How To Test Data Abstraction Best Practices

An Open Source Asset for use with TIBCO® Data Virtualization

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Project Name	AS Assets Data Abstraction Best Practices
Document Location	This document is only valid on the day it was printed. The source of the document will be found in the ASAssets_DataAbstractionBestPractices folder (https://github.com/TIBCOSoftware)
Purpose	Self-paced instructional

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Revision History

Version	Date	Author	Comments
1.0	08/28/2013	Mike Tinius	Initial revision
8.0	12/05/2013	Mike Tinius	Updated for Best Practices 8.0
8.1	05/05/2014	Mike Tinius	Updated for Best Practices 8.1 and ASAssets change.
8.1.3	08/08/2014	Mike Tinius	Updated docs for Best Practices 8.1.3 release.
8.1.4	08/25/2014	Mike Tinius	Updated for Best Practices 8.1.4 release.
8.1.5	11/26/2014	Mike Tinius	Updated for Best Practices 8.1.5 release
8.1.6	05/20/2014	Mike Tinius	Updated for Best Practices 8.1.6 release
8.1.7	11/26/2014	Mike Tinius	Updated for Best Practices v8.1.7 – added generateViews=2 to allow generating views with a SELECT * projection.
8.1.8	05/24/2017	Mike Tinius	Updated for Best Practices v8.1.8 – added Privilege scripts.
8.1.9	12/06/2017	Mike Tinius	Transitioned to Tibco for release 8.1.9
2018Q1	03/20/2018	Mike Tinius	Release 2018Q1 – no changes.
2019Q1	01/25/2019	Mike Tinius	Release 2019Q1 - no changes.

Related Documents

Name	Version
How To Use Utilities.pdf	2018Q1
How To Use Data Abstraction Best Practices.pdf	2019Q1
How To Learn Data Abstraction Best Practices.pdf	2019Q1
How To Use Data Abstraction Best Practices Manage Annotations.pdf	2019Q1
How To Use Data Abstraction Best Practices Privilege Scripts.pdf	2019Q1

Supported Versions

Name	Version
TIBCO® Data Virtualization	7.0 or later
AS Assets Utilities open source	2018Q1 or later

Table of Contents

1 Overview

This document provides a test plan for the Data Abstraction Best Practices. The test plan should be followed whenever the Utilities and Best Practice code is changed. In the text below, any reference to “X_X_X” should be replaced with the current version of the Best Practices. The test project that will be used for testing will be called “lab00”. There are also references to the major and minor version XX. In this case the point release is dropped from the folder name. These releases should be considered minor point release upgrades to the existing Data Abstraction Bes Practices folder. For example:

- /shared/BestPractices_v81
    - The same folder is used for 8.1.1, 8.1.2, 8.1.3, 8.1.4, 8.1.5, 8.1.6, and 8.1.7
    - Each point release will overwrite the previous release.
- /shared/BestPractices_v82 - this would represent a minor release change where the functionality was great enough to determine elicit a new folder while preserving the original folder.
    - This could be a result of structural changes to the code base or differences in the underlying Utilities parameters.

2 Project Maintenance Functional Tests

The project maintenance methods are found in the folder:
/shared/BestPractices_vXX/_ProjectMaintenance

Assumptions:

- The Data Abstraction Sample was imported during installation.
    - BestPractices_YYYYQn_DataAbstractionSample81.car

The following are a list of functional tests that should be performed:

1. Get the Best Practices Version
    - **getBestPracticesVersion**()
    - **Result**: returns the current version. Example: 2018.1
2. Update Impacted Resources
    - **updateImpactedBestPractices**()
    - **Result**: returns 1 for success
3. Generate Project
    - **generateProject**(“/shared/lab00”, 1, 1)
    - **Result**: Refresh Studio…generates the project specified on input.
4. Create data source metadata
    - Copy the entire folder of Metadata found at: /shared/DataAbstractionSampleXX/Physical/ Metadata to /shared/lab00/Physical
    - Copy the entire folder of Transformations found at: /shared/DataAbstractionSampleXX/Physical/ Formatting/Transformations to /shared/lab00/Physical/Formatting
    - Rebind the XSLT in Formatting/Transformations to test/Metadata…
5. Generate Configure Starting Folders
    - **generateConfigureStartingFolders**(“/shared/lab00”)
    - **Result**: Refresh Studio…generates a new ConfigureStartingFolders at /shared/lab00/_scripts/Configure/ConfigureStartingFolders
6. Rename Project
    - **renameProject**(“/shared/lab00”, “lab00_new”, 1, 1, 1)
    - **Result**: Refresh Studio…project has a new name of test_new

- **Verify /Constants/defaultValues** – basePath should be rebound to new name.
- **Verify /Documentation/documentationTrigger*** - parameters should be rebound to new name.
- **Verify /Generate/generate*** - all should be rebound to new name.

7. Move Project
   - **moveProject**("/shared/lab00_new", "/shared/labs/test", 1, 1, 1)
   - **Result**: Refresh Studio…project has been moved to a new folder
     - **Verify /Constants/defaultValues** – basePath should be rebound to new name.
     - **Verify /Documentation/documentationTrigger*** - parameters should be rebound to new name.

Verify /Generate/generate* - all should be rebound to new name.

