Research Computing Policy

Purpose:

Research Computing resources will be made available to the Georgia State University research community and managed jointly by the VP for Research and IS&T Platform and Storage Services (PSS) as an enterprise resource. The Research Computing Allocation Policy provides standards and procedures for the lifecycle of user accounts, allocation policies, communication, home directory folders and permissions, disk quotas, and accounting regarding Research Computing. The VP of Research and the University Research Services and Administration (URSA) will be the means for research faculty to provide oversight and strategic guidance for research computing at Georgia State. The Research Computing Policy governs the allocation of accounts and relevant usage limits to Principal Investigators (PI) on enterprise based, shared high performance computing resources. Accounts will be grouped by PI account. Non-PI accounts associated with a PI can be approved by the PI. The Principal Investigators will be responsible for students and other Georgia State University affiliated researchers whose accounts they approve.

Rationale:

This policy provides a procedure for the allocation and monitoring of enterprise based high performance computing resources so that the resources may be made accessible to researchers at Georgia State University where appropriate.

Scope:

This policy is applicable to the following high performance computing resources (subject to change as new systems become available):
• CARINA (carina.gsu.edu – IBM System p7 755)
• VELA (vela.gsu.edu – IBM System x3850 X5)

Definitions:

Pricipal Investigator (PI) Accounts: a faculty member who has a permanent relationship with GSU (e.g. not Adjunct Faculty)
Non-Principal Investigator Accounts: a person who has a relationship to a permanent faculty member of GSU (e.g. Student/Graduate Assistants and Adjunct Faculty)
System Accounts: a staff member who has a permanent relationship with GSU

Standards & Procedures:

Account Lifecycle

User Accounts: There will be two types of User Accounts granted, one for a Principal Investigator (PI) and one for all other users (non-PI), each of whom must be associated with a PI. PI account requests will be made by filling out the Account Request form located at http://technology.gsu.edu/2012/12/14/high-performance-computing-account/. Also, PI account requests can be made by contacting the Help Center (help@gsu.edu or calling 404-413-4357). Once granted an account, the PI will be responsible for approving any non-PI account

requests associated with their account. These non-PI account requests will also made by filling out the Account Request form located at http://technology.gsu.edu/2012/12/14/high-performance-computing-account/ by a PI in order to ensure that the account is associated with the PI's account via a group membership as well as the physical location of the home directories (see Other Information: Home Directory Folders and Permissions). Also, non-PI account requests can be made by contacting the Help Center (help@gsu.edu or calling 404-413-4357). If a non-PI account request is received by the Help Center, it will be processed by the Data Center and forwarded to the PI for approval. All account names will use the CampusID username and password for the individual desiring the account.

Once approved, the account will be created and a Welcome message sent to the requesting user with the following:

• username/password for logging in to the system (CampusID credentials are used)
• how to access and use the appropriate scheduler
• how to request assistance in using the resource

Account Allocations: Users requesting accounts on enterprise based high performance computing systems that have allocation policies in place must apply for any allocation beyond the default allocation on that resource. Account Allocation Request Applications must be made by the PI via email to the Help Center (help@gsu.edu) and should include the following information: (please use the format below)

Account Renewal: Accounts will need to be renewed on an annual basis. Renewal will be handled via e-mail to the PI who will decide whether or not to keep the account.

Account Transfer: A PI who is leaving GSU can request that their data be transferred to the new PI in the Department. Any non-PI accounts can be transferred from one PI to another as necessary as students move working from one researcher to another. Account transfer requests will also made by contacting the Help Center (help@gsu.edu or calling 404-413-4357) and putting in a ticket.

Account Termination: The VP of Research, the University Research Services and Administration (URSA), and IS&T will govern the termination of Research Computing accounts, following other Georgia State University policy as needed. Non-PI accounts may be terminated at the request of the PI with whom the Non-PI account is associated without approval by the VP of Research, the University Research Services and Administration (URSA), and IS&T. Any users found in violation of this Research Computing Allocation Policy or any other Georgia State University Policies (http://technology.gsu.edu/about/technology-policies/) may have access to their accounts suspended for review by the VP of Research, the University Research Services and Administration (URSA), and IS&T.

Allocations

The VP of Research and the University Research Services and Administration (URSA) may elect to implement an allocation policy on any or all of the enterprise based High Performance Computing resources. These allocation policies may include direction for priority-based usage of systems including, but not limited to, hard or soft limits and/or preemption rules for: CPU usage, job wall clock limits, preferred device allocations, memory utilization, disk utilization, high performance switch utilization or other components of the High Performance Computing resource. The VP of Research and the University Research Services and Administration (URSA) will review requests for allocations on systems that have allocation policies in effect.

