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Practice of Extensible Provisioning Protocol (EPP) extension mapping for
Chinese Domain Name
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Abstract

This document describes a practice of Extensible Provisioning Protocol (EPP) extension mapping for supporting Chinese domain names, especially for the variant Chinese names. Specified in XML, this mapping extends the EPP domain name mapping to provide additional features required by Chinese domain names.

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1. Introduction

As defined in [[RFC3743](#)], variant characters occur where a single conceptual character has two or more graphic representations, which may or may not be visually similar. Variant domain names contain one or more characters that have such variants. For a Chinese domain name, there may be several corresponding variant domain names.

This document describes a practice of Chinese domain name registry to handle variant domain names, particularly, an Extensible Provisioning Protocol (EPP) extension mapping which extends the EPP domain <create> command and <update> command.

According to the policy of this registration practice, a preferred variant Chinese domain name is delegated to the same registrant synchronously with the original Chinese domain name applied. The <create> command is extended to assign the preferred variant names when the registrants register Chinese domain names. In some cases, the registrant may require to modify the preferred variant name of its original name after the delegation. The <update> command is extended to modify the preferred variant domain names when the registrants need.

2. Terminology

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 and white space in examples are provided only to illustrate element relationships and are not a REQUIRED feature of this specification.

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.

3. EPP Command Mapping

A detailed description of the EPP syntax and semantics can be found in the EPP core protocol specification [[RFC5730](#)]. The command mappings described here are specifically for use in implementing Chinese domain name registration via EPP.

4. EPP <create> Command

This extension defines additional elements to extend the EPP <create> command described in the EPP domain mapping [[RFC5731](#)] for Chinese domain name registration.

In addition to the EPP command elements described in the EPP domain mapping [[RFC5731](#)], the <create> command MUST contain an <extension> element. The <extension> element MUST contain a child <variant:create> element that identifies the Chinese domain name namespace and the location of the Chinese domain name schema. The <variant:create> element contains a single <variant:name> element to indicate the preferred variant domain name.

Example <create> command:

```
C:<?xml version="1.0" encoding="UTF-8" standalone="no"?>
C:<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
C:  <command>
C:    <create>
C:      <domain:create
C:        xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
C:          <domain:name>xn--0zwm56d.xn--fiqs8s</domain:name>
C:          <domain:period unit="y">2</domain:period>
C:          <domain:registrar>jd1234</domain:registrar>
C:          <domain:contact type="admin">sh8013</domain:contact>
C:          <domain:contact type="tech">sh8013</domain:contact>
C:          <domain:authInfo>
C:            <domain:pw>2fooBAR</domain:pw>
C:          </domain:authInfo>
C:        </domain:create>
C:      </create>
C:    <extension:
C:      <variant:create
C:        xmlns:cnDomain="urn:iana:xml:ns: domain-1.0.xsd">
C:          <variant:domain>xn--g6w251d.xn--fiqz9s</variant:domain>
C:        </variant:create>
C:      </extension>
C:    <clTRID>ABC-12345</clTRID>
C:  </command>
C:</epp>
```

When an extended <create> command has been processed, the EPP response is just as described in [[RFC5731](#)].

Example <create> response:

```
S:<?xml version="1.0" encoding="UTF-8" standalone="no"?>
S:<epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
S:  <response>
S:    <result code="1000">
S:      <msg>Command completed successfully</msg>
S:    </result>
S:    <resData>
S:      <domain:creData
S:        xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
S:        <domain:name>xn--0zwm56d.xn--fiqs8s</domain:name>
S:        <domain:crDate>1999-04-03T22:00:00.0Z</domain:crDate>
S:        <domain:exDate>2001-04-03T22:00:00.0Z</domain:exDate>
S:      </domain:creData>
S:    </resData>
S:    <trID>
S:      <clTRID>ABC-12345</clTRID>
S:      <svTRID>54321-XYZ</svTRID>
S:    </trID>
S:  </response>
S:</epp>
```

5. EPP <update> Command

This extension defines additional elements to extend the EPP <update> command described in the EPP domain mapping [[RFC5731](#)] for Chinese domain name registration.

In addition to the EPP command elements described in the EPP domain mapping [[RFC5731](#)], the <update> command MUST contain an <extension> element. The <extension> element MUST contain a child <variant:update> element that identifies the Chinese domain name namespace and the location of the Chinese domain name schema. The <variant:update> element contains the following child elements:

An OPTIONAL <variant:add> element that contains attribute values to be added to the object.

An OPTIONAL <variant:rem> element that contains attribute values to be removed from the object.

An OPTIONAL <variant:chg> element that contains object attribute values to be changed.

