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Definition of a Uniform Resource Name (URN) Namespace for the Middleware Architecture Committee for Education (MACE)

Status of this Memo

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Abstract

This document describes a Uniform Resource Name (URN) namespace for the Internet2 Middleware Architecture Committee for Education (MACE). This namespace is for naming persistent resources defined by MACE, its working groups and other designated subordinates.

1. Introduction and Community Considerations

The Internet2 Middleware Architecture Committee for Education (MACE) produces many kinds of documents: specifications, working drafts, object classes, schemas, stylesheets, etc. It also defines directory attributes and controlled vocabularies for the values of some of those attributes.

MACE wishes to provide global, distributed, persistent, location-independent names for these resources. The Uniform Resource Name (URN) variant of URIs meets these requirements.

MACE working groups and other MACE-affiliated groups will benefit from the MACE URN namespace by having an easy, efficient way to assign globally unique, persistent identifiers to resources that they create. The nature of MACE work is that serves the needs of one or more communities of interest. A namespace managed so as to facilitate the creation, registration and resolution of unique, persistent identifiers will be of great value for MACE, its affiliates and the higher education community generally.

This URN namespace specification is for a formal namespace.

2. Specification Template

Namespace ID:

"mace"

Registration Information:

Registration Version Number 1

Registration Date: 2003-08-01

Registrant of the namespace:

Middleware Architecture Committee for Education (MACE)
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Syntactic structure:

The Namespace Specific Strings (NSS) of all URNs assigned by MACE will conform to the syntax defined in section 2.2 of RFC 2141, "URN Syntax" [1]. In addition, all MACE URN NSSs will consist of a left-to-right series of tokens delimited by colons. The left-to-right sequence of colon-delimited tokens corresponds to descending nodes in a tree. To the right of the lowest naming authority node there may be zero, one or more levels of hierarchical naming nodes terminating in a rightmost leaf node. See the section entitled "Identifier assignment" below for more on the semantics of NSSs. This syntax convention is captured in the following normative ABNF rules for MACE NSSs (see RFC 2234) [2]:

```
MACE-NSS        =   1*(subStChar) 0*(":" 1*(subStChar))

subStChar       =   trans / "%" HEXDIG HEXDIG

trans           =   ALPHA / DIGIT / other / reserved

other           =   "(" / ")" / "+" / "," / "-" / "." /
                     "=" / "@" / ";" / "$" /
                     "_" / "!" / "*" / "'"

reserved        =   "%" / "/" / "?" / "#"
```

The exclusion of the colon from the list of "other" characters means that the colon can only occur as a delimiter between string tokens. Note that this ABNF rule set guarantees that any valid MACE NSS is also a valid RFC 2141 NSS.

Relevant ancillary documentation:

None.

Identifier uniqueness:

It is the responsibility of MACE directors to guarantee uniqueness of the names of immediately subordinate naming authorities. Each lower-level naming authority in turn inherits the responsibility of guaranteeing uniqueness of names in their branch of the naming tree.

Identifier persistence:

MACE directors bear ultimate responsibility for maintaining the usability of MACE URNs over time. This responsibility may be delegated to subordinate naming authorities per the discussion in the section below on identifier assignment. That section provides a mechanism for the delegation to be revoked in case a subordinate naming authority ceases to function.

Identifier assignment:

MACE directors will create an initial series of immediately subordinate naming authorities, and will define a process for adding to that list of authorities. Each top-level working group of MACE will be invited to designate a naming authority and to suggest one or more candidate names for that authority. The MACE-Shibboleth group, for example, might propose creating a

naming authority under "urn:mace:shib," "urn:mace:shibboleth" or some other name.

Institutions and communities affiliated with MACE may request, through their designated MACE liaison, that they be granted MACE-subordinate naming authority status. They may propose candidate names for that authority. One way for such entities to guarantee uniqueness of their proposed name is to base it on a DNS name. That is, if Georgetown University wished to be designated a subordinate naming authority under MACE, the institutional MACE liaison could propose to MACE directors that they be delegated control over names beginning with "urn:mace:georgetown.edu". Institutions seeking affiliation with MACE should send email to mace-submit@internet2.edu, nominating an institutional liaison and providing contact information for that person.

