

Google

Google Account Ownership EPP Extension

Version 1.0

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1. Introduction

This document describes a Google account ownership extension for version 1.0 of the Extensible Provisioning Protocol (EPP) as described in RFC 5730 [1]. This mapping is an extension of the domain name mapping as described in RFC 5731 [2]. The mapping is specified using XML 1.0 as described in [4] and XML Schema Notation as described in [5].

This document follows the EPP extension guidelines specified in RFC 3735 [7].

2. Object Attributes

This extension adds additional elements to the EPP domain name mapping [2]. In particular, this extension adds an attribute which identifies which Google account should own the domain being provisioned. Google account ownership is distinct from the contact information associated with the domain, and is not to be presented in a WHOIS query for privacy reasons. Subordinate objects in the registry, such as hosts as described in [3] are transitively owned by the Google account owner of the domain.

The end user's intent to own a domain can be presented in

multiple ways depending on the way the EPP client collects this information. Additional steps verifying the end user's intent by the registry may be necessary, such as an email challenge notification indicating that the domain name is being registered, and that the user needs to verify this action in order for the registration to complete.

2.1 Google Account Email Address

This is a Google account email address. It may be a plain gmail address, e.g. example@gmail.com, or a "Google Apps For Your Domain" email address associated with a particular entity.

2.2 OAuth2 "Web Server" Flow Access Token

In this case, the EPP client has pre-authenticated the user's intent to register a domain in the registry with Google, and has retrieved an OAuth2 access token as defined in [6].

3. EPP Command Mapping

EPP syntax and semantics are defined in [1]. The command mappings below describe the association and associating of a domain with a Google account.

3.1. EPP Query Commands

EPP provides the <check>, <info>, <poll>, and <transfer> query commands to retrieve information about the domain and its provisioning. See [2] for more information on how domains are queried with EPP.

3.1.1. EPP <check> Command

This extension does not add any elements to the EPP <check> command request or response.

3.1.2. EPP <info> Command

This extension does not add any elements to the EPP <info> request. Additional elements are added to the EPP <info> response.

When an <info> request completes successfully for a domain, the <resData> element will contain information about the domain as specified in [2]. In the following <extension> element will be a <google:info> element identifying the namespace and schema location for the extension. Within <google:info> will be a <google:account> element containing

information relating to the Google account owner for the domain. Within `<google:account>` will be a `<google:account-email>` element containing the Google Mail address of the owner of the domain.

The `<google:info>` element will be present regardless if a Google account has been associated with the domain or not. If an account has not been associated with the domain, the `<google:account>` and its children will not be present.

Domain name registries which implement this EPP extension must only return domain objects to registrars which are sponsoring the domain. This is to preserve the privacy of the Google account owner such that only registrars which are and have sponsored the domain know about the Google account that owns it.

Below is a sample `<info>` containing Google account information. Sections of the response have been omitted for brevity.

```
<?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:infData
        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>example.com</domain:name>

          ... LINES REMOVED FOR BREVITY ...

      </domain:infData>
    </resData>
    <extension>
      <google:info
        xmlns:google="urn:google:google-account-epp-1.0"
        xsi:schemaLocation="urn:google:google-account-epp-1.0
        google-account-epp-1.0.xsd">
        <google:account>
          <google:account-email>example@gmail.com
          </google:account-email>
```

```
    </google:account>
  </google:info>
</extension>
```

... LINES REMOVED FOR BREVITY ...

```
</response>
</epp>
```

Below is an EPP <info> response for domains containing no Google account information:

```
<?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:infData
        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>example.com</domain:name>
```

... LINES REMOVED FOR BREVITY ...

```
      </domain:infData>
    </resData>
  <extension>
    <google:info
      xmlns:google="urn:google:google-account-epp-1.0"
      xsi:schemaLocation="urn:google:google-account-epp-1.0
      google-account-epp-1.0.xsd">
    </google:info>
  </extension>
```

... LINES REMOVED FOR BREVITY ...

```
</response>
</epp>
```

3.1.3. EPP <poll> Command

This extension does not add any elements to the EPP <poll> command request or response.

3.1.4. EPP <transfer> Command

This extension does not add any elements to the EPP <transfer> command request or response.

3.2. EPP Transform Commands

EPP provides the <create>, <delete>, <renew>, and <transfer>, and <update> transform commands. See [2] for more information on how domains are provisioned with EPP.

3.2.1. EPP <create> Command

This extension adds elements to the EPP <create> request. No additional elements are added to the EPP <create> response.

If a domain is to be created with Google account information, after the <create> command for a domain, the <extension> element must follow it containing a <google:create> element identifying the namespace and schema location for the extension. Within the <google:create> element must be a <google:account> element. Within <google:account> will be a <google:account-email> element containing the Google Mail address of the owner of the domain OR a <google:access-token> containing the access token containing the registrant's authenticated intent to register the domain with a particular Google account.

Below is an example of the EPP <create> command for a domain containing an email for the Google account owner. Lines have been removed for brevity.

```
<?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"
        xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0
        domain-1.0.xsd">
        <domain:name>example.com</domain:name>
```

... LINES REMOVED FOR BREVITY ...

```

    </domain:create>
</create>
<extension>
  <google:create
    xmlns:google="urn:google:google-account-epp-1.0"
    xsi:schemaLocation="urn:google:google-account-epp-1.0
      google-account-epp-1.0.xsd">
    <google:account>
      <google:account-email>example@gmail.com
      </google:account-email>
    </google:account>
  </google:create>
</extension>
<clTRID>ABC-12345</clTRID>
</command>
</epp>

```

Below is an example of the EPP <create> command for a domain with an access token:

```

<?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"
        xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0
          domain-1.0.xsd">
        <domain:name>example.com</domain:name>

                ... LINES REMOVED FOR BREVITY ...

      </domain:create>
    </create>
    <extension>
      <google:create
        xmlns:google="urn:google:google-account-epp-1.0"
        xsi:schemaLocation="urn:google:google-account-epp-1.0
          google-account-epp-1.0.xsd">
        <google:account>
          <google:access-token>1/fFAGRNJrulFTz70BzhT3Zg
          </google:access-token>
        </google:account>
      </google:create>
    </extension>
    <clTRID>ABC-12345</clTRID>

```

```
</command>
</epp>
```

3.2.2. EPP <delete> Command

This extension does not add any elements to the EPP <delete> command request or response.

