BEA WebLogic Workshop™

XQuery Reference

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CHAPTER 1

XQuery Reference

This section provides XQuery reference information for queries (written in the XQuery language) that you build with the mapper provided for transformations in business processes and web services. It provides descriptions of the XQuery operator and functions available from the mapper. In addition, it provides reference information on the occurrence indicators, namespace prefixes, and XML Schema data types used in the XQuery language.

To learn more about creating data transformations in business processes, see *Guide to Data Transformation*.

For more information on transformations in web services (where they are also called *XQuery maps*), see Transforming XML Messages with XQuery Maps.

Note: The queries generated using *WebLogic Workshop* for transformations in business and web services conform to the W3C Working Draft 16 August 2002 of XQuery 1.0. For more information about this specification, see the following URL available from the W3C Web site:

`http://www.w3.org/TR/2002/WD-xquery-20020816/`

The queries generated using *Liquid Data for WebLogic* conform to the W3C Working Draft 30 December 2001 of XQuery 1.0. For more information about this specification, see the following URL available from the W3C Web site:

`http://www.w3.org/TR/2001/WD-xquery-20011220/`

For Liquid Data XQuery Reference information, see the Liquid Data XQuery Reference Guide.

In addition to the XQuery functions and operators available in the mapper functionality, a larger set functions and operators is provided. You can manually add invocations to these functions and operators to queries in the **Source View** of the mapper functionality. For a list of these additional functions and operators, see the XQuery 1.0 and XPath 2.0 Functions and Operators - W3C Working Draft 16 August 2002 available from the W3C Web site at the following URL:

`http://www.w3.org/TR/2002/WD-xquery-operators-20020816`

Topics Included in This Section

Chapter 2, "XQuery Alphabetical Functions and Operators Reference"
Provides an alphabetical listing of the functions and operators available from the mapper.

Chapter 3, "XQuery Type Conversion Functions Reference"
Provides descriptions of the type conversion functions available from the mapper.

Chapter 4, "XQuery String Functions Reference"
Provides descriptions of the string functions available from the mapper.

Chapter 5, "XQuery Numeric Function Reference"
Provides descriptions of the numeric functions available from the mapper.

Chapter 7, "XQuery Aggregate Function Reference"
Provides descriptions of the aggregate functions available from the mapper.

Chapter 6, "XQuery URI Functions Reference"
Provides descriptions of the URI functions available from the mapper.

Chapter 8, "XQuery Node Functions Reference"
Provides descriptions of the node functions available from the mapper.

Chapter 9, "XQuery QName Functions Reference"
Provides descriptions of the QName functions available from the mapper.

Chapter 10, "XQuery Date Functions Reference"
Provides descriptions of the date functions available from the mapper.

Chapter 11, "XQuery Duration Functions Reference"
Provides descriptions of the duration functions available from the mapper.

Chapter 12, "XQuery Numeric Operators Reference"
Provides descriptions of the numeric operators available from the mapper.

Chapter 13, "XQuery Boolean Operators Reference"
Provides descriptions of the boolean operators available from the mapper.

Chapter 14, "XQuery Date and Time Operators Reference"
Provides descriptions of the time and date operators available from the mapper.

Chapter 15, "XQuery Duration Operators Reference"
Provides descriptions of the duration operators available from the mapper.

Chapter 16, "XQuery Occurrence Indicators"
Describes the XQuery occurrence indicators.

Chapter 17, "XQuery Namespace Conventions"
Provides information about XQuery namespace prefixes.

Chapter 18, "XQuery Data Types"
Provides information on the XML Schema data types.

Chapter 19, "XQuery Language and XML Reference"
Provides XQuery language and XML links to the W3C Working Draft 16 August 2002 XQuery language and W3C XML 1.0 documentation, respectively.

XQuery Alphabetical Functions and Operators Reference

This section provides an alphabetical list of all the XQuery functions and operators available in the mapper functionality of WebLogic Workshop. You use the mapper functionality to generate queries and to edit these queries to add invocations to these provided XQuery functions and operators. To learn more, see “Invoking Functions or Operators in a Query” in Modifying Links Using the Target Expression Tab in the *Guide to Data Transformation*.

In addition to the XQuery functions and operators available in the mapper functionality, a larger set functions and operators is provided. You can manually add invocations to these functions and operators to queries in the **Source View** of the mapper functionality. For a list of these additional functions and operators, see the XQuery 1.0 and XPath 2.0 Functions and Operators - W3C Working Draft 16 August 2002 available from the W3C Web site at the following URL:

`http://www.w3.org/TR/2002/WD-xquery-operators-20020816`

This section lists the all the functions and operators available from the mapper functionality sorted alphabetical by namespace and then function or operator name:

- bea-xf:
    - bea-xf:format-number
    - bea-xf:integer-sequence
    - bea-xf:trim
    - bea-xf:trim-left
    - bea-xf:trim-right
- op:

- op:add-dayTimeDurations
- op:add-dayTimeDuration-to-date
- op:add-dayTimeDuration-to-dateTime
- op:add-dayTimeDuration-to-time
- op:add-yearMonthDurations
- op:add-yearMonthDuration-to-date
- op:add-yearMonthDuration-to-dateTime
- op:boolean-equal
- op:boolean-greater-than
- op:boolean-less-than
- op:decimal-add
- op:decimal-divide
- op:decimal-mod
- op:decimal-multiply
- op:decimal-subtract
- op:divide-dayTimeDuration
- op:divide-yearMonthDuration
- op:double-add
- op:double-divide
- op:double-mod
- op:double-multiply
- op:double-subtract
- op:float-add
- op:float-divide
- op:float-mod
- op:float-multiply
- op:float-subtract

  - op:multiply-dayTimeDuration
  - op:multiply-yearMonthDuration
  - op:numeric-integer-divide
  - op:subtract-dates
  - op:subtract-dayTimeDuration-from-date
  - op:subtract-dayTimeDuration-from-dateTime
  - op:subtract-dayTimeDuration-from-time
  - op:subtract-dayTimeDurations
  - op:subtract-times
  - op:subtract-yearMonthDuration-from-date
  - op:subtract-yearMonthDuration-from-dateTime
  - op:subtract-yearMonthDurations
- xf:
  - xf:add-timezone-to-date
  - xf:add-timezone-to-dateTime
  - xf:add-timezone-to-time
  - xf:avg
  - xf:ceiling
  - xf:compare
  - xf:concat
  - xf:contains
  - xf:count
  - xf:current-date
  - xf:current-dateTime
  - xf:current-time
  - xf:dayTimeDuration
  - xf:ends-with

- xf:escape-URI
- xf:floor
- xf:get-day-from-date
- xf:get-day-from-dateTime
- xf:get-days-from-dayTimeDuration
- xf:get-dayTimeDuration-from-dateTimes
- xf:get-hours-from-dateTime
- xf:get-hours-from-dayTimeDuration
- xf:get-hours-from-time
- xf:get-local-name-from-QName
- xf:get-minutes-from-dateTime
- xf:get-minutes-from-dayTimeDuration
- xf:get-minutes-from-time
- xf:get-month-from-date
- xf:get-month-from-dateTime
- xf:get-months-from-yearMonthDuration
- xf:get-namespace-from-QName
- xf:get-seconds-from-dateTime
- xf:get-seconds-from-dayTimeDuration
- xf:get-seconds-from-time
- xf:get-timezone-from-date
- xf:get-timezone-from-dateTime
- xf:get-timezone-from-time
- xf:get-year-from-date
- xf:get-year-from-dateTime
- xf:get-yearMonthDuration-from-dateTimes
- xf:get-years-from-yearMonthDuration

  - xf:local-name
  - xf:lower-case
  - xf:matches
  - xf:max
  - xf:min
  - xf:node-kind
  - xf:node-name
  - xf:normalize-space
  - xf:number
  - xf:remove-timezone-from-dateTime
  - xf:remove-timezone-from-time
  - xf:replace
  - xf:resolve-URI
  - xf:round
  - xf:starts-with
  - xf:string-length
  - xf:string-pad
  - xf:substring
  - xf:substring-after
  - xf:substring-before
  - xf:sum
  - xf:tokenize
  - xf:translate
  - xf:upper-case
  - xf:yearMonthDuration
- xs:
  - xs:anyURI

- xs:boolean
- xs:byte
- xs:date
- xs:dateTime
- xs:decimal
- xs:double
- xs:duration
- xs:float
- xs:gDay
- xs:gMonth
- xs:gMonthDay
- xs:gYear
- xs:gYearMonth
- xs:int
- xs:integer
- xs:long
- xs:Name
- xs:normalizedString
- xs:QName
- xs:short
- xs:string
- xs:time
- xs:token

XQuery Type Conversion Functions Reference

This section provides descriptions of the XQuery type conversion functions available in the mapper functionality of WebLogic Workshop. You use the mapper functionality to generate queries and to edit these queries to add invocations to these provided XQuery functions. To learn more, see “Invoking Functions or Operators in a Query” in Modifying Links Using the Target Expression Tab in the *Guide to Data Transformation*.

In addition to the XQuery functions available in the mapper functionality of WebLogic Workshop, a larger set functions is provided. You can manually add invocations to these functions to queries in the **Source View** of the mapper functionality. For a list of these additional functions, see theXQuery 1.0 and XPath 2.0 Functions and Operators - W3C Working Draft 16 August 2002 available from the W3C Web site at the following URL:

`http://www.w3.org/TR/2002/WD-xquery-operators-20020816`

This section lists the type conversion functions available from the mapper functionality:

- xs:string
- xs:decimal
- xs:integer
- xs:long
- xs:int
- xs:short
- xs:byte

- xs:float
- xs:double
- xf:number
- bea-xf:integer-sequence
- xs:boolean
- xs:dateTime
- xs:date
- xs:time
- xs:gYearMonth
- xs:gYear
- xs:gMonthDay
- xs:gMonth
- xs:gDay
- xs:duration
- xs:anyURI
- xs:Name
- xs:QName
- xf:dayTimeDuration
- xf:yearMonthDuration

xs:string

Converts the value of `$item-var` to a string.

If `$item-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xs:string(item* $item-var)` → `xs:string`

Arguments

Data Type	Argument	Description
`item*`	`$item-var`	Represents an atomic value or an element.

Returns

Returns the representation of `$item-var` as a string.

Examples

XML Node

When you invoke the following query:

```
{-- node example --}
let $i := <book>The Toad</book>
return <author>{xs:string($i)}</author>
```

The following result is generated:

```
<author>The Toad</author>
```

Integer

When you invoke the following query:

```
{-- integer example --}
let $num := xs:integer("20")
return (<integer>{xs:string($num)}</integer>)
```

The following result is generated:

```
<integer>20</integer>
```

Float

When you invoke the following query:

```
{-- float example --}
let $num := xs:float("44.4")
return (<float>{xs:string($num)}</float>)
```

The following result is generated:

```
<float>44.4</float>
```

Boolean

When you invoke the following query:

```
{-- boolean example --}
let $boolean-var := xs:boolean("true")
return (<boolean>{xs:string($boolean-var)}</boolean>)
```

The following result is generated:

```
<boolean>true</boolean>
```

Related Topics

W3C `string` function description

xs:decimal

Converts `$string-var` (a string) to a decimal value.

If `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xs:decimal(xs:string $string-var)`→`xs:decimal`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents the string to convert to a decimal number.

Returns

Returns the decimal value of `$string-var`.

Examples

Simple

Invoking `decimal("2.2")` returns the decimal value `2.2` as shown in the following example query:

```
<decimal>{xs:decimal("2.2")}</decimal>
```

The preceding query generates the following result:

```
<decimal>2.2</decimal>
```

Null

Invoking `decimal(())` returns an empty sequence. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

For example, the following example query:

```
<decimal>{xs:decimal(())}</decimal>
```

The preceding query generates the following result:

```
<decimal/>
```

Related Topics

W3C `decimal` data type description

xs:integer

Converts `$string-var` (a string) to an `integer` value.

If the value of `$string-var` is greater than 9,223,372,036,854,775,807 or less than -9,223,372,036,854,775,808, the `TransformException` exception is raised with the SYS_LONG_OVERFLOW fault code. The following error message is displayed in the mapper:

```
Error occurred while executing XQuery: BigDecimal -> Long overflow!
```

Note: For performance reasons, the integer supported by this XQuery engine is equivalent to a Java `long`, which is smaller then the W3C XML Schema integer, which has an arbitrary length. To learn more, see the `integer` description.

Note: The value `$string-var` must be specified without commas as shown in the following example invocation:

```
xs:integer("999999999")
```

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

To learn more about using fault codes, see Getting the TransformException Fault Code Programmatically.

Signatures

```
xs:integer(xs:string $string-var) →xs:integer
```

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents the string to convert to an `integer` value.

Returns

Returns an `integer` value of `$string-var`.

Examples

Simple

Invoking `integer("10402")` returns the integer value `10402` as shown in the following example query:

```
<integer>{xs:integer("10402")}</integer>
```

The preceding query generates the following result:

```
<integer>10402</integer>
```

Error—Decimal Point is Not Allowed

Invoking `integer("104.0")` outputs an error because the decimal point is not allowed in the argument.

For example, the following example query:

```
<integer>{xs:integer("104.0")}</integer>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "104.0" to type
[integer@http://www.w3.org/2001/XMLSchema]
```

Error—Not a Number

Invoking `integer("foo")` outputs an error because `"foo"` is not a number.

For example, the following example query:

```
<integer>{xs:decimal("foo")}</integer>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "foo" to type
[integer@http://www.w3.org/2001/XMLSchema]
```

Null

Invoking `integer(())` returns an empty sequence. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

For example, the following example query:

```
<integer>{xs:integer(())}</integer>
```

The preceding query generates the following result:

```
<integer/>
```

XQuery Compliance

An `integer` value in this XQuery engine has a maximum size of 9,223,372,036,854,775,807 and a minimum size of -9,223,372,036,854,775,808. For performance reasons, the integer supported by this XQuery engine is equivalent to a Java `long`, which is smaller then the W3C XML Schema integer, which has an arbitrary length.

Related Topics

`integer` data type description

Getting the TransformException Fault Code Programmatically

xs:long

Converts `$string-var` (a string) to a `long` value.

If the value of `$string-var` is greater than 9,223,372,036,854,775,807 or less than -9,223,372,036,854,775,808, the following error message is displayed:

```
Error occurred while executing XQuery: Could not cast "9223372036854775809"
to type [long@http://www.w3.org/2001/XMLSchema]
```

Note: The value `$string-var` must be specified without commas as shown in the following example invocation:

```
xs:long("999999999")
```

If `$string-var` is the empty sequence, the empty sequence is returned.

The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

To learn more about using fault codes, see Getting the TransformException Fault Code Programmatically.

Signatures

`xs:long(xs:string $string-var)` →`xs:long`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents the string to convert to a `long` value.

Returns

Returns the `long` value of `$string-var`.

Examples

Simple

Invoking `long("10403")` returns the integer value `10403` as shown in the following example query:

```
<long>{xs:long("10403")}</long>
```

The preceding query generates the following result:

```
<long>10403</long>
```

Error—Decimal Point Not Allowed

Invoking `long("104.0")` outputs an error because `104.0` is not a valid integer (decimal point is not allowed.)

For example, the following example query:

```
<long>{xs:long("104.0")}</long>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "104.0" to type
[long@http://www.w3.org/2001/XMLSchema]
```

Error—Not a Number

Invoking `long("foo")` outputs an error because `"foo"` is not a number.

For example, the following example query:

```
<long>{xs:long("foo")}</long>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "foo" to type
[long@http://www.w3.org/2001/XMLSchema]
```

Null

Invoking `long(())` returns an empty sequence. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

For example, the following example query:

```
<long>{xs:long(())}</long>
```

The preceding query generates the following result:

```
<long/>
```

Related Topics

W3C `long` data type description

Getting the TransformException Fault Code Programmatically

xs:int

Converts `$string-var` (a string) to an `int` value.

If the value of `$string-var` is greater than 2,147,483,647 or less than -2,147,483,648, the following error is produced:

```
Error occurred while executing XQuery: Could not cast "2147483649" to type
[int@http://www.w3.org/2001/XMLSchema]
```

Note: The value `$string-var` must be specified without commas as shown in the following example invocation:

```
xs:int("999999999")
```

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xs:int(xs:string $string-var) →xs:int
```

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents the string to convert to an `int` value.

Returns

Returns the `int` value of `$string-var`.

Examples

Simple

Invoking `int("10403")`returns the integer value `10403` as shown in the following example query:

```
<int>{xs:int("10403")}</int>
```

The preceding query generates the following result:

```
<int>10403</int>
```

Error—Decimal Point Not Allowed

Invoking `int("104.0")`outputs an error because `104.0` not a valid integer (decimal point is not allowed.)

For example, the following example query:

```
<int>{xs:int("104.0")}</int>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "104.0" to type
[int@http://www.w3.org/2001/XMLSchema]
```

Error—Not a Number

Invoking `int("foo")`outputs an error because `"foo"` is not a number.

For example, the following example query:

```
<int>{xs:int("foo")}</int>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "foo" to type
[int@http://www.w3.org/2001/XMLSchema]
```

Null

Invoking `int(())` returns an empty sequence. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

For example, the following example query:

```
<int>{xs:int(())}</int>
```

The preceding query generates the following result:

```
<int/>
```

Related Topics

W3C `int` data type description

xs:short

Converts `$string-var` (a string) to a `short` value.

If the value of `$string-var` is greater than 32,767 or less than -32,768, the following error is produced:

```
Error occurred while executing XQuery: Could not cast "32769" to type
[short@http://www.w3.org/2001/XMLSchema]
```

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xs:short(xs:string $string-var) →xs:short
```

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents the string to convert to a `short` value.

Returns

Returns the `short` value of `$string-var`.

Examples

Simple

Invoking `short("10403")`returns the integer value `10403` as shown in the following example query:

```
<short>{xs:short("10403")}</short>
```

The preceding query generates the following result:

```
<short>10403</short>
```

Error—Decimal Point Not Allowed

Invoking `short("104.0")` outputs the an error because `104.0` is not a valid integer (decimal point is not allowed.)

For example, the following example query:

```
<short>{xs:short("104.0")}</short>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "104.0" to type
[short@http://www.w3.org/2001/XMLSchema]
```

Error—Not a Number

Invoking `short("foo")`outputs an error because `"foo"` is not a number.

For example, the following example query:

```
<short>{xs:short("foo")}</short>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "foo" to type
[short@http://www.w3.org/2001/XMLSchema]
```

Null

Invoking `short(())` returns an empty sequence. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

For example, the following example query:

```
<short>{xs:short(())}</short>
```

The preceding query generates the following result:

```
<short/>
```

Related Topics

W3C `short` data type description

xs:byte

Converts `$string-var` (a string) to a `byte` value.

If the value of `$string-var` is greater than 127 or less than -128, the following error is produced:

```
Error occurred while executing XQuery: Could not cast "129" to type
[byte@http://www.w3.org/2001/XMLSchema]
```

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xs:byte(xs:string $string-var)` →`xs:byte`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents the string to convert to a `byte`.

Returns

Returns the `byte` value of `$string-var`.

Examples

Simple

Invoking `byte("104")`returns the integer value `104` as shown in the following example query:

```
<byte>{xs:byte("104")}</byte>
```

The preceding query generates the following result:

```
<byte>104</byte>
```

Error—Decimal Point Not Allowed

Invoking `byte("104.0")` outputs an error because `104.0` is not a valid integer (decimal point is not allowed.)

For example, the following example query:

```
<byte>{xs:byte("104.0")}</byte>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "104.0" to type
[byte@http://www.w3.org/2001/XMLSchema]
```

Error—Not a Number

Invoking `byte("foo")` outputs an error because `"foo"` is not a number.

For example, the following example query:

```
<byte>{xs:byte("foo")}</byte>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "foo" to type
[byte@http://www.w3.org/2001/XMLSchema]
```

Null

Invoking `byte(())` returns an empty sequence. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

For example, the following example query:

```
<byte>{xs:byte(())}</byte>
```

The preceding query generates the following result:

```
<byte/>
```

Related Topics

W3C `byte` data type description

xs:float

Converts `$string-var` (a string) to a 32 bit floating point value. The data type float corresponds to the IEEE single-precision 32-bit floating point type (IEEE Std 754-1985).

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xs:float(xs:string $string-var) →xs:float`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents the string to convert to a `float`.

Returns

Returns the floating point value of `$string-var`.

Examples

Simple

Invoking `float("1.1")`returns the floating point value of `1.1` as shown in the following example query:

```
<float>{xs:float("1.1")}</float>
```

The preceding query generates the following result:

```
<float>1.1</float>
```

Exponent

Invoking `float("-104.345e2")`returns the floating point value of `-10434.5` as shown in the following example query:

```
<float>{xs:float("-104.345e2")}</float>
```

The preceding query generates the following error:

```
<float>-10434.5</float>
```

NaN

The string: `NaN` (Not a Number) is a legal argument, as shown in the following example query:

```
<float>{xs:float("NaN")}</float>
```

The preceding query generates the following result:

```
<float>NaN</float>
```

INF and -INF

The strings: `INF` (positive infinity) and `-INF` (negative infinity) are legal arguments as shown in the following example query:

```
<infinity>
       <positive>{xs:float("INF")}</positive>
       <negative>{xs:float("-INF")}</negative>
</infinity>
```

The preceding query generates the following result:

```
<infinity>
       <positive>Infinity</positive>
       <negative>-Infinity</negative>
</infinity>
```

Error—Invalid Exponent

Invoking `float("10.1e2.1")` outputs an error because `2.1` is not an integer. For example, the following example query:

```
<float>{xs:float("10.1e2.1")}</float>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "10.1e2.1" to type
[float@http://www.w3.org/2001/XMLSchema]
```

Null

Invoking `float(())` returns the empty sequence. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

For example, the following example query:

```
<float>{xs:float(())}</float>
```

The preceding query generates the following result:

```
<float/>
```

Related Topics

W3C `float` data type description

xs:double

Converts `$string-var` (a string) to a double precision (64 bit) floating point value.

The data type double corresponds to IEEE double-precision 64-bit floating point type (IEEE 754-1985).

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xs:double(xs:string $string-var)` →`xs:double`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents the string to convert to a `double`.

Returns

Returns the double precision floating point value of `$string-var`.

Examples

Simple

Invoking `double("1.1")` returns the double precision floating point value of `1.1` as shown in the following example query:

```
<double>{xs:double("1.1")}</double>
```

The preceding query generates the following result:

```
<double>1.1</double>
```

Exponent

Invoking `double("-104.345e2")` returns the double floating point value of `-10434.5` as shown in the following example query:

```
<double>{xs:double("-104.345e2")}</double>
```

The preceding query generates the following result:

```
<double>-10434.5</double>
```

NaN

The string: `NaN` (Not a Number) is a legal argument, as shown in the following example query:

```
<double>{xs:double("NaN")}</double>
```

The preceding query generates the following result:

```
<double>NaN</double>
```

INF and -INF

The strings: `INF` (positive infinity) and `-INF` (negative infinity) are legal arguments as shown in the following example query:

```
<infinity>
       <positive>{xs:double("INF")}</positive>
       <negative>{xs:double("-INF")}</negative>
</infinity>
```

The preceding query generates the following result:

```
<infinity>
       <positive>Infinity</positive>
       <negative>-Infinity</negative>
</infinity>
```

Error—Invalid Exponent

Invoking `double("10.1e2.1")` outputs an error because `2.1` is not an integer. For example, the following example query:

```
<double>{xs:double("10.1e2.1")}</double>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "10.1e2.1" to type
[double@http://www.w3.org/2001/XMLSchema]
```

Error—Null

Invoking `double(())` returns the empty sequence. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL

For example, the following example query:

```
<double>{xs:double(())}</double>
```

The preceding query generates the following result:

```
<double/>
```

Related Topics

W3C `double` data type description

xf:number

Converts the value of `$node-var` (XML element) to a double precision floating point value.

Signatures

`xf:number(xf:node $node-var) →xs:double`

Arguments

Data Type	Argument	Description
`xf:node`	`$node-var`	Represents an XML node.

Returns

Returns the double precision floating point value of `$node-var`.

Examples

XML Node

When you invoke the following query:

```
{--  node example --}
let $numnode := <a><b>12.1</b></a>
return (<num>{xf:number($numnode/b)}</num>)
```

The following result is generated:

```
<num>12.1</num>
```

Related Topics

W3C `number` function description

bea-xf:integer-sequence

Converts a sequence of XML nodes into a sequence of integers. This function is usually used in conjunction with the xf:max and xf:min functions.

Signatures

`bea-xf:integer-sequence(node* $node-var) →xs:integer*`

Arguments

Data Type	Argument	Description
`node*`	`$node-var`	Represents a sequence of XML nodes.

Returns

Returns a sequence of integers converted from XML nodes.

Examples

Simple

Invoking the following query returns a sequence of integers, as shown in the following example query:

```
let $x := <a>100</a>
let $y := <b>2</b>
let $z := <c>50</c>
return <result>{bea-xf:integer-sequence(($x,$y,$z))}</result>
```

The preceding query generates the following result:

```
<result>100 2 50</result>
```

xs:boolean

Converts a $string-var (a string) to a boolean value.

Signatures

`xs:boolean(xs:string $string-var) →xs:boolean`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents the string to convert to a boolean value

Returns

Returns the boolean value of the passed in string.

Examples

Simple

Invoking `xs:boolean("false")` returns the boolean value `false`, as shown in the following example query:

```
<result>{xs:boolean("false")}</result>
```

The preceding query generates the following result:

```
<result>false</result>
```

Numeric

Invoking `xs:boolean("1")` returns the boolean value `true`, as shown in the following example query:

```
<result>{xs:boolean("1")}</result>
```

The preceding query generates the following result:

```
<result>true</result>
```

Related Topics

W3C `boolean` function description

xs:dateTime

Converts `$string-var` (a string in the `dateTime` format) to the `dateTime` data type.

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

If the value of `$string-var` is not valid to the `dateTime` format the following error is reported:

```
Could not cast "invalid_dateTime_string" to type
[date@htttp://www.w3.org/2001/XMLSchema] is displayed.
```

Where *invalid_dateTime_string* is the string not valid to the date format, for example: `"2003-08-16T21:10"`.

Signatures

`xs:dateTime(xs:string $string-var) → xs:dateTime`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents a string with the date and time specified with one of the following formats: • *YYYY-MM-DDThh*:*mm*:*ss.sssssss* • *YYYY-MM-DDThh*:mm:*ss.sssssssZ* • *YYYY-MM-DDThh*:*mm*:*ss.sssssss+hh*:*mm* • *YYYY-MM-DDThh*:*mm*:*ss.sssssss-hh*:*mm*

Data Type	Argument	Description	
		`YYYY`	Year.
		`MM`	Month (as a number).
		`DD`	Day.
		`T`	Date and Time separator.
		`hh`	Number of hours.
		`mm`	Number of minutes.
		`ss.sssssss`	Number of seconds. Seconds can be specified up to 7 digits after the decimal place. (Format *xx.xxxxxxx*)
		`:`	Separator between hours, minutes, or seconds.
		+	Positive time zone offset. This option is optional. If a plus or minus is not specified, + is assumed.
		-	Negative time zone offset. (Optional)
		`hh`	Number of hours that the time zone differs from UTC.
		`mm`	Number of minutes that the time zone differs from UTC.
		`Z`	Indicates that the time corresponds to the UTC time zone.

Returns

Returns the specified date and time in the `dateTime` data type.

Examples

Simple

Invoking `dateTime("2003-08-16T21:10:50")` returns a `dateTime` value corresponding to August 16th, 2003 at 9:10PM (21:10 in twenty four hour time) and 50 seconds in the current time zone, as shown in the following example query:

```
let $mydate := xs:dateTime("2003-08-16T21:10:50")
return
<components>
       <year>{xf:get-year-from-dateTime($mydate)}</year>
       <month>{xf:get-month-from-dateTime($mydate)}</month>
       <day>{xf:get-day-from-dateTime($mydate)}</day>
       <hour>{xf:get-hours-from-dateTime($mydate)}</hour>
       <minute>{xf:get-minutes-from-dateTime($mydate)}</minute>
       <second>{xf:get-seconds-from-dateTime($mydate)}</second>
</components>
```

The preceding query, generates the following XML result:

```
<components>
       <year>2003</year>
       <month>8</month>
       <day>16</day>
       <hour>21</hour>
       <minute>10</minute>
       <second>50</second>
</components>
```

Seconds with Decimal

Invoking `dateTime("2003-08-16T21:10:50.577")` returns a `dateTime` value corresponding to August 16th, 2003 at 9:10 PM (21:10 in twenty four hour time) and 50.577 seconds in the current time zone, as shown in the following example query:

```
let $mydate := xs:dateTime("2003-08-16T21:10:50.557")
return
<components>
       <year>{xf:get-year-from-dateTime($mydate)}</year>
       <month>{xf:get-month-from-dateTime($mydate)}</month>
```

```
        <day>{xf:get-day-from-dateTime($mydate)}</day>
        <hour>{xf:get-hours-from-dateTime($mydate)}</hour>
        <minute>{xf:get-minutes-from-dateTime($mydate)}</minute>
        <second>{xf:get-seconds-from-dateTime($mydate)}</second>
</components>
```

The preceding query, generates the following XML result:

```
<components>
        <year>2003</year>
        <month>8</month>
        <day>16</day>
        <hour>21</hour>
        <minute>10</minute>
        <second>50.5570000</second>
</components>
```

UTC Time Zone

Invoking `dateTime("2003-08-16T21:10:50Z")` returns a `dateTime` value corresponding to August 16th, 2003 at 9:10 PM (21:10 in twenty four hour time) and 50 seconds, in the UTC time zone, as shown in the following example query:

```
let $mydate := xs:dateTime("2003-08-16T21:10:50Z")
return
<components>
        <year>{xf:get-year-from-dateTime($mydate)}</year>
        <month>{xf:get-month-from-dateTime($mydate)}</month>
        <day>{xf:get-day-from-dateTime($mydate)}</day>
        <hour>{xf:get-hours-from-dateTime($mydate)}</hour>
        <minute>{xf:get-minutes-from-dateTime($mydate)}</minute>
        <second>{xf:get-seconds-from-dateTime($mydate)}</second>
</components>
```

The preceding query, generates the following XML result:

```
<components>
        <year>2003</year>
        <month>8</month>
        <day>16</day>
        <hour>21</hour>
        <minute>10</minute>
        <second>50</second>
</components>
```

Offset Time Zone

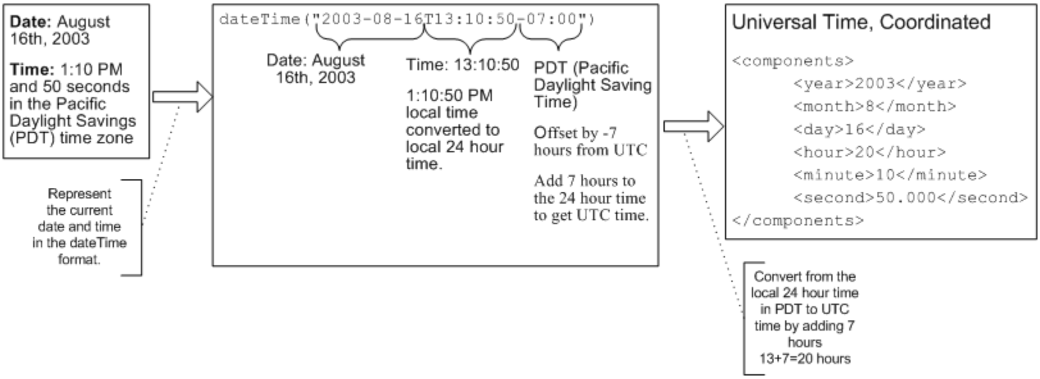
Invoking `dateTime("2003-08-16T13:10:50-07:00")` returns a `dateTime` value corresponding to August 16th, 2003 at 1:10 PM (13:10 in twenty four hour time) and 50 seconds, in the Pacific Daylight Savings (PDT) time zone that is offset by -7 hours from UTC (Universal Time, Coordinated), as shown in the following example query:

```
let $mydate := xs:dateTime("2003-08-16T13:10:50-07:00")
return
<components>
        <year>{xf:get-year-from-dateTime($mydate)}</year>
        <month>{xf:get-month-from-dateTime($mydate)}</month>
        <day>{xf:get-day-from-dateTime($mydate)}</day>
        <hour>{xf:get-hours-from-dateTime($mydate)}</hour>
        <minute>{xf:get-minutes-from-dateTime($mydate)}</minute>
        <second>{xf:get-seconds-from-dateTime($mydate)}</second>
</components>
```

The preceding query, generates the following XML result:

```
<components>
        <year>2003</year>
        <month>8</month>
        <day>16</day>
        <hour>20</hour>
        <minute>10</minute>
        <second>50</second>
</components>
```

The conversion of the date and time is shown in the following figure.


Date: August 16th, 2003
Time: 1:10 PM and 50 seconds in the Pacific Daylight Savings (PDT) time zone
dateTime("2003-08-16T13:10:50-07:00")
Date: August 16th, 2003
Time: 13:10:50
1:10:50 PM local time converted to local 24 hour time.
PDT (Pacific Daylight Saving Time)
Offset by -7 hours from UTC
Add 7 hours to the 24 hour time to get UTC time.
Universal Time, Coordinated

```
<components>
      <year>2003</year>
      <month>8</month>
      <day>16</day>
      <hour>20</hour>
      <minute>10</minute>
      <second>50.000</second>
</components>
```

Represent the current date and time in the dateTime format.

Convert from the local 24 hour time in PDT to UTC time by adding 7 hours
13+7=20 hours

Error—No Seconds

Invoking `dateTime("2003-08-16T21:10")` outputs an error because seconds are not specified.

