| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/DatatypeFactory.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/datatype/DatatypeConstants.Field.html)   [**NEXT CLASS**](http://docs.google.com/javax/xml/datatype/Duration.html) | [**FRAMES**](http://docs.google.com/index.html?javax/xml/datatype/DatatypeFactory.html)    [**NO FRAMES**](http://docs.google.com/DatatypeFactory.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | [FIELD](#2et92p0) | [CONSTR](#tyjcwt) | [METHOD](#3dy6vkm) | DETAIL: [FIELD](#4d34og8) | [CONSTR](#3rdcrjn) | [METHOD](#lnxbz9) |

## **javax.xml.datatype**

Class DatatypeFactory

[java.lang.Object](http://docs.google.com/java/lang/Object.html)  
 **javax.xml.datatype.DatatypeFactory**

public abstract class **DatatypeFactory**extends [Object](http://docs.google.com/java/lang/Object.html)

Factory that creates new javax.xml.datatype Objects that map XML to/from Java Objects.

[newInstance()](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newInstance()) is used to create a new DatatypeFactory. The following implementation resolution mechanisms are used in the following order:

1. If the system property specified by [DATATYPEFACTORY\_PROPERTY](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#DATATYPEFACTORY_PROPERTY), "javax.xml.datatype.DatatypeFactory", exists, a class with the name of the property's value is instantiated. Any Exception thrown during the instantiation process is wrapped as a [DatatypeConfigurationException](http://docs.google.com/javax/xml/datatype/DatatypeConfigurationException.html).
2. If the file ${JAVA\_HOME}/lib/jaxp.properties exists, it is loaded in a [Properties](http://docs.google.com/java/util/Properties.html) Object. The Properties Object is then queried for the property as documented in the prior step and processed as documented in the prior step.
3. The services resolution mechanism is used, e.g. META-INF/services/java.xml.datatype.DatatypeFactory. Any Exception thrown during the instantiation process is wrapped as a [DatatypeConfigurationException](http://docs.google.com/javax/xml/datatype/DatatypeConfigurationException.html).
4. The final mechanism is to attempt to instantiate the Class specified by [DATATYPEFACTORY\_IMPLEMENTATION\_CLASS](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#DATATYPEFACTORY_IMPLEMENTATION_CLASS). Any Exception thrown during the instantiation process is wrapped as a [DatatypeConfigurationException](http://docs.google.com/javax/xml/datatype/DatatypeConfigurationException.html).

**Since:** 1.5

| **Field Summary** | |
| --- | --- |
| static [String](http://docs.google.com/java/lang/String.html) | [**DATATYPEFACTORY\_IMPLEMENTATION\_CLASS**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#DATATYPEFACTORY_IMPLEMENTATION_CLASS)            Default implementation class name as defined in *JSR 206: Java(TM) API for XML Processing (JAXP) 1.3*. |
| static [String](http://docs.google.com/java/lang/String.html) | [**DATATYPEFACTORY\_PROPERTY**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#DATATYPEFACTORY_PROPERTY)            Default property name as defined in JSR 206: Java(TM) API for XML Processing (JAXP) 1.3. |

| **Constructor Summary** | |
| --- | --- |
| protected | [**DatatypeFactory**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#DatatypeFactory())()            Protected constructor to prevent instaniation outside of package. |

