

OLCF Best Practices and Overview for New Users

ORNL is managed by UT-Battelle, LLC for the US Department of Energy



U.S. DEPARTMENT OF
ENERGY

General Information

- This presentation gives a brief introduction to using OLCF resources & covers systems, policies, and where to find help
 - This is by no means an all-inclusive presentation
 - Feel free to ask questions
- Much of this may be a reminder; it's largely an update to previous presentations, including:

<https://www.olcf.ornl.gov/calendar/userconcall-jun2019/>

<https://www.olcf.ornl.gov/calendar/userconcall-feb2020/>

<https://www.olcf.ornl.gov/calendar/2020-olcf-user-meeting/>

<https://www.olcf.ornl.gov/calendar/userconcall-feb2021/>

<https://www.olcf.ornl.gov/calendar/userconcall-feb2022/>

Overview

1. Staying Informed
2. OLCF Policies
3. Authentication with RSA Tokens
4. Projects & User Accounts
5. Finding and Building Software
6. Training Opportunities
7. Getting Help

Staying Informed



Staying Informed

- We provides multiple layers of user notifications about system status and downtimes
 - Email lists
 - Status indicators on <https://www.olcf.ornl.gov> (at the bottom)
- For more information, see the OLCF website:
<https://www.olcf.ornl.gov/for-users/user-assistance/>

