

Upgrade einer Oracle Datenbank

Ohne Expdp/Impdp und DBUA

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★★★★★
WANTED

~~DEAD~~ || **ALIVE**



★ **CACHE REWARD** ★

#F4240\$



Oracle DBA
(m/w/d/...)

und

Oracle Developer
(m/w/d/...)
SQL, PL/SQL, Apex

★★★★★
WANTED

~~DEAD~~ || **ALIVE**



★ **CACHE REWARD** ★

#F4240\$



Wann sollten Sie updaten? Wie lange erhalten Sie Support für welche Version?

Die Oracle Versionen 18c und 19c

Upgrade-Verfahren

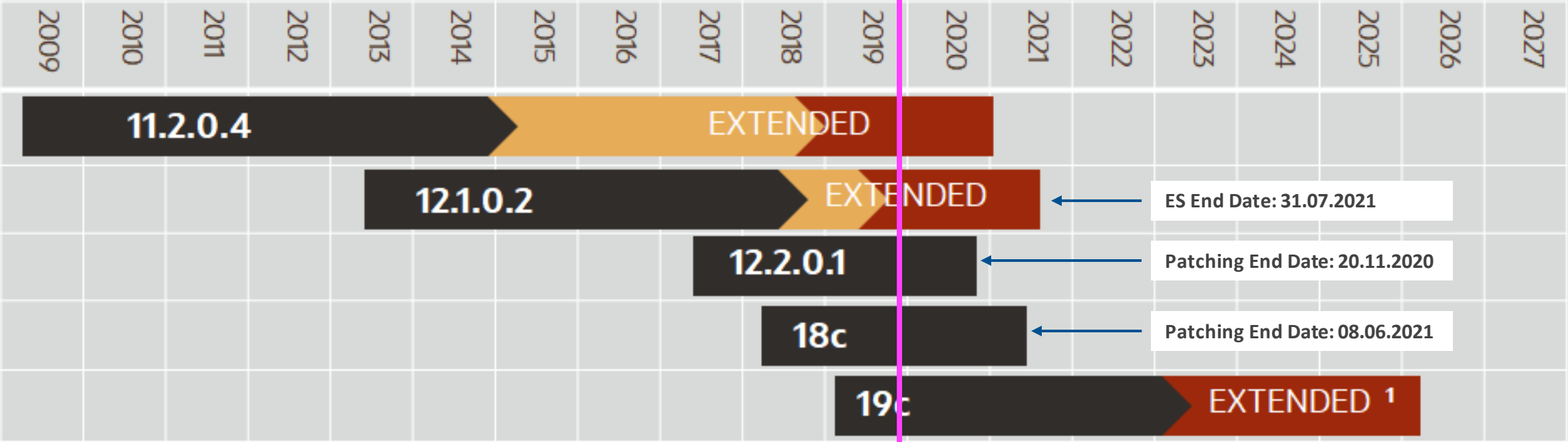
Export / Import

Database Upgrade Assistant (DBUA)

Manuelles Upgrade

Wann sollten Sie updaten? Wie lange erhalten Sie Support für welche Version?

Release and Support Timelines



Error Correction during Premier Support **Error Correction with Waived Extended Support Fee** **Error Correction with Paid Extended Support**

Die Oracle Versionen 18c und 19c

Default Character Set AL32UTF8

Desupport of UTL_FILE_DIR Initialization Parameter

Starting in Oracle Database 18c, the UTL_FILE_DIR parameter is no longer supported. Instead, specify the name of a directory object.

Desupport of Oracle Real Application Clusters for Standard Edition 2 (SE2) Database Edition

Starting with Oracle Database 19c, Oracle Real Application Clusters (Oracle RAC) is not supported in Oracle Database Standard Edition 2 (SE2).

Desupport of Oracle Streams

Starting in Oracle Database 19c, Oracle Streams is desupported. Oracle GoldenGate is the replication solution for Oracle Database. (Betrifft nicht Advanced Queing!)

Desupport of Oracle Multimedia

Oracle Multimedia is desupported in Oracle Database 19c, and the implementation is removed.

Deprecation of Oracle Fail Safe

Oracle Fail Safe is deprecated as of Oracle Database 19c. It can be desupported and unavailable in a future release. Oracle recommends that you evaluate other single-node failover options, such as Oracle RAC One Node.

Aber es gibt auch was mehr:

Ab Version 19c sind auch ohne Multitenant Option [3 User Created PDBs](#) zulässig.
Das gilt auch für die Standard Edition 2.

Und es ist jetzt amtlich:

Ab Version 20 gibt es nur noch Multitenant Datenbanken. Die non-CDB ist tot.

Upgrade-Verfahren

Export / Import

Database Upgrade Assistant (DBUA)

Manuelles Upgrade

Golden Gate

Dataguard Logical Standby

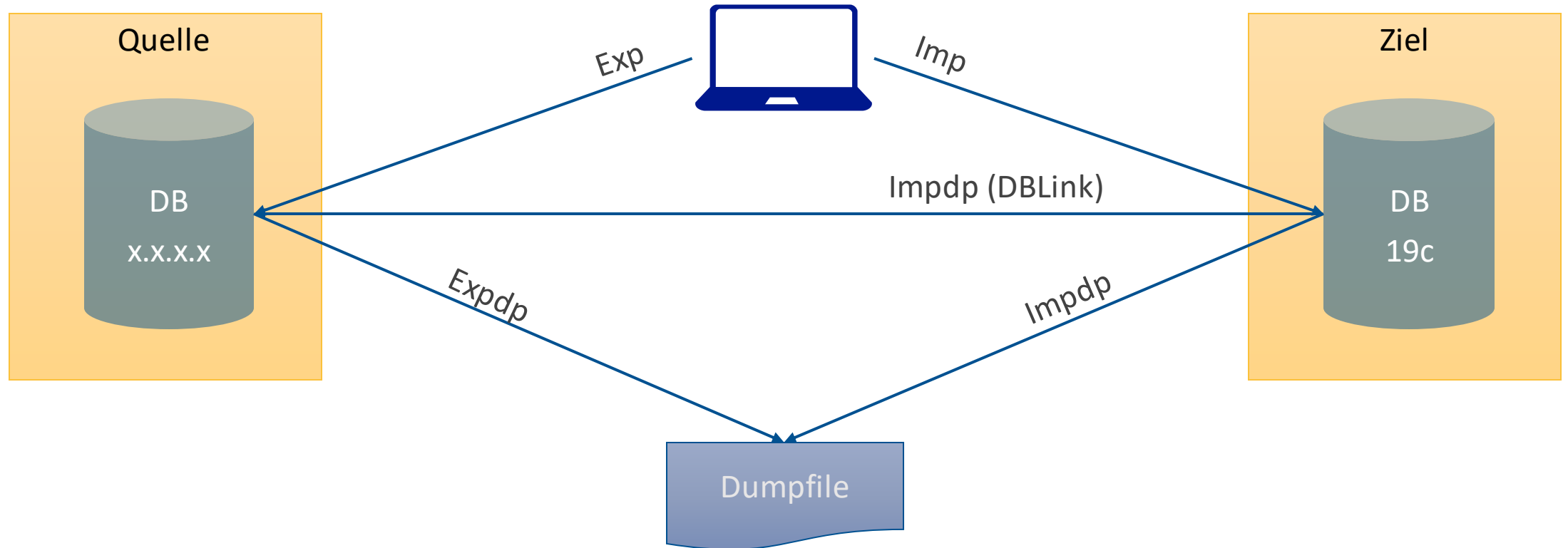
Andere Anbieter





Export / Import

Upgrade per Export / Import



Vorteile:

Schnell bei kleinen Datenbanken

... und einfachen Schemastrukturen

Tabellen und Indizes werden defragmentiert

Objekte können verschoben / umbenannt werden

Schemas können umbenannt werden

Alte Daten können weggelassen werden

Schemas auf mehrere Datenbanken verteilen

Umstellung auf neuen Characterset (Multibyte)

Migration von Uralt-Versionen ohne Zwischenschritte

Nachteile:

Neue Datenbank mit passender Struktur notwendig

Große Gefahr, etwas zu übersehen

Alte Passworte können invalid oder expired werden

Migrationsdauer abhängig von Datenbankgröße

Database Upgrade Assistant (DBUA)

Upgrade per Database Upgrade Assistant (DBUA)

Database Upgrade Assistant - Step 1 of 9

19^c ORACLE[®] Database

Select Database

Select a database for upgrade or move.

