TDM (TEST DATA MANAGEMENT) UPGRADE PROCEDURE TO V8.1

This document describes the following:

- How to upgrade TDM onto the present version: **V8.1.**
- How to re-implement the modified product's features.

Notes:

- This document does not cover the Fabric server topology changes, such as additions of nodes, data centers, changes of replication factors or consistency level.
- The TDM upgrade procedure should be performed on testing environments prior to applying it on your production deployment.
- Perform a sanity test upon completion of the upgrade procedure, such as running a few TDM tasks and conducting other checks per the sanity procedure defined in your project.

SOFTWARE UPGRADE PROCEDURE

1. TDM 8.1 Installation - Prerequisites

Upgrade Fabric to Fabric 7.2 and above.

2. Related Documents

- FABRIC UPGRADE PROCEDURE TO V7.2.0

Note that Step 1 of the Fabric Upgrade Procedure to V7.2.0 document is irrelevant for a TDM project, since the TDM project does not contain the iidFinder process.

For more information about TDM V8.1 installation, please read the TDM Installation article in the TDM Configuration.

3. TDM Upgrade

3.1 Project Code Upgrade

Step 1 – Open the TDM Project in Fabric 7.2 Studio

- Open the TDM project with Fabric Studio 7.2. The Fabric Studio will upgrade the code to the latest version 7.2.
- Right-click the Project Tree > Rebuild All Java Code to verify that there are no compilation errors and that the code was upgraded successfully.

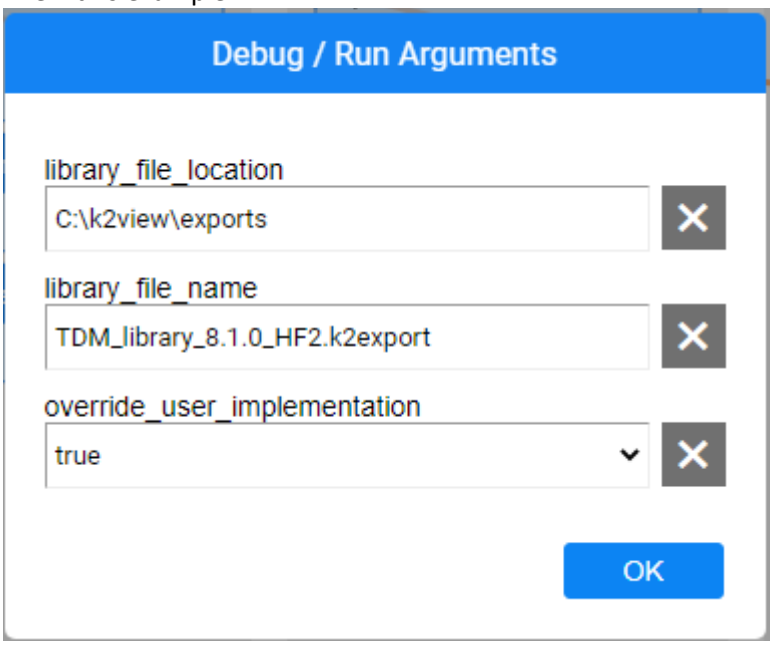
Step 2 – Run the upgradeTDMProject flow

- The upgradeTDMProject flow updates the TDM project with the updated TDM library:

- The process backs up the TDM project before it updates it. The backup file is created as a *.tar file in the Projects folder with the following naming convention:
  - <Project name>_bck_<datetime>.tar.gz
  - For example: KB_TDM_FABRIC_PROJECT_bkp_20231108_08h21.tar.gz
- The process replaces the TDM library objects with the updated ones.
- The process updates the LUs in the project with the updated TDM LU tables and populations.
- The process adds the new TDM Globals to the project's Shared Globals.

- Download the TDM library and the upgradeTDMProject export files.
- Open the TDM project in Fabric Studio and import the upgradeTDMProject flow into the Shared Objects (Broadway flow).
- **Populate the input parameters as follows**:
  - Library_file_location - populated with the full path, of the TDM library export file location.
  - Library_file_name - populated with the TDM library export file name.
  - Override_user_implementation - set it to **true** to enable the update of the project's LUs with the updated TDM LU tables.

- View this example:



- Run the upgradeTDMProject flow on Fabric debug server. It is recommended to run this flow with a debug OFF mode.

