Agenda

- NERSC MFA Update
- ERCAP System Tutorial
NERSC MFA Updates
Why MFA? Why Now?

- NERSC systems represent a large investment by DOE and need to be protected
- Compromised credentials can be an avenue for further attack and compromise
- MFA is much more common place with users both in accessing other HPC centers as well as web-based resources (Google, GitHub, Facebook, etc)
- NERSC is the only major ASCR facility that hasn’t required MFA for users
NERSC understands that the current mode of access is extremely convenient and productive.

NERSC has strived to craft a strategy for MFA that helps to improve security while looking for ways to minimize the impact to users.
### Making MFA a little easier...

<table>
<thead>
<tr>
<th>sshproxy</th>
<th>Use MFA to get ssh key that will expire in 24 hours. Longer term available with prior authorization.</th>
</tr>
</thead>
<tbody>
<tr>
<td>myProxy</td>
<td>Use MFA to get a proxy certificate.</td>
</tr>
<tr>
<td>Shibboleth</td>
<td>Login with MFA first time you hit a Shibbolized site, no authentication required for any Shibbolized site for 24 hours.</td>
</tr>
<tr>
<td>hpss</td>
<td>Use MFA to obtain an HPSS token.</td>
</tr>
</tbody>
</table>
## Opt-In vs. Opt-Out

<table>
<thead>
<tr>
<th>Opt-In:</th>
<th>User can enable/disable MFA as desired</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opt-Out:</td>
<td>User cannot disable MFA <em>without</em> NERSC authorization</td>
</tr>
</tbody>
</table>
Alternatives to Google Authenticator

Hardware token: Yubikey
Desktop app: authy
sshproxy
Analogous to myproxy, serves time-limited ssh keys

Uses the magic of ssh certificates

- ssh keys signed by an ssh CA cert
- ssh certs include expiration dates
- And other restrictions that can improve security

sshproxy generates ssh key & certificate which user downloads

- Requires MFA
- Default key lifetime: 24 hours
  - Process available for longer keys, with authorization
- Simple RESTful api
- Client-side scripts available to provide simple user interface
sshproxy in action

canon$ ls ~/.ssh
config id_rsa id_rsa.pub known_hosts

canon$ ./sshproxy.sh
Enter your password+OTP

Successfully obtained ssh key /Users/canon/.ssh/nersc
Key is valid: from 2018-08-31T09:59:00 to 2018-09-01T10:00:05

canon$ ls ~/.ssh
config id_rsa.pub nersc
id_rsa known_hosts nersc-cert.pub


canon$ ssh -i ~/.ssh/nersc cori.nersc.gov
--- ridiculously long banner deleted ---
canon@cori12:~>
In ~/.ssh/config

Host cori cori.nersc.gov
  Hostname cori.nersc.gov
  IdentityFile ~/.ssh/nersc
Shibboleth
Hello, Abraham

Your account has MFA enabled; please enter your one-time password.

One-Time Password

Log in

Information on MFA at NERSC
Jupyter (coming soon)

Sign in

Username:

Password:

MFA [If Enabled]:

Sign In
Opt-Out
Password Reset Process

Password reset procedure remains the same
- User requests password reset
- gets an email with a one-time link

Tokens will not get changed or removed when password is reset
- Users chooses new password
- Then has to login with new password + OTP

Users can separately request to purge tokens
- When user changes phone, they often turn in old phone before getting new phone
- Same workflow as password reset (one-time link via email)
- User will still have MFA enabled, NIM will direct user to token creation
ERCAP

• **Energy Research Computing Allocations Process (ERCAP)**
  - Accessed through the NERSC Help Desk at:
    - [https://ercap.nersc.gov](https://ercap.nersc.gov)
    - Use your NIM username and password
  - Renew current projects
  - Science objectives, approach, and resource requirements
    - Computer time and archival storage space
  - Reviewed and awarded by DOE Science Offices
  - Most allocations are awarded in December
    - Allocation year starts in January (AY 2019 - January 8, 2019)
New Look and Feel
Find us from the Help Desk Homepage

Takes you to the ERCAP Homepage
New Look and Feel

Click to submit a renewal request
Reminiscent of old NIM form

Click the magnifying glass icon to select from a list.
Place the mouse over any label text for a description of what to enter.
The asterisks (*) next to labels and in the tabs indicate there is information that is mandatory for the request.
To submit a renewal, click the "This request is a renewal" checkbox below.

To search for a past request, click the magnifying glass next to the below field.