| **Method Summary** | |
| --- | --- |
| abstract  [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) | [**newDuration**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newDuration(boolean,%20java.math.BigInteger,%20java.math.BigInteger,%20java.math.BigInteger,%20java.math.BigInteger,%20java.math.BigInteger,%20java.math.BigDecimal))(boolean isPositive, [BigInteger](http://docs.google.com/java/math/BigInteger.html) years, [BigInteger](http://docs.google.com/java/math/BigInteger.html) months, [BigInteger](http://docs.google.com/java/math/BigInteger.html) days, [BigInteger](http://docs.google.com/java/math/BigInteger.html) hours, [BigInteger](http://docs.google.com/java/math/BigInteger.html) minutes, [BigDecimal](http://docs.google.com/java/math/BigDecimal.html) seconds)            Obtain a new instance of a Duration specifying the Duration as isPositive, years, months, days, hours, minutes, seconds. |
| [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) | [**newDuration**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newDuration(boolean,%20int,%20int,%20int,%20int,%20int,%20int))(boolean isPositive, int years, int months, int days, int hours, int minutes, int seconds)            Obtain a new instance of a Duration specifying the Duration as isPositive, years, months, days, hours, minutes, seconds. |
| abstract  [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) | [**newDuration**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newDuration(long))(long durationInMilliSeconds)            Obtain a new instance of a Duration specifying the Duration as milliseconds. |
| abstract  [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) | [**newDuration**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newDuration(java.lang.String))([String](http://docs.google.com/java/lang/String.html) lexicalRepresentation)            Obtain a new instance of a Duration specifying the Duration as its string representation, "PnYnMnDTnHnMnS", as defined in XML Schema 1.0 section 3.2.6.1. |
| [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) | [**newDurationDayTime**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newDurationDayTime(boolean,%20java.math.BigInteger,%20java.math.BigInteger,%20java.math.BigInteger,%20java.math.BigInteger))(boolean isPositive, [BigInteger](http://docs.google.com/java/math/BigInteger.html) day, [BigInteger](http://docs.google.com/java/math/BigInteger.html) hour, [BigInteger](http://docs.google.com/java/math/BigInteger.html) minute, [BigInteger](http://docs.google.com/java/math/BigInteger.html) second)            Create a Duration of type xdt:dayTimeDuration using the specified day, hour, minute and second as defined in  [XQuery 1.0 and XPath 2.0 Data Model, xdt:dayTimeDuration](http://www.w3.org/TR/xpath-datamodel#dt-dayTimeDuration). |
| [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) | [**newDurationDayTime**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newDurationDayTime(boolean,%20int,%20int,%20int,%20int))(boolean isPositive, int day, int hour, int minute, int second)            Create a Duration of type xdt:dayTimeDuration using the specified day, hour, minute and second as defined in  [XQuery 1.0 and XPath 2.0 Data Model, xdt:dayTimeDuration](http://www.w3.org/TR/xpath-datamodel#dt-dayTimeDuration). |
| [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) | [**newDurationDayTime**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newDurationDayTime(long))(long durationInMilliseconds)            Create a Duration of type xdt:dayTimeDuration using the specified milliseconds as defined in  [XQuery 1.0 and XPath 2.0 Data Model, xdt:dayTimeDuration](http://www.w3.org/TR/xpath-datamodel#dt-dayTimeDuration). |
| [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) | [**newDurationDayTime**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newDurationDayTime(java.lang.String))([String](http://docs.google.com/java/lang/String.html) lexicalRepresentation)            Create a Duration of type xdt:dayTimeDuration by parsing its String representation, "*PnDTnHnMnS*",  [XQuery 1.0 and XPath 2.0 Data Model, xdt:dayTimeDuration](http://www.w3.org/TR/xpath-datamodel#dt-dayTimeDuration). |
| [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) | [**newDurationYearMonth**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newDurationYearMonth(boolean,%20java.math.BigInteger,%20java.math.BigInteger))(boolean isPositive, [BigInteger](http://docs.google.com/java/math/BigInteger.html) year, [BigInteger](http://docs.google.com/java/math/BigInteger.html) month)            Create a Duration of type xdt:yearMonthDuration using the specified year and month as defined in  [XQuery 1.0 and XPath 2.0 Data Model, xdt:yearMonthDuration](http://www.w3.org/TR/xpath-datamodel#dt-yearMonthyDuration). |
| [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) | [**newDurationYearMonth**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newDurationYearMonth(boolean,%20int,%20int))(boolean isPositive, int year, int month)            Create a Duration of type xdt:yearMonthDuration using the specified year and month as defined in  [XQuery 1.0 and XPath 2.0 Data Model, xdt:yearMonthDuration](http://www.w3.org/TR/xpath-datamodel#dt-yearMonthyDuration). |
| [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) | [**newDurationYearMonth**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newDurationYearMonth(long))(long durationInMilliseconds)            Create a Duration of type xdt:yearMonthDuration using the specified milliseconds as defined in  [XQuery 1.0 and XPath 2.0 Data Model, xdt:yearMonthDuration](http://www.w3.org/TR/xpath-datamodel#dt-yearMonthDuration). |
| [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) | [**newDurationYearMonth**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newDurationYearMonth(java.lang.String))([String](http://docs.google.com/java/lang/String.html) lexicalRepresentation)            Create a Duration of type xdt:yearMonthDuration by parsing its String representation, "*PnYnM*",  [XQuery 1.0 and XPath 2.0 Data Model, xdt:yearMonthDuration](http://www.w3.org/TR/xpath-datamodel#dt-yearMonthDuration). |
| static [DatatypeFactory](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html) | [**newInstance**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newInstance())()            Obtain a new instance of a DatatypeFactory. |
| static [DatatypeFactory](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html) | [**newInstance**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newInstance(java.lang.String,%20java.lang.ClassLoader))([String](http://docs.google.com/java/lang/String.html) factoryClassName, [ClassLoader](http://docs.google.com/java/lang/ClassLoader.html) classLoader)            Obtain a new instance of a DatatypeFactory from class name. |
| abstract  [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) | [**newXMLGregorianCalendar**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newXMLGregorianCalendar())()            Create a new instance of an XMLGregorianCalendar. |
| abstract  [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) | [**newXMLGregorianCalendar**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newXMLGregorianCalendar(java.math.BigInteger,%20int,%20int,%20int,%20int,%20int,%20java.math.BigDecimal,%20int))([BigInteger](http://docs.google.com/java/math/BigInteger.html) year, int month, int day, int hour, int minute, int second, [BigDecimal](http://docs.google.com/java/math/BigDecimal.html) fractionalSecond, int timezone)            Constructor allowing for complete value spaces allowed by W3C XML Schema 1.0 recommendation for xsd:dateTime and related builtin datatypes. |
| abstract  [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) | [**newXMLGregorianCalendar**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newXMLGregorianCalendar(java.util.GregorianCalendar))([GregorianCalendar](http://docs.google.com/java/util/GregorianCalendar.html) cal)            Create an XMLGregorianCalendar from a [GregorianCalendar](http://docs.google.com/java/util/GregorianCalendar.html). |
| [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) | [**newXMLGregorianCalendar**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newXMLGregorianCalendar(int,%20int,%20int,%20int,%20int,%20int,%20int,%20int))(int year, int month, int day, int hour, int minute, int second, int millisecond, int timezone)            Constructor of value spaces that a java.util.GregorianCalendar instance would need to convert to an XMLGregorianCalendar instance. |
| abstract  [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) | [**newXMLGregorianCalendar**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newXMLGregorianCalendar(java.lang.String))([String](http://docs.google.com/java/lang/String.html) lexicalRepresentation)            Create a new XMLGregorianCalendar by parsing the String as a lexical representation. |
| [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) | [**newXMLGregorianCalendarDate**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newXMLGregorianCalendarDate(int,%20int,%20int,%20int))(int year, int month, int day, int timezone)            Create a Java representation of XML Schema builtin datatype date or g\*. |
| [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) | [**newXMLGregorianCalendarTime**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newXMLGregorianCalendarTime(int,%20int,%20int,%20java.math.BigDecimal,%20int))(int hours, int minutes, int seconds, [BigDecimal](http://docs.google.com/java/math/BigDecimal.html) fractionalSecond, int timezone)            Create a Java instance of XML Schema builtin datatype time. |
| [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) | [**newXMLGregorianCalendarTime**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newXMLGregorianCalendarTime(int,%20int,%20int,%20int))(int hours, int minutes, int seconds, int timezone)            Create a Java instance of XML Schema builtin datatype time. |
| [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) | [**newXMLGregorianCalendarTime**](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newXMLGregorianCalendarTime(int,%20int,%20int,%20int,%20int))(int hours, int minutes, int seconds, int milliseconds, int timezone)            Create a Java instance of XML Schema builtin datatype time. |

