

How and Why to Upgrade to DB 19c

DB 19c: Resistance Is Futile

Agenda

- John Watson, Oracle Certified Master DBA
- Who is Dave Anderson
- Why to Upgrade to 19c
 - What the different levels of Oracle support (e.g. premier, extended, sustaining) provide
 - Current support levels for recent Oracle Database releases
- How to Upgrade
 - Steps involved in doing an upgrade
 - Demonstration
 - A bit about the “big” new features in 19c
 - Obsolete and deprecated features
 - Considerations for converting to Multitenant while upgrading
 - Other miscellaneous but valuable pearls of wisdom about 19c

WHY? Support Levels

- Oracle will always support you, but ...
- Premier support
 - Error correction
 - Certification against new releases of third party products (including operating systems)
- Extended support
 - Error correction (including security patches) only
 - Additional charges apply: these are sometimes waived for a period

WHY? Support Levels

- Sustaining support
 - Existing patches only
 - Basically, unsupported
 - It is you and MOS
 - And Skillbuilders Support, of course!
 - For more info visit:
www.skillbuilders.com/database-administration

The Terminal Release

- Oracle definition of “terminal release”
- The version that will have long term support
 - All others will have sustaining support only
- 11g: terminal release is **11.2.0.4**
- *12c: terminal release is **19c***

The 12c “Family” Support (1)

- Terminology change: annual releases
 - 12.2.0.2 released as 18c
 - 12.2.0.3 released as 19c
- 12cR1
 - 12.1.0.1 already in sustaining support
 - 12.1.0.2 is in paid-for extended support, until 31-7-2020

The 12c “Family” Support (2)

- 12c support is ending soon
- Year 2021 is *it*: done, finito!
 - 12.2.0.1: premier support to 20-11-2020
 - 18c: premier support to 8-6-2021
 - Extended Support not available for either release
- 19c: premier support to 31-3-2023
 - Extended support to 31-3-2016

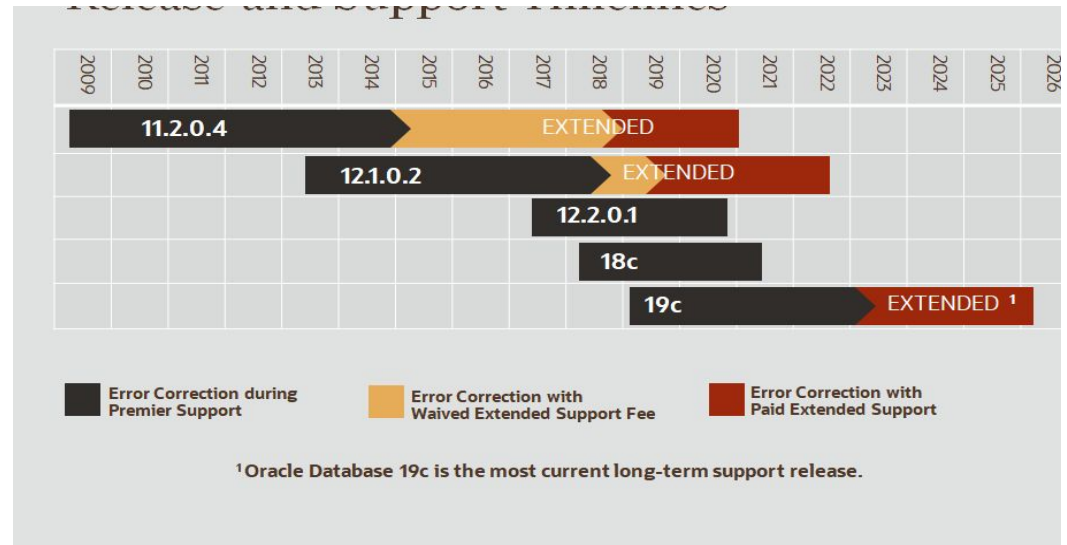
The 12c “Family” Support (3)

- Earlier versions
 - 10g in sustaining support since 2015
 - 11g paid-for extended support to 31-12-2020

WHY? The Doc That Says It All

- MOS document (Doc ID 742060.1)
- Release Schedule of Current Database Releases

- Updated often
- Includes a nice graphic



Before We Turn to HOW...

