Leveraging the InCommon Federation to access the NSF TeraGrid

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What is the TeraGrid?

NSF-funded facility to offer high end compute, data, and visualization resources to the nation’s academic researchers

www.teragrid.org
TeraGrid Campus Integration

- The TeraGrid project is working in many ways to better integrate with campuses to support research and education
  - TeraGrid Campus Champions
    http://www.teragrid.org/eot/campuschamps.html
  - TeraGrid Client Software

- Authentication and Authorization is just one aspect of TeraGrid’s Campus Integration efforts

- For more info about TeraGrid
  Contact: help@teragrid.org
TeraGrid and InCommon: Status

- TeraGrid joined InCommon in July 2008
  - TeraGrid will be an InCommon Resource Provider
  - TeraGrid will **not** be an InCommon Credential Provider (at this time)

- Shibboleth integration with TeraGrid User Portal (TGUP) will begin **soon**
  - Today I’m presenting our plans
TeraGrid Federations

- **TeraGrid Core Services**
  - Manage accounts and allocations across resources and sites
  - Centralized resource usage accounting
  - TeraGrid Central Database (TGCDB)

- **X.509 Public Key Infrastructure (PKI)**
  - International Grid Trust Federation (IGTF) (igtf.net)
  - Includes Certificate Authorities operating outside of TeraGrid
  - Enables single sign-on across TeraGrid systems and other grids
TeraGrid Federations

- TeraGrid Science Gateways Program
  - Enables TeraGrid to scale to large user communities by outsourcing front-end user support
  - Gateways are self-managed scientific communities
  - Gateways act as identity provider and resource broker

- InCommon Federation
  - Facilitates campus login to TeraGrid resources by researchers and students
  - Provides an integrated login experience between campus and TeraGrid services
TeraGrid and InCommon: Goals

First Step: Campus login to TeraGrid User Portal

- Access administrative interfaces:
  - Request Allocation, View Usage, List Accounts, Edit Profile, Register X.509 DNs, Add/Remove User
- Access TeraGrid resources:
  - SSH Terminal, File Transfer
- Manage Training Accounts:
  - Short-term student access using campus attributes
  - Eliminate the need to distribute TeraGrid usernames and passwords in the classroom
TeraGrid and InCommon: Goals

➢ Next Step: Campus logins to TeraGrid Science Gateways
  ▪ Attribute-based access to community-focused interfaces
  ▪ Operated by the community
  ▪ Attributes used end-to-end from campus through gateway to TeraGrid resource providers and TeraGrid-wide accounting
Welcome to the TeraGrid User Portal

About

The TeraGrid User Portal is a Web interface for making TeraGrid account management easier, for getting information about TeraGrid resources, and for accessing many of the existing TeraGrid services in a single place.

While users may utilize many features of the User Portal without logging in, authentication provides access to a full set of services available on the TeraGrid. All new users will receive a "New User Form" via U.S. postal mail containing a User Portal username and password along with their other TeraGrid system account usernames and passwords.

Feature Spotlight

TeraGrid User Portal Now Offers File Manager Service

The NSF TeraGrid project exposes the academic research community to more than twenty distributed computational, visualization, and storage resources. Consequently, significant user interest has grown in having the ability to remotely manage files via a web interface. In response to this need, the TeraGrid User Portal development team is happy to announce the availability of a new beta file manager service. Available through the TeraGrid User Portal, this file manager service includes the following features and capabilities:

- A custom list of TeraGrid resources based on user's accounts.
- The ability to transfer files between TeraGrid and local systems.
- An easy to use drag-and-drop interface.
- The existence of delete, rename, and copy features for managing files and directories.
- The ability to view the status of current file transfers as well as the history of previous transfers.
- Support for transferring files between TeraGrid resources and Amazon S3.

To manage your files on the TeraGrid User Portal, please log in and visit the 'Resources' area, select the 'File Manager' (Beta) to use the file manager service.

The TeraGrid project is funded by the National Science Foundation and includes alien resources provided:

Indiana, LONI, NCSA, NCSA, ORNL, PRC, Purdue, SDSC, TACC and UCAR.
TGUP Systems Monitor

The TeraGrid project is funded by the National Science Foundation and includes eleven resource providers:

Indiana, LONI, NCAI, NCsa, NICS, ORNL, PSC, Purdue, SDSC, TACC and UC/ANL.

