

Oracle on Windows

some hate it more than others

InfoNet Day, 21. September 2016



Lösungen designen

Requirements Engineering
User Experience Design

Software entwickeln

Enterprise-Lösungen (.NET/Java),
Smallbusiness und Access,
Mobile Apps

Projektmanagement

Projekt- und
Testmanagement

Daten verfügbar halten

Oracle und SQLServer
Betrieb, Mandat

Finanz





Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation



swisscom



Edorex verhilft Ihnen
schnell zu eleganten Lösungen.

45

Software-Engineers
IT-Architekten
UX-Designer
PM und RE
DB-Engineers

1983

10

Mio Umsatz

zig Lösungen für
unsere Kunden



Beat Ramseier

- Oracle DBA
 - 12+ years of experience
 - Key areas
 - Performance
 - Security
 - HA-Solutions
 - PL/SQL
- spotonoracle.com / [@RamseierB](https://twitter.com/RamseierB)

Agenda

- Integration
 - Oracle Home User (well, hello!)
 - User Access Control (oh, please)
 - Authentication (who are you?)
 - Shutdown (seriously?!?!?)
 - Large Pages (easy as pie! make it 2MB slices)
- Tips & Tricks

Oracle Home User

- New in Oracle 12c
 - Regular user
 - No admin rights
 - Local / Domain / MSA
 - Windows 2012 Group MSA – **way to go!**
 - Key Distribution Service
 - One account
 - No password management

Oracle Home User

- Configure Group MSA on Domain Controller

```
PS> Add-KDSRootKey –EffectiveImmediately  
# reboot or wait 10 hours!!!
```

```
PS> New-ADServiceAccount  
-name OracleSA  
-DNSHostName WIN2012DC1.spotonoracle.com  
-PrincipalsAllowedToRetrieveManagedPassword OracleDBServers
```

- Put DB-server in AD group **OracleDBServers**

Oracle Home User

- Configure Group MSA on database server

```
PS> Install-AdServiceAccount OracleSA
```

```
PS> Test-AdServiceAccount OracleSA
```

- DB-server must have PS AD cmdlets installed

Oracle Home User

- Provide gMSA to Oracle Universal Installer

```
CMD> .\setup.exe -silent -waitforcompletion ^  
    ...  
    oracle.install.IsBuiltInAccount=false ^  
    oracle.install.OracleHomeUserName="spotonoracle\OracleSA$" ^  
    ...
```

Oracle Home User

- Fine grained
 - Local user rights assignments
 - Local OS groups

User Access Control (UAC)

Run all administrators in Admin Approval Mode: **Enabled**

Behavior of the elevation prompt for administrators in
Admin Approval Mode: **Elevate without prompting**

Authentication

- Username / Password
- SSL
- Kerberos
- OS
- ...etc...
- **NTS** (Windows Native Authentication)

Authentication

- NTS is simple & provides good security
 - Delegates authentication to OS
 - Kerberos under the hood
 - Non-intrusive with regards to AD

Authentication

- sqlnet.ora
 - SQLNET.AUTHENTICATION_SERVICES = (NTS)
on client and server

```
SQL> create user "SPOTONORACLE\BTR" identified externally;  
SQL> grant create session to "SPOTONORACLE\BTR";
```


Authentication

Command Prompt - sqlplus /@PDBDEV1

```
C:\>
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\Users\btr>sqlplus /@PDBDEV1


SQL*Plus: Release 12.1.0.2.0 Production on Fri Aug 12 05:05:13 2016
Copyright (c) 1982, 2014, Oracle. All rights reserved.

Last Successful login time: Fri Aug 12 2016 05:04:51 -07:00

Connected to:
Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production
With the Partitioning and Unified Auditing options

SQL> show user
USER is "SPOTONORACLE\BTR"
SQL> _
```

Authentication

Keywords	Date and Time	Source	Event ID	Task Category
 Audit Success	8/12/2016 5:57:36 AM	Microsoft Windows security auditing.	4769	Kerberos Service Ticket Operations

Event 4769, Microsoft Windows security auditing.

General Details

A Kerberos service ticket was requested.

Account Information:

- Account Name: btr@SPOTONORACLE.COM
- Account Domain: SPOTONORACLE.COM
- Logon GUID: {be42dfc3-5ead-2c70-212c-2c70cc8bcc66}

Service Information:

- Service Name: OracleSAS
- Service ID: SPOTONORACLE\OracleSAS

Network Information:

