

HP OpenView Storage Data Protector 6.0 SUN Solaris10 (SPARC) Oracle10gR2 Real Application Cluster (On RAW VxVM Volumes) with HP StorageWorks Disk Array XP Zero Downtime Backup (ZDB) Proxy-Copy Method with Instant Recovery (IR)



Version 1.1

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1 INTRODUCTION

This white paper is intended to provide supplementary information for installation and configuring HP OpenView Storage Data protector with Oracle Real Application Clusters 10g Release 2 running Solaris10 operating system for Proxy-Copy Zero Downtime Backup (ZDB) in HP StorageWorks Disk Array XP environments.

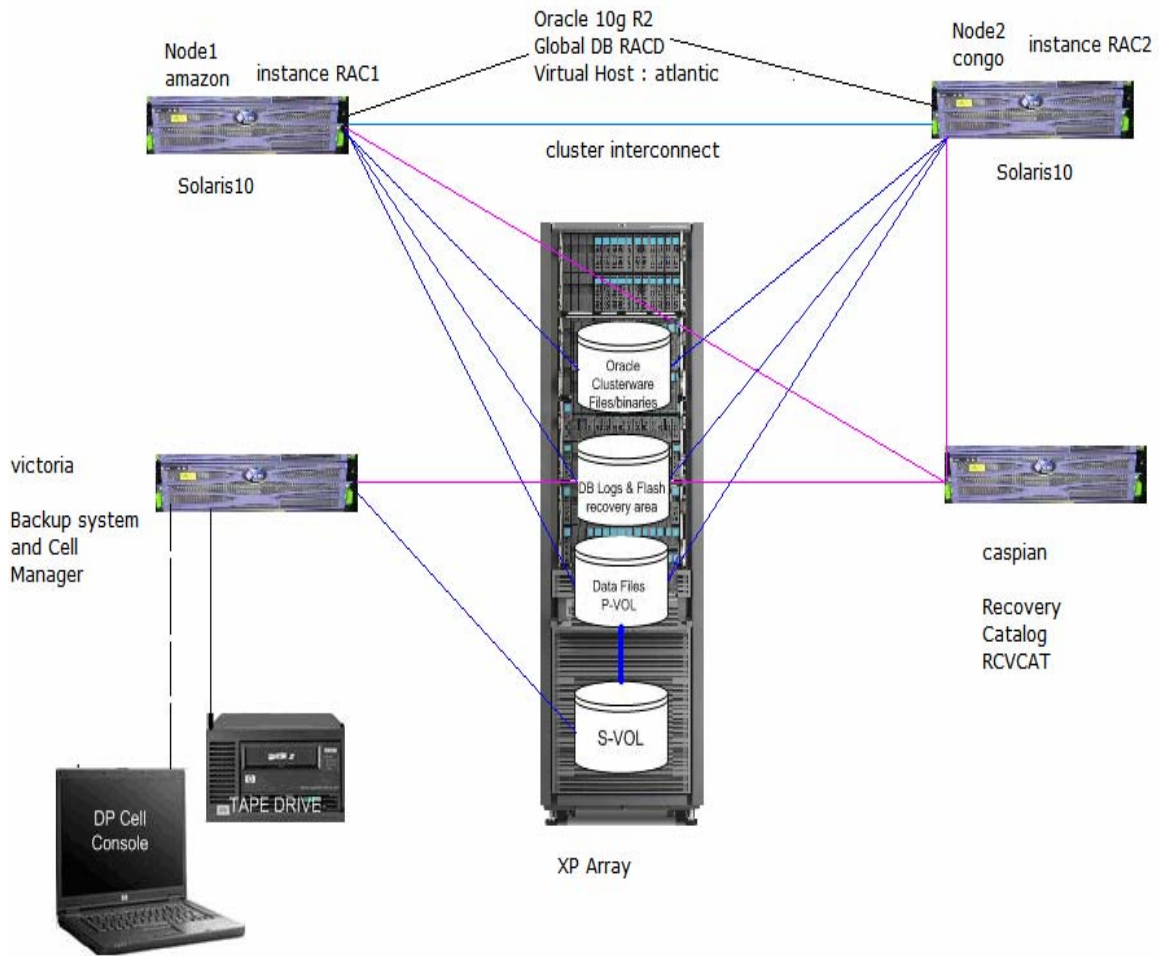
There are variety of choices with regards to the installation and set-up of Oracle Real Application Clusters 10g on the Solaris10 platform. User has the possibility to deploy their RAC cluster only with Oracle Clusterware. In this case Oracle interacts with Sun Cluster to coordinate cluster membership information. For storage management, user has the choice to use Oracle ASM, Cluster File Systems or RAW Devices.

In this White Paper RAC 10g is configured with VxVM RAW volumes (with cluster feature enabled) for RAC.

2 Overview of Oracle 10g RAC R2 Example Environment

The following chapter will explain the environment setup. It will explain the different hardware and software components used for this integration.

The example environment is based on a 2 node cluster, node1 referred to as 'amazon' with local database instance "RAC1" and node2 as 'congo' with local database instance "RAC2". The virtual host name is 'atlantic' and global database name is "RACD".



The Data Protector Server "victoria" is responsible for backing up the split-mirror data from disk array volume "S-VOL" to tape and is also the Data Protector Cell manager. This system is installed with the same version of the VxVM that is being used on the Application Nodes.

The oracle database configuration, archive, data files are all on shared disks (RAW VxVM) and are accessed by each database server instance.

The Oracle recovery catalog database instance "RCVCAT" is installed on server "caspian".

3 Preparing the HP Storage Works Disk Array XP Environment

All RAC servers and the single backup server should be connected to the same HP StorageWorks Disk Array XP.

The disks from XP are shared by nodes in the Sun cluster. The primary LDEVs (P-Vols) should be connected to the RAC servers and should have paired disks assigned. The mirrored LDEVs (S-Vols) should be connected to the backup server.

For further information on HP StorageWorks Disk Array XP configuration procedures, please refer to:

- HP OpenView Storage Data Protector Zero Downtime Backup Administrator's Guide
- HP OpenView Storage Data Protector Zero Downtime Backup Concepts Guide
- HP OpenView Storage Data Protector Zero Downtime Backup Integration Guide

4 Preparing the Sun Cluster setup and Oracle 10g RAC R2 Environment

This chapter gives supplementary information to the following documentation:

For Sun cluster setups follow the Documentation available at : <http://docs.sun.com>

For Oracle CRS and Oracle 10g R2 installation follow the documentation available at: <http://www.oracle.com/technology/documentation/index.html>

4.1 Requirements

Please check that the following requirements are met before installing and configuring the Oracle 10g R2 RAC environment:

- System requirements
- Network requirements
- Solaris patches
- Kernel parameters

Please refer to Oracle Database Installation Guide 10g Release 2 (10.2) for Solaris (SPARC) for the detailed requirements.

Following table has the software configuration information used in the explained setup:

Software/OS	Application Host (Cluster Nodes)	Backup Host
Sun OS	Solaris 10 11/06 s10s_u3wos_10 SPARC	Solaris 10 11/06 s10s_u3wos_10 SPARC
Sun Cluster	3.2	Not Installed
VxVM	5.0,REV=05.11.2006.17.55 (with cluster feature enabled)	5.0,REV=05.11.2006.17.55
Oracle CRS	10.2.0.1.0	Not Installed
Oracle	10.2.0.3.0	Not Installed

4.2 Storage management

The following table shows the storage options supported for storing Oracle Clusterware files, Oracle Database files, and Oracle Database recovery files. Oracle Database files includes data files, control files, redo log files, the server parameter file, and the password file. Oracle Clusterware files include the Oracle Cluster Registry

(OCR), a mirrored OCR file (optional), the Oracle Clusterware voting disk, and additional voting disk files (optional).

Storage Option	File Types Supported			
	OCR and Voting Disk	Oracle Software	Database	Recovery
Automatic Storage Management	No	No	Yes	Yes
Local storage	No	Yes	No	No
NFS file system	Yes	Yes	Yes	Yes
Note: Requires a certified NAS device				
Shared raw partitions	Yes	No	Yes	No

In this case, Oracle RAC Database is created on the RAW VxVM volumes, for which the cluster feature of the VxVM is enabled and required licenses are installed on the Cluster nodes and on the Backup host.

Use 'scsetup' utility of the Sun Cluster to setup the VxVM on the cluster nodes. Please refer "Sun Cluster Software Installation Guide for Solaris OS" for detailed steps. When cluster is up and running add a share disk to VxVM and create the required volumes to setup the Oracle RAC and Oracle database on RAW VxVM volumes.

Minimum raw logical volume sizes required for database files on Solaris are shown in table below

Number	Size (MB)	Purpose and Sample Logical Volume Name
1	500	SYSTEM tablespace: <i>dbname_system_raw_500m</i>
1	300 + (Number of instances * 250)	SYSAUX tablespace: <i>dbname_sysaux_raw_800m</i>
Number of instances	500	UNDOTBS n tablespace (One tablespace for each instance, where n is the number of the instance): <i>dbname_undotbsn_raw_500m</i>
1	250	TEMP tablespace: <i>dbname_temp_raw_250m</i>
1	160	EXAMPLE tablespace:

Number	Size (MB)	Purpose and Sample Logical Volume Name
		<i>dbname_example_raw_160m</i>
1	120	USERS tablespace: <i>dbname_users_raw_120m</i>
2 * number of instances	120	Two online redo log files for each instance (where <i>n</i> is the number of the instance and <i>m</i> is the log number, 1 or 2): <i>dbname_redon_m_raw_120m</i>
2	110	First and second control files: <i>dbname_control{1 2}_raw_110m</i>
1	5	Server parameter file (SPFILE): <i>dbname_spfile_raw_5m</i>
1	5	Password file: <i>dbname_pwdfile_raw_5m</i>

Create separate disk groups for Data files, Log files and for Control files.
Run following command as a root user to create required volumes.

```
#vxassist -g diskgroup make volume size
```

In this example:

- *diskgroup* is the name of the disk group that you created previously, e.g oradg
- *volume* is the name of the logical volume that you want to create
- *size* is the size of the logical volume, for example, 500m represents 500 MB

The following example shows a sample command used to create a 500 MB logical volume in the oradg disk group for the SYSTEM tablespace of a database named test:

```
# vxassist -g oradg make system_raw_500m 500m
```

Similarly create the other required volumes.

