

VCS configuration template  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

## Veritas VCS Quick Start Guide

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VCS configuration template  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

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(including setting up a table in Oracle called vcstable  
for indepth monitoring of the Oracle database)

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**Introduction**

This document details the db01/db03 VCS cluster. It includes, among other things, the hardware configuration; the O/S version; the Oracle version; the Version of VCS used (along with the versions of any unbundled agents); and a complete listing of the VCS configuration files used (some presented in the text of this document, and others embedded in this document as zip files for easy transfer to a machine you may be setting up).

**O/S version.....:** Solaris 9  
**Oracle version.....:** Oracle 9i & Oracle 8.1.7  
**Veritas VCS version.....:** 3.5MPx (and 4.0) & VRTSvcsor v2.0.1 Oracle agent.  
**Hardware.....:** Sun v880 8CPU x 32GB; 2 x qfe ethernet cards (qfe0, qfe1);  
1 x eri ethernet interface (eri0); 1 x hme interface (hme0);  
2 x qla2300 Qlogic HBA cards; Hitachi 9960 derived LUN's;  
(note: MPXIO was used for storage Multi-Pathing; STMS  
in.mpathd was used for IP multipathing).

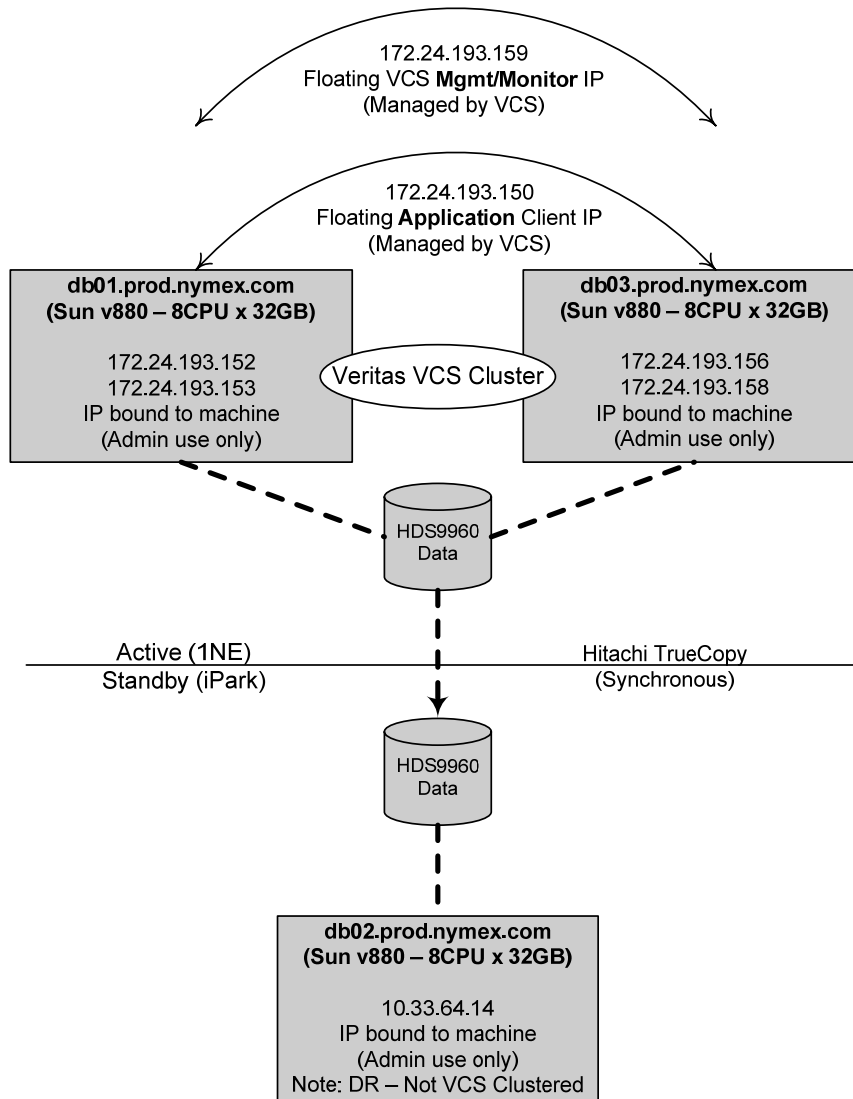
I recommend reading the VCS Installation Guide and Bundled Agent Reference Guide to gain a complete understanding of the modular architecture and implementation of that product (start with the VCS 4.x document set since it covers multi-site configurations as well). Once you understand the product, you can use this robust template again and again to quickly get VCS up and running.

(Indeed, except to familiarize yourself with product updates, or to study bundled agents, there is little need to read the entire VCS documentation set repeatedly once you have done so **slowly, methodically, and thoroughly** the first time around. If you find yourself working on other projects and begin to forget VCS – which is natural – use this template, along with chapters 4 & 5 of the Installation Guide and Bundled Agent Reference Guide to execute a robust VCS implementation in no time. That is the REAL purpose of this comprehensive document).

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Relevant DNS Entries:

172.24.193.152. db01priv1.prod.nymex.com  
 172.24.193.154. db01priv2.prod.nymex.com  
 172.24.193.156. db03priv1.prod.nymex.com  
 172.24.193.158. db03priv2.prod.nymex.com  
 172.24.193.150. db0103app.prod.nymex.com  
 172.24.193.159. db0103mgt.prod.nymex.com



Author: Milton Vega (Rensselaer Technology Group, LTD.)  
 Title: Production & DR Database Architecture

Version: 1.0  
 Date: 12/04/2003

## Basic VCS Commands

### SERVICE GROUPS AND RESOURCE OPERATIONS

Action	Command Line
Configuring service groups	hagrp -add -delete -online -offline group_name
Modifying resources	hares -add -delete res_name type group hares -online -offline res_name -sys system_name
Modifying agents	haagent -start -stop agent_name -sys system_name

### BASIC CONFIGURATION OPERATIONS

Action	Command Line
Service Goups	hagrp -modify group_name attribute_name value hagrp -list group_name hagrp -value attribute_name
Resources	hares -modify res_name attribute_name value hares -link res_name res_name
Agents	haagent -display agent_name -sys system_name hatype -modify

### VCS ENGINE OPERATIONS

Action	Command Line
Starting had	hastart -force -stale system_name hasys -force system_name
Stopping had	hastop -local -all -force -evacuate hastop -sys system_name
Adding Users	hauser -add user_name

### STATUS AND VERIFICATION

Action	Command Line
Group Status/Verification	hagrp -display group_name -state -resource group_name
Resources Status/Verification	hares -display res_name hares -list hares -probe res_name -sys system_name
Agents Status/Verification	haagent -list haagent -display agent_name -sys system_name ps -ef grep agent_name
VCS Status	hastatus -group
LLT Status/Verification	lltconfig -a list lltstat lltshow lltdump
GAB Status/Verification	gabconfig -a gabdiskhb -l

### COMMUNICATION

Action	Command Line
Starting and Stopping LLT	lltconfig -c U
Starting and Stopping GAB	gabconfig -c -n #seed number gabconfig -U

### ADMINISTERATION

Action	Command Line
Administering Group Services	hagrp -clear -flush -switch group_name -sys system_name
Administering Resources	hares -clear -probe res_name -sys system_name
Administering Agents	haagent -list haagent -display agent_name -sys system_name
Verify Configuration	hacf -verify

