Algihaz Backup strategy

**ORACLE database backup policy**

## Introduction

The physics database services at database server implement a backup strategy based on ORACLE RMAN 11g. This strategy allows for backups to tape but also to disk (flash backup), thus reducing substantially the recovery time for many common recovery scenarios.

This note explains the types of backup, retention policies and recovery strategies which are adopted by the IT-PSS group, with the aim of reviewing them with the experiments and the grid community prior to the LHC start-up.

## Types of backup

The **backup to ODA server**. Oracle RMAN has dedicated drivers to connect to ODA server and stores in a special backup format. There are different kinds of backups.

* Full backup (level 0) - a complete copy of the database and control files
* Cumulative backup (level 1) - copy of blocks changed since latest level 0 backup
* Archive logs - copy of the archive logs (files containing the log of the operations done in the database)

For the **backup on disk** first ORACLE RMAN copies all data files into the flash recovery area (typically on a different storage array than the data files), then all the subsequent backups are differential. We use a technique called "Incrementally Updated Backups" to maintain this type of backup.

The ORACLE's block change tracking feature is used to significantly reduce the latency and weight of the incremental DB backups (only changed DB blocks are read during a backup with this optimization).

## Backup retention policy proposal

The **backup on tape retention policy** is set to 31 days. This guarantees that a copy of the database can be recovered in a time window of 31 days. In addition, we propose that a full backup is systematically performed and kept before any ORACLE software upgrade.

The schedule for the **backup to tape** is as follows

* **Full** - every Day at 21:30 PM
* **Incremental** (differential or cumulative) – daily
* **Archive logs** - every 30 minutes

The backup on disk retention is set to 2 days and allows for database recoveries in that time frame.

The schedule for the **backup on disk** is as follows

* **Full** - at database creation
* **Incremental** – daily

# **Backup Scripts & Location.**

The below are the location of Backup scripts & Contents of the backup scripts.

/u01/app/scripts/RMAN 🡪 Location of Backup scripts Stored

Under this location there are 3 files DB caller, RMAN script, Application backup script

bk\_db.sh 🡪 This script is called as DB caller script which will set the environment variable for

Database and sets the location for Backup log, below is the contents of script.

[oracle@ odarac01n0 ~]$ cat /u01/app/scripts/RMAN/bk\_db.sh

unset DATAZI

DATAZI=$(date +"%Y%m%d\_%H%M")

#export TAG=$1

export ORACLE\_SID=PROD

export ORACLE\_HOME=/u01/app/oracle/product/11.2.0.4/dbhome\_1

${ORACLE\_HOME}/bin/rman @/u01/app/scripts/RMAN/bk\_db.rman log /u01/app/scripts/RMAN\_LOGS/bk\_PROD\_database\_${DATAZI}.log

bk\_db.rman 🡪 This script is the RMAN backup script which is used to take the database backup

This is is store in db\_file\_recovery\_dest parameter of the database.

Below is the contents of the script.

[oracle@odarac01n0 ~]$ cat /u01/app/scripts/RMAN/bk\_db.rman

CONNECT target /

run

{

crosscheck backup;

sql 'alter system archive log current';

backup as compressed backupset database;

crosscheck archivelog all;

backup as compressed backupset archivelog all;

delete NOPROMPT obsolete;

}

Apps\_bkp.sh🡪 This script is used to take the backup of Application tier.

#!/bin/bash

#Purpose = Production Application backup

#Created on 11-8-2015

#Author = Muqtar

#Version 2.0

#START

TIME=`date +%b-%d-%y`

FILENAME=backup-$TIME.tar.gz

SRCDIR=/u01/install/APPS/fs2

DESDIR=/u01/install/backup

tar -cpzf $DESDIR/$FILENAME $SRCDIR

echo "My message" | mailx -s "Applicaton weekly Full backup Completed" Muqtar.khan@raqmiyat.com

#END