

## 1.0 SERVICE LEVEL AGREEMENT OVERVIEW

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This is a Service Level Agreement (SLA) between NCSA's Integrated CyberInfrastructure directorate Storage Enabling Technologies team (ICI/SET) and <project>. The purpose of this Service Level Agreement is to identify the basic services, and any agreed upon additional services, to be provided by ICI/SET to <project>. A description of the systems and services involved is included, along with the time period covered in the agreement.

The details and scope of work are detailed from the Baseline Service Tier in the Appendix

### 1.1 DESCRIPTION OF CUSTOMER SYSTEM / SERVICE / PROJECT

This agreement pertains to the **Granite** system and its services operated and maintained by ICI/SET.

### 1.2 PERIOD OF AGREEMENT

The length of the agreement is 3 years. This SLA covers the period from *Date* to *Date* and will be reviewed and revised as necessary at the end of this period. Storage rate costs are described in the Appendix for each year of the (3) year period.

### 1.3 ADDITIONAL EQUIPMENT AND IMPLEMENTATION COSTS

There is no additional equipment required to use Granite.

### 1.4 MEETING AND REPORTING

ICI/SET will host a yearly recurring status meeting concerning Granite. Reporting data will be available to customers via our reporting dashboards.

## 2.0 SERVICE AGREEMENT

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### 2.1 SERVICE LIST

- **TAPE STORAGE**
- **SYSTEM UPDATES AND ALERTING**
- **STANDARD STORAGE MONITORING (NCSA ICI MONITORING)**
- **COORDINATION WITH OTHER NCSA GROUPS**

### 2.2 TERMS OF SERVICE, COSTS, MAINTENANCE, AND METRICS

- **Terms of Service**
  - System is available at 90% uptime outside of scheduled downtime
  - Desired performance is subject to project requirements and available bandwidth capacity.  
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  - Changes in storage allocated (quota) can only be changed monthly

## Baseline Operations for Taiga

- All storage change requests can be made by emailing [set@ncsa.illinois.edu](mailto:set@ncsa.illinois.edu) and will be implemented within one working week.
- **Standard Costs**
  - Based on storage allocated
  - Measured in TB, not TiB.
  - 1 TB = 1000000000 Bytes of filesystem space
  - **Minimum average file size of 100MB is required**
  - Allocations are for 3-month periods
  - Internal: \$15.62/TB/year
  - External (industry) = \$24.78/TB/year
  - Base support includes quotas, ACL support, multi-system access (on connected projects).
  - Data transfer mechanisms: SET managed Disaster Recovery scripts, Globus, SCP
- **Extras (costs are not covered in this SLA)**
  - Dedicated staff support time that goes beyond basic Granite storage, which is covered by the storage price rate. An example of this would be writing custom scripts for data movement/management beyond existing services. These costs will be available upon request
  - Non-Granite storage support (such as dedicated project specific storage)
- **Maintenance**
  - Project/user agrees to 2 maintenance outages annually of up to 12 hours per outage.  
Dates of outages:
    - 2nd Thursday in March
    - 2nd Thursday in September
    - Taiga maintenance will be on the same days.
    - Taiga/Granite take priority on these days. Other projects may align their maintenance schedules to Taiga, however SET staff will prioritize Taiga / Granite work on these dates.
- **Metrics**
  - Standard TIG cluster Metrics provide:
    - Utilization of investment over time
    - Utilization of investment on a per-UID basis
    - More metrics are expected to be added over time

## 2.3 SERVICE RESPONSE

- Responses for issues within 6 Business hours for Break/Fix of current service
- Best effort for hardware issues and equipment return to service using spares and/or other hardware
- A two-week period is required for responses on projections for new services, hardware, design.
  
- Notification of emergency unplanned downtime shall be no less than 30 minutes during office hours. Email will be sent out to projects, and/or other alert mechanisms per project preference. Outside office hours will be best effort response.
  
- Downtimes relating to facility power outages are not counted toward overall uptime.
  
- Downtimes related to facility networking outages are not counted toward overall uptime
  
- Allow 8 hrs (business hours) of startup and validation to re-launch the filesystem after a facility related power outage

## **2.4 EXCEPTION AND LIMITATIONS**

- Granite is an archival system. It is not intended to be used as a live filesystem for active data and should be treated as long-term bulk storage.
- We expect a minimum average file size of 100MB. Files smaller than this will cause the tape archive to be slow and inefficient over time. Recommended file size is 50GB or greater up to 1TB
- Granite access is not allowed from within running jobs at NCSA. Data should first be moved to Taiga or another disk-based resource within NCSA before computation upon that data commences.

## **2.5 ACCEPTANCE CRITERIA**

- Appropriate Granite space is available
- Appropriate quotas in place and reportable
- Data verification for migrated data
- Project specific acceptance testing (project provided)

## **3.0 APPENDIX**

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### 3.1 Baseline Operations Service Tier

**Operations:** NCSA/ICI/SET will ensure taiga operates nominally.

**SLA:** M-F Business Hours 6-hour response time for Break/Fix of existing services only. Weekends/off-hours best effort.

### 3.2 System Description

Granite is NCSA's Tape Archive system, closely integrated with Taiga, to provide users with a place to store longer term archive datasets. This system is built using a 19 frame Spectra TFinity tape library, currently outfitted with 30 IBM TS1140 (JAG 7) tape drives, and is able to hold over 40PB of data at this time. The archive is built using Versity's ScoutAM and ScoutFS products, giving users a single archive namespace from which to stage data in and out. Access to this tape system is available directly via tools such as scp and Globus. Data written to Granite is replicated to two tapes for mirrored protection in case of tape failure.

### 3.3 Staffing and Equipment Costs

All costs are covered by the storage costs listed above for standard services. Extras are listed in section 2.2 under Costs: Extras.