## Configuration files

```
./common_RELOC.d
./common_RELOC.d/etc
./common_RELOC.d/etc/gabtab
./common_RELOC.d/etc/llhosts
./common_RELOC.d/etc/netmasks

./common_RELOC.d/etc/VRTSvcs
./common_RELOC.d/etc/VRTSvcs/conf
./common_RELOC.d/etc/VRTSvcs/conf/config
./common_RELOC.d/etc/VRTSvcs/conf/config/main.cf
./common_RELOC.d/etc/VRTSvcs/conf/config/main.cmd
./common_RELOC.d/etc/VRTSvcs/conf/config/oraENV.sh
./common_RELOC.d/etc/VRTSvcs/conf/config/INCLUDES.d
./common_RELOC.d/etc/VRTSvcs/conf/config/INCLUDES.d/ora8ENV.sh
./common_RELOC.d/etc/VRTSvcs/conf/config/INCLUDES.d/ora9ENV.sh
./common_RELOC.d/etc/VRTSvcs/conf/config/INCLUDES.d/Oracle8_SvcGrps.cf
./common_RELOC.d/etc/VRTSvcs/conf/config/INCLUDES.d/Oracle9_SvcGrps.cf
./common_RELOC.d/etc/VRTSvcs/conf/config/INCLUDES.d/OracleTypes.cf
./common_RELOC.d/etc/VRTSvcs/conf/config/INCLUDES.d/SQLnet_SvcGrps.cf
./common_RELOC.d/etc/VRTSvcs/conf/config/INCLUDES.d/Storage_IP_SvcGrps.cf
./common_RELOC.d/etc/VRTSvcs/conf/config/INCLUDES.d/types.cf
./common_RELOC.d/etc/VRTSvcs/conf/config/INCLUDES.d/VCSGui_Notifier_SvcGrps.cf

./common_RELOC.d/opt
./common_RELOC.d/opt/VRTSweb
./common_RELOC.d/opt/VRTSweb/tomcat
./common_RELOC.d/opt/VRTSweb/tomcat/conf
./common_RELOC.d/opt/VRTSweb/tomcat/conf/server.xml
```

Figure 1: Common files that need to be installed on both **db01** and **db03**.

```
./db01_RELOC.d
./db01_RELOC.d/etc
./db01_RELOC.d/etc/hostname.eri0
./db01_RELOC.d/etc/hostname.qfe1
./db01_RELOC.d/etc/hosts
./db01_RELOC.d/etc/llttab
./db01_RELOC.d/IPs_nymex.txt
./db01_RELOC.d/IPs_primus.txt
```

Figure 2: db01 specific files that must be installed only on **db01**.

```
./db03_RELOC.d
./db03_RELOC.d/etc
./db03_RELOC.d/etc/hostname.eri0
./db03_RELOC.d/etc/hostname.qfe1
./db03_RELOC.d/etc/hosts
./db03_RELOC.d/etc/llttab
```

Figure 3: db03 specific files that must be installed only on **db03**.

## Common configuration files & main.cf passwords

### **/etc/netmasks(4)**

```
#
# The netmasks file associates Internet Protocol (IP) address
# masks with IP network numbers.
#
#     network-number      netmask
#
# The term network-number refers to a number obtained from the Internet
# Network Information Center.  Currently this number is restricted to
# being a class A, B, or C network number.  In the future we should be
# able to support arbitrary network numbers per the Classless Internet
# Domain Routing guidelines.
#
# Both the network-number and the netmasks are specified in
# "decimal dot" notation, e.g:
#
#           128.32.0.0 255.255.255.0
#####
172.24.193.0      255.255.255.0
#####
172.24.0.0       255.255.255.0
172.24.193.0    255.255.255.0
```

### **/etc/gabtab(4)**

```
/sbin/gabconfig -c -n2
```

### **/etc/llthosts(4)**

```
0 db01.prod.nymex.com
1 db03.prod.nymex.com
```

### **/etc/VRTSvcs/conf/config/main.cf(4)**

```
include "INCLUDES.d/types.cf"
include "INCLUDES.d/OracleTypes.cf"

cluster OracleProd_VCS (
    UserNames = { root = "FTVcgFs2zLR1E", oracle = "XnoP8FtPnUCWg",
                 guestview = "G0mcBf/pjqYDg" }
    Administrators = { root }
    CounterInterval = 5
)

system db01 (
)

system db03 (
)

include "INCLUDES.d/Storage_IP_SvcGrps.cf"
include "INCLUDES.d/VCSGui_Notifier_SvcGrps.cf"
include "INCLUDES.d/Oracle8_SvcGrps.cf"
include "INCLUDES.d/Oracle9_SvcGrps.cf"
include "INCLUDES.d/SQLnet_SvcGrps.cf"
```

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**Encrypted passwords specified in /opt/VRTSvcs/conf/config/main.cf**

```
oracle    = ora9ivcs
root      = rlv3rvl3w
guestview = guestview
```

**/opt/VRTSvcs/conf/config/INCLUDES.d/Storage\_IP\_SvcGrps.cf**

```
// #####
// MultiNICB_SvcGrp
// #####
// PARALLEL Service Group to define the MultiNICB resource that
// will be used by multiple (other) Service Groups for their
// respective IPMultiNICB resources (via the Proxy resource). The
// "Phantom" resource is needed because there is no resource in
// this particular group that VCS can Online/Offline, and thus
// cannot check the status of this group.
// #####
group MultiNICB_SvcGrp (
    SystemList = { db01 = 0, db03 = 1 }
    AutoStartList = { db01, db03 }
    Administrators = { root }
    OnlineRetryLimit = 3
    Parallel = 1
)

MultiNICB MultiNICB_IfaceGroup1 (
    Failback = 1
    UseMpathd = 1
    IgnoreLinkStatus = 0
    MpathdCommand = "/sbin/in.mpathd"
    Device @db01 = { eri0 = 0, qfel = 1 }
    Device @db03 = { eri0 = 0, qfel = 1 }
    DefaultRouter = "0.0.0.0"
)

Phantom Phantom_Resource1 (
)
// #####

// #####
// STORAGE_and_IP_SvcGrp
// #####
group STORAGE_and_IP_SvcGrp (
    SystemList = { db01 = 0, db03 = 1 }
    AutoStartList = { db01, db03 }
    Administrators = { root }
    OnlineRetryLimit = 3
)

Disk Disk_export_archive (
    Partition = "/dev/rdsk/c3t500060E80000000000007DC6000000AEd0s0"
)

Disk Disk_export_backup (
    Partition = "/dev/rdsk/c3t500060E80000000000007DC6000000E8d0s0"
)

Disk Disk_export_staging (
```

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```
Partition = "/dev/rdisk/c3t500060E80000000000007DC6000000CBd0s0"
)

Disk Disk_opt_oracle (
  Partition = "/dev/rdisk/c3t500060E80000000000007DC60000003Ad0s0"
)

Disk Disk_u01 (
  Partition = "/dev/rdisk/c3t500060E80000000000007DC60000000d0s0"
)

Disk Disk_u02 (
  Partition = "/dev/rdisk/c3t500060E80000000000007DC60000001Dd0s0"
)

Disk Disk_u03 (
  Partition = "/dev/rdisk/c3t500060E80000000000007DC600000041d0s0"
)

Disk Disk_u04 (
  Partition = "/dev/rdisk/c3t500060E80000000000007DC600000057d0s0"
)

Disk Disk_u05 (
  Partition = "/dev/rdisk/c3t500060E80000000000007DC600000074d0s0"
)

Disk Disk_u06 (
  Partition = "/dev/rdisk/c3t500060E80000000000007DC600000091d0s0"
)

IPMultiNICB IPMultiNICB_172_24_193_150 (
  BaseResName = MultiNICB_IfaceGroup1
  Address = "172.24.193.150"
  NetMask = "255.255.255.0"
  DeviceChoice = "0"
)

Proxy Proxy1_MultiNICB_IfaceGroup1 (
  TargetResName = MultiNICB_IfaceGroup1
)

Mount Mount_export_archive (
  MountPoint = "/export/archive"
  BlockDevice = "/dev/dsk/c3t500060E80000000000007DC6000000AEd0s0"
  FSType = vxfs
  MountOpt = "rw,suid,delaylog,largefiles"
  FsckOpt = "-y"
)

Mount Mount_export_backup (
  MountPoint = "/export/backup"
  BlockDevice = "/dev/dsk/c3t500060E80000000000007DC6000000E8d0s0"
  FSType = vxfs
  MountOpt = "rw,suid,delaylog,largefiles"
  FsckOpt = "-y"
)

