



CA Test Data Manager

Adding SeedLists to DB2 zOS SeedList table

Best Practices Guide

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Version: 1.3

Date: 6/19/2018

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Overview

As you start working with different hash values or seed list entries, you will find out that you will need to enhance or add new entries in the seed list being used by Test Data Manager. You can access the seed list that is part of the TDM repository via the main menu option Tools→Maintain Seed Data as shown below.

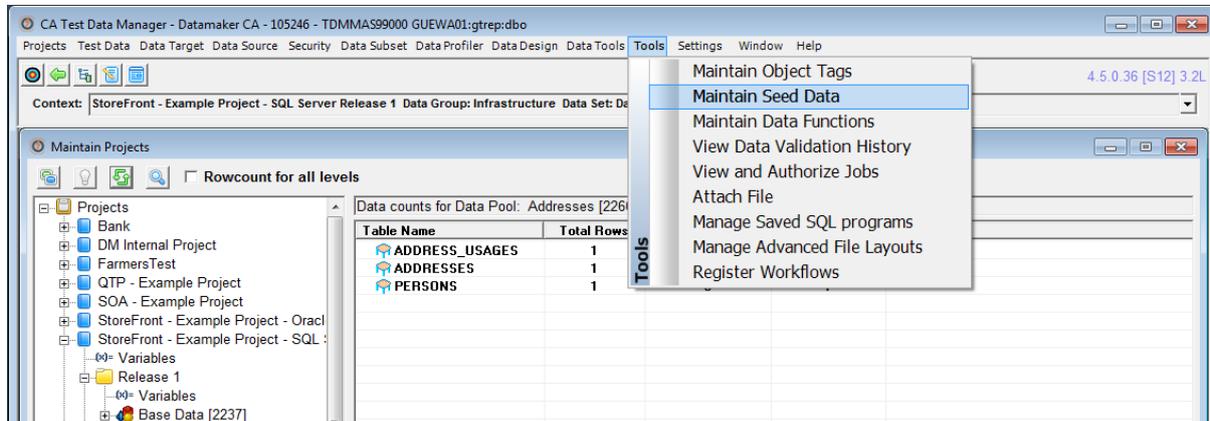


Figure 1: How to access the seed list maintenance window

As you can see the dialog is very comprehensive in regard to the seed list that is part of the TDM repository as shown below.

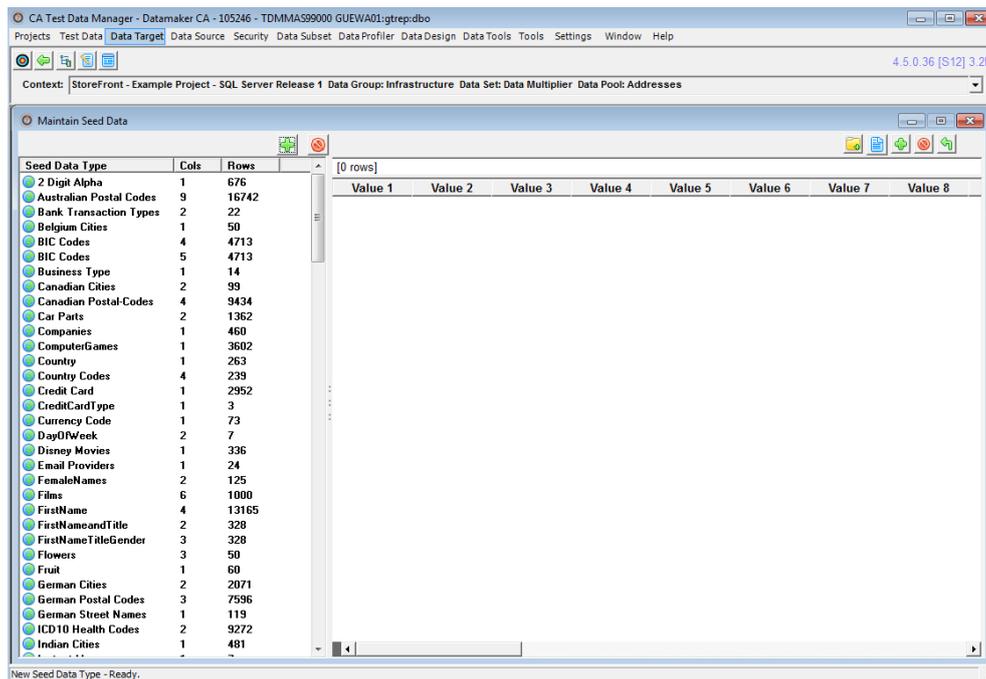


Figure 2: Seed list maintenance window

The issue that this document will be covering is how to add a new entry to the seed list that runs in the DB2 for zOS installation as part of the TDM mainframe toolkit.

Figure

TDM DB2 zOS Seed List

The following table needs to be created in the DB2 zOS schema, in this example we are going to assume that the schema being created is GRIDT01, and the table that needs to be created is called "GTSRC_REFERENCE_LOV1".

The assumption here is that the TDM mainframe toolkit has already been installed.

Please follow the following link for the installation of the DB2 reference table.

