Registration Protocols Extensions
Internet-Draft
Intended status: Standards Track
Expires: April 23, 2020

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October 21, 2019

Registry Fee Extension for the Extensible Provisioning Protocol (EPP) draft-ietf-regext-epp-fees-20

Abstract

Given the expansion of the DNS namespace, and the proliferation of novel business models, it is desirable to provide a method for Extensible Provisioning Protocol (EPP) clients to query EPP servers for the fees and credits and provide expected fees and credits for certain commands and objects. This document describes an EPP extension mapping for registry fees.

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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Table of Contents

1. Introduction 3
1.1. Conventions Used in This Document 3
2. Migrating to Newer Versions of This Extension 4
3. Extension Elements 4
3.1. Client Commands 4
3.2. Currency Codes 5
3.3. Validity Periods 5
3.4. Fees and Credits 6
3.4.1. Refunds 7
3.4.2. Grace Periods 7
3.4.3. Correlation between Refundability and Grace Periods . 7
3.4.4. Applicability 7
3.5. Account Balance 8
3.6. Credit Limit 8
3.7. Classification of Objects 9
3.8. Phase and Subphase Attributes 9
3.9. Reason 10
4. Server Handling of Fee Information 11
5. EPP Command Mapping 12
5.1. EPP Query Commands 12
5.1.1. EPP <check> Command 12
5.1.2. EPP Transfer Query Command 16
5.2. EPP Transform Commands 18
5.2.1. EPP <create> Command 18
5.2.2. EPP <delete> Command 20
5.2.3. EPP <renew> Command 21
5.2.4. EPP <transfer> Command 23
5.2.5. EPP <update> Command 25
6. Formal Syntax 27
6.1. Fee Extension Schema 27
7. Security Considerations 32
8. IANA Considerations 32
8.1. XML Namespace 32
8.2. EPP Extension Registry 32
9. Implementation Status 33
9.1. RegistryEngine EPP Service 33
10. Acknowledgements 34
11. Change History 34
11.1. Change from 18 to 19 34
11.2. Change from 18 to 19 34
11.3. Change from 17 to 18 34
11.4. Change from 16 to 17 35

11.5. Change from 15 to 16 35
11.6. Change from 14 to 15 35
11.7. Change from 13 to 14 35
11.8. Change from 12 to 13 35
11.9. Change from 11 to 12 35
11.10. Change from 10 to 11 35
11.11. Change from 09 to 10 35
11.12. Change from 08 to 09 36
11.13. Change from 07 to 08 36
11.14. Change from 06 to 07 36
11.15. Change from 05 to 06 36
11.16. Change from 04 to 05 36
11.17. Change from 03 to 04 36
11.18. Change from 02 to 03 37
11.19. Change from 01 to 02 37
11.20. Change from 00 to 01 37
11.21. Change from draft-brown-00 to draft-ietf-regext-fees-00 37
12. References 37
12.1. Normative References 37
12.2. Informative References 39
Authors' Addresses 39

1. Introduction

Historically, domain name registries have applied a simple fee structure for billable transactions, namely a basic unit price applied to domain <create>, <renew>, <transfer> and RGP [RFC3915] restore commands. Given the relatively small number of EPP servers to which EPP clients have been required to connect, it has generally been the case that client operators have been able to obtain details of these fees out-of-band by contacting the server operators.

Given the expansion of the DNS namespace, and the proliferation of novel business models, it is desirable to provide a method for EPP clients to query EPP servers for the fees and credits associated with certain commands and specific objects.

This document describes an extension mapping for version 1.0 of the Extensible Provisioning Protocol (EPP) [RFC5730]. This EPP mapping provides a mechanism by which EPP clients may query the fees and credits associated with various billable transactions, and obtain their current account balance.

1.1. 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.

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.

"fee" is used as an abbreviation for "urn:ietf:params:xml:ns:epp:fee-1.0". The XML namespace prefix "fee" is used, but implementations MUST NOT depend on it and instead employ a proper namespace-aware XML parser and serializer to interpret and output the XML documents.

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 a required feature of this protocol.

2. Migrating to Newer Versions of This Extension

Servers which implement this extension SHOULD provide a way for clients to progressively update their implementations when a new version of the extension is deployed.

Servers SHOULD (for a temporary migration period) provide support for older versions of the extension in parallel to the newest version, and allow clients to select their preferred version via the <svcExtension> element of the <login> command.

If a client requests multiple versions of the extension at login, then, when preparing responses to commands which do not include extension elements, the server SHOULD only include extension elements in the namespace of the newest version of the extension requested by the client.

When preparing responses to commands which do include extension elements, the server SHOULD only include extension elements for the extension versions present in the command.

3. Extension Elements

3.1. Client Commands

The <fee:command> element is used in the EPP <check> command to determine the fee that is applicable to the given command.

The use of the <fee:command> keys off the use of the "name" attribute to define which transform fees the client is requesting information about. Here is the list of possible values for the "name" attribute:

- "create" indicating a <create> command as defined in [RFC5730];
- "delete" indicating a <delete> command as defined in [RFC5730];
- "renew" indicating a <renew> command as defined in [RFC5730];
- "update" indicating a <update> command as defined in [RFC5730];
- "transfer" indicating a <transfer> command as defined in [RFC5730];
- If the server supports the Registry Grace Period Mapping [RFC3915], then the server MUST also support the "restore" value as defined in [RFC3915];
- "custom" indicating a custom command that MUST set the "customName" attribute with custom command name. The possible set of custom command name values is up to server policy.

The <fee:command> element MAY have an OPTIONAL "phase" attribute specifying a launch phase as described in [RFC8334]. It may also contain an OPTIONAL "subphase" attribute identifying the custom or sub-phase as described in [RFC8334].

3.2. Currency Codes

The <fee:currency> element is used to indicate which currency fees are charged in. This value of this element MUST be a three-character currency code from [ISO4217:2015].

Note that ISO 4217:2015 provides the special "XXX" code, which MAY be used if the server uses a non-currency based system for assessing fees, such as a system of credits.

The use of <fee:currency> elements in client commands is OPTIONAL: if a <fee:currency> element is not present in a command, the server MUST determine the currency based on the server default currency or based on the client's account settings which are agreed to by the client and server via an out-of-band channel. However, the <fee:currency> element MUST be present in responses.

Servers SHOULD NOT perform a currency conversion if a client uses an incorrect currency code. Servers SHOULD return a 2004 "Parameter value range" error instead.

3.3. Validity Periods

When querying for fee information using the <check> command, the <fee:period> element is used to indicate the period measured in years or months, with the appropriate units specified using the "unit"

attribute to be added to the registration period of objects by the <create>, <renew> and <transfer> commands. This element is derived from the <domain:period> element described in [RFC5731].