At least one <variant:add>, <variant:rem>, or <variant:chg> element MUST be provided. The <variant:add>, <variant:rem> and <variant:chg>

elements contain the following child elements:

A `<variant:domain>` element contains the fully qualified name of the variant domain name object to be updated.

A `<variant:authInfo>` element that contains authorization information associated with the variant domain object.

Example `<update>` command:

```
C: <?xml version="1.0" encoding="UTF-8" standalone="no"?>
C: <epp xmlns="urn:ietf:params:xml:ns:epp-1.0">
C:   <command>
C:     <update>
C:       <domain:update
C:         xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
C:         <domain:name>xn--0zwm56d.xn--fiqs8s</domain:name>
C:         <domain:chg>
C:           <domain:registrar>sh8013</domain:registrar>
C:           <domain:authInfo>
C:             <domain:pw>2BARfoo</domain:pw>
C:           </domain:authInfo>
C:         </domain:chg>
C:       </domain:update>
C:     </update>
C:     <extension>
C:       <variant:update
C:         xmlns:domain="urn:ietf:params:xml:ns:domain-1.0">
C:         <variant:chg>
C:           <variant:domain>xn--g6w251d.xn--fiqz9s</variant:domain>
C:           <variant:authInfo>
C:             <variant:pw>2BARfoo</variant:pw>
C:           </variant:authInfo>
C:         </variant:chg>
C:       </variant:update>
C:     </extension>
C:     <clTRID>ABC-12345</clTRID>
C:   </command>
C: </epp>
```

When an extended `<update>` command has been processed, the EPP response is just as described in [[RFC5731](#)].

Example <update> response:

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

6. Formal Syntax

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

BEGIN

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

```
<schema targetNamespace="http://www.cnnic.net.cn/epp/domain-1.0"
  xmlns:cdn="http://www.cnnic.net.cn/epp/domain-1.0"
  xmlns:epp="urn:iana:xml:ns:epp-1.0"
  xmlns:eppcom="urn:iana:xml:ns:eppcom-1.0"
  xmlns="http://www.w3.org/2001/XMLSchema"
  elementFormDefault="qualified">
```

```
<!--
```

```
  Import common element types.
```

```
-->
```

```
<import namespace="urn:iana:xml:ns:eppcom-1.0"/>
```

```
<import namespace="urn:iana:xml:ns:epp-1.0"/>
```

```
<annotation>
```

```
  <documentation>
```

```
    Extensible Provisioning Protocol v1.0
```

```
    CDN Domain Extension Schema v1.0
```

```
  </documentation>
```

```
</annotation>
```



```
<!--
Child elements found in EPP commands.
-->
<element name="create" type="domainext:createType"/>
<element name="update" type="domainext:updateType"/>

<!--
Child elements of the <domainext:create> command
All elements must be present at time of creation
This label in <extension>
-->
<complexType name="createType">
  <sequence>
    <element name="variant" type="eppcom:labelType" minOccurs="0"/>
  </sequence>
</complexType>

<!--
Child elements of the <domainext:update> command
All elements must be present at time of creation
-->
<complexType name="updateType">
  <sequence>
    <element name="chg" type="domainext:chgType" minOccurs="0"/>
    <element name="add" type="domainext:addRemType" minOccurs="0"/>
    <element name="rem" type="domainext:addRemType" minOccurs="0"/>
  </sequence>
</complexType>

<complexType name="chgType">
  <sequence>
    <element name="variant" type="eppcom:labelType" minOccurs="0" />
  </sequence>
</complexType>

<complexType name="addRemType">
  <sequence>
    <element name="variant:domain" type="eppcom:labelType" />
  </sequence>
</complexType>

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


7. Internationalization Considerations

EPP is represented in XML, which provides native support for encoding information using the Unicode character set and its more compact representations including UTF-8. Conformant XML processors recognize both UTF-8 and UTF-16. Though XML includes provisions to identify and use other character encodings through use of an "encoding" attribute in an `<?xml?>` declaration, use of UTF-8 is RECOMMENDED.

As an extension of the EPP domain mapping, the elements, element content described in this document MUST inherit the internationalization conventions used to represent higher-layer domain and core protocol structures present in an XML instance that includes this extension.

8. IANA Considerations

to be added.

9. Security considerations

to be added

10. Acknowledgements

to be added

11. Normative References

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- [RFC5730] Hollenbeck, S., "Extensible Provisioning Protocol (EPP)", STD 69, [RFC 5730](#), August 2009.
- [RFC5731] Hollenbeck, S., "Extensible Provisioning Protocol (EPP) Domain Name Mapping", STD 69, [RFC 5731](#), August 2009.

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