Quartz Scheduler, Collector and Monitor Components

Introduction

This set of components are useful for scheduling jobs on specific node from a given list of machine based on the cpuload on them.

Quartz scheduler component schedules jobs on a specific node along with some temporal properties.

Along with the scheduler component, there are Monitor components running on all the resources which monitors the cpu load at all times.

Whenever the job is to be scheduled, a Collector component is deployed which collects data(cpu load) from these resources(using Monitor component) and allocates the machines based on the least cpu load. Once the best machine is allocated, the job is scheduled using the Quartz scheduler on the allocated node (along with some clock based properties if needed).

It uses the submit API (SFInterface) for submiting jobs on nodes.

How to build

1. First build the SmartFrog framework by running ant dist in smartfrog
2. Build the Scheduler by running ant in components/quartz
3. Step 3 creates jar files in components/quartz/dist/lib. Copy these jar files to core/smartfrog/dist/lib or update the class path for the SmartFrog daemon so that classes are available at run time.

Component Description (job.sf)

Attribute Name	***Description***	***Optional/Mandatory***
config	Location of config file from which the list of machines should to be read	Optional
machines	Vector of machines	Optional
scheduler	Reference to the scheduler instance	Mandatory
template	Reference to the Collector component	Mandatory
application	Application url which needs to be deployed	Mandatory

The component provides two ways for specifying the list of machines. Either through a config file or as an attribute in the description file. So, only one of the attributes, "config" or "machines" should be provided.

Steps to run

1. Start the quartz scheduler component by deploying components/quartz/src/org/smartfrog/services/quartz/scheduler/scheduler.sf
2. Modify the component description for job in job.sf whose attributes are defined above.
3. Start the monitor components on all the machines whose cpuload needs to be monitored by deploying components/quartz/src/org/smartfrog/services/quartz/monitor/monitor.sf
4. Deploy the job description (job.sf).