

# Profiling of a Specification - SchemaProf Tool -

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# What's to come

- Types of Application Profiles
- Components of Application Profiles
- Extensions and Vocabularies
- Annotations
- Domain Profiling
- Beyond XML
- The SchemaProf Tool (Chris)



# The Telcert Attitude

- Generic approach – for all specs
- Driven by the needs of users
- Educate and support
- Give priority to methods currently in use



# Profiling a Specification

- (static) Specifications define a set of compliant data (documents)
- Usually by an information model and by an XML binding
- Profiles modify these definitions and hence the resulting data set
- Static data are the payload of dynamic communication



# Components of APs

- Base Schema and additional constraints
- Modifications
  - XML schema modifications
  - XML non-schema modifications
  - Additional constraints



# Profiling Modes

- Restrictive - less data are compliant
- Extensive – more data
- Incompatible – neither restrictive nor extensive



# Schema Modifications

- Modify the XML schema
- Cardinality modifications
  - Optional/mandatory/forbidden
- Fixing string values
- Attribute properties modifications
  - Required/optional/fixe
  - Admitted values
- Definition of new simple types
  - Restriction by facets, unions, lists



# Global vs. Local Modifications

- Specification re-use elements by reference
- By default modifications change all occurrences
- By *activating* a reference it is replaced by new copy of the referenced item.
- The copy of the item has the same name but a new type which can be modified

# Extensions

- Mild extensions: Specify additional elements or attributes at namespaces at extension points: This is restrictive!
- Extending enumerations with new values: This is extensive!
- Wild extensions: Introducing new elements at places where there is no wildcard: **DISCOURAGED** – by making it difficult to encode

# Vocabularies

- In line vocabularies given as enumerations
- Referenced vocabularies
  - `<source>Vocabulary</source>`
  - `<value>Item</value>`
  - Fixing Vocabulary by fixing `<source>` value



# Non-Schema Modifications

- Modifications may depend on conditions
- Conditions are given by XPATH expressions
- Conditions are evaluated in instance documents whenever a conditionally modified tag is found
- First true condition fires
- Otherwise base schema applies
- Translate into Schematron rules

# Annotations

- Global annotations for profile
  - Name
  - Scope
  - Policy
  - Conformance
  - General
- Local annotations for modifications
  - Explanation
  - Rationale



# Ways of Domain Profiling

- Import of other XML schemas
  - e.g. IEEE LOM
  - Supported by SchemaProf and STT
- Inclusion of namespaces at extension points
  - Possible in SchemaProf
- Inclusion of profiles at extension points
  - New in SchemaProf 3.x



# Additional Constraints

- Package format (zip, tar...)
- Existence of required resources
- Existence of referenced targets
- Vocabulary usage
- New in SchemaProf 4.0

**Demo**



# More on SchemaProf

- Developed at IWM Koblenz
- Open Source
- Developed in Java
- <http://iwm.uni-koblenz.de/schemaprof>
- Schema Transform Tool STT as plugin, developed by Apple
- Cf. IMS Application Profiling Guidelines