Create Acceptance Tests

Acceptance Tests are stored in CTRL_T_PROCESS_TESTS table. The following columns are available in the table.

```
PROCESS_TYPE_NAME CHARACTER VARYING(30), -- CTRL_T_PROCESS_TYPE.PROCESS_TYPE_NAME
GROUP_ID NUMERIC(18,0), -- CTRL_T_PROCESS.GROUP_ID
PROCESS_ID NUMERIC(18,0), -- CTRL_T_PROCESS.PROCESS_ID
TEST_ID NUMERIC(18,0), -- PROCESS_TYPE_NAME#PROCESS_ID#GROUP_ID#TEST_ID should be UNIQUE
TEST_NAME CHARACTER VARYING(128), -- Name of Test/ Test Scenario name
TEST_DESC CHARACTER VARYING(500), -- Description of Test
TEST_TYPE CHARACTER VARYING(1), -- U/A/R (Unit Test/Acceptance Test/Release)
TEST_SUB_TYPE CHARACTER VARYING(50), -- KPI/Qlikview/Core_Regression/Sprint15/Prod_Tests (An option to categorise tests)
ACTIVE CHAR(1) DEFAULT 'Y', -- Ignore the test
EXECUTION_DB CHARACTER VARYING(64), -- Source DB to execute test (STG/CTRL/ADM),only valid for Unit test
TEST_SQL CHARACTER VARYING(60000),  -- SQL Text
EXPECTED_VALUE CHARACTER VARYING(4000), --Expected Value
QA CHAR(1) DEFAULT 'N', -- Execute the test on QA Environment
UAT CHAR(1) DEFAULT 'N', -- Execute the test on UAT Environment
PROD CHAR(1) DEFAULT 'N' -- Execute the test on PROD Environment
```

A test is Uniquely identified by **PROCESS_TYPE_NAME#PROCESS_ID#GROUP_ID#TEST_NAME#TEST_ID**

Please find a sample Acceptance Test File : PARTY_25_CTRL_T_PROCESS_TESTS.sql

Things to remember while creating an Acceptance Test

1. TEST_ID should be Sequential within a PROCESS_ID and TEST_NAME. You can have same TEST_NAME within a PROCESS_ID but TEST_ID should be different.
2. TEST_TYPE should be 'A'.
3. EXECUTION_DB is the DB where the TEST_SQL will execute. Even if your TEST_SQL can run under an EXECUTION_DB, you should specify fully qualified Table names.
4. TEST_SQL should have an alias know as "ACTUAL" in the final SELECT.
5. TEST_SQL should have TABLE NAMES fully qualified like ADM_LND_D..LND_V_FE_POLICY. This will help the Framework to modify SQL's based on Executing environments.
6. PROCESS_ID can be set to 999 to run the tests at the end of a group.
7. TEST_NAME can be used as a SCENARIO_NAME to group several tests under a specified scenario.
8. TEST_SUB_TYPE can be used as a TEST_SUITE to categorise tests into groups.
9. Set QA = 'Y' if the test need to run on QA environment
10. Set UAT = 'Y' if the test need to run on UAT environment
11. Set PROD = 'Y' if the test need to run on PROD environment

```
INSERT INTO CTRL_T_PROCESS_TESTS (PROCESS_TYPE_NAME, GROUP_ID, PROCESS_ID, TEST_ID, TEST_NAME, TEST_DESC, TEST_TYPE, TEST_SUB_TYPE, ACTIVE, EXECUTION_DB
VALUES (
    'PARTY' -- PROCESS_TYPE_NAME
    ,25     -- GROUP_ID
    ,230    -- PROCESS_ID
    ,1      -- TEST_ID
    ,'UT_ADM_T_DIM_PARTY_CLIENT_TYPE_INDIVIDUAL'    -- TEST_NAME
    ,'CLIENT_TYPE should be Individual when CLIENT_LAST_NM and CLIENT_ORG_NM ISNULL AND CLIENT_FIRST_NM IS_NOT_NULL '   --TEST_DESC
    ,'A'    -- TEST_TYPE
    ,'SMOKE' -- TEST_SUB_TYPE
    ,'Y'    -- ACTIVE
    ,'ADM'  -- EXECUTION_DB
    ,'SELECT        COUNT(*) Actual
       FROM         ADM2_D..ADM_T_DIM_PARTY
       WHERE
       PARTY_UK IN
       (
       SELECT PARTY_UK FROM
       (
       SELECT PARTY_UK, CLIENT_ORG_NM, CLIENT_FIRST_NM, CLIENT_LAST_NM
       FROM
       (
       SELECT  DISTINCT
            (''GOALD#''||TRIM(cl.POL_OFFICE_CD)||''#''||TRIM(cl.CLIENT_NO)) AS PARTY_UK
       FROM    ADM2_LND_D..LND_V_FE_POLICY po
       JOIN    ADM2_LND_D..LND_V_FE_CLIENT cl
       ON      TRIM(po.POL_OFFICE_CD) = TRIM (cl.POL_OFFICE_CD)
       AND     TRIM(po.INS_NAME_CLIENT_NO) = TRIM (cl.CLIENT_NO)
       ) A
       WHERE   A.ROW_ORDER = 1 AND
       ) A )
       AND CLIENT_TYPE <> ''Individual'';' -- TEST_SQL (IT SHOULD HAVE "ACTUAL" AS ALIAS)
    ,'0'    -- EXPECTED_VALUE
    ,'Y'    -- QA
    ,'Y'    -- UAT
    ,'Y'    -- PROD
);
```