<https://docops.ca.com/ca-test-data-manager/4-5/en/installing/mainframe-installation-and-upgrade/install-mainframe-components-v5-4/install-db2-reference-data>

The tables being used for the creation of additional seed list entries are based off the TDM repository kit 3.2.11 that became GA starting with TDM 4.5.

New Seedlist Entries Process

You can add additional entries to the seed lists that is part of the TDM (GTREP) repository and it can be accessed via the GT Data Maker UI, and it is very easy to use, the seed list editor can be accessed via the Tools→Maintain Seed Data in the GT DataMaker as shown above.

The process that we are going to follow to add the new seed list entries for DB2 for zOS:

- Bring up the Seed data maintenance dialog via Tools→Maintain seed data.
- Select an entry and all its corresponding entries.
- Export the results as a CSV file.
- Open the exported CSV via MS Excel.
- Replace the single quote with # -- this step is necessary, if there are entries in the rows that contain a single quote..
- Save as a spreadsheet (.xls or .xlsx).
- Create a new tab in the saved spreadsheet called "SQL".
- Populate cells in the new tab to create insert statements for your SQL server seed list table, starting from row 2.
- Create a new tab called SQL-DB2
- Populate cells in the new tab to create insert statements for the SQL server version of the gtsrc reference lov1 seed list table, starting from row 2.
- Create a new tab called "DB2"
- Copy from "DB2" row 2 on down in the "DB2" tab.
- Save the spreadsheet.
- Save each tab to a corresponding CSV based off the tab name.
- Edit each of the .csv file, and replace the # with '' (two single quotes).
- Save the updated file as SQL files.
- Execute the insert statements via the GT Data Maker target to update the corresponding database type based off its database profile.
- Update the available data functions, where you will be adding the new hashlov, randlov, and seqlov functions associated with the newly created seed list.

That is the process that you need to follow to add new seed list entries for your DB2 for zOS TDM mainframe toolkit installation.

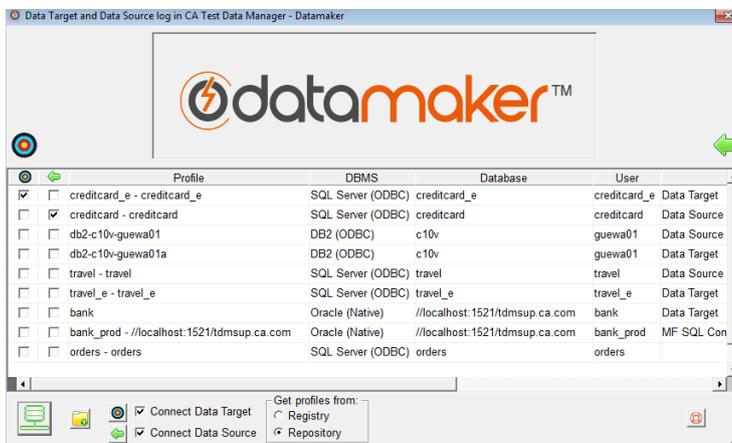
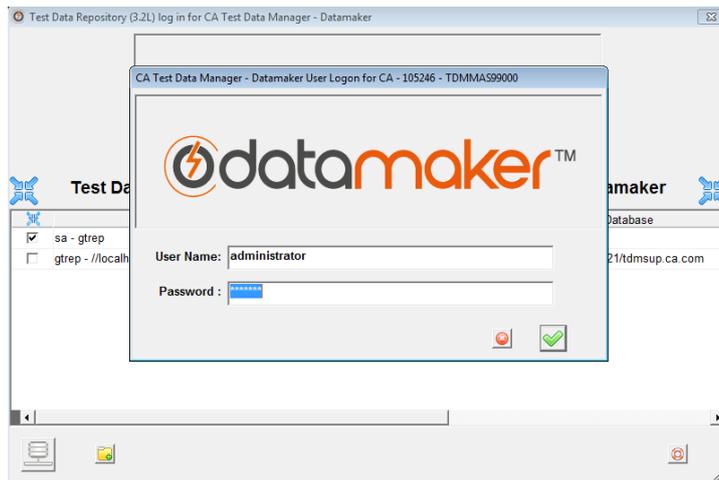
Please keep in mind that these new seed list entries will be used by the TDM mainframe toolkit programs and JCL procedures.

Adding a new seed list entry set

This particular scenario we are going to create a new seed list for cities in the State of Colorado, USA. Remember this is an example for you to see how this whole process works and you will adapt it to what you are trying to accomplish.

