Sun™ HPC Software, Linux Edition 1.1.1

Release Notes

Sun Microsystems, Inc. www.sun.com

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Overview

Sun HPC Software, Linux Edition, is an integrated open-source software solution for Linux-based HPC clusters running on Sun hardware. It provides a framework of software components to simplify the process of deploying and managing large-scale Linux HPC clusters. For more information, visit the Sun HPC Software, Linux Edition product page at sun.com/hpcsoftware.

New in Release 1.1.1

Sun HPC Software, Linux Edition 1.1.1 is a new version of the software stack that provides support for two new kernels for patchless Lustre clients:

- kernel-2.6.18-92.el5
- kernel-2.6.18-92.1.18.el5

To install Sun HPC Software, Linux Edition 1.1.1, follow the instructions in the *Sun HPC Software, Linux Edition 1.1: Installation Guide*.

If Sun HPC Software, Linux Edition 1.1 is installed on your system, you can obtain and install the updates in version 1.1.1 by entering:

```
rpm -Uvh  http://dlc.sun.com/linux_hpc/yum/sunhpc/1.1/rhel-updates/ \
   x86_64/SunHPC/sunhpc-release.rpm

yum update
```

New in Release 1.1

Red Hat Enterprise Linux (RHEL) 5.2 now supported. The Sun HPC Software can now be deployed on a Linux HPC cluster running RHEL 5.2.

Cobbler added to Sun HPCSoftware stack. Cobbler is a Linux provisioning server that centralizes and simplifies control of services including DHCP, TFTP, and DNS for the purpose of performing network-based operating systems installs.

OpenFabrics Enterprise Distribution (OFED) upgraded to OFED 1.3.1. OFED is a validated version of the open-source OpenFabrics software stack that supports server and storage clustering and grid connectivity using RDMA-based InfiniBand and iWARP fabrics in a Linux environment. OFED 1.3.1 includes new operating system support for SUSE Linux Enterprise Server 10 SP2, RHEL 5 up2, QoS management in OpenSM, and bug fixes.

New Lustre 1.6.6 release included. This version of the Lustre cluster file system contains support for newer network and kernel versions, a new quota file format, and several bug fixes.

New software stack deployment option using ISO image. The SUN HPC Software, Linux Edition can now be downloaded as an ISO image and installed from a DVD.

Kickstart-based installation option now provided. Kickstart allows a system administrator to perform a semi- or fully-automated installation of an RPM-based Linux system. The kickstart-based installation option for the Sun HPC Software results in a head node installed with the base Red Hat distribution and the Sun HPC Software stack and ready to configure.

Red Hat Enterprise Linux 4.6 no longer included. RHEL 4.6 is required to run Lustre on the Sun Enterprise 4500 server. RHEL 4.6 will need to be provided separately to run the Sun HPC Software, Linux Edition on this server.

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The Sun HPC Software, Linux Edition 1.1 release has been tested on Linux-based HPC clusters with a head node running RHEL 5.2. The RHEL 5.2 distribution is available separately through your local Sun sales representative.

CentOS 5.2 x86_64 is assumed to be functionally equivalent to RHEL 5.2. To use CentOS 5.2, you may need to modify the Sun HPC Software installation procedure as appropriate.

Group	*Name*	*Version*
Operating Systems and Kernels	Lustre	1.6.6
User Space and Library	Environment Switcher	env-switcher 1.0.13
	gcc	4.1.2
	genders	1.9
	Heartbeat	2.1.4-2.1
	Java Runtime Environment	JRE6u7
	Modules	3.2.6
	MVAPICH for gcc, PGI and Intel compiler	1.0.1
	MVAPICH2 for gcc, PGI and Intel compiler	1.0.3
	OFED	1.3.1
	OpenMPI for gcc, PGI and Intel compiler	1.2.6
	RRDtool	1.2.26

Group	*Name*	*Version*
Verification Modules	HPCC Bench Suite	1.2.0
	IOKit (Lustre)	-
	IOR	2.10.1
	LNET self test (Lustre)	-
	NetPIPE	3.7.1
Schedulers	Slurm/MUNGE	1.3.6/0.5.8
Monitoring	Ganglia	3.0.7
Provisioning	OneSIS	2
	Cobbler	1.0.3
Management	CFEngine	2.2.6
	Conman	0.2.1
	FreeIPMI	0.6.6
	IPMItool	1.8.9.1
	lshw	B.02.12.01
	OpenSM	3.0.3
	pdsh	2.16
	Powerman	1.0.32

Compatible Tools

The table below lists software tools that will work with the Sun HPC Software, Linux Edition 1.1. These tools are not included with the software stack but can be used as alternatives to the tools provided in Version 1.1 (see table above).

Group	*Name*	*Version*
Operating Systems and Kernels	-	-
User Space Library	Allinea DDT	-
	Intel Compiler	10.1
	PGI Compiler	7.1-4
	SunStudio Express	11.2008
	TotalView	-
Verification Modules	-	-

Group	*Name*	*Version*
Schedulers	LSF	-
	MOAB	-
	PBS	-
	Sun Grid Engine	6.1 update4
Monitoring	-	-
Provisioning	-	-
Management	IBSRM	-
	xVM Ops Center	1.0

Tested Platforms

The Sun HPC Software, Linux Edition 1.1 has been tested on the latest Sun high-performance platforms including:

- Sun Fire V20z Server: http://www.sun.com/storage/disk_systems/expansion/4500/
- Sun Fire V40z Server: www.sun.com/servers/entry/v40z/
- Sun Fire X2250 Server: http://www.sun.com/servers/x64/x2250/
- Sun Fire X4440 Server: http://www.sun.com/servers/x64/x4440/
- Sun Fire X4540 Storage Server: http://www.sun.com/servers/x64/x4540/
- Sun Fire X4600 Server: www.sun.com/servers/x64/x4600/
- Sun Storage J4400 Array: http://www.sun.com/storage/disk_systems/expansion/4400/
- Sun Blade 8000 Modular System: www.sun.com/servers/blades/8000/
- Sun Blade X6220 Server Module: www.sun.com/servers/blades/x6220/

User Documentation

For installation instructions, see the *Sun HPC Software, Linux Edition 1.1: Installation Guide* in the `/docs` directory. For updated versions of the Installation Guide, go to docs.sun.com/app/docs/prod/hpc.grid#hic and select "Sun HPC Software".

