ABOUT SAURABH ARORA

Saurabh graduated with an engineering degree in Information Technology from YMCA Institute of Engineering, India. He is SCJP, OCWCD certified and currently working as Technical Lead with one of the biggest service based firms and is involved in projects extensively using Java and JEE technologies. He has worked in E-Commerce, Banking and Telecom domain.

JAXB: Generate Classes from XSD

Posted by: Saurabh Arora in bind March 2nd, 2016 2 Comments 18777 Views

In this tutorial, we shall learn generating classes from XML Schema Design (XSD) using JAXB. This can be achieved using JAXB binding compiler

```
XJC
```

command.

```
XJC
```

is included in the bin directory in the JDK starting with Java SE 6.

1. Requirements

To see this example in action, following is the minimum requirement:

1. JDK 6 (Java SE 6) or later
2. JAXB 2.1 API

2. XJC command

The JAXB

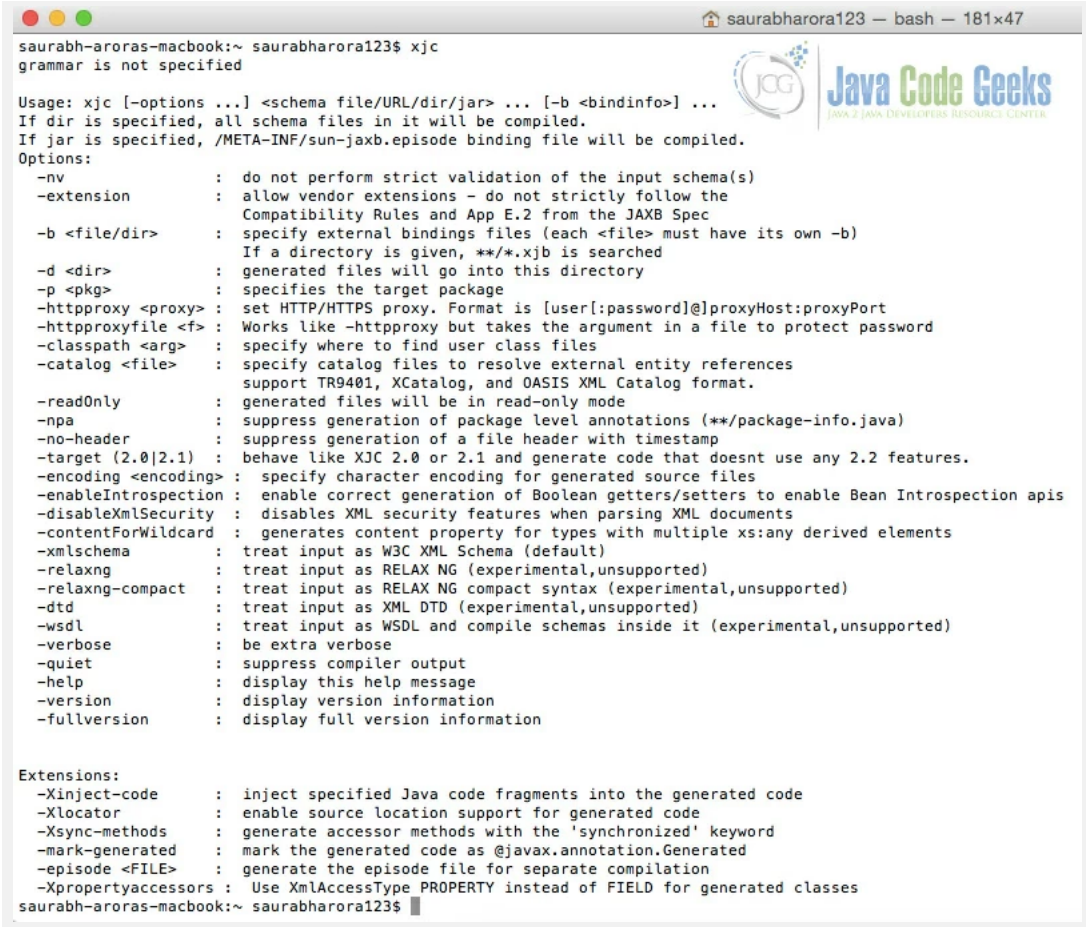
```
XJC
```

schema binding compiler transforms/binds, a source XML schema (XSD) to a set of JAXB content classes in the Java programming language.