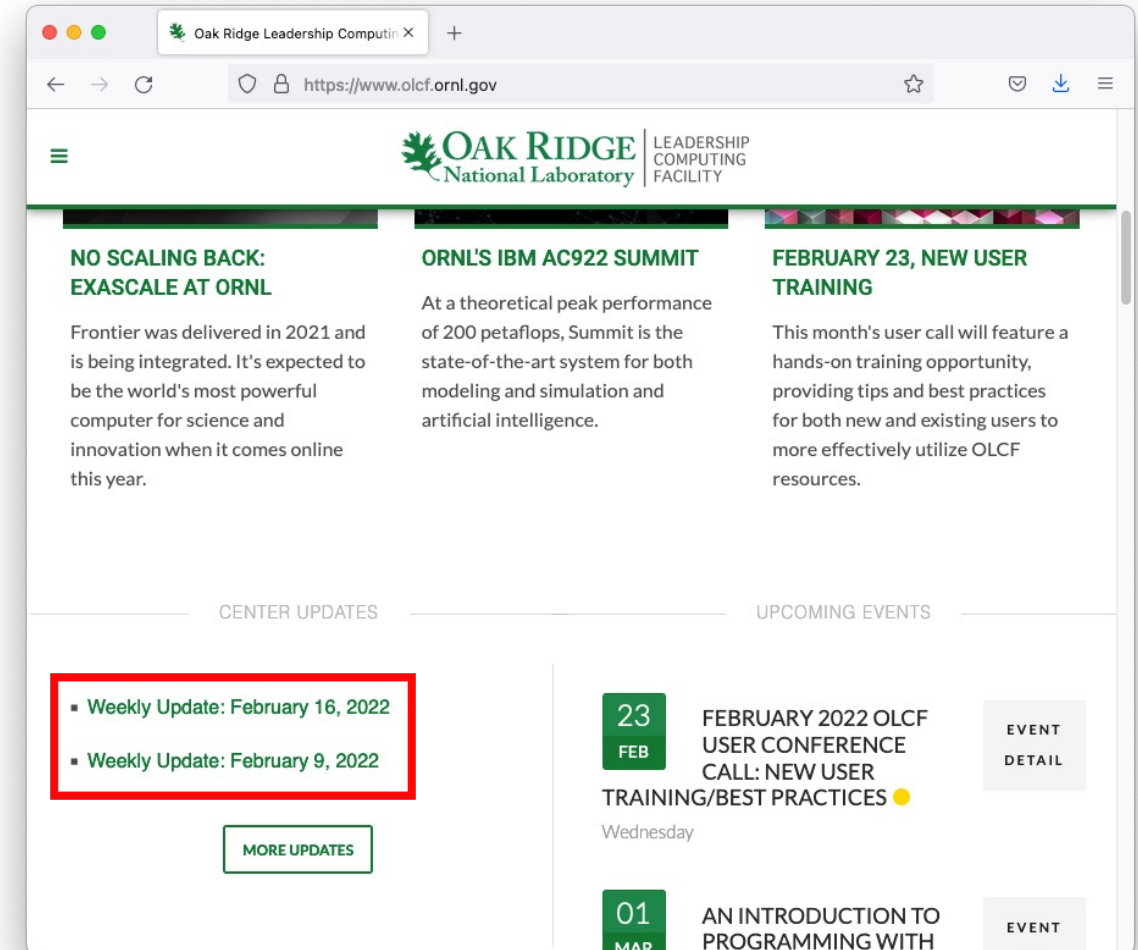
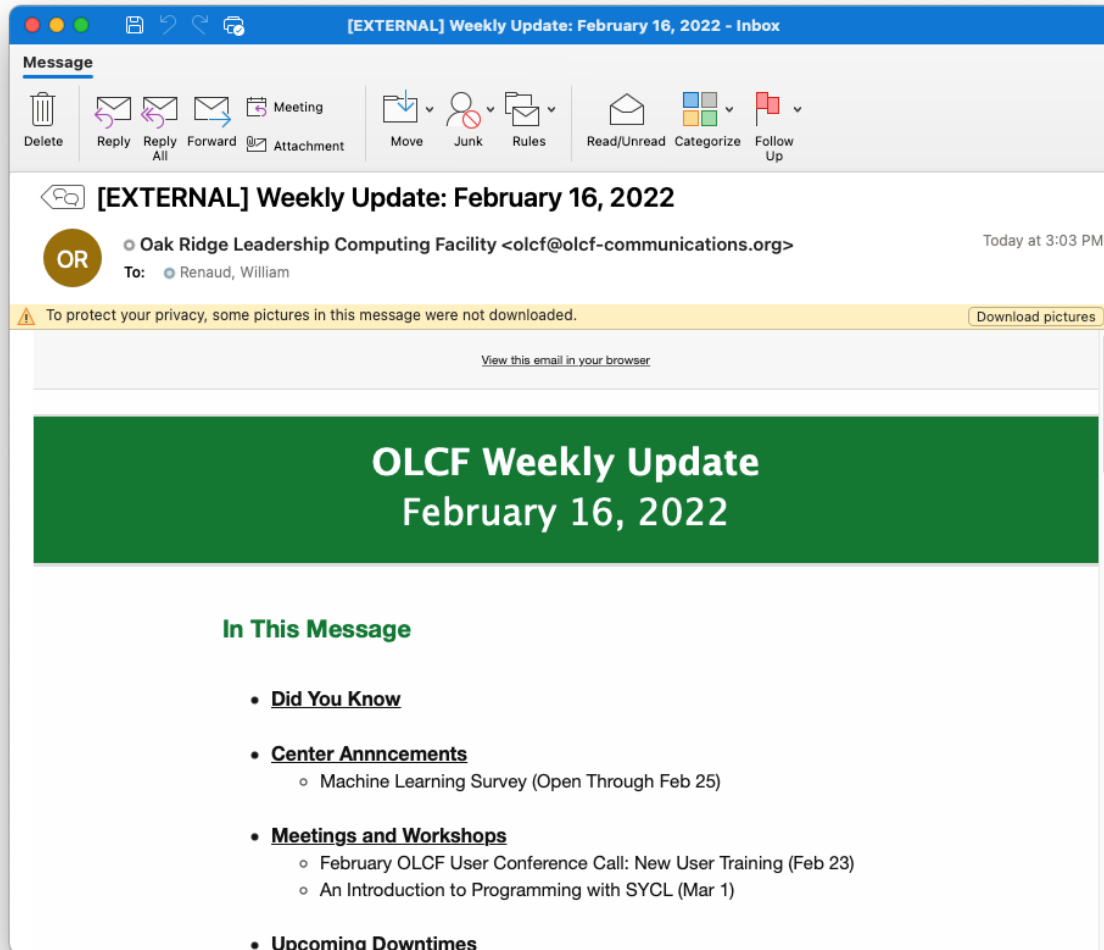
Staying Informed – *Email Lists*

- *Announce* list
 - All users are required to be members
 - System-specific & center-wide announcements
 - olcf@olcf-communications.org
(We use Mailchimp for this...It's an external address, but yes, it's us!)
 - Major announcements, weekly notice, etc.
- *Notice* lists
 - By default, “recent” users (active in last 2 weeks)
 - Permanent opt-in/opt-out possible (contact help@olcf.ornl.gov)
 - Minor updates, system status, etc.

