

# Walk-thru- Deploying Lustre pre-built RPMs

Lustre server machines are simple to setup with CentOS 6. Pre-built kernel images are available from [Whamcloud's build server](#). A number of different kernels and tools are continually built and tested. For this Walk-thru the [lustre-master build](#) will be used.



## Whamcloud Lustre GA

Whamcloud produce [Maintenance Releases](#) and [Feature Releases](#). This walk through covers running Lustre from the Master release. The Master release is subject to continuous integration testing but may have known or unknown issues. **If you are evaluating Lustre for your production environment**, you are advised to [contact Whamcloud](#) and substitute <http://downloads.whamcloud.com/public/> for the RPMs you need for the walk-thru below.

## Prerequisite.

- A x86\_64 machine with CentOS 6 installed. The machine has the hostname rhel6vanilla.

## Procedure

### Install Lustre directly with yum

1. Include the following entries into `/etc/yum.repos.d/lustre.repo` as follows:

#### `/etc/repos.d/lustre.repo`

```
[hpddLustreserver]
name=CentOS-$releasever - Lustre
baseurl=http://build.whamcloud.com/job/lustre-master/arch=x86_64%2Cbuild_type=server%2Cdistro=el6%
2Cib_stack=inkernel/lastSuccessfulBuild/artifact/artifacts/
gpgcheck=0

[e2fsprogs]
name=CentOS-$releasever - Ldiskfs
baseurl=http://build.whamcloud.com/job/e2fsprogs-master/arch=x86_64%2Cdistro=el6/lastSuccessfulBuild
/artifact/_topdir/RPMS/
gpgcheck=0

[hpddLustreclient]
name=CentOS-$releasever - Lustre
baseurl=http://build.whamcloud.com/job/lustre-master/arch=x86_64%2Cbuild_type=client%2Cdistro=el6%
2Cib_stack=inkernel/lastSuccessfulBuild/artifact/artifacts/
gpgcheck=0
```

2. run `yum install lustre-tests`
3. provided the step above completes successfully, you can skip down to the section:**Disable SELinux for Lustre patched kernel.**
4. If you experience dependency issues with yum, the best known method is to downgrade the current kernel to the version that is needed and try again.
5. If you are installing on RHEL and don't have Red Hat Network enabled, you will need to use the DVD ISO as a repo to satisfy unmet dependencies. This is covered on <http://serverfault.com/questions/156458/>

### Install Lustre patched kernel.

If you choose not to use the yum install method above, you can install Lustre as follows:

1. From [lustre-master build](#), download the correct kernel RPMs for your platform
  - kernel
  - kernel-firmware
2. Install these RPMs with `yum localinstall ./kernel*`

```
[root@rhel6vanilla ~]# yum localinstall ./kernel*
Loaded plugins: fastestmirror, presto
Setting up Local Package Process
Examining ./kernel-2.6.32-279.19.1.el6_lustre.x86_64.rpm: kernel-2.6.32-279.19.1.el6_lustre.x86_64
Marking ./kernel-2.6.32-279.19.1.el6_lustre.x86_64.rpm as an update to kernel-2.6.32-279.el6.x86_64
Determining fastest mirrors
 * base: ftp.byfly.by
 * extras: ftp.byfly.by
```

```

* updates: ftp.byfly.by
Examining ./kernel-firmware-2.6.32-279.19.1.el6_lustre.x86_64.rpm: kernel-firmware-2.6.32-279.19.1.
el6_lustre.x86_64
Marking ./kernel-firmware-2.6.32-279.19.1.el6_lustre.x86_64.rpm as an update to kernel-firmware-2.6.32-
279.el6.noarch
Resolving Dependencies
--> Running transaction check
---> Package kernel.x86_64 0:2.6.32-279.19.1.el6_lustre will be installed
.x86_64
--> Running transaction check
---> Package kernel-firmware.noarch 0:2.6.32-279.el6 will be updated
---> Package kernel-firmware.noarch 0:2.6.32-358.6.1.el6 will be an update
--> Finished Dependency Resolution

```

Dependencies Resolved

```

=====
Package Arch Version Size
Repository
=====
Installing:
kernel x86_64 2.6.32-279.19.1.el6_lustre /kernel-2.6.32-279.19.1.el6_lustre.
x86_64 113 M
Updating for dependencies:
kernel-firmware noarch 2.6.32-358.6.1.el6
updates 11 M