Database Filter :

	Source Database	Version	Type	Oracle Home
<input checked="" type="radio"/>	upg19c	11.2.0.4.0	SI	/u01/app/oracle/product/11.2.0/dbho...
<input type="radio"/>	dbwr	19.0.0.0.0	SI	/u01/app/oracle/product/19.0.0/dbho...

Database Upgrade Assistant will collect the information of the selected database by connecting to it using OS based authentication. Database credentials may be needed if OS based authentication is disabled. Specify the credentials, if needed.

SYSDBA Username:

Password:

Upgrade per Database Upgrade Assistant (DBUA)

Database Upgrade Assistant - Step 2 of 9

19^c ORACLE Database

Prerequisite Checks

Select Database

Check Again **Fix & Check Again** **Show Warnings and Errors** **Show All Containers**

Validation	Severity	Fixable
→ Checks to be fixed ...		
↓ Checks that will be fixed by DBUA ...		
If the -T option is used to set user tablespaces to READ ONLY d...	Warning	Auto
↓ Pre Upgrade Recommendations		
Oracle recommends that all materialized views (MVs) are refre...		
↓ Post Upgrade Recommendations		
Dictionary statistics provide essential information to the Oracle...		
Fixed object statistics provide essential information to the Orac...		

Select a prerequisite check from the above table to view the details here.

Help **< Back** **Next >** **Finish** **Cancel**

Upgrade per Database Upgrade Assistant (DBUA)

The screenshot displays the Database Upgrade Assistant (DBUA) interface, specifically Step 3 of 9: Select Upgrade Options. The window title is "Database Upgrade Assistant - Step 3 of 9". The interface is divided into several sections:

- Left Panel:** A vertical navigation pane with a tree view. The "Select Upgrade Options" option is highlighted. Other options include "Select Database", "Prerequisite Checks", "Select Recovery Options", "Configure Network", "Configure Management", "Summary", "Progress", and "Results".
- Top Right:** The Oracle logo and the text "19c ORACLE Database".
- Main Content Area:**
 - Select Upgrade Options:** A section with a list of options to be checked or unchecked:
 - ☒ Enable Parallel Upgrade
 - ☒ Recompile Invalid Objects During Post Upgrade
 - ☒ Upgrade Timezone Data
 - Specify the Custom SQL Scripts to be executed:** Two text input fields labeled "Before Upgrade:" and "After Upgrade:", each followed by a "Browse..." button.
- Bottom:** A row of buttons: "Help", "< Back", "Next >", "Finish", and "Cancel".

In the background, a smaller window titled "Database Upgrade Assistant - Step 1 of 9" is visible, showing the "Select Database" step. It includes a table with columns "Source Database", "Version", and "Type". The table contains two rows: "ug19c" (version 11.2.0.4.0) and "dbrw" (version 19.0.0.0.0). The "ug19c" row is selected. Below the table, there are fields for "SYSDBA Username" (set to "SYS") and "Password".

Upgrade per Database Upgrade Assistant (DBUA)

Database Upgrade Assistant - Step 4 of 9

19^c ORACLE[®] Database

Select Recovery Options

Select an option to recover the database in case of upgrade failure.

- ☐ Use Flashback and Guaranteed Restore Point
 - ☐ Create a New Guaranteed Restore Point
 - ☐ Use Available Guaranteed Restore Point ▼
- ☐ Use RMAN Backup
 - ☐ Create a New Offline RMAN Backup
 - Backup Location: Browse...
 - ☐ Create a New Partial Offline RMAN Backup with User Tablespac...
- ☐ Use Latest Available Full RMAN Backup
 - Latest RMAN Backup Timestamp : N/A View/Edit Restore Script
- ☒ I have my own backup and restore strategy

Help < Back Next > Finish Cancel

Database Upgrade Assistant - Step 1 of 9

Select Database

Select a database for upgrade or move.

Database Filter:

Source Database	Version	Type
upg19c	11.2.0.4.0	SI
dbwr	19.0.0.0.0	SI

Database Upgrade Assistant will collect the information of the selected database. Database credentials may be needed if OS based authentication is disabled. Specify the credentials, if needed.

SYSDBA Username:

Password:

Help < Back Next >

Upgrade per Database Upgrade Assistant (DBUA)

Database Upgrade Assistant - Step 1 of 9

Select Database

Select Database

Prerequisite Checks

Select Upgrade Options

Select Recovery Options

Configure Network

Configure Management

Summary

Progress

Results

Select a database for upgrade or move.

Database Filter :

Source Database	Version	Type
upg19c	11.2.0.4.0	SI
dbwr	19.0.0.0.0	SI

Database Upgrade Assistant will collect the information of the selected database. If it is using OS based authentication, Database credentials may be needed if it is disabled. Specify the credentials, if needed.

SYSDBA Username: SYS

Password: *****

Help

< Back

Next >

Database Upgrade Assistant - Step 5 of 9

19c ORACLE Database

Configure Network

Select Database

Prerequisite Checks

Select Upgrade Options

Select Recovery Options

Configure Network

Configure Management

Summary

Progress

Results

Listener Selection

Name	Port	Oracle home	Status	Migrate
------	------	-------------	--------	---------

☒ Create a new listener

Listener name: LISTENER_UPG19C

Listener port: 1521

Oracle home: /u01/app/oracle/product/19.0.0/dbhome_1

Help

< Back

Next >

Finish

Cancel

Database Upgrade Assistant - Step 4 of 9

19c ORACLE Database

Options

Select an option to recover the database in case of upgrade failure.

☐ Use Flashback and Guaranteed Restore Point

☐ Create a New Guaranteed Restore Point

☐ Use Available Guaranteed Restore Point

☐ Use RMAN Backup

☐ Create a New Offline RMAN Backup

☐ Create a New Partial Offline RMAN Backup with User Tablespace...

☐ Use Latest Available Full RMAN Backup

☐ Latest RMAN Backup Timestamp : N/A

☒ I have my own backup and restore strategy

Backup Location: dminupg19c\Backup_2019-03-14_11-15-22PM

Browse...

View/Edit Restore Script

< Back

Next >

Finish

Cancel

Upgrade per Database Upgrade Assistant (DBUA)

Database Upgrade Assistant - Step 1 of 9

Select Database

Select Database

Prerequisite Checks

Select Upgrade Options

Select Recovery Options

Configure Network

Configure Management

Summary

Progress

Results

Select a database for upgrade or move.

