

# Oracle Linux Test (OLT) User Guide

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# 1. Introduction

This document details the steps to setup and execute OLT kit .

The steps to setup the kit and execute the tests on your system include

- Verification of Hardware Requirements
- Pre-Installation
- a.OS Configuration b.Storage Configuration
- OLT Installation and Configuration
- Execution of OLT tests - Single instance , RAC
- Execution of OLT Destructive tests
- Results Collation for Auditing

## 2. Hardware Requirements

The following are the minimum requirements

- Server Requirements
  - 2 Servers or more setup as a RAC cluster
  - From 11gR2 onwards, 1 SCAN name ( with 1 SCAN IP ) for a RAC cluster.
  - On each server,
    - 3 IP addresses per RAC node
    - 2 public IP addresses for public and vip interfaces ( Note: The ip address of the vip interface should be in same subnet as the public interface) ; and
    - One private IP for the interconnect.
  - At least 2 network ports for interconnect and public networks
    - one dedicated network port for interconnect
    - one dedicated network port to be used for public and vip networks
  - Disable NUMA via the BIOS settings ( if it is provided )
  - For validating NAS, a dedicated network port is required. An additional IP address is required for configuring this interface.
  - For validating SAN, Single or multiple FC cards for the SAN.
  - For performing network destructive tests when FC storage is used, tester must have access to the Network/FC Switch
- Storage Requirements – Storage such as NAS or a SAN which can be configured for asm/asmlib or ocfs2.

The following are the storage requirements for the OLT kit

Location	Space	Purpose	Ownership
/opt/oracle/oltest	50GB (Additional 5G for 12.1.0.2)	Test Kit Software	oracle:oinstall
/home/oracle	15GB	Runtime work area	oracle:oinstall
/tmp	1GB	Temporary files	oracle:oinstall

The following are the storage requirements for the Test Data:

Location	Space	Purpose	Ownership
/olt-storage	300GB	Test Data for single node	oracle:oinstall
/olt-storage	110GB	For RAC database on NFS	oracle:oinstall
/olt-storage ( for OCFS2 )	50GB	For RAC database on OCFS2	oracle:oinstall
For asm – use the appropriate device names For asmlib – use the label name	50GB (per failure group )	For RAC database on asm/asmlib	N/A
/olt-storage Or OCR/VOTE location	Additional 5GB	For mgmt_db on 12.1.0.2 and above	oracle:oinstall

## 3. Pre-Installation

### 3.1. OS Configuration

#### 3.1.1. OS Packages

OLT tests need to be performed on Oracle Linux(OL) with Unbreakable Enterprise Kernel (UEK). Ensure kernel-uek-<version> is installed and the system is booted using kernel-uek<

The following rpms should be installed for OLT

1. apache-1.3.29-71.15 or higher or httpd
2. sysstat
3. bind-utils
4. kernel<type>-devel (OL 4, RHEL4,OL5,RHEL5,OL6,RHEL6,OL7)
5. nc, netcat or nmap-ncat
6. perl and perl- CGI
7. procmail
8. oracle-validated for OL5
9. oracle-rdbms-server-11gR2-preinstall => for 11gR2 on OL6 and above
10. oracle-rdbms-server-12cR1-preinstall => for 12cR1 on OL6 and above
11. gdb
12. sudo
13. elfutils-libelf-devel on OL7 for 11.2.0.4
14. mlocate

#### 3.1.2. System Configuration

##### Network

1. Edit /etc/hosts to include the fully qualified name first followed by the other names.
2. Edit /etc/hosts to include “localhost” entry
3. Setup your system such that “hostname” returns the fully qualified name( with domainname)
4. For RAC, the following setup is required
  1. Ensure that /etc/hosts contains all the public,vip and private node names ( with and without domain names ) on all the nodes.
  2. Ensure that the two nodes have their public and private interfaces on the same subnet. Configure the public and private network interfaces. Ensure they are up and running.
  3. Ensure that the interface name for the public IP is the same on both nodes. Ensure that the interface name for the private interconnect is the same on both nodes.
  4. Ensure that VIP for any of the nodes does not match the following pattern:
    - 172.16.x.x
    - 172.20.x.x
    - 192.168.x.x
    - 10.x.x.xThese IP addresses are assumed to be private and may not be fit for being used as a VIP or public
5. Make sure that VIP is not pingable. The vip should be in the same subnet as the public ip on all the nodes

