Network Working Group
Internet-Draft
Intended status: Best Current Practice
Expires: April 4, 2019

J. Gould
VeriSign, Inc.
M. Casanova
SWITCH

October 1, 2018

Extensible Provisioning Protocol (EPP) Unhandled Namespaces
draft-gould-casanova-regext-unhandled-namespaces-00

Abstract

The Extensible Provisioning Protocol (EPP), as defined in RFC 5730, includes a method for the client and server to determine the objects to be managed during a session and the object extensions to be used during a session. The services are identified using namespace URIs. How should the server handle service data that needs to be returned in the response when the client does not support the required service namespace URI, which is referred to as an unhandled namespace? An unhandled namespace is a significant issue for the processing of RFC 5730 poll messages, since poll messages are inserted by the server prior to knowing the supported client services, and the client needs to be capable of processing all poll messages. This document defines an operational practice that enables the server to return information associated with unhandled namespace URIs that is compliant with the negotiated services defined in RFC 5730.

Status of This Memo

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

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF). Note that other groups may also distribute working documents as Internet-Drafts. The list of current Internet-Drafts is at http://datatracker.ietf.org/drafts/current/.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

This Internet-Draft will expire on April 4, 2019.

Copyright Notice

Copyright (c) 2018 IETF Trust and the persons identified as the document authors. All rights reserved.

This document is subject to BCP 78 and the IETF Trust's Legal Provisions Relating to IETF Documents (http://trustee.ietf.org/license-info) in effect on the date of publication of this document. Please review these documents carefully, as they describe your rights and restrictions with respect to this document. Code Components extracted from this document must include Simplified BSD License text as described in Section 4.e of the Trust Legal Provisions and are provided without warranty as described in the Simplified BSD License.

Table of Contents

1. Introduction 2
  1.1. Conventions Used in This Document 3
2. Unhandled Namespaces 3
3. Use of EPP <extValue> for Unhandled Namespace Data 4
  3.1. Unhandled Object-Level Extension 5
  3.2. Unhandled Command-Response Extension 7
4. Usage with General EPP Responses 11
5. Usage with Poll Message EPP Responses 12
6. Implementation Status 15
  6.1. Verisign EPP SDK 16
7. Security Considerations 16
8. Acknowledgements 17
9. Normative References 17
Appendix A. Change History 18
Authors' Addresses 18

1. Introduction

The Extensible Provisioning Protocol (EPP), as defined in [RFC5730], includes a method for the client and server to determine the objects to be managed during a session and the object extensions to be used during a session. The services are identified using namespace URIs. How should the server handle service data that needs to be returned in the response when the client does not support the required service namespace URI, which is referred to as an unhandled namespace? An unhandled namespace is a significant issue for the processing of [RFC5730] poll messages, since poll messages are inserted by the server prior to knowing the supported client services, and the client needs to be capable of processing all poll messages. An unhandled namespace is an issue also for general EPP responses when the server has information that it cannot return to the client due to the

client's supported services. The server should be able to return unhandled namespace information that the client can process later. This document defines an operational practice that enables the server to return information associated with unhandled namespace URIs that is compliant with the negotiated services defined in [RFC5730].

1.1. Conventions Used in This Document

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

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

In examples, "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.

The examples reference XML namespace prefixes that are used for the associated XML namespaces. Implementations MUST NOT depend on the example XML namespaces and instead employ a proper namespace-aware XML parser and serializer to interpret and output the XML documents. The example namespace prefixes used and their associated XML namespaces include:

"changePoll": urn:ietf:params:xml:ns:changePoll-1.0
"domain": urn:ietf:params:xml:ns:domain-1.0
"secDNS": urn:ietf:params:xml:ns:secDNS-1.1

In the template example XML, placeholder content is represented by the following variables:

"[NAMESPACE-XML]": XML content associated with a login service namespace URI. An example is the <domain:infData> element content in [RFC5731].
"[NAMESPACE-URI]": XML namespace URI associated with the [NAMESPACE-XML] XML content. An example is "urn:ietf:params:xml:ns:domain-1.0" in [RFC5731].