Mount Mount_export_staging (
  MountPoint = "/export/staging"
  BlockDevice = "/dev/dsk/c3t500060E80000000000007DC6000000CBd0s0"
  FSType = vxfs
  MountOpt = "rw,suid,delaylog,largefiles"
  FsckOpt = "-y"
)
```

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```
Mount Mount_opt_oracle (  
    MountPoint = "/opt/oracle"  
    BlockDevice = "/dev/dsk/c3t500060E80000000000007DC60000003Ad0s0"  
    FSType = vxfs  
    MountOpt = "rw,suid,delaylog,largefiles"  
    FsckOpt = "-y"  
)  
  
Mount Mount_u01 (  
    MountPoint = "/u01"  
    BlockDevice = "/dev/dsk/c3t500060E80000000000007DC60000000d0s0"  
    FSType = vxfs  
    MountOpt = "rw,suid,delaylog,largefiles"  
    FsckOpt = "-y"  
)  
  
Mount Mount_u02 (  
    MountPoint = "/u02"  
    BlockDevice = "/dev/dsk/c3t500060E80000000000007DC60000001Dd0s0"  
    FSType = vxfs  
    MountOpt = "rw,suid,delaylog,largefiles"  
    FsckOpt = "-y"  
)  
  
Mount Mount_u03 (  
    MountPoint = "/u03"  
    BlockDevice = "/dev/dsk/c3t500060E80000000000007DC600000041d0s0"  
    FSType = vxfs  
    MountOpt = "rw,suid,delaylog,largefiles"  
    FsckOpt = "-y"  
)  
  
Mount Mount_u04 (  
    MountPoint = "/u04"  
    BlockDevice = "/dev/dsk/c3t500060E80000000000007DC600000057d0s0"  
    FSType = vxfs  
    MountOpt = "rw,suid,delaylog,largefiles"  
    FsckOpt = "-y"  
)  
  
Mount Mount_u05 (  
    MountPoint = "/u05"  
    BlockDevice = "/dev/dsk/c3t500060E80000000000007DC600000074d0s0"  
    FSType = vxfs  
    MountOpt = "rw,suid,delaylog,largefiles"  
    FsckOpt = "-y"  
)  
  
Mount Mount_u06 (  
    MountPoint = "/u06"  
    BlockDevice = "/dev/dsk/c3t500060E80000000000007DC600000091d0s0"  
    FSType = vxfs  
    MountOpt = "rw,suid,delaylog,largefiles"  
    FsckOpt = "-y"  
)  
  
IPMultiNICB_172_24_193_150 requires Proxy1_MultiNICB_IfaceGroup1  
Mount_export_archive requires Disk_export_archive  
Mount_export_backup requires Disk_export_backup  
Mount_export_staging requires Disk_export_staging  
Mount_opt_oracle requires Disk_opt_oracle  
Mount_u01 requires Disk_u01  
Mount_u02 requires Disk_u02
```

## VCS configuration template

(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

```
Mount_u03 requires Disk_u03
Mount_u04 requires Disk_u04
Mount_u05 requires Disk_u05
Mount_u06 requires Disk_u06
// #####
```

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**/opt/VRTSvcs/conf/config/INCLUDES.d/VCSGui\_Notifier\_SvcGrps.cf**

```
// #####  
// VCSmonitor_SvcGrp  
// #####  
group VCSmonitor_SvcGrp (  
    SystemList = { db01 = 0, db03 = 1 }  
    AutoStartList = { db01, db03 }  
    Administrators = { root }  
    OnlineRetryLimit = 3  
)  
  
    IPMultiNICB_IPMultiNICB_172_24_193_159 (  
        BaseResName = MultiNICB_IfaceGroup1  
        Address = "172.24.193.159"  
        NetMask = "255.255.255.0"  
        DeviceChoice = "1"  
    )  
  
        Proxy Proxy2_MultiNICB_IfaceGroup1 (  
            TargetResName = MultiNICB_IfaceGroup1  
        )  
  
VRTSWebApp VCSweb (  
    Critical = 0  
    AppName = vcs  
    InstallDir = "/opt/VRTSweb/VERITAS"  
    TimeForOnline = 5  
)  
  
    NotifierMngr NotifierMngr_NotifyMgr1 (  
        SmtplibServer = "mailhost.nymex.com"  
        SmtplibRecipients = { "mvega@nymex.com" = Information }  
        SmtplibTrapPort = "162"  
        SmtplibCommunity = "public"  
        SmtplibConsoles = { "172.24.138.230" = Information,  
                            "172.16.30.68" = Information,  
                            "172.25.2.84" = Information }  
    )  
  
    IPMultiNICB_172_24_193_159 requires Proxy2_MultiNICB_IfaceGroup1  
    VCSweb requires IPMultiNICB_172_24_193_159  
    NotifierMngr_NotifyMgr1 requires IPMultiNICB_172_24_193_159  
// #####
```

VCS configuration template  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

**/opt/VRTSvcs/conf/config/INCLUDES.d/Oracle8\_SvcGrps.cf**

```
// #####  
// Oracle8_SID1_SvcGrp (TBD) will REQUIRE the STORAGE_and_IP_SvcGrp  
// and will have "root" as the "Administrator" & "oracle" as the  
// "Operator".  
// #####  
group Oracle8_milton81_SvcGrp (  
    SystemList = { db01 = 0, db03 = 1 }  
    AutoStartList = { db01, db03 }  
    Administrators = { root }  
    Operators = { oracle }  
    OnlineRetryLimit = 3  
)  
  
    Oracle Oracle8_milton81 (  
        Sid = milton81  
        Owner = oracle  
        Home = "/opt/oracle/product/8.1.7"  
        Pfile = "/opt/oracle/admin/milton81/pfile/initmilton81.ora"  
        User = "scott"  
        Pword = "tiger"  
        Table = "vcstable"  
        MonScript = "/opt/VRTSvcs/bin/Oracle/SqlTest.pl"  
        AutoEndBkup = 1  
        EnvFile = "/etc/VRTSvcs/conf/config/INCLUDES.d/ora8ENV.sh"  
        Encoding = ""  
    )  
  
    requires group STORAGE_and_IP_SvcGrp online local firm  
// #####
```

VCS configuration template  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

**/opt/VRTSvcs/conf/config/INCLUDES.d/Oracle9\_SvcGrps.cf**

```
// #####
// Oracle9_SID1_SvcGrp (TBD) will REQUIRE the STORAGE_and_IP_SvcGrp
// and will have "root" as the "Administrator" & "oracle" as the
// "Operator".
// #####
group Oracle9_milton_SvcGrp (
    SystemList = { db01 = 0, db03 = 1 }
    AutoStartList = { db01, db03 }
    Administrators = { root }
    Operators = { oracle }
    OnlineRetryLimit = 3
)

    Oracle Oracle9_milton (
        Sid = milton
        Owner = oracle
        Home = "/opt/oracle/product/9.2.0"
        Pfile = "/opt/oracle/admin/milton/pfile/initmilton.ora"
        User = "scott"
        Pword = "tiger"
        Table = "vcstable"
        MonScript = "/opt/VRTSvcs/bin/Oracle/SqlTest.pl"
        AutoEndBkup = 1
        EnvFile = "/etc/VRTSvcs/conf/config/INCLUDES.d/ora9ENV.sh"
        Encoding = ""
    )

    requires group STORAGE_and_IP_SvcGrp online local firm
// #####

// #####
// Oracle9_SID2_SvcGrp (TBD) will REQUIRE the STORAGE_and_IP_SvcGrp
// and will have "root" as the "Administrator" & "oracle" as the
// "Operator".
// #####
group Oracle9_mikeb_SvcGrp (
    SystemList = { db01 = 0, db03 = 1 }
    AutoStartList = { db01, db03 }
    Administrators = { root }
    Operators = { oracle }
    OnlineRetryLimit = 3
)

    Oracle Oracle9_mikeb (
        Sid = mikeb
        Owner = oracle
        Home = "/opt/oracle/product/9.2.0"
        Pfile = "/opt/oracle/admin/mikeb/pfile/initmikeb.ora"
        User = "scott"
        Pword = "tiger"
        Table = "vcstable"
        MonScript = "/opt/VRTSvcs/bin/Oracle/SqlTest.pl"
        AutoEndBkup = 1
        EnvFile = "/etc/VRTSvcs/conf/config/INCLUDES.d/ora9ENV.sh"
        Encoding = ""
    )

    requires group STORAGE_and_IP_SvcGrp online local firm
// #####
```