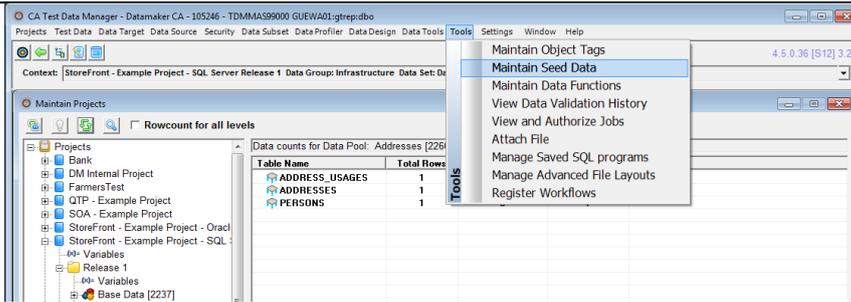
Screen Shot

Message & Action

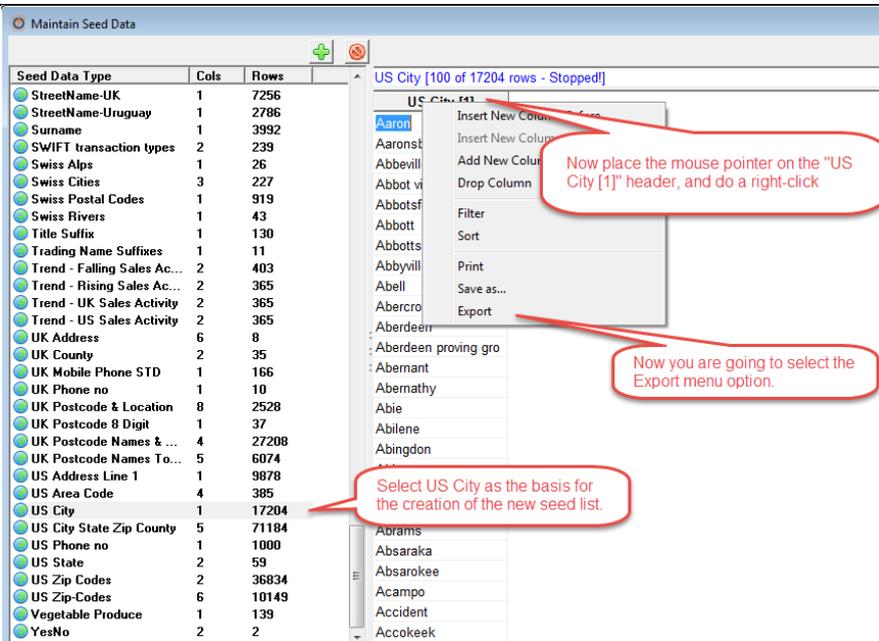
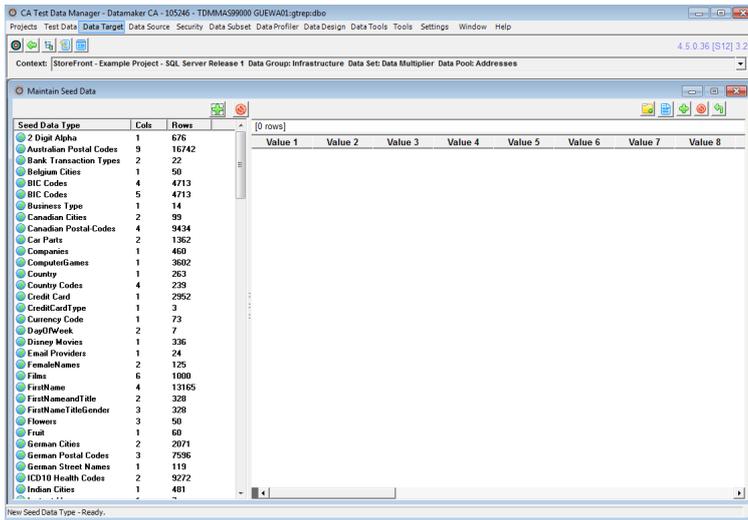


We need to launch GT DataMaker

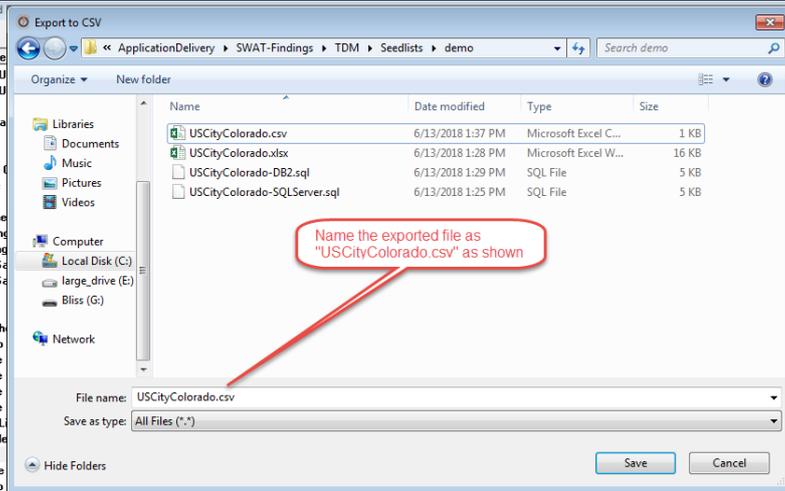
Connect as a user that has rights to work with the seed list editor. This is usually the TDM administrator or equivalent.



Launch the seed data manager as shown.



Look for the US City list, since we are going to be using this list as our basis for the new seed list that we are going to be creating. Do a right-click on the "US City" column title to be able to create an export file (csv).

