PMES

Workflows and distributed computing

September 28, 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>
   <workspace>/home/pmes/pmes</workspace>
   <connector className="rOCCIHelper">
       <property>
           <key>providerName</key>
           <value>ONE</value>
       </property>
       ...
   </connector>
   <hosts>
       <host>
           <name>host12</name>
```

```
            <MAX_CPU>2400</MAX_CPU>
            <MAX_MEM>99195808</MAX_MEM>
        </host>
        ...
    </hosts>
    <logPath>/home/pmes/pmes/logs</logPath>
    <logLevel>DEBUG</logLevel>
    <timeout>60</timeout>
    <pollingInterval>5</pollingInterval>
    <runCmd>
        <cmd>echo "config script"</cmd>
    </runCmd>
    <auth-keys>
        <key>...</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"
         "cores": "2"
         "memory": "2.0"
         "disk": "4.0"
       },
    "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 (version >= 0.8)

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.