May 2012
Oracle Spatial User Conference
Rich Pitts
Senior Principal Support Engineer
Oracle Support
Making the most of a Spatial upgrade
(The bug Life Cycle)
Program Agenda

- Oracle Support Overview
- Support Process – Bug Life Cycle
- Patch sets and the spatial patches
- 11.2.0.3 interesting points to note
- Where to find help…. 
Oracle Premier Support
Comprehensive Coverage for Your Oracle Database and other Oracle Products

- **Service and Support**: Quickly diagnose and resolve issues
- **Tools and Resources**: Get the most of your Oracle products with proactive services
- **Product Innovation**: Keep pace with change and capitalize on new opportunities
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  • Tips and tricks
  • Whitepapers,
  • Live and archived Webcasts and much more

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  • Database Administration
  • Database Backup and Recovery
  • Database Install Unix and Linux
  • Database Security Products
  • Oracle Multimedia
  • Oracle Text
  • Patch Reviews - DB
  • PL/SQL
  • Pre-compilers and OCI
  • Scalability RAC
  • SQL Language
  • Managing DB Memory & 4030/4031
  • Storage Management
  • Windows Oracle Data Access Components
  • XML Database
Lifetime Support Policy – Database

Oracle Spatial User Conference 2012

Premier Support
Extended Support
Sustaining Support

Open World 2011
Open World 2012
May 2012 Location Intelligence Conference
January 2018

11.2
August 2012
January 2015
August 2015
Indefinite

11.1
July 2010
July 2013
Indefinite

10.2
July 2007
July 2010
Indefinite

10.1
June 2009
June 2012
Indefinite

9i
March 2007
March 2010
Indefinite

Premier Support:
Extended Support:
Sustaining Support:
Program Agenda

- Oracle Support Overview
- Support Process – Bug Life Cycle
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- Where to find help….
• What BDE does…
  - Bug triage
  - Bug escalations & Technical Management
  - Backport requests
  - Forum Participation
  - Requests For Assistance (RFAs) for Service Requests (SRs)
  - Knowledge Engineering
  - Severity 1 (P1) bug screening – always someone on duty 24x7 days a week

richard.pitts@oracle.com
In Server Technology BDE team - Senior Principal Support Engineer
Core RDBMS, Optimizer RAC, ASM, began with MultiDimension at 8.1.7
Currently Global BDE Lead For Oracle Spatial and other complex content...

15 yrs
Where are you? Where should you be aiming?

Hopefully you’re HERE! 11.2.0.3.2

11.2.0.4 Terminal due? 2013?

**** Are you here? ****

History (we hope)
The Bug Life Cycle – Fix in Main

Customer has a problem with 10.2.0.5

Opens a Service Request via MOS (Which patch are you on)

Problem defined Support Tests 10.2.0.5 & 11.2.0.3

BDE Tests 12.1.0.0 – Reviews

Bug Visible on MOS

Passes to Development

Fixed on Main (Job Done)
When a bug does not reproduce
More work for BDE

Problem at 11.2.0.3

Start to find the Fix

12.1.0.0 Does not reproduce...
Diagnosis......
Many spatial bugs are tagged to aid rediscovery.

Searching knowledge base, You can do this as well...
Bug Process: RFI’s, BLR’s & PSE’s

Terms and definitions

• In order to obtain a fix in the earlier release, i.e. 11.2.0.2
  — BDE files a Base Label Request (BLR) for 11.2.0.2
    • For the Version the customer has requested
  — Automatically a Request For Inclusion (RFI) IE 11.2.0.4 is produced, (IF 12.1 was also production it would do a 12.1 RFI as well, we don't know where you will go next....
  — A Merge Label Request (MLR) may be required once the BLR is produced.... “opatch lsinventory -detail”
  — FINALLY, a Patch Set Exception (PSE) for Customer’s platform is produced....
The Bug Life Cycle – Getting the fix