Database Filter:

Source Database	Version	Type
upg19c	11.2.0.4.0	19c/express
dbwr	19.0.0.0.0	SI

Database Upgrade Assistant will collect the information of the selected database and it using OS based authentication. Database credentials may be needed if it is disabled. Specify the credentials, if needed.

SYSDBA Username:

Password:

Help

< Back

Next >

Database Upgrade Assistant - Step 6 of 9

Configure Management

Select Database

Prerequisite Checks

Select Upgrade Options

Select Recovery Options

Configure Network

Configure Management

Summary

Progress

Results

Specify the management options for the database.

☐ Configure Enterprise Manager (EM) database express

EM database express port:

☐ Configure EM database express port as global port

☐ Register with Enterprise Manager (EM) cloud control

OMS host:

OMS port:

EM admin username:

EM admin password:

DBSNMP user password:

ASMSNMP user password:

Help

< Back

Next >

Finish

Cancel

Database Upgrade Assistant - Step 4 of 9

Options

Select an option to recover the database in case of upgrade failure.

☐ Use Flashback and Guaranteed Restore Point

☐ Create a New Guaranteed Restore Point

☐ Use Available Guaranteed Restore Point

☐ Use RMAN Backup

☐ Create a New Offline RMAN Backup

Backup Location:

Browse...

☐ Create a New Partial Offline RMAN Backup with User Tablespace...

☐ Use Latest Available Full RMAN Backup

Latest RMAN Backup Timestamp:

View/Edit Restore Script

☒ I have my own backup and restore strategy

< Back

Next >

Finish

Cancel

Upgrade per Database Upgrade Assistant (DBUA)

The image displays three overlapping windows of the Database Upgrade Assistant (DBUA) interface, showing different steps of the upgrade process.

Top Window: Database Upgrade Assistant - Step 7 of 9

This window shows the **Summary** step. The left sidebar contains a navigation tree with the following items: **Select Database**, **Prerequisite Checks**, **Select Upgrade Options**, **Select Recovery Options**, **Configure Network**, **Configure Management**, **Summary** (selected), **Progress**, and **Results**. The main content area displays the **Database Upgrade Summary** for the **Source Database** and **Target Database**.

Source Database:

- Name: upg19c [Edit]
- Release: 11.2.0.4.0
- Oracle Home: /u01/app/oracle/product/11.2.0/dbhome_1 [Edit]

Target Database:

- Name: upg19c
- Release: 19.0.0.0.0
- Oracle Home: /u01/app/oracle/product/19.0.0/dbhome_1

Pre-Upgrade Checks:

- INFO: Minimum tablespace sizes for upgrade are estimates. [UPG19C]
- INFO: It is good practice to have the catalog schema the same or higher version than
- INFO: The Oracle database upgrade script upgrades most, but not all Oracle Database
- INFO: The recycle bin must be completely empty before database upgrade. [UPG19C]
- INFO: Starting with Oracle Database release 12.1, the Expression Filter (EXF) and Data
- RECOMMEND: Dictionary statistics provide essential information to the Oracle optimizer
- RECOMMEND: Fixed object statistics provide essential information to the Oracle optimizer
- RECOMMEND: Oracle recommends that all materialized views (MVs) are refreshed before
- WARNING: Starting in Release 18c, symbolic links are not allowed in directory object p
- WARNING: If the -T option is used to set user tablespaces to READ ONLY during the up
- WARNING: Starting with Oracle Database Release 18, APEX is not upgraded automatic

Initialization Parameter Changes

Bottom Window: Database Upgrade Assistant - Step 5 of 9

This window shows the **Configure Network** step. The left sidebar contains the same navigation tree as the top window. The main content area displays the **Listener Selection** section.

Listener Selection:

Name	Port	Oracle home

☒ Create a new listener

Listener name: LISTENER_UPG19C

Listener port: 1521

Oracle home: /u01/app/oracle/product/19.0.0/dbhome_1

Right Window: Database Upgrade Assistant - Step 4 of 9

This window shows the **Select Recovery Options** step. The left sidebar contains the same navigation tree as the top window. The main content area displays the **Select an option to recover the database in case of upgrade failure.** section.

Select an option to recover the database in case of upgrade failure.

- ☐ Use Flashback and Guaranteed Restore Point
- ☐ Create a New Guaranteed Restore Point
- ☐ Use Available Guaranteed Restore Point
- ☐ Use RMAN Backup
- ☐ Create a New Offline RMAN Backup
- ☐ Create a New Partial Offline RMAN Backup with User Tablespac...
- ☐ Use Latest Available Full RMAN Backup
- ☒ I have my own backup and restore strategy

Backup Location: /u01/app/oracle/backup/2019-03-14_11-15-22PM [Browse...]

Latest RMAN Backup Timestamp: N/A [View/Edit Restore Script]

Upgrade per Database Upgrade Assistant (DBUA)

Database Upgrade Assistant - Step 1 of 9

Select Database

Select Database

Prerequisite Checks

Select Upgrade Options

Select Recovery Options

Configure Network

Configure Management

Summary

Progress

Results

Select a database for upgrade or move.

Database Filter:

Source Database	Version	Type
upg19c	11.2.0.4.0	SI
dbwer	19.0.0.0.0	SI

Database Upgrade Assistant will collect the information of the selected database using OS based authentication. Database credentials may be needed. Specify the credentials, if needed.

SYSDBA Username:

Password:

Help

< Back

Next >

Database Upgrade Assistant - Step 5 of 9

Configure Network

Select Database

Prerequisite Checks

Select Upgrade Options

Select Recovery Options

Configure Network

Configure Management

Summary

Progress

Results

Listener Selection

Name	Port	Oracle home

☒ Create a new listener

Listener name:

Listener port:

Oracle home:

Help

< Back

Next >

Database Upgrade Assistant - Step 8 of 9

19c ORACLE Database

Progress

Select Database

Prerequisite Checks

Select Upgrade Options

Select Recovery Options

Configure Network

Configure Management

Summary

Progress

Results

Oracle Database upgrade in progress...

3%

Upgrading database upg19c from Oracle Database release 11.2.0.4.0 (/u01/app/oracle/product/11.2.0/dbhome_1) to Oracle Database release 19.0.0.0.0 (/u01/app/oracle/product/19.0.0/dbhome_1).

Steps	Time	Status
Pre Upgrade Steps		In Progress
Pre Upgrade Step		In Progress
Database Upgrade Steps		
Configure Database in 19.0.0.0.0 Oracle Home		
Database Components Upgrade		
Oracle Server		
OLAP Catalog		
Oracle Application Express		
OLAP Analytic Workspace		

Alert Log

Progress Log

Errors: 0

Retry

Ignore

Pause

Help

< Back

Next >

Finish

Cancel

Database Upgrade Assistant - Step 4 of 9

19c ORACLE Database

Options

Select an option to recover the database in case of upgrade failure.

☐ Use Flashback and Guaranteed Restore Point

☐ Create a New Guaranteed Restore Point

☐ Use Available Guaranteed Restore Point

☐ Use RMAN Backup

☐ Create a New Offline RMAN Backup

Backup Location:

Browse...

☐ Create a New Partial Offline RMAN Backup with User Tablespace...

