

Lustre 2.7 Test Plan

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* Other names and brands may be claimed as the property of others.



Revision History

Date	Revision	Author
2014-08-02	Baseline Draft	Jodi Levi
2014-08-21	Performance Testing section update	Jodi Levi



Release Goals

The goal of this release is to provide a number of new Lustre® features with quality that matches or surpasses Lustre 2.6.

Changes from Previous Release

The changes from Lustre 2.6 are:

- Adding RHEL/CentOS 7.0 Client Support

Support Matrices

Clients
-RHEL/CentOS 6.x and 7.x
-SLES11 SP3
Servers
-RHEL/CentOS 6.x
OFED
External OFED: 3.12
Inkernel OFED
Interoperability
Server/Clients: Latest 2.5.x and 2.6

* Other names and brands may be claimed as the property of others.



Feature Test Areas

For new features being added to the release, specific feature testing plans are defined below. The list of features being added to the 2.7 release are:

- **LFCK Phase III**
- **Dynamic LNet Config (DLC)**
- **UID/GID Mapping**
- **Striping API**
- **OST Placement**
- **Deprecate procfs**



Candidate Features

LFSCK Phase III

This work will be tested manually according to the test plan located here:

<https://jira.hpdd.intel.com/browse/LU-4788>

TEST PLAN TO BE WRITTEN

Test Configuration	Owner	Est. Execution Time
	James Nunez??	

Dynamic LNet Config (DLC)

This work will be tested manually according to the test plan located here:

<https://jira.hpdd.intel.com/browse/LU-2456>

TEST PLAN TO BE WRITTEN

Test Configuration	Owner	Est. Execution Time

UID/GID Mapping

This work will be tested manually according to the test plan located here:

<https://jira.hpdd.intel.com/browse/LU-3291>

TEST PLAN TO BE WRITTEN

Test Configuration	Owner	Est. Execution Time

Striping API

This work will be tested manually according to the test plan located here:

<https://jira.hpdd.intel.com/browse/LU-2182>

TEST PLAN TO BE WRITTEN

Test Configuration	Owner	Est. Execution Time



OST Placement

This work will be tested manually according to the test plan located here:

<https://jira.hpdd.intel.com/browse/LU-4665>

TEST PLAN TO BE WRITTEN

Test Configuration	Owner	Est. Execution Time

Deprecate procs

This work will be tested manually according to the test plan located here:

<https://jira.hpdd.intel.com/browse/LU-5030>

TEST PLAN TO BE WRITTEN

Test Configuration	Owner	Est. Execution Time



Functional Test Areas

The below functional test areas are automated unless otherwise noted.

Regression Testing

Use auster to run automated regression tests with the following configurations:

Test Configuration
RHEL6 Servers – RHEL 6 Clients Inkernel OFED – X86_64 – Idiskfs
RHEL6 Servers – SLES 11 SP3 Clients Inkernel OFED – X86_64
RHEL6 Servers – RHEL 6 Clients External OFED – X86_64
RHEL6 Servers – RHEL 6 Clients Inkernel OFED – X86_64 – ZFS
RHEL6 Servers – RHEL 7 Clients Inkernel OFED – X86_64 – Idiskfs
RHEL6 Servers – RHEL 7 Clients Inkernel OFED – X86_64 – ZFS

Stress Tests at Scale

Run LLNL Simulated Workload (SWL) for 24 hours. Run SWL for 24 additional hours with OST failover (random server crash) with Idiskfs.

Run LLNL Simulated Workload (SWL) for 24 hours. Run SWL for 24 additional hours with OST failover (random server crash) with ZFS.

Performance Testing

The performance test plan should be updated with each release to take into account any new features that may have impacts on Lustre performance, and should note landings/bug fixes that may impact performance, or require performance validation.

The basic performance testing will comprise bulk data transfer, file creation and network tests using both single-shared file and file-per-process methods where applicable. The current test plan will use IOR(POSIX), mdsrate and Inet_selftest with other tests to be added as needed.

Testing will use a constant number of clients for each release to facilitate run-to-run comparison.

Tests will be run on a large scale resource (at least 100 clients) if available, for comparison with previous performance test results.

Results will be compared to the previous release of Lustre and the “bare metal” baseline (obtained from odbfilter-survey and Inet-selftest) on the same test configuration.



Results will meet or surpass the latest 1.8.x, 2.4.x, and 2.5.x versions and variations will be investigated. Results within 5% may be considered within normal variation. Runs resulting in issues and/or performance degradation greater than 5% will be marked as failed. Runs showing performance improvement greater than 10% will be checked for rationality issues such as improper test parameters.

Test Configuration
Performance with Idiskfs
- run IOR with 32 and 64 clients (shared and fpp)
- run mdsrate with 32 and 64 clients
- run Inet_selftest with 32 and 64 clients
Performance with ZFS
- run IOR with 32 and 64 clients (shared and fpp)
- run mdsrate with 32 and 64 clients
- run Inet_selftest with 32 and 64 clients

Interoperability

Interoperability testing will be completed between latest 2.5.x clients with 2.6 servers. This is supported on our autotest system on Toro and not run manually.

Test Configuration
Quotas- RHEL6 latest 2.5.x client RHEL6 2.7 server
Quotas- RHEL6 latest 2.6.x server RHEL6 2.7 client
Quotas- RHEL6 2.6 client RHEL6 2.7 server
Quotas- RHEL6 2.5 server RHEL6 2.7 client

Failover/Recovery Test

Execute recovery and failover testing for hard failure mode (powering off and on) with shared storage in server failover pairs. Soft failover is covered by the auster Regression test suite.

Test Configuration
Recovery test RHEL6 client with Idiskfs
Recovery test RHEL7 client with Idiskfs
Recovery test SLES11 SP3 client
Recovery test RHEL6 client with ZFS
Recovery test RHEL7 client with ZFS
Recovery test DNE



Upgrade/Downgrade

Execute clean and rolling upgrade and downgrade testing from latest 2.5.x and 2.6.x.

Test Configuration	
Upgrade from latest 2.5.x (RHEL6/x86_64) ldiskfs to 2.7(RHEL6/x86_64) ldiskfs then downgrade to 2.5.x(RHEL6/x86_64) ldiskfs	1
Upgrade from 2.5 (RHEL6/x86_64) (ZFS) to 2.7 (RHEL6/x86_64) (ZFS) then downgrade to 2.5.x (RHEL6/x86_64) (ZFS)	
Upgrade from latest 2.6.x (RHEL6/x86_64) ldiskfs to 2.7(RHEL6/x86_64) ldiskfs then downgrade to latest 2.6.x(RHEL6/x86_64) ldiskfs	
Upgrade from latest 2.6.x (RHEL6/x86_64) ZFS to 2.7(RHEL6/x86_64) ZFS then downgrade to latest 2.6.x(RHEL6/x86_64) ZFS	

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