



Meeting of the Technical Steering Committee (TSC) Board

Wednesday, January 27th, 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!
 - [PEARC'21 – virtual conference](#)
 - tutorial submissions due February 9, 2021
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- Linaro CI system updates
- Update on co-install gotcha from last time
- ARM compiler update
- CentOS/RHEL discussion
- Cloud working group

Update on Package co-install Gotcha

- recall from last time: issue with %doc files in some of our .spec files preventing co-installation of multiple versions of the same package

```
# rpm -q mfem-gnu9-openmpi4-ohpc
mfem-gnu9-openmpi4-ohpc-4.1-8.1.ohpc.2.0.x86_64

# rpm -ivh mfem-gnu9-openmpi4-ohpc-4.2-1.3.ohpc.2.1.x86_64.rpm
Verifying... ##### [100%]
Preparing... ##### [100%]
file /opt/ohpc/pub/doc/contrib/mfem-gnu9-openmpi4-ohpc/INSTALL from install of mfem-
gnu9-openmpi4-ohpc-4.2-1.3.ohpc.2.1.x86_64 conflicts with file from package mfem-gnu9-
openmpi4-ohpc-4.1-8.1.ohpc.2.0.x86_64
file /opt/ohpc/pub/doc/contrib/mfem-gnu9-openmpi4-ohpc/README from install of mfem-
gnu9-openmpi4-ohpc-4.2-1.3.ohpc.2.1.x86_64 conflicts with file from package mfem-gnu9-
openmpi4-ohpc-4.1-8.1.ohpc.2.0.x86_64
```

- was thinking we might have to update all relevant .spec files for development packages to fix
- fortunately, there looks to be an easier way...

Update on Package co-install Gotcha

- looked at rpm options associated with docdir

```
$ rpmbuild --showrc | grep docdir
RPM_DOC_DIR="%{_docdir}"
-13: __docdir_path %{_datadir}/doc:%{_datadir}/man:%{_datadir}/info:%{_datadir}/gtk-
doc/html:%{?_docdir}:%{?_mandir}:%{?_infodir}:%{?_javadocir}:/usr/doc:/usr/man:/usr/i
nfo:/usr/X11R6/man
-13: __global_provides_exclude_from %{?_docdir:%{_docdir}}
-13: __global_requires_exclude_from %{?_docdir:%{_docdir}}
-13: _defaultdocdir %{_datadir}/doc
-13: _docdir_fmt %{NAME}
-13: _javadocir %{_datadir}/javadoc
-13: _pkgdocdir %{_docdir}/%{name}
...
```

- default format is to include package %{NAME} in docdir
- we can tweak this to suit in our OHPC_macros file

```
components/OHPC_macros
@@ -31,7 +31,10 @@
31 31
32 32  %{!?PROJ_DELIM: %global PROJ_DELIM -ohpc}
33 33
34 + # Update package docs location to include version info (to allow
35 + # possibility of coinstall of multiple package versions)
34 36  DocDir:  %{OHPC_PUB}/doc/contrib
37 + %global _docdir_fmt  %{name}-%{version}
35 38
```

Update on Package co-install Gotcha

- now, walk thru co-install of a newer MFEM build goes ok

```
# rpm -q mfem-gnu9-openmpi4-ohpc
mfem-gnu9-openmpi4-ohpc-4.1-8.1.ohpc.2.0.x86_64

# yum list available mfem-gnu9-openmpi4-ohpc.x86_64 --showduplicates
Last metadata expiration check: 0:11:17 ago on Wed 27 Jan 2021 06:27:23 AM CST.
Available Packages
mfem-gnu9-openmpi4-ohpc.x86_64          4.1-8.1.ohpc.2.0          OpenHPC
mfem-gnu9-openmpi4-ohpc.x86_64          4.2-2.2.ohpc.2.1          OpenHPC-update

# yumdownloader mfem-gnu9-openmpi4-ohpc.x86_64
Last metadata expiration check: 0:15:04 ago on Wed 27 Jan 2021 06:27:23 AM CST.
mfem-gnu9-openmpi4-ohpc-4.2-2.2.ohpc.2.1.x86_64.r 4.8 MB/s | 3.5 MB      00:00

# rpm -ivh mfem-gnu9-openmpi4-ohpc-4.2-2.2.ohpc.2.1.x86_64.rpm
Verifying...                               ##### [100%]
Preparing...                               ##### [100%]
Updating / installing...
 1:mfem-gnu9-openmpi4-ohpc-4.2-2.2.o##### [100%]

[ohpc-test@sms005 ~]$ module avail mfem
----- /opt/ohpc/pub/moduledeps/gnu9-openmpi4 -----
mfem/4.1      mfem/4.2 (D)
```