To change the ownership and permission of the created VxVM volumes execute following command :

```
# vxedit -g diskgroup set user=oracle group=dba mode=660 volume
```

To complete the disk group configuration deport the disk group:

```
#vxdg deport diskgroup
```

Log into each cluster node and import the disk group in shared mode by executing following command :

```
# vxdg -s import diskgroup
```

```
Start all logical volumes:
```

```
# /usr/sbin/vxvol startall
```

After performing the steps above configure the RAC based instance using the RAW VxVM volumes.

5 Installing Data Protector Agents on RAC Cluster Nodes

To back up a RAC Cluster, Data Protector integration software has to be installed on all the nodes in the RAC environment.

The HP StorageWorks XP Agent has to be installed on:

- RAC server "amazon" with database instance RAC1
- RAC server "congo" with database instance RAC2
- Backup server "victoria" with access to split-mirror S-Vol disks and tape drives

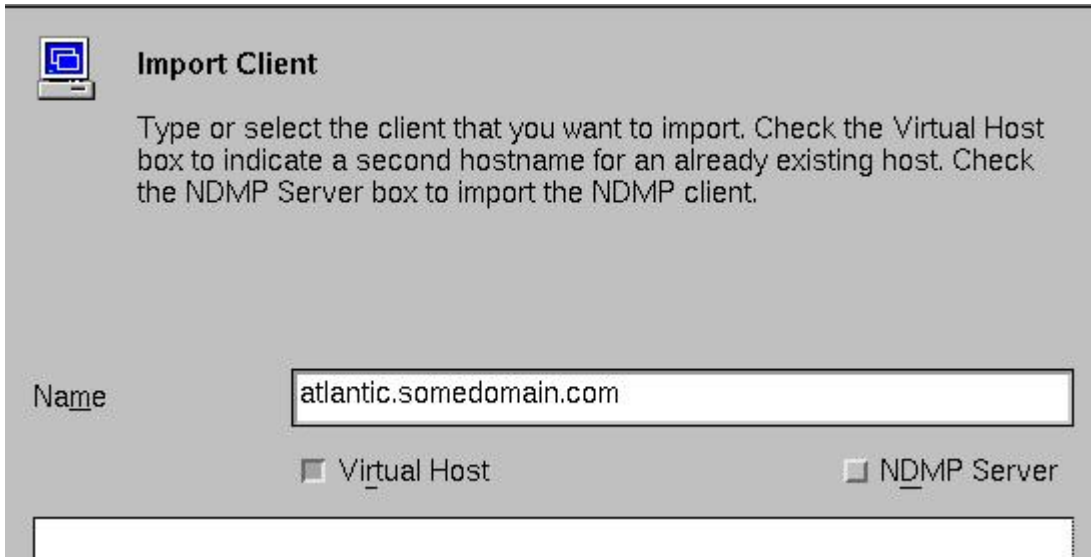
The Oracle Integration Agent has been installed on:

- RAC server "amazon" with database instance RAC1
- RAC server "congo" with database instance RAC2
- RMAN catalog server "caspien" with recovery catalog database instance RCVCAT

As we use Virtual hostname for configuring backups, a Sun Cluster package containing only the virtual IP and the virtual hostname (atlantic.somedomain.com) parameters is created and distributed among the RAC nodes. Please refer to Sun Cluster documentation for details.

Import the virtual host name "smocl03.somedomain.com" into data protector cell.

Figure 3 Importing virtual hosts.



Import Client

Type or select the client that you want to import. Check the Virtual Host box to indicate a second hostname for an already existing host. Check the NDMP Server box to import the NDMP client.

Name

Virtual Host NDMP Server

For further information on installation procedures, please refer to:

- HP OpenView Storage Data Protector Installation and Licensing Guide

6 Oracle 10g RAC R2 Integration and Configuration with Data Protector

The following steps are executed after the Oracle Clusterware and RAC Oracle 10g software installation and database creation. The database RAC is created on RAW VxVM volumes using Database configuration assistant.

This chapter gives complimentary information to the following documentation:


- HP OpenView Storage Data Protector Integration Guide for Oracle SAP
- HP OpenView Storage Data Protector Zero Downtime Backup Integration Guide
- HP OpenView Storage Data Protector Zero Downtime Backup Administrator's Guide

6.1 Configuring the Oracle Server

The following example describes the integration using the Data Protector GUI. Configure the Oracle database when you create first backup specification for the database. Refer to create backup specification section 6.2 for details.

Please select the virtual host name and global database name RACD.

Figure 4 Virtual host name and database name.



Specify the application that you want to back up.

Application

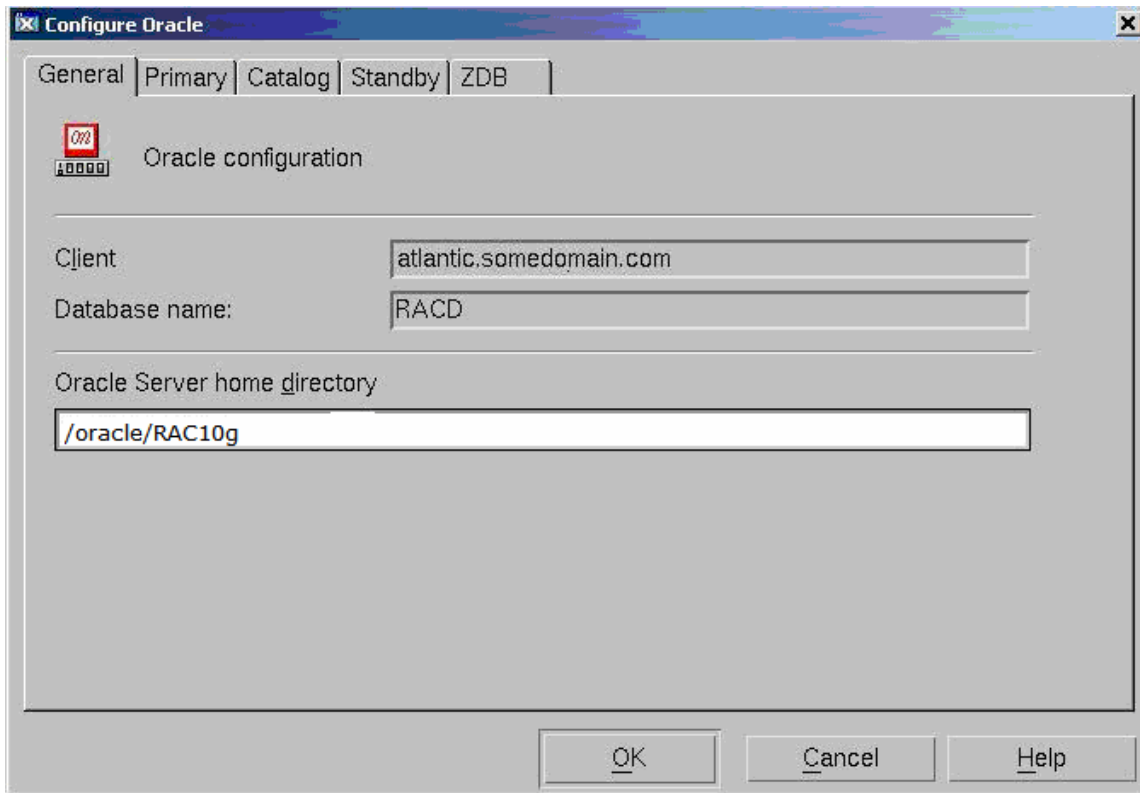
Client	<input type="text" value="atlantic.somedomain.com"/>	<input type="checkbox"/>
Application database	<input type="text" value="RACD"/>	<input type="checkbox"/>

User and group

Username	<input type="text" value="oracle"/>
Group name	<input type="text" value="dba"/>

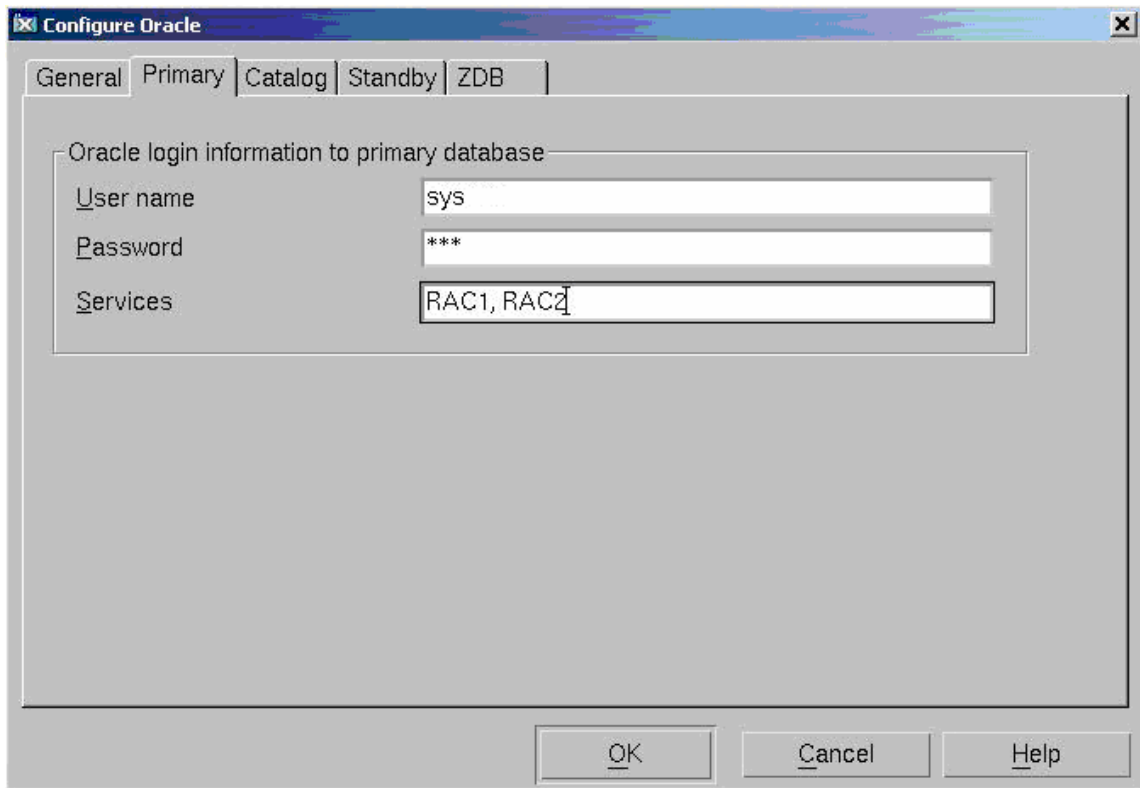
In the Configure Oracle dialog box and in the General page, specify the pathname of the Oracle Server home directory.

