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The QName URN Namespace draft-rsalz-qname-urn-01

Abstract

This specification defines a Uniform Resource Name namespace for XML namespace-qualified names, QNames. As long as the URN is encoded in the same character set as the document containing the original QName, the QName URN provides enough information to maintain the semantics, and optionally the exact syntax, of the original name.

Editorial Note (To be removed by RFC Editor before publication)

Please send comments to the xml-dev mailing list (<http://www.xml.org/xml-dev/>).
XML versions, latest edits and the issues list for this document are available from <http://greenbytes.de/tech/webdav/#draft-rsalz-qname-urn>.

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1. Introduction and Motivation

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This specification defines a Uniform Resource Name namespace for XML namespace-qualified names, QNames. As long as the URN is encoded in the same character set as the document containing the original QName, the QName URN provides enough information to maintain the semantics, and optionally the exact syntax, of the original name.

There are a variety of situations when a QName may need to be mapped to a URI. For example, when exchanging (or referencing) an identifier for an XML element contained within a document, and the medium of exchange prefers URIs to QNames, such as an XML Schema anyURI data type. Another scenario is for comparing the identifiers, which can be simpler by comparing just a string without having to also compare the context setting XML namespace attribute that may be declared arbitrarily earlier in the document.

The XML Namespaces specification [\[XMLNS\] \(Bray, T., Hollander, D., Layman, A., Tobin, R., and H. Henry, "Namespaces in XML 1.0 \(Third Edition\)," December 2009.\)](#) does not provide a canonical mapping between QNames and URIs. Any XML specification that wants to enable identifier exchanges must define a language specific QName to URI mapping. There have emerged a variety of different algorithms and solutions for the mapping. To date, there have been no standardized algorithms available that they can re-use, which has increased their efforts. A standardized mapping, such as this, should provide increased productivity.

Almost all of the algorithms for QName to URI mappings are based upon concatenation of the URI and the name with variations based upon prefix inclusion, namespace name and name separator, etc. These are typically problematic because it is difficult to recover the QName from the URI as the namespace name and name separator may have already been used in the namespace name. Having the namespace name at the end of the identifier string avoids these and other problems.

2. Namespace Registration Template

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The following paragraphs contain the URN namespace registration data, as defined in [\[RFC3406\] \(Daigle, L., van Gulik, D., Iannella, R., and P. Faltstrom, "Uniform Resource Names \(URN\) Namespace Definition Mechanisms," October 2002.\)](#).

Namespace ID:

|qname

Registration Information:

Version number: 1

Registration date: 2004-11-30

Declared registrant of the namespace:

The W3C [Technical Architecture Group \(TAG\)](#), reachable at tag@w3.org.

Declaration of syntactic structure:

The QName URN is structured as four colon-separated fields. Note that colons within the fourth field, the URI part, are not significant; the entire fourth field is treated as a single opaque entity by this URN scheme.

The first field identifies the naming scheme. The second contains the QName prefix, or an empty string if the QName comes from the default namespace, or an asterisk if the prefix is not significant.

A QName URN is defined by the following ABNF [\[RFC5234\] \(Crocker, D., Ed. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF," January 2008.\)](#):

```
qnameURN      = "qname" ":" prefix ":" localname ":" uri
prefix         = ncname / "" / "*"
localname      = ncname
uri            = <any valid URI>
ncname         = <see Production 4 of [XMLNS], Section 3>
```

Here are three examples of a QName URN:

```
urn:qname:foo:OK:http://example.com/ws/foo.xsd
urn:qname::OK:http://example.com/ws/foo.xsd
urn:qname:*:Reject:http://w3.org/2002/xkms#
```

The first correspond to the following element content QNames (the element name is not significant):

```
<foo xmlns:foo="http://example.com/ws/foo.xsd">foo:OK</foo>
<foo xmlns="http://example.com/ws/foo.xsd">foo:OK</foo>
```

The third example would match both of the others, as well as an infinite number of QNames, since the namespace prefix is explicitly marked as "don't-care."

Relevant ancillary documentation:

[\[XML\] \(Bray, T., Paoli, J., Sperberg-McQueen, C., Maler, E., and F. Yergeau, "Extensible Markup Language \(XML\) 1.0 \(Fifth Edition\)," November 2008.\)](#) [\[XMLNS\] \(Bray, T., Hollander, D., Layman, A., Tobin, R., and H. Henry, "Namespaces in XML 1.0 \(Third Edition\)," December 2009.\)](#)

Identifier uniqueness considerations:

An XML QName is semantically defined as a (namespace-uri, localname) pair; the namespace prefix is not significant. For some applications, such as signature functions, the prefix is important and must be preserved.

The QName URN provides both a one-to-one mapping, that preserves the uniqueness of the underlying QName, and an explicit many-to-one mapping, that does not preserve the uniqueness when it is not important to do so.

Identifier persistence considerations:

QName URN's have the same persistence as the underlying XML QName from which they are derived.

Process of identifier assignment:

Assignment of identifiers depends on the original XML QName, typically deferring to the namespace URI. Anyone with access to an XML QName can create an equivalent QName URN; no registration is required.

Process for identifier resolution:

Inherited from the QName resolution rules (typically the namespace URI) from which the QName URN is created.

Rules for Lexical Equivalence:

If necessary, convert each QName URN to the same encoding. The encoding of a QName URN is determined by context, and depends on the encoding of the document in which it appears.

