

Wie patcht man hunderte Oracle Datenbanken?

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VORWEG GEHEN

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Wer sind wir?

Die RWE IT GmbH ist der interne IT-Dienstleister des RWE Konzerns

Umsatz	567 Mio €
Mitarbeiter (Vollzeitstellen)	rd. 2.200
Betreute PC's	>60.000
Betreute RWE Gesellschaften	ca. 170

Einleitung

- > Niemand hat es gern, aber es muss gemacht werden
- > Die Datenbankadministratoren sind angehalten Datenbankserver zu patchen, um Bugs und Securityrisiken zu eliminieren.
- > Die Kunden möchten, dass die Datenbanken verfügbar bleiben.
- > Revisoren wollen, dass die Daten sicher sind.
- > Wie kann man diese Anforderungen verbinden und lösen?

Einleitung

PSU - was ist das?

- > Patch Set Updates (PSUs) are proactive cumulative patches containing recommended bug fixes that are released on a regular and predictable schedule. PSUs are on the same quarterly schedule as the Critical Patch Updates (CPU), specifically the Tuesday closest to the 17th of January, April, July, and October.
- > Low-Risk, High-Value Content
- > One Integrated, Well Tested Patch
- > Baseline Version for Easier Tracking

Einleitung

PSU - was ist das?

- > PSUs contain strictly limited number of fixes – usually 25 to 100 fixes. Content is selected to provide maximum benefit to you while ensuring the PSUs are safe to apply. Included are:
 - > Fixes for critical technical issues such as wrong results, corruptions, and hangs.
 - > Fixes encountered by a large number of customers.
 - > Fixes already proven in the field.
 - > All fixes from the Critical Patch Update program.

Einleitung

PSU - was ist das?

- > Excluded from any PSU are:
- > Fixes which would require recertification or changes functional behavior.
- > Fixes which would require any configuration changes.
- > Database: Fixes which would require a RAC cluster outage to install (i.e. guaranteed RAC rolling-installable).
- > If a Critical Patch Update security fix breaks one of the above rules, we include it and document the exception.

Risk Matrix

Juli 2014

Oracle Database Server Risk Matrix

CVE#	Component	Protocol	Package and/or Privilege Required	Remote Exploit without Auth.?	CVSS VERSION 2.0 RISK (see Risk Matrix Definitions)							Supported Versions Affected	Notes
					Base Score	Access Vector	Access Complexity	Authentication	Confidentiality	Integrity	Availability		
CVE-2013-3751	XML Parser	HTTP	Create Session	No	9.0	Network	Low	Single	Complete	Complete	Complete	12.1.0.1	
CVE-2013-3774	Network Layer	Oracle Net	None	Yes	7.6	Network	High	None	Complete	Complete	Complete	12.1.0.1	
CVE-2014-4236	RDBMS Core	Oracle Net	Create Session, Grant on DBMS_REDACT	No	6.5	Network	Low	Single	Partial+	Partial+	Partial+	11.2.0.4, 12.1.0.1	
CVE-2014-4237	RDBMS Core	Oracle Net	Create Session	No	4.0	Network	Low	Single	Partial	None	None	11.2.0.4, 12.1.0.1	
CVE-2014-4245	RDBMS Core	Oracle Net	Create Session	No	3.5	Network	Medium	Single	Partial+	None	None	11.1.0.7, 11.2.0.3, 11.2.0.4, 12.1.0.1	

Risk Matrix

- > Unternehmensregelung:
 - CVSS* Score ≥ 9.0
 - Remote Exploit = YES

* Common Vulnerability Scoring System (CVSS) is an industry standard for assessing the severity of computer system security vulnerabilities.

Vorbereitung

- > Download in MOS
- > Readme lesen
- > Manuelle Installation auf Internen Test DBs
- > Implementierung in Installations-Skript
- > Freigabe



Vorbereitung

- > Liste der Betroffenen Datenbanken generieren (CMDB)
- > Betroffene Kunden anschreiben
- > Termine Vereinbaren