2. Unhandled Namespaces

An Unhandled Namespace is an XML namespace that is associated with a response extension that is not included in the client-specified EPP login services of [RFC5730]. The EPP login services consists of the

set of XML namespace URIs included in the <objURI> or <extURI> elements of the [RFC5730] EPP <login> command. The services supported by the server are included in the <objURI> and <extURI> elements of the [RFC5730] EPP <greeting>, which should be a superset of the login services included in the EPP <login> command. A server may have information associated with a specific namespace that it needs to return in the response to a client. The unhandled namespaces problem exists when the server has information, that it needs to return to the client, that is not supported by the client based on the negotiated EPP <login> command services.

3. Use of EPP <extValue> for Unhandled Namespace Data

When a server has data to return to the client, that the client does not support based on the login services, the server MAY return a successful response, with the data for each unsupported namespace moved into an [RFC5730] <extValue> element. The unhandled namespace will not cause an error response, but the unhandled namespace data will instead be moved to an <extValue> element, along with a reason why the unhandled namespace data could not be included in the appropriate location of the response. The <extValue> element XML will not be processed by the XML processor. The <extValue> element contains the following child elements:

<value>: Contains a child-element with the unhandled namespace XML. The XML namespace and namespace prefix of the child element MUST be defined, which MAY be defined in the <value> element or in the the child element. XML processing of the <value> element is disabled in [RFC5730], so the information can safely be returned in the <value> element.

<reason>: A formatted human-readable message that indicates the reason the unhandled namespace data was not returned in the appropriate location of the response. The formatted reason SHOULD follow the Augmented Backus-Naur Form (ABNF) grammar [RFC5234] format: NAMESPACE-URI "not in login services", where NAMESPACE-URI is the unhandled XML namespace like "urn:ietf:params:xml:ns:domain-1.0" for [RFC5731].

This document supports handling of unsupported namespaces for [RFC3735] object-level extensions and command-response extensions. This document does not support [RFC3735] protocol-level extensions or authentication information extensions. Refer to the following sections on how to handle an unsupported object-level extension namespace or an unsupported command-response extension namespace.

3.1. Unhandled Object-Level Extension

An object-level extension in [RFC5730] is a child element of the <resData> element. If the client does not handle the namespace of the object-level extension, then the <resData> element is removed and its object-level extension child element is moved into a [RFC5730] <extValue> <value> element, with the namespace URI included in the corresponding <extValue> <reason> element. The response becomes a general EPP response without the <resData> element.

Template response for a supported object-level extension. The [NAMESPACE-XML] variable represents the object-level extension XML.

```
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:      [NAMESPACE-XML]
S:    </resData>
S:    <trID>
S:      <clTRID>ABC-12345</clTRID>
S:      <svTRID>54322-XYZ</svTRID>
S:    </trID>
S:  </response>
S:</epp>
```

Template unhandled namespace response for an unsupported object-level extension. The [NAMESPACE-XML] variable represents the object-level extension XML and the [NAMESPACE-URI] variable represents the object-level extension XML namespace URI.

```
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:      <extValue>
S:        <value>
S:          [NAMESPACE-XML]
S:        </value>
S:        <reason>
S:          [NAMESPACE-URI] not in login services
S:        </reason>
S:      </extValue>
S:    </result>
S:    <trID>
S:      <clTRID>ABC-12345</clTRID>
S:      <svTRID>54322-XYZ</svTRID>
S:    </trID>
S:  </response>
S:</epp>
```

The EPP response is converted from an object response to a general EPP response by the server when the client does not support the object-level extension namespace URI. Below is example of converting the <transfer> query response example in [RFC5730] to an unhandled namespace response.

