Oracle Database 12c Release 2

Support Lessons Learned from Early Adopters

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Safe Harbor Statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

Program Agenda

1 ▶ Why Upgrade?

2 ▶ Install / Upgrade Issues

3 ▶ Behavior Changes

4 ▶ Performance Considerations

5 ▶ Errors

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Program Agenda with Highlight

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Why Upgrade?

- Avoid latent (security) bugs
  - Things are changing below the covers more than you know
- Leverage new and improved features
- Additional and improved diagnostics and metrics

SR Volume by Database Version
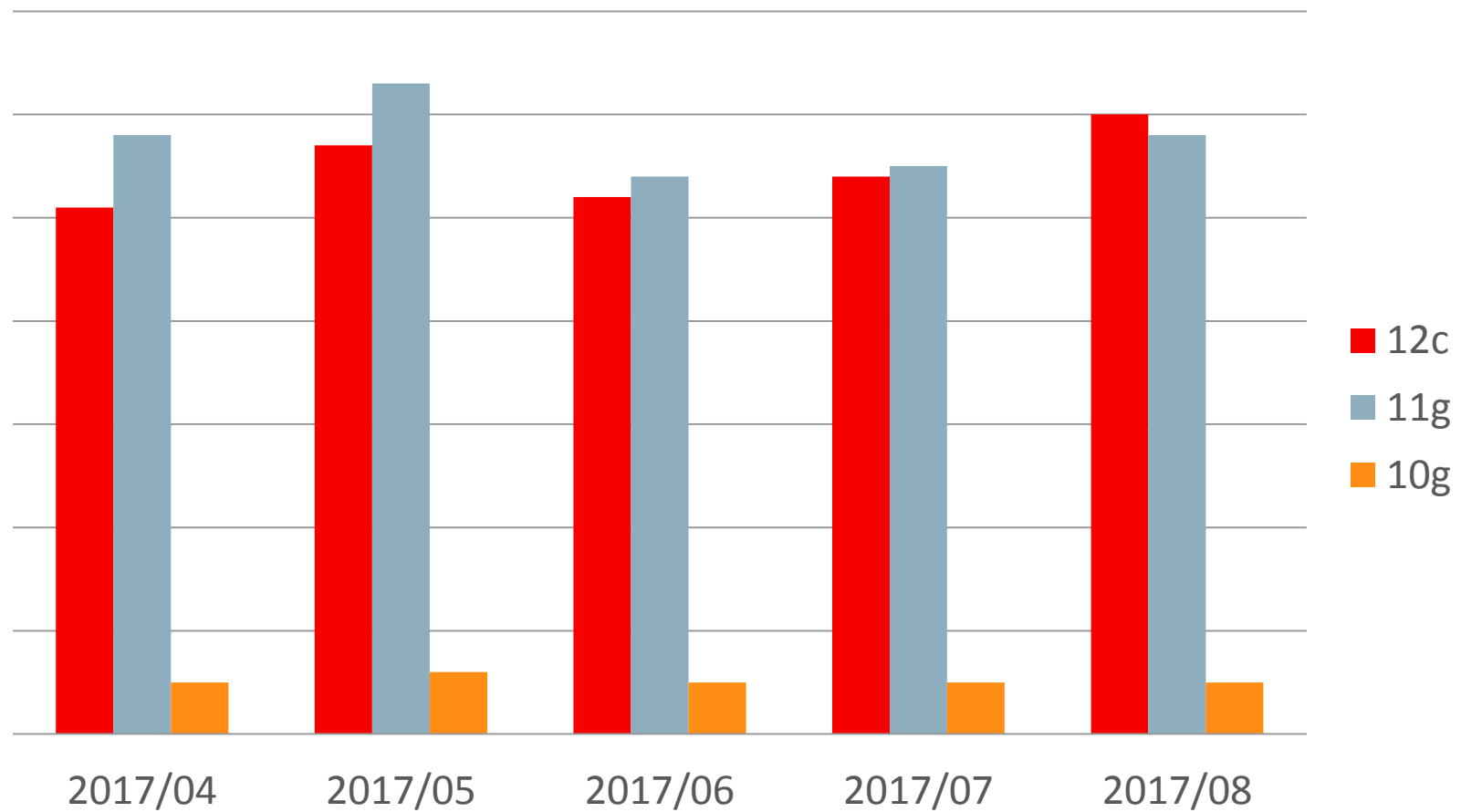
Most 12c questions fall under the areas of install, upgrade, and patching

- 🟥 12c
- 🟦 11g
- 🟧 10g

MOS Database Release Documents

http://support.oracle.com

- Doc ID 2309844.1: Database 12c Release 2 Information Center
  - 432.1: Get Proactive → Database → Resource Portfolio → 1568043.2 Info Centers

- Doc ID 161818.1: Database Release Support Status Summary
  - → Doc ID 2239820.1 : 12.2.0.1 Base Release – Availability and Known Issues

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[Semi] Common Install and Upgrade Issues

