



# Meeting of the Technical Steering Committee (TSC) Board

Wednesday, March 24<sup>th</sup>, 2021  
11:00am ET

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# Agenda/Updates

- Announcements, Upcoming talks and deadlines
  - ISC 2021
    - Accepted BoF Sessions of ISC 2020 will be held at ISC 2021
    - *BoF durations will only be 35 minutes*
  - PEARC'21 BoF submission – due May 9
  - PEARC'21 (short paper) submission – due Apr 13
  - SC'21 BoF submission – due August 6
  - [2021 Stanford Conference](#) (Jeremy presented) – March 18th
  - Infrastructure outage (*postponed, has not been rescheduled yet*):

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- Internship program experience - Nirmala
- 2.1 updates

# Mentorship Program Fall 2020 – Recap of Timelines

**June 2020**  
**Mentorship Project**  
**Proposals**

**Sep 8th, 2020**  
**Application**  
**window closes**

**Milestone 1 – Nov 2020**  
**virtual openhpc cluster**  
**setup**

**Aug 20<sup>th</sup>, 2020**  
**Call for**  
**participation**

**Milestone 2 – Feb 2021**  
**Completed project proposal**  
**End of Program**



# Mentorship Program – Fall 2020

Mentors           Nirmala Sundararajan and Reese Baird  
Mentee           Elham Hojati, Phd Student at Texas Tech University  
Project           Automation of scaling up of an OpenHPC cluster

Scripted Installation = `input.local` + `recipe.sh`

Gather MAC Address List of compute nodes









(alternative is to use `wwnodescan`)

Create `input.local` file

The project is to develop the python-based application (OpenHPC-Get-Mac-application) to gather MAC address using IPMI and Redfish API








# OpenHPC-Get-Mac Application- (Contd.)

<https://github.com/nsfcac/Automating-the-scale-up-process-in-OpenHPC>







 <b>elham1296</b> Commit 2/2/2021	6be401e on Feb 3	 14 commits
 Codes	Commit 2/2/2021	2 months ago
 Doc-Files	Commit 2/2/2021	2 months ago
 OpenHPC-Get-Mac-Guideline.pdf	Commit 2/2/2021	2 months ago
 OpenHPC-Get-Mac-presentation.pdf	Commit 2/2/2021	2 months ago
 Readme.md	Commit 2/2/2021	2 months ago
 abstract.docx	Commit 2/2/2021	2 months ago

# OpenHPC-Get-Mac Application- (Contd.)

master Automating-the-scale-up-process-in-OpenHPC / Codes /

 elham1296 Commit 2/2/2021	
..	
 __pycache__	Commit 2/2/2021
 displayInfoIPMI.py	Commit 2/2/2021
 displayInfoRedfish.py	Commit 2/2/2021
 ipmi.py	Commit 2/2/2021
 redfish.py	Commit 2/2/2021
 userInterfaceApp.py	Commit 2/2/2021

master Automating-the-scale-up-process-in-OpenHPC / Doc-Files /

 elham1296 Commit 2/2/2021	
..	
 ClusterNetInfo.json	Commit 2/2/2021
 Readme	Commit 2/2/2021
 clusterInfo	My second Commit
 credentialInfo.txt	Commit 2/2/2021
 input.local	Commit 2/2/2021

# User interface

```
Gathering Mac Address of Internal Network  
by Redfish/IPMI Hardware Management Tool
```

```
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....
```

```
.....  
Please select a number from the menu:  
1) About the Application  
2) Network Discovery  
3) Update Cluster Mac Address Information  
4) Exit
```

```
Answer:2
```

```
.....  
Select Hardware Management Technology(Default=Redfish):  
1) IPMI  
2) Redfish
```

```
Answer: 
```

```
Please select a number from the menu:
```

