EPP 1.0 Gateway Resource Guide

REALTIME ccTLD EPP 1.0 SOLUTION

HEXONET's EPP 1.0 Gateway Platform is the first of its kind industry wide. Instead of repeated and costly implementation, as well as, maintenance for arduous individual connections for each and every country code Registry, the EPP 1.0 Gateway allows registrars to connect to these same Registries through a single elegant EPP 1.0 protocol connection. EPP 1.0 is the easy way to turn ccTLDs into a profit center.

HIGHLIGHTS

- Access over 100 ccTLDs via EPP
- Non-EPP ccTLDs made EPP compliant
- Real-time transactions
- Quickly open new revenue streams
- Sell high margin service add-ons

SUPPORTED ccTLDs

COUNTRY / ccTLD	COUNTRY / ccTLD	COUNTRY / ccTLD	COUNTRY / ccTLD
.AG - Antigua & Barbuda	.FR - France	.FM - Mic	.ES - Spain
.AM - Armenia	.GD - Grenada	.ME - Montenegro	.SE - Sweden
.AC - Ascension Island	.HN - Honduras	.MN - Mongolia	.CH - Switzerland
.AT - Austria	.IN - India	.MS - Montserrat	.TW - Taiwan
.BE - Belgium	.IO - Indian Ocean Territory	.NL - Netherlands	.TL - Timor-Leste
.BZ - Belize	.IM - Isle of Man	.NZ - New Zealand	.TK - Tokelau
.CA - Canada	.IT - Italy	.NU - Niue	.TM - Turkmenistan
.CM - Cameroon	.JP - Japan	.PL - Poland	.TC - Turks & Caicos
.CN - China	.KI - Kiribati	.RU - Russia Federation	.TV - Tuvalu
.CC - Cocos Keeling Islands	.LA - Laos Republic	.SH - Saint Helena	.UK - United Kingdom
.CX - Christmas Island	.LI - Liechtenstein	.VC - St. Vincent & Grenadines	.US - United States
.CZ - Czech Republic	.LU - Luxembourg	.SC - Seychelles	.VG - Virgin Islands (British)
.DK - Denmark	.MU - Mauritius	.SG - Singapore	.WS - West Samoa
.DE - Germany	.MX - Mexico	.GS - S. Georgia & Sandwich Is.	... and MORE!

HOW TO USE THIS GUIDE:

This resource guide provides the resellers an overview of the EPP 1.0 Gateway. Standard EPP RFC command and responses are provided for comparison testing the EPP 1.0 Gateway command and responses.

- Requires an account with HEXONET
- Test commands and responses with the EPP Gatway using account credentials
- Implement EPP Gateway for all your ccTLDs

Table of Contents

1 Introduction

The EPP 1.0 Gateway provides a strict RFC EPP compatible protocol for handling gTLDs and ccTLDs. The only exception is that the Gateway handles nameserver hosts as both attributes as well as objects. The actual model depends on each TLD and the registry managing it.

The Gateway also supports an optional key-value extension, which is only required for additional features like trustee services, multiple registrants or trade commands. This key-value extension encapsulates all command options for a particular TLD not supported by the core EPP protocol mappings.

1.1 Relevant RFC Documents

1.1.1 EPP Protocol and Object Mappings

- RFC 4930 (obsoletes RFC 3730)
  Extensible Provisioning Protocol (EPP)
  http://www.ietf.org/rfc/rfc4930.txt

- RFC 4931 (obsoletes RFC 3731)
  Extensible Provisioning Protocol (EPP) Domain Name Mapping
  http://www.ietf.org/rfc/rfc4931.txt

- RFC 4932 (obsoletes RFC 3732)
  Extensible Provisioning Protocol (EPP) Host Mapping
  http://www.ietf.org/rfc/rfc4932.txt

- RFC 4933 (obsoletes RFC 3733)
  Extensible Provisioning Protocol (EPP) Contact Mapping
  http://www.ietf.org/rfc/rfc4933.txt

- RFC 4934 (obsoletes RFC 3734)
  Extensible Provisioning Protocol (EPP) Transport over TCP
  http://www.ietf.org/rfc/rfc4934.txt

1.1.2 EPP Extension Mappings

- RFC 3735
  Guidelines for Extending the Extensible Provisioning Protocol (EPP)

http://www.ietf.org/rfc/rfc3735.txt

- RFC 3915
  Domain Registry Grace Period Mapping for the Extensible Provisioning Protocol (EPP)
  http://www.ietf.org/rfc/rfc3915.txt

- RFC 4114
  E.164 Number Mapping for the Extensible Provisioning Protocol (EPP)
  http://www.ietf.org/rfc/rfc4114.txt

- RFC 4310
  Domain Name System (DNS) Security Extensions Mapping for the Extensible Provisioning Protocol (EPP)
  http://www.ietf.org/rfc/rfc4310.txt

- RFC 5076
  ENUM Validation Information Mapping for the Extensible Provisioning Protocol
  http://www.ietf.org/rfc/rfc5076.txt

2 Transport

2.1 EPP over TCP

Connections must be created using TLS/SSL over TCP, to the respective live/test environment. Upon the establishment of a connection (client and server TLS/SSL handshake) the EPP Gateway server will send a greeting message to the client. Gateway pings by sending a “hello” command will also generate a greeting message back to the client.

Each EPP XML request must be encoded in UTF-8, and pre-pended by a 4 byte header, describing its total length in octets in network (big-endian) byte order.

3 Session Handling

To start an EPP Gateway session, the client must send a “login” command using valid credentials. An EPP Gateway session is closed by sending a “logout” command or simply by closing the TCP connection. After an initial greeting, clients can always query the Gateway by sending a “hello” command.

3.1 Hello

An EPP client MAY request a <greeting> from the EPP server at any time. Often this command is used for checking the status of the EPP server.

EPP Gateway Command

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
 <hello />
</epp>
```

EPP Gateway Response

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
  <greeting>
    <svID>ISPAPI EPP Server</svID>
    <svDate>2009-03-10T23:50:25.0Z</svDate>
    <svcMenu>
      <version>1.0</version>
      <lang>en</lang>
      <objURI>urn:ietf:params:xml:ns:contact-1.0</objURI>
      <objURI>urn:ietf:params:xml:ns:host-1.0</objURI>
      <objURI>urn:ietf:params:xml:ns:domain-1.0</objURI>
      <svcExtension>
        <extURI>http://schema.ispapi.net/epp/xml/keyvalue-1.0</extURI>
      </svcExtension>
    </svcMenu>
    <dcp>
      <access>
        <all/>
      </access>
      <statement>
        <purpose>
          <admin/>
          <prov/>
        </purpose>
        <recipient>
          <ours/>
          <public/>
        </recipient>
        <retention>
          <stated/>
        </retention>
      </statement>
    </dcp>
  </greeting>
</epp>
```

3.2 Login

An EPP Gateway session must be established before any operations can be sent to the gateway. Additionally, EPP limits login ID to a maximum of 16 characters.

