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Allocations & Accounts

Information on obtaining accounts

Acceptable Use Statement

This document gives the requirements for use of the computing systems, resources and facilities located at and/or operated by the NASA Advanced Supercomputing (NAS) Division at NASA Ames Research Center.

As a user of the computing systems, resources and facilities located at and/or operated by the NASA Advanced Supercomputing (NAS) Division at NASA Ames Research Center, I agree to the following and understand that failure to abide by these provisions may constitute grounds for termination of access privileges, administrative action, and/or civil or criminal prosecution:

1. NAS accounts are to be used only for the purpose for which they are authorized and are not to be used for non-NASA related activities.
2. Unauthorized use of the computer accounts and computer resources to which I am granted access is a violation of Federal law; constitutes theft; and is punishable by law (Section 799, Title 18, U.S. Code). I understand that I am the only individual to access these accounts and will not knowingly permit access by others without written approval. I understand that sharing passwords with other people, even on the same project, is prohibited. I understand that my misuse of assigned accounts and my accessing others' accounts without authorization is not allowed. I understand that this/these system(s) and resources are subject to monitoring and recording and I will have no expectation of privacy in my use of these systems.
3. I am responsible for using the computing systems, resources and facilities in an efficient and effective manner. I understand that account deactivation will result after 60 days of non-use and data will be deleted after 90 days unless my project or I make arrangements with the NAS User Services to preserve my data.
4. I understand that these computing systems are unclassified systems. Therefore, processing and storing classified, or other information that requires safeguarding in the interest of National Security, is prohibited.
5. I understand that these computing systems are categorized as moderate according to FIPS 199, therefore processing and storing information that is categorized as high according to FIPS 199 and NIST SP 800-60 is prohibited.
6. I understand that I am responsible for protecting any information processed or stored in my accounts and will take appropriate precautions to protect Sensitive But Unclassified information (e.g., proprietary information or information subject to International Traffic in Arms Regulations or Export Control Regulations) which may include encrypting the data to provide protection that goes beyond the standard OS protection provided by the computing systems.
7. I understand that I shall not engage in activities that compromise or weaken the security of the NAS systems or have been identified as prohibited and high-risk

practices by the NAS Security Team. These activities include but are not limited to keeping unauthorized world-writable directories, running password cracking programs, downloading or introducing malicious software, running unauthorized P2P and VOIP software and copying or making available system and password configuration files to others.

8. I understand that I shall not make copies of copyrighted software, except as permitted by law or by the owner of the copyright.
9. I understand that I shall not attempt to access any data or programs contained on systems for which I do not have authorization or explicit consent from the owner of the data/program, the NAS Division Chief or the NAS Computer Security Official.
10. I understand that I am required to report any security weaknesses in the systems or any IT security incidents including misuse or violation of this agreement, to the NAS User Services, support@nas.nasa.gov, or to the NAS Security Team, security@nas.nasa.gov.
11. I understand that I am required to access the NAS computers only from remote systems that are safe from malicious programs and activity.
12. I understand that I will be required to complete the NASA mandatory Basic IT Security Training available at: <http://saturn.nasa.gov/>. (Note: Additional details are available from NAS User Services.)
13. If applicable, I further agree to abide by the provisions NASA NPD 2540.1G regulating privileges and responsibilities of NASA employees and contractors.

Account Policies

Users are responsible for being aware of the general account-related policies:

- Users and NAS staff requesting either a new or a renewed account must complete the Basic IT security training annually and fill out an Account Request form for the annual NOP (New Operational Period)
- Users shall not share their account(s) with anyone, including sharing the password to the account, providing access via an .rhost entry or other means of sharing
- Users are responsible for protecting any information used and/or stored on/in their accounts

Account Deactivation

Users who do not comply with the rules listed in the Acceptable Use Statement will have their accounts disabled either temporarily or permanently. Account deactivation will result after 90 days of non-use (by changing user's normal shell to noshell) and data may be archived after 120 days of non-use.

User Accounts Process Overview

NAS has a two-part process for accessing its systems: requesting computing time (Phase I) and getting accounts (Phase II).

Before you request an allocation of time on our systems, you must meet at least one of the following eligibility requirements to be considered for NASA-sponsored work:

- NASA grant or cooperative agreement number, contract number, or work breakdown structure (WBS) number
- NASA agreement such as a Space Act Agreement or Memorandum of Agreement/Understanding
- NASA center employee (civil servant or contractor)

NOTE: Personally identifiable information (PII) and Classified data *cannot* be run on NAS resources.