Figure 5 Configuring Oracle General page.



List RAC1 and RAC2 net services names for the primary database separated by a comma. Note that each net service name resolves into a specific database instance.

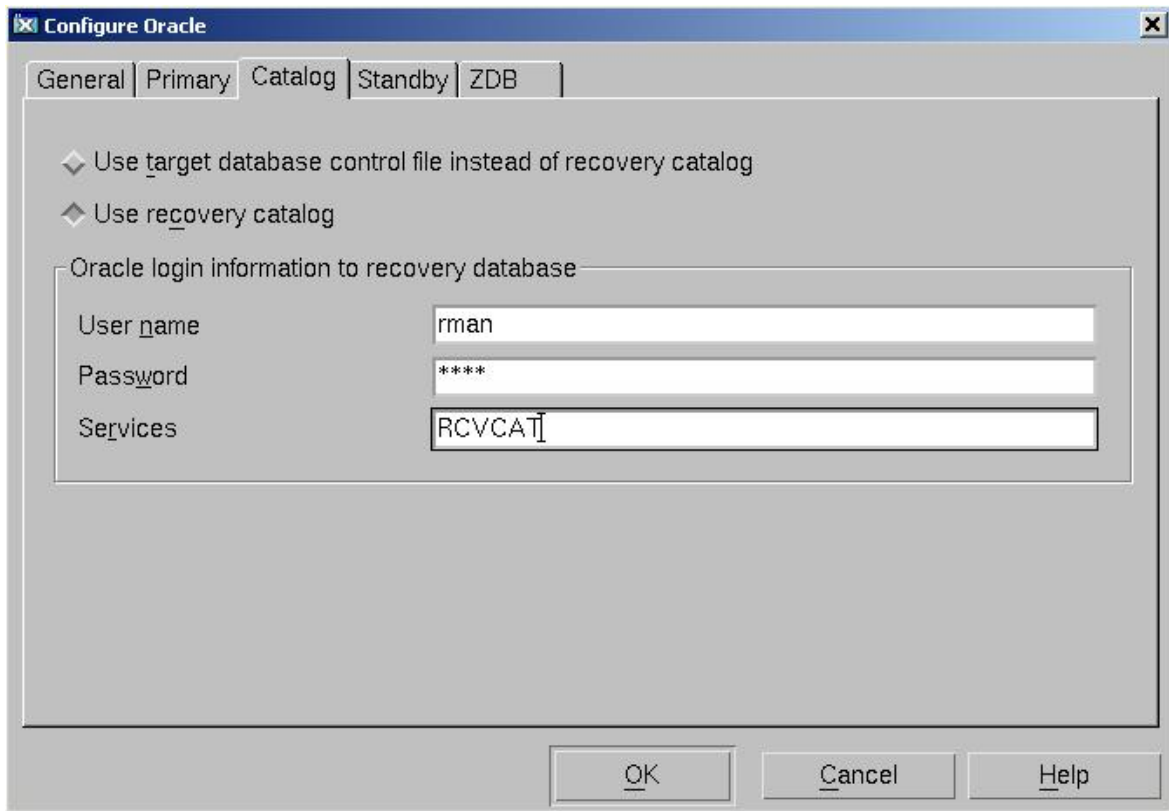
Figure 6 Configuring Oracle Primary page.



As we use the recovery database catalog as an RMAN repository for backup history, we select Use recovery catalog and specify the login information to the recovery catalog.

Note that for ZDB, the recovery catalog database must be selected.

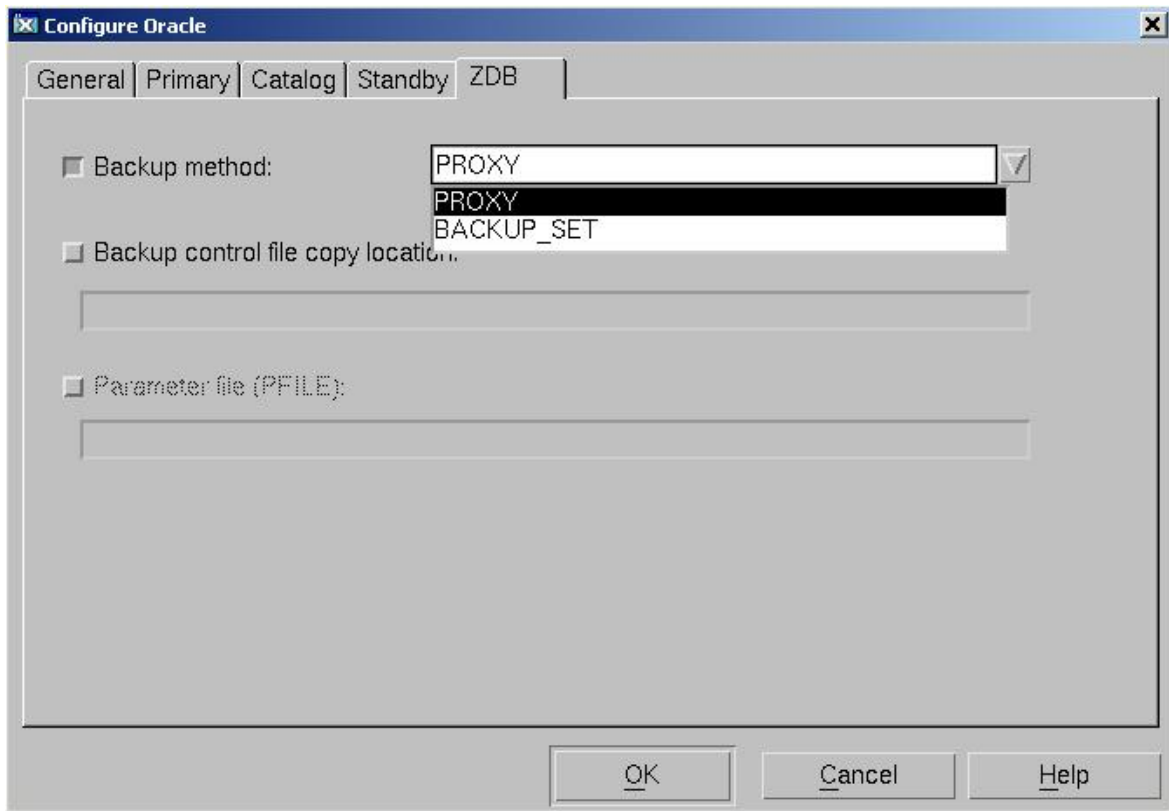
Figure 7 Configuring Oracle Catalog page.



If you intend to back up a standby database, configure the standby database also.

In the ZDB property page, select Backup method and then select PROXY in the drop-down list. In Backup control file copy location, you can specify the location on the source volumes where a backup copy of the current control file will be made during ZDB to disk. If you do not specify the location, o2rman.pl will copy the copy of the control file from the application system to the backup system when it is needed. Thus, you do not need to create an additional disk for this location if you do not need the control file copy on a replica.

Figure 8 Configuring Oracle ZDB page.