The <fee:period> element is OPTIONAL in <check> commands, if omitted, the server MUST determine the fee(s) using the server default period. The <fee:period> element MUST be present in <check> responses.

3.4. Fees and Credits

Servers which implement this extension will include elements in responses which provide information about the fees and/or credits associated with a given billable transaction. A fee will result in subtracting from the Account Balance (described in Section 3.5) and a credit will result in adding to the Account Balance (described in Section 3.5).

The <fee:fee> and <fee:credit> elements are used to provide this information. The presence of a <fee:fee> element in a response indicates a debit against the client's account balance; a <fee:credit> element indicates a credit. A <fee:fee> element MUST have a zero or greater (non-negative) value. A <fee:credit> element MUST have a negative value.

A server MAY respond with multiple <fee:fee> and <fee:credit> elements in the same response. In such cases, the net fee or credit applicable to the transaction is the arithmetic sum of the values of each of the <fee:fee> and/or <fee:credit> elements. This amount applies to the total additional validity period applied to the object (where applicable).

The following attributes are defined for the <fee:fee> element. These are described in detail below:

description: an OPTIONAL attribute which provides a human-readable description of the fee. Servers should provide documentation on the possible values of this attribute, and their meanings. An OPTIONAL "lang" attribute MAY be present, per the language structure in [RFC5646], to identify the language of the returned text and has a default value of "en" (English). If the "description" attribute is not present, the "lang" attribute can be ignored.

refundable: an OPTIONAL boolean attribute indicating whether the fee is refundable if the object is deleted.

grace-period: an OPTIONAL attribute which provides the time period during which the fee is refundable.

applied: an OPTIONAL attribute indicating when the fee will be deducted from the client's account.

The <fee:credit> element can take a "description" attribute as described above. An OPTIONAL "lang" attribute MAY be present to identify the language of the returned text and has a default value of "en" (English).

3.4.1. Refunds

<fee:fee> elements MAY have an OPTIONAL "refundable" attribute which takes a boolean value. Fees may be refunded under certain circumstances, such as when a domain application is rejected (as described in [RFC8334]) or when an object is deleted during the relevant Grace Period (see below).

If the "refundable" attribute is omitted, then clients SHOULD NOT make any assumption about the refundability of the fee.

3.4.2. Grace Periods

[RFC3915] describes a system of "grace periods", which are time periods following a billable transaction during which, if an object is deleted, the client receives a refund.

The "grace-period" attribute MAY be used to indicate the relevant grace period for a fee. If a server implements the Registry Grace Period extension [RFC3915], it MUST specify the grace period for all relevant transactions.

If the "grace-period" attribute is omitted, then clients SHOULD NOT make any assumption about the grace period of the fee.

3.4.3. Correlation between Refundability and Grace Periods

If a <fee:fee> element has a "grace-period" attribute then it MUST also be refundable and the "refundable" attribute MUST be true. If the "refundable" attribute of a <fee:fee> element is false then it MUST NOT have a "grace-period" attribute.

3.4.4. Applicability

Fees may be applied immediately upon receipt of a command from a client, or may only be applied once an out-of-band process (such as the processing of applications at the end of a launch phase) has taken place.

The "applied" attribute of the <fee:fee> element allows servers to indicate whether a fee will be applied immediately, or whether it will be applied at some point in the future. This attribute takes two possible values: "immediate" or "delayed".

3.5. Account Balance

The <fee:balance> element is an OPTIONAL element which MAY be included in server responses to transform commands. If present, it can be used by the client to determine the remaining credit at the server.

Whether or not the <fee:balance> is included in responses is a matter of server policy. However, if a server chooses to offer support for this element, it MUST be included in responses to all "transform" or billable commands (e.g. <create>, <renew>, <update>, <delete>, <transfer op="request">).

The value of the <fee:balance> MAY be negative. A negative balance indicates that the server has extended a line of credit to the client (see below).

If a server includes a <fee:balance> element in response to transform commands, the value of the element MUST reflect the client's account balance after any fees or credits associated with that command have been applied. If the "applied" attribute of the <fee:fee> element is "delayed", then the <fee:balance> MUST reflect the client's account balance without any fees or credits associated with that command.

3.6. Credit Limit

As described above, if a server returns a response containing a <fee:balance> with a negative value, then the server has extended a line of credit to the client. A server MAY also include a <fee:creditLimit> element in responses that indicates the maximum credit available to a client. A server MAY reject certain transactions if the absolute value of the <fee:balance> is equal to or exceeds the value of the <fee:creditLimit> element.

Whether or not the <fee:creditLimit> is included in responses is a matter of server policy. However, if a server chooses to offer support for this element, it MUST be included in responses to all "transform" commands (e.g. <create>, <renew>, <update>, <delete>, <transfer op="request">).

3.7. Classification of Objects

Objects may be assigned to a particular class, category, or tier, each of which has a particular fee or set of fees associated with it. The <fee:class> element, which MAY appear in <check> and transform responses, is used to indicate the classification of an object.

If a server makes use of this element, it should provide clients with a list of all the values that the element may take via an out-of-band channel. Servers MUST NOT use values which do not appear on this list.

Servers that make use of this element MUST use a <fee:class> element with the value "standard" for all objects that are subject to the standard or default fee.

3.8. Phase and Subphase Attributes

The <fee:command> element has two attributes, phase and subphase, that provide additional information related to a specific launch phase as described in [RFC8334]. These attributes are used as filters that should refine the server processing.

If the client <fee:command> contains a server supported combination of phase/subphase the server MUST return fee data (including the phase/subphase attribute(s)) for the specific combination.

If the client <fee:command> contains no phase/subphase attributes and the server has only one active phase/subphase combination the server MUST return data (including the phase/subphase attribute(s)) of the currently active phase/subphase.

If the client <fee:command> contains no phase/subphase attributes and the server has more than one active phase/subphase combination the server MUST respond with a 2003 "Required parameter missing" error.

If the client <fee:command> contains no phase/subphase attributes and the server is currently in a "quiet period" (e.g. not accepting registrations or applications) the server MUST return data consistent with the default general availability phase (e.g. "open" or "claims") including the appropriate phase/subphase attribute(s).

If the client <fee:command> contains a phase attribute with no subphase and the server has only one active subphase (or no subphase) of this phase, the server MUST return data (including the phase/subphase attribute(s)) of the provided phase and currently active subphase.

If the client <fee:command> contains a phase attribute with no subphase and the server has more than one active subphase combination of this phase, the server MUST respond with a 2003 "Required parameter missing" error.

If the client <fee:command> contains a subphase with no phase attribute the server MUST respond with a 2003 "Required parameter missing" error.

