Definition of a Uniform Resource Name (URN) Namespace for the Schema for
                           Academia (SCHAC)
                      draft-milinovic-6338bis-01

Abstract

   This document describes a Uniform Resource Name (URN) namespace for
   the Schema for Academia (SCHAC).

   The namespace described in this document is for naming persistent
   resources defined by the SCHAC participants internationally, their
   working groups, and other designated subordinates. The main use of
   this namespace will be for the creation of controlled vocabulary
   values for attributes in the SCHAC schema. These values will be
   associated with particular instances of persons or objects belonging
   to any of the SCHAC object classes.

   This document obsoletes RFC 6338.

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1. Introduction

The Schema for Academia (SCHAC) international activity was born
inside the Task Force on European Middleware Coordination and
Collaboration (TF-EMC2) of the Trans-European Research and Education
Networking Association (TERENA) ([7]). The initial aim of SCHAC was
to harmonize the disjoint person schemas of the participating
countries in order to have a common way for expressing data about
persons, exchanged between educational organizations. SCHAC, as are
other person schemas, is designed to ease the sharing of information
about a given individual between parties, mostly, but not limited to,
educational and research institutions. The main aims of this sharing
are to provide resources to individuals and to allow said individuals
to move, virtually and physically, between such institutions. Thus,
the SCHAC schema [8] was defined with input from all participants'
national person schemas.

SCHAC does not supplant other person schemas such as
organizationalPerson [9], inetOrgPerson [10], or eduPerson [12]; it
extends those where needed for the purposes of Higher Education
outside the United States. This characteristic has made SCHAC,
originally a European effort, useful for groups outside Europe.

TERENA joined forces with DANTE in 2014 to become the organization
known as GEANT[20]. At the same time, TERENA delegated schema
management to REFEDS[19]. This document changes the definition of
the SCHAC URN namespace accordingly, and obsoletes RFC 6338 [11].

2. Requirements Language

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 BCP 14 (RFC2119) [1]
(RFC8174) [2].

[3](#). **Specification Template**

   Namespace ID:

      schac

   Registration Information:

      Registration Version Number 2

      Registration Date: 2019-10-30

   Registrant of the namespace:

     REFEDS
     c/o GEANT
     Hoekenrode 3
     1102 BR Amsterdam
     The Netherlands

    Designated contacts:

     Contact: Schema Editorial Board
     Affiliation: REFEDS, GEANT
     Hoekenrode 3
     1102 BR Amsterdam
     The Netherlands

     EMail: schema-board@lists.refeds.org

   Syntactic structure:

     The Namespace Specific Strings (NSSs) of all URNs assigned by
     SCHAC will conform to the syntax defined in [Section 2.2 of RFC2141](#)
     [[13](#)], "URN Syntax". In addition, all SCHAC 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 "Identifier assignment" section below for more on the
     semantics of NSSs. This syntax convention is captured in the
     following normative ABNF rules for SCHAC NSSs (see STD68 [[3](#)]:

```
         SCHAC-NSS    =   1*subStChar *( ":" 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
   SCHAC NSS is also a valid RFC 2141 NSS.

Relevant ancillary documentation:

   None.

Identifier uniqueness:

   It is the responsibility of REFEDS 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 its branch of the naming tree.

Identifier persistence:

   REFEDS bears ultimate responsibility for maintaining the usability
   of SCHAC 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 the case where a subordinate
   naming authority ceases to function.

Identifier assignment:

   REFEDS will create an initial series of immediately subordinate
   naming authorities, and will define a process for adding to that
   list of authorities. Such a list, and the policy for adding to
   it, will be published at the root registry page. Each country
   with a representative in SCHAC will be invited to designate a
   naming authority. Country-specific namespaces based on the
   country Internet Top-Level Domain (TLD) [14] will then be assigned
   to the designated authority. The subordinated namespaces int and
   eu will remain under REFEDS authority, controlled by the SCHAC

activity members, for entities of global, international, or
European interest. There is also the possibility of granting
subordinate namespaces to multi-country organizations; in this
case, the organizational Internet Fully Qualified Domain Name
(FQDN) will be used as the prefix.

As an example, a European-level interest entity would be any value
related to information used in the Higher Education European
Space, or the so-called Bologna process. Such entities will
belong in the eu subordinate namespace.

Global international entities could encompass values related to
the Grid community or values useful both for some European and for
some Australian universities. Such entities would belong in the
int subordinate namespace.

Examples of multi-country organizations include GEANT itself or an
association like the Educational Policy Institute (EPI)
(educationalpolicy.org) that has members from Australia, Canada,
and the US.

URNs intended for values of SCHAC attributes will include the
attribute name immediately after the NSS prefix, before any
geographical namespace delegation, such that any string can convey
information about the attribute for which it is a value. For
example, values for schacUserStatus will be of the form:

        urn:schac:userStatus:int
        urn:schac:userStatus:au or
        urn:schac:userStatus:terena.org

If at all possible, automated registry publication mechanisms will
be provided, based on the work on distributed URN registries done
by REFEDS.

Institutions and communities affiliated with SCHAC participants
may request that they be granted subordinate naming authority
status. Uniqueness of these namespaces under country authority
will be based on the requestor's Internet FQDN. This
subordination procedure SHOULD be carried along the delegation
chain; i.e., if at all possible, all entities that receive a
delegated namespace MUST have a valid FQDN and MUST publish an
Internet accessible URN value registry, based on the URN registry
mechanisms designed by REFEDS.

On at least an annual basis, REFEDS 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 REFEDS. 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 SCHAC Namespace Specific Strings (NSSs)
is defined below as an exact, case-sensitive string match. REFEDS
will assign names of immediately subordinate naming authorities in
lowercase only. This forestalls the registration of two SCHAC-
subordinate naming authorities whose names differ only in case.
Attribute names will use the same mixed-case format as in the
schema definition.

Identifier resolution:

The namespace is not currently listed with a Resolution Discovery
System (RDS), but nothing about the namespace prohibits the future
definition of appropriate resolution methods or listing with an
RDS.

REFEDS will maintain a registry of all SCHAC-assigned URN values,
both final and for delegation, on its web site:

<https://wiki.refeds.org/display/STAN/SCHAC+URN+Registry>

Delegation entries will have a pointer to the registry of the
subordinate naming authority. This SHOULD recurse down the
delegation tree, but registries for several delegated namespaces
MAY be maintained by a single naming authority.

All registries MUST publish their URNs over https links (RFC2818)
[4]. The https links MUST be secured by sites offering
credentials signed by a SCHAC-community recognized Certification
Authority (CA) using the latest secure methods for accessing a web
site (which at present is the latest version of Transport Layer
Security (TLS) (RFC5246) [5]). Registries SHOULD consider the
user interface implications of their choice of CA, taking into
account issues like browser alerts and blind trust.

Lexical equivalence:

Lexical equivalence of two SCHAC Namespace Specific Strings (NSSs)
is defined as an exact, case-sensitive string match.

Conformance with URN syntax:

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

Validation mechanism:

As specified in the "Identifier resolution" section above, REFEDS
will maintain an index of all SCHAC-assigned URNs on its web site:
<https://wiki.refeds.org/display/STAN/SCHAC+URN+Registry>.
Presence in that registry or in any subordinate registry implies
that a given URN is valid. Delegated naming authorities MUST
guarantee that values are valid in their assigned spaces.

Scope:

Global.

4. Examples

The following examples are not guaranteed to be real. They are
listed for pedagogical reasons only.