☐ Use Latest Available Full RMAN Backup

Latest RMAN Backup Timestamp: N/A

View/Edit Restore Script

☒ I have my own backup and restore strategy

< Back

Next >

Finish

Cancel

Upgrade per Database Upgrade Assistant (DBUA)

Database Upgrade Assistant - Step 1 of 9

Select Database

Select Database

Prerequisite Checks

Select Upgrade Options

Select Recovery Options

Configure Network

Configure Management

Summary

Progress

Results

Select a database for upgrade or move.

Database Filter :

Source Database	Version	Type
upg19c	11.2.0.4.0	SI
dbwr	19.0.0.0.0	SI

Database Upgrade Assistant will collect the information of the selected database using OS based authentication. Database credentials may be needed if disabled. Specify the credentials, if needed.

SYSDBA Username:

Password:

Help

< Back

Next >

Database Upgrade Assistant - Step 9 of 9

19c ORACLE Database

Results

Select Database

Prerequisite Checks

Select Upgrade Options

Select Recovery Options

Configure Network

Configure Management

Summary

Progress

Results

Upgrade Results

Database upgrade has been completed successfully, and the database is ready to use.

	Source Database	Target Database
Name:	upg19c	upg19c
Release:	11.2.0.4.0	19.0.0.0.0
Oracle Home:	/u01/app/oracle/product/11.2.0/dbhome_1	/u01/app/oracle/product/19.0.0/dbhome_1

Upgrade Details

The following summary lists the steps performed during the upgrade process. Log files for all the steps, as well as this summary, are available at
"/u01/app/oracle/cfgtoollogs/dbua/upgrade2019-03-15_11-04-22AM/upg19c".

Step Name	Log File Name	Status	Time
Pre Upgrade	PreUpgrade.log	Successful	0:00:17

Help

< Back

Next >

Finish

Close

Database Upgrade Assistant - Step 4 of 9

19c ORACLE Database

Options

Select an option to recover the database in case of upgrade failure.

☐ Use Flashback and Guaranteed Restore Point

☐ Create a New Guaranteed Restore Point

☐ Use Available Guaranteed Restore Point

☐ Use RMAN Backup

☐ Create a New Offline RMAN Backup

Backup Location:

Browse...

☐ Create a New Partial Offline RMAN Backup with User Tablespace...

☐ Use Latest Available Full RMAN Backup

Latest RMAN Backup Timestamp: N/A

View/Edit Restore Script

☒ I have my own backup and restore strategy

< Back

Next >

Finish

Cancel

Database Upgrade Assistant - Step 8 of 9

19c ORACLE Database

Progress

Oracle Database upgrade in progress...

3%

Upgrading database upg19c from Oracle Database release 11.2.0.4.0 (/u01/app/oracle/product/11.2.0/dbhome_1) to Oracle Database release 19.0.0.0.0 (/u01/app/oracle/product/19.0.0/dbhome_1)

Steps	Time	Status
Pre Upgrade Steps		In Progress
Pre Upgrade Step		In Progress
Database Upgrade Steps		
Configure Database in 19.0.0.0.0 Oracle Home		
Database Components Upgrade		
Oracle Server		
OLAP Catalog		
Oracle Application Express		
OLAP Analytic Workspace		

Alert Log

Progress Log

Errors: 0

< Back

Next >

Finish

Cancel

Upgrade per Database Upgrade Assistant (DBUA)

Führt automatisch die Pre-Upgrade Checks durch

Spfile wird migriert

Konfiguriert neuen Listener

Passwortfile wird migriert

Clusterware wird korrekt umkonfiguriert

Automatisches Recompile invalider Objekte

Datenbankfiles können verschoben werden (ASM / ACFS)

Automatisches Update Timezone

DBUA ist ein
one-trick pony



Upgrade per Database Upgrade Assistant (DBUA)

