



# Leading the **Integration** Revolution

---

Your business problems have changed.  
Why hasn't your integration solution?



ADEPTIA



# Use Case: Pivot Mapping

# Pivot rules to convert source records into multiple target records

## Source file

B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
Lastnam	Company	Street 1	Street 2	City	State	Zip	Uniqueld	Rep Email	Product	Product 1 Comments	Product 1 Rating	Product	Product 2 Comments	Product 2 Rating	Product 3	Product 3 Comments	Product 3 Rating	Product 4	Product 4 Comments	Product	Product 5 Rating
Shmoe	1st Bank of Utah	123 Unit 3		Saltlake City	UT	84101	etlTest1	<a href="mailto:name@organization.com">name@organization.com</a>	Visited	P1 Test comments 1...	High	Visited	P2 Test comments 1...	Low		P3 Test comments 1...			P4 Test comments Visited		None
Adams	75th4th Bank	543 Unit 27		New York	NY	10001	etlTest2	<a href="mailto:name@organization.com">name@organization.com</a>		P1 Test comments 2...			P2 Test comments 2...		visited	P3 Test comments High		visited	P4 Test comments 2...		
Schmidt	Southeast CU	678 Bld 4		Atlanta	GA	30032	etlTest3	<a href="mailto:name@organization.com">name@organization.com</a>	Visited	P1 Test comments 3...	None	Visited	P2 Test comments 3...			P3 Test comments 3...			P4 Test comments Visited		High
Arc	First Trust of CA	543		Sacramento	CA	90210	etlTest4	<a href="mailto:name@organization.com">name@organization.com</a>		P1 Test comments 4...			P2 Test comments 4...		Visited	P3 Test comments Low			P4 Test comments 4...		
Lane	Bank of Solitude	4566		Metropolis	NY	10001	etlTest5	<a href="mailto:name@organization.com">name@organization.com</a>		P1 Test comments 5...			P2 Test comments 5...		Visited	P3 Test comments Low			P4 Test comments 5...		
Griffin	Quohog Credit Unio	43 Unit 73		Quohog	RI	00093	etlTest6	<a href="mailto:name@organization.com">name@organization.com</a>	Visited	P1 Test comments 6...	Low	Visited	P2 Test comments 6...	High		P3 Test comments 6...		Visited			
Jackson	Pulp Trust	5677		Culver City	CA	90230	etlTest7	<a href="mailto:name@organization.com">name@organization.com</a>		P1 Test comments 7...			P2 Test comments 7...			P3 Test comments 7...				Visited	Low

## Rules:

1. Columns marked in yellow would each create a new record in output
2. Apply additional filter whereby only the records that have a source value of High or Low for these columns produce the corresponding records. For example, Joe Shmoe has two output records below since its single source record has two columns with High and Low circled in red.

## Desired Output file

A	B	C	D	E	F	G	H	I	J	K	L	M
Firstname	Lastname	Company	Street 1	Street 2	City	State	Zip	Uniqueld	Rep Email	Product	Comments	Rating
Joe	Shmoe	1st Bank of Utah	123 Unit 3		Saltlake City	UT	84101	etlTest1	<a href="mailto:name@organization.com">name@organization.com</a>	Product 1	P1 Test comments 1...	High
Joe	Shmoe	1st Bank of Utah	123 Unit 3		Saltlake City	UT	84101	etlTest1	<a href="mailto:name@organization.com">name@organization.com</a>	Product 2	P2 Test comments 1...	Low
Sam	Adams	75th4th Bank	543 Unit 27		New York	NY	10001	etlTest2	<a href="mailto:name@organization.com">name@organization.com</a>	Product 3	P3 Test comments 2...	High
John	Schmidt	Southeast CU	678 Bld 4		Atlanta	GA	30032	etlTest3	<a href="mailto:name@organization.com">name@organization.com</a>	Product 5		High
Joan	Arc	First Trust of CA	543		Sacramento	CA	90210	etlTest4	<a href="mailto:name@organization.com">name@organization.com</a>	Product 3	P3 Test comments 4...	Low
Lois	Lane	Bank of Solitude	4566		Metropolis	NY	10001	etlTest5	<a href="mailto:name@organization.com">name@organization.com</a>	Product 3	P3 Test comments 5...	Low
Peter	Griffin	Quohog Credit Un	43 Unit 73		Quohog	RI	00093	etlTest6	<a href="mailto:name@organization.com">name@organization.com</a>	Product 1	P1 Test comments 6...	Low
Peter	Griffin	Quohog Credit Un	43 Unit 73		Quohog	RI	00093	etlTest6	<a href="mailto:name@organization.com">name@organization.com</a>	Product 2	P2 Test comments 6...	High
Samuel	Jackson	Pulp Trust	5677		Culver City	CA	90230	etlTest7	<a href="mailto:name@organization.com">name@organization.com</a>	Product 5		Low