3 Upgrade Project Functional Tests

The upgrade project maintenance method is found in the folder: **/shared/BestPractices_vXX/_ProjectMaintenance**. Import sample projects are previous versions of the Best Practices from the RegressionTest folder. The following are a list of functional tests that should be performed:

1. Upgrade version 1.0
    a. Import (overwrite) sample project DataAbstractionSample10.car
    b. Import (overwrite) B.P. 3.0 – BestPractices_generic_v3-2010-09-30.car
    c. **upgradeProject**(X.X, "/shared/DataAbstractionSample10", 1)
    d. **Result**: creates folder: /shared/DataAbstractionSample10_vXX
2. Upgrade version 4.0
    a. Import (overwrite) sample project DataAbstractionSample40.car
    b. Import (overwrite) B.P. 4.0 – BestPractices_v4-2011-02-08.car
    c. **upgradeProject**(X.X, "/shared/DataAbstractionSample40", 1)
    d. **Result**: creates folder: /shared/DataAbstractionSample40_vXX
    e. **Known Issues**:
        i. **/CRUD/isEmpty/isEmpty_SupportingDocuments**
            1. **isEmptyString**(inVector[1].FileContentBlob, explicit, result);
                a. change to isEmptyBlob
            2. **isEmptyString**(inVector[1].FileContentClob, explicit, result);
                a. change to isEmptyClob
        ii. /CRUD/RetrievePK/retrievePK_SupportingDocuments
            1. **formatString**(inVector[i].FileContentBlob, 'FileContentBlob'…
                a. comment out or remove this line
            2. **formatString**(inVector[i].FileContentClob, 'FileContentClob'…
                a. change to formatClob
3. Upgrade version 5.0
    a. Import (overwrite) sample project DataAbstractionSample50.car

b. Import (overwrite) B.P. 5.0 – BestPractices_v5_1-2012_02_15.car
c. **upgradeProject**(X.X, "/shared/DataAbstractionSample50", 1)
d. **Result**: creates folder: /shared/DataAbstractionSample50_vXX

4. Upgrade version 6.0
    a. Import (overwrite) sample project DataAbstractionSample40.car
    b. Import (overwrite) B.P. 6.0 – BestPractices_v6_0_repaired_ASAssets.car
    c. **upgradeProject**(X.X, "/shared/DataAbstractionSample60", 1)
    d. **Result**: creates folder: /shared/DataAbstractionSample60_vXX
    e. **Known Issues**:
        i. **/CRUD/isEmpty/isEmpty_SupportingDocuments**
            1. **isEmptyString**(inVector[1].FileContentBlob, explicit, result);
                a. change to isEmptyBlob
            2. **isEmptyString**(inVector[1].FileContentClob, explicit, result);
                a. change to isEmptyClob
        ii. /CRUD/RetrievePK/retrievePK_SupportingDocuments
            1. **formatString**(inVector[i].FileContentBlob, 'FileContentBlob'…
                a. comment out or remove this line
            2. **formatString**(inVector[i].FileContentClob, 'FileContentClob'…
                a. change to formatClob

5. Upgrade version 6.6
    a. Import (overwrite) sample project DataAbstractionSample66.car
    b. Import (overwrite) B.P. 6.6 – BestPractices_v6_6_repaired_ASAssets.car
    c. **upgradeProject**(X.X, "/shared/DataAbstractionSample66", 1)
    d. **Result**: creates folder: /shared/DataAbstractionSample66_vXX
    e. **Known Issues**:
        i. **/CRUD/isEmpty/isEmpty_SupportingDocuments**
            1. **isEmptyString**(inVector[1].FileContentBlob, explicit, result);

a. change to isEmptyBlob

2. **isEmptyString**(inVector[1].FileContentClob, explicit, result);

a. change to isEmptyClob

ii. /CRUD/RetrievePK/retrievePK_SupportingDocuments

1. **formatString**(inVector[i].FileContentBlob, 'FileContentBlob'…

a. comment out or remove this line

2. **formatString**(inVector[i].FileContentClob, 'FileContentClob'…

a. change to formatClob

6. Upgrade version 7.0

a. Import (overwrite) sample project DataAbstractionSample70.car

b. Import (overwrite) B.P. 7.0 – BestPractices_v7_0_repaired_ASAssets.car

c. **upgradeProject**(X.X, "/shared/DataAbstractionSample70", 1)

d. **Result**: upgrades project in place: /shared/DataAbstractionSample70

e. **Known Issues**:

i. **/CRUD/isEmpty/isEmpty_SupportingDocuments**

1. **isEmptyString**(inVector[1].FileContentBlob, explicit, result);

a. change to isEmptyBlob

2. **isEmptyString**(inVector[1].FileContentClob, explicit, result);

a. change to isEmptyClob

ii. /CRUD/RetrievePK/retrievePK_SupportingDocuments

1. **formatString**(inVector[i].FileContentBlob, 'FileContentBlob'…

a. comment out or remove this line

2. **formatString**(inVector[i].FileContentClob, 'FileContentClob'…

a. change to formatClob

7. Upgrade version 7.1

a. Import (overwrite) sample project DataAbstractionSample71.car

b. Import (overwrite) B.P. 7.1 – BestPractices_v7_1_repaired_ASAssets.car
c. **upgradeProject**(X.X, “/shared/DataAbstractionSample71”, 1)
d. **Result**: upgrades project in place: /shared/DataAbstractionSample71
e. **Known Issues**:
    i. **/CRUD/isEmpty/isEmpty_SupportingDocuments**
        1. **isEmptyString**(inVector[1].FileContentBlob, explicit, result);
            a. change to isEmptyBlob
        2. **isEmptyString**(inVector[1].FileContentClob, explicit, result);
            a. change to isEmptyClob
    ii. /CRUD/RetrievePK/retrievePK_SupportingDocuments
        1. **formatString**(inVector[i].FileContentBlob, 'FileContentBlob'…
            a. comment out or remove this line
        2. **formatString**(inVector[i].FileContentClob, 'FileContentClob'…
            a. change to formatClob

8. Upgrade version 7.2
    a. Import (overwrite) sample project DataAbstractionSample72.car
    b. Import (overwrite) B.P. 7.2 – BestPractices_v7_2_repaired_ASAssets.car
    c. **upgradeProject**(X.X, “/shared/DataAbstractionSample72”, 1)
    d. **Result**: upgrades project in place: /shared/DataAbstractionSample72
9. Upgrade version 7.3
    a. Import (overwrite) sample project DataAbstractionSample73.car
    b. Import (overwrite) B.P. 7.3 – BestPractices_v7_3_repaired_ASAssets.car
    c. **upgradeProject**(X.X, “/shared/DataAbstractionSample73”, 1)
    d. **Result**: upgrades project in place: /shared/DataAbstractionSample73
10. Upgrade version 8.0
    a. Import (overwrite) sample project DataAbstractionSample80.car