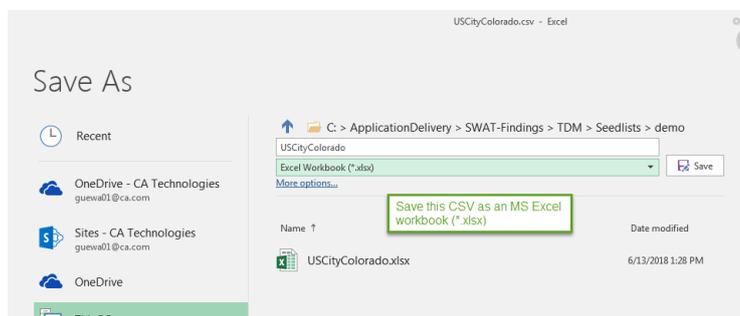
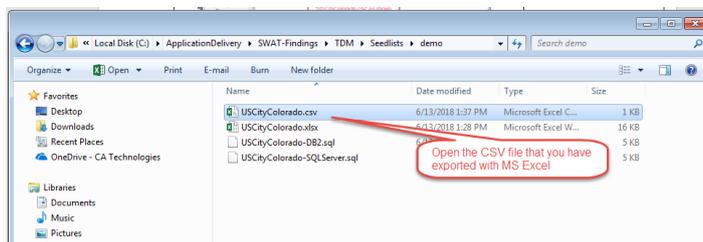


Provide a name for this export file, for our scenario we are going to use

"USCityColorado.csv".

Once the file has been saved, please open it with MS Excel.

As soon as you opened the CSV file, please do a "Save As" and save it as an MS Excel workbook (*.xlsx).



	A	B	C	D	E	F	G	H	I	J
1	City	Area Code	0							
2	Alamosa	719	1							
3	Denver	303	2							
4	Ft Collins	720	3							
5	Pueblo	719	4							
6	Colorado Springs	719	5							
7	Fountain	719	6							
8	Trinidad	719	7							
9	Colorado City	719	8							
10	Old Colorado City	719	9							
11	Manitou Springs	719	10							
12	Larkspur	720	11							
13	Monarch	719	12							
14	Gunnison	720	13							
15	Delta	720	14							
16	Grand Junction	720	15							
17	Pueblo West	719	16							
18	Avondale	719	17							
19	La Junta	719	18							
20	Greeley	720	19							
21	Boulder	303	20							
22	Canon City	719	21							
23	Montrose	720	22							
24	Durango	720	23							
25	Monte Vista	720	24							
26	Longmont	720	25							
27	Arvada	303	26							
28	Castle Rock	720	27							
29										
30										

Enter the data as shown here

Please Add three additional tabs for SQL = MS SQL Server, SQL-DB2 = MS SQL Server lov1 table, Oracle = Oracle, Ora-DB2 = Oracle lov1 table, and DB2 = DB2 for zOS

USCityColorado | SQL | SQL-DB2 | Oracle | Ora-DB2 | DB2 | +

Since we are creating a brand new seed list, please use the data shown as your example.

All the entries that were exported, please delete.

In this case, we are going to have a city, area code, and index number columns. These represent the entries that will be utilized.

You will also need to create the additional workbook tabs as shown.

2	Insert into scramble.gtsrc_reference_data (rd_ref_id,rd_ref_value,rd_ref_value2,rd_index) values ('US City Colorado'	'Alamosa'	'719'	1);
3	Insert into scramble.gtsrc_reference_data (rd_ref_id,rd_ref_value,rd_ref_value2,rd_index) values ('US City Colorado'	'Denver'	'303'	2);
4	Insert into scramble.gtsrc_reference_data (rd_ref_id,rd_ref_value,rd_ref_value2,rd_index) values ('US City Colorado'	'Ft Collins'	'720'	3);
5	Insert into scramble.gtsrc_reference_data (rd_ref_id,rd_ref_value,rd_ref_value2,rd_index) values ('US City Colorado'	'Pueblo'	'719'	4);
6	Insert into scramble.gtsrc_reference_data (rd_ref_id,rd_ref_value,rd_ref_value2,rd_index) values ('US City Colorado'	'Colorado Sp'	'719'	5);
7	Insert into scramble.gtsrc_reference_data (rd_ref_id,rd_ref_value,rd_ref_value2,rd_index) values ('US City Colorado'	'Fountain'	'719'	6);
8	Insert into scramble.gtsrc_reference_data (rd_ref_id,rd_ref_value,rd_ref_value2,rd_index) values ('US City Colorado'	'Trinidad'	'719'	7);
9	Insert into scramble.gtsrc_reference_data (rd_ref_id,rd_ref_value,rd_ref_value2,rd_index) values ('US City Colorado'	'Colorado Ci'	'719'	8);
10	Insert into scramble.gtsrc_reference_data (rd_ref_id,rd_ref_value,rd_ref_value2,rd_index) values ('US City Colorado'	'Old Colorac'	'719'	9);
11	Insert into scramble.gtsrc_reference_data (rd_ref_id,rd_ref_value,rd_ref_value2,rd_index) values ('US City Colorado'	'Manitou Sp'	'719'	10);
12	Insert into scramble.gtsrc_reference_data (rd_ref_id,rd_ref_value,rd_ref_value2,rd_index) values ('US City Colorado'	'Larkspur'	'720'	11);
13	Insert into scramble.gtsrc_reference_data (rd_ref_id,rd_ref_value,rd_ref_value2,rd_index) values ('US City Colorado'	'Monarch'	'719'	12);
14	Insert into scramble.gtsrc_reference_data (rd_ref_id,rd_ref_value,rd_ref_value2,rd_index) values ('US City Colorado'	'Gunnison'	'720'	13);
15	Insert into scramble.gtsrc_reference_data (rd_ref_id,rd_ref_value,rd_ref_value2,rd_index) values ('US City Colorado'	'Delta'	'720'	14);
16	Insert into scramble.gtsrc_reference_data (rd_ref_id,rd_ref_value,rd_ref_value2,rd_index) values ('US City Colorado'	'Grand Junct'	'720'	15);