[RFC5730] example <transfer> query response converted into an unhandled namespace 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:      <extValue>
S:        <value>
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>2000-06-06T22:00:00.0Z</domain:reDate>
S:            <domain:acID>ClientY</domain:acID>
S:            <domain:acDate>2000-06-11T22:00:00.0Z</domain:acDate>
S:            <domain:exDate>2002-09-08T22:00:00.0Z</domain:exDate>
S:          </domain:trnData>
S:        </value>
S:        <reason>
S:          urn:ietf:params:xml:ns:domain-1.0 not in login services
S:        </reason>
S:      </extValue>
S:    </result>
S:    <trID>
S:      <clTRID>ABC-12345</clTRID>
S:      <svTRID>54322-XYZ</svTRID>
S:    </trID>
S:  </response>
S:</epp>
```

3.2. Unhandled Command-Response Extension

A command-response extension in [RFC5730] is a child element of the <extension> element. If the client does not handle the namespace of the command-response extension, the command-response child element is moved into a [RFC5730] <extValue> <value> element, with the namespace URI included in the corresponding <extValue> <reason> element. If after moving the command-response child element there are no additional command-response child elements, the <extension> element MUST be removed.

Template response for a supported command-response extension. The [NAMESPACE-XML] variable represents the command-response extension XML.

```
S:<?xml version="1.0" encoding="UTF-8" standalone="no"?>
S:<epp xmlns="urn:ietf:params:xml:ns:epp-1.0"
S:     xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
S:  <response>
S:    <result code="1000">
S:      <msg>Command completed successfully</msg>
S:    </result>
S:    <extension>
S:      [NAMESPACE-XML]
S:    </extension>
S:    <trID>
S:     <clTRID>ABC-12345</clTRID>
S:      <svTRID>54322-XYZ</svTRID>
S:    </trID>
S:  </response>
S:</epp>
```

Template unhandled namespace response for an unsupported command-response extension. The [NAMESPACE-XML] variable represents the command-response extension XML and the [NAMESPACE-URI] variable represents the command-response extension XML namespace URI.

```
S:<?xml version="1.0" encoding="UTF-8" standalone="no"?>
S:<epp xmlns="urn:ietf:params:xml:ns:epp-1.0"
S:     xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
S:  <response>
S:    <result code="1000">
S:      <msg>Command completed successfully</msg>
S:      <extValue>
S:        <value>
S:         [NAMESPACE-XML]
S:        </value>
S:        <reason>
S:          [NAMESPACE-URI] not in login services
S:        </reason>
S:      </extValue>
S:    </result>
S:    <extension>
S:    </extension>
S:    <trID>
S:      <clTRID>ABC-12345</clTRID>
S:      <svTRID>54322-XYZ</svTRID>
S:    </trID>
S:  </response>
S:</epp>
```

The EPP response is converted to an unhandled namespace response by moving the unhandled command-response extension from under the <extension> to an <extValue> element. Below is example of converting the DS Data Interface <info> response example in [RFC5910] to an unhandled namespace response.

[RFC5910] DS Data Interface <info> response converted into an unhandled namespace 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:      <extValue>
S:        <value>
S:        <secDNS:infData
S:          xmlns:secDNS="urn:ietf:params:xml:ns:secDNS-1.1">
S:          <secDNS:dsData>
```

```
S:          <secDNS:keyTag>12345</secDNS:keyTag>
S:          <secDNS:alg>3</secDNS:alg>
S:          <secDNS:digestType>1</secDNS:digestType>
S:          <secDNS:digest>49FD46E6C4B45C55D4AC</secDNS:digest>
S:          </secDNS:dsData>
S:          </secDNS:infData>
S:        </value>
S:        <reason>
S:          urn:ietf:params:xml:ns:secDNS-1.1 not in login services
S:        </reason>
S:      </extValue>
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:registrant>jd1234</domain:registrant>
S:        <domain:contact type="admin">sh8013</domain:contact>
S:        <domain:contact type="tech">sh8013</domain:contact>
S:        <domain:ns>
S:          <domain:hostObj>ns1.example.com</domain:hostObj>
S:          <domain:hostObj>ns2.example.com</domain:hostObj>
S:        </domain:ns>
S:        <domain:host>ns1.example.com</domain:host>
S:        <domain:host>ns2.example.com</domain:host>
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:    <trID>
S:      <clTRID>ABC-12345</clTRID>
S:      <svTRID>54322-XYZ</svTRID>
S:    </trID>
S:  </response>
S:</epp>
```