6. From 11g Release 2 onwards, ensure the following in regard to SCAN IP :
  1. Hostname corresponding to SCAN IP has to be less than 15 characters
  2. SCAN IP has to be on the same subnet as public IP.
  3. Hostname corresponding to SCAN IP should be configured on the domain name server (DNS) for Round Robin resolution to three addresses (recommended) or at least one address.
  4. SCAN IP should not be pingable

## Environment

For 11gR1 or higher release,

1. Ensure that time is synchronized on all the rac nodes using ntp
2. Use cluster time synchronization process.

For 11gR2

- . stop ntpd service
- . mv /etc/ntp.conf etc/ntp.conf.org

For 12.1.0.1.0, the ntpd service may be running.  
i.e service ntpd start

The ntp.conf file should be present in /etc

For 12.1.0.2.0, the ntpd service is not compulsory. Oracle uses ntpd if available.

On 12.1.0.2.0 + OL7, the file /etc/sysconfig/ntpd must contain  
OPTIONS="-x -u ntp:ntp -p /var/run/ntpd.pid"

3. Ensure Iptables are turned off while running RAC tests  
service iptables stop  
Note: Use systemctl stop firewalld on OL7 for the same
4. Ensure SELinux is disabled from boot command line or SELinux config file(/etc/selinux/config)
5. If testing 12cR1, ensure avahi-daemon is stopped.

### 3.1.3. Storage Configuration

The following storage types can be used for the test data. OLT requires to be configured each time a new storage type is to be validated.

- 1.NFS ( single node + RAC tests) using Oracle's DNFS or traditional NFS
- 2.OCFS2 ( single node + RAC tests)
- 3.asmlib ( RAC tests )
- 4.filesystems such as ext2/3 ( single node)

Note:

1. refer to the Hardware Requirements->Storage requirements Section
2. raw and block device as ocr/vote disks is not supported from 11gR2 onwards.

## ***NFS***

Follow the steps below to setup your NFS storage for single node or RAC for OLT.

- 1.Create a directory /olt-storage ( default location )
- 2.Create a partition on the NAS filer of required size.

3. Mount the NAS storage with the following options

For kernel version  $\geq 2.6.25$ , the deprecated mount option “nointr” is removed.

Single node - rw,bg,hard,tcp,nfsvers=3,timeo=600,rsize=32768,wsiz=32768

RAC – rw,rsize=32768,wsiz=32768,hard,bg,nfsvers=3,tcp,actimeo=0,timeo=600

For kernel version  $< 2.6.25$

Single node - rw,bg,hard,nointr,tcp,nfsvers=3,timeo=600,rsize=32768,wsiz=32768

RAC - rw,rsize=32768,wsiz=32768,hard,nointr,bg,nfsvers=3,tcp,actimeo=0,timeo=600

Note : If Oracle database Direct NFS is used ( 11gR1 upwards ), mount options are required for ocr and vote disk but not required for database files.

## ***OCFS2***

Follow the steps below to setup your OCFS2 storage for single node or RAC for OLT. Note: For RHEL, download and setup ocfs2 from [oss.oracle.com](http://oss.oracle.com)

1. Create a directory /olt-storage ( default location )
2. Create an OCFS2 partition of required size.
3. Mount the OCFS2 partition on /olt-storage

For details on the setup and mount options please refer to the ocfs2 documentation on [oss.oracle.com](http://oss.oracle.com)

## ***ASMLIB***

Follow the steps below to setup asmlib on your machine and label your disks for OLT. Note: For RHEL, download, install and setup asmlib from <http://www.oracle.com/technetwork/server-storage/linux/asmlib/index-101839.html>

1. Identify the disks you want to use for asm ( default is external redundancy ), lets say /dev/sdh1 and /dev/sdi1
2. To configure asm perform the below steps. This needs to be done on all nodes unless specified.