Requesting Computing Time

Requesting An Allocation (PHASE I)

Follow the steps outlined bellow to request and get approval for computing time on HECC systems at the NAS facility. Please follow the steps in the order in which they appear before moving on to Phase II, "Getting an Account."

1. Are you a Principal Investigator (PI)?

- YES - Proceed to Step 2
- NO - Contact your PI for allocation information and instructions on how to obtain an account - allocation requests can only be made by PIs

2. Log into e-Books

- If you do not already have an e-Books username and password, then go to [e-Books User Registration](#)

3. Start a "New Request"

- Make sure the proper mission directorate is selected before proceeding

4. Complete a Cover Sheet for your new project title request

- This is provided within the e-Books framework
- **NOTE:** You must click to acknowledge NASA requirements on data types and security (located at the top of the form) to save your entered information before proceeding

5. Complete a Summary of Requirements

- This is also provided within the e-Books framework

6. Submit the Request

- After both sections covered in Steps 4 and 5 (above) are completed, "submit" the request--you will get a confirmation of submission with additional information that can be printed for your records
- Following submission of your Cover Sheet and Summary of Requirements forms, you will be notified via email of time awarded, and provided with information on how to request accounts for your project team members

Getting an Account (Phase II)

Follow the simple steps below to get your account on HECC systems, after you receive an allocation of computing time and have been assigned a group identification number (GID). If you have not yet requested and received an allocation and GID, please go back to Phase I, [Requesting an Allocation](#).

1.

Complete and Submit a NAS Account Request Form

- ◆ For **NEW** users and Principal Investigators (PIs), go to the [online account request form](#) and follow the instructions.
- ◆ For **RETURNING** users and PIs (account renewals), complete and submit a paper-based NAS Account Request Form (submittal information is on the form.)
 - ◇ [Account Request Form in Acrobat format](#) (PDF - 84KB)
 - ◇ [Account Request Form in MS Word format](#) (DOCX - 141KB)

2.

Complete NASA's mandatory Annual Information Security Awareness Training

Once your account is approved, you will receive information on how to complete the required security training online through NASA [SATERN](#)

Note: Returning users must also complete this training, as it is an annual requirement.

Within one week of completing the security training, you will receive an RSA SecurID fob via the U.S. Postal Service or Federal Express. The fob is required for two-factor authentication login to NAS supercomputers.

3.

Activate Your SecureID Fob

Once you have received your fob, contact the NAS Control Room at (800) 331-8737, (650) 604-4444, support@nas.nasa.gov to get it activated and obtain instructions on how to log in to the systems. Instructions are also mailed with the fobs and can also be found online; [see RSA SecurID Fobs](#).

If you need further assistance at any point in the process, please contact the NAS Control Room 24x7x365: (800) 331-8737, (650) 604-4444, support@nas.nasa.gov.

New Common Standard Billing Unit (SBU) Rates

Effective May 1, 2011, a common **Standard Billing Unit (SBU)** will be used for allocating and tracking computing time usage at both the NASA Advanced Supercomputing (NAS) Facility and the NASA Center for Climate Simulation (NCCS).

This new common SBU uses a Pleiades Westmere node as the baseline system. A job that occupies 1 Westmere node for 1 hour is charged 1 (new) SBU, regardless of how many cores in the node are actually used. Use of other resources will be charged based on how efficient they are compared to a Pleiades Westmere node.

An important difference between the new charging procedure and the old one is that the new SBU is node-based instead of core-based. However, because the entire Columbia system is a single node, a new measurement called the **Minimum Allocatable Unit (MAU)** was introduced when the new SBU was developed. An MAU is the smallest unit of hardware resource that PBS will allocate to a job.

- For Pleiades, 1 MAU equals 1 node (16 cores for Sandy Bridge, 12 cores for Westmere, 8 cores for Nehalem and Harpertown).
- For Columbia, 1 MAU equals 4 cores.
- For NCCS systems, 1 MAU equals 1 node of each system.

Even though NAS SBU charging has been core-based up to this point, the MAU concept has been present. For example, Pleiades users requesting a single core have been charged for all of the cores in a node.

On Columbia, PBS rounds core allocations up to the nearest multiple of four. So, a 1-hour, 1-core job on Columbia was charged 4 (old) SBUs for having the 4 cores for 1 hour.

