

Hands-on activities

SGE activities

Activity 12

Checking JOBS and QUEUE status

Requirements

- Working ROCKS cluster with masternode and at least one compute node (possibly Vmware or VirtualBox)

Steps

- Open a terminal window or remotely login to the cluster master node using the ssh command
- Checking the status of jobs and queues is performed using the command
 - qstat
- Various options can be passed and combined as needed

Options	Explanation
-u {username}	Displays jobs for a single user. Replace {username} by the login-name
-q {queue name}	Displays jobs in a single queue. Replace {queue name} by desired queue-name
-g {type}	Displays summary information by groups, where type is c for queues and t for parallel jobs
-s {selection}	Display subsets where {selection} is r for running, s for suspended, p for pending, z for zombie and h for hold or start-time in future
-explain {state}	Provides explanation of indicated state where {state} may be c for configuration, a for alarms, A for suspended and E for errors.
-U {username}	Displays state of all queues that given user has access to. Replace {username} by the login-name
-f	Requests full or detailed information
-F {queue name}	Displays summary of reserved/used/available resources on given queue
-q *@{host}	Display information for a single host. Replace {host} with node-name
-help	Provides quick help/syntax information. More detailed information is available from the manual page using the command "man qstat".

Activity 13

Checking QUEUE hosts status

Requirements

- Working ROCKS cluster with masternode and at least one compute node (possibly Vmware or VirtualBox)

Steps

- Open a terminal window or remotely login to the cluster master node using the ssh command
- Checking the status of queue hosts is performed using the command
 - qhost
- Various options can be passed and combined as needed

Options	Explanation
-u {username}	Displays jobs for a single user. Replace {username} by the login-name
-q	Displays list of queues on all hosts.
-cb	Displays topology information cores and sockets for hosts
-h {host}	Display information only for indicated host. Replace {host} with hostname
-j	Display all jobs running on hosts
-help	Provides quick help/syntax information. More detailed information is available from the manual page using the command “man qhost”.

Activity 14

Managing jobs

Requirements

- Working ROCKS cluster with masternode and at least one compute node (possibly Vmware or VirtualBox)

Steps

- Open a terminal window or remotely login to the cluster master node using the ssh command
- SGE provides a variety of commands for managing jobs, the most important are listed in the table below.

command	Explanation	Additional information
qsub	Creates or submits a new job. See activity 7 and 8	man qsub
qlogin	Creates or submits an interactive job	man qlogin
qdel	Terminates or deletes a job	man qdel
qhold	Used to place a hold on pending or scheduled jobs	man qhold
qrls	Used to release a held job	man qrls
qresub	Copies or clones an existing job.	man qresub
qalter	Change job parameters or settings for job	man qalter
qmod -cj jobid	Clears error state of running jobs	man qmod

Activity 15

Managing queues

Requirements

- Working ROCKS cluster with masternode and at least one compute node (possibly Vmware or VirtualBox)

Steps

- Open a terminal window or remotely login to the cluster master node using the ssh command
- Become the root user using the command
 - su -
- The most important commands for managing queues are listed in the table below.

command	Explanation	Additional information
qmod -d {queueName}	Disables a queue so it no longer accepts jobs. Note use {queueName}@{hostname} to disable a specific host from running jobs for that queue.	man qmod
qmod -e {queueName}	Enables a queue submits an interactive job. Note use {queueName}@{hostname} to enable a specific host for running jobs for that queue.	man qmod
qmod -sq {queueName}	Suspends a queue	man qmod
qmod -usq {queueName}	Unsuspects a queue	man qmod
qmod -rq {queueName}	Reschedules all running jobs in a queue	man qmod
qmod -cq {queueName}	Clears error state of a queue	man qmod
qconf -sql	List all currently defined queues	man qconf
qconf -sq {queueName}	Show settings for a given queue	man qconf
qconf -mattr {setting} {queueName}	Modify a single setting for given queue	man qconf
qconf -mq {queueName}	Edits all settings for an existing queue.	man qconf
qconf -aq {gpu.q}	Create a new queue called gpu.q	man qconf
qconf -dq {gpu.q}	Deletes an existing queue called gpu.q	man qconf

Activity 15

Configuring and Administing SGE

Requirements

- Working ROCKS cluster with masternode and at least one compute node (possibly Vmware or VirtualBox)

Steps

- Open a terminal window or remotely login to the cluster master node using the ssh command
- Become the root user using the command
 - su -
- In SGE, the qconf command is used for all configuration activities as indicated in the table below.

Command	Explanation	Additional information
qconf -sel	List all execution hosts	man qconf
qconf -sconf global	Show global settings for all hosts	man qconf
qconf -sconf {hostname}	Show settings for given host	man qconf
qconf -mconf {hostname}	Edits all settings for a given host.	man qconf
qconf -s{object}l	List all sub-items of specified object which may be e for execution hosts, conf for configuration, ckpt for check-point interfaces, hgrp for host groups, rqs for resource quotas, p for parallel environments, q for queues, ul for usersets...	man qconf
qconf -a{object} ...	Used for creating new sub-instances of specified object which may be e for execution hosts, conf for configuration, ckpt for check-point interfaces, hgrp for host groups, rqs for resource quotas, p for parallel environments, q for queues, ul for usersets...	man qconf
qconf -d{object} ...	Used to delete existing sub-items of specified object which may be e for execution hosts, conf for configuration, ckpt for check-point interfaces, hgrp for host groups, rqs for resource quotas, p for parallel environments, q for queues, ul for usersets...	man qconf
qconf -m{object} ...	Used to delete existing sub-items of specified object which may be e for execution hosts, conf for configuration, ckpt for check-point interfaces, hgrp for host groups, rqs for resource quotas, p for parallel environments, q for queues, ul for usersets...	man qconf

Activity 16

User GUI for SGE clusters

SGE provides a comprehensive Linux GUI tool that may be useful for users. However in order to use it over an ssh connection from your Linux Laptops, it may be necessary to perform the following steps

Requirements

- Working ROCKS cluster with masternode and at least one compute node (possibly Vmware or VirtualBox)
- Computer running Linux Graphical Desktop Environment or Computer with X-Windows server tool.

Steps

- Install the xfonts-75dpi package using the right command. Example ONLY for Ubuntu systems:

sudo apt-get install xfonts-75dpi

- Then update the fonts

xset +fp /usr/share/fonts/X11/75dpi

xset fp rehash

- Now login to ROCKS login or frontend node with X11 forwarding and Compression enabled
 - ***ssh -XC {user}@{frontend-host}***
- and run the command

qmon

NOTE: This above procedure is for the Linux Desktop Environments ONLY.