Neues ORACLE_HOME muss existieren

Altes ORACLE_HOME muss existieren

Upgrade nur auf dem gleichen Server

Keine gleichzeitige Migration auf neue Hardware

Keine Cross-Platform Migration möglich

Keine Migration von Windows nach Linux

Entfernt „deprecated“ Parameter

Kein Testlauf möglich

Bei Problemen nur kompletter Neuanlauf

Manuelles Upgrade

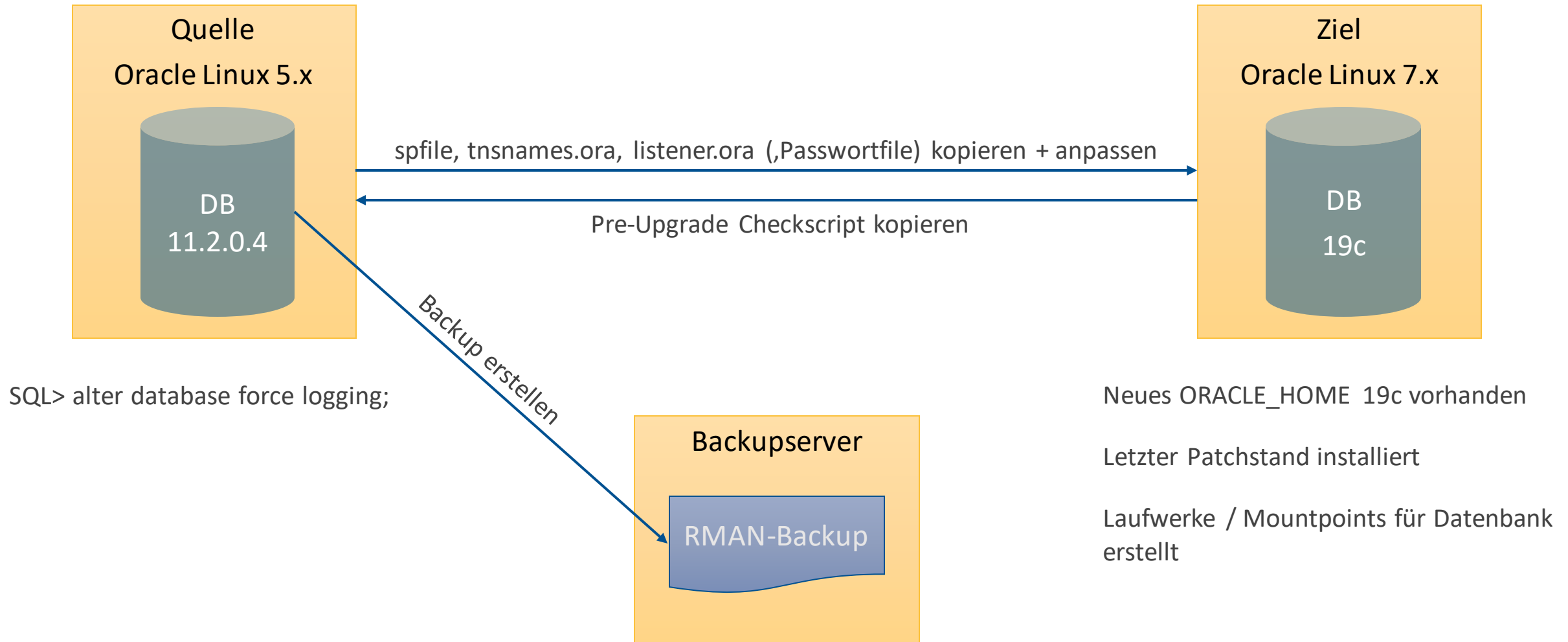


Schritt 1: Pre-Check

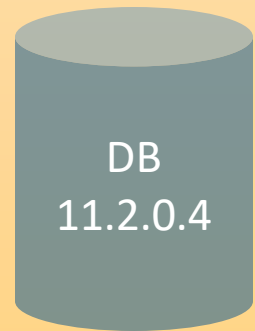
Schritt 2: Upgrade

Schritt 3: Nacharbeiten

Variante **168** von 2.347 – neue Hardware, neues OS, minimale Downtime



Quelle
Oracle Linux 5.x



Schritt 1: Pre-Check Script laufen lassen

Aus ORACLE_HOME/rdbms/admin – Verzeichnis des Zielsystems kopieren

Bis Version 11.2.0.4: utlu112i.sql

Version 12.1: preupgrd.sql + utluppkg.sql

Ab Version 12.2: preupgrade.jar

Manuelles Upgrade

```
$ORACLE_HOME/jdk/bin/java -jar preupgrade.jar
```

```
=====
```

```
PREUPGRADE SUMMARY
```

```
=====
```

```
/opt/oracle/cfgtoollogs/dwh/preupgrade/preupgrade.log
```

```
/opt/oracle/cfgtoollogs/dwh/preupgrade/preupgrade_fixups.sql
```

```
/opt/oracle/cfgtoollogs/dwh/preupgrade/postupgrade_fixups.sql
```

Execute fixup scripts as indicated below:

Before upgrade log into the database and execute the preupgrade fixups

```
@/opt/oracle/cfgtoollogs/dwh/preupgrade/preupgrade_fixups.sql
```

After the upgrade:

Log into the database and execute the postupgrade fixups

```
@/opt/oracle/cfgtoollogs/dwh/preupgrade/postupgrade_fixups.sql
```

Manuelles Upgrade

Report generated by Oracle Database Pre-Upgrade Information Tool Version
18.0.0.0.0 on 2019-11-10T17:43:32

Upgrade-To version: 18.0.0.0.0

=====
Status of the database prior to upgrade
=====

Database Name: DWH
Container Name: Not Applicable in Pre-12.1 database
Container ID: Not Applicable in Pre-12.1 database
Version: 11.2.0.4.0
Compatible: 11.2.0.0.0
Blocksize: 8192
Platform: Linux x86 64-bit
Timezone File: 14
Database log mode: ARCHIVELOG
Readonly: FALSE
Edition: R1

Oracle Component Upgrade Action Current Status

Oracle Server [to be upgraded] VALID
JServer JAVA Virtual Machine [to be upgraded] VALID
Oracle XDK for Java [to be upgraded] VALID
Oracle Workspace Manager [to be upgraded] VALID
Oracle Enterprise Manager Repository [to be upgraded] VALID
Oracle Text [to be upgraded] VALID
Oracle XML Database [to be upgraded] VALID
Oracle Java Packages [to be upgraded] VALID
Expression Filter [to be upgraded] VALID
Rule Manager [to be upgraded] VALID

=====
=====

REQUIRED ACTIONS

=====

1. (AUTOFIXUP) Empty the RECYCLEBIN immediately before database upgrade.
The database contains 27 objects in the recycle bin.
The recycle bin must be completely empty before database upgrade.

RECOMMENDED ACTIONS

=====

2. Remove the EM repository.
- Copy the \$ORACLE_HOME/rdbms/admin/emremove.sql script from the target 18.0.0.0.0 ORACLE_HOME into the source 11.2.0.4.0 ORACLE_HOME.
Step 1: If database control is configured, stop EM Database Control, using the following command
\$> emctl stop dbconsole
Step 2: Connect to the database using the SYS account AS SYSDBA
SET ECHO ON;
SET SERVEROUTPUT ON;
@emremove.sql
Without the set echo and serveroutput commands, you will not be able to follow the progress of the script.
The database has an Enterprise Manager Database Control repository.
Starting with Oracle Database 12c, the local Enterprise Manager Database Control does not exist anymore. The repository will be removed from your database during the upgrade. This step can be manually performed before the upgrade to reduce downtime.
3. Run 11.2.0.4.0 \$ORACLE_HOME/rdbms/admin/utlrp.sql to recompile invalid objects. You can view the individual invalid objects with
SET SERVEROUTPUT ON;
EXECUTE DBMS_PREUP.INVALID_OBJECTS;
104 objects are INVALID.
There should be no INVALID objects in SYS/SYSTEM or user schemas before database upgrade.

4. Perform one of the following:

1) **Expire user accounts that use only the old 10G password version** and follow the procedure recommended in Oracle Database Upgrade Guide under the section entitled, "Checking for Accounts Using Case-Insensitive Password Version".

2) Explicitly set **SQLNET.ALLOWED_LOGON_VERSION_SERVER** in the 18.0.0.0.0 SQLNET.ORA to a non-Exclusive Mode value, such as "11". (This is a short term approach and is not recommended because it will retain known security risks associated with the 10G password version.)

Your database system has at least one account with only the 10G password version (see the PASSWORD_VERSIONS column of DBA_USERS).

Starting with Oracle Database release 12.2.0.1, Exclusive Mode is the new default password-based authentication mode. All Exclusive Mode login/authentication attempts will fail for preexisting user accounts which only have the 10G password version and neither the 11G or 12C password version (see DBA_USERS.PASSWORD_VERSIONS.) For more information, refer to "Understanding Password Case Sensitivity and Upgrades" in the Oracle Database Upgrade Guide.

5. (AUTOFIXUP) Gather stale data dictionary statistics prior to database upgrade in off-peak time using:

EXECUTE DBMS_STATS.GATHER_DICTIONARY_STATS;

Dictionary statistics do not exist or are stale (not up-to-date). Dictionary statistics help the Oracle optimizer find efficient SQL execution plans and are essential for proper upgrade timing. Oracle recommends gathering dictionary statistics in the last 24 hours before database upgrade.

For information on managing optimizer statistics, refer to the 11.2.0.4 Oracle Database Performance Tuning Guide.

6. Directly grant ADMINISTER DATABASE TRIGGER privilege to the owner of the trigger or drop and re-create the trigger with a user that was granted directly with such. You can list those triggers using "SELECT OWNER, TRIGGER_NAME FROM DBA_TRIGGERS WHERE BASE_OBJECT_TYPE='DATABASE' AND

6. Directly grant ADMINISTER DATABASE TRIGGER privilege to the owner of the trigger or drop and re-create the trigger with a user that was granted directly with such. You can list those triggers using "SELECT OWNER, TRIGGER_NAME FROM DBA_TRIGGERS WHERE BASE_OBJECT_TYPE='DATABASE' AND OWNER NOT IN (SELECT GRANTEE FROM DBA_SYS_PRIVS WHERE PRIVILEGE='ADMINISTER DATABASE TRIGGER')"

There is one or more database triggers whose owner does not have the right privilege on the database.

The creation of database triggers must be done by users granted with ADMINISTER DATABASE TRIGGER privilege. Privilege must have been granted directly.

7. (AUTOFIXUP) Gather statistics on fixed objects prior the upgrade.

None of the fixed object tables have had stats collected.

Gathering statistics on fixed objects, if none have been gathered yet, is recommended prior to upgrading.

For information on managing optimizer statistics, refer to the 11.2.0.4 Oracle Database Performance Tuning Guide.

INFORMATION ONLY

=====

8. To help you keep track of your tablespace allocations, the following AUTOEXTEND tablespaces are expected to successfully EXTEND during the upgrade process.

Min Size

Tablespace Size For Upgrade

SYSAUX	1050 MB	1178 MB
--------	---------	---------

SYSTEM	12 GB	12 GB
--------	-------	-------

Minimum tablespace sizes for upgrade are estimates.