EPP Gateway Command

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
 <command>
  <login>
   <clID>test.user</clID>
   <pw>test.passw0rd</pw>
   <options>
    <version>1.0</version>
    <lang>en</lang>
   </options>
   <svcs>
    <objURI>urn:ietf:params:xml:ns:host-1.0</objURI>
    <objURI>urn:ietf:params:xml:ns:contact-1.0</objURI>
    <objURI>urn:ietf:params:xml:ns:domain-1.0</objURI>
    <svcExtension>
     <extURI>http://schema.ispapi.net/epp/xml/keyvalue-1.0</extURI>
    </svcExtension>
   </svcs>
  </login>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
  <response>
    <result code="1000">
      <msg>Command completed successfully</msg>
    </result>
    <trID>
      <clTRID>ABC-12345</clTRID>
      <svTRID>RO-19205-1236728976252266</svTRID>
    </trID>
  </response>
</epp>
```

3.3 Logout

An EPP Gateway session in general should be must closed with the “Logout” command after all instructions are complete, unless for performance reasons you wish to keep the connection open. Please remember that the connection is automatically closed when the TCP timeout occurs or the TCP session is closed.

EPP Gateway Command

```
 <?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
 <command>
  <logout />
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
  <response>
    <result code="1500">
      <msg>Command completed successfully; ending session</msg>
    </result>
    <trID>
      <clTRID>ABC-12345</clTRID>
      <svTRID>RO-19205-1236729108540449</svTRID>
    </trID>
  </response>
</epp>
```

4 Domain Management

Once a session is established the complete set of domain management commands can be issued from checking domain availability, creating a domain, updating a domain's objects, to even deleting a domain. EPP commands issued to the EPP Gateway are process in REAL-TIME and responded back to the client.

4.1 Check Domain Availability

EPP Gateway Command

Example <check> command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <command>
  <check>
   <domain:check
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>example.com</domain:name>
     <domain:name>example.net</domain:name>
     <domain:name>example.org</domain:name>
   </domain:check>
  </check>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

Example <check> response:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <response>
  <result code="1000">
   <msg>Command completed successfully</msg>
  </result>
  <resData>
   <domain:chkData
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:cd>
      <domain:name avail="1">example.com</domain:name>
     </domain:cd>
     <domain:cd>
      <domain:name avail="0">example.net</domain:name>
      <domain:reason>In use</domain:reason>
     </domain:cd>
     <domain:cd>
      <domain:name avail="1">example.org</domain:name>
     </domain:cd>
   </domain:chkData>
  </resData>
  <trID>
   <clTRID>ABC-12345</clTRID>
   <svTRID>54322-XYZ</svTRID>
  </trID>
 </response>
</epp>
```

4.2 Domain Name server Handling

Name server hosts for domain delegation can be specified as either references to existing host objects or as domain attributes, which describe a host machine. When using domain attributes to describe a name server host, IP addresses should be specified to generate proper DNS glue records.

Name servers are specified within a <domain:ns> element. This element MUST contain one or more <domain:hostObj> elements or one (or more) <domain:hostAttr> elements. A <domain:hostObj> element contains the fully qualified name of a known name server host object.

A <domain:hostAttr> element contains the following child elements:

- A <domain:hostName> element that contains the fully qualified name of a host.
- Zero or more OPTIONAL <domain:hostAddr> elements that contain the IP addresses to be associated with the host.
  - Each element MAY contain an "IP" attribute to identify the IP address format.
  - Attribute value "v4" is used to denote an IPv4 address format.
  - Attribute value "v6" is used to denote an IPv6 address format.
  - If the "IP" attribute is not specified, "v4" is the default attribute value.
  - IP address syntax requirements are described in Section 2.5 of the EPP host mapping [RFC4932].

Domain Host Object Example

Example host object name server elements for domain example.com:

```
<domain:ns>
  <domain:hostObj>ns1.example.com</domain:hostObj>
  <domain:hostObj>ns1.example.net</domain:hostObj>
</domain:ns>
```

Domain Host Attribute Example

Example host attribute name server elements for domain example.com:

```
<domain:ns>
  <domain:hostAttr>
    <domain:hostName>ns1.example.com</domain:hostName>
    <domain:hostAddr ip="v4">192.0.2.2</domain:hostAddr>
    <domain:hostAddr ip="v6">1080:0:0:0:8:800:200C:417A</domain:hostAddr>
  </domain:hostAttr>
  <domain:hostAttr>
    <domain:hostName>ns1.example.net</domain:hostName>
  </domain:hostAttr>
</domain:ns>
```

4.3 Create Domain – Using NS Objects

The create command allows the creation of a domain name. During the domain creation process other objects important to a domain are also created.

EPP Gateway Command

Example <create> command:

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

EPP Gateway Response

Example <create> response:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
  <response>
    <result code="1000">
      <msg>Command completed successfully</msg>
    </result>
    <resData>
      <domain:creData
       xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
        <domain:name>example.com</domain:name>
        <domain:crDate>1999-04-03T22:00:00.0Z</domain:crDate>
        <domain:exDate>2001-04-03T22:00:00.0Z</domain:exDate>
      </domain:creData>
    </resData>
    <trID>
      <clTRID>ABC-12345</clTRID>
      <svTRID>54321-XYZ</svTRID>
    </trID>
  </response>
</epp>
```

4.4 Create Domain – Using NS Attributes

A create command allowing the creation of a domain name using <domain:hostAttr> instead of <domain:hostObj>, in the case where a registry requires creation of a domain through attributes and not objects. The EPP Gateway will automatically convert between the two for most registries.

EPP Gateway Command - SNIPPET

Example <create> command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <command>
  <create>
   <domain:create
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>example.com</domain:name>
     <domain:period unit="y">2</domain:period>
     <domain:ns>
       <domain:hostAttr>
         <domain:hostName>ns1.example.com</domain:hostName>
       </domain:hostAttr>
       <domain:hostAttr>
         <domain:hostName>ns1.example.net</domain:hostName>
       </domain:hostAttr>
     </domain:ns>
```

4.5 Query Domain – Using NS Objects

The EPP <info> command is used to retrieve information associated with a domain object.

EPP Gateway Command

Example <info> command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <command>
  <info>
   <domain:info
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name hosts="all">example.com</domain:name>
   </domain:info>
  </info>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

Example <info> response for an authorized client:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <response>
  <result code="1000">
   <msg>Command completed successfully</msg>
  </result>
  <resData>
   <domain:infData
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>example.com</domain:name>
     <domain:roid>EXAMPLE1-REP</domain:roid>
     <domain:status s="ok"/>
     <domain:registrant>jd1234</domain:registrant>
     <domain:contact type="admin">sh8013</domain:contact>
     <domain:contact type="tech">sh8013</domain:contact>
     <domain:ns>
       <domain:hostObj>ns1.example.com</domain:hostObj>
       <domain:hostObj>ns1.example.net</domain:hostObj>
     </domain:ns>
     <domain:host>ns1.example.com</domain:host>
     <domain:host>ns2.example.com</domain:host>
     <domain:clID>ClientX</domain:clID>
     <domain:crID>ClientY</domain:crID>
     <domain:crDate>1999-04-03T22:00:00.0Z</domain:crDate>
     <domain:upID>ClientX</domain:upID>
     <domain:upDate>1999-12-03T09:00:00.0Z</domain:upDate>
     <domain:exDate>2005-04-03T22:00:00.0Z</domain:exDate>
     <domain:trDate>2000-04-08T09:00:00.0Z</domain:trDate>
     <domain:authInfo>
       <domain:pw>2fooBAR</domain:pw>
     </domain:authInfo>
   </domain:infData>
  </resData>
  <trID>
   <clTRID>ABC-12345</clTRID>
   <svTRID>54322-XYZ</svTRID>
  </trID>
 </response>
</epp>
```

4.6 Query Domain – Using NS Attributes

This query command is used exactly as the Using NS Object sample above. The EPP Gateway determines between the registry differences on your behalf.

Example <info> command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <command>
  <info>
   <domain:info
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name hosts="all">example.com</domain:name>
   </domain:info>
  </info>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

4.7 Update Domain – Using NS Objects

The EPP <update> command allows modification of attributes of a domain object. The <update> command MUST contain a <domain:update> element that identifies the domain. The <domain:update> element contains the following child elements:

- A <domain:name> element that contains the fully qualified name of the domain object to be updated.
- An OPTIONAL <domain:add> element that contains attribute values to be added to the object.
- An OPTIONAL <domain:rem> element that contains attribute values to be removed from the object.
- An OPTIONAL <domain:chg> element that contains object attribute values to be changed.

EPP Gateway Command

Example <update> command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <command>
  <update>
   <domain:update
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>example.com</domain:name>
     <domain:add>
       <domain:ns>
         <domain:hostObj>ns2.example.com</domain:hostObj>
       </domain:ns>
       <domain:contact type="tech">mak21</domain:contact>
       <domain:status s="clientHold"
        lang="en">Payment overdue.</domain:status>
     </domain:add>
     <domain:rem>
       <domain:ns>
         <domain:hostObj>ns1.example.com</domain:hostObj>
       </domain:ns>
       <domain:contact type="tech">sh8013</domain:contact>
       <domain:status s="clientUpdateProhibited"/>
     </domain:rem>
     <domain:chg>
       <domain:registrant>sh8013</domain:registrant>
       <domain:authInfo>
         <domain:pw>2BARfoo</domain:pw>
       </domain:authInfo>
     </domain:chg>
   </domain:update>
  </update>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

Example <update> response:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <response>
  <result code="1000">
   <msg>Command completed successfully</msg>
  </result>
  <trID>
   <clTRID>ABC-12345</clTRID>
   <svTRID>54321-XYZ</svTRID>
  </trID>
 </response>
</epp> >
```