If the client <fee:command> contains a phase attribute not defined in [RFC8334] or not supported by server the server MUST respond with a 2004 "Parameter value range" error.

If the client <fee:command> contains a subphase attribute (or phase/subphase combination) not supported by server the server MUST respond with a 2004 "Parameter value range" error.

3.9. Reason

The <fee:reason> element is used to provide server specific text in an effort to better explain why a <check> command did not complete as the client expected. An OPTIONAL "lang" attribute MAY be present to identify the language, per the language structure in [RFC5646], of the returned text and has a default value of "en" (English).

The <fee:reason> element can be used within the server response <fee:command> element or within the <fee:cd> element. See section 5.1.1 for details on the <fee:cd> "check data" element.

If the server cannot calculate the relevant fees, because the object, command, currency, period, class or some combination is invalid per server policy, the server has two ways of handling error processing of <fee:command> element(s):

1. Fast-fail - The server, upon error identification, MAY stop processing <fee:command> elements and return to the client a <fee:cd> containing the <fee:objID> and a <fee:reason> element detailing the reason for failure.

```
S: <fee:cd avail="0">
S:   <fee:objID>example.xyz</fee:objID>
S:   <fee:reason>Only 1 year registration periods are
S:   valid.</fee:reason>
S: </fee:cd>
```

2. Partial-fail - The server, upon error identification, MAY continue processing <fee:command> elements and return to the client a <fee:cd> containing successfully processed <fee:command>

elements and failed <fee:command> elements. All returned failed <fee:command> elements MUST have a <fee:reason> element detailing the reason for failure, and the server MAY additionally include a <fee:reason> element at the <fee:cd> level.

```
S: <fee:cd avail="0">
S:   <fee:objID>example.xyz</fee:objID>
S:   <fee:command name="create">
S:     <fee:period unit="y">2</fee:period>
S:     <fee:reason>Only 1 year registration periods are
S:     valid.</fee:reason>
S:   </fee:command>
S: </fee:cd>
```

In either failure scenario the server MUST set the <fee:cd> avail attribute to false (0) and the server MUST process all objects in the client request.

4. Server Handling of Fee Information

Depending on server policy, a client MAY be required to include the extension elements described in this document for certain transform commands. Servers must provide clear documentation to clients about the circumstances in which this extension must be used.

The server MUST return avail="0" in its response to a <check> command for any object in the <check> command that does not include the <fee:check> extension for which the server would likewise fail a domain <create> command when no <fee> extension is provided for that same object.

If a server receives a <check> command from a client, which results in no possible fee combination, the server MUST set the "avail" attribute of the <fee:cd> element to false (0) and provide a <fee:reason>.

If a server receives a <check> command from a client, which results in an ambiguous result (i.e. multiple possible fee combinations) the server MUST reject the command with a 2003 "Required parameter missing" error.

If a server receives a command from a client, which does not include the fee extension data elements required by the server for that command, then the server MUST respond with a 2003 "Required parameter missing" error.

If the total fee provided by the client is less than the server's own calculation of the fee or the server determines the currency is inappropriate for that command, then the server MUST reject the command with a 2004 "Parameter value range" error.

5. EPP Command Mapping

A detailed description of the EPP syntax and semantics can be found in [RFC5730].

5.1. EPP Query Commands

This extension does not add any elements to the EPP <poll> or <info> commands or responses.

5.1.1. EPP <check> Command

This extension defines a new command called the Fee Check Command that defines additional elements for the EPP <check> command to provide fee information along with the availability information of the EPP <check> command.

The command MAY contain an <extension> element which MAY contain a <fee:check> element. The <fee:check> element MAY contain one <fee:currency> element and MUST contain one or more <fee:command> elements.

The <fee:command> element(s) MUST contain(s) a "name" attribute (see Section 3.1), an OPTIONAL "phase" attribute, and an OPTIONAL "subphase" attribute (see Section 3.8). The <fee:command> element(s) MAY have the following child elements:

- An OPTIONAL <fee:period> element (as described in Section 3.3).

Example <check> command:

```
C: <?xml version="1.0" encoding="utf-8" standalone="no"?>
C: <epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
C:   <command>
C:     <check>
C:       <domain:check
C:         xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
C:         <domain:name>example.com</domain:name>
C:         <domain:name>example.net</domain:name>
C:         <domain:name>example.xyz</domain:name>
C:       </domain:check>
C:     </check>
C:     <extension>
C:       <fee:check xmlns:fee="urn:ietf:params:xml:ns:epp:fee-1.0">
C:         <fee:currency>USD</fee:currency>
C:         <fee:command name="create">
C:           <fee:period unit="y">2</fee:period>
C:         </fee:command>
C:         <fee:command name="renew"/>
C:         <fee:command name="transfer"/>
C:         <fee:command name="restore"/>
C:       </fee:check>
C:     </extension>
C:     <clTRID>ABC-12345</clTRID>
C:   </command>
C: </epp>
```

When the server receives a <check> command that includes the extension elements described above, its response MUST contain an <extension> element, which MUST contain a child <fee:chkData> element. The <fee:chkData> element MUST contain a <fee:currency> element and a <fee:cd> element for each object referenced in the client <check> command.

Each <fee:cd> (check data) element MUST contain the following child elements:

- A <fee:objID> element, which MUST match an element referenced in the client <check> command.
- An OPTIONAL <fee:class> element (as described in Section 3.7).
- A <fee:command> element matching each <fee:command> (unless the "avail" attribute of the <fee:cd> if false) that appeared in the corresponding <fee:check> of the client command. This element MAY have the OPTIONAL "standard" attribute, with a default value of "0" (or "false"), which indicates whether the fee matches the fee of the "standard" classification (see section 3.7). This element MAY have the OPTIONAL "phase" and "subphase" attributes, which

will match the same attributes in the corresponding <fee:command> element of the client command if sent by the client.

The <fee:cd> element also has an OPTIONAL "avail" attribute which is a boolean. If the value of this attribute evaluates to false, this indicates that the server cannot calculate the relevant fees, because the object, command, currency, period, class or some combination is invalid per server policy. If "avail" is false then the <fee:cd> or the <fee:command> element MUST contain a <fee:reason> element (as described in Section 3.9) and the server MAY eliminate some or all of the <fee:command> element(s).

The <fee:command> element(s) MAY have the following child elements:

- An OPTIONAL <fee:period> element (as described in Section 3.3), which contains the same unit, if present, that appeared in the <fee:period> element of the command. If the value of the parent <fee:command> element is "restore", this element MUST NOT be included, otherwise it MUST be included. If no <fee:period> appeared in the client command (and the command is not "restore") then the server MUST return its default period value.
- Zero or more <fee:fee> elements (as described in Section 3.4).
- Zero or more <fee:credit> elements (as described in Section 3.4).
- An OPTIONAL <fee:reason> element (as described in Section 3.9).