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**/opt/VRTSvcs/conf/config/INCLUDES.d/Sqlnet\_SvcGrps.cf**

```
// #####  
// Sqlnet8_LISTENER1_SvcGrp (TBD) will REQUIRE the STORAGE_and_IP_SvcGrp  
// and will have "root" as the "Administrator" & "oracle" as the  
// "Operator".  
// #####  
/* group Sqlnet8_LISTENER1_SvcGrp (  
/*     SystemList = { db01 = 0, db03 = 1 }  
/*     AutoStartList = { db01, db03 }  
/*     Administrators = { root }  
/*     Operators = { oracle }  
/*     OnlineRetryLimit = 3  
/* )  
/*  
/*     Sqlnet Sqlnet8_LISTENER1 (  
/*         Owner = oracle  
/*         Home = "/opt/oracle/product/8.1.7"  
/*         TnsAdmin = "/opt/oracle/product/8.1.7/network/admin"  
/*         Listener = LISTENER  
/*         MonScript = "/opt/VRTSvcs/bin/Sqlnet/LsnrTest.pl"  
/*         EnvFile = "/etc/VRTSvcs/conf/config/INCLUDES.d/ora8ENV.sh"  
/*         Encoding = ""  
/*     )  
/*  
/*     requires group STORAGE_and_IP_SvcGrp online local firm  
// #####  
  
// #####  
// Sqlnet9_LISTENER1_SvcGrp (TBD) will REQUIRE the STORAGE_and_IP_SvcGrp  
// and will have "root" as the "Administrator" & "oracle" as the  
// "Operator".  
// #####  
group Sqlnet9_LISTENER1_SvcGrp (  
    SystemList = { db01 = 0, db03 = 1 }  
    AutoStartList = { db01, db03 }  
    Administrators = { root }  
    Operators = { oracle }  
    OnlineRetryLimit = 3  
)  
  
    Sqlnet Sqlnet9_LISTENER1 (  
        Owner = oracle  
        Home = "/opt/oracle/product/9.2.0"  
        TnsAdmin = "/opt/oracle/product/9.2.0/network/admin"  
        Listener = LISTENER  
        MonScript = "/opt/VRTSvcs/bin/Sqlnet/LsnrTest.pl"  
        EnvFile = "/etc/VRTSvcs/conf/config/INCLUDES.d/ora9ENV.sh"  
        Encoding = ""  
    )  
  
    requires group STORAGE_and_IP_SvcGrp online local firm  
// #####
```

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**/opt/VRTSvcs/conf/config/oraENV.sh**

```
#####
# Milton Vega: (oraENV.sh file) #
#####
# oraenv file used for setting up the
# Oracle environment variables for
# connecting to an Oracle database via
# sqlplus.
#####

#####
echo "Usage: . oraENV.sh ORACLE_SID ORACLE_VERSION"
#
ORACLE_SID=${1}
ORACLE_VERSION=${2}
ORACLE_BASE=/opt/oracle
ORACLE_HOME=${ORACLE_BASE}/product/${ORACLE_VERSION}
#####
#
ORASID=${ORACLE_SID}
ORACLE_PFILE=/opt/oracle/admin/${ORACLE_SID}/pfile/init${ORACLE_SID}.ora
TNS_ADMIN=/opt/oracle/product/${ORACLE_VERSION}/network/admin
ORACLE_SQL=/opt/oracle/admin/${ORACLE_SID}/sql
#
BASIC_PATH=/usr/bin:/usr/sbin:/sbin:/etc:/usr/ucb:/usr/ccs/bin:/usr/xpg4/bin:
ORACLE_PATH=/opt/oracle/local/bin:/opt/local/bin:/opt/oracle/product/${ORACLE_VERSION}/bin:
PATH=${BASIC_PATH}:${ORACLE_PATH}:${PATH}.
#
BASIC_LD_LIBRARY_PATH=/usr/lib:/usr/openwin/lib:/usr/dt/lib
ORACLE_LD_LIBRARY_PATH=/opt/oracle/product/${ORACLE_VERSION}/lib
LD_LIBRARY_PATH=${BASIC_LD_LIBRARY_PATH}:${ORACLE_LD_LIBRARY_PATH}
#
PS1_SUFFIX='$ '; [ x${LOGNAME} = xroot ] && PS1_SUFFIX='# '
PS1="[ ${LOGNAME} ] : [ ${ORACLE_SID} ] : [ ${ORACLE_VERSION} ] @ `uname -n` ${PS1_SUFFIX} "
EDITOR=vi
TERM=vt100
#
export ORACLE_SID ORASID ORACLE_PFILE ORACLE_SQL
export ORACLE_VERSION ORACLE_BASE ORACLE_HOME TNS_ADMIN
export PATH LD_LIBRARY_PATH EDITOR TERM
#####
```

VCS configuration template  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

**/opt/VRTSvcs/conf/config/INCLUDES.d/ora8ENV.sh**

```
#####  
# Milton Vega: (ora8_ENV.sh file) #  
#####  
# oraenv file used by VCS for setting up the  
# Oracle environment variables for  
# connecting to an Oracle database via  
# sqlplus. Note: the SID variable, and others  
# that depend on it being set, do not need  
# to be set or specified here. SID specific  
# attributes are setup by VCS using information  
# specified in the VCS main.cf/includes files.  
#####  
  
#####  
# Edit the following to reflect the VERSION  
# oracle being connected to.  
#####  
#echo "Usage: . oraENV.sh ORACLE_SID ORACLE_VERSION"  
#ORACLE_SID=${1}  
ORACLE_VERSION=8.1.7  
ORACLE_BASE=/opt/oracle  
ORACLE_HOME=${ORACLE_BASE}/product/${ORACLE_VERSION}  
#####  
#  
#ORASID=${ORACLE_SID}  
#ORACLE_PFILE=/opt/oracle/admin/${ORACLE_SID}/pfile/init${ORACLE_SID}.ora  
TNS_ADMIN=/opt/oracle/product/${ORACLE_VERSION}/network/admin  
#ORACLE_SQL=/opt/oracle/admin/${ORACLE_SID}/sql  
#  
BASIC_PATH=/usr/bin:/usr/sbin:/sbin:/etc:/usr/ucb:/usr/ccs/bin:/usr/xpg4/bin:  
ORACLE_PATH=/opt/oracle/local/bin:/opt/local/bin:/opt/oracle/product/${ORACLE_VERSION}/bin:  
PATH=${BASIC_PATH}:${ORACLE_PATH}:.  
  
BASIC_LD_LIBRARY_PATH=/usr/lib:/usr/openwin/lib:/usr/dt/lib  
ORACLE_LD_LIBRARY_PATH=/opt/oracle/product/${ORACLE_VERSION}/lib  
LD_LIBRARY_PATH=${BASIC_LD_LIBRARY_PATH}:${ORACLE_LD_LIBRARY_PATH}  
#  
#PS1=" [ ${LOGNAME} ] : [ ${ORACLE_SID} ] : [ ${ORACLE_VERSION} ] @ `uname -n` $ "  
EDITOR=vi  
TERM=vt100  
  
#export ORACLE_SID ORASID ORACLE_PFILE ORACLE_SQL  
export ORACLE_VERSION ORACLE_BASE ORACLE_HOME TNS_ADMIN  
export PATH LD_LIBRARY_PATH EDITOR TERM  
#####
```

VCS configuration template  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

