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A URN Namespace for GEANT

Status of This Memo

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Abstract

This document describes a proposed URN (Uniform Resource Name) namespace that would be managed by DANTE, representing European Research and academic networks, for naming persistent resources defined by GEANT, the Consortium of European Academic and Research Networks, its projects, activities, working groups, and other designated subordinates.

1. Introduction

The Consortium of European Academic and Research Networks (GEANT) provides high-speed, high-quality network connectivity for education institutions, universities, and research centres in Europe. The network infrastructure is composed of several National Research and Education Networks (NRENs) and their European-wide interconnection, GEANT. The current network is GEANT2 [6], and is the seventh generation of pan-European research and education network, successor to the pan-European multi-gigabit research network GEANT. DANTE [7] is a UK-based organization representing the members of the Consortium and operating the GEANT2 Network. This cooperative work is mainly done in the framework of EU-funded projects. The biggest of such activities is currently the GN2 project [6], started in September 2004, that follows other successful ones that have evolved the European Networks for Research and Education for almost two decades. It is expected that these activities and the network evolution will continue to be supported by the European Union and all European governments in the years to come, as they view the existence of a state-of-the-art network for research in Europe as being of top strategic importance. We will refer to the organization involved in these projects and those that benefit from their outcome as the "GEANT community".

The GEANT community produces many kinds of documents: specifications, working drafts, project reports, schemas, stylesheets, etc. The community wishes to provide global, distributed, persistent, location-independent names for these resources. The Uniform Resource Name (URN) variant of URIs meets these requirements.

The GEANT community and other GEANT-affiliated groups would benefit from the GEANT URN proposal by having an easy, efficient way to assign globally unique, persistent identifiers to resources that they create. The nature of GEANT work is that it serves the needs of many communities of interest. A namespace managed so as to facilitate the creation, registration, and resolution of unique, persistent identifiers would be of great value for GEANT, its affiliates, and the higher education community generally. The possibility of fitting the naming needs under existing namespaces has been considered, but the conclusion was that the number of activities and the size of the developers community is such that creating a lot of (possibly uncoordinated) dependencies from other namespaces is undesirable.

The proposed URN namespace specification is for a formal namespace.

2. Specification Template

Namespace ID:

geant

Registration Information:

Registration Version Number 1

Registration Date: 2006-03-21

Registrant of the namespace:

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Syntactic structure:

The Namespace Specific Strings (NSS) of all URNs assigned by GEANT will conform to the syntax defined in section 2.2 of RFC 2141, "URN Syntax" [2]. In addition, all GEANT 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 below entitled "Identifier assignment" for more on the semantics of NSSs. This syntax convention is captured in the following normative ABNF rules for GEANT NSSs (see RFC 4234 [1]):

```
GEANT-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 GEANT NSS is also a valid RFC 2141 NSS.

Relevant ancillary documentation:

None.

Identifier uniqueness:

It is the responsibility of DANTE 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:

DANTE bears ultimate responsibility for maintaining the usability of GEANT 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 a subordinate naming authority ceases to function.

Identifier assignment:

DANTE 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 GEANT will be invited to designate a naming authority and to suggest one or more candidate names.

Institutions and communities affiliated with GEANT may request, through their designated GEANT liaison, that they be granted GEANT-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, e.g., the German National Research and Education Network wished to be designated a subordinate naming authority under GEANT, the institutional GEANT liaison could propose to DANTE to be delegated control over names beginning with "urn:geant:dfn.de". Institutions seeking affiliation with GEANT should send email to geant-submit@dante.org.uk, nominating an institutional liaison and providing contact information for that person.

On at least an annual basis, DANTE 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 GEANT. 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 GEANT namespace specific strings (NSSs) is defined below as an exact, case-sensitive string match. DANTE will assign names of immediately subordinate naming authorities in lowercase only. This forestalls the registration of two GEANT-subordinate naming authorities whose names differ only in case.

Identifier resolution:

DANTE will maintain an index of all GEANT and GEANT workgroup assigned URNs on its Web site, http://www.dante.net/urn-geant/urn-geant.html. That index will map URNs to resource identifiers, usually URLs. GEANT-affiliated naming authorities will specify how to resolve the URNs they assign if they are resolvable.

Lexical equivalence:

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

Conformance with URN syntax:

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

Validation mechanism:

As specified in the "Identifier resolution" section above, DANTE will maintain an index of all GEANT and GEANT workgroup assigned URNs on its Web site, http://www.dante.net/urn-geant/urn-geant.html Presence in that index implies that a given URN is valid. GEANT-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 Namespace Identifier (NID) specific to GEANT is reasonable given the following considerations:

1. GEANT would like to assign URNs to some very fine-grained objects. This does not seem to be the primary intended use of the XMLORG namespace (RFC 3120) [3], or the more tightly controlled OASIS namespace (RFC 3121) [4].

2. GEANT seeks naming autonomy. GEANT is not a member of OASIS, so becoming a subordinate naming authority under the OASIS URN space is not an option.

3. GEANT 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 GEANT.

Some GEANT-developed schema and namespaces may be good candidates for inclusion in the XMLORG or possible future "EU" registry. The fact that such an object might already have a GEANT-assigned URN shouldn't be a hindrance. RFC 3406 [5] (which replaced RFC 2611) includes an explicit statement that two or more URNs may point to the same resource. A resource with a GEANT-assigned Namespace Specific String would, of course, be given an XMLORG or EU Namespace Specific String as it enters the XMLORG or "EU" registry.

5. Community Considerations

The assignment and use of identifiers within the namespace are open, and the related rule is established by DANTE. Registration agencies (the next level naming authorities) will be the European National Research and Education Networks and the established organizational cross-border formations.

It is expected that the majority of the NRENs and all GEANT base activities make use of the GEANT namespace.

After the establishment of the GEANT namespace, the consortium will, as soon as practical, establish a resolution service (analogously to other distributed pan-European services, like EduROAM, PerfSONAR, etc.) for the namespace clients.

6. IANA Considerations

IANA has registered the "geant" NID within the IANA registry of URN NIDs.

7. Normative References

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

8. Informative References

[2] Moats, R., "URN Syntax", RFC 2141, May 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 66, RFC 3406, October 2002.

[6] GEANT2 project's Web site, <http://www.geant2.net/>.

[7] DANTE's company Web site, <http://www.dante.net/>.

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