



Standard Edition Two

- Oracle Spezialist seit 1992
 - 1992: Presales bei Oracle in Düsseldorf
 - 1999: Projektleiter bei Herrmann & Lenz Services GmbH
 - 2005: Technischer Direktor ADM Presales bei Quest Software GmbH
 - 2011: Geschäftsführer CarajanDB GmbH
- 2011 → Ernennung zum Oracle ACE
- Autor der Bücher:
 - Oracle9i für den DBA, Oracle10g für den DBA, Oracle 11g Release 2 für den DBA
- DOAG Themenverantwortlicher Datenbankadministration, Standard Edition
- Hobbies:
 - Drachen steigen lassen (Kiting) draußen wie drinnen (Indoorkiting)
 - Motorradfahren (nur draußen)
 - Singen (überall)



Standard Edition 2

- Verfügbar seit dem 01. September 2015
- Maximal 2 Sockets
 - Dabei darf der Server nicht mehr als 2 Sockets haben (egal ob belegt oder leer)
- Maximal 16 CPU Threads
 - Hyperthreading wird mitgezählt
- Oracle RAC enthalten (allerdings auch nur bis gesamt max. 2 Sockets)

Oracle Database Standard Edition 2 may only be licensed on servers that have a maximum capacity of 2 sockets. When used with Oracle Real Application Clusters, Oracle Database Standard Edition 2 may only be licensed on a maximum of 2 one-socket servers. In addition, notwithstanding any provision in Your Oracle license agreement to the contrary, each Oracle Database Standard Edition 2 database may use a maximum of 16 CPU threads at any time. When used with Oracle Real Application Clusters, each Oracle Database Standard Edition 2 database may use a maximum of 8 CPU threads per instance at any time. The minimums when licensing by Named User Plus (NUP) metric are 10 NUP licenses per server. (<http://www.oracle.com/us/corporate/pricing/databaselicensing-070584.pdf>)

Vergleich

	Standard Edition Two	Standard Edition	Standard Edition One
Named User Plus	\$ 350,00	\$ 350,00	\$ 180,00
Anzahl NUPs pro Server	10	5	5
Prozessorpreis	\$ 17.500,00	\$ 17.500,00	\$ 5.800,00
Max. Anzahl Sockets	2	4	2
Max. Anzahl Threads	16*	unbegrenzt	unbegrenzt
Max. RAM	unbegrenzt	unbegrenzt	unbegrenzt
Max. Datenbankgröße	unbegrenzt	unbegrenzt	unbegrenzt
RAC	Ja	Ja	Nein
RAC One Node	Nein	Nein	Nein
Support bis	Unlimitiert	31.08.2016	31.08.2016
Version	Ab 12.1.0.2	Bis 12.1.0.1	Bis 12.1.0.1

*Pro Datenbank

Was bedeutet 16 Threads?

- Limitierung durch Resource Manager (automatisch)
- Gilt nicht für die Hintergrundprozesse
- Gilt pro Datenbank
 - RAC → 8 Threads pro Instanz (bis Version 18)
 - Datenbank Konsolidierung → jede kann 16 Threads verwenden

Was bedeutet 2 Sockets?

- Server darf maximal zwei Sockets haben
 - Gilt auch für RAC, aber nur ein Socket darf jeweils belegt sein
- Lizenziert werden müssen nur tatsächlich belegte Sockets

- Starting with the release of Oracle Database 12.1.0.2, Oracle Database Standard Edition 2 (SE2) has been released.
- Beginning with the release of Oracle Database 12.1.0.2, Oracle Database Standard Edition (SE) and Oracle Database Standard Edition One (SE1) are no longer being released. 12.1.0.1 was the final edition that we will produce for SE and SE1.