```

Transaction Summary

```

=====
Install 1 Package(s)
Upgrade 1 Package(s)
Total size: 124 M
Total download size: 11 M
Is this ok [y/N]: y
Downloading Packages:
Setting up and reading Presto delta metadata
updates/prestodelta | 339
kB 00:00
Processing delta metadata
Download delta size: 3.4 M
kernel-firmware-2.6.32-279.el6_2.6.32-358.6.1.el6.noarch.drpm | 3.4
MB 00:01
Finishing rebuild of rpms, from deltarpms
<delta rebuild> | 11
MB 00:03
Presto reduced the update size by 69% (from 11 M to 3.4 M).
Running rpm_check_debug
Running Transaction Test
Transaction Test Succeeded
Running Transaction
  Updating : kernel-firmware-2.6.32-358.6.1.el6.
noarch 1/3
  Installing : kernel-2.6.32-279.19.1.el6_lustre.
x86_64 2/3
  Cleanup : kernel-firmware-2.6.32-279.el6.
noarch 3/3
  Verifying : kernel-2.6.32-279.19.1.el6_lustre.
x86_64 1/3
  Verifying : kernel-firmware-2.6.32-358.6.1.el6.
noarch 2/3
  Verifying : kernel-firmware-2.6.32-279.el6.
noarch 3/3

Installed:
kernel.x86_64 0:2.6.32-279.19.1.
el6_lustre

```

```
Dependency Updated:
  kernel-firmware.noarch 0:2.6.32-358.6.1.
  el6

Complete!
[root@rhel6vanilla ~]#
```

## Download e2fsprogs and Lustre server RPMs.

1. Download the following e2fsprogs (and dependencies) RPMs from <http://build.whamcloud.com/job/e2fsprogs-master>
  - e2fsprogs
  - e2fsprogs-libs
  - libss
  - libcom\_err
2. Download the following Lustre server RPMs from [lustre-master build](#).
  - lustre
  - lustre-ldiskfs
  - lustre-modules
  - lustre-tests