- 1) About the Application
- 2) Network Discovery
- 3) Update Cluster Mac Address Information
- 4) Exit

```
Answer:3
```

```
.....  
Select Hardware Management Technology(Default=Redfish):  
1) IPMI  
2) Redfish
```

```
Answer:1
```

```
.....  
Select Network Interface?(Default=NIC1):  
1)NIC1  
2)NIC2  
3)NIC3  
4)NIC4
```

```
Answer:1
```

```
.....  
Select compute_prefix(Default=c):
```

```
Answer:zc-92-
```

```
.....  
Select the path to the cluster information file (Default: ../Doc-Files/clusterInfo):
```



# Validation

- On Redraider Cluster which has Redfish enabled compute nodes (using redfish)
- On Zephyr cluster (using IPMI)
- Demo: <https://youtu.be/6jNhuDPta5Q?t=117>
- Demo-IPMI: <https://drive.google.com/file/d/1jWTTz7lo5DpZZxZs-f716BiqIskCOiTr/view?usp=sharing>
- Presentation: <https://youtu.be/kDQWN6bbPMc>

# Mentorship Program

- Revisiting 2<sup>nd</sup> mentorship program scheduling options:
  - try again for this summer...
    - LF deadline for posting is April 15
  - wait till later date...
    - Fall/spring
    - Summer 2022
  - we tabled this discussion from last time:
    - Neal indicates LF suggesting to open up applications prior to the spring when targeting a summer internship program
    - Thoughts/volunteers?

## 2.1 Updates

- Mentioned last time that access to the ARM CI hardware at Linaro was restored
- Has been working reasonably well since then:
  - ✓ have updated our config to include a CentOS8.3/aarch64 image for testing
  - ✓ enabled CI testing for 2.1 Factory (so now running both Leap 15.2 and CentOS 8.3)

# MVAPICH2 version tweak

- MVAPICH2 issues
  - recall from last time that we were seeing a variety of issues/segfaults in testing with the latest version of MVAPICH2 (2.3.5)
  - on a whim, tested a build of a previous version (2.3.4) and it resolved one of the reproducible CI failures
  - consequently, have reverted to a 2.3.4 build for the 2.1 release (which is still newer than the 2.3.2 version we had in ohpc 2.1)
  - this looks to have resolved all outstanding mv2 issues

## State of CentOS\_8 for OpenHPC:2.1:Factory / mvapich2-gnu9

[Go to download repository](#) [Delete all built binaries](#)

### x86\_64

<a href="#">_buildenv (44.6 KB)</a>	<a href="#">Download</a> <a href="#">Details</a>
<a href="#">mvapich2-gnu9-ohpc-2.3.4-6.1.ohpc.2.1.src.rpm (17.6 MB)</a>	<a href="#">Download</a> <a href="#">Details</a>
<a href="#">mvapich2-gnu9-ohpc-2.3.4-6.1.ohpc.2.1.x86_64.rpm (12.4 MB)</a>	<a href="#">Download</a> <a href="#">Details</a>

[Trigger rebuild](#) [Delete binaries](#) [Show resources](#) [Job history](#) [Build reason](#)

# SLURM config update

- Following up from previous discussion regarding the lack of text-based accounting in newer slurm versions:
  - have updated our example slurm config to enable a text-based job-completion file
  - new file is /var/log/slurm\_jobcomp.log
  - sites can parse this if desired for basic accounting

```
sms001:~ # head -3 /var/log/slurm_jobcomp.log
JobId=2 UserId=ohpc-test(1013) GroupId=ohpc-test(1013) Name=timeout JobState=COMPLETED Partition=normal
TimeLimit=1 StartTime=2021-03-24T07:39:34 EndTime=2021-03-24T07:39:34 NodeList=c1 NodeCnt=1 ProcCnt=32
WorkDir=/home/ohpc-test/tests/runtimes/charliecloud ReservationName= Tres=cpu=1,node=1,billing=1 Account= QOS=
WcKey= Cluster=unknown SubmitTime=2021-03-24T07:39:34 EligibleTime=2021-03-24T07:39:34 DerivedExitCode=0:0
ExitCode=0:0
JobId=3 UserId=ohpc-test(1013) GroupId=ohpc-test(1013) Name=test_env JobState=COMPLETED Partition=normal
TimeLimit=1 StartTime=2021-03-24T07:39:46 EndTime=2021-03-24T07:39:46 NodeList=c1 NodeCnt=1 ProcCnt=32
WorkDir=/home/ohpc-test/tests/modules ReservationName= Tres=cpu=1,node=1,billing=1 Account= QOS= WcKey=
Cluster=unknown SubmitTime=2021-03-24T07:39:46 EligibleTime=2021-03-24T07:39:46 DerivedExitCode=0:0
ExitCode=0:0
JobId=4 UserId=ohpc-test(1013) GroupId=ohpc-test(1013) Name=test_mod_passthrough JobState=COMPLETED
Partition=normal TimeLimit=1 StartTime=2021-03-24T07:39:47 EndTime=2021-03-24T07:39:47 NodeList=c1 NodeCnt=1
ProcCnt=32 WorkDir=/home/ohpc-test/tests/modules ReservationName= Tres=cpu=1,node=1,billing=1 Account= QOS=
WcKey= Cluster=unknown SubmitTime=2021-03-24T07:39:47 EligibleTime=2021-03-24T07:39:47 DerivedExitCode=0:0
ExitCode=0:0
```

