

PMES

Workflows and distributed computing

March 30, 2017

1 Configuration

1.1 User configuration

PMES vm should have the user pmes.

1.2 Folder structure

At pmes home directory (/home/pmes/) should be the following folders:

- pmes
 - Dashboard
 - logs
 - config
 - jobs

tomcat7 user should have permission to write on folders logs and jobs. Give permissions to the tomcat7 user:

```
sudo usermod -a -G tomcat7 pmes
sudo chmod g+w myfolder
```

1.3 config file

The config file should be at /home/pmes/pmes/config/config.xml. The structure is as follows:

```
<pmes>
  <providerName Name="OpenStack" or "One"/>
  <endPointROCCI>https://extcloud05.ebi.ac.uk:8787/occi1.1/</endPointROCCI>
  <auth>"token" or "x509"</auth>
  <ca-path></ca-path>
  <hosts>
    <host>
      <name>host1</name>
      <MAX_CPU>2400</MAX_CPU>
      <MAX_MEM>99195808</MAX_MEM>
    </host>
    ...
  </hosts>
</pmes>
```

```

    <host>
      <name>hostn</name>
      <MAX_CPU>2400</MAX_CPU>
      <MAX_MEM>99195808</MAX_MEM>
    </host>
  </hosts>
  <logPath>/home/pmes/pmes/logs/</logPath>
  <logLevel>DEBUG</logLevel>
  <runCmd>
    <cmd>boot commands to execute on vms</cmd>
  </runCmd>
  <auth-keys>
    <key>ssh-key 1</key>
    ...
    <key>ssh-key n</key>
  </auth-keys>
</pmes>

```

1.4 ssh

Disable known_hosts

```

Add "StrictHostKeyChecking no" to /etc/ssh/ssh_config
cd ~/.ssh
rm known_hosts
ln -s /dev/null known_hosts

```

1.5 logs

Logs will be at /home/pmes/pmes/logs/. Tomcat logs are at \$CATALINA_HOME/logs/catalina.out

2 Deploy PMES

2.1 PMES Service

The PMES service is deployed using tomcat7. To deploy PMES service copy pmes.war to webapps folder (usually at /var/lib/tomcat7/webapps) and restart tomcat.

```

sudo service tomcat7 stop
sudo cp -r pmes.war /var/lib/tomcat7/webapps/
sudo service tomcat7 start

```

2.2 Dashboard

The Dashboard service is deployed using pm2.

```

cd /home/pmes/pmes/Dashboard/PMES2Dash/
# Install Dependencies
npm install --save

```

```
# Init pm2 Dashboard service
pm2 init /home/pmes/pmes/Dashboard/PMES2Dash/pm.yaml

Data is stored at mongodb database pmes2.

# start mongo service
sudo service mongodb start
# Open mongo console
mongo
# Inside mongo console use pmes2 database
> use pmes2
# show pmes collections
> show collections
# show pmes users
db.users.find()
```

3 Usage

3.1 Dashboard

PMES Dashboard is deployed using pm2. The endpoint is `http://localhost:3000`. There is an initial user created `user: pmes@pmes.com, password: pmes`

3.2 PMES Service

PMES service is deployed using tomcat7. The endpoint is `http://localhost:8080/pmes/pmes/`.

You can call the service using curl (see APIDefinition document) or you can call the service using the python script `/home/pmes/pmes/scripts/curlPmesApi.py`.

```
# api call getSystemStatus
python3 curlPmesApi.py getSystemStatus
# api call getActivityReport
python3 curlPmesApi.py getActivityReport job_id
# api call terminateActivity
python3 curlPmesApi.py terminateActivity job_id
# api call createActivity
python3 curlPmesApi.py createActivity createVM.json
```

`createVM.json` is a json file with a job definition. For example:

```
[{ "jobName": "HelloTest2_584817558cb7550b5e9970b0",
    "wallTime": "5",
    "minimumVMs": "1",
    "maximumVMs": "1",
    "limitVMs": "1",
    "initialVMs": "1",
    "memory": "1.0",
    "cores": "1",
    "disk" : "1.0",
    "inputPaths": ["/home/"],
```

```

    "outputPaths": ["/home/"],
    "mountPath": "",
    "numNodes": "1",
    "user":
      { "username": "lcodo",
        "credentials":
          { "pem": "/home/pmes/certs/pmes.pem",
            "key": "/home/pmes/certs/pmes.key"}
        },
    "img":
      { "imageName": "os_tpl#4f916ede-218b-47e4-93aa-b795a5acf813",
        "imageType": "resource_tpl#721112dd-2f33-40eb-8975-7bd34dbabfc8"
        },
    "app":
      { "name": "HelloTest2",
        "target": "/home/pmes/testSimple",
        "source": "launch.sh",
        "args": { "val1": "Hola", "val2": "Mundo" } ,
        "type": "COMPSs"
        },
    "compss_flags": {}
  }]

```

4 Dependencies

The image and the template should have the following permissions: Use and Manage for user, group and other.

4.1 PMES VM

Dependencies:

- Rocci Client - {<https://github.com/gwdg/rOCCI-cli>; <https://rvm.io/rvm/install#explained>}

```

# Install occi client
curl -L http://go.egi.eu/fedcloud.ui | /bin/bash -

```

If occi uses certificates move grid-security certificates to /etc/

- tomcat7: `install tomcat7 sudo apt-get install tomcat7`
be sure that tomcat7 is using java8. (Export java home)

```

sudo nano /usr/share/tomcat7/bin/setenv.sh
export JAVA_HOME=/usr/lib/jvm/java-8-oracle/

```

if default tomcat7 user is used: no extra configuration is needed.

if the tomcat user is changed to pmes: the following configuration is needed.

```
sudo nano /etc/default/tomcat7 # change TOMCAT7_USER=pmes, TOMCAT7_GROUP=pmes
```

```
sudo nano /etc/init.d/tomcat7 # change TOMCAT7_USER=pmes, TOMCAT7_GROUP=pmes
```

- mongodb: <https://docs.mongodb.com/manual/tutorial/install-mongodb-on-ubuntu/>
- pm2
- node

4.2 APP VM

Dependencies:

1. COMPSs
2. cloud-init: <http://cloudinit.readthedocs.io/en/latest/topics/examples.html>
3. package nis or cifs to mount shared folders. (see document mountFolders)

5 Actual Deploys

5.1 COMPSs VM at bsccv02 - old cluster

Template 105 has Ubuntu 14, COMPSs 2.0 and CIFS.

Template 104 has Ubuntu 16, COMPSs 2.0 and CIFS.

5.2 PMES VM at bsccv02 - old cluster

Dashboard is at <http://192.168.122.12:3000/>

PMES Service is at <http://192.168.122.12:8080/>

5.3 EBI

PMES service is at <http://localhost:8080/pmes/pmes/>. The access is explained at EBIDeployment document.