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# **proactive-python-client**

**Activeeon**

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## PROACTIVE-PYTHON-CLIENT

### 1.1 proactive package

#### 1.1.1 Subpackages

`proactive.model` package

Submodules

`proactive.model.ProactiveFlowActionType` module

```
class proactive.model.ProactiveFlowActionType.ProactiveFlowActionType
Bases: object

    Represents a proactive flow block

    blockType (string)

    branch ()

    flow_action_types = {'CONTINUE': 'continue', 'IF': 'if', 'LOOP': 'loop', 'REPLICATE': 'replicate'}
```

`proactive.model.ProactiveFlowBlock` module

```
class proactive.model.ProactiveFlowBlock.ProactiveFlowBlock
Bases: object

    Represents a proactive flow block

    blockType (string)

    end ()

    flow_block_types = {'END': 'end', 'NONE': 'none', 'START': 'start'}
```

## proactive.model.ProactiveFlowScript module

```
class proactive.model.ProactiveFlowScript.ProactiveFlowScript(script_language)
Bases: proactive.model.ProactiveScript.ProactiveScript

Represents a proactive flow script
script_language (ProactiveScriptLanguage) implementation (string)

getActionTarget()
getActionTargetContinuation()
getActionTargetElse()
getActionType()
isBranchFlowScript()
isLoopFlowScript()
isReplicateFlowScript()
setActionTarget(target)
setActionTargetContinuation(target)
setActionTargetElse(target)
setActionType(action_type)
```

## proactive.model.ProactiveForkEnv module

```
class proactive.model.ProactiveForkEnv.ProactiveForkEnv(script_language)
Bases: proactive.model.ProactiveScript.ProactiveScript

Represents a generic proactive fork env script
script_language (ProactiveScriptLanguage) implementation (string) java_home (string)

getJavaHome()
setJavaHome(java_home)
```

## proactive.model.ProactiveJob module

```
class proactive.model.ProactiveJob.ProactiveJob
Bases: object

Represents a generic proactive job
job_name (string) job_tasks (list) input_folder (string) output_folder (string)

addGenericInformation(key, value)
addTask(task)
addVariable(key, value)
clearGenericInformation()
clearTasks()
clearVariables()
```

```
getGenericInformation()
getInputFolder()
getJobName()
getOutputFolder()
getTasks()
getVariables()
hasVariables()
removeGenericInformation(key)
removeTask(task)
removeVariable(key)
setInputFolder(input_folder)
setJobName(job_name)
setOutputFolder(output_folder)
```

## proactive.model.ProactiveScript module

```
class proactive.model.ProactiveScript.ProactivePostScript(script_language)
Bases: proactive.model.ProactiveScript.ProactiveScript
Represent a post-script for a proactive task

class proactive.model.ProactiveScript.ProactivePreScript(script_language)
Bases: proactive.model.ProactiveScript.ProactiveScript
Represent a pre-script for a proactive task

class proactive.model.ProactiveScript.ProactiveScript(script_language)
Bases: object
Represents a generic proactive script
script_language (ProactiveScriptLanguage) implementation (string)
getImplementation()
getScriptLanguage()
setImplementation(implementation)
setImplementationFromFile(script_file)
setScriptLanguage(script_language)
```

## [proactive.model.ProactiveScriptLanguage module](#)

```
class proactive.model.ProactiveScriptLanguage.ProactiveScriptLanguage
Bases: object

Represents the programming languages supported by Proactive
supported_languages (dict)

docker_compose()
get_supported_languages()
groovy()
is_language_supported(language)
javascript()
jython()
linux_bash()
perl()
powershell()
python()
r()
ruby()
scalaw()
supported_languages = {'DockerCompose': 'docker-compose', 'Groovy': 'groovy', 'Javascript': 'node', 'Java': 'java', 'Python': 'python', 'Ruby': 'ruby', 'Perl': 'perl', 'Powershell': 'powershell', 'Bash': 'bash', 'CMD': 'cmd', 'Scalaw': 'scalaw'}
windows_cmd()
```