For example, the following example query:

```
<result>{xs:dateTime("2003-08-16T21:10")}</result>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "2003-08-16T21:10" to
type [dateTime@http://www.w3.org/2001/XMLSchema]
```

Error—Incorrect Format

Invoking `dateTime("2003-8-16T21:10:50")` outputs an error because the month is not specified using two digits.

For example, the following example query:

```
<result>{xs:dateTime("2003-8-16T21:10:50")}</result>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "2003-8-16T21:10:50"
to type [dateTime@http://www.w3.org/2001/XMLSchema]
```

Related Topics

W3C `dateTime` data type description

xs:date

Converts `$string-var` (a string in the `date` format) to the `date` data type.

If the value of `$string-var` is the empty sequence, the empty sequence is returned.The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

If the value of `$string-var` is not valid to the `date` format the following error is reported:

```
Could not cast "invalid_date_string" to type
[date@htttp://www.w3.org/2001/XMLSchema] is displayed.
```

Where *invalid_date_string* is the string not valid to the date format, for example: `"2003-04-31"`.

Signatures

`xs:date(xs:string $string-var) →xs:date`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents a string with the date specified with one of the following formats: • *YYYY-MM-DD* • *YYYY-MM-DDZ* • *YYYY-MM-DD+hh:mm* • *YYYY-MM-DD-hh:mm*

Data Type	Argument	Description	
		`YYYY`	Year.
		`MM`	Month (as a number).
		`DD`	Day.
		`-`	Separator between year, month, and day.
		`hh`	Number of hours.
		`mm`	Number of minutes.
		`:`	Separator between hours and minutes.
		+	Positive time zone offset (If a plus or minus is not specified, + is assumed.)
		-	Negative time zone offset.
		`hh`	Number of hours that the time zone differs from UTC.
		`mm`	Number of minutes that the time zone differs from UTC.
		`Z`	Indicates that the time corresponds to the UTC time zone.

Returns

Returns the specified date in the `date` data type.

Examples

Simple

Invoking `date("2003-08-16")` returns a `date` value corresponding to August 16th, 2003 in the current time zone, as shown in the following example query:

```
let $mydate := xs:date("2003-08-16")
return
<components>
```

```
        <year>{xf:get-year-from-date($mydate)}</year>
        <month>{xf:get-month-from-date($mydate)}</month>
        <day>{xf:get-day-from-date($mydate)}</day>
</components>
```

The preceding query, generates the following XML result:

```
<components>
        <year>2003</year>
        <month>8</month>
        <day>16</day>
</components>
```

UTC Time Zone

Invoking `date("2003-08-16Z")` returns a `date` value corresponding to August 16th, 2003 in the UTC time zone, as shown in the following example query:

```
let $mydate := xs:date("2003-08-16Z")
return
<components>
        <year>{xf:get-year-from-date($mydate)}</year>
        <month>{xf:get-month-from-date($mydate)}</month>
        <day>{xf:get-day-from-date($mydate)}</day>
</components>
```

Note: The `Z` in the a `date` string, specifies that the date is specified in the UTC time zone.

The preceding query, generates the following XML result:

```
<components>
        <year>2003</year>
        <month>8</month>
        <day>16</day>
</components>
```

Offset Time Zone

Invoking `date("2003-08-16-02:00")` returns a `date` value corresponding to August 16th, 2003 in a time zone that is offset by -2 hours from UTC, as shown in the following example query:

```
let $mydate := xs:date("2003-08-16-02:00")
return
<components>
       <year>{xf:get-year-from-date($mydate)}</year>
       <month>{xf:get-month-from-date($mydate)}</month>
       <day>{xf:get-day-from-date($mydate)}</day>
</components>
```

The preceding query, generates the following XML result:

```
<components>
       <year>2003</year>
       <month>8</month>
       <day>16</day>
</components>
```

Error—Not A Valid Date

Invoking `date("2003-04-31")` outputs an error because April 31, 2003 is not a valid date. (There are not 31 days in April.)

For example, the following example query:

```
<result>{xs:date("2003-04-31")}</result>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "2003-04-31" to type
[date@http://www.w3.org/2001/XMLSchema]
```

Error—Incorrect Format

Invoking `date("2003-8-16")` outputs an error because the month is not specified using two digits.

For example, the following example query:

```
<result>{xs:date("2003-8-16")}</result>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "2003-8-16" to type
[date@http://www.w3.org/2001/XMLSchema]
```

Related Topics

W3C `date` data type description

xs:time

Converts `$string-var` (a string in the `time` format) to the `time` data type.

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

If the value of `$string-var` is not valid to the `time` format the following error is reported:

```
Could not cast "invalid_time_string" to type
[time@htttp://www.w3.org/2001/XMLSchema] is displayed.
```

Where *invalid_time_string* is the string not valid to the time format, for example: `"23:5:44"`.

Signatures

`xs:time(xs:string $string-var) →xs:time`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents a string with the time specified with one of the following formats: • *hh*:*mm*:*ss.sssssss* • *hh*:mm:*ss*.*sssssss*Z • *hh*:*mm*:*ss*+*hh*:*mm* • *hh*:*mm*:*ss*-*hh*:*mm*

Data Type	Argument	Description	
		YYYY	Year.
		MM	Month (as a number).
		DD	Day.
		hh	Number of hours.
		mm	Number of minutes.
		ss.sssssss	Number of seconds. Seconds can be specified up to 7 digits after the decimal place. (Format *xx.xxxxxxx*)
		:	Separator between hours, minutes and seconds.
		+	Positive time zone offset. This option is optional. If a plus or minus is not specified, + is assumed.
		-	Negative time zone offset. (Optional)
		hh	Number of hours that the time zone differs from UTC.
		mm	Number of minutes that the time zone differs from UTC.
		Z	Indicates that the time corresponds to the UTC time zone.

Returns

Returns the specified time in the `time` data type.

Examples

Simple

Invoking `time("23:15:45")` returns a `time` value corresponding to 11:15 PM and 45 seconds in the current time zone, as shown in the following example query:

```
let $mytime := xs:time("23:15:45")
return
<components>
       <hours>{xf:get-hours-from-time($mytime)}</hours>
       <minutes>{xf:get-minutes-from-time($mytime)}</minutes>
       <seconds>{xf:get-seconds-from-time($mytime)}</seconds>
</components>
```

The preceding query, generates the following XML result:

```
<components>
       <hours>23</hours>
       <minutes>15</minutes>
       <seconds>45</seconds>
</components>
```

UTC Time Zone

Invoking `time("23:15:45Z")` returns a `time` value corresponding to 11:15 PM and 45 seconds in the UTC time zone, as shown in the following example query:

```
let $mytime := xs:time("23:15:45Z")
return
<components>
       <hours>{xf:get-hours-from-time($mytime)}</hours>
       <minutes>{xf:get-minutes-from-time($mytime)}</minutes>
       <seconds>{xf:get-seconds-from-time($mytime)}</seconds>
</components>
```

The preceding query, generates the following XML result:

```
<components>
       <hours>23</hours>
       <minutes>15</minutes>
```

```
        <seconds>45</seconds>
</components>
```

Error—Incorrect Format

Invoking `time("23:5:44")` outputs an error because the minutes is not specified using two digits.

For example, the following example query:

```
<result>{xs:time("23:5:44")}</result>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "23:5:44" to type
[time@http://www.w3.org/2001/XMLSchema]
```

Related Topics

W3C `time` data type description

xs:gYearMonth

Converts `$string-var` (a string in the `gYearMonth` format) to the `gYearMonth` data type.

If the value of `$string-var` is the empty sequence, the empty sequence is returned.The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

If the value of `$string-var` is not valid to the `gYearMonth` format, the following error is reported:

```
Could not cast "invalid_gYearMonth_string" to type
[gYearMonth@htttp://www.w3.org/2001/XMLSchema] is displayed.
```

Where *invalid_gYearMonth_string* is the string not valid to the time format, for example: `"2003-8"`.

Signatures

```
xs:gYearMonth(xs:string $string-var) →xs:gYearMonth
```

Arguments

Data Type	Argument	Description	
`xs:string`	`$string-var`	Represents a string with the month and year specified with one of the following formats: • *YYYY-MM* • *YYYY-MMZ* • *YYYY-MM+hh:mm* • *YYYY-MM-hh:mm*	
		YYYY	Year.
		–	Separator between year and months.
		MM	Month (as a number).
		+	Positive time zone offset. This option is optional. If a plus or minus is not specified, + is assumed.
		-	Negative time zone offset. (Optional)
		hh	Number of hours that the time zone differs from UTC.
		mm	Number of minutes that the time zone differs from UTC.
		`Z`	Indicates that the time corresponds to the UTC time zone.

Returns

Returns the specified month and year in the `gYearMonth` data type.

Examples

Simple

Invoking `gYearMonth("2003-08")` returns a `gYearMonth` value corresponding to August 2003, as shown in the following example query:

```
<result>{xs:gYearMonth("2003-08")}</result>
```

The preceding query, generates the following XML result:

```
<result>2003-08</result>
```

UTC Time Zone

Invoking `gYearMonth("2003-08Z")` returns a `gYearMonth` value corresponding to August 2003 in the UTC time zone, as shown in the following example query:

```
<result>{xs:gYearMonth("2003-08Z")}</result>
```

The preceding query, generates the following XML result:

```
<result>2003-08Z</result>
```

Error—Incorrect Format

Invoking `gYearMonth("2003-8")` outputs an error because the month is not specified using two digits.

For example, the following example query:

```
<result>{xs:gYearMonth("2003-8")}</result>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "2003-8" to type
[gYearMonth@http://www.w3.org/2001/XMLSchema]
```

Related Topics

W3C `gYearMonth` data type description

xs:gYear

Converts `$string-var` (a string in the `gYear` format) to the `gYear` data type.

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

If the value of `$string-var` is not valid to the `gYear` format, the following error is reported:

```
Could not cast "invalid_gYear_string" to type
[gYear@htttp://www.w3.org/2001/XMLSchema] is displayed.
```

Where *invalid_gYear_string* is the string not valid to the time format, for example: `"20-2003"`.

Signatures

`xs:gYear(xs:string $string-var) →xs:gYear`

Arguments

Data Type	Argument	Description	
`xs:string`	`$string-var`	Represents a string with the year specified with one of the following formats: • *YYYY* • *YYYYZ* • *YYYY*+*hh*:*mm* • *YYYY*-*hh*:*mm*	
		YYYY	Year.
		+	Positive time zone offset. This option is optional. If a plus or minus is not specified, + is assumed.
		-	Negative time zone offset. (Optional)
		hh	Number of hours that the time zone differs from UTC.
		mm	Number of minutes that the time zone differs from UTC.
		`Z`	Indicates that the time corresponds to the UTC time zone.

Returns

Returns the specified year in the `gYear` data type.

Examples

Simple

Invoking `gYear("2003")` returns a `gYear` value corresponding to the year 2003, as shown in the following example query:

```
<result>{xs:gYear("2003")}</result>
```

The preceding query, generates the following XML result:

```
<result>2003</result>
```

UTC Time Zone

Invoking `gYear("2003Z")` returns a `gYear` value corresponding to the year 2003 in the UTC time zone, as shown in the following example query:

```
<result>{xs:gYear("2003Z")}</result>
```

The preceding query, generates the following XML result:

```
<result>2003Z</result>
```

Related Topics

W3C `gYear` data type description

xs:gMonthDay

Converts `$string-var` (a string in the `gMonthDay` format) to the `gMonthDay` data type.

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

If the value of `$string-var` is not valid to the `gMonthDay` format, the following error is reported:

```
Could not cast "invalid_gMonthDay_string" to type
[gMonthDay@htttp://www.w3.org/2001/XMLSchema] is displayed.
```

Where *invalid_gMonthDay_string* is the string not valid to the time format, for example: `"08-15"`.

Signatures

`xs:gMonthDay(xs:string $string-var) →xs:gMonthDay`

Arguments

Data Type	Argument	Description	
`xs:string`	`$string-var`	Represents a string with the month and day specified with one of the following formats: • `--MM-DD` • `--MM-DDZ` • `--MM-DD+hh:mm` • `--MM-DD-hh:mm`	
		`--`	Beginning prefix.
		MM	Month (as a number).
		`-`	Separator between months and days.
		DD	Day.
		+	Positive time zone offset. This option is optional. If a plus or minus is not specified, + is assumed.
		-	Negative time zone offset. (Optional)
		hh	Number of hours that the time zone differs from UTC.
		mm	Number of minutes that the time zone differs from UTC.
		`Z`	Indicates that the time corresponds to the UTC time zone.

Returns

Returns the specified month and day in the `gMonthDay` data type.

Examples

Simple

Invoking `gMonthDay("--08-15")` returns a `gMonthDay` value corresponding to August 15, as shown in the following example query:

```
<result>{xs:gMonthDay("--08-15")}</result>
```

The preceding query, generates the following XML result:

```
<result>--08-15</result>
```

UTC Time Zone

Invoking `gMonthDay("--08-15Z")` returns a `gMonthDay` value corresponding to August 15 in the UTC time zone, as shown in the following example query:

```
<result>{xs:gMonthDay("--08-15Z")}</result>
```

The preceding query, generates the following XML result:

```
<result>--08-15Z</result>
```

Error—Incorrect Format

Invoking `gMonthDay("08-15")` outputs an error because the -- prefix is missing.

For example, the following example query:

```
<result>{xs:gMonthDay("08-15")}</result>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "08-15" to type
[gMonthDay@http://www.w3.org/2001/XMLSchema]
```

Related Topics

W3C `gMonthDay` data type description

xs:gMonth

Converts `$string-var` (a string in the `gMonth` format) to the `gMonth` data type.

If the value of `$string-var` is the empty sequence, the empty sequence is returned.The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

If the value of `$string-var` is not valid to the `gMonth` format, the following error is reported:

```
Could not cast "invalid_gMonth_string" to type
[gMonth@http://www.w3.org/2001/XMLSchema] is displayed.
```

Where *invalid_gMonth_string* is the string not valid to the time format, for example: `"08"`.

Signatures

`xs:gMonth(xs:string $string-var) → xs:gMonth`

Arguments

Data Type	Argument	Description	
`xs:string`	`$string-var`	Represents a string with the month and day specified with one of the following formats: • `--MM--` • `--MM--Z` • `--MM--+hh:mm` • `--MM---hh:mm`	
		`--`	Beginning prefix.
		MM	Month (as a number).
		`--`	Separator.
		+	Positive time zone offset. (Optional) If a plus or minus is not specified, + is assumed.
		-	Negative time zone offset. (Optional)
		hh	Number of hours that the time zone differs from UTC.

Data Type	Argument	Description	
		mm	Number of minutes that the time zone differs from UTC.
		`Z`	Indicates that the time corresponds to the UTC time zone.

Returns

Returns the specified month in the `gMonth` data type.

Examples

Simple

Invoking `gMonth("--08--")` returns a `gMonth` value corresponding to the month of August, as shown in the following example query:

```
<result>{xs:gMonth("--08--")}</result>
```

The preceding query, generates the following XML result:

```
<result>--08--</result>
```

UTC Time Zone

Invoking `gMonth("--08--Z")` returns a `gMonth` value corresponding to the month of August in the UTC time zone, as shown in the following example query:

```
<result>{xs:gMonth("--08--Z")}</result>
```

The preceding query, generates the following XML result:

```
<result>--08--Z</result>
```

Error—Incorrect Format

Invoking `gMonth("08")` outputs an error because the -- prefix is missing.

For example, the following example query:

```
<result>{xs:gMonth("08")}</result>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "08" to type
[gMonth@http://www.w3.org/2001/XMLSchema]
```

Related Topics

W3C `gMonth` data type description

xs:gDay

Converts `$string-var` (a string in the `gDay` format) to the `gDay` data type.

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

If the value of `$string-var` is not valid to the `gDay` format, the following error is reported:

```
Could not cast "invalid_gDay_string" to type
[gDay@htttp://www.w3.org/2001/XMLSchema] is displayed.
```

Where *invalid_gDay_string* is the string not valid to the time format, for example: `"15"`.

Signatures

`xs:gDay(xs:string $string-var) → xs:gDay`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents a string with the day specified with one of the following formats: • *DD* • *DDZ* • *DD+hh:mm* • *DD-hh:mm*
		--- Beginning prefix.
		DD Day.

Data Type	Argument	Description	
		+	Positive time zone offset. This option is optional. If a plus or minus is not specified, + is assumed.
		-	Negative time zone offset. (Optional)
		hh	Number of hours that the time zone differs from UTC.
		mm	Number of minutes that the time zone differs from UTC.
		`Z`	Indicates that the time corresponds to the UTC time zone.

Returns

Returns the specified day in the `gDay` data type.

Examples

Simple

Invoking `gDay("---15")` returns a `gDay` value corresponding to the15th of the month, as shown in the following example query:

```
<result>{xs:gDay("---15")}</result>
```

The preceding query, generates the following XML result:

```
<result>---15</result>
```

UTC Time Zone

Invoking `gDay("---15Z")` returns a `gDay` value corresponding to the 15th of the month in the UTC time zone, as shown in the following example query:

```
<result>{xs:gDay("---15Z")}</result>
```

The preceding query, generates the following XML result:

```
<result>---15Z</result>
```

Error—Incorrect Format

Invoking `gDay("15")` outputs an error because the --- prefix is missing.

For example, the following example query:

```
<result>{xs:gDay("15")}</result>
```

Produces the following error:

```
Error occurred while executing XQuery: Could not cast "15" to type
[gDay@http://www.w3.org/2001/XMLSchema]
```

Related Topics

W3C `gDay` data type description

xs:duration

Converts `$string-var` (a string in the duration format) to the `duration` data type.

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xs:duration(xs:string $string-var) →xs:duration
```

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents a string with the duration specified with one of the following formats: • `P`*`y`*`Y`*`m`*`M`*`d`*`DT`*`h`*`H`*`i`*`M`*`s`*`S` • `-P`*`y`*`Y`*`m`*`M`*`d`*`DT`*`h`*`H`*`i`*`M`*`s`*`S` **Note:** Specifying the number of years, months, days, hours, minutes, or seconds is optional—any of the substrings: *y*Y, *m*M, *d*D, *h*H, *i*M, or *s*S do not have to be specified. For example, the following are valid durations: `P10Y`, `P1D`, `-P11M`, `-P10Y7D`, `P2YT5H`, or `P6YT5H10S`.

Data Type	Argument	Description	
		-	Duration is a negative amount of time. **Note:** If - is not specified, duration is a positive amount of time.
		`P`	The start of a duration string. The `P` must always be specified.
		*y*Y	*y*—number of years in the duration.
			Y—years are specified in the duration.
		*m*M	*m*—number of months in the duration.
			M—months are specified in the duration.
		*d*D	*d*—number of days in the duration.
			D—days are specified in the duration.
		`T`	The start of the time part of the duration string. The `T` must be specified if any minutes, hours, or seconds (*h*H, *i*M, or *s*S) are specified.
		*h*H	*h*—number of hours in the duration.
			H—years are specified in the duration.
		*i*M	*i*—number of minutes in the duration.
			M—minutes are specified in the duration.
		*s*S	*s*—number of seconds in the duration. Seconds can be specified up to 7 digits after the decimal place. (Format *xx.xxxxxxx*)
			S—seconds are specified in the duration.

Returns

Returns a duration of time as a `duration` value.

Examples

duration with All Components

Invoking `duration("P1Y2M4DT9H8M20S")` returns a `duration` value corresponding to 1 year, 2 months, 4 days, 9 hours, 8 minutes, and 20 seconds, as shown in the following example query:

```
<result>{xs:duration("P1Y2M4DT9H8M20S")}</result>
```

The preceding query, generates the following XML result:

```
<result>P1Y2M4DT9H8M20S</result>
```

duration with Just Years

Invoking `duration("P9Y")` returns a `duration` value corresponding to 9 years, as shown in the following example query:

```
<result>{xs:duration("P9Y")}</result>
```

The preceding query, generates the following XML result:

```
<result>P9Y</result>
```

duration with Just Negative Months

Invoking `duration("-P10M")` returns a `duration` value corresponding to negative 10 months as shown in the following example query:

```
<result>{xs:duration("-P10M")}</result>
```

The preceding query, generates the following XML result:

```
<result>-P10M</result>
```

duration with Just Days and Seconds

Invoking `duration("P4DT20S")` returns a `duration` value corresponding to 4 days and 20 seconds, as shown in the following example query:

```
<result>{xs:duration("P4DT20S")}</result>
```

The preceding query, generates the following XML result:

```
<result>P4DT20S</result>
```

Related Topics

W3C `duration` data type description

xs:anyURI

Converts `$string-var` that contains a URI (Uniform Resource Identifier Reference) to the anyURI data type.

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xs:anyURI(xs:string $string-var)` → `xs:anyURI`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents the conversion string that contains the URI (Uniform Resource Identifier Reference)

Returns

Returns the `$string-var` converted to anyURI data type.

Examples

Simple

When you invoke the following query:

```
<result>{xs:anyURI("http://www.acme.org/")}</result>
```

The preceding query generates the following result:

```
<result>http://www.acme.org/</result>
```

Related Topics

W3C `anyURI` data type description

xs:Name

Converts `$string-var` to the Name data type.

If the value of `$string-var` is the empty sequence the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xs:Name(xs:string $string-var) →xs:Name`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents the string to convert.

Returns

Returns the `$string-var` converted to the Name data type.

Related Topics

W3C `Name` data type description

xs:QName

Creates a new QName with a local name specified `$string-var` and no namespace.

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xs:QName(xs:string $string-var) →xs:QName`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents the string to convert.

Returns

Returns the `$string-var` converted to the QName data type.

Related Topics

W3C `QName` data type description

CHAPTER 4

XQuery String Functions Reference

This section provides descriptions of the XQuery string functions available in the mapper functionality of WebLogic Workshop. You use the mapper functionality to generate queries and add invocations to these XQuery functions in these queries.

In addition to the XQuery functions and operators available in the mapper functionality, a larger set functions and operators is provided. You can manually add invocations to these functions and operators to queries in the **Source View** of the mapper functionality. For a list of these additional functions and operators, see the XQuery 1.0 and XPath 2.0 Functions and Operators - W3C Working Draft 16 August 2002 available from the W3C Web site at the following URL:

`http://www.w3.org/TR/2002/WD-xquery-operators-20020816`

This section lists the type conversion functions available from the mapper functionality:

- xf:concat
- bea-xf:trim-left
- bea-xf:trim-right
- bea-xf:trim
- xs:normalizedString
- xs:token
- xf:compare
- xf:starts-with

- xf:ends-with
- xf:contains
- xf:substring
- xf:string-length
- xf:substring-before
- xf:substring-after
- xf:normalize-space
- xf:upper-case
- xf:lower-case
- xf:translate
- xf:string-pad
- xf:matches
- xf:replace
- xf:tokenize

xf:concat

Concatenates the string values of the passed in arguments.

Signatures

`xf:concat(xs:string $string-var1, xs:string $string-var2, ... )` → `xs:string`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var1`	Represents the first string to concatenate together.

Data Type	Argument	Description
`xs:string`	`$string-var2`	Represents the second string to concatenate together.
`...`		Represents more strings to concatenate together.

Returns

Returns a string made up of arguments to this function concatenated together.

If the value of any of the string arguments is the empty sequence, the argument is treated as a zero-length string (`""`).

Examples

This Query . . .	Generates This Result . . .
`<r>{xf:concat("str1", "str2")}</r>`	`<r>str1str2</r>`
`<r>{xf:concat('str1', 'str2')}</r>`	`<r>str1str2</r>`
`<r>{xf:concat("str1")}</r>`	`<r>str1</r>`
`<r>{xf:concat(())}</r>`	`<r></r>`
`<r>{xf:concat("str1", "str2", "str3", "str4", "str5", "str6")}</r>`	`<r>str1str2str3str4 str5str6</r>`

Related Topics

W3C `concat` function description.

bea-xf:trim-left

Removes the leading white space from `$string-var`.

If the value of `$string-var` is the empty sequence, the following error is displayed in the mapper:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method: Type error in function trim-left invocation: expected type
[string@http://www.w3.org/2001/XMLSchema], given type empty
```

The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`bea-xf:trim-left(xs:string $string-var) → xs:string`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents the string to trim.

Returns

Returns `$string-var` after the removal of the leading white space.

XQuery Compliance

Not a standard W3C XQuery function.

Examples

Remove Leading Spaces

Invoking `trim-left("   abc    ")` returns the string `"abc    "` as shown in the following example query:

```
<result>{bea-xf:trim-left("   abc   ")}</result>
```

The preceding query, generates the following XML result:

```
<result>abc   </result>
```

Error—Null

Invoking `trim-left(())` outputs an error. The string: `()` is the empty sequence (similar to a SQL null) which is a sequence containing zero items.

For example, the following example query:

```
<result>{bea-xf:trim-left(())}</result>
```

Outputs the following error:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method: Type error in function trim-left invocation: expected type
[string@http://www.w3.org/2001/XMLSchema], given type empty
```

bea-xf:trim-right

Removes the trailing white space from `$string-var`.

If the value of `$string-var` is the empty sequence, the following error is displayed in the mapper:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method: Type error in function trim-right invocation: expected type
[string@http://www.w3.org/2001/XMLSchema], given type empty
```

The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
bea-xf:trim-right(xs:string $string-var) → xs:string
```

Arguments

Data Type	**Argument**	**Description**
`xs:string`	`$string-var`	Represents the string to trim.

Returns

Returns `$string-var` after the removal of the trailing white space.

Examples

Remove Trailing Spaces

Invoking `trim-right("   abc   ")` returns the string `"   abc"` as shown in the following example query:

```
<result>{bea-xf:trim-right("   abc   ")}</result>
```

The preceding query, generates the following XML result:

```
<result>    abc</result>
```

Error—Null

Invoking `trim-right(())` outputs an error. The string: `()` is the empty sequence (similar to a SQL null) which is a sequence containing zero items.

For example, the following example query:

```
<result>{bea-xf:trim-right(())}</result>
```

Outputs the following error:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method: Type error in function trim-right invocation: expected type
[string@http://www.w3.org/2001/XMLSchema], given type empty
```

XQuery Compliance

Not a standard W3C XQuery function.

bea-xf:trim

Removes the leading and trailing white space from `$string-var`.

If the value of `$string-var` is the empty sequence, the following error is displayed in the mapper:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method: Type error in function trim invocation: expected type
[string@http://www.w3.org/2001/XMLSchema], given type empty
```

The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`bea-xf:trim(xs:string $string-var) → xs:string`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents the string to trim.

Returns

Returns `$string-var` after the removal of the leading and trailing white space.

Examples

Remove Leading and Trailing Spaces

Invoking `trim("   abc   ")` returns the string `"abc"` as shown in the following example query:

```
<result>{bea-xf:trim("   abc   ")}</result>
```

The preceding query, generates the following XML result:

```
<result>abc</result>
```

Error—Null

Invoking `trim(())` outputs an error. The string: `()` is the empty sequence (similar to a SQL null) which is a sequence containing zero items.

For example, the following example query:

```
<result>{bea-xf:trim(())}</result>
```

Outputs the following error:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method: Type error in function trim invocation: expected type
[string@http://www.w3.org/2001/XMLSchema], given type empty
```

XQuery Compliance

Not a standard W3C XQuery function.

xs:normalizedString

Converts `$string-var` (a string) to the `normalizedString` data type. As part of the conversion, all occurrences of tabs (`#x9`), line feeds (`#xA`) and carriage returns (`#xD`) are replaced with spaces (`#x20`).

Signatures

`xs:normalizedString(xs:string $string-var) →xs:normalizedString`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents the string for conversion.

Returns

Returns `$string-var` after conversion to the `normalizedString` data type.

Examples

Remove Tabs

As part of the conversion to the `normalizedString` data type, tabs are replaced by spaces as shown in the following example query:

```
<result>{xf:normalizedString("tab1tab2tab3tab4")}</result>
```

The preceding query, generates the following XML result:

```
<result> tab1 tab2 tab3 tab4</result>
```

Remove Carriage Returns

As part of the conversion to the `normalizedString` data type, carriage returns are replaced by spaces as shown in the following example query:

```
<result>{xf:normalizedString("
CR1
CR2
")}</result>
```

The preceding query, generates the following XML result:

```
<result> CR1 CR2 </result>
```

Related Topics

W3C `normalizedString` data type description.

xs:token

Converts `$string-var` (a string) to a `token` data type.

As part of the conversion, the following steps occur:

1. All occurrences of tabs (`#x9`), line feeds (`#xA`) and carriage returns (`#xD`) are replaced with spaces (`#x20`).
2. Contiguous sequences of spaces (`#x20`) are collapsed to a single space (`#x20`)
3. Leading and trailing spaces (`#x20`) are removed.

Signatures

`xs:token(xs:string $string-var) →xs:token`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var`	Represents the string for conversion.

Returns

Returns `$string-var` after conversion to the `token` data type.

Examples

Remove Tabs

As part of the conversion to the `token` data type, tabs are replaced by spaces and then all leading and trailing spaces are removed as shown in the following example query:

```
<result>{xf:token("tab1tab2tab3tab4")}</result>
```

The preceding query, generates the following XML result:

```
<result>tab1 tab2 tab3 tab4</result>
```

Note: The tab before the string `tab1` becomes a space and then is removed. (All trailing and leading spaces are removed as part of the conversion.)

Remove Carriage Returns

As part of the conversion to the `token` data type, carriage returns are replaced by spaces and then all trailing and leading spaces are removed, as shown in the following example query:

```
<result>{xf:token("
CR1
CR2
")}</result>
```

The preceding query, generates the following XML result:

```
<result>CR1 CR2</result>
```

Note: The carriage returns before the string `CR1` and after `CR2`, become spaces and then are removed. (All trailing and leading spaces are removed as part of the conversion.)

Collapse Spaces

As part of the conversion to the `token` data type, contiguous sequences of spaces (`#x20`) are collapsed to a single space (`#x20`) and leading and trailing spaces (`#x20`) are removed, as shown in the following example query:

```
<result>{xf:token("   x   y   z   ")}</result>
```

The preceding query, generates the following XML result:

```
<result>x y z</result>
```

Related Topics

W3C `token` data type description.

xf:compare

Compares the value of `$string-var1` to `$string-var2`.

Signatures

`xf:compare(xs:string? $string-var1, xs:string? $string-var2) → xs:integer?`

Arguments

Data Type	Argument	Description
`xs:string`	`$string-var1`	Represents the first comparison string.
`xs:string`	`$string-var2`	Represents the second comparison string.

Returns

Returns `-1`, `0`, or `1`, depending on whether the value of `$string-var1` is less than (`-1`), equal to (`0`), or greater than (`1`) the value of `$string-var2`.

Examples

Less Than (-1)

Invoking `compare('abc', 'abcde')` returns an integer `-1`, because `$string-var1` is less than `$string-var2`, as shown by the following example query:

```
<result>{xf:compare('abc', 'abcde')}</result>
```

The preceding query, generates the following XML result:

```
<result>-1</result>
```

Equal (0)

Invoking `compare('abc', 'abc')` returns an integer `0`, because the two string are equal, as shown by the following example query:

```
<result>{xf:compare('abc', 'abc')}</result>
```

The preceding query, generates the following XML result:

```
<result>0</result>
```

Greater Than (+1)

Invoking `compare('abcde', 'abc')` returns an integer `1`, because `$string-var1` is greater than `$string-var2`, as shown by the following example query:

```
<result>{xf:compare('abcde', 'abc')}</result>
```

The preceding query, generates the following XML result:

```
<result>1</result>
```

Related Topics

W3C `compare` function description.

xf:starts-with

Determines if the `$string-var1` starts with string specified in `$string-var2`.

Signatures

`xf:starts-with(xs:string? $string-var1, xs:string? $string-var2)` → `xs:boolean?`

Arguments

Data Type	Argument	Description
`xs:string?`	`$string-var1`	Represents the string to compare against.
`xs:string?`	`$string-var2`	Compare this string against `$string-var1` to see if `$string-var1` starts with this string.

Returns

Returns the boolean value of `true`, if `$string-var1` starts with a string that is equal to `$string-var2`.

Returns the boolean value of `false`, if `$string-var1` does not starts with a string that is equal to `$string-var2`.

Returns the boolean value `true`, if `$string-var2` is a zero-length string (`""`).

Returns the boolean value `false`, if `$string-var1` is a zero-length string (`""`) and `$string-var2` is not a zero-length string.

If the value of `$string-var1` or `$string-var2` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Examples

This Query . . .	Generates This Result . . .
`<r>{xf:starts-with("honeymoon", "honey")}</r>`	`<r>true</r>`
`<r>{xf:starts-with("honeymoon", "moon")}</r>`	`<r>false</r>`
`<r>{xf:starts-with("honeymoon", "hat")}</r>`	`<r>false</r>`
`<r>{xf:starts-with("honeymoon", "")}</r>`	`<r>true</r>`
`<r>{xf:starts-with("", "moon")}</r>`	`<r>false</r>`
`<r>{xf:starts-with("moon", ())}</r>`	`<r/>`

Related Topics

W3C `starts-with` function description.

xf:ends-with

Determines if the `$string-var1` ends with string specified in `$string-var2`.

Signatures

`xf:ends-with(xs:string? $string-var1, xs:string? $string-var2)` → `xs:boolean?`

Arguments

Data Type	Argument	Description
`xs:string?`	`$string-var1`	Represents the string to compare against.
`xs:string?`	`$string-var2`	Compare this string against `$string-var1` to see if `$string-var1` ends in this string.

Returns

Returns the boolean value of `true`, if `$string-var1` ends with a string that is equal to `$string-var2`.