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My TeraGrid: Usage

TeraGrid User Portal

Allocations/Usage

Projects

Show Inactive Projects | Show Expired Allocations

TG RP NCSA

<table>
<thead>
<tr>
<th>Allocations</th>
<th>Start Date</th>
<th>End Date</th>
<th>Resource</th>
<th>SUs Remaining</th>
<th>SUs Awarded</th>
<th>My Usage (SU)</th>
<th>% Remaining</th>
<th>Alloc. Type</th>
<th>State</th>
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<tr>
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<td>2008-04-29</td>
<td>2009-05-31</td>
<td>staff.teragrid</td>
<td>Overdrawn</td>
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<td>0 %</td>
<td>renewal</td>
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</table>

TG Staff Project: Portal Test Project

<table>
<thead>
<tr>
<th>Allocations</th>
<th>Start Date</th>
<th>End Date</th>
<th>Resource</th>
<th>SUs Remaining</th>
<th>SUs Awarded</th>
<th>My Usage (SU)</th>
<th>% Remaining</th>
<th>Alloc. Type</th>
<th>State</th>
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</thead>
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<td>100 %</td>
<td>now</td>
</tr>
</tbody>
</table>

[User Responsibility Form]
Need to cite TeraGrid?

Report Security Incident

The TeraGrid project is funded by the National Science Foundation and includes eleven resource providers: Indiana, LONI, NCAR, NCSA, NICS, ORNL, PSC, Purdue, SDSC, TACC and UCANL.

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# My TeraGrid: Accounts

![TeraGrid User Portal](https://portal.teragrid.org:443/gridshelf/gridshelf2?id=sys-accounts&javaS=1)

## System Accounts

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Login Name</th>
<th>Institution</th>
<th>Username</th>
<th>Connect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abe</td>
<td>login-abe.ncsa.teragrid.org</td>
<td>NCSA</td>
<td>jbasney</td>
<td>Login</td>
</tr>
<tr>
<td>Big Red</td>
<td>login:bigred.iu.teragrid.org</td>
<td>IU</td>
<td>tg-jbasney</td>
<td>Login</td>
</tr>
<tr>
<td>BigBen</td>
<td>tp-login.bigben.psc.teragrid.org</td>
<td>PSC</td>
<td>no account</td>
<td>Login</td>
</tr>
<tr>
<td>Cobalt</td>
<td>login-co.ncsa.teragrid.org</td>
<td>NCSA</td>
<td>jbasney</td>
<td>Login</td>
</tr>
<tr>
<td>Condor</td>
<td>tp-condor.purdue.teragrid.org</td>
<td>Purdue</td>
<td>jbasney</td>
<td>Login</td>
</tr>
<tr>
<td>Frost</td>
<td>tp-login.frost.ncar.teragrid.org</td>
<td>NCAR</td>
<td>jbasney</td>
<td>Login</td>
</tr>
<tr>
<td>Kraken</td>
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<td>Login</td>
</tr>
<tr>
<td>Lonestar</td>
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<td>TACC</td>
<td>tp457137</td>
<td>Login</td>
</tr>
<tr>
<td>Maverick</td>
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<td>TACC</td>
<td>tp457137</td>
<td>Login</td>
</tr>
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<td>tp-login.ncsa.teragrid.org</td>
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<td>jbasney</td>
<td>Login</td>
</tr>
<tr>
<td>NSTG</td>
<td>tp-login.oml.teragrid.org</td>
<td>ORNL</td>
<td>jbasney</td>
<td>Login</td>
</tr>
<tr>
<td>Pops</td>
<td>tp-login.pops.psc.teragrid.org</td>
<td>PSC</td>
<td>no account</td>
<td>Login</td>
</tr>
<tr>
<td>Queen Bee</td>
<td>queenbee.loni-uisu.teragrid.org</td>
<td>LONI</td>
<td>jbasney</td>
<td>Login</td>
</tr>
<tr>
<td>Ranger</td>
<td>tp-login.ranger.tacc.teragrid.org</td>
<td>TACC</td>
<td>tp457137</td>
<td>Login</td>
</tr>
<tr>
<td>SDSC TeraGrid Cluster</td>
<td>tp-login.sdsc.teragrid.org</td>
<td>SDSC</td>
<td>jbasney</td>
<td>Login</td>
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<tr>
<td>Steele</td>
<td>tp-steale.purdue.teragrid.org</td>
<td>Purdue</td>
<td>jbasney</td>
<td>Login</td>
</tr>
<tr>
<td>UC/ANL TeraGrid Cluster</td>
<td>tp-login.uc.teragrid.org</td>
<td>UC/ANL</td>
<td>jbasney</td>
<td>Login</td>
</tr>
</tbody>
</table>