Step 3 – Optional – Update the new TDM Shared Globals

- New Globals have been added to the Shared Globals by the upgradeTDMProject flow. These new shared Globals can be edited to change their default values if needed:

Global name	Description	Default value	Additional information
TDM_DELETE_TABLES_PREFIX	TDM added an automatic generation of the target LU table to support the deletion of an entity by a TDM task. This Global defines the prefix for the generated target LU tables.	_TAR	Delete entities implementation
TDM_BATCH_LIMIT	Limits the number of entities to be populated into the TDM execution tables for a task execution. By default, the number of entities for a task execution is unlimited (-1)	-1	Task execution process
TDM_SEQ_REPORT	When set to **true** (the default value), the task execution populates the TDM_SEQ_MAPPING table and generates the Replace Sequence Summary Report tab in the task execution report. This Global can be set to **false**, thus avoiding these 2 actions for a better performance.	true	TDM Flows Implementation
TDM_POPULATE_JMX_STATS	Set this Global to **true** to enable the execution of **populationJMX** population flow on TASK_EXECUTION TDM LU table.	false	TDM statistics handling
SEQ_CACHE_INTREFACE	Starting from Fabric V7.2, SQLite and PostgreSQL are also supported as Fabric operational DBs, in addition to Cassandra. If you use the TDM PG DB as the operational (system) DB, update this Global accordingly and set it to TDM.	DB_CASSANDRA	Fabric operational database
SEQ_DO_TRUNCATE	Indicates if the k2masking tables need to be truncated.	false	
SEQ_DROP_KEYSPACE	Indicates if the k2masking schema needs to be dropped and recreated.	false	

Step 4 – Edit the LUs

- Open the LU schema on each LU. Edit the execution order of the LU_PARAMS table population to run after the TDM_LU_TYPE_RELATION_EID table population.

- If the current version of the TDM project is 7.6 and not 8.0, delete the old LU populations from FABRIC_TDM_ROOT, LU_PARAMS, TDM_LU_TYPE_RELATION_EID and TDM_LU_TYPE_REL_TAR_EID tables. Note that TDM_LU_TYPE_REL_TAR_EID LU table does not need to have an LU population as it is populated by the TDM_LU_TYPE_RELATION table population.
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Step 5 – Deploy:

- Redeploy the Web Services to Fabric.
- Redeploy the TDM LU to Fabric:
  - Verify that the **BUILD_TDMDB** shared Global is set to false before deploying the TDM LU, otherwise the TDMDB will be created in the deploy flow.
  - Note that the upgradeTDMProject flow gets the TDM LU code from the TDM library export file. It does not use a separate TDM LU export file. A separate TDM LU export file is available in case you wish to manually upgrade the TDM LU only.

- Redeploy the remaining LUs to Fabric.
- Redeploy the TDM_Reference to Fabric.

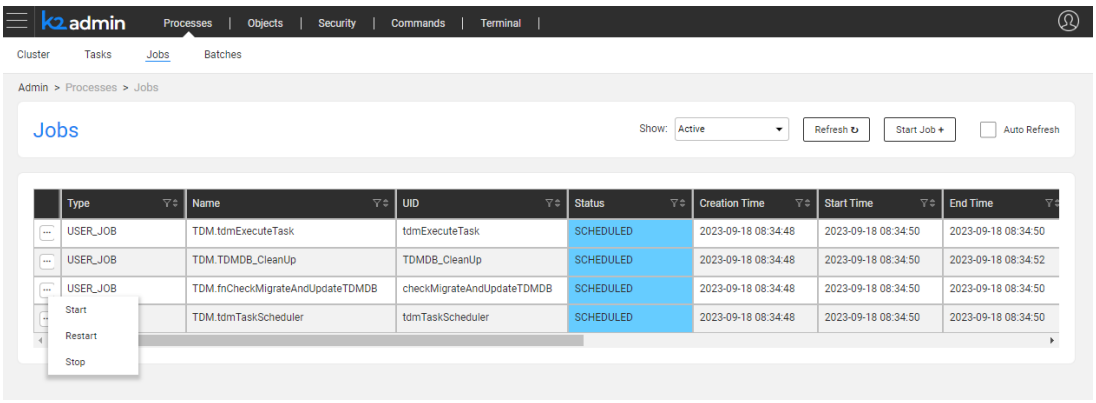
3.2 Run the RunTDMDBUpgradeScripts Flow

- The **RunTDMDBUpgradeScripts** flow needs to run in order to both upgrade the TDM database and convert the TDM translations into MTables:
  - It runs update_tdmdb_from_v8.0_to_v8.1.sql script. This script adds new fields to the TDM DB tables and populates the new fields in task_execution_entities and <LU Name>_params tables.
  - It populates the new fields that have been added to task_execution_entity and <LU name>_params tables. This update is needed since TDM 8.1 onwards no longer uses Materialized views that enable an entity selection based on parameters. Instead, new fields have been added to these tables to connect the entity id to its root entity - root_lu_name and root_iid.
  - TDM 8.1 replaces the previous TDM translations with MTables, a replacement that supports the TDM development on both Fabric Studios - Desktop-Studio and Web-Studio. The RunTDMDBUpgradeScripts flow runs the Upgrade80_to_81 flow, which in return invokes the convertLuTranslations inner flow in order to convert old TDM translations to the new equivalent TDM MTables. **Each execution of the upgrade flow deletes and repopulates the correlated MTables**.