If the "avail" attribute of the <fee:cd> element is true (1) and if no <fee:fee> elements are present in a <fee:command> element, this indicates that no fee will be assessed by the server for this command.

If the "avail" attribute of the <fee:cd> element is true (1), then the <fee:command> element MUST NOT contain a <fee:reason> element.

Example <check> 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>Command completed successfully</msg>
S:     </result>
S:     <resData>
S:       <domain:chkData
S:         xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
S:         <domain:cd>
S:           <domain:name avail="1">example.com</domain:name>
S:         </domain:cd>
S:         <domain:cd>
```

```
S:           <domain:name avail="1">example.net</domain:name>
S:         </domain:cd>
S:         <domain:cd>
S:           <domain:name avail="1">example.xyz</domain:name>
S:         </domain:cd>
S:       </domain:chkData>
S:     </resData>
S:     <extension>
S:       <fee:chkData
S:           xmlns:fee="urn:ietf:params:xml:ns:epp:fee-1.0">
S:         <fee:currency>USD</fee:currency>
S:         <fee:cd avail="1">
S:           <fee:objID>example.com</fee:objID>
S:           <fee:class>Premium</fee:class>
S:           <fee:command name="create">
S:             <fee:period unit="y">2</fee:period>
S:             <fee:fee
S:               description="Registration Fee"
S:               refundable="1"
S:               grace-period="P5D">10.00</fee:fee>
S:           </fee:command>
S:           <fee:command name="renew">
S:             <fee:period unit="y">1</fee:period>
S:             <fee:fee
S:               description="Renewal Fee"
S:               refundable="1"
S:               grace-period="P5D">10.00</fee:fee>
S:           </fee:command>
S:           <fee:command name="transfer">
S:             <fee:period unit="y">1</fee:period>
S:             <fee:fee
S:               description="Transfer Fee"
S:               refundable="1"
S:               grace-period="P5D">10.00</fee:fee>
S:           </fee:command>
S:           <fee:command name="restore">
S:             <fee:fee
S:               description="Redemption Fee">15.00</fee:fee>
S:           </fee:command>
S:         </fee:cd>
S:         <fee:cd avail="1">
S:           <fee:objID>example.net</fee:objID>
S:           <fee:class>standard</fee:class>
S:           <fee:command name="create" standard="1">
S:             <fee:period unit="y">2</fee:period>
S:             <fee:fee
S:               description="Registration Fee"
S:               refundable="1"
```

```
S:               grace-period="P5D">5.00</fee:fee>
S:           </fee:command>
S:           <fee:command name="renew" standard="1">
S:             <fee:period unit="y">1</fee:period>
S:             <fee:fee
S:               description="Renewal Fee"
S:               refundable="1"
S:               grace-period="P5D">5.00</fee:fee>
S:           </fee:command>
S:           <fee:command name="transfer" standard="1">
S:             <fee:period unit="y">1</fee:period>
S:             <fee:fee
S:               description="Transfer Fee"
S:               refundable="1"
S:               grace-period="P5D">5.00</fee:fee>
S:           </fee:command>
S:           <fee:command name="restore" standard="1">
S:             <fee:fee
S:               description="Redemption Fee">5.00</fee:fee>
S:           </fee:command>
S:         </fee:cd>
S:         <fee:cd avail="0">
S:           <fee:objID>example.xyz</fee:objID>
S:           <fee:command name="create">
S:             <fee:period unit="y">2</fee:period>
S:             <fee:reason>Only 1 year registration periods are
S:               valid.</fee:reason>
S:           </fee:command>
S:         </fee:cd>
S:       </fee:chkData>
S:     </extension>
S:     <trID>
S:       <clTRID>ABC-12345</clTRID>
S:       <svTRID>54322-XYZ</svTRID>
S:     </trID>
S:   </response>
S: </epp>
```

5.1.2. EPP Transfer Query Command

This extension does not add any elements to the EPP <transfer> query command, but does include elements in the response, when the extension is included in the <login> command service extensions.

When the <transfer> query command has been processed successfully, if the client has included the extension in the <login> command service <svcExtension> element, and if the client is authorized by the server to view information about the transfer, then the server MAY include

in the <extension> section of the EPP response a <fee:trnData> element, which contains the following child elements:

- A <fee:currency> element (as described in Section 3.2).
- A <fee:period> element (as described in Section 3.3).
- Zero or more <fee:fee> elements (as described in Section 3.4) containing the fees that will be charged to the gaining client.
- Zero or more <fee:credit> elements (as described in Section 3.4) containing the credits that will be refunded to the losing client.

Servers SHOULD omit <fee:credit> when returning a response to the gaining client, and omit <fee:fee> elements when returning a response to the losing client.

If no <fee:trnData> element is included in the response, then no fee will be assessed by the server for the transfer.

Example <transfer> query 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="1001">
S:       <msg>Command completed successfully; action pending</msg>
S:     </result>
S:     <resData>
S:       <domain:trnData
S:         xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
S:         <domain:name>example.com</domain:name>
S:         <domain:trStatus>pending</domain:trStatus>
S:         <domain:reID>ClientX</domain:reID>
S:         <domain:reDate>2019-06-08T22:00:00.0Z</domain:reDate>
S:         <domain:acID>ClientY</domain:acID>
S:         <domain:acDate>2019-06-13T22:00:00.0Z</domain:acDate>
S:         <domain:exDate>2021-09-08T22:00:00.0Z</domain:exDate>
S:       </domain:trnData>
S:     </resData>
S:     <extension>
S:       <fee:trnData xmlns:fee="urn:ietf:params:xml:ns:epp:fee-1.0">
S:         <fee:currency>USD</fee:currency>
S:         <fee:period unit="y">1</fee:period>
S:         <fee:fee>5.00</fee:fee>
S:       </fee:trnData>
S:     </extension>
S:     <trID>
S:       <clTRID>ABC-12345</clTRID>
S:       <svTRID>54322-XYZ</svTRID>
S:     </trID>
S:   </response>
S: </epp>
```

5.2. EPP Transform Commands

5.2.1. EPP <create> Command

This extension adds elements to both the EPP <create> command and response, when the extension is included in the <login> command service extensions.

When submitting a <create> command to the server, the client MAY include in the <extension> element a <fee:create> element which includes the following child elements:

- An OPTIONAL <fee:currency> element (as described in Section 3.2);
- One or more <fee:fee> elements (as described in Section 3.4).