## Install Lustre.

1. yum localinstall ./lustre-\* ./e2fsprogs-\* ./libss-\* ./libcom\* should do it:

```
[root@rhel6vanilla ~]# yum localinstall ./lustre-* ./e2fsprogs-* ./libss-* ./libcom*
Loaded plugins: fastestmirror, presto
Setting up Local Package Process
Examining ./lustre-2.1.5-2.6.32_279.19.1.el6_lustre.x86_64.x86_64.rpm: lustre-2.1.5-2.6.32_279.19.1.
el6_lustre.x86_64.x86_64
Marking ./lustre-2.1.5-2.6.32_279.19.1.el6_lustre.x86_64.x86_64.rpm to be installed
Loading mirror speeds from cached hostfile
 * base: ftp.byfly.by
 * extras: ftp.byfly.by
 * updates: ftp.byfly.by
Examining ./lustre-ldiskfs-3.3.0-2.6.32_279.19.1.el6_lustre.x86_64.x86_64.rpm: lustre-ldiskfs-3.3.0-
2.6.32_279.19.1.el6_lustre.x86_64.x86_64
Marking ./lustre-ldiskfs-3.3.0-2.6.32_279.19.1.el6_lustre.x86_64.x86_64.rpm to be installed
Examining ./lustre-modules-2.1.5-2.6.32_279.19.1.el6_lustre.x86_64.x86_64.rpm: lustre-modules-2.1.5-
2.6.32_279.19.1.el6_lustre.x86_64.x86_64
Marking ./lustre-modules-2.1.5-2.6.32_279.19.1.el6_lustre.x86_64.x86_64.rpm to be installed
Examining ./lustre-tests-2.1.5-2.6.32_279.19.1.el6_lustre.x86_64.x86_64.rpm: lustre-tests-2.1.5-2.6.32
_279.19.1.el6_lustre.x86_64.x86_64
Marking ./lustre-tests-2.1.5-2.6.32_279.19.1.el6_lustre.x86_64.x86_64.rpm to be installed
Examining ./e2fsprogs-1.42.7.wc1-7.el6.x86_64.rpm: e2fsprogs-1.42.7.wc1-7.el6.x86_64
Marking ./e2fsprogs-1.42.7.wc1-7.el6.x86_64.rpm as an update to e2fsprogs-1.41.12-12.el6.x86_64
Examining ./e2fsprogs-libs-1.42.7.wc1-7.el6.x86_64.rpm: e2fsprogs-libs-1.42.7.wc1-7.el6.x86_64
Examining ./libss-1.42.7.wc1-7.el6.x86_64.rpm: libss-1.42.7.wc1-7.el6.x86_64
Marking ./libss-1.42.7.wc1-7.el6.x86_64.rpm as an update to libss-1.41.12-12.el6.x86_64
Examining ./libcom_err-1.42.7.wc1-7.el6.x86_64.rpm: libcom_err-1.42.7.wc1-7.el6.x86_64
Marking ./libcom_err-1.42.7.wc1-7.el6.x86_64.rpm as an update to libcom_err-1.41.12-12.el6.x86_64
Resolving Dependencies
--> Running transaction check
----> Package e2fsprogs.x86_64 0:1.41.12-12.el6 will be updated
----> Package e2fsprogs.x86_64 0:1.42.7.wc1-7.el6 will be an update
----> Package e2fsprogs-libs.x86_64 0:1.41.12-12.el6 will be updated
----> Package e2fsprogs-libs.x86_64 0:1.42.7.wc1-7.el6 will be an update
----> Package libcom_err.x86_64 0:1.41.12-12.el6 will be updated
----> Package libcom_err.x86_64 0:1.42.7.wc1-7.el6 will be an update
----> Package libss.x86_64 0:1.41.12-12.el6 will be updated
----> Package libss.x86_64 0:1.42.7.wc1-7.el6 will be an update
----> Package lustre.x86_64 0:2.1.5-2.6.32_279.19.1.el6_lustre.x86_64 will be installed
--> Processing Dependency: /usr/bin/perl for package: lustre-2.1.5-2.6.32_279.19.1.el6_lustre.x86_64.
x86_64
--> Processing Dependency: perl(File::Path) for package: lustre-2.1.5-2.6.32_279.19.1.el6_lustre.x86_64.
x86_64
--> Processing Dependency: perl(File::Path) for package: lustre-2.1.5-2.6.32_279.19.1.el6_lustre.x86_64.
x86_64
--> Processing Dependency: perl(Getopt::Long) for package: lustre-2.1.5-2.6.32_279.19.1.el6_lustre.
x86_64.x86_64
```

```
--> Processing Dependency: perl(Getopt::Std) for package: lustre-2.1.5-2.6.32_279.19.1.el6_lustre.x86_64.
x86_64
--> Processing Dependency: perl(POSIX) for package: lustre-2.1.5-2.6.32_279.19.1.el6_lustre.x86_64.x86_64
--> Processing Dependency: libnetsnmp.so.20()(64bit) for package: lustre-2.1.5-2.6.32_279.19.1.
el6_lustre.x86_64.x86_64
--> Processing Dependency: libnetsnmpagent.so.20()(64bit) for package: lustre-2.1.5-2.6.32_279.19.1.
el6_lustre.x86_64.x86_64
--> Processing Dependency: libnetsnmphelpers.so.20()(64bit) for package: lustre-2.1.5-2.6.32_279.19.1.
el6_lustre.x86_64.x86_64
--> Processing Dependency: libnetsnmpmibs.so.20()(64bit) for package: lustre-2.1.5-2.6.32_279.19.1.
el6_lustre.x86_64.x86_64
----> Package lustre-ldiskfs.x86_64 0:3.3.0-2.6.32_279.19.1.el6_lustre.x86_64 will be installed
----> Package lustre-modules.x86_64 0:2.1.5-2.6.32_279.19.1.el6_lustre.x86_64 will be installed
----> Package lustre-tests.x86_64 0:2.1.5-2.6.32_279.19.1.el6_lustre.x86_64 will be installed
--> Processing Dependency: libmpi.so.1()(64bit) for package: lustre-tests-2.1.5-2.6.32_279.19.1.
el6_lustre.x86_64.x86_64
--> Running transaction check
