

# Migration Tools

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# Wer bin ich?

**Thomas Freyer, 39, seit ca. 5 Jahren in England**

**Studiert in Muenster, Hagen und Giessen**

**Gelebt in Holland, Frankreich, Schweiz, England und Deutschland**

**Internationale Projekterfahrung von Indien ueber Europa bis Silicon Valley**

**Migrationen, Upgrades, Cross-Plattform Migrationen, Cross-Datenbank Migrationen und Outsourcing sowie Tuning und Exadata.**

**Dieses Jahr > 100 Migrationen nach 12c.**

**Ansonsten reise ich gern, fotografiere und bin Weinliebhaber, daneben spiele ich Fussball und bin Arsenal Fan**

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# Fuer wen arbeite ich?

Als Consultant arbeite ich fuer Kunden aus allen Sektoren, Public, IT, Finance, Industry.

Primaer im Migrationsbereich, Tuning und Exadata.

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Leisure  
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# Legal Stuff

**The following presentation is my own opinion and experience. I am not responsible for the change in the software or in prices or features of one of the tools.**

**I am not a reseller and will not profit from a recommendation of one of the products but I can provide the necessary contact details in case of interest.**

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# What are Migrations?

- First of all migrations are a Challenge (and fun, yes it is)
- Cross location, e.g. Frankfurt to Munich or London to New York
- Cross platform, e.g. Windows to Linux, AIX to Linux
- Cross database, e.g. MS SQLSERVER to Oracle
- Upgrades (in a wide meaning)
- All together

“It is never so easy as it look?” But sometimes easier. 😊 😊 😊

“Trust a migration guide only till the first bug . (mostly happening between step 3 and 5)”

I see an Oracle migration guide only as a guideline.

“Never trust marketing papers.”

## What will I present?

- **Standard tools**
- **Migrationtools Oracle <> SQLServer**
- **Cross platform**
- **Cross location**
- **Standard editions**
- **Oracle and NON-Oracle tools**
- **Pre-Migration tools**
- **The most important tool ever**

**The most important tool – use it always!**



# Standard tools

- Oracle Datapump / Export – Import
- Systemcopy, e.g. cp
- mount
- RMAN
  
- RAC
- Dataguard

# Datapump, Systemcopy, mount

- Datapump is good for small databases with low priority like Dev
- Downtime (depending on the kind of migration)
- Data are sorted new and could have a performance impact
- Very slow (only 1 channel in standard edition) and painfully
  
- It is free
- Usable for nearly all kinds of migrations
- Simple
  
- Systemcopy is for a migration from a destination to another
- It is free (included in the OS license)
- Useful for small databases
- Downtime necessary
  
- Mount and unmount is a very fast way to copy a database
- Possible for all sizes of database but only recommend for change of the server, OS-System and database release must be the same
- The data will be in the same order and the file structure too
- Downtime necessary

# **RMAN**

- **RMAN is the best and most powerful tool from Oracle**
- **You can use it for a lot of stuff and I use it in nearly all migrations**
- **Cross platform with minimum downtime (some are going directly see note 1079563.1)**
- **Preparation steps for Upgrades on other servers**
- **Copying databases with RMAN duplicate**
- **It is within the Oracle license**
- **It should normally used for the backup, so to configure RMAN is a MUST DO**
- **Less time consuming**
- **Could let destination database in recovery mode**
- **Ideal for mass duplication from one database**
- **Cross Platform possible with transportable tablespaces**
- **nearly bug-free and uncomplicated**
- **Minimum downtime if down right**
  
- **My personal tool of choice.**

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FORM_NAME	ENDIAN_FORMAT
ris[tm] OE (32-bit)	Big
ris[tm] OE (64-bit)	Big
rosoft Windows IA (32-bit)	Little
x IA (32-bit)	Little
Based Systems (64-bit)	Big
K (64-bit)	Big
ru64 UNIX	Little
K IA (64-bit)	Big
x IA (64-bit)	Little
pen UMS	Little
rosoft Windows IA (64-bit)	Little

FORM_NAME	ENDIAN_FORMAT
zSeries Based Linux	Big
x x86 64-bit	Little
e Mac OS	Big
rosoft Windows x86 64-bit	Little
ris Operating System (x86)	Little
Power Based Linux	Big
A Open UMS	Little
ris Operating System (x86-64)	Little
e Mac OS (x86-64)	Little

# RAC

- RAC is a good tool for a server migration or storage migration
- Zero downtime
- Costs License fees
- 23.000 USD plus 5.060 USD Support per processor and Enterprise edition necessary (list price)
  
- Normally adding a new server into the RAC-Cluster.
- Smoothly taking out the old server.
  