Having a Setup and Teardown for the test

In certain scenarios you might need to run a SQL before the batch is executed and store the output ANLST DB. Setup can be useful during these

scenarios.

The Setup and Teardown will only be executed if a matching Test is active. The following view shows if a setup/teardown is associated with a test.

SELECT * FROM ADM2_CTRL_D..CTRL_V_PROCESS_TEST_SETUP_TEARDOWN

Please find a sample Setup File : PARTY_25_CTRL_T_PROCESS_TESTSETUP.sql

```
]-----------------------------------------------------------------------------------------------
-- Test ID : TEST-08
-----------------------------------------------------------------------------------------------
DELETE FROM CTRL_T_PROCESS_TESTSETUP WHERE PROCESS_TYPE_NAME = 'PARTY' AND PROCESS_ID = -1 AND GROUP_ID = 25 AND TEST_ID = 8 AND TEST_TYPE = 'A';
INSERT INTO CTRL_T_PROCESS_TESTSETUP (TESTS_SETUP_ID,PROCESS_TYPE_NAME, GROUP_ID, PROCESS_ID, TEST_ID, ACTIVE, TEST_TYPE, PROCESSSETUP, GROUPSETUP
]VALUES (
    NEXT VALUE FOR CTRL_T_PROCESS_TESTSETUP_SEQ_SETUP_ID    -- TESTS_SETUP_ID
    ,'PARTY' -- PROCESS_TYPE_NAME
    ,25     -- GROUP_ID
    ,-1     -- PROCESS_ID
    ,8      -- TEST_ID
    ,'Y'    -- ACTIVE
    ,'A'    -- TEST_TYPE
    ,'N'    -- PROCESSSETUP
    ,'Y'    -- GROUPSETUP
    ,'ANLST'    -- EXECUTION_DB
    ,'CREATE TABLE TEST_ADM_T_DIM_PARTY_FRAMEWORK AS (
       SELECT PARTY_NAME, COMPANY_NAME, ULTIMATE_DNB_NO, ULTIMATE_PARTY_NAME, SIC_DIVISION_GROUP_DESC
       FROM ADM2_D..ADM_T_DIM_PARTY
       WHERE DNB_NO = 373358998 )
       DISTRIBUTE ON (ULTIMATE_DNB_NO)' --SETUP_SQL
    ,'CREATE TABLE BEFORE EXECUTING BATCH TO STORE THE VALUES'  -- DESCRIPTION
    ,1 -- EXECUTION_ORDER
);
```

Please find a sample Teardown : PARTY_25_CTRL_T_PROCESS_TESTTEARDOWN.sql

```
-----------------------------------------------------------------------------------------------
-- Test ID : TEST-08
-----------------------------------------------------------------------------------------------
DELETE FROM CTRL_T_PROCESS_TESTTEARDOWN WHERE PROCESS_TYPE_NAME = 'PARTY' AND PROCESS_ID = 999 AND GROUP_ID = 25 AND TEST_ID = 8 AND TEST_TYPE = 'A';
INSERT INTO CTRL_T_PROCESS_TESTTEARDOWN (TESTS_TEARDOWN_ID, PROCESS_TYPE_NAME, GROUP_ID, PROCESS_ID, TEST_ID, ACTIVE, TEST_TYPE, PROCESSTEARDOWN, GROUPTEARDOWN,
VALUES (
    NEXT VALUE FOR CTRL_T_PROCESS_TESTTEARDOWN_SEQ_TEARDOWN_ID  -- TESTS_TEARDOWN_ID
    ,'PARTY' -- PROCESS_TYPE_NAME
    ,25     -- GROUP_ID
    ,999    -- PROCESS_ID
    ,8      -- TEST_ID
    ,'Y'    -- ACTIVE
    ,'A'    -- TEST_TYPE
    ,'N'    -- PROCESSTEARDOWN
    ,'Y'    -- GROUPTEARDOWN
    ,'ANLST'    -- EXECUTION_DB
    ,'DROP TABLE TEST_ADM_T_DIM_PARTY_FRAMEWORK'    -- TEARDOWN_SQL
    ,'DROPPING THE TABLE CREATED AS PART OF SETUP' -- DESCRIPTION
    ,1 -- EXECUTION_ORDER
);
```

