

Upgrade Database to Oracle 9i

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Agenda

- Oracle 9i New Feature Overview
- Upgrade Planning
- Upgrade Paths
- Post-Upgrade
- Upgrade Steps
- Special Considerations
- Downgrade Database
- Questions

Oracle 9i New Feature Overview

Oracle 9i Feature Highlights

- XML Support
- ANSI compliant changes including ANSI joins
- Data Guard allows logfile updates to be shipped to standby db
- Enhanced LogMiner
- Fast Database Recovery
- Flashback query

Oracle 9i Feature Highlights

- Resumeable DML
- More DDL ONLINE
- Auto Management Features
 - Undo, SGA
 - Oracle Managed Files
- SPFILE
- List Partitioning
- External Tables
- Database Security
 - FGAC, Data Encryption,

Oracle 9i Feature Highlights

- Locally managed SYSTEM tablespace
- RAC (old OPS) enhancements
- Audit SYSDBA and SYSOPER incl. SYS
- ...

Upgrade Planning

Planning an Upgrade

- Review Oracle 9i Enhancements
 - Pay special attention to deprecated features
- Resources
 - Adequate HD space available
 - Availability of Developers and Testers
- Migration Test Plan
 - Test applications
 - Test DBA scripts
- Have an Acceptance Test Plan
- Fallback Strategy

Pre-Requisites

- Review init.ora parameters
 - Many parameters deprecated
 - Many new parameters added
- Review Oracle 9i installation manual for
 - OS patches
 - Compatibility matrix (Matalink for latest matrix)
- Review Migration Manual
- Review disk space requirements
 - Review Free space in SYSTEM tablespace

Upgrade Paths

Upgrade Paths

- From versions < 7.3
 - Upgrade to 7.3.4
 1. Install 7.3.4
 2. Startup database in 7.3.4
 3. Run upgrade script(s)
- From versions 8.0.3 - 8.0.5
 - Upgrade to 8.0.6
 1. Install 8.0.6
 2. Startup database in 8.0.6
 3. Run `$ORACLE_HOME/rdbms/admin/u0800060.sql`

Upgrade Paths

- From versions 8.1.5, 8.1.6
 - Upgrade to 8.1.7
 1. Install 8.1.7
 2. Startup database in 8.1.7
 3. Run `$ORACLE_HOME/rdbms/admin/u0801070.sql`
- From versions 7.3.4, 8.0.6, \geq 8.1.7
 - Direct upgrade to Oracle 9i

9i Upgrade Options

- Use Oracle Upgrade Assistance/Oracle Migration Utility
- Manual Upgrade
- Use Export/Import
- Use COPY command

Oracle Upgrade Assistance

- Pros

- First verifies available space
- Does all tasks automatically
- Even asks to perform backup
- In case of an error it prompts to exit or continue

- Cons

- DBA has no control of the steps

Manual Upgrade

- Pros

- DBA controls all steps

- Cons

- DBA needs to perform all steps manually
- DBA needs to ensure enough free space
- Manually change init.ora parameters

Export/Import

- Pros

- DBA controls what data gets migrated
- Defrag all tablespaces
- Can restructure the database
- Original database stays intact
- Can change HW or word size (32bit to 64bit)

- Cons

- Takes longer than dbua
- Resulting database is a new database
 - May need to modify RMAN, DBA scripts, Application scripts, etc

- Note: COPY command has similar benefits

Post-Upgrade

Post Upgrade

- Backup the database
- Secure default users
- Create SPFILE
- Migrate Oracle Managed Files
 - Only if upgrade from < 9.0.1.2
 - Change ora_ to oi_mf_
 - Add _ before file extension
- Test Application and DBA scripts
- Tune DB as necessary

Post Upgrade

- Change from LONG to LOB
 - Alter table xyz modify (colname LOB);
- Review listener.ora and tnsnames.ora
- Review init.ora settings
- Review invalid objects and unusable indices
- Upgrade STATS tables, if any
 - dbms_stats.upgrade_stat_table(<schema>,<table>);

Upgrade Steps

Upgrade Steps

1. Have a good Upgrade Plan

- Database Test Plans
- Application Test Plans
- Performance Test Plans
- Stress Test Plans
- DBA Script Test Plans
- Acceptance Test Plan

2. Check Resources

- Test System Resources
- Production System Resources

Upgrade Steps

3. Review Compatibility Matrix
4. Apply any OS patches
5. Decide on Upgrade Method
6. Install Oracle 9i on Test System
7. Create a copy of production on test System
8. Upgrade test database

Upgrade Steps

9. Backup upgraded test database
10. Test upgraded database
11. Test backout plan
12. Schedule Production Downtime
13. Install Oracle 9i on production system
14. Install any OS patches
15. Backup production database
16. Upgrade production database

Upgrade Steps

17. Perform any post-upgrade steps
18. Backup upgraded production database
19. Acceptance test of upgraded database
20. Go Live!

Special Considerations

- Standby Database
- Advanced Replication
- OPS/RAC
- Other options:
 - Oracle Text, Spatial, InterMedia, Visual Information Retrieval, Ultra Search

Downgrade Database

Downgrade Database

- Perform Downgrade Steps
 - Backup current database
 - Startup database in MIGRATE mode (STARTUP MIGRATE)
 - As SYSDBA run
\$ORACLE_HOME/rdbms/admin/d<oldversion>.sql
 - Downgrade other products incl. JVM, as required
 - Copy listener.ora, tnsnames.ora, init.ora files back to old version tree
 - Backup database

Downgrade Database

- Restore from Backup
 - Delete new database
 - Restore from backup taken previous to upgrade

Summary

Reference

- Migration Manual
- Reference Manual
- Metalink Notes
 - 76460.1, 123148.1, 177382.1, 159657.1,
165296.1, 165304.1

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