Managing the Archived Redo Log Files

By Ahmed Baraka

Objectives

In this lecture, you will learn how to perform the following:

- Compare between **NOARCHIVELOG** and **ARCHIVELOG** modes
- Set the archive destinations
- Control the archived redo log file name format
- Change the database archiving mode
- Display the current archiving mode
- Describe best practices of managing the archived redo log files

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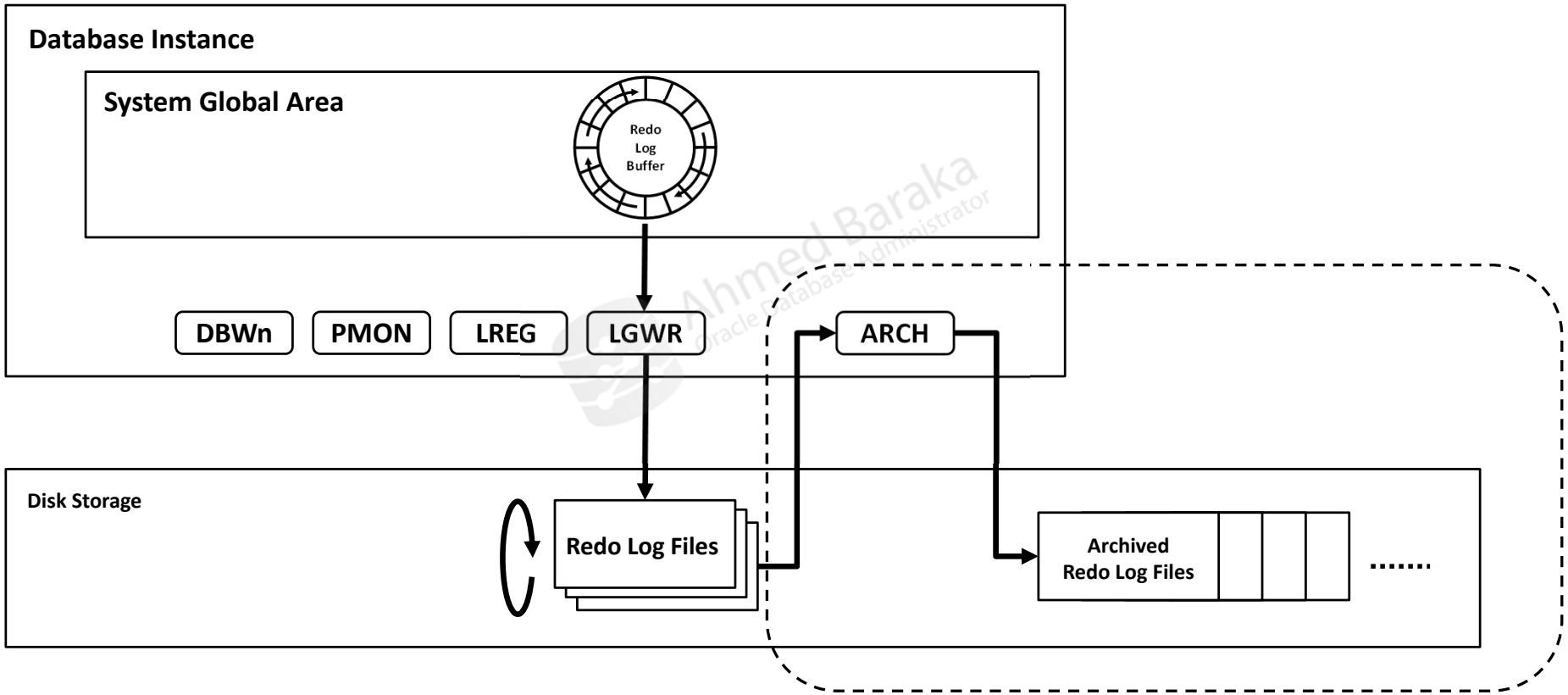
DB Architecture in ARCHIVELOG Mode



Comparison between NOARCHIVELOG and ARCHIVELOG Modes

NOARCHIVELOG	ARCHIVELOG
Protects from instance failure but not media failure	Protects from media failure
Online backup is not possible	Online backup is possible
Requires less administration overhead	Requires more administration overhead: setting a deletion policy for the archive logs
Requires less storage	Requires higher storage
Incur less performance overhead	Incur slightly more performance overhead
Could be used in POC or testing environments	Normally enabled in production systems

Enabling ARCHIVELOG Mode

1. Specify the archive log file destination(s)
2. Specify the archive log file name format (optional)
3. Enable the archiving mode

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Setting Archive Destinations

- Possible destinations: a directory, FRA, or to a remote service
- Multiple destinations can be configured
- Destinations can be set by setting either of the following parameters:
  - Setting the **LOG_ARCHIVE_DEST_n** parameters (recommended)
  - Setting the parameters: **LOG_ARCHIVE_DEST** and **LOG_ARCHIVE_DUPLEX_DEST**

Specifying Archive Destinations

- Set the **LOG_ARCHIVE_DEST_n** initialization parameters (where n is an integer from 1 to 31 (12c onwards))
- Examples:

```
ALTER SYSTEM SET LOG_ARCHIVE_DEST_1 = 'LOCATION=/u01/oradata/arc'
```

```
ALTER SYSTEM SET LOG_ARCHIVE_DEST_2=
'LOCATION=USE_DB_RECOVERY_FILE_DEST'..
```

- If the destinations are disabled (set to NULL) when the database is running in **ARCHIVELOG** mode, the database eventually hangs waiting for the destination to be set.