Returns the boolean value of `false`, if `$string-var1` does not end with a string that is equal to `$string-var2`.

Returns the boolean value `true`, if `$string-var2` is a zero-length string (`""`).

Returns the boolean value `false`, if `$string-var1` is a zero-length string (`""`) and `$string-var2` is not a zero-length string.

If the value of `$string-var1` or `$string-var2` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Examples

This Query . . .	Generates This Result . . .
`<r>{xf:ends-with("honeymoon", "moon")}</r>`	`<r>true</r>`
`<r>{xf:ends-with("honeymoon", "honey")}</r>`	`<r>false</r>`
`<r>{xf:ends-with("honeymoon", "hat")}</r>`	`<r>false</r>`

This Query . . .	Generates This Result . . .
`<r>{xf:ends-with("honeymoon", "")}</r>`	`<r>true</r>`
`<r>{xf:ends-with("", "moon")}</r>`	`<r>false</r>`
`<r>{xf:ends-with("moon", ())}</r>`	`<r/>`

Related Topics

W3C `ends-with` function description.

xf:contains

Determines if `$string-var1` contains the string specified in `$string-var2`.

If the value of `$string-var1` or `$string-var2` is an empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:contains(xs:string? $string-var1, xs:string? $string-var2)` → `xs:boolean?`

Arguments

Data Type	Argument	Description
`xs:string?`	`$string-var1`	Represents the string to compare against.
`xs:string?`	`$string-var2`	Compare this string against `$string-var1` to see if this string is contained anywhere in `$string-var1`.

Returns

Returns the boolean value of `true`, if `$string-var1` contains `$string-var2`.

Returns the boolean value of `false`, if `$string-var1` does not contain `$string-var2`.

Returns the boolean value `true`, if `$string-var2` is a zero-length string (`""`).

Returns the boolean value `false`, if `$string-var1` is a zero-length string (`""`) and `$string-var2` is not a zero-length string.

Examples

This Query . . .	Generates This Result . . .
`<r>{xf:contains("supercalifragilistic", "fragil")}</r>`	`<r>true</r>`
`<r>{xf:contains("supercalifragilistic", "honey")}</r>`	`<r>false</r>`
`<r>{xf:contains("supercalifragilistic", "")}</r>`	`<r>true</r>`
`<r>{xf:contains("", "honey")}</r>`	`<r>false</r>`
`<r>{xf:contains("honey", ())}</r>`	`<r/>`

Related Topics

W3C `contains` function description.

xf:substring

Get a substring of `$string-var` at a particular index location.

If a positive integer is not passed into `$decimal-var` or `$optional-decimal-var`, the `TransformException` exception is raised with the RT_ILLEGAL_INDEX fault code. In the mapper the following error message is displayed:

```
Error occurred while executing XQuery: Index "-1" out of bounds (0, 5)
```

If the integer passed into `$decimal-var` is greater then the length of the `$string-var`, the `TransformException` exception is raised with the RT_ILLEGAL_INDEX fault code. In the mapper the following error message is displayed:

```
Error occurred while executing XQuery: Index "6" out of bounds (0, 5)
```

Where *X* is the out of bounds index, *Y* is the starting index, and *Z* is the ending index, for example Index “6” out of bounds (0, 5).

To learn more about using fault codes, see Getting the TransformException Fault Code Programmatically.

Signatures

`xf:substring(xs:string? $string-var, xs:decimal? $decimal-var) → xs:string?`

`xf:substring(xs:string? $string-var, xs:decimal? $decimal-var, xs:decimal? $decimal-var) →xs:string?`

Arguments

Data Type	Argument	Description
`xs:string?`	`$string-var`	Represents the source string.
`xs:decimal?`	`$decimal-var`	Represents the starting location to start extracting the substring to return. **Note:** Use `1` to specify the first character of the string and not `0`.
`xs:decimal?`	`$optional-decimal-var`	Optional—Represents the length of the extracted substring.

Returns

substring($string-var, $decimal-var)

Returns the part of the `$string-var` source string from the starting location specified by `$decimal-var`.

If the value of any of the two arguments is an empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

substring($string-var, $decimal-var, $optional-decimal-var)

Returns the part of the `$string-var` source string from the starting location specified by `$decimal-var` and continuing for the number of characters specified by `$optional-decimal-var`.

If the value of any of the three arguments is an empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Examples

Specify Just the Starting Position

Invoking `substring("supercalifragilistic", 15)` returns the string: `listic`, as shown in the following example query:

```
<result>{xf:substring("supercalifragilistic", 15)}</result>
```

The preceding query generates the following result:

```
<result>listic</result>
```

Specify the Starting Position and Length

Invoking `substring("supercalifragilistic", 1, 5)` returns the string: `super`, as shown in the following example query:

```
<result>{xf:substring("supercalifragilistic", 1, 5)}</result>
```

The preceding query generates the following result:

```
<result>super</result>
```

Note: To specify the first character in a string, use 1 and not 0.

From the Middle of the String

Invoking `substring("supercalifragilistic", 6, 4)` returns the string: `cali`, as shown in the following example query:

```
<result>{xf:substring("supercalifragilistic", 6, 4)}</result>
```

The preceding query generates the following result:

```
<result>cali</result>
```

Pass in Null

Invoking `substring((), 1)` returns the null string as shown in the following example query:

```
<result>{xf:substring((), 1)}</result>
```

Note: The string: `()` is the empty sequence (similar to a SQL null) which is a sequence containing zero items.

The preceding query generates the following result:

```
<result/>
```

Error—Out of Bounds

Invoking `substring("super", 6)` outputs an error because the index specified (6) is longer than the string: `super`.

For example, the following example query:

```
<result>{xf:substring("super", 6)}</result>
```

Produces the following error:

```
Error occurred while executing XQuery: Index "6" out of bounds (0, 5)
```

Note: Indexing starts with the number 1 and not 0, so the index 6 is beyond the last character in the string: `super`. (The character `r` in the string: `super` is at index 5.)

Related Topics

W3C `substring` function description.

xf:string-length

Counts the length of `$string-var`.

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xf:string-length(xs:string? $string-var) →xs:integer?
```

Arguments

Data Type	Argument	Description
`xs:string?`	`$string-var`	Represents the string to count.

Returns

Returns an integer equal to the length of the `$string-var`.

Examples

Simple

Invoking `string-length("moo cow")` returns the integer 7, as shown in the following example query:

```
<result>{xf:string-length("moo cow")}</result>
```

The preceding query generates the following result:

```
<result>7</result>
```

Pass in Null

Invoking `string-length(())` returns the null string as shown in the following example query:

```
<result>{xf:string-length(())}</result>
```

Note: The string: `()` is the empty sequence (similar to a SQL null) which is a sequence containing zero items.

The preceding query generates the following result:

```
<result/>
```

Related Topics

W3C `string-length` function description.

xf:substring-before

Finds the substring that precedes `$string-var2` in `$string-var2`.

Signatures

`xf:substring-before(xs:string? $string-var1, xs:string? $string-var2)` → `xs:string?`

Arguments

Data Type	Argument	Description
`xs:string?`	`$string-var1`	Represents the source string.
`xs:string?`	`$string-var2`	Represents the comparison string.

Returns

Returns the part of the `$string-var1` source string that precedes `$string-var2`.

Returns the value of `$string-var1`, if `$string-var2` is a zero-length string (`""`).

Returns a zero-length string (`""`), if `$string-var1` does not contain `$string-var2`.

If the value of `$string-var1` or `$string-var2` is an empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Examples

This Query . . .	Generates This Result . . .
`<r>{xf:substring-before("super", "p")}</r>`	`<r>su</r>`
`<r>{xf:substring-before("super", "")}</r>`	`<r>super</r>`
`<r>{xf:substring-before("super", "z")}</r>`	`<r/>`
`<r>{xf:substring-before("super", ())}</r>`	`<r/>`

Related Topics

W3C `substring-before` function description.

xf:substring-after

Finds the substring that follows `$string-var2` in `$string-var2`.

Signatures

`xf:substring-after(xs:string? $string-var1, xs:string? $string-var2) → xs:string?`

Arguments

Data Type	Argument	Description
`xs:string?`	`$string-var1`	Represents the source string.
`xs:string?`	`$string-var2`	Represents the comparison string.

Returns

Returns the part of the `$string-var1` source string that follows `$string-var2`.

Returns the value of `$string-var1`, if `$string-var2` is a zero-length string (`""`).

Returns a zero-length string (`""`), if `$string-var1` does not contain `$string-var2`.

If the value of `$string-var1` or `$string-var2` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Examples

This Query . . .	Generates This Result . . .
`<r>{xf:substring-after("super", "p")}</r>`	`<r>er</r>`
`<r>{xf:substring-after("super", "")}</r>`	`<r>super</r>`
`<r>{xf:substring-after("super", "z")}</r>`	`<r/>`
`<r>{xf:substring-after("super", ())}</r>`	`<r/>`

Related Topics

W3C `substring-after` function description.

xf:normalize-space

Removes the leading and trailing white space and replaces the duplicate white space characters by a single space from `$string-var`.

As part of the removal process, the following steps occur:

1. All occurrences of tabs (`#x9`), line feeds (`#xA`) and carriage returns (`#xD`) are replaced with spaces (`#x20`).
2. Contiguous sequences of spaces (`#x20`) are collapsed to a single space (`#x20`)
3. Leading and trailing spaces (`#x20`) are removed.

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:normalize-space(xs:string? $string-var) →xs:string?`

Arguments

Data Type	Argument	Description
`xs:string?`	`$string-var`	Represents the string for conversion.

Returns

Returns the `$string-var` after it has gone through the white space removal process (described above).

Examples

Collapse Spaces

As part of the conversion process, contiguous sequences of spaces (`#x20`) are collapsed to a single space (`#x20`) and leading and trailing spaces (`#x20`) are removed, as shown in the following example query:

```
<result>{xf:normalize-space("   x   y   z   ")}</result>
```

The preceding query, generates the following XML result:

```
<result>x y z</result>
```

Pass in Null

Invoking `normalize-space(())` returns the null string as shown in the following example query:

```
<result>{xf:normalize-space(())}</result>
```

Note: The string: `()` is the empty sequence (similar to a SQL null) which is a sequence containing zero items.

The preceding query generates the following result:

```
<result/>
```

Related Topics

W3C `normalize-space` function description.

xf:upper-case

Converts all the lowercase characters of `$string-var` to their uppercase form.

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:upper-case(xs:string? $string-var) →xs:string?`

Arguments

Data Type	Argument	Description
`xs:string?`	`$string-var`	Represents the string to convert.

Returns

Returns the `$string-var` source string converted to uppercase characters.

Examples

Simple

Invoking `upper-case("cat")` returns the string `CAT` as shown in the following example query:

```
<result>{xf:upper-case("cat")}</result>
```

The preceding query generates the following result:

```
<result>CAT</result>
```

Pass in Null

Invoking `upper-case(())` returns the null string as shown in the following example query:

```
<result>{xf:upper-case(())}</result>
```

Note: The string: `()` is the empty sequence (similar to a SQL null) which is a sequence containing zero items.

The preceding query generates the following result:

```
<result/>
```

Related Topics

W3C `upper-case` function description.

xf:lower-case

Converts all the lowercase characters of `$string-var` (a string) to their lowercase form.

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:lower-case(xs:string? $string-var) →xs:string?`

Arguments

Data Type	Argument	Description
`xs:string?`	`$string-var`	Represents the string to convert.

Returns

Returns the `$string-var` source string converted to lowercase characters.

Examples

Simple

Invoking `lower-case("CAT")` returns the string `cat` as shown in the following example query:

```
<result>{xf:lower-case("CAT")}</result>
```

The preceding query generates the following result:

```
<result>cat</result>
```

Pass in Null

Invoking `lower-case(())` returns the null string as shown in the following example query:

```
<result>{xf:lower-case(())}</result>
```

Note: The string: `()` is the empty sequence (similar to a SQL null) which is a sequence containing zero items.

The preceding query generates the following result:

```
<result/>
```

Related Topics

W3C `lower-case` function description.

xf:translate

Replaces all occurrences of `$string-var2` with `$string-var3` in `$string-var1`.

If the value of `$string-var1`, `$string-var2`, or `$string-var3` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xf:translate(xs:string? $string-var1, xs:string? $string-var2, xs:string?
$string-var3) →xs:string?
```

Arguments

Data Type	Argument	Description
`xs:string?`	`$string-var1`	Represents the source string.
`xs:string?`	`$string-var2`	Represents the search string.
`xs:string?`	`$string-var3`	Represents the replacement string.

Returns

Returns the value of `$string-var1` after all occurrences of the `$string-var2` in `$string-var1` have been replaced with `$string-var3`. If the length of `$string-var2` (the search string) is less than the length of `$string-var3` (replacement string), then only *N* characters are substituted, where *N* is length of `$string-var2`. (See the third example below.)

Returns the value of `$string-var1`, if `$string-var2` is a zero-length string (`""`).

Examples

Simple

Invoking `translate("fghXfgh", "fgh", "yz")` returns the string `xyXyz` as shown in the following example query:

```
<result>{xf:translate("fghXfgh", "fgh", "yz")}</result>
```

The preceding query generates the following result:

```
<result>yzXyz</result>
```

Replacement String Longer Than Source String

Invoking `translate("abcdabc", "ab", "ABC")` returns the string `ABcdABc`, as shown in the following example query:

```
<result>{xf:translate("abcdabc", "ab", "ABC")}</result>
```

The preceding query generates the following result:

```
<result>ABcdABc</result>
```

Note: Only the first two characters (`AB`) of the replacement string `ABC` are substituted because the length of `ab` (the search string) is less than the length of `ABC` (the replacement string). When the length of the search string is less than the length of the replacement string, the length of the search string determines the number characters substituted.

Replacement String Is Empty

Invoking `translate("abcdabc", "abc", "")` returns the string `d` because the replacement string is a zero-length string, as shown in the following example query:

```
<result>{xf:translate("abcdabc", "abc", "")}</result>
```

The preceding query generates the following result:

```
<result>d</result>
```

Search String Is Empty

Invoking `translate("abcdabc", "", "AB")` returns the string `abcdabc` because the search string is a zero-length string, as shown in the following example query:

```
<result>{xf:translate("abcdabc", "", "AB")}</result>
```

The preceding query generates the following result:

```
<result>abcdabc</result>
```

Pass in Null

Invoking `translate((), "ab", "ABC")` returns the null string as shown in the following example query:

```
<result>{xf:translate((), "ab", "ABC")}</result>
```

Note: The string: `()` is the empty sequence (similar to a SQL null) which is a sequence containing zero items.

The preceding query generates the following result:

```
<result/>
```

Related Topics

W3C `translate` function description.

xf:string-pad

Returns a string of made up of `$decimal-var` copies of `$string-var` concatenated together.

Signatures

`xf:string-pad(xs:string? $string-var, xs:decimal? $decimal-var) → xs:string?`

Arguments

Data Type	Argument	Description
`xs:string?`	`$string-var`	Represents the string to replicate.
`xs:decimal?`	`$decimal-var`	Represents the number of times to replicate `$string-var`.

Returns

Returns a string of made up of `$decimal-var` copies of `$string-var` concatenated together.

Returns the value of `$string-var1`, if `$string-var2` is a zero-length string (`""`).

Returns a zero-length string (`""`), if `$decimal-var` is equal to `0`.

If the value of `$string-var` or `$decimal-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Examples

This Query . . .	Generates This Result . . .
`<r>{xf:string-pad("cat", 2)}</r>`	`<r>catcat</r>`
`<r>{xf:string-pad("super", 0)}</r>`	`<r/>`
`<r>{xf:string-pad("super", ())}</r>`	`<r/>`

Related Topics

W3C `string-pad` function description.

xf:matches

Compares `$string-var1` against the regular expression in `string-var2`.

If any character besides `m` or `i` is specified in `$string-var3` (the flags string), the `TransformException` exception is raised with the RT_REGEXP_FLAGS fault code. In the mapper, the following error is displayed:

```
Error occurred while executing XQuery: Invalid regular expression syntax
(flags: "a")
```

If the value of `$string-var1`, `$string-var2`, or `$string-var3` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

To learn more about using fault codes, see Getting the TransformException Fault Code Programmatically.

If `$string-var2` (the regular expression string) has no anchors and is found anywhere in `$string-var1` (the source string), the regular expression string is considered to match and the boolean `true` is returned. (To learn more, see the following String Matches Example.) However, if anchors (`^ $`) are used in `$string-var2` (the regular expression string), the anchors must match the start/end of either the string (for string mode) or line (for multiline mode). (To learn more, see the following Beginning Anchor Matches and Beginning Anchor Does Not Match Examples.)

Signatures

```
xf:matches(xs:string? $string-var1, xs:string? $string-var2) →xs:boolean?
```

```
xf:matches(xs:string? $string-var1, xs:string? $string-var2,  xs:string?
$string-var3) →xs:boolean?
```

Arguments

Data Type	Argument	Description
`xs:string?`	`$string-var1`	Represents the source string.
`xs:string?`	`$string-var2`	Represents the regular expression string. To learn more, see W3C Regular Expresssions.
`xs:string?`	`$string-var3`	Specifies flags that affect the comparison to the regular expression. (Optional)

Data Type	Argument	Description	
		`m`	If specified the match operates in multiline mode. Otherwise, the match operates in string mode.
		`i`	If specified the match operates in case-insensitive mode. By default, the match operates in case-sensitive mode.

Returns

Returns the boolean `true` if `$string-var1` matches the regular expression supplied in `$string-var2`.

Returns the boolean `false` if `$string-var1` *does not* matches the regular expression suppled in `$string-var2`.

Examples

Regular Expression Matches

Invoking `matches("abc", "[cxy]")` returns the boolean `true` because the character `c` of the regular expression `[cxy]` is found in the source string `abc`, as shown in the following example query:

```
<result>{xf:matches("abc", "[cxy]")}</result>
```

The preceding query generates the following result:

```
<result>true</result>
```

Regular Expression Does Not Match

Invoking `matches("abc", "[xy]")` returns the boolean `false` because none of the characters in the regular expression `[xy]` are in the source string `abc`, as shown in the following example query:

```
<result>{xf:matches("abc", "[xy]")}</result>
```

The preceding query generates the following result:

```
<result>false</result>
```

String Matches

Invoking `matches("uvwxyz", "xyz")` returns the boolean `true` because the regular expression string `xyz` is found in the source string `uvwxyz`, as shown in the following example query:

```
<result>{xf:matches("uvwxyz", "xyz")}</result>
```

The preceding query generates the following result:

```
<result>true</result>
```

Beginning Anchor Matches

Invoking `matches("uvwxyz", "^uv")` returns the boolean `true` because the source string `uvwxyz` does start with the string `uv`, as shown in the following example query:

```
<result>{xf:matches("uvwxyz", "^uv")}</result>
```

The preceding query generates the following result:

```
<result>true</result>
```

Note: The regular expression `^uv` specifies that source string must start with the string `uv` to be a successful match.

Beginning Anchor Does Not Match

Invoking `matches("uvwxyz", "^yz")` returns the boolean `false` because the source string `uvwxyz` does not start with the string `yz`, as shown in the following example query:

```
<result>{xf:matches("uvwxyz", "^yz")}</result>
```

The preceding query generates the following result:

```
<result>false</result>
```

Note: The regular expression `^yz` specifies that source string must start with the string `yz` to be a successful match.

Ending Anchor Matches

Invoking `matches("uvwxyz", "yz$")` returns the boolean `true` because the source string `uvwxyz` does end with the string `uv`, as shown in the following example query:

```
<result>{xf:matches("uvwxyz", "yz$")}</result>
```

The preceding query generates the following result:

```
<result>true</result>
```

Note: The regular expression `yz$` specifies that source string must end with the string `yz` to be a successful match.

Ending Anchor Does Not Match

Invoking `matches("uvwxyz", "vw$")` returns the boolean `false` because the source string `uvwxyz` does not end with the string `yz`, as shown in the following example query:

```
<result>{xf:matches("uvwxyz", "vw$")}</result>
```

The preceding query generates the following result:

```
<result>false</result>
```

Note: The regular expression `yz$` specifies that source string must end with the string `yz` to be a successful match.

Case-Insensitive Mode

Invoking `matches("aBc", "abc", "i")` returns the boolean `true` because the source string `aBc` does contain the string `abc`, if you ignore the case of the strings, as shown in the following example query:

```
<result>{xf:matches("aBc", "abc", "i")}</result>
```

The preceding query generates the following result:

```
<result>true</result>
```

Pass in Null

Invoking `matches("abc", ())` returns the null string as shown in the following example query:

```
<result>{xf:matches("abc", ())}</result>
```

Note: The string: `()` is the empty sequence (similar to a SQL null) which is a sequence containing zero items.

The preceding query generates the following result:

```
<result/>
```

Related Topics

W3C `matches` function description.

W3C Regular Expressions description.

xf:replace

Substitutes all occurrences of the regular expression specified by `$string-var2` in `$string-var1` with `$string-var3`.

If any character besides `m` or `i` is specified in `$string-var4` (the flags string), the `TransformException` exception is raised with the RT_REGEXP_FLAGS fault code. In the mapper the following error message is displayed:

```
Error occurred while executing XQuery: Invalid regular expression syntax
(flags: "a")
```

To learn more about using fault codes, see Getting the TransformException Fault Code Programmatically.

If the value of `$string-var1`, `$string-var2`, `$string-var3`, or `$string-var4` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xf:replace(xs:string? $string-var1, xs:string? $string-var2 xs:string?
$string-var3) →xs:string?
```

```
xf:replace(xs:string? $string-var1, xs:string? $string-var2,  xs:string?
$string-var3, xs:string? $string-var4) →xs:string?
```

Arguments

Data Type	Argument	Description
`xs:string?`	`$string-var1`	Represents the source string.
`xs:string?`	`$string-var2`	Represents the regular expression string. To learn more, see W3C Regular Expresssions.
`xs:string?`	`$string-var3`	Represents the replacement string.
`xs:string?`	`$string-var4`	Specifies flags that affect the comparison to the regular expression. (Optional)

Data Type	Argument	Description
		`m` If specified the match operates in multiline mode. By default, the match operates in string mode.
		`i` If specified the match operates in case-insensitive mode. By default, the match operates in case-sensitive mode.

Returns

Returns the string after substitution has occurred. (All occurrences of the regular expression specified by `$string-var2` in `$string-var1` are replaced with `$string-var3`.)

Examples

Simple

Invoking `replace("xyzaxyz", "yz", "o")` returns the string `xoaxo`, as shown in the following example query:

```
<result>{xf:replace("xyzaxyz", "yz", "o")}</result>
```

The preceding query generates the following result:

```
<result>xoaxo</result>
```

Greedy Qualifiers

Invoking `replace("xyzaxyz", "x.*z", "o")` returns the string `o` because the regular expression `x.*z` behaves as a greedy qualifier—the entire source string is read in before the first match is attempted and only if the first match attempt (with the entire source string) fails, does the matcher reduce the size of the source string by one character and attempts to match again. This process is repeated until there are no more characters in the source string. In this case, the regular expression `x.*z` matches the entire source string `xyzaxyz`, so the entire source string is replaced by the string `o`, shown in the following example query:

```
<result>{xf:replace("xyzaxyz", "x.*z", "o")}</result>
```

The preceding query generates the following result:

```
<result>o</result>
```

Reluctant Qualifiers

Invoking `replace("xyzaxyz", "x.*?z", "o")` returns the string `oao` because the regular expression `x.*?z` behaves as a reluctant qualifier—matching starts at the beginning of the input string, reluctantly reading in characters one at a time, until a match is found. Once a match is found, replacement occurs and the rest of the input string is searched for more matches. In this case, the regular expression `x.?z` finds two matches in the source string `xyzaxyz`, so the two `xyz` strings in the source string are replaced with the string o, shown in the following example query:

```
<result>{xf:replace("xyzaxyz", "x.*?z", "o")}</result>
```

The preceding query generates the following result:

```
<result>oao</result>
```

Replacement String Is Empty

Invoking `replace("xyzaxyz", "x", "")` returns the string `yzayz` because the replacement string is a zero-length string, as shown in the following example query:

```
<result>{xf:replace("xyzaxyz", "x", "")}</result>
```

The preceding query generates the following result:

```
<result>yzayz</result>
```

Case-Insensitive Mode

Invoking `replace("Xax", "x", "o", "i")` returns the string `oao`. The `i` flag in `$string-var4` specifies to ignore the case during matching, so in this case two replacements occur (`X` and `x`), as shown in the following example query:

```
<result>{xf:replace("Xax", "x", "o", "i")}</result>
```

The preceding query generates the following result:

```
<result>oao</result>
```

Pass in Null

Invoking `replace("xyz", "xyz",())` returns the null string as shown in the following example query:

```
<result>{xf:replace("xyz", "xyz",())}</result>
```

Note: The string: `()` is the empty sequence (similar to a SQL null) which is a sequence containing zero items.

The preceding query generates the following result:

```
<result/>
```

Related Topics

W3C `replace` function description.

W3C Regular Expressions description.

xf:tokenize

Breaks up `$string-var1` into substrings based on the regular expression delimiter specified in `$string-var2`.

If the value of `$string-var1`, `$string-var2`, or `$string-var3` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

If any character besides `m` or `i` is specified in `$string-var3` (the flags string), the `TransformException` exception is raised with the RT_REGEXP_FLAGS fault code. In the mapper the following error message is displayed:

```
Error occurred while executing XQuery: Invalid regular expression syntax
(flags: "a")
```

To learn more about using fault codes, see Getting the TransformException Fault Code Programmatically.

Signatures

`xf:tokenize(xs:string? $string-var1, xs:string? $string-var2) →xs:string*`

`xf:tokenize(xs:string? $string-var1, xs:string? $string-var2 xs:string? $string-var3) → xs:string*`

Arguments

Data Type	Argument	Description	
`xs:string?`	`$string-var1`	Represents the source string.	
`xs:string?`	`$string-var2`	Represents the regular expression which determines how to break up the source string. To learn more, see W3C Regular Expresssions.	
`xs:string?`	`$string-var3`	Specifies flags that affect how the regular expression is interpreted. (Optional)	
		`m`	If specified the match operates in multiline mode. By default, the match operates in string mode.
		`i`	If specified the match operates in case-insensitive mode. By default, the match operates in case-sensitive mode.

Returns

Returns the strings after break up of `$string-var1` based on the pattern specified in $string-var2 has occurred.

Examples

White Space Delimited List

Invoking `tokenize("Jane fell down the hill", "\s")` returns the following sequence of strings: `("Jane", "fell", "down", "the", "hill")`. The regular expression `\s` specifies that the delimiter is white space, so in this case the source string is broken up by white space as shown in the following example query:

```
<l>{
for $tok in xf:tokenize("Jane fell down the hill", "\s")
       return <i>{ $tok }</i>
}</l>
```

The preceding query generates the following result:

```
<l>
       <i>Jane</i>
       <i>fell</i>
       <i>down</i>
       <i>the</i>
       <i>hill</i>
</l>
```

Comma Delimited List

Invoking `tokenize("3,20,,27,60", ",")` returns the following strings: `("3", "20","","27","60")`. In this case, the delimiter is a comma, so the source string is broken up by commas as shown in the following example query:

```
<l>{
for $tok in xf:tokenize("3,20,,27,60", ",")
       return <i>{ $tok }</i>
}</l>
```

The preceding query generates the following result:

```
<l>
       <i>3</i>
       <i>20</i>
       <i></i>
       <i>27</i>
       <i>60</i>
</l>
```

Comma and White Space Delimited List

Invoking `tokenize("3, 4, 27,67", ",\s")` returns the following strings: `("3", "4", "27,67")`. The regular expression,`\s` specifies that the delimiter is a comma with white space, so in this case the source string is broken up by a comma with white space as shown in the following example query:

```
<l>{
for $tok in xf:tokenize("3, 4, 27,67", ",\s")
       return <i>{ $tok }</i>
}</l>
```

The preceding query generates the following result:

```
<l>
       <i>3</i>
       <i>4</i>
       <i>27,67</i>
</l>
```

Note: The numbers 27 and 67 are not broken up as tokens because there is no white space between the 27 and the 67 in the source string (just a comma).

Case-Insensitive Mode

Invoking `tokenize("1a2A3a4A5", "a", "i")` returns the returns the following strings: `("1","2","3","4","5")`. The `i` flag in `$string-var3` specifies to ignore the case of the characters during matching, so in this case the source string is broken up by both the capital `A` and the lowercase `a` characters, as shown in the following example query:

```
<l>{
for $tok in xf:tokenize("1a2A3a4A5", "a", "i")
       return <i>{ $tok }</i>
}</l>
```

The preceding query generates the following result:

```
<l>
       <i>1</i>
       <i>2</i>
       <i>3</i>
       <i>4</i>
       <i>5</i>
</l>
```

Related Topics

W3C `tokenize` function description.

W3C Regular Expressions description.

XQuery Numeric Function Reference

This section provides descriptions of the XQuery numeric functions available in the mapper functionality of WebLogic Workshop. You use the mapper functionality to generate queries and to edit these queries to add invocations to these provided XQuery functions. To learn more, see "Invoking Functions or Operators in a Query" in Modifying Links Using the Target Expression Tab in the *Guide to Data Transformation*.

In addition to the XQuery functions and operators available in the mapper functionality, a larger set functions and operators is provided. You can manually add invocations to these functions and operators to queries in the **Source View** of the mapper functionality. For a list of these additional functions and operators, see the XQuery 1.0 and XPath 2.0 Functions and Operators - W3C Working Draft 16 August 2002 available from the W3C Web site at the following URL:

`http://www.w3.org/TR/2002/WD-xquery-operators-20020816`

This section lists the numeric functions available from the Mapper tool:

- bea-xf:format-number
- xf:floor
- xf:ceiling
- xf:round

bea-xf:format-number

Converts `$double-var` to a string using the format pattern specified by `$string-var`.

If the value of `$double-var` is the empty sequence, the following error is displayed in the mapper:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method: Type error in function format-number invocation: expected type
[double@http://www.w3.org/2001/XMLSchema], given type empty
```

The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`bea-xf:format-number(xs:double $double-var, xs:string $string-var)` → `xs:string`

Arguments

Data Type	Argument	Description
`xs:double`	`$double-var`	Represents the double number to be converted to a string.
`xs:string`	`$string-var`	Represents the pattern string. The format of this pattern is specified by the JDK 1.4.1 `DecimalFormat` class.

Returns

Returns `$double-var` as a string based on the pattern specified by `$string-var`.

Examples

Add Comma And More Decimal Places

Invoking `format-number(xs:double(10002.45), "#,###0.000#")` returns the string `1,0002.450` as shown in the following example query:

```
<result>{bea-xf:format-number(xs:double(10002.45),
"#,###0.000#")}</result>
```

The preceding query generates the following result:

```
<result>1,0002.450</result>
```

XQuery Compliance

Not a standard W3C XQuery function. This is a standard XSLT function.

Note: Only the two argument version of the standard XSLT function is supported.

Related Topics

W3C XSLT `format-number` function description.

JDK 1.4.1 `DecimalFormat` class description.

xf:floor

Rounds `$double-var` down to the *next* whole number.

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:floor(xs:double? $double-var)`→`xs:double?`

Arguments

Data Type	Argument	Description
`xs:double?`	`$double-var`	Represents the double to round down.

Returns

Returns a double equal to `$double-var` rounded down to the *next* whole number.

Examples

This Query . . .	Generates This Result . . .
`<r>{xf:floor(xs:double("11.9"))}</r>`	`<r>11.0</r>`
`<r>{xf:floor(xs:double("11.5"))}</r>`	`<r>11.0</r>`

This Query . . .	Generates This Result . . .
`<r>{xf:floor(xs:double("`**`11.1`**`"))}</r>`	`<r>`**`11.0`**`</r>`
`<r>{xf:floor(xs:double("`**`-11.9`**`"))}</r>`	`<r>`**`-12.0`**`</r>`
`<r>{xf:floor(xs:double("`**`-11.5`**`"))}</r>`	`<r>`**`-12.0`**`</r>`
`<r>{xf:floor(xs:double("`**`-11.1`**`"))}</r>`	`<r>`**`-12.0`**`</r>`

Related Topics

W3C `floor` function description.

xf:ceiling

Rounds `$double-var` up to the *next* whole number.

If the value of `$string-var` is the empty sequence, the empty sequence is returned.The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:ceiling(xs:double? $double-var)`→`xs:double?`

Arguments

Data Type	Argument	Description
`xs:double?`	`$double-var`	Represents the double to round down.

Returns

Returns a double equal to `$double-var` rounded up to the *`next`* whole number.

Examples

This Query . . .	Generates This Result . . .
`<r>{xf:ceiling(xs:double("`**`11.9`**`"))}</r>`	`<r>`**`12.0`**`</r>`
`<r>{xf:ceiling(xs:double("`**`11.5`**`"))}</r>`	`<r>`**`12.0`**`</r>`
`<r>{xf:ceiling(xs:double("`**`11.1`**`"))}</r>`	`<r>`**`12.0`**`</r>`
`<r>{xf:ceiling(xs:double("`**`-11.9`**`"))}</r>`	`<r>`**`-11.0`**`</r>`
`<r>{xf:ceiling(xs:double("`**`-11.5`**`"))}</r>`	`<r>`**`-11.0`**`</r>`
`<r>{xf:ceiling(xs:double("`**`-11.1`**`"))}</r>`	`<r>`**`-11.0`**`</r>`

Related Topics

W3C `ceiling` function description.

xf:round

Rounds `$double-var` to the *nearest* whole number.

If the value of `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:round(xs:double? $double-var)`→`xs:double?`

Arguments

Data Type	Argument	Description
`xs:double?`	`$double-var`	Represents the double to round.