## [proactive.model.ProactiveSelectionScript module](#)

```
class proactive.model.ProactiveSelectionScript.ProactiveSelectionScript(script_language)
Bases: proactive.model.ProactiveScript.ProactiveScript

Represents a proactive selection script
script_language (ProactiveScriptLanguage) implementation (string) is_dynamic (boolean)

isDynamic()
setIsDynamic(is_dynamic)
```

## [proactive.model.ProactiveTask module](#)

```
class proactive.model.ProactiveTask.ProactivePythonTask
Bases: proactive.model.ProactiveTask.ProactiveTask

Represents a proactive python task
setTaskExecutionFromFile(task_file, parameters=[], displayTaskResultOnScheduler=True)
setTaskExecutionFromLambdaFunction(lambda_function)
```

```
class proactive.model.ProactiveTask.ProactiveTask(script_language=None)
Bases: object

Represents a generic proactive task

script_language (ProactiveScriptLanguage) fork_environment (ProactiveForkEnv) task_name (string)
task_implementation (string) generic_information (map) input_files (list) output_files (list) dependencies
(list[ProactiveTask]) pre_script (ProactivePreScript) post_script (ProactivePostScript) flow_script (Proactive-
FlowScript) flow_block (ProactiveFlowBlock)

addDependency (task)
addGenericInformation (key, value)
addInputFile (input_file)
addOutputFile (output_file)
addVariable (key, value)
clearDependencies ()
clearGenericInformation ()
clearInputFiles ()
clearOutputFiles ()
clearVariables ()
getDependencies ()
getDescription ()
getFlowBlock ()
getFlowScript ()
getForkEnvironment ()
getGenericInformation ()
getInputFiles ()
getOutputFiles ()
getPostScript ()
getPreScript ()
getScriptLanguage ()
getSelectionScript ()
getTaskImplementation ()
getTaskName ()
getVariables ()
hasFlowBlock ()
hasFlowScript ()
hasForkEnvironment ()
hasPostScript ()
hasPreScript ()
```

```
hasSelectionScript()
hasVariables()
removeDependency(task)
removeGenericInformation(key)
removeInputFile(input_file)
removeOutputFile(output_file)
removeVariable(key)
setDescription(description)
setFlowBlock(flow_block)
setFlowScript(flow_script)
setForkEnvironment(fork_environment)
setPostScript(post_script)
setPreScript(pre_script)
setScriptLanguage(script_language)
setSelectionScript(selection_script)
setTaskImplementation(task_implementation)
setTaskImplementationFromFile(task_file)
setTaskName(task_name)
```

## Module contents

### 1.1.2 Submodules

#### 1.1.3 proactive.ProactiveBuilder module

```
class proactive.ProactiveBuilder.ProactiveBuilder(proactive_factory=None)
Bases: object
```

Represent a generic builder

- proactive\_factory (ProactiveFactory)

```
getProactiveFactory()
```

Get the used Proactive factory

**Returns** A ProactiveFactory object

```
setProactiveFactory(proactive_factory)
```

Set the Proactive factory

**Parameters** `proactive_factory` – A valid ProactiveFactory object

```
class proactive.ProactiveBuilder.ProactiveJobBuilder(proactive_factory,
                                                     proactive_job_model=None,
                                                     debug=False,
                                                     log4py_props_file=None)
```

Bases: `proactive.ProactiveBuilder.ProactiveBuilder`

Represent a proactive job builder

- proactive\_factory (ProactiveFactory)
- proactive\_job (ProactiveJob)
- job (org.ow2.proactive.scheduler.common.job.TaskFlowJob)

**create()**  
Create the Proactive java job

**Returns** self

**getProactiveFactory()**  
Get the used Proactive factory

**Returns** A ProactiveFactory object

**getProactiveJob()**  
Get the Proactive java job

**Returns** The Proactive java job object

**getProactiveJobModel()**  
Get the Proactive job model

**Returns** The Proactive Python job model

**setProactiveFactory(proactive\_factory)**  
Set the Proactive factory

**Parameters** **proactive\_factory** – A valid ProactiveFactory object

**setProactiveJobModel(proactive\_job)**  
Set the Proactive Python job model

**Parameters** **proactive\_job** – A valid job model

```
class proactive.ProactiveBuilder.ProactiveTaskBuilder(proactive_factory, proactive_task_model=None, debug=False, log4py_props_file=None)
```