4.8 Update Domain – Using NS Attributes

In cases where a registry supports NS Attributes instead of NS Objects, replace <domain:hostObj> with <domain:hostAttr>. In most cases the EPP Gateway converts between different registries on your behalf.

EPP Gateway Command - SNIPPET

```
...
    <domain:add>
      <domain:ns>
       <domain:hostAttr>
        <domain:hostName>ns2.example.com</domain:hostName>
       </domain:hostAttr>
      </domain:ns>
      <domain:contact type="tech">mak21</domain:contact>
      <domain:status s="clientHold"
       lang="en">Payment overdue.</domain:status>
     </domain:add>
     <domain:rem>
      <domain:ns>
       <domain:hostAttr>
        <domain:hostName>ns1.example.com</domain:hostName>
       </domain:hostAttr>
      </domain:ns>
      <domain:contact type="tech">sh8013</domain:contact>
      <domain:status s="clientUpdateProhibited"/>
...
```

4.9 Delete Domain

The <delete> command allows a client to delete a domain object. In addition to the standard EPP command elements, the <delete> command MUST contain a <domain:delete> element that identifies the domain.

EPP Gateway Command

Example <delete> command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <command>
  <delete>
   <domain:delete
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>example.com</domain:name>
   </domain:delete>
  </delete>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

Example <delete> response:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
  <response>
    <result code="1000">
      <msg>Command completed successfully</msg>
      <extValue>
        <value xmlns:epp="urn:ietf:params:xml:ns:epp-1.0">
          <epp:undef/>
        </value>
        <reason>200 Command completed successfully</reason>
      </extValue>
    </result>
    <trID>
      <clTRID>ABC-12345</clTRID>
      <svTRID>RW-4537-1236722350498431</svTRID>
    </trID>
  </response>
</epp>
```

4.10 Renew Domain

The EPP Gateway <renew> command is used to extend the validity period of an existing domain. The elements needed to identify and extend the validity period of a domain include the current expiration date of the domain (<domain:curExpDate>) and the period to extend, which is measured in whole numbers and is of unit “y” for years.

EPP Gateway Command

Example <renew> command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <command>
  <renew>
   <domain:renew
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>example.com</domain:name>
     <domain:curExpDate>2000-04-03</domain:curExpDate>
     <domain:period unit="y">5</domain:period>
   </domain:renew>
  </renew>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

Example <renew> response:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <response>
  <result code="1000">
   <msg>Command completed successfully</msg>
  </result>
  <resData>
   <domain:renData
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>example.com</domain:name>
     <domain:exDate>2005-04-03T22:00:00.0Z</domain:exDate>
   </domain:renData>
  </resData>
  <trID>
   <clTRID>ABC-12345</clTRID>
   <svTRID>54322-XYZ</svTRID>
  </trID>
 </response>
</epp>
```

4.11 Request Domain Transfer

The <transfer> command is used to manage changes in domain sponsorship of an existing domain. Clients can “request”, “cancel”, “approve”, “reject”, or “query” a transfer request using the "op" command attribute.

A client who wishes to assume sponsorship of a known domain from another client uses the <transfer> command with the value of the "op" attribute set to "request". Once a transfer has been requested, the same client can cancel the request using a <transfer> command with the value of the "op" attribute set to "cancel". A request to cancel the transfer MUST be sent to the server before the current sponsoring client either approves or rejects the transfer request and before the server automatically processes the request due to responding client inactivity.

Once a transfer request has been received by the Gateway, the server MUST notify the current domain sponsor of the requested transfer. The current status of a pending <transfer> command for any domain can be found using the <transfer> query command.

The current domain sponsor MAY explicitly approve or reject the transfer request. The client can approve the request using a <transfer> command with the value of the "op" attribute set to "approve". Clients can reject the request using a <transfer> command with the value of the "op" attribute set to "reject". Automatically approving/rejecting transfer requests not explicitly approved or rejected by the current domain sponsor within a fixed amount of time is recommended and left to the developer to implement.

Objects eligible for transfer MUST have the associated authorization password to complete a <transfer> command.

EPP Gateway Command - Request

Example <transfer> request command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
  <command>
    <transfer op="request">
      <domain:transfer
       xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
        <domain:name>example.com</domain:name>
        <domain:period unit="y">1</domain:period>
        <domain:authInfo>
          <domain:pw>2fooBAR</domain:pw>
        </domain:authInfo>
      </domain:transfer>
    </transfer>
    <clTRID>ABC-12345</clTRID>
  </command>
</epp>
```

EPP Gateway Response - Request

Example <transfer> response:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
  <response>
    <result code="1001">
      <msg>Command completed successfully; action pending</msg>
    </result>
    <resData>
      <domain:trnData
       xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
        <domain:name>example.com</domain:name>
        <domain:trStatus>pending</domain:trStatus>
        <domain:reID>ClientX</domain:reID>
        <domain:reDate>2000-06-08T22:00:00.0Z</domain:reDate>
        <domain:acID>ClientY</domain:acID>
        <domain:acDate>2000-06-13T22:00:00.0Z</domain:acDate>
        <domain:exDate>2002-09-08T22:00:00.0Z</domain:exDate>
      </domain:trnData>
    </resData>
    <trID>
      <clTRID>ABC-12345</clTRID>
      <svTRID>54322-XYZ</svTRID>
    </trID>
  </response>
</epp>
```

EPP Gateway Command - Approve

Example <transfer> approve command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
 <epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
  <command>
    <transfer op="approve">
      <domain:transfer
       xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
        <domain:name>example.com</domain:name>
      </domain:transfer>
    </transfer>
    <clTRID>ABC-12345</clTRID>
  </command>
 </epp>
```

EPP Gateway Response – Approve

Example <transfer> approve response:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
 <epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
  <response>
    <result code="1000">
      <msg>Command completed successfully</msg>
    </result>
    <trID>
      <clTRID>ABC-12345</clTRID>
      <svTRID>54322-XYZ</svTRID>
    </trID>
  </response>
 </epp>
```

EPP Gateway Command - Reject

Example <transfer> reject command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
 <epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
  <command>
    <transfer op="reject">
      <domain:transfer
       xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
        <domain:name>example.com</domain:name>
      </domain:transfer>
    </transfer>
    <clTRID>ABC-12345</clTRID>
  </command>
 </epp>
```

EPP Gateway Response – Reject

Example <transfer> reject response:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
 <epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
  <response>
    <result code="1000">
      <msg>Command completed successfully</msg>
    </result>
    <trID>
      <clTRID>ABC-12345</clTRID>
      <svTRID>54322-XYZ</svTRID>
    </trID>
  </response>
 </epp>
```

