        A Uniform Resource Name (URN) Namespace for Federated Content

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Abstract

   This document describes a URN (Uniform Resource Name) namespace for
   identifying content resources within federated content collections.
   A federated content collection often does not have a strong
   centralized authority but relies upon shared naming, metadata, and
   access conventions to provide interoperability among its members.

1. Introduction

   Federated content collections are often loose constructs of both
   small and large content providers, with an active community, but
   without significant central authority. Members are bound together by
   shared purpose and interoperate through shared naming, metadata, and
   access conventions. Federations may also consist of other
   federations, creating complex associations and dependencies.

   A content provider may join or leave a federation at any time and may
   be part of more than one federation at the same time. Content
   providers may also cease as organizations altogether, freeing their
   domain names for use by others. In addition, content identifiers are
   spread throughout the members of a federation. These identifiers are
   stored on various media, sometimes for long durations before being
   used. Therefore, although they work well in situations without a
   strong content naming authority, URLs are insufficient as content
   identifiers within a federation because they cannot be uniquely and
   permanently tied to a specific content resource.

This URN namespace provides a mechanism whereby a central naming
authority is not required. Providers maintain naming authority over
their own content within guidelines that guarantee URNs to be unique
and permanent.

A simple identifier resolution convention is also recommended to
provide a consistent URN resolver interface across all providers.

This namespace specification is for a formal namespace.

2. Terminology

In this document, the key words "MUST", "MUST NOT", "REQUIRED",
"SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY",
and "OPTIONAL" are to be interpreted as described in RFC 2119 [1].

3. Specification Template

Namespace ID:

   "fdc"

Registration Information:

   Registration Version Number: 1
   Registration Date: 2005-04-25

Declared registrant of the namespace:

   Name: Zelestra
   Address: 2314 Henrietta Avenue
               La Crescenta, CA 91214-3007
               USA

   Contact: Dave Tessman
   E-mail: dtessman@zelestra.com

Declaration of syntactic structure:

   The NSS has the following ABNF [2] specification:

   NSS   = ProviderId ":" DateId ":" ResourceId
   ProviderId = 1*(label ".") toplabel
   DateId   = (CCYY [MM [DD]]) / 1*3(DIGIT)
   ResourceId = 1*(alphanum / other / ("%" hex hex))
   label   = alphanum / alphanum *(alphanum / "-") alphanum
   toplabel   = ALPHA / ALPHA *(alphanum / "-") alphanum
   CCYY   = 4(DIGIT)

```
   MM          = ("0" %x31-39) / ("1" %x30-32)
   DD          = ("0" %x31-39) / (%x31-32 DIGIT) / "30" / "31"
   alphanum    = ALPHA / DIGIT
   hex         = DIGIT / %x41-46 / %x61-66
   other       = "(" / ")" / "+" / "," / "-" / "." / ":" / "=" /
                 "@" / ";" / "$" / "_" / "!" / "*" / "'"
```

   ProviderId is the content provider's identifier. ProviderId MUST
   be an Internet domain name and MUST be owned by the organization
   creating the resource and allocating the URN to the resource.

   DateId is a date in ISO 8601 Basic Format (CCYY[MM[DD]]), and MUST
   correspond to a specific day on which the organization allocating
   the URN owned the domain name specified in the ProviderId. If not
   included, the default value for MM and DD is "01". DateIds of 1
   to 3 digits are reserved.

   ResourceId MUST be unique among all ResourceIds emanating from the
   same provider and having the same DateId.

Relevant ancillary documentation:

   None.

Identifier uniqueness considerations:

   The combination of ProviderId and DateId serves to uniquely
   identify the organization that is allocating the URN. That
   organization is responsible for ensuring the uniqueness of the
   ResourceId.

Identifier persistence considerations:

   A URN of this namespace may only be allocated by an organization
   that owns an Internet domain name. The URN identifies a date on
   which the organization owned that domain name. The combination of
   domain name and date will serve to uniquely identify that
   organization for all time.

Process of identifier assignment:

   The organization identified by the ProviderId/DateId combination is
   responsible for allocating a ResourceId that is unique among all
   those that it allocates with that DateId.

Process of identifier resolution:

   Content providers are responsible for the provision of a URN
   resolution service, if any, for URNs they have assigned with a
   valid ProviderId/DateId combination.

   Content providers SHOULD support URN resolution by using the HTTP
   protocol convention described in RFC 2169 [3]. The ProviderId
   SHOULD be used as the HTTP server location.

Rules for Lexical Equivalence:

   In addition to the rules defined in RFC 2141 [4], normalize the
   case of the ProviderId to lower case before comparison.

Conformance with URN Syntax:

   There are no additional characters reserved.

Validation mechanism:

   None additional to resolution specified.

Scope:

   Global

4. Examples

   The following examples are representative of URNs in this namespace,
   but may not refer to actual resources.

   urn:fdc:example.com:2002:A572007
   urn:fdc:example.net:200406:ivr:51089
   urn:fdc:example.org:20010527:img089322-038

5. Security Considerations

   There are no additional security considerations other than those
   normally associated with the use and resolution of URNs in general.

6. Namespace Considerations

   Distribution of naming authority, identifier flexibility, and a
   recommended URN resolution mechanism make this namespace a unique and
   valuable tool to meet the URN requirements of small content providers
   and federated content collections.

7. Community Considerations

   By establishing a simple, flexible, and efficient means for smaller
   content providers to uniquely identify and publish their content,
   this namespace reduces the effort required for these providers to
   participate in federated collections. A consistent identifier format
   and resolution mechanism also increases the ability of federations to
   accept content references from smaller providers and to aggregate
   themselves into federations of federations. Increased participation
   and aggregation results in a larger selection of distinctive content
   that is more accessible to the community.

   To make use of this namespace, a content provider should further
   decompose the ResourceId portion of the namespace syntactic structure
   to meet their internal content identification needs and establish an
   internal governance mechanism to ensure that all identifiers created
   follow the requirements of this namespace. It is also recommended
   that the identifier resolution mechanism described in RFC 2169 [3] be
   provisioned within an HTTP server designated by the ProviderId
   portion of the namespace syntactic structure.

8. IANA Considerations

   This document includes a URN NID registration that conforms to RFC
   3406 [5] and has been entered into the IANA registry of URN NIDs.

Normative References

   [1]   Bradner, S., "Key words for use in RFCs to Indicate Requirement
         Levels", BCP 14, RFC 2119, March 1997.

   [2]   Crocker, D. and P. Overell, "Augmented BNF for Syntax
         Specifications: ABNF", RFC 4234, October 2005.

   [3]   Daniel, R., "A Trivial Convention for using HTTP in URN
         Resolution", RFC 2169, June 1997.

   [4]   Moats, R., "URN Syntax", RFC 2141, May 1997.

Informative References

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

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