# Schema documentation for sms.xsd

september 11, 2012

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## Namespace: "http://www.ime.iiasa.ac.at/model/spec"

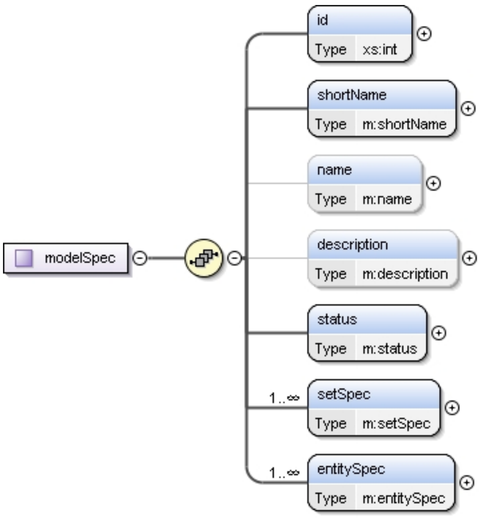
## Schema(s)

### Main schema `sms.xsd`

| | |
|---|---|
| Namespace | http://www.ime.iiasa.ac.at/model/spec |
| Properties | attribute form default: `unqualified`<br>element form default: `unqualified` |

## Complex Type(s)

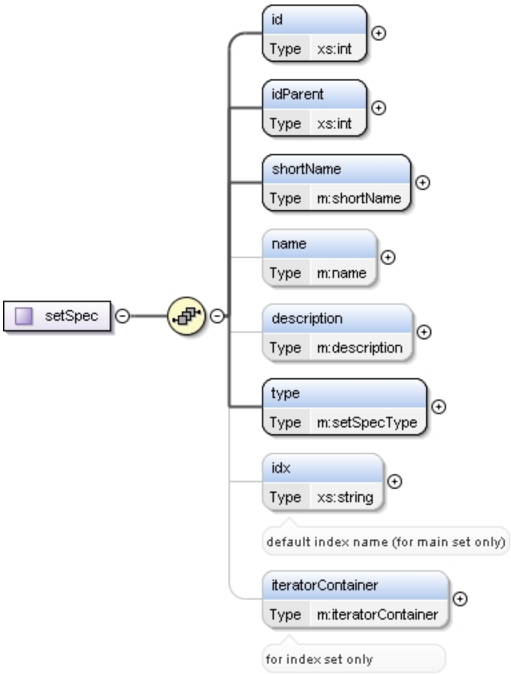
### Complex Type `m:modelSpec`

<table>
<tr><td>Namespace</td><td>http://www.ime.iiasa.ac.at/model/spec</td></tr>
<tr><td>Diagram</td><td>


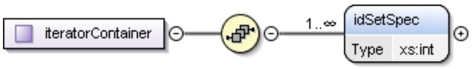
</td></tr>
<tr><td>Model</td><td>id , shortName , name{0,1} , description{0,1} , status , setSpec+ , entitySpec+</td></tr>
<tr><td>Children</td><td>description, entitySpec, id, name, setSpec, shortName, status</td></tr>
<tr><td>Source</td><td><pre>
<xs:complexType name="modelSpec">
  <xs:sequence>
    <xs:element name="id" type="xs:int"/>
</pre></td></tr>
</table>

| | |
|---|---|
| | `<xs:element name="shortName" type="m:shortName"/>`<br>`<xs:element name="name" type="m:name" minOccurs="0" maxOccurs="1"/>`<br>`<xs:element name="description" type="m:description" minOccurs="0" maxOccurs="1"/>`<br>`<xs:element name="status" type="m:status"/>`<br>`<xs:element name="setSpec" type="m:setSpec" maxOccurs="unbounded"/>`<br>`<xs:element name="entitySpec" type="m:entitySpec" maxOccurs="unbounded"/>`<br>`</xs:sequence>`<br>`</xs:complexType>` |

