                A Uniform Resource Name (URN) Formal Namespace
                      for the New Zealand Government

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Abstract

   This document describes a Uniform Resource Name (URN) Namespace
   Identification (NID)convention as prescribed by the World Wide Web
   Consortium (W3C) for identifying, naming, assigning, and managing
   persistent resources and XML artefacts for the New Zealand
   Government.

1. Introduction

   The New Zealand Government has already adopted XML as its primary
   means of storing and exchanging data. The New Zealand Government
   publishes documents, schemas, and other government artefacts.

   The New Zealand Government now wishes to define a namespace
   convention and structure for its agencies by creating and managing
   globally unique, persistent, location-independent identifiers for
   their schema resources and XML artefacts.

   This is a natural extension of the development of the Dublin Core
   based New Zealand Government metadata standard (New Zealand
   Government Locator Service, or NZGLS) used by government agencies to
   create metadata and made operational to the public through an all-
   of-government portal.

   The New Zealand Government wishes to provide guidance on namespaces
   to its agencies so that they use a portion of the adopted namespace
   to minimise the risk of their creating different (and potentially
   conflicting) namespace structures. This issue potentially extends to

data exchange beyond government into the private sector of New
Zealand, thus placing the government under an obligation to provide
guidance in the assignment and management of additional namespaces.

The New Zealand Government wishes to register the country NID, NZL,
with the Name Specific String (NSS) split into two parts; the first
part being a specific sub-type <nz-specifier> and the second part as
a <nz-specifier defined string>.

As part of the URN structure, the New Zealand Government wishes to
define and subsequently manage the "govt" specifier. It will also
assign additional specifiers requested by other New Zealand
organisations in accordance with the rules and processes proposed
herein.

The New Zealand Government hoped to make use of the two-letter
Namespace Identifier (NID) combination for its ubiquitous country
code, NZ. But since there is as yet no process to register these
(see RFC 3406 [1]) the government has opted to request its well-known
alternative three-letter country code (see ISO 3166 [3]).

This namespace specification requests a formal namespace (see [6] for
more information about formal namespaces).

Please note that this paper includes a discussion on the use of
diacritic marks, in particular, Maori macrons. Maori is an official
language of New Zealand. In recognition of the established practice
of publishing RFCs for a global audience in ASCII text where
diacritic marks are unable to be recognised, the text has been
presented without macrons.

2. Specification Template

    Namespace ID:

       "NZL".

    Registration Information:

       Version Number: 1
       Date: 2005-03-31

    Declared registrant of the namespace:

       State Services Commission
       New Zealand Government
       100 Molesworth Street
       Wellington,
       New Zealand

       Email: e-GIF@ssc.govt.nz

    Declaration of structure:

       The identifier has a hierarchical structure as follows:

       urn:nzl:<nz-specifier>[:<nz-specifier defined string>]+

       + denotes one or more occurrences of nz-specifier defined strings
       all delimited by a colon.

       For example:

       urn:nzl:govt:registering:dogs:registration:1-0
       urn:nzl:govt:registering:firearms:form:1-3
       urn:nzl:govt:registering:recreational_fishing:form:1-0

       The <nz-specifier> and <nz-specifier defined string> can comprise
       any UTF-8 characters compliant with URI syntax and must not
       contain the ":" character (see STD 66, RFC 3986 [2]). The
       exclusion of the colon from the list of other characters means
       that the colon can only occur as a delimiter between string
       values. The values come from the terms listed in the NZGLS.

       The State Services Commission (SSC) will take responsibility for
       the <nz-specifier> "govt" and its sub level <nz-specifier defined
       string> terms; e.g., "registering".

The SSC will take responsibility to assign other <nz-specifiers>
to organisations who apply and can satisfy the SSC that they have
the capability to manage the sub level and its applicable <nz-
specifier defined string(s)>.

Relevant ancillary documentation:

The function and noun syntax used in the <nz-specifier defined
string> is based on and taken from the NZGLS
(http://www.e.govt.nz/standards/nzgls/thesauri/).

Identifier uniqueness considerations:

Identifiers in the <nz-specifier> "govt" are defined and assigned
in the requested namespace by the SSC after ensuring that the URNs
to be assigned are unique. Uniqueness is achieved by checking
against the registry of previously assigned names.

The SSC will ensure that the URNs to be assigned to other
organisations applying for other <nz-specifier(s)> (e.g., mil, co,
org) are unique by checking against the registry of previously
assigned names.

The SSC will develop and publish the process for doing this,
which, where applicable, is consistent with the process it uses
for moderating the .govt.nz Top Level Domain (TLD).