1. Zero out the disks you plan to use for asm by doing the following ( only on the master node )

```
$ dd if=/dev/zero of=/dev/<device> bs=<blocksize> count=<size of disk/blocksize>
```

2. Edit /etc/sysconfig/oracleasm

```
ORACLEASM_ENABLED=true
```

```
ORACLEASM_UID=oracle
```

ORACLEASM\_GID=oinstall

ORACLEASM\_SCANBOOT=true

ORACLEASM\_CLEARBOOT=true

3. Load oracleasm driver

4. Create a label on the disks to be used by asm ( only on the master node ). For e.g: for a label name of VOL1  
/etc/init.d/oracleasm createdisk VOL1 /dev/sdh1

5. Scan the disks using oracleasm

6. List the disks you have chosen to be used for asm

Note : On OL7, run systemctl enable oracleasm.service prior to configuration.

## ***ASM***

Follow the steps below to setup your disks for asm for OLT

1. Identify the disks you want to use for asm ( default is external redundancy ), lets say /dev/sdh.
2. Zero out the disks you plan to use for asm by doing the following ( only on the master node )
  1. \$ dd if=/dev/zero of=/dev/<device> bs=<blocksize> count=<size of disk/blocksize>

## ***FILESYSTEM***

Follow the steps below to setup your filesystem for single node for OLT

1. Create a directory /olt-storage ( default location )
2. Create a partition of required size.
3. Mount the partition on /olt-storage



## 4. OLT Installation and Configuration

OLT is available in two formats:

- Single archived file ( used for installation and execution )
- Set of rpms ( hosted packages only )

Single archived file: Installation and Configuration

- Download the archive file ( OLT<version>.tar.gz ) from [oss.oracle.com/projects/olt](http://oss.oracle.com/projects/olt) to <Location>
- cd <Location>
- tar xzvf OLT<version>.tar.gz
- Edit oltsetup.env as per your requirements for mode(SI/RAC), such as - filesystem,DNFS\_CLIENT, hostname, storage ( for asm/ocr/vote redundancy and disknames),user, rac node related information( no., nodenames, interconnect details, vip ). More details available in Appendix A.
- Execute oltInstaller as root

Note:

- 1.If there is any change in configuration mentioned above, /opt/oracle/oltest/olt-schedule/olt-configure needs to be run manually for reconfiguration. ( Refer to Appendix A )
- 2.OLT is setup in the context of "oracle" user. The tests can be run in the context of any user.

### 4.1. Setup of Oracle for OLT

Download and setup the Oracle software for OLT as mentioned below. When OLT is run, Oracle will be installed by the first test of OLT ( install-silent-rac for RAC and install-silent-oracle-<version> for single node). In order to install oracle database and/or grid software, the oracle installables need to be made available. Prior to running install-silent-rac or install-silent-oracle-<version>, Oracle software and patches (if required) need to be setup as below.

#### 4.1.1. Setup of Oracle Software ( Main Releases and Patchsets )

For the database software download/availability prior to 11gR2 , pls. refer section "Previous Database Release Software" mentioned in <http://www.oracle.com/technetwork/database/enterprise-edition/downloads/index.html>

If using 10.2.0.2, Download 10.2.0.2 patchset ( 4547817 ) from [metalink.oracle.com](http://metalink.oracle.com)

If using 10.2.0.3, Download 10.2.0.3 patchset ( 5337014 ) from [metalink.oracle.com](http://metalink.oracle.com)

If using 10.2.0.4, Download 10.2.0.4 patchset ( 6810189 ) from [metalink.oracle.com](http://metalink.oracle.com)

If using 11.1.0.7, Download 11.1.0.7 patchset ( 6890831 ) from [metalink.oracle.com](http://metalink.oracle.com)

1. For 11g Release 2,

1. For x86\_64,

[http://download.oracle.com/otn/linux/oracle11g/R2/linux.x64\\_11gR2\\_database\\_1of2.zip](http://download.oracle.com/otn/linux/oracle11g/R2/linux.x64_11gR2_database_1of2.zip)

[http://download.oracle.com/otn/linux/oracle11g/R2/linux.x64\\_11gR2\\_database\\_2of2.zip](http://download.oracle.com/otn/linux/oracle11g/R2/linux.x64_11gR2_database_2of2.zip)

[http://download.oracle.com/otn/linux/oracle11g/R2/linux.x64\\_11gR2\\_grid.zip](http://download.oracle.com/otn/linux/oracle11g/R2/linux.x64_11gR2_grid.zip)

