

SML Interchange Format

(SML-IF)

What is SML-IF?

- SML Interchange Format
- Defines a standard XML serialization of a complete or incomplete SML model
- Preserves the content and inter-relationships between the documents
 - Definition documents
 - XML Schema
 - Rules, e.g. Schematron
 - Instance documents
- Designed to facilitate exchange of SML models

Structure of an SML-IF Document

```
<model>
  <identity>
    Name, Version, Display Name, Base URI, Description
  </identity>
  <ruleBindings>
    Binds rule documents in definitions to one/more documents in the model
  </ruleBindings>
  <definitions>
    XML Schema and rule documents used for SML model validation , each
    either by value or by reference
  </definitions >
  <instances>
    Model's instance documents, each either by value or by reference
  </instances>
</model>
```

Schema is fully extensible

- All elements allow attribute extensions
- All complex types allow element extensions

Each Definition and Instance Document Consists of:

- Document metadata (docinfo)
 - 0..n alias URIs
 - Mechanism by which SML inter-document references target the document
 - Rule bindings
 - Inter-document references
 - Aliases allow a set of digitally signed documents to be exchanged, by value, without modifying the embedded references
- Document content, one of
 - By value: <data>
 - By reference: <locator>

By Value Document

<document>

 <docInfo>

 <aliases>

 <alias> URI </alias>

 </aliases>

 </docInfo>

 <data>

 The XML content of the document, i.e., capturing the document by value

 </data>

</document>

By Reference Document

<document>

 <docInfo>

 <aliases>

 <alias> URI </alias>

 </aliases>

 </docInfo>

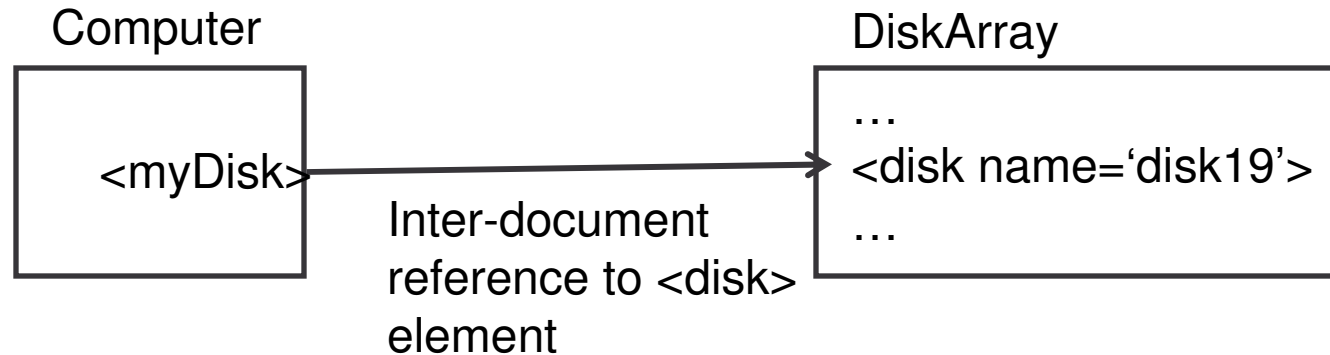
 <locator>

 A locator for locating the document, i.e., capturing the document by reference

 </locator>

</document>

Inter-document References



```

<document>
  <data>
    <Computer xmlns="urn:computer">
      <myDisk sml:ref="true">
        <sml:uri>/redmond/diska1
          #disk[@name='disk19']
        </sml:uri>
      </myDisk>
    </Computer>
  </data>
</document>
2007-06-11
  
```



```

<document>
  <docInfo>
    <aliases>
      <alias>/redmond/diska1</alias>
    </aliases>
  </docInfo>
  <data>
    ..the actual disk document ...
    <disk name='disk19'>
      ...
    </disk>
  </data>
</document>
  
```

Rule Bindings

```
<ruleBindings>
```

```
  <ruleBinding
```

```
    ruleAlias="..."
```

A URI prefix identifying a set of rule documents

```
    documentAlias="..."
```

A URI prefix identifying a set of documents for which the rules must be evaluated

```
  />
```

```
</ruleBindings>
```

URI prefix matching is used to determine the set of documents matching each alias

ruleAlias="/redmond" identifies rule documents with aliases

/redmond/Win2k3

/redmond/WinXP/Professional

/redmond/DC

Open Issues at Submission

- Do models have/need “root” documents demarcated?
- XSD cleanup
 - More global elements to facilitate re-use; currently only <model> is global
 - Change from process contents = skip to lax?
- Do rule bindings need names to facilitate management by repositories?
- Need for keyword substitutions in translated text of error messages?
- Current specification does not capture intent that schemas in the definitions section of the interchange set must be used for schema validation of instances (Schema 1.0 allows schema components to come from “anywhere”)
- Need statement to arbitrate whether text or XSD wins if a conflict between them is found
- Remove requirement for PSVI in the definition of inter-document references