



Conflexion
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Planning, Scheduling, Analysis

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Simio Output Tables

Problem Description

We have a Simio model that uses an external process requiring access to the complete contents of a Simio output table. The external process output could be any of: Adding new rows, Changing the attributes of existing rows, and/or Deleting existing rows. In this example Simio will hold the *golden* copy of the data, but we envision other cases in which the *golden* copy would be externally with Simio pushing updates asynchronously and pulling data as needed.

System Requirements

To run this example as-is you'll need:

- Simio with a better-than-personal license (too many process steps)
- A SQL Server on which you can create a database. The Simio processes work with any database you can connect with DbReadWrite but the stored procedures for this example are SQL Server specific.

Getting Started (initialize the system)

- Execute the *InitializeDatabase.sql* script in SQL Server Management Studio to create the tables and example stored procedures.
- Set the DbConnect Parameters (change as required for your system)
 - ConnectionString:
Server=localhost\SQLEXPRESS;Database=XOutputTable;Trusted_Connection=True;
 - Provider Name: SqlClient Data Provider
- Configure the Simio Data Importer to work with your database server.

Running the Example

1. Open the Simionly.spfx model in Simio
2. Depress Simio's run button. The process steps outlined have a breakpoint between each of the listed steps so that you can examine the database and Simio tables to see how each part works. Depress the run button again after examining the tables at each breakpoint.

- Query Aliq TH_LUMPER(gsmith (52))

```

SELECT * FROM Objects;

/*
SELECT * FROM dbo.MainTable ORDER BY IntPK
SELECT * FROM dbo.DeleteTable ORDER BY IntPK
SELECT * FROM dbo.AddTable ORDER BY SourceIntPK

```

100 %

Results Messages

	IntPK	RealState	IntegerState	BooleanState	DateTimeState	StringState	ObjectRefState	SourceIntPK
1	1	561.118	668	0	2021-04-12 00:00:00.000	X01		1
2	2	553.7531	613	0	2021-04-12 00:00:00.000	L04		2
3	3	535.7766	455	0	2021-04-12 00:00:00.000	X04		3
4	4	403.5828	188	0	2021-04-12 00:00:00.000	X03		4
5	5	602.4131	599	0	2021-04-12 01:00:00.000	X02		5
6	6	583.3544	160	0	2021-04-12 01:00:00.000	X02		6
7	7	139.6680	645	0	2021-04-12 01:00:00.000	L01		7
8	8	452.0753	279	0	2021-04-12 01:00:00.000	X03		8
9	9	727.7803	646	0	2021-04-12 01:00:00.000	L01		9

DBIntPK RealState IntegerState BooleanState DateTimeState StringState ObjectRefState SourceIntPK

Table

	Int PK	Real State	Integer State	Boolean State	Date Time State	String State	Object Ref State	Source Int PK
1	1	561.1180	668	<input type="checkbox"/>	4/12/21 12:00:00 AM	X01	[None]	
2	2	553.7530	613	<input type="checkbox"/>	4/12/21 12:00:00 AM	L04	[None]	
3	3	535.7766	455	<input type="checkbox"/>	4/12/21 12:00:00 AM	X04	[None]	
4	4	403.5828	188	<input type="checkbox"/>	4/12/21 12:00:00 AM	X03	[None]	
5	5	602.4132	599	<input type="checkbox"/>	4/12/21 1:00:00 AM	X02	[None]	
6	6	583.3544	160	<input type="checkbox"/>	4/12/21 1:00:00 AM	X02	[None]	
7	7	139.6680	645	<input type="checkbox"/>	4/12/21 1:00:00 AM	L01	[None]	
8	8	452.0753	279	<input type="checkbox"/>	4/12/21 1:00:00 AM	X03	[None]	
9	9	727.7803	646	<input type="checkbox"/>	4/12/21 1:00:00 AM	L01	[None]	

Query executed successfully... THUMPER/SQLEXPRESS (15.0 RTM) THUMPER/gsmith (52) XOutputTable 00:00:00 9 rows

- Query Allsql - TH...UMPER\gsmth (52)* - x

```

SELECT * FROM Objects;
*/
SELECT * FROM dbo.MainTable ORDER BY IntPK
SELECT * FROM dbo.DeleteTable ORDER BY IntPK
SELECT * FROM dbo.AddTable ORDER BY SourceIntPK