**/opt/VRTSvcs/conf/config/INCLUDES.d/ora9ENV.sh**

```
#####
# Milton Vega: (ora9ENV.sh file) #
#####
# oraenv file used by VCS for setting up the
# Oracle environment variables for
# connecting to an Oracle database via
# sqlplus. Note: the SID variable, and others
# that depend on it being set, do not need
# to be set or specified here. SID specific
# attributes are setup by VCS using information
# specified in the VCS main.cf/includes files.
#####

#####
# Edit the following to reflect the VERSION
# oracle being connected to.
#####
#echo "Usage: . oraENV.sh ORACLE_SID ORACLE_VERSION"
#ORACLE_SID=${1}
ORACLE_VERSION=9.2.0
ORACLE_BASE=/opt/oracle
ORACLE_HOME=${ORACLE_BASE}/product/${ORACLE_VERSION}
#####
#
#ORASID=${ORACLE_SID}
#ORACLE_PFILE=/opt/oracle/admin/${ORACLE_SID}/pfile/init${ORACLE_SID}.ora
TNS_ADMIN=/opt/oracle/product/${ORACLE_VERSION}/network/admin
#ORACLE_SQL=/opt/oracle/admin/${ORACLE_SID}/sql
#
BASIC_PATH=/usr/bin:/usr/sbin:/sbin:/etc:/usr/ucb:/usr/ccs/bin:/usr/xpg4/bin:
ORACLE_PATH=/opt/oracle/local/bin:/opt/local/bin:/opt/oracle/product/${ORACLE_VERSION}/bin:
PATH=${BASIC_PATH}:${ORACLE_PATH}:.

BASIC_LD_LIBRARY_PATH=/usr/lib:/usr/openwin/lib:/usr/dt/lib
ORACLE_LD_LIBRARY_PATH=/opt/oracle/product/${ORACLE_VERSION}/lib
LD_LIBRARY_PATH=${BASIC_LD_LIBRARY_PATH}:${ORACLE_LD_LIBRARY_PATH}
#
#PS1=" [ ${LOGNAME} ] : [ ${ORACLE_SID} ] : [ ${ORACLE_VERSION} ] @ `uname -n` $ "
EDITOR=vi
TERM=vt100

#export ORACLE_SID ORASID ORACLE_PFILE ORACLE_SQL
export ORACLE_VERSION ORACLE_BASE ORACLE_HOME TNS_ADMIN
export PATH LD_LIBRARY_PATH EDITOR TERM
#####
```

VCS configuration template  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

**/opt/VRTSvcs/conf/config/INCLUDES.d/types.cf(4)**

**Attachment:** /opt/VRTSvcs/conf/config/INCLUDES.d/types.cf(4)



(Doubleclick box to see embedded attachment text contents.)

```
root# cp /etc/VRTSvcs/conf/types.cf \
/opt/VRTSvcs/conf/config/INCLUDES.d/types.cf
```

**/opt/VRTSvcs/conf/config/INCLUDES.d/OracleTypes.cf(4)**

**Attachment:** /opt/VRTSvcs/conf/config/INCLUDES.d/OracleTypes.cf(4)



(Doubleclick box to see embedded attachment text contents.)

```
root# cp /etc/VRTSvcs/conf/OracleTypes.cf \
/opt/VRTSvcs/conf/config/INCLUDES.d/OracleTypes.cf
```

**/opt/VRTSweb/tomcat/conf/server.xml(4)**

**Attachment:** /opt/VRTSweb/tomcat/conf/server.xml(4)



(Doubleclick box to see embedded attachment text contents.)

Note: Although the entire contents of the server.xml file was included here, the only modification you need to make to the default xml file is to change the IP address and port in two places. To see where these changes were made, simply open the attached document, and search for "172.24.193.159" (which is the VCS Management GUI IP).

**Note: VCS version is 3.5MPx and VRTSvcsor version is:**

```
root@ultral-a.com# pkginfo -ld . VRTSvcsor
PKGINST: VRTSvcsor
NAME: VERITAS Cluster Server Oracle Enterprise Extension
CATEGORY: optional
ARCH: sparc
VERSION: 2.0.1
BASEDIR: /
VENDOR: VERITAS Software Corp.
DESC: VERITAS Cluster Server Oracle Extension
PSTAMP: 2.0.1 2002032601
STATUS: spooled
FILES:
    45 spooled pathnames
    13 directories
    19 executables
    8 package information files
    412 blocks used (approx)
```

VCS configuration template  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

Configuration files specific to the db01 VCS node

**/etc/hostname.eri0**

```
db01_eri0_base_addr      netmask + broadcast + deprecated -failover up
addif db01_eri0_admin_addr netmask + broadcast + -failover u
```

**/etc/hostname.qfel**

```
db01_qfel_base_addr      netmask + broadcast + deprecated -failover up
addif db01_qfel_admin_addr netmask + broadcast + -failover u
```

**/etc/hosts**

```
#
# Internet host table
#
127.0.0.1    localhost loghost
172.24.193.152  db01.prod.nymex.com thishost 32198-horcm-cmd-host
172.24.193.156  db03.prod.nymex.com
172.24.193.52   defrouter
#
10.33.74.180    jsrv1 jsrv
172.24.193.132  time1
192.168.252.7   time2
#
10.33.64.14     db02.prod.nymex.com 32210-horcm-cmd-host

# =====
# VCS /etc/hosts entries (both systems):
# =====
172.24.193.151 db01_eri0_base_addr
172.24.193.152 db01_eri0_admin_addr
172.24.193.153 db01_qfel_base_addr
172.24.193.154 db01_qfel_admin_addr
#
172.24.193.155 db03_eri0_base_addr
172.24.193.156 db03_eri0_admin_addr
172.24.193.157 db03_qfel_base_addr
172.24.193.158 db03_qfel_admin_addr
#
172.24.193.152 db01priv1.prod.nymex.com
172.24.193.154 db01priv2.prod.nymex.com
172.24.193.156 db03priv1.prod.nymex.com
172.24.193.158 db03priv2.prod.nymex.com
172.24.193.150 db0103app.prod.nymex.com
172.24.193.159 db0103mgt.prod.nymex.com
# =====
```

**/etc/llttab**

```
#####
# /etc/llttab for: db01.prod.nymex.com #
#####
set-node db01
set-cluster 2
link hme0 /dev/hme:0 - ether - -
link qfe0 /dev/qfe:0 - ether - -
#####
```

VCS configuration template  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

db01 IP addresses (plus db01/db03 common IP addresses

```
=====
VCS Migrating Cluster address
(for Client Applications):
=====
172.24.193.150
=====

=====
VCS Migrating Cluster address
(for VCS GUI & Notifier SNMP/SMTP
agents):
=====
172.24.193.159
=====

=====
db01.prod.nymex.com STATIC IP's
=====
eri0   = 172.24.193.151 (Static Base VCS in.mpath test IP address for eri0)
eri0:1 = 172.24.193.152 (Static SysAdmin IP address 1)
qfel   = 172.24.193.153 (Static Base VCS in.mpath test IP address for qfel)
qfel:1 = 172.24.193.154 (Static SysAdmin IP address 2)
=====

=====
/etc/hosts entries (both systems):
=====
172.24.193.151 db01_eri0_base_addr
172.24.193.152 db01_eri0_admin_addr
172.24.193.153 db01_qfel_base_addr
172.24.193.154 db01_qfel_admin_addr
#
172.24.193.155 db03_eri0_base_addr
172.24.193.156 db03_eri0_admin_addr
172.24.193.157 db03_qfel_base_addr
172.24.193.158 db03_qfel_admin_addr
=====

=====
/etc/netmasks entries (both systems):
=====
172.24.0.0      255.255.255.0
172.24.193.0   255.255.255.0
=====

=====
/etc/hostname.eri0 (db01)
=====
db01_eri0_base_addr netmask + broadcast + deprecated -failover up
addif db01_eri0_admin_addr netmask + broadcast + -failover up
=====

=====
/etc/hostname.qfel (db01)
=====
db01_qfel_base_addr netmask + broadcast + deprecated -failover up
addif db01_qfel_admin_addr netmask + broadcast + -failover up
=====
```