EPP Gateway Command – Cancel

Example <transfer> cancel command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
 <epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
  <command>
    <transfer op="cancel">
      <domain:transfer
       xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
        <domain:name>example.com</domain:name>
      </domain:transfer>
    </transfer>
    <clTRID>ABC-12345</clTRID>
  </command>
 </epp>
```

EPP Gateway Response – Cancel

Example <transfer> cancel response:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
 <epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
  <response>
    <result code="1000">
      <msg>Command completed successfully</msg>
    </result>
    <trID>
      <clTRID>ABC-12345</clTRID>
      <svTRID>54322-XYZ</svTRID>
    </trID>
  </response>
 </epp>
```

EPP Gateway Command – Query

Example <transfer> query command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <command>
  <transfer op="query">
   <domain:transfer
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>example.com</domain:name>
     <domain:authInfo>
       <domain:pw roid="JD1234-REP">2fooBAR</domain:pw>
     </domain:authInfo>
   </domain:transfer>
  </transfer>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response - Query

Example <transfer> query response:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <response>
  <result code="1000">
   <msg>Command completed successfully</msg>
  </result>
  <resData>
   <domain:trnData
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>example.com</domain:name>
     <domain:trStatus>pending</domain:trStatus>
     <domain:reID>ClientX</domain:reID>
     <domain:reDate>2000-06-06T22:00:00.0Z</domain:reDate>
     <domain:acID>ClientY</domain:acID>
     <domain:acDate>2000-06-11T22:00:00.0Z</domain:acDate>
     <domain:exDate>2002-09-08T22:00:00.0Z</domain:exDate>
   </domain:trnData>
  </resData>
  <trID>
   <clTRID>ABC-12345</clTRID>
   <svTRID>54322-XYZ</svTRID>
  </trID>
 </response>
</epp>
```

5 Contact Management

The management of contacts via the EPP Gateway allows for easy checking, creation, deleting, and updating of domain contact handles.

5.1 Check Contact Availability

The EPP <check> command is used to determine if a contact exists. It provides a hint that allows a client to anticipate the success or failure of provisioning, changing or deleting an object.

EPP Gateway Command

Example <check> command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <command>
  <check>
   <contact:check
    xmlns:contact="urn:ietf:params:xml:ns:contact-1.0">
     <contact:id>sh8013</contact:id>
     <contact:id>sah8013</contact:id>
     <contact:id>8013sah</contact:id>
   </contact:check>
  </check>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

Example <check> response:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <response>
  <result code="1000">
   <msg>Command completed successfully</msg>
  </result>
  <resData>
   <contact:chkData
    xmlns:contact="urn:ietf:params:xml:ns:contact-1.0">
     <contact:cd>
      <contact:id avail="1">sh8013</contact:id>
     </contact:cd>
     <contact:cd>
      <contact:id avail="0">sah8013</contact:id>
      <contact:reason>In use</contact:reason>
     </contact:cd>
     <contact:cd>
      <contact:id avail="1">8013sah</contact:id>
     </contact:cd>
   </contact:chkData>
  </resData>
  <trID>
   <clTRID>ABC-12345</clTRID>
   <svTRID>54322-XYZ</svTRID>
  </trID>
 </response>
</epp>
```

5.2 Create Contact

EPP Gateway Command

Example <create> command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <command>
  <create>
   <contact:create
    xmlns:contact="urn:ietf:params:xml:ns:contact-1.0">
     <contact:id>sh8013</contact:id>
     <contact:postalInfo type="int">
       <contact:name>John Doe</contact:name>
       <contact:org>Example Inc.</contact:org>
       <contact:addr>
         <contact:street>123 Example Dr.</contact:street>
         <contact:street>Suite 100</contact:street>
         <contact:city>Dulles</contact:city>
         <contact:sp>VA</contact:sp>
         <contact:pc>20166-6503</contact:pc>
         <contact:cc>US</contact:cc>
       </contact:addr>
     </contact:postalInfo>
     <contact:voice x="1234">+1.7035555555</contact:voice>
     <contact:fax>+1.7035555556</contact:fax>
     <contact:email>jdoe@example.com</contact:email>
     <contact:authInfo>
       <contact:pw>2fooBAR</contact:pw>
     </contact:authInfo>
  </contact:create>
  </create>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

Example <create> response:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <response>
  <result code="1000">
    <msg>Command completed successfully</msg>
  </result>
  <resData>
    <contact:creData
     xmlns:contact="urn:ietf:params:xml:ns:contact-1.0">
      <contact:id>sh8013</contact:id>
      <contact:crDate>1999-04-03T22:00:00.0Z</contact:crDate>
    </contact:creData>
  </resData>
  <trID>
    <clTRID>ABC-12345</clTRID>
    <svTRID>54321-XYZ</svTRID>
  </trID>
 </response>
</epp>
```

5.3 Query Contact

The EPP <info> command is used to retrieve information associated with a contact object.

EPP Gateway Command

Example <info> command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
  <command>
    <info>
      <contact:info
       xmlns:contact="urn:ietf:params:xml:ns:contact-1.0">
        <contact:id>sh8013</contact:id>
        <contact:authInfo>
          <contact:pw>2fooBAR</contact:pw>
        </contact:authInfo>
      </contact:info>
    </info>
    <clTRID>ABC-12345</clTRID>
  </command>
</epp>
```

EPP Gateway Response

Example <info> response for an authorized client:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
  <response>
    <result code="1000">
      <msg>Command completed successfully</msg>
    </result>
    <resData>
      <contact:infData
       xmlns:contact="urn:ietf:params:xml:ns:contact-1.0">
        <contact:id>sh8013</contact:id>
        <contact:roid>SH8013-REP</contact:roid>
        <contact:status s="linked"/>
        <contact:status s="clientDeleteProhibited"/>
        <contact:postalInfo type="int">
          <contact:name>John Doe</contact:name>
          <contact:org>Example Inc.</contact:org>
          <contact:addr>
            <contact:street>123 Example Dr.</contact:street>
            <contact:street>Suite 100</contact:street>
            <contact:city>Dulles</contact:city>
            <contact:sp>VA</contact:sp>
            <contact:pc>20166-6503</contact:pc>
            <contact:cc>US</contact:cc>
          </contact:addr>
        </contact:postalInfo>
        <contact:voice x="1234">+1.7035555555</contact:voice>
        <contact:fax>+1.7035555556</contact:fax>
        <contact:email>jdoe@example.com</contact:email>
        <contact:clID>ClientY</contact:clID>
        <contact:crID>ClientX</contact:crID>
        <contact:crDate>1999-04-03T22:00:00.0Z</contact:crDate>
        <contact:upID>ClientX</contact:upID>
        <contact:upDate>1999-12-03T09:00:00.0Z</contact:upDate>
        <contact:trDate>2000-04-08T09:00:00.0Z</contact:trDate>
```