- Oracle Standard Edition
 - Keine Migrationskosten
 - Lizenzen müssen migriert werden, wenn die Version 12.1.0.2 (oder neuer) eingesetzt werden soll
- Oracle Standard Edition One
 - 20% Uplift auf die aktuellen Supportkosten (z.B. \$ 1.276,00 → \$ 1.531,20)
 - Lizenzen müssen migriert werden, wenn die Version 12.1.0.2 (oder neuer) eingesetzt werden soll

Oracle Licensing Guide

Oracle Database Offering	Offering Type	Abbreviated Name Used in this Guide	Description
Oracle Database Standard Edition 2	On-Premise	SE2	Oracle Database Standard Edition 2 includes features necessary to develop workgroup, department-level, and Web applications.
Oracle Database Enterprise Edition	On-Premise	EE	Oracle Database Enterprise Edition provides performance, availability, scalability, and security for developing applications such as high-volume online transaction processing (OLTP) applications, query-intensive data warehouses, and demanding Internet applications. Oracle Database Enterprise Edition can be enhanced with the purchase of Oracle Database options and Oracle management packs.
Oracle Database Enterprise Edition on Engineered Systems	On-Premise	EE-ES	Oracle Database Enterprise Edition software installed on an on-premise engineered system (Oracle Exadata Database Machine or Oracle Database Appliance). Includes all of the components of Oracle Database. You can further enhance this offering with the purchase of Oracle Database options and Oracle management packs. The licensing policies for EE-ES vary depending on whether it is installed on Oracle Exadata Database Machine or Oracle Database Appliance. Be sure to make note of these differences, which are documented in the subsequent sections of this guide.
Oracle Database Personal Edition	On-Premise	PE	Oracle Database Personal Edition supports single-user development and deployment environments that require full compatibility with Oracle Database Standard Edition 2 and Oracle Database Enterprise Edition. Includes all of the components that are included with Enterprise Edition, as well as all Oracle Database options, with the exception of the Oracle RAC One Node and Oracle Real Application Clusters options, which cannot be used with Personal Edition. Personal Edition is available on Linux and Windows platforms only. Oracle management packs cannot be used with Personal Edition.
Oracle Database Cloud Service Standard Edition	Cloud	DBCS SE	Includes Oracle Database Standard Edition 2 software.



Features und Functions

Standard Edition und Version 19

- Oracle Fail Safe → Deprecated ab Version 19
- Oracle Real Application Clusters → Desupported ab Version 19

- Beschreibung von räumlichen Daten
- „Wo auf der Welt befindet sich eigentlich der Kölner Dom?“
- DOAG Webinar
 - https://www.doag.org/formes/pubfiles/8763687/Spatial_Webinar_10022017_anj.pdf

- Ab Oracle 19c

Table 1-12 Spatial and Graph Data

Feature / Option / Pack	SE2	EE	EE-ES	DBCS SE	DBCS EE	DBCS EE-HP	DBCS EE-EP	ExaCS	Notes
Oracle Spatial and Graph	Y	Y	Y	Y	Y	Y	Y	Y	Oracle Spatial and Graph no longer requires an extra cost license. See Oracle Database Insider blog post for more information.
Property Graph and RDF Graph Technologies (RDF/OWL)	Y	Y	Y	Y	Y	Y	Y	Y	Property Graph and RDF Graph Technologies (RDF/OWL) no longer requires an extra cost license. See Oracle Database Insider blog post for more information.
Parallel spatial index builds	N	Y	Y	N	Y	Y	Y	Y	
Multimaster replication of SDO_GEOMETRY objects	N	Y	Y	N	Y	Y	Y	Y	EE and EE-ES : Single master/materialized view replication for SDO_GEOMETRY objects is supported
Partitioned spatial indexes	N	Y	Y	N	N	Y	Y	Y	EE and EE-ES : Requires the Oracle Partitioning option

- Ab Oracle 19c

Oracle Machine Learning (formerly Advanced Analytics)	Y	Y	Y	Y	Y	Y	Y	Y	Oracle Machine Learning no longer requires an extra cost license. See Oracle Database Insider blog post for more information.
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Oracle Machine Learning includes the following features:

- In-database algorithms for Oracle Machine Learning for SQL (OML4SQL) (formerly Oracle Data Mining):
 - Model build (accessed via the `DBMS_DATA_MINING` package)
 - Data transformations (accessed via the `DBMS_DATA_MINING_TRANSFORM` package)
 - Model scoring (accessed via SQL Scoring functions)
 - Predictive Analytics (accessed via the `DBMS_PREDICTIVE_ANALYTICS` package)
- Oracle Machine Learning for R (OML4R) (formerly Oracle R Enterprise) (integration with open-source R):
 - OML4R Transparency Layer: Allows an R user to explore and prepare database-resident data using R language syntax and functions
 - OML4R interface to in-database machine learning algorithms
 - Embedded R Execution: Enables execution of user-defined R functions in database spawned and controlled R engines, also enabling data- and task- parallel execution
 - All OML4R functionality is invoked using the ORE package



Multitenant Database

Feature / Option / Pack	SE2	EE	EE-ES	DBCS SE	DBCS EE	DBCS EE-HP	DBCS EE-EP	ExaCS	Notes
Oracle Multitenant - # of PDBs	3	252	4096	3	3	4096	4096	4096	The number value in each column indicates the maximum number of pluggable databases (PDBs) that can be created for each offering. • For all offerings, if you are not licensed for Oracle Multitenant, then you may have up to 3 user-created PDBs in a given container database at any time. • EE: Extra cost option; if you are licensed for Oracle Multitenant, then you can create up to 252 PDBs. • EE-ES: Extra cost option; if you are licensed for Oracle Multitenant, then you can create up to 4096 PDBs. • DBCS EE-HP, DBCS EE-EP, and ExaCS: Included option; you can create up to 4096 PDBs.

- Announcement am 02. März 2020



Flashback Funktionen

Flashback Table	N	Y	Y	N	Y	Y	Y	Y	
Flashback Database	N	Y	Y	N	Y	Y	Y	Y	
Flashback Transaction	N	Y	Y	N	Y	Y	Y	Y	
Flashback Transaction Query	N	Y	Y	N	Y	Y	Y	Y	
Optimization for Flashback Data Archive	N	Y	Y	N	N	Y	Y	Y	Basic Flashback Data Archive is in all offerings EE and EE-ES: Optimization for Flashback Data Archive requires the Oracle Advanced Compression option

- Ist nicht zu 100% korrekt → „Flashback Table To before Drop“ (Recycle-Bin) ist erlaubt

Backup und Recovery

Duplexed backup sets	N	Y	Y	N	Y	Y	Y	Y	
Block change tracking for fast incremental backup	N	Y	Y	N	N	N	Y	Y	
Unused block compression in backups	N	Y	Y	N	Y	Y	Y	Y	
Block-level media recovery	N	Y	Y	N	Y	Y	Y	Y	
Lost Write Protection	N	Y	Y	N	Y	Y	Y	Y	
Automatic Block Repair	N	Y	Y	N	N	N	Y	Y	EE and EE-ES: Requires the Oracle Active Data Guard option
Parallel backup and recovery	N	Y	Y	N	Y	Y	Y	Y	
Tablespace point-in-time recovery	N	Y	Y	N	Y	Y	Y	Y	
Trial recovery	N	Y	Y	N	Y	Y	Y	Y	
Fast-start fault recovery	N	Y	Y	N	Y	Y	Y	Y	
Cross-platform Backup and Recovery	N	Y	Y	N	Y	Y	Y	Y	
Recovering tables and table partitions from RMAN backups	N	Y	Y	N	Y	Y	Y	Y	

- Verfügbar bzw. erlaubt
 - RMAN
 - RMAN Catalog
 - Incremental Backups
 - Tablespace Backup

- Recovery einer oder mehrerer Tabellen aus eine RMAN Backup
 1. Ermitteln des notwendigen Backup Sets
 2. Aufbauen einer Auxiliary Datenbank
 3. Exportieren der Tabellen mit Data Pump Export
 4. Importieren der Tabellen mit Data Pump Import (Optional)
 5. Umbenennen der Tabelle (Optional)

Das bekommt man vielleicht auch noch selbst hin!

