

Generating Java Classes from an XML Schema



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Overview



The Schema-first Approach

- Compared to the code-first approach

Generate Java Classes from an XSD

- Using the xjc tool
- Marshalling with generated classes

Customizing Bindings

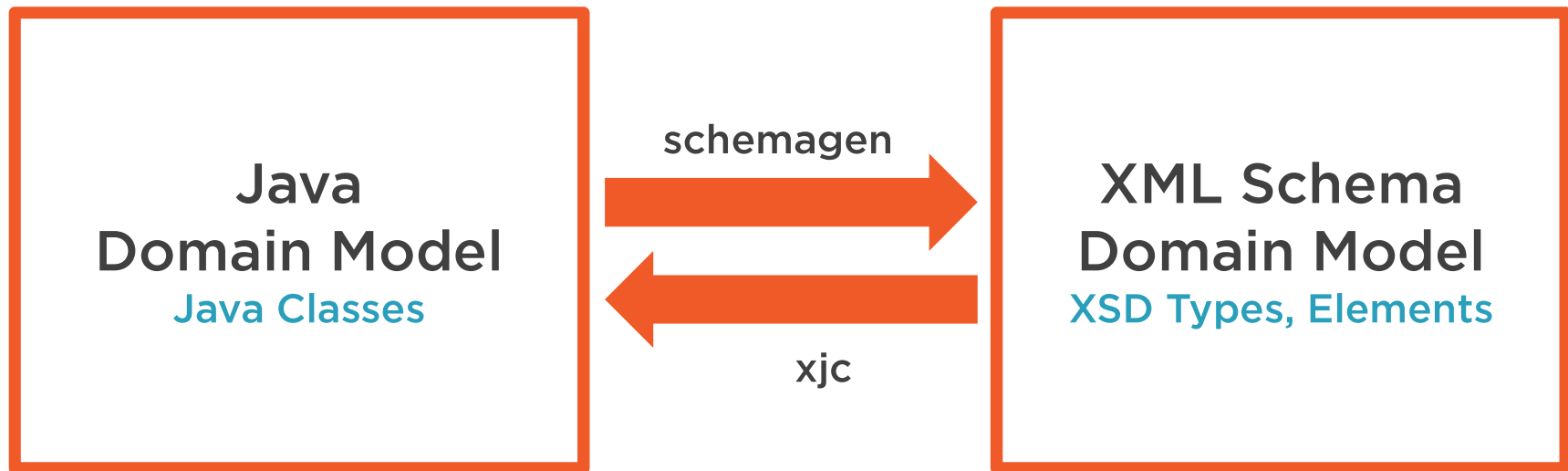
- Basics and possibilities
- Using Java 8 date and time classes
- Customizing enum mapping



The Schema-first Approach



Schema-first vs Code-first



The Code-first Approach

Advantages

Easy to use if you are
a Java developer

More control over
the Java classes

Disadvantages

Less control over the XSD



The Schema-first Approach



The Schema-first Approach

Advantages

**Domain model independent
of programming language**

Disadvantages

**Less control over
the Java classes**



Improving Generated Code

- **Modify the XSD**
 - Not a good idea if you are not the maintainer of the XSD
- **Binding files**
 - Customize mappings separately from the XSD



Comparing Approaches

Code-first or schema-first?

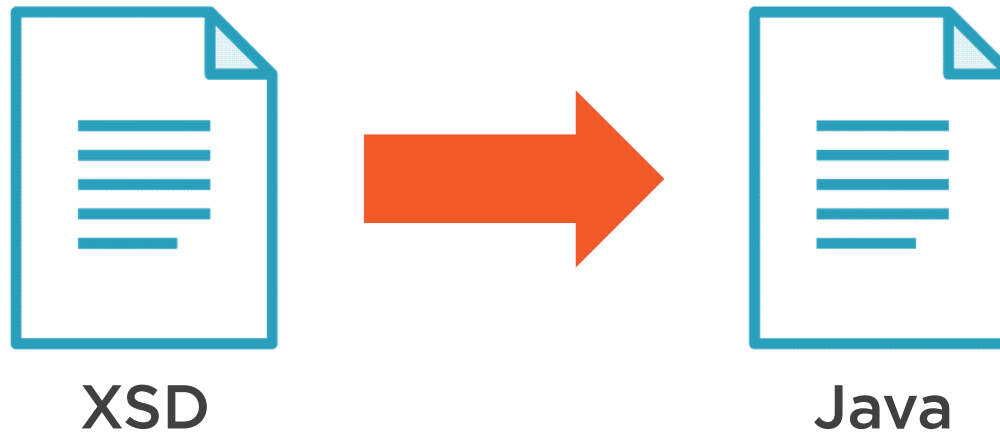


Generating Java Classes Using the Xjc Tool



Schema-first in Practice

xjc: Generate Java classes from an XSD



ps-jaxb-19-xjc



Marshalling Using the Generated Java Classes



Marshalling Using Generated Classes

ps-jaxb-19-xjc



Customizing Bindings with the Schema-first Approach



Customizing Bindings

- Tweak the XSD
- Binding customizations

```
<xs:complexType>
  <xs:annotation>
    <xs:appinfo>
      <jaxb:bindings>
        <!-- ... -->
      </jaxb:bindings>
    </xs:appinfo>
  </xs:annotation>
  <!-- ... -->
</xs:complexType>
```



Customizing Bindings for Schemas, Types, Elements and Attributes



Customizing Bindings

- Package name in bindings file
- Class name prefix or suffix
- Mapping to existing classes
- Mapping a simple type to a class
- Customize the name of a field or property
- Avoid generating JAXBElement fields

ps-jaxb-20-bindings



Customizing Bindings to Use Java 8 Date and Time Types



Java 8 Date and Time Types

- Java 8: package `java.time`
- Old classes are not suitable for JAXB:
`java.util.Date`, `java.util.Calendar`

ps-jaxb-21-datetime



Customizing Bindings for Enums



Customizing Bindings for Enums

```
<xs:simpleType name="loyalty">  
  <xs:restriction base="xs:string">  
    <xs:enumeration value="BRONZE"/>  
    <xs:enumeration value="SILVER"/>  
    <xs:enumeration value="GOLD"/>  
  </xs:restriction>  
</xs:simpleType>
```



```
@XmlEnum  
public enum Loyalty {  
  BRONZE,  
  SILVER,  
  GOLD  
}
```

ps-jaxb-22-enum



Summary



Code-first vs Schema-first

Schema-first in Practice

- Using the xjc tool
- Marshalling with generated classes

Customizing Bindings

- Examples of possibilities
- Mapping to Java 8 OffsetDateTime
- Mapping Enums