----> Package net-snmp-libs.x86_64 1:5.5-44.el6_4.1 will be installed
--> Processing Dependency: libsensors.so.4()(64bit) for package: 1:net-snmp-libs-5.5-44.el6_4.1.x86_64
--> Processing Dependency: libperl.so()(64bit) for package: 1:net-snmp-libs-5.5-44.el6_4.1.x86_64
----> Package openmpi.x86_64 0:1.5.4-1.el6 will be installed
--> Processing Dependency: librdmacm.so.1(RDMACM_1.0)(64bit) for package: openmpi-1.5.4-1.el6.x86_64
--> Processing Dependency: libnuma.so.1(libnuma_1.2)(64bit) for package: openmpi-1.5.4-1.el6.x86_64
--> Processing Dependency: libnuma.so.1(libnuma_1.1)(64bit) for package: openmpi-1.5.4-1.el6.x86_64
--> Processing Dependency: libibverbs.so.1(IBVERBS_1.1)(64bit) for package: openmpi-1.5.4-1.el6.x86_64
--> Processing Dependency: libibverbs.so.1(IBVERBS_1.0)(64bit) for package: openmpi-1.5.4-1.el6.x86_64
--> Processing Dependency: libgomp.so.1(OMP_1.0)(64bit) for package: openmpi-1.5.4-1.el6.x86_64
--> Processing Dependency: libgomp.so.1(GOMP_1.0)(64bit) for package: openmpi-1.5.4-1.el6.x86_64
--> Processing Dependency: environment-modules for package: openmpi-1.5.4-1.el6.x86_64
--> Processing Dependency: librdmacm.so.1()(64bit) for package: openmpi-1.5.4-1.el6.x86_64
--> Processing Dependency: libpsm_infinipath.so.1()(64bit) for package: openmpi-1.5.4-1.el6.x86_64
--> Processing Dependency: libnuma.so.1()(64bit) for package: openmpi-1.5.4-1.el6.x86_64
--> Processing Dependency: libltdl.so.7()(64bit) for package: openmpi-1.5.4-1.el6.x86_64
--> Processing Dependency: libibverbs.so.1()(64bit) for package: openmpi-1.5.4-1.el6.x86_64
--> Processing Dependency: libgomp.so.1()(64bit) for package: openmpi-1.5.4-1.el6.x86_64
--> Processing Dependency: libgfortran.so.3()(64bit) for package: openmpi-1.5.4-1.el6.x86_64
--> Processing Dependency: libesmtp.so.5()(64bit) for package: openmpi-1.5.4-1.el6.x86_64
----> Package perl.x86_64 4:5.10.1-130.el6_4 will be installed
--> Processing Dependency: perl(version) for package: 4:perl-5.10.1-130.el6_4.x86_64
--> Processing Dependency: perl(Pod::Simple) for package: 4:perl-5.10.1-130.el6_4.x86_64
--> Processing Dependency: perl(Module::Pluggable) for package: 4:perl-5.10.1-130.el6_4.x86_64
--> Running transaction check
----> Package environment-modules.x86_64 0:3.2.9c-4.el6 will be installed
--> Processing Dependency: libtcl8.5.so()(64bit) for package: environment-modules-3.2.9c-4.el6.x86_64
--> Processing Dependency: libX11.so.6()(64bit) for package: environment-modules-3.2.9c-4.el6.x86_64
----> Package infinipath-psm.x86_64 0:3.0.1-115.1015_open.1.1.el6_4 will be installed
----> Package libesmtp.x86_64 0:1.0.4-15.el6 will be installed
----> Package libgfortran.x86_64 0:4.4.7-3.el6 will be installed
----> Package libgomp.x86_64 0:4.4.7-3.el6 will be installed
----> Package libibverbs.x86_64 0:1.1.6-5.el6 will be installed
----> Package librdmacm.x86_64 0:1.0.17-0.git4b5c1aa.el6 will be installed
----> Package libtool-ltdl.x86_64 0:2.2.6-15.5.el6 will be installed
----> Package lm_sensors-libs.x86_64 0:3.1.1-17.el6 will be installed
----> Package numactl.x86_64 0:2.0.7-6.el6 will be installed
----> Package perl-Module-Pluggable.x86_64 1:3.90-130.el6_4 will be installed
----> Package perl-Pod-Simple.x86_64 1:3.13-130.el6_4 will be installed
--> Processing Dependency: perl(Pod::Escapes) >= 1.04 for package: 1:perl-Pod-Simple-3.13-130.el6_4.
x86_64
----> Package perl-libs.x86_64 4:5.10.1-130.el6_4 will be installed
----> Package perl-version.x86_64 3:0.77-130.el6_4 will be installed
--> Running transaction check
----> Package libX11.x86_64 0:1.5.0-4.el6 will be installed
--> Processing Dependency: libX11-common = 1.5.0-4.el6 for package: libX11-1.5.0-4.el6.x86_64
--> Processing Dependency: libxcb.so.1()(64bit) for package: libX11-1.5.0-4.el6.x86_64
----> Package perl-Pod-Escapes.x86_64 1:1.04-130.el6_4 will be installed
----> Package tcl.x86_64 1:8.5.7-6.el6 will be installed
--> Running transaction check
----> Package libX11-common.noarch 0:1.5.0-4.el6 will be installed
----> Package libxcb.x86_64 0:1.8.1-1.el6 will be installed
--> Processing Dependency: libXau.so.6()(64bit) for package: libxcb-1.8.1-1.el6.x86_64
--> Running transaction check
```