ORACLE GENERATED FIXUP SCRIPT

=====

All of the issues in database DWH

Manuelles Upgrade

ORACLE GENERATED FIXUP SCRIPT

=====

All of the issues in database DWH
which are identified above as BEFORE UPGRADE "(AUTOFIXUP)" can be resolved by
executing the following

```
SQL>@/opt/oracle/cfgtoollogs/dwh/preupgrade/preupgrade_fixups.sql
```

=====

AFTER UPGRADE

=====

REQUIRED ACTIONS

=====

None

RECOMMENDED ACTIONS

=====

9. Upgrade the database time zone file using the DBMS_DST package.
The database is using time zone file version 14 and the target 18.0.0.0.0 release ships with time zone file version 31.
Oracle recommends upgrading to the desired (latest) version of the time zone file. For more information, refer to "Upgrading the Time Zone File and Timestamp with Time Zone Data" in the 18.0.0.0.0 Oracle Database Globalization Support Guide.
10. (AUTOFIXUP) Gather dictionary statistics after the upgrade using the command:
EXECUTE DBMS_STATS.GATHER_DICTIONARY_STATS;
Oracle recommends gathering dictionary statistics after upgrade. Dictionary statistics provide essential information to the Oracle optimizer to help it find efficient SQL execution plans. After a database upgrade, statistics need to be re-gathered as there can now be tables that have significantly changed during the upgrade or new tables that do

Oracle recommends upgrading to the desired (latest) version of the time zone file. For more information, refer to "Upgrading the Time Zone File and Timestamp with Time Zone Data" in the 18.0.0.0.0 Oracle Database Globalization Support Guide.

10. (AUTOFIXUP) Gather dictionary statistics after the upgrade using the command:

```
EXECUTE DBMS_STATS.GATHER_DICTIONARY_STATS;
```

Oracle recommends gathering dictionary statistics after upgrade. Dictionary statistics provide essential information to the Oracle optimizer to help it find efficient SQL execution plans. After a database upgrade, statistics need to be re-gathered as there can now be tables that have significantly changed during the upgrade or new tables that do not have statistics gathered yet.

11. Gather statistics on fixed objects **after the upgrade** and when there is a representative workload on the system using the command:

```
EXECUTE DBMS_STATS.GATHER_FIXED_OBJECTS_STATS;
```

This recommendation is given for all preupgrade runs. Fixed object statistics provide essential information to the Oracle optimizer to help it find efficient SQL execution plans. Those statistics are specific to the Oracle Database release that generates them, and can be stale upon database upgrade. For information on managing optimizer statistics, refer to the 11.2.0.4 Oracle Database Performance Tuning Guide.

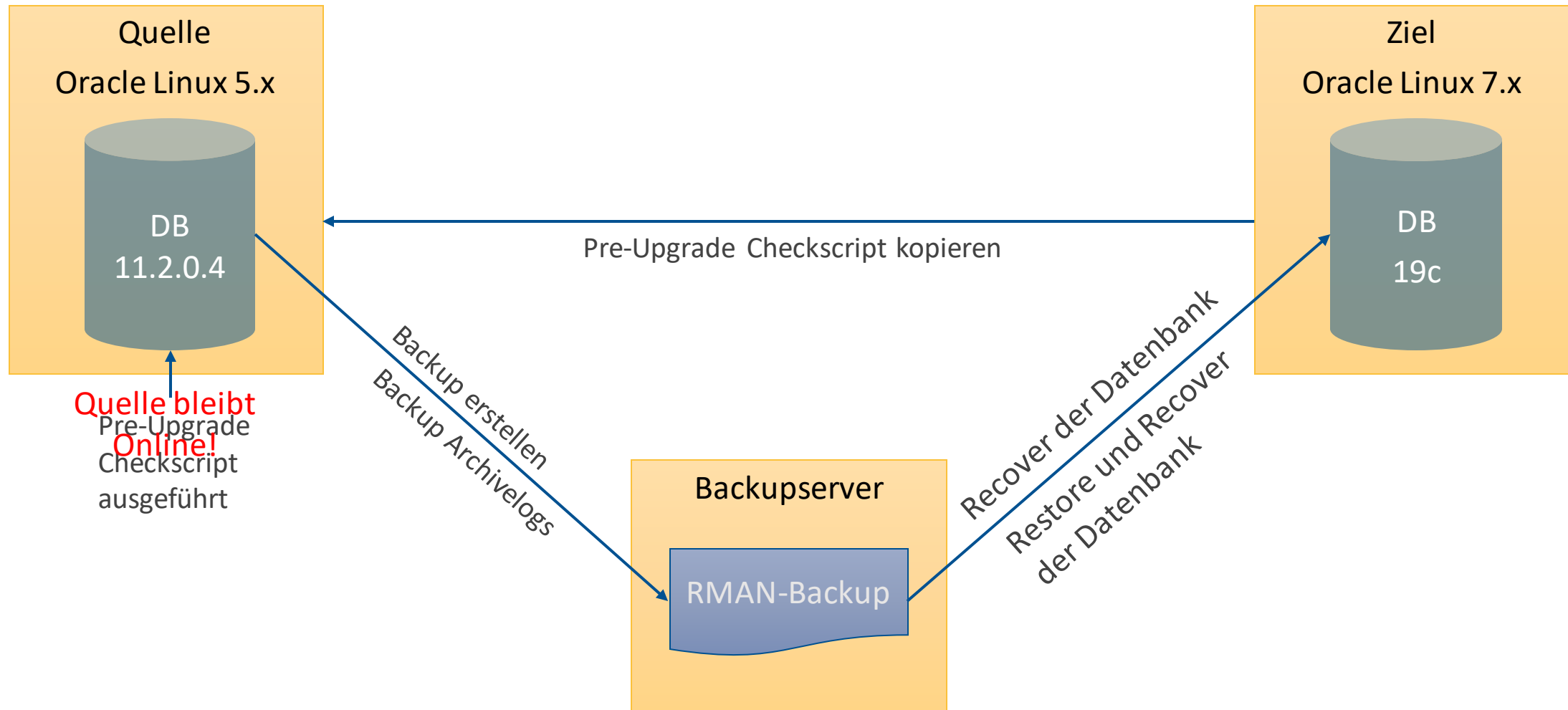
ORACLE GENERATED FIXUP SCRIPT

=====

All of the issues in database DWH which are identified above as AFTER UPGRADE "(AUTOFIXUP)" can be resolved by executing the following

```
SQL>@/opt/oracle/cfgtoollogs/dwh/preupgrade/postupgrade_fixups.sql
```

Manuelles Upgrade



Quelle

```
rman> backup incremental level 0 database;  
rman> backup archivelog all delete all input;
```

Ziel

Spfile: db_create_file_dest+ db_recovery_file_dest
setzen, control_files entfernen

```
rman> startup nomount;  
rman> res c-3410610355-20191118-01  
rman> shutdown;  
rman> startup mount;  
rman> crosscheck backup;  
rman> crosscheck archivelog all;  
rman> delete expired backup;  
rman> delete expired archivelog all;  
rman> catalog start with '<Backuppfad>';
```

Quelle

Ziel

```
rman> run {  
2> set newname for database to new;  
3> restore database;  
4> switch datafile all;  
5> switch tempfile all;  
6> recover database;  
7> }
```

```
rman> backup archivelog all delete all input;
```

```
rman> catalog start with '<Backuppfad>';  
rman> recover database;
```

Achtung: Funktioniert nicht von Windows nach Linux!
Hier muss mit inkrementellen Backups gearbeitet werden.