Staying Informed – *Weekly Update*

- Sent before noon (Eastern) on Wednesday
- Announcements about outages, training, etc.
- ***ALL USERS should receive this email***
- Also posted on OLCF home page

Staying Informed – Weekly Update



Staying Informed – *System Status*

- Logs from monitoring software are parsed to make educated guess on system status which is sent to multiple destinations
 - OLCF Website
 - Appropriate *notice* list
- Fairly accurate, but still a fully automated process
 - Possibility of both false positives and false negatives
 - We do take some measures to mitigate this

Staying Informed – System Status

Oak Ridge Leadership Computing Facility – The OLCF was established at Oak Ridge National Laboratory in 2004 with the mission of standing up a supercomputer 100 times more powerful than the leading...

Oak Ridge Leadership Computin X +

https://www.olcf.ornl.gov

ABOUT OLCF ▾ OLCF RESOURCES ▾ R&D ACTIVITIES ▾ SCIENCE AT OLCF ▾ FOR USERS ▾ OLCF MEDIA ▾

Center Status

Summit	Operational	Next 10 days scheduled downtimes
Up since May 14, 2019		May 17 May 18 May 19 May 20 May 21 May 22 May 23 May 24 May 25 May 26
Titan	Operational	Next 10 days scheduled downtimes
Up since Apr 9, 2019		May 17 May 18 May 19 May 20 May 21 May 22 May 23 May 24 May 25 May 26
Eos	Operational	Next 10 days scheduled downtimes
Up since Apr 29, 2019		May 17 May 18 May 19 May 20 May 21 May 22 May 23 May 24 May 25 May 26
Rhea	Operational	Next 10 days scheduled downtimes
		May 17 May 18 May 19 May 20 May 21 May 22 May 23 May 24 May 25 May 26 TOP

OLCF HPSS Notice: Up (Jan 28) - deleted nagios rt status

Message

Delete Reply Reply All Forward Attachment Meeting Move Junk Rules Read/Unread Categorize Follow Up

OLCF HPSS Notice: Up (Jan 28)

OH OLCF HPSS Notifications via hpss-notice <hpss-notice...> Thursday, January 28, 2021 at 2:45 PM

To: hpss-notice@email.ornl.gov; Cc: OLCF HPSS Notifications

The High Performance Storage System returned to service at approximately 14:30 on Jan 28

hpss-notice mailing list

As an active OLCF user, you have been automatically subscribed to this list. To be removed from this list, contact help@olcf.ornl.gov

<https://www.olcf.ornl.gov/for-users/user-assistance/#communication-to-users>

OLCF Policies



OLCF Policies

- Various OLCF policies are available at https://docs.olcf.ornl.gov/accounts/olcf_policy_guide.html
 - Computing Policy
 - Security Policy
 - Data Management Policy
 - Various Project Policies
(Reporting, Allocation Utilization, User Agreement)
- The site also includes the acknowledgement statement for publications related to work done on OLCF resources.

Authentication with RSA Tokens



Authenticating to OLCF Systems

- Interactive login access is via Secure Shell (SSH)
- Systems use two-factor authentication via user-selected PINs and RSA SecurID tokens
 - Tokencodes can only be used once
 - Other methods (password, public key, etc.) are not permitted
- RSA terminology
 - *Tokencode*: The 6 digit number on your RSA token
 - *PIN*: An alphanumeric string of 4-8 characters known only to you
 - *PASSCODE*: Your PIN followed by the current tokencode

Common Login Issues: Incorrect Username

- SSH (typically) doesn't prompt for a username
 - Nor does it tell you which one it's using
 - Unless you request verbose output (`-v[v[v]]`)
 - By default, it uses your username on the client system; you must tell it if your username differs
 - Command line: `ssh olcfusername@home.ccs.ornl.gov`
 - Via settings in `~/.ssh/config` file
 - Various ways to do this in graphical SSH clients