2. For x86,

[http://download.oracle.com/otn/linux/oracle11g/R2/linux\\_11gR2\\_database\\_1of2.zip](http://download.oracle.com/otn/linux/oracle11g/R2/linux_11gR2_database_1of2.zip)

[http://download.oracle.com/otn/linux/oracle11g/R2/linux\\_11gR2\\_database\\_2of2.zip](http://download.oracle.com/otn/linux/oracle11g/R2/linux_11gR2_database_2of2.zip)

[http://download.oracle.com/otn/linux/oracle11g/R2/linux\\_11gR2\\_grid.zip](http://download.oracle.com/otn/linux/oracle11g/R2/linux_11gR2_grid.zip)

2. For 11.2.0.2

<http://www.oracle.com/technetwork/database/enterprise-edition/downloads/index.html> The link provides information for downloading 11.2.0.2.

1. For x86\_64 ,  
<https://updates.oracle.com/download/10098816.html>

p10098816\_112020\_Linux-x86-64\_1of7.zip

and

p10098816\_112020\_Linux-x86-64\_2of7.zip for database

p10098816\_112020\_Linux-x86-64\_3of7.zip for CRS

2. For x86,

<https://updates.oracle.com/download/10098816.html>

p10098816\_112020\_LINUX\_1of7.zip

and

p10098816\_112020\_LINUX\_2of7.zip for database

p10098816\_112020\_LINUX\_3of7.zip for CRS

3. For 11.2.0.3 download,

1. For x86\_64,

<https://updates.oracle.com/download/10404530.html>

p10404530\_112030\_Linux-x86-64\_1of7.zip

and

p10404530\_112030\_Linux-x86-64\_2of7.zip for database

p10404530\_112030\_Linux-x86-64\_3of7.zip for CRS

2. For x86,

<https://updates.oracle.com/download/10404530.html>

p10404530\_112030\_LINUX\_1of7.zip

and

p10404530\_112030\_LINUX\_2of7.zip for database

p10404530\_112030\_LINUX\_3of7.zip for CRS

4. For 11.2.0.4

If using 11.2.0.4 on OL7, download the patches from [metalink.oracle.com](http://metalink.oracle.com).

Use olt-patch-copy for 11.2.0.4 on OL7. Details of patches are present in the

Appendix B. There are no patches needed for 11.2.0.4 on OL6 or previous releases.

For x86\_64

<http://www.oracle.com/technetwork/database/enterprise-edition/downloads/112010-linx8664soft-100572.html>

x86\_64 Database -

linux.x64\_11gR2\_database\_1of2.zip

linux.x64\_11gR2\_database\_2of2.zip

x86\_64 Grid -

linux.x64\_11gR2\_grid.zip

For x86,

<http://www.oracle.com/technetwork/database/enterprise-edition/downloads/112010-linuxsoft-085393.html>

x86 Database -

linux\_11gR2\_database\_1of2.zip

linux\_11gR2\_database\_1of2.zip

x86 Grid

linux\_11gR2\_grid.zip

5. For 12c,

12.1.0.2

<http://www.oracle.com/technetwork/database/enterprise-edition/downloads/database12c-linux-download-2240591.html>

12.1.0.1.0

<http://www.oracle.com/technetwork/database/enterprise-edition/downloads/database12c-linux-download-1959253.html>

For x86\_64,

linuxamd64\_12c\_database\_1of2.zip

and

linuxamd64\_12c\_database\_2of2.zip for Database

linuxamd64\_12c\_grid\_1of2.zip

and

linuxamd64\_12c\_grid\_2of2.zip for Clusterware

Execute the following for each of the above mentioned downloaded files to setup Oracle for the OLT kit  
\$ /opt/oracle/oltest/olt-schedule/utlis/olt-iso-copy

#### 4.1.2. Setup of Oracle Patches

1. Download the required set of Oracle Patches ( Please refer to Appendix B below ) to /home/oracle/oracle-patch. Download all Clusterware (CRS) patches to /home/oracle/crs-patch
2. Run the command below to setup the Oracle patches for the OLT kit from the patch directory

( mentioned in Step 1) for each download directory location.

\$ /opt/oracle/oltest/olt-schedule/utills/olt-patch-copy

3. If setting up the patches manually, then refer to Appendix B.
4. There are two patch levels, namely -critical and extra. The patches copied under the critical directory will be applied by default by the kit.