Bases: *proactive.ProactiveBuilder.ProactiveBuilder*

Represent a proactive task builder

- proactive\_task (ProactiveTask)
- script (jvm.org.ow2.proactive.scripting.SimpleScript)
- task\_script (jvm.org.ow2.proactive.scripting.TaskScript)
- script\_task (jvm.org.ow2.proactive.scheduler.common.task.ScriptTask)

**create()**  
Create a Proactive java task

**Returns** The Proactive java task object

**getProactiveTaskModel()**  
Get the Proactive task model

**Returns** The Proactive Python task model

**setProactiveTaskModel(proactive\_task\_model)**  
Set the Proactive Python task model

**Parameters** **proactive\_job** – A valid task model

### 1.1.4 proactive.ProactiveFactory module

```
class proactive.ProactiveFactory.ProactiveFactory(runtime_gateway=None)
Bases: object
```

[https://www.activeeon.com/public\\_content/documentation/javadoc/latest/index.html](https://www.activeeon.com/public_content/documentation/javadoc/latest/index.html)

```
create_connection_info(url, username, password, credentials_file, insecure)
```

Create a ProActive connection info [https://www.activeeon.com/public\\_content/documentation/javadoc/latest/org/ow2/proactive/authentication/ConnectionInfo.html](https://www.activeeon.com/public_content/documentation/javadoc/latest/org/ow2/proactive/authentication/ConnectionInfo.html)

#### Parameters

- **url** – The ProActive server URL
- **username** – A valid username
- **password** – A valid password
- **credentials\_file** – A credentials file path
- **insecure** – If set True, the connection is set to the insecure mode

**Returns** A ConnectionInfo object

```
create_flow_script(script)
```

Create a ProActive flow script [https://www.activeeon.com/public\\_content/documentation/javadoc/latest/org/ow2/proactive/scheduler/common/task/flow/FlowScript.html](https://www.activeeon.com/public_content/documentation/javadoc/latest/org/ow2/proactive/scheduler/common/task/flow/FlowScript.html)

#### Parameters **script** – A valid flow action

**Returns** A FlowScript object

```
create_fork_environment()
```

Create a ProActive fork environment [https://www.activeeon.com/public\\_content/documentation/javadoc/latest/org/ow2/proactive/scheduler/common/task/ForkEnvironment.html](https://www.activeeon.com/public_content/documentation/javadoc/latest/org/ow2/proactive/scheduler/common/task/ForkEnvironment.html)

**Returns** A ForkEnvironment object

```
create_job()
```

Create a ProActive job [https://www.activeeon.com/public\\_content/documentation/javadoc/latest/org/ow2/proactive/scheduler/common/job/TaskFlowJob.html](https://www.activeeon.com/public_content/documentation/javadoc/latest/org/ow2/proactive/scheduler/common/job/TaskFlowJob.html)

**Returns** A TaskFlowJob object

```
create_job2xml_transformer()
```

Create a ProActive job to XML transformer [https://www.activeeon.com/public\\_content/documentation/javadoc/latest/org/ow2/proactive/scheduler/common/job/factories/Job2XMLTransformer.html](https://www.activeeon.com/public_content/documentation/javadoc/latest/org/ow2/proactive/scheduler/common/job/factories/Job2XMLTransformer.html)

**Returns** A Job2XMLTransformer object

```
create_job_variable()
```

Create a ProActive job variable [https://www.activeeon.com/public\\_content/documentation/javadoc/latest/org/ow2/proactive/scheduler/common/job/JobVariable.html](https://www.activeeon.com/public_content/documentation/javadoc/latest/org/ow2/proactive/scheduler/common/job/JobVariable.html)