---> Package libXau.x86\_64 0:1.0.6-4.el6 will be installed  
--> Finished Dependency Resolution

Dependencies Resolved

```
=====
Package           Arch  Version
Repository                               Size
=====
```

Installing:

lustre x86\_64 2.1.5-2.6.32\_279.19.1.el6\_lustre.x86\_64 /lustre-2.1.5-2.6.32\_279.19.1.el6\_lustre.x86\_64.x86\_64

26 M

lustre-ldiskfs x86\_64 3.3.0-2.6.32\_279.19.1.el6\_lustre.x86\_64 /lustre-ldiskfs-3.3.0-2.6.32\_279.19.1.el6\_lustre.x86\_64.x86\_64

8.4 M

lustre-modules x86\_64 2.1.5-2.6.32\_279.19.1.el6\_lustre.x86\_64 /lustre-modules-2.1.5-2.6.32\_279.19.1.el6\_lustre.x86\_64.x86\_64

144 M

lustre-tests x86\_64 2.1.5-2.6.32\_279.19.1.el6\_lustre.x86\_64 /lustre-tests-2.1.5-2.6.32\_279.19.1.el6\_lustre.x86\_64.x86\_64

Updating:

e2fsprogs x86\_64 1.42.7.wc1-7.el6 /e2fsprogs-1.42.7.wc1-7.el6.x86\_64 2.6 M

e2fsprogs-libs x86\_64 1.42.7.wc1-7.el6 /e2fsprogs-libs-1.42.7.wc1-7.el6.x86\_64 349 k

libcom\_err x86\_64 1.42.7.wc1-7.el6 /libcom\_err-1.42.7.wc1-7.el6.x86\_64 56 k

libss x86\_64 1.42.7.wc1-7.el6 /libss-1.42.7.wc1-7.el6.x86\_64 67 k

Installing for dependencies:

environment-modules x86\_64 3.2.9c-4.el6

base 98 k

infinipath-psm x86\_64 3.0.1-115.1015\_open.1.1.el6\_4

updates 160 k

libX11 x86\_64 1.5.0-4.el6

base 584 k

libX11-common noarch 1.5.0-4.el6

base 192 k

libXau x86\_64 1.0.6-4.el6

base 24 k

libesmtplib x86\_64 1.0.4-15.el6

base 57 k

libgfortran x86\_64 4.4.7-3.el6

base 265 k

libgomp x86\_64 4.4.7-3.el6

base 118 k

libibverbs x86\_64 1.1.6-5.el6

base 45 k

librdmacm x86\_64 1.0.17-0.git4b5c1aa.el6

base 47 k

libtool-ltdl x86\_64 2.2.6-15.5.el6

base 44 k

libxcb x86\_64 1.8.1-1.el6

base 110 k

lm\_sensors-libs x86\_64 3.1.1-17.el6

base 38 k

net-snmp-libs x86\_64 1:5.5-44.el6\_4.1

updates 1.5 M

numactl x86\_64 2.0.7-6.el6

base 69 k

openmpi x86\_64 1.5.4-1.el6

base 2.1 M

perl x86\_64 4:5.10.1-130.el6\_4

updates

perl-Module-Pluggable x86\_64 1:3.90-130.el6\_4

updates 38 k

perl-Pod-Escapes x86\_64 1:1.04-130.el6\_4

```

updates                                31 k
 perl-Pod-Simple                       x86_64 1:3.13-130.el6_4
updates                                210 k
 perl-libs                              x86_64 4:5.10.1-130.el6_4
updates                                576 k
 perl-version                           x86_64 3:0.77-130.el6_4
updates                                50 k
 tcl                                     x86_64 1:8.5.7-6.el6
base                                    1.9 M

```

Transaction Summary

```

=====
Install      27 Package(s)
Upgrade     4 Package(s)

```

Total size: 213 M

Total download size: 18 M

Is this ok [y/N]: y

Downloading Packages:

Setting up and reading Presto delta metadata

Processing delta metadata

Package(s) data still to download: 18 M

```

(1/23): environment-modules-3.2.9c-4.el6.x86_64.rpm | 98
kB      00:00
(2/23): infinipath-psm-3.0.1-115.1015_open.1.1.el6_4.x86_64.rpm | 160
kB      00:00
(3/23): libX11-1.5.0-4.el6.x86_64.rpm | 584
kB      00:00
(4/23): libX11-common-1.5.0-4.el6.noarch.rpm | 192
kB
(5/23): libXau-1.0.6-4.el6.x86_64.rpm | 24
kB      00:00
(6/23): libesmtp-1.0.4-15.el6.x86_64.rpm | 57
kB      00:00
(7/23): libgfortran-4.4.7-3.el6.x86_64.rpm | 265
kB      00:00
(8/23): libgomp-4.4.7-3.el6.x86_64.rpm | 118
kB      00:00
(9/23): libibverbs-1.1.6-5.el6.x86_64.rpm | 45
kB      00:00
(10/23): librdmacm-1.0.17-0.git4b5c1aa.el6.x86_64.rpm | 47
kB      00:00
(11/23): libtool-ltdl-2.2.6-15.5.el6.x86_64.rpm | 44
kB      00:00
(12/23): libxcb-1.8.1-1.el6.x86_64.rpm | 110
kB      00:00
(13/23): lm_sensors-libs-3.1.1-17.el6.x86_64.rpm | 38
kB      00:00
(14/23): net-snmp-libs-5.5-44.el6_4.1.x86_64.rpm | 1.5
MB      00:01
(15/23): numactl-2.0.7-6.el6.x86_64.rpm | 69
kB      00:00
(16/23): openmpi-1.5.4-1.el6.x86_64.rpm | 2.1
MB      00:01
(17/23): perl-5.10.1-130.el6_4.x86_64.rpm | 10
MB      00:08
(18/23): perl-Module-Pluggable-3.90-130.el6_4.x86_64.rpm | 38
kB      00:00
(19/23): perl-Pod-Escapes-1.04-130.el6_4.x86_64.rpm | 31
kB      00:00
(20/23): perl-Pod-Simple-3.13-130.el6_4.x86_64.rpm | 210
kB      00:00
(21/23): perl-libs-5.10.1-130.el6_4.x86_64.rpm | 576
kB      00:00
(22/23): perl-version-0.77-130.el6_4.x86_64.rpm | 50
kB      00:00
(23/23): tcl-8.5.7-6.el6.x86_64.rpm | 1.9
MB      00:01

