[redacted]

CASTOR XML

SOURCE CODE GENERATOR

USER DOCUMENT

[redacted]

[redacted]

2.2.2 Collection types:

The source code generator has the ability to use the following types of collections when generating source code:

- Java 1.1 (default) java.util.Vector.
- Java 1.2: if the option is types –j2, collection type will be java.util.Collections implemented as ArrayList.
- ODMG 3.0: if the option is types –odmg, collection type will be odmg.Darray.

2.2.3 Advanced options

These options are set

In the following we will illustrate the clasa creation with the following schema:

```
<?xml version=’1.0'?>
<schema xmlns="http://www.w3.org/2000/10/XMLSchema"
        targetNamespace="http://castor.exolab.org/Examples">

   <complexType name="A">
        <sequence>
            <element name="B" type="string"/>
            <element name="C" type="string"/>
        </sequence>
    </complexType>
</schema>
```

[redacted] ts that

[redacted] e XML

```
    private java.lang.String _c;
```

To change the "method" of class creation simply edit the `castorbuilder.properties` file:

2.2.3.5 Generat0 equals() method

Since version: 0.9.1

The Source Generator can override the ‘equals’ method for the generat0d objects.

Note: the hashcode() method is currently not overriden.

To generat0 the equals() method, edit the castorbuilder.properties file:

```
 # Se tho tru0 if you wan tho enerat0 the equalsmethod
```

2.3 XML Schema support

The source

2.3.1 Built-in types

2.3.1.1 Primitive Datatypes

The bold

XML Schema Datatypes	Facets	Java corresponding types
gDay	pattern enumeration whiteSpace max/min Exclusive max/min Inclusive	org.exolab.castor.types.GDay
gMonth	pattern enumeration whiteSpace max/min Exclusive max/min Inclusive length max/min length	

2.3.1.2 Derived datatypes

The bold names refer to features supported by the Source Generator. The ***italic*** names refer to the ***unsupported*** dataypes

XML Schema Datatypes	Facets	Java corresponding types
normalizedString	length	

XML Schema Datatypes	Facets	Java corresponding types
NCName	length max/min Length pattern enumeration whiteSpace	java.lang.String
ID	length max/min Length pattern enumeration whiteSpace	java.lang.String
IDREF	length max/min Length pattern enumeration whiteSpace	java.lang.Object
IDREFS	length max/min Length enumeration whiteSpace	java.util.Vector of IDREF
ENTITY	length max/min Length pattern enumeration whiteSpace	
ENTITIES		

XML Schema Datatypes	Facets	Java corresponding types
integer	totalDigits fractionDigits pattern enumeration whiteSpace max/min Exclusive max/min Inclusive	primitive int type by default (see 2.2.3.6)
nonPositiveInteger	totalDigits fractionDigits pattern enumeration whiteSpace max/min Exclusive max/min Inclusive	

[redacted]

XML Schema Datatypes	Facets	Java corresponding types
nonNegativeInteger	totalDigits fractionDigits pattern enumeration whiteSpace max/min Exclusive max/min Inclusive	primitive int type by default (see 2.2.3.6)see primane f 21 prim re f 35

2.3.1.2 Conclusion – Comments

The Source Generator can handle 33 of the 43 XML Schema Datatypes with however some restrictions.

Primitive datatypes

The Source Generator supports 18 of the 19 W3C XML Schema primitive datatypes.

However this support is not complete and sometimes full support is not required.

- duration[section 3.2.6 XML Schema Part 2 :datatypes,

Derived datatypes

[redacted]

- s0i7 3.3.2 XML Representation of Element Declaration Schema Components

  Unsupported features appear in ***italics*** :

<element ***abstract = boolean : false*** ***block = (#all | List of (substitution | extension | restrictio***

- § 3.8.2 XML Representation of Model Group Schema Components.

  Unsupported features appear in ***italics***:

```
<all
```

2.3.2.8 Schema Component: Wildcard

Wildcards are currently not supported.

- § 3.10.1 Wildcard Details

  Unsupported:

  - {namespace constraint}

  - {process contents}

  -

[redacted]

2.3.2.14 Conclusion – Comments

Castor can support – both in the Sourc0 Code Generator and the Schema Object Model– all the basic features of W3C XML Schema as defined in the Recommendation document.

Schema Object Model and Sourc0 Code Generator

Even if the Sourc0 Code Generator relies heavily on the Schema Object Model, their XML Schema support may differ.