- Keine Online Operationen

Online index rebuild	N	Y	Y	N	Y	Y	Y	Y	
Online table organization	N	Y	Y	N	Y	Y	Y	Y	ALTER TABLE ... MOVE ONLINE operations
Online table redefinition	N	Y	Y	N	Y	Y	Y	Y	Using the DBMS_REDEFINITION package
Online Datafile Move	N	Y	Y	N	Y	Y	Y	Y	

- Alternative zu „Online Data Move“ ist sehr aufwändig

- Ein Baseline pro Statement

SQL Plan Management	Y (See Notes)	Y	Y	Y (See Notes)	Y	Y	Y	Y	SE2 and DBCS SE Summary: Only one SQL plan baseline per SQL statement is allowed and SQL plan evolution is disabled.
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- SQL plan baselines can be created or captured using the following methods:
 - Auto capture (OPTIMIZER_CAPTURE_SQL_PLAN_BASELINE=TRUE)
 - Manual loading from the cursor cache (DBMS_SPM.LOAD_PLANS_FROM_CURSOR_CACHE)
 - Migration from stored outlines (DBMS_SPM.MIGRATE_STORED_OUTLINE)
 - Import using DBMS_SPM.UNPACK_STGTAB_BASELINE
- All capture and creation methods store only one SQL plan baseline per SQL statement.
- SQL plan baselines can be exported and imported using
 - DBMS_SPM.CREATE_STGTAB_BASELINE
 - DBMS_SPM.PACK_STGTAB_BASELINE
 - DBMS_SPM.UNPACK_STGTAB_BASELINE

SQL Plan Management Details (2)

- Unused SQL plan baselines are not auto-purged.
- Alternative SQL execution plans for SQL statements are not added to the SQL plan history
- SQL plan baselines can be altered and dropped (DBMS_SPM.ALTER_SQL_PLAN_BASELINE and DBMS_SPM.DROP_SQL_PLAN_BASELINE)
- The following DBMS_SPM functions and procedures are not allowed:
 - CONFIGURE,
 - LOAD_PLANS_FROM_AWR
 - LOAD_PLANS_FROM_SQLSET
 - and all functions and procedures associated with SQL plan evolution

Feature / Option / Pack	SE2	EE	EE-ES	DBCS SE	DBCS EE	DBCS EE-HP	DBCS EE-EP	ExaCS	Notes
Oracle Cloud Management Pack for Oracle Database	N	Y	Y	N	N	Y	Y	Y	EE and EE-ES: Extra cost option
Oracle Data Masking and Subsetting Pack	N	Y	Y	N	Y	Y	Y	Y	EE and EE-ES: Extra cost option
Oracle Database Lifecycle Management Pack for Oracle Database	N	Y	Y	N	N	Y	Y	Y	EE and EE-ES: Extra cost option
Oracle Diagnostics Pack	N	Y	Y	N	Y	Y	Y	Y	EE and EE-ES: Extra cost option
Oracle Tuning Pack	N	Y	Y	N	Y	Y	Y	Y	EE and EE-ES: Extra cost option, also requires Oracle Diagnostics Pack

- Erlaubt sind:
 - Enterprise Manager
 - Oracle Database Express

Sonstige fehlende Funktionen

Oracle Connection Manager	N	Y	Y	N	Y	Y	Y	Y	Available via a custom install of the Oracle Database client, usually installed on a separate machine or compute instance
Network Compression	N	Y	Y	N	N	Y	Y	Y	EE and EE-ES : Requires the Oracle Advanced Compression option
Centrally Managed Users	N	Y	Y	N	Y	Y	Y	Y	EE, EE-ES, DBCS EE, DBCS EE-HP, DBCS EE-EP, and ExaCS : Centrally Managed Users is a feature for centrally authenticating and authorizing database users with Microsoft Active Directory.