VELA Allocations

Load Sharing Facility (LSF) Job Queues for production on VELA: Allocations may optionally restrict access to certain production job queues. Current Load Sharing Facility (LSF) job queues for production are as follows:

Queue Name	Job Limit
short	Jobs run at priority of 35. Job limited to 2 hours of "wall clock" time. Can request up to 48 Processing Elements per job. Not an interactive queue and cannot be preempted by any other queue. Jobs will run on all nodes (e.g. vela01-vela04).
interactive	Jobs run at priority of 30. Job limited to 24 hours of "wall clock" time. Can request up to 6 Processing Elements per job. Jobs will run on all nodes but privately held nodes (e.g. vela01-vela03).
normal	Jobs run at priority of 30. Job limited to 360 hours (15 days) of "wall clock" time. Can request up to 16 Processing Elements per job. Not an interactive queue and cannot be preempted by any other queue. Jobs will run on all nodes but privately held nodes (e.g. vela01-vela03).
preemptive-30day	Jobs run at priority of 25. Job limited to 720 hours (30 days) of "wall clock" time. Can request up to 48 Processing Elements per job. Each job can be preempted a maximum of 3 times, after that job will run till completion without disruption. Jobs will run on all nodes but privately held nodes (e.g. vela01-vela03).

CARINA Allocations

Loadleveler Job Queues (Classes) for production on CARINA: Allocations may optionally restrict access to certain production job queues. Current Loadleveler job queues (Classes) for production are as follows:

Queue Name	Job Limit
small	Job limited to 15 minutes of "wall clock" time.
medium	Job limited to 2 hours of "wall clock" time.
large	Job limited to 24 hours of "wall clock" time.
large5	Job limited to 120 hours (5 days) of "wall clock" time.
large10	Job limited to 240 hours (10 days) of "wall clock" time.
large15	Job limited to 360 hours (15 days) of "wall clock" time.
large20	Job limited to 480 hours (20 days) of "wall clock" time.
large25	Job limited to 600 hours (25 days) of "wall clock" time.
verylong	Job limited to 720 hours (30 days) of "wall clock" time.
preemptME	Jobs run at lowest priority. Jobs will be preempted according to the preemption policy.

Preemption Policy: A job may be "Preempted" or may "Preempt" other jobs based on the Preemption Policy of the Allocation. If preempted, the system will attempt to checkpoint the job depending on the application's being enabled to checkpoint. (NOTE: It is an application's responsibility to enable checkpointing. If an application does not have checkpointing in effect, then when preempted, the application will merely restart from the beginning.)

Disk Quotas: There are specific disk quotas when a Research Computing resource comes online. For CARINA, the soft disk quota for home directory is 25GB per user and for the archive directory is 50GB per user. When a user is close to reaching the soft quota on CARINA, the system will warn the user in order to allow them time to move old data to the archive directory. Once a user reaches the soft quota for the home directory, a message is sent to the user, after which time five grace days are allowed before the soft quota becomes a hard quota. Any

jobs currently running on that account gets a hard stop. Please note that the archive directory has no soft quotas. The 50Gb limit is a hard quota.

Other Information

Mailing Lists: One mailing list is provided to manage communications concerning Research Computing: rc-announce@listserv.gsu.edu. The rc-announce@ listserv.gsu.edu list is only used for official announcements and communications concerning Research Computing. Any outages or expected downtimes will be communicated through this list. All Research Computing resource users will be added to the rc-announce@ listserv.gsu.edu list automatically upon account creation. Optionally, individuals who do not have Research Computing accounts but who wish to be informed of Research Computing notices may be added to rc-announce@ listserv.gsu.edu list. Any requests to be added to the mailing list can be made by contacting the Help Center (help@gsu.edu or calling 404-413-4357) and putting in a ticket.

Home Directory Folders and Permissions: To support research groups in sharing information, user home directories will be placed under a common directory (the parent directory for all user accounts in the group) identified by the CampusID of the PI for the group. A shared directory may be placed within this common directory accessible to the group at the request of the PI. The PI will determine the access permissions of this common directory. IS&T Platform and Storage Services can advise the PI on permission setting options for the users within their group. While this enables the sharing of information by the accounts associated with that PI, it is not required that data sets be shared. Permission sets can be developed to isolate certain directories within the group if this is desired. Any permission requests can be made by contacting the Help Center (help@gsu.edu or calling 404-413-4357) and putting in a ticket.

System Support: User problems with any enterprise based High Performance Computing resources should be communicated to the Help Center either through an email to help@gsu.edu or by calling 404-413-4357 (404-413-HELP). All emails to the Help Center must include:
- user's full name
- system name of the resource involved
- account name of the user
- associated PI account
- a general description of the problem'
- any error messages or output associated with the problem

Accounting: It is recommended that accounting be enabled on High Performance Computing resources and that information on usage (such as CPU, memory, disk, high performance switch utilization or other reportable components) be monitored regularly and reported to the research computing user community.

Revisions

August 10, 2011: Draft 1
September 9, 2011: Draft 2
August 15, 2012: Revisions made to job queue section
November 8, 2012: Revisions made the Research Computing Account Allocation Request section. Additions made to have the policy cover VELA.
August 13, 2013: Revisions made to the VELA Allocation section and out-of-date webpage links. Removed Research Computing Account Allocation Request section.