Returns

Returns a double equal to `$double-var` rounded to the *nearest* whole number.

Examples

This Query . . .	Generates This Result . . .
`<r>{xf:round(xs:double("`**`11.9`**`"))}</r>`	`<r>`**`12.0`**`</r>`
`<r>{xf:round(xs:double("`**`11.5`**`"))}</r>`	`<r>`**`12.0`**`</r>`
`<r>{xf:round(xs:double("`**`11.1`**`"))}</r>`	`<r>`**`11.0`**`</r>`
`<r>{xf:round(xs:double("`**`-11.9`**`"))}</r>`	`<r>`**`-12.0`**`</r>`
`<r>{xf:round(xs:double("`**`-11.5`**`"))}</r>`	`<r>`**`-11.0`**`</r>`
`<r>{xf:round(xs:double("`**`-11.1`**`"))}</r>`	`<r>`**`-11.0`**`</r>`

Related Topics

W3C `round` function description.

XQuery URI Functions Reference

This section provides descriptions of the XQuery URI functions available in the mapper functionality of WebLogic Workshop. You use the mapper functionality to generate queries and to edit these queries to add invocations to these provided XQuery functions. To learn more, see "Invoking Functions or Operators in a Query" in Modifying Links Using the Target Expression Tab in the *Guide to Data Transformation*.

In addition to the XQuery functions and operators available in the mapper functionality, a larger set functions and operators is provided. You can manually add invocations to these functions and operators to queries in the **Source View** of the mapper functionality. For a list of these additional functions and operators, see the XQuery 1.0 and XPath 2.0 Functions and Operators - W3C Working Draft 16 August 2002 available from the W3C Web site at the following URL:

`http://www.w3.org/TR/2002/WD-xquery-operators-20020816`

This section lists the URI functions available from the mapper functionality:

- xf:escape-URI
- xf:resolve-URI

xf:escape-URI

Applies the URI escaping rules to `$string-var` that contains a URI (Uniform Resource Identifier Reference).

If the value of `$string-var` or `$boolean-var` is the empty sequence, the following error is displayed in the mapper:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method: Type error in function escape-URI invocation: expected type
[string@http://www.w3.org/2001/XMLSchema], given type empty
```

The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:escape-URI(xs:string $string-var, xs:boolean $boolean-var) →xs:string`

Arguments

<table>
<tr><th>Data Type</th><th>Argument</th><th>Description</th></tr>
<tr><td><code>xs:string</code></td><td><code>$string-var</code></td><td>Represents the conversion string that contains the URI (Uniform Resource Identifier Reference)</td></tr>
<tr><td><code>xs:boolean</code></td><td><code>$boolean-var</code></td><td>Represents the boolean that determines the URI escaping rules to apply.</td></tr>
<tr><td></td><td><b>true</b></td><td>All characters are escaped except the following:
• Lower case letters <code>a-z</code>
• Upper case letters <code>A-Z</code>
• Digits <code>0-9</code>
• The following characters: "<code>-</code>" | "<code>_</code>" | "<code>.</code>" | "<code>!</code>" | "<code>~</code>" | "<code>*</code>" | "<code>'</code>" | "<code>(</code>" | "<code>)</code>". (These characters are referred to as <i>marks</i> in RFC 2396.)
The "<code>%</code>" character is escaped only if it is not followed by two hexadecimal digits (<code>0-9</code>, <code>a-f</code>, or <code>A-F)</code>.
Typically this option is used to escape part of a URI.</td></tr>
<tr><td></td><td><b>false</b></td><td>In addition to the characters defined in the <i>true</i> section of this table as not being escaped, the following reserved characters are not escaped: ";" | "/" | "?" | ":" | "@" | "&" | "=" | "+" | "$" | ",". (As defined by RFC 2396 .)
Typically, this option is used to escape an entire URI or URI reference.</td></tr>
</table>

Returns

Returns the `$string-var` after the URI escaping rules have been applied. The rules applied are different depending on the value of `$boolean-var`.

Examples

True

The following example query shows the `escape-URI` function called with the `$boolean-var` argument set to `true`:

```
<true>{xf:escape-URI("http://www.acme.org/", xs:boolean("true"))}</true>
```

The preceding query generates the following result:

```
<true>http%3A%2F%2Fwww.acme.org%2F</true>
```

False

The following example query shows the `escape-URI` function called with the `$boolean-var` argument set to `false`:

```
<false>{xf:escape-URI("http://www.acme.org/widget/201/#specs",xs:boolean("
false"))}</false>
```

The preceding query generates the following result:

```
<false>http://www.acme.org/widget/201/%23specs</false>
```

Related Topics

W3C `escape-uri` function description.

xf:resolve-URI

Resolves the relative URI `$anyURI-var1` against the base URI `$anyURI-var2`. To learn about URI resolution, see the javadoc for the URI class.

If the value of `$anyURI-var1` or `$anyURI-var2` is the empty sequence, the following error is displayed in the mapper:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method: Type error in function resolve-URI invocation: expected type
[anyURI@http://www.w3.org/2001/XMLSchema], given type empty
```

The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:resolve-URI(xs:anyURI $anyURI-var1, xs:anyURI $anyURI-var2) →xs:anyURI`

Arguments

Data Type	Argument	Description
`xs:anyURI`	`$anyURI-var1`	Represents the base URI.
`xs:anyURI`	`$anyURI-var2`	Represents the relative URI.

Returns

Returns the absolute URI (of data type `anyURI`) which is result of the relative URI `$anyURI-var1` being resolved against the base URI `$anyURI-var2`.

Returns the relative URI `$anyURI-var2`, if `$anyURI-var2` is an absolute URI.

Example

Resolve-URI Example 1

The first example of an query invoking the `resolve-URI` function:

```
<resolve-URI-1>
{xs:string(xf:resolve-URI("http://www.ics.uci.edu/pub/ietf/uri/#Related",
"priv#internal"))}
</resolve-URI-1>
```

The preceding query generates the following result:

```
<resolve-URI-1>http://www.ics.uci.edu/pub/ietf/uri/priv#internal</resolve-
URI-1>
```

Resolve-URI Example 2

The second example of an query calling the `resolve-URI` function:

```
<resolve-URI-2>
{xs:string(xf:resolve-URI("http://www.ics.uci.edu/pub/",
"../../priv/./../priv#internal"))}
</resolve-URI-2>
```

The preceding query generates the following result:

```
<resolve-URI-2>http://www.ics.uci.edu/priv#internal</resolve-URI-2>
```

Resolve-URI Example 3

The third example of an query calling the `resolve-URI` function:

```
<resolve-URI-3>
       {xs:string(xf:resolve-URI("http://www.ics.uci.edu/", "priv"))}
</resolve-URI-3>
```

The preceding query generates the following result:

```
<resolve-URI-3>http://www.ics.uci.edu/priv</resolve-URI-3>
```

Related Topics

W3C `resolve-URI` function description.

JDK 1.4.1 URI class description.

CHAPTER 7

XQuery Aggregate Function Reference

This section provides descriptions of the XQuery aggregate functions available in the mapper functionality of WebLogic Workshop. You use the mapper functionality to generate queries and to edit these queries to add invocations to these provided XQuery functions. To learn more, see "Invoking Functions or Operators in a Query" in Modifying Links Using the Target Expression Tab in the *Guide to Data Transformation*.

In addition to the XQuery functions and operators available in the mapper functionality, a larger set functions and operators is provided. You can manually add invocations to these functions and operators to queries in the **Source View** of the mapper functionality. For a list of these additional functions and operators, see the XQuery 1.0 and XPath 2.0 Functions and Operators - W3C Working Draft 16 August 2002 available from the W3C Web site at the following URL:

`http://www.w3.org/TR/2002/WD-xquery-operators-20020816`

This section lists the aggregate functions available from the Mapper tool:

- xf:count
- xf:avg
- xf:max
- xf:min
- xf:sum

xf:count

Counts the number items in the sequence.

Signatures

`xf:count(item* $item-var)`→`xs:unsignedInt`

Arguments

Data Type	Argument	Description
`item*`	`$item-var`	Represents the sequence to be counted.

Returns

Returns the number of items in a sequence passed into `$item-var` as an `unsignedInt` value.

Returns `0` if `$item-var` is the empty sequence. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Examples

Simple

Invoking `count(("a","b","c"))` returns the unsigned integer value of `3`, as shown in the following example query:

```
<result>{xf:count(("a","b","c"))}</result>
```

The preceding query generates the following result:

```
<result>3</result>
```

Empty Sequence

Invoking `count(())` returns the unsigned integer value of `0` because `()` is an empty sequence (contains no elements), as shown in the following example query:

```
<result>{xf:count(())}</result>
```

The preceding query generates the following result:

```
<result>0</result>
```

Related Topics

W3C `count` function description.

xf:avg

Determines the average of all the numbers in a sequence.

If the value of `$item-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:avg(item* $item-var)`→`xs:double?`

Arguments

Data Type	Argument	Description
`item*`	`$item-var`	Represents the sequence of numbers to add together.

Returns

Returns the average of all the numbers in a sequence passed into `$item-var`.

Examples

Simple

Invoking `xf:avg(("3","1","2"))` returns the value of `2.0`, as shown in the following example query:

```
<result>{xf:avg(("3","1","2"))}</result>
```

The preceding query generates the following result:

```
<result>2.0</result>
```

Empty Sequences

Invoking `xf:avg((1,(),6,2,9))` returns the value of `4.5`, as shown in the following example query:

```
<result>{xf:avg((1,(),6,2,9))}</result>
```

The preceding query generates the following result:

```
<result>4.5</result>
```

Note: Instances of the empty sequence `()` are ignored.

Nodes

Invoking the following query returns the value of `50`, as shown in the following example query:

```
let $x := <a>100</a>
let $y := <b>50</b>
let $z := <c>0</c>
return <result>{xf:avg(($x,$y,$z))}</result>
```

The preceding query generates the following result:

```
<result>50.0</result>
```

In this example, the value of the nodes are extracted before the numbers are averaged together—as if the data function had been invoked on each node in the sequence before being averaged together.

Related Topics

W3C `avg` function description.

xf:max

Finds the maximum value in a sequence.

If the value of `$item-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:max(integer* $integer-var)`→`xs:anySimpleType`?

Arguments

Data Type	Argument	Description
`integer*`	`$integer-var`	Represents the sequence to evaluate.

Returns

Returns the number with the highest value from the sequence passed into `$item-var`.

Examples

Simple

Invoking `xf:max(("3","1","2"))` returns the value of `3`, as shown in the following example query:

```
<result>{xf:max(("3","1","2"))}</result>
```

The preceding query generates the following result:

```
<result>3</result>
```

Empty Sequences

Invoking `xf:max((1,(),6,2,9))` returns the value of `9`, as shown in the following example query:

```
<result>{xf:max((1,(),6,2,9))}</result>
```

The preceding query generates the following result:

```
<result>9</result>
```

Note: Instances of the empty sequence `()` are ignored.

Nodes

Invoking the following query returns the value of `100`, as shown in the following example query:

```
let $x := <a>100</a>
let $y := <b>2</b>
let $z := <c>50</c>
return <result>{xf:max(($x,$y,$z))}</result>
```

The preceding query generates the following result:

```
<result>50</result>
```

In this example, the value of the nodes are extracted before the comparison to determine the maximum number is done—as if the data function had been invoked on each node in the sequence before the comparison. However, the string values of the nodes are extracted and compared and not the integer values of the node. In the preceding query, the string: `50` is reported as the maximum value because the ASCII value of the character `5` is greater than the ASCII value of the character `1`, the first character in the string: `100`. To compare the integer values of the nodes instead, first convert the node sequences to integers using the `bea-xf:integer-sequence` function and then invoke the `xf:max` function, as shown in the following example query:

```
let $x := <a>100</a>
let $y := <b>2</b>
let $z := <c>50</c>
return <result>{xf:max(bea-xf:integer-sequence(($x,$y,$z)))}</result>
```

The preceding query generates the following result:

```
<result>100</result>
```

Related Topics

W3C `max` function description.

BEA bea-xf:integer-sequence function description.

xf:min

Finds the minimum value in a sequence.

If the value of `$item-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xf:min(integer* $integer-var)→xs:anySimpleType?
```

Arguments

Data Type	Argument	Description
`integer*`	`$integer-var`	Represents the sequence to evaluate.

Returns

Returns the number with the lowest value from the sequence passed into `$item-var`.

Examples

Simple

Invoking `xf:min(("3","1","2"))` returns the value of `1`, as shown in the following example query:

```
<result>{xf:min(("3","1","2"))}</result>
```

The preceding query generates the following result:

```
<result>1</result>
```

Empty Sequences

Invoking `xf:min((1,(),6,2,9))` returns the value of `1`, as shown in the following example query:

```
<result>{xf:min((1,(),6,2,9))}</result>
```

The preceding query generates the following result:

```
<result>1</result>
```

Note: Instances of the empty sequence `()` are ignored.

Nodes

Invoking the following query returns the value of `2`, the lowest number in the sequence, as shown in the following example query:

```
let $x := <a>100</a>
let $y := <b>2</b>
let $z := <c>50</c>
return <result>{xf:min(($x,$y,$z))}</result>
```

The preceding query generates the following result:

```
<result>100</result>
```

In this example, the value of the nodes are extracted before the comparison to determine the minimum number is done—as if the data function had been invoked on each node in the sequence before the comparison. However, the string values of the nodes are extracted and compared and not the integer values of the node. In the preceding query, the string: `100` is reported as the minimum value because the ASCII value of the character `1` is less than the ASCII value of the character `5`, the first character in the string: `50`. To compare the integer values of the nodes instead, first convert the node sequences to integers using the `bea-xf:integer-sequence` function and then invoke the `xf:min` function, as shown in the following example query:

```
let $x := <a>100</a>
let $y := <b>2</b>
let $z := <c>50</c>
return <result>{xf:min(bea-xf:integer-sequence(($x,$y,$z)))}</result>
```

The preceding query generates the following result:

```
<result>2</result>
```

Related Topics

W3C `min` function description.

BEA bea-xf:integer-sequence function description.

xf:sum

Determines the sum of all the items in a sequence.

Signatures

`xf:sum(item* $item-var)→xs:double?`

Arguments

Data Type	Argument	Description
`item*`	`$item-var`	Represents the sequence to evaluate.

Returns

Returns the sum of all the numbers in a sequence passed into `$item-var`.

Returns `0.0` if `$item-var` is the empty sequence. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Examples

Simple

Invoking `xf:sum(("3","1","2"))` returns the value of `6`, as shown in the following example query:

```
<result>{xf:sum(("3","1","2"))}</result>
```

The preceding query generates the following result:

```
<result>6.0</result>
```

Empty Sequences

Invoking `xf:sum((1,(),6,2,9))` returns the value of `18`, as shown in the following example query:

```
<result>{xf:sum((1,(),6,2,9))}</result>
```

The preceding query generates the following result:

```
<result>18.0</result>
```

Note: Instances of the empty sequence `()` are ignored.

Nodes

Invoking the following query returns the value of `152`, as shown in the following example query:

```
let $x := <a>100</a>
let $y := <b>2</b>
let $z := <c>50</c>
return <result>{xf:sum(($x,$y,$z))}</result>
```

The preceding query generates the following result:

```
<result>152.0</result>
```

In this example, the value of the nodes are extracted before the numbers are added to together—as if the data function had been invoked on each node in the sequence before being added together.

Related Topics

W3C `sum` function description.

XQuery Node Functions Reference

This section provides descriptions of the XQuery node functions available in the mapper functionality of WebLogic Workshop. You use the mapper functionality to generate queries and to edit these queries to add invocations to these provided XQuery functions. To learn more, see "Invoking Functions or Operators in a Query" in Modifying Links Using the Target Expression Tab in the *Guide to Data Transformation*.

In addition to the XQuery functions and operators available in the mapper functionality, a larger set functions and operators is provided. You can manually add invocations to these functions and operators to queries in the **Source View** of the mapper functionality. For a list of these additional functions and operators, see the XQuery 1.0 and XPath 2.0 Functions and Operators - W3C Working Draft 16 August 2002 available from the W3C Web site at the following URL:

`http://www.w3.org/TR/2002/WD-xquery-operators-20020816`

This section lists the node functions available from the mapper functionality:

- xf:node-kind
- xf:node-name
- xf:local-name

xf:node-kind

If a `$node-var` is not a node, the following error is displayed in the mapper:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method:
```

```
Type error in function node-kind invocation: expected type node, given type
[string@http://www.w3.org/2001/XMLSchema]
```

If the value of `$node-var` is the empty sequence, the following error is displayed in the mapper:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method:
Type error in function node-kind invocation: expected type node, given type
empty
```

The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:node-kind(xf:node $node-var) →xs:string`

Arguments

Data Type	Argument	Description
`node`	`$node-var`	Represents the node from which to determine type.

Returns

Returns a string which represents the kind of `$node-var`. One of the following strings will be returned: `document`, `element`, `attribute`, `text`, `namespace`, `processing-instruction`, or `comment`.

Examples

Element

When you invoke the following query:

```
let $x := <e a="b">c</e>
return <type>{xf:node-kind($x)}</type>
```

The following result is generated:

```
<type>element</type>
```

Attribute

When you invoke the following query:

```
let $x := <e a="b">c</e>
return <type>{xf:node-kind($x/@a)}</type>
```

The following result is generated:

```
<type>attribute</type>
```

Text

When you invoke the following query:

```
let $x := <e a="b">c</e>
return <type>{xf:node-kind($x/text())}</type>
```

The following result is generated:

```
<type>text</type>
```

Related Topics

W3C `node-kind` function description.

xf:node-name

Returns the expanded QName of `$node-var`. An expanded `QName` contains a namespace URI and a local name.

If the value of `$node-var` is the empty sequence, the following error message is displayed:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method:
Type error in function node-name invocation: expected type node, given type
empty
```

The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

If a `$node-var` is not a node, the following error is displayed in the mapper:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method:
Type error in function node-name invocation: expected type node, given type
[string@http://www.w3.org/2001/XMLSchema]
```

Signatures

`xf:node-name(xf:node $node-var) →xs:QName?`

Arguments

Data Type	Argument	Description
`node`	`$node-var`	Represents the nod to extract the QName from.

Returns

Returns the expanded QName of `$node-var`. An expanded `QName` contains a namespace URI and a local name.

Returns the empty sequence for nodes that do not have names (document, text, processing-instruction, comment). The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Examples

Simple

When you invoke the following query:

```
let $x := <elem xmlns:foo="http://www.acme.org/"><foo:subelem/></elem>,
    $name := xf:node-name(children($x))
    return
        <result>
            <uri>  {
                xf:get-namespace-from-QName($name)
            }</uri>
            <local>{
                xf:get-local-name-from-QName($name)
            }</local>
        </result>
```

The preceding query generates the following result:

```
<?xml version="1.0" encoding="UTF-8"?>
<result>
    <uri>http://www.acme.org/</uri>
    <local>subelem</local>
</result>
```

Related Topics

W3C `node-name` function description.

xf:local-name

Returns the local name (as a string) of `$node-var`.

Signatures

`xf:local-name(xf:node? $node-var) →xs:string`

Arguments

Data Type	Argument	Description
`node?`	`$node-var`	Represents the node to get the local name from.

Returns

Returns the local name (as a string) of `$node-var`.

Examples

Simple

The following XML document defines the namespace called `xacme`:

```
<?xml version='1.0'?>
<mydoc xmlns:xacme="http://www.acme.com/foo"> <xacme:n/> </mydoc>
```

The preceding XML Document associates the namespace prefix `xacme` to the URI: `http://www.acme.com/foo`. The string `xacme:n` is qualified name for the URI/local name pair: `("http://www.acme.com/foo", "n")`.

The following example query returns the local part of the URI/local name pair as shown in the following XQuery code:

```
let $a := <mydoc xmlns:xacme="http://www.acme.com/foo"> <xacme:n/> </mydoc>
return <name>{xf:local-name($a/*[1])}</name>
```

The preceding query generates the following result:

```
<name>n</name>
```

Related Topics

W3C `local-name` function description.

CHAPTER 9

XQuery QName Functions Reference

This section provides descriptions of the XQuery QName functions available in the mapper functionality of WebLogic Workshop. You use the mapper functionality to generate queries and to edit these queries to add invocations to these provided XQuery functions. To learn more, see “Invoking Functions or Operators in a Query” in Modifying Links Using the Target Expression Tab in the *Guide to Data Transformation*.

In addition to the XQuery functions and operators available in the mapper functionality, a larger set functions and operators is provided. You can manually add invocations to these functions and operators to queries in the **Source View** of the mapper functionality. For a list of these additional functions and operators, see the XQuery 1.0 and XPath 2.0 Functions and Operators - W3C Working Draft 16 August 2002 available from the W3C Web site at the following URL:

`http://www.w3.org/TR/2002/WD-xquery-operators-20020816`

This section lists the QName functions available from the mapper functionality:

- xf:get-local-name-from-QName
- xf:get-namespace-from-QName

xf:get-local-name-from-QName

Extracts the local part of the QName from `$QName-var`.

A QName (qualified name) is made up of a namespace name and a local part. The namespace name is the URI associated with the prefix of a namespace declaration.

If the value of `$QName-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

If a QName is not passed into `$QName-var`, the following error is displayed in the mapper:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method:
Type error in function get-local-name-from-QName invocation:
expected type [QName@http://www.w3.org/2001/XMLSchema]?,
given type [string@http://www.w3.org/2001/XMLSchema]
```

Signatures

`xf:get-local-name-from-QName(xs:QName? $QName-var) →xs:string?`

Arguments

Data Type	**Argument**	**Description**
`xs:QName`	`$QName-var`	Represents the QName to extract from.

Returns

Returns the a string which contains the local part of the QName from `$QName-var`.

Examples

Simple

The following XML document defines the namespace called `xacme`:

```
<?xml version='1.0'?>
<mydoc xmlns:xacme="http://www.acme.com/foo">
       <xacme:n/>
</mydoc>
```

The preceding XML Document associates the namespace prefix `xacme` to the URI: `http://www.acme.com/foo`. The string `xacme:n` is qualified name for the URI/local name pair: `("http://www.acme.com/foo", "n")`.

The following example query calls the `get-local-name-from-QName` function:

```
<qname_example>
{xs:string(xf:get-local-name-from-QName(xf:expanded-QName("http://www.acme
.com/foo", "n")))}
</qname_example>
```

The preceding query generates the following result:

```
<qname_example>n</qname_example>
```

Related Topics

W3C `get-local-name-from-QName` function description.

xf:get-namespace-from-QName

Extracts the namespace URI from `$QName-var`.

A QName (qualified name) is made up of a namespace name and a local part. The namespace name is the URI associated with the prefix of a namespace declaration.

If the value of `$QName-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

If a QName is not passed into `$QName-var`, the following error is displayed in the mapper:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method:
Type error in function get-namespace-from-QName invocation:
expected type [QName@http://www.w3.org/2001/XMLSchema]?,
given type [string@http://www.w3.org/2001/XMLSchema]
```

Signatures

```
xf:get-namespace-from-QName(xs:QName? $QName-var) →xs:anyURI?
```

Arguments

Data Type	Argument	Description
`xs:QName`	`$QName-var`	Represents the QName to extract from.

Returns

Returns the URI (of data type `anyURI`) of the namespace in `$QName-var`.

Examples

Simple

The following XML document defines the namespace called `xacme`:

```
<?xml version='1.0'?>
<mydoc xmlns:xacme="http://www.acme.com/foo">
       <xacme:n/>
</mydoc>
```

The preceding XML Document associates the namespace prefix `xacme` to the URI: `http://www.acme.com/foo`. The string `xacme:n` is qualified name for the URI/local name pair: `("http://www.acme.com/foo", "n").`

The following example query calls the `get-namespace-from-QName` function:

```
let $a := <mydoc xmlns:xacme="http://www.acme.com/foo"> <xacme:n/> </mydoc>
       return
       <name>{
              xf:get-namespace-from-QName(xf:node-name($a/*[1]))
       }</name>
```

The preceding query generates the following result:

```
<name>http://www.acme.com/foo</name>
```

Related Topics

W3C `get-namespace-from-QName` function description.

XQuery Date Functions Reference

This section provides descriptions of the XQuery date functions available in the mapper functionality of WebLogic Workshop. You use the mapper functionality to generate queries and to edit these queries to add invocations to these provided XQuery functions. To learn more, see "Invoking Functions or Operators in a Query" in Modifying Links Using the Target Expression Tab in the *Guide to Data Transformation*.

In addition to the XQuery functions and operators available in the mapper functionality, a larger set functions and operators is provided. You can manually add invocations to these functions and operators to queries in the **Source View** of the mapper functionality. For a list of these additional functions and operators, see the XQuery 1.0 and XPath 2.0 Functions and Operators - W3C Working Draft 16 August 2002 available from the W3C Web site at the following URL:

`http://www.w3.org/TR/2002/WD-xquery-operators-20020816`

This section lists the date functions available from the mapper functionality:

- xf:get-year-from-dateTime
- xf:get-month-from-dateTime
- xf:get-day-from-dateTime
- xf:get-hours-from-dateTime
- xf:get-minutes-from-dateTime
- xf:get-seconds-from-dateTime
- xf:get-timezone-from-dateTime

- xf:get-year-from-date
- xf:get-month-from-date
- xf:get-day-from-date
- xf:get-timezone-from-date
- xf:get-hours-from-time
- xf:get-minutes-from-time
- xf:get-seconds-from-time
- xf:get-timezone-from-time
- xf:add-timezone-to-dateTime
- xf:remove-timezone-from-dateTime
- xf:add-timezone-to-date
- xf:add-timezone-to-time
- xf:remove-timezone-from-time
- xf:current-dateTime
- xf:current-date
- xf:current-time

xf:get-year-from-dateTime

Extracts the year from `$dateTime-var`.

If the value of `$dateTime-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:get-year-from-dateTime(xs:dateTime? $dateTime-var) →xs:integer?`

Arguments

Data Type	Argument	Description
`xs:dateTime?`	`$dateTime-var`	Contains a representation of the date and time.

Returns

Returns the year as an integer from `$dateTime-var`.

Examples

Simple

When you invoke the following query:

```
<year>{xf:get-year-from-dateTime("2002-08-30T22:21:01")}</year>
```

The preceding query generates the following result:

```
<year>2002</year>
```

Related Topics

W3C `get-year-from-dateTime` function description.

W3C `dateTime` data type description.

xf:get-month-from-dateTime

Extracts the month from `$dateTime-var`.

If the value of `$dateTime-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xf:get-month-from-dateTime(xs:dateTime? $dateTime-var) →xs:integer?
```

Arguments

Data Type	Argument	Description
`xs:dateTime?`	`$dateTime-var`	Contains a representation of the date and time.

Returns

Returns the month as an integer from `$dateTime-var`.

Examples

Simple

When you invoke the following query:

```
<month>{xf:get-month-from-dateTime("2002-08-30T22:21:01")}</month>
```

The preceding query generates the following result:

```
<month>8</month>
```

Related Topics

W3C `get-month-from-dateTime` function description.

W3C `dateTime` data type description.

xf:get-day-from-dateTime

Extracts the day from `$dateTime-var`.

If the value of `$dateTime-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xf:get-day-from-dateTime(xs:dateTime? $dateTime-var) →xs:integer?
```

Arguments

Data Type	Argument	Description
`xs:dateTime?`	`$dateTime-var`	Contains a representation of the date and time.

Returns

Returns the day as an integer from `$dateTime-var`.

Examples

Simple

When you invoke the following query:

```
<day>{xf:get-day-from-dateTime("2002-08-30T22:21:01")}</day>
```

The preceding query generates the following result:

```
<day>30</day>
```

Related Topics

W3C `get-day-from-dateTime` function description.

W3C `dateTime` data type description.

xf:get-hours-from-dateTime

Extracts the hours from `$dateTime-var`.

If the value of `$dateTime-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xf:get-hours-from-dateTime(xs:dateTime? $dateTime-var) →xs:integer?
```

Arguments

Data Type	Argument	Description
`xs:dateTime?`	`$dateTime-var`	Contains a representation of the date and time.

Returns

Returns the hours as an integer from `$dateTime-var`.

Examples

Simple

When you invoke the following query:

```
<hours>{xf:get-hours-from-dateTime("2002-08-30T22:21:01")}</hours>
```

The preceding query generates the following result:

```
<hours>22</hours>
```

Timezone

The following example uses the `get-hours-from-dateTime` function with a timezone:

```
<hours>{xf:get-hours-from-dateTime("2002-08-30T14:21:01-05:00")}</hours>
```

The preceding query generates the following result:

```
<hours>19</hours>
```

In the preceding query, the `-05:00` string specifies the time is specified in the Eastern Standard timezone which is 5 hours behind Coordinated Universal Time (UTC). The hours are reported in Coordinated Universal Time (UTC), so 5 hours are added to 14 hours of the Eastern Standard timezone, resulting in 19 hours in Coordinated Universal Time (UTC).

Related Topics

W3C `get-hours-from-dateTime` function description.

W3C `dateTime` data type description.

xf:get-minutes-from-dateTime

Extracts the minutes from `$dateTime-var`.

If the value of `$dateTime-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:get-minutes-from-dateTime(xs:dateTime? $dateTime-var) →xs:integer?`

Arguments

Data Type	Argument	Description
`xs:dateTime?`	`$dateTime-var`	Contains a representation of the date and time.

Returns

Returns the minutes as an integer from `$dateTime-var`.

Examples

Simple

When you invoke the following query:

```
<minutes>{xf:get-minutes-from-dateTime("2002-08-30T22:21:01")}</minutes>
```

The preceding query generates the following result:

```
<minutes>21</minutes>
```

Related Topics

W3C `get-minutes-from-dateTime` function description.

W3C `dateTime` data type description.

xf:get-seconds-from-dateTime

Extracts the seconds from `$dateTime-var`.

If the value of `$dateTime-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:get-seconds-from-dateTime(xs:dateTime? $dateTime-var)` → `xs:xs:decimal?`

Arguments

Data Type	Argument	Description
`xs:dateTime?`	`$dateTime-var`	Contains a representation of the date and time.

Returns

Returns the seconds as an decimal from `$dateTime-var`.

Examples

Simple

When you invoke the following query:

```
<seconds>{xf:get-seconds-from-dateTime("2002-08-30T22:21:01")}</seconds>
```

The preceding query generates the following result:

```
<seconds>1</seconds>
```

Related Topics

W3C `get-seconds-from-dateTime` function description.

W3C `dateTime` data type description.

xf:get-timezone-from-dateTime

Extracts the current timezone from `$dateTime-var` and returns it as a string.

If `$dateTime-var` does not contain a timezone, the empty sequence is returned.

If the value of `$dateTime-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xf:get-timezone-from-dateTime(xs:dateTime? $dateTime-var) →xs:string?
```

Arguments

Data Type	Argument	Description
`xs:dateTime?`	`$dateTime-var`	Contains a representation of the date and time.

Returns

Returns the current timezone as a string from `$dateTime-var`.

Returns an empty sequence, if `$dateTime-var` does not contain a timezone. (See examples below.)

Examples

Timezone

The following example uses the `get-timezone-from-dateTime` function with a timezone:

```
<tz>{xf:get-timezone-from-dateTime("2002-08-30T14:21:01-05:00")}</tz>
```

The preceding query generates the following result:

```
<tz>-05:00</tz>
```

In the preceding query, the `-05:00` string specifies the time is specified in the Eastern Standard time zone which is 5 hours behind Universal Time, Coordinated (UTC).

UTC Timezone

The following example uses the `get-timezone-from-dateTime` function with a timezone:

```
<tz>{xf:get-timezone-from-dateTime("2002-08-30T14:21:01Z")}</tz>
```

The preceding query generates the following result:

```
<tz>00:00</tz>
```

In this example, the `Z` means the time is being specified in Universal Coordinated, Time (UTC), so no timezone is reported.

No Timezone

The following is an example of using the `get-timezone-from-dateTime` function with no timezone specified:

```
<tz>{xf:get-timezone-from-dateTime("2002-08-30T22:21:01")}</tz>
```

The preceding query generates the following result:

```
<tz/>
```

Related Topics

W3C `get-timezone-from-dateTime` function description.

W3C `dateTime` data type description.

xf:get-year-from-date

Extracts the year from `$date-var`.

If the value of `$date-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xf:get-year-from-date(xs:date? $date-var) →xs:integer?
```

Arguments

Data Type	Argument	Description
`xs:date?`	`$date-var`	Contains a representation of the date.

Returns

Returns the year as an integer from `$date-var`.

Examples

Simple

When you invoke the following query:

```
<year>{xf:get-year-from-date("2002-08-30")}</year>
```

The preceding query generates the following result:

```
<year>2002</year>
```

Related Topics

W3C `get-year-from-date` function description.

W3C `date` data type description.

xf:get-month-from-date

Extracts the month from `$date-var`.

If the value of `$date-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:get-month-from-date(xs:date? $date-var) →xs:integer?`

Arguments

Data Type	Argument	Description
`xs:date?`	`$date-var`	Contains a representation of the date.

Returns

Returns the month as an integer from `$date-var`.

Examples

Simple

When you invoke the following query:

```
<month>{get-month-from-date("2002-08-30")}</month>
```

The preceding query generates the following result:

```
<month>8</month>
```

Related Topics

W3C `get-month-from-date` function description.

W3C `date` data type description.

xf:get-day-from-date

Extracts the day from `$date-var`.

