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Mark and Signed Mark Objects Mapping  
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Abstract

Domain Name Registries (DNRs) may operate in special modes for certain periods of time enabling trademark holders to protect their rights during the introduction of a Top Level Domain (TLD).

One of those special modes of operation is the Sunrise Period. The Sunrise Period allows trademark holders an advance opportunity to register domain names corresponding to their trademarks before names are generally available to the public.

This document describes the format of a mark and a digitally signed mark used by trademark holders for registering domain names during the sunrise phase of generic Top Level Domains (gTLDs). Three types of mark objects are defined in this specification: registered trademarks, court-validated marks, and marks protected by statute or treaty.

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## 1. Introduction

Domain Name Registries (DNRs) may operate in special modes for certain periods of time enabling trademark holders to protect their rights during the introduction of a Top Level Domain (TLD).

One of those special modes of operation is the Sunrise Period. The Sunrise Period allows trademark holders an advance opportunity to register domain names corresponding to their trademarks before names are generally available to the public.

This specification was defined as part of the development of the ICANN Trademark Clearinghouse (TMCH). The ICANN TMCH is a global repository for trademark data used by DNRs, registrars and trademark holders during the registration process of domain names.

This document describes a mapping of the common elements found in trademark data. A digitally signed mark format is defined in order to support digital signatures on the mark. Finally a mapping for encoding the signed mark document is defined.

Three types of mark objects are defined in this specification: registered trademarks, court-validated marks, and marks protected by statute or treaty.

This specification is intended to be used in the gTLD space, but nothing precludes the use of this format by other entities.

The detailed policy regarding the public key infrastructure (PKI), authorized validators, and other requirements must be defined based on the local policy of the entities using this specification. In the case of gTLDs, the detailed policy regarding the use of this specification is defined in the Rights Protection Mechanism Requirements document (see [ICANN-TMCH]), and the PKI is defined in [I-D.ietf-eppext-tmch-func-spec]. Implementations will need to implement such a PKI (or an equivalent) in order for the signatures defined in this document to have any useful semantics.

The objects specified in this document can be referenced by application protocols like the Extensible Provisioning Protocol (EPP), defined in [RFC5730].

## 1.1. 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 RFC 2119 [RFC2119].

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

"signedMark-1.0" is used as an abbreviation for "urn:ietf:params:xml:ns:signedMark-1.0". The XML namespace prefix "smd" is used, but implementations MUST NOT depend on it and instead employ a proper namespace-aware XML parser and serializer to interpret and output the XML documents.

"mark-1.0" is used as an abbreviation for "urn:ietf:params:xml:ns:mark-1.0". The XML namespace prefix "mark" is used, but implementations MUST NOT depend on it and instead employ a proper namespace-aware XML parser and serializer to interpret and output the XML documents.

## 2. Object Description

This section defines the Mark and Signed Mark objects. Empty complex element types and abstract elements are defined to support additional Mark and Signed Mark definitions using XML schema substitution groups. Support for replacement through the XML schema substitution groups is included in the description of the objects.

This section defines some elements as OPTIONAL. If an element is not defined as OPTIONAL, then it MUST be included in the object.

The following elements are defined as telephone numbers: <mark:voice>, <mark:fax> and <smd:voice>. The representation of telephone numbers in this specification is derived from structures defined in [ITU.E164.2005]. Telephone numbers described in this mapping are character strings that MUST begin with a plus sign ("+", ASCII value 0x002B), followed by a country code defined in [ITU.E164.2005], followed by a dot (".", ASCII value 0x002E), followed by a sequence of digits representing the telephone number. An optional "x" attribute is provided to note telephone extension information.

The following elements are defined as email addresses: <mark:email> and <smd:email>. Email address syntax is defined in [RFC5322].

### 2.1. Holder and Contacts objects

Marks are linked to Holder objects and optionally linked to Contact objects. This section defines the <mark:holder> and <mark:contact> objects.

- o The child elements of <mark:holder> include:

- \* A <mark:name> element that contains the name of the individual holder of the mark. At least one of <mark:name> and <mark:org>

- MUST be specified, and `<mark:name>` is OPTIONAL if `<mark:org>` is specified.
- \* A `<mark:org>` element that contains the name of the organization holder of the mark. At least one of `<mark:name>` and `<mark:org>` MUST be specified, and `<mark:org>` is OPTIONAL if `<mark:name>` is specified.
  - \* A `<mark:addr>` element that contains the address information of the holder of a mark. A `<mark:addr>` contains the following child elements:
    - + One, two or three OPTIONAL `<mark:street>` elements that contains the holder's street address.
    - + A `<mark:city>` element that contains the holder's city.
    - + An OPTIONAL `<mark:sp>` element that contains the holder's state or province.
    - + An OPTIONAL `<mark:pc>` element that contains the holder's postal code.
    - + A `<mark:cc>` element that contains the holder's country code. This a two-character code from [ISO3166-2].
  - \* An OPTIONAL `<mark:voice>` element that contains the holder's voice telephone number.
  - \* An OPTIONAL `<mark:fax>` element that contains the holder's facsimile telephone number.
  - \* An OPTIONAL `<mark:email>` element that contains the email address of the holder.
- o The child elements of `<mark:contact>` include:
- \* A `<mark:name>` element that contains name of the responsible person.
  - \* An OPTIONAL `<mark:org>` element that contains the name of the organization of the contact.
  - \* A `<mark:addr>` element that contains the address information of the contact. A `<mark:addr>` contains the following child elements:

