

Josh Liquibase Lessons Learned

Problem

Cannot add or update a child row: a foreign key constraint fails

Background

- We tried to insert a mining_insight that depended on a mining_scope_kpi
- The test created the mining_scope_kpi before making the mining_insight
- While inspecting the DB at a breakpoint, **nothing was written yet!**
- The test class was wrapped in @Transactional, and so ran in a transaction

Takeaway

- Be careful about using transactions when creating dependencies

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Problem

Default constructor cannot be found for Entity in migration test

Background

- The migration test creates many Pre- and Post- test entities
- For some, we defined a parameterized constructor

Takeaway

- Recall that in Java, we need to explicitly define the Default constructor if a Parameterized constructor is provided
- Entity classes must be static, or else we will have the same issue!

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Problem

We would like to test a lot of downstream entities

Background

- Each child table of a mining_kpi needs to be copied
- We would like to avoid tedious work in making Pre- and Post- entities, especially for things that don't change
 - Tried to shortcut by extending existing entities (say that 5 times fast)

Takeaway

- Just copy every entity from the beginning
 - Yes, it's incredibly tedious, but would've saved time debugging later in this case
 - As always, we need a better way to write this kind of migration test

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Problem

Provided SQL fails on each other (non-mariadb) database type

Background

- Providing SQL directly in liquibase for Update + Joins + Subqueries
- Each DB type had some different semantics
 - **mariadb**: `UPDATE table JOIN ... SET ... WHERE ...`
 - **postgres**: `UPDATE table SET ... FROM ... JOIN ... WHERE ...`
 - **mssql**: `UPDATE table SET ... FROM ... JOIN ... WHERE ...`
 - **oracle**: `UPDATE table SET a=(...), b=(...) WHERE ...`

Takeaway

- ChatGPT is helpful (but not perfect) at identifying what works in each
- Run some CrossDB Integration test (like `MiningProcessServiceTest`) locally
- (Didn't work, but...) Run remote dev with a different rdbms

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Problem

column "isendpointfilter" of relation "mining_activity_filter" does not exist

Background

- Some table/column name was created in camelCase ("isEndpointFilter")
- In at least PostgreSQL, the column names are automatically lowercased

Takeaway

- For table/column names not using lower_case_format, provide their name in double quotes
- Haven't yet found a way to fix this on the entity - it's broken in the product!
- Be sure we enforce this during liquibase code reviews
- (CH&M) Go migrate this to be lowercase, maybe ME?

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Problem

DB2 SQL Error: SQLCODE=-104, SQLSTATE=42601, SQLERRMC=;;ing_kpi WHERE id = ?;<space>

Background

- Used a “;” at the end of the SQL String for our migration

Takeaway

- At least DB2, and usually Oracle, don't want you to provide your own “;”

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Problem

ORA-01400: cannot insert NULL into ("APPIANDB"."MINING_KPI_FIELD_ACTIVITY"."ID")

Background

- MiningKpiField and its children each have an id
- In Oracle, we need to insert id from a seq.
- We can't use an explicit @SequenceGenerator because it isn't created for every DB type
- We can't define conflicting id fields

mining_kpi_field	
id	mining_kpi

mining_kpi_activity_field		
id	mining_kpi_field_id	activity

Takeaway

- This is broken in the product for KPI fields and types!
- Being able to get 90% of the way makes for bad rabbit holes...
- (CH&M) Fix either by removing id from children or using table per class

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Problem

ORA-00933: SQL command not properly ended

Background

- In Oracle, we prepare the statement using the “id” column as a RETURNING id INTO
- However, this isn’t supported when using INSERT ... SELECT rather than INSERT ... VALUES

Takeaway

- Use two statements, to first SELECT the values then another one to INSERT ... VALUES with RETURNING INTO

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Problem

ORA-00947: not enough values

Background

- Using a dynamically constructed PreparedStatement with RETURNING id INTO ?
- I suspected the returning into was missing; we don't give it a parameter elsewhere
- In every other DB type, we can just do INSERT INTO table (columns) VALUES value1, value2, value3

Takeaway

- In Oracle, we require parentheses around the list of values, otherwise Oracle will interpret it as a single value

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Problem

Updating mining_scope_kpis violates foreign key constraint

Background

- Existing mining_insights point to mining_scope_kpis, so we need to update both at the same time
- Tried using a transaction within the migration; this didn't work

Takeaway

- Using 3 statements (Insert SKPI, Update Insight, Delete SKPI)

Also See

- Franklin's Liquibase migration troubleshooting flowchart
 - https://app.diagrams.net/#G1D-BuUNwDEx6UuujrnrBR1uFytWXNDoJK_#%7B%22pageId%22%3A%22Mn4wHljWp8MtS7HWjreP%22%7D
- Ticket describing how to run tests on other DB types locally
 - <https://appian-eng.atlassian.net/browse/AN-236207>