TDM UPGRADE FLOW EXECUTION - PRELIMINARY STEPS

- Take the following steps **before** running the upgrade script:
  - Back up the TDM DB. You can use the pgAdmin and create a backup file on the TDMDB.
  - Deploy all LUs including the TDM LU to Fabric debug server.

- Stop all TDM jobs on Fabric debug and execution servers in order to avoid locking the TDM DB tables by parallel executions of the upgrade script and the TDM jobs. Use the Web Admin to stop the TDM jobs:



TDM UPGRADE FLOW EXECUTION

- Run the **RunTDMDBUpgradeScripts** flow. Populate the current version and the target version input parameters. Set the target version parameter to 8.1. For example:

  CURRENT_TDM_VERSION = 8.0.

  TARGET_TDM_VERSION = 8.1.

UPGRADE THE TDM DB IN THE EXECUTION SERVER

- If you do not have access to the TDM DB from the Studio debug server, do the following to upgrade the TDM DB:
  - Open the **Upgrade80_to_81** flow for edit and disable the **convertLuTranslations** Actor.
  - Deploy the TDM LU to Fabric execution server.
  - Open a Fabric console in Fabric execution server and run the **RunTDMDBUpgradeScripts** flow using the following command:

    Broadway TDM.RunTDMDBUpgradeScripts CURRENT_TDM_VERSION='8.0', TARGET_TDM_VERSION='8.1';

- Notes:

  - The upgrade script **updates the <LU name>_params tables based on the task_execution_entities table**. By default, the task_execution_entities table contains executions of only the last 7 day (=0.25 month). Therefore, **the <LU name>_params table will also contain only the entities of the last 7 days executions** (if the related task_execution_entities record is not found, the upgrade job deletes the related <LU name>_params record as well).
  - **If the <LU name>_param table must contain a history longer than the last 7 days executions, rerun an Extract task on a large population, after the TDM upgrade, in order to repopulate the missing <LU name>_params records.**

- The materialized views are no longer needed. Still, to be on the safe side, **the upgrade script does not drop the materialized views from the TDM DB**. You can drop them after running the TDM 8.1 successfully for a while.

TDM UPGRADE – POST EXECUTION ACTIVITIES

- Deploy the Reference to Fabric (debug and execution servers): the MTables are populated with the translation data.
- Deploy all the LUs to Fabric. Verify that the TDM jobs are up and running.

4. TDM Portal – Re-saving Tasks with Parameters Selection Method

- TDM changes the way the tasks with Parameters selection method are saved in the TDM DB. Therefore, it is required to open and resave TDM tasks with Parameters selection method after upgrading the TDM to V8.1 and before executing the TDM tasks.

5. Data Generation Implementation – PII Fields

- The implementation guidelines for the previous TDM version recommended to use the LU population's Masking Actors for the synthetic data generation as well. However, this approach was less effective when defining a PII field as an external input parameter for the data generation task.

- In order to keep the current implementation where the Masking Actors in the LU population generate the PII values - you must check the Mask Sensitive Data checkbox of the Synthetic environment window in the TDM portal.

- Alternatively, you can edit the data generation flows and use either the random data generation Actors or the new TDM 8.1 Actor - GenerateConsistent - for the PII fields.

- Note: TDM 8.1 supports an integration with Fabric Catalog for data generation and the TDM 8.1 templates create new data generation flows with Fabric Catalog Actors. However, the existing data generation flows can still work. It is not mandatory to edit them.

Click here for guidelines on data generation implementation.

6. Optional - Change Fabric Storage to a Storage that does not Support a TTL

- TDM enables creating tasks with a retention period (TTL) on the task's entities in order to save these entities in Fabric only for a limited period of time. However, if the Fabric storage does not support a TTL for the LUIs (such as PG DB), the TDM needs to limit the TDM task's retention period options to either 'Do not Delete' or 'Do not Retain'.
- Run the following steps to limit the TDM retention period:
  I. Update the tdm_general_parameters TDM DB to limit the TDM task's retention period options to either 'Do not Delete' or 'Do not Retain'.

View the Update statements in
https://support.k2view.com/Academy/articles/TDM/tdm_configuration/02_tdmdb_general_parameters.html

II. Open the TDM portal, then open the TDM tasks and update them with a retention period other than ‘Do not Delete’ or ‘Do not Retain’.