Specifying Alternate Destinations

- Target: to specify that a location be an archive destination only in the event of a failure of another destination.
- The following example makes **LOG_ARCHIVE_DEST_3** an alternate for **LOG_ARCHIVE_DEST_2**:

```
ALTER SYSTEM SET LOG_ARCHIVE_DEST_3 = 'LOCATION=/media/disk2';
ALTER SYSTEM SET LOG_ARCHIVE_DEST_2 = 'LOCATION=/media/disk3
MAX_FAILURE=1 ALTERNATE=LOG_ARCHIVE_DEST_3';
ALTER SYSTEM SET LOG_ARCHIVE_DEST_STATE_3=ALTERNATE;
```

Controlling Archived Redo Log Filenames

- Can be controlled by setting the parameter **LOG_ARCHIVE_FORMAT**
- The following variables can be included in the parameter value:

Variable	Description
%s %S	sequence number
%t %T	thread number
%d	database ID
%a	activation ID
%r	resetlogs ID

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- At least the following variables must be included: %s %t %r

```
LOG_ARCHIVE_FORMAT = 'log%t_%s_%r.arc'
```

- Has no effect when the archivelogs destination is assigned to FRA

Changing the Database Archiving Mode

1. Set the parameters for archive log destination and name format
2. Shutdown the database (cleanly)
3. Mount the database
4. Change the database archiving mode:

```
ALTER DATABASE ARCHIVELOG;
ALTER DATABASE NOARCHIVELOG;
```

5. Open the database

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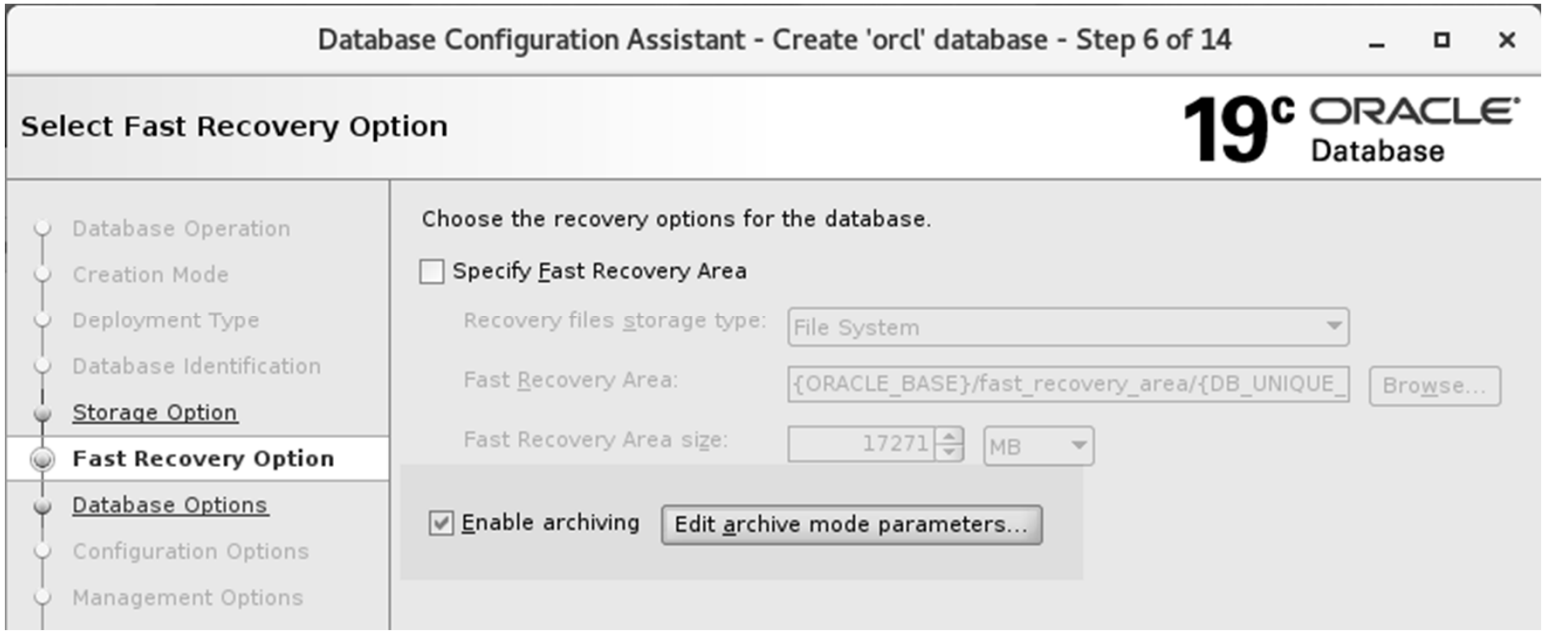
Enabling the Database Archiving Mode in dbca