4. Usage with General EPP Responses

The unhandled namespace approach defined in Section 3 MAY be used for a general EPP response to an EPP command. A general EPP response includes any non-poll message EPP response. The use of the unhandled namespace approach for poll message EPP responses is defined in Section 5. The server MAY exclude the unhandled namespace information in the general EPP response or MAY include it using the unhandled namespace approach.

The unhandled namespace approach for general EPP responses SHOULD only be applicable to command-response extensions, defined in Section 3.2, since the server SHOULD NOT accept an object-level EPP command if the client did not include the object-level namespace URI in the login services. An object-level EPP response extension is returned when the server successfully executes an object-level EPP command extension. The server MAY return an unhandled object-level extension to the client as defined in Section 3.1.

Returning domain name Redemption Grace Period (RGP) data, based on [RFC3915], provides an example of applying the unhandled namespace approach for a general EPP response. If the client does not include the "urn:ietf:params:xml:ns:rgp-1.0" namespace URI in the login services, and the domain <info> response of a domain name does have RGP information, the server MAY exclude the <rgp:infData> element from the EPP response or MAY include it under in the <extValue> element per Section 3.2.

[RFC5731] domain name <info> response with the unhandled [RFC3915] <rgp:infData> element included under an <extValue> element:

```
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:      <extValue>
S:        <value>
S:          <rgp:infData xmlns:rgp="urn:ietf:params:xml:ns:rgp-1.0">
S:            <rgp:rgpStatus s="redemptionPeriod"/>
S:          </rgp:infData>
S:        </value>
S:        <reason>
S:          urn:ietf:params:xml:ns:rgp-1.0 not in login services
S:        </reason>
S:      </extValue>
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:registrant>jd1234</domain:registrant>
S:        <domain:contact type="admin">sh8013</domain:contact>
S:        <domain:contact type="tech">sh8013</domain:contact>
S:        <domain:ns>
S:          <domain:hostObj>ns1.example.com</domain:hostObj>
S:          <domain:hostObj>ns1.example.net</domain:hostObj>
S:        </domain:ns>
S:        <domain:host>ns1.example.com</domain:host>
S:        <domain:host>ns2.example.com</domain:host>
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:    <trID>
S:      <clTRID>ABC-12345</clTRID>
S:      <svTRID>54322-XYZ</svTRID>
S:    </trID>
S:  </response>
S:</epp>
```

5. Usage with Poll Message EPP Responses

The unhandled namespace approach, defined in Section 3, MUST be used if there is unhandled namespace information included in an EPP <poll> message response. The server inserts poll messages into the client's poll queue independent of knowing the supported client login services, therefore there may be unhandled object-level and command-response extensions included in a client's poll queue. In [RFC5730], the <poll> command is used by the client to retrieve and acknowledge poll messages that have been inserted by the server. The <poll> message response is an EPP response that includes the <msgQ> element that provides poll queue meta-data about the message. The unhandled namespace approach, defined in Section 3, is used for an unhandled object-level extension and for each of the unhandled command-response extensions attached to the <poll> message response. The resulting

EPP <poll> message response MAY have either or both the object-level extension or command-response extensions moved to <extValue> elements, as defined in Section 3.

The Change Poll Message, as defined in [I-D.ietf-regext-change-poll], which is an extension of any EPP object, is an example of applying the unhandled namespace approach for EPP <poll> message responses. The object that will be used in the examples is a [RFC5731] domain name object.