Support

The Sun HPC Software, Linux Edition 1.1 product has community-based support through mailing lists and a defect tracking system. The mailing lists and defects are monitored by development teams within Sun to facilitate problem resolution and provide answers to product questions.

To subscribe to linux_hpc_swstack@lists.lustre.org, go to lists.lustre.org/mailman/listinfo and complete the subscription form.

If you believe an issue is a defect in the Sun HPC Software product, go to bugzilla.lustre.org and enter a new defect against the Linux Software Stack. This website requires that you create a user account to enter a new defect or modify an existing defect.

At this time, Sun does not commit to specific performance guarantees for problem resolution. The support for this product will be enhanced in the coming months.

If a higher level of support is required, contact your local Sun salesperson to inquire about a custom professional services contract.

Additional Information

Visit the following sites for more information about these Sun products.

- Sun Grid Engine:
  http://www.sun.com/software/gridware/index.xml
- Sun Studio 12:
  developers.sun.com/sunstudio
- Sun HPC Cluster Tools 8:
  http://www.sun.com/software/products/clustertools/index.xml
- Sun xVM Ops Center:
  http://www.sun.com/software/products/xvmopscenter/index.jsp
- Sun Scalable Visualization:
  http://www.sun.com/servers/cr/visualization/scalable.jsp

Notes and Open Issues

The Marvell drivers required to support Lustre on Sun Fire X4500 servers are not included in this release. If you are running Lustre on Sun Fire X5400 servers, obtain a RHEL 4.6 or CentOS 4.6 distribution from another source to install on the Sun Fire x4500 servers in your configuration.

SAM/QFS is supported only on RHEL 4.6. To run a Sam/QFS client, install a RHEL 4.6 or CentOS 4.6 distribution on the client.

Vendor kernel is included in kickstart-based installs of Lustre Servers *(Bug #17329)*
When Cobbler is used to provision a diskful Lustre server node, the kickstart process results in both a vendor kernel and a patched Lustre kernel being installed. Ultimately, the node will reboot into the vendor kernel, which is not the desired behavior.

A modification has been made to the kickstart configuration for this process, which results in the Lustre kernel being selected as the default boot kernel in Grub. Future releases of the software will address this issue more cleanly.

e2fsprogs is replaced on non-Lustre server nodes *(Bug #17312)*
Due to the current packaging of the Sun-patched e2fsprogs packages ("lustre-e2fsprogs"), there are two known scenarios in which the vendor e2fsprogs packages may be replaced by the lustre-e2fsprogs packages. This is undesirable on nodes that are not functioning as Lustre servers, as the patches are not necessary for the normal functioning of Lustre clients. While undesirable, the configuration is not fatal.

The first scenario occurs when provisioning the head node via a combined kickstart installation of RHEL 5.2 and the Sun HPC Software. During the package selection and dependency-resolution process, the Anaconda installer system will prefer the lustre-e2fsprogs packages and install them to the head node.

The second scenario may occur if `yum update` is run on client nodes that have been provisioned using Cobbler. The lustre-e2fprogs packages will be seen as an update to the installed vendor e2fsprogs packages and installed as upgrades.

Future releases of the software will address this issue.

Resolved Issues

The following bugs were fixed in Release 1.1.1:

- 17676: kernel-ib.x86_64 was not installed after provision diskful lustre server
- 17687: Hang at determining eth0 IP during diskless lustre server client boot

The following bugs were fixed in Release 1.1:

- 16865: Fix sunhpc-configuration to use new kernel
- 16964: Missing root's .bash* ini files after installation
- 16970: initab fails to start serial tty
- 17004: kickstart based installation to head node
- 17105: OneSIS error: failure of mounting local root filesystem
- 17106: Cobbler package in 1.1 repo
- 17107: Need to update cobbler configuration section of Installation guide
- 17126: comps.xml doesn't created by "cobbler reposync"
- 17128: openMPI/mvapich/mvapich2 packages are not grouped
- 17130: kickstart template in cobbler is not included
- 17145: Testing the lustre server with IB for HPC software stack 1.1
- 17189: Failure of loading OpenIB kernel modules
- 17226: libibverbs-devel is needed for mpicc in mvapich
- 17227: mpicc in mvapich2 needs librdmacm-devel
- 17300: e2fsprogs on the client is replaced to sun's e2fsprogs
- 17319: SunHPC group packages installer
- 17354: Updates of sunhpc_installer for 1.1 release
- 17362: CentOS 5.2 Cobbler not finding comps.xml
- 17494: sunhpc-installer: print full yum report
- 17513: cobbler reposync failed unless remove kernel-* lustre-*

Sun Microsystems, Inc. 4150 Network Circle, Santa Clara, CA 95054 USA *
Phone: 1-650-960-1300 or 1-800-555-9SUN (9786) Web: sun.com