






## Why Should I Upgrade My Oracle Database?


When you already have your Oracle Database configured and maintained the way you like it, it can be tempting to ignore upgrades and leave things as they are.


There is some logic to this approach but without upgrades, you will miss out on many key benefits:

- 

Inclusion in support cycles
- 

Security patches for identified vulnerabilities
- 

New data protection features that build on old versions
- 

Performance improvements
- 

Greater uptime and availability of mission critical systems

Upgrading is especially critical in relation to the management of support costs. As mentioned above, upgrades allow you to stay fully supported. Failing to upgrade will mean that, if something goes wrong, you will have to pay a premium fee for support from Oracle to fix it.

Since Oracle has moved to yearly releases with quarterly patches, users have been able to access new features more quickly instead of waiting several years for the next major version. This continuous update also means that with each release there are less changes – and therefore less risk in upgrading.

### Our New Favourite Features

There are so many new features you receive with each Oracle database release, it can be hard to see the wood from the trees. To help you out, we've put together a detailed list of what's included. You may even find there are some features in your existing database that you could benefit from but are not currently using!

### HEALTH CHECK

Our experienced team of Database Administrators and Consultants is currently offering a 2 day Health Check service. As part of this we will look at any (now mature) features we can use to help get better performance, availability, security or address a specific problem you may have.

## Oracle 12.2

### General

- Upgrade simplifications
- Significant improvements for Windows users
- Advanced Index compression
- Index usage tracking – eliminate unused indexes
- Improved and automated trace file analysis including web based TFA
- New analytics for customers using ZFS
- Parallel dNFS provides significant performance gains for I/O
- Multiple GoldenGate improvements
- Database Sharding introduced - linear scale for OLTP
- Enhanced Application Continuity operations (seamless handling of failures)
- LOB support over DBLinks
- Case insensitive Database operations
- Unicode 7 support for greater globalisation
- JSON improvements – allowing Oracle to do all the things (and more) than MongoDB can do as a document database
- Real time refresh of materialised views allowing them to be used often

### Online / No downtime improvements

- Restart redefinition from failure point / Redefinition monitoring & rollback
- Online conversion to partitioning
- Online table move
- Hot cloning of PDBs

### Disk space automatic check for rman operations

### Improvements to cross platform transport (inc cross platform PDB recovery & network recovery)

### Improved database duplication

### Large (DWH) database enhancements

- Partitioned external tables
- Access to external Hadoop sources
- Analytics views
- Higher performance Analytics, Data Mining and analysis
- HCC improvements
- Partitioning improvements

### RAC / Clusterware Improvements

- ACFS enhancements – defragger, compression, snapshot, sparse files, resize improvements
- Rapid provision & patching improved

### Security

- Multiple encryption improvements including
  - Live conversion to encryption
  - Fully encrypted database
  - DBVault enhancements
- Strong passwords by default

### PDB

- PDB I/O rate limits & memory resource management
- PDBs can have different character sets & time zones
- PDB refresh – automate cloning!

### DataGuard improvements

- SYNC standby improvements
- Standby compare to check for errors
- Subset of PDBs support
- Enhanced automated failover options
- Auto password file sync to destinations
- Redo application on all RAC nodes
- Handling of NOLOGGING for DWHs
- DG support in Diagnostic & Tuning Pack

### Developer

- Improvements for .Net and MS Developers
- Java 8 support in the database
- Improved PL/SQL Debugger

## Oracle 18C

### General

- ✓ Zero-downtime database upgrades!
- ✓ Gold image distribution
- ✓ Local switch homes for faster updates / patching
- ✓ Configuration drift reporting and resolution
- ✓ Read only Oracle homes
- ✓ Linux RPM based installation
- ✓ Improved sequence scaling
- ✓ InMemory optimisations

### DataGuard

- ✓ DataGuard standby autocorrection of NOLOGGING operations
- ✓ Simplification recovery standby operations
- ✓ Support for backup to archive (object) storage to help reduce costs

### Analytics / Mining

- ✓ Improvement to Analytics Views
- ✓ Data Mining support for Exponential Smoothing, Neural networks etc
- ✓ Approximate Top-N query processing

### Developer

- ✓ SQL enhancements for JSON objects
- ✓ Unicode 9.0 support

### Large (DWH) database enhancements

- ✓ Performance optimisations for parallel partition wise operations
- ✓ Online modify partitioning on existing tables

### RAC / Clusterware Improvements

- ✓ Cluster Health advisor improved
- ✓ ASM and ACFS improvements
- ✓ ASM based database cloning

### Security

- ✓ Native integration with Active Directory
- ✓ Schema only accounts
- ✓ Encryption of data in replay files
- ✓ DBVault support for Database replay
- ✓ Encrypt credentials in the Data Dictionary

### PDB

- ✓ Duplicate PDBs between unencrypted and encrypted CDBs – great for Cloud migrations
- ✓ Automatically maintain standby databases when cloning PDBs
- ✓ PDB snapshot carousel – create a new test database each day (supports sparse / thin provisioning)

### Significant Graph Database Improvements

### Significant Database Sharding Improvements

## Oracle 19C

### General

- ✓ Customers allowed to use 3 \* PDBs in ALL releases for free!
- ✓ Create a duplication using DBCA in silent mode
- ✓ Image based database installation!
- ✓ Root scripts automation
- ✓ Dry-run validation of clusterware upgrades
- ✓ EasyConnect Plus
- ✓ Improved network log management
- ✓ Single command automated upgrade (including for multiple databases)
- ✓ Automatic Indexing
- ✓ Large number of Data Pump enhancements
- ✓ Quarantine SQL statements that use too many resources – stopping them being re-run

### Diagnostics

- ✓ Trace File Analyzer improvements
- ✓ Cluster health advisor integration with TFA
- ✓ RestAPI support

### DataGuard / Backup & Recovery

- ✓ Improvements to Fast Start Failover target management | Data Guard Broker
- ✓ Propagate Restore points to standby databases
- ✓ Active DataGuard DML re-direction
- ✓ Improved Flash Recovery Areas space management

### Large (DWH) database enhancements

- ✓ Performance enhancements for InMemory External tables
- ✓ Automatic SQL Plan management
- ✓ Real Time statistics gathering on DML activity
- ✓ Hybrid partitioning tables (internal and external tables)

### RAC / Clusterware Improvements

- ✓ Automate PDB relocation
- ✓ Zero downtime Grid Infrastructure patching
- ✓ RE-SUPPORT for OCR and Voting disk placement on shared filesystems

### Security

- ✓ Additional encryption algorithm support
- ✓ Improvements to Unified auditing
- ✓ Improvements to DBVault
- ✓ Privilege analysis

### PDB

- ✓ ADDM support for PDBs
- ✓ Workload capture and replay in PDB
- ✓ All versions allow 3 PDBs at no additional charge!

### More Significant Database Sharding Improvements

### De-support

- ✓ Oracle Streams
- ✓ RAC for Standard Edition
- ✓ Multimedia
- ✓ Leaf Nodes in Flex Clusters

## Why Inoapps?



**SOC 2**  
certified



**Highly experienced  
Technology Team,**  
led by our CTO, Oracle  
ACE James Anthony



Clients range  
from 1 instance to  
**300+**  
global instances

**To access your Health Check and find out more about upgrading your database, contact us today!**