When the <create> command has been processed successfully, and the client included the extension in the <login> command service extensions, and a fee was assessed by the server for the transaction, the server MUST include in the <extension> section of the EPP response a <fee:creData> element, which contains the following child elements:

- A <fee:currency> element (as described in Section 3.2);
- Zero or more <fee:fee> elements (as described in Section 3.4);
- Zero or more <fee:credit> elements (as described in Section 3.4);
- An OPTIONAL <fee:balance> element (as described in Section 3.5);
- An OPTIONAL <fee:creditLimit> element (as described in Section 3.6).

Example <create> command:

```
C: <?xml version="1.0" encoding="utf-8" standalone="no"?>
C: <epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
C:   <command>
C:     <create>
C:       <domain:create
C:         xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
C:         <domain:name>example.com</domain:name>
C:         <domain:period unit="y">2</domain:period>
C:         <domain:ns>
C:           <domain:hostObj>ns1.example.net</domain:hostObj>
C:           <domain:hostObj>ns2.example.net</domain:hostObj>
C:         </domain:ns>
C:         <domain:registrant>jd1234</domain:registrant>
C:         <domain:contact type="admin">sh8013</domain:contact>
C:         <domain:contact type="tech">sh8013</domain:contact>
C:         <domain:authInfo>
C:           <domain:pw>2fooBAR</domain:pw>
C:         </domain:authInfo>
C:       </domain:create>
C:     </create>
C:     <extension>
C:       <fee:create xmlns:fee="urn:ietf:params:xml:ns:epp:fee-1.0">
C:         <fee:currency>USD</fee:currency>
C:         <fee:fee>5.00</fee:fee>
C:       </fee:create>
C:     </extension>
C:     <clTRID>ABC-12345</clTRID>
C:   </command>
C: </epp>
```

Example <create> 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>Command completed successfully</msg>
S:     </result>
S:     <resData>
S:       <domain:creData
S:         xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
S:         <domain:name>example.com</domain:name>
S:         <domain:crDate>2019-04-03T22:00:00.0Z</domain:crDate>
S:         <domain:exDate>2021-04-03T22:00:00.0Z</domain:exDate>
S:       </domain:creData>
S:     </resData>
S:     <extension>
S:       <fee:creData xmlns:fee="urn:ietf:params:xml:ns:epp:fee-1.0">
S:         <fee:currency>USD</fee:currency>
S:         <fee:fee
S:           description="Registration Fee"
S:           lang="en"
S:           refundable="1"
S:           grace-period="P5D">5.00</fee:fee>
S:         <fee:balance>-5.00</fee:balance>
S:         <fee:creditLimit>1000.00</fee:creditLimit>
S:       </fee:creData>
S:     </extension>
S:     <trID>
S:       <clTRID>ABC-12345</clTRID>
S:       <svTRID>54321-XYZ</svTRID>
S:     </trID>
S:   </response>
S: </epp>
```

5.2.2. EPP <delete> Command

This extension does not add any elements to the EPP <delete> command, but does include elements in the response, when the extension is included in the <login> command service extensions.

When the <delete> command has been processed successfully, and the client included the extension in the <login> command service extensions, the server MAY include in the <extension> section of the EPP response a <fee:delData> element, which contains the following child elements:

- A <fee:currency> element (as described in Section 3.2);

- Zero or more <fee:fee> elements (as described in Section 3.4);
- Zero or more <fee:credit> elements (as described in Section 3.4);
- An OPTIONAL <fee:balance> element (as described in Section 3.5);
- An OPTIONAL <fee:creditLimit> element (as described in Section 3.6).

Example <delete> 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>Command completed successfully</msg>
S:     </result>
S:     <extension>
S:       <fee:delData
S:         xmlns:fee="urn:ietf:params:xml:ns:epp:fee-1.0">
S:         <fee:currency>USD</fee:currency>
S:         <fee:credit
S:           description="AGP Credit"
S:           lang="en">-5.00</fee:credit>
S:         <fee:balance>1005.00</fee:balance>
S:       </fee:delData>
S:     </extension>
S:     <trID>
S:       <clTRID>ABC-12345</clTRID>
S:       <svTRID>54321-XYZ</svTRID>
S:     </trID>
S:   </response>
S: </epp>
```

5.2.3. EPP <renew> Command

This extension adds elements to both the EPP <renew> command and response, when the extension is included in the <login> command service extensions.

When submitting a <renew> command to the server, the client MAY include in the <extension> element a <fee:renew> element which includes the following child elements:

- An OPTIONAL <fee:currency> element (as described in Section 3.2);
- One or more <fee:fee> elements (as described in Section 3.4).

When the <renew> command has been processed successfully, and the client included the extension in the <login> command service extensions, the server MAY include in the <extension> section of the

EPP response a <fee:renData> element, which contains the following child elements:

- A <fee:currency> element (as described in Section 3.2);
- Zero or more <fee:fee> elements (as described in Section 3.4);
- Zero or more <fee:credit> elements (as described in Section 3.4);
- An OPTIONAL <fee:balance> element (as described in Section 3.5);
- An OPTIONAL <fee:creditLimit> element (as described in Section 3.6).

Example <renew> command:

```
C: <?xml version="1.0" encoding="utf-8" standalone="no"?>
C: <epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
C:   <command>
C:     <renew>
C:       <domain:renew
C:         xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
C:         <domain:name>example.com</domain:name>
C:         <domain:curExpDate>2019-04-03</domain:curExpDate>
C:         <domain:period unit="y">5</domain:period>
C:       </domain:renew>
C:     </renew>
C:     <extension>
C:       <fee:renew xmlns:fee="urn:ietf:params:xml:ns:epp:fee-1.0">
C:         <fee:currency>USD</fee:currency>
C:         <fee:fee>5.00</fee:fee>
C:       </fee:renew>
C:     </extension>
C:     <clTRID>ABC-12345</clTRID>
C:   </command>
C: </epp>
```