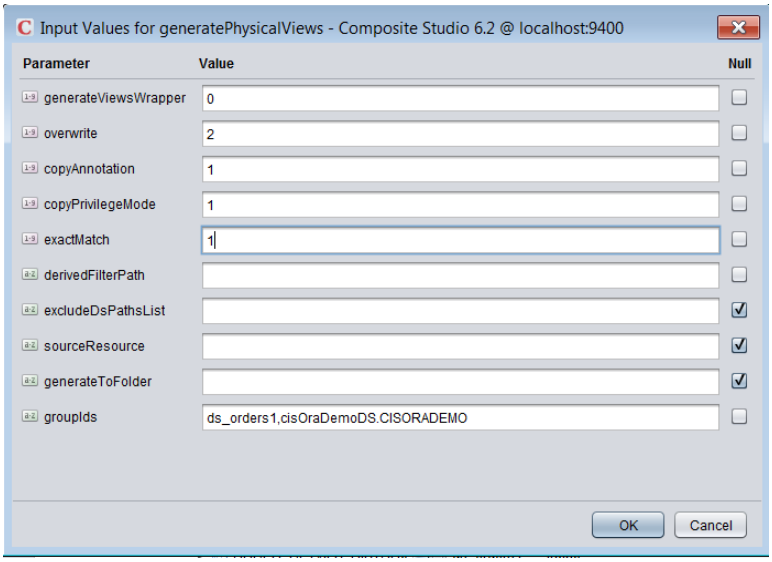
b. Import (overwrite) B.P. 8.0 – BestPractices_v8_0_repaired_ASAssets.car

c. **upgradeProject**(X.X, “/shared/DataAbstractionSample80”, 1)

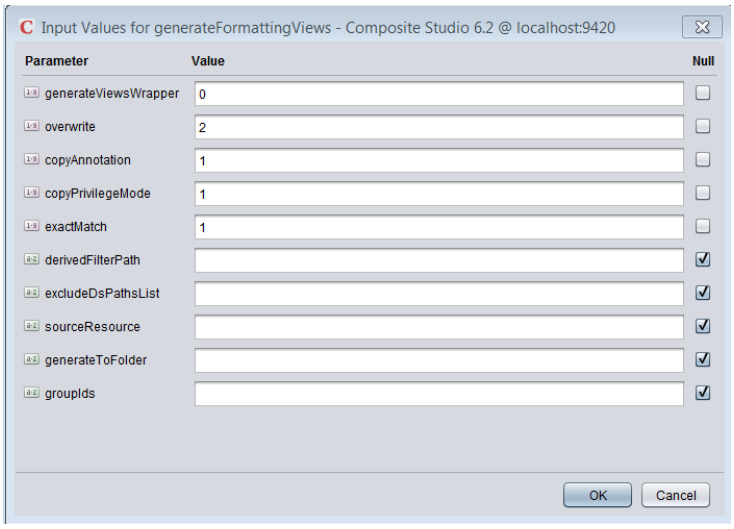
   i. **Result**: upgrades project in place: /shared/DataAbstractionSample80

4 Generate Views Functional Test

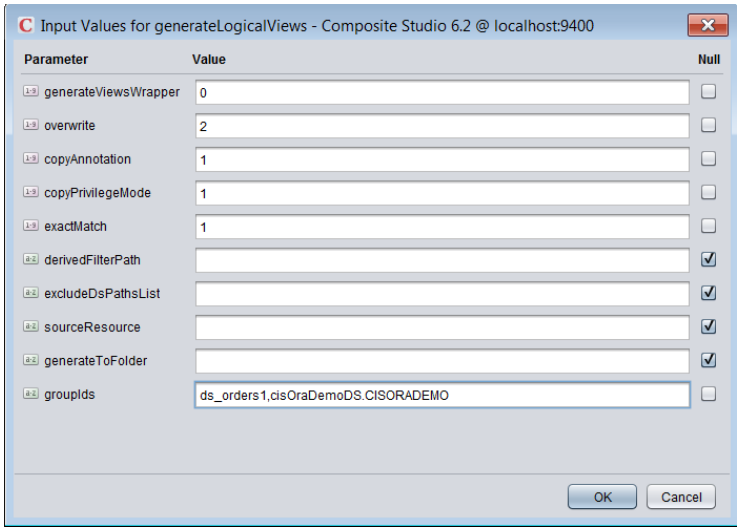
The following are a list of functional tests that should be performed. Refer to the project created in the first section. Open the scripts generate folder: **/shared/labs/lab00/_scripts/Generate**.

1. Copy Common_Model_v3_file3_lab.xlxs to C:\CompositeSoftware\BestPractices\BestPractices_vXX\Common_Model_v3_file3.xlxs
2. Cache common_model view before starting. Be sure that Common_Model_v3_file3.xlxs contains “lab00” project entries.
3. Generate Physical Views
   - **generatePhysicalViews**(0, 2, 1, 1, 1, null, null, null, null, ds_orders1,cisOraDemoDS.CISORADEMO)
   - 

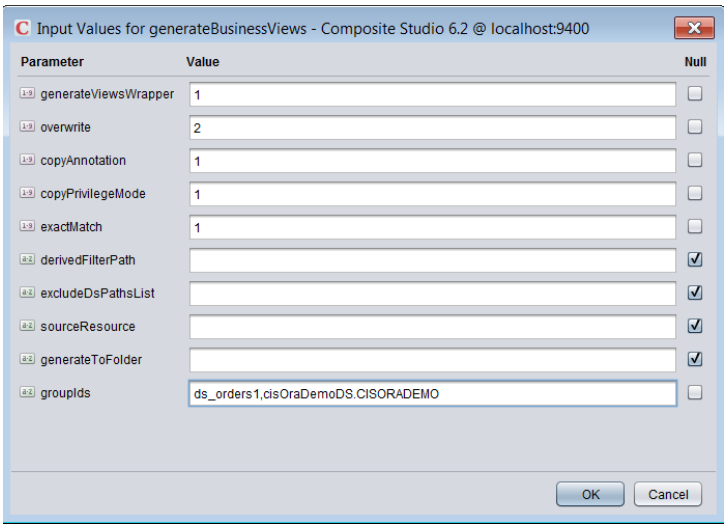
   - **Result**: rows=152. Folders created:
     - /Physical/Physical/CISORADEMO
     - /Physical/Physical/ds_orders1
4. Generate Formatting Views
   - **generateFormattingViews**(0, 2, 1, 1, 1, null, null, null, null, null)