[RFC5731] domain name <info> <poll> message response with the unhandled [I-D.ietf-regext-change-poll] <changePoll:changeData> element included under an <extValue> element:

```
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="1301">
S:      <msg>Command completed successfully; ack to dequeue</msg>
S:      <extValue>
S:        <value>
S:          <changePoll:changeData
S:          xmlns:changePoll="urn:ietf:params:xml:ns:changePoll-1.0"
S:            state="after">
S:            <changePoll:operation>update</changePoll:operation>
S:            <changePoll:date>
S:              2013-11-22T05:00:00.000Z</changePoll:date>
S:            <changePoll:svTRID>12345-XYZ</changePoll:svTRID>
S:            <changePoll:who>URS Admin</changePoll:who>
S:            <changePoll:caseId type="urs">urs123
S:            </changePoll:caseId>
S:            <changePoll:reason>URS Lock</changePoll:reason>
S:          </changePoll:changeData>
S:        </value>
S:        <reason>
S:      urn:ietf:params:xml:ns:changePoll-1.0 not in login services
S:        </reason>
S:      </extValue>
S:    </result>
S:    <msgQ
S:      count="15"
S:      id="1"
S:    >
S:      <qDate>2018-08-24T19:21:51.087Z</qDate>
S:      <msg>Registry initiated update of domain.</msg>
S:    </msgQ>
S:    <resData>
S:      <domain:infData
```

```
S:        xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
S:        <domain:name>change-poll.tld</domain:name>
S:        <domain:roid>EXAMPLE1-REP</domain:roid>
S:        <domain:status s="serverUpdateProhibited"/>
S:        <domain:status s="serverDeleteProhibited"/>
S:        <domain:status s="serverTransferProhibited"/>
S:        <domain:registrant>jd1234</domain:registrant>
S:        <domain:contact type="admin">sh8013</domain:contact>
S:        <domain:contact type="tech">sh8013</domain:contact>
S:        <domain:clID>ClientX</domain:clID>
S:        <domain:crID>ClientY</domain:crID>
S:        <domain:crDate>2012-05-03T04:00:00.000Z</domain:crDate>
S:        <domain:upID>ClientZ</domain:upID>
S:        <domain:upDate>2013-11-22T05:00:00.000Z</domain:upDate>
S:        <domain:exDate>2014-05-03T04:00:00.000Z</domain:exDate>
S:      </domain:infData>
S:    </resData>
S:    <trID>
S:      <clTRID>ABC-12345</clTRID>
S:      <svTRID>54322-XYZ</svTRID>
S:    </trID>
S:  </response>
S:</epp>
```

