EXTENSIBLE PROVISIONING PROTOCOL MAPPING: <WHOWAS>

Version 1.0

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Change Log

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1 Introduction

This document describes a mapping for the Extensible Provisioning Protocol (EPP) [RFC5730]. This mapping 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]. The basis for this mapping is the EPP domain name mapping [RFC3731].

[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 this document.

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

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 [RFC2119].

In examples, “C:” represents lines sent by a protocol client and “S:” represents lines returned by a protocol server. Indentation in examples is provided only to illustrate element relationships and is not a REQUIRED feature of this protocol.

2 Object Attributes

An EPP WhoWas object has attributes and associated values that may be viewed by the sponsoring client or the server. This section describes each attribute type in detail.

2.1 Contact and Client Identifiers

All EPP contacts are identified by a server-unique identifier. Contact identifiers are character strings with a specified minimum length, a specified maximum length, and a specified format. Contact identifiers use the "clIDType" client identifier syntax described in [EPP].

2.2 Dates and Times

Date and time attribute values MUST be represented in Universal Coordinated Time (UTC) using the Gregorian calendar. The extended date-time form defined in [ISO8601] MUST be used to represent date- time values as XML Schema does not support truncated date-time forms.

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 WhoWas via EPP.

3.1 EPP <info> Command

EPP provides the <info> command that is used to retrieve history information based on the supplied entity identifier or entity name.

In addition to the standard EPP command elements, the <info> command MUST contain a <whowas:info> element that identifies the whowas namespace and the location of the WhoWas schema.

3.1.1 EPP <whowas:info> Command

The EPP <whowas:info> command is used to retrieve a history information of an entity, specified by the <whowas:type>, based on the supplied identifier or name. The <whowas:info> element MUST identify the WhoWas namespace and MAY identify the location of the WhoWas schema.

The <whowas:info> element MUST contain:

- A child <whowas:type> element that contains type of the entity whose history needs to be looked up.
- Followed by either:
  - A child <whowas:name> element that contains the name of an entity whose history needs to be looked up.
  - Or a child <whowas:roid> element that contains the identifier of an entity whose history needs to be looked up.

Example: WhoWas entity name 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:    <info>
C:      <whowas:info
C:       xmlns:whowas="http://www.verisign.com/epp/whowas-1.0"
C:       xsi:schemaLocation="http://www.verisign.com/epp/whowas-1.0
C:       whowas-1.0.xsd">
C:          <whowas:type>domain</whowas:type>
C:          <whowas:name>test.com</whowas:name>
C:      </whowas:info>
C:    </info>
C:    <clTRID>ABC-12345</clTRID>
C:  </command>
C:</epp>
```

Example: WhoWas entity identifier 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:    <info>
C:      <whowas:info
C:       xmlns:whowas="http://www.verisign.com/epp/whowas-1.0"
C:       xsi:schemaLocation="http://www.verisign.com/epp/whowas-1.0
C:       whowas-1.0.xsd">
C:          <whowas:type>domain</whowas:type>
C:          <whowas:roid>EXAMPLE1-REP</whowas:roid>
C:      </whowas:info>
C:    </info>
C:    <clTRID>ABC-12345</clTRID>
C:  </command>
C:</epp>
```

When an <info> command has been processed successfully, the EPP <resData> element MUST contain a child <whowas:infData> element that MUST identify the WhoWas namespace and MAY identify the location of the WhoWas schema. The <whowas:infData> element contains the following child elements:

- A <whowas:type> element that contains the type of the object whose history information has been retrieved.
- Followed by either a <whowas:name> element that contains the name or <whowas:roid> element that contains the identifier of an entity whose history information has been retrieved. The WhoWas EPP request drives the decision which element is returned, <whowas:name> element in case of a WhoWas entity name command or <whowas:roid> in case of a WhoWas entity identifier command.
- A <whowas:history> element that contains records with history information of the given entity. The <whowas:history> element MUST contain one or more of <whowas:rec> elements.
    - A <whowas:rec> element contains a single history record for the given entity name or identifier. The <whowas:rec> element MUST contain following elements:
        - A <whowas:date> element containing the date and time when the operation has been executed.
        - A <whowas:name> element containing the name of a entity whose information has been looked up.
        - An OPTIONAL <whowas:newName> element that contains a new name of the entity.
        - A <whowas:roid> element containing the identifier of an entity whose information has been looked up.
        - A <whowas:op> element containing the name of an operation that has been executed on an entity.
        - A <whowas:clID> element contain the identifier of an sponsoring client or, in case of TRANSFER related operation, the identifier of gaining client.
        - A <whowas:clName> element contain the full name of the client for the id returned in the <whowas:clID> element.