- 

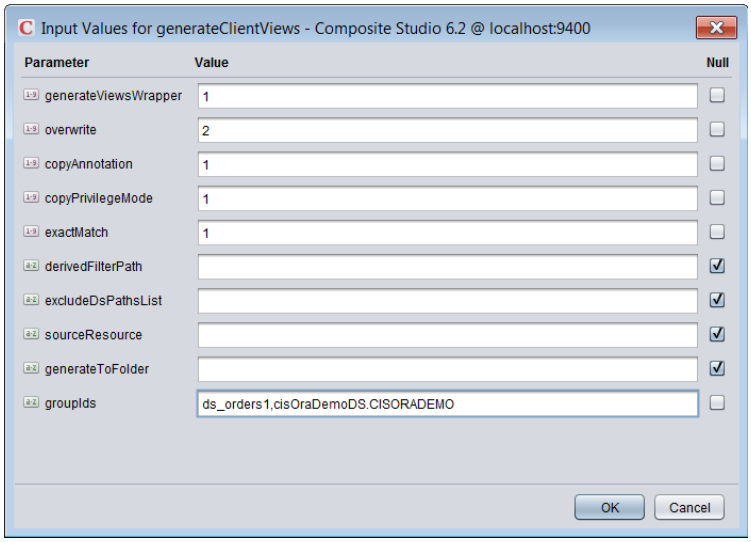
  - **Result**: rows=455. All folders that match the folders in Metadata are created.

5. Generate Logical Views
   - **generateLogicalViews**(0, 2, 1, 1, 1, null, null, null, null, ds_orders1,cisOraDemoDS.CISORADEMO)
   - 

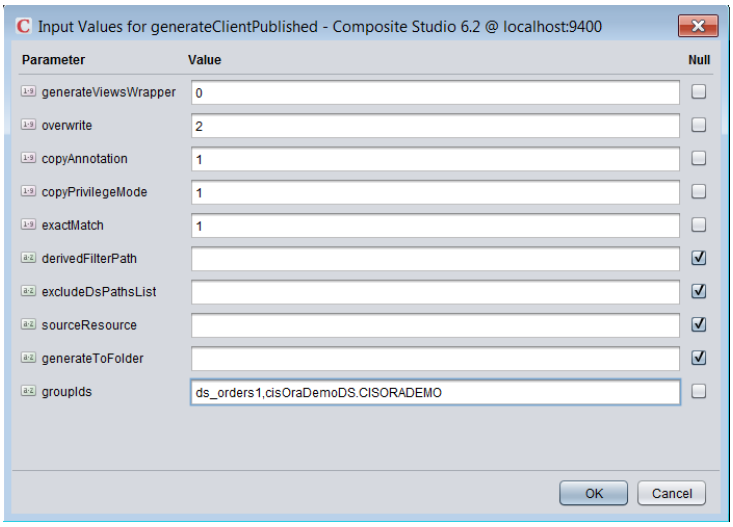
   - **Result**: rows=153. Folders created:
     - /Business/Business/CISORADEMO
     - /Business/Business/ds_orders1
6. Generate Business Views
   - **generateBusinessViews**(1, 2, 1, 1, 1, null, null, null, null, ds_orders1,cisOraDemoDS.CISORADEMO)

- 

- **Result**: rows=153. Folders created:
  - /Business/Business/CISORADEMO
  - /Business/Business/ds_orders1

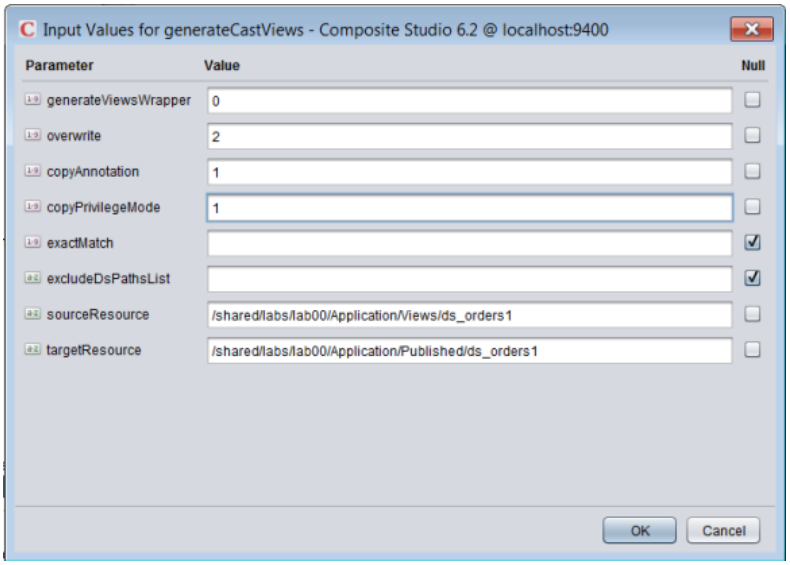
7. Generate Client Views
   - **generateClientViews**(1, 2, 1, 1, 1, null, null, null, null, ds_orders1,cisOraDemoDS.CISORADEMO)
   - 

   - **Result**: rows=153. Folders created:
     - /Application/Views/CISORADEMO
     - /Application/Views/ds_orders1
8. Generate Client Published Views
   - **generateClientPublished**(0, 2, 1, 1, 1, null, null, null, null, ds_orders1,cisOraDemoDS.CISORADEMO)