- ERCAP Number of Request to Renew
- ERCAP Number: ERCAP0010465
- Project Title
- Short Project Name
- PI Name: Pi, Test (tpi)

- Allocation Year: 2019
- State: Draft
- Project Class: DOE Mission Science
- DOE Office and Program
- Science Category

To attach a supporting document, click the paperclip icon at the top of the page. When done, click the X to close the window.

Provide a brief summary of your project easily understood by people outside your field. What will this project accomplish? What is the significance of this work?

- Project Summary and Goals

Characters left: 2300
Click the magnifying glass icon to select from a list.
Place the mouse over any label text for a description of what to enter.
The asterisks (*) next to labels and in the tabs indicate there is information that is mandatory for the request.
To submit a renewal, click the "This request is a renewal" checkbox below.

<table>
<thead>
<tr>
<th>This request is a renewal:</th>
</tr>
</thead>
<tbody>
<tr>
<td>To search for a past request, click the magnifying glass next to the below field.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ERCAP Number of Request to Renew</th>
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<tbody>
<tr>
<td>ERCAP Number: ERCAP0010485</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Title</th>
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<tbody>
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</table>

<table>
<thead>
<tr>
<th>Short Project Name</th>
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<tbody>
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</table>

<table>
<thead>
<tr>
<th>PI Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PI Test (t/p)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Allocation Year</th>
</tr>
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<tbody>
<tr>
<td>2019</td>
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</table>

<table>
<thead>
<tr>
<th>State</th>
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</thead>
<tbody>
<tr>
<td>Draft</td>
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<table>
<thead>
<tr>
<th>Project Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOE Mission Science</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>DOE Office and Program</th>
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<tbody>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Science Category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

To attach a supporting document, click the paperclip icon at the top of the page. When done, click the X to close the window.

Provide a brief summary of your project easily understood by people outside your field. What will this project accomplish? What is the significance of this work?

<table>
<thead>
<tr>
<th>Project Summary and Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
Asterisks Indicate Mandatory Data

Click the magnifying glass icon to select from a list.
Place the mouse over any label text for a description of what to enter.
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Asterisks to indicate missing/mandatory data

To search for a past request, click the magnifying glass next to the below field.

ERCAP Number of Request to Renew
ERCAP Number
Project Title
Short Project Name
PI Name

Allocation Year
State
Project Class
DOE Office and Program
Science Category

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Provide a brief summary of your project easily understood by people outside your field. What will this project accomplish? What is the significance of this work?

Project Summary and Goals

Characters left: 2500
Search Options

- Allocation Year: 2019
- Project Class: DOE Mission Science
- DOE Office and Program: Science

Click the Magnifying Glass to search.
DOE Offices and Sub-Programs

Some DOE Offices require selecting an additional sub-program:
New Science Categories (Again!)

<table>
<thead>
<tr>
<th>Science Category</th>
<th>Description</th>
<th>Fiscal Year</th>
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</thead>
<tbody>
<tr>
<td>Biosciences</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Biosciences : Bioenergy</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Biosciences : Genomics</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Biosciences : Molecular</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Chemistry : Biochemistry</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Chemistry : Catalysis</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Chemistry : Chemical Physics</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Chemistry : Photosynthetic Systems</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Chemistry : Physical Chemistry</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Computer Science</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Computer Science : Data and I/O</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Computer Science : Hardware and Architecture</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Computer Science : Optimization and Tuning</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Computer Science : Quantum and Neuromorphic</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Computer Science : Sys Soft - Prep Envs</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Computer Science : Visualization</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Energy</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Energy : Combustion</td>
<td></td>
<td>2019</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Science Category</th>
<th>Description</th>
<th>Fiscal Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry : Chemical Physics</td>
<td>Chemical Physics</td>
<td>2019</td>
</tr>
<tr>
<td>Geoscience : Geophysics</td>
<td>Geophysics</td>
<td>2019</td>
</tr>
<tr>
<td>Physics</td>
<td></td>
<td>2019</td>
</tr>
<tr>
<td>Physics : Accelerator</td>
<td>Accelerator Science</td>
<td>2019</td>
</tr>
<tr>
<td>Physics : Astrophysics</td>
<td>Astrophysics</td>
<td>2019</td>
</tr>
<tr>
<td>Physics : Condensed Matter</td>
<td>Condensed Matter</td>
<td>2019</td>
</tr>
<tr>
<td>Physics : Cosmology</td>
<td>Cosmology</td>
<td>2019</td>
</tr>
<tr>
<td>Physics : HEP (Experiment)</td>
<td>High Energy Physics (Experimental)</td>
<td>2019</td>
</tr>
<tr>
<td>Physics : HEP (Theory)</td>
<td>High Energy Physics (Theory)</td>
<td>2019</td>
</tr>
<tr>
<td>Physics : NP (Experiment)</td>
<td>Nuclear Physics (Experimental)</td>
<td>2019</td>
</tr>
<tr>
<td>Physics : NP (Theory)</td>
<td>Nuclear Physics (Theory)</td>
<td>2019</td>
</tr>
</tbody>
</table>
Authorized Preparers