If the value of `$date-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xf:get-day-from-date(xs:date? $date-var) →xs:integer?
```

Arguments

Data Type	Argument	Description
`xs:date?`	`$date-var`	Contains a representation of the date.

Returns

Returns the day as an integer from `$date-var`.

Examples

Simple

When you invoke the following query:

```
<day>{xf:get-day-from-date("2002-08-30")}</day>
```

The preceding query generates the following result:

```
<day>30</day>
```

Related Topics

W3C `get-day-from-date` function description.

W3C `date` data type description.

xf:get-timezone-from-date

Extracts the current timezone from `$date-var`.

If `$date-var` does not contain a timezone, the empty sequence is returned.

If the value of `$date-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xf:get-timezone-from-date(xs:date? $date-var) →xs:string?
```

Arguments

Data Type	Argument	Description
`xs:date?`	`$date-var`	Contains a representation of the date.

Returns

Returns the current timezone as a string from `$date-var`.

Returns an empty sequence, if `$date-var` does not contain a timezone. (See examples below.)

Examples

Timezone

The following example uses the `get-timezone-from-date` function with a timezone:

```
<tz>{xf:get-timezone-from-date(xs:date("2002-08-30-05:00"))}</tz>
```

The preceding query generates the following result:

```
<tz>-05:00</tz>
```

In the preceding query, the `-05:00` string specifies the time is specified in the Eastern Standard timezone which is 5 hours behind Coordinated Universal Time (UTC).

UTC Timezone

The following example uses the `get-timezone-from-date` function with a timezone:

```
<tz>{xf:get-timezone-from-date(xs:date("2002-08-30Z"))}</tz>
```

The preceding query generates the following result:

```
<tz>00:00</tz>
```

In this preceding query, the `Z` means the time is being specified in Coordinated Universal Time (UTC), so no timezone is reported.

No Timezone

The following is an example of using the `get-timezone-from-date` function with no timezone specified:

```
<tz>{xf:get-timezone-from-date(xs:date("2002-08-30"))}</tz>
```

The preceding query generates the following result:

```
<tz/>
```

Related Topics

W3C `get-timezone-from-date` function description.

W3C `date` data type description.

xf:get-hours-from-time

Extracts the hours from `$time-var`.

If the value of `$time-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:get-hours-from-time(xs:time? $time-var) →xs:integer?`

Arguments

Data Type	Argument	Description
`xs:time?`	`$time-var`	Contains a representation of time.

Returns

Returns the hours as an integer from `$time-var`.

Examples

Simple

The following is a simple example using the `get-hours-from-time` function:

```
<hours>{xf:get-hours-from-time("22:21:01")}</hours>
```

The preceding query generates the following result:

```
<hours>22</hours>
```

Timezone

The following example uses the `get-hours-from-time` function with a timezone:

```
<hours>{xf:get-hours-from-time("14:21:01-05:00")}</hours>
```

The preceding query generates the following result:

```
<hours>19</hours>
```

In the preceding query, the `-05:00` string specifies the time is specified in the Eastern Standard timezone which is 5 hours behind Coordinated Universal Time (UTC). The hours are reported in Coordinated Universal Time (UTC), so 5 hours are added to 14 hours of the Eastern Standard timezone, resulting in 19 hours in Coordinated Universal Time (UTC).

Related Topics

W3C `get-hours-from-time` function description.

W3C `time` data type description.

xf:get-minutes-from-time

Extracts the minutes from `$time-var`.

If the value of `$time-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xf:get-minutes-from-time(xs:time? $time-var) →xs:integer?
```

Arguments

Data Type	Argument	Description
`xs:time?`	`$time-var`	Contains a representation of time.

Returns

Returns the minutes as an integer from `$time-var`.

Examples

Simple

The following is a simple example using the `get-minutes-from-time` function:

```
<minutes>{xf:get-minutes-from-time("22:21:01")}</minutes>
```

The preceding query generates the following result:

```
<minutes>21</minutes>
```

Timezone

The following example uses the `get-minutes-from-time` function with a timezone:

```
<minutes>{xf:get-minutes-from-time("14:21:01-05:00")}</minutes>
```

The preceding query generates the following result:

```
<minutes>21</minutes>
```

Related Topics

W3C `get-minutes-from-time` function description.

W3C `time` data type description.

xf:get-seconds-from-time

Extracts the seconds from `$time-var`.

If the value of `$time-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xf:get-seconds-from-time(xs:time? $time-var) →xs:decimal?
```

Arguments

Data Type	Argument	Description
`xs:time?`	`$time-var`	Contains a representation of time.

Returns

Returns the seconds as an decimal from `$time-var`.

Examples

Simple

The following is a simple example using the `get-seconds-from-time` function:

```
<seconds>{xf:get-seconds-from-time("22:21:01")}</seconds>
```

The preceding query generates the following result:

```
<seconds>1</seconds>
```

Timezone

The following example uses the `get-seconds-from-time` function with a timezone:

```
<seconds>{xf:get-seconds-from-time("14:21:01-05:00")}</seconds>
```

The preceding query generates the following result:

```
<seconds>1</seconds>
```

Related Topics

W3C `get-seconds-from-time` function description.

W3C `time` data type description.

xf:get-timezone-from-time

Extracts the current timezone from `$time-var`.

If `$time-var` does not contain a timezone, the empty sequence is returned.

If the value of `$time-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:get-timezone-from-time(xs:time? $time-var)` → `xs:string?`

Arguments

Data Type	Argument	Description
`xs:time?`	`$time-var`	Contains a representation of the date and time.

Returns

Returns the current timezone as a string from `$time-var`.

Returns an empty sequence, if `$time-var` does not contain a timezone. (See examples below.)

Examples

Timezone

The following example uses the `get-timezone-from-time` function with a timezone:

```
<tz>{xf:get-timezone-from-time(xs:time("14:21:01-05:00"))}</tz>
```

The preceding query generates the following result:

```
<tz>-05:00</tz>
```

In the preceding query, the `-05:00` string specifies the time is specified in the Eastern Standard timezone which is 5 hours behind Coordinated Universal Time (UTC).

UTC Timezone

The following example uses the `get-timezone-from-time` function with a timezone:

```
<tz>{get-timezone-from-time(xs:time("14:21:01Z"))}</tz>
```

The preceding query generates the following result:

```
<tz>00:00</tz>
```

In this preceding query, the `Z` means the time is being specified in Coordinated Universal Time (UTC), so no timezone is reported.

No Timezone

The following is an example of using the `get-timezone-from-time` function with no timezone specified:

```
<tz>{xf:get-timezone-from-time(xs:time("22:21:01"))}</tz>
```

Returns an empty sequence, because `$time-var` does not contain a timezone.

Related Topics

W3C `get-timezone-from-time` function description.

W3C `time` data type description.

xf:add-timezone-to-dateTime

Adds a time zone to a `dateTime` value. The timezone added to the `dateTime` value is either the implicit time zone or passed in with the optional argument: `$dayTimeDuration-var`.

Note: The implicit time zone is obtained from the current environment. For example, if the time zone specified on your machine is the PSD (Pacific Daylight Savings), the implicit time zone would be `-07:00`.

Adds a time zone to a `dateTime` value by invoking the following steps:

1. If the specified `dateTime` value already has a time zone value, that time zone is removed from the `dateTime` value. Since the purpose of the `add-timezone-to-dateTime` function is to add a timezone to a `dateTime` value without a timezone, in most cases the passed in `dateTime` value (argument: `$dateTime-var`) will have not have a time zone, so this step will be ignored as shown in the preceding examples.

2. Adds the time zone, specified by either the optional argument `$dayTimeDuration-var` or the implicit time, to the `dateTime` value (argument: `$dateTime-var`).

3. Converts the new `dateTime` value generated by the previous step to a Universal Coordinated Time (UTC) time zone value.

Signatures

`xf:add-timezone-to-dateTime(xs:dateTime $dateTime-var) →xs:dateTime` `xf:add-timezone-to-dateTime(xs:dateTime $dateTime-var, xf:dayTimeDuration, $dayTimeDuration-var) →xs:dateTime`

Arguments

Data Type	Argument	Description
`xs:dateTime?`	`$dateTime-var`	Contains a representation of the date and time.
`xf:dayTimeDuration`	`$dayTimeDuration-var`	Time zone to add to `$dateTime-var`. (Optional, if not specified the implicit time zone is used).

Returns

Returns a `dateTime` with a time zone.

If `$dateTime-var` contains a time zone and the optional argument `$dayTimeDuration-var` is not specified, the passed in date and time are returned with no conversion.

Examples

Adding the Specified Timezone to the dateTime Value

The following example adds the specified time zone to the specified `dateTime` value. In this example, the specified `dateTime` value: `2002-12-06T12:00:00`, initially does not have a timezone zone associated with it.

Adding the specified time zone to the specified `dateTime` value, by invoking `xf:add-timezone-to-dateTime(xs:dateTime("2002-12-06T12:00:00", dayTimeDuration("-PT7H")))`, causes the following internal conversion steps:

1. In this example, the time zone is specified with the `dayTimeDuration` string: `-PT7H`, which is the Pacific Daylight Savings Time (PST) time zone (`-07:00)`. This specified time zone: `-07:00` is added to the specified `dateTime` value: `2002-12-06T12:00:00` resulting in the following internal `dateTime` value: `2002-12-06T12:00:00-07:00`.
2. This new `dateTime` value: `2002-12-06T19:00:00-07:00` is converted to Universal Coordinated Time (UTC), resulting in the following `dateTime` value: `2002-12-06T19:00:00Z`, as shown in the following example query:

```
let $dateTimeWithNoTimezone := xs:dateTime("2002-12-06T12:00:00")
return
<result>

<dateTimeWithNoTimezone>{$dateTimeWithNoTimezone}</dateTimeWithNoTimezone>
       <dateTimeWithTimeZoneAdded>{
xf:add-timezone-to-dateTime(xs:dateTime($dateTimeWithNoTimezone),
       xf:dayTimeDuration("-PT7H")) }</dateTimeWithTimeZoneAdded>
</result>
```

The preceding query produces the following result:

```
<result>

<dateTimeWithNoTimezone>2002-12-06T12:00:00</dateTimeWithNoTimezone>

<dateTimeWithTimeZoneAdded>2002-12-06T19:00:00Z</dateTimeWithTimeZoneAdded
>
</result>
```

Note: The `Z` at the end of the `2002-12-06T19:00:00Z` value specifies that the `dateTime` value is in UTC time.

Adding the Implicit Timezone to the dateTime Value

The following example adds the implicit time zone to the specified `dateTime` value. In this example, the specified `dateTime` value: `2002-12-06T12:00:00`, initially does not have a timezone zone associated with it.

In this example, the implicit time zone is assumed to be `-07:00`, the Pacific Daylight Savings Time (PST) time zone. (The implicit time zone is the default time zone for the current machine.)

Adding the implicit time zone to the specified `dateTime` value, by invoking `xf:add-timezone-to-dateTime(xs:dateTime("2002-12-06T12:00:00"))`, causes the following internal conversion steps:

1. The implicit time zone: `-07:00` is added to the specified `dateTime` value: `2002-12-06T12:00:00` resulting in the following internal `dateTime` value: `2002-12-06T12:00:00-07:00`.

2. This new `dateTime` value: `2002-12-06T19:00:00-07:00` is converted to Universal Coordinated Time (UTC), resulting in the following `dateTime` value: `2002-12-06T19:00:00Z`, as shown in the following example query:

```
let $dateTimeWithNoTimezone := xs:dateTime("2002-12-06T12:00:00")
return
<result>

<dateTimeWithNoTimezone>{$dateTimeWithNoTimezone}</dateTimeWithNoTimezone>
       <dateTimeWithTimeZoneAdded>{
xf:add-timezone-to-dateTime(xs:dateTime($dateTimeWithNoTimezone)) }
       </dateTimeWithTimeZoneAdded>
</result>
```

The preceding query produces the following result:

```
<result>

<dateTimeWithNoTimezone>2002-12-06T12:00:00</dateTimeWithNoTimezone>

<dateTimeWithTimeZoneAdded>2002-12-06T19:00:00Z</dateTimeWithTimeZoneAdded
>
</result>
```

Note: The `Z` at the end of the `2002-12-06T19:00:00Z` value specifies that the `dateTime` value is in UTC time.

Note: The results of this query maybe be different for your machine because the implicit time zone may be different.

Related Topics

W3C `add-timezone-to-dateTime` function description.

W3C `dateTime` data type description.

W3C `dayTimeDuration` operator description.

xf:remove-timezone-from-dateTime

Removes a time zone from a `dateTime` value. The `dateTime` value with a time zone is localized to either the implicit time zone or to time zone specified by the argument: `$dayTimeDuration-var` and then the timezone indicator is removed.

If the specified `dateTime` value has no time zone associated with it, then the implicit time zone is added to `dateTime` value before the localization described above is done. Since the purpose of the `remove-timezone-to-dateTime` function is to remove a timezone from a `dateTime` value with a timezone, in most cases the passed in `dateTime` value (argument: `$dateTime-var`) will have a time zone, so this step will be ignored as shown in the preceding examples.

Note: The implicit time zone is obtained from the current environment. For example, if the time zone specified on your machine is the PSD (Pacific Daylight Savings), the implicit time zone would be `-07:00`.

Signatures

`xf:remove-timezone-from-dateTime(xs:dateTime $dateTime-var) →xs:dateTime`

`xf:remove-timezone-from-dateTime(xs:dateTime $dateTime-var, xf:dayTimeDuration, $dayTimeDuration-var) →xs:dateTime`

Arguments

Data Type	Argument	Description
`xs:dateTime?`	`$dateTime-var`	Contains a representation of the date and time.
`xf:dayTimeDuration`	`$dayTimeDuration-var`	Time zone to remove from `$dateTime-var`. (Optional, if not specified the implicit time zone is used).

Returns

Returns a `dateTime` without a time zone.

If `$dateTime-var` does not contain a time zone and optional argument `$dayTimeDuration-var` is not specified, the passed in date and time are returned with no conversion.

Examples

Removing the Specified Timezone From a dateTime Value

The following example removes the specified time zone from the specified `dateTime` value.

In this example, the passed in `dateTime` value: `2002-12-06T12:00:00Z` is specified with the UTC time zone specified by the time zone indicator: `Z`.

The time zone is specified with the `dayTimeDuration` string: `-PT7H`, in the preceding query which is the Pacific Daylight Savings Time (PST) time zone (`-07:00`).

The passed in `dateTime` value: `2002-12-06T12:00:00Z` specified with the UTC time zone is localized to PST time zone and the time zone indicator (`Z`) is removed, as shown in the following example query:

```
let $dateTimeWithUTCTimezone := xs:dateTime("2002-12-06T12:00:00Z")
return
<result>

<dateTimeWithUTCTimezone>{$dateTimeWithUTCTimezone}</dateTimeWithUTCTimezo
ne>
       <dateTimeWithTimeZoneAdded>{
xf:remove-timezone-from-dateTime(xs:dateTime($dateTimeWithUTCTimezone,
       xf:dayTimeDuration("-PT7H"))) }</dateTimeWithTimeZoneAdded>
</result>
```

The preceding query produces the following result:

```
<result>

<dateTimeWithUTCTimezone>2002-12-06T12:00:00Z</dateTimeWithUTCTimezone>

<dateTimeWithTimeZoneAdded>2002-12-06T05:00:00</dateTimeWithTimeZoneAdded>
</result>
```

Removing the Implicit Timezone From the dateTime Value

The following example removes the implicit time zone from the specified `dateTime` value. In this example, the passed in `dateTime` value: `2002-12-06T12:00:00Z` is specified with the UTC time zone specified by the time zone indicator: `Z`.

In this example, the implicit time zone is assumed to be `-07:00`, the Pacific Daylight Savings Time (PST) time zone. (The implicit time zone is the default time zone for the current machine.)

The passed in `dateTime` value: `2002-12-06T12:00:00Z` specified with the UTC time zone is localized to PST time zone and the time zone indicator (`Z`) is removed, as shown in the following example query:

```
let $dateTimeWithUTCTimezone := xs:dateTime("2002-12-06T12:00:00Z")
return
<result>
```

```
<dateTimeWithUTCTimezone>{$dateTimeWithUTCTimezone}</dateTimeWithUTCTimezo
ne>
       <dateTimeWithTimeZoneAdded>{
xf:remove-timezone-from-dateTime(xs:dateTime($dateTimeWithUTCTimezone)) }
       </dateTimeWithTimeZoneAdded>
</result>
```

The preceding query produces the following result:

```
<result>

<dateTimeWithUTCTimezone>2002-12-06T12:00:00Z</dateTimeWithUTCTimezone>

<dateTimeWithTimeZoneAdded>2002-12-06T05:00:00</dateTimeWithTimeZoneAdded>
</result>
```

Related Topics

W3C `remove-timezone-from-dateTime` function description.

W3C `dateTime` data type description.

W3C `dayTimeDuration` operator description.

xf:add-timezone-to-date

Adds a time zone to a `date` value. The timezone added to the `date` value is either the implicit time zone or passed in with the optional argument: `$dayTimeDuration-var`.

Note: The implicit time zone is obtained from the current environment. For example, if the time zone specified on your machine is the PSD (Pacific Daylight Savings), the implicit time zone would be `-07:00`.

Adds a time zone to a `date` value by invoking the following steps:

1. If the specified `date` value already has a time zone value, that time zone is removed from the `date` value. Since the purpose of the `add-timezone-to-date` function is to add a timezone to a `date` value without a timezone, in most cases the passed in `date` value (argument: `$date-var`) will have not have a time zone, so this step will be ignored as shown in the preceding examples.

2. Adds the time zone, specified by either the optional argument `$dayTimeDuration-var` or the implicit time, to the `date` value (argument: `$date-var`).
3. Converts the new `date` value generated by the previous step to a Universal Coordinated Time (UTC) time zone value.

Signatures

`xf:add-timezone-to-date(xs:date $date-var) →xs:date`

`xf:add-timezone-to-date(xs:date $date-var, xf:dayTimeDuration $dayTimeDuration-var) →xs:date`

Arguments

Data Type	**Argument**	**Description**
`xs:date?`	`$date-var`	Contains a representation of the date.
`xf:dayTimeDuration`	`$dayTimeDuration-var`	Time zone to add to `$date-var`. (Optional, if not specified the implicit time zone is used).

Returns

Returns a `date` with a time zone.

If `$date-var` contains a time zone and optional argument `$dayTimeDuration-var` is not specified, the passed in date and time are returned with no conversion.

Examples

Adding the Specified Timezone to the date Value

The following example adds the specified time zone to the specified `date` value. In this example, the specified `date` value: `2002-12-06`, initially does not have a timezone zone associated with it.

Adding the specified time zone to the specified `date` value, by invoking `xf:add-timezone-to-date(xs:date("2002-12-06", dayTimeDuration("-PT7H")))`, causes the following internal conversion steps:

1. In this example, the time zone is specified with the `dayTimeDuration` string: `-PT7H`, which is the Pacific Daylight Savings Time (PST) time zone (`-07:00)`. This specified time zone: `-07:00` is added to the specified `date` value: `2002-12-06` resulting in the following internal `date` value: `2002-12-06-07:00`.
2. This new `date` value: `2002-12-06-07:00` is converted to Universal Coordinated Time (UTC), resulting in the following `date` value: `2002-12-06Z`, as shown in the following example query:

```
let $dateWithNoTimezone := xs:date("2002-12-06")
return
<result>
       <dateWithNoTimezone>{$dateWithNoTimezone}</dateWithNoTimezone>
       <dateWithTimeZoneAdded>{
xf:add-timezone-to-date(xs:date($dateWithNoTimezone),
       xf:dayTimeDuration("-PT7H")) }</dateWithTimeZoneAdded>
</result>
```

The preceding query produces the following result:

```
<result>
       <dateWithNoTimezone>2002-12-06</dateWithNoTimezone>
       <dateWithTimeZoneAdded>2002-12-06Z</dateWithTimeZoneAdded>
</result>
```

Note: The `Z` at the end of the `2002-12-06Z` value specifies that the `date` value is in UTC time.

Adding the Implicit Timezone to the date Value

The following example adds the implicit time zone to the specified `date` value. In this example, the specified `date` value: `2002-12-06`, initially does not have a timezone zone associated with it.

In this example, the implicit time zone is assumed to be `-07:00`, the Pacific Daylight Savings Time (PST) time zone. (The implicit time zone is the default time zone for the current machine.)

Adding the implicit time zone to the specified `date` value, by invoking `xf:add-timezone-to-date(xs:date("2002-12-06"))`, causes the following internal conversion steps:

1. The implicit time zone: `-07:00` is added to the specified `date` value: `2002-12-06` resulting in the following internal `date` value: `2002-12-06-07:00`.

2. This new `date` value: `2002-12-06-07:00` is converted to Universal Coordinated Time (UTC), resulting in the following `date` value: `2002-12-06Z`, as shown in the following example query:

```
let $dateWithNoTimezone := xs:date("2002-12-06")
return
<result>
       <dateWithNoTimezone>{$dateWithNoTimezone}</dateWithNoTimezone>
       <dateWithTimeZoneAdded>{
xf:add-timezone-to-date(xs:date($dateWithNoTimezone)) }
       </dateWithTimeZoneAdded>
</result>
```

The preceding query produces the following result:

```
<result>
       <dateWithNoTimezone>2002-12-06</dateWithNoTimezone>
       <dateWithTimeZoneAdded>2002-12-06Z</dateWithTimeZoneAdded>
</result>
```

Note: The `Z` at the end of the `2002-12-06Z` value specifies that the `date` value is in UTC time.

Note: The results of this query maybe be different for your machine because the implicit time zone may be different.

Related Topics

W3C `add-timezone-to-date` function description.

W3C `date` data type description.

W3C `dayTimeDuration` operator description.

xf:add-timezone-to-time

Adds a time zone to a `time` value. The timezone added to the `time` value is either the implicit time zone or passed in with the optional argument: `$dayTimeDuration-var`.

Note: The implicit time zone is obtained from the current environment. For example, if the time zone specified on your machine is the PSD (Pacific Daylight Savings), the implicit time zone would be `-07:00`.

Adds a time zone to a `time` value by invoking the following steps:

1. If the specified `time` value already has a time zone value, that time zone is removed from the `time` value. Since the purpose of the `add-timezone-to-time` function is to add a timezone to a `time` value without a timezone, in most cases the passed in `time` value (argument: `$time-var`) will have not have a time zone, so this step will be ignored as shown in the preceding examples.
2. Adds the time zone, specified by either the optional argument `$dayTimeDuration-var` or the implicit time, to the `time` value (argument: `$time-var`).
3. Converts the new `time` value generated by the previous step to a Universal Coordinated Time (UTC) time zone value.

Signatures

`xf:add-timezone-to-time(xs:time $time-var)` →`xs:time`

`xf:add-timezone-to-time(xs:time $time-var, xf:dayTimeDuration, $dayTimeDuration-var)` →`xs:time`

Arguments

Data Type	Argument	Description
`xs:time`	`$time-var`	Contains a representation of the time.
`xf:dayTimeDuration`	`$dayTimeDuration-var`	Time zone to remove to `$time-var`. (Optional, if not specified the implicit time zone is used).

Returns

Returns a `time` with a time zone.

If `$time-var` contains a time zone and optional argument `$dayTimeDuration-var` is not specified, the passed in date and time are returned with no conversion.

Examples

Adding the Specified Timezone to the time Value

The following example adds the specified time zone to the specified `time` value. In this example, the specified `time` value: `12:00:00`, initially does not have a timezone zone associated with it.

Adding the specified time zone to the specified `time` value, by invoking `xf:date-timezone-to-time(xs:time("12:00:00", dayTimeDuration("-PT7H"))),` causes the following internal conversion steps:

1. In this example, the time zone is specified with the `dayTimeDuration` string: `-PT7H`, which is the Pacific Daylight Savings Time (PST) time zone (`-07:00)`. This specified time zone: `-07:00` is added to the specified `time` value: `12:00:00` resulting in the following internal `time` value: `12:00:00-07:00`.
2. This new `time` value: `19:00:00-07:00` is converted to Universal Coordinated Time (UTC), resulting in the following `time` value: `19:00:00Z`, as shown in the following example query:

```
let $timeWithNoTimezone := xs:time("12:00:00")
return
<result>
       <timeWithNoTimezone>{$timeWithNoTimezone}</timeWithNoTimezone>
       <timeWithTimeZoneAdded>{
xf:add-timezone-to-time(xs:time($timeWithNoTimezone),
       xf:dayTimeDuration("-PT7H")) }</timeWithTimeZoneAdded>
</result>
```

The preceding query produces the following result:

```
<result>
       <timeWithNoTimezone>12:00:00</timeWithNoTimezone>
       <timeWithTimeZoneAdded>19:00:00Z</timeWithTimeZoneAdded>
</result>
```

Note: The `Z` at the end of the `19:00:00Z` value specifies that the `time` value is in UTC time.

Adding the Implicit Timezone to the time Value

The following example adds the implicit time zone to the specified `time` value. In this example, the specified `time` value: `12:00:00`, initially does not have a timezone zone associated with it.

In this example, the implicit time zone is assumed to be `-07:00`, the Pacific Daylight Savings Time (PST) time zone. (The implicit time zone is the default time zone for the current machine.)

Adding the implicit time zone to the specified `time` value, by invoking `xf:add-timezone-to-time(xs:time("12:00:00"))`, causes the following internal conversion steps:

1. The implicit time zone: `-07:00` is added to the specified `time` value: `12:00:00` resulting in the following internal `time` value: `12:00:00-07:00`.
2. This new `time` value: `19:00:00-07:00` is converted to Universal Coordinated Time (UTC), resulting in the following `time` value: `19:00:00Z`, as shown in the following example query:

```
let $timeWithNoTimezone := xs:time("12:00:00")
return
<result>
       <timeWithNoTimezone>{$timeWithNoTimezone}</timeWithNoTimezone>
       <timeWithTimeZoneAdded>{
xf:add-timezone-to-time(xs:time($timeWithNoTimezone)) }
       </timeWithTimeZoneAdded>
</result>
```

The preceding query produces the following result:

```
<result>
       <timeWithNoTimezone>12:00:00</timeWithNoTimezone>
       <timeWithTimeZoneAdded>19:00:00Z</timeWithTimeZoneAdded>
</result>
```

Note: The `Z` at the end of the `19:00:00Z` value specifies that the `time` value is in UTC time.

Note: The results of this query maybe be different for your machine because the implicit time zone may be different.

Related Topics

W3C `add-timezone-to-time` function description.

W3C `time` data type description.

W3C `dayTimeDuration` operator description.

xf:remove-timezone-from-time

Removes a time zone from a `time` value. The `time` value with a time zone is localized to either the implicit time zone or to time zone specified by the argument: `$dayTimeDuration-var` and then the timezone indicator is removed.

If the specified `time` value has no time zone associated with it, then the implicit time zone is added to `time` value before the localization described above is done. Since the purpose of the `remove-timezone-to-time` function is to remove a timezone from a `time` value with a timezone, in most cases the passed in `time` value (argument: `$time-var`) will have a time zone, so this step will be ignored as shown in the following examples.

Note: The implicit time zone is obtained from the current environment. For example, if the time zone specified on your machine is the PSD (Pacific Daylight Savings), the implicit time zone would be `-07:00`.

Signatures

`xf:remove-timezone-from-time(xs:time $time-var) →xs:time`

`xf:remove-timezone-from-time(xs:time $time-var, xf:dayTimeDuration, $dayTimeDuration-var) →xs:time`

Arguments

Data Type	Argument	Description
`xs:time`	`$time-var`	Contains a representation of the time.
`xf:dayTimeDuration`	`$dayTimeDuration-var`	Time zone to add to `$time-var` as a duration. (Optional, if not specified the implicit time zone is used).

Returns

Returns a `time` without a time zone.

If `$time-var` does not contain a time zone and optional argument `$dayTimeDuration-var` is not specified, the passed in time is returned with no conversion.

Examples

Removing the Specified Timezone From a time Value

The following example removes the specified time zone from the specified `time` value.

In this example, the passed in `time` value: `12:00:00Z` is specified with the UTC time zone as specified by the time zone indicator: `Z`.

The time zone is specified with the `dayTimeDuration` string: `-PT7H`, in the preceding query which is the Pacific Daylight Savings Time (PST) time zone (`-07:00`).

The passed in `time` value: `12:00:00Z` specified with the UTC time zone is localized to PST time zone and the time zone indicator (`Z`) is removed, as shown in the following example query:

```
let $timeWithUTCTimezone := xs:time("12:00:00Z")
return
<components>
       <timeWithUTCTimezone>{$timeWithUTCTimezone}</timeWithUTCTimezone>
       <timeWithTimeZoneAdded>{
xf:remove-timezone-from-time(xs:time($timeWithUTCTimezone),
       xf:dayTimeDuration("-PT7H")) }</timeWithTimeZoneAdded>
</components>
```

The preceding query produces the following result:

```
<components>
       <timeWithUTCTimezone>12:00:00Z</timeWithUTCTimezone>
       <timeWithTimeZoneAdded>05:00:00</timeWithTimeZoneAdded>
</components>
```

Removing the Implicit Timezone From the time Value

The following example removes the implicit time zone from the specified `time` value. In this example, the passed in `time` value: `12:00:00Z` is specified with the UTC time zone as specified by the time zone indicator: `Z`.

In this example, the implicit time zone is assumed to be `-07:00`, the Pacific Daylight Savings Time (PST) time zone. (The implicit time zone is the default time zone for the current machine.)

The passed in `time` value: `12:00:00Z` specified with the UTC time zone is localized to PST time zone and the time zone indicator (`Z`) is removed, as shown in the following example query:

```
let $timeWithUTCTimezone := xs:time("12:00:00Z")
return
<components>
       <timeWithUTCTimezone>{$timeWithUTCTimezone}</timeWithUTCTimezone>
       <timeWithTimeZoneAdded>{
xf:remove-timezone-from-time(xs:time($timeWithUTCTimezone)) }
       </timeWithTimeZoneAdded>
</components>
```

The preceding query produces the following result:

```
<components>
        <timeWithUTCTimezone>12:00:00Z</timeWithUTCTimezone>
        <timeWithTimeZoneAdded>05:00:00</timeWithTimeZoneAdded>
</components>
```

Related Topics

W3C `remove-timezone-from-time` function description.

W3C `time` data type description.

W3C `dayTimeDuration` operator description.

xf:current-dateTime

Gets the current date and time.

Signatures

```
xf:current-dateTime() →xs:dateTime?
```

Returns

Returns the current date and time as a `dateTime` value.

All invocations of this function in a single outermost XQuery or XPATH expression will report the same date and time.

Examples

Invoke Once

The following simple example query, calls the `current-dateTime` function a single time:

```
<current>{xf:current-dateTime()}</current>
```

If the current date is November 11, 2002 and the current time is 4:23, the preceding XQuery generates the following result:

```
<current>2002-11-11T04:23:14.9030000</current>
```

Invoke Multiple Times

The following example query, invokes the `current-dateTime` function twice:

```
<current>
       <first>{xf:current-dateTime()}</first>
       <second>{xf:current-dateTime()}</second>
</current>
```

If the current date is November 11, 2002 and the current time is 4:23, the preceding XQuery generates the following result:

```
<current>
       <first>2002-11-11T04:23:34.5430000</first>
       <second>2002-11-11T04:23:34.5430000</second>
</current>
```

Note: The same exact time (even seconds) is returned for both invocations of the function.

Related Topics

W3C `current-dateTime` function description.

W3C `dateTime` data type description.

xf:current-date

Gets the current date.

Signatures

`xf:current-date() →xs:date?`

Returns

Returns the current date as a `date` value.

All invocation of this function in a single outermost XQuery or XPATH expression will report the same date.

Examples

The following example query, invokes the `current-date` function:

`<current>{xf:current-date()}</current>`

If the current date is November 11, 2002 and the current time is 4:23, The preceding query generates the following result:

`<current>2002-11-11</current>`

Related Topics

W3C `current-date` function description.

W3C `date` data type description.

xf:current-time

Gets the current time.

Signatures

`xf:current-time() →xs:time?`

Returns

Returns the current date and time as a `time` value.

All invocation of this function in a single outermost XQuery or XPATH expression will report the same time.

Examples

Invoke Once

The following example query, invokes the `current-time` function a single time:

`<current>{xf:current-time()}</current>`

If the current date is November 11, 2002 and the current time is 4:23, The preceding query generates the following result:

`<current>04:23:14.9030000</current>`

Invoke Multiple Times

The following example query, invokes the `current-time` function twice:

```
<current>
<first>{xf:current-time()}</first>
<second>{xf:current-time()}</second>
</current>
```

If the current date is November 11, 2002 and the current time is 4:23, The preceding query generates the following result:

```
<current>
<first>04:23:34.5430000</first>
<second>04:23:34.5430000</second>
</current>
```

Note: The same exact time (even seconds) is returned for both invocations of the function.

Related Topics

W3C `current-time` function description.

W3C `time` data type description.

CHAPTER 11

XQuery Duration Functions Reference

This section provides descriptions of the XQuery duration functions available in the mapper functionality of WebLogic Workshop. You use the mapper functionality to generate queries and to edit these queries to add invocations to these provided XQuery functions. To learn more, see "Invoking Functions or Operators in a Query" in Modifying Links Using the Target Expression Tab in the *Guide to Data Transformation*.

In addition to the XQuery functions and operators available in the mapper functionality, a larger set functions and operators is provided. You can manually add invocations to these functions and operators to queries in the **Source View** of the mapper functionality. For a list of these additional functions and operators, see the XQuery 1.0 and XPath 2.0 Functions and Operators - W3C Working Draft 16 August 2002 available from the W3C Web site at the following URL:

`http://www.w3.org/TR/2002/WD-xquery-operators-20020816`

This section lists the duration functions available from the mapper functionality:

- xf:yearMonthDuration
- xf:dayTimeDuration
- xf:get-years-from-yearMonthDuration
- xf:get-months-from-yearMonthDuration
- xf:get-days-from-dayTimeDuration
- xf:get-hours-from-dayTimeDuration
- xf:get-minutes-from-dayTimeDuration

- xf:get-seconds-from-dayTimeDuration
- xf:get-yearMonthDuration-from-dateTimes
- xf:get-dayTimeDuration-from-dateTimes

xf:yearMonthDuration

Converts `$string-var` (a string in the yearMonthDuration format) to the `yearMonthDuration` data type.