**Development produce fixes**

- BDE Files PSE for Customer Platform
- BDE Files BLR For 11.2.0.2
  &
  RFI For 11.2.0.4

**Customer Requests Patch for 11.2.0.2**

**Fixed on Main**

(Job Done)

**Patch produced**
An MLR example….
A requested fix plus a fix applied affecting the same modules.

Bug 5611025 is a MLR of bug 5380055 4883174 4953737 5098050 4967266 4395779 5001975
1. rdbms/notes/backport.txt
2. rdbms/src/server/rcv/if/kcrr.h
3. rdbms/src/server/rcv/kcrf.c
4. rdbms/src/server/rcv/kcrfr.c
5. rdbms/src/server/rcv/kcrr.c
6. rdbms/src/server/rcv/krsf.c
7. rdbms/src/server/sqllang/parse/dbsdrv.c
8. rdbms/src/servertxn/if/ktucts.h
9. rdbms/src/server/txnlcltx/ktb.c

Bug 5448688 is a MLR of bug 5181800 & bug 5191972
1. rdbms/notes/backport.txt
2. rdbms/src/server/rcv/if/kcrr.h
3. rdbms/src/server/rcv/kcrf.c
4. rdbms/src/server/rcv/kcrfr.c
5. rdbms/src/server/rcv/kcrr.c
6. rdbms/src/server/rcv/krsf.c
7. rdbms/src/server/rcv/if/krsf.h
8. rdbms/src/server/rcv/if/krsI.h

Green is No Clash
MLR to PSE

Finally PSE Filed to obtain a one-off fix for Customer’s version on their particular platform.

PSE BUG 5616781 filed ended at status 93

Should be status 90

Bug 5611025 is a MLR of bugs 5380055
4883174 4953737 5098050 4967266
4395779 5001975

Bug 5448688 is a MLR of bug 5181800
& bug 5191972

Bug 5616780 is a MERGE OF THESE MERGES! FINISHED status 35

1. rdbms/notes/backport.txt
2. rdbms/src/server/rcv/if/kcrr.h
3. rdbms/src/server/rcv/if/krsf.h
4. rdbms/src/server/rcv/if/krsl.h
5. rdbms/src/server/rcv/kcrf.c
6. rdbms/src/server/rcv/kcrfr.c
7. rdbms/src/server/rcv/kcrr.c
8. rdbms/src/server/rcv/krsf.c
9. rdbms/src/server/rcv/krsl.c
10. rdbms/src/server/sqllang/parse/dbsdrv.c
11. rdbms/src/server/txn/if/ktucts.h
12. rdbms/src/server/txn/lcltx/ktb.c

PSE BUG 5616781 filed ended at status 93

Should be status 90
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# 10.2.0.4

Historic Merge 10.2.0.4 Bug 9119046 – This fixes a lot of stuff!!!

<table>
<thead>
<tr>
<th>Patch</th>
<th>Patch Location</th>
<th>Bug Fix List</th>
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</thead>
<tbody>
<tr>
<td>11.2.0.3.0 Patch 6</td>
<td>Target date Mid May 2012</td>
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<tr>
<td>11.2.0.3.0 Patch 5</td>
<td>Bug:13885389 Patch:13885389</td>
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<tr>
<td>11.2.0.3.0</td>
<td>Bug:10404630 Patch:10404630</td>
<td></td>
</tr>
<tr>
<td>11.2.0.2.0 Patch 19</td>
<td>Target date End May 2012</td>
<td></td>
</tr>
<tr>
<td>11.2.0.2.0 Patch 18</td>
<td>Bug:13897458 Patch:13897456</td>
<td>Note:1114533.1</td>
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<tr>
<td>11.2.0.2.0</td>
<td>Bug:10098816 Patch:10098816</td>
<td>ReadMe</td>
</tr>
<tr>
<td>11.2.0.1.0 Patch 16</td>
<td>Bug:13423278 Patch:13423278</td>
<td>Note:1114533.1</td>
</tr>
<tr>
<td>11.1.0.7.0 Patch 46</td>
<td>Target date End May 2012</td>
<td></td>
</tr>
</tbody>
</table>