Common Login Issues: Password Prompt

- SSH prompts for a password after PASSCODE fails
 - Typically happens after three PASSCODE failures...this is a fallback behavior of SSH (PASSCODE didn't work, so it's trying something else)
 - Your only option here is to kill the process (`Ctrl-C`) & try again.
 - *Tip: If your PASSCODE has failed twice, let the tokencode change before you try again (to avoid token being locked out)*

```
Enter PASSCODE:  
Enter PASSOCDE:  
Enter PASSCODE:  
user1@summit.olcf.ornl.gov's password:
```

Common Login Issues: Token Synchronization

- RSA token gets out of sync with the server
 - Sometimes you may be prompted for the 'next tokencode'

Enter PASSCODE:

Wait for the tokencode to change, then enter the new tokencode :

- If this happens, enter (only) the next tokencode your RSA token generates

Projects & User Accounts



System & Group Access

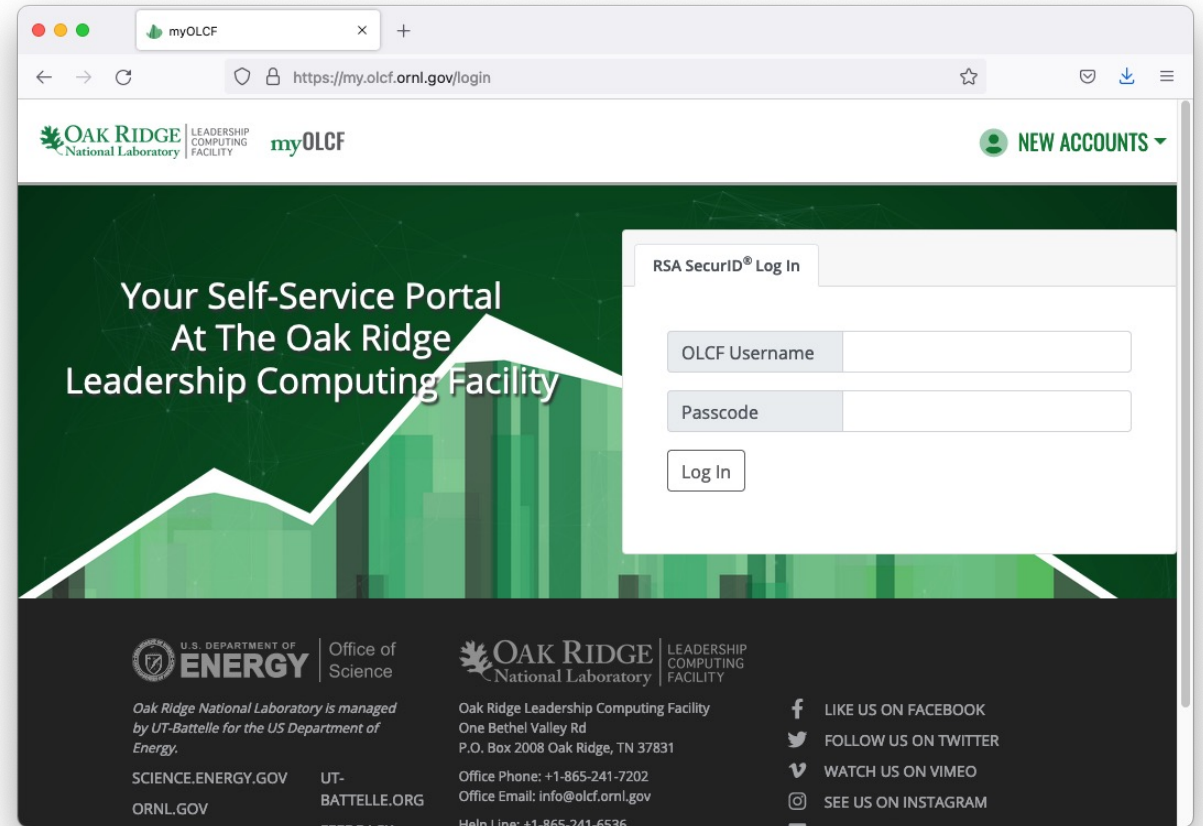
- Projects
 - Are granted system access/assigned to Unix groups
- Users
 - Are assigned to projects
 - Inherit the project's groups & system accesses (they're not directly added to systems/groups)
- So...
 - For access to a group/system, you must join a corresponding project
 - If your project ends, your system access ends (unless you're on another project w/access to that system)

