EXTENSIBLE PROVISIONING PROTOCOL EXTENSION MAPPING: <NAMESTORE EXTENSION>

Version 1.2

Table of Contents

1 Introduction

This document descrybes destination registry mapping for version 1.0 of the Extensible Provisioning Protocol (EPP). This mapping, an extension of the domain name mapping described in [EPP-D], and an extension of the host mapping described in [EPP-H], is specified using the Extensible Markup Language (XML) 1.0 as described in [XML] and XML Schema notation as described in [XMLS-1] and [XMLS-2].

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

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

2 Object Attributes

This extension adds additional elements to the domain name mapping described in [EPP-D] and the host mapping described in [EPP-H]. The term sub-product stands for target registry that the EPP operation is intended for, in the case that the EPP system is a gateway to multiple registries. Only new element descriptions are described here.

2.1 Sub-Product Identifier

The sub-product identifier is used to identify the target sub-product that the EPP operation is intended for. Valid values for the sub-product identifier are defined by the EPP implementation. The registry must validate that the sub-product identifier against valid values for the particular EPP implementation, and route the EPP operation accordingly.

3 EPP Command Mapping

A detailed description of the EPP syntax and semantics can be found in [EPP]. The command mappings described here are specifically for use in provisioning and managing command routing using a destination registry identifier via EPP.

3.1 EPP Query Commands

EPP provides three commands to retrieve object information: <check> to determine if an object is known to the server, <info> to retrieve detailed information associated with an object, and <transfer> to retrieve object transfer status information. The syntax of the Namestore extension is identical for all types of query commands.

3.1.1 EPP <check> Command

This extension defines additional elements for the EPP <check> command and response described in [EPP-D] and [EPP-H].

The EPP <check> command provides a transform operation that allows a client to create a domain object and host object. In addition to the EPP command elements described in [EPP-D] and [EPP-H], the command MUST contain an <extension> element. The <extension> element MUST contain a child <namestoreExt:namestoreExt> element that contains the following child elements:

- A <namestoreExt:subProduct> element that MUST contain a sub-product identifier specifying the target registry.

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:     xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
C:     xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0
C:     epp-1.0.xsd">
C:  <command>
C:    <check>
C:      <domain:check
C:       xmlns:domain="urn:ietf:params:xml:ns:domain-1.0"
C:       xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0
C:       domain-1.0.xsd">
C:        <domain:name>example1.cc</domain:name>
C:        <domain:name>example2.cc</domain:name>
C:        <domain:name>example3.cc</domain:name>
C:      </domain:check>
C:    </check>
C:    <extension>
C:      <namestoreExt:namestoreExt
C:       xmlns:namestoreExt="http://www.verisign-grs.com/epp/namestoreExt-1.1"
C:       xsi:schemaLocation="http://www.verisign-grs.com/epp/namestoreExt-1.1
C:       namestoreExt-1.1.xsd">
C:         <namestoreExt:subProduct>dotCC</namestoreExt:subProduct>
C:      </namestoreExt:namestoreExt>
C:    </extension>
C:    <clTRID>ABC-12345</clTRID>
C:  </command>
C:</epp>
```

When a <check> command has been processed successfully, the EPP <chkData> element MUST contain child elements as described in [EPP-D] and [EPP-H]. In addition, the EPP <extension> element MUST contain a child <namestoreExt: namestoreExt> element that contains the following child elements:

- An <namestoreExt: subProduct> element that MUST contain the sub-product identifier that the operation was performed on.

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:     xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
S:     xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0
S:     epp-1.0.xsd">
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:       xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0
S:       domain-1.0.xsd">
S:        <domain:cd>
S:          <domain:name avail="1">example1.cc</domain:name>
S:        </domain:cd>
S:        <domain:cd>
S:          <domain:name avail="0">example2.cc</domain:name>
S:          <domain:reason>In use</domain:reason>
S:        </domain:cd>
S:        <domain:cd>
S:          <domain:name avail="1">example3.cc</domain:name>
S:        </domain:cd>
S:      </domain:chkData>
S:    </resData>
S:    <extension>
C:      <namestoreExt:namestoreExt
C:       xmlns:namestoreExt="http://www.verisign-grs.com/epp/namestoreExt-1.1"
C:       xsi:namestoreExt="http://www.verisign-grs.com/epp/namestoreExt-1.1
C:       namestoreExt-1.1.xsd">
C:         <namestoreExt:subProduct>dotCC</namestoreExt:subProduct>
C:      </namestoreExt:namestoreExt>
S:    </extension>
S:    <trID>
S:      <clTRID>ABC-12345</clTRID>
S:      <svTRID>54321-XYZ</svTRID>
S:    </trID>
S:  </response>
S:</epp>
```

When a <check> command has failed, the EPP <response> element MUST contain child elements as described in [EPP-D] and [EPP-H]. In addition, if the command response code is 2306 "Parameter value policy error", the EPP <extension> element MAY have a child <nsExtErrData> element that contains the following child elements:

- An <namestoreExt:msg> element containing a human-readable description of the error. The error code of the error MUST be identified with a "code" attribute. The language of the error is identified via an OPTIONAL "lang" attribute. If not specified, the default attribute value MUST be "en" (English).