Liste der Betroffenen Datenbanken

SID	Oracle-Versio	Level	Technisc	Nodename	City	Node	Betriebs	Support	Service-	Ansprech	Patch	Uhrzeit	Best,tigung	K	Bemerkung
BBAE1	11.2.0.3	Development	DE_CRM	v211A0225	Essen	Windows	DC Oracle	High	Schmid, Pete	04. Nov	02:00				
BCK1P	11.2.0.4.0	Production	DE_ANK	v211I0193		LINUX	DC Oracle	Medium	Klein, Burkha	03. Dez					
BCK1Q	11.2.0.4.0	Quality Assu	DE_BEL	v211I0183	Essen	LINUX	DC Oracle	Low	Brand, Haralc	29. Okt	02:00				
BCK1T	11.2.0.4.0	Test	DE_BEL	v211I0119	Essen	LINUX	DC Oracle	Low	Brand, Haralc	29. Okt	01:00				
BDN1T	11.2.0.3.0	Test	DE_ANN	a1020	Neuss	AIX	DC Oracle	Low	Gross, Kai	29. Okt	03:00				
DBNEP	11.2.0.3.0	Production	DE_Anne	a1308	Neuss	AIX	DC Oracle	Medium	Gross, Kai	03. Dez					
DRN1T	11.2.0.3	Test	DE_APN	a1325	Grevenbroich	AIX	DC Oracle	Low	Emten, Frank	29. Okt					
DRR1P	11.2.0.4.0	Production	NL_APRI	v211I0158	Essen	LINUX	DC Oracle	High	Kumar, Das	07. Dez					
DRR1Q	11.2.0.4.0	Test	DE_EGM	v211I0156	Essen	LINUX	DC Oracle	Low	Kumar, Das	07. Dez					
DRR1T	11.2.0.4.0	Test	NL_APRI	v211I0156	Essen	LINUX	DC Oracle	Low	Kumar, Das	07. Dez					
DRX1D	11.2.0.3.0	Development	DE_APX	a1592	Neuss	AIX	DC Oracle	Low	Link, Egon	29. Okt	01:00				
DRX1P	11.2.0.3.0	Production	DE_APX	a1308	Neuss	AIX	DC Oracle	Medium	Link, Ego	08. Dez					
DRI2P	11.2.0.3.0	Production	PL_AR12	a1592	Neuss	AIX	DC Oracle	Medium	Brock, Hans	08. Dez					
DZ14T	11.2.0.4.0		DE_ARIS	v211I0207	Essen	LINUX	DC Oracle	Low	Zavadak, Pet	29. Okt					
DZIS3P	11.2.0.3	Production	DE_ARIS	v211A0670	Essen	Windows	DC Oracle	Low	Boros, Boris;	30. Nov	17:00				
DZIS3Q	11.2.0.3	Quality Assu	DE_ARIS	v211A0382	Essen	Windows	DC Oracle	Low	Boros, Boris;	29. Okt	22:00				
DZIS3T	11.2.0.4	Test	DE_ARIS	v211T0670	Essen	Windows	DC Oracle	Low	Boros, Boris;	29. Okt	23:00				
DZS1P	11.2.0.3.0	Production	NL_ASS	v211I0080	Essen	LINUX	DC Oracle	Medium	Wim, Paul	08. Dez					
DZS1Q	11.2.0.3.0	Quality Assu	NL_ASS	v211I0077	Essen	LINUX	DC Oracle	Low	Wim, Paul	08. Dez					
DZC1P	11.2.0.3.0	Production	EU_BAC	a1373	Neuss	AIX	DC Oracle	Medium	Gross, Hans-	30. Okt	10:00				
DZB1D	11.2.0.3.0	Development	BIS/BAS	a1506	Grevenbroich	AIX	DC Oracle	Low	Wim, Paul	11. Nov	01:00				
DZB1P	11.2.0.3.0	Production	DE_BIS/I	a1598	Grevenbroich	AIX	DC Oracle	Medium	Hup, Josef	01. Dez					
DZB1T	11.2.0.3.0	Test	BIS/BAS	a1485	Neuss	AIX	DC Oracle	Low	Wim, Paul	01. Nov	01:00				
DZS1P	11.2.0.3.0	Production	DE_BDS	v211I0070	Essen	LINUX	DC Oracle	Low	Gross, Steph	14. Nov	20:00				
DZS2P	11.2.0.3.0	Production	DE_BDS	v211I0070	Essen	LINUX	DC Oracle	Low	Gross, Steph	14. Nov	20:00				
DZG0P	11.2.0.4	Production	DG_BEG	v211I0168	Essen	LINUX	DC Oracle	Premium	Gross, Simor	30. Nov					
DZG1T	11.2.0.4.0	Test	DE_BEL	v211I0169	Essen	LINUX	DC Oracle	Low	Fold, Andy	06. Nov	01:00				bis 10.11. U
DZG9P	11.2.0.4	Production	DG_BEG	v211I0169	Essen	LINUX	DC Oracle	Premium	Gross, Simor	19. Nov					
DZL0P	11.2.0.3.0	Production	DE_BEL	v211I0125	Grevenbroich	LINUX	DC Oracle	Premium	Wu, Henry;	14. Nov	16:00				
DZL1T	11.2.0.3.0	Test	DE_BEL	v211I0126	Neuss	LINUX	DC Oracle	Medium	Wu, Henry;	01. Nov	01:00				
DZL2P	11.2.0.4.0	Production	DE_BEL	v211I0051	Essen	LINUX	DC Oracle	High	Gross, Simor	12. Nov	11:00				Sliwinski
DZL2T	11.2.0.4.0	Test	DE_BEL	v211I0119	Essen	LINUX	DC Oracle	Low	Gross, Simor	14. Nov	01:00				
DZL3P	11.2.0.4.0	Production	DE_BEL	v211I0058	Essen	LINUX	DC Oracle	Medium	Winkler, Jonas						