## Complex Type `m:setSpec`

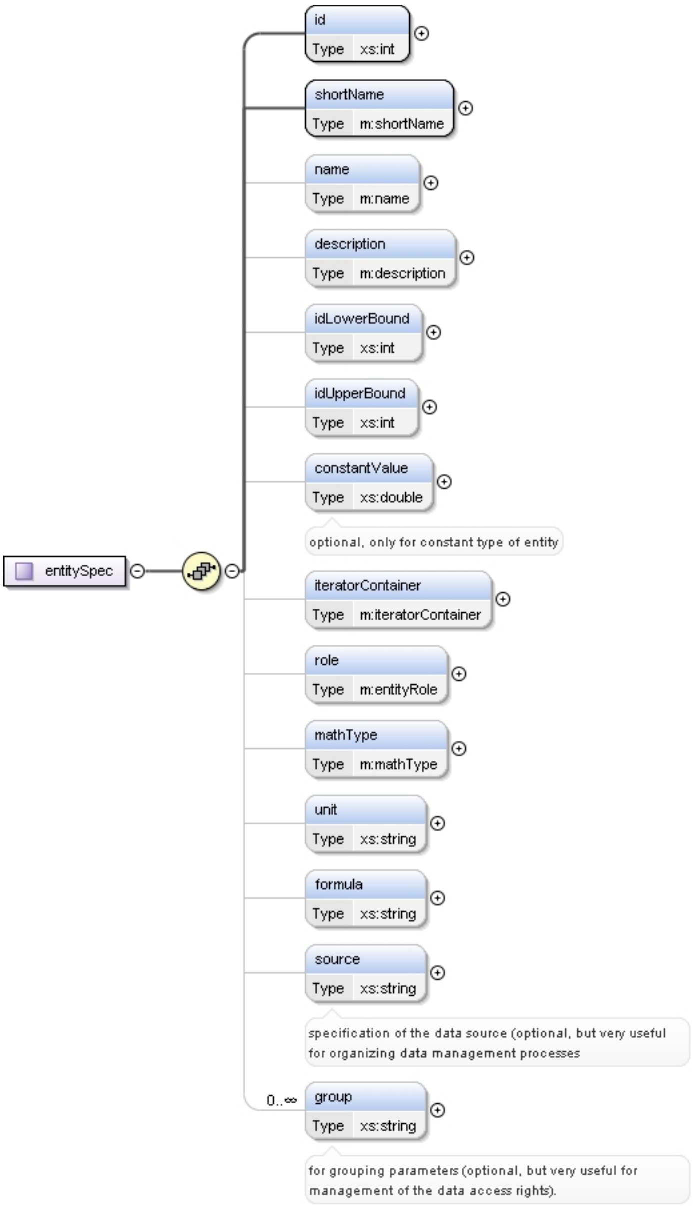
| | |
|---|---|
| Namespace | http://www.ime.iiasa.ac.at/model/spec |
| Diagram |  setSpec<br>id<br>Type xs:int<br>idParent<br>Type xs:int<br>shortName<br>Type m:shortName<br>name<br>Type m:name<br>description<br>Type m:description<br>type<br>Type m:setSpecType<br>idx<br>Type xs:string<br>default index name (for main set only)<br>iteratorContainer<br>Type m:iteratorContainer<br>for index set only |
| Used by | Element m:modelSpec/setSpec |
| Model | id , idParent , shortName , name{0,1} , description{0,1} , type , idx{0,1} , iteratorContainer{0,1} |
| Children | description, id, idParent, idx, iteratorContainer, name, shortName, type |
| Source | `<xs:complexType name="setSpec">`<br>`<xs:sequence>`<br>`<xs:element name="id" type="xs:int"/>`<br>`<!--sub set-->`<br>`<xs:element name="idParent" type="xs:int"/>`<br>`<xs:element name="shortName" type="m:shortName"/>`<br>`<xs:element name="name" type="m:name" minOccurs="0" maxOccurs="1"/>`<br>`<xs:element name="description" type="m:description" minOccurs="0" maxOccurs="1"/>`<br>`<xs:element name="type" type="m:setSpecType"/>`<br>`<xs:element name="idx" type="xs:string" minOccurs="0" maxOccurs="1">`<br>`<xs:annotation>`<br>`<xs:documentation>default index name (for main set only)</xs:documentation>`<br>`</xs:annotation>`<br>`</xs:element>`<br>`<xs:element name="iteratorContainer" type="m:iteratorContainer" minOccurs="0" maxOccurs="1">`<br>`<xs:annotation>`<br>`<xs:documentation>for index set only</xs:documentation>`<br>`</xs:annotation>`<br>`</xs:element>`<br>`</xs:sequence>`<br>`</xs:complexType>` |