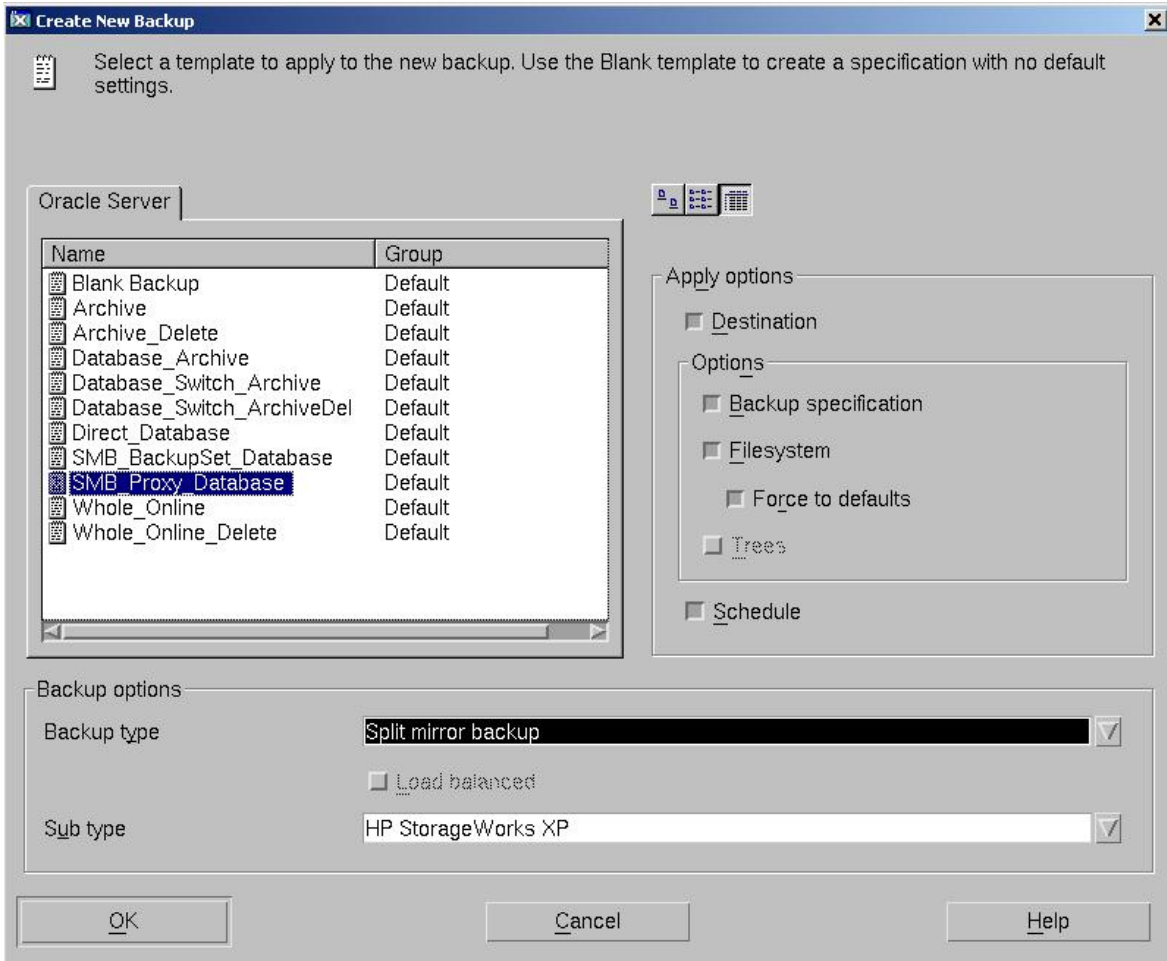


6.2 Creating Backup Specifications

To create an Oracle ZDB backup specification, proceed as follows:

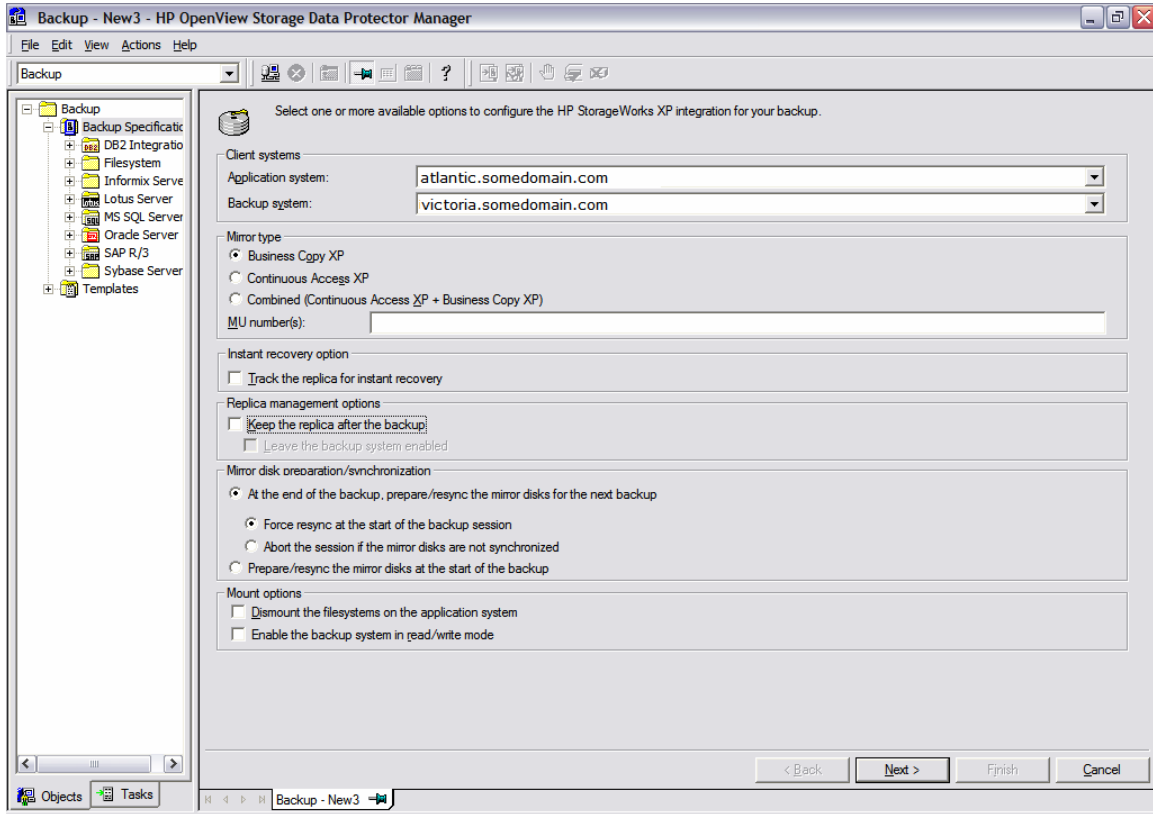
- In the Context List, click Backup.
- In the Scoping Pane, expand Backup Specifications, right-click Oracle Server, and click Add Backup.
- In the Create New Backup dialog box, select the following:
To perform a ZDB of the entire database using the proxy-copy method, select the SMB_Proxy_Database template.
- In the Backup type drop-down list, select the Split mirror backup option and in the Sub type drop-down list, select the HP StorageWorks

Figure 9 Creating Backup Choosing templates.



In the next screen (figure 10), from the Application system drop-down list, select the virtual server "atlantic". In the Backup system drop-down list, select the backup system "victoria"

Figure 10 Creating Non IR Backup XP Options.



By default the full database is selected for backup.

The backup specification "ZDB_PROXY" is created:

```

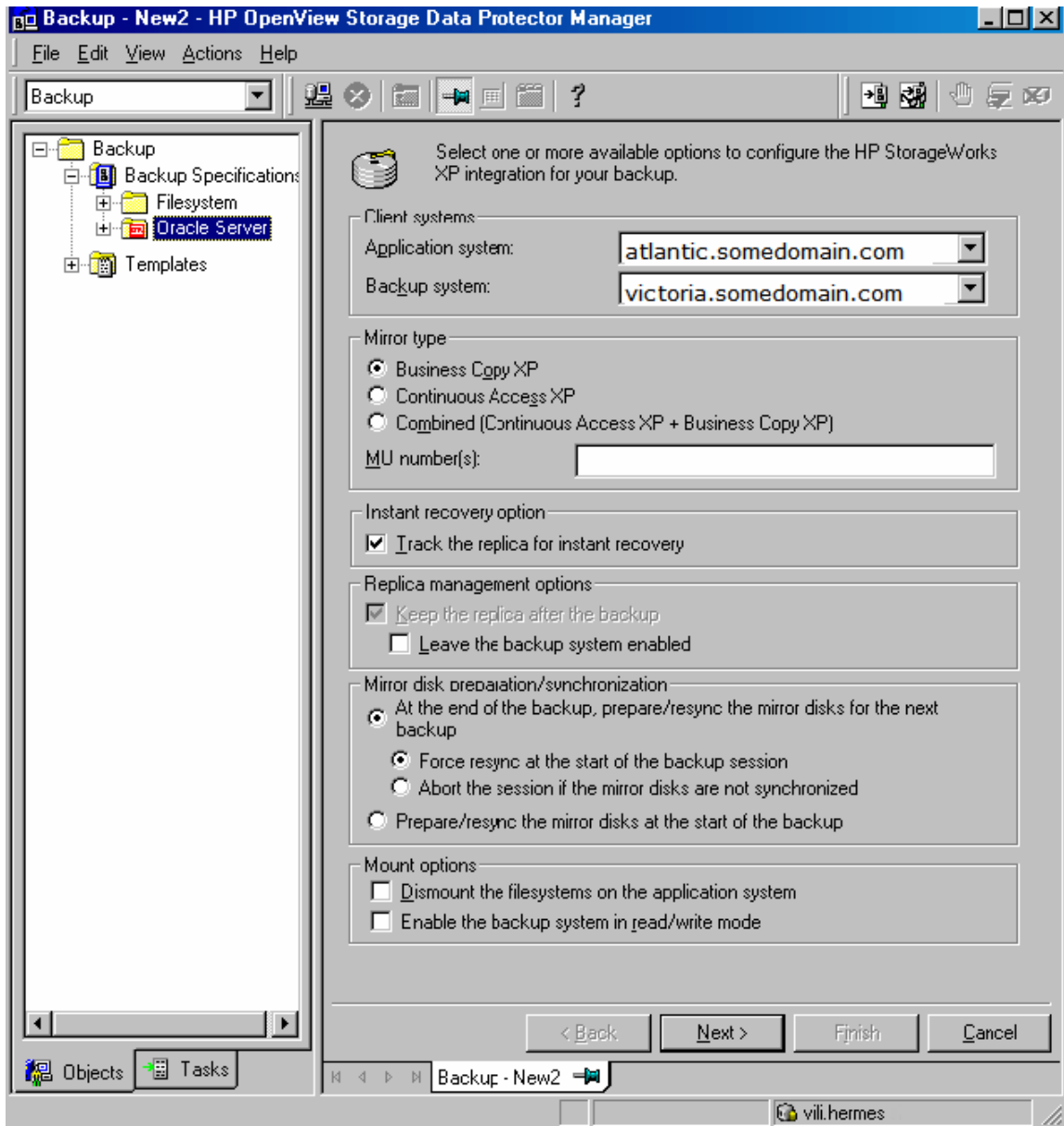
BARLIST "ZDB_PROXY"
OWNER "oracle" "dba" "atlantic.somedomain.com"
DESCRIPTION "Backs up the database instance and control file in the ZDB (split mirror or snapshot)
mode using the proxy-copy method."
DYNAMIC 1 5
BACKUP_TYPE SplitMirror SureStoreEXP
{
    MIRROR local
    APPLICATION_SYSTEM atlantic.somedomain.com
    BACKUP_SYSTEM victoria.somedomain.com
    -establish
    -start_on_app
}
DEVICE "vicdev"
{

```

```
-sync
}

CLIENT "RACD" atlantic.somedomain.com
{
  -exec ob2rman.exe
  -args {
    "-backup"
  }
  -input {
    "run {"
    "allocate channel 'dev_0' type 'sbt_tape'"
    " parms 'ENV=(OB2BARTYPE=Oracle8,OB2APPNAME=RACD,OB2BARLIST=ZDB_P
ROXY,OB2DMAP=1,OB2SMB=1)';"
    "backup incremental level <incr_level>"
    " format 'ZDB_PROXY<RACD_%s:%t:%p>.dbf'"
    " proxy only"
    " database;"
    "}"
  }
}
}
```


Figure 11 Creating IR Backup XP Options.