## Things to remember

When you go through the steps think of 3 things

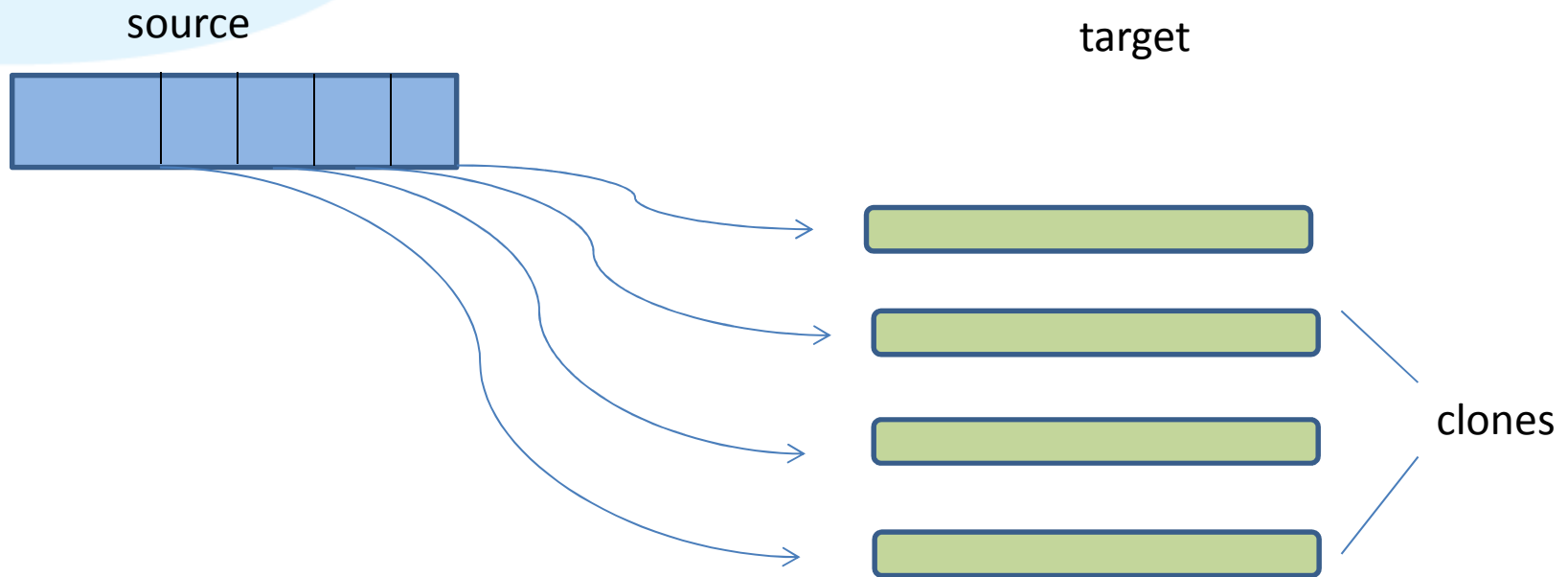
- A. What is my source and target formats (for this we define the schemas)
- B. What is the mapping needed to convert to the output (this is mapping)
- C. How do I test and run this real-time (Mapping preview and Process Flow)

For help on setting up this example you can email to:  
[support@adeptia.com](mailto:support@adeptia.com)

# Mapping approach

In the Target schema we will clone that many record nodes corresponding to the pivot columns in source. Thus if there are 4 pivot columns we will have 4 separate target record nodes. The occurrence of these records would be based on each Record we are pulling from the source. Thus each source record can create 4 output records. Now we can apply additional filters to control the generation of an output record based on for-each conditions described later.

## Create multiple Output records for each Source record





Let's create the Mapping

A login form for Adeptia. On the left, there is a logo consisting of a stylized green and black triangle followed by the word "ADEPTIA" in a bold, sans-serif font. To the right of the logo, there are two input fields: "User Id" and "Password". Below the "Password" field, there is a dark grey button labeled "Log In" and a link labeled "Cannot Login?".