- 

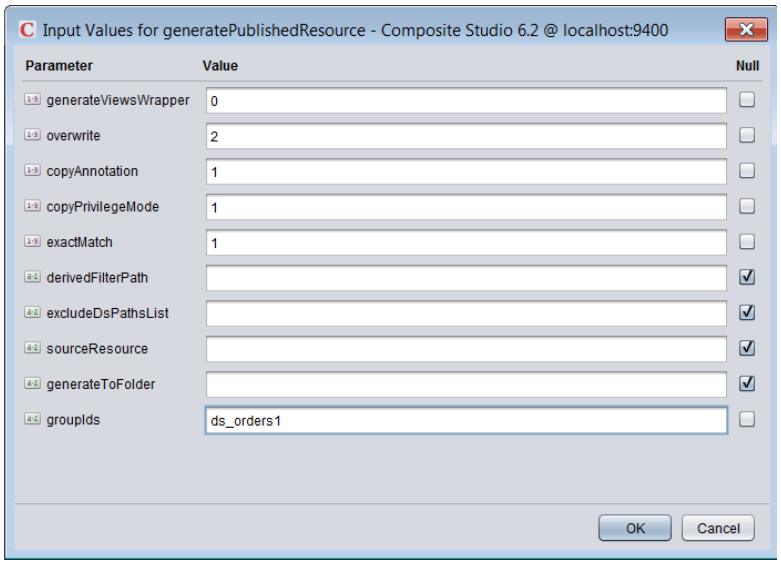
- **Result**: rows=153. Folders created:
  - /Application/Published/CISORADEMO
  - /Application/Published/ds_orders1

9. Generate Cast Views
   - Delete the folder /Application/Published/ds_orders1
   - **generateCastViews**(0, 2, 1, 1, 1, null,
     /shared/labs/lab00/Application/Views/ds_orders1
     /shared/labs/lab00/Application/Published/ds_orders1
)



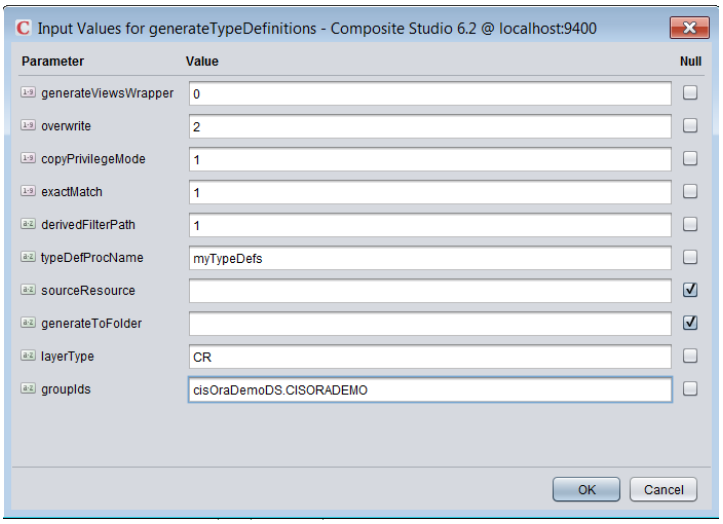
   - **Result**: rows=41. Folders created:
     - /Application/Published/ds_orders1

- Insure the views were created with cast statements.

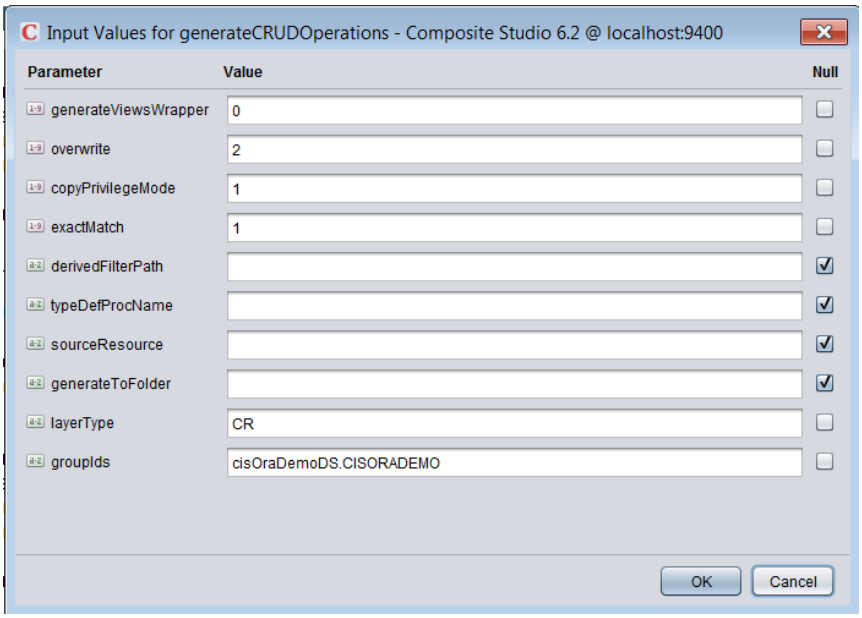
10. Generate Published Database Resource
    - Create a published database called "**ds_orders1**"
    - **generatePublishedResource**(0, 2, 1, 1, 1, null, null, null, null, ds_orders1)
    - 

    - **Result**: rows=4. Published resources created:
        - /services/databases/ds_orders1
            - /customers
            - /orderdetails
            - /orders
            - /shippingmethods

11. Generate Type Definitions
    - **generateTypeDefinitions**(0, 2, 1, 1, null, myTypeDefs, null, null, CR, cisOraDemoDS.CISORADEMO)