Identifier persistence considerations:

The New Zealand Government is committed to maintaining uniqueness
and persistence of all resources identified by assigned URNs.

Given that the URN sought is NZL (the long-held ISO 3166 Alpha-3
representation of the country) and that the country's independence
from any other jurisdiction expected to continue indefinitely, the
URN should also persist indefinitely.

Likewise, the <nz-specifier> "govt" has a very long life
expectancy and can be expected to remain unique for the
foreseeable future. The assignment process guarantees that names
are not reassigned. The binding between the name and its resource
is permanent.

The SSC will ensure that other organisations applying to manage
other <nz-specifier> Second Level Name (2LN) sub-levels of the NZL
URN namespace (e.g., mil, co, org) uniquely assign the namespace
at this level.

   Process of identifier assignment:

      Under the "NZL" NID, the New Zealand Government will manage the
      <nz-specifier> "govt" and leverage the existing NZGLS thesaurus
      for identifier resources to maintain uniqueness.

      The process of assigning URNs at the <nz-specifier> sub-level will
      be managed by the SSC of the New Zealand Government. (The SSC has
      managed and maintained the NZGLS thesauri since its inception in
      2002 and has moderated the TLD .govt.nz).

      The SSC will develop and publish the process for doing this, which
      is consistent with the process it uses for moderating the .govt.nz
      TLD, where applicable. The process for marketing the ".govt.nz"
      TLD can be found at these links:

         http://www.e.govt.nz/moderation/mod-policy/chapter1.html

         and

         http://www.e.govt.nz/moderation/mod-policy/chapter2.html

      The process is drawn from the 2LD policies and procedures of the
      New Zealand Office of the Domain Name Commissioner,
      http://dnc.org.nz (and specifically
      http://www.dnc.org.nz/story/30043-35-1.html).

      Other New Zealand organisations may apply to the SSC to delegate
      specifiers for resolution and management assigned by them.
      Delegation of this responsibility will not be unreasonably
      withheld provided that the processes for their resolution and
      management are robust and are followed.

      Organisations who apply to have a <nz-specifier> assigned to them
      must satisfy the SSC that they have the capability to manage the
      2LN sub-level and its applicable <nz-specifier defined string(s)>
      responsibly. The policies and procedures in the links above will
      be provided to applicants as a guide and will be used by the SSC
      to determine the applicant's capability.

   Process of identifier resolution:

      For the <nz-specifier> "govt", the SSC will maintain lists of
      assigned identifiers on its web pages at http://www.e.govt.nz/.

      The SSC will require other organisations that apply to manage
      other <nz-specifier> sub-levels to follow this practice unless
      there are specific reasons (e.g., security) not to do so.

   Rules for Lexical Equivalence:

      The lexical equivalence of the NZL namespace-specific strings
      (NSSs) is defined as an exact, but not case-sensitive, string
      match. Best Practice guidelines will specify:

      a) NZL in either uppercase or lowercase (The New Zealand
          government will assign names as case-insensitive, to ensure
          that there will not be two NZL URNs differing only by case.)

      b) The first letter of each <nz-specifier> and <nz specifier
          defined string> in uppercase or the whole value in lowercase.

      c) Any identifier in NZL namespaces can be compared using the
          normal mechanisms for percent-encoded UTF-8 strings.

      Note that textual data containing diacritic marks (such as Maori
      macrons) will not be treated as lexically equivalent to textual
      data without diacritic marks; i.e., a distinction will be made.
      It is important to note that a macron can change the meaning of a
      word in the Maori language.

      The following explanation provides guidance in this respect.

      NSS is any UTF-8-encoded string that is compliant with the URN
      syntax (i.e., following the encoding rules for 8-bit characters).
      Since Maori is an official language in New Zealand and its use of
      diacritic marks (in this case macrons) invokes the requirement to
      percent-encode reserved characters, the following extract from RFC
      3986 [4] is applicable.

         When a new URI scheme defines a component that represents
         textual data consisting of characters from the Universal
         Character Set [UCS], the data should first be encoded as octets
         according to the UTF-8 character encoding [STD63]; then only
         those octets that do not correspond to characters in the
         unreserved set should be percent-encoded. For example, the
         character A would be represented as "A", the character LATIN
         CAPITAL LETTER A WITH GRAVE would be represented as "%C3%80",
         and the character KATAKANA LETTER A would be represented as
         "%E3%82%A2".

      As described above, UTF-8 allows the use of diacritic marks such
      as New Zealand Maori macrons.