To see the usage of

```
XJC
```

command, just type in the same in command prompt/shell:



XJC Command Usage

3. XJC in Action: Generating classes form XSD

To see the command

```
XJC
```

in action, we will need an XSD file. We will be using following XSD file in our example.

Employee.xsd

```
<xs:schema attributeFormDefault="unqualified" elementFormDefault="qualified" xmlns:xs="http://www.w3.org/200
  <xs:element name="employee">
    <xs:complexType>
      <xs:sequence>
        <xs:element type="xs:byte" name="id"/>
        <xs:element type="xs:string" name="name"/>
        <xs:element name="address">
          <xs:complexType>
            <xs:sequence>
              <xs:element type="xs:string" name="addressLine1"/>
              <xs:element type="xs:string" name="addressLine2"/>
              <xs:element type="xs:string" name="country"/>
              <xs:element type="xs:string" name="state"/>
              <xs:element type="xs:short" name="zip"/>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element type="xs:string" name="assestsAllocated" maxOccurs="unbounded" minOccurs="0"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```

To run the command, we shall browse to the directory having the xsd file, and then we shall execute following command:

```
xjc -d src -p com.javacodegeeks.examples.xjc Employee.xsd
```

Here

```
-d
```

specifies to which folder generated classes shall go. In this case it shall be src directory, make sure that the target directory exists.

```
-p
```

specifies the target package structure. In this case it would be com.javacodegeeks.examples.xjc

Following shall be the output of above command:

```
saurabh-aroras-macbook:~ saurabharora123$ xjc -d src -p com.javacodegeeks.examples.xjc Employee.xsd
parsing a schema...
compiling a schema...
com/javacodegeeks/examples/xjc/Employee.java
com/javacodegeeks/examples/xjc/ObjectFactory.java
saurabh-aroras-macbook:~ saurabharora123$
```

XJC Execution

And we can see the package structure is created in the desired manner:

Package Structure

Now let us see the java files created.

Employee.java

```java
//
// This file was generated by the JavaTM Architecture for XML Binding(JAXB) Reference Implementation, v2.2.
// See <a href="http://java.sun.com/xml/jaxb">http://java.sun.com/xml/jaxb</a>
// Any modifications to this file will be lost upon recompilation of the source schema.
// Generated on: 2016.02.28 at 03:27:10 PM IST
//


package com;

import java.util.ArrayList;
import java.util.List;
import javax.xml.bind.annotation.XmlAccessType;
import javax.xml.bind.annotation.XmlAccessorType;
import javax.xml.bind.annotation.XmlElement;
import javax.xml.bind.annotation.XmlRootElement;
import javax.xml.bind.annotation.XmlType;


/**
 * <p>Java class for anonymous complex type.
 *
 * <p>The following schema fragment specifies the expected content contained within this class.
 *
 * <complexType>
 *   <complexContent>
 *     <restriction base="{http://www.w3.org/2001/XMLSchema}anyType">
 *       <sequence>
 *         <element name="name" type="{http://www.w3.org/2001/XMLSchema}string"/>
 *         <element name="address">
 *           <complexType>
 *             <complexContent>
 *               <restriction base="{http://www.w3.org/2001/XMLSchema}anyType">
 *                 <sequence>
 *                   <element name="addressLine1" type="{http://www.w3.org/2001/XMLSchema}string"/>
 *                   <element name="addressLine2" type="{http://www.w3.org/2001/XMLSchema}string"/>
 *                   <element name="country" type="{http://www.w3.org/2001/XMLSchema}string"/>
 *                   <element name="state" type="{http://www.w3.org/2001/XMLSchema}string"/>
 *                   <element name="zip" type="{http://www.w3.org/2001/XMLSchema}short"/>
 *                 </sequence>
 *               </restriction>
 *             </complexContent>
 *           </complexType>
 *         </element>
 *         <element name="assestsAllocated" type="{http://www.w3.org/2001/XMLSchema}string" maxOccurs="unbo
 *         <element name="id" type="{http://www.w3.org/2001/XMLSchema}byte"/>
 *       </sequence>
 *     </restriction>
 *   </complexContent>
 * </complexType>
 *
 *
 */
@XmlAccessorType(XmlAccessType.FIELD)
@XmlType(name = "", propOrder = {
    "name",
    "address",
    "assestsAllocated",
    "id"
})
@XmlRootElement(name = "employee")
public class Employee {
```