```

```

-----
-----

```

Total

1.2 MB/s | 18 MB

Running rpm\_check\_debug

Running Transaction Test

Transaction Test Succeeded

Running Transaction

```
Installing : 1:perl-Pod-Escapes-1.04-130.el6_4.
x86_64                                           1/35
Installing : 4:perl-libs-5.10.1-130.el6_4.
x86_64                                           2/35
Installing : 1:perl-Module-Pluggable-3.90-130.el6_4.
x86_64                                           3/35
Installing : 1:perl-Pod-Simple-3.13-130.el6_4.
x86_64                                           4/35
Installing : 3:perl-version-0.77-130.el6_4.
x86_64                                           5/35
Installing : 4:perl-5.10.1-130.el6_4.
x86_64                                           6/35
Updating   : libcom_err-1.42.7.wc1-7.el6.
x86_64                                           7/35
Updating   : e2fsprogs-libs-1.42.7.wc1-7.el6.
x86_64                                           8/35
Installing : libibverbs-1.1.6-5.el6.
x86_64                                           9/35
Installing : librdmacm-1.0.17-0.git4b5c1aa.el6.
x86_64                                          10/35
Updating   : libss-1.42.7.wc1-7.el6.
x86_64                                          11/35
Updating   : e2fsprogs-1.42.7.wc1-7.el6.
x86_64                                          12/35
Installing : lustre-ldiskfs-3.3.0-2.6.32_279.19.1.el6_lustre.x86_64.
x86_64                                          13/35
Installing : lustre-modules-2.1.5-2.6.32_279.19.1.el6_lustre.x86_64.
x86_64                                          14/35
Installing : libgomp-4.4.7-3.el6.
x86_64                                          15/35
Installing : lm_sensors-libs-3.1.1-17.el6.
x86_64                                          16/35
Installing : 1:net-snmp-libs-5.5-44.el6_4.1.
x86_64                                          17/35
Installing : lustre-2.1.5-2.6.32_279.19.1.el6_lustre.x86_64.x86_64
Installing : libXau-1.0.6-4.el6.
x86_64                                          19/35
Installing : libxcb-1.8.1-1.el6.
x86_64                                          20/35
Installing : libX11-common-1.5.0-4.el6.
noarch                                          21/35
Installing : libX11-1.5.0-4.el6.
x86_64                                          22/35
Installing : libgfortran-4.4.7-3.el6.
x86_64                                          23/35
Installing : libesmtp-1.0.4-15.el6.
x86_64                                          24/35
Installing : numactl-2.0.7-6.el6.
x86_64                                          25/35
Installing : infinipath-psm-3.0.1-115.1015_open.1.1.el6_4.
x86_64                                          26/35
Installing : 1:tcl-8.5.7-6.el6.
x86_64                                          27/35
Installing : environment-modules-3.2.9c-4.el6.
x86_64                                          28/35
Installing : libtool-ltdl-2.2.6-15.5.el6.
x86_64                                          29/35
Installing : openmpi-1.5.4-1.el6.
x86_64                                          30/35
Installing : lustre-tests-2.1.5-2.6.32_279.19.1.el6_lustre.x86_64.
x86_64                                          31/35
Cleanup    : e2fsprogs-1.41.12-12.el6.
x86_64                                          32/35
Cleanup    : e2fsprogs-libs-1.41.12-12.el6.
x86_64                                          33/35
Cleanup    : libss-1.41.12-12.el6.
```