| **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)) |

| **Field Detail** |
| --- |

### DATATYPEFACTORY\_PROPERTY

public static final [String](http://docs.google.com/java/lang/String.html) **DATATYPEFACTORY\_PROPERTY**

Default property name as defined in JSR 206: Java(TM) API for XML Processing (JAXP) 1.3.

Default value is javax.xml.datatype.DatatypeFactory.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#javax.xml.datatype.DatatypeFactory.DATATYPEFACTORY_PROPERTY)

### DATATYPEFACTORY\_IMPLEMENTATION\_CLASS

public static final [String](http://docs.google.com/java/lang/String.html) **DATATYPEFACTORY\_IMPLEMENTATION\_CLASS**

Default implementation class name as defined in *JSR 206: Java(TM) API for XML Processing (JAXP) 1.3*.

Implementers should specify the name of an appropriate class to be instantiated if no other implementation resolution mechanism succeeds.

Users should not refer to this field; it is intended only to document a factory implementation detail.

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

### DatatypeFactory

protected **DatatypeFactory**()

Protected constructor to prevent instaniation outside of package.

Use [newInstance()](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newInstance()) to create a DatatypeFactory.

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

### newInstance

public static [DatatypeFactory](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html) **newInstance**()  
 throws [DatatypeConfigurationException](http://docs.google.com/javax/xml/datatype/DatatypeConfigurationException.html)

Obtain a new instance of a DatatypeFactory.

The implementation resolution mechanisms are [defined](#3znysh7) in this Class's documentation.

**Returns:**New instance of a DatatypeFactory **Throws:** [DatatypeConfigurationException](http://docs.google.com/javax/xml/datatype/DatatypeConfigurationException.html) - If the implementation is not available or cannot be instantiated.**See Also:**[newInstance(String factoryClassName, ClassLoader classLoader)](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newInstance(java.lang.String,%20java.lang.ClassLoader))

### newInstance

public static [DatatypeFactory](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html) **newInstance**([String](http://docs.google.com/java/lang/String.html) factoryClassName,  
 [ClassLoader](http://docs.google.com/java/lang/ClassLoader.html) classLoader)  
 throws [DatatypeConfigurationException](http://docs.google.com/javax/xml/datatype/DatatypeConfigurationException.html)

Obtain a new instance of a DatatypeFactory from class name. This function is useful when there are multiple providers in the classpath. It gives more control to the application as it can specify which provider should be loaded.

Once an application has obtained a reference to a DatatypeFactory it can use the factory to configure and obtain datatype instances.

## Tip for Trouble-shooting

Setting the jaxp.debug system property will cause this method to print a lot of debug messages to System.err about what it is doing and where it is looking at.

If you have problems try:

java -Djaxp.debug=1 YourProgram ....

**Parameters:**factoryClassName - fully qualified factory class name that provides implementation of javax.xml.datatype.DatatypeFactory.classLoader - ClassLoader used to load the factory class. If null current Thread's context classLoader is used to load the factory class. **Returns:**New instance of a DatatypeFactory **Throws:** [DatatypeConfigurationException](http://docs.google.com/javax/xml/datatype/DatatypeConfigurationException.html) - if factoryClassName is null, or the factory class cannot be loaded, instantiated.**Since:** 1.6 **See Also:**[newInstance()](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newInstance())

### newDuration

public abstract [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) **newDuration**([String](http://docs.google.com/java/lang/String.html) lexicalRepresentation)

Obtain a new instance of a Duration specifying the Duration as its string representation, "PnYnMnDTnHnMnS", as defined in XML Schema 1.0 section 3.2.6.1.

XML Schema Part 2: Datatypes, 3.2.6 duration, defines duration as:

duration represents a duration of time. The value space of duration is a six-dimensional space where the coordinates designate the Gregorian year, month, day, hour, minute, and second components defined in Section 5.5.3.2 of [ISO 8601], respectively. These components are ordered in their significance by their order of appearance i.e. as year, month, day, hour, minute, and second.

All six values are set and availabe from the created [Duration](http://docs.google.com/javax/xml/datatype/Duration.html)

The XML Schema specification states that values can be of an arbitrary size. Implementations may chose not to or be incapable of supporting arbitrarily large and/or small values. An [UnsupportedOperationException](http://docs.google.com/java/lang/UnsupportedOperationException.html) will be thrown with a message indicating implementation limits if implementation capacities are exceeded.

**Parameters:**lexicalRepresentation - String representation of a Duration. **Returns:**New Duration created from parsing the lexicalRepresentation. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If lexicalRepresentation is not a valid representation of a Duration. [UnsupportedOperationException](http://docs.google.com/java/lang/UnsupportedOperationException.html) - If implementation cannot support requested values. [NullPointerException](http://docs.google.com/java/lang/NullPointerException.html) - if lexicalRepresentation is null.