Example: WhoWas entity name response

```
S:<?xml version="1.0" encoding="UTF-8"?>
S:<epp
S:  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 epp-1.0.xsd">
S:   <response>
S:     <result code="1000">
S:       <msg>Command completed successfully</msg>
S:     </result>
S:   <resData>
S:     <whowas:infData xmlns:whowas="http://www.verisign.com/epp/whowas-1.0"
S:       xsi:schemaLocation="http://www.verisign.com/epp/whowas-1.0 whowas-
S:       1.0.xsd">
S:         <whowas:type>domain</whowas:type>
S:         <whowas:name>abc.com</whowas:name>
S:         <whowas:history>
S:           <whowas:rec>
S:             <whowas:date>2002-04-02T12:00:00</whowas:date>
S:             <whowas:name>abc.com</whowas:name>
S:             <whowas:roid>EXAMPLE1-REP</whowas:roid>
S:             <whowas:op>SERVER TRANSFER</whowas:op>
S:             <whowas:clID>ClientY</whowas:clID>
S:             <whowas:clName>Client Y Corporation</whowas:clName>
S:           </whowas:rec>
S:           <whowas:rec>
S:             <whowas:date>2002-02-02T12:00:00</whowas:date>
S:             <whowas:name>abc.com</whowas:name>
S:             <whowas:roid>EXAMPLE1-REP</whowas:roid>
S:             <whowas:op>TRANSFER</whowas:op>
S:             <whowas:clID>ClientZ</whowas:clID>
S:             <whowas:clName>Client Z Corporation</whowas:clName>
S:           </whowas:rec>
S:           <whowas:rec>
S:             <whowas:date>2001-12-31T12:00:00</whowas:date>
S:             <whowas:name>abc.com</whowas:name>
S:             <whowas:roid>EXAMPLE1-REP</whowas:roid>
S:             <whowas:op>CREATE</whowas:op>
S:             <whowas:clID>ClientX</whowas:clID>
S:             <whowas:clName>Client X Corporation</whowas:clName>
S:           </whowas:rec>
S:           <whowas:rec>
S:             <whowas:date>2001-07-31T12:00:00</whowas:date>
S:             <whowas:name>abc.com</whowas:name>
S:             <whowas:roid>EXAMPLE1-REP</whowas:roid>
S:             <whowas:op>DELETE</whowas:op>
S:             <whowas:clID>ClientX</whowas:clID>
S:             <whowas:clName>Client X Corporation</whowas:clName>
S:           </whowas:rec>
S:           <whowas:rec>
S:             <whowas:date>2001-01-01T12:00:00</whowas:date>
S:             <whowas:name>abc.com</whowas:name>
S:             <whowas:roid>EXAMPLE1-REP</whowas:roid>
S:             <whowas:op>CREATE</whowas:op>
```

```
S:              <whowas:clID>ClientX</whowas:clID>
S:              <whowas:clName>Client X Corporation</whowas:clName>
S:            </whowas:rec>
S:          </whowas:history>
S:      </whowas:infData>
S:    </resData>
S:    <trID>
S:      <clTRID>ABC-12345-XYZ</clTRID>
S:      <svTRID>492533639-1267047500333-17493700909</svTRID>
S:    </trID>
S: </response>
S:</epp>
```