```
urn:schac:personalUniqueID:es:DNI:9999999Z
urn:schac:personalUniqueCode:es:uma.es:codUni:061696758X
urn:schac:userStatus:au:uq.edu.au:service:mail:receive:disabled
urn:schac:personalPosition:pl:umk.pl:programmer
```

5. Security Considerations

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

In order to guarantee the validity and origin of SCHAC-NSS URN
values, they MUST be published over https links (RFC2818) [4]. The
https links MUST be secured by sites offering credentials signed by a
SCHAC- community recognized Certification Authority (CA) using the
latest secure methods for accessing a web site (which at present is
the latest version of TLS (RFC5246) [5]).

6. Namespace Considerations

Registration of a Namespace Identifier (NID) specific to SCHAC is
reasonable given the following considerations:

SCHAC would like to assign URNs to some very fine-grained objects.
This does not seem to be the primary intended use of the XML.org
namespace (RFC3120) ([15]), or the more tightly controlled
Organization for the Advancement of Structured Information
Standards (OASIS) ([16]) namespace (RFC3121) ([17]).

SCHAC seeks naming autonomy. SCHAC is not a member of OASIS, so
becoming a subordinate naming authority under the OASIS URN space
is not an option. There is the MACE (Middleware Architecture
Committee for Education) RFC3613 ([18]) namespace, but the SCHAC
development is done outside of the MACE activity scope; thus, the
attributes and values do not belong in the MACE namespace. Using
the MACE namespace requires that the SCHAC namespace be placed
under one of the SCHAC participants' namespaces, which hinders its
global scope.

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

Some of the already defined SCHAC attribute values have been assigned
URNs under the urn:mace:terena.org namespace. These values will
enter a deprecation cycle, with a clear indication that they will be
replaced by values under the new namespace once it is assigned. In
any case, RFC3406 [6] (which replaced RFC 2611) includes an explicit
statement that two or more URNs may point to the same resource.

7. Community Considerations

The assignment and use of identifiers within the namespace are open,
and the related rule is established by the SCHAC activity members.
Registration agencies (the next-level naming authorities) will be the
National Research and Education Networks (NRENs) and established
organizational cross-border organizations that participate in SCHAC.

It is expected that the majority of the European NRENs, their
constituencies, participants in the Australian Access Federation, and
some other international activities will make use of the SCHAC
namespace.

After the establishment of the SCHAC namespace, TERENA established a
registry service (analogously to other distributed pan-European
services, such as eduroam, PerfSONAR, etc.) for the namespace
clients. This registry is now maintained by REFEDS and available
via: <https://wiki.refeds.org/display/STAN/SCHAC+URN+Registry>. The
policy for registrations will be defined in documents available at
the root page of the registry.

8. IANA Considerations

In accordance with BCP 66 (RFC3406) [6], IANA has registered the
Formal URN Namespace 'schac' in the Registry of URN Namespaces, using
the registration template presented in Section 2 of this document.

9. Acknowledgments

   The original registration of SCHAC was done by Victoriano Giralt
   (University of Malaga) and Dr. Rodney McDuff (The University of
   Queensland) for their work on the original specification. Their work
   remains much appreciated.

   SCHAC was the result of the TERENA TF-EMC2 task force and many others
   that have contributed ideas to the development of the schema.

   Peter Saint-Andre has also provided comments that have improved the
   overall document quality, for which we herein thank him. We'd also
   like to thank Chris Lonvick for helping us express our security
   concerns in a better way. Finally, we thank other reviewers that
   have helped us to give the final touches to the text.

   Special thanks should go to Dyonisius Visser from the TERENA
   technical team for taking the time and effort required to set up the
   root instance of the namespace registry.

10. References

10.1. Normative References

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