```
      <contact:authInfo>
         <contact:pw>2fooBAR</contact:pw>
       </contact:authInfo>
    </contact:infData>
    </resData>
    <trID>
      <clTRID>ABC-12345</clTRID>
      <svTRID>54322-XYZ</svTRID>
    </trID>
  </response>
</epp>
```

5.4 Update Contact

The EPP <update> command allows modification of attributes of a contact object. The <update> command MUST contain a <contact:update> element that identifies the contact.

The <contact:update> element contains the following child elements:

- A <contact:id> element that contains the unique id of the contact to be updated.
- An OPTIONAL <contact:add> element that contains attribute values to be added to the object.
- An OPTIONAL <contact:rem> element that contains attribute values to be removed from the object.
- An OPTIONAL <contact:chg> element that contains object attribute values to be changed.

EPP Gateway Command

Example <update> command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
  <command>
    <update>
      <contact:update
       xmlns:contact="urn:ietf:params:xml:ns:contact-1.0">
        <contact:id>sh8013</contact:id>
        <contact:add>
          <contact:status s="clientDeleteProhibited"/>
        </contact:add>
        <contact:chg>
          <contact:postalInfo type="int">
            <contact:org/>
            <contact:addr>
              <contact:street>124 Example Dr.</contact:street>
              <contact:street>Suite 200</contact:street>
              <contact:city>Dulles</contact:city>
              <contact:sp>VA</contact:sp>
              <contact:pc>20166-6503</contact:pc>
              <contact:cc>US</contact:cc>
            </contact:addr>
          </contact:postalInfo>
          <contact:voice>+1.7034444444</contact:voice>
          <contact:fax/>
```

```
      <contact:authInfo>
        <contact:pw>2fooBAR</contact:pw>
      </contact:authInfo>
    </contact:chg>
    </contact:update>
  </update>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

```
Example <update> response:

<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <response>
  <result code="1000">
   <msg>Command completed successfully</msg>
  </result>
  <trID>
   <clTRID>ABC-12345</clTRID>
   <svTRID>54321-XYZ</svTRID>
  </trID>
 </response>
</epp>
```

5.5 Delete Contact

The <delete> command allows a client to delete a contact object. In addition to the standard EPP command elements, the <delete> command MUST contain a <contact:delete> that identifies the contact.

EPP Gateway Command

```
Example <delete> command:

<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <command>
  <delete>
   <contact:delete xmlns:contact="urn:ietf:params:xml:ns:contact-1.0">
    <contact:id>sh8013</contact:id>
   </contact:delete>
  </delete>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

```
Example <delete> response:

<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <response>
  <result code="1000">
   <msg>Command completed successfully</msg>
  </result>
  <trID>
   <clTRID>ABC-12345</clTRID>
   <svTRID>54321-XYZ</svTRID>
  </trID>
 </response>
</epp>
```

6 Name server Host Management

The management of name servers via the EPP Gateway allows for easy checking, creation, deleting, and updating of name servers.

6.1 Check Host Availability

The EPP <check> command is used to determine if a name server host exists. It provides a hint that allows a client to anticipate the success or failure of provisioning, changing or deleting a name server host object.

EPP Gateway Command

Example <check> command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <command>
  <check>
   <host:check
    xmlns:host="urn:ietf:params:xml:ns:host-1.0">
     <host:name>ns1.example.com</host:name>
     <host:name>ns2.example.com</host:name>
     <host:name>ns3.example.com</host:name>
   </host:check>
  </check>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

Example <check> response:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <response>
  <result code="1000">
   <msg>Command completed successfully</msg>
  </result>
  <resData>
   <host:chkData
    xmlns:host="urn:ietf:params:xml:ns:host-1.0">
     <host:cd>
      <host:name avail="1">ns1.example.com</host:name>
     </host:cd>
     <host:cd>
      <host:name avail="0">ns2.example2.com</host:name>
      <host:reason>In use</host:reason>
     </host:cd>
     <host:cd>
      <host:name avail="1">ns3.example3.com</host:name>
     </host:cd>
   </host:chkData>
  </resData>
  <trID>
   <clTRID>ABC-12345</clTRID>
   <svTRID>54322-XYZ</svTRID>
  </trID>
 </response>
</epp>
```

6.2 Create Host

Name server hosts can be created using the <host:create> element. Child elements include:

- A <host:name> element that contains the fully qualified name of a host.
- Zero or more OPTIONAL <host:addr> elements that contain the IP addresses to be associated with the host.
  - Each element MAY contain an "IP" attribute to identify the IP address format.
  - Attribute value "v4" is used to denote an IPv4 address format.
  - Attribute value "v6" is used to denote an IPv6 address format.
  - If the "IP" attribute is not specified, "v4" is the default attribute value.

EPP Gateway Command

Example <create> command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <command>
  <create>
   <host:create
    xmlns:host="urn:ietf:params:xml:ns:host-1.0">
     <host:name>ns1.example.com</host:name>
     <host:addr ip="v4">192.0.2.2</host:addr>
     <host:addr ip="v4">192.0.2.29</host:addr>
     <host:addr ip="v6">1080:0:0:0:8:800:200C:417A</host:addr>
   </host:create>
  </create>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

Example <create> response:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <response>
  <result code="1000">
   <msg>Command completed successfully</msg>
  </result>
  <resData>
   <host:creData
    xmlns:host="urn:ietf:params:xml:ns:host-1.0">
     <host:name>ns1.example.com</host:name>
     <host:crDate>1999-04-03T22:00:00.0Z</host:crDate>
   </host:creData>
  </resData>
  <trID>
   <clTRID>ABC-12345</clTRID>
   <svTRID>54322-XYZ</svTRID>
  </trID>
 </response>
</epp>
```

6.3 Query Host

The EPP <info> command is used to retrieve information associated with a host object.

EPP Gateway Command

Example <info> command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <command>
  <info>
   <host:info
    xmlns:host="urn:ietf:params:xml:ns:host-1.0">
     <host:name>ns1.example.com</host:name>
   </host:info>
  </info>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

Example <info> response:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <response>
  <result code="1000">
   <msg>Command completed successfully</msg>
  </result>
  <resData>
   <host:infData
    xmlns:host="urn:ietf:params:xml:ns:host-1.0">
     <host:name>ns1.example.com</host:name>
     <host:roid>NS1_EXAMPLE1-REP</host:roid>
     <host:status s="linked"/>
     <host:status s="clientUpdateProhibited"/>
     <host:addr ip="v4">192.0.2.2</host:addr>
     <host:addr ip="v4">192.0.2.29</host:addr>
     <host:addr ip="v6">1080:0:0:0:8:800:200C:417A</host:addr>
     <host:clID>ClientY</host:clID>
     <host:crID>ClientX</host:crID>
     <host:crDate>1999-04-03T22:00:00.0Z</host:crDate>
     <host:upID>ClientX</host:upID>
     <host:upDate>1999-12-03T09:00:00.0Z</host:upDate>
     <host:trDate>2000-04-08T09:00:00.0Z</host:trDate>
   </host:infData>
  </resData>
  <trID>
   <clTRID>ABC-12345</clTRID>
   <svTRID>54322-XYZ</svTRID>
  </trID>
 </response>
</epp>
```

6.4 Update Host

The EPP <update> command for name sever hosts allows modification of attributes of a host object. The <update> command MUST contain a <host:update> element that identifies the host.

The <host:update> element contains the following child elements:

- A <host:name> element that contains full qualified name of the host to be updated.
- An OPTIONAL <host:add> element that contains attribute values to be added to the object.
- An OPTIONAL <host:rem> element that contains attribute values to be removed from the object.
- An OPTIONAL <host:chg> element that contains object attribute values to be changed.

EPP Gateway Command

Example <update> command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <command>
  <update>
   <host:update
    xmlns:host="urn:ietf:params:xml:ns:host-1.0">
     <host:name>ns1.example.com</host:name>
     <host:add>
       <host:addr ip="v4">192.0.2.22</host:addr>
       <host:status s="clientUpdateProhibited"/>
     </host:add>
     <host:rem>
       <host:addr ip="v6">1080:0:0:0:8:800:200C:417A</host:addr>
     </host:rem>
     <host:chg>
       <host:name>ns2.example.com</host:name>
     </host:chg>
   </host:update>
  </update>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

Example <update> response:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <response>
  <result code="1000">
   <msg>Command completed successfully</msg>
  </result>
  <trID>
   <clTRID>ABC-12345</clTRID>
   <svTRID>54321-XYZ</svTRID>
  </trID>
 </response>
</epp>
```

6.5 Delete Host

The <delete> command allows a client to delete a name server host object. In addition to the standard EPP command elements, the <delete> command MUST contain a <host:delete> that identifies the host.

