

JavaDoc doclets for Java Extension APIs

jax-doclets

0.10.0



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Preface

This is pre-release software, please bear with it.

This book is produced by the [Wikbook](#) tool. Wikbook is an open source project for converting wiki files into a set of docbook files.

1. Overview

jax-doclets allows you to generate [JavaDoc](#) documentation for specific Java annotation-based extensions such as:

- [JAX-RS](#): the RESTful API for Java
- [JAXB](#): the XML binding API for Java
- [JPA](#): the Java Persistence API

The goal of jax-doclets is to let you write documentation for your JAX-RS API, JAXB structures and JPA model in JavaDoc, where it belongs, where it is maintainable, and produce a quality JavaDoc-style documentation.

1.1 Information

jax-doclets is an open-source project maintained by [Lunatech Labs](#).

Home page	http://www.lunatech-labs.com/content/jax-doclets
Download	https://github.com/FroMage/jax-doclets/downloads
Issue Tracker	https://github.com/FroMage/jax-doclets/issues
Source Control Management	https://github.com/FroMage/jax-doclets

1.2 Example

Here is an example of documented JAX-RS and JAXB code:

Example 1.1. Example of documented JAX-RS and JAXB code

```
package com.lunatech.doclets.jax.test;

import javax.ws.rs.*;
import javax.xml.bind.annotation.*;

/**
 * An example JAX-RS resource
 */
@Path("/example")
@Produces( { "application/xml", "application/*+xml" })
public class JAXRSExample {

    /**
     * An example resource
     */
    @XmlRootElement
    public static class JAXBExample {

        /**
         * The resource ID
         */
        @XmlID
```

```
@XmlElement
String id;

/**
 * The example contents
 */
@XmlValue
String contents;

/**
 * An optional attribute
 */
@XmlAttribute
String type;
}

/**
 * Gets an example resource
 *
 * @param id
 *         the example id
 * @param type
 *         the type of resource we prefer
 * @param startIndex
 *         the start index
 * @return an example resource suitable for the given parameters
 * @HTTP 404 if there is no such example resource
 * @RequestHeader X-Example-Auth the authentication header
 * @ResponseHeader Location a pointer to the example details
 */
@Path("/{id}")
@GET
public JAXBExample getExample(@PathParam("id") String id,
                              @MatrixParam("type") String type,
                              @QueryParam("start") int startIndex) {
    return new JAXBExample();
}
```


[Overview](#) [Index](#) [Root resource](#)
SUMMARY: RESOURCE | [METHOD](#)DETAIL: [METHOD](#)

Path: / [rest](#) / [example](#) / {id}

Gets an example resource

Path parameters:

id - the example id

Method Summary

Resource	Description
GET /rest/example/{id};type=...?start=...	Gets an example resource

Method Detail

HTTP Example:

```
GET /rest/example/{id};type=...?start=...
```

API Example:

```
JAXRSEExample.getExample({'type': /* type
the type of resource we prefer */
'start': /* startIndex the start index
*/
'id': /* id the example id */});
```

Gets an example resource

Output:

[JAXRSEExample.JAXBExample](#) - an example resource suitable for the given parameters

Query parameters:

start - the start index

Matrix parameters:

type - the type of resource we prefer

Produces:

application/xml
application/*+xml

HTTP return codes:

404 - if there is no such example resource

HTTP response headers:

Location - a pointer to the example details

HTTP request headers:

X-Example-Auth - the authentication header

[Overview](#) [Index](#) [Root resource](#)
SUMMARY: RESOURCE | [METHOD](#)DETAIL: [METHOD](#)

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Figure 1.1. Result of documented JAX-RS code



Overview

DETAIL: [ELEMENT](#) | [ATTRIBUTE](#) | [VALUE](#)

Name: JAXBExample

An example resource

XML Example:

```
<JAXBExample
  type="xsd:string">
  <id>xsd:ID[xsd:string]</id>
  xsd:string
</JAXBExample>
```

JSON Example:

```
{'JAXBExample':
  {
    '@type': String,
    'id': String /* ID */,
    String,
  }
}
```

ID

[id](#)

