PMES API Definition

Sandra Corella - Workflows and distributed computing

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1 API Definition

1. **createActivity**: Submits a list of jobs to the PMES service.
2. **getActivityStatus**: Retrieves the JobStatus object of a set of submitted jobs.
3. **getActivityReport**: Gets the activity documents of a set of jobs giving the: JSDLs, jobs status, execution progress, elapsed time and error messages.
4. **terminateActivity**: Terminates a set of submitted jobs.
5. **getSystemStatus**: Provides information about the resources consuption of the system.

Method	Name	Input	Return
POST	createActivity	`ArrayList<JobDefinition> jobDef`	`ArrayList<String> jobIds`
POST	getActivityStatus	`ArrayList<String> jobids`	`ArrayList<JobStatus> jobStatus`
POST	getActivityReport	`ArrayList<String> jobids`	`ArrayList<JobReport> jobReports`
POST	terminateActivity	`ArrayList<String> jobIds`	`ArrayList<String> terminateMessages`
GET	getSystemStatus	-	`SystemStatus`

Table 1: PMES API specification

2 Types

2.1 Main Types

- JobDefinition:

JobDefinition	
Type	name
String	id
String	jobName
App	app
Image	image
User	user
[String]	inputPaths
[String]	outputPaths
String	mountPath
Integer	wallTime
Integer	numNodes
Integer	cores
Float	memory
Float	disk
`HashMap<String, String>`	compss_flags
Integer	initialVMs
Integer	minimumVMs
Integer	maximumVMs
Integer	limitVMs

- JobStatus

JobStatus
PENDING
RUNNING
FINISHED
CANCELLED
FAILED
ALL

- JobReport

JobReport	
Type	name
JobDefinition	jobDefinition
String	jobOutputMessage
String	jobErrorMessage
JobStatus	jobStatus
String	elapsedTime

- SystemStatus

SystemStatus	
Type	name
`ArrayList<Host>`	cluster

2.2 Secondary Types

- App:

App	
Type	name
String	id
String	name
String	target
String	source
String	type
`HashMap<String, String>`	args

- Image:

Image	
Type	name
String	id
String	imageName
String	imageType

- User:

User	
Type	name
String	username
`HashMap<String, String>`	credentials

The credentials should have: uid, gid and token or key and pem.

- Host:

Host	
Type	name
String	name
Integer	usedCores
Integer	totalCores
Float	usedMemory
Float	totalMemory

3 Usage example

```
> curl http://localhost:8080/pmes/pmes/getSystemStatus
{"cluster":[
    {"name":"bsccv14",
     "usedCores":1,
     "totalCores":2400,
     "usedMemory":1.0,
     "totalMemory":9.9195808E7},
    {"name":"bsccv15",
     "usedCores":0,
     "totalCores":2400,
     "usedMemory":0.0,
     "totalMemory":9.9195808E7}
    ]
}
```

Listing 1: getSystemStatus

```
> curl -H 'Content-Type: application/json'
       -X POST
       --data '["18045e7f-a670-46fe-a067-3b1a19870bcf"]'
       http://localhost:8080/pmes/pmes/getActivityStatus
```

```
5
6 ["FINISHED"]
```

Listing 2: getActivityStatus

```
1 > curl -H 'Content-Type: application/json'
2        -X POST
3        --data '["18045e7f-a670-46fe-a067-3b1a19870bcf"]'
4        http://localhost:8080/pmes/pmes/terminateActivity
5
6 ["Job with id 18045e7f-a670-46fe-a067-3b1a19870bcf cannot be
      cancelled,
7   the job has been finished."]
```

Listing 3: terminateActivity

```
1 > curl -H 'Content-Type: application/json'
2        -X POST
3        --data
4        '[{ "jobName": "HelloTest2_584817558cb7550b5e9970b0",
5            "wallTime": "5",
6            "minimumVMs": "1",
7            "maximumVMs": "1",
8            "limitVMs": "1",
9            "initialVMs": "1",
10           "memory": "1",
11           "cores": "1",
12           "inputPaths": ["/home/data.txt"],
13           "outputPaths": ["/home/result.txt"],
14           "mountPath": "/data2/test/usr1"
15           "numNodes": "1",
16           "user":
17              { "username": "usr1",
18                "credentials":
19                { "pem": "/home/pmes/certs/usr1.pem",
20                  "key": "/home/pmes/certs/usr1.key",
21                  "uid": "306",
22                  "gid": "306",
23                  "token": "12345"}
24              },
25           "img": { "imageName": "uuid_pmescompss_83", "imageType":
       "small" },
26           "app":
27              { "name": "HelloTest2",
28                "target": "/home/pmes/testSimple",
29                "source": "launch.sh",
30                "args": { "val1": "Hola", "val2": "Mundo" }
31              }
32        }]'
33     http://localhost:8080/pmes/pmes/createActivity
34
35 ["31eb1268-b6bc-4be2-9fa9-f8a046b752db"]
```

Listing 4: createActivity