- Replikationslösung auch für Standard Edition Two

	Named User Plus	Software Update License & Support	Processor License	Software Update License & Support
Data Integration Technology				
Data Integrator Enterprise Edition	900	198.00	30,000	6,600.00
Data Integrator for Big Data	-	-	3,000	660.00
Enterprise Metadata Management			150,000	33,000.00
Enterprise Data Quality Profiling for Data Integration	-	-	100,000	22,000.00
Enterprise Data Quality Audit and Dashboard for Data Integration	-	-	50,000	11,000.00
Enterprise Data Quality Real-Time Processing for Data Integration	-	-	100,000	22,000.00
Enterprise Data Quality Batch Processing for Data Integration			100,000	22,000.00
Enterprise Data Quality Address Verification Server for Data Integration			63,300	13,926.00
Data Integration Suite	-	-	70,000	15,400.00
GoldenGate	350	77.00	17,500	3,850.00
GoldenGate for Non Oracle Database	350	77.00	17,500	3,850.00
GoldenGate for Mainframe	2,000	440.00	100,000	22,000.00
GoldenGate Veridata	600	132.00	30,000	6,600.00
GoldenGate for Teradata Replication Services	350	77.00	17,500	3,850.00
GoldenGate for Big Data	400	88.00	20,000	4,400.00
GoldenGate Foundation Suite	150	33.00	7,500	1,650.00

Database Resource Manager	N	Y	Y	N	Y	Y	Y	Y	
Instance Caging	Y	Y	Y	Y	Y	Y	Y	Y	

- Instance Caging ist erlaubt
- Max cpu_count → 16



Installation

- Auspacken der Software im Zielverzeichnis

```
% mkdir -p /u01/app/oracle/product/19/dbhome_1  
% cd /u01/app/oracle/product/19/dbhome_1  
% unzip /home/oracle/LINUX.X64_193000_db_home.zip
```

- Auspacken des Release Updates im Patch Verzeichnis

```
% cd /home/oracle/RU_200114  
% unzip p30557433_190000_Linux-x86-64.zip
```

- Responsefile erstellen

```
% cp /u01/app/oracle/product/19/dbhome_1/install/response/db_install.rsp $HOME
% vi $HOME/db_install.rsp
```

```
oracle.install.option=INSTALL_DB_SWONLY
UNIX_GROUP_NAME=oinstall
oracle.install.db.OSDBA_GROUP=dba
oracle.install.db.OSOPER_GROUP=oper
oracle.install.db.OSBACKUPDBA_GROUP=backupdba
oracle.install.db.OSDGDBA_GROUP=dba
oracle.install.db.OSKMDBA_GROUP=dba
oracle.install.db.OSRACDBA_GROUP=dba
INVENTORY_LOCATION=/u01/app/oraInventory
ORACLE_BASE=/u01/app/oracle
oracle.install.db.InstallEdition=SE2
oracle.install.db.rootconfig.executeRootScript=false
```

- Installation inklusive aktuellem Release Update

```
% cd /u01/app/oracle/product/19/dbhome_1  
  
./runInstaller -silent -responseFile $HOME/db_install.rsp -applyRU /home/oracle/RU_200114/30557433
```

- Enable Read-Only Oracle-Home (bevor Datenbank angelegt wird!)

```
$ cd /u01/app/oracle/product/19/db_200114
$ ./roohctl -enable
Enabling Read-Only Oracle home.
Update orabasetab file to enable Read-Only Oracle home.
Orabasetab file has been updated successfully.
Create bootstrap directories for Read-Only Oracle home.
Bootstrap directories have been created successfully.
Bootstrap files have been processed successfully.
Read-Only Oracle home has been enabled successfully.
Check the log file /u01/app/oracle/cfgtoollogs/roohctl/roohctl-191015PM034558.log for
more details.
```