Elements		
Name	Type	Description
id	xsd:ID[xsd:string]	The resource ID

Attributes		
Name	Type	Description
type	xsd:string	An optional attribute

Value	
Type	Description
xsd:string	The example contents

Overview

DETAIL: [ELEMENT](#) | [ATTRIBUTE](#) | [VALUE](#)

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Figure 1.2. Result of documented JAXB code

Here is an example of documented JPA code:

Example 1.2. Example of documented JPA code

```
package com.lunatech.doclets.jax.test.jpa;
```

```

import java.util.List;
import java.util.Set;

import javax.persistence.Column;
import javax.persistence.Entity;
import javax.persistence.GeneratedValue;
import javax.persistence.Id;
import javax.persistence.JoinColumn;
import javax.persistence.JoinTable;
import javax.persistence.ManyToMany;
import javax.persistence.OneToMany;
import javax.persistence.OneToOne;
import javax.persistence.Transient;

/**
 * This is the order type.
 *
 * @author stephane
 */
@Entity
public class Order {

    /**
     * This is my ID and I love it
     */
    @Id
    @GeneratedValue
    public Long id;

    /**
     * Column with an explicit name
     */
    @Column(name = "column_with_name")
    public String columnWithName;

    /**
     * Column with an annotation
     */
    @Column
    public String columnWithAnnotation;

    /**
     * Column with no annotation
     */
    public String columnWithoutAnnotation;

    /**
     * Transient property
     */
    public transient String transientColumn;

    /**
     * Transient property
     */
    @Transient
    public String transientAnnotatedColumn;

    /**
     * A Bill
     */
    @JoinColumn(name = "bill_id")
    @OneToOne
    public Bill bill;

    /**
     * A list of Orderlines
     */
    @OneToMany(mappedBy = "order")
    public List<Orderline> orderlineList;

    /**
     * A set of Orderlines
     */
    @OneToMany(mappedBy = "order")
    public Set<Orderline> orderlineSet;

    /**
     * A set of Items, via a link table
     */

```



```

@JoinTable(name = "order2item",
    joinColumns = @JoinColumn(name = "item_id"),
    inverseJoinColumns = @JoinColumn(name = "order_id"))
@ManyToMany
public Set<Item> itemSet;
}

```


[Overview](#) [Graph](#)

 DETAIL: [ID](#) [COLUMN](#) [RELATION](#)

Name: Order

This is the order type.

IDs		
Name	Type	Description
id	long	This is my ID and I love it

Columns		
Name	Type	Description
column_with_name	varchar	Column with an explicit name
columnWithAnnotation	varchar	Column with an annotation
columnWithoutAnnotation	varchar	Column with no annotation
id	long[ID]	This is my ID and I love it

Relations			
Name	Type	Relation	Description
bill_id	Bill	ONE..ONE	A Bill
order2item.item_id	[item]	MANY..MANY	A set of Items, via a link table
orderlineList	[Orderline]	ONE..MANY	A list of Orderlines
orderlineSet	[Orderline]	ONE..MANY	A set of Orderlines

[Overview](#) [Graph](#)

 DETAIL: [ID](#) [COLUMN](#) [RELATION](#)

 Generated by [Lunatech Labs jax-doclets](#) v0.9.1

Figure 1.3. Result of documented JPA code

2. Running the jax-doclets

The jax-doclets are run by JavaDoc either as standalone, via ant or using Maven.



Note

Since the JAX-RS supports links to JAXB documentation, you should first run the JAXB doclet, then the JAX-RS doclet using the [-link](#) parameter.