Example: WhoWas entity identifier 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:      <whowas:infData xmlns:whowas="http://www.verisign.com/epp/whowas-1.0"
S:    xsi:schemaLocation="http://www.verisign.com/epp/whowas-1.0 whowas-1.0.xsd">
S:          <whowas:type>domain</whowas:type>
S:          <whowas:roid>EXAMPLE1-REP</whowas:roid>
S:          <whowas:history>
S:            <whowas:rec>
S:              <whowas:date>2010-01-03T22:05:30.0Z</whowas:date>
S:              <whowas:name>test.com</whowas:name>
S:              <whowas:roid>EXAMPLE1-REP</whowas:roid>
S:              <whowas:op>CREATE</whowas:op>
S:              <whowas:clID>ClientX</whowas:clID>
S:              <whowas:clName>Client X Corporation</whowas:clName>
S:            </whowas:rec>
S:            <whowas:rec>
S:              <whowas:date>2007-05-15T20:05:30.0Z</whowas:date>
S:              <whowas:name>test.com</whowas:name>
S:              <whowas:roid>EXAMPLE-REP</whowas:roid>
S:              <whowas:op>DELETE</whowas:op>
S:              <whowas:clID>ClientY</whowas:clID>
S:              <whowas:clName>Client Y Corporation</whowas:clName>
S:            </whowas:rec>
S:            <whowas:rec>
S:              <whowas:date>2006-05-15T20:05:30.0Z</whowas:date>
S:              <whowas:name>test.com</whowas:name>
S:              <whowas:roid>EXAMPLE-REP</whowas:roid>
S:              <whowas:op>TRANSFER</whowas:op>
S:              <whowas:clID>ClientY</whowas:clID>
S:              <whowas:clName>Client Y Corporation</whowas:clName>
S:            </whowas:rec>
S:            <whowas:rec>
S:              <whowas:date>2005-05-13T21:05:30.0Z</whowas:date>
S:              <whowas:name>test.com</whowas:name>
S:              <whowas:roid>EXAMPLE-REP</whowas:roid>
S:              <whowas:op>CREATE</whowas:op>
```

```
S:              <whowas:clID>ClientZ</whowas:clID>
S:              <whowas:clName>Client Z Corporation</whowas:clName>
S:            </whowas:rec>
S:          </whowas:history>
S:      </whowas:infData>
S:    </resData>
S:    <trID>
S:      <clTRID>ABC-12345</clTRID>
S:      <svTRID>54322-XYZ</svTRID>
S:    </trID>
S:  </response>
S:</epp>
```

An EPP error response MUST be returned if an <info> command can not be processed for any reason.

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.com/epp/whowas-1.0"
   xmlns:whowas="http://www.verisign.com/epp/whowas-1.0"
   xmlns:epp="urn:ietf:params:xml:ns:epp-1.0"
   xmlns:eppcom="urn:ietf:params:xml:ns:eppcom-1.0"
   xmlns="http://www.w3.org/2001/XMLSchema"
   elementFormDefault="qualified">

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

   <annotation>
     <documentation>
       Extensible Provisioning Protocol v1.0 WhoWas schema
     </documentation>
   </annotation>

   <element name="info" type="whowas:infoType"/>
   <element name="infData" type="whowas:infDataType"/>

<!--
Child elements of the <info> command.
-->
   <complexType name="infoType">
     <sequence>
       <element name="type" type="eppcom:minTokenType"/>
       <choice>
         <element name="name" type="eppcom:labelType" />
         <element name="roid" type="eppcom:roidType" />
       </choice>
     </sequence>
    </complexType>

<!--
Child elements of the <infData> command.
-->
   <complexType name="infDataType">
     <sequence>
       <element name="type" type="eppcom:minTokenType"/>
       <choice>
         <element name="name" type="eppcom:labelType" />
         <element name="roid" type="eppcom:roidType" />
       </choice>
       <element name="history" type="whowas:historyType" />
     </sequence>
   </complexType>

   <complexType name="historyType">
     <sequence>
```

```
      <element name="rec" type="whowas:recType"  minOccurs="0"
maxOccurs="unbounded"/>
    </sequence>
  </complexType>

  <complexType name="recType">
    <sequence>
      <element name="date" type="dateTime" />
      <element name="name" type="eppcom:labelType" />
      <element name="newName" type="eppcom:labelType" minOccurs="0"/>
      <element name="roid" type="eppcom:roidType" />
      <element name="op" type="eppcom:minTokenType" />
      <element name="clID" type="eppcom:clIDType" />
      <element name="clName" type="eppcom:labelType" />
    </sequence>
   </complexType>
<!--
End of schema.
-->
</schema>
```

END

5 References

Document all references.

[RFC5730] Hollenbeck, S., "Extensible Provisioning Protocol (EPP)", RFC 5730, August 2009.

[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.