

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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