2.1 Running jax-doclets in standalone

2.1.1 JAXB doclet

You can use the following command to run the JAXB doclet on your code:

```
javadoc -doclet com.lunatech.doclets.jax.jaxb.JAXBDoclet \  
-docletpath lib/jax-doclets-0.10.0.jar \  
com.lunatech.doclets.jax.test
```

2.1.2 JAX-RS doclet

You can use the following command to run the JAX-RS doclet on your code:

```
javadoc -doclet com.lunatech.doclets.jax.jaxrs.JAXRSDoclet \  
-docletpath lib/jax-doclets-0.10.0.jar \  
com.lunatech.doclets.jax.test
```

2.1.3 JPA doclet

You can use the following command to run the JPA doclet on your code:

```
javadoc -doclet com.lunatech.doclets.jax.jpa.JPADoclet \  
-docletpath lib/jax-doclets-0.10.0.jar \  
com.lunatech.doclets.jax.test
```

2.2 Running jax-doclets in ant

2.2.1 JAXB doclet

You can use the following ant XML to run the JAXB doclet on your code:

```
<target depends="jars" description="Run the JAXB doclet" name="doc-jaxb">  
  <javadoc doclet="com.lunatech.doclets.jax.jaxb.JAXBDoclet" docletpath="lib/jax-doclets-0.10.0.jar">  
    <package name="com.lunatech.doclets.jax.test.*"/>  
  </javadoc>  
</target>
```

```
</target>
```

2.2.2 JAX-RS doclet

You can use the following ant XML to run the JAX-RS doclet on your code:

```
<target depends="jars" description="Run the JAXRS doclet" name="doc-jaxrs">
  <javadoc doclet="com.lunatech.doclets.jax.jaxrs.JAXRSDoclet" docletpath="lib/jax-doclets-0.10.0.jar">
    <package name="com.lunatech.doclets.jax.test.*" />
  </javadoc>
</target>
```

2.2.3 JPA doclet

You can use the following ant XML to run the JPA doclet on your code:

```
<target depends="jars" description="Run the JPA doclet" name="doc-jpa">
  <javadoc doclet="com.lunatech.doclets.jax.jpa.JPADoclet" docletpath="lib/jax-doclets-0.10.0.jar">
    <package name="com.lunatech.doclets.jax.test.*" />
  </javadoc>
</target>
```

2.3 Running jax-doclets in Maven

2.3.1 JAXB doclet

You can use the following Maven POM extract to run the JAXB doclet on your code:

```
<reporting>
  <plugins>
    <plugin>
      <groupId>org.apache.maven.plugins</groupId>
      <artifactId>maven-javadoc-plugin</artifactId>
      <version>2.7</version>
      <reportSets>
        <reportSet>
          <id>jaxb</id>
          <configuration>
            <doclet>com.lunatech.doclets.jax.jaxb.JAXBDoclet</doclet>
            <docletArtifacts>
              <docletArtifact>
                <groupId>com.lunatech.jax-doclets</groupId>
                <artifactId>doclets</artifactId>
                <version>0.10.0</version>
              </docletArtifact>
            </docletArtifacts>
          </configuration>
          <reports>
            <report>javadoc</report>
          </reports>
        </reportSet>
      </reportSets>
    </plugin>
  </plugins>
</reporting>
```

Which you run with:

```
$ mvn site
```

2.3.2 JAX-RS doclet

You can use the following Maven POM extract to run the JAX-RS doclet on your code:

```
<reporting>
<plugins>
<plugin>
<groupId>org.apache.maven.plugins</groupId>
<artifactId>maven-javadoc-plugin</artifactId>
<version>2.7</version>
<reportSets>
<reportSet>
<configuration>
<doclet>com.lunatech.doclets.jax.jaxrs.JAXRSDoclet</doclet>
<docletArtifacts>
<docletArtifact>
<groupId>com.lunatech.jax-doclets</groupId>
<artifactId>doclets</artifactId>
<version>0.10.0</version>
</docletArtifact>
</docletArtifacts>
</configuration>
<reports>
<report>javadoc</report>
</reports>
</reportSet>
</reportSets>
</plugin>
</plugins>
</reporting>
```

Which you run with:

```
$ mvn site
```

2.3.3 JPA doclet

You can use the following Maven POM extract to run the JPA doclet on your code:

```
<reporting>
<plugins>
<plugin>
<groupId>org.apache.maven.plugins</groupId>
<artifactId>maven-javadoc-plugin</artifactId>
<version>2.7</version>
<reportSets>
<reportSet>
<id>jpa</id>
<configuration>
<doclet>com.lunatech.doclets.jax.jpa.JPADoclet</doclet>
<docletArtifacts>
<docletArtifact>
<groupId>com.lunatech.jax-doclets</groupId>
<artifactId>doclets</artifactId>
<version>0.10.0</version>
</docletArtifact>
</docletArtifacts>
</configuration>
<reports>
<report>javadoc</report>
</reports>
</reportSet>
</reportSets>
```

```
</reportSet>
</reportSets>
</plugin>
</plugins>
</reporting>
```

