



Viskosity Technologies

Leaders in Oracle VISION and Knowledge

Real Application Clusters (RAC) Pocket Reference Guide

Viskosity professionals are experts in the areas of:

- Real Application Clusters (RAC) - 9i, 10g, 10gR2 and 11g
- EBusiness Suite Administration (11i and 12i)
- Data Warehousing
- Business Intelligence
- Database Security
- Enterprise Systems Management (ITIL and ITSM)

Email: info@viskosity.com

Phone: 214.502.1231

URL: <http://viskosity.com>

Cluster Verify (cluvfy)

Post-checks for hardware and operating system setup

```
runcluvfy.sh stage -post hwos -n node1,node2
```

Pre-checks for cluster services setup

```
runcluvfy.sh stage -pre crsinst -n rac1,rac2
```

Check Node Reachability

```
runcluvfy.sh comp nodereach -n rac1,rac2 -srcnode rac1
```

Shared Storage Check

```
sh runcluvfy.sh comp ssa -n rac1,rac2
```

Post-checks for cluster services setup

```
cluvfy stage -post crsinst -n rac1,rac2
```

Verify Cluster Integrity

```
cluvfy comp clu -n rac1,rac2 -verbose
```

Verify Cluster Manager Integrity

```
cluvfy comp clumgr -n rac1,rac2 -verbose
```

Verify Node Applications

```
cluvfy comp nodeapp -n rac1,rac2 -verbose
```

Verify CRS Integrity

```
cluvfy comp crs -n rac1,rac2 -verbose
```

Verify OCR Integrity

```
cluvfy comp ocr -n rac1,rac2 -verbose
```

Precheck for Database Configuration

```
cluvfy stage -pre dbcfg -n rac1,rac2 -d /u01/app/oracle/product/10.2.0/DB -verbose
```

Precheck for Database Installation

```
cluvfy stage -pre dbinst -n rac1,rac2 -verbose
```

Precheck for Database Installation

```
cluvfy stage -pre dbinst -n rac1,rac2 -verbose
```

Verify OCR Integrity

```
cluvfy comp ocr -n all
```

CRS Tracing

```
export ORA_CRSDEBUG_ALL= 1 to 5  
Check logs @ $ORA_CRS_HOME/log/node  
See Metalink Note:357808.1 for details
```

Enable the tracing for the resources running:

```
# crsctl debug log res "ora.VISK.VISK1.inst:5"  
# crsctl debug log res "ora.VISK.VISK2.inst:5"
```

Increase the tracing for crsd threads:

```
# crsctl debug log crs CRSRES:5  
# crsctl debug log crs CRSAPP:5  
# crsctl debug log crs CRSEVT:5
```

CRS commands

Stop CRS (as root)

```
crsctl start crs - 10gR2  
/etc/init.d/init.crs start crs - 10gR1
```

Stop CRS (as root)

```
crsctl stop crs - 10gR2  
/etc/init.d/init.crs stop crs - 10gR1
```

Disable CRS

```
/etc/init.d/init.crs disable
```

Check CRS

```
crsctl check crs
```

- Check CSSD - crsctl check cssd
- Check CRSD - crsctl check crsd
- Check EVM - crsctl check evmd

Query Voting Disks

```
crsctl query css votedisk
```

Query Software Version

```
crsctl query crs  
softwareversion
```

Query Active Version

```
crsctl query crs activeversion
```

List Modules

- crsctl lsmodules crs
- crsctl lsmodules evm

Start / Stop Resources

```
crs_start resource-name -all (all resource)  
crs_stop resource-name -all (all resource)
```

Diagnostic Collection -

\$ORA_CRS_HOME/diagcollection.pl

```
Level 1: Configuration info (OCR and init scripts)  
Level 2: Logs and traces  
Level 3: Core files
```



Additional CRS command:

crs_relocate – change where resource is active

srvctl commands

ADD

```
srvctl add database -d VISK -o
/apps/oracle/product/10.2.0/RACDB
srvctl add instance -d VISK -i VISK1 -n rac1
```

CONFIG (information)

```
srvctl config
srvctl config -v
srvctl config database -d VISK
srvctl config database -d VISK -a
srvctl config nodeapps -a -g -s -l -n rac1
srvctl config listener -n rac1
srvctl config service -d VISK
srvctl config service -d VISK -s "VISK_RAC" -a
```

Export

```
Ocrconfig –export /tmp/dba/exp_ocr.dmp –s online
```

START / STOP

```
srvctl stop database -d VISK
srvctl stop database -d VISK -o abort
srvctl stop instance -d VISK -i VISK1
```

```
srvctl stop listener -b rac1 -l VISK_RAC1
srvctl stop listener -b rac1 -l VISK_RAC2
```

```
srvctl start nodeapps -n RAC1
srvctl stop nodeapps -n RAC2
```