- orabasetab → derzeitige Konfiguration

```
$ cd /u01/app/oracle/product/19/db_200114/install
$ cat orabasetab
#orabasetab file is used to track Oracle Home associated with Oracle Base
/u01/app/oracle/product/19/db_200114:/u01/app/oracle:OraDB19Home1:Y:
```

- Überprüfung:

```
$ cd ../bin
$ ./orabaseconfig
/u01/app/oracle

$ ./orabasehome
/u01/app/oracle/homes/OraDB19Home1
```

- ORACLE_BASE_HOME

```
$ ls -l /u01/app/oracle/homes/OraDB19Home1
total 20
drwxr-x--- 3 oracle oinstall 4096 Oct 15 15:45 assistants
drwxr-x--- 2 oracle oinstall 4096 Oct 15 15:45 dbs
drwxr-x--- 2 oracle oinstall 4096 Oct 15 15:45 install
drwxr-x--- 5 oracle oinstall 4096 Oct 15 15:45 network
drwxr-x--- 4 oracle oinstall 4096 Oct 15 15:45 rdbms
```

- HOME_NAME → OraDB19Home1



Flashback Data Archive

- Ursprünglich kostenpflichtige Option der Enterprise Edition (Total Recall)
- Ab Oracle 11.2.0.4 kostenlos für alle Editionen
- Speichert alle Änderungen einer oder mehrerer Tabellen
- Flashback Data Archive ist ein Tablespace oder ein Bereich eines Tablespaces
 - Default kann für alle Tabellen definiert werden
 - Es sind auch mehrere FDAs möglich
- Retention Time für die Dauer der Speicherung
- Kann zusätzlichen Benutzerkontext speichern (CONTEXT_LEVEL)

Erstellen eines Flashback Archives

- Frei wählbarer Name des Flashback Archives
- Wirkt wie ein „Container“ für zukünftige Tabelleninformationen
- Retention in Tagen (DAY), Monaten (MONTH) oder Jahren (YEAR)

```
CREATE FLASHBACK ARCHIVE fda1  
TABLESPACE fda_tablespace  
RETENTION 2 YEAR;
```

- Privileg: FLASHBACK ARCHIVE ADMINISTER
- Das Schema, muss Quota auf dem Flashback Tablespace haben

```
ALTER TABLE demo.personen      FLASHBACK ARCHIVE fda1;  
ALTER TABLE demo.auftraege     FLASHBACK ARCHIVE fda1;  
ALTER TABLE demo.positionen    FLASHBACK ARCHIVE fda1;  
ALTER TABLE demo.adressen      FLASHBACK ARCHIVE fda1;  
ALTER TABLE demo.telefone      FLASHBACK ARCHIVE fda1;
```

Abfrage der Metadaten

```
SELECT owner_name AS owner, flashback_archive_name, retention_in_days  
FROM dba_flashback_archive;
```

OWNER	FLASHBACK_ARCHIVE_NAME	RETENTION_IN_DAYS
SYSTEM	FDA1	730

```
SELECT * FROM dba_flashback_archive_tables;
```

TABLE_NAME	OWNER_NAME	FLASHBACK_ARCHIVE_NAME	ARCHIVE_TABLE_NAME	STATUS
PERSONEN	DEMO	FDA1	SYS_FBA_HIST_92011	ENABLED
AUFTRAEGE	DEMO	FDA1	SYS_FBA_HIST_92007	ENABLED
POSITIONEN	DEMO	FDA1	SYS_FBA_HIST_92015	ENABLED
ADRESSEN	DEMO	FDA1	SYS_FBA_HIST_92005	ENABLED
TELEFONE	DEMO	FDA1	SYS_FBA_HIST_92023	ENABLED

- Archive-Tabellen sind partitioniert!