Which you run with:

```
$ mvn site
```

2.4 Doclet parameters

2.4.1 Generic parameters

These parameters are valid for all jax-doclets

Parameter	Function
-stylesheet	The CSS stylesheet to copy and use.
-header	The header which is inserted on every page header.
-footer	The footer which is inserted on every page footer.
-charset	The charset to use for source files and produced HTML documentation.
-link	Path to another JavaDoc documentation. This is used to produce links to other package's documentation, either regular JavaDoc or to JAXB documentation in the case of the JAX-RS doclet.

2.4.2 JAX-RS doclet parameters

These parameters are only valid for the JAX-RS doclet

Parameter	Function
-jaxrscontext url	The URL path to your RESTful API, if there is a prefix prepended to it on your deploy site.
-disablehttpexample	Disables the generated HTTP examples.
-disablejavascriptexample	Disables the generated JavaScript examples.

2.4.3 JAXB doclet parameters

These parameters are only valid for the JAXB doclet

Parameter	Function
-disablejsontypename	If you want to hide the serialised type name from the JSON examples.
-disablexmlexample	Disables the generated XML examples.
-disablejsonexample	Disables the generated JSON examples.

2.4.4 JPA doclet parameters

There are currently no special parameters for the JPA doclet.

2.5 About stylesheets

If you do not specify a stylesheet, one will be provided for you that closely matches the default JavaDoc style. If you do specify a stylesheet with the `-stylesheet` parameter, it will be copied to the stylesheet named `doclet.css` and the default JavaDoc stylesheet will be available as `default-doclets.css` which means you can write your stylesheet like this to extend the default stylesheet without having to restyle everything:

```
@IMPORT url("default-doclet.css");

table.info .TableCaption, td.NavBarCell1 {
  background: #EEEEEE;
}

td.NavBarCell1 table th.selected {
  background-color: #61911B;
}

img.logo {
  margin: 1em;
  border: none;
}

a {
  color: #61911B;
}

a:visited {
  color: #3F5E12;
}
```

Note that wherever possible we've stuck with the JavaDoc CSS class names so you can reuse your existing JavaDoc stylesheets.

3. JAX-RS doclet documentation

The JAX-RS doclet generates documentation for your RESTful service based on JAX-RS annotations and JavaDoc comments on your JAX-RS resource methods.

3.1 Where should you write JavaDoc

JavaDoc is read either on the JAX-RS resource methods, or their interface. Only method-level JavaDoc is used. Documentation for a given RESTful URL is taken from the method annotated with `@GET`, `@HEAD`, `@POST`, `@PUT` or `@DELETE` for that URL (in order of preference).

JAX-RS resource locators are supported.



Note

Since the JAX-RS supports links to JAXB documentation, you should first run the JAXB doclet, then the JAX-RS doclet using the `-link` parameter.

3.2 Supported standard JavaDoc tags

The following standard JavaDoc tags are supported on resource methods:

Tag	Function
<code>@param name doc</code>	This is used to document the corresponding resource method parameters annotated with <code>@PathParam</code> , <code>@QueryParam</code> or <code>@MatrixParam</code> . Can be used at most once per parameter name.
<code>@return doc</code>	Documents the entity returned from this resource method. Can only be used once.

3.3 Supported specific JavaDoc tags

The following specific JavaDoc tags are supported on resource methods:

Tag	Function
<code>@HTTP code doc</code>	This is used to document the codes that the method can return. Can be used multiple times.
<code>@inputWrapped fq-classname</code>	Specifies the real type of input when declared as a <code>String</code> parameter. Can only be used once.
<code>@returnWrapped fq-classname doc</code>	Used in place of <code>@return</code> when output type is <code>String</code> , <code>void</code> or <code>Response</code> to specify the real type of output and documentation for each possible type. Can be used multiple times.