The backup specification "ZDB_IR" is created:

```

BARLIST "ZDB_IR"
OWNER "oracle" "dba" "atlantic.somedomain.com"
DESCRIPTION "Backs up the database instance and control file in the ZDB (split mirror or snapshot)
mode using the proxy-copy method."
DYNAMIC 1 5
BACKUP_TYPE SplitMirror SureStoreEXP
{
    MIRROR local
    
```

```
APPLICATION_SYSTEM atlantic.somedomain.com
BACKUP_SYSTEM victoria.somedomain.com
-establish
-instant_restore
-keep_version
-start_on_app
}

DEVICE "QUANTUM:DAT DAT160-000_"
{
    -sync
}

CLIENT "RACD" atlantic.somedomain.com
{
    -exec ob2rman.exe
    -args {
        "-backup"
    }
    -input {
        "run {"
        "allocate channel 'dev_0' type 'sbt_tape'"
        " parms 'ENV=(OB2BARTYPE=Oracle8,OB2APPNAME=RACD,OB2BARLIST=ZDB_I
R,OB2DMAP=1,OB2SMB=1)';"
        "backup incremental level <incr_level>"
        " format 'ZDB_IR<RACD_%s:%t:%p>.dbf'"
        " proxy only"
        " database;"
        "}"
    }
}
}
```

7 Oracle 10g RAC R2 ZDB Backup and Recovery

This chapter documents backup and recovery sessions which are based on standard procedures. Please refer to the following documentation for additional information:

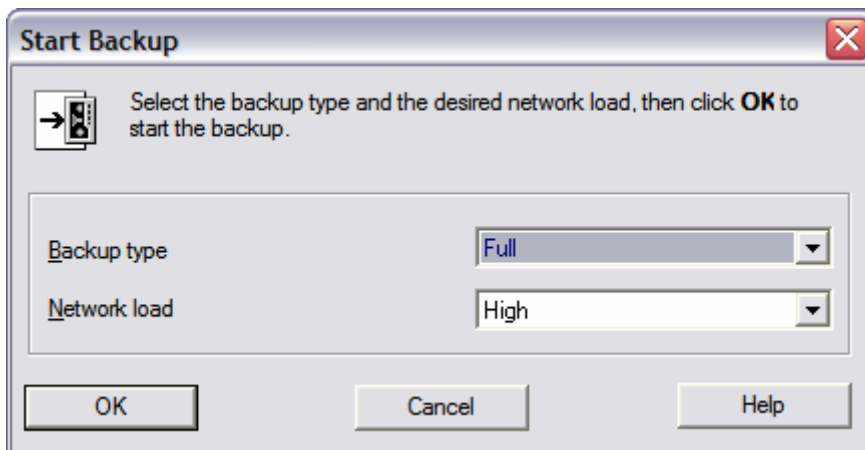
- HP OpenView Storage Data Protector Integration Guide for Oracle SAP
- HP OpenView Storage Data Protector Zero Downtime Backup Integration Guide
- HP OpenView Storage Data Protector Zero Downtime Backup Administrator's Guide

7.1 Oracle 10g RAC R2 ZDB Proxy Backup (non IR) - Example

The backup flow depends on the configuration of the backup configuration and the status of the Mirror Units:

The RAC ZDB backup example was started with the GUI:

Figure 11 Start Backup.



The following session report gives an example of a ZDB backup session :

```
[Normal] From: BSM@victoria.somedomain.com "ZDB_PROXY" Time: 9/28/2007
2:50:14 PM
        OB2BAR application on "atlantic.somedomain.com" successfully
started.
```

```
[Normal] From: ob2rman@amazon "RACD" Time: 09/28/07 14:47:53
Starting backup of target database.
```

```
Net service name: RAC2.
Instance status: OPEN.
Instance name: RAC2.
Database DBID = 1888329729.
Database control file type: CURRENT.
Database log mode: ARCHIVELOG.
```

Net service name: RAC1.
Instance status: OPEN.
Instance name: RAC1.
Database DBID = 1888329729.
Database control file type: CURRENT.
Database log mode: ARCHIVELOG.

[Normal] From: ob2rman@amazon "RACD" Time: 09/28/07 14:47:56
Starting Oracle Recovery Manager.

Recovery Manager: Release 10.2.0.3.0 - Production on Fri Sep 28 14:47:56
2007

Copyright (c) 1982, 2005, Oracle. All rights reserved.

```
RMAN> CONNECT TARGET *
2> CONNECT CATALOG *
3> run {
4> allocate channel 'dev_0' type 'sbt_tape'
5> parms
'ENV=(OB2BARTYPE=Oracle8,OB2APPNAME=RACD,OB2BARLIST=ZDB_PROXY,OB2DMAP=1,
OB2SMB=1,OB2BARHOSTNAME=atlantic.somedomain.com)';
6> backup incremental level 0
7> format 'ZDB_PROXY<RACD_%s:%t:%p>.dbf'
8> proxy only
9> database;
10> backup
11> format 'ZDB_PROXY<RACD_%s:%t:%p>.dbf'
12> current controlfile;
13> }
14> EXIT
connected to target database: RACD (DBID=1888329729)
```

connected to recovery catalog database

allocated channel: dev_0
channel dev_0: sid=139 instance=RAC1 devtype=SBT_TAPE
channel dev_0: Data Protector
A.06.00/PHSS_35908/PHSS_35909/DPSOL_00261/DPLNX_

Starting backup at 28-SEP-07
current control file cannot be backed up by proxy.
SPFILE cannot be backed up by proxy.
channel dev_0: starting incremental level 0 proxy datafile backup at 28-
SEP-07
channel dev_0: specifying datafile(s) for proxy backup
input datafile fno=00001 name=/dev/vx/rdisk/oradg/raw_RACD_system_508m
proxy file handle=ZDB_PROXY<RACD_1:634488482:1>.dbf
input datafile fno=00003 name=/dev/vx/rdisk/oradg/raw_RACD_sysaux_808m
proxy file handle=ZDB_PROXY<RACD_1:634488482:2>.dbf
input datafile fno=00002 name=/dev/vx/rdisk/oradg/raw_RACD_undotbs1_508m
proxy file handle=ZDB_PROXY<RACD_1:634488482:3>.dbf
input datafile fno=00005 name=/dev/vx/rdisk/oradg/raw_RACD_undotbs2_508m
proxy file handle=ZDB_PROXY<RACD_1:634488482:4>.dbf
input datafile fno=00004 name=/dev/vx/rdisk/oradg/raw_RACD_users_128m
proxy file handle=ZDB_PROXY<RACD_1:634488482:5>.dbf

[Normal] From: SSEA@amazon "" Time: 9/28/2007 2:48:02 PM
Starting agent on amazon.

[Normal] From: SSEA@amazon "" Time: 9/28/2007 2:48:03 PM
Resolving backup objects on the application system.

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[Normal] From: SSEA@victoria"" Time: 9/28/2007 2:49:24 PM
Starting agent on Victoria

[Normal] From: SSEA@amazon "" Time: 9/28/2007 2:48:03 PM
Resolving backup objects on the application system.

[Normal] From: SSEA@amazon "" Time: 9/28/2007 2:48:03 PM
Resolving of backup objects on the application system completed.

[Normal] From: SSEA@amazon "" Time: 9/28/2007 2:48:03 PM
The following disks were successfully mapped from
character device path names to LDEVs:

Disk	Target	Lun	SEQ#	Port	LDEV
c2t50060E8003510E02d4	50060	0	20750	CL1-C	0234h (564)

[Normal] From: SSEA@amazon "" Time: 9/28/2007 2:48:04 PM
Successfully attached to the command device
/dev/rdisk/c2t50060E8003510E02d2s0
with instance number 301.

[Normal] From: SSEA@amazon "" Time: 9/28/2007 2:48:04 PM
The following BC pairs will be used in current session:

LDEV	SEQ#	LDEV	Port	TID	LUN	MU#	Status	SEQ#
027Bh (635)	20750	0234h (564)	CL1-C	0	81	0	STAT_PAIR	20750

[Normal] From: SSEA@amazon "" Time: 9/28/2007 2:48:04 PM
Resolving of backup objects on the application system completed.

[Normal] From: SSEA@victoria"" Time: 9/28/2007 2:49:26 PM
Successfully attached to the command device
/dev/rdisk/c3t50060E8003510E02d3s6
with instance number 302.

[Normal] From: SSEA@amazon "" Time: 9/28/2007 2:48:11 PM
Preparing the application system for splitting of disks.

[Normal] From: SSEA@amazon "" Time: 9/28/2007 2:48:11 PM
Disabling the application system.

[Normal] From: SSEA@amazon "" Time: 9/28/2007 2:48:11 PM
The application system was successfully disabled.

[Normal] From: SSEA@amazon "" Time: 9/28/2007 2:48:11 PM
The application system is prepared for splitting of disks.

[Normal] From: SSEA@victoria"" Time: 9/28/2007 2:49:32 PM
Splitting disks.

[Normal] From: SSEA@amazon "" Time: 9/28/2007 2:48:11 PM
Resuming the application system.

[Normal] From: SSEA@victoria"" Time: 9/28/2007 2:49:32 PM
Splitting of disks completed.

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[Normal] From: SSEA@amazon "" Time: 9/28/2007 2:48:11 PM
The application system was successfully resumed.