EPP Gateway Command

Example <delete> command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <command>
   <delete>
     <host:delete xmlns:host="urn:ietf:params:xml:ns:host-1.0">
       <host:name>ns1.example.com</host:name>
     </host:delete>
   </delete>
   <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

Example <delete> response:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <response>
   <result code="1000">
     <msg>Command completed successfully</msg>
   </result>
   <trID>
     <clTRID>ABC-12345</clTRID>
     <svTRID>54321-XYZ</svTRID>
   </trID>
 </response>
</epp>
```

7 Message Polling

Discover and retrieve service messages from the EPP Gateway.

7.1 Poll Message Queue

The EPP <poll> command is used to discover and retrieve service messages queued by the EPP Gateway. Each response returned from the server will include a server-unique message identifier, which will be required for acknowledging the receipt of a message. A counter exists to indicate the number of messages in the queue. After a client has received a message, the client MUST respond to the message with an explicit acknowledgement to confirm that the message has been received to make the next message in the queue (if any) available for retrieval.

The <poll> command MUST be represented as an empty element with no child elements. An "op" attribute with value "req" is REQUIRED to retrieve the first message from the server message queue.

EPP Gateway Command

Example <poll> command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <command>
   <poll op="req"/>
   <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

Example <poll> response with object-specific information:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?> <epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <response>
   <result code="1301">
     <msg>Command completed successfully; ack to dequeue</msg>
   </result>
   <msgQ count="5" id="12345">
     <qDate>2000-06-08T22:00:00.0Z</qDate>
     <msg>Transfer requested.</msg>
   </msgQ>
   <resData>
     <obj:trnData
      xmlns:obj="urn:ietf:params:xml:ns:obj-1.0">
       <obj:name>example.com</obj:name>
       <obj:trStatus>pending</obj:trStatus>
       <obj:reID>ClientX</obj:reID>
       <obj:reDate>2000-06-08T22:00:00.0Z</obj:reDate>
       <obj:acID>ClientY</obj:acID>
       <obj:acDate>2000-06-13T22:00:00.0Z</obj:acDate>
       <obj:exDate>2002-09-08T22:00:00.0Z</obj:exDate>
     </obj:trnData>
   </resData>
```

```
  <trID>
    <clTRID>ABC-12345</clTRID>
    <svTRID>54321-XYZ</svTRID>
  </trID>
 </response>
</epp>
```

7.2 Acknowledge Message

After a client has received a message, the client MUST respond to the message with an explicit acknowledgement to confirm that the message has been received to make the next message in the queue (if any) available for retrieval.

The <poll> command MUST be represented as an empty element with no child elements. An "op" attribute (with value "ack") and a "msgID" attribute (whose value corresponds to the value of the "id" attribute copied from the <msg> element in the message being acknowledged) are REQUIRED to acknowledge receipt of a message.

EPP Gateway Command

Example <poll> acknowledgement command:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <command>
  <poll op="ack" msgID="12345"/>
  <clTRID>ABC-12346</clTRID>
 </command>
</epp>
```

EPP Gateway Response

Example <poll> acknowledgement response:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
 <response>
  <result code="1000">
   <msg>Command completed successfully</msg>
  </result>
  <msgQ count="4" id="12345"/>
  <trID>
   <clTRID>ABC-12346</clTRID>
   <svTRID>54322-XYZ</svTRID>
  </trID>
 </response>
</epp>
```

8 Extensions

The base EPP protocol does not support or make available some commands required to map all domain functionality. However, the EPP Gateway server supports xml base key-value extensions for this purpose.

8.1 Key-Value Extension

The EPP Gateway supports xml based key-value extensions, which enables the use of commands and parameters not supported by the base EPP protocol. Below is the formal syntax.

```
<?xml version="1.0" encoding="UTF-8"?>
<schema targetNamespace="http://schema.ispapi.net/epp/xml/keyvalue-1.0"
      xmlns:keyvalue="http://schema.ispapi.net/epp/xml/keyvalue-1.0"
      xmlns="http://www.w3.org/2001/XMLSchema"
      elementFormDefault="qualified">

<!-- Child elements found in EPP commands. -->
<element name="extension" type="keyvalue:extensionType"/>

<!-- Utility Types -->
<complexType name="extensionType">
 <sequence>
  <element name="kv" type="keyvalue:kvType" minOccurs="0" maxOccurs="unbounded"/>
 </sequence>
</complexType>

<complexType name="kvType">
 <attribute name="key" type="keyvalue:keyType" use="required"/>
 <attribute name="value" type="keyvalue:valueType" use="required"/>
</complexType>

<simpleType name="keyType">
 <restriction base="token">
  <minLength value="1"/>
  <pattern value="[A-Z0-9\-]*"/>
 </restriction>
</simpleType>

<simpleType name="valueType">
 <restriction base="token">
  <minLength value="0"/>
 </restriction>
</simpleType>

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

APPENDIX A – Working Examples

A.1 - Availability check for .com, .de, .co.uk and .eu Domains

EPP Gateway Command

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
 <command>
  <check>
   <domain:check xmlns:domain="urn:ietf:params:xml:ns:domain-1.0" xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0
domain-1.0.xsd">
     <domain:name>test12345.com</domain:name>
     <domain:name>test12345.de</domain:name>
     <domain:name>test12345.co.uk</domain:name>
     <domain:name>test12345.eu</domain:name>
   </domain:check>
  </check>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
  <response>
    <result code="1000">
      <msg>Command completed successfully</msg>
    </result>
    <resData>
      <domain:chkData xmlns:domain="urn:ietf:params:xml:ns:domain-1.0"
xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0 domain-1.0.xsd">
        <domain:cd>
          <domain:name avail="1">test12345.com</domain:name>
        </domain:cd>
        <domain:cd>
          <domain:name avail="1">test12345.de</domain:name>
        </domain:cd>
        <domain:cd>
          <domain:name avail="0">test12345.co.uk</domain:name>
        </domain:cd>
        <domain:cd>
          <domain:name avail="0">test12345.eu</domain:name>
        </domain:cd>
      </domain:chkData>
    </resData>
    <trID>
      <clTRID>ABC-12345</clTRID>
      <svTRID>RO-19205-1236956665315130</svTRID>
    </trID>
  </response>
</epp>
```