- 

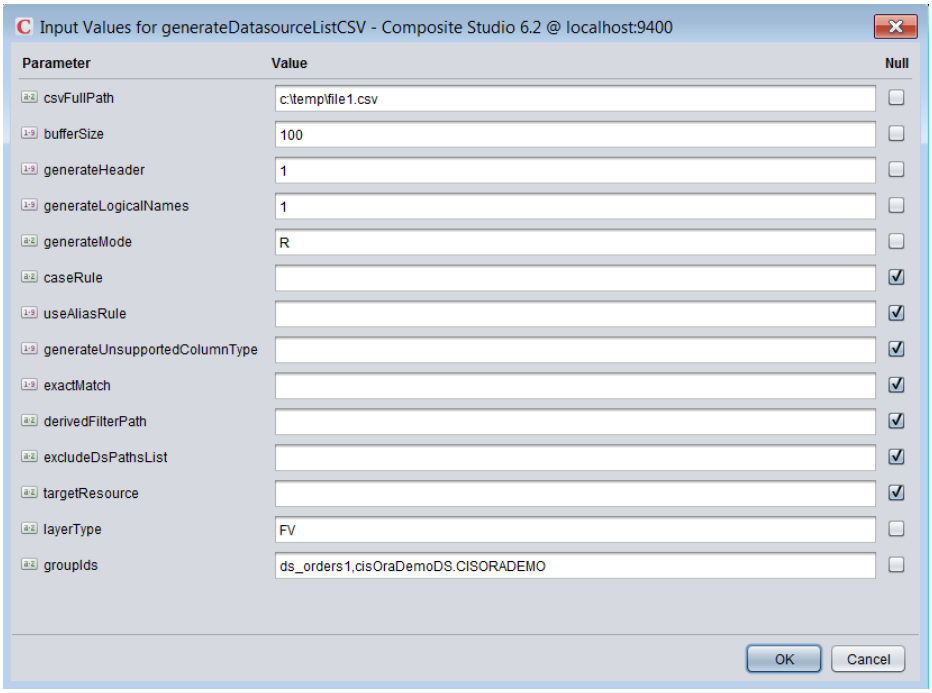
- **Result**: rows=1. Procedure created:
  - /Application/Services/CRUD/Definitions/ myTypeDefs_cisOraDemoDS.CISORADEMO

12. Generate CRUD Operations
    - Pre-requisite: generatePhysicalViews must have been executed with the "generateIndexes=1" variable set.
    - **generateCRUDOperations**(0, 2, 1, 1, null, null, null, null, null, CR, cisOraDemoDS.CISORADEMO)
    - 

    - **Result**: rows=103. Folders created:
      - /Application/Services/CRUD/…multiple folders
13. Generate Data Source List CSV File

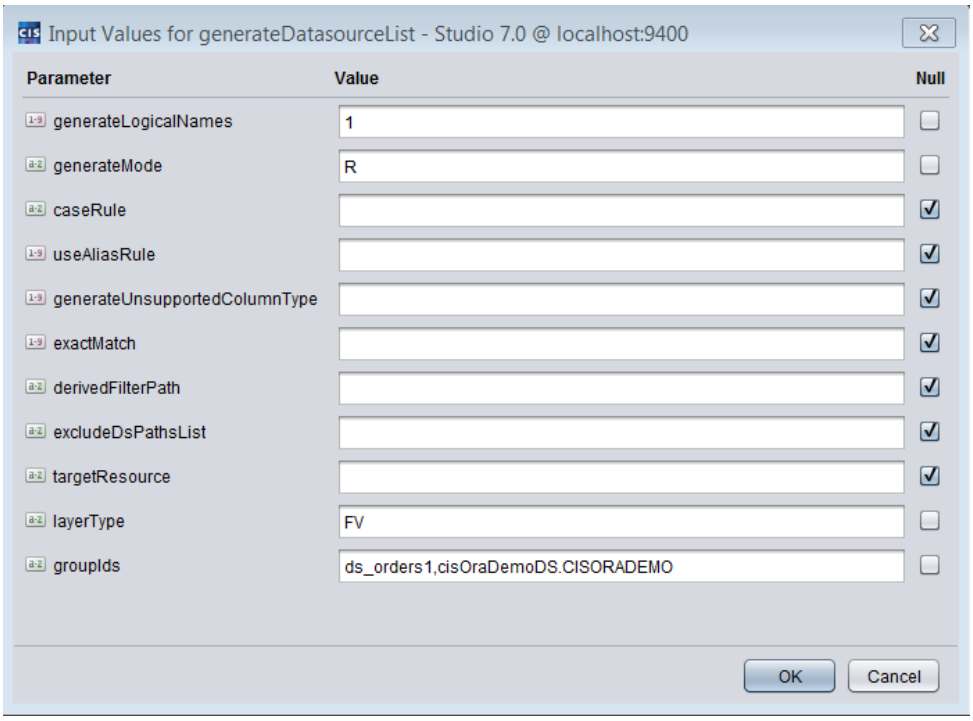
- **generateDatasourceListCSV**(

  c:\temp\file1.csv, 100, 1, 1, R, null, null, null, null, null, null, null, FV, ds_orders1,cisOraDemoDS.CISORADEMO)



- **Result**: error=0. File is created:
  - A Common Model Best Practices CSV file gets created in the file system at C:\Temp\file1.csv

14. Generate Data Source List
    - **generateDatasourceList**(1, R, null, null, null, null, null, null, null, FV, ds_orders1,cisOraDemoDS.CISORADEMO)



- **Result**: rows=153.

