PMES API Definition

Sandra Corella - Workflows and distributed computing

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1 Introduction

2 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

3 Types

3.1 Main Types

- JobDefinition:

JobDefinition	
Type	name
String	id
String	jobName
App	app
Image	image
User	user
String	inputPath
String	outputPath
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

3.2 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

- Host:

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

4 Usage example

```
> curl http://localhost:8080/trunk_war_exploded/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"]'
```

```
4        http://localhost:8080/trunk_war_exploded/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/trunk_war_exploded/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           "inputPath": "/home/",
13           "outputPath": "/home/",
14           "numNodes": "1",
15           "user":
16              { "username": "scorella",
17                "credentials":
18                { "pem": "/home/pmes/certs/scorella_test.pem",
19                  "key": "/home/pmes/certs/scorella_test.key" }
20              },
21           "img": { "imageName": "uuid_pmescompss_83", "imageType":
      "small" },
22           "app":
23              { "name": "HelloTest2",
24                "target": "/home/pmes/testSimple",
25                "source": "launch.sh",
26                "args": { "val1": "Hola", "val2": "Mundo" }
27              }
28         }]'
29        http://localhost:8080/trunk_war_exploded/pmes/createActivity
30
31  ["31eb1268−b6bc−4be2−9fa9−f8a046b752db"]
```

Listing 4: createActivity