How to name the test files

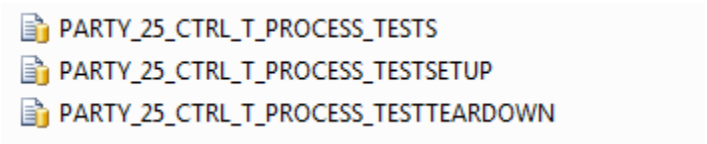
Tests related to each Process_ID and Group_ID are written in a file with the following naming convention <Process_Type_Name>_<Group_ID>_<Process_ID>_CTRL_T_PROCESS_TESTS.

If the tests are not specific to any Process then ignore the <Process_ID> in the naming convention.

Setup for a specific test in a Group need to follow the naming convention of <Process_Type_Name>_<Group_ID>_<Process_ID>_CTRL_T_PROCESS_TESTSETUP.

Similarly Test Teardown need to follow the naming convention <Process_Type_Name>_<Group_ID>_<Process_ID>_CTRL_T_PROCESS_TESTTEARDOWN.

For example:



How to test my test under construction

User can tests the INSERT statement as well as execute the Stored Procedure to run the tests on the DEV environment.

In order to run a single test execute the stored procedure CTRL_SP_RUN_TEST.

eg: CALL CTRL_SP_RUN_TEST('PARTY',25,230,2,'UT_ADM_T_DIM_PARTY_CLIENT_TYPE_UNKNOWN','A',0) -- Run a single test in a process

```
--------------------------------------------------------------------------------------------------------
--  Title         CTRL_SP_RUN_TEST.sql
--  Description   This Stored Procedure execute a particular test.
--
--  PARAMETERS
--  NAME                    DESCRIPTION
--  -----------             ---------------------------------------------------------------------------
--  PROCESS_TYPE_NAME       PROCESS_TYPE_NAME that is currently executing
--  GROUP_ID                Group ID that is currently executing
--  PROCESS_ID              PROCESS_ID that is currently executing
--  TEST_ID                 TEST_ID to execute
--  TESTNAME                TESTNAME to execute
--  TESTTYPE                Type of test that is currently executing
--  RUN_ID                  Run ID of the Batch that is executing
--
--  Version     Date            Author          Description
--  -------     -----------     ------------    ---------------------------------------------------------
--  1.0         02-May-2017     Jimmy Jose      Initial Version
--------------------------------------------------------------------------------------------------------

CREATE OR REPLACE PROCEDURE CTRL_SP_RUN_TEST(VARCHAR(30),INTEGER,INTEGER,INTEGER,VARCHAR(128),VARCHAR(1),INTEGER)
RETURNS BOOLEAN
```

How to run all the tests in a Process

Now since we have tested our test we need to make sure all tests for the Process is running and no regression defects are created. In order to do so please run CTRL_SP_RUN_TESTPROCESS.

CALL CTRL_SP_RUN_TESTPROCESS('PARTY',25,230,'A','N')

```
--------------------------------------------------------------------------------------------------------
--  Title         CTRL_SP_RUN_TESTPROCESS.sql
--  Description   This Stored Procedure execute all the Tests in a Test Process.
--
--  PARAMETERS
--  NAME                    DESCRIPTION
--  -----------             ---------------------------------------------------------------------------
--  PROCESS_TYPE_NAME       PROCESS_TYPE_NAME that is currently executing
--  GROUP_ID                Group ID that is currently executing
--  PROCESS_ID              PROCESS_ID that is currently executing
--  TESTTYPE                Type of test that is currently executing
--  RUN_SETUP               Flag to run Setup and Teardown
--
--  Version     Date            Author          Description
--  -------     -----------     ------------    ---------------------------------------------------------
--  1.0         02-May-2017     Jimmy Jose      Initial Version
--------------------------------------------------------------------------------------------------------

CREATE OR REPLACE PROCEDURE CTRL_SP_RUN_TESTPROCESS(VARCHAR(30),INTEGER,INTEGER,VARCHAR(1),VARCHAR(1))
```

How to run all the tests in a Group

In order to run all the tests associated with all the Process in a Group please execute CTRL_SP_RUN_TESTGROUP.