ARM Compiler Update

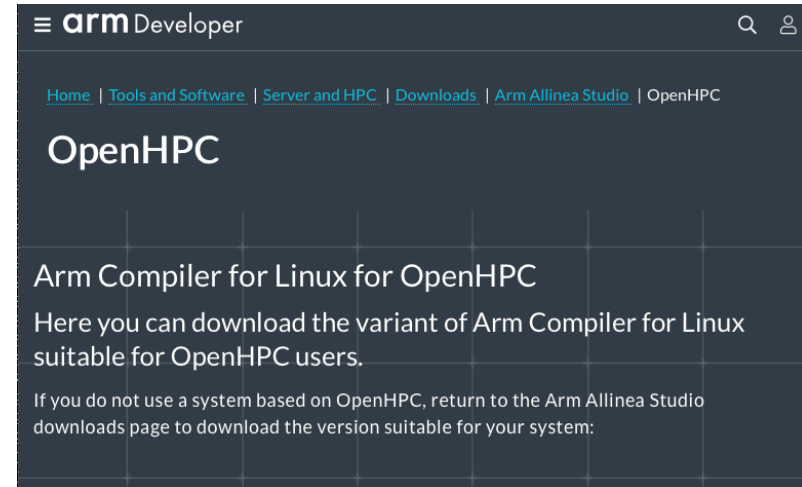
- Updated OpenHPC variant of ARM compiler looks to fix install issues reported previously (v20.3.1)
- Available online:
<https://developer.arm.com/tools-and-software/server-and-hpc/downloads/arm-allinea-studio/openhpc>
- On top of basic ohpc requirements, ARM compiler installer assumes availability of python3
- Example minimum install steps:

```
# yum install python3

# ./arm-compiler-for-linux_20.3.1_RHEL-8.sh -a -i /opt/ohpc/pub/arm
--only-install-microarchitectures=generic

# yum install
http://repos.openhpc.community/OpenHPC/2/CentOS\_8/aarch64/ohpc-release-2-1.el8.aarch64.rpm

# yum install arm1-compilers-devel-ohpc
```



ARM Compiler Update

- Loading arm1/compat ohpc module then loads additional ARM provided modules:

```
$ module swap gnu9 arm1
```

```
$ module avail
```

```
----- /opt/ohpc/pub/arm/modulefiles -----
```

```
Generic-AArch64/RHEL/8/arm-compiler-for-linux/20.3.1  
Generic-AArch64/RHEL/8/arm-linux-compiler-20.3.1/armpl/20.3.1 (L)  
Generic-AArch64/RHEL/8/arm-linux-compiler/20.3.1 (L)  
Generic-AArch64/RHEL/8/gcc-9.3.0/armpl/20.3.1  
Generic-AArch64/RHEL/8/gcc/9.3.0 (L)
```

not us →

```
----- /opt/ohpc/pub/moduledeps/arm1 -----
```

```
metis/5.1.0          openmpi4/4.0.4 (L)    superlu/5.2.1  
mpich/3.3.2-ofi      plasma/2.8.0
```