Spatial Merge patch and PSU 10.2.0.4.6 – no conflict by design

Windows ALWAYS be on the latest 5
th digit. (note 161549.1 as jump off point) [TTS work fine with merge applied]

Note 161549.1

- Spatial Merge patch and PSU 10.2.0.4.6 – no conflict by design
- Windows ALWAYS be on the latest 5th digit. (note 161549.1 as jump off point) [TTS work fine with merge applied]

8773211:SDO_NN WITH SDO_BAYMEASURES PRECISE SQL LEVEL 1 FOR MBR SEARCHES ON CONTAINS MASK OR CONTAINS MASK FOR PARTITIONED TABLES USING ANYINTERACT WHEN

8733029:MERGE LABEL REQUEST ON TOP OF 10.2.0.4.0 FOR BUG 8571690 FOR MBR SEARCHES ON CONTAINS MASK OR CONTAINS MASK FOR PARTITIONED TABLES USING ANYINTERACT WHEN

8718259:RELATE WITH DETERMINATE ON PARTITIONED TABLES FOR MBR SEARCHES ON CONTAINS MASK OR CONTAINS MASK FOR PARTITIONED TABLES USING ANYINTERACT WHEN

8571690:MERGE LABEL REQUEST ON TOP OF 10.2.0.4.0 FOR BUG 8571690 FOR MBR SEARCHES ON CONTAINS MASK OR CONTAINS MASK FOR PARTITIONED TABLES USING ANYINTERACT WHEN

8518433:SDO_UNION AND SDO_DIFFERENCE GENERATES SPIKES ON MBR SEARCHES ON CONTAINS MASK OR CONTAINS MASK FOR PARTITIONED TABLES USING ANYINTERACT WHEN

8451038:MERGE LABEL REQUEST ON TOP OF 10.2.0.4.0 FOR BUGS 7479985 7003151 7237687 6504890

7640951:MERGE LABEL REQUEST ON TOP OF 10.2.0.4.0 FOR BUGS 7479985 7003151 7237687 6504890

751942:SDO_RELATE WITH INSIDE MASK RESTORES GEOMETRY THAT SHOULDNT

7553851:MERGE LABEL REQUEST ON TOP OF 10.2.0.4 FOR BUGS 7479985 7003151 7237687 6504890

7434709:MERGE LABEL REQUEST ON TOP OF 10.2.0.4 FOR BUGS 7237687 6956194

6956194:SDO_GEOM.RELATE - WRONG ANSWER WHEN COMPARING GEODETIC POINT AND POLYGON
Terminal release of 10.2.0.5.x

Bug 8202632 - 10.2.0.5.0 See – Note 161818.1

- Fixes many of the 10.2.0.4 issues
- sdo_buffer - under went a make over now java based, Some found it much faster , some slower. Review your use!!!!
- Bug 9799483 Contact support or me
- PSU conflicts on 10.2.0.4.7 etc Bug 11694689 - issues
### Oracle Database Releases Status Summary