Example <renew> 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>Command completed successfully</msg>
S:     </result>
S:     <resData>
S:       <domain:renData
S:         xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
S:         <domain:name>example.com</domain:name>
S:         <domain:exDate>2024-04-03T22:00:00.0Z</domain:exDate>
S:       </domain:renData>
S:     </resData>
S:     <extension>
S:       <fee:renData xmlns:fee="urn:ietf:params:xml:ns:epp:fee-1.0">
S:         <fee:currency>USD</fee:currency>
S:         <fee:fee
S:           refundable="1"
S:           grace-period="P5D">5.00</fee:fee>
S:         <fee:balance>1000.00</fee:balance>
S:       </fee:renData>
S:     </extension>
S:     <trID>
S:       <clTRID>ABC-12345</clTRID>
S:       <svTRID>54322-XYZ</svTRID>
S:     </trID>
S:   </response>
S: </epp>
```

5.2.4. EPP <transfer> Command

This extension adds elements to both the EPP <transfer> command and response, when the value of the "op" attribute of the <transfer> command element is "request", and the extension is included in the <login> command service extensions.

When submitting a <transfer> command to the server, the client MAY include in the <extension> element a <fee:transfer> element which includes the following child elements:

- An OPTIONAL <fee:currency> element (as described in Section 3.2);
- One or more <fee:fee> elements (as described in Section 3.4).

When the <transfer> command has been processed successfully, and the client included the extension in the <login> command service extensions, the server MAY include in the <extension> section of the

EPP response a <fee:trnData> element, which contains the following child elements:

- A <fee:currency> element (as described in Section 3.2);
- Zero or more <fee:fee> elements (as described in Section 3.4);
- Zero or more <fee:credit> elements (as described in Section 3.4);
- An OPTIONAL <fee:balance> element (as described in Section 3.5);
- An OPTIONAL <fee:creditLimit> element (as described in Section 3.6).

Example <transfer> command:

```
C: <?xml version="1.0" encoding="utf-8" standalone="no"?>
C: <epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
C:   <command>
C:     <transfer op="request">
C:       <domain:transfer
C:         xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
C:         <domain:name>example.com</domain:name>
C:         <domain:period unit="y">1</domain:period>
C:         <domain:authInfo>
C:           <domain:pw roid="JD1234-REP">2fooBAR</domain:pw>
C:         </domain:authInfo>
C:       </domain:transfer>
C:     </transfer>
C:     <extension>
C:       <fee:transfer xmlns:fee="urn:ietf:params:xml:ns:epp:fee-1.0">
C:         <fee:currency>USD</fee:currency>
C:         <fee:fee>5.00</fee:fee>
C:       </fee:transfer>
C:     </extension>
C:     <clTRID>ABC-12345</clTRID>
C:   </command>
C: </epp>
```

Example <transfer> 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="1001">
S:       <msg>Command completed successfully; action pending</msg>
S:     </result>
S:     <resData>
S:       <domain:trnData
S:         xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
S:         <domain:name>example.com</domain:name>
S:         <domain:trStatus>pending</domain:trStatus>
S:         <domain:reID>ClientX</domain:reID>
S:         <domain:reDate>2019-06-08T22:00:00.0Z</domain:reDate>
S:         <domain:acID>ClientY</domain:acID>
S:         <domain:acDate>2019-06-13T22:00:00.0Z</domain:acDate>
S:         <domain:exDate>2021-09-08T22:00:00.0Z</domain:exDate>
S:       </domain:trnData>
S:     </resData>
S:     <extension>
S:       <fee:trnData xmlns:fee="urn:ietf:params:xml:ns:epp:fee-1.0">
S:         <fee:currency>USD</fee:currency>
S:         <fee:fee
S:           refundable="1"
S:           grace-period="P5D">5.00</fee:fee>
S:       </fee:trnData>
S:     </extension>
S:     <trID>
S:       <clTRID>ABC-12345</clTRID>
S:       <svTRID>54322-XYZ</svTRID>
S:     </trID>
S:   </response>
S: </epp>
```

5.2.5. EPP <update> Command

This extension adds elements to both the EPP <update> command and response, when the extension is included in the <login> command service extensions.

When submitting a <update> command to the server, the client MAY include in the <extension> element a <fee:update> element which includes the following child elements:

- An OPTIONAL <fee:currency> element (as described in Section 3.2);
- One or more <fee:fee> elements (as described in Section 3.4).

When the <update> command has been processed successfully, and the client included the extension in the <login> command service extensions, the server MAY include in the <extension> section of the EPP response a <fee:updData> element, which contains the following child elements:

- A <fee:currency> element (as described in Section 3.2);
- Zero or more <fee:fee> elements (as described in Section 3.4);
- Zero or more <fee:credit> elements (as described in Section 3.4);
- An OPTIONAL <fee:balance> element (as described in Section 3.5);
- An OPTIONAL <fee:creditLimit> element (as described in Section 3.6).

Example <update> command:

```
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:registrant>sh8013</domain:registrant>
C:         </domain:chg>
C:       </domain:update>
C:     </update>
C:     <extension>
C:       <fee:update xmlns:fee="urn:ietf:params:xml:ns:epp:fee-1.0">
C:         <fee:currency>USD</fee:currency>
C:         <fee:fee>5.00</fee:fee>
C:       </fee:update>
C:     </extension>
C:     <clTRID>ABC-12345</clTRID>
C:   </command>
C: </epp>
```

Example <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>Command completed successfully</msg>
S:     </result>
S:     <extension>
S:       <fee:updData xmlns:fee="urn:ietf:params:xml:ns:epp:fee-1.0">
S:         <fee:currency>USD</fee:currency>
S:         <fee:fee>5.00</fee:fee>
S:       </fee:updData>
S:     </extension>
S:     <trID>
S:       <clTRID>ABC-12345</clTRID>
S:       <svTRID>54321-XYZ</svTRID>
S:     </trID>
S:   </response>
S: </epp>
```

6. Formal Syntax

One schema is presented here that is the EPP Fee Extension schema.

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.

6.1. Fee Extension Schema

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 xmlns="http://www.w3.org/2001/XMLSchema"
  xmlns:fee="urn:ietf:params:xml:ns:epp:fee-1.0"
  xmlns:eppcom="urn:ietf:params:xml:ns:eppcom-1.0"
  xmlns:domain="urn:ietf:params:xml:ns:domain-1.0"
  targetNamespace="urn:ietf:params:xml:ns:epp:fee-1.0"
  elementFormDefault="qualified">
```

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

    <annotation>
      <documentation>
        Extensible Provisioning Protocol v1.0 Fee Extension
      </documentation>
    </annotation>

    <!-- Child elements found in EPP commands and responses -->
    <element name="check" type="fee:checkType" />
    <element name="chkData" type="fee:chkDataType" />
    <element name="create" type="fee:transformCommandType" />
    <element name="creData" type="fee:transformResultType" />
    <element name="renew" type="fee:transformCommandType" />
    <element name="renData" type="fee:transformResultType" />
    <element name="transfer" type="fee:transformCommandType" />
    <element name="trnData" type="fee:transformResultType" />
    <element name="update" type="fee:transformCommandType" />
    <element name="updData" type="fee:transformResultType" />
    <element name="delData" type="fee:transformResultType" />

    <!-- client <check> command -->
    <complexType name="checkType">
      <sequence>
        <element name="currency" type="fee:currencyType"
          minOccurs="0" />
        <element name="command" type="fee:commandType"
          minOccurs="1" maxOccurs="unbounded" />
      </sequence>
    </complexType>