STATUS

```
srvctl status database -d VISK
srvctl status instance -d VISK -i "VISK1,VISK2" -v
srvctl status nodeapps -n rac1
```

Tracing

```
export SRVM_TRACE=true
```

OCR commands

```
ocrdump ocr_cluster_dump
ocrdump -stdout -keyname SYSTEM.css.misscount
ocrdump -stdout -xml
Change OCR Backup Location: ocrconfig -backuploc
<directory name>
Show OCR Backup: ocrconfig -showbackup
Check integrity of OCR: ocrcheck
Restore the OCR: ocrconfig –restore <filename>
```

Determine OCR Location

```
cat /etc/oracle/ocr.loc
ocrconfig_loc=/dev/raw/raw1
ocrmirrorconfig_loc=/dev/raw/raw2
local_only=FALSE
```

Recommendation:

Mirror the OCR disk

- ocrconfig -replace ocr file_or_disk
- ocrconfig -replace ocrmirror file_or_disk

oifcfg commands

```
oifcfg iflist
oifcfg iflist -p -n
oifcfg getif -type public
oifcfg getif
oifcfg getif -n rac2
oifcfg getif -if eth2
```



CRS Statistics

```
crs_stat -t
crs_stat -t -v
http://dbaexpert.com/dba_crs.txt
```

Additional commands

- List Nodes: olsnodes -n
- View Available Raw Devices: raw -qa
- Look for CRS processes: ps -ef |grep -i "crs|css|evm|d.bin"

Add RAC gv\$ views

```
@$ORACLE_HOME/rdbms/admin/catclust.sql
```

RAC Specific Init.ora Parameters

```
*.cluster_database_instances= 2
*.cluster_database= true
VISK1.instance_number= 1
VISK2.instance_number= 2
VISK1.thread= 1
VISK2.thread= 2
VISK1.undo_tablespace= 'UNDO_RBS1'
VISK2.undo_tablespace= 'UNDO_RBS2'
VISK1.local_listener= VISK_L1
VISK2.local_listener= VISK_L2
VISK1.remote_listener= VISK_R1
VISK2.remote_listener= VISK_R2
VISK1.log_archive_format= VISK1_%t_%s_%r.arc
VISK2.log_archive_format= VISK2_%t_%s_%r.arc
```

Voting Disks

```
Backup - dd if=/dev/raw/raw11
of=/home/oracle/votingdisk.bkup
```

```
Restore - dd if=/home/oracle/votingdisk.bkup
of=/dev/raw/raw11
```

Recommendation:

Have a minimum three voting disks for RAC survivability

Rolling Upgrade

```
./runInstaller -updateNodeList "CLUSTER_NODES=rac1" -local
ORACLE_HOME=/apps/oracle/product/10.2.0/CRS
```

Recommended kernel parameters - /etc/sysctl.conf

```
net.ipv4.ip_forward = 0
net.ipv4.conf.default.rp_filter = 1
net.ipv4.conf.default.accept_source_route = 0
kernel.sysrq = 0
kernel.core_uses_pid = 1
net.core.rmem_default = 262144
net.core.rmem_max = 262144
net.core.wmem_default = 262144
net.core.wmem_max = 262144
kernel.shmmax = 2147483648 #depends on total RAM
kernel.sem = 250 32000 100 128
fs.file-max = 65536
net.ipv4.ip_local_port_range = 1024 65000
```

Setup User Equivalence

1. ssh-keygen -t rsa #Take all defaults
2. cd \$HOME/.ssh
3. cat id_rsa.pub #Copy the contents of the output
4. # ssh to remote host as oracle
5. cd .ssh
6. vi authorized_keys #paste contents of id_rsa.pub

Note:

- Repeat for all the nodes including local node
- Make sure that the group permissions are not writeable

Oracle Clusterware 11g Upgrade Considerations

1. Make sure that you have enough space for the OCR
2. OCR space utilization doubles during the upgrade

Relevant Logfiles

- OS - /var/log/messages
- CRS - \$ORA_CRS_HOME/log/node-name/crsd/node.log
- CSS - \$ORA_CRS_HOME/log/node-name/cssd/ocssd.log
- EVM - \$ORA_CRS_HOME/log/node-name/evmn/evm.log
- RACG - \$ORA_CRS_HOME/log/node-name/racg/ora.node1.ons.log
- VIP Tracing – edit \$ORA_CRS_HOME/bin/racgwrap _USR_ORA_DEBUG=1 to 10 #Bounce Nodeapps