x86_64		34/35
Cleanup	: libcom_err-1.41.12-12.el6.	
x86_64		35/35
Verifying	: libtool-ltdl-2.2.6-15.5.el6.	
x86_64		1/35
Verifying	: libss-1.42.7.wc1-7.el6.	
x86_64		2/35
Verifying	: e2fsprogs-libs-1.42.7.wc1-7.el6.	
x86_64		3/35
Verifying	: 1:tcl-8.5.7-6.el6.	
x86_64		4/35
Verifying	: 4:perl-5.10.1-130.el6_4.x86_64	
Verifying	: lustre-modules-2.1.5-2.6.32_279.19.1.el6_lustre.x86_64.	
x86_64		6/35
Verifying	: libcom_err-1.42.7.wc1-7.el6.	
x86_64		7/35
Verifying	: lustre-tests-2.1.5-2.6.32_279.19.1.el6_lustre.x86_64.	
x86_64		8/35
Verifying	: infinipath-psm-3.0.1-115.1015_open.1.1.el6_4.	
x86_64		9/35
Verifying	: environment-modules-3.2.9c-4.el6.	
x86_64		10/35
Verifying	: libX11-1.5.0-4.el6.	
x86_64		11/35
Verifying	: numactl-2.0.7-6.el6.	
x86_64		12/35
Verifying	: lustre-2.1.5-2.6.32_279.19.1.el6_lustre.x86_64.	
x86_64		13/35
Verifying	: 1:perl-Pod-Simple-3.13-130.el6_4.	
x86_64		14/35
Verifying	: libesmtplib-1.0.4-15.el6.	
x86_64		15/35
Verifying	: libgfortran-4.4.7-3.el6.	
x86_64		16/35
Verifying	: openmpi-1.5.4-1.el6.	
x86_64		17/35
Verifying	: libX11-common-1.5.0-4.el6.	
noarch		18/35
Verifying	: 4:perl-libs-5.10.1-130.el6_4.	
x86_64		19/35
Verifying	: libxcb-1.8.1-1.el6.	
x86_64		20/35
Verifying	: libXau-1.0.6-4.el6.	
x86_64		21/35
Verifying	: 1:net-snmp-libs-5.5-44.el6_4.1.	
x86_64		22/35
Verifying	: 1:perl-Module-Pluggable-3.90-130.el6_4.	
x86_64		23/35
Verifying	: lm_sensors-libs-3.1.1-17.el6.	
x86_64		24/35
Verifying	: 1:perl-Pod-Escapes-1.04-130.el6_4.	
x86_64		25/35
Verifying	: libgomp-4.4.7-3.el6.	
x86_64		26/35
Verifying	: lustre-ldiskfs-3.3.0-2.6.32_279.19.1.el6_lustre.x86_64.	
x86_64		27/35
Verifying	: 3:perl-version-0.77-130.el6_4.x86_64	
Verifying	: libibverbs-1.1.6-5.el6.	
x86_64		29/35
Verifying	: e2fsprogs-1.42.7.wc1-7.el6.	
x86_64		30/35
Verifying	: librdmacm-1.0.17-0.git4b5c1aa.el6.	
x86_64		31/35
Verifying	: libss-1.41.12-12.el6.	
x86_64		32/35
Verifying	: e2fsprogs-1.41.12-12.el6.	
x86_64		33/35
Verifying	: libcom_err-1.41.12-12.el6.	
x86_64		34/35
Verifying	: e2fsprogs-libs-1.41.12-12.el6.	
x86_64		35/35



```

Installed:
  lustre.x86_64 0:2.1.5-2.6.32_279.19.1.el6_lustre.
x86_64
  lustre-ldiskfs.x86_64 0:3.3.0-2.6.32_279.19.1.el6_lustre.
x86_64
  lustre-modules.x86_64 0:2.1.5-2.6.32_279.19.1.el6_lustre.
x86_64
  lustre-tests.x86_64 0:2.1.5-2.6.32_279.19.1.el6_lustre.
x86_64

Dependency Installed:
  environment-modules.x86_64 0:3.2.9c-4.el6
e16_4
  libX11.x86_64 0:1.5.0-4.el6
e16
  libXau.x86_64 0:1.0.6-4.el6
e16
  libgfortran.x86_64 0:4.4.7-3.el6
e16
  libibverbs.x86_64 0:1.1.6-5.el6
e16
  libtool-ltdl.x86_64 0:2.2.6-15.5.el6
e16
  lm_sensors-libs.x86_64 0:3.1.1-17.el6
1
  numactl.x86_64 0:2.0.7-6.el6
e16
  perl.x86_64 4:5.10.1-130.el6_4
e16_4
  perl-Pod-Escapes.x86_64 1:1.04-130.el6_4
e16_4
  perl-libs.x86_64 4:5.10.1-130.el6_4
e16_4
  tcl.x86_64 1:8.5.7-6.el6
  infinipath-psm.x86_64 0:3.0.1-115.1015_open.1.1.
  libX11-common.noarch 0:1.5.0-4.
  libesmtp.x86_64 0:1.0.4-15.
  libgomp.x86_64 0:4.4.7-3.
  librdmacm.x86_64 0:1.0.17-0.git4b5c1aa.
  libxcb.x86_64 0:1.8.1-1.
  net-snmp-libs.x86_64 1:5.5-44.el6_4.
  openmpi.x86_64 0:1.5.4-1.
  perl-Module-Pluggable.x86_64 1:3.90-130.
  perl-Pod-Simple.x86_64 1:3.13-130.
  perl-version.x86_64 3:0.77-130.

Updated:
  e2fsprogs.x86_64 0:1.42.7.wc1-7.el6
1.42.7.wc1-7.el6
  e2fsprogs-libs.x86_64 0:1.42.7.wc1-7.el6
  libcom_err.x86_64 0:
  libss.x86_64 0:1.42.7.wc1-7.el6

Complete!
[root@rhel6vanilla ~]#