    <complexType name="objectIdentifierType">
      <simpleContent>
        <extension base="eppcom:labelType">
          <attribute name="element"
          type="NMTOKEN" default="name" />
        </extension>
      </simpleContent>
    </complexType>

    <!-- server <check> result -->
    <complexType name="chkDataType">
      <sequence>
        <element name="currency" type="fee:currencyType" />
        <element name="cd" type="fee:objectCDType"
          maxOccurs="unbounded" />
      </sequence>
```

```
    </complexType>

    <complexType name="objectCDType">
      <sequence>
        <element name="objID" type="fee:objectIdentifierType" />
        <element name="class" type="token" minOccurs="0" />
        <element name="command" type="fee:commandDataType"
          minOccurs="0" maxOccurs="unbounded" />
        <element name="reason" type="fee:reasonType" minOccurs="0" />
      </sequence>
      <attribute name="avail" type="boolean" default="1" />
    </complexType>

    <!-- general transform (create, renew, update, transfer) command -->
    <complexType name="transformCommandType">
      <sequence>
        <element name="currency" type="fee:currencyType"
          minOccurs="0" />
        <element name="fee" type="fee:feeType"
          maxOccurs="unbounded" />
        <element name="credit" type="fee:creditType"
          minOccurs="0" maxOccurs="unbounded" />
      </sequence>
    </complexType>

    <!-- general transform (create, renew, update) result -->
    <complexType name="transformResultType">
      <sequence>
        <element name="currency" type="fee:currencyType"
          minOccurs="0" />
        <element name="period" type="domain:periodType"
          minOccurs="0" />
        <element name="fee" type="fee:feeType"
          minOccurs="0" maxOccurs="unbounded" />
        <element name="credit" type="fee:creditType"
          minOccurs="0" maxOccurs="unbounded" />
        <element name="balance" type="fee:balanceType"
          minOccurs="0" />
        <element name="creditLimit" type="fee:creditLimitType"
          minOccurs="0" />
      </sequence>
    </complexType>

    <!-- common types -->
    <simpleType name="currencyType">
      <restriction base="string">
        <pattern value="[A-Z]{3}" />
      </restriction>
```

```
    </simpleType>

    <complexType name="commandType">
      <sequence>
        <element name="period" type="domain:periodType"
          minOccurs="0" maxOccurs="1" />
      </sequence>
      <attribute name="name" type="fee:commandEnum" use="required"/>
      <attribute name="customName" type="token"/>
      <attribute name="phase" type="token" />
      <attribute name="subphase" type="token" />
    </complexType>

    <complexType name="commandDataType">
      <complexContent>
        <extension base="fee:commandType">
          <sequence>
            <element name="fee" type="fee:feeType"
              minOccurs="0" maxOccurs="unbounded" />
            <element name="credit" type="fee:creditType"
              minOccurs="0" maxOccurs="unbounded" />
            <element name="reason" type="fee:reasonType"
              minOccurs="0" />
          </sequence>
          <attribute name="standard" type="boolean" default="0" />
        </extension>
      </complexContent>
    </complexType>

    <complexType name="reasonType">
      <simpleContent>
        <extension base="token">
          <attribute name="lang" type="language" default="en"/>
        </extension>
      </simpleContent>
    </complexType>

    <simpleType name="commandEnum">
      <restriction base="token">
        <enumeration value="create"/>
        <enumeration value="delete"/>
        <enumeration value="renew"/>
        <enumeration value="update"/>
        <enumeration value="transfer"/>
        <enumeration value="restore"/>
        <enumeration value="custom"/>
      </restriction>
    </simpleType>
```

```
    <simpleType name="nonNegativeDecimal">
      <restriction base="decimal">
        <minInclusive value="0" />
      </restriction>
    </simpleType>

    <simpleType name="negativeDecimal">
      <restriction base="decimal">
        <maxInclusive value="0" />
      </restriction>
    </simpleType>

    <complexType name="feeType">
      <simpleContent>
        <extension base="fee:nonNegativeDecimal">
          <attribute name="description"/>
          <attribute name="lang" type="language" default="en"/>
          <attribute name="refundable" type="boolean" />
          <attribute name="grace-period" type="duration" />
          <attribute name="applied">
            <simpleType>
              <restriction base="token">
                <enumeration value="immediate" />
                <enumeration value="delayed" />
              </restriction>
            </simpleType>
          </attribute>
        </extension>
      </simpleContent>
    </complexType>

    <complexType name="creditType">
      <simpleContent>
        <extension base="fee:negativeDecimal">
          <attribute name="description"/>
          <attribute name="lang" type="language" default="en"/>
        </extension>
      </simpleContent>
    </complexType>

    <simpleType name="balanceType">
      <restriction base="decimal" />
    </simpleType>

    <simpleType name="creditLimitType">
      <restriction base="decimal" />
    </simpleType>
```