Switch over the "Oracle" tab and setup row 2 based on the values listed below. After you have done that, please copy row 2 down to row 28.

If your GT Data Maker repository is *Oracle based*, you will start with the Oracle tabs instead.

Switch to the "Oracle" tab, and enter the data as shown, on row 2; then copy the entries down to row 28.

Column A

Insert into scramble.gtsrc_reference_data (rd_ref_id, rd_ref_value, rd_ref_value2, rd_index) values('US CITY COLORADO'

Column B

=CONCAT('','','USCityColorado!A2,'')

Column C

=CONCAT('','','USCityColorado!B2,'')

Column D

=CONCAT(USCityColorado!C2,','')

1									
2	Insert into scramble.gtsrc_reference_lov1 (rl_ref_id,rl_ref_value,rl_ref_value2,rl_rn,rl_total) values ('US City Colorado'	'Alamosa'	'719'					1	17788);
3	Insert into scramble.gtsrc_reference_lov1 (rl_ref_id,rl_ref_value,rl_ref_value2,rl_rn,rl_total) values ('US City Colorado'	'Denver'	'303'					2	17788);
4	Insert into scramble.gtsrc_reference_lov1 (rl_ref_id,rl_ref_value,rl_ref_value2,rl_rn,rl_total) values ('US City Colorado'	'Ft Collins'	'720'					3	17788);
5	Insert into scramble.gtsrc_reference_lov1 (rl_ref_id,rl_ref_value,rl_ref_value2,rl_rn,rl_total) values ('US City Colorado'	'Pueblo'	'719'					4	17788);
6	Insert into scramble.gtsrc_reference_lov1 (rl_ref_id,rl_ref_value,rl_ref_value2,rl_rn,rl_total) values ('US City Colorado'	'Colorado'	'719'					5	17788);
7	Insert into scramble.gtsrc_reference_lov1 (rl_ref_id,rl_ref_value,rl_ref_value2,rl_rn,rl_total) values ('US City Colorado'	'Fountain'	'719'					6	17788);
8	Insert into scramble.gtsrc_reference_lov1 (rl_ref_id,rl_ref_value,rl_ref_value2,rl_rn,rl_total) values ('US City Colorado'	'Trinidad'	'719'					7	17788);
9	Insert into scramble.gtsrc_reference_lov1 (rl_ref_id,rl_ref_value,rl_ref_value2,rl_rn,rl_total) values ('US City Colorado'	'Colorado'	'719'					8	17788);
10	Insert into scramble.gtsrc_reference_lov1 (rl_ref_id,rl_ref_value,rl_ref_value2,rl_rn,rl_total) values ('US City Colorado'	'Old Color'	'719'					9	17788);
11	Insert into scramble.gtsrc_reference_lov1 (rl_ref_id,rl_ref_value,rl_ref_value2,rl_rn,rl_total) values ('US City Colorado'	'Manitou'	'719'					10	17788);
12	Insert into scramble.gtsrc_reference_lov1 (rl_ref_id,rl_ref_value,rl_ref_value2,rl_rn,rl_total) values ('US City Colorado'	'Larkspur'	'720'					11	17788);
13	Insert into scramble.gtsrc_reference_lov1 (rl_ref_id,rl_ref_value,rl_ref_value2,rl_rn,rl_total) values ('US City Colorado'	'Monarch'	'719'					12	17788);
14	Insert into scramble.gtsrc_reference_lov1 (rl_ref_id,rl_ref_value,rl_ref_value2,rl_rn,rl_total) values ('US City Colorado'	'Gunnison'	'720'					13	17788);

Switch over the "Ora-DB2" tab and setup row 2 based on the values listed below. After you have done that, please copy row 2 down to row 28.

Now switch to the "Ora-DB2" tab, and enter the data starting from row 2, then copy the entries to row 28.

Column A

Insert into scramble.gtsrc_reference_lov1
(rl_ref_id,rl_ref_value,rl_ref_value2,rl_rn,rl_total) values ('US CITY COLORADO')

Column B

=CONCAT('','','USCityColorado!A2,')'

Column C

=CONCAT('','','USCityColorado!B2,')'

Column D

=USCityColorado!C2

Column E

17788);

Save As

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guewa01@ca.com

OneDrive

C: > ApplicationDelivery > SWAT-Findings > TDM > Seedlists > demo

USCityColorado-SQLServer

CSV UTF-8 (Comma delimited) (*.csv)

Save

More options...