Tag	Function
<code>@RequestHeader</code> header doc	This is used to document HTTP request headers. Can be used multiple times.
<code>@ResponseHeader</code> header doc	This is used to document HTTP response headers. Can be used multiple times.
<code>@include</code> file	Includes the specified relative file in the resource documentation. Can be used multiple times.

3.4 Supported JAX-RS annotations

The following standard JAX-RS annotations are supported on resource methods or classes:

- `@Path`
- `@PathParam`
- `@FormParam`
- `@CookieParam`
- `@HeaderParam`
- `@QueryParam`
- `@MatrixParam`
- `@Produces`
- `@Consumes`
- `@Context` (ignored)

3.5 Supported RESTEasy JAX-RS extension annotations

If the optional RESTEasy dependency is present, the following RESTEasy annotations are supported on resource methods or classes:

- `@Form`

4. JAXB doclet documentation

The JAXB doclet generates documentation for your XML schema based on JAXB annotations and JavaDoc comments on your JAXB classes.

4.1 Where should we write JavaDoc

JavaDoc is read either on the JAXB properties (getter methods or fields), or their interface (only for the getters) as well as on the JAXB classes.



Note

Since the JAX-RS supports links to JAXB documentation, you should first run the JAXB doclet, then the JAX-RS doclet using the [-link](#) parameter.

4.2 Supported standard JavaDoc tags

There are no standard JavaDoc tags supported. Everything comes from JavaDoc comments.

4.3 Supported specific JavaDoc tags

There are no specific JavaDoc tags supported.

4.4 Supported JAXB annotations

The following standard JAXB annotations are supported on properties or classes:

- `@XmlAccessorType`
- `@XmlRootElement`
- `@XmlElement`
- `@XmlElementWrapper`
- `@XmlAttribute`
- `@XmlValue`
- `@XmlID`
- `@XmlIDREF`
- `@XmlTransient` (ignored)

4.5 Mapping Java types to XML tpes

The following Java types have a special mapping in XML:

Type	XML mapping
<code>java.lang.String</code>	<code>xsd:string</code>
<code>java.lang.Character</code> , <code>char</code>	<code>xsd:string</code>
<code>java.lang.Date</code>	<code>xsd:datetime</code>
<code>java.lang.Integer</code> , <code>int</code>	<code>xsd:int</code>
<code>java.lang.Long</code> , <code>long</code>	<code>xsd:long</code>
<code>java.lang.Short</code> , <code>short</code>	<code>xsd:short</code>
<code>java.lang.Byte</code> , <code>byte</code>	<code>xsd:byte</code>
<code>java.lang.Float</code> , <code>float</code>	<code>xsd:float</code>
<code>java.lang.Double</code> , <code>double</code>	<code>xsd:double</code>
<code>java.lang.Boolean</code> , <code>boolean</code>	<code>xsd:boolean</code>
<code>java.lang.Object</code>	<code>xsd:any</code>
<code>java.lang.Enum</code>	List of enum values
<code>java.util.Collection</code>	<code>xsd:list</code>

Any other type is taken to be either a Java type or a JAXB type, for whom proper links will be generated.

5. JPA doclet documentation

The JPA doclet generates documentation for your data model based on JPA annotations and JavaDoc comments on your JPA classes.

5.1 Supported standard JavaDoc tags

There are no standard JavaDoc tags supported. Everything comes from JavaDoc comments.

5.2 Supported specific JavaDoc tags

There are no specific JavaDoc tags supported.

5.3 Supported JPA annotations

The following standard JPA annotations are supported on classes or properties:

- `@Entity`
- `@Id`
- `@ManyToMany`
- `@OneToMany`
- `@ManyToOne`
- `@OneToOne`
- `@Table`
- `@Transient`
- `@GeneratedValue`
- `@Id`
- `@Lob`

5.4 Supported Hibernate JPA extension annotations

If the optional Hibernate dependency is present, the following Hibernate annotations are supported on classes or properties:

- `@GenericGenerator`

6. License

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