**Returns** A JobVariable object

```
create_script_task()
```

Create a ProActive script task [https://www.activeeon.com/public\\_content/documentation/javadoc/latest/org/ow2/proactive/scheduler/common/task/ScriptTask.html](https://www.activeeon.com/public_content/documentation/javadoc/latest/org/ow2/proactive/scheduler/common/task/ScriptTask.html)

**Returns** A ScriptTask object

**create\_selection\_script** (*script\_code*, *script\_language*, *is\_dynamic*)

Create a ProActive selection script [https://www.activeeon.com/public\\_content/documentation/javadoc/latest/org/ow2/proactive/scripting/SelectionScript.html](https://www.activeeon.com/public_content/documentation/javadoc/latest/org/ow2/proactive/scripting/SelectionScript.html)

#### Parameters

- **script\_code** – The selection script implementation
- **script\_language** – The selection script language
- **is\_dynamic** – If set True, the selection script will be set as dynamic

**Returns** A SelectionScript object

**create\_simple\_script** (*script\_code*, *script\_language*)

Create a ProActive simple script [https://www.activeeon.com/public\\_content/documentation/javadoc/latest/org/ow2/proactive/scripting/SimpleScript.html](https://www.activeeon.com/public_content/documentation/javadoc/latest/org/ow2/proactive/scripting/SimpleScript.html)

#### Parameters

- **script\_code** – The script implementation
- **script\_language** – The script language

**Returns** A SimpleScript object

**create\_smart\_proxy** ()

Create a ProActive smart proxy [https://doc.activeeon.com/javadoc/latest/org/ow2/proactive\\_grid\\_cloud\\_portal/smartproxy/RestSmartProxyImpl.html](https://doc.activeeon.com/javadoc/latest/org/ow2/proactive_grid_cloud_portal/smartproxy/RestSmartProxyImpl.html)

**Returns** A RestSmartProxyImpl object

**create\_task\_script** (*simple\_script*)

Create a ProActive task script [https://www.activeeon.com/public\\_content/documentation/javadoc/latest/org/ow2/proactive/scripting/TaskScript.html](https://www.activeeon.com/public_content/documentation/javadoc/latest/org/ow2/proactive/scripting/TaskScript.html)

**Parameters** **simple\_script** – A valid simple script

**Returns** A TaskScript object

**create\_task\_variable** ()

Create a task variable [https://www.activeeon.com/public\\_content/documentation/javadoc/latest/org/ow2/proactive\\_scheduler/common/task/TaskVariable.html](https://www.activeeon.com/public_content/documentation/javadoc/latest/org/ow2/proactive_scheduler/common/task/TaskVariable.html)

**Returns** A TaskVariable object

**getRuntimeGateway** ()

Get the java runtime gateway

**Returns** The java runtime gateway

**get\_flow\_block** ()

Get the ProActive flow block Class [https://www.activeeon.com/public\\_content/documentation/javadoc/latest/org/ow2/proactive\\_scheduler/common/task/flow/FlowBlock.html](https://www.activeeon.com/public_content/documentation/javadoc/latest/org/ow2/proactive_scheduler/common/task/flow/FlowBlock.html)

**Returns** The FlowBlock Class

**get\_flow\_script** ()

Get the ProActive flow script Class [https://www.activeeon.com/public\\_content/documentation/javadoc/latest/org/ow2/proactive\\_scheduler/common/task/flow/FlowScript.html](https://www.activeeon.com/public_content/documentation/javadoc/latest/org/ow2/proactive_scheduler/common/task/flow/FlowScript.html)

**Returns** The FlowScript Class

**get\_input\_access\_mode** ()

Get the ProActive input access mode Class [https://www.activeeon.com/public\\_content/documentation/javadoc/latest/org/ow2/proactive\\_scheduler/common/task/dataspaces/InputAccessMode.html](https://www.activeeon.com/public_content/documentation/javadoc/latest/org/ow2/proactive_scheduler/common/task/dataspaces/InputAccessMode.html)