Name ↑	Date modified
USCityColorado.csv	6/13/2018 1:37 PM

Once you switch to the "SQL" tab, perform a "Save As:" as shown, make that you add -SQLServer to the file.

Make sure that you have saved the spreadsheet after all the changes that you have made.

Now switch to the "SQL" tab and perform a save as (CSV-UTF-8), and enter the name as shown.

Save As

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Add a Place

C: > ApplicationDelivery > SWAT-Findings > TDM > Seedlists > demo

USCityColorado-SQLServer-DB2-LOV1

CSV UTF-8 (Comma delimited) (*.csv)

Save

More options...

Name ↑	Date modified
USCityColorado.csv	6/13/2018 1:37 PM
USCityColorado-SQLServer.csv	6/15/2018 2:20 PM
USStateColorado.csv	6/14/2018 1:14 PM

Once you switch to the "SQL-DB2" tab, perform a "Save As:" as shown, make sure that you add -SQLServer-DB2-LOV1 to the file.

Repeat this process for the remaining workbooks and enter the data as shown.

Finally, you will close the spreadsheet, but don't save any additional changes, just close the spreadsheet.

Save As

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Add a Place

C: > ApplicationDelivery > SWAT-Findings > TDM > Seedlists > demo

USCityColorado-Oracle

CSV UTF-8 (Comma delimited) (*.csv)

Save

More options...

Name ↑	Date modified
USCityColorado.csv	6/13/2018 1:37 PM
USStateColorado.csv	6/14/2018 1:14 PM

Once you switch to the "Oracle" tab, perform a "Save As:" as shown, make sure that you add -Oracle to the file.

Save As

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Browse

C: > ApplicationDelivery > SWAT-Findings > TDM > Seedlists > demo

USCityColorado-Oracle-DB2-LOV1

CSV UTF-8 (Comma delimited) (*.csv)

Save

More options...

Name ↑	Date modified
People_masking.csv	6/15/2018 3:23 PM
USCityCo	6/13/2018 1:37 PM
USCityCo	6/18/2018 12:45 PM
USCityColorado-Oracle-DB2.csv	6/18/2018 12:46 PM
USStateColorado.csv	6/14/2018 1:14 PM

Once you switch to the "Ora-DB2" tab, perform a "Save As:" as shown, make sure that you add -Oracle-DB2-LOV1 to the file.

Save As

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gueva01@ca.com

OneDrive

This PC

C:\ApplicationDelivery > SWAT-Findings > TDM > Seedlists > demo

USCityColorado-DB2

CSV UTF-8 (Comma delimited) (*.csv)

Save

More options...

Name ↑

USCityColorado.csv 1:37 PM

USCityColorado-SQLServer.csv 6/13/2018 2:14 PM

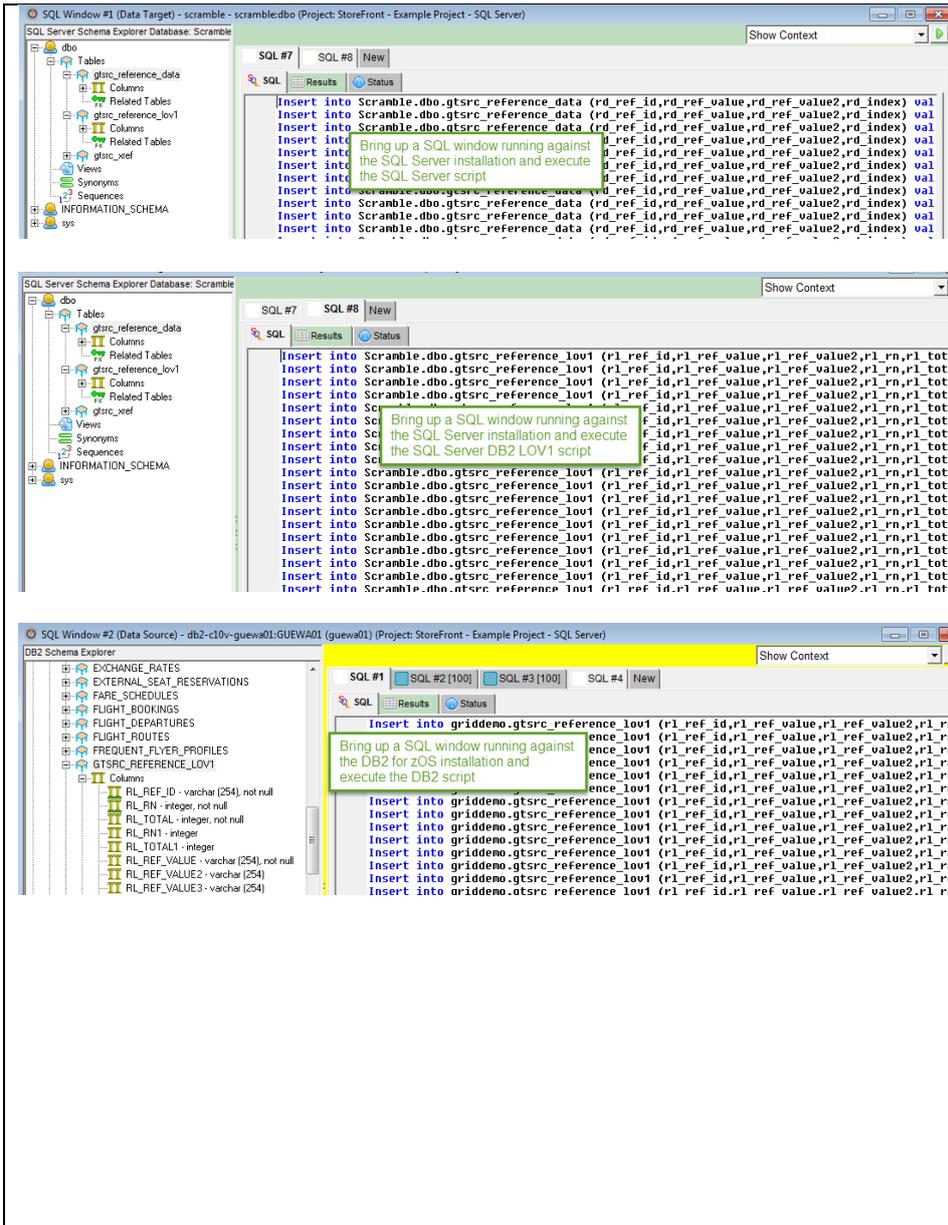
Name	Date modified	Type	Size
USCityColorado.csv	6/13/2018 1:37 PM	Microsoft Excel C...	1 KB
USCityColorado.xlsx	6/15/2018 2:16 PM	Microsoft Excel W...	18 KB
USCityColorado-DB2.csv	6/15/2018 2:23 PM	Microsoft Excel C...	5 KB
USCityColorado-SQLServer.csv	6/15/2018 2:21 PM	Microsoft Excel C...	5 KB
USCityColorado-SQLServer-DB2-LOV1.csv	6/15/2018 2:22 PM	Microsoft Excel C...	5 KB
USStateColorado.csv	6/13/2018 1:14 PM	Microsoft Excel C...	1 KB