Login as admin/indigo1

# Step 1: Define your Source and Target schema/meta-data

Go to Develop > Services > Schema > Excel and click on 'Create New'

Name	Description
UseCase_Source_schema_for_PivotMapping ✓	source schema with records wit
UseCase_Target_schema_for_PivotMapping ✓	desired output schema for crea

Edit Excel Schema: UseCase\_Source\_schema\_for\_PivotMapping

Standard Properties

Name\* UseCase\_Source\_schema\_for\_PivotMapping

Description\* source schema with records with multiple product fields

Data Header Present

Definition Mode\*  Import Definition File  Enter the Fields Sequentially

Definition File Data  Upload File

Sheet Name\* Sample File

#	Field Name	Type	Format	Sub Format	Data Mode
1	Firstname	string	mmddyyyy	hh:mm:ss	Plain Text
2	Lastname	string	mmddyyyy	hh:mm:ss	Plain Text
3	Company	string	mmddyyyy	hh:mm:ss	Plain Text
4	Street1	number	mmddyyyy	hh:mm:ss	Plain Text

Save Save

Give a Name and Description. Name cannot have spaces, use underscore if needed.  
Check the Data Header Present box and select Import Definition File and click on "Upload File"  
In the Smaller pop-up browse the file and click on the Upload File button.  
This will show the file with sheet names. Click on "Process Sheets" and then click on Finish and close the popup-window. Select the sheet name in the main page and click on Save.

Standard Properties

Name\* UseCase\_Target\_schema\_for\_PivotMapping

Description\* desired output schema for creating multiple records per product

Data Header Present

Definition Mode\*  Import Definition File  Enter the Fields Sequentially

Definition File Data  Upload File

Sheet Name\* Desired Output ✓

#	Field Name	Type	Format	Sub Format	Data Mode
1	Firstname	string	mmddyyyy	hh:mm:ss	Plain Text
2	Lastname	string	mmddyyyy	hh:mm:ss	Plain Text
3	Company	string	mmddyyyy	hh:mm:ss	Plain Text
4	Street1	number	mmddyyyy	hh:mm:ss	Plain Text

Save



## Step 2. Now let's do the mapping

Go to Develop > Services > Data Transformation > Data Mapping  
And then click on "Create New"

Services > Data Transformation > Data Mapping				
Delete	Create New			
<input type="checkbox"/>	Name	Description	Owner	Project Name
<input type="checkbox"/>	<a href="#">UseCase_Pivot_Mapping</a>	This is a mapping to pivot source record into mul...	admin	UseCase_Pivot_Mapping

## Step 2. Now let's do the mapping (contd.)

After clicking on "Create New", in the new screen enter the name of your mapping and the description and click on Data Mapper. Example shown below.

Standard Properties

Name*	<input type="text" value="UseCase_Pivot_Mapping"/>
Description*	<input type="text" value="This is a mapping to pivot source record into multiple target records"/>
	<input type="button" value="Data Mapper"/>

## Step 2. Now let's do the mapping (contd.)

Click on the Load Schema icon on top left and from the schema browser  
Select the Excel option from the list in the left and then select the source and target  
Schemas by checking their boxes and click on Load.

The screenshot shows the Data Mapper application interface. The main window displays the 'Structure\_of\_source\_XSD' and 'Structure\_of\_destination\_XSD' views. A 'Select Schema' dialog box is open, showing a list of schema types and their source and target mappings. The 'Excel' schema type is selected in the left pane. The 'UseCase\_Source\_schema\_for\_PivotMapping' and 'UseCase\_Target\_schema\_for\_PivotMapping' schemas are checked for source and target respectively, with red checkmarks indicating selection. The 'Load' button is visible at the bottom of the dialog.

Schema Type	Name	Source	Target
All	EmployeeBenefitsExcelSchema	<input type="checkbox"/>	<input type="checkbox"/>
Adv. Database	OrderFulfillmentExcelSchema	<input type="checkbox"/>	<input type="checkbox"/>
Adv. Positional	EvalScript_ExcelSchema	<input type="checkbox"/>	<input type="checkbox"/>
Adv. Text	EvalPF_ExcelSchema_Format1	<input type="checkbox"/>	<input type="checkbox"/>
Database	EvalPF_ExcelSchema_Format2	<input type="checkbox"/>	<input type="checkbox"/>
EDI	Financial_Schema	<input type="checkbox"/>	<input type="checkbox"/>
Excel	UseCase_Source_schema_for_PivotMapping	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Positional	UseCase_Target_schema_for_PivotMapping	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Text	EvalXform_ExcelSchema	<input type="checkbox"/>	<input type="checkbox"/>
XML			
Context			
WS Consumer			
WS Provider			

## Step 2. Now let's do the mapping (contd.)

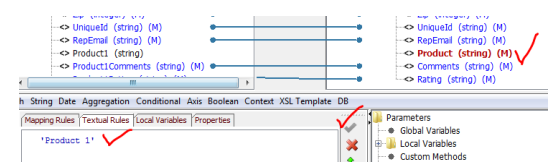
1. Select the Root node and go to Properties below and put the cursor in the ForEach section
2. Now double click on the Record node of the source and it will show the xpath. Click on Save Properties.