# SLURM config update

- Also updated the documentation to mention this file, along with brief discussion and pointer to more info regarding setting a database back-end

## 3.4 Add resource management services on *master* node

OpenHPC provides multiple options for distributed resource management. The following command adds the Slurm workload manager server components to the chosen *master* host. Note that client-side components will be added to the corresponding compute image in a subsequent step.

```
# Install slurm server meta-package
[sms]# yum -y install ohpc-slurm-server

# Use ohpc-provided file for starting SLURM configuration
[sms]# cp /etc/slurm/slurm.conf.ohpc /etc/slurm/slurm.conf

# Identify resource manager hostname on master host
[sms]# perl -pi -e "s/ControlMachine=\S+/ControlMachine=${sms_name}/" /etc/slurm/slurm.conf
```

There are a wide variety of configuration options and plugins available for Slurm and the example config file illustrated above targets a fairly basic installation. In particular, job completion data will be stored in a text file (`/var/log/slurm_jobcomp.log`) that can be used to log simple accounting information. Sites who desire more detailed information, or want to aggregate accounting data from multiple clusters, will likely want to enable the database accounting back-end. This requires a number of additional local modifications (on top of installing `slurm-slurmdbd-ohpc`), and users are advised to consult the online [documentation](#) for more detailed information on setting up a database configuration for Slurm.

new  
foo

# 2.1 – current CI status (don't blink)








## 2.x

OpenHPC CI Infrastructure

Thanks to the Texas Advanced Computing Center (TACC) and Linaro for hosting support. Thanks also to Intel, Marvell, Cavium, and Dell for hardware donations.

 add description

2.0 2.0RC1 **2.1** All +

S	Categorized - Job	Last Success	Last Failure	Last Duration	Test Result
	(2.1) - (centos8.3,aarch64) (warewulf+slurm) (fabric=eth)	1 day 3 hr - #21	1 day 21 hr - #18	1 hr 27 min	0 of 1,109 failed (±0)
	(2.1) - (leap15.2,aarch64) (warewulf+slurm) (fabric=eth)	1 day 0 hr - #30	1 day 4 hr - #29	1 hr 44 min	0 of 1,109 failed (-1)
	.. » [x86_64] - CentOS 8	1 hr 2 min - #73	16 hr - #68	56 min	N/A
	(2.1) - (centos8.3,x86_64) (warewulf+openpbs) (fabric=ib) - UEFI	4 hr 2 min - #64	22 hr - #58	1 hr 2 min	0 of 1,472 failed (±0)
	(2.1) - (centos8.3,x86_64) (warewulf+slurm) (fabric=eth) - UEFI	1 hr 2 min - #73	16 hr - #68	56 min	0 of 1,146 failed (±0)
	(2.1) - (centos8.3,x86_64) (warewulf+slurm) (fabric=ib) + psxe	3 hr 38 min - #39	23 hr - #34	2 hr 41 min	0 of 3,107 failed (±0)
	(2.1) - (centos8.3,x86_64) (warewulf+slurm) (fabric=opa) + psxe	3 hr 8 min - #251	23 hr - #246	48 min	0 of 347 failed (±0)
	.. » [x86_64] - Leap15	1 hr 14 min - #344	1 day 19 hr - #330	52 min	N/A
	(2.1) - (leap15.2,x86_64) (warewulf+openpbs) (fabric=eth)	1 hr 14 min - #344	1 day 19 hr - #330	52 min	0 of 1,138 failed (±0)
	(2.1) - (leap15.2,x86_64) (warewulf+slurm) (fabric=eth)	1 hr 39 min - #41	2 days 21 hr - #24	1 hr 2 min	0 of 1,132 failed (±0)