VCS configuration template  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

Configuration files specific to the db03 VCS node

**/etc/hostname.eri0**

```
db03_eri0_base_addr      netmask + broadcast + deprecated -failover up
addif db03_eri0_admin_addr netmask + broadcast + -failover up
```

**/etc/hostname.qfel**

```
db03_qfel_base_addr      netmask + broadcast + deprecated -failover up
addif db03_qfel_admin_addr netmask + broadcast + -failover up
```

**/etc/hosts**

```
#
# Internet host table
#
127.0.0.1      localhost localhost
172.24.193.156 db03.prod.nymex.com thishost 32198-horcm-cmd-host
172.24.193.152 db01.prod.nymex.com
172.24.193.52  defrouter
#
10.33.74.180   jsrv1 jsrv
172.24.193.132 time1
192.168.252.7 time2
#
10.33.64.14    db02.prod.nymex.com 32210-horcm-cmd-host

# =====
# VCS /etc/hosts entries (both systems):
# =====
172.24.193.151 db01_eri0_base_addr
172.24.193.152 db01_eri0_admin_addr
172.24.193.153 db01_qfel_base_addr
172.24.193.154 db01_qfel_admin_addr
#
172.24.193.155 db03_eri0_base_addr
172.24.193.156 db03_eri0_admin_addr
172.24.193.157 db03_qfel_base_addr
172.24.193.158 db03_qfel_admin_addr
#
172.24.193.152 db01priv1.prod.nymex.com
172.24.193.154 db01priv2.prod.nymex.com
172.24.193.156 db03priv1.prod.nymex.com
172.24.193.158 db03priv2.prod.nymex.com
172.24.193.150 db0103app.prod.nymex.com
172.24.193.159 db0103mgt.prod.nymex.com
# =====
```

**/etc/llttab**

```
#####
# /etc/llttab for: db03.prod.nymex.com #
#####
set-node db03
set-cluster 2
link hme0 /dev/hme:0 - ether - -
link qfe0 /dev/qfe:0 - ether - -
#####
```

VCS configuration template  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

db03 IP addresses (plus db01/db03 common IP addresses

```
=====
VCS Migrating Cluster address
(for Client Applications):
=====
172.24.193.150
=====

=====
VCS Migrating Cluster address
(for VCS GUI & Notifier SNMP/SMTP
agents):
=====
172.24.193.159
=====

=====
db03.prod.nymex.com
=====
eri0   = 172.24.193.155 (Static Base VCS in.mpath test IP address for eri0)
eri0:1 = 172.24.193.156 (Static SysAdmin IP address 1)
qfel   = 172.24.193.157 (Static Base VCS in.mpath test IP address for qfel)
qfel:1 = 172.24.193.158 (Static SysAdmin IP address 2)
=====

=====
/etc/hosts entries (both systems):
=====
172.24.193.151 db01_eri0_base_addr
172.24.193.152 db01_eri0_admin_addr
172.24.193.153 db01_qfel_base_addr
172.24.193.154 db01_qfel_admin_addr
#
172.24.193.155 db03_eri0_base_addr
172.24.193.156 db03_eri0_admin_addr
172.24.193.157 db03_qfel_base_addr
172.24.193.158 db03_qfel_admin_addr
=====

=====
/etc/netmasks entries (both systems):
=====
172.24.0.0      255.255.255.0
172.24.193.0   255.255.255.0
=====

=====
/etc/hostname.eri0 (db03)
=====
db03_eri0_base_addr netmask + broadcast + deprecated -failover up
addif db03_eri0_admin_addr netmask + broadcast + -failover up
=====

=====
/etc/hostname.qfel (db03)
=====
db03_qfel_base_addr netmask + broadcast + deprecated -failover up
addif db03_qfel_admin_addr netmask + broadcast + -failover up
=====
```

VCS configuration template  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

**Miscellaneous notes, commands, & embedded attachments.**

The following steps are used to create the table (and type) for the Veritas VCS Oracle Agent to monitor. In the steps below, the following variables should be set the values shown here:

```
<User> = scott  
<Pword> = tiger  
<Table> = vcstable
```

1. Log on as an Oracle user.

```
su - <Owner>
```

2. Set the environment variables for ORACLE\_HOME and ORACLE\_SID.

```
export ORACLE_HOME=<Home>  
export ORACLE_SID=<Sid>
```

3. Start the svrmgrl or sqlplus utility to set up a database table:

```
$ORACLE_HOME/bin/svrmgrl -or-  
$ORACLE_HOME/bin/sqlplus /nolog
```

4. As the database administrator, issue the following statements at the svrmgrl or sqlplus prompt to create the test table:

```
connect / as sysdba  
create user <User>  
identified by <Pword>  
default tablespace USERS  
temporary tablespace TEMP  
quota 100K on USERS;  
grant create session to <User>;  
create table <User>.<Table> ( tstamp date );  
insert into <User>.<Table> (tstamp) values (SYSDATE);
```

5. To test the database table for use, do the following:

```
disconnect  
connect <User>/<Pword>  
update <User>.<Table> set ( tstamp ) = SYSDATE;  
select TO_CHAR(tstamp, 'MON DD, YYYY HH:MI:SS AM')  
from <User>.<Table>;  
exit
```

**VCS configuration template**  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

**main.cmd** (many useful VCS commands generated by verification of main.cf)

Was generated by either of the following commands:

```
hacf -cftocmd /etc/VRTSvcs/conf/config -dest /opt/home/nmvega
```

```
hacf -verify /etc/VRTSvcs/conf/config -display > /opt/home/nmvega/main.cmd
```

main.cmd.txt

(Doubleclick box to see embedded attachment text contents.)

**Useful miscellaneous information about the db01/db03 cluster.**

```
#####
```

Make sure that the following files specify

```
db0103app.prod.nymex.com --and not--
```

```
db01.prod.nymex.com or db03.prod.nymex.com:
```

```
${ORACLE_HOME}/network/admin/listener.ora
```

```
${ORACLE_HOME}/network/admin/tnsnames.ora
```

```
${ORACLE_HOME}/network/admin/snmp_ro.ora
```

```
#####
```

```
#####
```

To make the onlining of one group depend on another,

at the end of the parent (dependent) group you

specify a "requires group" line similar to the

following:

```
requires group STORAGE_and_IP_SvcGrp online local firm
```

Note: Group to Group interdependency comment trees (//) are not generated in main.cf by the VCS engine (as it does for Resource to Resource dependencies for resources dependencies within a group). However, you can still verify your Group to Group dependencies (and thus verify the relationships you intended) using the hagr command as shown here:

```
root@db03.prod.nymex.com# hagr -dep
```

```
#Parent      Child      Relationship
Oracle8_milton81_SvcGrp  STORAGE_and_IP_SvcGrp  online local firm
Sqlnet9_LISTENER1_SvcGrp STORAGE_and_IP_SvcGrp  online local firm
```

```
#####
```

```
#####
```

When Group2 (parent) depends on Group1 (child)

being "online local firm", then:

- Group2 will not/cannot come online until Group1 does.
- Group1 cannot be offlined until Group2 is offlined.
- Group1 cannot be switched (hagr -switch) to another node until Group2 is offlined.
- Group2 cannot be switched (hagr -switch) to another node until Group1 is onlined on that node.