- ACFS drivers missing for Oracle Linux 7.3 RHCK or Red Hat 7.3
  - BUG 25078431 – Impacts 11.2, 12.1, and 12.2!
- RMAN Catalog DB Upgrade to 12.2 fails with ORA-1422
  - Bug 25852885 : backing up multiple Multitenant DBs
- Upgrade of a cloned database can fail with ORA-1
  - Need to update DBID in an internal table (Doc ID 2279575.1)

My Oracle Support Resources for Upgrades

- Upgrade Companion is now integrated into the Database Upgrade Guide and maintained as a living document online
  - http://docs.oracle.com/database/122/nav/install-and-upgrade.htm
- Doc ID 2195547.1 – Master Note for 12.2 Install/Upgrade/Migration
- Doc ID 2308753.1 – 12.2 install / upgrade frequently asked questions

General Upgrade Advice for Any Version

- New background processes may become present
  - Can even happen if enabling a "new" feature in an older release
  - Look out for OS scripts / cron jobs that automatically kill big or idle processes
- Always check client / server version compatibility matrix
  - MOS Doc ID 207303.1
  - ORA-3137 if incompatible
  - 11.2.0 lowest client version supported by 12.2 server
    - *But what about "longer identifiers" (30 to 128 character length) support?*
- More testing before production upgrade = higher odds of success
- Preserve performance baseline metrics

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Default Behavior Changes

- Multitenant configured by default for newly created databases via DBCA
  - Non-CDB deprecated but not obsolete (can still be chosen as a non-default)
- Slight learning curve for new commands and views
  - catcon.pl
  - CDB_* views
  - CON_ID column added to many v$ views
  - alter session set container =
  - alter pluggable database [open | close]... (can save state in 12.2)
- sqlplus scott/tiger@//host/PDB

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Changes in alert.log contents

- UNIFORM_LOG_TIMESTAMP_FORMAT default TRUE

- "network throttling disabled" – for unreleased feature so ignore (bug filed)

- SQL_IDs with many "parse errors" now reported as a warning/application diagnostic

- ORA-12012 Errors every 10 minutes with an internal job/task – Doc ID 2127675.1

- "An internal routine has requested a dump of selected redo…"
  - Informational .. not an error itself. But check the rest of alert.log just in case

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Miscellaneous Changes

- SQL*Plus login.sql search $PATH changed
  - No longer includes current working directory
  - Mainly a security enhancement

- Logon/logout banner no longer shows installed database options
  - Query v$option instead

- 12.1 DBCA template not compatible with 12.2 DBCA

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Performance

- Things to consider before upgrading ... (Doc ID not needed yet for 12.2)
  - CBO is a little less aggressive but adaptive compared to 12.1
  - Use SPM, but remember to disable capture_sql_plan_baselines eventually
  - Future patch updates may include CBO fixes (disabled by default)
- 213 wait events introduced
  - Nothing new widely reported
  - "PGA memory operation" (was uninstrumented in prior versions)
  - "row cache mutex" replaces "latch: row cache objects" but rarely seen
  - "library cache: mutex X" now split into 3 wait events
- TIP: Preserve performance baseline metrics before upgrading

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Reported Errors

- Top 10 reported errors has not changed much in several releases
  - Mostly related to SQL or PL/SQL syntax errors or running out of resources
- ORA-00600 [ktcrcm: caller passed...]
  - Bug 25199585 - Materialized View Refresh + LOB + online shrink race condition

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90%

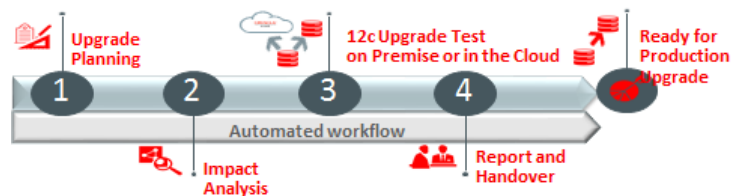Of this session's attendees will now be able to upgrade with more confidence

Oracle Upgrade Assurance Service

Expert Upgrade Preparation with Automated Workflow

Service Offerings	Service Features	Benefits and Value

• Oracle DB Upgrade Assurance Service is designed for moving your most critical databases to 12c in the Cloud and on-premise, and in safe and efficient manner – highlighting database and SQL performance .	• Upgrade preparation of Oracle Database 10gR2 or higher to Oracle Database 12c
	• Planning
	• Impact analysis
	• Testing
	  • Automated testing using real production workload
	  • SQL Performance Unit Test
	  • Test targets in the Cloud
	• Detailed Upgrade Analysis Report
	• Service governance
		• Detailed understanding of impact on your most critical databases
		• Detection and mitigation of hidden risk
		• Reports on current vs. future performance
		• Production Upgrade Readiness

Remaining DB Upgrade Sessions at OpenWorld 2017

- Upgrade Fearlessly to Oracle Database 12c with Oracle Advanced Customer Support
  - Wednesday, October 4, 4:30pm-5:30pm | Moscone West – Room 3016

- Upgrade and Migrate to Oracle Database 12c Release 2 – Hands on Lab
  - Wednesday, October 4, 4:45pm-5:45pm | Hilton San Francisco Union Square (Lobby Level) – Plaza Room A

Questions and Answers

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