Quelle

```
SQL> shutdown immedidate  
$ <Onlinelogs auf Ziel kopieren>
```

Ziel

← Entfällt bei Testmigration

```
SQL> alter database rename file  
'<alter_pfad>/redolog1' to '<neuer_pfad>/redolog1';  
:  
SQL> alter database rename file  
'<alter_pfad>/redologn' to '<neuer_pfad>/redologn';
```

```
rman> recover database;  
SQL> alter database open resetlogs upgrade;
```

Schritt 2: Upgrade-Script laufen lassen

Bis Version 11.2.0.4: catupgrd.sql

Version 12.1:

```
cd $ORACLE_HOME/rdbms/admin
```

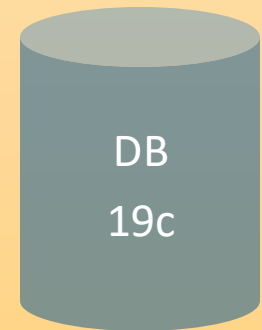
```
$ORACLE_HOME/perl/bin/perl catctl.pl <Parameter> catupgrd.sql
```

Ab Version 12.2:

```
cd $ORACLE_HOME/bin
```

```
./dbupgrade <Parameter>
```

Ziel
Oracle Linux 7.x



Manuelles Upgrade

Argument list for [catctl.pl]

```
SQL Process Count      n = 0
SQL PDB Process Count  N = 0
Input Directory        d = 0
Phase Logging Table    t = 0
Log Dir                l = 0
Script                 s = 0
Serial Run             S = 0
Upgrade Mode active    M = 0
Start Phase            p = 0
End Phase              P = 0
Log Id                 i = 0
Run in                 c = 0
Do not run in          C = 0
Echo OFF               e = 1
No Post Upgrade        x = 0
Reverse Order          r = 0
Open Mode Normal       o = 0
Debug catcon.pm        z = 0
Debug catctl.pl        Z = 0
Display Phases         y = 0
Child Process          I = 0
```

catctl.pl version: 12.1.0.2.0

Oracle Base = /opt/oracle

Analyzing file catupgrd.sql

catcon: ALL catcon-related output will be written to catupgrd_catcon_13435.lst

catcon: See catupgrd*.log files for output generated by scripts

catcon: See catupgrd*.lst files for spool files, if any

Log files in /opt/oracle/product/db12102/rdbms/admin

Number of Cpus = 8

SQL Process Count = 0

New SQL Process Count = 4

Manuelles Upgrade

```
-----
Phases [0-73]          Start Time:[2019_05_23 17:49:33]
-----
Serial Phase #: 0      Files: 1      Time: 105s
Serial Phase #: 1      Files: 5      Time: 35s
Restart Phase #: 2     Files: 1      Time: 1s
Parallel Phase #: 3    Files: 18     Time: 5s
Restart Phase #: 4     Files: 1      Time: 0s
Serial Phase #: 5      Files: 5      Time: 16s
Serial Phase #: 6      Files: 1      Time: 11s
Serial Phase #: 7      Files: 4      Time: 6s
Restart Phase #: 8     Files: 1      Time: 0s
Parallel Phase #: 9    Files: 62     Time: 21s
Restart Phase #:10     Files: 1      Time: 0s
Serial Phase #:11     Files: 1      Time: 11s
Restart Phase #:12     Files: 1      Time: 0s
Parallel Phase #:13    Files: 91     Time: 4s
Restart Phase #:14     Files: 1      Time: 0s
Parallel Phase #:15    Files: 111    Time: 13s
Restart Phase #:16     Files: 1      Time: 0s
Serial Phase #:17     Files: 3      Time: 1s
Restart Phase #:18     Files: 1      Time: 0s
Parallel Phase #:19    Files: 32     Time: 11s
Restart Phase #:20     Files: 1      Time: 0s
Serial Phase #:21     Files: 3      Time: 5s
Restart Phase #:22     Files: 1      Time: 0s
Parallel Phase #:23    Files: 23     Time: 52s
Restart Phase #:24     Files: 1      Time: 0s
Parallel Phase #:25    Files: 11     Time: 23s
Restart Phase #:26     Files: 1      Time: 0s
Serial Phase #:27     Files: 1      Time: 0s
Restart Phase #:28     Files: 1      Time: 0s
Serial Phase #:30     Files: 1      Time: 0s
Serial Phase #:31     Files: 257    Time: 14s
Serial Phase #:32     Files: 1      Time: 0s
Restart Phase #:33     Files: 1      Time: 0s
Serial Phase #:34     Files: 1      Time: 3s
Restart Phase #:35     Files: 1      Time: 0s
Restart Phase #:36     Files: 1      Time: 0s
Serial Phase #:37     Files: 4      Time: 41s
Restart Phase #:38     Files: 1      Time: 0s
Parallel Phase #:39    Files: 13     Time: 34s
Restart Phase #:40     Files: 1      Time: 0s
Parallel Phase #:41    Files: 10     Time: 5s
Restart Phase #:42     Files: 1      Time: 0s
Serial Phase #:43     Files: 1      Time: 4s
```

Manuelles Upgrade

Restart	Phase #:	44	Files:	1	Time:	0s
Serial	Phase #:	45	Files:	1	Time:	8s
Serial	Phase #:	46	Files:	1	Time:	0s
Restart	Phase #:	47	Files:	1	Time:	0s
Serial	Phase #:	48	Files:	1	Time:	82s
Restart	Phase #:	49	Files:	1	Time:	0s
Serial	Phase #:	50	Files:	1	Time:	24s
Restart	Phase #:	51	Files:	1	Time:	0s
Serial	Phase #:	52	Files:	1	Time:	0s
Restart	Phase #:	53	Files:	1	Time:	0s
Serial	Phase #:	54	Files:	1	Time:	117s
Restart	Phase #:	55	Files:	1	Time:	0s
Serial	Phase #:	56	Files:	1	Time:	47s
Restart	Phase #:	57	Files:	1	Time:	0s
Serial	Phase #:	58	Files:	1	Time:	218s
Restart	Phase #:	59	Files:	1	Time:	0s
Serial	Phase #:	60	Files:	1	Time:	0s
Restart	Phase #:	61	Files:	1	Time:	0s
Serial	Phase #:	62	Files:	1	Time:	6s
Restart	Phase #:	63	Files:	1	Time:	0s
Serial	Phase #:	64	Files:	1	Time:	1s
Serial	Phase #:	65	Files:	1	Time:	20s
Serial	Phase #:	66	Files:	1	Time:	38s
Serial	Phase #:	68	Files:	1	Time:	0s
Serial	Phase #:	69	Files:	1	Time:	218s
Serial	Phase #:	70	Files:	1	Time:	55s
Serial	Phase #:	71	Files:	1	Time:	0s
Serial	Phase #:	72	Files:	1	Time:	0s
Serial	Phase #:	73	Files:	1	Time:	22s

Phases [0-73] End Time: [2019_05_23 18:10:50]

Grand Total Time: 1279s

LOG FILES: (catupgrd*.log)

Upgrade Summary Report Located in:
/opt/oracle/product/db12102/cfgtoollogs/<sid>/upgrade/upg_summary.log