Unhandled [RFC5731] domain name <info> <poll> message response and the unhandled [I-D.ietf-regext-change-poll] <changePoll:changeData> element included under an <extValue> element:

```
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="1301">
S:      <msg>Command completed successfully; ack to dequeue</msg>
S:      <extValue>
S:        <value>
S:          <domain:infData
S:            xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
S:            <domain:name>change-poll.tld</domain:name>
S:            <domain:roid>EXAMPLE1-REP</domain:roid>
S:            <domain:status s="serverUpdateProhibited"/>
S:            <domain:status s="serverDeleteProhibited"/>
S:            <domain:status s="serverTransferProhibited"/>
S:            <domain:registrant>jd1234</domain:registrant>
S:            <domain:contact type="admin">sh8013</domain:contact>
S:            <domain:contact type="tech">sh8013</domain:contact>
S:            <domain:clID>ClientX</domain:clID>
S:            <domain:crID>ClientY</domain:crID>
S:            <domain:crDate>2012-05-03T04:00:00.000Z</domain:crDate>
```

```
S:            <domain:upID>ClientZ</domain:upID>
S:            <domain:upDate>2013-11-22T05:00:00.000Z</domain:upDate>
S:            <domain:exDate>2014-05-03T04:00:00.000Z</domain:exDate>
S:          </domain:infData>
S:        </value>
S:        <reason>
S:        urn:ietf:params:xml:ns:domain-1.0 not in login services
S:        </reason>
S:      </extValue>
S:      <extValue>
S:        <value>
S:          <changePoll:changeData
S:          xmlns:changePoll="urn:ietf:params:xml:ns:changePoll-1.0"
S:            state="after">
S:            <changePoll:operation>update</changePoll:operation>
S:            <changePoll:date>
S:              2013-11-22T05:00:00.000Z</changePoll:date>
S:            <changePoll:svTRID>12345-XYZ</changePoll:svTRID>
S:            <changePoll:who>URS Admin</changePoll:who>
S:            <changePoll:caseId type="urs">urs123
S:            </changePoll:caseId>
S:            <changePoll:reason>URS Lock</changePoll:reason>
S:          </changePoll:changeData>
S:        </value>
S:        <reason>
S:      urn:ietf:params:xml:ns:changePoll-1.0 not in login services
S:        </reason>
S:      </extValue>
S:    </result>
S:    <msgQ
S:      count="15"
S:      id="1"
S:    >
S:      <qDate>2018-08-24T19:23:12.822Z</qDate>
S:      <msg>Registry initiated update of domain.</msg>
S:    </msgQ>
S:    <trID>
S:      <clTRID>ABC-12345</clTRID>
S:      <svTRID>54322-XYZ</svTRID>
S:    </trID>
S:  </response>
S:</epp>
```

6. Implementation Status

Note to RFC Editor: Please remove this section and the reference to RFC 7942 [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 RFC 7942 [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 RFC 7942 [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".

6.1. Verisign EPP SDK

Organization: Verisign Inc.

Name: Verisign EPP SDK

Description: The Verisign EPP SDK includes an implementation of the unhandled namespaces for the processing of the poll queue messages.

Level of maturity: Development

Coverage: All aspects of the protocol are implemented.

Licensing: GNU Lesser General Public License

Contact: jgould@verisign.com

URL: https://www.verisign.com/en_US/channel-resources/domain-registry-products/epp-sdks

7. Security Considerations

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

8. Acknowledgements

TBD

9. Normative References

[I-D.ietf-regext-change-poll]
Gould, J. and K. Feher, "Change Poll Extension for the Extensible Provisioning Protocol (EPP)", draft-ietf-regext-change-poll-08 (work in progress), May 2018.

[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>.

[RFC3735] Hollenbeck, S., "Guidelines for Extending the Extensible Provisioning Protocol (EPP)", RFC 3735, DOI 10.17487/RFC3735, March 2004, <https://www.rfc-editor.org/info/rfc3735>.

[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>.

[RFC5234] Crocker, D., Ed. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", STD 68, RFC 5234, DOI 10.17487/RFC5234, January 2008, <https://www.rfc-editor.org/info/rfc5234>.

[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>.

[RFC5910] Gould, J. and S. Hollenbeck, "Domain Name System (DNS) Security Extensions Mapping for the Extensible Provisioning Protocol (EPP)", RFC 5910, DOI 10.17487/RFC5910, May 2010, <https://www.rfc-editor.org/info/rfc5910>.

[RFC7942] Sheffer, Y. and A. Farrel, "Improving Awareness of Running Code: The Implementation Status Section", BCP 205, RFC 7942, DOI 10.17487/RFC7942, July 2016, <https://www.rfc-editor.org/info/rfc7942>.

Appendix A. Change History

Authors' Addresses

James Gould
VeriSign, Inc.
12061 Bluemont Way
Reston, VA 20190
US

Email: jgould@verisign.com
URI: http://www.verisigninc.com

Martin Casanova
SWITCH
P.O. Box
Zurich, ZH 8021
CH

Email: martin.casanova@switch.ch
URI: http://www.switch.ch