Managing Your Allocation

- Projects are not disabled for going over allocation; they keep running, albeit at reduced priority
 - slight for 100-125% of allocation
 - larger for >125% of allocation (also incurs a limit of 1 running job)
- Since we don't disable projects, we don't give refunds (*per se*)
 - We can delay priority reduction if lots of jobs were affected by a particular system issue (same effect but easier to manage)
 - If you notice jobs being impacted by system issues, try to keep track of affected jobs

myOLCF

- myOLCF allows you to
 - Apply for projects (initial/renewal)
 - View your projects
 - Get usage information
 - Update your contact info
 - Sign up for Office Hours
 - And more!
- <https://my.olcf.ornl.gov>



https://docs.olcf.ornl.gov/services_and_applications/myolcf/index.html

Project Closeout

- When your project ends:
 - You'll no longer be able to access OLCF resources associated with that project *unless* you have access via another project
 - You'll lose access to that project's Unix groups (and therefore the project's directories)
 - You'll have 1 extra month for data retrieval
 - But only on `home.ccs.ornl.gov` and `dtn.ccs.ornl.gov` or via Globus
 - ***Don't wait to move data, though...***

Finding & Building Software



Finding Software

- Basic commands are part of the default environment
- Other software via Lmod
 - Similar to Environment Modules (`module load`, etc.) but more powerful
 - <https://lmod.readthedocs.io/>
- Compilers, debugging/optimization tools, other libraries & some scientific apps available
 - If you think something might be of general interest, you can request via email to help@olcf.ornl.gov

Finding Software

- Special case: python
 - We provide tools to build your own conda environments
 - Previously used python+anaconda; now using python+miniforge
 - Recommend using those + conda/venv to build modules you need
 - You may need to build from source for Summit
 - Good presentation from OLCF's Matt Belhorn:
 - https://www.olcf.ornl.gov/wp-content/uploads/2020/06/20200603_summit_workshop_python.pdf
 - <https://vimeo.com/427794043>

Building Software

- Consider building/installing software in an NFS area
 - Avoids the scratch area purge
 - Also can be “friendlier” to the system, since compiling involves lots of metadata which can impact/be impacted by large parallel filesystems
- Might be possible to build in a ramdisk with an NFS directory as the installation prefix
 - Be sure to set appropriate permissions
- ***Review may be needed prior to adding software that wasn't listed on your project application; you must also comply with relevant requirements (licensing, export control, etc.)***

Training Opportunities



Training Opportunities

- We support numerous training events such as concalls and software-specific courses
- Recent training has been virtual; we anticipate hybrid training for future events
- What training is coming up?
 - Watch for announcements in the Weekly Update
 - <https://www.olcf.ornl.gov/for-users/training/training-calendar/>
- Past training:
 - <https://vimeo.com/channels/olcftraining>
 - https://docs.olcf.ornl.gov/training/training_archive.html

Office Hours

- OLCF now offers “Office Hours” twice weekly
 - Monday, 2:00 PM – 3:00 PM (Eastern Time)
 - Wednesday, 1:00 PM – 2:00 PM (Eastern Time)
- Zoom meeting with users, center support staff, and vendors
- Sign up via myOLCF

Office Hours

The screenshot shows a web browser window with the URL `https://my.olcf.ornl.gov/office_hour_user/scheduler`. The page header includes the Oak Ridge National Laboratory logo, the myOLCF logo, and navigation links for MY PROJECTS, MY ACCOUNT (with a notification badge '3'), and LOG OUT.

The left sidebar is green and contains the following menu items: STF007, OVERVIEW, USERS, ALLOCATIONS, SETTINGS, ANALYTICS, OFFICE HOURS, Schedule a Time, and View Your Scheduled Office Hour(s). The OFFICE HOURS item is currently selected.

The main content area is titled "Schedule an office hour" and contains a light blue informational box with the following text:

Would your project team like direct access to OLCF, AMD, and HPE staff for current issues or questions you might have about running your application/software on Frontier or Crusher? If so, we are offering office hours every Monday from 2-3 PM and Wednesday from 1-2 PM (EST/EDT). During each session, (up to) 5 teams will move into their own Zoom breakout room to discuss their question/issue directly with the appropriate OLCF, AMD, and HPE staff. Topics can be anything from issues building your code, non-ideal performance, node failures, etc.

