



Database Patching with GridApp Clarity™

Delivered by:
Matthew Zito, Chief Scientist

Today's Agenda

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- Why Patch?
- Oracle and SQL Server Patches
- Oracle CPUs and PSUs
- SQL Server Cumulative Updates and Service Packs
- Rolling Patches with SQL Server
- Database Patching with GridApp Clarity™
- Q&A

Why Patch?

- In the past, organizations only patched databases when:
 - They hit a bug
 - They were required by an app vendor
 - The “If it ain’t broke, don’t fix it” mentality
- Today, organizations patch because of:
 - Security concerns
 - Regulatory compliance
 - Database vendor pressure
- Patching is increasingly becoming a required part of database administration

Oracle opatch

- OPatch
 - Oracle patching utility
 - Originally OS-neutral, but now vendor-specific opatch is standard for newer types of patching
 - Includes OCM
- Opatch apply
 - Patch ID = applied patch
 - “old style” Oracle patching
- Opatch napply
 - Patch ID defines the overall patch
 - Each bug/issue fixed has a “molecule” ID
 - Molecules allow organizations to pick and choose which fixes they want to apply

Oracle CPUs

- Quarterly security fixes
 - Does not fix functional bugs
 - Each fix is listed out individually by severity
 - Each fix is an napply “molecule”
- Application process
 - Review CPU and decide which molecules to apply
 - Stage patch on the server
 - Stop database
 - `opatch napply –skip_subset –skip_duplicates`
 - Start database
 - Run `catbundle`
 - Recompile views and packages if it has not been done before on the database (may require disabling RAC)

Oracle PSUs

- Quarterly security and bug fixes
 - Includes CPU
 - Includes recommended bug fixes that do not change the optimizer
 - Delivered as an “apply” patch
- Application process
 - Review PSU
 - Stage patch on the server
 - Check for conflicts
 - Stop databases and listeners in home
 - opatch apply (-force)
 - Apply replacement overlay patches
 - Start database
 - Run catbundle
 - Recompile views and packages if it has not been done before on the database

SQL Server Patches

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- SQL Server patches are cumulative
 - SQL Server version number increments
 - Delivered as an executable
- Types of SQL Server Patches
 - Hotfixes
 - Cumulative updates
 - Service Packs

SQL Server Hotfixes

- Hotfixes are released based on customer demand
- Designed to fix specific bugs or critical security updates
- Will not add new functionality
- A hotfix may resolve one or multiple issues simultaneously

SQL Server Cumulative Updates

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- Cumulative updates are released every two months
- CUs are available to all customers
- CUs include all updates since a given Service Pack or RTM release
 - i.e. SQL 2008 SP1 CU2
 - SQL 2008 RTM CU8

SQL Server Service Packs

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- Service Packs include
 - All bug and security fixes from previous CUs and hotfixes
 - New features that improve the overall SQL Server experience
- SPs are available publicly on Microsoft's website
- SPs can not be rolled back

SQL Server 2008 Patching Enhancements

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- Slipstreamed media
 - SQL Server media can have patches embedded
 - New instances installed from media will have patches automatically installed
 - Designed to simplify the rollout of compliant/up-to-date SQL Server instances
- Rolling patches for clusters
 - Stage patch on all nodes
 - Remove standby nodes from active failover groups
 - Apply patch to standby nodes
 - Re-add patched installs to failover groups
 - Remove formerly active unpatched node from failover
 - Patch remaining unpatched node
 - Re-add final node
 - **Manual Process**

GridApp Systems

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- GridApp Systems is the only automation company that focuses solely on the database
- GridApp Clarity™ provides automation for database patching, such as Oracle PSUs and CPUs, rolling patches for SQL Server and Oracle RAC, and provisioning new databases with inline patches
- GridApp Clarity is used to patch thousands of databases at customer sites around the world.