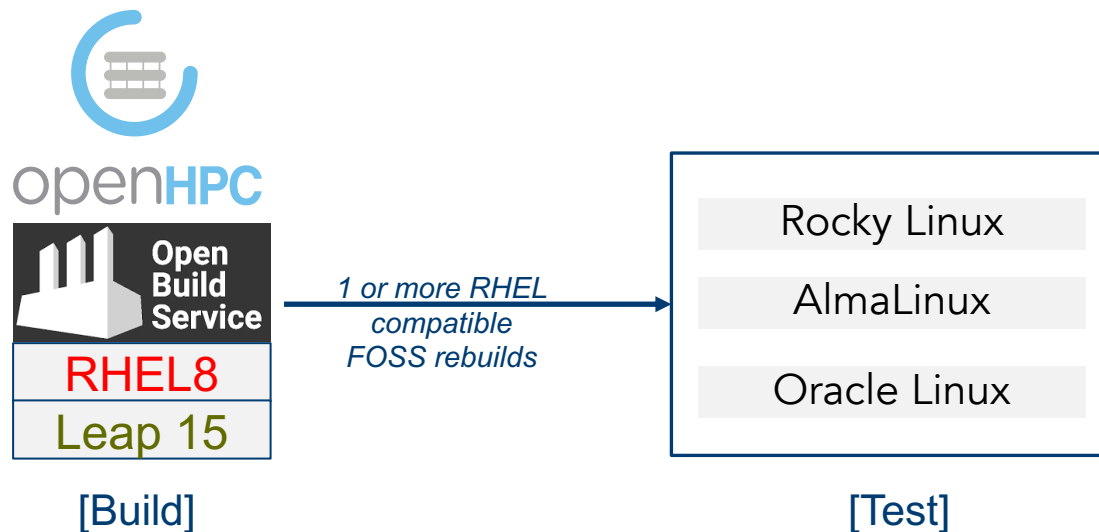
```
----- /opt/ohpc/pub/modulefiles -----
```

```
arm1/compat (L)      libfabric/1.10.1 (L)  os                ucx/1.8.0 (L)  
gnu9/9.3.0          ohpc                  (L)              prun/2.0 (L)
```

us →

CentOS/RHEL Discussion

- Governing board discussion suggested might be useful to assemble some evaluation criteria for which direction we will pivot regarding the CentOS8 announcement
- Also, we didn't really discuss this previously, but thanks to Adrian OpenHPC has RHEL entitlements that could be used for builds...



CentOS/RHEL Discussion

Metric	Option 1	Option 2	Options 1+2
Long-term stability			
Release latency from upstream RHEL			
HPC community adoption			
Drivers for HPC specific needs (file-systems, interconnects, GPUs) Lustre, BeeGFS, OPA, IB			
OHPC collaboration potential			
OHPC test overhead			
Likelihood for problems for OHPC end-users			
Hardware availability for test			
Availability of commercial support			
Support for alternative architectures (and any latency between 1 arch over another)			
Latency for security updates			

OHPC Tutorials for 2021

- PEARC Tutorial submissions due Feb. 9th
- Last year's tutorial was:
 - Intro to OpenHPC and updates
 - Deploying OHPC at AWS using packer and cloud formation
 - Working with the OHPC software stack
 - Few example containerized workloads

Possible topics for 2021

- OHPC as a portable and performant software stack for container native workflows
 - Start with Docker on local system or via <https://labs.play-with-docker.com/>
 - Move to an AWS tutorial system and run docker containers via podman, charliecloud, and/or singularity
 - Show how the OHPC software repos can be used inside containers
 - Discuss issues related to multi-node MPI jobs, containers, and interconnects
 - Show examples of running containers at TACC and/or PSC?
 - Other ideas?
 - build multi-arch container example
 - run on 2-different ohpc arch clusters

Possible topics cont.

- OHPC as a platform for sustainable HPC and cover OHPC features
 - Feature openSUSE Leap 15.2 (instead of our normal CentOS)
 - Everyone gets another EvenEngine account and we provision an ARM-based elastic cluster for them
 - Do basic benchmarking including network / MPI
 - Install Elastic Fabric Adapter (EFA)
 - Rebuild the OHPC-provided OpenMPI4 package for EFA support
 - Re-do basic benchmarking
 - Install ARM Alinea Studio and show how it integrates with Imod
 - Other ideas?