```

100 %

Results Messages

	IntPK	RealState	IntegerState	BooleanState	DateTimeState	StringState	ObjectRefState	SourceIntPK
1	1	561.1180	668	0	2021-04-12 00:00:00.000	X01	DC04	1
2	2	553.7531	239	0	2021-04-12 00:00:00.000	L04	DC02	2
3	3	535.7766	455	0	2021-04-12 00:00:00.000	X04	DC03	3
4	4	403.5828	188	0	2021-04-12 00:00:00.000	X03	DC02	4
5	5	602.4131	280	0	2021-04-12 01:00:00.000	X02	DC02	5
6	6	583.3544	160	0	2021-04-12 01:00:00.000	X02	DC02	6
7	7	139.6680	645	0	2021-04-12 01:00:00.000	L01	DC03	7
8	8	452.0753	279	0	2021-04-12 01:00:00.000	X03	DC02	8
9	9	727.7803	646	0	2021-04-12 01:00:00.000	L01	DC02	9

	IntPK
1	6
2	8

	DBIntPK	RealState	IntegerState	BooleanState	DateTimeState	StringState	ObjectRefState	SourceIntPK
1	1	553.7531	374	0	2021-05-06 17:17:02.850	L04	DC01	2
2	2	602.4131	319	0	2021-05-06 17:17:02.850	X02	DC03	5

Table

	Int PK	Real State	Integer State	Boolean State	Date Time State	String State	Object Ref State	Source Int PK
1	1	561.1180	668	<input type="checkbox"/>	4/12/21 12:00:00 AM	X01	[None]	
2	2	553.7530	613	<input type="checkbox"/>	4/12/21 12:00:00 AM	L04	[None]	
3	3	535.7766	455	<input type="checkbox"/>	4/12/21 12:00:00 AM	X04	[None]	
4	4	403.5828	188	<input type="checkbox"/>	4/12/21 12:00:00 AM	X03	[None]	
5	5	602.4132	599	<input type="checkbox"/>	4/12/21 1:00:00 AM	X02	[None]	
6	6	583.3544	160	<input type="checkbox"/>	4/12/21 1:00:00 AM	X02	[None]	
7	7	139.6680	645	<input type="checkbox"/>	4/12/21 1:00:00 AM	L01	[None]	
8	8	452.0753	279	<input type="checkbox"/>	4/12/21 1:00:00 AM	X03	[None]	
9	9	727.7803	646	<input type="checkbox"/>	4/12/21 1:00:00 AM	L01	[None]	
*				<input checked="" type="checkbox"/>				

Query executed success... THUMPER\SQLEXPRESS (15.0 RTM) THUMPER\gsmth (52) XOutputTable 00:00:00 13 rows

Ln 10 Col 1 INS

- c. **Post Read** The database MainTable has been imported, via Search + DbRead, into the Simio output table. Note that the ObjectRefState attributes are populated and that the edited rows, 2 and 5, have a different IntegerState value than in the previous screen snapshot.

Query All.sql - TH_UMPER\gsmith (52) *
SELECT * FROM Objects;
/*
SELECT * FROM dbo.MainTable ORDER BY IntPK
SELECT * FROM dbo.DeleteTable ORDER BY IntPK
SELECT * FROM dbo.AddTable ORDER BY SourceIntPK

100 %
Results Messages
IntPK RealState IntegerState BooleanState DateTimeState StringState ObjectRefState SourceIntPK
1 1 561.118 668 0 2021-04-12 00:00:00.000 X01 DC04 1
2 2 553.7531 239 0 2021-04-12 00:00:00.000 L04 DC02 2
3 3 535.7766 455 0 2021-04-12 00:00:00.000 X04 DC03 3
4 4 403.5828 188 0 2021-04-12 00:00:00.000 X03 DC02 4
5 5 602.4131 280 0 2021-04-12 01:00:00.000 X02 DC02 5
6 6 583.3544 160 0 2021-04-12 01:00:00.000 L01 DC03 6
7 7 139.6680 645 0 2021-04-12 01:00:00.000 X03 DC02 7
8 8 452.0753 279 0 2021-04-12 01:00:00.000 L01 DC02 8
9 9 727.7803 646 0 2021-04-12 01:00:00.000 L01 DC02 9

IntPK
1 6
2 8

DBIntPK RealState IntegerState BooleanState DateTimeState StringState ObjectRefState SourceIntPK
1 1 553.7531 374 0 2021-05-06 17:17:02.850 L04 DC01 2
2 2 602.4131 319 0 2021-05-06 17:17:02.850 X02 DC03 5

Query executed successfully THUMPER\SQLXPRESS (15.0 RTM) THUMPER\gsmith (52) XOutputTable 00:00:00 13 rows