- + One, two or three OPTIONAL `<mark:street>` elements that contains the contact's street address.
- + A `<mark:city>` element that contains the contact's city.
- + An OPTIONAL `<mark:sp>` element that contains the contact's state or province.
- + An OPTIONAL `<mark:pc>` element that contains the contact's postal code.
- + A `<mark:cc>` element that contains the contact's country code. This a two-character code from [ISO3166-2].
- \* A `<mark:voice>` element that contains the contact's voice telephone number.
- \* An OPTIONAL `<mark:fax>` element that contains the contact's facsimile telephone number.
- \* A `<mark:email>` element that contains the contact's email address.

## 2.2. Mark

A `<mark:mark>` element that describes an applicant's prior right to a given domain name.

A `<mark:mark>` element substitutes for the `<mark:abstractMark>` abstract element to define a concrete definition of a mark. The `<mark:abstractMark>` element can be replaced by other mark definitions using the XML schema substitution groups feature.

The child elements of the `<mark:mark>` element include:

One or more `<mark:trademark>`, `<mark:treatyOrStatute>` and `<mark:court>` elements that contains the detailed information of marks.

- o A `<mark:trademark>` element that contains the following child elements:
  - \* A `<mark:id>` that uniquely identifies a mark in relation to a repository of marks potentially maintained by more than one issuer. A `<mark:id>` value is a concatenation of the local identifier, followed by a hyphen ("-", ASCII value 0x002D), followed by the issuer identifier.
  - \* A `<mark:markName>` element that contains the mark text string.

- \* One or more <mark:holder> elements that contains the information of the holder of the mark. An "entitlement" attribute is used to identify the entitlement of the holder, possible values are: owner, assignee and licensee.
- \* Zero or more OPTIONAL <mark:contact> elements that contains the information of the representative of the mark registration. A "type" attribute is used to identify the type of contact, possible values are: owner, agent or thirdparty.
- \* A <mark:jurisdiction> element that contains the two-character code of the jurisdiction where the trademark was registered. This is a two-character code from [WIPO.ST3].
- \* Zero or more OPTIONAL <mark:class> elements that contain the WIPO Nice Classification class numbers of the mark as defined in the WIPO Nice Classification [WIPO-NICE-CLASSES].
- \* Zero or more OPTIONAL <mark:label> elements that contain the A-label form (as defined in [RFC5890]) of the label that correspond to the <mark:markName>.
- \* A <mark:goodsAndServices> element that contains the full description of the goods and services mentioned in the mark registration document.
- \* An OPTIONAL <mark:apId> element that contains the trademark application ID registered in the trademark office.
- \* An OPTIONAL <mark:apDate> element that contains the date the trademark was applied for.
- \* A <mark:regNum> element that contains the trademark registration number registered in the trademark office.
- \* A <mark:regDate> element that contains the date the trademark was registered.
- \* An OPTIONAL <mark:exDate> element that contains the expiration date of the trademark.
- o A <mark:treatyOrStatute> element that contains the following child elements:
  - \* A <mark:id>, see definition in the <mark:trademark> section above.

- \* A <mark:markName>, see definition in the <mark:trademark> section above.
- \* One or more <mark:holder>, see definition in the <mark:trademark> section above.
- \* Zero or more OPTIONAL <mark:contact>, see definition in the <mark:trademark> section above.
- \* One or more <mark:protection> elements that contain the countries and region of the country where the mark is protected. The <mark:protection> element contains the following child elements:
  - + A <mark:cc> element that contains the two-character code of the country in which the mark is protected. This is a two-character code from [ISO3166-2].
  - + An OPTIONAL <mark:region> element that contains the name of a city, state, province or other geographic region of <mark:country> in which the mark is protected.
  - + Zero or more OPTIONAL <mark:ruling> elements that contains the two-character code of the national territory in which the statute or treaty is applicable. This is a two-character code from [ISO3166-2].
  - + Zero or more OPTIONAL <mark:label>, see definition in the <mark:trademark> section above.
- \* A <mark:goodsAndServices>, see definition in the <mark:trademark> section above.
- \* A <mark:refNum> element that contains the serial number of the mark.
- \* A <mark:proDate> element that contains the date of protection of the mark.
- \* A <mark:title> element that contains the title of the treaty or statute.
- \* A <mark:execDate> element that contains the execution date of the treaty or statute.
- o A <mark:court> element that contains the following child elements:



- \* A <mark:id>, see definition in the <mark:trademark> section above.
- \* A <mark:markName>, see definition in the <mark:trademark> section above.
- \* One or more <mark:holder>, see definition in the <mark:trademark> section above.
- \* Zero or more OPTIONAL <mark:contact>, see definition in the <mark:trademark> section above.
- \* Zero or more OPTIONAL <mark:label>, see definition in the <mark:trademark> section above.
- \* A <mark:goodsAndServices>, see definition in the <mark:trademark> section above.
- \* A <mark:refNum> element that contains the reference number of the court's opinion.
- \* A <mark:proDate> element that contains the date of protection of the mark.
- \* A <mark:cc> element that contains the two-character code of the country where the court is located. This a two-character code from [ISO3166-2].
- \* Zero or more OPTIONAL <mark:region> elements that contains the name of a city, state, province or other geographic region of <mark:cc> in which the mark is protected. In case <mark:region> is specified a default-deny approach MUST be assumed regarding the regions of a country.
- \* A <mark:courtName> element that contains the name of the court.

### 2.3. Signed Mark

The <smd:signedMark> is a digitally signed XML document using XML Signature [XMLDSIG]. The <smd:signedMark> XML document (SMD) includes a required "id" attribute of type XSD ID for use with an IDREF URI from the Signature element. The SMD might be transmitted as part of an already XML based protocol, therefore exclusive XML canonicalization as defined in [XMLC14N] MUST be used.

A <smd:signedMark> element substitutes for the <smd:abstractSignedMark> abstract element to define a concrete definition of a signed mark. The <smd:abstractSignedMark> element

can be replaced by other signed mark definitions using the XML schema substitution groups feature.

The child elements of the <smd:signedMark> element include:

- o The <smd:id> that uniquely identifies an SMD in relation to a repository of SMDs potentially maintained by more than one issuer. The <smd:id> value is a concatenation of the local identifier, followed by a hyphen ("-", ASCII value 0x002D), followed by the issuer identifier.
- o A <smd:issuerInfo> element that contains the information of the issuer of the mark registration. A "issuerID" attribute is used to specify the issuer identifier. The child elements include:
  - \* A <smd:org> element that contains the organization name of the issuer.
  - \* A <smd:email> element that contains the issuer customer support email address.
  - \* An OPTIONAL <smd:url> element that contains the HTTP or HTTPS URL of the issuer's site.
  - \* An OPTIONAL <smd:voice> element that contains the issuer's voice telephone number.
- o A <smd:notBefore> element that contains the creation date and time of the SMD.
- o A <smd:notAfter> element that contains the expiration date and time of the SMD.
- o A <mark:mark> element that contains the mark information as defined in the Mark (Section 2.2) section.