Rename the recently saved csv files, where you will change their suffix to ".sql"

Name	Date modified	Type	Size
USCityColorado.csv	6/13/2018 1:37 PM	Microsoft Excel C...	1 KB
USCityColorado.xlsx	6/15/2018 2:16 PM	Microsoft Excel W...	18 KB
USCityColorado-DB2.sql	6/15/2018 2:23 PM	SQL File	5 KB
USCityColorado-SQLServer.sql	6/15/2018 2:21 PM	SQL File	5 KB
USCityColorado-SQLServer-DB2-LOV1.sql	6/15/2018 2:22 PM	SQL File	5 KB
USStateColorado.csv	6/14/2018 1:14 PM	Microsoft Excel C...	1 KB

The files after being renamed.

Now, you will need to rename the newly created CSV files as SQL files.

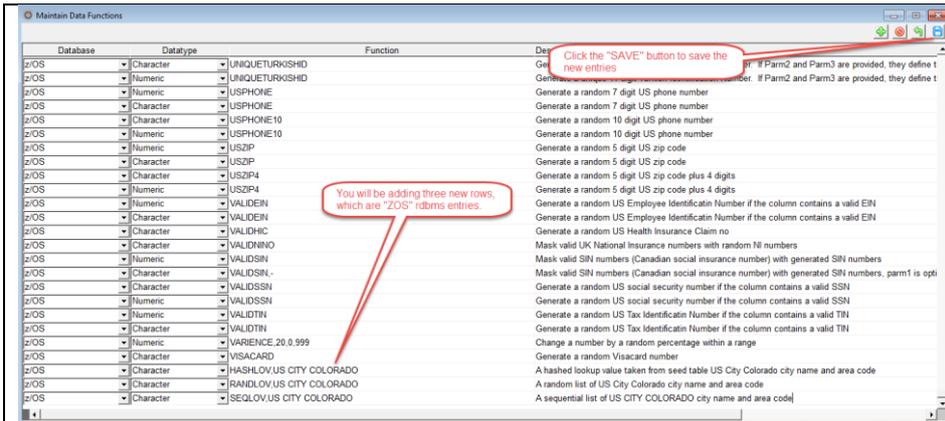


Now, we go back to GT DataMaker, and we connect to the MS SQL Server SQL window, where the GT rep and scramble databases have been installed.

Please execute the SQLServer and SQL-DB2-LOV1 scripts to add the new seed list.

If your GT Data Maker repository is installed in Oracle, you will utilize the Oracle scripts instead, at the same time make sure that you are connected to the Oracle data source where the scramble database has been installed.

You will also open a SQL window to the DB2 for zOS subsystem and execute the DB2 sql script that will add the additional seed list to the gtsrc_reference_lov1 table.



Now, you will need to bring up the data functions dialog, so you can add the *LOV functions for the newly created seed list.

Please launch the data functions via Tools→Maintain Data Functions.

You will be adding 3 new rows for each of the available *LOV functions.