Ln 10 Col 1 INS

Table

	Int PK	Real State	Integer State	Boolean State	Date Time State	String State	Object Ref State	Source Int PK
1	1	561.1180	668	<input type="checkbox"/>	4/12/21 12:00:00 AM	X01	DC04	
2	2	553.7531	239	<input type="checkbox"/>	4/12/21 12:00:00 AM	L04	DC02	
3	3	535.7766	455	<input type="checkbox"/>	4/12/21 12:00:00 AM	X04	DC03	
4	4	403.5828	188	<input type="checkbox"/>	4/12/21 12:00:00 AM	X03	DC02	
5	5	602.4131	280	<input type="checkbox"/>	4/12/21 1:00:00 AM	X02	DC02	
6	6	583.3544	160	<input type="checkbox"/>	4/12/21 1:00:00 AM	X02	DC02	
7	7	139.6680	645	<input type="checkbox"/>	4/12/21 1:00:00 AM	L01	DC03	
8	8	452.0753	279	<input type="checkbox"/>	4/12/21 1:00:00 AM	X03	DC02	
9	9	727.7803	646	<input type="checkbox"/>	4/12/21 1:00:00 AM	L01	DC02	
#				<input type="checkbox"/>				

Edit

- d. **Post Delete** The rows from the database DeleteTable table (6 and 8) have been deleted from that table and from Simio's output table. These use DbQuery and DbExecute in a loop.

Query Allsql - TH_UMPER(gsmith (52))

```

SELECT * FROM Objects;
*/
SELECT * FROM dbo.MainTable ORDER BY IntPK
SELECT * FROM dbo.DeleteTable ORDER BY IntPK
SELECT * FROM dbo.AddTable ORDER BY SourceIntPK

```

100 %

Results Messages

IntPK	RealState	IntegerState	BooleanState	DateTimeState	StringState	ObjectRefState	SourceIntPK
1	561.1180	668	0	2021-04-12 00:00:00.000	X01	DC04	1
2	553.7531	239	0	2021-04-12 00:00:00.000	L04	DC02	2
3	535.7766	455	0	2021-04-12 00:00:00.000	X04	DC03	3
4	403.5828	188	0	2021-04-12 00:00:00.000	X03	DC02	4
5	602.4131	280	0	2021-04-12 01:00:00.000	X02	DC02	5
6	583.3544	160	0	2021-04-12 01:00:00.000	X02	DC02	6
7	139.6680	645	0	2021-04-12 01:00:00.000	L01	DC03	7
8	452.0753	279	0	2021-04-12 01:00:00.000	X03	DC02	8
9	727.7803	646	0	2021-04-12 01:00:00.000	L01	DC02	9

IntPK

DBIntPK	RealState	IntegerState	BooleanState	DateTimeState	StringState	ObjectRefState	SourceIntPK
1	553.7531	374	0	2021-05-06 17:17:02.850	L04	DC01	2
2	602.4131	319	0	2021-05-06 17:17:02.850	X02	DC03	5

Query executed successfully... THUMPER(SQLEXPRESS (15.0 RTM)) THUMPER(gsmith (52)) XOutputTable 00:00:00 11 rows

- e. **Post Add** The rows from the database AddTable (DbIntPK 1 and 2, based on IntPK rows 2 and 5, respectively) have been deleted from that table and added to the Simio output table with the new IntPK's 10 and 11.

Query Allsql - TH_UMPER(gsmith (52))

```

SELECT * FROM Objects;
*/
SELECT * FROM dbo.MainTable ORDER BY IntPK
SELECT * FROM dbo.DeleteTable ORDER BY IntPK
SELECT * FROM dbo.AddTable ORDER BY SourceIntPK

```

100 %

Results Messages

IntPK	RealState	IntegerState	BooleanState	DateTimeState	StringState	ObjectRefState	SourceIntPK
1	561.1180	668	0	2021-04-12 00:00:00.000	X01	DC04	1
2	553.7531	239	0	2021-04-12 00:00:00.000	L04	DC02	2
3	535.7766	455	0	2021-04-12 00:00:00.000	X04	DC03	3
4	403.5828	188	0	2021-04-12 00:00:00.000	X03	DC02	4
5	602.4131	280	0	2021-04-12 01:00:00.000	X02	DC02	5
6	583.3544	160	0	2021-04-12 01:00:00.000	X02	DC02	6
7	139.6680	645	0	2021-04-12 01:00:00.000	L01	DC03	7
8	452.0753	279	0	2021-04-12 01:00:00.000	X03	DC02	8
9	727.7803	646	0	2021-04-12 01:00:00.000	L01	DC02	9

IntPK

DBIntPK	RealState	IntegerState	BooleanState	DateTimeState	StringState	ObjectRefState	SourceIntPK
1	553.7531	374	0	2021-05-06 17:17:02.850	L04	DC01	2
2	602.4131	319	0	2021-05-06 17:17:02.850	X02	DC03	5

Query executed successfully... THUMPER(SQLEXPRESS (15.0 RTM)) THUMPER(gsmith (52)) XOutputTable 00:00:00 9 rows