CALL CTRL_SP_RUN_TESTGROUP('PARTY',25,'A','N')

```
--------------------------------------------------------------------------------------------
--  Title          CTRL_SP_RUN_TESTGROUP.sql
--  Description    This Stored Procedure execute all the Tests in a Test Group.
--
--  PARAMETERS
--  NAME                    DESCRIPTION
--  -----------             ------------------------------------------------------------
--  PROCESS_TYPE_NAME       PROCESS_TYPE_NAME that is currently executing
--  GROUP_ID                Group ID that is currently executing
--  TESTTYPE                Type of test that is currently executing
--  RUN_SETUP               Flag to run Setup and Teardown
--
--  Version     Date            Author          Description
--  -------     -----------     ------------    ---------------------------------------
--  1.0         02-May-2017     Jimmy Jose      Initial Version
--------------------------------------------------------------------------------------------

CREATE OR REPLACE PROCEDURE CTRL_SP_RUN_TESTGROUP(VARCHAR(30),INTEGER,VARCHAR(1),VARCHAR(1))
```

How to view the test results

In order to view the latest test results of tests executed from Batch API use the following

SELECT * FROM CTRL_V_PROCESS_TESTRESULT_LATEST;

If the tests are executed from Jenkins of from Stored Procedure use the following view

SELECT * FROM ADM2_CTRL_D..CTRL_V_PROCESS_TESTRESULT_MANUAL;

In order to view the all test results use the following

SELECT * FROM CTRL_T_PROCESS_TESTRESULT;

How to view the test logs

All SQL's executed is stored in the order of execution in CTRL_T_PROCESS_TESTS_LOGS.

Any Exceptions raised as part of execution is also stored in the same table.

LOG_TYPE	RUN_ID	PROCESS_TY	GROUP	PROCESS_ID	TEST_ID	TEST_NAME	TEST_TYPE	EXECUTION_DB	EXECUTED_SQL	LOG_TIME
STARTED	0	PARTY	25	NULL	NULL	NULL	NULL	NULL	NULL	NULL
GROUPSETUP_EXCEPTION	0	PARTY	25	NULL	8	NULL	A	ADM_BKP_D	ResolveCatalog: error r...	2017-05-19 12:5..
GROUPSETUP	0	PARTY	25	NULL	8	NULL	A	ADM_BKP_D	CREATE TABLE TEST...	2017-05-19 12:5..
PROCESSSETUP_EXCEPTION	0	PARTY	25	80	NULL	NULL	U	ADM_BKP_D	relation does not exist...	2017-05-19 12:5..
PROCESSSETUP	0	PARTY	25	80	NULL	NULL	U	ADM_BKP_D	INSERT INTO LND_T_...	2017-05-19 12:5..
TEST_EXCEPTION	0	PARTY	25	230	8	UT_ADM_T_DIM...	A	ADM_BKP_D	relation does not exist...	2017-05-19 12:5..
TEST	0	PARTY	25	230	8	UT_ADM_T_DIM...	A	ADM_BKP_D	SELECT COUNT(*) Ac...	2017-05-19 12:5..
ENDED	0	PARTY	25	NULL	NULL	NULL	NULL	NULL	NULL	NULL

How to determine what tests should run after the deployment.

User need to mention which tests they are interested to run in the 01_TESTS_TO_EXECUTE.SQL script.

