



# OLCF STORAGE POLICY

Version 1.2

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The following policies apply to all projects with allocations on the Oak Ridge Leadership Computing Facility (OLCF) or National Center for Computational Sciences (NCCS) systems. The policies apply equally to all projects regardless of the machine on which they have been allocated time.

## STORAGE TYPES

OLCF has three storage types available to users: “global” storage, “local” storage, and “archival” storage. Each storage type has different purposes, storage limits, and purge/retention policies as described below.

### Global Storage

The OLCF-wide high-performance Lustre file system is the global storage space for users. There are four storage subcategories in the global storage space:

- User Home
- User Work
- Project Home
- Project Work

#### User Home

Home directories for each user are NFS-mounted on OLCF systems. This is online disk space intended for long-term, frequently used storage, and is backed up on a daily basis. This file system does not generally provide the input/output (I/O) performance required by most jobs. A user home directory has a 5GB quota.

#### User Work

Individual user work directories reside in the center-wide high-capacity Lustre file system on large, fast disk areas intended for global (parallel) access to temporary/scratch storage. User work directories are provided on each system. Because of the scratch nature of the file system, it is *not* backed up and files are automatically purged on a regular basis. Files should not be retained in this file system and should be migrated to archival space as soon as the files are not actively being used.

If a file system runs out of free space or gets low on free space, then user work data on that file system will be subject to involuntary deletion without prior notice.

#### Project Home

Project home directories are NFS-mounted on OLCF systems. This is online disk space intended for long-term, frequently used storage and is backed up on a daily basis. This file system does not generally provide the input/output (I/O) performance required by most jobs. The standard project directory has a 50GB quota.

#### Project Work

Project work directories reside in the center-wide high-capacity Lustre file system on large, fast disk areas intended for global (parallel) access. This is online disk space intended for



long-term, frequently used storage, but this area is *not* backed up. An individual project directory has a 2TB quota. Project spaces on the center-wide high-capacity Lustre directories may be denied or revoked at any time.

### **Local Storage**

A large, fast disk area intended for parallel access to temporary storage in the form of scratch directories may be provided on each system. This area is local to the specific system. This directory is, for example, intended to hold output generated by a user's job. Because of the scratch nature of the file system, it is *not* backed up and files are automatically purged on a regular basis. Files should not be retained in this file system and should be migrated to archival storage as soon as the files are not actively being used.

If a file system runs out of or gets low on space, user data on that file system will be subject to involuntary deletion without prior notice. Quotas may be instituted on a machine-by-machine basis if deemed necessary.

### **Archival Storage**

The High Performance Storage System (HPSS) is the archival storage system at the OLCF. Space on HPSS is intended for files that are not immediately needed. There are two storage subcategories in the archival storage space:

- User Archive
- Project Archive

#### User Archive

Each user archive space belongs to a single user. An individual user has a 2TB space quota and a 2,000 file quota. User archive areas in HPSS are created in /home/[username].

User archive data stored on HPSS will only be retained up to three months past user account termination. There is no lifetime retention. Users are expected to migrate their data off HPSS before their account is deactivated.

#### Project Archive

Project archive areas are shared between all users of the project. Project archive areas quotas have 100TB space quotas and 100,000 file number quotas. Project areas in HPSS are created in /proj/[projectid].

Larger quotas may be granted for a project on a case-by-case basis; the projects must include storage needs in their proposals along with strategies for data migration after the project has ended. Even though HPSS is a very large storage system, space is not unlimited. Users must not store files unrelated to their OLCF projects on HPSS. They must also periodically review their files and remove unneeded ones. Quotas will be enforced.

Projects should not duplicate executables or data sets in each user's area, but instead should set privileges to share a master copy. Contact the User Assistance Center for help in setting privileges to facilitate sharing.

Project data stored on HPSS will only be retained up to three months past the end of a project allocation. There is no lifetime retention. Projects are expected to migrate their data off HPSS before project deactivation.

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## **PURGE/RETENTION POLICIES**

There are three purge/retention policy types: the “Scratch” Purge Policy, “Project” Purge Policy, and the “User” Purge Policy. Please note there is no lifetime retention for any data on OLCF machines. Projects and users are expected to migrate their data off of OLCF systems when projects and users are finished with OLCF systems. When a project ends, active users in that project will have limited timeframes to migrate all data off of OLCF file systems.

### **Scratch Purge Policy**

Scratch purge policies are intended to maintain file systems so there is always a large amount of scratch space available for executing jobs. Files are automatically purged on a regular basis. Any file older than 14 days is subject to deletion. If a file system runs out of free space or gets low on free space, data on that file system will be subject to involuntary deletion without prior notice.

### **Project Purge Policy**

Project purge policies are intended to reclaim space after a project ends. When a project ends, project members will have no more than 1 month to remove all data from OLCF global and local storage systems, and no more than 3 months to remove all data from OLCF archival storage systems. If a project needs additional time to remove project data from OLCF systems, a project member must request an extension.

In cases where a project misses the deadline for an extension, OLCF reserves the right to delete all files and directories designated as project data across global, local, and archival storage spaces.

### **User Purge Policy**

User purge policies are intended to reclaim space after a user account is disabled for any reason. When a user account is deactivated prior to the user migrating needed data off of OLCF storage areas, the user must request a temporary data access account extension, and then will have no more than 1 month to remove all user data from OLCF global and local storage systems, and no more than 3 months to remove all user data from OLCF archival storage systems.

In cases where *project* data is stored in a user home area, a project representative must submit a request for data from the user home area within 1 month of the user account being disabled.

In cases where a deadline for an extension is missed, OLCF reserves the right to delete all files and directories designated as user data across global, local, and archival spaces.

## **CONSEQUENCES OF ABUSE**

Storage usage will be monitored continually. When time permits, offenders will be warned to clean up their space. Ignoring these warnings will result in loss of access privileges.

**SUMMARY**

Area	Nickname	Type	Path	Quota	Purge Policy Name	Purge Policy Desc.	BackUps
User Home	--	NFS	/ccs/home/\$USER	5GB	User	1 month after account deactivation	Yes
User Work	"Spider"	Lustre	/tmp/work/\$USER	--	Scratch	All files older than 14 days	No
User Archive	"HPSS"	HPSS	/home/[username]	2TB / 2,000 Files	User	3 months after account deactivation	
Project Home	--	NFS	/ccs/proj/[projectid]	50GB	Project	1 month after project deactivation	Yes
Project Work	"Spider"	Lustre	/tmp/proj/[projectid]	2TB	Project	1 month after project deactivation	No
Project Archive	"HPSS"	HPSS	/proj/[projectid]	100TB / 100k Files	Project	3 months after project deactivation	
Local Scratch	--	Varies	Varies	--	Scratch	All files older than 14 days	No