

XML instance generator given XML schemas (written in XQUERY!)

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Summary

- Object & History
- General principles
- Some critical issues
 - Namespaces
 - Simpletype processing and Facets
- Limitations of the implementation
- Going further
- Demo / questions / feedback ?

Object & History

- Object
 - Generate XML instances
 - Ensuring validity against one or several XML Schemas (includes / import)
- History
 - Browse the net for a solution
 - Find a first base provided there by C. Wallace :
 - http://en.wikibooks.org/wiki/XQuery/XQuery_and_XML_Schema
 - Discover another one lately :
 - http://en.wikibooks.org/wiki/XQuery/XSD_to_XML_Sample

General principles

- Based on Chris Wallace work
 - Find XML Schema element for root
 - Process this XML Schema element and its children (if any) recursively
- Extended this base for :
 - Namespaces : check namespaces for child nodes (attributes and elements)
 - Simple types : extend the solution to process user simple types (possibly nested) and facets
 - Complex types : handling of extension & ~restriction
 - Abstract elements / group / attributeGroup

Some critical issues

- Handling namespaces
 - Prefixes associated to URI through a global variable
 - Elements are looked up in schemas using Qnames
 - Attributes are qualified when they do not belong to their parent's namespace
- Simple types
 - Recursive resolution, finding every nested types and restrictions
 - Resolution based on regular expression's intersections (computed with an Xquery extension function)
 - The min and max facets case.

Limitations / Todo

- ID / IDREF, xs:key, xs:unique, xs:keyref (post-treatment ?)
- Abstract complex types
- Nested facets processing for max-, minInclusive & max-, minExclusive
- Regular expressions (generator not compliant)
- Mixed content (is this a real issue ?)
- Performances (this is a real issue !)
- Certainly bugs and other things I'm missing !

Going further

- Handle previous slide's limitations
- XML Data anonymisation
 - Xquery validation ?
 - PSVI written in xquery ?
- Financial sector : support for XBRL generation and improvisation

Demo / questions / feedback

Xquery Source : <http://www.1500signes.com/articles>