| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/XmlAdapter.html) | [**Tree**](http://docs.google.com/package-tree.html) | [**Deprecated**](http://docs.google.com/deprecated-list.html) | [**Index**](http://docs.google.com/index-files/index-1.html) | [**Help**](http://docs.google.com/help-doc.html) | | --- | --- | --- | --- | --- | --- | --- | --- | | | ***Java™ Platform***  ***Standard Ed. 6*** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [**PREV CLASS**](http://docs.google.com/javax/xml/bind/annotation/adapters/NormalizedStringAdapter.html)   [**NEXT CLASS**](http://docs.google.com/javax/xml/bind/annotation/adapters/XmlJavaTypeAdapter.html) | [**FRAMES**](http://docs.google.com/index.html?javax/xml/bind/annotation/adapters/XmlAdapter.html)    [**NO FRAMES**](http://docs.google.com/XmlAdapter.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | FIELD | [CONSTR](#3znysh7) | [METHOD](#2et92p0) | DETAIL: FIELD | [CONSTR](#3dy6vkm) | [METHOD](#4d34og8) |

## **javax.xml.bind.annotation.adapters**

Class XmlAdapter<ValueType,BoundType>

[java.lang.Object](http://docs.google.com/java/lang/Object.html)  
 **javax.xml.bind.annotation.adapters.XmlAdapter<ValueType,BoundType>**

**Type Parameters:**BoundType - The type that JAXB doesn't know how to handle. An adapter is written to allow this type to be used as an in-memory representation through the ValueType.ValueType - The type that JAXB knows how to handle out of the box. **Direct Known Subclasses:** [CollapsedStringAdapter](http://docs.google.com/javax/xml/bind/annotation/adapters/CollapsedStringAdapter.html), [HexBinaryAdapter](http://docs.google.com/javax/xml/bind/annotation/adapters/HexBinaryAdapter.html), [NormalizedStringAdapter](http://docs.google.com/javax/xml/bind/annotation/adapters/NormalizedStringAdapter.html)

public abstract class **XmlAdapter<ValueType,BoundType>**extends [Object](http://docs.google.com/java/lang/Object.html)

Adapts a Java type for custom marshaling.

**Usage:**

Some Java types do not map naturally to a XML representation, for example HashMap or other non JavaBean classes. Conversely, a XML repsentation may map to a Java type but an application may choose to accesss the XML representation using another Java type. For example, the schema to Java binding rules bind xs:DateTime by default to XmlGregorianCalendar. But an application may desire to bind xs:DateTime to a custom type, MyXmlGregorianCalendar, for example. In both cases, there is a mismatch between  *bound type* , used by an application to access XML content and the  *value type*, that is mapped to an XML representation.

This abstract class defines methods for adapting a bound type to a value type or vice versa. The methods are invoked by the JAXB binding framework during marshaling and unmarshalling:

* **XmlAdapter.marshal(...):**  During marshalling, JAXB binding framework invokes XmlAdapter.marshal(..) to adapt a bound type to value type, which is then marshaled to XML representation.
* **XmlAdapter.unmarshal(...):**  During unmarshalling, JAXB binding framework first unmarshals XML representation to a value type and then invokes XmlAdapter.unmarshal(..) to adapt the value type to a bound type.

Writing an adapter therefore involves the following steps:

* Write an adapter that implements this abstract class.
* Install the adapter using the annotation [XmlJavaTypeAdapter](http://docs.google.com/javax/xml/bind/annotation/adapters/XmlJavaTypeAdapter.html)

**Example:** Customized mapping of HashMap

The following example illustrates the use of @XmlAdapter and @XmlJavaTypeAdapter to customize the mapping of a HashMap.

**Step 1:**  Determine the desired XML representation for HashMap.

<hashmap>  
 <entry key="id123">this is a value</entry>  
 <entry key="id312">this is another value</entry>  
 ...  
 </hashmap>

**Step 2:**  Determine the schema definition that the desired XML representation shown above should follow.

<xs:complexType name="myHashMapType">  
 <xs:sequence>  
 <xs:element name="entry" type="myHashMapEntryType"  
 minOccurs = "0" maxOccurs="unbounded"/>  
 </xs:sequence>  
 </xs:complexType>  
  
 <xs:complexType name="myHashMapEntryType">  
 <xs:simpleContent>  
 <xs:extension base="xs:string">  
 <xs:attribute name="key" type="xs:int"/>  
 </xs:extension>  
 </xs:simpleContent>  
 </xs:complexType>

**Step 3:**  Write value types that can generate the above schema definition.

public class MyHashMapType {  
 List<MyHashMapEntryType> entry;  
 }  
  
 public class MyHashMapEntryType {  
 @XmlAttribute  
 public Integer key;   
  
