgp:update xmlns:rgp="urn:ietf:params:xml:ns:epp:rgp-1.1">
C:        <rgp:restore op="report">
C:          <rgp:report>
C:            <rgp:preData>Pre-delete registration data goes here.
C:            Both XML and free text are allowed.</rgp:preData>
C:            <rgp:postData>Post-restore registration data goes here.
C:            Both XML and free text are allowed.</rgp:postData>
C:            <rgp:delTime>2003-07-10T22:00:00.0Z</rgp:delTime>
C:            <rgp:resTime>2003-07-20T22:00:00.0Z</rgp:resTime>
C:            <rgp:resReason>Registrant error.</rgp:resReason>
C:            <rgp:statement>This registrar has not restored the
C:            Registered Name in order to assume the rights to use
C:            or sell the Registered Name for itself or for any
C:            third party.</rgp:statement>
C:            <rgp:statement>The information in this report is
C:            true to best of this registrar's knowledge, and this
C:            registrar acknowledges that intentionally supplying
C:            false information in this report shall constitute an
C:            incurable material breach of the
C:            Registry-Registrar Agreement.</rgp:statement>
C:            <rgp:other>Supporting information goes
C:            here.</rgp:other>
C:          </rgp:report>
C:        </rgp:restore>
C:      </rgp:update>
C:    </extension>
C:    <clTRID>ABC-12345</clTRID>
C:  </command>
C:</epp>
```

When an extended <update> command without a restore report has been processed successfully, the EPP response is as described in Section 4.2.5 of the EPP domain mapping [RFC5731] except that an extension element is added to describe grace period status as a result of processing the <update> command. The extension element contains a single child element (<upData>) that itself contains a single child element (<rgpStatus>) that contains a single attribute "s" whose value MUST be "pendingRestore" if the <restore> request has been accepted.

Example "restore request" <update> response:

```
S:<?xml version="1.0" encoding="UTF-8" standalone="no"?>
S:<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
S:  <response>
S:    <result code="1000">
S:      <msg lang="en">Command completed successfully</msg>
S:    </result>
S:    <extension>
S:      <rgp:upData xmlns:rgp="urn:ietf:params:xml:ns:epp:rgp-1.1">
S:        <rgp:rgpStatus s="pendingRestore"/>
S:      </rgp:upData>
S:    </extension>
S:    <trID>
S:      <clTRID>ABC-12345</clTRID>
S:      <svTRID>54321-XYZ</svTRID>
S:    </trID>
S:  </response>
S:</epp>
```

When an extended <update> command with a restore report has been processed successfully, the EPP response is as described in Section 4.2.5 of the EPP domain mapping [RFC5731] with no registry grace period extension. Registry grace period extension is not required because acceptance of the restore report completes redemption grace period processing.

5. Formal Syntax

An EPP object mapping is specified in XML Schema notation. The formal syntax presented here is a complete schema representation of the object mapping suitable for automated validation of EPP XML instances. The "BEGIN" and "END" tags are not part of the schema; they are used to note the beginning and ending of the schema for URI registration purposes.

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

<schema targetNamespace="urn:ietf:params:xml:ns:epp:rgp-1.1"
        xmlns:rgp="urn:ietf:params:xml:ns:epp:rgp-1.1"
        xmlns="http://www.w3.org/2001/XMLSchema"
        elementFormDefault="qualified">

  <annotation>
    <documentation>
      Extensible Provisioning Protocol v1.0
      domain name extension schema for registry grace period
      processing.
    </documentation>
  </annotation>

<!--
Child elements found in EPP commands.
-->
  <element name="update" type="rgp:updateType"/>

<!--
Child elements of the <update> command for the
redemption grace period.
-->
  <complexType name="updateType">
    <sequence>
      <element name="restore" type="rgp:restoreType"/>
    </sequence>
  </complexType>

  <complexType name="restoreType">
    <sequence>
      <element name="report" type="rgp:reportType"
       minOccurs="0"/>
    </sequence>
    <attribute name="op" type="rgp:rgpOpType" use="required"/>
  </complexType>

<!--
New redemption grace period operations can be defined
by adding to this enumeration.