  Error codes include:

Error Code	Error Text	Description
1	“Invalid sub-product”	Sub-product does not exist in this EPP instance.

Example <check> error response:

```
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:     xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0
S:     epp-1.0.xsd">
S:  <response>
S:    <result code="2306">
S:      <msg>Parameter value policy error</msg>
S:    </result>
S:    <extension>
S:      <namestoreExt:nsExtErrData
S:       xmlns:namestoreExt="http://www.verisign-grs.com/epp/namestoreExt-1.1"
S:       xsi:schemaLocation="http://www.verisign-grs.com/epp/namestoreExt-1.1
S:       namestoreExt-1.1.xsd">
S:          <namestoreExt:msg code="1">
S:                Invalid sub-product
S:          </namestoreExt:msg>
S:      </namestoreExt:dstErrData>
S:    </extension>
S:    <trID>
S:      <clTRID>ABC-12345</clTRID>
S:      <svTRID>54321-XYZ</svTRID>
S:    </trID>
S:  </response>
S:</epp>
```

3.1.2 EPP <info> Command

(as 3.1.1)

3.1.3 EPP <transfer> Command

(as 3.1.1)

3.2 EPP Transform Commands

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

3.2.1 EPP <create> Command

(as 3.1.1)

3.2.2 EPP <delete> Command

(as 3.1.1)

3.2.3 EPP <renew> Command

(as 3.1.1)

3.2.4 EPP <transfer> Command

(as 3.1.1)

3.2.5 EPP <update> Command

(as 3.1.1)

4 Formal Syntax

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

```
BEGIN
<?xml version="1.0" encoding="UTF-8"?>
<schema targetNamespace="http://www.verisign-grs.com/epp/namestoreExt-1.1"
xmlns="http://www.w3.org/2001/XMLSchema"
xmlns:namestoreExt="http://www.verisign-grs.com/epp/namestoreExt-1.1"
elementFormDefault="qualified">
      <annotation>
            <documentation>
             Extensible Provisioning Protocol v1.0 Namestore extension schema
             for destination registry routing.
             </documentation>
      </annotation>
      <!-- General Data types. -->
      <simpleType name="subProductType">
            <restriction base="token">
                  <minLength value="1"/>
                  <maxLength value="64"/>
            </restriction>
      </simpleType>
      <complexType name="extAnyType">
            <sequence>
                  <any namespace="##other" maxOccurs="unbounded"/>
            </sequence>
      </complexType>
      <!-- Child elements found in EPP commands and responses. -->
      <element name="namestoreExt" type="namestoreExt:namestoreExtType"/>
      <!-- Child elements of the <product> command. -->
      <complexType name="namestoreExtType">
            <sequence>
                  <element name="subProduct"
type="namestoreExt:subProductType"/>
            </sequence>
      </complexType>
      <!-- Child response elements. -->
      <element name="nsExtErrData" type="namestoreExt:nsExtErrDataType"/>

      <!-- <prdErrData> error response elements. -->
      <complexType name="nsExtErrDataType">
            <sequence>
                  <element name="msg" type="namestoreExt:msgType"/>
            </sequence>
      </complexType>
      <!-- <prdErrData> <msg> element. -->
      <complexType name="msgType">
            <simpleContent>
                  <extension base="normalizedString">
                        <attribute name="code"
                        type="namestoreExt:prdErrCodeType" use="required"/>
                        <attribute name="lang" type="language" default="en"/>
                  </extension>
```

```
            </simpleContent>
      </complexType>
      <!-- <prdErrData> error response codes. -->
      <simpleType name="prdErrCodeType">
            <restriction base="unsignedShort">
                  <enumeration value="1"/>
            </restriction>
      </simpleType>
<!-- End of schema. -->
</schema>
END
```

5 References

[EPP] S. Hollenbeck: "Extensible Provisioning Protocol".

[EPP-D] S. Hollenbeck: "Extensible Provisioning Protocol Domain Name Mapping".

[EPP-H] S. Hollenbeck: "Extensible Provisioning Protocol Host Mapping".

[IETF-XML] M. Mealling: "The IETF XML Registry".

[ISO8601] ISO 8601:1988 (E): "Data elements and interchange formats -Information interchange - Representation of dates and times - The International Organization for Standardization".

[RFC2119] S. Bradner: "Key Words for Use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[XML] Editors T. Bray et al.: "Extensible Markup Language (XML) 1.0 (Second Edition)", W3C Recommendation 6 October 2000.

[XMLS-1] Editors H. Thompson et al.: "XML Schema Part 1: Structures", W3C Recommendation 2 May 2001.

[XMLS-2] Editors P. Biron, A. Malhotra: "XML Schema Part 2: Datatypes", W3C Recommendation 2 May 2001.