### newDuration

public abstract [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) **newDuration**(long durationInMilliSeconds)

Obtain a new instance of a Duration specifying the Duration as milliseconds.

XML Schema Part 2: Datatypes, 3.2.6 duration, defines duration as:

duration represents a duration of time. The value space of duration is a six-dimensional space where the coordinates designate the Gregorian year, month, day, hour, minute, and second components defined in Section 5.5.3.2 of [ISO 8601], respectively. These components are ordered in their significance by their order of appearance i.e. as year, month, day, hour, minute, and second.

All six values are set by computing their values from the specified milliseconds and are availabe using the get methods of the created [Duration](http://docs.google.com/javax/xml/datatype/Duration.html). The values conform to and are defined by:

* ISO 8601:2000(E) Section 5.5.3.2 Alternative format
* [W3C XML Schema 1.0 Part 2, Appendix D, ISO 8601 Date and Time Formats](http://www.w3.org/TR/xmlschema-2/#isoformats)
* [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) Date/Time Datatype Field Mapping Between XML Schema 1.0 and Java Representation

The default start instance is defined by [GregorianCalendar](http://docs.google.com/java/util/GregorianCalendar.html)'s use of the start of the epoch: i.e., [Calendar.YEAR](http://docs.google.com/java/util/Calendar.html#YEAR) = 1970, [Calendar.MONTH](http://docs.google.com/java/util/Calendar.html#MONTH) = [Calendar.JANUARY](http://docs.google.com/java/util/Calendar.html#JANUARY), [Calendar.DATE](http://docs.google.com/java/util/Calendar.html#DATE) = 1, etc. This is important as there are variations in the Gregorian Calendar, e.g. leap years have different days in the month = [Calendar.FEBRUARY](http://docs.google.com/java/util/Calendar.html#FEBRUARY) so the result of [Duration.getMonths()](http://docs.google.com/javax/xml/datatype/Duration.html#getMonths()) and [Duration.getDays()](http://docs.google.com/javax/xml/datatype/Duration.html#getDays()) can be influenced.

**Parameters:**durationInMilliSeconds - Duration in milliseconds to create. **Returns:**New Duration representing durationInMilliSeconds.

### newDuration

public abstract [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) **newDuration**(boolean isPositive,  
 [BigInteger](http://docs.google.com/java/math/BigInteger.html) years,  
 [BigInteger](http://docs.google.com/java/math/BigInteger.html) months,  
 [BigInteger](http://docs.google.com/java/math/BigInteger.html) days,  
 [BigInteger](http://docs.google.com/java/math/BigInteger.html) hours,  
 [BigInteger](http://docs.google.com/java/math/BigInteger.html) minutes,  
 [BigDecimal](http://docs.google.com/java/math/BigDecimal.html) seconds)

Obtain a new instance of a Duration specifying the Duration as isPositive, years, months, days, hours, minutes, seconds.

The XML Schema specification states that values can be of an arbitrary size. Implementations may chose not to or be incapable of supporting arbitrarily large and/or small values. An [UnsupportedOperationException](http://docs.google.com/java/lang/UnsupportedOperationException.html) will be thrown with a message indicating implementation limits if implementation capacities are exceeded.

A null value indicates that field is not set.

**Parameters:**isPositive - Set to false to create a negative duration. When the length of the duration is zero, this parameter will be ignored.years - of this Durationmonths - of this Durationdays - of this Durationhours - of this Durationminutes - of this Durationseconds - of this Duration **Returns:**New Duration created from the specified values. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If the values are not a valid representation of a Duration: if all the fields (years, months, ...) are null or if any of the fields is negative. [UnsupportedOperationException](http://docs.google.com/java/lang/UnsupportedOperationException.html) - If implementation cannot support requested values.

### newDuration

public [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) **newDuration**(boolean isPositive,  
 int years,  
 int months,  
 int days,  
 int hours,  
 int minutes,  
 int seconds)

Obtain a new instance of a Duration specifying the Duration as isPositive, years, months, days, hours, minutes, seconds.

A [DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED) value indicates that field is not set.

**Parameters:**isPositive - Set to false to create a negative duration. When the length of the duration is zero, this parameter will be ignored.years - of this Durationmonths - of this Durationdays - of this Durationhours - of this Durationminutes - of this Durationseconds - of this Duration **Returns:**New Duration created from the specified values. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If the values are not a valid representation of a Duration: if any of the fields is negative.**See Also:**[newDuration( boolean isPositive, BigInteger years, BigInteger months, BigInteger days, BigInteger hours, BigInteger minutes, BigDecimal seconds)](http://docs.google.com/javax/xml/datatype/DatatypeFactory.html#newDuration(boolean,%20java.math.BigInteger,%20java.math.BigInteger,%20java.math.BigInteger,%20java.math.BigInteger,%20java.math.BigInteger,%20java.math.BigDecimal))

### newDurationDayTime

public [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) **newDurationDayTime**([String](http://docs.google.com/java/lang/String.html) lexicalRepresentation)

Create a Duration of type xdt:dayTimeDuration by parsing its String representation, "*PnDTnHnMnS*",  [XQuery 1.0 and XPath 2.0 Data Model, xdt:dayTimeDuration](http://www.w3.org/TR/xpath-datamodel#dt-dayTimeDuration).

The datatype xdt:dayTimeDuration is a subtype of xs:duration whose lexical representation contains only day, hour, minute, and second components. This datatype resides in the namespace http://www.w3.org/2003/11/xpath-datatypes.