## Complex Type `m:iteratorContainer`

| | |
|---|---|
| Namespace | http://www.ime.iiasa.ac.at/model/spec |
| Diagram |  |
| Used by | Elements m:entitySpec/iteratorContainer, m:setSpec/iteratorContainer |

<table>
<tr><td>Model</td><td>idSetSpec+</td></tr>
<tr><td>Children</td><td>idSetSpec</td></tr>
<tr><td>Source</td><td><pre>
&lt;xs:complexType name="iteratorContainer"&gt;
  &lt;xs:sequence&gt;
    &lt;xs:element name="idSetSpec" type="xs:int" minOccurs="1" maxOccurs="unbounded"/&gt;
  &lt;/xs:sequence&gt;
&lt;/xs:complexType&gt;
</pre></td></tr>
</table>

## Complex Type `m:entitySpec`

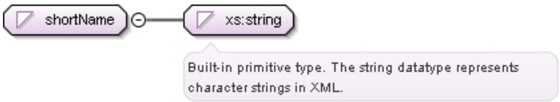
<table>
<tr><td>Namespace</td><td>http://www.ime.iiasa.ac.at/model/spec</td></tr>
<tr><td>Diagram</td><td>


</td></tr>
<tr><td>Used by</td><td>Element    m:modelSpec/entitySpec</td></tr>
<tr><td>Model</td><td>id , shortName , name{0,1} , description{0,1} , idLowerBound{0,1} , idUpperBound{0,1} , constantValue{0,1} , iteratorContainer{0,1} , role{0,1} , mathType{0,1} , unit{0,1} , formula{0,1} , source{0,1} , group*</td></tr>
<tr><td>Children</td><td>constantValue, description, formula, group, id, idLowerBound, idUpperBound, iteratorContainer, mathType, name, role, shortName, source, unit</td></tr>
<tr><td>Source</td><td><pre>
&lt;xs:complexType name="entitySpec"&gt;
  &lt;xs:sequence&gt;
    &lt;xs:element name="id" type="xs:int"/&gt;
    &lt;xs:element name="shortName" type="m:shortName"/&gt;
    &lt;xs:element name="name" type="m:name" minOccurs="0" maxOccurs="1"/&gt;
    &lt;xs:element name="description" type="m:description" minOccurs="0" maxOccurs="1"/&gt;
</pre></td></tr>
</table>

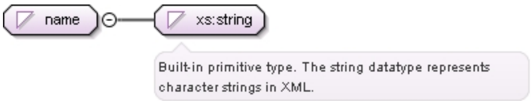
```
    <xs:element name="idLowerBound" type="xs:int" minOccurs="0" maxOccurs="1"/>
    <xs:element name="idUpperBound" type="xs:int" minOccurs="0" maxOccurs="1"/>
    <xs:element name="constantValue" type="xs:double" minOccurs="0" maxOccurs="1">
      <xs:annotation>
        <xs:documentation>optional, only for constant type of entity</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="iteratorContainer" type="m:iteratorContainer" minOccurs="0" maxOccurs="1"/>
    <xs:element name="role" type="m:entityRole" minOccurs="0" maxOccurs="1"/>
    <xs:element name="mathType" type="m:mathType" minOccurs="0" maxOccurs="1"/>
    <xs:element name="unit" type="xs:string" minOccurs="0" maxOccurs="1"/>
    <xs:element name="formula" type="xs:string" minOccurs="0" maxOccurs="1"/>
    <xs:element name="source" type="xs:string" minOccurs="0" maxOccurs="1">
      <xs:annotation>
        <xs:documentation>specification of the data source (optional, but very useful for organizing
 data management processes</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="group" type="xs:string" minOccurs="0" maxOccurs="unbounded">
      <xs:annotation>
        <xs:documentation>for grouping parameters (optional, but very useful for management of the
 data access rights).</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
```