<table>
<thead>
<tr>
<th>Release</th>
<th>Current Patch Set</th>
<th>Next Patch Set</th>
<th>Premier Support Ends</th>
<th>Extended Support Ends</th>
<th>Notes</th>
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</table>
| 11.2.0X | 11.2.0.3           | 11.2.0.4        | Jan-2015             | Jan-2019              | Base release is 11.2.0.1.  
Extended Support fees are waived for the first year from Jan-2015 to Jan-2018.  
11.2 Patch Sets are full releases - see Note 1637811.  
Patching for 11.2.0.1 ended on 13/Sep/2011 - See Note 342660.1. |
| 11.1.0X | 11.1.0.7           | None           | Aug-2012             | Aug-2015              | Base release is 11.1.0.5.  
11.1.0.7 is the final 11.1 Patch Set. |
| 10.2.0X | 10.2.0.5           | None           | Jul-2010             | Jul-2013              | 10.2.0.5 is the terminal 10.2 Patch Set.  
The Free Extended Support period ended on 31-Jul-2011.  
Patches will only be created for 10.2.0.5 on most platforms - See Note 742660.1 for platform specific end patching dates. |
| 10.1.0X | 10.1.0.5           | None           | Jan-2009             | Jan-2012              | 10.1.0.5 is the terminal 10.1 Patch Set.  
10.1 Extended Support has ended - see Note 761713.1 |
| 9.2.0X  | 9.2.0.8            | None           | Jul-2007             | Jul-2010              | 9.2.0.8 is terminal 9.2 Patch Set.  
The Free Extended Support period ended on 31-Jul-2008. See Note 392222.1  
Limited Extended Support is available from July 2010 to July 2012 on selected platforms.  
See the 9.2 Extended Support details here. |

**Key to coloring of above table:**

- **Premier Support**
- **Extended Support**
- **Fixes only possible where noted**
- **Extended Support**
Terminal release of 11.1.0.7.x
Strongly advise move to 11.2.0.3 ASAP

- Architecture changes in 11.2 make back ports tricky if not impossible [SDO_ANYINTERACT fixes wont backport....]

A COMPLEX SDO_ANYINTERACT query performance

- 11.1.0.7 Elapsed: 00:41:43.74
- 11.2.0.2, 16 times faster! Elapsed: 00:02:30.27
11.2.0.2 PERFORMANCE GAINS

An example how moving to the latest patch set gives instant improvements...

sdo_anyinteract queries... A COMPLEX query on different versions

- **11.1.0.7**  Elapsed: 00:41:43.74 = 2503.74 sec
- **11.2.0.2**  Elapsed: 00:02:30.27 = 150.27 sec =
  16 times faster!

(11.2.0.2, the improvement is due to two transactions including the fix for bug-8446705)

- **11.2.0.3**  Elapsed: 00:00:30.27 = 30.27 sec =
  5 times faster than 11.2.0.2
  80 times faster than 11.1.0.7

Currently, a sdo_anyinteract improvement project has been backported to 11.2.0.2 via bug 12334475 – Silver Bullet)
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• Where to find help….
Current Release of 11.2.0.3.2
To infinity and beyond?

• Fixes much of the 10.2, 11.1, 11.2.0.1 and 11.2.0.2 issues....
• `sdo_anyinteract` 43 secs at 11.1.0.7 to 0.7 of a second
• There are some important changes to Oracle Database Patch Sets starting with 11.2.0.2 (refer to Note 1189783.1 for details)
• 11.2.0.4 or 12.1?
Optimizer!!! Constantly evolving....
Mass of fixes each release.

- Issues 10.2.0.5 and beyond testing will show
- Slow Performance when using SDO_RELATE / SDO_FILTER (Doc ID 1268383.1)
- Execution plans involving "bitmap conversion to rowids" and "table access full".
- Cause Optimizer is not selecting the optimal plan.
  This is being addressed in a future release

There is a workaround...
SDO_RELATE / SDO_FILTER (Doc ID 1268383.1) Workaround...

SQL> connect /as sysdba
SQL> alter session set current_schema=MDSYS;
SQL> DISASSOCIATE STATISTICS FROM INDEXTYPES spatial_index FORCE;
SQL> DISASSOCIATE STATISTICS FROM PACKAGES sdo_3gl FORCE;
SQL> DISASSOCIATE STATISTICS FROM PACKAGES prvt_idx FORCE;

Then be sure either flush the shared pool or bounce the database for the effects to take place
Bug 9588219 Excessive Redo generation with Spatial Rtree index updates.