VCS configuration template  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

```
- etc.
#####

#####
Manual failover when you have group to group
dependencies. An example.

root@db03.prod.nymex.com# hagr -list
MultiNICB_SvcGrp      db01
MultiNICB_SvcGrp      db03
Oracle8_milton81_SvcGrp db01
Oracle8_milton81_SvcGrp db03
STORAGE_and_IP_SvcGrp db01
STORAGE_and_IP_SvcGrp db03
Sqlnet9_LISTENER1_SvcGrp db01
Sqlnet9_LISTENER1_SvcGrp db03
VCSmonitor_SvcGrp     db01
VCSmonitor_SvcGrp     db03

root@db03.prod.nymex.com# hastatus -summary

-- SYSTEM STATE
-- System          State          Frozen
A db01             RUNNING        0
A db03             RUNNING        0

-- GROUP STATE
-- Group           System          Probed    AutoDisabled  State
B MultiNICB_SvcGrp db01          Y         N              ONLINE
B MultiNICB_SvcGrp db03          Y         N              ONLINE
B Oracle8_milton81_SvcGrp db01      Y         N              OFFLINE
B Oracle8_milton81_SvcGrp db03      Y         N              ONLINE
B STORAGE_and_IP_SvcGrp db01      Y         N              OFFLINE
B STORAGE_and_IP_SvcGrp db03      Y         N              ONLINE
B Sqlnet9_LISTENER1_SvcGrp db01      Y         N              OFFLINE
B Sqlnet9_LISTENER1_SvcGrp db03      Y         N              ONLINE
B VCSmonitor_SvcGrp db01          Y         N              ONLINE
B VCSmonitor_SvcGrp db03          Y         N              OFFLINE

root@db03.prod.nymex.com# hagr -offline Oracle8_milton81_SvcGrp -sys db03
root@db03.prod.nymex.com# hagr -offline Sqlnet9_LISTENER1_SvcGrp -sys db03
root@db03.prod.nymex.com# ps -fu oracle
  UID  PID  PPID  C   STIME TTY      TIME CMD
root@db03.prod.nymex.com# hastatus -summary

-- SYSTEM STATE
-- System          State          Frozen
A db01             RUNNING        0
A db03             RUNNING        0

-- GROUP STATE
-- Group           System          Probed    AutoDisabled  State
B MultiNICB_SvcGrp db01          Y         N              ONLINE
B MultiNICB_SvcGrp db03          Y         N              ONLINE
B Oracle8_milton81_SvcGrp db01      Y         N              OFFLINE
B Oracle8_milton81_SvcGrp db03      Y         N              OFFLINE
B STORAGE_and_IP_SvcGrp db01      Y         N              OFFLINE
B STORAGE_and_IP_SvcGrp db03      Y         N              ONLINE
B Sqlnet9_LISTENER1_SvcGrp db01      Y         N              OFFLINE
```

VCS configuration template  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

```
B  Sqlnet9_LISTENER1_SvcGrp db03      Y      N      OFFLINE
B  VCSmonitor_SvcGrp db01           Y      N      ONLINE
B  VCSmonitor_SvcGrp db03           Y      N      OFFLINE
```

```
root@db03.prod.nymex.com# hagr -switch STORAGE_and_IP_SvcGrp db01 -to db01
root@db03.prod.nymex.com# hagr -online Oracle8_milton81_SvcGrp -sys db01
root@db03.prod.nymex.com# hagr -online Sqlnet9_LISTENER1_SvcGrp -sys db01
```

```
root@db03.prod.nymex.com# hastatus -summary
```

```
-- SYSTEM STATE
-- System          State          Frozen
A  db01            RUNNING       0
A  db03            RUNNING       0

-- GROUP STATE
-- Group           System          Probed    AutoDisabled  State
B  MultiNICB_SvcGrp db01      Y         N             ONLINE
B  MultiNICB_SvcGrp db03      Y         N             ONLINE
B  Oracle8_milton81_SvcGrp db01 Y         N             ONLINE
B  Oracle8_milton81_SvcGrp db03 Y         N             OFFLINE
B  STORAGE_and_IP_SvcGrp db01  Y         N             ONLINE
B  STORAGE_and_IP_SvcGrp db03  Y         N             OFFLINE
B  Sqlnet9_LISTENER1_SvcGrp db01 Y         N             ONLINE
B  Sqlnet9_LISTENER1_SvcGrp db03 Y         N             OFFLINE
B  VCSmonitor_SvcGrp db01      Y         N             ONLINE
B  VCSmonitor_SvcGrp db03      Y         N             OFFLINE
```

```
[[ END ]]
```

```
#####
```

```
#####
```

You must clear all faulted resources within a group before re-trying to online that group after it has faulted. Example:

```
root@db03.prod.nymex.com# hares -clear Sqlnet9_LISTENER1
root@db03.prod.nymex.com# hares -display -group Sqlnet9_LISTENER1_SvcGrp
#####
```

```
#####
```

A resource appearing in between a group declaration and its requires clause at the end of that group, is a resource that belongs to that group (that is, is a resource of that group). However, that resource can still be seen by other groups, and is how for example, a Proxy resource within several different groups can access the status of a IPMultiNICB resource, which exists alone in its own group.

```
#####
```

```
#####
```

```
root@db03.prod.nymex.com# hagr -display -attribute Administrators
#Group          Attribute          System    Value
MultiNICB_SvcGrp Administrators     global    admin
Oracle8_milton81_SvcGrp Administrators     global    admin oracle
STORAGE_and_IP_SvcGrp Administrators     global    admin
Sqlnet9_LISTENER1_SvcGrp Administrators     global    admin oracle
VCSmonitor_SvcGrp Administrators     global    admin
#####
```

**VCS configuration template**  
 (Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

```

root@db01.prod.nymex.com# df -k | format [[output omitted]]
root@db01.prod.nymex.com# luxadm display /dev/rdisk/c3t500060E80000000000007DC600000041d0s2
DEVICE PROPERTIES for disk: /dev/rdisk/c3t500060E80000000000007DC600000041d0s2
Vendor:                HITACHI
Product ID:            OPEN-9*5   -SUN
Revision:              0119
Serial Num:            32198
Unformatted capacity: 36922.980 MBytes
Write Cache:           Enabled
Read Cache:            Enabled
  Minimum prefetch:    0x0
  Maximum prefetch:    0x0
Device Type:           Disk device
Path(s):

/dev/rdisk/c3t500060E80000000000007DC600000041d0s2
/devices/scsi_vhci/ssd@g500060e80000000000007dc600000041:c,raw
Controller              /devices/pci@9,600000/SUNW,qlc@1/fp@0,0
Device Address           500060e8027dc610,2
Host controller port WWN 210000e08b0704ae
Class                    primary
State                    ONLINE
Controller              /devices/pci@9,600000/SUNW,qlc@2/fp@0,0
Device Address           500060e8027dc600,2
Host controller port WWN 210000e08b0716ae
Class                    primary
State                    ONLINE
    
```

```

#####
The following "hastatus -summary" was taken after I cut of both
I/O paths (via the McData switch) to "db01.prod.nymex.com". This
initiated a successful failover of ALL the resource groups to
"db03.prod.nymex.com".
    
```

```

#
Occasionally you will have to clear some FAILED VCS resources
for the node (machine) that experienced the failure (in the
example below, it was db01). This shows how to spot and clear
them. Note that the fact that these resources were marked as
failed by VCS for the node that experienced the failure did not
hamper VCS from properly bringing up the resources on the
standby node (in this case db03).
    
```

```

#####
root@db03.prod.nymex.com# hastatus -summary
    
```

```

-- SYSTEM STATE
-- System                State                Frozen

A  db01                  RUNNING            0
A  db03                  RUNNING            0

-- GROUP STATE
-- Group                System                Probed        AutoDisabled    State

B  MultiNICB_SvcGrp db01                Y              N                ONLINE
B  MultiNICB_SvcGrp db03                Y              N                ONLINE
B  Oracle8_milton81_SvcGrp db01        Y              N                OFFLINE
B  Oracle8_milton81_SvcGrp db03                Y              N                ONLINE
B  Oracle9_mikeb_SvcGrp db01                Y              N                OFFLINE
B  Oracle9_mikeb_SvcGrp db03                Y              N                ONLINE
B  Oracle9_milton_SvcGrp db01                Y              N                OFFLINE | FAULTED
B  Oracle9_milton_SvcGrp db03                Y              N                ONLINE
B  STORAGE_and_IP_SvcGrp db01                Y              N                OFFLINE
B  STORAGE_and_IP_SvcGrp db03                Y              N                ONLINE
B  Sqlnet9_LISTENER1_SvcGrp db01            Y              N                OFFLINE | FAULTED
    
```