# Simple Type(s)

## Simple Type `m:shortName`

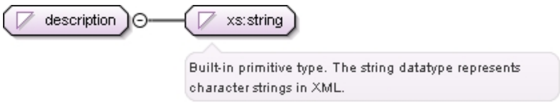
| | | |
|---|---|---|
| Namespace | http://www.ime.iiasa.ac.at/model/spec | |
| Diagram |  shortName<br>xs:string<br>Built-in primitive type. The string datatype represents character strings in XML. | |
| Type | restriction of xs:string | |
| Facets | minLength | 1 |
| | maxLength | 8 |
| Used by | Elements | m:entitySpec/shortName, m:modelSpec/shortName, m:setSpec/shortName |
| Source | `<xs:simpleType name="shortName">`<br>`  <xs:restriction base="xs:string">`<br>`    <xs:minLength value="1"/>`<br>`    <xs:maxLength value="8"/>`<br>`  </xs:restriction>`<br>`</xs:simpleType>` | |

## Simple Type `m:name`

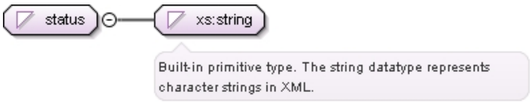
| | | |
|---|---|---|
| Namespace | http://www.ime.iiasa.ac.at/model/spec | |
| Diagram |  name<br>xs:string<br>Built-in primitive type. The string datatype represents character strings in XML. | |
| Type | restriction of xs:string | |
| Facets | minLength | 1 |
| | maxLength | 32 |
| Used by | Elements | m:entitySpec/name, m:modelSpec/name, m:setSpec/name |
| Source | `<xs:simpleType name="name">`<br>`  <xs:restriction base="xs:string">`<br>`    <xs:minLength value="1"/>`<br>`    <xs:maxLength value="32"/>`<br>`  </xs:restriction>`<br>`</xs:simpleType>` | |

## Simple Type `m:description`

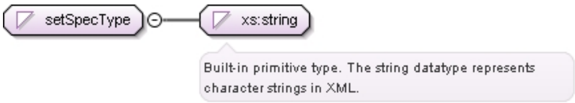
| | |
|---|---|
| Namespace | http://www.ime.iiasa.ac.at/model/spec |

| | | |
|---|---|---|
| Diagram |  description<br>xs:string<br>Built-in primitive type. The string datatype represents character strings in XML. | |
| Type | restriction of xs:string | |
| Facets | minLength | 1 |
| | maxLength | 512 |
| Used by | Elements | m:entitySpec/description, m:modelSpec/description, m:setSpec/description |
| Source | `<xs:simpleType name="description">`<br>`  <xs:restriction base="xs:string">`<br>`    <xs:minLength value="1"/>`<br>`    <xs:maxLength value="512"/>`<br>`  </xs:restriction>`<br>`</xs:simpleType>` | |

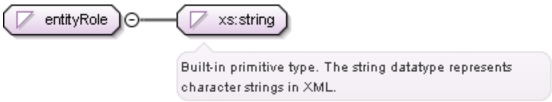
## Simple Type `m:status`

| | | |
|---|---|---|
| Namespace | http://www.ime.iiasa.ac.at/model/spec | |
| Diagram |  status<br>xs:string<br>Built-in primitive type. The string datatype represents character strings in XML. | |
| Type | restriction of xs:string | |
| Facets | enumeration | EDIT |
| | enumeration | TEST |
| | enumeration | COMMITTED |
| Used by | Element | m:modelSpec/status |
| Source | `<xs:simpleType name="status">`<br>`  <xs:restriction base="xs:string">`<br>`    <xs:enumeration value="EDIT"/>`<br>`    <xs:enumeration value="TEST"/>`<br>`    <xs:enumeration value="COMMITTED"/>`<br>`  </xs:restriction>`<br>`</xs:simpleType>` | |