 @XmlValue  
 public String value;  
 }

**Step 4:**  Write the adapter that adapts the value type, MyHashMapType to a bound type, HashMap, used by the application.

public final class MyHashMapAdapter extends  
 XmlAdapter<HashMap, MyHashMapType> { ... }

**Step 5:**  Use the adapter.

public class Foo {  
 @XmlJavaTypeAdapter(MyHashMapAdapter.class)  
 HashMap hashmap;  
 ...  
 }

The above code fragment will map to the following schema:

<xs:complexType name="Foo">  
 <xs:sequence>  
 <xs:element name="hashmap" type="myHashMapType"  
 </xs:sequence>  
 </xs:complexType>

**Since:** JAXB 2.0 **See Also:**[XmlJavaTypeAdapter](http://docs.google.com/javax/xml/bind/annotation/adapters/XmlJavaTypeAdapter.html)

| **Constructor Summary** | |
| --- | --- |
| protected | [**XmlAdapter**](http://docs.google.com/javax/xml/bind/annotation/adapters/XmlAdapter.html#XmlAdapter())()            Do-nothing constructor for the derived classes. |

| **Method Summary** | |
| --- | --- |
| abstract  [ValueType](http://docs.google.com/javax/xml/bind/annotation/adapters/XmlAdapter.html) | [**marshal**](http://docs.google.com/javax/xml/bind/annotation/adapters/XmlAdapter.html#marshal(BoundType))([BoundType](http://docs.google.com/javax/xml/bind/annotation/adapters/XmlAdapter.html) v)            Convert a bound type to a value type. |
| abstract  [BoundType](http://docs.google.com/javax/xml/bind/annotation/adapters/XmlAdapter.html) | [**unmarshal**](http://docs.google.com/javax/xml/bind/annotation/adapters/XmlAdapter.html#unmarshal(ValueType))([ValueType](http://docs.google.com/javax/xml/bind/annotation/adapters/XmlAdapter.html) v)            Convert a value type to a bound type. |

| **Methods inherited from class java.lang.**[**Object**](http://docs.google.com/java/lang/Object.html) |
| --- |
| [clone](http://docs.google.com/java/lang/Object.html#clone()), [equals](http://docs.google.com/java/lang/Object.html#equals(java.lang.Object)), [finalize](http://docs.google.com/java/lang/Object.html#finalize()), [getClass](http://docs.google.com/java/lang/Object.html#getClass()), [hashCode](http://docs.google.com/java/lang/Object.html#hashCode()), [notify](http://docs.google.com/java/lang/Object.html#notify()), [notifyAll](http://docs.google.com/java/lang/Object.html#notifyAll()), [toString](http://docs.google.com/java/lang/Object.html#toString()), [wait](http://docs.google.com/java/lang/Object.html#wait()), [wait](http://docs.google.com/java/lang/Object.html#wait(long)), [wait](http://docs.google.com/java/lang/Object.html#wait(long,%20int)) |

| **Constructor Detail** |
| --- |

### XmlAdapter

protected **XmlAdapter**()

Do-nothing constructor for the derived classes.

| **Method Detail** |
| --- |

### unmarshal

public abstract [BoundType](http://docs.google.com/javax/xml/bind/annotation/adapters/XmlAdapter.html) **unmarshal**([ValueType](http://docs.google.com/javax/xml/bind/annotation/adapters/XmlAdapter.html) v)  
 throws [Exception](http://docs.google.com/java/lang/Exception.html)

Convert a value type to a bound type.

**Parameters:**v - The value to be converted. Can be null. **Throws:** [Exception](http://docs.google.com/java/lang/Exception.html) - if there's an error during the conversion. The caller is responsible for reporting the error to the user through [ValidationEventHandler](http://docs.google.com/javax/xml/bind/ValidationEventHandler.html).

### marshal

public abstract [ValueType](http://docs.google.com/javax/xml/bind/annotation/adapters/XmlAdapter.html) **marshal**([BoundType](http://docs.google.com/javax/xml/bind/annotation/adapters/XmlAdapter.html) v)  
 throws [Exception](http://docs.google.com/java/lang/Exception.html)

Convert a bound type to a value type.

**Parameters:**v - The value to be convereted. Can be null. **Throws:** [Exception](http://docs.google.com/java/lang/Exception.html) - if there's an error during the conversion. The caller is responsible for reporting the error to the user through [ValidationEventHandler](http://docs.google.com/javax/xml/bind/ValidationEventHandler.html).

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[Submit a bug or feature](http://bugs.sun.com/services/bugreport/index.jsp)

For further API reference and developer documentation, see [Java SE Developer Documentation](http://docs.google.com/webnotes/devdocs-vs-specs.html). That documentation contains more detailed, developer-targeted descriptions, with conceptual overviews, definitions of terms, workarounds, and working code examples.

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