Icon: S M L

Legend

 Atom feed for all

 Atom feed for failures

 Atom feed for just latest builds

# 2.1 Updates

- Remaining steps for release
  - generate and test 2.1 release repository
    - push to repos.openhpc.community
    - slight bit of additional infrastructure work required here
  - verify xCAT variant
  - verify 2.0 -> 2.1 upgrade
  - generate and test install from tarballs...

Nov. 2020 Stats

#	Hits ↕	Visitors ↕	Tx. Amount ▼	Method ↕	Protocol ↕	Data ↕
<b>1,912,986</b> <b>246,340</b> <b>4.24 TiB</b> <b>87,781</b> Total <small>Max: 729,617   Max: 6,979   Max: 1.62 TiB</small> <small>Min: 1   Min: 1   Min: 0 Byte</small>						
1	10,408 (0.53%)	173 (1.30%)	1.62 TiB (38.33%)	GET	HTTP/1.1	/dist/2.0/OpenHPC-2.0.CentOS_8.x86_64.tar
2	12,764 (0.65%)	80 (0.60%)	290.03 GiB (6.69%)	GET	HTTP/1.1	/dist/2.0/OpenHPC-2.0.CentOS_8.aarch64.tar
3	713 (0.04%)	24 (0.18%)	125.9 GiB (2.90%)	GET	HTTP/1.1	/dist/2.0/OpenHPC-2.0.Leap_15.x86_64.tar
4	4,178 (0.21%)	16 (0.12%)	104.97 GiB (2.42%)	GET	HTTP/1.1	/dist/2.0/OpenHPC-2.0.CentOS_8.src.tar

Mar. 2021 Stats

#	Hits ↕	Visitors ↕	Tx. Amount ▼	Method ↕	Protocol ↕	Data ↕
<b>6,253,516</b> <b>408,770</b> <b>13.42 TiB</b> <b>92,590</b> Total <small>Max: 2,570,690   Max: 14,567   Max: 6.47 TiB</small> <small>Min: 1   Min: 1   Min: 0 Byte</small>						
1	35,847 (0.56%)	317 (1.16%)	6.47 TiB (48.24%)	GET	HTTP/1.1	/dist/2.0/OpenHPC-2.0.CentOS_8.x86_64.tar
2	63,474 (0.99%)	156 (0.57%)	456.09 GiB (3.32%)	GET	HTTP/1.1	/dist/2.0/OpenHPC-2.0.Leap_15.x86_64.tar
3	12,821 (0.20%)	122 (0.44%)	417.05 GiB (3.03%)	GET	HTTP/1.1	/dist/2.0/OpenHPC-2.0.CentOS_8.aarch64.tar
4	5,322 (0.08%)	35 (0.13%)	250.91 GiB (1.83%)	GET	HTTP/1.1	/dist/2.0/OpenHPC-2.0.CentOS_8.src.tar



## 2.1 Misc. Highlight

- Cloud working group examining the use of ohpc MPI packages with AWS elastic fabric adapter (EFA):
  - note that this should just all work out of the box for 2.1 release on Leap 15.2
    - Leap 15.2 provides **libefa.so** in distro and our libfabric-ohpc build pulls this in as a dependency
    - Leap 15.2 kernels also provide companion kernel module (**efa.ko**)
  - libefa or associated kernel module does not look to be available in CentOS8.3