### 4.1.3. Setting up the ORACLE\_VERSION and patches for the kit to use

The ORACLE\_VERSION is set to 12.1.0.2.0 by default in /opt/oracle/oltest/olt-schedule/env/<node-name>/ olt-schedule.env. If you are using and installing oracle version other than 12.1.0.2.0 ,then reset the ORACLE\_VERSION. To change this version you can edit this env file for all the nodes.

e.g.: In /opt/oracle/oltest/olt-schedule/env/<node-name>/olt-schedule.env.

```
For 10.2.0.3: reset ORACLE_VERSION to 10.2.0.3 i.e. export
ORACLE_VERSION=10.2.0.3
```

For patches,

#### Applying critical patches

All the patches found under the critical patches directory will be applied by default.

#### Applying extra patches (customer specific required patches )

To apply the additional patches placed under the extra patches directory, you would need to edit the testcase env files and add PATCHLEVEL=2

e.g. For single node 10.2.0.1 edit olt-schedule/testcases/<hostname>/install-silent-oracle-10201.env

```
TEST_PARAMS="PRODUCT_NAME=oracle:PRODUCT_VERSION=10.2.0.1:UNIX_GROUP
_NAME=oinstall:ORACLE_HOME_NAME=ohome_ora_10201:PATCHLEVEL=2"
```

Once the above steps have been completed, Oracle will be installed by OLT when running the silent install tests namely – *install-silent-oracle-<version>* for single instance and *install-silent-rac* for a RAC installation.( Please refer to the Oracle Linux Test document for details on the testcases ).

Note: For 11.2.0.4 on OL7, download the patches mentioned in Appendix B. Use olt-iso-copy to copy the patches to the OLT directory and use steps mentioned above to ensure that the patches are applied.

## 5. Execution of OLT Tests

### 5.1. Scheduling tests

To schedule tests on the node specify:

```
olt-schedule -f <cmd> -r
```

where cmd=validate.cmd for OS testing

cmd=vc-validate.cmd for validated configuration testing

Note:

For single node tests, ensure that the install-silent-oracle-<> test completes successfully before proceeding to any other test.

For RAC, ensure that the install-silent-rac test completes successfully before proceeding to any other test.

Execute the hugetlb/hugepage tests separately with the hugepage setting , nr\_hugepages to 800 on your system either through /proc/sys/vm/nr\_hugepages or through grub.conf . The rest of the tests can be run without this setting.

Note: On OL7, installation of 11gR2 checks for pdksh rpm which is not available. This can be overcome by adding IGNORE\_PREREQ=TRUE in install-silent-oracle-<>.env file. The same is applicable for install-silent-rac too.

### 5.2. Monitoring Tests

To monitor the progress of tests executed specify ( This command can be used only when the tests are executed and not prior or post execution. )

```
olt-schedule -f validate.cmd -s
```

A web-based status page is available at <http://<testnode name>/cgi-bin/status.pl>

(Note: Apache should be installed and running for this feature to work)

### 5.3. Logs and Test Results

The /opt/oracle/oltest/olt-schedule/log/ directory will have node specific scheduling logs.

The /opt/oracle/oltest/olt-schedule/log/olt-summary.csv has the collated results of all the runs.

The /home/oracle/work has the test run logs. A run.suc file in the work area for the test indicates success. A run.dif in the work area for the test indicates failure

For RAC related tests, besides the presence of a run.suc file in the work area, please check for errors in the major\_errors file in this area, for the success of a test.

### 5.4. Terminating tests

For single node tests, to cleanup all test scripts, oracle process, other derivative processes and test related file/network locks.

```
olt-schedule -k <testmachine_hostname>
```

For RAC, to cleanup all test scripts, oracle process, other derivative processes and test related file/network locks across each of the RAC nodes, execute the following command from the master node.

```
Olt-schedule -k <master node name> -z
```

NOTE:

. If a machine reboots during a test, do a cleanup on all the nodes before restarting a test.