The TeraGrid project is funded by [NSF](https://www.nsf.gov) and includes eleven resource providers:

- Indiana
- LONI
- NCAR
- NCSA
- NICS
- PSC
- Purdue
- SDSC
- TACC
- UC/ANL

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My TeraGrid: Add/Remove User

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**TG Proposal Submission**

![Image of TG Proposal Submission form](https://pops-submit.teragrid.org/auth/TG_PORTAL/main/cgi/proposal_top)

### Principal Investigator Information

- **First Name**: [Input Field]
- **Middle Name**: [Input Field]
- **Last Name**: [Input Field]

### Organization Information

- **Name of affiliated Institution**: [Input Field]
- **Position**: [Input Field]
- **Department**: [Input Field]
- **Address 1**: [Input Field]
- **Address 2**: [Input Field]
- **City**: [Input Field]
- **State**: [Input Field]
- **Zip Code**: [Input Field]

### Contact Information

- **Email**: [Input Field]
- **Phone**: [Input Field]
- **Fax**: [Input Field]

### Home Page(s)

- Enter URL(s) of your personal home page(s) one per line. Any URL longer than 255 chars will be truncated.

### Distinguished Name(s) (DN)

- Enter DN(s) one per line. Any DN longer than 255 chars will be truncated.

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My TeraGrid: SSH Terminal

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My TeraGrid: File Manager

The TeraGrid File Management Service enables you to use a GSI-enabled file browsing applet to view and manage your files within and across multiple TeraGrid systems automatically from the convenience of the user portal using a simple drag-and-drop interface. The Java-based applet can sign you in to any TeraGrid system on which you have an account without re-entering a password. To use the applet you need Java 1.5.0_11 or higher installed.

NOTE: Opening the applet for the first time will take a few moments while the libraries load and you will need to accept the security message before the applet starts.

To open the session in a new window, go to File -> Open in new window.
Approach: Account Linking

- **New User**
  - A new user authenticates to the TGUP via Shibboleth
  - The user prepares and submits a proposal for TeraGrid resources
  - If the proposal is approved, the user’s TeraGrid account is created with a link to his/her ePPN/ePTID

- **Result**
  - The user can access personalized TGUP functionality using campus Shibboleth authentication, without requiring a separate TGUP username and password
Approach: Account Linking

- **Existing User**
  - An existing user authenticates to the TGUP via Shibboleth
  - The TGUP prompts for the user’s TGUP username and password
  - The user is given the option to link his/her ePPN/ePTID to his/her TeraGrid account

- **Result**
  - The user can access personalized TGUP functionality using campus Shibboleth authentication, without requiring a separate TGUP username and password
Access to TeraGrid Resources

- TeraGrid resources support PKI authentication
  - Interfaces: GSISSH (remote login), GRAM (job submission), GridFTP (file transfer)

- Approach:
  - Automatically obtain PKI credentials based on Shibboleth authentication to TGUP
  - Transparently use PKI credentials with TGUP SSH Terminal and File Manager

- See
  - GridShib CA: http://gridshib.globus.org/
  - MyProxy CA: http://myproxy.ncsa.uiuc.edu/ca
Summary

➢ TeraGrid has joined InCommon
  ▪ To facilitate campus login to TeraGrid resources by researchers and students

➢ First Step: Campus login to TeraGrid User Portal

➢ Next Step: Campus login to Science Gateways

➢ Thanks!

➢ Contact: jbasney@ncsa.uiuc.edu