3.2.3. EPP <renew> Command

This extension does not add any elements to the EPP <renew> command request or response.

3.2.4. EPP <transfer> Command

This extension does not add any elements to the EPP <transfer> command request or response.

3.2.4. EPP <update> Command

This extension adds elements to the EPP <update> request. No additional elements are added to the EPP <update> response.

If a domain is to be updated with Google account information, after the <update> command for a domain, the <extension> element must follow it containing a <google:update> element identifying the namespace and schema location for the extension. Within the <google:update> element, a <google:account> element is present to update the Google account information, or nothing is present to remove Google account information. Within <google:account> will be a <google:account-email> element containing the Google Mail address of the owner of the domain OR a <google:access-token> containing the access token containing the registrant's authenticated intent to register the domain with a particular Google account.

Below is an example of the EPP <update> command for a domain containing an email for the Google account owner.

```
<?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"
```

```

    xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0
    domain-1.0.xsd">
      <domain:name>example.com</domain:name>
    </domain:update>
  </create>
<extension>
  <google:update
  xmlns:google="urn:google:google-account-epp-1.0"
  xsi:schemaLocation="urn:google:google-account-epp-1.0
  google-account-epp-1.0.xsd">
    <google:account>
      <google:account-email>example@gmail.com
      </google:account-email>
    </google:account>
  </google:update>
</extension>
<clTRID>ABC-12345</clTRID>
</command>
</epp>

```

Below is an example of the EPP <update> command for a domain with an access token:

```

<?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"
        xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0
        domain-1.0.xsd">
        <domain:name>example.com</domain:name>
      </domain:update>
    </create>
  <extension>
    <google:update
      xmlns:google="urn:google:google-account-epp-1.0"
      xsi:schemaLocation="urn:google:google-account-epp-1.0
      google-account-epp-1.0.xsd">
      <google:account>
        <google:access-token>1/fFAGRNJru1FTz70BzhT3Zg
        </google:access-token>
      </google:account>
    </google:update>
  </extension>
  <clTRID>ABC-12345</clTRID>
</command>
</epp>

```


Below is an example of an EPP update command which removes Google account information:

```
<?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"
        xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0
        domain-1.0.xsd">
        <domain:name>example.com</domain:name>
      </domain:update>
    </create>
    <extension>
      <google:update
        xmlns:google="urn:google:google-account-epp-1.0"
        xsi:schemaLocation="urn:google:google-account-epp-1.0
        google-account-epp-1.0.xsd">
      </google:update>
    </extension>
    <clTRID>ABC-12345</clTRID>
  </command>
</epp>
```

4. Formal Syntax

EPP object mapping is specified with XML Schema notation. The schema is below between is --BEGIN-- and --END-- tags.

--BEGIN--

```
<?xml version="1.0" encoding="UTF-8"?>

<schema targetNamespace="urn:google:google-account-epp-1.0"
  xmlns:google="urn:google:google-account-epp-1.0"
  xmlns="http://www.w3.org/2001/XMLSchema"
  elementFormDefault="qualified">

  <annotation>
    <documentation>
      Extensible Provisioning Protocol v1.0 extension for
      Google account association with provisioned domains.
    </documentation>
  </annotation>
```

```

<element name="info">
  <complexType>
    <sequence>
      <element name="account" minOccurs="0">
        <complexType>
          <sequence>
            <element name="account-email" type="string" />
          </sequence>
        </complexType>
      </element>
    </sequence>
  </complexType>
</element>

<complexType name="association-type">
  <choice>
    <element name="account-email" type="string" />
    <element name="access-token" type="token" />
  </choice>
</complexType>

<element name="create">
  <complexType>
    <sequence>
      <element name="account" type="google:association-type" />
    </sequence>
  </complexType>
</element>

<element name="update">
  <complexType>
    <sequence>
      <element name="account"
        type="google:association-type"
        minOccurs="0" />
    </sequence>
  </complexType>
</element>
</schema>
--END--

```

5. References

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

[2] Hollenbeck, S., "Extensible Provisioning Protocol (EPP) Domain Name Mapping", RFC 5731, August 2009.

[3] Hollenbeck, S., "Extensible Provisioning Protocol (EPP) Host Mapping", RFC 5732, August 2009.

[4] Paoli, J., Sperberg-McQueen, C., Bray, T., and E. Maler, "Extensible Markup Language (XML) 1.0 (Second Edition)", W3C FirstEdition REC-xml-20001006, October 2000.

[5] Maloney, M., Beech, D., Mendelsohn, N., and H. Thompson, "XML Schema Part 1: Structures", W3C REC REC-xmlschema-1-20010502, May 2001.

[6] E. Hammer, D. Recordon, D. Hardt, "The OAuth 2.0 Authorization Protocol", draft-ietf-oauth-v2-23, January 21, 2012.

[7] Hollenbeck, S., "Guidelines for Extending the Extensible Provisioning Protocol (EPP)", RFC 3735, March 2004.