[Normal] From: SSEA@victoria"" Time: 9/28/2007 2:49:34 PM
The following disks were successfully mapped from
LDEVs to character device path names of disks:

SEQ#	Port	LDEV	Target Lun	Disk
20750	CL1-C	027Bh (635)	15	89 c3t50060E8003510E02d0

[Normal] From: SSEA@victoria"" Time: 9/28/2007 2:49:34 PM
Resolving backup objects on the backup system.

[Normal] From: SSEA@victoria"" Time: 9/28/2007 2:49:35 PM
Resolving of backup objects on the backup system completed.

[Normal] From: SSEA@victoria"" Time: 9/28/2007 2:49:35 PM
Disabling the backup system.

[Normal] From: SSEA@victoria"" Time: 9/28/2007 2:49:35 PM
The backup system was successfully disabled.

[Normal] From: SSEA@victoria"" Time: 9/28/2007 2:49:35 PM
Preparing the backup system.

[Normal] From: SSEA@victoria"" Time: 9/28/2007 2:49:41 PM
Disk group oradg_0_atlantic.somedomain.com has been successfully
imported.

[Normal] From: SSEA@victoria"" Time: 9/28/2007 2:49:41 PM
The backup system was successfully prepared.

[Normal] From: SSEA@victoria"" Time: 9/28/2007 2:49:41 PM
Preparation of the backup system completed.

[Normal] From: BMA@victoria "bckdev" Time: 9/28/2007 2:48:13 PM
STARTING Media Agent "bckdev"

[Normal] From: BMA@victoria "bckdev" Time: 9/28/2007 2:48:13 PM
Loading medium from slot /bckdev/d01 to device bckdev

[Normal] From: OB2BAR_DMA@victoria"RACD" Time: 9/28/2007 2:49:52 PM
Starting OB2BAR Backup:
atlantic.somedomain.com:ZDB_PROXY<RACD_1:634488482:1>.dbf "Oracle8"

[Normal] From: OB2BAR_DMA@victoria"RACD" Time: 9/28/2007 2:50:07 PM
Starting OB2BAR Backup:
atlantic.somedomain.com:ZDB_PROXY<RACD_1:634488482:2>.dbf "Oracle8"

[Normal] From: OB2BAR_DMA@victoria"RACD" Time: 9/28/2007 2:50:08 PM
Completed OB2BAR Backup:
atlantic.somedomain.com:ZDB_PROXY<RACD_1:634488482:1>.dbf "Oracle8"

[Normal] From: OB2BAR_DMA@victoria"RACD" Time: 9/28/2007 2:50:29 PM
Starting OB2BAR Backup:
atlantic.somedomain.com:ZDB_PROXY<RACD_1:634488482:3>.dbf "Oracle8"

[Normal] From: OB2BAR_DMA@victoria"RACD" Time: 9/28/2007 2:50:30 PM
Completed OB2BAR Backup:
atlantic.somedomain.com:ZDB_PROXY<RACD_1:634488482:2>.dbf "Oracle8"

HP OpenView Storage Data Protector

[Normal] From: OB2BAR_DMA@victoria"RACD" Time: 9/28/2007 2:50:44 PM
Starting OB2BAR Backup:
atlantic.somedomain.com:ZDB_PROXY<RACD_1:634488482:4>.dbf "Oracle8"

[Normal] From: OB2BAR_DMA@victoria"RACD" Time: 9/28/2007 2:50:45 PM
Completed OB2BAR Backup:
atlantic.somedomain.com:ZDB_PROXY<RACD_1:634488482:3>.dbf "Oracle8"

[Normal] From: BMA@victoria "bckdev" Time: 9/28/2007 2:49:11 PM
Unloading medium to slot /bckdev/d01 from device bckdev

[Normal] From: BMA@victoria "bckdev" Time: 9/28/2007 2:49:11 PM
Loading medium from slot /bckdev/d02 to device bckdev

[Normal] From: OB2BAR_DMA@victoria"RACD" Time: 9/28/2007 2:50:58 PM
Starting OB2BAR Backup:
atlantic.somedomain.com:ZDB_PROXY<RACD_1:634488482:5>.dbf "Oracle8"

[Normal] From: OB2BAR_DMA@victoria"RACD" Time: 9/28/2007 2:51:00 PM
Completed OB2BAR Backup:
atlantic.somedomain.com:ZDB_PROXY<RACD_1:634488482:4>.dbf "Oracle8"

[Normal] From: OB2BAR_DMA@victoria"RACD" Time: 9/28/2007 2:51:04 PM
Completed OB2BAR Backup:
atlantic.somedomain.com:ZDB_PROXY<RACD_1:634488482:5>.dbf "Oracle8"

channel dev_0: proxy copy complete, elapsed time: 00:01:45
channel dev_0: starting incremental level 0 datafile backupset
channel dev_0: specifying datafile(s) in backupset
including current control file in backupset
including current SPFILE in backupset
channel dev_0: starting piece 1 at 28-SEP-07

[Normal] From: OB2BAR_Oracle8@amazon "RACD" Time: 9/28/2007 2:49:49 PM
Starting OB2BAR Backup:
atlantic.somedomain.com:ZDB_PROXY<RACD_2:634488587:1>.dbf "Oracle8"

[Normal] From: OB2BAR_Oracle8@amazon "RACD" Time: 9/28/2007 2:49:52 PM
Completed OB2BAR Backup:
atlantic.somedomain.com:ZDB_PROXY<RACD_2:634488587:1>.dbf "Oracle8"

channel dev_0: finished piece 1 at 28-SEP-07
piece handle=ZDB_PROXY<RACD_2:634488587:1>.dbf tag=TAG20070928T144801
comment=API Version 2.0,MMS Version 65.6.0.0
channel dev_0: backup set complete, elapsed time: 00:00:08
Finished backup at 28-SEP-07

Starting backup at 28-SEP-07
channel dev_0: starting full datafile backupset
channel dev_0: specifying datafile(s) in backupset
including current control file in backupset
channel dev_0: starting piece 1 at 28-SEP-07

[Normal] From: OB2BAR_Oracle8@amazon "RACD" Time: 9/28/2007 2:50:00 PM
Starting OB2BAR Backup:
atlantic.somedomain.com:ZDB_PROXY<RACD_3:634488600:1>.dbf "Oracle8"

[Normal] From: OB2BAR_Oracle8@amazon "RACD" Time: 9/28/2007 2:50:04 PM
Completed OB2BAR Backup:
atlantic.somedomain.com:ZDB_PROXY<RACD_3:634488600:1>.dbf "Oracle8"

channel dev_0: finished piece 1 at 28-SEP-07
piece handle=ZDB_PROXY<RACD_3:634488600:1>.dbf tag=TAG20070928T144959
comment=API Version 2.0,MMS Version 65.6.0.0
channel dev_0: backup set complete, elapsed time: 00:00:07
Finished backup at 28-SEP-07

released channel: dev_0

Recovery Manager complete.

[Normal] From: ob2rman@amazon "RACD" Time: 09/28/07 14:50:11
Oracle Recovery Manager completed.

[Normal] From: ob2rman@amazon "RACD" Time: 09/28/07 14:50:11
Starting backup of Data Protector managed control file backup.

[Normal] From: ob2rman@amazon "RACD" Time: 09/28/07 14:50:12
Backing up current control file completed.
Location: /var/opt/omni/tmp/ctrl_RACD.dbf.

[Normal] From: OB2BAR_DMA@amazon "RACD" Time: 9/28/2007 2:50:13 PM
Starting OB2BAR Backup: atlantic.somedomain.com:RACD DP Managed
Control File Backup "Oracle8"

[Normal] From: OB2BAR_DMA@amazon "RACD" Time: 9/28/2007 2:50:17 PM
Completed OB2BAR Backup: atlantic.somedomain.com:RACD DP Managed
Control File Backup "Oracle8"

[Normal] From: ob2rman@amazon "RACD" Time: 09/28/07 14:50:18
Backup of Data Protector managed control file backup completed.

[Normal] From: ob2rman@amazon "RACD" Time: 09/28/07 14:50:18
Starting backup of recovery catalog.

[Normal] From: ob2rman@amazon "RACD" Time: 09/28/07 14:50:18
Starting Oracle Export utility.

[Normal] From: ob2rman@amazon "RACD" Time: 09/28/07 14:50:39
Oracle Export utility completed.

[Normal] From: OB2BAR_DMA@amazon "RACD" Time: 9/28/2007 2:50:41 PM
Starting OB2BAR Backup: atlantic.somedomain.com:Oracle Recovery
Backup Catalog "Oracle8"

[Normal] From: OB2BAR_DMA@amazon "RACD" Time: 9/28/2007 2:50:43 PM
Completed OB2BAR Backup: atlantic.somedomain.com:Oracle Recovery
Backup Catalog "Oracle8"

[Normal] From: ob2rman@amazon "RACD" Time: 09/28/07 14:50:45
Backup of recovery catalog completed.

[Normal] From: ob2rman@amazon "RACD" Time: 09/28/07 14:50:45
Backup of target database completed.

[Normal] From: BSM@victoria.somedomain.com "ZDB_PROXY" Time: 9/28/2007
2:53:11 PM
OB2BAR application on "atlantic.somedomain.com" disconnected.

[Normal] From: SSEA@victoria"" Time: 9/28/2007 2:52:07 PM
Resuming the backup system.

[Normal] From: SSEA@victoria"" Time: 9/28/2007 2:52:07 PM
The backup system was successfully resumed.

[Normal] From: SSEA@amazon "" Time: 9/28/2007 2:50:50 PM
The following BC pairs will be used in next session:

SEQ#	LDEV	Port	TID	LUN	MU#	Status	SEQ#
LDEV	-----						

HP OpenView Storage Data Protector

20750 0234h (564) CL1-C 0 81 0 STAT_PSUS 20750
027Bh (635)

[Normal] From: SSEA@victoria"" Time: 9/28/2007 2:52:15 PM
COMPLETED SSEA-Backup Agent on Victoria.

