



ATLAS Oracle Access in Reprocessing

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Oracle Access in Reprocessing

- ATLAS software for reprocessing has a limited number of database queries that are using direct Oracle access
 - In the forthcoming reprocessing campaign out of more than 11K queries total, each job makes 43 queries directly to the Oracle database
 - About a year ago each job made 18 queries directly to Oracle
- The limited direct Oracle access is keeping the WLCG Tier-1 servers infrastructure ready to be used as a back-up solution, when necessary
- In preparation for the next reprocessing campaign during WLCG Tier-1 sites validation most jobs failed at NDGF due to a crash in the Oracle library version 11g on AMD Quad-Core Opteron & Phenom machines:

```
#9 <signal handler called>
#10 0xf58d235e in SHATransformI32_3 ()
from ../atlas/releases/15.6.3/DetCommon/15.6.3/ InstallArea/i686-slc5-gcc43-opt/lib/libbnz11.so
```
- We have reproduced the problem using sqlplus version 11g on Quad- and Six-Core Opterons and verified that there is no crash in either of these cases
 - Dual-Core Opteron
 - 32-bit Oracle client version 10g
 - 64-bit Oracle client version 11g



Progress in Enabling Oracle Access

- Fortunately, Oracle already has three bug reports for Quad-core Opteron with crashes in SHATransformI32_3, but they refer to external software
 - Typically, this delays the resolution of this bug in Oracle client library
 - To speed-up the resolution of this bug, WLCG submitted to Oracle the SR based on the information in our bug#62194, which does not contain references to external software
- As a result of these efforts Oracle provided the patch to fix the bug
 - The patched library built in a cross-compiled mode (on Intel for AMD) did not work
- To speed-up the fix the interactive access to the NDGF Worker Node was provided
 - Exposed problems in building library on an unsupported Linux distribution (gentoo)
- Luckily, the extended round of ATLAS Sites Validation efforts found that one of the U.S. Tier-2 sites is also severely affected by this bug
 - The site has an SL5 Linux distribution
 - Which provides an opportunity for an attempt to build the library on a supported platform
- Generally, 32-bit library on 64-bit Linux (Intel or AMD) are not supported
 - Because of wider implications, persons responsible for T0/P1 operations were notified and assured that it is not yet the moment for everybody to get worried



Strategy for Problem Resolution

- While the progress on fixing the bug continues, we need to establish a deadline for deciding to revert to Oracle client 10g
 - also to understand the implications of doing that
- Latest ATLAS major release 15.6.3 is built with Oracle client libraries version 10g
- AtlasProduction caches 15.6.3.3 onwards are built with Oracle libraries version 11g
 - primary motivations for the upgrade to 11g were
 - use the lightweight Oracle library
 - solve the Oracle problem on SELinux
- A decision on the ATLAS computing side of things to revert to Oracle version 10g is expected to be made at the CMB Meeting on Monday, February 15
- In the meantime, NDGF reconfigured their queues and ATLAS took steps to cope with significantly reduced CPU capacities at this Tier-1 site during reprocessing
- ATLAS reprocessing campaign is scheduled to start tomorrow
 - I will made the announcement when this happen