- For storage add new disks
- Rebalance to the new disks
- And mark the old disks to get deleted
  
- Normally happens in the background and could take a while
- But no outage

# Dataguard

- Is a DR solution and could be used for migration to other servers / locations
- Active dataguard costs license fees
- 11.500 plus 2.530 USD per processor (list price)
- Zero downtime
  
- In enterprise edition as “normal” dataguard with a standby possible with minimum downtime
- Comparable with RMAN duplicate but with the advantage of permanent resync
  
- Good tool like RMAN but is to recommend if DATAGUARD is still in use in the company

# Standard edition and migrations

**Big problem is the license policy of Oracle nearly every good tool needs additional license fees or enterprise edition. So how could someone help with this issue?**

**Third party tools are a lot on the market which are promising the world.**

**Most of them are useless and dangerous.**

**Often they are free but providing no support.**

**But a fee are really good.**

# DBVISIT Standby

- **DBVISIT standby is comparable to Dataguard but could be used with Oracle Standard editions**
- **Price is starting from 5500 USD**
- **It is easy to manage**
- **Ideal for migration to different location**
- **Ordinary usage is for High availability**
- **If no DR is in place I would prefer RMAN as migration tool instead of DBVISIT Standby but if a DR solution is needed (before or after migration) and it is a standard edition I would recommend DBVISIT Standby**
- **A lot of configuration is on command line level**
- **Should work for Upgrades too (not tested yet)**

# DBVISIT Replicate

- **DBVISIT replicate is the bigger gun, I was very skeptical but it works**
- **Could be used with all Oracle versions**
- **Prices starts from 3.300 USD but the big advantage it could be rented on a monthly base and not like Oracle I pay a full license even if it only needed for 3 month**
- **Changes could be done within the replication**
- **2 way replication possible**
- **Migration to other database systems possible like MySQL, MS SQLSERVER**
- **Does not support TDE, Cluster tables, external tables, nested tables, compressed data**
- **The replication process could be configured that not everything is replicated or replicate to other systems. Ideal if you want to divide a database**
- **Multi target replication, great idea if you have a lot of developers and everyone should get his own database**
- **Combination possible with master-master and the master-slave to Non-oracle databases (it works, I tested it)**
- **Not everything supported for cross database**
- **Works cross platform**
- **Should work for Upgrades too (not tested yet)**

# Cross database tools

Another cross platform tool is DBCONVERT.

Does it work? Limited

Advantage:

From MS SQLSERVER to Oracle and back.

From 149 USD only

Disadvantage:

Has problems with name limitations and functional code

Is useless for complex environments

Is slow

Technical an export / import

Usage:

Could be used for structured data and where a deep understanding is behind both database management systems and simple data transport.

**In general cross database is something where you should use your brain and establish an ETL process.**

# Cross database tools

A lot of persons are maybe using Dell products. Dell would recommend Shareplex or TOAD DBA Suite for Multi database.

Shareplex is good for uncomplicated database BUT it is not able to transfer complex code like PL/SQL. It is the problem with every tool for cross database it could not transfer functional based code.

Toad Multi DB is great for monitoring or as tool. I got a price of 10.000 for it BUT you have to ask for individual pricing where the main interest of DELL is only to collect your personal data. Here I expect a price list online.

The Toad Multi DB makes it easier to compare the data models of Db on different DBMS.

It is a help to rewrite the function based code like PL/SQL and to compare it for an well-trained developer.

BUT to expect to do an automatized migration is wrong.

# Pre-migration tools

I have found here a very nice tool, tbh one of the best tools I have seen so far.

## **The SWISS ARMY KNIFE for Oracle = ORATOOLKIT**

The advantage is that it reduce a full Oracle installation to ~10 minutes (including database) and the full installation with OS patches etc. to around 30 -45 minutes.

Whoever installed Oracle and found out missing micropatches or wrong System parameter knows how frustrating it could be.

So it is very efficient to reduce the premigration task and could be used for installations.

Price: unknown (was free), product is at the moment in a sleeping status, will be reactivated by the designer if interest is shown.

**Reduce the full installation of an Oracle server to 1 hour from normally half a day.**

# Upgrades

**I have not found a tool that really supports and upgrade.**

# The really big GUN!

Yes not all tools works for everything and sometimes you need the really big one.

## ORACLE GOLDEN GATE

Yes it is good, you can do all kind of migrations with it with zero and nearly zero downtime.

**BUT** it is complicated and expensive and buggy.

For someone who use it the first time, it needs ~ 6 month before it is running smoothly.

Normally you need it ones but you have to pay the full price.

It is starting with 17.500 USD per processor plus support, so it goes easily up to a few 100k for a tool you need for one project.

# Recommendations

**First think about what you have and what you want.**

**Look what Oracle features you have and what they can do.**

**Think out of the box (RMAN was made for backups but you can use it in a lot more ways).**

**Ask yourself how tools works, normally Oracle has the same functionality somewhere.**

**Trust your DBA.**

**Test the tools.**

**Often a combination is the best way.**

**You can migrate full datacenters with RMAN, dataguard.**

**You can cross-platform without additional fees.**

**You can migrate to other database systems or from them, but normally you have to do a lot manually.**

**How more complex how less helpful are tools.**

Questions???

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