[Normal] From: SSEA@amazon "" Time: 9/28/2007 2:50:54 PM
COMPLETED SSEA-Application Agent on amazon.

[Normal] From: BMA@victoria "bckdev" Time: 9/28/2007 2:50:37 PM
Unloading medium to slot /bckdev/d02 from device bckdev

[Normal] From: BMA@victoria "bckdev" Time: 9/28/2007 2:50:37 PM
COMPLETED Media Agent "bckdev"

[Normal] From: BSM@victoria.somedomain.com "ZDB_PROXY" Time: 9/28/2007
2:53:20 PM

Backup Statistics:

Session Queuing Time (hours)	0.01

Completed Disk Agents	9
Failed Disk Agents	0
Aborted Disk Agents	0

Disk Agents Total	9
=====	
Completed Media Agents	1
Failed Media Agents	0
Aborted Media Agents	0

Media Agents Total	1
=====	
Mbytes Total	2517 MB
Used Media Total	2
Disk Agent Errors Total	0

=====
=====
Session completed successfully!
=====
=====

7.2 Oracle 10g RAC R2 ZDB Proxy Restore and Recovery (non IR) - Example

To do the Full database restore shutdown all database instances from all cluster nodes and keep them in mounted stated.

Following session log is the example of Full Restore from DP GUI:

```
[Normal] From: ob2rman@amazon.somedomain.com "RACD" Time: 09/28/07
14:58:17
```

```
Starting restore of target database.
```

```
Net service name: RAC2.
Instance status: MOUNTED.
Instance name: RAC2.
Database DBID = 1888329729.
Database control file type: CURRENT.
Database log mode: ARCHIVELOG.
```

```
Net service name: RAC1.
Instance status: MOUNTED.
Instance name: RAC1.
Database DBID = 1888329729.
Database control file type: CURRENT.
Database log mode: ARCHIVELOG.
```

```
[Normal] From: ob2rman@amazon.somedomain.com "RACD" Time: 09/28/07
14:58:19
```

```
Starting Oracle Recovery Manager.
```

```
Recovery Manager: Release 10.2.0.3.0 - Production on Fri Sep 28 14:58:19
2007
```

```
Copyright (c) 1982, 2005, Oracle. All rights reserved.
```

```
RMAN> CONNECT TARGET *
2> CONNECT CATALOG *
3> run {
4> allocate channel 'dev_0' type 'sbt_tape'
5> parms
'ENV=(OB2PROXYCOPY=1,OB2BARTYPE=Oracle8,OB2APPNAME=RACD,OB2BARLIST=11909
71884,OB2BARHOSTNAME=atlantic.somedomain.com.)';
6> restore database;
7> release channel 'dev_0';
8> }
9> EXIT
connected to target database: RACD (DBID=1888329729, not open)
```

```
connected to recovery catalog database
```

```
allocated channel: dev_0
channel dev_0: sid=146 instance=RAC1 devtype=SBT_TAPE
channel dev_0: Data Protector
A.06.00/PHSS_35908/PHSS_35909/DPSOL_00261/DPLNX_
```

```
Starting restore at 28-SEP-07
```

```
channel dev_0: starting proxy restore
channel dev_0: specifying datafile(s) for proxy restore
restoring datafile 00001 to /dev/vx/rdsk/oradg/raw_RACD_system_508m
proxy file handle=ZDB_PROXY<RACD_1:634488482:1>.dbf
restoring datafile 00002 to /dev/vx/rdsk/oradg/raw_RACD_undotbs1_508m
proxy file handle=ZDB_PROXY<RACD_1:634488482:3>.dbf
restoring datafile 00003 to /dev/vx/rdsk/oradg/raw_RACD_sysaux_808m
proxy file handle=ZDB_PROXY<RACD_1:634488482:2>.dbf
restoring datafile 00004 to /dev/vx/rdsk/oradg/raw_RACD_users_128m
proxy file handle=ZDB_PROXY<RACD_1:634488482:5>.dbf
restoring datafile 00005 to /dev/vx/rdsk/oradg/raw_RACD_undotbs2_508m
proxy file handle=ZDB_PROXY<RACD_1:634488482:4>.dbf
[Normal] From: RMA@victoria "bckdev" Time: 9/28/2007 2:58:48 PM
STARTING Media Agent "bckdev"

[Normal] From: RMA@victoria "bckdev" Time: 9/28/2007 2:58:48 PM
Loading medium from slot /bckdev/d01 to device bckdev

[Normal] From: OB2BAR_DMA@amazon.somedomain.com "RACD" Time: 9/28/2007
2:59:13 PM
Starting OB2BAR Restore:
atlantic.somedomain.com.:ZDB_PROXY<RACD_1:634488482:1>.dbf "Oracle8"

[Normal] From: OB2BAR_DMA@amazon.somedomain.com "RACD" Time: 9/28/2007
2:59:59 PM
Completed OB2BAR Restore:
atlantic.somedomain.com.:ZDB_PROXY<RACD_1:634488482:1>.dbf "Oracle8"

[Normal] From: OB2BAR_DMA@amazon.somedomain.com "RACD" Time: 9/28/2007
3:00:40 PM
Starting OB2BAR Restore:
atlantic.somedomain.com.:ZDB_PROXY<RACD_1:634488482:2>.dbf "Oracle8"

[Normal] From: OB2BAR_DMA@amazon.somedomain.com "RACD" Time: 9/28/2007
3:01:53 PM
Completed OB2BAR Restore:
atlantic.somedomain.com.:ZDB_PROXY<RACD_1:634488482:2>.dbf "Oracle8"

[Normal] From: OB2BAR_DMA@amazon.somedomain.com "RACD" Time: 9/28/2007
3:02:34 PM
Starting OB2BAR Restore:
atlantic.somedomain.com.:ZDB_PROXY<RACD_1:634488482:3>.dbf "Oracle8"

[Normal] From: OB2BAR_DMA@amazon.somedomain.com "RACD" Time: 9/28/2007
3:03:20 PM
Completed OB2BAR Restore:
atlantic.somedomain.com.:ZDB_PROXY<RACD_1:634488482:3>.dbf "Oracle8"

[Normal] From: OB2BAR_DMA@amazon.somedomain.com "RACD" Time: 9/28/2007
3:04:02 PM
Starting OB2BAR Restore:
atlantic.somedomain.com.:ZDB_PROXY<RACD_1:634488482:4>.dbf "Oracle8"

[Normal] From: RMA@victoria "bckdev" Time: 9/28/2007 3:04:06 PM
Unloading medium to slot /bckdev/d01 from device bckdev

[Normal] From: RMA@victoria "bckdev" Time: 9/28/2007 3:04:06 PM
Loading medium from slot /bckdev/d02 to device bckdev

[Normal] From: OB2BAR_DMA@amazon.somedomain.com "RACD" Time: 9/28/2007
3:04:50 PM
Completed OB2BAR Restore:
atlantic.somedomain.com.:ZDB_PROXY<RACD_1:634488482:4>.dbf "Oracle8"
```

[Normal] From: OB2BAR_DMA@amazon.somedomain.com "RACD" Time: 9/28/2007 3:05:32 PM

Starting OB2BAR Restore:
atlantic.somedomain.com.:ZDB_PROXY<RACD_1:634488482:5>.dbf "Oracle8"

[Normal] From: OB2BAR_DMA@amazon.somedomain.com "RACD" Time: 9/28/2007 3:05:43 PM

Completed OB2BAR Restore:
atlantic.somedomain.com.:ZDB_PROXY<RACD_1:634488482:5>.dbf "Oracle8"

channel dev_0: proxy copy complete, elapsed time: 00:07:17
Finished restore at 28-SEP-07

released channel: dev_0

Recovery Manager complete.

[Normal] From: ob2rman@amazon.somedomain.com "RACD" Time: 09/28/07 15:05:48

Oracle Recovery Manager completed.

[Normal] From: ob2rman@amazon.somedomain.com "RACD" Time: 09/28/07 15:05:48

Restore of target database completed.

[Normal] From: RSM@victoria.somedomain.com. "" Time: 9/28/2007 3:08:13 PM

OB2BAR application on "atlantic.somedomain.com." disconnected.

[Normal] From: RMA@victoria "bckdev" Time: 9/28/2007 3:05:58 PM
Unloading medium to slot /bckdev/d02 from device bckdev

[Normal] From: RMA@victoria "bckdev" Time: 9/28/2007 3:05:58 PM
COMPLETED Media Agent "bckdev"

```
=====
====
                        Session completed successfully!
=====
=====
====
```

Note: Recovery of database can be done in two ways:

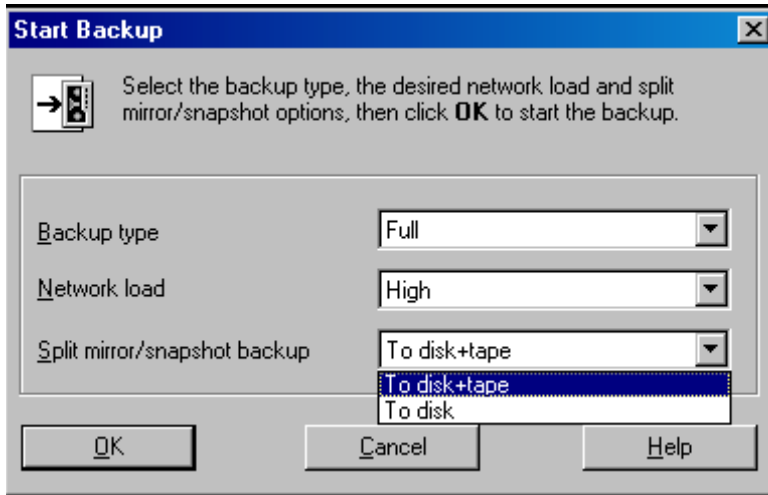
1. Using DP GUI:
On the Restore screen, by selecting the "Restore and Recovery" option from DP GUI.
2. Using SQL command line:
After restoring the database the recovery can be done from SQL prompt from any of the cluster node. Connect to the target database and execute recover command e.g:
SQL> recover database;
On successful completion of recovery, below message will be displayed.