## ***5.5 Results reporting***

Collect and submit the following logs for auditing:

- the work area for the test in /home/oracle/work
- /var/log/messages
- /opt/oracle/oltest/olt-schedule/log

For RAC, in addition to the above logs, the following are also required

- /opt/oracle/clusterware-<version>-<architecture>/crs/log/<node name>/
- /opt/oracle/oltest/.srchome/oracle-rac-<oracle-version>-<arch>/diag/crs/<node>/crs/\* (For 12.1.0.2)
- /tmp/crsctl\*

Also /opt/oracle/oltest/olt-schedule/utills/olt-archive-logs script can be used to archive the above mentioned log files automatically .

i.e. cd /opt/oracle/oltest//olt-schedule/utills

To collect single instance test logs :

```
./olt-archive-logs si
```

To collect RAC test logs :

```
./olt-archive-logs rac
```

Execute the above script on all the nodes & upload the collected file /home/oracle/work/olt-testlogs-<hostname>-<timestamp>.tgz. from all the nodes for result auditing.

## ***5.6 ASM Cleanup steps for recreating database***

a) Stop the crs on both the nodes. i.e it will stop all the components including the ASM DG and ASM instance

b) Use oracleasm deletedisk to delete only the DB data disk. Do not delete the OCR disk

c) dd the disk used for DB ( Initial 1Gb should be enough)

d) Use oracleasm commands to createdisk on node1 and scandisks on node2

e) rm -rf /opt/oracle/oltest/.srchome/rac-database/asm/<version>/dbcreate.suc or add

FORCEDBCREATE=true in the env file, namely, /opt/oracle/oltest/olt-schedule/testcases/<host>/install-silent-rac.env

## 6. Executing RAC destructive tests

### 6.1. Running automated destructive tests

If you have configured for two node rac with the nodes node1 and node2, the cmd file for destructive tests will be /opt/oracle/oltest/olt-schedule/rac/<node1>\_<node2>\_dest\_schedule.cmd

The destructive tests can be scheduled in the following manner

```
$ cd /opt/oracle/oltest/olt-schedule
```

```
$ olt-schedule -f rac/<node1>_<node2>_dest_schedule.cmd -r
```

### 6.2. Running manual destructive tests

This involves running a normal rac test using the olt framework and then doing the destructive part manually and then observing the behavior. This is required to be done for network failure and storage failure.

1. Schedule the tests, use the following command

```
$ cd /opt/oracle/oltest/olt-schedule
```

```
$ olt-schedule -f rac/ <node1>_<node2>_dest_manual_schedule.cmd
```

2. When test rac-st-<storage>1 starts, wait till the test shows the following message in rac\_tuning.tlg on the master node

```
$ tail -f /home/oracle/work/<current test run>.../work/rac_tuning.tlg
```

"For manual destructive tests manually do the failure part"

Then perform one of the following test scenario on the non-master node,

- a. Network interconnect failure - Failing the private interconnect on the non-master node

You can achieve this in two ways:

1. Bring down the private interface using the ifdown command e.g.

```
$ ifdown eth1
```

2. Pull the interconnect physically or if you have a web-interface for the network switches then disable the corresponding switch from the web-interface

(NOTE: Cluster reconfiguration depends on the load and environment) Restore the

induced failure i.e. network failure once the node goes down.

3. When test rac-st-<storage>2 starts, wait till the test shows the following message in rac\_tuning.tlg on the master node

```
$ tail -f /home/oracle/work/<current test run>.../work/rac_tuning.tlg
```

"For manual destructive tests manually do the failure part" Perform the following test scenario on the non-master node, b. Storage failure

Disabling the storage on the non-master node

1. Pull the storage cable physically or if you have a web-interface for the storage switches then disable the corresponding switch from the web-interface

In this case, the node for which the storage is disabled is expected to be evicted from the cluster. Generally the following behavior is observed in any of the above destructive tests:

- One of the nodes will get evicted and the other node reconfigures as a cluster

Check the crs logs in ocssd.log for cluster reconfiguration on both nodes. (Refer to cssd directory under /opt/oracle/oltest/.srchome/oracle-rac-<oracle-version>-<arch>/diag/crs/<node>/ for 12.1.0.2.0 or /opt/oracle/clusterware-<version>-<architecture>/crs/log/<node name>/ for other versions)

The connections on the evicted node will failover to the surviving nodes. You can check this by checking the run-process file in /home/oracle/<work area>

NOTE:

- 1) There will be failures reported in the oracle/crs logs on the node on which the failure is induced.

Restore the induced failure i.e. storage failure once the node goes down.