Please add the following functions

HASHLOV,US CITY COLORADO

Description: A hashed lookup value taken from seed table US City Colorado city name and area code

RANDLOV,US CITY COLORADO

Description: A random list of US City Colorado city name and area code

SEQLOV,US CITY COLORADO

Description: A sequential list of US CITY COLORADO city name and area code

Transformation Maps for TDM Mainframe 1.0

People masking (ZOS) Set Keep Nulls NOT All Columns

Table	Column	Function	Parm1	Parm2	Parm3	Parm4	Keep Nulls	Dateformat	Cross
PEOPLE	FIRST_NAME	HASHLOV	FIRSTNAME						
PEOPLE	LAST_NAME	HASHLOV	LASTNAME						
PEOPLE	EMAIL	EMAIL							
PEOPLE	CONTACT_PHONE	RANDLOV,UK MOBILE PHONE STD							
PEOPLE	HOME_PHONE	RANDLOV,UK MOBILE PHONE STD							
PEOPLE	MOBILE_PHONE	RANDLOV,UK MOBILE PHONE STD							
PEOPLE	ADDRESS	HASHLOV,US City Colorado							

Now switch to the transformation maps, select a ZOS map, and add a HASHLOV using the new entry of 'US City Colorado'

```
"Table", "Column", "Function", "Parm1", "Parm2", "Parm3", "Parm4", "Keep Nulls", "Dateformat", "Cross"
PEOPLE, FIRST_NAME, HASHLOV, FIRSTNAME, , , N, , , , ,
PEOPLE, LAST_NAME, HASHLOV, LASTNAME, , , N, , , , ,
PEOPLE, EMAIL, EMAIL, , , , N, , , , ,
PEOPLE, CONTACT_PHONE, RANDLOV,UK MOBILE PHONE STD, , , N, , , , ,
PEOPLE, HOME_PHONE, RANDLOV,UK MOBILE PHONE STD, , , N, , , , ,
PEOPLE, MOBILE_PHONE, RANDLOV,UK MOBILE PHONE STD, , , N, , , , ,
PEOPLE, ADDRESS, HASHLOV, US City Colorado, , , N, , , , ,
```

In the generated CSV file, you will see the new seedlist entry ready

```
// MAPDS='PUBLIC.TDM.LIB.MAPCSV (TRAVELPE) '
// *
//STEP04.PARMCD DD *
QUOTESTYLE=DOUBLE
// *
//STEP05.STEPLIB DD DSN=&LOADLIB, DISP=SHR
// DD DSN=C10V.PRIVATE.SDSNEXT, DISP=SHR
// DD DSN=C10V.RUNLIB.LOAD, DISP=SHR
// DD DSN=DB2CA06.DB2A10.SDSNLOAD, DISP=SHR
//STEP05.PARMCD DD *
LANGUAGE=EN
AUDIT=ALL
DBUPDATES=Y
COMMIT=1000
SHUFFLEONLY=N
TARGETSCHEMA=TRAVELDEV
PROGRESSCOUNT=10
```

In the JCL procedures for in-place or in-flight masking, you can use the shuffle option and don't forget to upload the newly created CSV file

Once the gtsc_reference tables have been updated, you can create a ZOS transformation map that will include the new seed list, in this scenario we are performing a HASHLOV using the 'US City Colorado' seed list.

The first reference column for this seed list be used for the masking effort.

You will save the ZOS version of the transformation map, and you can see that the entry for the new seed list is there.

You will upload this csv file into the mainframe and follow the standard procedures to include this transformation map for in-place or in-flight masking.

Best Practices

The following best practices will help you in being successful in masking DB2 datasets.

DB2 Authorizations

Make sure that you have sufficient rights to the DB2 schemas (read/write/alter authorizations), at the same time make sure that you have setup DB2 connect and tested this connection from the system where TDM is installed. Add an ODBC entry to TDM that points to the DB2 subsystem in the mainframe.

Planning

Prior to creating a new seed list, it is recommended that you look at the shipped seed lists and use a seed list that will be very close to the final version of your seed list.

Be mindful of creating a new rl_total number for the new seed list.

For updated seed list, please be aware of the additional entries that you might want to add.

Be mindful of the rl_total number, if you are going to be updating an existing spreadsheet.

Testing

Prior to rolling out your new seed list into production, please run test runs to make sure that the seed list is masking using the correct values.

Useful Links

<https://docops.ca.com/ca-test-data-manager/4-5/en/installing/mainframe-installation-and-upgrade/install-mainframe-components-v5-4/install-db2-reference-data>

<https://docops.ca.com/ca-test-data-manager/4-5/en/mainframe/working-with-mainframe-files-or-ims-segments/masking-files/executing-masking-flat-file-sources/mask-files-using-seedlists-stored-in-db2>

<https://docops.ca.com/ca-test-data-manager/4-5/en/discover-and-profile-data/data-discovery-and-profiling-using-datamaker/create-seed-data-from-a-cube>

<https://docops.ca.com/ca-test-data-manager/4-5/en/reference/seed-lists>

<https://docops.ca.com/ca-test-data-manager/4-5/en/provisioning-test-data/generate-synthetic-test-data/generate-synthetic-data-using-datamaker/propagate-seed-list-data-across-masking-engines>