All four values are set and availabe from the created [Duration](http://docs.google.com/javax/xml/datatype/Duration.html)

The XML Schema specification states that values can be of an arbitrary size. Implementations may chose not to or be incapable of supporting arbitrarily large and/or small values. An [UnsupportedOperationException](http://docs.google.com/java/lang/UnsupportedOperationException.html) will be thrown with a message indicating implementation limits if implementation capacities are exceeded.

**Parameters:**lexicalRepresentation - Lexical representation of a duration. **Returns:**New Duration created using the specified lexicalRepresentation. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If lexicalRepresentation is not a valid representation of a Duration expressed only in terms of days and time. [UnsupportedOperationException](http://docs.google.com/java/lang/UnsupportedOperationException.html) - If implementation cannot support requested values. [NullPointerException](http://docs.google.com/java/lang/NullPointerException.html) - If lexicalRepresentation is null.

### newDurationDayTime

public [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) **newDurationDayTime**(long durationInMilliseconds)

Create a Duration of type xdt:dayTimeDuration using the specified milliseconds as defined in  [XQuery 1.0 and XPath 2.0 Data Model, xdt:dayTimeDuration](http://www.w3.org/TR/xpath-datamodel#dt-dayTimeDuration).

The datatype xdt:dayTimeDuration is a subtype of xs:duration whose lexical representation contains only day, hour, minute, and second components. This datatype resides in the namespace http://www.w3.org/2003/11/xpath-datatypes.

All four values are set by computing their values from the specified milliseconds and are availabe using the get methods of the created [Duration](http://docs.google.com/javax/xml/datatype/Duration.html). The values conform to and are defined by:

* ISO 8601:2000(E) Section 5.5.3.2 Alternative format
* [W3C XML Schema 1.0 Part 2, Appendix D, ISO 8601 Date and Time Formats](http://www.w3.org/TR/xmlschema-2/#isoformats)
* [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) Date/Time Datatype Field Mapping Between XML Schema 1.0 and Java Representation

The default start instance is defined by [GregorianCalendar](http://docs.google.com/java/util/GregorianCalendar.html)'s use of the start of the epoch: i.e., [Calendar.YEAR](http://docs.google.com/java/util/Calendar.html#YEAR) = 1970, [Calendar.MONTH](http://docs.google.com/java/util/Calendar.html#MONTH) = [Calendar.JANUARY](http://docs.google.com/java/util/Calendar.html#JANUARY), [Calendar.DATE](http://docs.google.com/java/util/Calendar.html#DATE) = 1, etc. This is important as there are variations in the Gregorian Calendar, e.g. leap years have different days in the month = [Calendar.FEBRUARY](http://docs.google.com/java/util/Calendar.html#FEBRUARY) so the result of [Duration.getDays()](http://docs.google.com/javax/xml/datatype/Duration.html#getDays()) can be influenced.

Any remaining milliseconds after determining the day, hour, minute and second are discarded.

**Parameters:**durationInMilliseconds - Milliseconds of Duration to create. **Returns:**New Duration created with the specified durationInMilliseconds.**See Also:** [XQuery 1.0 and XPath 2.0 Data Model, xdt:dayTimeDuration](http://www.w3.org/TR/xpath-datamodel#dt-dayTimeDuration)

### newDurationDayTime

public [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) **newDurationDayTime**(boolean isPositive,  
 [BigInteger](http://docs.google.com/java/math/BigInteger.html) day,  
 [BigInteger](http://docs.google.com/java/math/BigInteger.html) hour,  
 [BigInteger](http://docs.google.com/java/math/BigInteger.html) minute,  
 [BigInteger](http://docs.google.com/java/math/BigInteger.html) second)

Create a Duration of type xdt:dayTimeDuration using the specified day, hour, minute and second as defined in  [XQuery 1.0 and XPath 2.0 Data Model, xdt:dayTimeDuration](http://www.w3.org/TR/xpath-datamodel#dt-dayTimeDuration).

The datatype xdt:dayTimeDuration is a subtype of xs:duration whose lexical representation contains only day, hour, minute, and second components. This datatype resides in the namespace http://www.w3.org/2003/11/xpath-datatypes.

The XML Schema specification states that values can be of an arbitrary size. Implementations may chose not to or be incapable of supporting arbitrarily large and/or small values. An [UnsupportedOperationException](http://docs.google.com/java/lang/UnsupportedOperationException.html) will be thrown with a message indicating implementation limits if implementation capacities are exceeded.

A null value indicates that field is not set.

**Parameters:**isPositive - Set to false to create a negative duration. When the length of the duration is zero, this parameter will be ignored.day - Day of Duration.hour - Hour of Duration.minute - Minute of Duration.second - Second of Duration. **Returns:**New Duration created with the specified day, hour, minute and second. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If the values are not a valid representation of a Duration: if all the fields (day, hour, ...) are null or if any of the fields is negative. [UnsupportedOperationException](http://docs.google.com/java/lang/UnsupportedOperationException.html) - If implementation cannot support requested values.

### newDurationDayTime

public [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) **newDurationDayTime**(boolean isPositive,  
 int day,  
 int hour,  
 int minute,  
 int second)

Create a Duration of type xdt:dayTimeDuration using the specified day, hour, minute and second as defined in  [XQuery 1.0 and XPath 2.0 Data Model, xdt:dayTimeDuration](http://www.w3.org/TR/xpath-datamodel#dt-dayTimeDuration).

The datatype xdt:dayTimeDuration is a subtype of xs:duration whose lexical representation contains only day, hour, minute, and second components. This datatype resides in the namespace http://www.w3.org/2003/11/xpath-datatypes.