To be lexically equivalent the resultant QName URN's must be identical when compared byte-for-byte. To be semantically equivalent, ignore the prefix field when comparing bytes.

Conformance with URN Syntax:

Fully conformant.

Validation mechanism:

Inherited from the namespace URI of the original QName.

Scope:

Inherited from the original QName.

3. XML and Namespaces 1.1

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This scheme can also support the XML 1.1 [\[XML11\]](#) (Bray, T., Paoli, J., Sperberg-McQueen, C., Maler, E., Yergeau, F., and J. Cowan, "Extensible Markup Language (XML) 1.1 (Second Edition)," August 2006.) and XML namespaces 1.1 [\[XMLNS11\]](#) (Bray, T., Hollander, D., Layman, A., and R. Tobin, "Namespaces in XML (Second Edition)," August 2006.) standards. In the 1.1 Namespace specification, namespace URI's (universal resource identifiers; see ...xref...) become IRI's (internationalized resource identifiers, see ...xref...). Although currently an Internet-Draft, and therefore not feasible to use as a normative reference here, it is expected that the final RFC will continue to define a way to map IRI's to URI's. To apply this specification to IRI's, then, first apply that mapping before using the syntax here.

4. Security Considerations

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QName URN's provide a way to transcribe XML QName's into and out of URN syntax. Any security considerations are inherited from the original QName.

5. Normative References

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[XML]	Bray, T., Paoli, J., Sperberg-McQueen, C., Maler, E., and F. Yergeau, " Extensible Markup Language (XML) 1.0 (Fifth Edition) ," W3C REC-xml-20081126, November 2008.
[XML11]	Bray, T., Paoli, J., Sperberg-McQueen, C., Maler, E., Yergeau, F., and J. Cowan , " Extensible Markup Language (XML) 1.1 (Second Edition) ," W3C REC-xml11-20060816, August 2006.
[XMLNS]	Bray, T., Hollander, D., Layman, A., Tobin, R., and H. Henry , " Namespaces in XML 1.0 (Third Edition) ," W3C REC-xml-names-20091208, December 2009.

[XMLNS11]	Bray, T. , Hollander, D. , Layman, A. , and R. Tobin , " Namespaces in XML (Second Edition) ," W3C REC-xml-names11-20060816, August 2006.
[RFC3406]	Daigle, L. , van Gulik, D. , Iannella, R. , and P. Faltstrom , " Uniform Resource Names (URN) Namespace Definition Mechanisms ," BCP 33, RFC 3406, October 2002.
[RFC5234]	Crocker, D., Ed. and P. Overell , " Augmented BNF for Syntax Specifications: ABNF ," STD 68, RFC 5234, January 2008.

Appendix A. Change Log (to be removed by RFC Editor before publication)

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A.1. Since draft-rsalz-qname-urn-00

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Updated references and fix reference to XMLNS which was meant to reference XMLNS11. Add a set of issues: "any-uri", "contacts", "curie", "examples", "i18n", "mailing-list", "qname-vs-expname", "reg-info", "registrant", "xml11".

Appendix B. Open issues (to be removed by RFC Editor prior to publication)

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B.1. contacts

[TOC](#)

Type: edit

julian.reschke@greenbytes.de (2009-12-11): Update author information.

B.2. mailing-list

[TOC](#)

Type: edit

julian.reschke@greenbytes.de (2009-12-12): In the boilerplate, state where this Internet Draft should be discussed. Proposal: xml-dev.

B.3. curie

[TOC](#)

Type: edit

julian.reschke@greenbytes.de (2009-12-12): Maybe we should clarify the relation with CURIes (which can be confused with QNames)?

B.4. qname-vs-expname

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Type: edit

julian.reschke@greenbytes.de (2009-12-12): There's a risk that we confuse people by claiming this is about QNames. What we map to URNs is the triple (namespace-name, local-name, prefix), where the prefix is optional. The tuple (namespace-name, local-name) is the *expanded name*, not the QName. Options: (1) just clarify the prose, (2) rename the URN scheme (is it in use already?) to something like "xmlname".

B.5. i18n

[TOC](#)

Type: change

julian.reschke@greenbytes.de (2009-12-11): Need to state how non-ASCII characters are mapped to the URN.

B.6. reg-info

[TOC](#)

In Section 2:

Type: edit

julian.reschke@greenbytes.de (2009-12-11): Update registration info.

B.7. registrant

[TOC](#)

In Section 2:

Type: edit

julian.reschke@greenbytes.de (2009-12-11): Update registrant info.

[TOC](#)

B.8. any-uri

In Section 2:

Type: change

julian.reschke@greenbytes.de (2009-12-12): Need a grammar for "any valid URI". Do we follow strictly XMLNS, which would make it a "URI reference" as per RFC 3986, or do we tolerate junk and/or IRIs (no offense). Also, we need to state that this part of the URN will be empty for elements that are in no namespace (right?).

B.9. examples

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In Section 2:

Type: change

julian.reschke@greenbytes.de (2009-12-11): Having just examples of QNames in element content might be confusing to people not familiar with that use case; we also should have at least one example for an XML element name, and for a QName in content. (potentially also move the examples out of the registration template?)

B.10. xml11

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Type: change

julian.reschke@greenbytes.de (2009-12-11): Consider removing any material related to XML 1.1.

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[TOC](#)

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