- There has been considerable interest in reducing the amount of redo generated by Spatial Rtree Index, during update of a geometry. This design project first released was in 11.2.0.2 addressing this issue. Testing has shown a considerable improvement from the previous code.
- I got 50% improvement with one test. 95% improvement test test
- Affects: Vers >=10.2.0.3 and BELOW 11.2.0.3
- Specifically: 10.2.0.4 10.2.0.5 11.1.0.7 11.2.0.1
- 11.2.0.2 better then EXTRA fix in bug BLR 10406200
- Fixed-Releases: 11.2.0.3 and beyond....
Consider Rapid Application Testing

Difficult to test spatial systems….

• Been around a while – mature enough to use….
• “Record” production system as it runs…
• Great for peak loads… etc.
• Replay on test/upgraded system
• Patch, change statistics/base lines
• Replay again and again….
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What Spatial merge should I apply?
Constantly Changing.....

• Merge Request bug 12587918 on top of 11.2.0.2.0 for:
  > Bug 10423304 Abstract: SDO_GEOM.SDO_AREA DIFFERENT RESULT FOR EQUAL GEOMETRIES WITH SAME COORDINATES
  > Bug 9588219 Abstract: LOTS OF REDO GENERATED WITH SPATIAL INDEX UPDATES
  > Bug 12400749 Abstract: SDO_WITHIN_DISTANCE HANGS

**** Use the MOS store ***

• IF you do nothing you might end some creek....
  Looking for an ORA-Paddle....
### MOS – Spatial Tools & Resources

Be proactive!!! It's Included with Oracle Premier Support

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<th><strong>Product Information Center</strong></th>
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<tr>
<td>• Master Note for Oracle Spatial and Oracle Locator Installation [ID 220481.1]</td>
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<tr>
<td>• This is the Master Note for Oracle Spatial and Oracle Locator Installation Includes links to Installation, De-installation and Verification of Oracle Spatial and Oracle Locator</td>
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<td>• Map Viewer Patches [ID 959683.1]</td>
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<td>• Steps for Manual Installation / Verification of Spatial 10g / 11g [ID 270588.1]</td>
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<tr>
<td>• Steps for Manual Installation of Oracle 9i Spatial [ID 220484.1]</td>
</tr>
<tr>
<td>• SDO 8.1.x: Steps for Manual Installation of Oracle 8i Spatial Data Option [ID 110217.1]</td>
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<tr>
<td>• Steps for Manual De-installation of Oracle Spatial (9.2.0.1 to 11.2.0.1) [ID 179472.1]</td>
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<th><strong>Upgrade/Migration</strong></th>
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<tr>
<td>• Upgrade/Migrate Locator or Spatial to 11.2.0.x No Specific Note</td>
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<tr>
<td>• Oracle 11gR2 Upgrade Companion - Document 785351.1</td>
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<tr>
<td>• Upgrade/Migrate Locator or Spatial from 9.2.0 or 10.1.0 to 10.2.0.x [ID 385033.1]</td>
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<tr>
<td>• Upgrade/Migrate Oracle Spatial from 8i (8.1.5, 8.1.6, 8.1.7) or from 9.0.1 to 9.2.0 [ID 222630.1]</td>
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<tr>
<td>• Important Installation Notes for Version 9i Release 2 [ID 248240.1]</td>
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<th><strong>Installation Verification</strong></th>
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<td>• Verification of an Oracle 9i (Release 2 - 9.2.0) Spatial Installation [ID 221174.1]</td>
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<td>• Verification of an Oracle 9i (Release 1 - 9.0.1) Spatial Installation [ID 221180.1]</td>
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<td>• Verification of an Oracle 8i (Release 3 - 8.1.7) Spatial Installation [ID 122102.1]</td>
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<tr>
<td>• How to validate invalid MDSYS objects? [ID 1057912.1]</td>
</tr>
</tbody>
</table>

Available through My Oracle Support
THANK YOU