A [DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED) value indicates that field is not set.

**Parameters:**isPositive - Set to false to create a negative duration. When the length of the duration is zero, this parameter will be ignored.day - Day of Duration.hour - Hour of Duration.minute - Minute of Duration.second - Second of Duration. **Returns:**New Duration created with the specified day, hour, minute and second. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If the values are not a valid representation of a Duration: if any of the fields (day, hour, ...) is negative.

### newDurationYearMonth

public [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) **newDurationYearMonth**([String](http://docs.google.com/java/lang/String.html) lexicalRepresentation)

Create a Duration of type xdt:yearMonthDuration by parsing its String representation, "*PnYnM*",  [XQuery 1.0 and XPath 2.0 Data Model, xdt:yearMonthDuration](http://www.w3.org/TR/xpath-datamodel#dt-yearMonthDuration).

The datatype xdt:yearMonthDuration is a subtype of xs:duration whose lexical representation contains only year and month components. This datatype resides in the namespace [XMLConstants.W3C\_XPATH\_DATATYPE\_NS\_URI](http://docs.google.com/javax/xml/XMLConstants.html#W3C_XPATH_DATATYPE_NS_URI).

Both values are set and availabe from the created [Duration](http://docs.google.com/javax/xml/datatype/Duration.html)

The XML Schema specification states that values can be of an arbitrary size. Implementations may chose not to or be incapable of supporting arbitrarily large and/or small values. An [UnsupportedOperationException](http://docs.google.com/java/lang/UnsupportedOperationException.html) will be thrown with a message indicating implementation limits if implementation capacities are exceeded.

**Parameters:**lexicalRepresentation - Lexical representation of a duration. **Returns:**New Duration created using the specified lexicalRepresentation. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If lexicalRepresentation is not a valid representation of a Duration expressed only in terms of years and months. [UnsupportedOperationException](http://docs.google.com/java/lang/UnsupportedOperationException.html) - If implementation cannot support requested values. [NullPointerException](http://docs.google.com/java/lang/NullPointerException.html) - If lexicalRepresentation is null.

### newDurationYearMonth

public [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) **newDurationYearMonth**(long durationInMilliseconds)

Create a Duration of type xdt:yearMonthDuration using the specified milliseconds as defined in  [XQuery 1.0 and XPath 2.0 Data Model, xdt:yearMonthDuration](http://www.w3.org/TR/xpath-datamodel#dt-yearMonthDuration).

The datatype xdt:yearMonthDuration is a subtype of xs:duration whose lexical representation contains only year and month components. This datatype resides in the namespace [XMLConstants.W3C\_XPATH\_DATATYPE\_NS\_URI](http://docs.google.com/javax/xml/XMLConstants.html#W3C_XPATH_DATATYPE_NS_URI).

Both values are set by computing their values from the specified milliseconds and are availabe using the get methods of the created [Duration](http://docs.google.com/javax/xml/datatype/Duration.html). The values conform to and are defined by:

* ISO 8601:2000(E) Section 5.5.3.2 Alternative format
* [W3C XML Schema 1.0 Part 2, Appendix D, ISO 8601 Date and Time Formats](http://www.w3.org/TR/xmlschema-2/#isoformats)
* [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) Date/Time Datatype Field Mapping Between XML Schema 1.0 and Java Representation

The default start instance is defined by [GregorianCalendar](http://docs.google.com/java/util/GregorianCalendar.html)'s use of the start of the epoch: i.e., [Calendar.YEAR](http://docs.google.com/java/util/Calendar.html#YEAR) = 1970, [Calendar.MONTH](http://docs.google.com/java/util/Calendar.html#MONTH) = [Calendar.JANUARY](http://docs.google.com/java/util/Calendar.html#JANUARY), [Calendar.DATE](http://docs.google.com/java/util/Calendar.html#DATE) = 1, etc. This is important as there are variations in the Gregorian Calendar, e.g. leap years have different days in the month = [Calendar.FEBRUARY](http://docs.google.com/java/util/Calendar.html#FEBRUARY) so the result of [Duration.getMonths()](http://docs.google.com/javax/xml/datatype/Duration.html#getMonths()) can be influenced.

Any remaining milliseconds after determining the year and month are discarded.

**Parameters:**durationInMilliseconds - Milliseconds of Duration to create. **Returns:**New Duration created using the specified durationInMilliseconds.

### newDurationYearMonth

public [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) **newDurationYearMonth**(boolean isPositive,  
 [BigInteger](http://docs.google.com/java/math/BigInteger.html) year,  
 [BigInteger](http://docs.google.com/java/math/BigInteger.html) month)

Create a Duration of type xdt:yearMonthDuration using the specified year and month as defined in  [XQuery 1.0 and XPath 2.0 Data Model, xdt:yearMonthDuration](http://www.w3.org/TR/xpath-datamodel#dt-yearMonthyDuration).

The XML Schema specification states that values can be of an arbitrary size. Implementations may chose not to or be incapable of supporting arbitrarily large and/or small values. An [UnsupportedOperationException](http://docs.google.com/java/lang/UnsupportedOperationException.html) will be thrown with a message indicating implementation limits if implementation capacities are exceeded.

A null value indicates that field is not set.

**Parameters:**isPositive - Set to false to create a negative duration. When the length of the duration is zero, this parameter will be ignored.year - Year of Duration.month - Month of Duration. **Returns:**New Duration created using the specified year and month. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If the values are not a valid representation of a Duration: if all of the fields (year, month) are null or if any of the fields is negative. [UnsupportedOperationException](http://docs.google.com/java/lang/UnsupportedOperationException.html) - If implementation cannot support requested values.