```
</schema>
END
```

7. 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. This extension passes financial information using the EPP protocol, so confidentiality and integrity protection must be provided by the transport mechanism. All transports compliant with [RFC5730] provide the needed level of confidentiality and integrity protections. The server will only provide information, including financial information, that is relevant to the authenticated client.

8. IANA Considerations

8.1. XML Namespace

This document uses URNs to describe XML namespaces and XML schemas conforming to a registry mechanism described in [RFC3688].

Registration request for the fee namespace:

URI: urn:ietf:params:xml:ns:epp:fee-1.0

Registrant Contact: IESG

XML: None. Namespace URIs do not represent an XML specification.

Registration request for the fee schema:

URI: urn:ietf:params:xml:schema:epp:fee-1.0

Registrant Contact: IESG

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

8.2. EPP Extension Registry

The EPP extension described in this document should be registered by the IANA in the EPP Extension Registry described in [RFC7451]. The details of the registration are as follows:

Name of Extension: Registry Fee Extension for the Extensible Provisioning Protocol (EPP)

Document status: Standards Track

Reference: (insert reference to RFC version of this document)

Registrant Name and Email Address: IESG, <iesg@ietf.org>

TLDs: Any

IPR Disclosure: None

Status: Active

Notes: None

9. Implementation Status

Note to RFC Editor: Please remove this section and the reference to [RFC7942] before publication.

This section records the status of known implementations of the protocol defined by this specification at the time of posting of this Internet-Draft, and is based on a proposal described in [RFC7942]. The description of implementations in this section is intended to assist the IETF in its decision processes in progressing drafts to RFCs. Please note that the listing of any individual implementation here does not imply endorsement by the IETF. Furthermore, no effort has been spent to verify the information presented here that was supplied by IETF contributors. This is not intended as, and must not be construed to be, a catalog of available implementations or their features. Readers are advised to note that other implementations may exist.

According to [RFC7942], "this will allow reviewers and working groups to assign due consideration to documents that have the benefit of running code, which may serve as evidence of valuable experimentation and feedback that have made the implemented protocols more mature. It is up to the individual working groups to use this information as they see fit".

9.1. RegistryEngine EPP Service

Organization: CentralNic

Name: RegistryEngine EPP Service

Description: Generic high-volume EPP service for gTLDs, ccTLDs and SLDs

Level of maturity: Deployed in CentralNic's production environment as well as two other gTLD registry systems, and two ccTLD registry systems.

Coverage: All aspects of the protocol are implemented.

Licensing: Proprietary In-House software

Contact: epp@centralnic.com

URL: https://www.centralnic.com

10. Acknowledgements

The authors wish to thank the following persons for their feedback and suggestions:

- James Gould of Verisign Inc
- Luis Munoz of ISC
- Michael Young of Architelos
- Ben Levac and Jeff Eckhaus of Demand Media
- Seth Goldman of Google
- Klaus Malorny and Michael Bauland of Knipp
- Jody Kolker, Joe Snitker and Kevin Allendorf of Go Daddy
- Michael Holloway of Com Laude
- Santosh Kalsangrah of Impetus Infotech
- Alex Mayrhofer of Nic.at
- Thomas Corte of Knipp Medien und Kommunikation GmbH

11. Change History

11.1. Change from 18 to 19

Added normative reference for XML Schema.

11.2. Change from 18 to 19

Updated per IESG review, all updates (except for one schema change) were just textual for clarity and correctness. The schema change was to require the name attribute of the commandType element.

11.3. Change from 17 to 18

Corrected erroneous edit left in place in previous revision (17), reverted text back to original text (revision 16) in section 3.4.

11.4. Change from 16 to 17

Updated per AD review, all updates were just textual for clarity and correctness.

11.5. Change from 15 to 16

Updated per AD review and list comments: several grammar corrections; clarification text added to section 3.4.3 and 3.5; and a schema update for consistency by providing a "lang" attribute to the <fee:fee> and <fee:credit> "description" attribute detailed in section 3.4.

11.6. Change from 14 to 15

Updated schema, moving the "standard" attribute of the "commandDataType" inside the <extension> block.

11.7. Change from 13 to 14

Moved RFC 7451 reference from Normative to Informative section.

11.8. Change from 12 to 13

Updated XML namespace and schema registration to be "epp" scoped - global replace of XML namespace from urn:ietf:params:xml:ns:fee-1.0 to urn:ietf:params:xml:ns:epp:fee-1.0 and the XML schema registration from urn:ietf:params:xml:schema:fee-1.0 to urn:ietf:params:xml:schema:epp:fee-1.0.

11.9. Change from 11 to 12

Updated references to current version of documents and moved the "standard" attribute from the check command (commandType) to the check response (commandDataType).

11.10. Change from 10 to 11

Updated document per Working Group Last Call comments. Made minor textual changes throughout for enhanced clarity per WGLC comments.

11.11. Change from 09 to 10

Updated document per Working Group Last Call comments. Updated schema to version 1.0 in anticipation of standardization, no changes were made to the latest, 0.25, schema. Made minor textual changes throughout for enhanced clarity per WGLC comments.

11.12. Change from 08 to 09

Updated scheme to version 0.25 to allow tighter checking on <fee:command> by splitting the client and server definitions, moved the class element from the command to the object level and added an optional standard attribute to the command element. Also updated section 3.1 for clarity on name attribute; updated section 3.9 for clarity on uses of <fee:reason>; removed second paragraph in section 5.2.1 as it was duplicative of second to last paragraph in 4.0; and updated section 5.1.1 to add section references.

11.13. Change from 07 to 08

Updated section 3.8 and 5.1.1 to provide clarity on server processing and response of various scenarios (i.e. "quiet" period processing).

11.14. Change from 06 to 07

Updated section 3.8 and 4.0 to provide clarity on server processing and response of various scenarios.

11.15. Change from 05 to 06

Updated scheme to version 0.23 to allow the return of no <fee:command> element(s) if an error situation occurs. Edited section 3.8 extensively after input from interim meeting and REGEXT F2F meeting at IETF-99. Added normative reference for draft-ietf-eppext-launchphase.

11.16. Change from 04 to 05

Updated scheme to version 0.21 to support the lang attribute for the reason element of the objectCDType and the commandType types as well as to add the update command to the commandEnum type. Updated section 3.1 to include language for the custom command. Added section 3.9 to provide a description of the <fee:reason> element. Fixed typos and added clarification text on when client fee is less than server fee in section 4. Additionally, I added description pointers to appropriate Section 3 definitions for element clarity throughout the document.

11.17. Change from 03 to 04

Updated scheme to version 0.19 to correct typos and to replace the commandTypeValue type with the commandEnum type and customName attribute for stricter validation. Updated various text for grammar and clarity. Added text to section 4 clarifying the <check> response

when the client provided no fee extension but the server was expecting the extension.

11.18. Change from 02 to 03

Updated scheme to version 0.17 to simplify the check command syntax. Moved fee avail to objectCDType to allow fast failing on error situations. Removed the objectCheckType as it was no longer being used. Updated examples to reflect these scheme changes. Added language for server failing a <create> if the <fee:fee> passed by the client is less than the server fee.

11.19. Change from 01 to 02

Updated scheme to version 0.15 to fix errors in CommandType, objectCDType, transformCommandType and transformResultType definitions.

11.20. Change from 00 to 01

Added Roger Carney as author to finish draft. Moved Formal Syntax section to main level numbering. Various grammar, typos, and administrative edits for clarity. Removed default value for the "applied" attribute of <fee:fee> so that it can truly be optional. Added support for the <delete> command to return a <fee:fee> element as well. Modified default response on the <check> command for the optional <fee:period> when it was not provided in the command, leaving it to the server to provide the default period value. Extensive edits were done to the <check> command, the <check> response and to the fee extension schema (checkType, objectCheckType, objectIdentifierType, objectCDType, commandType) to support requesting and returning multiple transformation fees in a single call. Added section on Phase/Subphase to provide more context on the uses.

11.21. Change from draft-brown-00 to draft-ietf-regext-fees-00

Updated to be REGEXT WG document.

12. References

12.1. Normative References

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[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>.

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[RFC8334] Gould, J., Tan, W., and G. Brown, "Launch Phase Mapping for the Extensible Provisioning Protocol (EPP)", RFC 8334, DOI 10.17487/RFC8334, March 2018, <https://www.rfc-editor.org/info/rfc8334>.

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12.2. Informative References

[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>.

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