GridApp Clarity™ Patching

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Patch Install Candidates

Oracle Patch Candidates For Package: PSU-Jul2009-10.2.0.4-Linux-x86_64 Step 1 of 3

Install Options

Patching Method *

Select Home Type Database Home CRS Home

Upgrade Opatch

Fix Inventory Permissions

Install Overlay Patches

Template

Homes

Location	Host	Oracle Home	Conflicts	Product	SID	Software Version	Operating System	Architecture
<input type="checkbox"/>	/ORACLE							
<input type="checkbox"/>	rh50-si-082.dev.gridapp.com[10.105.18.64]							
<input type="checkbox"/>		/app/oracle/ANGELA/product/10.2.0.4	?					
				ANGELA	ANGELA	DBMS 10.2.0.4	RHEL5	x86_64
				MIKE	MIKE	DBMS 10.2.0.4	RHEL5	x86_64
<input type="checkbox"/>	rh50-si-083.dev.gridapp.com[10.105.18.65]							
<input type="checkbox"/>		/app/oracle/BILLY/product/10.2.0.4	?					
				BILLY	BILLY	DBMS 10.2.0.4	RHEL5	x86_64
<input type="checkbox"/>		/app/oracle/SAMANTHA/product/10.2.0.4	?					
				SAMANTHA	SAMANTHA	DBMS 10.2.0.4	RHEL5	x86_64

Excluded Candidates

* = required field

Cancel Previous Next Skip Ahead

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Oracle Patch Conflicts Check

Oracle Patch Candidates For Package: PSU-Jul2009-10.2.0.4-Linux-x86_64 Step 1 of 3

Options

Select Home Type Database Home CRS Home

Upgrade Opatch

Template [none] ▾

Homes							
Location	Host	Oracle Home	Product	SID	Software Version	Operating System	Architecture
<input checked="" type="checkbox"/> /ORACLE							
<input checked="" type="checkbox"/> rh50-si-082.dev.gridapp.com[10.105.18.64]							
<input checked="" type="checkbox"/> /app/oracle/ANGELA/product/10.2.0.4							
		ANGELA <input type="radio"/>	ANGELA	ANGELA	DBMS 10.2.0.4	RHEL5	x86_64
		MIKE <input type="radio"/>	MIKE	MIKE	DBMS 10.2.0.4	RHEL5	x86_64
<input checked="" type="checkbox"/> rh50-si-083.dev.gridapp.com[10.105.18.65]							
<input checked="" type="checkbox"/> /app/oracle/BILLY/product/10.2.0.4							
		BILLY <input checked="" type="radio"/>	BILLY	BILLY	DBMS 10.2.0.4	RHEL5	x86_64
<input checked="" type="checkbox"/> /app/oracle/SAMANTHA/product/10.2.0.4							
		SAMANTHA <input checked="" type="radio"/>	SAMANTHA	SAMANTHA	DBMS 10.2.0.4	RHEL5	x86_64

Excluded Candidates

* = required field

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Results

[Download Log Package](#)

[View Log](#)

Success

Oracle home [/app/oracle/BILLY/product/10.2.0.4] on host [rh50-si-083.dev.gridapp.com] has conflicts with patch ids 4723109

Oracle home [/app/oracle/SAMANTHA/product/10.2.0.4] on host [rh50-si-083.dev.gridapp.com] has conflicts with patch ids 6311841

Oracle home [/app/oracle/ANGELA/product/10.2.0.4] on host [rh50-si-082.dev.gridapp.com] has conflicts with patch ids 6311841

Patch Conflicts

Patch Conflicts Listing

Target Patch ID	Conflict Patch ID	Overlay Package ID	Affected Homes
8576156			
	4723109	11	1
	6311841	12	2

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Location	Host	Oracle Home	Conflicts	Product	SID	Software Version	Operating System	Architecture
<input checked="" type="checkbox"/>		/ORACLE						
<input checked="" type="checkbox"/>	rh50-si-082.dev.gridapp.com	/app/oracle/ANGELA/product/10.2.0.4	<input checked="" type="checkbox"/>	ANGELA	ANGELA	DBMS 10.2.0.4	RHEL5	x86_64
				MIKE	MIKE	DBMS 10.2.0.4	RHEL5	x86_64
<input checked="" type="checkbox"/>	rh50-si-083.dev.gridapp.com	/app/oracle/BILLY/product/10.2.0.4	<input checked="" type="checkbox"/>	BILLY	BILLY	DBMS 10.2.0.4	RHEL5	x86_64
				SAMANTHA	SAMANTHA	DBMS 10.2.0.4	RHEL5	x86_64