15. Generate “Generic” Views
    - Create a custom copy of generateFormattingViews and place in the _Custom folder
    - Modify the following parameter
        - DECLARE generateViews SMALLINT DEFAULT 2;
        - -- 0=Do not generate - (browse only) print out what will happen but don't perform the generation
        - -- 1=Do generate [DEFAULT] - Perform the VIEW Generation with a column projection.
        - -- 2=Do generate - Perform the VIEW Generation with a select * projection.
    - **generateViews**(1, 2, 1, 1, 1, null, null, null, <S>, <T>, null)

      S /shared/lab00/Physical/Formatting/Transformations/ds_XML/productCatalog_Transformation

      T /shared/lab00/Physical/Formatting_All/Transformations/ds_XML/productCatalog_Transformation

      S /shared/lab00/Physical/Metadata/Excel/Common_Model_v3_file2/Common_Model_v3_file2.xlsx

      T /shared/lab00/Physical/Formatting_All/Excel/Common_Model_v3_file2/Common_Model_v3_file2.xlsx

      S /shared/lab00/Physical/Metadata/OracleSource/cisOraDemoDS/CISORADEMO

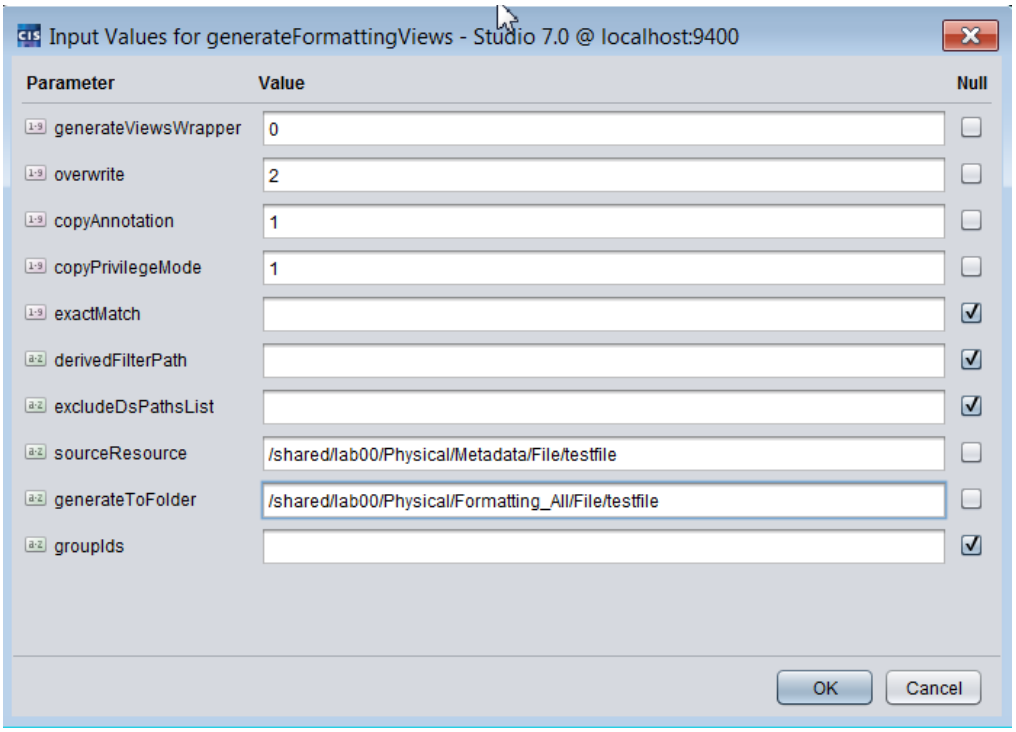
      T /shared/lab00/Physical/Formatting_All/OracleSource/cisOraDemoDS/CISORADEMO

      S /shared/BestPracticesTestSmall/Physical/Metadata/OracleSource/cisOraDemoDS/CISORADEMO

T /shared/BestPracticesTestSmall/Physical/Formatting_All/OracleSource/cisOraDemoDS/CISORADEMO

S /shared/lab00/Physical/Metadata/File/testfile

T /shared/lab00/Physical/Formatting_All/File/testfile

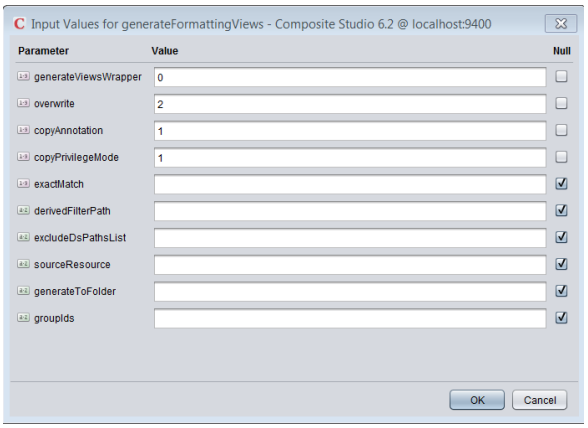


- **Result**: Views generated with SELECT * projection in the /Formatting_All folder.

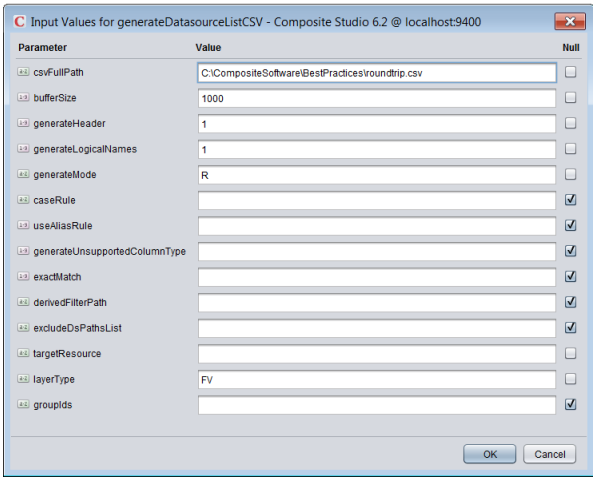
5 Perform Round Trip Test

The following is a procedure to follow to execute a round trip test. This test will use the both the “lab00” folder previously created as well as the much larger test base from the “BestPracticesTestSmall” project. The objective of this test is to make sure the code is consistent between generating views and generating the CSV spreadsheet.