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Funding*</th>
<th>Security</th>
<th>Project Details*</th>
<th>Resources*</th>
<th>Codes</th>
<th>Supporting Information*</th>
<th>Usage Agreement*</th>
</tr>
</thead>
</table>

Enter the name of the sponsoring organization: the institution at which the work is being performed. This will default to the PI's organizational affiliation, but should be changed to reflect the institution that oversees the project, such as a collaboration or primary grant-funded institution, if applicable.

**Sponsoring Organization**

NERSC

Enter the name, organization, and email address of Senior Investigators or Key Personnel you would like to have associated with your project.

**Senior Investigators**

Characters left: 500

Search from available NERSC users below using the magnifying glass. Then, choose a name to add your selection to the list of authorized preparers for this request. If you add a preparer who is not a NERSC user, please fill out this form and fill out the section for an Authorized Preparer.

**Authorized Preparers**

Bagwell, Clayton (bagwell)

Test

**Showing 1 through 15 of 18**

Test-PI, Crossfuze (cf_tpl)
Test-Piproxy, Crossfuze (cfproxy)

Save as Draft Create Request Cancel Request
Funding - DOE/SC Program Managers

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Funding*</th>
<th>Security</th>
<th>Project Details*</th>
<th>Resources*</th>
<th>Codes</th>
<th>Supporting Information*</th>
<th>Usage Agreement*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What entity(ies) fund this project? Check all that apply.</strong></td>
<td></td>
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</tr>
<tr>
<td>DOE Office of Science (DOE/SC)</td>
<td>![Checkmark]</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DOE Funding Source</strong></td>
<td>DOE Office of Science Advanced Scientific Computing Research (ASCR)</td>
<td></td>
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</tr>
<tr>
<td><strong>DOE Program Manager</strong></td>
<td></td>
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</tr>
<tr>
<td><strong>List DOE/SC Grant, PAMS, FWP numbers</strong></td>
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</tr>
<tr>
<td>Federal Agency other than DOE/SC</td>
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</tr>
<tr>
<td>University or other non-profit organization</td>
<td></td>
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</tr>
</tbody>
</table>

**Funding - Federal Agencies**

Funding:  
| DOE Office of Science (DOE/SC) |  
| Federal Agency other than DOE/SC | ✔️  

**Other Funding/Agency Source(s):**

- Laboratory Directed Research and Development (LDRD)
- National Nuclear Security Administration (NNSA)
- Office Nuclear Energy (NE)
- Office of Energy Efficiency and Renewable Energy (EERE)
- Office of Environmental Management (EM)
- Office of Fossil Energy (FE)
- Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)
- Department of Education (DOE)
- U.S. Department of Energy (DOE)
## Two Project Descriptions

To attach a supporting document, click the paperclip icon at the top of the page. When done, click the X to close the window.

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Funding*</th>
<th>Security</th>
<th>Project Details*</th>
<th>Resources*</th>
<th>Codes</th>
<th>Supporting Information*</th>
<th>Usage Agreement*</th>
</tr>
</thead>
</table>

To provide a brief summary of your project easily understood by people outside your field. What will this project accomplish? What is the significance of this work?

**Project Summary and Goals**

- This is my easy to understand, Scientific American level project description. It is easily understood by people outside of my field. It describes what my project will accomplish and the significance of my research.

Characters left: 2286

To provide a more technically detailed explanation of your research for review by the DOE managers.

**Project Description for DOE Managers**

- This is my more highly technical description of my project, aimed at the DOE managers, and designed to show off my impressive scientific acumen. It provides more detail about my proposed research.

Characters left: 2304
Supply formatted citations (author(s), title, publication name, date, and DOI) for all publications supported by the use of NERSC resources and have been accepted or are in press or published. Do not include publications listed here last year. E.G. Hsu, J., Prather, M. J., Cameron-Smith, P., Videnbaum, A., and Nicolau, A.: "A radiative transfer module for calculating photolysis rates and solar heating in climate models: Solar-J v7.5", Geosci. Model Dev., 10, 2525-2545, 2017, DOI:10.5194/gmd-10-2525-2017.