## Simple Type `m:setSpecType`

| | | |
|---|---|---|
| Namespace | http://www.ime.iiasa.ac.at/model/spec | |
| Diagram |  setSpecType<br>xs:string<br>Built-in primitive type. The string datatype represents character strings in XML. | |
| Type | restriction of xs:string | |
| Facets | enumeration | COLLECTION |
| | enumeration | SEQUENCE |
| Used by | Element | m:setSpec/type |
| Source | `<xs:simpleType name="setSpecType">`<br>`  <xs:restriction base="xs:string">`<br>`    <xs:enumeration value="COLLECTION"/>`<br>`    <xs:enumeration value="SEQUENCE"/>`<br>`  </xs:restriction>`<br>`</xs:simpleType>` | |

## Simple Type `m:entityRole`

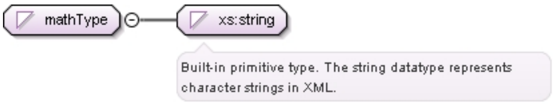
| | |
|---|---|
| Namespace | http://www.ime.iiasa.ac.at/model/spec |
| Diagram |  entityRole<br>xs:string<br>Built-in primitive type. The string datatype represents character strings in XML. |

| | | | |
|---|---|---|---|
| Type | restriction of xs:string | | |
| Facets | enumeration | CONSTANT | |
| | enumeration | PARAMETER | |
| | enumeration | DECISION_VAR | |
| | enumeration | EXTERNAL_DECISION_VAR | |
| | enumeration | OUTCOME_VAR | |
| | enumeration | AUXILIARY_VAR | |
| | enumeration | ASSIGNMENT | |
| | enumeration | CONSTRAINT | |
| | enumeration | A_VARIABLE | any type of variable: DECISION_VAR, EXTERNAL_DECISION_VAR,OUTCOME_VAR,or AUXILIARY_VAR |
| | enumeration | A_FORMULA | any type of formula: ASSIGNMENT or CONSTRAINT |
| Used by | Element | m:entitySpec/role | |

Source

```
<xs:simpleType name="entityRole">
  <xs:restriction base="xs:string">
    <xs:enumeration value="CONSTANT"/>
    <xs:enumeration value="PARAMETER"/>
    <xs:enumeration value="DECISION_VAR"/>
    <xs:enumeration value="EXTERNAL_DECISION_VAR"/>
    <xs:enumeration value="OUTCOME_VAR"/>
    <xs:enumeration value="AUXILIARY_VAR"/>
    <xs:enumeration value="ASSIGNMENT"/>
    <xs:enumeration value="CONSTRAINT"/>
    <xs:enumeration value="A_VARIABLE">
      <xs:annotation>
        <xs:documentation>any type of variable: DECISION_VAR, EXTERNAL_DECISION_VAR,OUTCOME_VAR,or
 AUXILIARY_VAR</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="A_FORMULA">
      <xs:annotation>
        <xs:documentation>any type of formula: ASSIGNMENT or CONSTRAINT</xs:documentation>
      </xs:annotation>
    </xs:enumeration>
  </xs:restriction>
</xs:simpleType>
```

## Simple Type `m:mathType`

| | | |
|---|---|---|
| Namespace | http://www.ime.iiasa.ac.at/model/spec | |
| Diagram |   mathType<br>xs:string<br>Built-in primitive type. The string datatype represents character strings in XML. | |
| Type | restriction of xs:string | |
| Facets | enumeration | INTEGER |
| | enumeration | BINARY |
| | enumeration | REAL |
| Used by | Element | m:entitySpec/mathType |

Source

```
<xs:simpleType name="mathType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="INTEGER"/>
    <xs:enumeration value="BINARY"/>
    <xs:enumeration value="REAL"/>
  </xs:restriction>
</xs:simpleType>
```