Installationsroutine

- > Shell Skript für Linux, AIX und Solaris
- > Oracle Version (9),10,11,12
- > Integration Cloud Control, OID, RMAN
- > Installation, Patch und Abbau (Lifecycle)

Rwedbadm.sh

> ./rwedbadm.sh

> usage: ./rwedbadm.sh {install || config || patch || upgrade || test || remove}
[-s sid] [-c nls_lang] [-a]

RWEDBADM.sh

```
Hostname=s06010074
Exec_User=r882688
Agent_User=oraagent
agent_release=12.1.0
agent_patchset=12.1.0.3.0
agent_psu=PSUMAY2014
EMHost=logonemccp.rwe.com
EMGroup=GER
Platform=Linux.x86_64, OS=linux_x64
oratab=/etc/oratab
SID=SAA4T
db_user=orasaa4t
NLS_LANG=AMERICAN_AMERICA.AL32UTF8
db_edition=EE
release=11.2.0
base_release=11.2.0.4
patchset=11.2.0.4
psu=PSUOCT2014
oh_database=/oracle/SAA4T/11.2.0.4
ob_database=/oracle/SAA4T
LogDir=/oracle/SAA4T/rwedbadm/logs
RspDir=/oracle/SAA4T/rwedbadm/rsp
+++ testing the LISTENER_SAA4T
LISTENER_SAA4T is up and running!
+++ testing the database

Instance      : SAA4T                      Status       : OPEN
GlobalName    : SAA4T.RWE.COM              db_domain    : RWE.COM
Services      : SAA4T.RWE.COM
Host          : s06010074              Platform     : Linux x86 64-bit
NLS           : AMERICAN_AMERICA.AL32UTF8 NLS_NCHAR    : AL16UTF16
Version       : 11.2.0.4.0             TZ version    : 14
PSU           : PSU 11.2.0.4.4
User         : SYS                      Date         : 12.11.2014 14:29
alert.log    : /oracle/SAA4T/diag/rdbms/saa4t/SAA4T/trace/alert_SAA4T.log

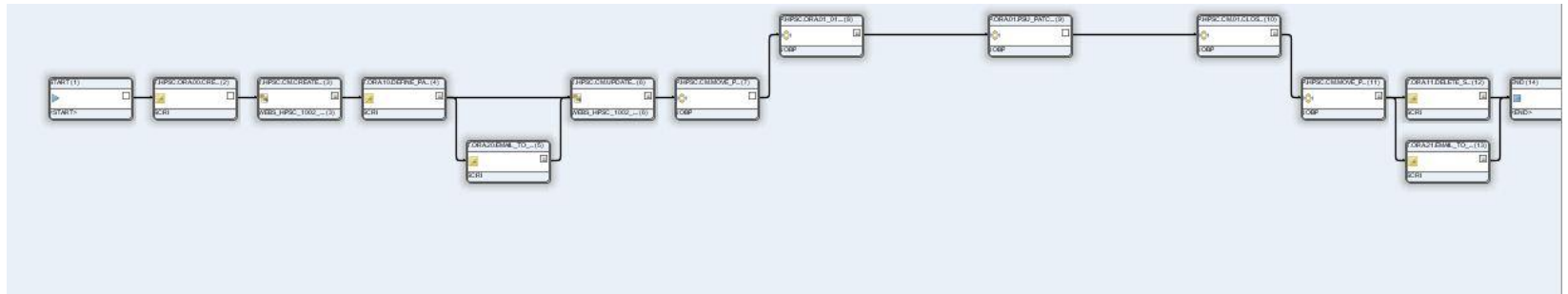
check begin
CHECK_ALERT_NO_DBSNMP_SESSION
check end

+++ checking the Oracle Software
INFO: PSUOCT2014 is already applied!
```