If `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:yearMonthDuration(xs:string $string-var)` → `xf:yearMonthDuration`

Arguments

Data Type	Argument	Description	
`xs:string`	`$string-var`	Represents a string with the duration specified with one of the following formats: • `PyYmM` • `-PyYmM` **Note:** Either one or both of the following substrings: *y*Y or *m*M must be specified. For example, the following are valid durations: `P10Y`, `-P11M`, or `P6Y4M`.	
		`-`	Duration is a negative amount of time. **Note:** If - is not specified, duration is a positive amount of time.
		`P`	The start of a duration string. The `P` must always be specified.
		*y*Y	*y*—number of years in the duration.
			y—number of years in the duration.
		*m*M	*m*—number of months in the duration.
			M—months are specified in the duration.

Returns

Returns a duration of time as a `yearMonthDuration` value.

Examples

yearMonthDuration with Year and Month

Invoking `yearMonthDuration("P1Y2M")` returns a `yearMonthDuration` value corresponding to 1 year and 2 months, as shown in the following example query:

```
let $mydur := xf:yearMonthDuration("P1Y2M")
return
```

```
<components>
       <years>{xf:get-years-from-yearMonthDuration($mydur)}</years>
       <months>{xf:get-months-from-yearMonthDuration($mydur)}</months>
</components>
```

The preceding query, generates the following XML result:

```
<components>
       <years>1</years>
       <months>2</months>
</components>
```

yearMonthDuration with Year

Invoking `yearMonthDuration("P9Y")` returns a `yearMonthDuration` value corresponding to 9 years, as shown in the following example query:

```
let $mydur := xf:yearMonthDuration("P9Y")
return
<components>
       <years>{xf:get-years-from-yearMonthDuration($mydur)}</years>
       <months>{xf:get-months-from-yearMonthDuration($mydur)}</months>
</components>
```

The preceding query, generates the following XML result:

```
<components>
       <years>9</years>
       <months>0</months>
</components>
```

yearMonthDuration with Negative Month

Invoking `yearMonthDuration("-P10M")` returns a `yearMonthDuration` value corresponding to a negative 10 months, as shown in the following example query:

```
let $mydur := xf:yearMonthDuration("-P10M")
return
<components>
       <years>{xf:get-years-from-yearMonthDuration($mydur)}</years>
       <months>{xf:get-months-from-yearMonthDuration($mydur)}</months>
</components>
```

The preceding query, generates the following XML result:

```
<components>
       <years>0</years>
       <months>-10</months>
</components>
```

Related Topics

W3C `yearMonthDuration` data type description.

xf:dayTimeDuration

Converts `$string-var` (a string in the dayTimeDuration format) to the `dayTimeDuration` data type.

If `$string-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:dayTimeDuration(xs:string $string-var)` → `xf:dayTimeDuration`

Arguments

Data Type	Argument	Description	
`xs:string`	`$string-var`	Represents a string with the duration specified with one of the following formats: • *d*DT*h*H*i*M*s*S • -*d*DT*h*H*i*M*s*S **Note:** Specifying the number days, hours, minutes, or seconds is optional—any of the substrings: *d*D, *h*H, *i*M, or *s*S do not have to be specified. For example, the following are valid durations: `P10Y`, `P1D`, `-P11M`, `-P10Y7D`, `P2YT5H`, or `P6YT5H10S`.	
		`-`	Duration is a negative amount of time. **Note:** If - is not specified, duration is a positive amount of time.
		`P`	The start of a duration string. The `P` must always be specified.
		*d*D	*d*—number of days in the duration.
			D—days are specified in the duration.
		`T`	The start of the time part of the duration string. The `T` must be specified if any minutes, hours, or seconds (*h*H, *i*M, or *s*S) are specified.
		*h*H	*h*—number of hours in the duration.
			H—years are specified in the duration.
		*i*M	*i*—number of minutes in the duration.
			M—minutes are specified in the duration.
		*s*S	*s*—number of seconds in the duration.
			S—seconds are specified in the duration.

Returns

Returns a duration of time as a `dayTimeDuration` value.

Examples

dayTimeDuration with All Components

Invoking `dayTimeDuration("P4DT9H8M20S")` returns a `dayTimeDuration` value corresponding to 4 days, 9 hours, 8 minutes, and 20 seconds, as shown in the following example query:

```
let $mydur := xf:dayTimeDuration("P4DT9H8M20S")
return
<components>
       <days>{xf:get-days-from-dayTimeDuration($mydur)}</days>
       <hours>{xf:get-hours-from-dayTimeDuration($mydur)}</hours>
       <minutes>{xf:get-minutes-from-dayTimeDuration($mydur)}</minutes>
       <seconds>{xf:get-seconds-from-dayTimeDuration($mydur)}</seconds>
</components>
```

The preceding query, generates the following XML result:

```
<components>
       <days>4</days>
       <hours>9</hours>
       <minutes>8</minutes>
       <seconds>20</seconds>
</components>
```

dayTimeDuration with Just Hours and Seconds

Invoking `dayTimeDuration("PT2H20S")` returns a `dayTimeDuration` value corresponding to 2 hours and 20 seconds, as shown in the following example query:

```
let $mydur := xf:dayTimeDuration("PT2H20S")
return
<components>
       <days>{xf:get-days-from-dayTimeDuration($mydur)}</days>
       <hours>{xf:get-hours-from-dayTimeDuration($mydur)}</hours>
       <minutes>{xf:get-minutes-from-dayTimeDuration($mydur)}</minutes>
       <seconds>{xf:get-seconds-from-dayTimeDuration($mydur)}</seconds>
</components>
```

The preceding query, generates the following XML result:

```
<components>
       <days>0</days>
       <hours>2</hours>
       <minutes>0</minutes>
       <seconds>20</seconds>
</components>
```

dayTimeDuration with Just Negative Days

Invoking `dayTimeDuration("-P10D")` returns a `dayTimeDuration` value corresponding to negative 10 days, as shown in the following example query:

```
let $mydur := xf:dayTimeDuration("-P10D")
return
<components>
       <days>{xf:get-days-from-dayTimeDuration($mydur)}</days>
       <hours>{xf:get-hours-from-dayTimeDuration($mydur)}</hours>
       <minutes>{xf:get-minutes-from-dayTimeDuration($mydur)}</minutes>
       <seconds>{xf:get-seconds-from-dayTimeDuration($mydur)}</seconds>
</components>
```

The preceding query, generates the following XML result:

```
<components>
       <days>-10</days>
       <hours>0</hours>
       <minutes>0</minutes>
       <seconds>0</seconds>
</components>
```

Related Topics

W3C `dayTimeDuration` data type description.

xf:get-years-from-yearMonthDuration

Extracts the number of years from the years component of `$yearMonthDuration-var`.

If the value of `$yearMonthDuration-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:get-years-from-yearMonthDuration(xf:yearMonthDuration? $yearMonthDuration-var)` →`xs:integer?`

Arguments

Data Type	Argument	Description
`xf:yearMonthDuration?`	`$yearMonthDuration-var`	Contains a representation of a time duration which can contain years and months.

Returns

Returns the number of year as an integer from years component of `$yearMonthDuration-var`.

Examples

Get Years from yearMonthDuration with Years and Months

```
<years>{xf:get-years-from-yearMonthDuration(xf:yearMonthDuration("P2Y13M")
)}</years>
```

The preceding query generates the following result:

```
<years>2</years>
```

Note: Even though 13 months is specified in the month component (`13M`) of the `yearMonthDuration` creation string (adding up to an additional year), only 2 years is returned as originally specified by the years component (`2Y`).

Get Years from yearMonthDuration with Just Negative Years

```
<years>{xf:get-years-from-yearMonthDuration(xf:yearMonthDuration("-P5Y"))}
</years>
```

The preceding query generates the following result:

```
<years>-5</years>
```

Get Years from yearMonthDuration with Just Months

```
<years>{xf:get-years-from-yearMonthDuration(xf:yearMonthDuration("P10M"))}
</years>
```

The preceding query generates the following result:

```
<years>0</years>
```

Related Topics

W3C `get-years-from-yearMonthDuration` function description.

W3C `yearMonthDuration` data type description.

xf:get-months-from-yearMonthDuration

Extracts the number of months from the months component of `$yearMonthDuration-var`.

If the value of `$yearMonthDuration-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xf:get-months-from-yearMonthDuration(xf:yearMonthDuration?
$yearMonthDuration-var) →xs:integer?
```

Arguments

Data Type	Argument	Description
`xf:yearMonthDuration?`	`$yearMonthDuration-var`	Contains a representation of a time duration which can contain years and months.

Returns

Returns the number of months as an integer from months component of `$yearMonthDuration-var`.

Examples

Get Months from yearMonthDuration with Years and Months

```
<months>{xf:get-months-from-yearMonthDuration(xf:yearMonthDuration("P2Y10M
"))}</months>
```

The preceding query generates the following result:

```
<months>10</months>
```

Get Months from yearMonthDuration with Just Negative Months

```
<months>{xf:get-months-from-yearMonthDuration(xf:yearMonthDuration("-P5M")
)}</months>
```

The preceding query generates the following result:

```
<months>-5</months>
```

Related Topics

W3C `get-months-from-yearMonthDuration` function description.

W3C `yearMonthDuration` data type description.

xf:get-days-from-dayTimeDuration

Extracts the number of days from the days component of `$dayTimeDuration-var`.

If the value of `$dayTimeDuration-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xf:get-days-from-dayTimeDuration(xf:dayTimeDuration? $dayTimeDuration-var)
→xs:integer?
```

Arguments

Data Type	Argument	Description
`xf:dayTimeDuration?`	`$dayTimeDuration-var`	Contains a representation of a time duration which can contain days, hours, minutes, and seconds.

Returns

Returns the number of days as an integer from days component of `$dayTimeDuration-var`.

Examples

Get Days from dayTimeDuration with All Components

```
<days>{xf:get-days-from-dayTimeDuration(xf:dayTimeDuration("P7DT25H8M20S")
)}</days>
```

The preceding query generates the following result:

```
<days>7</days>
```

Note: Even though 25 hours is specified in the hours component (`25H`) of the `dayTimeDuration` creation string (adding up to an additional day), only 7 days are returned as originally specified by the days component (`7D`).

Get Days from dayTimeDuration with Just Negative Days

```
<days>{xf:get-days-from-dayTimeDuration(xf:dayTimeDuration("-PT4D"))}</day
s>
```

The preceding query generates the following result:

```
<days>-4</days>
```

Get Days from dayTimeDuration with No Days

```
<days>{xf:get-days-from-dayTimeDuration(xf:dayTimeDuration("PT2H20S"))}</d
ays>
```

The preceding query generates the following result:

```
<days>0</days>
```

Related Topics

W3C `get-days-from-dayTimeDuration` function description.

W3C `dayTimeDuration` data type description.

xf:get-hours-from-dayTimeDuration

Extracts the number of hours from the hours component of `$dayTimeDuration-var`.

If the value of `$dayTimeDuration-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

`xf:get-hours-from-dayTimeDuration(xf:dayTimeDuration? $dayTimeDuration-var) →xs:integer?`

Arguments

Data Type	Argument	Description
`xf:dayTimeDuration?`	`$dayTimeDuration-var`	Contains a representation of a time duration which can contain days, hours, minutes, and seconds.

Returns

Returns the number as hours as an integer from hours component of `$dayTimeDuration-var`.

Examples

Get Hours from dayTimeDuration with All Components

```
<hours>{xf:get-hours-from-dayTimeDuration(xf:dayTimeDuration("P7DT9H65M20S
"))}</hours>
```

The preceding query generates the following result:

```
<hours>9</hours>
```

Note: Even though 65 minutes is specified in the minutes component (`65M`) of the `dayTimeDuration` creation string (adding up to an additional hour), only 9 hours are returned as originally specified by the hours component (`9H`).

Get Hours from dayTimeDuration with Just Negative Hours

```
<hours>{xf:get-hours-from-dayTimeDuration(xf:dayTimeDuration("-PT3H"))}</h
ours>
```

The preceding query generates the following result:

```
<hours>-3</hours>
```

Get Hours from dayTimeDuration with No Hours

```
<hours>{xf:get-hours-from-dayTimeDuration(xf:dayTimeDuration("P2DT20S"))}<
/hours>
```

The preceding query generates the following result:

```
<hours>0</hours>
```

Related Topics

W3C `get-hours-from-dayTimeDuration` function description.

W3C `dayTimeDuration` data type description.

xf:get-minutes-from-dayTimeDuration

Extracts the number of minutes from the minutes component of `$dayTimeDuration-var`.

If the value of `$dayTimeDuration-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xf:get-minutes-from-dayTimeDuration(xf:dayTimeDuration?
$dayTimeDuration-var) →xs:integer?
```

Arguments

Data Type	Argument	Description
`xf:dayTimeDuration`	`$dayTimeDuration-var`	Contains a representation of a time duration which can contain days, hours, minutes, and seconds.

Returns

Returns the number as minutes as an integer from minutes component of `$dayTimeDuration-var`.

Examples

Get Minutes from dayTimeDuration with All Components

```
<minutes>{xf:get-minutes-from-dayTimeDuration(xf:dayTimeDuration("P7DT9H12
M65S"))}</minutes>
```

The preceding query generates the following result:

```
<minutes>12</minutes>
```

Note: Even though 65 seconds is specified in the seconds component (`65S`) of the `dayTimeDuration` creation string (adding up to an additional minute), only 12 minutes are returned as originally specified by the minutes component (`12M`).

Get Minutes from dayTimeDuration with Just Negative Minutes

```
<minutes>{xf:get-minutes-from-dayTimeDuration(xf:dayTimeDuration("-PT3M"))
}</minutes>
```

The preceding query generates the following result:

```
<minutes>-3</minutes>
```

Get Minutes from dayTimeDuration with No Minutes

```
<minutes>{xf:get-minutes-from-dayTimeDuration(xf:dayTimeDuration("P2DT20S"
))}</minutes>
```

The preceding query generates the following result:

```
<minutes>0</minutes>
```

Related Topics

W3C `get-minutes-from-dayTimeDuration` function description.

W3C `dayTimeDuration` data type description.

xf:get-seconds-from-dayTimeDuration

Extracts the number of seconds from the seconds component of `$dayTimeDuration-var`.

If the value of `$dayTimeDuration-var` is the empty sequence, the empty sequence is returned. The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

Signatures

```
xf:get-seconds-from-dayTimeDuration(xf:dayTimeDuration?
$dayTimeDuration-var) →xs:decimal?
```

Arguments

Data Type	Argument	Description
`xf:dayTimeDuration?`	`$dayTimeDuration-var`	Contains a representation of a time duration which can contain days, hours, minutes, and seconds.

Returns

Returns the number as seconds as an decimal from seconds component of `$dayTimeDuration-var`.

Examples

Get Seconds from dayTimeDuration with All Components

```
<seconds>{xf:get-seconds-from-dayTimeDuration(xf:dayTimeDuration("P7DT9H12
M14S"))}</seconds>
```

The preceding query generates the following result:

```
<seconds>14</seconds>
```

Get Seconds from dayTimeDuration with Just Negative Seconds

```
<seconds>{xf:get-seconds-from-dayTimeDuration(xf:dayTimeDuration("-PT7S"))
}</seconds>
```

The preceding query generates the following result:

```
<seconds>-7</seconds>
```

Get Seconds from dayTimeDuration with No Seconds

```
<seconds>{xf:get-seconds-from-dayTimeDuration(xf:dayTimeDuration("P2DT6M")
)}</seconds>
```

The preceding query generates the following result:

```
<seconds>0</seconds>
```

Related Topics

W3C `get-seconds-from-dayTimeDuration` function description.

W3C `dayTimeDuration` data type description.

xf:get-yearMonthDuration-from-dateTimes

Computes the time difference between `$dateTime-var1` and `$dateTime-var2` and returns it as a `yearMonthDuration` value.

If the value of `$date-var1` follows in time the value of `$date-var2`, then the returned value is a negative duration. (The date specified in `$dateTime-var1` comes before the date specified in `$dateTime-var2`.) To learn more, see the following Negative Difference example.

The time difference between the values of two `dateTime` arguments could include years, months, minutes, and seconds but a `yearMonthDuration` value can only contain years and months, so the time difference is rounded to nearest month. If the time difference between the two `dateTime` arguments is greater than or equal to 15.5 days (15 days and 12 hours), the month duration is rounded up. To learn more, see the following Round Up and Not Enough to Round Up examples.

If the value of `$date-var1` or `$date-var2` is the empty sequence, the following error is displayed:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method: Type error in function subtract-dates invocation: expected type
[date@http://www.w3.org/2001/XMLSchema], given type empty
```

Signatures

```
xf:get-yearMonthDuration-from-dateTimes(xs:dateTime $dateTime-var1,
xs:dateTime $dateTime-var2) →xf:yearMonthDuration
```

Arguments

Data Type	Argument	Description
`xs:dateTime`	`$dateTime-var1`	Contains a representation of the date and time.
`xs:dateTime`	`$dateTime-var2`	Contains a representation of the date and time.

Returns

Returns the time difference between `$dateTime-var1` and `$dateTime-var2` as a `yearMonthDuration` value.

Returns a negative `yearMonthDuration` value if `$dateTime-var1` follows in time `$dateTime-var2`. (The date specified in `$dateTime-var1` comes before the date specified in `$dateTime-var2`.) To learn more, see the following Negative Difference example.

Examples

Positive Difference

The following example query returns a positive years and months duration because the date specified in `$datetime-var1` comes after the date specified in `$datetime-var2`:

```
let $dateTime-var1 := xs:dateTime("2002-12-26T00:00:01")
return
let $dateTime-var2 := xs:dateTime("2001-11-26T00:00:01")
return
let $mydur := xf:get-yearMonthDuration-from-dateTimes($dateTime-var1,
$dateTime-var2)
return
<result>
       <years>{xf:get-years-from-yearMonthDuration($mydur)}</years>
       <months>{xf:get-months-from-yearMonthDuration($mydur)}</months>
</result>
```

The preceding query generates the following result:

```
<result>
       <years>1</years>
       <months>1</months>
</result>
```

Negative Difference

The following example query returns a negative years and month duration because the date specified in `$dateTime-var1` comes before the date specified in `$dateTime-var2`:

```
let $dateTime-var1 := xs:dateTime("2001-11-26T00:00:01")
return
let $dateTime-var2 := xs:dateTime("2002-12-26T00:00:01")
return
let $mydur := xf:get-yearMonthDuration-from-dateTimes($dateTime-var1,
$dateTime-var2)
return
<result>
       <years>{xf:get-years-from-yearMonthDuration($mydur)}</years>
       <months>{xf:get-months-from-yearMonthDuration($mydur)}</months>
</result>
```

The preceding query generates the following result:

```
<result>
       <years>-1</years>
       <months>-1</months>
</result>
```

Round Up

The following example query returns a 1 month `yearMonthDuration` because there are 15.5 days (15 days and 12 hours) between `$dateTime-var1` and `$dateTime-var2`:

```
let $dateTime-var1 := xs:dateTime("2002-11-16T12:00:00")
return
let $dateTime-var2 := xs:dateTime("2002-11-01T00:00:00")
return
let $mydur := xf:get-yearMonthDuration-from-dateTimes($dateTime-var1,
$dateTime-var2)
return
<result>
       <years>{xf:get-years-from-yearMonthDuration($mydur)}</years>
       <months>{xf:get-months-from-yearMonthDuration($mydur)}</months>
</result>
```

The preceding query generates the following result:

```
<result>
       <years>0</years>
       <months>1</months>
</result>
```

Not Enough to Round Up

The following example query returns a 0 months `yearMonthDuration` because there are only 15 days, 11 hours, 59 minutes, and 59 seconds (1 second from 15.5 days) between `$dateTime-var1` and `$dateTime-var2`:

```
let $dateTime-var1 := xs:dateTime("2002-11-16T11:59:59")
return
let $dateTime-var2 := xs:dateTime("2002-11-01T00:00:00")
return
let $mydur := xf:get-yearMonthDuration-from-dateTimes($dateTime-var1,
$dateTime-var2)
return
<result>
       <years>{xf:get-years-from-yearMonthDuration($mydur)}</years>
       <months>{xf:get-months-from-yearMonthDuration($mydur)}</months>
</result>
```

The preceding query generates the following result:

```
<result>
       <years>0</years>
       <months>0</months>
</result>
```

Related Topics

W3C `get-yearMonthDuration-from-dayTimes` function description.

W3C `yearMonthDuration` data type description.

W3C `dateTime` data type description.

xf:get-dayTimeDuration-from-dateTimes

Computes the time difference between `$dateTime-var1` and `$dateTime-var2` and returns it as a `dayTimeDuration` value.

If the value of `$date-var1` follows in time the value of `$date-var2`, then the returned value is a negative duration.

If the value of `$date-var1` or `$date-var2` is the empty sequence, the following error is displayed:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method: Type error in function subtract-dates invocation: expected type
[date@http://www.w3.org/2001/XMLSchema], given type empty
```

Signatures

`xf:get-dayTimeDuration-from-dateTimes(xs:dateTime $dateTime-var1, xs:dateTime $dateTime-var2) →xf:dayTimeDuration`

Arguments

Data Type	Argument	Description
`xs:dateTime`	`$dateTime-var1`	Contains a representation of the date and time.
`xs:dateTime`	`$dateTime-var2`	Contains a representation of the date and time.

Returns

Returns the time difference between `$dateTime-var1` and `$dateTime-var2` as a `dayTimeDuration` value.

Returns a negative `dayTimeDuration` value if `$dateTime-var1` follows in time `$dateTime-var2`. (The date specified in `$dateTime-var1` comes before the date specified in `$dateTime-var2`.) To learn more, see the following Negative Difference example.

Examples

Positive Difference

The following example query returns a positive days, hours, minutes, and seconds duration because the date specified in `$datetime-var1` comes after the date specified in `$datetime-var2`:

```
let $dateTime-var1 := xs:dateTime("2002-12-26T01:01:01")
return
let $dateTime-var2 := xs:dateTime("2001-11-26T00:00:00")
return
let $mydur := xf:get-dayTimeDuration-from-dateTimes($dateTime-var1,
$dateTime-var2)
return
<result>
        <days>{xf:get-days-from-dayTimeDuration($mydur)}</days>
        <hours>{xf:get-hours-from-dayTimeDuration($mydur)}</hours>
        <minutes>{xf:get-minutes-from-dayTimeDuration($mydur)}</minutes>
```

```
       <seconds>{xf:get-seconds-from-dayTimeDuration($mydur)}</seconds>
</result>
```

The preceding query generates the following result:

```
<result>
       <days>395</days>
       <hours>1</hours>
       <minutes>1</minutes>
       <seconds>1</seconds>
</result>
```

Negative Difference

The following example query returns a negative days, hours, minutes, and seconds duration because the date specified in `$dateTime-var1` comes before the date specified in `$dateTime-var2`:

```
let $dateTime-var1 := xs:dateTime("2001-11-26T00:00:00")
return
let $dateTime-var2 := xs:dateTime("2002-12-26T01:01:01")
return
let $mydur := xf:get-dayTimeDuration-from-dateTimes($dateTime-var1,
$dateTime-var2)
return
<result>
       <days>{xf:get-days-from-dayTimeDuration($mydur)}</days>
       <hours>{xf:get-hours-from-dayTimeDuration($mydur)}</hours>
       <minutes>{xf:get-minutes-from-dayTimeDuration($mydur)}</minutes>
       <seconds>{xf:get-seconds-from-dayTimeDuration($mydur)}</seconds>
</result>
```

The preceding query generates the following result:

```
<result>
       <days>-395</days>
       <hours>-1</hours>
       <minutes>-1</minutes>
       <seconds>-1</seconds>
</result>
```

Related Topics

W3C `get-dayTimeDuration-from-dateTimes` function description.

W3C `dayTimeDuration` data type description.

W3C `dateTime` data type description.

CHAPTER 12

XQuery Numeric Operators Reference

This section provides descriptions of the XQuery numeric operators available in the mapper functionality of WebLogic Workshop. You use the mapper functionality to generate queries and to edit these queries to add invocations to these provided XQuery operators. To learn more, see "Invoking Functions or Operators in a Query" in Modifying Links Using the Target Expression Tab in the *Guide to Data Transformation*.

In addition to the XQuery functions and operators available in the mapper functionality, a larger set functions and operators is provided. You can manually add invocations to these functions and operators to queries in the **Source View** of the mapper functionality. For a list of these additional functions and operators, see the XQuery 1.0 and XPath 2.0 Functions and Operators - W3C Working Draft 16 August 2002 available from the W3C Web site at the following URL:

`http://www.w3.org/TR/2002/WD-xquery-operators-20020816`

This section lists the numeric operators available from the mapper functionality:

- op:decimal-add
- op:float-add
- op:double-add
- op:decimal-subtract
- op:float-subtract
- op:double-subtract
- op:decimal-multiply

- op:float-multiply
- op:double-multiply
- op:decimal-divide
- op:float-divide
- op:double-divide
- op:numeric-integer-divide
- op:decimal-mod
- op:float-mod
- op:double-mod

op:decimal-add

Add `$decimal-var1` to `$decimal-var2`. The + operator invokes the `decimal-add` operator.

Signatures

`op:decimal-add(xs:decimal $decimal-var1, xs:decimal $decimal-var2)`→ `xs:decimal`

Arguments

Data Type	Argument	Description
`xs:decimal`	`$decimal-var1`	Represents a decimal number, for example: `1.1`.
`xs:decimal`	`$decimal-var2`	Represents a decimal number, for example: `1.1`.

Returns

Returns the `decimal` value of adding `$decimal-var1` to `$decimal-var2`.

Examples

Simple

Invoking `decimal-add("1.1","2.2")` returns the decimal value `3.3` as shown in the following example query:

```
<decimal-add>{op:decimal-add("1.1","2.2")}</decimal-add>
```

The preceding query generates the following result:

```
<decimal-add>3.3</decimal-add>
```

Related Topics

W3C `decimal` data type description.

W3C `numeric-add` operator description.

op:float-add

Add `$float-var1` to `$float-var2`. The + operator invokes the `float-add` operator.

Signatures

`op:float-add(xs:float $float-var1, xs:float $float-var2)`→`xs:float`

Arguments

Data Type	Argument	Description
`xs:float`	`$float-var1`	Represents a 32 bit floating point number, for example: `1.1`.
`xs:float`	`$float-var2`	Represents a 32 bit floating point number, for example: `1.1`.

Returns

Returns the `float` value of adding `$float-var1` to `$float-var2`.

Examples

Simple

Invoking `float-add("1.0","2.0")` returns the floating point value: `3.0` as shown in the following example query:

```
<float-add>{op:float-add("1.0","2.0")}</float-add>
```

The preceding query generates the following result:

```
<float-add>3.0</float-add>
```

Related Topics

W3C `float` data type description.

W3C `numeric-add` operator description.

op:double-add

Add `$double-var1` to `$double-var2`. The + operator invokes the `double-add` operator.

Signatures

`op:double-add(xs:double $double-var1, xs:double $double-var2)→xs:double`

Arguments

Data Type	Argument	Description
`xs:double`	`$double-var1`	Represents a double precision (64 bit) floating point number, for example: `1.1`.
`xs:double`	`$double-var2`	Represents a double precision (64 bit) floating point number, for example: `1.1`.

Returns

Returns the `double` value of adding `$double-var1` to `$double-var2`.

Examples

Simple

Invoking `double-add("1.0","2.0")` returns the double precision floating point value: `3.0` as shown in the following example query:

```
<double-add>{op:double-add("1.0","2.0")}</double-add>
```

The preceding query generates the following result:

```
<double-add>3.0</double-add>
```

Related Topics

W3C `double` data type description.

W3C `numeric-add` operator description.

op:decimal-subtract

Subtracts `$decimal-var2` from `$decimal-var1`. The `-` operator invokes the `decimal-subtract` operator.

Signatures

`op:decimal-subtract(xs:decimal $decimal-var1, xs:decimal $decimal-var2)→ xs:decimal`

Arguments

Data Type	Argument	Description
`xs:decimal`	`$decimal-var1`	Represents a decimal number, for example: `1.1`.
`xs:decimal`	`$decimal-var2`	Represents a decimal number, for example: `1.1`.

Returns

Returns the `decimal` value of subtracting `$decimal-var2` from `$decimal-var1`.

Examples

Simple

Invoking `decimal-subtract("2.2","1.1")` returns the decimal value `1.1` as shown in the following example query:

```
<decimal-subtract>{op:decimal-subtract("2.2","1.1")}</decimal-subtract>
```

The preceding query generates the following result:

```
<decimal-subtract>1.1</decimal-subtract>
```

Related Topics

W3C `decimal` data type description.

W3C `numeric-subtract` operator description.

op:float-subtract

Subtracts `$float-var2` from `$float-var1`. The `-` operator invokes the `float-subtract` operator.

Signatures

```
op:float-subtract(xs:float $float-var1, xs:float $float-var2)→xs:float
```

Arguments

Data Type	Argument	Description
`xs:float`	`$float-var1`	Represents a 32 bit floating point number, for example: `1.1`.
`xs:float`	`$float-var2`	Represents a 32 bit floating point number, for example: `1.1`.

Returns

Returns the floating point value of subtracting `$float-var2` from `$float-var1`.

Examples

Simple

Invoking `float-subtract("2.2","1.1")` returns the floating point value: `1.1` as shown in the following example query:

```
<float-subtract>{op:float-subtract("2.2","1.1")}</float-subtract>
```

The preceding query generates the following result:

```
<float-subtract>1.1</float-subtract>
```

Related Topics

W3C `float` data type description.

W3C `numeric-subtract` operator description.

op:double-subtract

Subtracts `$double-var2` from `$double-var1`. The `-` operator invokes the `double-subtract` operator.

Signatures

`op:double-subtract(xs:double $double-var1, xs:double $double-var2)`→ `xs:double`

Arguments

Data Type	Argument	Description
`xs:double`	`$double-var1`	Represents a double precision (64 bit) floating point number, for example: `1.1`.
`xs:double`	`$double-var2`	Represents a double precision (64 bit) floating point number, for example: `1.1`.

Returns

Returns the double precision (64 bit) floating point value of subtracting `$double-var2` from `$double-var1`.

Examples

Simple

Invoking `double-subtract("2.2","1.1")` returns the double precision (64 bit) floating point value: `1.1` as shown in the following example query:

```
<double-subtract>{op:double-subtract("2.2","1.1")}</double-subtract>
```

The preceding query generates the following result:

```
<double-subtract>1.1</double-subtract>
```

Related Topics

W3C `double` data type description.

W3C `numeric-subtract` operator description.

op:decimal-multiply

Multiplies `$decimal-var1` by `$decimal-var2`. The `*` operator invokes the `decimal-multiply` operator.

Signatures

```
op:decimal-multiply(xs:decimal $decimal-var1, xs:decimal $decimal-var2)→
xs:decimal
```

Arguments

Data Type	Argument	Description
`xs:decimal`	`$decimal-var1`	Represents a decimal number, for example: `1.1`.
`xs:decimal`	`$decimal-var2`	Represents a decimal number, for example: `1.1`.

Returns

Returns the `decimal` value of multiplying `$decimal-var1` by `$decimal-var2`.

Examples

Simple

Invoking `decimal-multiply("2.0","1.0")` returns the decimal value: `2` as shown in the following example query:

```
<decimal-multiply>{op:decimal-multiply("2.0","1.0")}</decimal-multiply>
```

The preceding query generates the following result:

```
<decimal-multiply>2</decimal-multiply>
```

Related Topics

W3C `decimal` data type description.

W3C `numeric-multiply` operator description.

op:float-multiply

Multiplies `$float-var1` by `$float-var2`. The `*` operator invokes the `float-multiply` operator.

Signatures

`op:float-multiply(xs:float $float-var1, xs:float $float-var2)`→`xs:float`

Arguments

Data Type	Argument	Description
`xs:float`	`$float-var1`	Represents a 32 bit floating point number, for example: `1.1`.
`xs:float`	`$float-var2`	Represents a 32 bit floating point number, for example: `1.1`.

Returns

Returns the 32 bit floating point value of multiplying `$float-var1` by `$float-var2`.

Examples

Simple

Invoking `float-multiply("2.0","3.0")` returns the floating point value: `6.0` as shown in the following example query:

```
<float-multiply>{op:float-multiply("2.0","3.0")}</float-multiply>
```

The preceding query generates the following result:

```
<float-multiply>6.0</float-multiply>
```

Related Topics

W3C `float` data type description.

W3C `numeric-multiply` operator description.

op:double-multiply

Multiplies `$double-var1` by `$double-var2`. The `*` operator invokes the `double-multiply` operator.

Signatures

```
op:double-multiply(xs:double $double-var1, xs:double $double-var2)→
xs:double
```

Arguments

Data Type	Argument	Description
`xs:double`	`$double-var1`	Represents a double precision (64 bit) floating point number, for example: `1.1`.
`xs:double`	`$double-var2`	Represents a double precision (64 bit) floating point number, for example: `1.1`.

Returns

Returns the double precision (64 bit) floating point value of multiplying `$double-var1` by `$double-var2`.

Examples

Simple

Invoking `double-multiply("2.0","3.0")` returns the double precision floating point value: `6.0` as shown in the following example query:

```
<double-multiply>{op:double-multiply("2.0","3.0")}</double-multiply>
```

The preceding query generates the following result:

```
<double-multiply>6.0</double-multiply>
```

Related Topics

W3C `double` data type description.

W3C `numeric-multiply` operator description.

op:decimal-divide

Divides `$decimal-var1` by `$decimal-var2`. The `div` operator invokes the `decimal-divide` operator.

If the value of `$decimal-var2` is equal to zero, the `TransformException` exception is raised with the RT_DIV_ZERO fault code. The following error message is displayed in the mapper:

```
Error occurred while executing XQuery: division by zero
```

Signatures

`op:decimal-divide(xs:decimal $decimal-var1, xs:decimal $decimal-var2)→ xs:decimal`

Arguments

Data Type	Argument	Description
`xs:decimal`	`$decimal-var1`	Represents a decimal number, for example: `1.1`.
`xs:decimal`	`$decimal-var2`	Represents a decimal number, for example: `1.1`.

Returns

Returns the `decimal` value of dividing `$decimal-var1` by `$decimal-var2`.

Examples

Simple

Invoking `decimal-divide("2.2","1.1")` returns the decimal value `2` as shown in the following example query:

```
<decimal-divide>{op:decimal-divide("2.2","1.1")}</decimal-divide>
```

The preceding query generates the following result:

```
<decimal-divide>2.0</decimal-divide>
```

Error—Divide by Zero

Invoking `decimal-divide("2.2","0")` throws the `TransformException` exception with the RT_DIV_ZERO fault code as shown in the following example query:

```
<decimal-divide>{op:decimal-divide("2.2","0")}</decimal-divide>
```

The following error message is displayed in the mapper:

```
Error occurred while executing XQuery: division by zero
```

Related Topics

W3C `decimal` data type description.

W3C `numeric-divide` operator description.

op:float-divide

Divides `$float-var1` by `$float-var2`. The `div` operator invokes the `float-divide` operator .

If the value of `$float-var2` is equal to zero, the value of Infinity is returned. To learn more see "Divide by Zero" on page 12-14.

Signatures

`op:float-divide(xs:float $float-var1, xs:float $float-var2)→xs:float`

Arguments

Data Type	Argument	Description
`xs:float`	`$float-var1`	Represents a 32 bit floating point number, for example: `1.1`.
`xs:float`	`$float-var2`	Represents a 32 bit floating point number, for example: `1.1`.

Returns

Returns the floating point value of dividing `$float-var1` by `$float-var2`.

Examples

Simple

Invoking `float-divide("4.4","2.2")` returns the floating point value of `2.0` as shown in the following example query:

```
<float-divide>{op:float-divide("4.4","2.2")}</float-divide>
```

The preceding query generates the following result:

```
<float-divide>2.0</float-divide>
```

Divide by Zero

Invoking `float-divide("2.2","0")` returns the `Infinity` value as shown in the following example query:

```
<float-divide>{op:float-divide("2.2","0")}</float-divide>
```

The preceding query generates the following result:

```
<float-divide>Infinity</float-divide>
```

To learn more see the IEEE Standard for Binary Floating-Point Arthimetic.

Related Topics

W3C `float` data type description.

W3C `numeric-divide` operator description.

IEEE Standard for Binary Floating-Point Arthimetic.

op:double-divide

Divides `$double-var1` by `$double-var2`. The `div` operator invokes the `double-divide` operator.

If the value of `$double-var2` is equal to zero, the value of `Infinity` is returned. To learn more see "Divide by Zero" on page 12-15.

Signatures

```
op:double-divide(xs:double $double-var1, xs:double $double-var2)→
xs:double
```

Arguments

Data Type	Argument	Description
`xs:double`	`$double-var1`	Represents a double precision (64 bit) floating point number, for example: `1.1`.
`xs:double`	`$double-var2`	Represents a double precision (64 bit) floating point number, for example: `1.1`.

Returns

Returns the double precision floating point value of dividing `$double-var1` by `$double-var2`.

Examples

Simple

Invoking `double-divide("4.4","2.2")` returns the double precision floating point value of `2.0` as shown in the following example query:

```
<double-divide>{op:double-divide("4.4","2.2")}</double-divide>
```

The preceding query generates the following result:

```
<double-divide>2.0</double-divide>
```

Divide by Zero

Invoking `double-divide("2.2","0")`returns the `Infinity` value as shown in the following example query:

```
<double-divide>{op:double-divide("2.2","0")}</double-divide>
```

The preceding query generates the following result:

```
<double-divide>Infinity</double-divide>
```

To learn more see the IEEE Standard for Binary Floating-Point Arthimetic.

Related Topics

W3C `double` data type description.

W3C `numeric-divide` operator description.

IEEE Standard for Binary Floating-Point Arthimetic.

op:numeric-integer-divide

Divides `$integer-var1` by `$integer-var2` and returns the resulting integer. If `$integer-var2` is not divided evenly by `$integer-var1`, the remainder is dropped—no rounding occurs. The `idiv` operator is invoked by the `numeric-integer-divide` operator.

If the value of `$decimal-var2` is equal to zero, the `TransformException` exception is raised with the RT_DIV_ZERO fault code. The following error message is displayed in the mapper:

```
Error occurred while executing XQuery: division by zero
```

Signatures

```
op:numeric-integer-divide(xs:integer $integer-var1, xs:integer
$double-var2)→xs:integer
```

Arguments

Data Type	Argument	Description
`xs:integer`	`$integer-var1`	Represents a integer number, for example: `1`.
`xs:integer`	`$integer-var2`	Represents a integer number, for example: `1`.

Returns

Returns the integer result of dividing `$integer-var1` by `$integer-var2`. If `$integer-var2` is not divided evenly by `$integer-var1`, the remainder is dropped—no rounding occurs.

Examples

No Remainder

Invoking `op:numeric-integer-divide("4","2")` returns the integer: `2` as shown in the following example query:

```
<numeric-integer-divide>{
       op:numeric-integer-divide("4","2")
}</numeric-integer-divide>
```

The preceding query generates the following result:

```
<numeric-integer-divide>2</numeric-integer-divide>
```

Note: The integer: 4 is divided eventually by the integer: 2 with no remainder.

Throw Away Remainder

Invoking `op:numeric-integer-divide("5","2")` returns the integer: `2` as shown in the following example query:

```
<numeric-integer-divide>{
       op:numeric-integer-divide("5","2")
}</numeric-integer-divide>
```

The preceding query generates the following result:

```
<numeric-integer-divide>2</numeric-integer-divide>
```

Note: The remainder is discarded.

Error—Divide by Zero

Invoking `op:numeric-integer-divide("2","0")` throws the `TransformException` exception with the RT_DIV_ZERO fault code as shown in the following example query:

```
<numeric-integer-divide>{
       op:numeric-integer-divide("2","0")
}</numeric-integer-divide>
```

The following error message is displayed in the mapper:

```
Error occurred while executing XQuery: division by zero
```

Related Topics

W3C `integer` data type description.

W3C `numeric-integer-divide` operator description.

op:decimal-mod

Return the remainder of dividing `$decimal-var1` by `$decimal-var2`. The `mod` operator invokes the `decimal-mod` operator.

If the value of `$decimal-var2` is equal to zero, the `TransformException` exception is raised with the RT_DIV_ZERO fault code. The following error message is displayed in the mapper:

```
Error occurred while executing XQuery: division by zero
```

Signatures

```
op:decimal-mod(xs:decimal $decimal-var1, xs:decimal $decimal-var2)→
xs:decimal
```

Arguments

Data Type	Argument	Description
`xs:decimal`	`$decimal-var1`	Represents a decimal number, for example: `1.1`.
`xs:decimal`	`$decimal-var2`	Represents a decimal number, for example: `1.1`.

Returns

Returns the remainder of dividing `$decimal-var1` by `$decimal-var2`.

Examples

Simple

Invoking `decimal-mod("2.1","2.0")` returns the decimal value `.1` because `2.1` divided by `2.0` results in `1` with the remainder: `.1`. The remainder: `.1` is returned as shown in the following example query:

```
<decimal-mod>{op:decimal-mod("2.1","2.0")}</decimal-mod>
```

The preceding query generates the following result:

```
<decimal-mod>0.1</decimal-mod>
```

Error—Divide by Zero

Invoking `decimal-mod("2.2","0")` throws the `TransformException` exception with the RT_DIV_ZERO fault code as shown in the following example query:

```
<decimal-mod>{op:decimal-mod("2.2","0")}</decimal-mod>
```

The following error message is displayed in the mapper:

```
Error occurred while executing XQuery: division by zero
```

Related Topics

W3C `decimal` data type description.

W3C `numeric-mod` operator description.

op:float-mod

Return the remainder of dividing `$float-var1` by `$float-var2`. The `mod` operator invokes the `float-mod` operator.

To learn more about using this operator with NaN, positive infinity, or negative infinity operands, see the W3C `numeric-mod` operator description.

Signatures

`op:float-mod(xs:float $float-var1, xs:float $float-var2)→xs:float`

Arguments

Data Type	Argument	Description
`xs:float`	`$float-var1`	Represents a 32 bit floating point number, for example: `1.1`.
`xs:float`	`$float-var2`	Represents a 32 bit floating point number, for example: `1.1`.

Returns

Returns the remainder of dividing `$float-var1` by `$float-var2`.

Examples

Simple

Invoking `float-mod("1.25","1.0")` returns the floating point value: `.25` because `1.25` divided by `1.0` results in `1` with the remainder: `.25`. The remainder: `.25` is returned as shown in the following example query:

```
<float-mod>{op:float-mod("1.25","1.0")}</float-mod>
```

The preceding query generates the following result:

```
<float-mod>0.25</float-mod>
```

Divide by Zero

Invoking `float-mod("2.2","0")` returns a `NaN` (Not a Number) value as shown in the following example query:

```
<float-mod>{op:float-mod("2.2","0")}</float-mod>
```

The preceding query generates the following result:

```
<float-mod>NaN</float-mod>
```

Related Topics

W3C `float` data type description.

W3C `numeric-mod` operator description.

op:double-mod

Return the remainder of dividing `$double-var1` by `$double-var2`. The `mod` operator invokes the `double-mod` operator.

To learn more about using this operator with NaN, positive infinity, or negative infinity operands, see the W3C `numeric-mod` operator description.

Signatures

```
op:double-mod(xs:double $double-var1, xs:double $double-var2)→xs:double
```

Arguments

Data Type	Argument	Description
`xs:double`	`$double-var1`	Represents a double precision (64 bit) floating point number, for example: `1.1`.
`xs:double`	`$double-var2`	Represents a double precision (64 bit) floating point number, for example: `1.1`.

Returns

Returns the remainder of dividing `$double-var1` by `$double-var2`.

Examples

Simple

Invoking `double-mod("1.25","1.0")` returns the double precision (64 bit) floating point value: `.25` because `1.25` divided by `1.0` results in `1` with the remainder: `.25`. The remainder: `.25` is returned as shown in the following example query:

```
<double-mod>{op:double-mod("1.25","1.0")}</double-mod>
```

The preceding query generates the following result:

```
<double-mod>0.25</double-mod>
```

Divide by Zero

Invoking `double-mod("2.2","0")` returns a `NaN` value as shown in the following example query:

```
<double-mod>{op:double-mod("2.2","0")}</double-mod>
```

The preceding query generates the following result:

```
<double-mod>NaN</double-mod>
```

Related Topics

W3C `double` data type description.

W3C `numeric-mod` operator description.

CHAPTER 13

XQuery Boolean Operators Reference

This section provides descriptions of the XQuery boolean operators available in the mapper functionality of WebLogic Workshop. You use the mapper functionality to generate queries and to edit these queries to add invocations to these provided XQuery operators. To learn more, see "Invoking Functions or Operators in a Query" in Modifying Links Using the Target Expression Tab in the *Guide to Data Transformation*.

In addition to the XQuery functions and operators available in the mapper functionality, a larger set functions and operators is provided. You can manually add invocations to these functions and operators to queries in the **Source View** of the mapper functionality. For a list of these additional functions and operators, see the XQuery 1.0 and XPath 2.0 Functions and Operators - W3C Working Draft 16 August 2002 available from the W3C Web site at the following URL:

`http://www.w3.org/TR/2002/WD-xquery-operators-20020816`

This section lists the boolean operators available from the mapper functionality:

- op:boolean-equal
- op:boolean-less-than
- op:boolean-greater-than

op:boolean-equal

If `$boolean-var1` has the same boolean value as `$boolean-var2`, the boolean value: `true` is returned. If `$boolean-var1` does not have the same boolean value as `$boolean-var`, the boolean value: `false` is returned. For example: `op:boolean-equal(xf:true(), xf:false())` returns the boolean value: `false`.

This operator is equilavant to the `eg` operator with boolean values.

Signatures

`op:boolean-equal(xs:boolean $boolean-var1, xs:boolean $boolean-var2)` → `xs:boolean`

Arguments

Data Type	Argument	Description
`xs:boolean`	`$boolean-var1`	Represents a boolean value.
`xs:boolean`	`$boolean-var2`	Represents a boolean value.

Returns

Returns the boolean value: `true` if `$boolean-var1` is equal to the boolean value of `$boolean-var2`.

Returns the boolean value: `false` if `$boolean-var1` is not equal to the boolean value of `$boolean-var2`.

Examples

Not Equal Returns false

Invoking `op:boolean-equal(xf:false(),xf:true())` returns the boolean value: `false`, as shown in the following example query:

```
<boolean-equal>{
       op:boolean-equal(xf:false(),xf:true())
}</boolean-equal>
```

The preceding query generates the following result:

```
<boolean-equal>false</boolean-equal>
```

Equal Returns true

Invoking `op:boolean-equal(xf:false(),xf:false())` returns the boolean value: `true`, as shown in the following example query:

```
<boolean-equal>{
       op:boolean-equal(xf:false(),xf:false())
}</boolean-equal>
```

The preceding query generates the following result:

```
<boolean-equal>true</boolean-equal>
```

Related Topics

W3C `boolean-equal` operator description.

W3C `boolean` function description

xs:boolean

op:boolean-less-than

If `$boolean-var1` equals the boolean value: `false` and `$boolean-var2` equals the boolean value: `true`, the boolean value: `true` is returned. For all other cases, the boolean value: `false` is returned as shown in the following table.

If boolean-var1 equals ...	And boolean-var2 equals ...	The boolean-less-than Operator Returns ...
`false`	`true`	`true`—The boolean value of `$boolean-var1` is less than the boolean value of `$boolean-var2`. (The boolean value: `false` is less than the boolean value: `true`.)
`true`	`false`	`false`—The boolean value of `$boolean-var1` is greater than the boolean value of `$boolean-var2`.

If boolean-var1 equals ...	And boolean-var2 equals ...	The boolean-less-than Operator Returns ...
`true`	`true`	`false`—The boolean value of `$boolean-var1` is the same as the boolean value of `$boolean-var2`. `$boolean-var1` is not less than `$boolean-var2`.
`false`	`false`	`false`—The boolean value of `$boolean-var1` is the same as the boolean value of `$boolean-var2`. `$boolean-var1` is not less than `$boolean-var2`.

This operator is equivalent to the `lt` operator with boolean values.

Signatures

`op:boolean-less-than(xs:boolean $boolean-var1, xs:boolean $boolean-var2) → xs:boolean`

Arguments

Data Type	Argument	Description
`xs:boolean`	`$boolean-var1`	Represents a boolean value.
`xs:boolean`	`$boolean-var2`	Represents a boolean value.

Returns

Returns the boolean value: `true` if `$boolean-var1` is less than boolean value of `$boolean-var2`. For example: if `$boolean-var1` is equal to `false` and `$boolean-var2` is equal to `true`, the boolean value `true` is returned.

Returns the boolean value: `false` for all other cases.

Examples

boolean-less-than(false, true) Returns true

Invoking `op:boolean-less-than(xf:false(),xf:true())` returns the boolean value: `true`, as shown in the following example query:

```
<boolean-less-than>{
        op:boolean-less-than(xf:false(),xf:true())
}</boolean-less-than>
```

The preceding query generates the following result:

```
<boolean-less-than>true</boolean-less-than>
```

boolean-less-than(true, false) Returns false

Invoking `op:boolean-less-than(xf:true(),xf:false())` returns the boolean value: `false`, as shown in the following example query:

```
<boolean-less-than>{
        op:boolean-less-than(xf:true(),xf:false())
}</boolean-less-than>
```

The preceding query generates the following result:

```
<boolean-less-than>false</boolean-less-than>
```

Related Topics

W3C `boolean-less-than` operator description.

W3C `boolean` function description

xs:boolean

op:boolean-greater-than

If `$boolean-var1` equals the boolean value: `true` and `$boolean-var2` equals the boolean value: `false`, the boolean value: `true` is returned. For all other cases, the boolean value: `false` is returned as shown in the following table.

If boolean-var1 equals ...	And boolean-var2 equals ...	The boolean-greater-than Operator Returns ...
`true`	`false`	`true`—The boolean value of `$boolean-var1` is greater than the boolean value of `$boolean-var2`. (The boolean value: `true` is greater than the boolean value: `false`.)
`false`	`true`	`false`—The boolean value of `$boolean-var1` is less than the boolean value of `$boolean-var2`.
`true`	`true`	`false`—The boolean value of `$boolean-var1` is the same as the boolean value of `$boolean-var2`. `$boolean-var1` is not greater than `$boolean-var2`.
`false`	`false`	`false`—The boolean value of `$boolean-var1` is the same as the boolean value of `$boolean-var2`. `$boolean-var1` is not greater than `$boolean-var2`.

This operator is equivalent to the `gt` operator with boolean values.

Signatures

`op:boolean-greater-than(xs:boolean $boolean-var1, xs:boolean $boolean-var2) →xs:boolean`

Arguments

Data Type	Argument	Description
`xs:boolean`	`$boolean-var1`	Represents a boolean value.
`xs:boolean`	`$boolean-var2`	Represents a boolean value.

Returns

Returns the boolean value: `true` if `$boolean-var1` is greater than boolean value of `$boolean-var2`. For example: if `$boolean-var1` is equal to `true` and `$boolean-var2` is equal to `false`, the boolean value `true` is returned.

Returns the boolean value: `false` for all other cases.

Examples

boolean-greater-than(true, false) Returns true

Invoking `op:boolean-greater-than(xf:true(), xf:false())` returns the boolean value: `true`, as shown in the following example query:

```
<boolean-greater-than>{
       op:boolean-greater-than(xf:true(),xf:false())
}</boolean-greater-than>
```

The preceding query generates the following result:

```
<boolean-greater-than>true</boolean-greater-than>
```

boolean-greater-than(false, true) Returns false

Invoking `op:boolean-greater-than(xf:false(),xf:true())` returns the boolean value: `false`, as shown in the following example query:

```
<boolean-greater-than>{
       op:boolean-greater-than(xf:false(), xf:true())
}</boolean-greater-than>
```

The preceding query generates the following result:

```
<boolean-greater-than>false</boolean-greater-than>
```

Related Topics

W3C `boolean-greater-than` operator description.

W3C `boolean` function description

xs:boolean

XQuery Date and Time Operators Reference

This section provides descriptions of the XQuery date and time operators available in the mapper functionality of WebLogic Workshop. You use the mapper functionality to generate queries and to edit these queries to add invocations to these provided XQuery operators. To learn more, see “Invoking Functions or Operators in a Query” in Modifying Links Using the Target Expression Tab in the *Guide to Data Transformation*.

In addition to the XQuery functions and operators available in the mapper functionality, a larger set functions and operators is provided. You can manually add invocations to these functions and operators to queries in the **Source View** of the mapper functionality. For a list of these additional functions and operators, see the XQuery 1.0 and XPath 2.0 Functions and Operators - W3C Working Draft 16 August 2002 available from the W3C Web site at the following URL:

`http://www.w3.org/TR/2002/WD-xquery-operators-20020816`

This section lists the date and time operators available from the mapper functionality:

- op:subtract-dates
- op:subtract-times
- op:add-yearMonthDuration-to-dateTime
- op:add-dayTimeDuration-to-dateTime
- op:subtract-yearMonthDuration-from-dateTime
- op:subtract-dayTimeDuration-from-dateTime
- op:add-yearMonthDuration-to-date

- op:add-dayTimeDuration-to-date
- op:subtract-yearMonthDuration-from-date
- op:subtract-dayTimeDuration-from-date
- op:add-dayTimeDuration-to-time
- op:subtract-dayTimeDuration-from-time

op:subtract-dates

Computes the time difference between `$date-var1` and `$date-var2`. Subtracts the value of `$date-var2` from `$date-var1`.

If the value of `$date-var2` follows in time the value of `$date-var1`, then the returned value is a negative duration.

If the value of `$date-var1` or `$date-var2` is the empty sequence, the following error is displayed:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method:
Type error in function subtract-dates invocation: expected type
[date@http://www.w3.org/2001/XMLSchema],
given type empty
```

Signatures

```
op:subtract-dates(xs:date $date-var1, xs:date $date-var2) →
xf:dayTimeDuration
```

Arguments

Data Type	Argument	Description
`xs:date`	`$date-var1`	Contains a representation of the date.
`xs:date`	`$date-var2`	Contains a representation of the date.

Returns

Returns the time difference between `$date-var1` and `$date-var2` as dayTimeDuration.

Examples

Positive Difference

The following example query returns a positive number of days because `$date-var2` precedes in time `$date-var1`:

```
<num_days>{xf:get-days-from-dayTimeDuration(op:subtract-dates(xs:date("200
2-08-30"),
xs:date("2001-08-30")))}</num_days>
```

The preceding query generates the following result:

```
<num_days>365</num_days>
```

Negative Difference

The following example query returns a negative number of days because `$date-var2` follows in time `$date-var1`:

```
<num_days>{xf:get-days-from-dayTimeDuration(op:subtract-dates(xs:date("200
1-08-30"),
xs:date("2002-08-30")))}</num_days>
```

The preceding query generates the following result:

```
<num_days>-365</num_days>
```

Related Topics

W3C `subtract-dates` operator description.

W3C `date` data type description.

W3C `dayTimeDuration` operator description.

op:subtract-times

Computes the time difference between `$time-var1` and `$time-var2`. Subtracts the value of `$time-var2` from `$time-var1`.

If the value of `$time-var2` follows in time the value of `$time-var1`, then the returned value is a negative duration.

If the value of `$date-var1` or `$date-var2` is the empty sequence, the following error is displayed:

```
Error occurred while executing XQuery: Error loading the XQuery or XSLT for
this method:
Type error in function subtract-dates invocation: expected type
[date@http://www.w3.org/2001/XMLSchema],
given type empty
```

Signatures

`op:subtract-times(xs:time $time-var1, xs:time $time-var2)` → `xs:dayTimeDuration`

Arguments

Data Type	Argument	Description
`xs:time`	`$time-var1`	Contains a representation of time.
`xs:time`	`$time-var2`	Contains a representation of time.

Returns

Returns the time difference between `$time-var1` and `$time-var2` as dayTimeDuration value.

Examples

Positive

The following example returns a positive number of minutes because `$time-var2` precedes in time `$time-var1`:

```
<minutes>{xf:get-minutes-from-dayTimeDuration(op:subtract-times(xf:time("0
8:01:00"),
xf:time("08:00:00")))}</minutes>
```

The preceding query generates the following result:

```
<minutes>1</minutes>
```

Negative

The following example returns a negative number of days because `$time-var2` follows in time `$time-var1`:

```
<minutes>{xf:get-minutes-from-dayTimeDuration(op:subtract-times(xf:time("0
8:00:00"),
xf:time("08:01:00")))}</minutes>
```

The preceding query generates the following result:

```
<minutes>-1</minutes>
```

Related Topics

W3C `subtract-times` operator description.

W3C `date` data type description.

W3C `dayTimeDuration` operator description.

op:add-yearMonthDuration-to-dateTime

Adds `$yearMonthDuration-var` to the date and time specified by `$dateTime-var`.

Signatures

`op:add-yearMonthDuration-to-dateTime(xs:dateTime $dateTime-var, xf:yearMonthDuration $yearMonthDuration-var) →xs:dateTime`

Arguments

Data Type	Argument	Description
`xs:dateTime`	`$dateTime-var`	Contains a representation of the date and time.
`xf:yearMonthDuration`	`$yearMonthDuration-var`	Contains a time duration that can contain years and months.

Returns

Returns the `dateTime` result of adding the year and month specified by `$yearMonthDuration-var` to date and time specified by `$dateTime-var`. The returned `dateTime` value has the same timezone as `$dateTime-var`. If `$dateTime-var` has no timezone, then the returned `dateTime` value has the no timezone.

Examples

Simple

The following example query adds a `yearMonthDuration` value equal to 1 year and 1 month to a `dateTime` value equal to the date: January 1, 2003 and time: 1:00 AM as shown in the following query:

```
<dateTime>{

op:add-yearMonthDuration-to-dateTime(xs:dateTime("2003-01-01T01:00:00"),
xf:yearMonthDuration("P1Y1M"))
}</dateTime>
```

The resulting `dateTime` value equal to the date: February 1, 2004 and the time: 1:00 AM is returned as shown in the following result:

```
<dateTime>2004-02-01T01:00:00</dateTime>
```

Related Topics

W3C `add-yearMonthDuration-to-dateTime` operator description.

W3C `yearMonthDuration` description.

xf:yearMonthDuration constructor description.

W3C `dateTime` data type description

xs:dateTime constructor description.

op:add-dayTimeDuration-to-dateTime

Adds `$dayTimeDuration-var` to the date and time specified by `$dateTime-var`.

Signatures

`op:add-dayTimeDuration-to-dateTime(xs:dateTime $dateTime-var, xf:dayTimeDuration $dayTimeDuration-var) →xs:dateTime`

Arguments

Data Type	Argument	Description
`xs:dateTime`	`$dateTime-var`	Contains a representation of the date and time.
`xf:dayTimeDuration`	`$dayTimeDuration-var`	Contains a time duration that can contain days, hours, minutes, and seconds.

Returns

Returns the `dateTime` result of adding the date and time specified by `$dayTimeDuration-var` to date and time specified by `$dateTime-var`. The returned `dateTime` value has the same timezone as `$dateTime-var`. If `$dateTime-var` has no timezone, then the returned `dateTime` value has the no timezone.

Examples

Simple

The following example query adds a `dayTimeDuration` value equal to 1 day, 2 hours, 30 minutes, and 5 seconds to a `dateTime` value equal to the date: January 1, 2003 and time: 1:00 AM as shown in the following query:

```
<dateTime>{

op:add-dayTimeDuration-to-dateTime(xs:dateTime("2003-01-01T01:00:00"),
xf:dayTimeDuration("P1DT2H30M5S"))
}</dateTime>
```

The resulting `dateTime` value equal to the date: January 2, 2003 and the time: 3:30:05 AM is returned as shown in the following result:

```
<dateTime>2003-01-02T03:30:05</dateTime>
```

Related Topics

W3C `add-dayTimeDuration-to-dateTime` operator description.

W3C `dayTimeDuration` description.

xf:dayTimeDuration constructor description.

W3C `dateTime` data type description

xs:dateTime constructor description.

op:subtract-yearMonthDuration-from-dateTime

Subtracts the time duration specified by `$yearMonthDuration-var` from the date and time specified by `$dateTime-var`.

Signatures

`op:subtract-yearMonthDuration-from-dateTime(xs:dateTime $dateTime-var, xf:yearMonthDuration $yearMonthDuration-var) →xs:dateTime`

Arguments

Data Type	Argument	Description
`xs:dateTime`	`$dateTime-var`	Contains a representation of the date and time.
`xf:yearMonthDuration`	`$yearMonthDuration-var`	Contains a time duration which can contain years and months.

Returns

Returns the `dateTime` value of subtracting the time duration specified by `$yearMonthDuration-var` from the date and time specified by `$dateTime-var`.

Examples

Subtracting a Positive yearMonthDuration

The following example query subtracts a positive `yearMonthDuration` value equal to 1 year and 1 month from a `dateTime` value equal to the date: February 2, 2003 and time: 1:01 AM as shown in the following query:

```
<positive>{

op:subtract-yearMonthDuration-from-dateTime(xs:dateTime("2003-02-02T01:01:
00"), xf:yearMonthDuration("P1Y1M"))
}</positive>
```

The resulting `dateTime` value equal to the date: January 2, 2002 and time: 1:01 AM is returned as shown in the following result:

```
<positive>2002-01-02T01:01:00</positive>
```

Subtracting a Negative yearMonthDuration

The following example query subtracts a negative `yearMonthDuration` value equal to 1 year and 1 month from a `dateTime` value equal to the date: January 2, 2003 and time: 1:01 AM as shown in the following query:

```
<negative>{

op:subtract-yearMonthDuration-from-dateTime(xs:dateTime("2003-01-02T01:01:
00"), xf:yearMonthDuration("-P1Y1M"))
}</negative>
```

The resulting `dateTime` value equal to the date: February 2, 2004 and time: 1:01 AM is returned as shown in the following result:

```
<negative>2004-02-02T01:01:00</negative>
```

Related Topics

W3C `subtract-yearMonthDuration-from-dateTime` operator description.

W3C `yearMonthDuration` description.

xf:yearMonthDuration constructor description.

W3C `dateTime` data type description

xs:dateTime constructor description.

op:subtract-dayTimeDuration-from-dateTime

Subtracts the time duration specified by `$dayTimeDuration-var` from the date and time specified by `$dateTime-var`.

Signatures

```
op:subtract-dayTimeDuration-from-dateTime(xs:dateTime $dateTime-var,
xf:dayTimeDuration $dayTimeDuration-var) →xs:dateTime
```

Arguments

Data Type	Argument	Description
`xs:dateTime`	`$dateTime-var`	Contains a representation of the date and time.
`xf:dayTimeDuration`	`$dayTimeDuration-var`	Contains a time duration that can contain days, hours, minutes, and seconds.

Returns

Returns the `dateTime` value of subtracting the time duration specified by `$dayTimeDuration-var` from the date and time specified by `$dateTime-var`.

Examples

Subtracting a Positive dayTimeDuration

The following example query subtracts a positive `dayTimeDuration` value equal to 1 day and 1 minute from a `dateTime` value equal to the date: January 2, 2003 and time: 1:01 AM as shown in the following query:

```
<positive>{

op:subtract-dayTimeDuration-from-dateTime(xs:dateTime("2003-01-02T01:01:00
"), xf:dayTimeDuration("P1DT1M"))
}</positive>
```

The resulting `dateTime` value equal to the date: January 1, 2003 and time: 1:00 AM is returned as shown in the following result:

```
<positive>2003-01-01T01:00:00</positive>
```

Subtracting a Negative dayTimeDuration

The following example query subtracts a negative `dayTimeDuration` value equal to 1 day and 1 minute from a `dateTime` value equal to the date: January 2, 2003 and time: 1:01 AM as shown in the following query:

```
<negative>{

op:subtract-dayTimeDuration-from-dateTime(xs:dateTime("2003-01-02T01:01:00
"), xf:dayTimeDuration("-P1DT1M"))
}</negative>
```

The resulting `dateTime` value equal to the date: January 3, 2003 and time: 1:02 AM is returned as shown in the following result:

```
<negative>2003-01-03T01:02:00</negative>
```

Related Topics

W3C `subtract-dayTimeDuration-from-dateTime` operator description.

W3C `dayTimeDuration` description.

xf:dayTimeDuration constructor description.

W3C `dateTime` data type description

xs:dateTime constructor description.

op:add-yearMonthDuration-to-date

Adds `$yearMonthDuration-var` to the date specified by `$date-var`.

Signatures

```
op:add-yearMonthDuration-to-date(xs:date $date-var, xf:yearMonthDuration
$yearMonthDuration-var) →xs:date
```

Arguments

Data Type	Argument	Description
`xs:date`	`$date-var`	Contains a representation of the date.
`xf:yearMonthDuration`	`$yearMonthDuration-var`	Contains a time duration that can contain years and months.

Returns

Returns the `date` result of adding the year and month specified by `$yearMonthDuration-var` to date specified by `$date-var`. The returned `date` value has the same timezone as `$date-var`. If `$date-var` has no timezone, then the returned `date` value has the no timezone.

Examples

Simple

The following example query adds a `yearMonthDuration` value equal to 1 year and 1 month to a `date` value equal to the date: January 1, 2003 as shown in the following query:

```
<date>{
       op:add-yearMonthDuration-to-date(xs:date("2003-01-01"),
xf:yearMonthDuration("P1Y1M"))
}</date>
```

The resulting `date` value equal to the date: February 1, 2004 is returned as shown in the following result:

```
<date>2004-02-01</date>
```

Related Topics

W3C `add-yearMonthDuration-to-date` operator description.

W3C `yearMonthDuration` description.

xf:yearMonthDuration constructor description.

W3C `date` data type description

xs:date constructor description.

op:add-dayTimeDuration-to-date

Adds `$dayTimeDuration-var` to the date specified by `$date-var`.

Signatures

`op:add-dayTimeDuration-to-date(xs:date $date-var, xf:dayTimeDuration $dayTimeDuration-var) →xs:date`

Arguments

Data Type	Argument	Description
`xs:date`	`$date-var`	Contains a representation of the date.
`xf:dayTimeDuration`	`$dayTimeDuration-var`	Contains a time duration that can contain days, hours, minutes, and seconds.

Returns

Returns the `date` result of adding the date and time specified by `$dayTimeDuration-var` to date specified by `$date-var`. The returned `date` value has the same timezone as `$date-var`. If `$date-var` has no timezone, then the returned `date` value has the no timezone.