The following is an example of an SMD:

```
<?xml version="1.0" encoding="UTF-8"?>
<smd:signedMark xmlns:smd="urn:ietf:params:xml:ns:signedMark-1.0"
id="smdl">
  <smd:id>0000001751376056503931-65535</smd:id>
  <smd:issuerInfo issuerID="65535">
    <smd:org>ICANN TMCH TESTING TMV</smd:org>
    <smd:email>notavailable@example.com</smd:email>
    <smd:url>https://www.example.com</smd:url>
    <smd:voice>+32.000000</smd:voice>
  </smd:issuerInfo>
```

```
<smd:notBefore>2013-08-09T13:55:03.931Z</smd:notBefore>
<smd:notAfter>2017-07-23T22:00:00.000Z</smd:notAfter>
<mark:mark xmlns:mark="urn:ietf:params:xml:ns:mark-1.0">
  <mark:trademark>
    <mark:id>00052013734689731373468973-65535</mark:id>
    <mark:markName>Test & Validate</mark:markName>
    <mark:holder entitlement="owner">
      <mark:org>Ag corporation</mark:org>
      <mark:addr>
        <mark:street>1305 Bright Avenue</mark:street>
        <mark:city>Arcadia</mark:city>
        <mark:sp>CA</mark:sp>
        <mark:pc>90028</mark:pc>
        <mark:cc>US</mark:cc>
      </mark:addr>
    </mark:holder>
    <mark:contact type="agent">
      <mark:name>Tony Holland</mark:name>
      <mark:org>Ag corporation</mark:org>
      <mark:addr>
        <mark:street>1305 Bright Avenue</mark:street>
        <mark:city>Arcadia</mark:city>
        <mark:sp>CA</mark:sp>
        <mark:pc>90028</mark:pc>
        <mark:cc>US</mark:cc>
      </mark:addr>
      <mark:voice>+1.2025562302</mark:voice>
      <mark:fax>+1.2025562301</mark:fax>
      <mark:email>info@agcorporation.com</mark:email>
    </mark:contact>
    <mark:jurisdiction>US</mark:jurisdiction>
    <mark:class>15</mark:class>
    <mark:label>testandvalidate</mark:label>
    <mark:label>test---validate</mark:label>
    <mark:label>testand-validate</mark:label>
    <mark:label>test-et-validate</mark:label>
    <mark:label>test-validate</mark:label>
    <mark:label>test--validate</mark:label>
    <mark:label>test-etvalidate</mark:label>
    <mark:label>testetvalidate</mark:label>
    <mark:label>testvalidate</mark:label>
    <mark:label>testet-validate</mark:label>
    <mark:goodsAndServices>guitar</mark:goodsAndServices>
    <mark:regNum>1234</mark:regNum>
    <mark:regDate>2012-12-31T23:00:00.000Z</mark:regDate>
  </mark:trademark>
</mark:mark>
<Signature xmlns="http://www.w3.org/2000/09/xmldsig#">
```

```
<SignedInfo>
  <CanonicalizationMethod
Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#" />
  <SignatureMethod
Algorithm="http://www.w3.org/2001/04/xmldsig-more#rsa-sha256" />
  <Reference URI="#smd1">
    <Transforms>
      <Transform
Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-signature" />
      </Transforms>
    <DigestMethod
Algorithm="http://www.w3.org/2001/04/xmenc#sha256" />
    <DigestValue>wgyW3nZPoEfpptlhRILKnOQnbdU6ArM7ShrAfHgDFg=</DigestValue>
  </Reference>
</SignedInfo>
  <SignatureValue>
jMu4PFyQGijBF0GWSEPFcJjmywCEqR2h4LD+ge6XQ+JnmKFFCuCZS/3SLKAx0L1w
QDF02e0Y69k2G7/LGE37X3vOflobFMl0Gwja8+GMVraoto5xAd4/AF7eHukgAymD
o9toxo2h0yV4A4PmXzsU6S86XtCcUE+S/WM72nyn47zoUCzzPKHZBRYeWehVFQ+
jYRMIAMzM57HHQA+6eaXefRvtPETgU04aVIVSugc4OUAZZwbYcZrC6wOaQqqqAZi
30aPOBYbAvHMSmWSS+hFkbshomJfHxb97TD2grlYnRQIzqXk7WbHWy2SYdA+sI/Z
ipJsXNA6osTUw1CzA7jfwA==
  </SignatureValue>
  <KeyInfo>
    <X509Data>
      <X509Certificate>
MIIESTCCAzGgAwIBAgIBAjanBgkqhkiG9w0BAQsFADBIMQswCQYDVQQGEwJVUzEL
MAkGA1UECBMCQ0ExFDASBgNVBACTC0xvcyBBbmdlbGVzMRMwEQYDVQQKEwpJQ0FO
TiBUTUNIMRswGQYDVQQDEExJQ0FOTiBUTUNIIFRFU1QgQ0EwHhcNMjMwMjA4MDAw
MDAwWhcNMjMwMjA4MDAwMjMwMjA4MDAwWJEsMCMwEQYDVQQKEwJVUzELMAkGA1UECBMCQ0Ex
FDASBgNVBACTC0xvcyBBbmdlbGVzMRcwFQYDVQQKEw5WYWxpZGF0b3IgcVE1DSDEh
MB8GA1UEAxMYVmFsaWRhdG9yIFRnQ0ggVEVTVCBDRVJUMIIBIjanBgkqhkiG9w0B
AQEFAAOCAQ8AMIIBCgKCAQEAo/cwvXhbVYl0RDWWvOyeZpETVZVVCmCovUVNg/sw
WinuMgEWgVQFrz0xA04pEhXCFVv4evbUpekj5buqUlgmQyOsCKQlhoHTdPjvkC5u
pDqa5lFlkOTMaMkIQjs7aUKCmA4RG4tTTGK/Ejr1ix8/D0gHYVRldy1YPMP+ou7
5b0VnIos+HifrAtrIv4qEqwLL4FTZAUpaCa2BmgXfy2CSRQbxD5OrlgcSa3vurh5
sPMCnxqaxmIXmQipS+DuEBqMM8tldaN7RYoJUEKRGVsNk5i9y2/7s jnlzyyUPf7v
L4GgDYqhJYWV6lDnXgx/Jd6CWxvsndf6scscQzUTEL+hywIDAQABO4H/MIH8MAwG
AlUdEwEB/wQCMAAwHQYDVR0OBBYEFpZEcIQcD/Bj2IFz/LErUo2ADJviMIGMBGNV
HSMEgYQwgYGAFO0/7kEh3FuEKS+Q/kYHaD/W6wihoWakZDBIMQswCQYDVQQGEwJV
UzELMAkGA1UECBMCQ0ExFDASBgNVBACTC0xvcyBBbmdlbGVzMRMwEQYDVQQKEwpJ
Q0FOTiBUTUNIMRswGQYDVQQDEExJQ0FOTiBUTUNIIFRFU1QgQ0GCAQEwDgYDVR0P
AQH/BAQDAgeAMC4GA1UdHwQnMCUwI6AhoB+GHWH0dHA6Ly9jcmwuaWNhbm4ub3Jn
L3RtY2guY3J3MA0GCSqGSIb3DQEBCwUAA4IBAQB2qSy7ui+43cebKUKwWPrzz9y/
IkrMeJGKjo40n+9uekaw3DJ5EqiOf/qZ4pjBD++oR6BJCb6NQuQKwnoAz5lE4Ssu
y5+i93oT3HfyVc4gNMiOhm1PS19l7DBKrbwbzAea/0jKWVz8vmV7TbfjxD3AQo1R
bu5d5xBr6IjbdLfIno5x0GomrG7x5OUPuurihyiURpDpwH8KAHlwMcCpGXGFRtGKk
wydgyVYAty7otkl/z3bzkCVT34qPvF70sR6+QxUy8u0LzF5A/beYaZpxSYG31amL
```

```
AdXitTWfIpaIGea9lEGFM0L9+Bg7XzNn4nVLXokyEB3bgS4scG6QznX23FGk
  </X509Certificate>
  </X509Data>
  </KeyInfo>
</Signature>
</smd:signedMark>
```