VCS configuration template  
 (Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

```

B  Sqlnet9_LISTENER1_SvcGrp db03      Y      N      ONLINE
B  VCSmonitor_SvcGrp db01            Y      N      ONLINE
B  VCSmonitor_SvcGrp db03            Y      N      OFFLINE

-- RESOURCES FAILED
-- Group          Type          Resource          System

   C  Oracle9_milton_SvcGrp Oracle          Oracle9_milton    db01
   C  Sqlnet9_LISTENER1_SvcGrp Sqlnet          Sqlnet9_LISTENER1 db01
root@db03.prod.nymex.com#
root@db03.prod.nymex.com# hagrps -clear Sqlnet9_LISTENER1_SvcGrp
root@db03.prod.nymex.com# hagrps -clear Oracle9_milton_SvcGrp
root@db03.prod.nymex.com#
root@db03.prod.nymex.com# hastatus -summary

-- SYSTEM STATE
-- System          State          Frozen

A  db01            RUNNING        0
A  db03            RUNNING        0

-- GROUP STATE
-- Group          System          Probed          AutoDisabled    State

B  MultiNICB_SvcGrp db01            Y              N              ONLINE
B  MultiNICB_SvcGrp db03            Y              N              ONLINE
B  Oracle8_milton81_SvcGrp db01        Y              N              OFFLINE
B  Oracle8_milton81_SvcGrp db03        Y              N              ONLINE
B  Oracle9_mikeb_SvcGrp db01            Y              N              OFFLINE
B  Oracle9_mikeb_SvcGrp db03            Y              N              ONLINE
B  Oracle9_milton_SvcGrp db01            Y              N              OFFLINE
B  Oracle9_milton_SvcGrp db03            Y              N              ONLINE
B  STORAGE_and_IP_SvcGrp db01            Y              N              OFFLINE
B  STORAGE_and_IP_SvcGrp db03            Y              N              ONLINE
B  Sqlnet9_LISTENER1_SvcGrp db01        Y              N              OFFLINE
B  Sqlnet9_LISTENER1_SvcGrp db03        Y              N              ONLINE
B  VCSmonitor_SvcGrp db01            Y              N              ONLINE
B  VCSmonitor_SvcGrp db03            Y              N              OFFLINE
#####
  
```

VCS configuration template  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

```
#####  
# Milton Vega: (oraENV.sh file) #  
#####  
# oraenv file used for setting up the  
# Oracle environment variables for  
# connecting to an Oracle database via  
# sqlplus.  
#####  
  
#####  
echo "Usage: . oraENV.sh ORACLE_SID ORACLE_VERSION"  
#  
ORACLE_SID=${1}  
ORACLE_VERSION=${2}  
ORACLE_BASE=/opt/oracle  
ORACLE_HOME=${ORACLE_BASE}/product/${ORACLE_VERSION}  
#####  
#  
ORASID=${ORACLE_SID}  
ORACLE_PFILE=/opt/oracle/admin/${ORACLE_SID}/pfile/init${ORACLE_SID}.ora  
TNS_ADMIN=/opt/oracle/product/${ORACLE_VERSION}/network/admin  
ORACLE_SQL=/opt/oracle/admin/${ORACLE_SID}/sql  
#  
BASIC_PATH=/usr/bin:/usr/sbin:/sbin:/etc:/usr/ucb:/usr/ccs/bin:/usr/xpg4/bin:  
ORACLE_PATH=/opt/oracle/local/bin:/opt/local/bin:/opt/oracle/product/${ORACLE_VERSION}/bin:  
PATH=${BASIC_PATH}:${ORACLE_PATH}:${PATH}.  
#  
BASIC_LD_LIBRARY_PATH=/usr/lib:/usr/openwin/lib:/usr/dt/lib  
ORACLE_LD_LIBRARY_PATH=/opt/oracle/product/${ORACLE_VERSION}/lib  
LD_LIBRARY_PATH=${BASIC_LD_LIBRARY_PATH}:${ORACLE_LD_LIBRARY_PATH}  
#  
PS1_SUFFIX='$ '; [ x${LOGNAME} = xroot ] && PS1_SUFFIX='# '  
PS1="[ ${LOGNAME} ] : [ ${ORACLE_SID} ] : [ ${ORACLE_VERSION} ] @ `uname -n` ${PS1_SUFFIX} "  
EDITOR=vi  
TERM=vt100  
#  
export ORACLE_SID ORASID ORACLE_PFILE ORACLE_SQL  
export ORACLE_VERSION ORACLE_BASE ORACLE_HOME TNS_ADMIN  
export PATH LD_LIBRARY_PATH EDITOR TERM  
#####
```

VCS configuration template  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

```
#####  
# After running setting up the oracle environment #  
# by running the oraENV.sh file above, do the #  
# following: #  
#####  
  
#####  
# Instance Startup: #  
#####  
# oracle@server$ /opt/home/mvega/oraENV.sh mySID 8.1.7  
# oracle@server$ sqlplus '/as sysdba'  
# > startup <CR>  
# -or-  
# > startup pfile=/path/to/pfile <CR>  
#  
# > select * from v$instance  
# (Look for "OPEN")  
#  
# > exit <CR>  
# oracle@server$  
#####  
  
#####  
# Instance Shutdown: #  
#####  
# oracle@server$ /opt/home/mvega/oraENV.sh mySID 8.1.7  
# oracle@server$ sqlplus '/as sysdba'  
# > shutdown immediate <CR>  
# -or ONLY if you have to-  
# > shutdown abort <CR>  
# (Look for shutdown complete)  
#  
# > exit <CR>  
# oracle@server$  
#####
```

VCS configuration template  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

```
#####  
# Listener Startup/Shutdown: #  
#####  
#oracle@server$ lsnrctl start LISTENER_NAME <CR>  
#oracle@server$ lsnrctl stop LISTENER_NAME <CR>  
# ===  
# Check the file:  
# ${ORACLE_HOME}/network/admin/listener.ora  
# to get the listener name (in case the  
# default name of "LISTENER" is not used.  
#####  
  
#####  
# As a non-oracle user, after setting up #  
# the shell environment variables, you can #  
# always connect to a database as follows: #  
#####  
# oracle@server$ /opt/home/mvega/oraENV.sh mySID 8.1.7  
# mvega@server$ sqlplus  
# > scott/tiger <CR>  
# >  
# > select * from v$instance  
# >  
#####
```

VCS configuration template  
(Extracted from my design & implementation of db01/db03 VCS cluster at NYMEX)

```
mvega@db01.prod.nymex.com$ . ./oraENV.sh milton 9.2.0
[mvega]:[milton]:[9.2.0]@db01.prod.nymex.com$ which sqlplus
/opt/oracle/product/9.2.0/bin/sqlplus
[mvega]:[milton]:[9.2.0]@db01.prod.nymex.com$ sqlplus scott/tiger

SQL*Plus: Release 9.2.0.3.0 - Production on Mon Dec 15 15:53:10 2003
Copyright (c) 1982, 2002, Oracle Corporation. All rights reserved.

Connected to:
Oracle9i Enterprise Edition Release 9.2.0.3.0 - 64bit Production
With the Partitioning, OLAP and Oracle Data Mining options
JServer Release 9.2.0.3.0 - Production

SQL> select * from vcstable;

TSTAMP
-----
15-DEC-03

SQL> quit
Disconnected from Oracle9i Enterprise Edition Release 9.2.0.3.0 - 64bit
Production
With the Partitioning, OLAP and Oracle Data Mining options
JServer Release 9.2.0.3.0 - Production
[mvega]:[milton]:[9.2.0]@db01.prod.nymex.com$ . ~mvega/.profile
mvega@db01.prod.nymex.com$
```

Connecting as user mvega (a non-oracle user).