Differences Between the New Common SBU and the Old NAS SBU	
New Common SBU	Old NAS SBU
MAU-based	core-based
Baseline: Westmere on Pleiades	Baseline: Columbia

The SBU Rates

The new SBU represents the amount of work that a Minimum Allocatable Unit (MAU) can perform in one hour on the baseline system. Usage on a system that can complete more work with 1 MAU in 1 hour will be charged at a higher rate. Systems not as powerful as the baseline will be charged lower rates.

As the baseline system, the Pleiades Westmere (Intel Xeon 5670) is given an SBU rate of 1. So, a job that occupies 1 Pleiades Westmere node for 1 hour is charged 1 SBU.

Each system at NAS and NCCS is then given an SBU rate relative to the Pleiades Westmere.

See further down the page for information on how the SBU rates were obtained.

NAS SBU Rates					
System	Pleiades	Pleiades	Pleiades	Pleiades	Columbia
Architecture	SGI ICE X	SGI ICE 8400EX	SGI ICE 8200EX	SGI ICE 8200EX	SGI Altix 4700
Processor	Sandy Bridge	Westmere	Nehalem	Harpertown	Itanium-2
Cores per MAU	16	12	8	8	4
SBU Rate (per MAU)	1.82	1.00	0.80	0.45	0.18

NCCS SBU Rates					
System	Discover	Discover	Discover	Discover	Discover
Architecture	Dell PowerEdge C6100	IBM iDataPlex	IBM iDataPlex	Linux Cluster Custom	Linux Cluster Custom
Processor	Westmere	Nehalem	Harpertown	Woodcrest	Dempsey
Cores per MAU	12	8	8	4	4
SBU Rate (per MAU)	0.95	0.69	0.38	0.20	0.15

The Charging Formula

The following formula is used to calculate the SBUs charged to a PBS job:

`SBUs charged = number of MAUs x number of wall clock hours x SBU Rate`

Given that an SBU is a representation of an amount of useful work, a job should be charged similar numbers of SBUs, independent of the efficiency of the system used.

Requesting Allocations and Checking Usage

When using the e-Books online submission system to apply for allocations, principal investigators will continue to estimate the number of runs on each processor type of a system, the number of processors per run, and the wall clock hours per run. Calculators within e-Books total the processor-hours from these estimates and convert the processor-hours to new SBUs.

The `acct_ytd` at NAS and `allocation_check` at NCCS should be used for checking the amounts allocated and used.

For projects that began on November 1, 2010 and were awarded Columbia and/or Pleiades hours, the allocations and amount used in the old SBUs will be converted to the new SBUs.

What Happens to the Old SBUs?

Prior to May 1, 2011, allocations and usage were based on the old SBU unit. These historical accounting data will be converted to use the new SBU unit and will be reflected when you use the commands `acct_ytd`, `acct_query`, or `allocation_check`.

New SBU = Old SBU x C

$$C = \frac{\text{total number of new SBUs/hour across system}}{\text{total number of old SBUs/hour across system}}$$

Allocation Recalculation

If your project was awarded on Nov. 1, 2010, the allocation will be converted to new SBUs with the following approximate conversion factors:

Pleiades	Columbia
0.0509	0.045

Historical Accounting Data

Accounting data (between March 1, 2005 and April 30, 2011) using the old SBU unit will be converted to the new SBU unit with the following conversion factors:

Westmere	Nehalem	Harpertown	Columbia	RTJones	Schirra
0.046	0.046	0.062	0.045	0.043	0.071

How SBU Rates Were Obtained

The SBU rates were obtained using a weighted average of the performance of six benchmark applications on each system, where "performance" is defined as the relative number of runs of an application that can be made in a fixed amount of time using a fixed number of MAUs, compared to that number for the baseline. The applications were chosen to be representative of the work done on NASA's HEC platforms. The weighting factors that are used approximate how much the codes (or ones similar to them) are used on those platforms.

Benchmark Suite and Weighting Factors

Application	Enzo	FUN3D	GEOS-5	OVERFLOW-2	USM3D	WRF
Cores Used	240	960	1176	480	480	384
Approximate Walltime Used on Baseline System	30 min	30 min	30 min	30 min	30 min	30 min
Weighting (Proportional Usage)	0.20	0.10	0.15	0.20	0.20	0.15

More Information

For additional details, see the feature story, [NAS and NCCS Moving to a Common Standard Billing Unit May 1, 2011](#).

Getting an Account (Phase II) Draft

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