"Media recovery complete."

7.3 Oracle 10g RAC R2 ZDB Proxy Backup IR - Example

The RAC ZDB backup (For IR) example was started with the GUI:

Figure 12 Start Backup.



```
[Normal] From: BSM@victoria.somedomain.com "ZDB_IR" Time: 11/15/2007
12:20:07 PM
```

```
OB2BAR application on "atlantic.somedomain.com" successfully
started.
```

```
[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:17:37
Starting backup of target database.
```

```
Net service name: RAC2.
Instance status: OPEN.
Instance name: RAC2.
Database DBID = 1892284664.
Database control file type: CURRENT.
Database log mode: ARCHIVELOG.
```

```
Net service name: RAC1.
Instance status: OPEN.
Instance name: RAC1.
Database DBID = 1892284664.
Database control file type: CURRENT.
Database log mode: ARCHIVELOG.
```

```
[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:17:39
Checking configuration: /opt/omni/lbin/util_oracle8.pl -chkconf_ir
IPR.
```

```
[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:17:45
Checking configuration completed.
```

```
[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:17:46
Making list of target database files.
```

[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:17:46
Making list of target database datafiles.

[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:17:46
Making list of target database files completed.

[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:17:46
Creating list of target database files for resolving.

[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:17:46
Target database resolve file list:

```
/dev/vx/rdisk/oradg/raw_IPR_system_508m  
/dev/vx/rdisk/oradg/raw_IPR_undotbs1_508m  
/dev/vx/rdisk/oradg/raw_IPR_sysaux_808m  
/dev/vx/rdisk/oradg/raw_IPR_users_128m  
/dev/vx/rdisk/oradg/raw_IPR_undotbs2_508m
```

[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:17:47
Creating list of target database files for resolving completed.

[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:17:47
Resolving target database files.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:17:52 PM
Starting agent on amazon.

[Normal] From: SSEA@victoria.somedomain.com "" Time: 11/15/2007
12:18:40 PM
Starting agent on victoria.somedomain.com.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:17:54 PM
Resolving backup objects on the application system.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:17:54 PM
Resolving backup objects on the application system.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:17:55 PM
Resolving of backup objects on the application system completed.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:17:55 PM
Skipping the check for the possibility of instant recovery.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:17:55 PM
The following disks were successfully mapped from
character device path names to LDEVs:

Disk	Target Lun	SEQ#	Port	LDEV
c3t50060E8003510E02d4	50060	0 20750	CL1-C 0234h	(564)

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:17:56 PM
Successfully attached to the command device
/dev/rdisk/c3t50060E8003510E02d2s0
with instance number 301.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:17:57 PM
The following BC pairs will be used in current session:

LDEV	SEQ#	LDEV	Port	TID	LUN	MU#	Status	SEQ#
------	------	------	------	-----	-----	-----	--------	------

HP OpenView Storage Data Protector

20750 0234h (564) CL1-C 0 81 0 STAT_PAIR 20750
027Bh (635)

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:17:57 PM
Resolving of backup objects on the application system completed.

[Normal] From: SSEA@victoria.somedomain.com "" Time: 11/15/2007
12:18:42 PM
Successfully attached to the command device
/dev/rdisk/c3t50060E8003510E02d3s6
with instance number 302.

[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:18:02
Resolving target database files completed.

[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:18:02
Placing target database into backup mode.

[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:18:05
Placing target database into backup mode completed.

[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:18:05
Replicating target database files.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:18:06 PM
Preparing the application system for splitting of disks.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:18:06 PM
Disabling the application system.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:18:06 PM
The application system was successfully disabled.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:18:06 PM
The application system is prepared for splitting of disks.

[Normal] From: SSEA@victoria.somedomain.com "" Time: 11/15/2007
12:18:51 PM
Splitting disks.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:18:06 PM
Resuming the application system.

[Normal] From: SSEA@victoria.somedomain.com "" Time: 11/15/2007
12:18:51 PM
Splitting of disks completed.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:18:06 PM
The application system was successfully resumed.

[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:18:07
Replicating target database files completed.

[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:18:07
Placing target database out of backup mode.

[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:18:08
Placing target database out of backup mode completed.

[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:18:08

Preparing target database replica on the backup host.

[Normal] From: SSEA@victoria.somedomain.com "" Time: 11/15/2007
12:18:55 PM

The following disks were successfully mapped from
LDEVs to character device path names of disks:

SEQ#	Port	LDEV	Target Lun	Disk
20750	CL1-C	027Bh (635)	15 89	c3t50060E8003510E02d0

[Normal] From: SSEA@victoria.somedomain.com "" Time: 11/15/2007
12:18:55 PM

Resolving backup objects on the backup system.

[Normal] From: SSEA@victoria.somedomain.com "" Time: 11/15/2007
12:18:56 PM

Resolving of backup objects on the backup system completed.

[Normal] From: SSEA@victoria.somedomain.com "" Time: 11/15/2007
12:18:56 PM

Disabling the backup system.

[Normal] From: SSEA@victoria.somedomain.com "" Time: 11/15/2007
12:18:56 PM

The backup system was successfully disabled.

[Normal] From: SSEA@victoria.somedomain.com "" Time: 11/15/2007
12:18:56 PM

Preparing the backup system.

[Normal] From: SSEA@victoria.somedomain.com "" Time: 11/15/2007
12:19:02 PM

Disk group oradg_0_atlantic.somedomain.com has been successfully
imported.

[Normal] From: SSEA@victoria.somedomain.com "" Time: 11/15/2007
12:19:02 PM

The backup system was successfully prepared.

[Normal] From: SSEA@victoria.somedomain.com "" Time: 11/15/2007
12:19:02 PM

Preparation of the backup system completed.

[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:18:17
Preparing target database replica on the backup host completed.

[Normal] From: ob2rman@amazon "RACD" Time: 11/15/07 12:18:22
Backup of target database completed.

[Normal] From: BSM@victoria.somedomain.com "ZDB_IR" Time: 11/15/2007
12:20:57 PM

OB2BAR application on "atlantic.somedomain.com" disconnected.

[Normal] From: SSEA@victoria.somedomain.com "" Time: 11/15/2007
12:19:08 PM

Resuming the backup system.

[Normal] From: SSEA@victoria.somedomain.com "" Time: 11/15/2007
12:19:08 PM

The backup system was successfully resumed.

[Normal] From: SSEA@victoria.somedomain.com "" Time: 11/15/2007 12:19:08 PM
COMPLETED SSEA-Backup Agent on victoria.somedomain.com.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:18:23 PM
COMPLETED SSEA-Application Agent on amazon.

[Normal] From: BSM@victoria.somedomain.com "ZDB_IR" Time: 11/15/2007 12:20:58 PM

Backup Statistics:

Session Queuing Time (hours) 0.00

This is a tapeless session and no backup media beside the replica have been created. Replica size is 9.00 GB.

=====
=====
Session completed successfully!
=====
=====

7.4 Oracle 10g RAC R2 ZDB Proxy Restore IR - Example

IR performed on same node from which the backup for IR is performed.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:20:19 PM
Starting agent on amazon.

[Normal] From: SSEA@victoria.somedomain.com "" Time: 11/15/2007 12:21:07 PM
Starting agent on victoria.somedomain.com.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:20:21 PM
Resolving objects for Instant Recovery.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:20:27 PM
Successfully attached to the command device /dev/rdisk/c3t50060E8003510E02d2s0 with instance number 301.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:20:57 PM
The following BC pairs will be used in current session:

SEQ#	LDEV	Port	TID	LUN	MU#	Status	SEQ#
-----	-----	-----	-----	-----	-----	-----	-----
20750	0234h (564)	CL1-C	0	81	0	STAT_PSUS	20750
027Bh (635)							
-----	-----	-----	-----	-----	-----	-----	-----

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:20:58 PM
Objects for Instant Recovery successfully resolved.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:20:58 PM

Disabling the application system.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:21:01 PM
Disk group oradg has been successfully deported.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:21:01 PM
The application system was successfully disabled.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:21:01 PM
Starting Instant Recovery.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:21:01 PM
Synchronizing disks! 99 % completed!

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:21:06 PM
Resuming the application system.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:21:20 PM
Disk group oradg has been successfully imported.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:21:24 PM
The application system was successfully resumed.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:21:24 PM
Instant Recovery successfully completed.

[Normal] From: SSEA@victoria.somedomain.com "" Time: 11/15/2007
12:22:09 PM
COMPLETED SSEA-Backup Agent on victoria.somedomain.com.

[Normal] From: SSEA@amazon "" Time: 11/15/2007 12:21:24 PM
COMPLETED SSEA-Application Agent on amazon.

```
=====
====
                        Session completed successfully!
=====
====
```

Note: Recovery of database can be done in two ways:

3. Using DP GUI:
To perform a database recovery immediately after an instant recovery, click on the Options tab, select Recovery and then select the database recovery options.
4. Using RMAN command line:

Run the following RMAN script to recover the database:

```
run {
allocate channel <dev1> type 'sbt_tape' parms
'ENV=(OB2BARTYPE=Oracle8,OB2APPNAME=<DB_NAME>');
recover database;
sql 'alter database open';
release channel <dev1>;
}
```

8 References

- HP OpenView Storage Data Protector Integration Guide for Oracle SAP
- HP OpenView Storage Data Protector Installation and Licensing Guide
- HP OpenView Storage Data Protector Zero Downtime Backup Administrator's Guide
- HP OpenView Storage Data Protector Zero Downtime Backup Concepts Guide
- HP OpenView Storage Data Protector Zero Downtime Backup Integration Guide
- Oracle Database Administrator's Guide 10g Release 2 (10.2)
- Oracle Database Installation Guide 10g Release 2 (10.2) for Solaris Operating System (SPARC 64-Bit)
- Oracle Clusterware and Oracle Real Application Clusters Installation Guide 10g Release 2 (10.2) for Solaris Operating System (SPARC 64-Bit)