



EXTENSIBLE PROVISIONING PROTOCOL MAPPING: <LOW BALANCE>

Version 1.2

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Change Log

Author(s)	Date	Revision	Description
Mahendra Jain	03/26/2004	1.0	Initial Revision
James Gould	5/23/2004	1.1	Small editorial fixes including the EPP RFC reference.
James Gould	7/2/2012	1.2	Added the Object Attributes section and removed some extraneous sections.

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1. Introduction

This document describes an Extensible Provisioning Protocol (EPP) mapping for the Account Low Balance Notification. An account will be notified whenever the Available Credit for an account reaches or goes below the Credit Threshold via EPP poll.

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 [\[XMLS-2\]](#). [\[EPP\]](#) 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

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

2.1 Currency Attribute Values

All of the EPP Balance currency object attributes including the `creditLimit`, `creditThreshold` (FIXED), and `availableCredit` use the XML [normalizedString](#) data type to represent the currency value in the currency of the server.

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 Account Low Balance Notification via EPP.

3.1 EPP <poll> Command

The EPP <poll> command and response is defined in [section 2.9.2.3](#) of [\[EPP\]](#). The Low Balance Notification is an [\[EPP\]](#) response used in an EPP <poll> response.

For the Low Balance Notification, poll messages apply whenever the Available Credit for an account reaches or goes below Credit Threshold. In the case of a Low Balance specific message, a <lowbalance-poll:pollData> element will be included within the <resData> element of the standard <poll> response. The <lowbalance-poll:pollData> element will include a reference to the Low Balance namespace and schema location. EPP data contained within the <lowbalance-poll:pollData> element is formatted according to the lowbalance schema.

Example <poll> 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 epp-1.0.xsd">
C: <command>
C:   <poll op="req"/>
C:   <clTRID>ABC-12345</clTRID>
C: </command>
C:</epp>
```

The returned result code notes that a message has been returned in response to a <poll> command.

Below is an example <poll> response with Low Balance specific information. The element <lowbalance-poll:pollData > contains the lowbalance-specific data.

```
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 epp-1.0.xsd">
S: <response>
S:   <result code="1301">
S:     <msg>Command completed successfully; ack to dequeue</msg>
S:   </result>
S:   <msgQ count="1" id="12345">
```

```

S:      <qDate>2004-03-25T18:20:07.0078Z</qDate>
S:      <msg>Low Account Balance (SRS)</msg>
S: </msgQ>
S: <resData>
S:   <lowbalance-poll:pollData
        xmlns:lowbalance-poll=http://www.verisign.com/epp/lowbalance-poll-1.0
        xsi:schemaLocation="http://www.verisign.com/epp/lowbalance-poll-1.0
        lowbalance-poll-1.0.xsd">
S:      <lowbalance-poll:registrarName>Test Registrar</lowbalance-poll:registrarName>
S:      <lowbalance-poll:creditLimit>1000</lowbalance-poll:creditLimit>
S:      <lowbalance-poll:creditThreshold type="PERCENT">10</lowbalance-poll:creditThreshold>
S:      <lowbalance-poll:availableCredit>80</lowbalance-poll:availableCredit>
S:   </lowbalance-poll:pollData>
S: </resData>
S: <trID>
S:   <clTRID>ABC-12345</clTRID>
S:   <svTRID>54322-XYZ</svTRID>
S: </trID>
S: </response>
S:</epp>

```

A Low Balance specific <pollData> element MUST consist of the following elements/attributes:

Element	Attribute	Description
<lowbalance-poll:registrarName>		The Account Full Name reference as registrarName (String)
<lowbalance-poll:creditLimit>		The Credit Limit for the Account (String)
<lowbalance-poll:creditThreshold>		The lower limit for an account (String)
	type	The lower limit type for an account expressed as FIXED or as a PERCENT
<lowbalance-poll:availableCredit>		The Available Credit for the Account (String)

A client MUST acknowledge each response to dequeue the message and make subsequent messages available for retrieval. A client acknowledges messages by sending a <poll> command with the op attribute value of “ack” and the msgID attribute value set to the server-provided message id gleaned from the previous <poll> op command.

Example <poll> acknowledgement 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: <poll op="ack" msgID="12345"/>
C: <clTRID>ABC-12346</clTRID>
C: </command>
C:</epp>
```

A <poll> acknowledgement response notes the number of messages remaining in the queue and the ID of the next message available for retrieval.

Example <poll> acknowledgement 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: <msgQ count="4" id="12346"/>
S: <trID>
S: <clTRID>ABC-12346</clTRID>
S: <svTRID>54322-XYZ</svTRID>
S: </trID>
S: </response>
S:</epp>
```

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.

```
<?xml version="1.0" encoding="UTF-8"?>
  <schema targetNamespace="http://www.verisign.com/epp/lowbalance-poll-1.0"
    xmlns:lowbalance-poll="http://www.verisign.com/epp/lowbalance-poll-1.0"
    xmlns:eppcom="urn:ietf:params:xml:ns:eppcom-1.0"
    xmlns="http://www.w3.org/2001/XMLSchema"
    elementFormDefault="qualified">

    <!-- Import common element types.-->
    <import namespace="urn:ietf:params:xml:ns:eppcom-1.0"
      schemaLocation="eppcom-1.0.xsd"/>

    <annotation>
      <documentation>
        Extensible Provisioning Protocol v1.0
        VeriSign poll notification specification for low balance notifications.
      </documentation>
    </annotation>

    <!--Child elements found in EPP commands.-->
    <element name="pollData" type="lowbalance-poll:pollDataType"/>

    <!--Child elements of the <notifyData> element for the low balance.-->
    <complexType name="pollDataType">
      <sequence>
        <element name="registrarName" type="eppcom:labelType"/>
        <element name="creditLimit" type="normalizedString"/>
        <element name="creditThreshold"
          type="lowbalance-poll:thresholdType"/>
        <element name="availableCredit" type="normalizedString"/>
      </sequence>
    </complexType>

    <complexType name="thresholdType">
      <simpleContent>
        <extension base="normalizedString">
          <attribute name="type"
            type="lowbalance-poll:thresholdValueType"
            use="required"/>
        </extension>
      </simpleContent>
    </complexType>

    <simpleType name="thresholdValueType">
      <restriction base="token">
        <enumeration value="FIXED"/>
        <enumeration value="PERCENT"/>
      </restriction>
    </simpleType>

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

5. References

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

[[XML](#)] Editors T. Bray et al.: "Extensible Markup Language (XML) 1.0 (Second Edition)", W3C Recommendation 04 February 2004.

[[XMLS-1](#)] Editors H. Thompson et al.: "XML Schema Part 1: Structures", W3C Recommendation 28 October 2004.

[[XMLS-2](#)] Editors P. Biron, A. Malhotra: "XML Schema Part 2: Datatypes", W3C Recommendation 28 October 2004.