If you encounter issues during sign-up, please contact: help@olcf.ornl.gov

Below the informational box is a form titled "General Information" with the following fields:

- Project:** A text input field containing "STF007".
- Compute Resource:** A dropdown menu with "Select One" selected.
- User Type:** A dropdown menu with "Select One" selected.
- Topic of Discussion:** A text input field with placeholder text: "Enter a brief description of what will be discussed (e.g., compiling, profiling, specific errors, performance questions)".
- Related Jira Ticket Number:** A text input field with placeholder text: "(e.g., OLCFDEV-123, OLCFHELP-0007)".

Office Hours

myOLCF


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← → ↻


https://my.olcf.ornl.gov/office_hour_user/scheduler


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OAK RIDGE
National Laboratory


myOLCF

MY PROJECTS ▾

MY ACCOUNT


3

▾

LOG OUT

* Comments

Please provide additional comments and a more in depth explanation.

Choose a Date and Time

All times shown are *Eastern Standard Time (GMT -05:00)*

*

<

January 2024

>

Su	Mo	Tu	We	Th	Fr	Sa
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3
4	5	6	7	8	9	10

←

Select a date from the calendar first

✓ Submit

Getting Help



Where do I find documentation?

- OLCF Website/User Documentation: <https://docs.olcf.ornl.gov/>
 - Frontier/Summit/Andes User Guides
 - Slate/Jupyter documentation
 - Data storage/transfer
 - Training archive
- NVIDIA hosted documentation: <http://docs.nvidia.com>
- HPE/Cray Docs: <https://pubs.cray.com>
 - Will forward to an HPE site
 - Frontier is a Cray EX system

Working With User Support

- Email is often the best option to contact us (especially for long/complicated error messages)
- Send as many error messages as possible (or capture them in a file and let us know where that file is on disk)
- It's not necessary to send us codes/reproducers via email
 - More efficient to tell us where they are on the filesystem
 - If appropriate, set up a test directory or collect everything in a .tar file

Working With User Support

- Report new issues in new tickets (not a reply to an old ticket)
 - Helps us in classifying/searching through old tickets
 - Gives it greater visibility
- Please remember to tell us what system you're asking about
 - We support multiple systems so it can help us to more quickly answer your question if we know which one you're referencing

Requesting Policy Exemptions

- The Resource Utilization Council accepts requests for temporary exemption from some policies (various job limits, purge exemptions, quota increases, etc.)
- Request exceptions via email to help@olcf.ornl.gov.
 - These are reviewed by the RUC, so make them well in advance
 - Let us know why the existing limits are an issue
 - If requesting a job priority boost...submit the job! It may more quickly than you expect.

Finally



Finally...

- We're here to help you
- Questions/comments/etc. can be sent to the OLCF User Assistance Center
 - Staffed 9AM – 5PM US Eastern Time (exclusive of ORNL holidays)
 - help@olcf.ornl.gov
- Computer operations staff available for login/RSA issues via phone at (865) 241-6536

Links



Links

- General

- <https://www.olcf.ornl.gov>
- <https://www.olcf.ornl.gov/for-users/user-assistance/>
- https://docs.olcf.ornl.gov/accounts/olcf_policy_guide.html
- <https://my.olcf.ornl.gov>
- https://docs.olcf.ornl.gov/services_and_applications/myolcf/index.html

- Documentation

- <https://docs.olcf.ornl.gov/>
- <http://docs.nvidia.com>
- <https://pubs.cray.com>
- <https://lmod.readthedocs.io/>

Links

- Training

- <https://gpuhackathons.org>
- <https://github.com/olcf-tutorials>
- <https://github.com/olcf/NewUserQuickStart>
- <https://www.olcf.ornl.gov/for-users/training/training-calendar/>
- <https://vimeo.com/channels/olcftraining>
- https://docs.olcf.ornl.gov/training/training_archive.html
- https://www.olcf.ornl.gov/wp-content/uploads/2020/06/20200603_summit_workshop_python.pdf
- <https://vimeo.com/427794043>

Links

- Previous Best Practices
 - <https://www.olcf.ornl.gov/calendar/userconcall-jun2019/>
 - <https://www.olcf.ornl.gov/calendar/userconcall-feb2020/>
 - <https://www.olcf.ornl.gov/calendar/2020-olcf-user-meeting/>
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