```
064     @XmlElement(required = true)
065     protected String name;
066     @XmlElement(required = true)
067     protected Employee.Address address;
068     protected List assestsAllocated;
069     protected byte id;
070
071     /**
072      * Gets the value of the name property.
073      *
074      * @return
075      *     possible object is
076      *     {@link String }
077      *
078      */
079     public String getName() {
080         return name;
081     }
082
083     /**
084      * Sets the value of the name property.
085      *
086      * @param value
087      *     allowed object is
088      *     {@link String }
089      *
090      */
091     public void setName(String value) {
092         this.name = value;
093     }
094
095     /**
096      * Gets the value of the address property.
097      *
098      * @return
099      *     possible object is
100      *     {@link Employee.Address }
101      *
102      */
103     public Employee.Address getAddress() {
104         return address;
105     }
106
107     /**
108      * Sets the value of the address property.
109      *
110      * @param value
111      *     allowed object is
112      *     {@link Employee.Address }
113      *
114      */
115     public void setAddress(Employee.Address value) {
116         this.address = value;
117     }
118
119     /**
120      * Gets the value of the assestsAllocated property.
121      *
122      * <p>
123      * This accessor method returns a reference to the live list,
124      * not a snapshot. Therefore any modification you make to the
125      * returned list will be present inside the JAXB object.
126      * This is why there is not a <code>set</code> method for the assestsAllocated property.
127      *
128      * <p>
129      * For example, to add a new item, do as follows:
130      *    getAssestsAllocated().add(newItem);
131      *
132      *
133      * <p>
134      * Objects of the following type(s) are allowed in the list
135      * {@link String }
136      *
137      *
138      */
139     public List getAssestsAllocated() {
140         if (assestsAllocated == null) {
141             assestsAllocated = new ArrayList();
142         }
143         return this.assestsAllocated;
144     }
145
146     /**
147      * Gets the value of the id property.
148      *
149      */
150     public byte getId() {
151         return id;
152     }
153
154     /**
155      * Sets the value of the id property.
156      *
157      */
158     public void setId(byte value) {
159         this.id = value;
160     }
161
162
163     /**
164      * <p>Java class for anonymous complex type.
165      *
166      * <p>The following schema fragment specifies the expected content contained within this class.
167      *
168      * <complexType>
```

```
     *   <complexContent>
     *     <restriction base="{http://www.w3.org/2001/XMLSchema}anyType">
     *       <sequence>
     *         <element name="addressLine1" type="{http://www.w3.org/2001/XMLSchema}string"/>
     *         <element name="addressLine2" type="{http://www.w3.org/2001/XMLSchema}string"/>
     *         <element name="country" type="{http://www.w3.org/2001/XMLSchema}string"/>
     *         <element name="state" type="{http://www.w3.org/2001/XMLSchema}string"/>
     *         <element name="zip" type="{http://www.w3.org/2001/XMLSchema}short"/>
     *       </sequence>
     *     </restriction>
     *   </complexContent>
     * </complexType>
     *
     *
     */
    @XmlAccessorType(XmlAccessType.FIELD)
    @XmlType(name = "", propOrder = {
        "addressLine1",
        "addressLine2",
        "country",
        "state",
        "zip"
    })
    public static class Address {

        @XmlElement(required = true)
        protected String addressLine1;
        @XmlElement(required = true)
        protected String addressLine2;
        @XmlElement(required = true)
        protected String country;
        @XmlElement(required = true)
        protected String state;
        protected short zip;

        /**
         * Gets the value of the addressLine1 property.
         *
         * @return
         *     possible object is
         *     {@link String }
         *
         */
        public String getAddressLine1() {
            return addressLine1;
        }

        /**
         * Sets the value of the addressLine1 property.
         *
         * @param value
         *     allowed object is
         *     {@link String }
         *
         */
        public void setAddressLine1(String value) {
            this.addressLine1 = value;
        }