Please consider SkillBuilders for

- Database Admin Services led by OCM John Watson
- APEX Design and Development led by Tyson Jouglet and Garry Lawton
- Secure, Stable Cloud Hosting of Oracle Database and APEX Apps

www.skillbuilders.com

HOW? Upgrade Paths to 19c

- You want to be on the terminal release
 - That means 19c plus the latest RU
 - Or 11.2.0.4 if you really can't go to 19c
- Direct upgrade to 19c
 - Possible from 11.2.0.4, 12.1.0.2, 12.2.0.1, 18.x
 - Other releases upgrade to one of the above first
- Export/import possible between any releases

HOW? Be aware of problems

- Be wary - there are many possible issues with this upgrade
 - SQL*Net (in)compatibilities
 - Security issues
 - Optimizer changes
 - We have had to fix these and many others

HOW? Doing an Upgrade (1)

- Install and patch new Oracle Home
- Copy over SQL*Net files, stop the 12c listener, start the 19c listener
- Copy over parameter file and password file
- Run the pre-upgrade information tool, follow instructions

HOW? Doing an Upgrade (2)

- Upgrade the database
 - Use the DBUA GUI tool, or
 - Run the dbupgrade shell script
 - Either way, it takes 40 minutes
- Run any post-upgrade fix-up scripts
- Compile invalid objects

HOW? Zero down time

- Via transient logical standby
 - Possible issues with unsupported objects
- A supplied script: `physru.sh`
 - Not properly documented
 - But known to work
- The `DBMS_ROLLING` package
 - Requires Active Data Guard licences

New Features in 19c

- Many new features as you upgrade
 - Performance
 - Functionality
 - Fault tolerance
- Some features have restricted availability
 - Available only on engineered systems: Exadata is your friend
 - Available on Oracle Cloud but not on-premises
 - The ultimate example is the Autonomous capabilities

Facilities That Are Gone (1)

- Standard Edition RAC
 - Not available in release 19
 - Release 18 is as before: 2 nodes, 16 cores
- Streams
 - Deprecated from 12.x, desupported in 19.x
 - Incompatible with Multitenant
 - X-Streams is the replacement (requires GoldenGate licences)

Facilities That Are Gone (2)

- Advanced Replication
 - Deprecated in 12.1, desupported in 12.2
 - Read only materialized view replication is still supported
- Multimedia
 - The objects remain and are valid, but no longer function
 - Oracle Locator is not affected

Convert to Multitenant?

- Full usage of Multitenant is a licensed Enterprise Edition option
- Release 12.1, 12.2, and 18: single tenancy is available (licence free) in all editions
- Release 19: up to three PDBs is possible (licence free) in all editions
- Next release: Multitenant will be required

Convert to Multitenant?

- A PDB can be unplugged from 12.x, plugged into 19, and upgraded
- A non-CDB must be upgraded to 12.x then plugged in to a CDB
- Export/import may be an alternative to the plugin-and-upgrade routine

And a Word About Java

- Oracle Java isn't free anymore
 - Java SE server subscription: US\$300 per year per processor (core factors may apply)
 - Java SE desktop subscription: US\$30 per year per user
 - JDK 8 is the last licence free release of Java from Oracle
- OpenJDK is the licence free alternative
 - Current release is JDK13
 - Oracle has committed to releasing code to OpenJDK as they release the licensed version

And a Word About APEX

- APEX 20.1 is last version to support DB 11.2
- Minimum DB Release for APEX 20.1 is DB 12.1

In Summary

- Why to Upgrade
 - End of Support
- How to Upgrade
 - Export/Import?
 - Upgrade
- Java and APEX Implications

Ciao for Now

Thanks for attending!

John Watson, Oracle Certified Master DBA

Dave Anderson, SkillBuilders Founder, DBA

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- **Database Administration Services**
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