NOTE: The example shown above includes white-spaces for indentation purposes. It is RECOMMENDED that SMDs do not include white-spaces between the XML elements, in order to mitigate risks of invalidating the digital signature when transferring of SMDs between applications takes place.

## 2.4. Encoded Signed Mark

The `<smd:encodedSignedMark>` element contains an encoded form of an SMD (described in Section 2.3), with the encoding defined by the "encoding" attribute with the default "encoding" value of "base64" [RFC4648].

The following is an example of a `<smd:encodedSignedMark>` element that uses the default "base64" for encoding a `<smd:signedMark>` element.

```
<smd:encodedSignedMark
  xmlns:smd="urn:ietf:params:xml:ns:signedMark-1.0">
PD94bWwgdmVyc2lvbj0iMS4wIiBlbmNvZGluZz0iVVRGLTgiPz4KPHNtZDpzaWduZWRNYXJr
rIHhtbG5zOnNtZD0idXJuOmllldGY6cGFyYW1zOnhtbDpuczpzaWduZWRNYXJrLTEuMCIGA
... (base64 data elided for brevity) ...
PC9zbWQ6c2lnbmVkdWVyc2lvbj0iMS4wIiBlbmNvZGluZz0iVVRGLTgiPz4KPHNtZDpzaWdu
ZWRNYXJrLTEuMCIGA=
</smd:encodedSignedMark>
```

## 3. Formal Syntax

Two schemas are presented here. The first schema is the schema for the signed mark. The second schema is the schema for the mark.

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.

### 3.1. Signed Mark Schema

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BEGIN

```
<?xml version="1.0" encoding="UTF-8"?>
<schema
  targetNamespace="urn:ietf:params:xml:ns:signedMark-1.0"
  xmlns:smd="urn:ietf:params:xml:ns:signedMark-1.0"
  xmlns:mark="urn:ietf:params:xml:ns:mark-1.0"
  xmlns:dsig="http://www.w3.org/2000/09/xmldsig#"
  xmlns="http://www.w3.org/2001/XMLSchema"
  elementFormDefault="qualified">

  <annotation>
    <documentation>
      Schema for representing a Signed Trademark.
    </documentation>
  </annotation>

  <import namespace="urn:ietf:params:xml:ns:mark-1.0" />
  <import namespace="http://www.w3.org/2000/09/xmldsig#" />

  <!--
Abstract signed mark for replacement via substitution.
-->
  <element name="abstractSignedMark" type="smd:abstractSignedMarkType"
    abstract="true"/>

  <!--
Empty type for use in extending for a signed mark
-->
  <complexType name="abstractSignedMarkType"/>

  <element name="signedMark" type="smd:signedMarkType"
    substitutionGroup="smd:abstractSignedMark"/>

  <element name="encodedSignedMark" type="smd:encodedSignedMarkType"/>

  <complexType name="signedMarkType">
    <complexContent>
      <extension base="smd:abstractSignedMarkType">
        <sequence>
          <element name="id" type="mark:idType"/>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
```

```

        <element name="issuerInfo" type="smd:issuerInfoType"/>
        <element name="notBefore" type="dateTime"/>
        <element name="notAfter" type="dateTime"/>
        <element ref="mark:abstractMark"/>
        <element ref="dsig:Signature"/>
    </sequence>
    <attribute name="id" type="ID" use="required"/>
</extension>
</complexContent>
</complexType>

<complexType name="issuerInfoType">
    <sequence>
        <element name="org" type="token"/>
        <element name="email" type="mark:minTokenType"/>
        <element name="url" type="token" minOccurs="0"/>
        <element name="voice" type="mark:el64Type" minOccurs="0"/>
    </sequence>
    <attribute name="issuerID" type="token" use="required"/>
</complexType>

<complexType name="encodedSignedMarkType">
    <simpleContent>
        <extension base="token">
            <attribute name="encoding" type="token" default="base64"/>
        </extension>
    </simpleContent>
</complexType>
</schema>
END

```

### 3.2. Mark Schema

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```

BEGIN
<?xml version="1.0" encoding="UTF-8"?>
<schema
  targetNamespace="urn:ietf:params:xml:ns:mark-1.0"
  xmlns:mark="urn:ietf:params:xml:ns:mark-1.0"

```