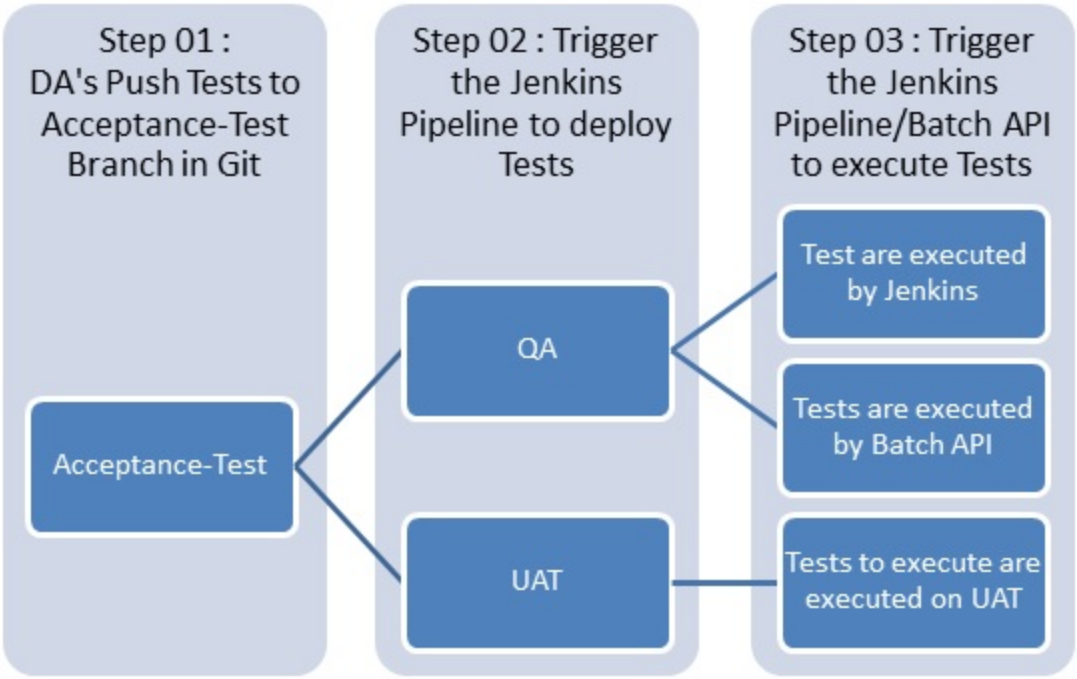
Please find a sample 01_TESTS_TO_EXECUTE.sql

```
--  Version     Date            Author          Description
--  -------     -----------     ------------    ---------------------------------------------
--  1.0         18-May-2017     Jimmy Jose      Initial Version : Sprint 14c Tests to execute
-------------------------------------------------------------------------------------------------

-- Set all the Test, Test Setup and Test Teardown to not active

UPDATE CTRL_T_PROCESS_TESTS SET ACTIVE = 'N' WHERE TEST_TYPE = 'A';
UPDATE CTRL_T_PROCESS_TESTSETUP SET ACTIVE = 'N' WHERE TEST_TYPE = 'A';
UPDATE CTRL_T_PROCESS_TESTTEARDOWN SET ACTIVE = 'N' WHERE TEST_TYPE = 'A';

--Mapping Tests for execution as part of this Sprint execution (Acceptance tests)

UPDATE CTRL_T_PROCESS_TESTS SET ACTIVE = 'Y'
WHERE
    TEST_SUB_TYPE  IN ('Release14','KPI_SALESFORCE') AND
    TEST_TYPE = 'A';

UPDATE CTRL_T_PROCESS_TESTSETUP A SET A.ACTIVE = 'Y'
FROM  CTRL_T_PROCESS_TESTS B
WHERE
    A.PROCESS_TYPE_NAME = B.PROCESS_TYPE_NAME AND
    A.GROUP_ID = B.GROUP_ID AND
    A.PROCESS_ID = B.PROCESS_ID AND
    A.TEST_ID = B.TEST_ID AND
    B.TEST_TYPE = 'A' AND
    B.ACTIVE = 'Y';

UPDATE CTRL_T_PROCESS_TESTTEARDOWN A SET A.ACTIVE = 'Y'
FROM  CTRL_T_PROCESS_TESTS B
WHERE
    A.PROCESS_TYPE_NAME = B.PROCESS_TYPE_NAME AND
    A.GROUP_ID = B.GROUP_ID AND
    A.PROCESS_ID = B.PROCESS_ID AND
    A.TEST_ID = B.TEST_ID AND
    B.TEST_TYPE = 'A' AND
    B.ACTIVE = 'Y';
```

How to Deploy the test

Once the INSERT statement is created and tested on DEV we need to deploy the test to QA and UAT environment.

Test repository deployment is decoupled from Code deployment and can be triggered by anyone through Jenkins. As soon as the Tests are pushed to Git branch (Acceptance-Test), users can either deploy/execute the tests to QA or UAT by click of a button from Jenkins.



The following Jenkins Pipeline's are used to deploy and execute the tests

All

S	W	Name ↓	Last Success	Last Failure	Last Duration
		AT_Deployment_QA	2 days 16 hr - #7	N/A	1 min 10 sec
		AT_Deployment_UAT	20 hr - #3	N/A	1 min 46 sec
		AT_TestExecution_QA	2 days 15 hr - #6	N/A	5.1 sec
		AT_TestExecution_UAT	21 hr - #1	N/A	4.1 sec