**Returns** The InputAccessMode Class

**get\_output\_access\_mode()**

Get the ProActive output access mode Class [https://www.activeeon.com/public\\_content/documentation/javadoc/latest/org/ow2/proactive/scheduler/common/task/dataspaces/OutputAccessMode.html](https://www.activeeon.com/public_content/documentation/javadoc/latest/org/ow2/proactive/scheduler/common/task/dataspaces/OutputAccessMode.html)

**Returns** The OutputAccessMode Class

**setRuntimeGateway(runtime\_gateway=None)**

Set the Proactive java runtime gateway

**Parameters** `runtime_gateway` – A valid java runtime gateway

## 1.1.5 proactive.ProactiveGateway module

```
class proactive.ProactiveGateway.ProActiveGateway(base_url, de-  
bug=False, javaopts=[], log4j_props_file=None,  
log4py_props_file=None)
```

Bases: object

Simple client for the ProActive scheduler REST API See also <https://try.activeeon.com/doc/rest/>

**buildJob(job\_model, debug=False)**

Build the Proactive job to be submitted to the scheduler

**Parameters**

- `job_model` – A valid job model
- `debug` – If set True, the submitted job will be printed for a debugging purpose

**Returns** A Proactive job ready to be submitted

**connect(username=None, password=None, credentials\_path=None, insecure=True)**

Connect to a Proactive server

**Parameters**

- `username` – A valid username
- `password` – A valid password
- `credentials_path` – A credentials file path
- `insecure` – If set True, the gateway will connect in insecure mode

**createBranchFlowScript(script\_implementation, target\_if, target\_else, target\_continuation, script\_language='javascript')**

Create a branch flow script

**Parameters**

- `script_implementation` – The script implementation
- `target_if` – The if target task
- `target_else` – The else target task
- `target_continuation` – The continuationn target task
- `script_language` – The script language

**Returns** A branch ProactiveFlowScript object

```
createDefaultForkEnvironment()
    Create a default fork environment

    Returns A default ProactiveForkEnv object

createDefaultSelectionScript()
    Create a default selection script

    Returns A default ProactiveSelectionScript object

createFlowScript (script_language=None)
    Create a flow script

    Parameters script_language – The script language

    Returns A ProactiveFlowScript object

createForkEnvironment (language=None)
    Create a Proactive fork environment

    Parameters language – The script language

    Returns A ProactiveForkEnv object

createJob ()
    Create a Proactive Job

    Returns A ProactiveJob object

createLoopFlowScript (script_implementation, target, script_language='javascript')
    Create a loop flow script

    Parameters
        • script_implementation – The script implementation
        • target – The loop target
        • script_language – The script language

    Returns A loop ProactiveFlowScript object

createPostScript (language=None)
    Create a Proactive post-script

    Parameters language – The script language

    Returns A ProactivePostScript object

createPreScript (language=None)
    Create a Proactive pre-script

    Parameters language – The script language

    Returns A ProactivePreScript object

createPythonForkEnvironment ()
    Create a Python fork environment

    Returns A Python ProactiveForkEnv object

createPythonSelectionScript ()
    Create a Python selection script

    Returns A Python ProactiveSelectionScript object

createPythonTask ()
    Create a workflow Python task
```

**Returns** A Python ProactiveTask object

**createReplicateFlowScript** (*script\_implementation*, *script\_language='javascript'*)  
Create a replicate flow script

**Parameters**

- **script\_implementation** – The script implementation
- **script\_language** – The script language

**Returns** A replicate ProactiveFlowScript object

**createSelectionScript** (*language=None*)  
Create a Proactive selection script

**Parameters** **language** – The script language

**Returns** A ProactiveSelectionScript object

**createTask** (*language=None*)  
Create a workflow task

**Parameters** **language** – The script language

**Returns** A ProactiveTask object

**disconnect** ()  
Disconnect the gateway from the ProActive server

**exportJob2XML** (*job\_model*, *debug=False*)  
Export the job to an XML file

**Parameters**

- **job\_model** – A valid job model
- **debug** – If set True, the created job will be printed for a debugging purpose