A.2 - Registration of a .eu Domain using Registrant Proxy

EPP Gateway Command

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
 <command>
  <create>
   <domain:create
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>trustee.eu</domain:name>
     <domain:period unit="y">1</domain:period>
     <domain:ns>
       <domain:hostObj>ns1.hexonet.net</domain:hostObj>
       <domain:hostObj>ns2.hexonet.net</domain:hostObj>
     </domain:ns>
     <domain:registrant>P-AIL28309</domain:registrant>
     <domain:contact type="admin">P-AIL28309</domain:contact>
     <domain:contact type="tech">P-AIL28309</domain:contact>
     <domain:contact type="billing">P-AIL28309</domain:contact>
     <domain:authInfo>
       <domain:pw>2fooBAR</domain:pw>
     </domain:authInfo>
   </domain:create>
  </create>
  <extension>
     <keyvalue:extension xmlns:keyvalue='http://schema.ispapi.net/epp/xml/keyvalue-1.0'>
        <keyvalue:kv key='X-EU-ACCEPT-TRUSTEE-TAC' value='1' />
     </keyvalue:extension>
  </extension>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
  <response>
     <result code="1000">
        <msg>Command completed successfully</msg>
        <extValue>
           <value xmlns:epp="urn:ietf:params:xml:ns:epp-1.0">
              <epp:undef/>
           </value>
           <reason>200 Command completed successfully</reason>
        </extValue>
     </result>
     <resData>
        <domain:creData xmlns:domain="urn:ietf:params:xml:ns:domain-1.0"
xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0 domain-1.0.xsd">
           <domain:name>trustee.eu</domain:name>
           <domain:crDate>2009-03-13T14:40:53.0Z</domain:crDate>
           <domain:exDate>2010-03-13T14:40:53.0Z</domain:exDate>
        </domain:creData>
     </resData>
     <extension>
        <keyvalue:extension xmlns:keyvalue="http://schema.ispapi.net/epp/xml/keyvalue-1.0"
xsi:schemaLocation="http://schema.ispapi.net/epp/xml/keyvalue-1.0 keyvalue-1.0.xsd"/>
     </extension>
     <trID>
        <clTRID>ABC-12345</clTRID>
        <svTRID>RW-14056-1236955253324925</svTRID>
     </trID>
  </response>
</epp>
```

A.3 - Monthly registration of a .de Domain using Trustee Service

EPP Gateway Command

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
 <command>
  <create>
   <domain:create
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>1month.de</domain:name>
     <domain:period unit="m">1</domain:period>
     <domain:ns>
       <domain:hostObj>ns1.hexonet.net</domain:hostObj>
       <domain:hostObj>ns2.hexonet.net</domain:hostObj>
     </domain:ns>
     <domain:registrant>P-AIL28309</domain:registrant>
     <domain:contact type="admin">P-AIL28309</domain:contact>
     <domain:contact type="tech">P-AIL28309</domain:contact>
     <domain:contact type="billing">P-AIL28309</domain:contact>
     <domain:authInfo>
       <domain:pw>2fooBAR</domain:pw>
     </domain:authInfo>
   </domain:create>
  </create>
  <extension>
     <keyvalue:extension xmlns:keyvalue='http://schema.ispapi.net/epp/xml/keyvalue-1.0'>
        <keyvalue:kv key='X-DE-ACCEPT-TRUSTEE-TAC' value='1' />
     </keyvalue:extension>
  </extension>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
  <response>
     <result code="1000">
        <msg>Command completed successfully</msg>
        <extValue>
           <value xmlns:epp="urn:ietf:params:xml:ns:epp-1.0">
              <epp:undef/>
           </value>
           <reason>200 Command completed successfully</reason>
        </extValue>
     </result>
     <resData>
        <domain:creData xmlns:domain="urn:ietf:params:xml:ns:domain-1.0"
xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0 domain-1.0.xsd">
           <domain:name>1month.de</domain:name>
           <domain:crDate>2009-03-13T14:40:53.0Z</domain:crDate>
           <domain:exDate>2009-04-13T02:40:47.0Z</domain:exDate>
        </domain:creData>
     </resData>
     <extension>
        <keyvalue:extension xmlns:keyvalue="http://schema.ispapi.net/epp/xml/keyvalue-1.0"
xsi:schemaLocation="http://schema.ispapi.net/epp/xml/keyvalue-1.0 keyvalue-1.0.xsd"/>
     </extension>
     <trID>
        <clTRID>ABC-12345</clTRID>
        <svTRID>RW-24056-1236955253334925</svTRID>
     </trID>
  </response>
</epp>
```

A.4 - Registration of a .de Domain multiple Holders and NS entries

EPP Gateway Command

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
 <command>
  <create>
   <domain:create
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>multiholder.de</domain:name>
     <domain:period unit="y">1</domain:period>
     <domain:registrant>P-AIL28309</domain:registrant>
     <domain:contact type="admin">P-AIL28309</domain:contact>
     <domain:contact type="tech">P-AIL28309</domain:contact>
     <domain:contact type="billing">P-AIL28309</domain:contact>
     <domain:authInfo>
       <domain:pw>2fooBAR</domain:pw>
     </domain:authInfo>
   </domain:create>
  </create>
  <extension>
     <keyvalue:extension xmlns:keyvalue='http://schema.ispapi.net/epp/xml/keyvalue-1.0'>
        <!-- OWNERCONTACT0 already set by <domain:registrant> -->
        <keyvalue:kv key='OWNERCONTACT1' value='P-ALX29517' />
        <keyvalue:kv key='OWNERCONTACT2' value='P-TAF28559' />
        <keyvalue:kv key='X-DE-NSENTRY0' value='www.multiholder.de IN A 194.50.187.165' />
        <keyvalue:kv key='X-DE-NSENTRY1' value='mail.multiholder.de IN A 194.50.187.165' />
        <keyvalue:kv key='X-DE-NSENTRY2' value='multiholder.de IN MX 100 mail.multiholder.de.' />
  </keyvalue:extension>
  </extension>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
  <response>
     <result code="1000">
        <msg>Command completed successfully</msg>
        <extValue>
           <value xmlns:epp="urn:ietf:params:xml:ns:epp-1.0">
              <epp:undef/>
           </value>
           <reason>200 Command completed successfully</reason>
        </extValue>
     </result>
     <resData>
        <domain:creData xmlns:domain="urn:ietf:params:xml:ns:domain-1.0"
xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0 domain-1.0.xsd">
           <domain:name>multiholder.de</domain:name>
           <domain:crDate>2009-03-13T15:23:43.0Z</domain:crDate>
           <domain:exDate>2010-03-13T15:23:40.0Z</domain:exDate>
        </domain:creData>
     </resData>
     <extension>
        <keyvalue:extension xmlns:keyvalue="http://schema.ispapi.net/epp/xml/keyvalue-1.0"
xsi:schemaLocation="http://schema.ispapi.net/epp/xml/keyvalue-1.0 keyvalue-1.0.xsd"/>
     </extension>
     <trID>
        <clTRID>ABC-12345</clTRID>
        <svTRID>RW-24056-1236957823007237</svTRID>
     </trID>
  </response>
</epp>
```

A.5 - Registration of an .ASIA Domain using provided CED Service

EPP Gateway Command

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
 <command>
  <create>
   <domain:create
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>trustee.asia</domain:name>
     <domain:period unit="y">1</domain:period>
     <domain:ns>
       <domain:hostObj>ns1.hexonet.net</domain:hostObj>
       <domain:hostObj>ns2.hexonet.net</domain:hostObj>
     </domain:ns>
     <domain:registrant>P-AIL28309</domain:registrant>
     <domain:contact type="admin">P-AIL28309</domain:contact>
     <domain:contact type="tech">P-AIL28309</domain:contact>
     <domain:contact type="billing">P-AIL28309</domain:contact>
     <domain:authInfo>
       <domain:pw>2fooBAR</domain:pw>
     </domain:authInfo>
   </domain:create>
  </create>
  <extension>
     <keyvalue:extension xmlns:keyvalue='http://schema.ispapi.net/epp/xml/keyvalue-1.0'>
        <keyvalue:kv key='X-ASIA-CED-ACCEPT-TRUSTEE-TAC' value='1' />
     </keyvalue:extension>
  </extension>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
  <response>
     <result code="1000">
        <msg>Command completed successfully</msg>
        <extValue>
           <value xmlns:epp="urn:ietf:params:xml:ns:epp-1.0">
              <epp:undef/>
           </value>
           <reason>200 Command completed successfully</reason>
        </extValue>
     </result>
     <resData>
        <domain:creData xmlns:domain="urn:ietf:params:xml:ns:domain-1.0"
xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0 domain-1.0.xsd">
           <domain:name>trustee.asia</domain:name>
           <domain:crDate>2009-03-13T15:23:43.0Z</domain:crDate>
           <domain:exDate>2010-03-13T15:23:40.0Z</domain:exDate>
        </domain:creData>
     </resData>
     <extension>
        <keyvalue:extension xmlns:keyvalue="http://schema.ispapi.net/epp/xml/keyvalue-1.0"
xsi:schemaLocation="http://schema.ispapi.net/epp/xml/keyvalue-1.0 keyvalue-1.0.xsd"/>
     </extension>
     <trID>
        <clTRID>ABC-12345</clTRID>
        <svTRID>RW-11131-1236957823008237</svTRID>
     </trID>
  </response>
</epp>
```