-->
  <simpleType name="rgpOpType">
    <restriction base="token">
      <enumeration value="request"/>
      <enumeration value="report"/>
    </restriction>
```

```
    </simpleType>

    <complexType name="reportType">
      <sequence>
        <element name="preData" type="rgp:mixedType"/>
        <element name="postData" type="rgp:mixedType"/>
        <element name="delTime" type="dateTime"/>
        <element name="resTime" type="dateTime"/>
        <element name="resReason" type="rgp:reportTextType"/>
        <element name="statement" type="rgp:reportTextType"
         maxOccurs="2"/>
        <element name="other" type="rgp:mixedType"
         minOccurs="0"/>
      </sequence>
    </complexType>

    <complexType name="mixedType">
      <complexContent mixed="true">
        <restriction base="anyType">
          <sequence>
            <any processContents="lax"
             minOccurs="0" maxOccurs="unbounded"/>
          </sequence>
        </restriction>
      </complexContent>
    </complexType>

    <complexType name="reportTextType">
      <complexContent mixed="true">
        <restriction base="anyType">
          <sequence>
            <any processContents="lax"
             minOccurs="0" maxOccurs="unbounded"/>
          </sequence>
          <attribute name="lang" type="language" default="en"/>
        </restriction>
      </complexContent>
    </complexType>

  <!--
  Child response elements.
  -->
    <element name="infData" type="rgp:respDataType"/>
    <element name="upData" type="rgp:respDataType"/>

  <!--
  Response elements.
  -->
```

```
    <complexType name="respDataType">
      <sequence>
        <element name="rgpStatus" type="rgp:statusType"
         maxOccurs="unbounded"/>
      </sequence>
    </complexType>

  <!--
  Status is a combination of attributes and an optional
  human-readable message that may be expressed in languages
  other than English.
  -->
    <complexType name="statusType">
      <simpleContent>
        <extension base="normalizedString">
          <attribute name="s" type="rgp:statusValueType"
           use="required"/>
          <attribute name="lang" type="language" default="en"/>
        </extension>
      </simpleContent>
    </complexType>

    <simpleType name="statusValueType">
      <restriction base="token">
        <enumeration value="addPeriod"/>
        <enumeration value="autoRenewPeriod"/>
        <enumeration value="renewPeriod"/>
        <enumeration value="transferPeriod"/>
        <enumeration value="pendingDelete"/>
        <enumeration value="pendingRestore"/>
        <enumeration value="redemptionPeriod"/>
      </restriction>
    </simpleType>

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

6. Internationalization Considerations

EPP is represented in XML, which provides native support for encoding information using the Unicode character set and its more compact representations including UTF-8 [RFC3629]. Conformant XML processors recognize both UTF-8 and UTF-16 [RFC2781]. 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 in environments where parser encoding support incompatibility exists.

As an extension of the EPP domain mapping [RFC5731], the elements, element content, attributes, and attribute values described in this document MUST inherit the internationalization conventions used to represent higher-layer domain and core protocol structures present in an XML instance that includes this extension.

7. IANA Considerations

7.1. XML Namespace

This document uses URNs to describe XML namespaces and XML schemas conforming to a registry mechanism described in [RFC3688]. Two URI assignments are requested of the IANA.

Registration request for the registry grace period namespace:

URI: urn:ietf:params:xml:ns:epp:rgp-1.1

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 registry grace period XML schema:

URI: urn:ietf:params:xml:schema:rgp-1.1

Registrant Contact: See the "Author’s Address" section of this document.

XML: See the "Formal Syntax" section of this document.

7.2. EPP Extension Registry

IANA is requested to register the EPP exetension described in this document in the "Extensions for the Extensible Provisioning Protocol (EPP)" registry described in [RFC7451]. The details of the registration are as follows:

Name of Extension: Domain Registry Grace Period Mapping for the Extensible Provisioning Protocol (EPP)

Document Status: Standards Track

Reference: URL of this document

Registrant: IESG

TLDs: Any

IPR Disclosure: None

Status: Active

Notes: None

8. Security Considerations

The mapping extensions described in this document do not provide any security services beyond those described by EPP [RFC5730], the EPP domain name mapping [RFC5731], and protocol layers used by EPP. The security considerations described in these other specifications apply to this specification as well.

