Rman Don’t Forget the Basics

NYOUG Webinar
February 3, 2012
Why Companies Trust Pythian

• Recognized Leader:
  
  • Global industry-leader in remote database administration services and consulting for Oracle, Oracle Applications, MySQL and SQL Server
  
  • Work with over 150 multinational companies such as Forbes.com, Fox Sports, Nordion and Western Union to help manage their complex IT deployments

• Expertise:
  
  • One of the world’s largest concentrations of dedicated, full-time DBA expertise. Employ 7 Oracle ACEs/ACE Directors.

  • Hold 7 Specializations under Oracle Platinum Partner program, including Oracle Exadata, Oracle GoldenGate & Oracle RAC.

• Global Reach & Scalability:
  
  • 24/7/365 global remote support for DBA and consulting, systems administration, special projects or emergency response
Preaching to the converted

- The ultimate backup solution
- Teenager of Oracle backup solutions
- Least amount of intervention
- Simple syntax
- Redundant metadata (with catalog)
- Native compression
Approach

• Overview of the top 10
• The why
• Interactive discussion
• Summary and moving forward
Mantra

Back up and take a good look at your backup; the secret about backup is to be able to get your backup and bring your database back up …
<table>
<thead>
<tr>
<th></th>
<th>Language concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Persistent configuration</td>
</tr>
<tr>
<td>8</td>
<td>Naming conventions</td>
</tr>
<tr>
<td>7</td>
<td>Duplicate database</td>
</tr>
<tr>
<td>6</td>
<td>Block change tracking</td>
</tr>
<tr>
<td></td>
<td>Prep for loss of everything</td>
</tr>
<tr>
<td>---</td>
<td>----------------------------</td>
</tr>
<tr>
<td>4</td>
<td>Recovery testing</td>
</tr>
<tr>
<td>3</td>
<td>Catalog-based</td>
</tr>
<tr>
<td>2</td>
<td><code>control_file_record_keep_time</code></td>
</tr>
<tr>
<td>1</td>
<td>Controlfile autobackup</td>
</tr>
</tbody>
</table>
10-Language concerns

- Avoid surprises of character translation
  - raison d'être ≠ raison d'jtre
  - André ≠ Andrh

- Assist reporting using list backup ...; commands [02-OCT-11 or 02-OCT-11 04:32:19]

- Instrumental when using restore/recovery set until functionality
10-Language concerns

• Query the character set of your database using $V$\textsc{ns}_\textsc{parameters}$

• Set environment accordingly

\begin{verbatim}
NLS_LANG=american_america.we8iso8859p1
NLS_DATE_FORMAT='DD-MON-YYYY HH24:MI:SS'
\end{verbatim}
9-Persistent configuration

- Default device type
- Compression preferences (10g and up)
- Channel configuration
- Recovery window (preferred to redundancy)
  - avoid surprises; see here (Seiler, Pythian)
  - what becomes obsolete; see here (Shedai, Pythian)
  - controls deletion of obsolete archived redo
9-Persistent configuration

configure default device type to disk;
configure device type disk backup type to compressed backupset;
configure channel device type disk format '/rman/orcl/%d_%U_bsn%s_pn%p_%T.bak';
configure retention policy to recovery window of 14 days;
configure maxsetsize to 8g;
## 8-Naming conventions

<table>
<thead>
<tr>
<th>Wild card</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>%d</td>
<td>Upper-case database name</td>
</tr>
<tr>
<td>%T</td>
<td>Timestamp (YYYYYMMDD)</td>
</tr>
<tr>
<td>%p</td>
<td>Piece number within backupset</td>
</tr>
<tr>
<td>%s</td>
<td>Backup set number (counter incremented in control file)</td>
</tr>
</tbody>
</table>
7-Duplicate database

- Fluency mandatory
- Proof-of-concept on backup strategy
- Features of 11g and 9i/10g
- Build physical standby
- Nuances of doing on same server
  - db_name the same
  - lock_name_space
7-Duplicate database

PROD

- open "normal"
- application activities ongoing

STDBY

- nomount
- spfile in place

SQL*Net connectivity

SYS password = SYS password
7-Duplicate database

- 10g
  - Rman backup accessible to the standby site
  - Restore from rman image
  - Roll-forward to current point-in-time

- 11g
  - No rman backup need be on standby site
  - Active duplicate
  - Roll-forward activities reduced
6-Block change tracking

- Huge enhancement for incremental backups
- BCT file used by rman as a roadmap to what has changed
- Discuss when turned on
  - With personnel doing backups
  - Many organizations do not backup ANYTHING in database directories or Oracle software locations
6-Block change tracking

alter database enable block change tracking using file 'database/orcl_bct.f';

alter database disable block change tracking;
6-Block change tracking

Minimal
5-Prep for loss of everything

1. Controlfile autobackup
2. Precious DBID
3. As many level 0’s as performance and storage can "tolerate"
4. Regular "show all;" to ALWAYS know where rman will find backupset pieces
4-Recovery testing

- The full gamut of scenarios
  - full database
  - point-in-time
    - cancel based
    - time based
    - change based
- Restore database validate
- Restore database preview
4-Recovery testing

- Nothing replace "the real thing"
- Same-server restore/recovery requirements

restore database preview
restore database validate
restore/recover database
set dbid 320066378; **
run {
    set controlfile autobackup
    format for device type disk to '/rman/orcl/%F';
    restore controlfile from autobackup;
}
3-Recovery catalog

- 2 locations for metadata
- BP object in catalog frequent target of rman reporting activities
- Mandatory to allow master database rescovery when writing rman on physical standby
- Same server with its own standby
3-Recovery catalog

User with
- quota
- create session
- create table
- create view
- create procedure
- recovery_catalog_owner
2-control_file_record_keep_time

• Specifies the minimum number of days before a reusable record in the control file can be reused

• Only applies to control file records that are circularly re-usable

• Archivelog records AND many types of backup records fall into this category
alter system set control_file_record_keep_time = 65;

9748480 Nov  5 cntrl11.ctl
19496960 Nov 25 cntrl11.ctl
1-Controlfile autobackup

- The ultimate configuration
- Controlfile backup taken
  - structure change to database
  - ANY rman backup
- Restore controlfile to alternate location
- Backup (then extract) spfile
1-Controfile autobackup

- Written when
  - a successful rman backup completes
  - a structural change is done on the database
- Facilitates recovery from loss of everything (even spfile)
- Contains the DBID when %F used as format mask
configure controlfile autobackup on;

configure controlfile autobackup format for device type disk to '/rman/orcl/%F';
abbey@pythian.com

pythianmsabbey  pythianmabbey
Q & A