On at least an annual basis, MACE directors will contact the liaisons or directors of each immediately subordinate naming authority. If there is no response, or if the respondent indicates that they wish to relinquish naming authority, the authority over that branch of the tree reverts to MACE. This process will be enforced recursively by each naming authority on its subordinates. This process guarantees that responsibility for each branch of the tree will lapse for less than one year at worst before being reclaimed by a superior authority.

Lexical equivalence of two MACE namespace specific strings (NSSs) is defined below as an exact, case-sensitive string match. MACE will assign names of immediately subordinate naming authorities in a case-insensitive fashion, so that there will not be two MACE-subordinate naming authorities whose names differ only in case.

Identifier resolution:

MACE directors will maintain an index of all MACE and MACE workgroup assigned URNs at the web site http://middleware.internet2.edu/urn-mace/urn-mace.html. That index will map URNs to resource identifiers or resource specifications (e.g., protocol parameters). MACE-affiliated naming authorities will specify how to resolve the URNs they assign if they are resolvable.

Lexical equivalence:

Lexical equivalence of two MACE namespace specific strings (NSSs) is defined as an exact, case-sensitive string match.

Conformance with URN syntax:

All MACE NSSs fully conform to RFC 2141 syntax rules for NSSs.

Validation mechanism:

As specified in the "Identifier resolution" section above, MACE directors will maintain an index of all MACE and MACE workgroup assigned URNs on its web site, http://middleware.internet2.edu/urn-mace/urn-mace.html. Presence in that index implies that a given URN is valid. MACE-affiliated naming authorities will specify how to validate the URNs they assign.

Scope:

Global.

3. Security Considerations

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

4. Namespace Considerations

Registration of an NID specific to MACE is reasonable given the following considerations:

1. MACE would like to assign URNs to some very fine-grained objects (such as specific controlled vocabulary values of an attribute in MACE-defined LDAP object classes). This does not seem to be the primary intended use of the XMLORG namespace (RFC 3120) [3], let alone the more tightly controlled OASIS namespace (RFC 3121) [4].

2. MACE seeks naming autonomy. We understand that the XMLORG registrants left the door open to subordinate naming authorities, "OASIS may assign portions of its XMLORG namespace for assignment by other parties" (RFC 3120) [3], but there is no specified process for such assignment. That would in any case mean having a fixed XMLORG-assigned prefix on every single object to which we assign a URN. MACE has a number of active work groups that may well generate a growing number of subordinate naming authorities. Moreover, MACE is not a member of OASIS, so becoming a subordinate naming authority under the OASIS URN space is currently not an option.

3. MACE will want to assign URNs to non-XML objects as well. That is another reason that XMLORG may not be an appropriate higher-level naming authority for MACE.

Some MACE-developed schema and namespaces may be good candidates for inclusion in the XMLORG registry. The fact that such an object might already have a MACE-assigned URN shouldn't be a hindrance. Work is in progress to update RFC 2611 [5], which includes an explicit statement that two or more URNs may point to the same resource. A resource with a MACE-assigned namespace-specific-string would, of course, be given an XMLORG namespace-specific-string at the time it enters the XMLORG registry.

5. IANA Considerations

The IANA has formally registered URN namespace 13 to MACE, within the IANA registry of URN NIDs.

6. Normative References

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

[2] Crocker, D. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", RFC 2234, November 1997.

[3] Best, K. and N. Walsh, "A URN Namespace for XML.org", RFC 3120, June 2001.

[4] Best, K. and N. Walsh, "A URN Namespace for OASIS", RFC 3121, June 2001.

[5] Daigle, L., van Gulik, D., Iannella, R. and P. Faltstrom, "URN Namespace Definition Mechanisms", BCP 33, RFC 2611, June 1999.

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8. Full Copyright Statement

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