As with other domain object updates, redemption of a deleted domain object MUST be restricted to the sponsoring client as authenticated using the mechanisms described in sections Section 2.9.1.1 of [RFC5730] and Section 7 of [RFC5730]. Any attempt to recover a deleted domain object by any client other than the sponsoring client MUST be rejected with an appropriate EPP authorization error.

9. Acknowledgements

The authors wish to acknowledge the contributions of Scott Hollenbeck, author of [RFC3915], both to that document and to this one.

10. References

10.1. Normative references

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, DOI 10.17487/RFC2119, March 1997, <https://www.rfc-editor.org/info/rfc2119>.

[RFC2781] Hoffman, P. and F. Yergeau, "UTF-16, an encoding of ISO 10646", RFC 2781, DOI 10.17487/RFC2781, February 2000, <https://www.rfc-editor.org/info/rfc2781>.

[RFC3339] Klyne, G. and C. Newman, "Date and Time on the Internet: Timestamps", RFC 3339, DOI 10.17487/RFC3339, July 2002, <https://www.rfc-editor.org/info/rfc3339>.

[RFC3629] Yergeau, F., "UTF-8, a transformation format of ISO 10646", STD 63, RFC 3629, DOI 10.17487/RFC3629, November 2003, <https://www.rfc-editor.org/info/rfc3629>.

[RFC3688] Mealling, M., "The IETF XML Registry", BCP 81, RFC 3688, DOI 10.17487/RFC3688, January 2004, <https://www.rfc-editor.org/info/rfc3688>.

[RFC3915] Hollenbeck, S., "Domain Registry Grace Period Mapping for the Extensible Provisioning Protocol (EPP)", RFC 3915, DOI 10.17487/RFC3915, September 2004, <https://www.rfc-editor.org/info/rfc3915>.

[RFC5730] Hollenbeck, S., "Extensible Provisioning Protocol (EPP)", STD 69, RFC 5730, DOI 10.17487/RFC5730, August 2009, <https://www.rfc-editor.org/info/rfc5730>.

[RFC5731] Hollenbeck, S., "Extensible Provisioning Protocol (EPP) Domain Name Mapping", STD 69, RFC 5731, DOI 10.17487/RFC5731, August 2009, <https://www.rfc-editor.org/info/rfc5731>.

[RFC7451] Hollenbeck, S., "Extension Registry for the Extensible Provisioning Protocol", RFC 7451, DOI 10.17487/RFC7451, February 2015, <https://www.rfc-editor.org/info/rfc7451>.

[RFC8174] Leiba, B., "Ambiguity of Uppercase vs Lowercase in RFC 2119 Key Words", BCP 14, RFC 8174, DOI 10.17487/RFC8174, May 2017, <https://www.rfc-editor.org/info/rfc8174>.

[RFC954] Harrenstien, K., Stahl, M., and E. Feinler, "NICNAME/WHOIS", RFC 954, DOI 10.17487/RFC0954, October 1985, <https://www.rfc-editor.org/info/rfc954>.

[XSD-DATATYPES] World Wide Web Consortium (W3C), "XML Schema Part 2: Datatypes Second Edition", October 2004, <https://www.w3.org/TR/xmlschema-2/>.

10.2. Informative references

Authors' Addresses

Roger Carney
GoDaddy Inc.
14455 N. Hayden Rd. #219
Scottsdale, AZ 85260
United States of America

Email: rcarney@godaddy.com
URI: https://www.godaddy.com/

Richard Wilhelm
Public Interest Registry (PIR)
11911 Freedom Drive, 10th Floor, Suite 1000
Reston, VA 20190
United States of America
Email: 4rickwilhelm@gmail.com
URI: https://pir.org

Gavin Brown
ICANN
12025 Waterfront Drive, Suite 300
Los Angeles, CA 90292
United States of America
Email: gavin.brown@icann.org
URI: https://www.icann.org/