```

## Disable SELinux for Lustre patched kernel.

Lustre does not play well with SELinux (at least, the `llmount.sh` script fails when SELinux is enabled), so SELinux must be disabled. One option is to disable SELinux with GRUB. With your editor of choice, open `/boot/grub/grub.conf`. Append the option `selinux=0` to the end of the `kernel` line for the Lustre patched kernel entry and save. This will cause SELinux to be disabled after you reboot into the patched kernel.

## Reboot.

1. `reboot`

## Verify that installation is complete:

1. `uname -a`

```

[root@rhel6vanilla ~]# uname -a
Linux rhel6vanilla 2.6.32-279.19.1.el6_lustre.x86_64 #1 SMP Wed Mar 20 16:37:18 PDT 2013 x86_64 x86_64
x86_64 GNU/Linux

```

2. Create a local Lustre filesystem with: `llmount.sh`

```

[root@rhel6vanilla ~]# /usr/lib64/lustre/tests/llmount.sh
Stopping clients: rhel6vanilla /mnt/lustre (opts:)
Stopping clients: rhel6vanilla /mnt/lustre2 (opts:)
Loading modules from /usr/lib64/lustre/tests/.
debug=0x33f0404
subsystem_debug=0xffb7e3ff
gss/krb5 is not supported
quota/lquota options: 'hash_lqs_cur_bits=3'
Formatting mgs, mds, osts
Format mds1: /tmp/lustre-mdt1
Format ost1: /tmp/lustre-ost1
Format ost2: /tmp/lustre-ost2
Checking servers environments
Checking clients rhel6vanilla environments
Loading modules from /usr/lib64/lustre/tests/.
debug=0x33f0404
subsystem_debug=0xffb7e3ff
gss/krb5 is not supported
Setup mgs, mdt, osts
Starting mds1: -o loop,user_xattr,acl /tmp/lustre-mdt1 /mnt/mds1
debug=0x33f0404
subsystem_debug=0xffb7e3ff
debug_mb=2
Started lustre-MDT0000
Starting ost1: -o loop /tmp/lustre-ost1 /mnt/ost1
debug=0x33f0404
subsystem_debug=0xffb7e3ff
debug_mb=2
Started lustre-OST0000
Starting ost2: -o loop /tmp/lustre-ost2 /mnt/ost2
debug=0x33f0404
subsystem_debug=0xffb7e3ff
debug_mb=2
Started lustre-OST0001
Starting client: rhel6vanilla: -o user_xattr,acl,flock rhel6vanilla@tcp:/lustre /mnt/lustre
debug=0x33f0404
subsystem_debug=0xffb7e3ff
debug_mb=2
Using TIMEOUT=20
disable quota as required
[root@rhel6vanilla ~]# mount

/dev/mapper/vg_rhel6vanilla-lv_root on / type ext4 (rw)
proc on /proc type proc (rw)
sysfs on /sys type sysfs (rw)
devpts on /dev/pts type devpts (rw,gid=5,mode=620)
tmpfs on /dev/shm type tmpfs (rw)
/dev/vda1 on /boot type ext4 (rw)
none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)
sunrpc on /var/lib/nfs/rpc_pipefs type rpc_pipefs (rw)
/dev/loop0 on /mnt/mds1 type lustre (rw,loop=/dev/loop0,user_xattr,acl)
/dev/loop1 on /mnt/ost1 type lustre (rw,loop=/dev/loop1)
/dev/loop2 on /mnt/ost2 type lustre (rw,loop=/dev/loop2)
rhel6vanilla@tcp:/lustre on /mnt/lustre type lustre (rw,user_xattr,acl,flock)

```

## Testing

Now that you have all the components of a Lustre system installed, you can test them. This is covered in a separate wiki page: [Testing a Lustre filesystem](#)