Patchrollout

- > Integration mit DCSA – Data Center Service Automation.
- > Automic One Automation-environment in Version 10
- > Webinterface - Enterprise Control Center
- > 24 * 7 Scheduling
- > Konfiguration validation (RDBMS version, valid CI)
- > Immer Standard Konform und Transparent

DCSA Workflow



DCSA GUI

The screenshot displays the DCSA GUI interface. The browser address bar shows the URL: `dcsa.rwe.com/root/#automation/view/P.ORA.MSTR.PSU_PATCHES&tab=overview?d07433c3-45d1-4bd1-bbc8-87cb343d60a0`. The page title is "PSU-Patch Installation". The left sidebar contains a "NAVIGATOR" with sections for "Catalog", "OPERATIONS", "DEVELOPMENT", and "Service Catalog". The "PSU-Patch Installation" job is selected in the "Catalog" section. The main content area shows "General Details" for the job, including a "Run" button and a list of metadata.

General Details

Title	PSU-Patch Installation
Estimated Runtime	00:00:59
Archive Key 1	-
Archive Key 2	-
Activation	Active

Run
Estimated finish: Today - 10:27 AM

Home Folder	UC43P - 0500/OBJECTS/01_DCSA_GLOBAL/13_ORACLE/30_PSU_PATCHES
Name	P.ORA.MSTR.PSU_PATCHES
Type	JOBP
Created by	R896119/GROUP
Created at	Friday, August 09, 2013, 10:19 AM
Last modified by	R896119/GROUP
Last modified at	Wednesday, October 29, 2014, 03:56 PM
Modified	22

Demo

Erfahrungen

- > Ständige Kontrolle der Readme
- > Oracle ändert Prozess
 - Bspw. PSU u. JVM PSU

Probleme

PSU OCT 2014

- > Ad certificates not valid after patch
- > alter system set java_jit_enabled=false; -- BUG
- > Oct. 2014 PSU over 11.2.0.4 version, the invoker of the DBMS_UTILITY's procedures must have the proper grants on the objects accessed by the procedure.
Granting select on sys.v_\$parameter for the user underlined is needed to use DBMS_UTILITY.get_parameter_value
- > DOC 1939079.1

Ausblick

- > Patch Planung anhand CSV Datei
- > Feste Patchfenster für Niedrige SLAs

Notes

- > <http://www.oracle.com/technetwork/topics/security/alerts-086861.html>
- > Oracle Recommended Patches -- Oracle Database (Doc ID 756671.1)
- > Patch Set Updates for Oracle Products (Doc ID 854428.1)

VORWEG GEHEN

... ist unsere Haltung. Damit tragen wir den gesellschaftlichen, ökonomischen und ökologischen Herausforderungen Rechnung.

Wir werden der glaubwürdige, leistungsstarke Partner für die nachhaltige Umgestaltung des Europäischen Energiesystems. Wir wollen agieren, nicht reagieren. Wir sind Teil der Lösung, nicht Teil des Problems.

Das bedeutet für uns alle:

- > Wir handeln verantwortungsbewusst und verlässlich.
- > Wir stellen uns den Herausforderungen.
- > Wir teilen unsere Erfahrung und Leistungsstärke.
- > Wir suchen den Dialog – auch und gerade in kritischen Fragen.
- > Wir leben Engagement und Entschlossenheit.

Oder auf den Punkt gebracht:

WIR GEHEN VORWEG!

VIELEN DANK FÜR
IHRE AUFMERKSAMKEIT.

VOR**RWEG** GEHEN