Excluded Candidates

* = required field

Cancel Previous Next Skip Ahead

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Patch Install Candidates

Scheduling		Step 3 of 3
Job Execution *	Run this job <input type="text" value="At a future time"/>	
Scheduled Time *	On <input type="text" value="10/15/2009"/>  at <input type="text" value="19"/> : <input type="text" value="07"/>	

* = required field

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▼ Verify: Applying patch for /app/oracle/BILLY/product/10.2.0.4 on rh50-si-083.dev.gridapp.com ✓			
▶ Validating Node	4 Success	0 Failed	0 Ignored
▶ Unpacking Patch [PSU-Jul2009-10.2.0.4-Linux-x86_64]	0 Success	0 Failed	0 Ignored
▶ Running Pre-Provisioning Script for [PSU-Jul2009-10.2.0.4-Linux-x86_64]	1 Success	0 Failed	0 Ignored
▶ Running OPatch for [PSU-Jul2009-10.2.0.4-Linux-x86_64]	9 Success	0 Failed	0 Ignored
▶ Running Post-Provisioning Script for [PSU-Jul2009-10.2.0.4-Linux-x86_64]	1 Success	0 Failed	0 Ignored
▶ Cleaning Up Files for [PSU-Jul2009-10.2.0.4-Linux-x86_64]	0 Success	0 Failed	0 Ignored
▶ Unpacking Patch [QA STD - Overlay patch for 4723109 10.2.0.4 on Linux x86_64]	0 Success	0 Failed	0 Ignored
▶ Running Pre-Provisioning Script for [QA STD - Overlay patch for 4723109 10.2.0.4 on Linux x86_64]	1 Success	0 Failed	0 Ignored
▼ Running OPatch for [QA STD - Overlay patch for 4723109 10.2.0.4 on Linux x86_64]	9 Success	0 Failed	0 Ignored
Checking for valid home inventory pointer			Success
Checking if oinstall group matches inventory directory group			Success
Checking if oracle install user(s) has 'rx' permissions on the inventory directory			Success
Checking if oracle install user(s) can write to the inventory directory			Success
Checking if Oracle home exists in inventory			Success
Checking if network/admin/shrept.lst exists under the oracle home			Success
Checking if OPatch response file exists			Success
Checking if Oracle install user can read the OPatch response file			Success

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▼ Applying patch for /app/oracle/ANGELA/product/10.2.0.4 on rh50-si-082.dev.gridapp.com	
Prerequisites	
✓	Stopping listeners running out of /app/oracle/ANGELA/product/10.2.0.4 on rh50-si-082.dev.gridapp.com
✓	Stopping database /ORACLE/ANGELA instance 1
✓	Stopping database /ORACLE/MIKE instance 1
✓	Stopping services running out of /app/oracle/ANGELA/product/10.2.0.4 on rh50-si-082.dev.gridapp.com
Steps	
✓	Validating Node
✓	Unpacking Patch [PSU-Jul2009-10.2.0.4-Linux-x86_64]
✓	Running Pre-Provisioning Script for [PSU-Jul2009-10.2.0.4-Linux-x86_64]
⚠	Running OPatch for [PSU-Jul2009-10.2.0.4-Linux-x86_64]
	Running Post-Provisioning Script for [PSU-Jul2009-10.2.0.4-Linux-x86_64]
	Cleaning Up Files for [PSU-Jul2009-10.2.0.4-Linux-x86_64]
	Unpacking Patch [QA STD - Overlay patch for 6311841 10.2.0.4 on Linux x86_64]
	Running Pre-Provisioning Script for [QA STD - Overlay patch for 6311841 10.2.0.4 on Linux x86_64]
	Running OPatch for [QA STD - Overlay patch for 6311841 10.2.0.4 on Linux x86_64]
	Running Post-Provisioning Script for [QA STD - Overlay patch for 6311841 10.2.0.4 on Linux x86_64]
	Cleaning Up Files for [QA STD - Overlay patch for 6311841 10.2.0.4 on Linux x86_64]

Summary

- Database patching is growing increasingly critical due to security and regulatory concerns
- Oracle is attempting to make patching simpler, but has succeeded in increasing the complexity and effort required
- SQL Server 2008 adds online patching capabilities, but it imposes a significant manual cost
- GridApp Clarity™ is the industry-leading solution for database patching



Q&A