A.6 - Trade of a .eu Domain

EPP Gateway Command

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
 <command>
  <update>
   <domain:update
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>trustee.eu</domain:name>
     <domain:chg>
       <domain:registrant>P-AIL28309</domain:registrant>
     </domain:chg>
   </domain:update>
  </update>
  <extension>
     <keyvalue:extension xmlns:keyvalue='http://schema.ispapi.net/epp/xml/keyvalue-1.0'>
        <keyvalue:kv key='COMMAND' value='TradeDomain' />
     </keyvalue:extension>
  </extension>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
  <response>
     <result code="1000">
        <msg>Command completed successfully</msg>
        <extValue>
           <value xmlns:epp="urn:ietf:params:xml:ns:epp-1.0">
              <epp:undef/>
           </value>
           <reason>200 Command completed successfully</reason>
        </extValue>
     </result>
     <extension>
        <keyvalue:extension xmlns:keyvalue="http://schema.ispapi.net/epp/xml/keyvalue-1.0"
xsi:schemaLocation="http://schema.ispapi.net/epp/xml/keyvalue-1.0 keyvalue-1.0.xsd"/>
     </extension>
     <trID>
        <clTRID>ABC-12345</clTRID>
        <svTRID>RW-24056-1236958601247375</svTRID>
     </trID>
  </response>
</epp>
```

A.7 - Pushing a .co.uk Domain to another TAG

EPP Gateway Command

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
 <command>
  <update>
   <domain:update
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>push.co.uk</domain:name>
   </domain:update>
  </update>
  <extension>
     <keyvalue:extension xmlns:keyvalue='http://schema.ispapi.net/epp/xml/keyvalue-1.0'>
        <keyvalue:kv key='COMMAND' value='PushDomain' />
        <keyvalue:kv key='TARGET' value='NEW-TAG' />
     </keyvalue:extension>
  </extension>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

A.8 - Pushing a .de Domain to TRANSIT

EPP Gateway Command

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
 <command>
  <update>
   <domain:update
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>push.de</domain:name>
   </domain:update>
  </update>
  <extension>
     <keyvalue:extension xmlns:keyvalue='http://schema.ispapi.net/epp/xml/keyvalue-1.0'>
        <keyvalue:kv key='COMMAND' value='PushDomain' />
        <keyvalue:kv key='TARGET' value='TRANSIT' />
     </keyvalue:extension>
  </extension>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

A.9 - Pushing a .at Domain to Registry (billwithdraw)

EPP Gateway Command

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
 <command>
  <update>
   <domain:update
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>push.at</domain:name>
   </domain:update>
  </update>
  <extension>
     <keyvalue:extension xmlns:keyvalue='http://schema.ispapi.net/epp/xml/keyvalue-1.0'>
        <keyvalue:kv key='COMMAND' value='PushDomain' />
        <keyvalue:kv key='TARGET' value='REGISTRY' />
     </keyvalue:extension>
  </extension>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

A.10 - Activating AuthInfo1 for a .de Domain

EPP Gateway Command

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
 <command>
  <update>
   <domain:update
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>1month.de</domain:name>
     <domain:chg>
       <domain:auth><domain:pw>SECRET123</domain:pw></domain:auth>
     </domain:chg>
   </domain:update>
  </update>
  <extension>
     <keyvalue:extension xmlns:keyvalue='http://schema.ispapi.net/epp/xml/keyvalue-1.0'>
        <keyvalue:kv key='COMMAND' value='DENIC_CreateAuthInfo1' />
     </keyvalue:extension>
  </extension>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
  <response>
     <result code="1000">
        <msg>Command completed successfully</msg>
        <extValue>
           <value xmlns:epp="urn:ietf:params:xml:ns:epp-1.0">
              <epp:undef/>
           </value>
           <reason>200 Command completed successfully</reason>
        </extValue>
     </result>
     <extension>
        <keyvalue:extension xmlns:keyvalue="http://schema.ispapi.net/epp/xml/keyvalue-1.0"
xsi:schemaLocation="http://schema.ispapi.net/epp/xml/keyvalue-1.0 keyvalue-1.0.xsd">
           <keyvalue:kv key="X-DE-AUTHINFO1-EXPIRATIONDATE" value="2009-04-13"/>
        </keyvalue:extension>
     </extension>
     <trID>
        <clTRID>ABC-12345</clTRID>
        <svTRID>RW-19205-1236959001887629</svTRID>
     </trID>
  </response>
</epp>
```

A.11 - Deleting AuthInfo1 for a .de Domain

EPP Gateway Command

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
 <command>
  <update>
   <domain:update
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>1month.de</domain:name>
   </domain:update>
  </update>
  <extension>
     <keyvalue:extension xmlns:keyvalue='http://schema.ispapi.net/epp/xml/keyvalue-1.0'>
        <keyvalue:kv key='COMMAND' value='DENIC_DeleteAuthInfo1' />
     </keyvalue:extension>
  </extension>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
  <response>
     <result code="1000">
        <msg>Command completed successfully</msg>
        <extValue>
           <value xmlns:epp="urn:ietf:params:xml:ns:epp-1.0">
              <epp:undef/>
           </value>
           <reason>200 Command completed successfully</reason>
        </extValue>
     </result>
     <extension>
        <keyvalue:extension xmlns:keyvalue="http://schema.ispapi.net/epp/xml/keyvalue-1.0"
xsi:schemaLocation="http://schema.ispapi.net/epp/xml/keyvalue-1.0 keyvalue-1.0.xsd"/>
     </extension>
     <trID>
        <clTRID>ABC-12345</clTRID>
        <svTRID>RW-19205-1236959050891572</svTRID>
     </trID>
  </response>
</epp>
```

A.12 - Requesting AuthInfo2 for a .de Domain

EPP Gateway Command

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
 <command>
  <update>
   <domain:update
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
     <domain:name>1month.de</domain:name>
   </domain:update>
  </update>
  <extension>
     <keyvalue:extension xmlns:keyvalue='http://schema.ispapi.net/epp/xml/keyvalue-1.0'>
        <keyvalue:kv key='COMMAND' value='DENIC_CreateAuthInfo2' />
     </keyvalue:extension>
  </extension>
  <clTRID>ABC-12345</clTRID>
 </command>
</epp>
```

EPP Gateway Response

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
  <response>
     <result code="1000">
        <msg>Command completed successfully</msg>
        <extValue>
           <value xmlns:epp="urn:ietf:params:xml:ns:epp-1.0">
              <epp:undef/>
           </value>
           <reason>200 Command completed successfully</reason>
        </extValue>
     </result>
     <extension>
        <keyvalue:extension xmlns:keyvalue="http://schema.ispapi.net/epp/xml/keyvalue-1.0"
xsi:schemaLocation="http://schema.ispapi.net/epp/xml/keyvalue-1.0 keyvalue-1.0.xsd"/>
     </extension>
     <trID>
        <clTRID>ABC-12345</clTRID>
        <svTRID>RW-19205-1236959091115048</svTRID>
     </trID>
  </response>
</epp>
```