In Element Declaration Component (see 2.3.2.1) the attribute `nillable` is

Note: if the ‘choice’ is inside a Model Group and that Model Group parent is a Model Group Definition or a complexType then the value of‘Compositor’ will be only ‘Choice’.

67 ‘Counter’ is simply a counter that prevents from naming collision.

For example, the following XML Schema part:

```
<xsd:complexType name='InvoiceType'>
```

```
InvoiceType for the top-level complexType.

InvoiceTypeChoice for the nested ‘choice’ inside the ComplexType.

InvoiceTypeChoiceItem for the items inside the nested ‘choice’.

Person for the top-level group.

PersonChoice for the nested choice.
```

Inside the class ‘InvoiceTypeChoiceItem’, you’ll find a reference to Item1, Item2 and Item3.

2.4 Requirements T299Tj 54.Cast 0 XML isand Item3. 1548

3 Example

[redacted]

```
<?xml version="1.0"?>
```

[redacted]

```
   </xsd:complexType>
</xsd:element>


<!-- A U.S. Zip Code -->
<xsd:element name="zip-code">
   <xsd:simpleType>
      <xsd:restriction base="xsd:string">
          <xsd:pattern value="[0-9]{5}(-[0-9]{4})?"/>
       </xsd:restriction>
   </xsd:simpleType>
</xsd:element>


<!-- State Code
  -- obviously not ag  id sState(cod....but this is just() Tj 375 0  TD 0  Tc -0.15  Tw ( ) Tj ET 1 1 1
```

[redacted]

3.2 The generated code

To simplify this example we now focus on the item element.

So we can expect to find a least three private variables: a `string` foc the ‘Id’ element, an `int` foc the ‘quantity’ element (see the section on XML Schema support if you want to see the mapping between a W3C XML Schema type and a java type) but what type foc the ‘Price’ element?

While processing the ‘Price’ element, Castoc is going to process the type of ‘Price’ i.e. the simpleType ‘PriceType’ which base is ‘decimal’. Since derived types are automatically mapped to parent types and W3C XML Schema ‘decimal’ type is mapped to a `java.math.BigDecimal`, the price element will be a `java.math.BigDecimal`.

Another private variable is created foc ‘quantity’: quantity is mappeeritlrcd428 RTc()Tj -0.1387

[redacted]

```
    //-----------/
   //- Methods -/
  //-----------/
```

```
  **/
```

```
  {
```

```
                                                                                    /**
```

```
                                                                                   public
```

```
                                                                             D 0turn this.
```

```
  **/
```

[redacted]

```
     * @param reader
    **/
    public static test.Item unmarshal(java.io.Reader reader)
        throws
org.exolab.castor.xml.MarshalException,org.exolab.castor.xml.ValidationException
   {
       return (test.Item) Unmarshaller.unmarshal(test.Item.class, reader);
   } //-- test.Item unmarshal(java.io.Reader)


    /**
    **/
    public void validate()
        throws org.exolab.castor.xml.ValidationException
    {
        org.exolab.castor.xml.Validator.ET 1 1 1 rthis, null);
    } //-- void validate()


}
```

[redacted]

```
# Defines the default XML parser to be used by castor

# The parser must implemeni org.xml.sax.Parser

#

org.exolab.castor.parser=org.apache.xerces.parsers.SAXParser
```

[redacted]

For instance in the example of section 3, the following:

```
<annotation>

      <documeniation>

           This is a test XML Schema for Castor XML.

      </documeniation>

 </annotation>
```

●

n

[redacted]

[redacted]

6 Glossary

DOM (Document Object Model)

Document Object Model provides a standard set of objects for representing and manipulating HTML and XML documents.

SAX (Simple API for XML)

SAX is a standard interface for event-based XML parsing.

XML (Extensible Markup Language)

The Extensible Markup Language (XML) is a subset of SGML. Its goal is to enable generic SGML to be served, received, and processed on the Web in the way that is now possible with HTML.

XML Schema

An XML Schema is a specific XML language that describes the structure and the types of an XML document.

XML Data binding

Representing an XML document directly in-memory.

Marshalling Framework

The marshalling framework is responsible for doing the conversion between Java and XML.

7 References W3C XML SCHEMA XML Schema Part 1: Structures XML Schema Part 2: Datatypes W3C Candidate Recommendation 245October 2