```
xmlns="http://www.w3.org/2001/XMLSchema"
elementFormDefault="qualified">

<annotation>
  <documentation>
    Schema for representing a Trademark, also referred to
    as Mark.
  </documentation>
</annotation>

<!--
Abstract mark for replacement via substitution.
-->
<element name="abstractMark" type="mark:abstractMarkType"
  abstract="true"/>

<!--
<mark:mark> element definition
-->
<element name="mark" type="mark:markType"
  substitutionGroup="mark:abstractMark"/>

<!--
Empty type for use in extending for a mark
-->
<complexType name="abstractMarkType"/>

<!--
<mark:mark> child elements
-->
<complexType name="markType">
  <complexContent>
    <extension base="mark:abstractMarkType">
      <sequence>
        <element name="trademark" type="mark:trademarkType"
          minOccurs="0" maxOccurs="unbounded"/>
        <element name="treatyOrStatute"
          type="mark:treatyOrStatuteType" minOccurs="0"
          maxOccurs="unbounded"/>
        <element name="court" type="mark:courtType" minOccurs="0"
          maxOccurs="unbounded"/>
      </sequence>
    </extension>
  </complexContent>
</complexType>

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



```
<element name="name" type="token" minOccurs="0"/>
<element name="org" type="token" minOccurs="0"/>
<element name="addr" type="mark:addrType"/>
<element name="voice" type="mark:el64Type" minOccurs="0"/>
<element name="fax" type="mark:el64Type" minOccurs="0"/>
<element name="email" type="mark:minTokenType" minOccurs="0"/>
</sequence>
<attribute name="entitlement" type="mark:entitlementType"/>
</complexType>

<complexType name="contactType">
  <sequence>
    <element name="name" type="token"/>
    <element name="org" type="token" minOccurs="0"/>
    <element name="addr" type="mark:addrType"/>
    <element name="voice" type="mark:el64Type"/>
    <element name="fax" type="mark:el64Type" minOccurs="0"/>
    <element name="email" type="mark:minTokenType"/>
  </sequence>
  <attribute name="type" type="mark:contactTypeType"/>
</complexType>

<complexType name="trademarkType">
  <sequence>
    <element name="id" type="mark:idType"/>
    <element name="markName" type="token"/>
    <element name="holder" type="mark:holderType"
      maxOccurs="unbounded" />
    <element name="contact" type="mark:contactType" minOccurs="0"
      maxOccurs="unbounded"/>
    <element name="jurisdiction" type="mark:ccType"/>
    <element name="class" type="integer" minOccurs="0"
      maxOccurs="unbounded"/>
    <element name="label" type="mark:labelType" minOccurs="0"
      maxOccurs="unbounded"/>
    <element name="goodsAndServices" type="token" />
    <element name="apId" type="token" minOccurs="0"/>
    <element name="apDate" type="dateTime" minOccurs="0"/>
    <element name="regNum" type="token"/>
    <element name="regDate" type="dateTime"/>
    <element name="exDate" type="dateTime" minOccurs="0"/>
  </sequence>
</complexType>

<complexType name="treatyOrStatuteType">
  <sequence>
    <element name="id" type="mark:idType"/>
    <element name="markName" type="token"/>
  </sequence>
</complexType>
```

```
<element name="holder" type="mark:holderType"
  maxOccurs="unbounded" />
<element name="contact" type="mark:contactType" minOccurs="0"
  maxOccurs="unbounded" />
<element name="protection" type="mark:protectionType"
  maxOccurs="unbounded" />
<element name="label" type="mark:labelType" minOccurs="0"
  maxOccurs="unbounded" />
<element name="goodsAndServices" type="token" />
<element name="refNum" type="token" />
<element name="proDate" type="dateTime" />
<element name="title" type="token" />
<element name="execDate" type="dateTime" />
</sequence>
</complexType>

<complexType name="courtType">
  <sequence>
    <element name="id" type="mark:idType" />
    <element name="markName" type="token" />
    <element name="holder" type="mark:holderType"
      maxOccurs="unbounded" />
    <element name="contact" type="mark:contactType" minOccurs="0"
      maxOccurs="unbounded" />
    <element name="label" type="mark:labelType" minOccurs="0"
      maxOccurs="unbounded" />
    <element name="goodsAndServices" type="token" />
    <element name="refNum" type="token" />
    <element name="proDate" type="dateTime" />
    <element name="cc" type="mark:ccType" />
    <element name="region" type="token" minOccurs="0"
      maxOccurs="unbounded" />
    <element name="courtName" type="token" />
  </sequence>
</complexType>

<!--
Address (<mark:addr>) child elements
-->
<complexType name="addrType">
  <sequence>
    <element name="street" type="token" minOccurs="1" maxOccurs="3" />
    <element name="city" type="token" />
    <element name="sp" type="token" minOccurs="0" />
    <element name="pc" type="mark:pcType" minOccurs="0" />
    <element name="cc" type="mark:ccType" />
  </sequence>
</complexType>
```

```
<!--
<mark:protection> child elements
-->
<complexType name="protectionType">
  <sequence>
    <element name="cc" type="mark:ccType"/>
    <element name="region" type="token" minOccurs="0"/>
    <element name="ruling" type="mark:ccType"
      minOccurs="0" maxOccurs="unbounded"/>
  </sequence>
</complexType>

<!--
Postal code definition
-->
<simpleType name="pcType">
  <restriction base="token">
    <maxLength value="16"/>
  </restriction>
</simpleType>

<!--
Country code definition
-->
<simpleType name="ccType">
  <restriction base="token">
    <length value="2"/>
  </restriction>
</simpleType>

<!--
Phone number with extension definition
-->
<complexType name="e164Type">
  <simpleContent>
    <extension base="mark:e164StringType">
      <attribute name="x" type="token"/>
    </extension>
  </simpleContent>
</complexType>

<!--
Phone number with extension definition
-->
<simpleType name="e164StringType">
  <restriction base="token">
    <pattern value="(\+[0-9]{1,3}\.[0-9]{1,14})?"/>
    <maxLength value="17"/>
  </restriction>
</simpleType>
```

```
    </restriction>
  </simpleType>

  <!--
  Id type definition
  -->
  <simpleType name="idType">
    <restriction base="token">
      <pattern value="\d+-\d+"/>
    </restriction>
  </simpleType>

  <!--
  DNS label type definition
  -->
  <simpleType name="labelType">
    <restriction base="token">
      <minLength value="1"/>
      <maxLength value="63"/>
      <pattern value="[a-zA-Z0-9]([a-zA-Z0-9\-*[a-zA-Z0-9])?" />
    </restriction>
  </simpleType>

  <!--
  Type used for email addresses
  -->
  <simpleType name="minTokenType">
    <restriction base="token">
      <minLength value="1"/>
    </restriction>
  </simpleType>

  <simpleType name="entitlementType">
    <restriction base="token">
      <enumeration value="owner"/>
      <enumeration value="assignee"/>
      <enumeration value="licensee"/>
    </restriction>
  </simpleType>

  <simpleType name="contactTypeType">
    <restriction base="token">
      <enumeration value="owner"/>
      <enumeration value="agent"/>
      <enumeration value="thirdparty"/>
    </restriction>
  </simpleType>
</schema>
```