        /**
         * Gets the value of the addressLine2 property.
         *
         * @return
         *     possible object is
         *     {@link String }
         *
         */
        public String getAddressLine2() {
            return addressLine2;
        }

        /**
         * Sets the value of the addressLine2 property.
         *
         * @param value
         *     allowed object is
         *     {@link String }
         *
         */
        public void setAddressLine2(String value) {
            this.addressLine2 = value;
        }

        /**
         * Gets the value of the country property.
         *
         * @return
         *     possible object is
         *     {@link String }
         *
         */
        public String getCountry() {
            return country;
        }

        /**
         * Sets the value of the country property.
         *
         * @param value
         *     allowed object is
         *     {@link String }
         *
         */
        public void setCountry(String value) {
            this.country = value;
```

```
        }

        /**
         * Gets the value of the state property.
         *
         * @return
         *     possible object is
         *     {@link String }
         *
         */
        public String getState() {
            return state;
        }

        /**
         * Sets the value of the state property.
         *
         * @param value
         *     allowed object is
         *     {@link String }
         *
         */
        public void setState(String value) {
            this.state = value;
        }

        /**
         * Gets the value of the zip property.
         *
         */
        public short getZip() {
            return zip;
        }

        /**
         * Sets the value of the zip property.
         *
         */
        public void setZip(short value) {
            this.zip = value;
        }

    }

}
```

We can see that Employee.java also has static class

```
Address
```

as it was desired.

Also we can see that an unexpected ObjectFactory.java is also created. This contains factory methods to create objects of classes created. This can come into use when creating JAXBElement representation of objects.

ObjectFactory.java

```
//
// This file was generated by the JavaTM Architecture for XML Binding(JAXB) Reference Implementation, v2.2.8
// See <a href="http://java.sun.com/xml/jaxb">http://java.sun.com/xml/jaxb</a>
// Any modifications to this file will be lost upon recompilation of the source schema.
// Generated on: 2016.02.27 at 09:09:47 PM IST
//


package com.javacodegeeks.examples.xjc;

import javax.xml.bind.annotation.XmlRegistry;


/**
 * This object contains factory methods for each
 * Java content interface and Java element interface
 * generated in the com.javacodegeeks.examples.xjc package.
 * <p>An ObjectFactory allows you to programatically
 * construct new instances of the Java representation
 * for XML content. The Java representation of XML
 * content can consist of schema derived interfaces
 * and classes representing the binding of schema
 * type definitions, element declarations and model
 * groups.  Factory methods for each of these are
 * provided in this class.
 *
 */
@XmlRegistry
public class ObjectFactory {


    /**
     * Create a new ObjectFactory that can be used to create new instances of schema derived classes for pac
     *
     */
    public ObjectFactory() {
    }

    /**
     * Create an instance of {@link Employee }
     *
     */
    public Employee createEmployee() {
        return new Employee();
```

```
    }

    /**
     * Create an instance of {@link Employee.Address }
     *
     */
    public Employee.Address createEmployeeAddress() {
        return new Employee.Address();
    }

}
```

4. Conclusion

In this example, we learnt what is

```
XJC
```

, how to generate binding Java classes from an XSD, and the sample code generated. The code generated was the desired class type and the object factory that can be used to create objects of the generated class.

Tagged with: GENERATE CLASSES JAX-B XJC XSD

Do you want to know how to develop your skillset to become a Java Rockstar?

Subscribe to our newsletter to start Rocking right now!
To get you started we give you our best selling eBooks for FREE!

1. JPA Mini Book
2. JVM Troubleshooting Guide
3. JUnit Tutorial for Unit Testing
4. Java Annotations Tutorial
5. Java Interview Questions
6. Spring Interview Questions
7. Android UI Design

and many more ....

Email address:

Your email address

Receive Java & Developer job alerts in your Area

Sign up

LIKE THIS ARTICLE? READ MORE FROM JAVA CODE GEEKS

access to
well as insig
other relate

Email a

Your ema

Receive
Area

Sign up

JOIN US

unique and
check out o
be a **guest**
your writing

2 COMMENTS Oldest

David 2 years ago

Did you try on Java 8? For me it works on 6, and 7, but not 8 or greater.

-2 Reply

Ansari 1 year ago

Reply to David

Even for me its not working on Java 8, I tired its say Xjc is not recognozied.

0 Reply