Examples

Simple

The following example query adds a `dayTimeDuration` value equal to 1 day, 2 hours, 30 minutes, and 5 seconds to a `date` value equal to the date: January 1, 2003 as shown in the following query:

```
<date>{
       op:add-dayTimeDuration-to-date(xs:date("2003-01-01"),
xf:dayTimeDuration("P1DT2H30M5S"))
}</date>
```

The resulting `date` value equal to the date: January 2, 2003 is returned as shown in the following result:

```
<date>2003-01-02</date>
```

Related Topics

W3C `add-dayTimeDuration-to-date` operator description.

W3C `dayTimeDuration` description.

xf:dayTimeDuration constructor description.

W3C `date` data type description

xs:date constructor description.

op:subtract-yearMonthDuration-from-date

Subtracts the time duration specified by `$yearMonthDuration-var` from the date specified by `$date-var`.

Signatures

```
op:subtract-yearMonthDuration-from-date(xs:date $date-var,
xf:yearMonthDuration $yearMonthDuration-var) →xs:date
```

Arguments

Data Type	Argument	Description
`xs:date`	`$date-var`	Contains a representation of the date.
`xf:yearMonthDuration`	`$yearMonthDuration-var`	Contains a time duration which can contain years and months.

Returns

Returns the `date` value of subtracting the time duration specified by `$yearMonthDuration-var` from the date specified by `$date-var`.

Examples

Subtracting a Positive yearMonthDuration

The following example query subtracts a positive `yearMonthDuration` value equal to 1 year and 1 month from a `date` value equal to the date: February 2, 2003 as shown in the following query:

```
<positive>{
       op:subtract-yearMonthDuration-from-date(xs:date("2003-02-02"),
xf:yearMonthDuration("P1Y1M"))
}</positive>
```

The resulting `date` value equal to the date: January 2, 2002 is returned as shown in the following result:

```
<positive>2002-01-02</positive>
```

Subtracting a Negative yearMonthDuration

The following example query subtracts a negative `yearMonthDuration` value equal to 1 year and 1 month from a `date` value equal to the date: January 2, 2003 as shown in the following query:

```
<negative>{
       op:subtract-yearMonthDuration-from-date(xs:date("2003-01-02"),
xf:yearMonthDuration("-P1Y1M"))
}</negative>
```

The resulting `date` value equal to the date: February 2, 2004 is returned as shown in the following result:

```
<negative>2004-02-02</negative>
```

Related Topics

W3C `subtract-yearMonthDuration-from-date` operator description.

W3C `yearMonthDuration` description.

xf:yearMonthDuration constructor description.

W3C `date` data type description

xs:date constructor description.

op:subtract-dayTimeDuration-from-date

Subtracts the time duration specified by `$dayTimeDuration-var` from the date specified by `$date-var`.

Signatures

`op:subtract-dayTimeDuration-from-date(xs:date $date-var, xf:dayTimeDuration $dayTimeDuration-var) →xs:date`

Arguments

Data Type	Argument	Description
`xs:date`	`$date-var`	Contains a representation of the date.
`xf:dayTimeDuration`	`$dayTimeDuration-var`	Contains a time duration that can contain days, hours, minutes, and seconds.

Returns

Returns the `date` value of subtracting the time duration specified by `$dayTimeDuration-var` from the date specified by `$date-var`.

Examples

Subtracting a Positive dayTimeDuration

The following example query subtracts a positive `dayTimeDuration` value equal to 1 day and 1 minute from a `date` value equal to the date: January 2, 2003 as shown in the following query:

```
<positive>{
       op:subtract-dayTimeDuration-from-date(xs:date("2003-01-02"),
xf:dayTimeDuration("P1DT1M"))
}</positive>
```

The resulting `date` value equal to the date: January 1, 2003 is returned as shown in the following result:

```
<positive>2003-01-01</positive>
```

Subtracting a Negative dayTimeDuration

The following example query subtracts a negative `dayTimeDuration` value equal to 1 day and 1 minute from a `date` value equal to the date: January 2, 2003 as shown in the following query:

```
<negative>{
       op:subtract-dayTimeDuration-from-date(xs:date("2003-01-02"),
xf:dayTimeDuration("-P1DT1M"))
}</negative>
```

The resulting `date` value equal to the date: January 3, 2003 is returned as shown in the following result:

```
<negative>2003-01-03</negative>
```

Related Topics

W3C `subtract-dayTimeDuration-from-date` operator description.

W3C `dayTimeDuration` description.

xf:dayTimeDuration constructor description.

W3C `date` data type description

xs:date constructor description.

op:add-dayTimeDuration-to-time

Adds `$dayTimeDuration-var` to the time specified by `$time-var`.

Signatures

```
op:add-dayTimeDuration-to-time(xs:time $time-var, xf:dayTimeDuration
$dayTimeDuration-var) →xs:time
```

Arguments

Data Type	Argument	Description
`xs:time`	`$time-var`	Contains a representation of the time.
`xf:dayTimeDuration`	`$dayTimeDuration-var`	Contains a time duration that can contain days, hours, minutes, and seconds.

Returns

Returns the `time` result of adding the date and time specified by `$dayTimeDuration-var` to time specified by `$time-var`. The returned `time` value has the same timezone as `$time-var`. If `$time-var` has no timezone, then the returned `time` value has the no timezone.

Examples

Simple

The following example query adds a `dayTimeDuration` value equal to 1 day, 2 hours, 30 minutes, and 5 seconds to a `time` value equal to the time: 1:00 AM as shown in the following query:

```
<time>{
       op:add-dayTimeDuration-to-time(xs:time("01:00:00"),
xf:dayTimeDuration("P1DT2H30M5S"))
}</time>
```

The resulting `time` value equal to the time: 3:30:05 AM is returned as shown in the following result:

```
<time>03:30:05</time>
```

Related Topics

W3C `add-dayTimeDuration-to-time` operator description.

W3C `dayTimeDuration` description.

xf:dayTimeDuration constructor description.

W3C `time` data type description

xs:time constructor description.

op:subtract-dayTimeDuration-from-time

Subtracts the time duration specified by `$dayTimeDuration-var` from the time specified by `$time-var`.

Signatures

`op:subtract-dayTimeDuration-from-time(xs:time $time-var, xf:dayTimeDuration $dayTimeDuration-var) →xs:time`

Arguments

Data Type	Argument	Description
`xs:time`	`$time-var`	Contains a representation of the time.
`xf:dayTimeDuration`	`$dayTimeDuration-var`	Contains a time duration that can contain days, hours, minutes, and seconds.

Returns

Returns the `time` value of subtracting the time duration specified by `$dayTimeDuration-var` from the date and time specified by `$time-var`.

Examples

Subtracting a Positive dayTimeDuration

The following example query subtracts a positive `dayTimeDuration` value equal to 1 day and 1 minute from a `time` value equal to the time: 1:01 AM as shown in the following query:

```
<positive>{
       op:subtract-dayTimeDuration-from-time(xs:time("01:01:00"),
xf:dayTimeDuration("P1DT1M"))
}</positive>
```

The resulting `time` value equal to the time: 1:00 AM is returned as shown in the following result:

```
<positive>01:00:00</positive>
```

Subtracting a Negative dayTimeDuration

The following example query subtracts a negative `dayTimeDuration` value equal to 1 day and 1 minute from a `time` value equal to the time: 1:01 AM as shown in the following query:

```
<negative>{
       op:subtract-dayTimeDuration-from-time(xs:time("01:01:00"),
xf:dayTimeDuration("-P1DT1M"))
}</negative>
```

The resulting `time` value equal to the time: 1:02 AM is returned as shown in the following result:

```
<negative>01:02:00</negative>
```

Related Topics

W3C `subtract-dayTimeDuration-from-time` operator description.

W3C `dayTimeDuration` description.

xf:dayTimeDuration constructor description.

W3C `time` data type description

xs:time constructor description.

XQuery Duration Operators Reference

This section provides descriptions of the XQuery duration operators available in the mapper functionality of WebLogic Workshop. You use the mapper functionality to generate queries and to edit these queries to add invocations to these provided XQuery operators. To learn more, see "Invoking Functions or Operators in a Query" in Modifying Links Using the Target Expression Tab in the *Guide to Data Transformation*.

In addition to the XQuery functions and operators available in the mapper functionality, a larger set functions and operators is provided. You can manually add invocations to these functions and operators to queries in the **Source View** of the mapper functionality. For a list of these additional functions and operators, see the XQuery 1.0 and XPath 2.0 Functions and Operators - W3C Working Draft 16 August 2002 available from the W3C Web site at the following URL:

`http://www.w3.org/TR/2002/WD-xquery-operators-20020816`

This section lists the duration operators available from the mapper functionality:

- op:add-yearMonthDurations
- op:subtract-yearMonthDurations
- op:multiply-yearMonthDuration
- op:divide-yearMonthDuration
- op:add-dayTimeDurations
- op:subtract-dayTimeDurations
- op:multiply-dayTimeDuration

- op:divide-dayTimeDuration

op:add-yearMonthDurations

Adds `$yearMonthDuration-var1` to `$yearMonthDuration-var2`.

Signatures

`op:add-yearMonthDurations(xf:yearMonthDuration $yearMonthDuration-var1, xf:yearMonthDuration $yearMonthDuration-var2) →xf:yearMonthDuration`

Arguments

Data Type	Argument	Description
`xf:yearMonthDuration`	`$yearMonthDuration-var1`	Contains a time duration that can contain years and months.
`xf:yearMonthDuration`	`$yearMonthDuration-var2`	Contains a time duration that can contain years and months.

Returns

Returns the `yearMonthDuration` value of adding `$yearMonthDuration-var1` to `$yearMonthDuration-var2`.

Examples

Simple

The following example query adds a `yearMonthDuration` value equal to 1 year and 2 months to a `yearMonthDuration` value equal to 2 years and 11 months as shown in the following query:

```
<yearMonthDuration>{
       op:add-yearMonthDurations(xf:yearMonthDuration("P1Y2M"),
xf:yearMonthDuration("P2Y11M"))
}</yearMonthDuration>
```

The resulting `yearMonthDuration` value of 4 years and 1 month is returned as shown in the following result:

`<yearMonthDuration>P4Y1M</yearMonthDuration>`

Related Topics

W3C `add-yearMonthDurations` operator description.

W3C `yearMonthDuration` description.

xf:yearMonthDuration constructor description.

op:subtract-yearMonthDurations

Subtracts the value of `$yearMonthDuration-var2` from `$yearMonthDuration-var1`.

Signatures

`op:subtract-yearMonthDurations(xf:yearMonthDuration $yearMonthDuration-var1, xf:yearMonthDuration $yearMonthDuration-var2)` → `xf:yearMonthDuration`

Arguments

Data Type	Argument	Description
`xf:yearMonthDuration`	`$yearMonthDuration-var1`	Contains a time duration that can contain years and months.
`xf:yearMonthDuration`	`$yearMonthDuration-var2`	Contains a time duration that can contain years and months.

Returns

Returns the `yearMonthDuration` value of subtracting `$yearMonthDuration-var2` from `$yearMonthDuration-var1`.

Examples

Positive

The following example query subtracts a `yearMonthDuration` value equal to 1 year and 1 month from a `yearMonthDuration` value equal to 3 years and 3 months as shown in the following query:

```
<positive>{

op:subtract-yearMonthDurations(xf:yearMonthDuration("P3Y3M"),
xf:yearMonthDuration("P1Y1M"))
}</positive>
```

The resulting positive `yearMonthDuration` value of 2 years and 2 months is returned as shown in the following result:

```
<positive>P2Y2M</positive>
```

Negative

The following example query subtracts a `yearMonthDuration` value equal to 3 years and 3 months from a `yearMonthDuration` value equal to 1 year and 1 month as shown in the following query:

```
<negative>{

op:subtract-yearMonthDurations(xf:yearMonthDuration("P1Y1M"),
xf:yearMonthDuration("P3Y3M"))
}</negative>
```

The resulting negative `yearMonthDuration` value of 2 years and 2 months is returned as shown in the following result:

```
<negative>-P2Y2M</negative>
```

Related Topics

W3C `subtract-yearMonthDurations` operator description.

W3C `yearMonthDuration` description.

xf:yearMonthDuration constructor description.

op:multiply-yearMonthDuration

Multiplies `$yearMonthDuration-var` with `$decimal-var`.

Signatures

`op:multiply-yearMonthDuration(xf:yearMonthDuration $yearMonthDuration-var, xs:decimal $decimal-var) →xf:yearMonthDuration`

Arguments

Data Type	Argument	Description
`xf:yearMonthDuration`	`$yearMonthDuration-var`	Contains a time duration that can contain years and months.
`xs:decimal`	`$decimal-var`	Contains a decimal value, for example: `1.1`.

Returns

Returns the `yearMonthDuration` value of dividing `$yearMonthDuration-var` with `$decimal-var`. The return value is rounded up to the nearest month and year as shown in the following example.

Examples

Round Up

Multiplying the 1 year value of `$yearMonthDuration-var` by `1.5` results in 1 year and 6 months. Multiplying the 1 month value of `$yearMonthDuration-var` by `1.5` results in 1.5 months which is rounded up to 2 months. Adding 1 year and 6 months to 2 months results in a `yearMonthDuration` of 1 year and 8 months as shown in the following example query:

```
let $yearMonthDuration-var := xf:yearMonthDuration("P1Y1M")
return
let $decimal-var := 1.5
return
let $mydur := op:multiply-yearMonthDuration($yearMonthDuration-var,
$decimal-var)
return
```

```
<result>
       <years>{xf:get-years-from-yearMonthDuration($mydur)}</years>
       <months>{xf:get-months-from-yearMonthDuration($mydur)}</months>
</result>
```

The preceding query generates the following result:

```
<result>
       <years>1</years>
       <months>8</months>
</result>
```

Not Enough to Round Up

Multiplying a 1 month `yearMonthDuration` by `0.49` results in 0.49 months which is rounded down to zero months as shown in the following example query:

```
let $yearMonthDuration-var := xf:yearMonthDuration("P1M")
return
let $decimal-var := 0.49
return
let $mydur := op:multiply-yearMonthDuration($yearMonthDuration-var,
$decimal-var)
return
<result>
       <years>{xf:get-years-from-yearMonthDuration($mydur)}</years>
       <months>{xf:get-months-from-yearMonthDuration($mydur)}</months>
</result>
```

The preceding query generates the following result:

```
<result>
       <years>0</years>
       <months>0</months>
</result>
```

Related Topics

W3C `multiply-yearMonthDuration` operator description.

W3C `yearMonthDuration` description.

xf:yearMonthDuration constructor description.

op:divide-yearMonthDuration

Divides `$yearMonthDuration-var` by `$decimal-var`.

Signatures

`op:divide-yearMonthDuration(xf:yearMonthDuration $yearMonthDuration-var, xs:decimal $decimal-var)` →`xf:yearMonthDuration`

Arguments

Data Type	Argument	Description
`xf:yearMonthDuration`	`$yearMonthDuration-var`	Contains a time duration that can contain years and months.
`xs:decimal`	`$decimal-var`	Contains a decimal value, for example: `1.1`.

Returns

Returns the `yearMonthDuration` value of dividing `$yearMonthDuration-var` by `$decimal-var`. The return value is rounded up to the nearest year and month as shown in following example.

Examples

Round Up

Dividing the 1 year value of `$yearMonthDuration-var` by `2.0` results in 6 months. Dividing the 1 month value of `$yearMonthDuration-var` by `2.0` results in .5 months which is rounded up to 1 month. Adding 6 months to 1 month results in a `yearMonthDuration` of 7 months as shown in the following example query:

```
let $yearMonthDuration-var := xf:yearMonthDuration("P1Y1M")
return
let $decimal-var := 2
return
let $mydur := op:divide-yearMonthDuration($yearMonthDuration-var, $decimal-var)
return
<result>
	<years>{xf:get-years-from-yearMonthDuration($mydur)}</years>
	<months>{xf:get-months-from-yearMonthDuration($mydur)}</months>
</result>
```

The preceding query generates the following result:

```
<result>
       <years>0</years>
       <months>7</months>
</result>
```

Not Enough to Round Up

Dividing a 1 month `yearMonthDuration` by `2.04` results in 0.4901... months which is rounded down to zero months as shown in the following example query:

```
let $yearMonthDuration-var := xf:yearMonthDuration("P1M")
return
let $decimal-var := 2.04
return
let $mydur := op:divide-yearMonthDuration($yearMonthDuration-var, $decimal-var)
return
<result>
       <years>{xf:get-years-from-yearMonthDuration($mydur)}</years>
       <months>{xf:get-months-from-yearMonthDuration($mydur)}</months>
</result>
```

The preceding query generates the following result:

```
<result>
       <years>0</years>
       <months>0</months>
</result>
```

Related Topics

W3C `divide-yearMonthDuration` operator description.

W3C `yearMonthDuration` description.

xf:yearMonthDuration constructor description.

op:add-dayTimeDurations

Adds `$dayTimeDuration-var1` to `$dayTimeDuration-var2`.

Signatures

`op:add-dayTimeDurations(xf:dayTimeDuration $dayTimeDuration-var1, xf:dayTimeDuration $dayTimeDuration-var2) →xf:dayTimeDuration`

Arguments

Data Type	Argument	Description
`xf:dayTimeDuration`	`$dayTimeDuration-var1`	Contains a time duration that can contain days, hours, minutes, and seconds.
`xf:dayTimeDuration`	`$dayTimeDuration-var2`	Contains a time duration that can contain days, hours, minutes, and seconds.

Returns

Returns the `dayTimeDuration` value of adding `$dayTimeDuration-var1` to `$dayTimeDuration-var2`.

Examples

Simple

The following example query adds a `dayTimeDuration` value equal to 1 day, 2 hours, 30 minutes, and 5 seconds to a `dayTimeDuration` value equal to 31 minutes as shown in the following query:

```
<dayTimeDuration>{
       op:add-dayTimeDurations(xf:dayTimeDuration("P1DT2H30M5S"),
xf:dayTimeDuration("PT31M"))
}</dayTimeDuration>
```

The resulting `dayTimeDuration` value of 1 day, 3 hours, 1 minute, and 5 seconds is returned as shown in the following result:

```
<dayTimeDuration>P1DT3H1M5S</dayTimeDuration>
```

Related Topics

W3C `add-dayTimeDurations` operator description.

W3C `dayTimeDuration` description.

xf:dayTimeDuration constructor description.

op:subtract-dayTimeDurations

Subtracts the value of `$dayTimeDuration-var2` from `$dayTimeDuration-var1`.

Signatures

`op:subtract-dayTimeDurations(xf:dayTimeDuration $dayTimeDuration-var1, xf:dayTimeDuration $dayTimeDuration-var2) →xf:dayTimeDuration`

Arguments

Data Type	Argument	Description
`xf:dayTimeDuration`	`$dayTimeDuration-var1`	Contains a time duration that can contain days, hours, minutes, and seconds.
`xf:dayTimeDuration`	`$dayTimeDuration-var2`	Contains a time duration that can contain days, hours, minutes, and seconds.

Returns

Returns the `dayTimeDuration` value of subtracting `$dayTimeDuration-var2` from `$dayTimeDuration-var1`.

Examples

Positive

The following example query subtracts a `dayTimeDuration` value equal to 1 day and 1 minute from a `dayTimeDuration` value equal to 3 days, 3 hours, 3 minutes, and 3 seconds as shown in the following query:

```
<positive>{

op:subtract-dayTimeDurations(xf:dayTimeDuration("P3DT3H3M3S"),
xf:dayTimeDuration("P1DT1M"))
}</positive>
```

The resulting positive `dayTimeDuration` value of 2 days, 3 hours, 2 minutes and 3 seconds is returned as shown in the following result:

```
<positive>P2DT3H2M3S</positive>
```

Negative

The following example query subtracts a `dayTimeDuration` value equal to 3 days, 3 hours, 3 minutes, and 3 seconds from a `dayTimeDuration` value equal to 1 day and 1 minute as shown in the following query:

```
<negative>{
              op:subtract-dayTimeDurations(xf:dayTimeDuration("P1DT1M"),
xf:dayTimeDuration("P3DT3H3M3S"))
}</negative>
```

The resulting negative `dayTimeDuration` value of 2 years and 2 months is returned as shown in the following result:

```
<negative>-P2DT3H2M3S</negative>
```

Related Topics

W3C `subtract-dayTimeDurations` operator description.

W3C `dayTimeDuration` description.

xf:dayTimeDuration constructor description.

op:multiply-dayTimeDuration

Multiplies `$dayTimeDuration-var` with `$decimal-var`.

Signatures

`op:multiply-dayTimeDuration(xf:dayTimeDuration $dayTimeDuration-var, xs:decimal $decimal-var) →xf:dayTimeDuration`

Arguments

Data Type	Argument	Description
`xf:dayTimeDuration`	`$dayTimeDuration-var`	Contains a time duration that can contain days, hours, minutes, and seconds.
`xs:decimal`	`$decimal-var`	Contains a decimal value, for example: `1.1`.

Returns

Returns the `dayTimeDuration` value of dividing `$dayTimeDuration-var` with `$decimal-var`.

Examples

Simple

Multiplying the 1 day value of `$dayTimeDuration-var` by `1.5` results in 1 day and 12 hours. Multiplying the 1 hour value of `$dayTimeDuration-var` by `1.5` results in 1 hour and 30 minutes. Adding 1 day and 12 hours to 1 hour and 30 minutes results in a `dayTimeDuration` of 1 day, 13 hours, and 30 minutes as shown in the following example query:

```
<result>{
       op:multiply-dayTimeDuration(xf:dayTimeDuration("P1DT1H"), 1.5)
}</result>
```

The preceding query generates the following result:

```
<result>P1DT13H30M</result>
```

Related Topics

W3C `multiply-dayTimeDuration` operator description.

W3C `dayTimeDuration` description.

xf:dayTimeDuration constructor description.

op:divide-dayTimeDuration

Divides `$dayTimeDuration-var` by `$decimal-var`.

Signatures

`op:divide-dayTimeDuration(xf:dayTimeDuration $dayTimeDuration-var, xs:decimal $decimal-var)` →`xf:dayTimeDuration`

Arguments

Data Type	Argument	Description
`xf:dayTimeDuration`	`$dayTimeDuration-var`	Contains a time duration that can contain days, hours, minutes, and seconds.
`xs:decimal`	`$decimal-var`	Contains a decimal value, for example: `1.1`.

Returns

Returns the `dayTimeDuration` value of dividing `$dayTimeDuration-var` by `$decimal-var`.

Examples

Simple

Dividing the 1 day value of `$dayTimeDuration-var` by `2.0` results in 12 hours. Dividing the 1 hour value of `$dayTimeDuration-var` by `2.0` results in 30 minutes. Adding these values together results in a `dayTimeDuration` of 12 hours and 30 minutes as shown in the following example query:

```
<result>{
       op:divide-dayTimeDuration(xf:dayTimeDuration("P1DT1H"), 2.0)
}</result>
```

The preceding query generates the following result:

```
<result>PT12H30M</result>
```

Related Topics

W3C `divide-dayTimeDuration` operator description.

W3C `dayTimeDuration` description.

xf:dayTimeDuration constructor description.

XQuery Occurrence Indicators

The following section defines the supported XQuery occurrence indicators. An occurrence indicator defines how many times an item may occur. Occurrence indicators are used in XQuery function signatures to define how many items can be passed into a argument and how many items can be returned from a function.

None

If no occurrence indicator is specified, than the item must appear once and only once as shown in the following example function signature:

```
bea-xf:trim-left(xs:string $string-var) →xs:string
```

In the preceding example, just a single item must be specified for the `$string-var1` argument of the `trim-left` function. For example, the following would be a *valid* invocation of the `normalizedString` function:

```
<result>{bea-xf:trim-left("   abc   ")}</result>
```

The following are *invalid* invocations of the `normalizedString` function, as specified by the occurrence indicator of the `$string-var` argument:

```
<result>{bea-xf:trim-left(())}</result>
```

```
<result>{bea-xf:trim-left("   abc   ","   def   ")}</result>
```

?

The `?` occurrence indicator defines that the item can occur once or zero times. An item appearing zero times means that the empty sequence is passed in as an argument. (See the following example for details.) The empty sequence is a sequence containing zero items `()`, which is similar to null in SQL.

The `?` occurrence indicator is specified for both the `$string-var1` and `$string-var2` arguments of the following example XQuery function signature:

```
xf:tokenize(xs:string? $string-var1, xs:string? $string-var2) →xs:string*
```

The `?` occurrence indicator for the `$string-var1` argument defines that the item can occur once or zero times, as shown in the following table.

Occurs This Many Times . . .	Example
Zero	`tokenize((),"\s")`
One	`tokenize("Jane fell down the hill", "\s")`

*

The `*` occurrence indicator defines that the item can contain zero or more items. The `*` occurrence indicator is specified in the return value of the following example XQuery function signature:

```
xf:tokenize(xs:string? $string-var1, xs:string? $string-var2) →xs:string*
```

An `*` occurrence indicator as part of the return value of a function defines that zero or more items may be returned from that function, as shown in the examples of the following table.

Examples	How Many Items Are Returned?	What is Returned?
`tokenize("","\s")`	Zero	
`tokenize("Jane", "\s")`	One	`Jane`
`tokenize("Jane fell down", "\s")`	Many (In this case, three)	`("Jane", "fell", "down")`

+

The `+` occurrence indicator defines that the item must appear one or more times.

CHAPTER 17

XQuery Namespace Conventions

Namespaces provide a mechanism to uniquely distinguish names used in XML documents. The W3C uses by convention the following namespace prefixes to identity W3C XQuery data types (xs:), functions (xf:), and operations (op:). In addition, BEA has defined the bea-xf: namespace to uniquely identify additional BEA supplied functions and data types. These XQuery namespace prefixes are used in the XQuery function signatures as shown in the examples provided in the following sections.

This section provides information about the following XQuery namespace prefixes:

- xs:
- xf:
- op:
- bea-xf:

XS:

XML Schema datatypes and the constructors that construct these datatypes belong to the XML Schema namespace. The XML Schema namespace is identified by the following URI:

`http://www.w3.org/2001/XMLSchema`

The `xs:` namespace prefix is associated (by convention) with this namespace URI.

For example, when specifying the XML Schema data type `string` in a function signature, the `xs:` namespace prefix precedes `string` in the `$string-var` argument definition, as shown in the following example function signature:

```
bea-xf:trim-left(xs:string $string-var) →xs:string
```

xf:

W3C XQuery functions belong to the xquery functions namespace. The xquery functions namespace is identified by the following URI:

`http://www.w3.org/2002/08/xquery-functions`

The `xf:` namespace prefix is associated (by convention) with this namespace URI.

For example when invoking a W3C function in an query, prefix the function name with the string `xf:` as shown in the following example query:

```
<l>{
for $tok in xf:tokenize("Jane fell down the hill", "\s")
       return <i>{ $tok }<i>
}</l>
```

op:

W3C XQuery operators belong to the xquery operators namespace. The xquery operators namespace is identified by the following URI:

`http://www.w3.org/2002/08/xquery-operators`

The `op:` namespace prefix is associated (by convention) with this namespace URI.

For example when invoking a W3C operation in an query, prefix the function name with the string `op:` as shown in the following example query:

```
<num_days>{get-days-from-dayTimeDuration(op:subtract-dates(date("2002-08-3
0"),date("2001-08-30")))}</num_days>
```

bea-xf:

BEA XQuery functions belong to the bea xquery functions namespace. The bea xquery namespace is identified by the following URI:.

`http://www.bea.com/2002/xquery-functions`

The `bea-xf:` namespace prefix is associated (by convention) with this namespace URI.

For example when invoking a BEA function in an query, prefix the function name with the string `bea-xf:` as shown in the following example query:

```
<result>{bea-xf:trim-left("   abc   ")}</result>
```

CHAPTER 18

XQuery Data Types

The following are the XML Schema data types used in the XQuery language:

- `xs:anyURI`
- `xs:boolean`
- `xs:byte`
- `xs:date`
- `xs:dateTime`
- `xs:decimal`
- `xf:dayTimeDuration`
- `xs:double`
- `xs:duration`
- `xs:float`
- `xs:gDay`
- `xs:gMonthDay`
- `xs:gYear`
- `xs:gYearMonth`
- `xs:int`

- `xs:long`
- `xs:Name`
- `xs:QName`
- `xs:short`
- `xs:string`
- `xs:time`
- `xf:yearMonthDuration`

Note: For performance reasons, the integer supported by this XQuery engine is equivalent to a Java `long`, which is smaller then the W3C XML Schema integer, which has an arbitrary length. To learn more, see the `integer` description.

item

The item data type is an atomic value or a node. The item data type is an XQuery specific data type.

Related Topics

XQuery `item` description.

XQuery SequenceType description.

integer

A sequence of decimal digits (0-9) within the range of 9,223,372,036,854,775,807 to -9,223,372,036,854,775,808. For performance reasons, the integer supported by this XQuery engine is equivalent to a Java `long`, which is smaller then the W3C XML Schema integer, which has an arbitrary length.

node

The node data type is either an element, an attribute, a document, a text-node, a processing instruction, or a comment. The node data type is an XQuery specific data type.

Related Topics

XQuery `Node` description.

XQuery SequenceType description.

CHAPTER 19

XQuery Language and XML Reference

This section provides XQuery language and XML links to the W3C Working Draft 16 August 2002 XQuery language and W3C XML 1.0 documentation, respectively.

This section contains the following topics:

- XQuery Prologs
- XQuery Expressions
- XQuery FLWR Expressions
- XQuery Namespaces
- XQuery Function Definitions
- XQuery Function Calls and Arguments
- XQuery Path Expressions
- XQuery Literals
- XQuery Combining Sequences
- XQuery Conditional Expressions
- XQuery Logical Expressions
- XQuery Comparison Expressions
- XML Element Declarations

- XML Attribute Declarations
- XML CDATA Sections
- XML Comments
- XML Prolog and Document Type Declaration

XQuery Prologs

To learn more about XQuery prologs, see the following URL:

`http://www.w3.org/TR/2002/WD-xquery-20020816/#id-query-prolog`

XQuery Expressions

To learn more about XQuery expressions, see the following URL:

`http://www.w3.org/TR/2002/WD-xquery-20020816/#id-expressions`

XQuery FLWR Expressions

To learn more about XQuery FLWR expressions (`for`, `let`, `where`, and `return`), see the following URL:

`http://www.w3.org/TR/2002/WD-xquery-20020816/#id-flwr-expressions`

To learn more about using the `for` and `where` clauses, see Step 4: Mapping a Repeating Element (Join) in *Tutorial: Building Your First Data Transformation.*

XQuery Namespaces

To learn more about the syntax of XQuery Namespaces, see the following URL:

`http://www.w3.org/TR/2002/WD-xquery-20020816/#id-namespace-decls`

To learn more about XQuery namespaces, see Understanding the Transformation in the *Tutorial: Building Your First Data Transformation.*

To learn more about the namespace prefixes used in WebLogic Workshop, see "XQuery Namespace Conventions" on page 17-1.

XQuery Function Definitions

To learn more about defining functions, see the following URL:

http://www.w3.org/TR/2002/WD-xquery-20020816/#FunctionDefns

XQuery Function Calls and Arguments

To learn more about function calls and arguments, see the following URL:

http://www.w3.org/TR/2002/WD-xquery-20020816/#id-function-calls

To learn more about adding function calls to queries using the mapper, see “Invoking Functions or Operators in a Query” in Modifying Links Using the Target Expression Tab in the *Guide to Data Transformation*.

To learn more about the XQuery functions and operators available from the mapper, see the XQuery function and operator chapters in the “XQuery Reference” on page 1-1.

XQuery Path Expressions

To learn more about path expressions, see the following URL:

http://www.w3.org/TR/2002/WD-xquery-20020816/#id-path-expressions

XQuery Literals

To learn more about XQuery string and numeric literals, see the following URL:

http://www.w3.org/TR/2002/WD-xquery-20020816/#id-literals

XQuery Combining Sequences

To learn more about the operators for combining sequences of nodes, see the following URL:

http://www.w3.org/TR/2002/WD-xquery-20020816/#combining_seq

XQuery Conditional Expressions

To learn more about conditional expressions based on the `if`, `then`, and `else` keywords, see the following URL:

http://www.w3.org/TR/2002/WD-xquery-20020816/#id-conditionals

XQuery Logical Expressions

To learn more about the `and` and `or` logical expressions, see the following URL:

http://www.w3.org/TR/2002/WD-xquery-20020816/#id-logical-expressions

XQuery Comparison Expressions

To learn more comparison expressions, see the following URL:

http://www.w3.org/TR/2002/WD-xquery-20020816/#id-comparisons

XML Element Declarations

To learn more about XML element declarations, see the following URL:

http://www.w3.org/TR/2004/REC-xml-20040204/#elemdecls

WebLogic Workshop uses XML Schemas (and not DTDs) for the validation of XML. To learn more about XML element type declarations with XML Schemas, see the following URL:

http://www.w3.org/TR/2001/REC-xmlschema-1-20010502/#cElement_Declarations

XML Attribute Declarations

To learn more about XML attribute declarations, see the following URL:

http://www.w3.org/TR/2004/REC-xml-20040204/#attdecls

WebLogic Workshop uses XML Schemas (and not DTDs) for the validation of XML. To learn more about XML attribute declarations with XML Schemas, see the following URL:

http://www.w3.org/TR/xmlschema-1/#cAttribute_Declarations

XML CDATA Sections

To learn more about XML CDATA sections, see the following URL:

http://www.w3.org/TR/2004/REC-xml-20040204/#sec-cdata-sect

XML Comments

To learn more about XML comments, see the following URL:

http://www.w3.org/TR/2004/REC-xml-20040204/#sec-comments

XML Prolog and Document Type Declaration

To learn more about XML prolog and document type declarations, see the following URL:

http://www.w3.org/TR/2004/REC-xml-20040204/#sec-prolog-dtd