END

#### 4. Implementation Status

Note to RFC Editor: Please remove this section and the reference to RFC 6982 [RFC6982] before publication.

This section records the status of known implementations of the format defined by this specification at the time of posting of this Internet-Draft, and is based on a proposal described in RFC 6982 [RFC6982]. The description of implementations in this section is intended to assist the IETF in its decision processes in progressing drafts to RFCs. Please note that the listing of any individual implementation here does not imply endorsement by the IETF. Furthermore, no effort has been spent to verify the information presented here that was supplied by IETF contributors. This is not intended as, and must not be construed to be, a catalog of available implementations or their features. Readers are advised to note that other implementations may exist.

According to RFC 6982 [RFC6982], "this will allow reviewers and working groups to assign due consideration to documents that have the benefit of running code, which may serve as evidence of valuable experimentation and feedback that have made the implemented protocols more mature. It is up to the individual working groups to use this information as they see fit".

##### 4.1. Verisign EPP SDK

Organization: Verisign Inc.

Name: Verisign EPP SDK

Description: The Verisign EPP SDK includes both a full client implementation and a full server stub implementation of draft-ietf-eppext-tmch-smd.

Level of maturity: Production

Coverage: All aspects of the draft-ietf-eppext-tmch-smd are implemented.

Licensing: GNU Lesser General Public License

Contact: [jgould@verisign.com](mailto:jgould@verisign.com)

URL: [http://www.verisigninc.com/en\\_US/channel-resources/domain-registry-products/epp-sdks](http://www.verisigninc.com/en_US/channel-resources/domain-registry-products/epp-sdks)

#### 4.2. Verisign Consolidated Top Level Domain (CTLD) SRS

Organization: Verisign Inc.

Name: Verisign Consolidated Top Level Domain (CTLD) Shared Registry System (SRS)

Description: The Verisign Consolidated Top Level Domain (CTLD) Shared Registry System (SRS) implements the server-side of draft-ietf-epext-tmch-smd for a variety of Top Level Domains (TLD's).

Level of maturity: Production

Coverage: Implements parsing and validation of all aspects of draft-ietf-epext-tmch-smd including the Signed Mark, the Encoded Signed Mark, and the contained Mark. Implements the encoding of the Mark in supporting the response of draft-ietf-epext-launchphase.

Licensing: Proprietary

Contact: [jgould@verisign.com](mailto:jgould@verisign.com)

#### 4.3. Verisign .COM / .NET SRS

Organization: Verisign Inc.

Name: Verisign .COM / .NET Shared Registry System (SRS)

Description: The Verisign Shared Registry System (SRS) for .COM, .NET and other IDN TLD's implements the server-side of draft-ietf-epext-tmch-smd.