**Returns** The created job as an XML script

**getAllJobs** (*max\_number\_of\_jobs=1000*)  
Get all jobs from the ProActive scheduler

**Parameters** **max\_number\_of\_jobs** – The maximal number of retrieved jobs

**Returns** A list of jobs

**getJobInfo** (*job\_id*)  
Get the job info

**Parameters** **job\_id** – A valid job ID

**Returns** The job info

**getJobResult** (*job\_id*, *timeout=60000*)  
Get the job result

**Parameters**

- **job\_id** – A valid job ID
- **timeout** – A timeout in milliseconds

**Returns** The job results

**getJobState** (*job\_id*)  
Get the job state

---

**Parameters** `job_id` – A valid job ID  
**Returns** The job state

**getProactiveClient ()**  
Get the Proactive gateway  
**Returns** A smart proxy object

**getProactiveFlowBlockType ()**  
Get the Proactive flow block  
**Returns** The ProactiveFlowBlock object

**getProactiveScriptLanguage ()**  
Get Proactive script languages  
**Returns** The ProactiveScriptLanguage object

**getTaskResult (job\_id, task\_name, timeout=60000)**  
Get the task result

**Parameters**

- `job_id` – A valid job ID
- `task_name` – A valid task name
- `timeout` – A timeout in milliseconds

**Returns** The task results

**isConnected ()**  
Verify if the gateway is connected to the ProActive server  
**Returns** True or False

**isJobFinished (job\_id)**  
Verify if a job is finished

**Parameters** `job_id` – A valid job ID  
**Returns** True or False

**printJobOutput (job\_id, timeout=60000)**  
Get the job output

**Parameters**

- `job_id` – A valid job ID
- `timeout` – A timeout in milliseconds

**Returns** The job outputs

**printTaskOutput (job\_id, task\_name, timeout=60000)**  
Get the task outputs

**Parameters**

- `job_id` – A valid job ID
- `task_name` – A valid task name
- `timeout` – A timeout in milliseconds

**Returns** The task outputs

**reconnect ()**

Reconnect the gateway to the ProActive server

**saveJob2XML (job\_model, xml\_file\_path, debug=False)**

Save a job to an external XML file

**Parameters**

- **job\_model** – A valid job model
- **xml\_file\_path** – A valid XML file path
- **debug** – If set True, the created job will be printed for a debugging purpose

**submitJob (job\_model, debug=False)**

Submit a job to the Proactive Scheduler

**Parameters**

- **job\_model** – A valid job model
- **debug** – If set True, the submitted job will be printed for a debugging purpose

**Returns** The submitted job ID

**submitJobWithInputsAndOutputsPaths (job\_model, input\_folder\_path='.', output\_folder\_path='.', debug=False)**

Submit a job to the Proactive Scheduler with input and output paths

**Parameters**

- **job\_model** – A valid job model
- **input\_folder\_path** – Path to the directory containing input files
- **output\_folder\_path** – Path to the local directory which will contain output files
- **debug** – If set True, the submitted job will be printed for a debugging purpose

**Returns** The submitted job ID

**submitWorkflowFromCatalog (bucket\_name, workflow\_name, workflow\_variables={})**

Submit a job from the catalog to the scheduler

**Parameters**

- **bucket\_name** – The bucket in which the workflow is saved
- **workflow\_name** – The workflow name
- **workflow\_variables** – The workflow input variables

**Returns** The submitted job id

**submitWorkflowFromFile (workflow\_xml\_file\_path, workflow\_variables={})**

Submit a job from an xml file to the scheduler

**Parameters**

- **workflow\_xml\_file\_path** – The workflow xml file path
- **workflow\_variables** – The workflow input variables

**Returns** The submitted job id

**submitWorkflowFromURL (workflow\_url\_spec, workflow\_variables={})**

Submit a job from an url to the scheduler

**Parameters**

- **workflow\_url\_spec** – The workflow url
- **workflow\_variables** – The workflow input variables

**Returns** The submitted job id

**terminate()**

Terminate the connection

### 1.1.6 Module contents



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TWO**

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