- Client Address: ::ffff:192.168.56.29
- Client Port: 49264

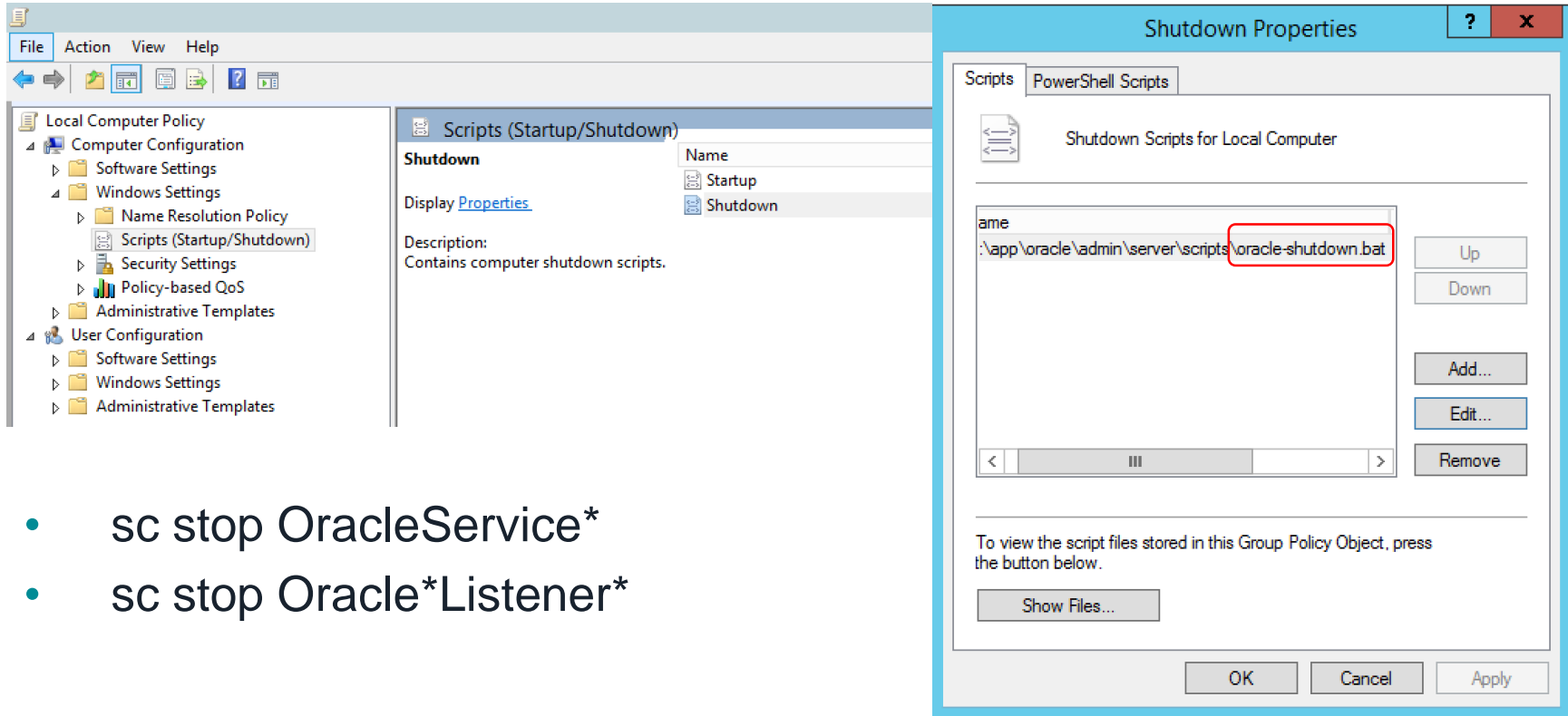
Additional Information:

- Ticket Options: 0x40810000
- Ticket Encryption Type: 0x12
- Failure Code: 0x0
- Transited Services: -

Shutdown

- Ouch!!!
- MOS note 309230.1
 - Lists several bugs as “Not feasible to fix”
 - Windows unregisters “security.dll” too early
 - Oracle shutdown is aborted by OS
- Requires crash recovery on startup

Shutdown



The image shows a Windows Group Policy Editor window with the 'Scripts (Startup/Shutdown)' policy selected. The 'Shutdown Properties' dialog box is open, displaying the 'PowerShell Scripts' tab. The script list contains one entry: 'ame' with the path '\app\oracle\admin\server\scripts\oracle-shutdown.bat'. The path is highlighted with a red box. The dialog box includes buttons for 'Up', 'Down', 'Add...', 'Edit...', and 'Remove'. At the bottom, there are 'OK', 'Cancel', and 'Apply' buttons.

- `sc stop OracleService*`
- `sc stop Oracle*Listener*`

Large Pages

- Registry key
 - HKEY_LOCAL_MACHINE\Software\Oracle\Key_<ORACLE_HOME_NAME>
ORA_<ORACLE_SID>_LPENABLE=1
- User Rights Assignment (local security policy)
 - “Lock pages in memory”

Large Pages Support

- AMM also supported, but...



