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Definition of a Uniform Resource Name (URN) Namespace for the Schema
for

Academia (SCHAC)
[draft-milinovic-6338bis-00](#)

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 ([6]). 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 was defined with input from all participants' national person schemas [7].

SCHAC does not supplant other person schemas such as organizationalPerson [8], inetOrgPerson [9], or [10]; 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 [18]. At the same time, TERENA delegated schema management to [17].

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 [1].

3. Specification Template

Namespace ID:

schac

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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

E-Mail: 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 [\[11\]](#), "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 [\[2\]](#)):

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```
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) [[12](#)] will then be assigned to the designated authority. The subordinated namespaces int and eu will remain under REFEDS authority, controlled by the SCHAC

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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

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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://urnreg.terena.org/>](https://urnreg.terena.org/)

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 [3]. 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) [4]). 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:

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All SCHAC NSSs fully conform to [RFC 2141](#) syntax rules for NSSs.

Validation mechanism:

As specified in the "Identifier resolution" section above, TERENA will maintain an index of all SCHAC-assigned URNs on its web site:

<<https://urnreg.terena.org/>> 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:99999999Z
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 [\[3\]](#). 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 [\[4\]](#)).

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 ([\[13\]](#)), or the more tightly controlled Organization for the Advancement of Structured Information Standards ([\[14\]](#)) namespace ([\[15\]](#)).

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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) ([16]) 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, [5] (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 [5], 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.

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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

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