SQL Query in Collection SDK

1. Introduction

Before proceeding, we recommend reviewing the 'SQL Query Examples' documentation for comprehensive information about querying the Polarion database and in-depth information on table joining techniques.

Key Concepts

Query from Polarion

- Always retrieve **`C_URI`** and **`C_COL_REV`** columns.
- Use the provided APIs. These APIs will create the appropriate schemas in which the query will be executed.
    - The Collection schema includes a set of already filtered table views with only Collection-related data. (A complete list of filtered tables is in the next section.)
    - The Collection schema also includes all tables from the standard Polarion database, so joining with these tables is possible.
    - The APIs for Collection queries are:
      `com.polarion.platform.persistence.IDatabaseSearch.instancesInCollection`
      `com.polarion.alm.shared.api.model.ModelObjectsSqlSearch.collection`

As an example, in a Polarion Report, something similar to the following Velocity code can be used inside a script widget in order to perform an SQL query on a Collection:
`$transaction.objects.searchBySql("SELECT c_uri, c_col_rev FROM ...").collection($collectionReference)`

Please be aware that using a HEAD reference while searching in a Collection in a baseline context results in the automatic adoption of the baseline context revision.

Query from External Client

When connecting via external clients:

- Connect to the historical database.
- Reference tables using the full schema name.
  Collections in Polarion use a specific schema naming convention:
  `POLARION_C_+ProjectID+_+CollectionID ( E.g` **`POLARION_C_COLLECTION_PROJECT_1.WORKITEM`** `)`
  For revision-specific queries:
  `POLARION_C_+ProjectID+_+CollectionID+_REVISION ( E.g` **`POLARION_C_COLLECTION_PROJECT_1_250.WORKITEM`** `)`
- Ensure the Collection view exists in Polarion beforehand by using the Collection search API.

Limitations

- Lucene queries can not be used inside SQL searches within Collections.
- Views starting with "_*" are internal and should not be used in queries.
- Queries executed against the Collection HEAD may return up to one-minute old results. To get the most up-to-date results from the HEAD, please wait a moment between updating the Collection content and running the query, or query the Collection baseline (specific revision) instead.

2. Collection Schema Specific Tables

The following tables are the counterpart to Polarion's standard database tables without the 'col_' prefix. They only contain data that belongs to the Collection hierarchy in the appropriate revision for the hierarchy.
The tables contain an additional **`C_COL_REV`** column representing the revision in which the data appears in the Collection.
Other columns are identical to those of the same tables without the 'col_' prefix. (See the Database Table Reference.)

Collection & related tables:

```
col_baselinecollection
col_cf_baselinecollection
col_rel_baselinecollection_richpages
col_rel_baselinecollection_upstreamcollections
col_struct_baselinecollection_elements
```

Module & related tables:

```
col_module
col_cf_module
col_rel_module_workitem
col_struct_module_linkedoslcresources
col_struct_module_outlinenumbering
col_struct_module_renderinglayouts
col_struct_module_tcvariant
col_struct_module_xceleratorshares
```

Work Item & related tables:

```
col_workitem
col_cf_workitem
col_rel_workitem_category_categories
col_rel_workitem_user_assignee
col_struct_workitem_approvals
col_struct_workitem_externallylinkedworkitems
col_struct_workitem_hyperlinks
col_struct_workitem_linkedoslcresources
col_struct_workitem_linkedrevisions
col_struct_workitem_linkedworkitems
```

```
col_struct_workitem_linkedworkitemsderived
col_struct_workitem_planningconstraints
```

3. Query Examples

Work Items with Approvals in the "Approved" state

```
SELECT wi.c_uri, wi.c_col_rev
FROM col_workitem AS wi
   JOIN col_struct_workitem_approvals AS wa ON wi.c_uri = wa.fk_uri_p_workitem
   JOIN t_user AS usr ON usr.c_uri = wa.fk_uri_user
WHERE wa.c_status = 'approved'
```

Task type Work Items without an "Implements' backlink

```
SELECT wi.c_uri, wi.c_col_rev
FROM col_workitem wi
   LEFT JOIN col_struct_workitem_linkedworkitems link
       ON link.fk_uri_workitem = wi.c_uri
   AND link.c_role = 'implements'
WHERE wi.c_type = 'task' AND link.fk_uri_p_workitems IS NULL
```

Work Items from a given Document in the Collection

```
SELECT wi.c_uri, wi.c_col_rev
FROM col_module mod
   JOIN col_rel_module_workitem rel ON rel.fk_uri_module = mod.c_uri
   JOIN col_workitem wi ON rel.fk_uri_workitem = wi.c_uri
WHERE mod.fk_uri_project =
       ( SELECT p.c_uri FROM project p WHERE p.c_id = 'drivepilot' )
   AND mod.c_modulefolder = 'Requirements'
   AND mod.c_id = 'System Requirement Specification'
```