Test Round Trip for “lab00”

1. Assumption: The cache has been refreshed.
2. Remove /shared/labs/lab00/Physical/Formatting/<all-subfolders-except-Transformations>
3. Generate Formatting Views
   - **generateFormattingViews**(0, 2, 1, 1, 1, null, null, null, null, null)
   - 

4. Generate Data Source List CSV File
   - **generateDatasourceListCSV**(C:\CompositeSoftware\BestPractices\roundtrip.csv, 1000, 1, 1, R, null, null, null, null, null, null, null, FV, null)

- 

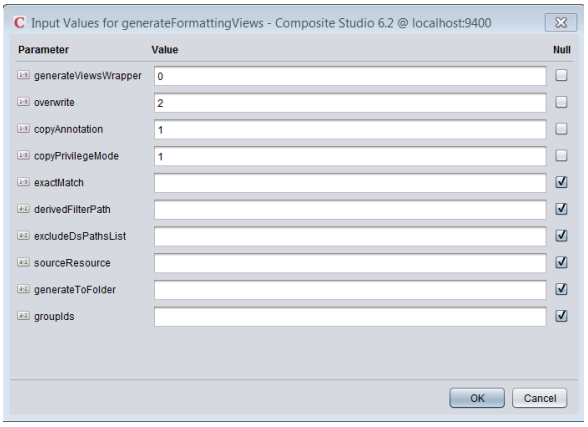
- **Result**: error=0. File is created:
  - A Common Model Best Practices CSV file gets created in the file system at C:\CompositeSoftware\BestPractices\roundtrip.csv

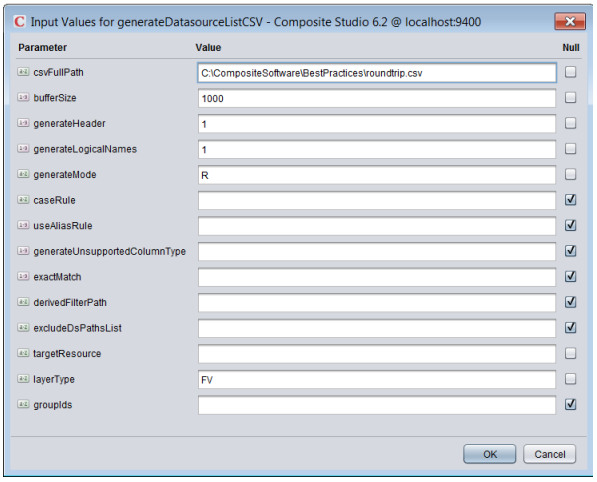
5. Make a copy of the Formatting layer views
   Target=/shared/labs/lab00/Physical/Formatting_Copy_1
6. Copy the contents *roundtrip.csv* to *Common_Model_v3_file4_sample_lab.xlsx*
   - Open Common_Model_v3_file4_sample_lab.xlsx
   - Open roundtrip.csv in Excel
     - Select cell A2 and use the keystrokes: Ctrl-Shift-End (this will select Columns A-L and all rows except the header row
     - Do a Ctrl-C (copy)
   - Switch to Common_Model_v3_file4_sample_lab.xlsx
     - Locate the cells for “lab00”
     - Place your cursor in the first cell for lab00
     - Do a Ctrl-V (Paste)
     - Save the spreadsheet
   - Refresh the cache of the spreadsheets: Common_Model_v3_file[1-4].xlsx
     - Switch to Studio, Manager tab
     - Select "Cached Resources"
     - Select "common_model"
     - Click Refresh Cache
7. Remove the views in the Formatting layer except the "/Transformations" folder which is considered a source folder for transformation procedures.

8. Generate the Formatting layer views
   generateFormattingViews(1, 2, 1, 0, null, null, null, null, null, null)
9. Validate the view generation process
   - validateGenerateViews(

     /shared/labs/lab00/Physical/Formatting,
     /shared/labs/lab00/Physical/Formatting_Copy_1, null, 1, N, C, N)
   - **Result: There should be no rows displayed as this indicates that all views are equal and the round-trip was successful.**

Test Round Trip for "BestPracticesTestSmall"

1. Import BestPracticesTestSmall.car.
2. Assumption: The cache has been refreshed.
3. Remove /shared/BestPracticesTestSmall/Physical/Formatting/<all-subfolders-except-Transformations>
4. Generate Formatting Views
   - **generateFormattingViews**(0, 2, 1, 1, 1, null, null, null, null, null)
   - 

5. Generate Data Source List CSV File
   - **generateDatasourceListCSV**(C:\CompositeSoftware\BestPractices\roundtrip.csv, 1000, 1, 1, R, null, null, null, null, null, null, null, FV, null)
   - 

   - **Result**: error=0. File is created:
     - A Common Model Best Practices CSV file gets created in the file system at C:\CompositeSoftware\BestPractices\roundtrip.csv
6. Make a copy of the Formatting layer views

- Target=/shared/ BestPracticesTestSmall/Physical/Formatting_Copy_1

7. Copy the contents *roundtrip.csv* to *Common_Model_v3_file3.xlsx*
   - Open Common_Model_v3_file3.xlsx
   - Open roundtrip.csv in Excel
     - Select cell A2 and use the keystrokes: Ctrl-Shift-End (this will select Columns A-L and all rows except the header row
     - Do a Ctrl-C (copy)
   - Switch to Common_Model_v3_file3.xlsx
     - Remove all cells with data for columns A-L
     - Place cursor in cell A2
     - Do a Ctrl-V (Paste)
     - Save the spreadsheet
   - Refresh the cache of the spreadsheets: Common_Model_v3_file[1-4].xlsx
     - Switch to Studio, Manager tab
     - Select "Cached Resources"
     - Select "common_model"
     - Click Refresh Cache
8. Remove the views in the Formatting layer except the "/Transformations" folder which is considered a source folder for transformation procedures.
9. Generate the Formatting layer views
   generateFormattingViews(1, 2, 1, 0, null, null, null, null, null, null)
10. Validate the view generation process
    validateGenerateViews(/shared/BestPracticesTestSmall/Physical/Formatting, /shared/BestPracticesTestSmall /Physical/Formatting_Copy_1, null, 1, N, C, N)
    - **Result: There should be no rows displayed as this indicates that all views are equal and the round-trip was successful.**