Characters left: 824
Attachments and PDFs

Look for the Paperclip

nerscdev.service-now.com says
ERCAP_Long_Project_Description.pdf Attached by bagwell-ADMIN on 2018-09-19 21:40:51

Choose File  ERCAP_Long_Project_Description.pdf

Download All

Attachments

Choose File  No file chosen

Remove

Click to Close
Attachment Location(s)

Manage Attachments (2):
- Long ERCAP Project Description.docx [rename] [view]
- ERCAP0010466 Export(2018-09-19 21:52:36).pdf [rename] [view]

Attachments and PDFs are found here

Draft
Submitted for Review
Approved
Complete

List any additional HPC resources that may be awarded or otherwise committed to this project (e.g., a local compute cluster, a DOE INCITE application or award, an XSEDE award, etc.).

Other HPC Support
No INCITE application or XSEDE award.

Characters left: 483

Supply any other additional information you would like to be considered in support of this request.

Additional information

Characters left: 500

To attach a supporting document, click the paperclip icon at the top of the page. When done, click the X to close the window.

Attachments

- File name: Long ERCAP Project Description.docx
- Content type: application/vnd.openxmlformats-officedocument.
- Created: 2018-09-19 14:51:05
- Created by: tpi
## Resources Requested

### Computational Resources
- **Enter the number of NERSC computational hours your project requires.**

<table>
<thead>
<tr>
<th>Computational Repo</th>
<th>NERSC Hours Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>testmp</td>
<td>0</td>
</tr>
</tbody>
</table>

*NERSC Hours Requested: 25 Million*  

### Enter the amount of scratch space your project requires in TB.

*Scratch Space (TB): 2*

*Please Note: Your value of 1.25 has been rounded to 2 as decimals are not allowed in this field.*

### Archival storage
- Enter the amount of Archival (HPSS) storage your project requires in 1 TB increments.
<table>
<thead>
<tr>
<th>Code 1 Name</th>
<th>WhereUFrom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code 1 URL</td>
<td><a href="http://www.WhereUB.info">www.WhereUB.info</a></td>
</tr>
<tr>
<td>Code 1 Description</td>
<td>Inquires about origination.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code 2 Name</th>
<th>WhoBU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code 2 URL</td>
<td><a href="http://www.personID.org">www.personID.org</a></td>
</tr>
<tr>
<td>Code 2 Description</td>
<td>Determines user</td>
</tr>
</tbody>
</table>
If this project is given a NERSC award, I agree to monitor the usage associated with it to ensure that, to the best of my ability, usage is for the project described here. Furthermore, if this is a continuing project, I confirm that I have audited the usage associated with this project, and to the best of my ability to determine, all usage was for the project specified.

Please enter your initials to agree to these terms.

Usage Agreement

Initials: TP
Submit Request

**Status:**
- Draft
- Submitted for Review
- Approved

**Message:**
nerc.service-now.com says
Are you sure you are ready to submit this request for review? You will be able to review but not edit your request. Click OK to confirm.

**Warning:**
The following mandatory fields are not filled in: Usage Agreement Initials

**Submitted Requests Under Review**
Click the ERCAP number to view.

<table>
<thead>
<tr>
<th>ERCAP Number</th>
<th>Project Title</th>
<th>Short Project Name</th>
<th>Repo</th>
<th>Allocation Year</th>
<th>State</th>
<th>Updated</th>
<th>Updated by</th>
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</thead>
<tbody>
<tr>
<td>ERCAP0010033</td>
<td>Test project/repositories</td>
<td>Test ERCAP/NIM</td>
<td>testmp</td>
<td>2019</td>
<td>Submitted for Review</td>
<td>2018-09-19 16:11:55</td>
<td>tpi</td>
</tr>
</tbody>
</table>
ERCAP Office Hours

You can contact us with questions or about any problems you may be having at any time.

- Email: allocations@nersc.gov
- Phone: 1-800-66-NERSC opt 2

If you have a special, last minute problem or question, join us for ERCAP Office Hours

- October 12 & 15, 2018 - ERCAP Office Hours
  - 08:00 PDT - 17:00 PDT
- Join us on Zoom to get hands-on help
  - Zoom session link to be announced
Questions?
Resources

- **DOE/SC Program Managers**

- **NERSC Account Support**
  - [http://help.nersc.gov](http://help.nersc.gov)
  - [accounts@nersc.gov](mailto:accounts@nersc.gov)
  - 1-800-66-NERSC, menu option 2 or 510-486-8612

- **NERSC Allocation Support**
  - [http://help.nersc.gov](http://help.nersc.gov)
  - [allocations@nersc.gov](mailto:allocations@nersc.gov)
  - 1-800-66-NERSC, menu option 2 or 510-486-8612
The End