      In the New Zealand context, the word "Maori" carries a diacritic
      mark over the "a". A URI including the macronised word "Maori"
      would be percent-encoded as M%C4%81ori.

Given that the "govt" namespaces will draw from the NZGLS
thesaurus (which does not at present utilise diacritic marks), the
"govt" <nz-specifier> will not utilise UTF-8's percent-encoding
convention for diacritic marks. An "a" with a diacritic mark will
be presented simply as an "a". There is no mapping or equivalence
table. Therefore, the requirement to distinguish between terms
that have diacritic marks and those that do not will not arise in
the <nz-specifier> "govt".

Other organisations may use diacritic marks with certain
conditions. Organisations that apply to manage other
<nz-specifier> sub-levels of the NZL URN namespace could utilise
UTF-8's diacritic functionality provided that they have the
applicable processes to separate Maori language terms using
macrons from those that do not, in order to ensure uniqueness in
accordance with rule c) above.

Conformance with URN Syntax:

No special considerations.

Validation mechanism:

None other than names being derived from the NZGLS thesaurus
"dictionary".

Scope:

Global, but primarily of national interest.

3. Namespace Considerations

The SSC undertook a preliminary study of the URI alternatives against
the key requirements. The options were narrowed down to five. These
were a private URI scheme, URL, PURL, IRI, and URN. URN was
considered the most appropriate URI against the criteria.

Consultation on the preliminary study was actively sought from the
Internet Society of NZ (InternetNZ), the NZ Computer Society,
applicable vendors, and government agencies. Publication on the
e-government web site allowed for public participation.

Points that should be noted are:

a) With respect to the NID, the New Zealand Government is the first
    known jurisdiction to apply its globally known ISO 3166 Alpha-3
    country code to become a URN. One objective of the ISO 3166
    Alpha-2 and 3-letter country codes was to provide uniqueness.

   b) The namespace follows the logical structure of the NZGLS as shown
       in the examples above.

4. Community Considerations

   Providers of government information for data exchange benefit by the
   publication of the namespace because it provides much-needed guidance
   on generating target namespaces for schema development using a
   process that reflects what they already know; namely, metadata
   creation in NZGLS. The identifiers under the "govt" specifier will
   track the terms used in the New Zealand government thesaurus.

   Consequently, New Zealanders will ultimately benefit since the
   exchange of more structured information will potentially improve
   online experiences in areas such as forms design.

   Any citizen or organisation with Internet web browser capability will
   be entitled to access the namespace and its associated application,
   registration, and resolution services. While the assignment of
   identifiers will be managed by the SSC, additional specifiers (such
   as mil, co, org, and their <nz-specifier defined string(s)>) can be
   openly applied for and registered by anyone following an approved
   namespace governance process and proof of the applicant's bona fide
   association with the intended specifier (i.e., no squatting or
   hoarding).

5. IANA Considerations

   This document includes a URN NID registration for NZL for entry in
   the IANA registry of URN NIDs (see RFC 2434 [5] for more
   information).

6. Security Considerations

   No serious security implications are envisaged beyond the potential
   threat of spoofing. The application, registration and assignment of
   subsequent specifiers will leverage existing government processes to
   authenticate the applicants and their association with the proposed
   specifier application.

7. Acknowledgements

   Since the specification described in this document is derived from
   STD 66, RFC 3986 and RFC 3406, the acknowledgements in those
   documents still apply. In addition, the authors wish to acknowledge
   Leslie Daigle and Ted Hardie for their suggestions and review.

8. References

8.1. Normative References

   [1] Daigle, L., van Gulik, D., Iannella, R., and P. Faltstrom,
        "Uniform Resource Names (URN) Namespace Definition Mechanisms",
        BCP 66, RFC 3406, October 2002.

   [2] Berners-Lee, T., Fielding, R., and L. Masinter, "Uniform
        Resource Identifiers (URI): Generic Syntax", STD 66, RFC 3986,
        January 2005.

   [3] ISO 3166, "Country name codes", ISO 3166-1:1997.

8.2. Informative References

   [4] Berners-Lee, T., Fielding, R., and L. Masinter, "Uniform
        Resource Identifier (URI): Generic Syntax", STD 66, RFC 3986,
        January 2005.

   [5] Narten, T. and H. Alvestrand, "Guidelines for Writing an IANA
        Considerations Section in RFCs", BCP 26, RFC 2434, October 1998.

   [6] URI Planning Interest Group, W3C/IETF (See acknowledgments)
        September 2001,
        <http://www.w3.org/TR/2001/NOTE-uri-clarification-20010921/>.

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