Level of maturity: Operational Test Environment (OTE)

Coverage: Implements parsing and validation of all aspects of draft-ietf-epext-tmch-smd including the Signed Mark, the Encoded Signed Mark, and the contained Mark.

Licensing: Proprietary

Contact: [jgould@verisign.com](mailto:jgould@verisign.com)

#### 4.4. REngin v3.7

Organisation: Domain Name Services (Pty) Ltd

Name: REngin v3.7

Description: Server side implementation only

Level of maturity: Production

Coverage: All aspects of draft-ietf-eppext-tmch-smd have been implemented

Licensing: Proprietary Licensing with Maintenance Contracts

Contact: info@dnservices.co.za

URL: http://domain-name.services

#### 4.5. Uniregistry Corp. Shared Registry System (uSRS)

Organization: Uniregistry Corp.

Name: Uniregistry Corp. Shared Registry System (uSRS)

Description: Uniregistry's Shared Registry System implements the server-side of draft-ietf-eppext-tmch-smd for its TLD registry.

Level of maturity: Production

Coverage: Implements parsing and validation of all aspects of draft-ietf-eppext-tmch-smd including the Signed Mark, the Encoded Signed Mark, and the contained Mark. Implements the encoding of the Mark in supporting the response of draft-ietf-eppext-launchphase.

Licensing: Proprietary

Contact: fobispo@uniregistry.link

#### 5. Acknowledgements

Special thanks to Chris Wright for creating the first prototype of a SMD; James Gould, Wil Tan and Gavin Brown for creating the mark and SMD definitions in their EPP draft launch extension on which this draft is based. Portions of the security section were shamefully copied from RFC5105. The author would like to acknowledge the following individuals for their contributions to this document: Scott Hollenbeck and Jan Jansen.

#### 6. IANA Considerations

This document uses URNs to describe XML namespaces and XML schemas conforming to a registry mechanism described in [RFC3688]. Two URI assignments have been registered by the IANA.

Registration request for the signed mark namespace:

URI: urn:ietf:params:xml:ns:signedMark-1.0

Registrant Contact: IESG

XML: None. Namespace URIs do not represent an XML specification.

Registration request for the signed mark schema:

URI: urn:ietf:params:xml:schema:signedMark-1.0

Registrant Contact: IESG

XML: See the "Formal Syntax" section of this document.

Registration request for the mark namespace:

URI: urn:ietf:params:xml:ns:mark-1.0

Registrant Contact: IESG

XML: None. Namespace URIs do not represent an XML specification.

Registration request for the mark schema:

URI: urn:ietf:params:xml:schema:mark-1.0

Registrant Contact: IESG

XML: See the "Formal Syntax" section of this document.

## 7. Security Considerations

The security of a Signed Mark object depends on the security of the underlying XML DSIG algorithms. As such, all the security considerations from [XMLDSIG] apply here as well.

The digital signature algorithm used in Signed Mark objects SHOULD be RSA-SHA256 [RFC4051]. The size of the RSA key SHOULD be at least 2048 bits. A valid reason for choosing something else would be if RSA-SHA256 would be deemed to not provide sufficient security.

In the case of the ICANN Trademark Clearinghouse (TMCH), Signed Mark objects use the algorithms for digesting and signing recommended in this document.



Signed Marks are used primarily for sunrise domain name registrations in gTLDs, but other third parties might be using them. A party using Signed Marks should verify that the digital signature is valid based on local policy. In the case of gTLDs, the RPM Requirements document [ICANN-TMCH] defines such policy, and the PKI is defined in [I-D.ietf-eppext-tmch-func-spec]. Implementations will need to implement such a PKI (or an equivalent) in order for the signatures defined in this document to have any useful semantics.

## 8. References

### 8.1. Normative References

[ICANN-TMCH]

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- [WIPO.ST3] WIPO, "Recommended standard on two-letter codes for the representation of states, other entities and intergovernmental organizations", March 2007, <<http://www.wipo.int/standards/en/pdf/03-03-01.pdf>>.
- [XMLC14N] W3C Recommendation, "Exclusive XML Canonicalization Version 1.0", 2002, <<http://www.w3.org/TR/2002/REC-xml-exc-c14n-20020718>>.
- [XMLDSIG] W3C Recommendation, "XML Signature Syntax and Processing (Second Edition)", 2013, <<http://www.w3.org/TR/xmlsig-core1>>.

## 8.2. Informative References

- [I-D.ietf-eppext-tmch-func-spec] Lozano, G., "TMCH functional specifications", draft-ietf-eppext-tmch-func-spec-00 (work in progress), October 2015.
- [RFC5730] Hollenbeck, S., "Extensible Provisioning Protocol (EPP)", STD 69, RFC 5730, DOI 10.17487/RFC5730, August 2009, <<http://www.rfc-editor.org/info/rfc5730>>.
- [RFC6982] Sheffer, Y. and A. Farrel, "Improving Awareness of Running Code: The Implementation Status Section", RFC 6982, DOI 10.17487/RFC6982, July 2013, <<http://www.rfc-editor.org/info/rfc6982>>.

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