

Workflow query system

Overview

Daisy's workflow API provides a query system that allows for flexible querying of process instances, tasks and timers.

The query system allows:

- to specify a flat set of conditions on built-in properties, process variables, and task variables. A few 'special conditions' are also available. Conditions are either AND-ed or OR-ed together ('match all' or 'match any').
- results can be sorted on properties and variables.
- either the full process or task objects are returned, or a resultset (table) structure of selected properties and variables.
- the returned results can be limited to a certain 'chunk'.

The query is not expressed in a query language but either as an object structure in the Java interface or an XML structure in the HTTP interface.

Example

Here is an example query expressed as XML, to be submitted via the HTTP API:

```
<?xml version="1.0"?>
<query xmlns="http://outerx.org/daisy/1.0#workflow">

  <selectClause>
    <select name="process.id" type="property"/>
    <select name="process.definitionLabel" type="property"/>
    <select name="daisy_description" type="process_variable"/>
  </selectClause>

  <conditions meetAllCriteria="true">
    <propertyCondition name="process.end"
                      operator="is_null"
                      valueType="datetime"/>
  </conditions>

  <orderByClause>
    <orderBy name="process.id" type="property" sortOrder="descending"/>
  </orderByClause>

</query>
```

You can try it out using a tool such as wget. Save the query to a file (e.g. querytest.xml), and then post it to the repository using:

```
wget --post-file="querytest.xml"
     --http-user=testuser
     --http-password=testuser
     --header="Content-Type: text/xml"
     "http://localhost:9263/workflow/query/process?locale=en-US"
```

(everything should be on one line, adjust username, password, repository URL as necessary)

Syntax

This is a reference of the query XML syntax. Note that this XML doesn't mention whether it is a query on tasks or process instances, this is determined by the URL to which the XML is posted.

```
<query xmlns="http://outerx.org/daisy/1.0#workflow"
      chunkOffset="[1-based offset]" chunkLength="...">

  [ selectClause is optional, if not present full entities
    will be returned ]
  <selectClause>
    <select name="[name of built-in prop or a variable"
            type="property|task_variable|process_variable"/>
    [ ...more select elements... ]
  </selectClause>

  <conditions meetAllCriteria="true|false">
    [zero or more of the following condition-describing elements]

    <propertyCondition name="[see tables of properties]"
                      operator="[see table of operators]"
                      valueType="[see tables of properties]">
      [one or more of the following elements, corresponding
        to the valueType and the number of operands the
        operator takes]
      <string>...</string>
      <date>[date in XML Schema format]</date>
      <dateTime>[dateTime in XML Schema format]</dateTime>
      <long>...</long>
      <daisyLink documentId="..." branchId="..." languageId="..." [version="..."]/>
      <actor id="..." pool="true|false">
        [in case of pools, a list of nested id elements can be used]
        <id>...</id>
      </actor>
      <user>[numeric user id]</user>
      <boolean>true|false</boolean>
    </propertyCondition>

    <taskVariableCondition [similar to property conditions] />

    <processVariableCondition [similar to property conditions] />

    <specialCondition name="[see list of special conditions]"
                    [any arguments the special condition takes, the value
                      tags should contain type-specific tags as described
                      for propertyCondition, e.g. <value><string>...</string></value>]
                    <value>...</value>
    </specialCondition>
  </conditions>

  <orderByClause>
    [zero or more orderBy elements, these are very similar
      to the selectClause but with the added possibility to
      specify the sort order]
    <orderBy name="..."
            type="property|task_variable|process_variable"
            sortOrder="ascending|descending"/>
  </orderByClause>
</query>
```

Query reference tables

Built-in process properties

These can be used when searching for processes, tasks or timers.

Property name	Data type	Non-query
process.id	id	
process.start	datetime	
process.end	datetime	
process.suspended	boolean	
process.definitionName	string	
process.definitionVersion	long	
process.definitionLabel	(xml)	X
process.definitionDescription	(xml)	X

Built-in task properties

These can only be used when searching for tasks.

Property name	Data type	Non-query	Comment
task.id	id		
task.actor	user		
task.description	string		Currently not actively used in Daisy, see the daisy_description ¹ process variable for a process-level description.
task.create	datetime		
task.dueDate	datetime		
task.isOpen	boolean		
task.priority	long		
task.definitionLabel	(xml)	X	
task.definitionDescription	(xml)	X	
task.hasPools	boolean	X	
task.hasSwimlane	boolean		

Built-in timer properties

These can only be used when searching for timers.

Property name	Data type	Non-query	Comment
timer.id	id		
timer.name	string		
timer.dueDate	datetime		
timer.suspended	boolean		
timer.exception	string		
timer.failed	boolean	X	To search failed timers, use "timer.exception is not null"

Special conditions

These conditions only work for certain query types.

Query type	Condition name
process	relatedToDocument
task	tasksInMyPool
timer	processRelatedToDocument

Operators

Description	Name	Argument count	Supported datatypes								
			id	string	daisy-link	long	date	datetime	user	boolean	actor
Equals	eq	1	X	X		X	X	X	X	X	X
Less than	lt	1		X		X	X	X			
Greater than	gt	1		X		X	X	X			
Less than or equal	lt_eq	1		X		X	X	X			
Greater than or equal	gt_eq	1		X		X	X	X			
Between	between	2		X		X	X	X			
Is null	is_null	0		X	X	X	X	X	X	X	X
Is not null	is_not_null	0		X	X	X	X	X	X	X	X
Like	like			X	X						

Data types

Name	Java class
id	java.lang.String
string	java.lang.String
daisy-link	org.outerj.daisy.workflow.WfVersionKey
long	java.lang.Long
date	java.util.Date
datetime	java.util.Date
actor	org.outerj.daisy.workflow.WfActorKey
user	org.outerj.daisy.workflow.WfUserKey
boolean	java.lang.Boolean