Grand Total Upgrade Time: [0d:0h:21m:19s]


„When you **re-run** an upgrade, it does not restart
phases already completed successfully.“

Schritt 3: Nacharbeiten

Start	Oracle Server	VALID	18.3.0.0.0	00:32:41	
	JServer JAVA Virtual Machine	VALID	18.3.0.0.0	00:14:41	
Das	Oracle XDK	VALID	18.3.0.0.0	00:04:44	
	Oracle Database Java Packages	VALID	18.3.0.0.0	00:00:35	
utlr	OLAP Analytic Workspace	VALID	18.3.0.0.0	00:00:37	
	Oracle Label Security	VALID	18.3.0.0.0	00:00:23	
utlu	Oracle Database Vault	VALID	18.3.0.0.0	00:01:05	
	Oracle Text	VALID	18.3.0.0.0	00:02:01	
Tim	Oracle Workspace Manager	VALID	18.3.0.0.0	00:01:52	
	Oracle Real Application Clusters	OPTION OFF	18.3.0.0.0	00:00:01	
	Oracle XML Database	VALID	18.3.0.0.0	00:04:21	
	Oracle Multimedia	VALID	18.3.0.0.0	00:04:52	
	Spatial	VALID	18.3.0.0.0	00:07:36	
	Oracle OLAP API	VALID	18.3.0.0.0	00:00:37	
	Upgrade Datapatch			00:02:14	
	Final Actions			00:08:52	
	Post Upgrade			00:00:35	
	Post Upgrade Datapatch			00:00:45	
	Post Compile			00:05:39	
	Skripte upg_tlv_checksql und upg_tlv_applysql ausführen lassen				

Ziel

Oracle Linux 7.x



DB
19c



Mögliche Alternative zu Schritt 2 + 3:

☆ AutoUpgrade Tool (Doc ID 2485457.1)

In this Document

[Main Content](#)

[Benefits](#)

[Target Versions Supported](#)

[AutoUpgrade documentation](#)

[Known limitations](#)

[References](#)

APPLIES TO:

Oracle Database - Enterprise Edition - Version 12.2.0.1 and later
Oracle Database - Standard Edition - Version 12.2.0.1 and later
Information in this document applies to any platform.

MAIN CONTENT

Description

Oracle Database AutoUpgrade allows DBAs to upgrade one or many databases without human intervention, all with one command and a single configuration file.

Benefits

AutoUpgrade enables customers to upgrade one or many Oracle databases at the command-line with a single command and a single configuration file. AutoUpgrade will run the preupgrade tasks, perform automated fixups where needed, execute the database upgrade, and finish by taking care of post-upgrade tasks. It includes automatic retry and fallback, the possibility to schedule upgrades for future points in time, and the ability to set, change or remove initialization parameters as desired. It saves time and money by upgrading hundreds of databases with one command and replacing bespoke high maintenance upgrade solutions.

Vorteile:

Downtime NICHT abhängig von Datenbankgröße

Datenbankinhalte werden 1:1 übernommen

Datenbankfiles neu strukturieren (OMF / ASM)

Es kann nichts „vergessen“ werden

Migration kann n-fach getestet werden

Konkrete Aussage über Downtime möglich

Cross-Platform Migration möglich

Fortsetzung ab Schritt x möglich!

Nachteile:

Bei kleinen DBs langsamer als Expdp/Impdp

Datenbankinhalte werden 1:1 übernommen

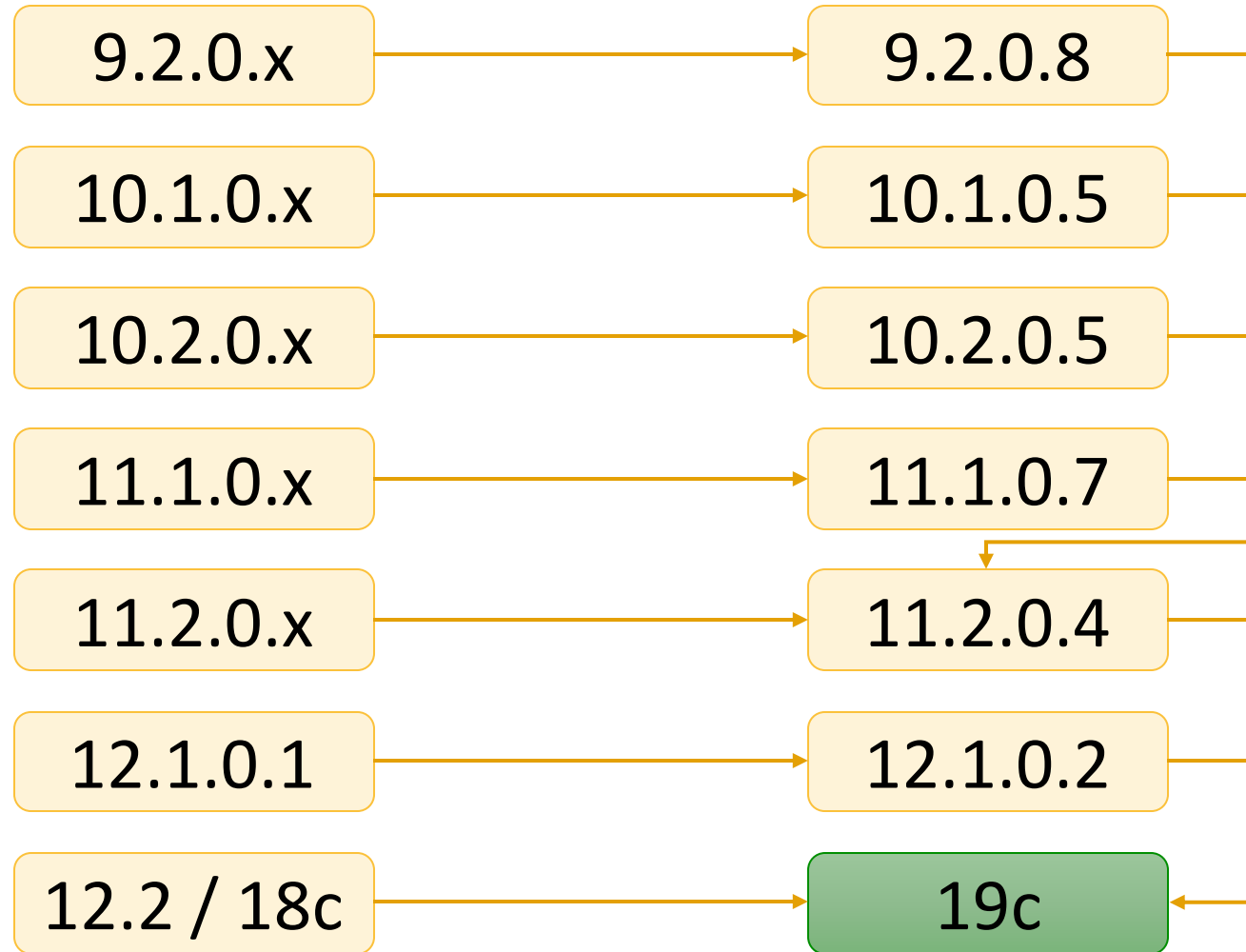
Keine Defragmentierung möglich

Alte Daten können nicht weggelassen werden

Migration Uralt-Versionen nur über Zwischenschritte

Character set kann nicht geändert werden

Upgradepfade auf Version 19c



Fragen?



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Wir kümmern uns!



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