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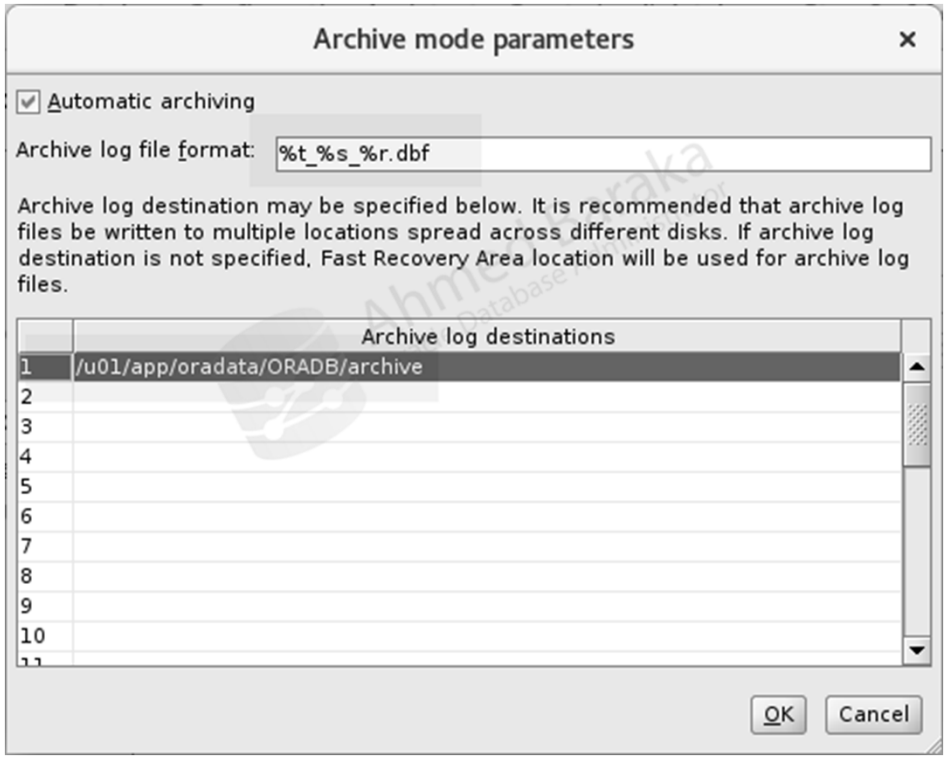

Displaying the Archiving Mode

- In SQL*Plus:

```
SQL> ARCHIVE LOG LIST

Database log mode Archive Mode
Automatic archival            Enabled
Archive destination           D:\oracle\oradata\oradb\archive
Oldest online log sequence    12342
Next log sequence to archive 12345
Current log sequence          12345
```

- In SQL:

```
SQL> SELECT LOG_MODE FROM V$DATABASE ;
LOG_MODE
------------
NOARCHIVELOG
```

Archived Redo Log Files in Multitenant Environment

- The online redo log groups are attached only to the root container and the archived redo log files are produced from them
- Managed the same way they are managed in a non-CDB database
- All the PDBs operate in a **`ARCHIVELOG`** mode or in **`NOARCHIVELOG`** mode.

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Obtaining Information About Archived Redo Logs

Dynamic Performance View	Description
V$ARCHIVED_LOG	Displays archived redo log information from the control file. If a recovery catalog is used, the RC_ARCHIVED_LOG view contains similar information.
V$ARCHIVE_DEST	Describes the current instance, all archive destinations, and the current value, mode, and status of these destinations.
V$ARCHIVE_PROCESSES	Displays information about the state of the various archive processes for an instance.
V$BACKUP_REDOLOG	Contains information about any backups of archived logs. If you use a recovery catalog, the RC_BACKUP_REDOLOG contains similar information.
V$LOG	all redo log groups for the database and indicates which need to be archived.
V$LOG_HISTORY	Contains log history information such as which logs have been archived and the SCN range for each archived log.

Managing the Archived Redo Log Files: Best Practices

- When the database is created, set the database in **NOARCHIVELOG**. Then after the database is created it, set it in **ARCHIVELOG**
- In nearly all production systems, the databases are running in **ARCHIVELOG** mode.
- Put them in high-capacity (not necessarily high-specs) storage
- Use RAID storage or create multiple destinations
- Put on a deletion policy to manage the consumed storage (usually part of the backup and recovery policy)
- Consider saving them in FRA

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Summary

In this lecture, you should have learnt how to perform the following:

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