### newDurationYearMonth

public [Duration](http://docs.google.com/javax/xml/datatype/Duration.html) **newDurationYearMonth**(boolean isPositive,  
 int year,  
 int month)

Create a Duration of type xdt:yearMonthDuration using the specified year and month as defined in  [XQuery 1.0 and XPath 2.0 Data Model, xdt:yearMonthDuration](http://www.w3.org/TR/xpath-datamodel#dt-yearMonthyDuration).

A [DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED) value indicates that field is not set.

**Parameters:**isPositive - Set to false to create a negative duration. When the length of the duration is zero, this parameter will be ignored.year - Year of Duration.month - Month of Duration. **Returns:**New Duration created using the specified year and month. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If the values are not a valid representation of a Duration: if any of the fields (year, month) is negative.

### newXMLGregorianCalendar

public abstract [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) **newXMLGregorianCalendar**()

Create a new instance of an XMLGregorianCalendar.

All date/time datatype fields set to [DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED) or null.

**Returns:**New XMLGregorianCalendar with all date/time datatype fields set to [DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED) or null.

### newXMLGregorianCalendar

public abstract [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) **newXMLGregorianCalendar**([String](http://docs.google.com/java/lang/String.html) lexicalRepresentation)

Create a new XMLGregorianCalendar by parsing the String as a lexical representation.

Parsing the lexical string representation is defined in [XML Schema 1.0 Part 2, Section 3.2.[7-14].1, *Lexical Representation*.](http://www.w3.org/TR/xmlschema-2/#dateTime-order)

The string representation may not have any leading and trailing whitespaces.

The parsing is done field by field so that the following holds for any lexically correct String x:

newXMLGregorianCalendar(x).toXMLFormat().equals(x)

Except for the noted lexical/canonical representation mismatches listed in  [XML Schema 1.0 errata, Section 3.2.7.2](http://www.w3.org/2001/05/xmlschema-errata#e2-45).

**Parameters:**lexicalRepresentation - Lexical representation of one the eight XML Schema date/time datatypes. **Returns:**XMLGregorianCalendar created from the lexicalRepresentation. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If the lexicalRepresentation is not a valid XMLGregorianCalendar. [NullPointerException](http://docs.google.com/java/lang/NullPointerException.html) - If lexicalRepresentation is null.

### newXMLGregorianCalendar

public abstract [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) **newXMLGregorianCalendar**([GregorianCalendar](http://docs.google.com/java/util/GregorianCalendar.html) cal)

Create an XMLGregorianCalendar from a [GregorianCalendar](http://docs.google.com/java/util/GregorianCalendar.html).

| Field by Field Conversion from [GregorianCalendar](http://docs.google.com/java/util/GregorianCalendar.html) to an [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) | |
| --- | --- |
| java.util.GregorianCalendar field | javax.xml.datatype.XMLGregorianCalendar field |
| ERA == GregorianCalendar.BC ? -YEAR : YEAR | [XMLGregorianCalendar.setYear(int year)](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html#setYear(int)) |
| MONTH + 1 | [XMLGregorianCalendar.setMonth(int month)](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html#setMonth(int)) |
| DAY\_OF\_MONTH | [XMLGregorianCalendar.setDay(int day)](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html#setDay(int)) |
| HOUR\_OF\_DAY, MINUTE, SECOND, MILLISECOND | [XMLGregorianCalendar.setTime(int hour, int minute, int second, BigDecimal fractional)](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html#setTime(int,%20int,%20int,%20java.math.BigDecimal)) |
| (ZONE\_OFFSET + DST\_OFFSET) / (60\*1000)  *(in minutes)* | [XMLGregorianCalendar.setTimezone(int offset)](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html#setTimezone(int))*\** |

*\**conversion loss of information. It is not possible to represent a java.util.GregorianCalendar daylight savings timezone id in the XML Schema 1.0 date/time datatype representation.

To compute the return value's TimeZone field,

* when this.getTimezone() != FIELD\_UNDEFINED, create a java.util.TimeZone with a custom timezone id using the this.getTimezone().
* else use the GregorianCalendar default timezone value for the host is defined as specified by java.util.TimeZone.getDefault().

**Parameters:**cal - java.util.GregorianCalendar used to create XMLGregorianCalendar **Returns:**XMLGregorianCalendar created from java.util.GregorianCalendar **Throws:** [NullPointerException](http://docs.google.com/java/lang/NullPointerException.html) - If cal is null.

### newXMLGregorianCalendar

public abstract [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) **newXMLGregorianCalendar**([BigInteger](http://docs.google.com/java/math/BigInteger.html) year,  
 int month,  
 int day,  
 int hour,  
 int minute,  
 int second,  
 [BigDecimal](http://docs.google.com/java/math/BigDecimal.html) fractionalSecond,  
 int timezone)

Constructor allowing for complete value spaces allowed by W3C XML Schema 1.0 recommendation for xsd:dateTime and related builtin datatypes. Note that year parameter supports arbitrarily large numbers and fractionalSecond has infinite precision.

A null value indicates that field is not set.

**Parameters:**year - of XMLGregorianCalendar to be created.month - of XMLGregorianCalendar to be created.day - of XMLGregorianCalendar to be created.hour - of XMLGregorianCalendar to be created.minute - of XMLGregorianCalendar to be created.second - of XMLGregorianCalendar to be created.fractionalSecond - of XMLGregorianCalendar to be created.timezone - of XMLGregorianCalendar to be created. **Returns:**XMLGregorianCalendar created from specified values. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If any individual parameter's value is outside the maximum value constraint for the field as determined by the Date/Time Data Mapping table in [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) or if the composite values constitute an invalid XMLGregorianCalendar instance as determined by [XMLGregorianCalendar.isValid()](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html#isValid()).