Large Pages

- Check alert.log

Large page size : 2097152

Large page request size : 16777216

Allocated Large Pages memory of size : 14680064

Allocated Large Pages memory of size : 4278190080

Processes		Performance		Users		Details		Services	
Name	PID	Status	User name	CPU	Memory (private working set)	Commit size	Threads	Description	
oracle.exe	620	Running	OracleSAS	02	4,315,300 K	4,348,408 K	34	Oracle RDBMS Kernel Executable	

Processes		Performance		Users		Details		Services	
Name	PID	Status	User name	CPU	Memory (private working set)	Commit size	Threads	Description	
oracle.exe	2448	Running	OracleSAS	00	169,196 K	4,412,028 K	47	Oracle RDBMS Kernel Executable	

Integration summary

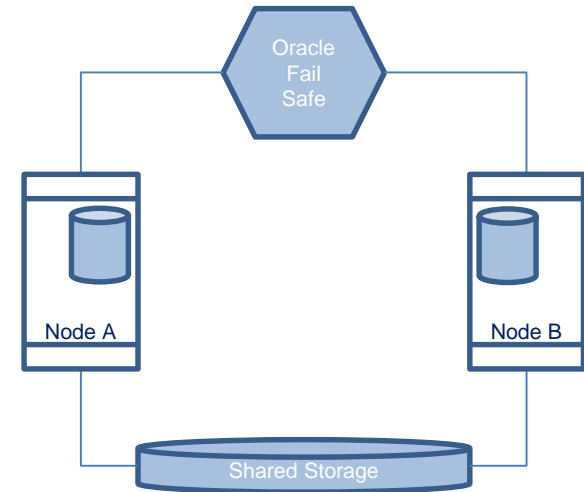
- + Account management
- + Single Sign-On
- + Large page implementation

- Service shutdown
- Trouble shooting

T&T– HA done cheap

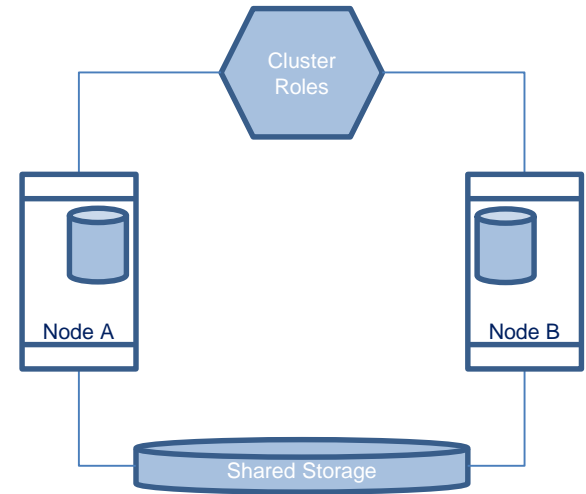
- Windows 2012 Standard Edition
- Oracle Standard Edition 2

- e.g. 18-cores CPU
 - 1 CPU per server
- Oracle license cost
 - Total: **CHF 34k** list price



T&T– HA done cheap

SQL Server 2014
Standard Edition
~66k



T&T - ADRCI

- Manage logs and traces
- Tailing alert.log

```
Command Prompt
C:\Users\btr>
C:\Users\btr>adrci

ADRCI: Release 12.1.0.2.0 - Production on Sun Aug 14 02:53:06 2016
Copyright (c) 1982, 2014, Oracle and/or its affiliates. All rights reserved.

ADR base = "D:\app\oracle\adr"
adrci>
adrci> show homes
ADR Homes:
diag\rdbms\dev1\dev1
adrci>
adrci> set home diag\rdbms\dev1\dev1
adrci>
adrci> show alert -tail -f
2016-08-14 02:29:44.582000 -07:00
SMON: enabling cache recovery
2016-08-14 02:29:49.676000 -07:00
[1960] Successfully onlined Undo Tablespace 2.
Undo initialization finished serial:0 start:226125 end:229156 diff:3031 ms (3.0 seconds)
Verifying minimum file header compatibility (11g) for tablespace encryption..
Verifying 11g file header compatibility for tablespace encryption completed
```

T&T - orakill

- Oracle is multi-threaded on Windows
- Use “orakill” to terminate a specific thread

```
SQL> select spid from v$process p, v$session s where p.addr=s.paddr ...  
SPID  
-----  
2416
```

```
CMD> orakill DEV1 2416
```

```
Kill of thread id 2416 in instance DEV1 successfully signalled.
```


T&T – Service information

- List all Oracle services

```
CMD> sc query state= all | findstr SERVICE_NAME | findstr Oracle
```

```
SERVICE_NAME: OracleJobSchedulerDEV1  
SERVICE_NAME: OracleOraDB12Home1TNSListenerLISTENER_DEV1  
SERVICE_NAME: OracleRemExecServiceV2  
SERVICE_NAME: OracleServiceDEV1  
SERVICE_NAME: OracleVssWriterDEV1
```

- List running Oracle services

```
CMD> sc query type= service | findstr SERVICE_NAME | findstr Oracle
```

```
SERVICE_NAME: OracleOraDB12Home1TNSListenerLISTENER_DEV1  
SERVICE_NAME: OracleServiceDEV1  
SERVICE_NAME: OracleVssWriterDEV1
```

T&T – Locked DLLs

- List all Oracle services

```
CMD> C:\Users\btr>tasklist /m oci.dll
```

Image Name	PID	Modules
sqlplus.exe	2780	OCI.dll

- ProcessExplorer
 - <https://technet.microsoft.com/en-us/sysinternals/processexplorer.aspx>

Q & A