- 2) Failures to be done as mentioned in the above section. Any other method of failure is not recommended.

- 3) For oracle version > 11.2.0.2, during manual destructive tests, the induced storage or network failure needs to be reconnected within 5-10 mins of failure

### ***6.3 Running manual destructive tests with failback***

1. Schedule the tests, use the following command

```
$ cd /opt/oracle/oltest/olt-schedule
```

```
edit the rac/<node1>_<node2>_dest_manual_schedule.cmd & comment out the rest of the test cases
```

retaining only rac-dest-<storage>-HA1 testcase.

```
$ olt-schedule -f rac/ <node1>_<node2>_dest_manual_schedule.cmd -r
```

2. Wait till the test (rac-dest-<storage>-HA1 ) shows the following message in rac\_tuning.tlg on the master node

```
$ cd /home/oracle/work/<current test run>.../work/
```

```
$ tail -f rac_tuning.tlg
```

"For manual destructive tests manually do the failure part" "For automated destructive test now failure will happen"

```
" Waiting for failure [ ] min..."
```

[ NOTE: default is 20 Min. This can be changed by setting MANUAL\_FAILTIMEOUT in the testcase env file ]

3. Perform the storage failure condition ( Similar to Step 3 in the Section "Running manual destructive tests" )

4. Verify behavior of the cluster as mentioned in Step 4 of the Section "Running manual destructive tests"



5. For oracle version > 11.2.0.2, during manual destructive tests, the induced storage or network failure needs to be reconnected within 5-10 mins of failure. The node may not reboot in case of database version > 11.2.0.2.

6. Check rac\_tuning.tlg file. It should show the following w.r.t the node ( used for failure/restoration )

1. CRS startup
2. Database instance startup
3. New oracle connections on the node. This can be also seen in the “run-process” log.

7. Verify ocssd.log on all the nodes for reconfiguration of failed node.

(Refer to cssd directory under /opt/oracle/oltest/.srchome/ora-rac-<oracle-version>-<arch>/diag/crs/<node>/ for 12.1.0.2.0 or /opt/oracle/clusterware-<version>-<architecture>/crs/log/<node name>/ for other versions)

## 6.4 Results reporting

Collect and submit the following logs for auditing:

- the work area for the test in /home/oracle/work
- /var/log/messages
- /opt/oracle/oltest/olt-schedule/log

For RAC, in addition to the above logs, the following are also required

- /opt/oracle/clusterware-<version>-<architecture>/crs/log/<node name>/ (For versions other than 12.1.0.2.0)
- /opt/oracle/oltest/.srchome/ora-rac-<oracle-version>-<arch>/diag/crs/<node>/crs/\* (For 12.1.0.2.0)
- /tmp/crsctl\*

Also /opt/oracle/oltest/olt-schedule/utills/olt-archive-logs script can be used to archive the above mentioned log files automatically .

i.e. cd /opt/oracle/oltest//olt-schedule/utills

To collect single instance test logs :

```
./olt-archive-logs si
```

To collect RAC test logs :

```
./olt-archive-logs rac
```

Execute the above script on all the nodes & upload the collected file /home/oracle/work/olt-testlogs-<hostname>-<timestamp>.tgz. from all the nodes for result auditing.

## 7. Cleaning up the Oracle software installations

Shutdown crs on all all node, if running.

To clean up the installations completely the following directories should be removed:

1. oracle/crs home e.g.

For 10.2.0.3 single node oracle,

```
# rm -rf /opt/oracle/oltest/.srchome/ora-10.2.0.3-x86_64/ For 10.2.0.3
```

rac,

```
# rm -rf /opt/oracle/oltest/.srchome/ora-rac-10.2.0.3/
```

```
# rm -rf /opt/oracle/clusterware-10.2.0.3-x86_64
```

2.Inventory location

Remove the inventory location specified in /etc/oraInst.loc e.g.

For 10.2.0.3 single node/rac,

```
# cat /etc/oraInst.loc inventory_loc=/opt/oracle/oltest/.srchome/ora-rac
```

```
- 10.2.0..3/oraInventory inst_group=oinstall
```

```
# rm -rf /opt/oracle/oltest/.srchome/ora-rac-10.2.0.3/ora-Inventory
```

3. From 11.2.0.1 onwards,

. Bring down any vip interfaces if its up.