### newXMLGregorianCalendar

public [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) **newXMLGregorianCalendar**(int year,  
 int month,  
 int day,  
 int hour,  
 int minute,  
 int second,  
 int millisecond,  
 int timezone)

Constructor of value spaces that a java.util.GregorianCalendar instance would need to convert to an XMLGregorianCalendar instance.

XMLGregorianCalendar eon and fractionalSecond are set to null

A [DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED) value indicates that field is not set.

**Parameters:**year - of XMLGregorianCalendar to be created.month - of XMLGregorianCalendar to be created.day - of XMLGregorianCalendar to be created.hour - of XMLGregorianCalendar to be created.minute - of XMLGregorianCalendar to be created.second - of XMLGregorianCalendar to be created.millisecond - of XMLGregorianCalendar to be created.timezone - of XMLGregorianCalendar to be created. **Returns:**XMLGregorianCalendar created from specified values. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If any individual parameter's value is outside the maximum value constraint for the field as determined by the Date/Time Data Mapping table in [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) or if the composite values constitute an invalid XMLGregorianCalendar instance as determined by [XMLGregorianCalendar.isValid()](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html#isValid()).

### newXMLGregorianCalendarDate

public [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) **newXMLGregorianCalendarDate**(int year,  
 int month,  
 int day,  
 int timezone)

Create a Java representation of XML Schema builtin datatype date or g\*.

For example, an instance of gYear can be created invoking this factory with month and day parameters set to [DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED).

A [DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED) value indicates that field is not set.

**Parameters:**year - of XMLGregorianCalendar to be created.month - of XMLGregorianCalendar to be created.day - of XMLGregorianCalendar to be created.timezone - offset in minutes. [DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED) indicates optional field is not set. **Returns:**XMLGregorianCalendar created from parameter values. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If any individual parameter's value is outside the maximum value constraint for the field as determined by the Date/Time Data Mapping table in [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) or if the composite values constitute an invalid XMLGregorianCalendar instance as determined by [XMLGregorianCalendar.isValid()](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html#isValid()).**See Also:**[DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED)

### newXMLGregorianCalendarTime

public [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) **newXMLGregorianCalendarTime**(int hours,  
 int minutes,  
 int seconds,  
 int timezone)

Create a Java instance of XML Schema builtin datatype time.

A [DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED) value indicates that field is not set.

**Parameters:**hours - number of hoursminutes - number of minutesseconds - number of secondstimezone - offset in minutes. [DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED) indicates optional field is not set. **Returns:**XMLGregorianCalendar created from parameter values. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If any individual parameter's value is outside the maximum value constraint for the field as determined by the Date/Time Data Mapping table in [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) or if the composite values constitute an invalid XMLGregorianCalendar instance as determined by [XMLGregorianCalendar.isValid()](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html#isValid()).**See Also:**[DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED)

### newXMLGregorianCalendarTime

public [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) **newXMLGregorianCalendarTime**(int hours,  
 int minutes,  
 int seconds,  
 [BigDecimal](http://docs.google.com/java/math/BigDecimal.html) fractionalSecond,  
 int timezone)

Create a Java instance of XML Schema builtin datatype time.

A null value indicates that field is not set.

A [DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED) value indicates that field is not set.

**Parameters:**hours - number of hoursminutes - number of minutesseconds - number of secondsfractionalSecond - value of null indicates that this optional field is not set.timezone - offset in minutes. [DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED) indicates optional field is not set. **Returns:**XMLGregorianCalendar created from parameter values. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If any individual parameter's value is outside the maximum value constraint for the field as determined by the Date/Time Data Mapping table in [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) or if the composite values constitute an invalid XMLGregorianCalendar instance as determined by [XMLGregorianCalendar.isValid()](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html#isValid()).**See Also:**[DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED)

### newXMLGregorianCalendarTime

public [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) **newXMLGregorianCalendarTime**(int hours,  
 int minutes,  
 int seconds,  
 int milliseconds,  
 int timezone)

Create a Java instance of XML Schema builtin datatype time.

A [DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED) value indicates that field is not set.

**Parameters:**hours - number of hoursminutes - number of minutesseconds - number of secondsmilliseconds - number of millisecondstimezone - offset in minutes. [DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED) indicates optional field is not set. **Returns:**XMLGregorianCalendar created from parameter values. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - If any individual parameter's value is outside the maximum value constraint for the field as determined by the Date/Time Data Mapping table in [XMLGregorianCalendar](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html) or if the composite values constitute an invalid XMLGregorianCalendar instance as determined by [XMLGregorianCalendar.isValid()](http://docs.google.com/javax/xml/datatype/XMLGregorianCalendar.html#isValid()).**See Also:**[DatatypeConstants.FIELD\_UNDEFINED](http://docs.google.com/javax/xml/datatype/DatatypeConstants.html#FIELD_UNDEFINED)

| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/DatatypeFactory.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/datatype/DatatypeConstants.Field.html)   [**NEXT CLASS**](http://docs.google.com/javax/xml/datatype/Duration.html) | [**FRAMES**](http://docs.google.com/index.html?javax/xml/datatype/DatatypeFactory.html)    [**NO FRAMES**](http://docs.google.com/DatatypeFactory.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | [FIELD](#2et92p0) | [CONSTR](#tyjcwt) | [METHOD](#3dy6vkm) | DETAIL: [FIELD](#4d34og8) | [CONSTR](#3rdcrjn) | [METHOD](#lnxbz9) |

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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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