- Abfrage der Daten über Flashback Query

```
SELECT * FROM personen  
AS OF TIMESTAMP to_date('2019-12-19 15:00:00','YYYY-MM-DD HH24:MI:SS');
```

- Oder über die zugrundeliegende Flashback Tabelle:

```
SELECT vorname, nachname FROM demo.sys_fba_hist_92011;
```

VORNAME	NACHNAME
-----	-----
Vivianne	Schubert

- Speicherung zusätzlicher Kontextinformationen:

```
dbms_flashback_archive.set_context_level ('ALL' | 'TYPICAL' | 'NONE');
```

- XID zeigt, an, dass es einen Kontext gibt

```
SELECT xid, persid, strasse, plz, ort  
FROM   demo.sys_fba_hist_92005;
```

XID	PERSID	STRASSE	PLZ	ORT
0500080028070000	100101	Behnitz	10115	Berlin

- Entweder über `dbms_flashback_archive.get_sys_context`

```
SELECT dbms_flashback_archive.get_sys_context('0500080028070000','USERENV','MODULE')
FROM    DUAL;
```

```
DBMS_FLASHBACK_ARCHIVE.GET_SYS_CONTEXT('0500080028070000','USERENV','MODULE')
```

```
-----
SQL*Plus
```

- Alternativ über `sys.sys_fba_context_aud`

```
SELECT xid, authenticated_identity, host, module, os_user, session_user, terminal
FROM    sys.sys_fba_context_aud
```

XID	AUTHENTIC	HOST	MODULE	OS_USER	SESSION_US	TERMINAL
-----	-----	-----	-----	-----	-----	-----
0500080028070000	demo	albinoni.carajandb.intra	SQL*Plus	oracle	DEMO	pts/1
090016003F080000	SYSTEM	CARAJANDB\CDB-JA	TOAD 12.1.0.22	Johannes Ahrends	SYSTEM	CDB-JA

Fazit

Alternativen für fehlende Optionen

- Oracle Real Application Clusters → z.B. Virtualisierung
- Oracle Data Guard → z.B. dbvisit Standby
- Oracle Active Data Guard → z.B. dbvisit Standby Snapshot
- Grid Control Tuning und Diagnostic Pack → z.B. HL-Monitoring Module, Quest Foglight
- Parallelisierung → z.B. Incremental Backup

Vorsicht vor Lizenzverstößen!

- Nie Parameter `CONTROL_MANAGEMENT_PACK_ACCESS` != NONE
- Partitioning:
 - Nur für SYSTEM Objekte möglich (z.B. Flashback Data Archive)
 - Sonst: „ORA-00439: feature not enabled: Partitioning“
- Compression:
 - ORA-00439: feature not enabled: Basic Compression
- Flashback Database:
 - ORA-00439: feature not enabled: Flashback Database
- RMAN Compression (Basic) – ist erlaubt!
- Parallelisierung – FUNKTIONIERT!

- Zeigt die Benutzung von Features der Oracle Enterprise Edition an.
 - Wird über Auto Scheduler Job aktualisiert
 - Default: alle 7 Tage (604800 Sekunden)
 - Ist teilweise nicht oder falsch gepflegt
 - Z.B. My Oracle Support ID 1381022.1
- „Query against DBA_FEATURE_USAGE_STATISTICS is not a true test for use of SDO”*

- Experten mit über 30 Jahren Datenbank Erfahrung
- Spezialisten für
 - Datenbank Administration (Oracle und PostgreSQL)
 - Hochverfügbarkeit (RAC, Data Guard, Replication, etc.)
 - Migrationen (Unicode, PostgreSQL)
 - Performance Optimierung
 - Monitoring (OEM, Foglight, CheckMK, PEM)
- Fernwartung
- Schulung und Workshops
 - PostgreSQL
 - Oracle Multitenant
 - Toad



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