. Remove ohasd/crsd/evmd/cssd entries from /etc/inittab

## 8. Debugging OLT issues

For detailed documentation please refer to DEBUG.txt under /opt/oracle/oltest/olt-schedule/doc

## 9. Appendix A

### 9.1. Configuring OLT

Standard Hosts configuration

OLT can be configured in two ways: i.e. Manually and Silently; to run silently run command `olt-configure -s` else for manually run command `olt-configure`.

#### Manual Configuration:

Choose Single instance or RAC tests from the menu depending on the tests you plan to run. NOTE: When prompted for the hostname, enter the full host name, including the domain name. During configuration,

1. For single instance setup:

The user is prompted to enter repository location (node and directory) and the root passwords for the involved nodes. For a local system this remains the current machine name and the default repository location (`/opt/oracle/oltest/olt-repository`). It also prompts for the storage type.

2. For RAC Setup:

The user will be prompted for nodenames (public, private interconnect and vip, scan ip for 11gr2 onwards), storage type and location, ocr and vote locations ( optional ), asm redundancy level ( optional) and ocr and vote redundancy levels, dnfs\_client for 11gR2 onwards.

1. Storage location

1. For asmlib, provide the label names (ORCL:<label\_name>)

2. For asm, provide the device names ( raw ) for storage location

3. For NFS/OCFS2, provide the appropriate name for the storage location

2. OCR/Vote

1. For 10g and 11gR1, for asm and asmlib provide the ocr and vote locations as required.

2. From 11gR2 onwards provide necessary ocr and vote redundancy levels and location type (NAS or ASM) and their corresponding ocr and vote locations . In case of ASM location provide ocr/vote label name as ORCL:XXX .

Note : Block and raw devices for ocr/vote are not supported from 11gR2.

The environment variables at the end of setup are saved in `env/<HOSTNAME>/olt-schedule.env`. This file can be edited to affect changes in environment. The storage locations can be edited here.

If using the advanced setup, OLT can be configured using the following command `olt-configure -G`.

#### Silent Configuration:

To silently configure modify all the required parameter settings in `/opt/oracle/oltest/olt-schedule/env/olt-configure.env` ( details on the parameters & settings are available in this file ).

## 10. Appendix B – Patch Matrix

Patch matrix for an oracle product version for a given platform

Oracle Product	Version	Architecture	Patch Numbers
Database	10.2.0.2	X86_64	5071492,4639236,46907 94,5036588, 5082668
Database	10.2.0.3	X86_64	5452672,6614205 5526245, 5940792
Database	10.2.0.4	X86_64	7573282,7592346,76126 39,6079224,7715304,71 31656,5408688
Database	11.1.0.6	X86_64	7592335, 6778860
Database	11.1.0.7	X86_64	7520217, 7135702
Clusterware	11.2.0.4	X86_64	For OL7, 19404309, 18370031
Database	11.2.0.4	X86_64	For OL7, 19404309, 19375887

## 11. Appendix C – OLT Utilities

This contains the list of OLT Utilities available in /opt/oracle/oltest/olt-schedule/utlis

1. asm-debug/run -[run (script) as oracle user with all asm devices as command line arguments] Generates asmtraces-<node\_name> .tgz files with debug and trace informations for debugging ASM related issues on RAC.
2. olt-debug - [ No arguments ]  
This script collects system configuration and log files for debugging issues related to OLT test executions. Generates a tar file olt-debug-logs -\${time\_stamp} .tgz in utlis
3. olt-iso-copy - [ No arguments - Interactive ]  
This script copies iso images downloaded by the user ( from Oracle ) into a directory where OLT expects to find the iso image
4. olt-patch-copy - [ No arguments - Interactive ]  
This script copies oracle patch files downloaded by the user ( from metalink.oracle.com) into a directory where OLT expects to find the patches
5. olt-logcleaner - [ No arguments ]  
Clean up test logs for freeing up space. All QA directories older than 10 days will be deleted. No archive will be maintained
6. olt-archive-logs [si/rac/ovm]  
This utility collects olt test log files and system logs as an archive file - /home/oracle/work/olt-testlogs-`hostname`-\${time\_stamp}.tgz.
7. start-qa / stop-qa - [ No arguments ]  
A script to manually start up/stop qamonitor without running OLT. Useful during debugging