The screenshot shows an XSLT editor interface with two XML structure trees side-by-side. The left tree, 'Structure\_of\_source\_XSD', has a 'Record' node with attributes like 'recordNumber' and elements like 'Firstname', 'Lastname', 'Company', 'Street1', 'Street2', 'City', 'State', 'Zip', 'UniqueId', 'RepEmail', 'Product1', and 'Product1Comments'. The right tree, 'Structure\_of\_destination\_XSD', has a 'Record (F)' node with similar attributes and elements, including 'Rating'. Blue lines connect corresponding nodes between the two trees. Below the trees is a 'Properties' tab with a table showing the XPath for the selected 'Record' node.

Mode	Property	Value
Global	XPath	/Root
Global	ForEach	\$Input_UseCase_Source_schema_for_PivotMapping/Root/Record

## Step 2. Now let's do the mapping (contd.)

1. Select the Record node in the Target schema, go to Properties below.
2. In the ForEach section put your cursor in the box and now double-click on the Record node of the Source and it will display an xpath  
 Edit the xpath by adding predicate [Product1Rating = 'High' or Product1Rating = 'Low']  
 Click on Save Properties button.
3. Now do one-to-one map as shown below from source fields to target fields.
4. In the Product field go the Textual Rules and type 'Product 1' and click on the Textual Rule enter "Product 1" as shown below and apply the map.



Current Element : Record

Structure\_of\_source\_XSD

- Root (UseCase\_Source\_schema\_for\_PivotMapping)
  - Record ✓✓
    - @ recordNumber
    - Firstname (string) (M)
    - Lastname (string) (M)
    - Company (string) (M)
    - Street1 (integer) (M)
    - Street2 (string) (M)
    - City (string) (M)
    - State (string) (M)
    - Zip (integer) (M)
    - UniqueId (string) (M)
    - RepEmail (string) (M)
    - Product1 (string)
    - Product1Comments (string) (M)

Structure\_of\_destination\_XSD

- Root (F) (UseCase\_Target\_schema\_for\_PivotMapping)
  - Record (F) ✓ 1
    - @ recordNumber
    - Firstname (string) (M)
    - Lastname (string) (M)
    - Company (string) (M)
    - Street1 (integer) (M)
    - Street2 (string) (M)
    - City (string) (M)
    - State (string) (M)
    - Zip (integer) (M)
    - UniqueId (string) (M)
    - RepEmail (string) (M)
    - Product (string) (M)
    - Comments (string) (M)
    - Rating (string) (M)

Math String Date Aggregation Conditional Axis Boolean Context XSL Template DB

Mapping Rules Textual Rules Local Variables Properties ✓

XPath /Root/Record

ForEach \$Input\_UseCase\_Source\_schema\_for\_PivotMapping/Root/Record[Product1Rating = 'High' or Product1Rating = 'Low'] ✓ 2

## Step 2. Now let's do the mapping (contd.)

Right click on the Target Record node and click on Clone Node.  
Enter 3 and Check the Include Mapping and Include For Each.  
Click OK. Idea of using clones is that based on the number of Products we can create that many record in the output side.

The screenshot displays a mapping tool interface with two record nodes: 'Record' on the left and 'Record (F)' on the right. The 'Record' node contains fields: recordNumber, Firstname (string) (M), Lastname (string) (M), Company (string) (M), Street1 (integer) (M), Street2 (string) (M), City (string) (M), State (string) (M), Zip (integer) (M), UniqueId (string) (M), RepEmail (string) (M), Product1 (string), and Product1Comments (string) (M). The 'Record (F)' node contains: recordNumber, Firstname (string) (M), Lastname (string) (M), Company (string) (M), Street1 (integer) (M), Street2 (string) (M), City (string) (M), State (string) (M), Zip (integer) (M), UniqueId (string) (M), RepEmail (string) (M), Product1 (string), and Rating (integer) (M). Blue lines connect the fields between the two nodes. A 'Clone Options' dialog box is open over the 'Record (F)' node, showing 'Create 3 Clone(s)' and checked options for 'Include Mapping' and 'Include For Each'. Other options like 'Include Comments' and 'Include Local Variables' are unchecked. The dialog has an 'OK' button at the bottom.

## Step 2. Now let's do the mapping (contd.)

For each of the cloned nodes modify the predicate rule in the Properties and also override the mappings by doing one-to-one on the Product, Comments and Rating. (We will skip Product 4 as this does not have relevance in the sample output)

structure\_of\_source\_XSD

- Root (UseCase\_Source\_schema\_for\_PivotMapping)
  - Record
    - @ recordNumber
    - <> Firstname (string) (M)
    - <> Lastname (string) (M)
    - <> Company (string) (M)
    - <> Street1 (integer) (M)
    - <> Street2 (string) (M)
    - <> City (string) (M)
    - <> State (string) (M)
    - <> Zip (integer) (M)
    - <> UniqueId (string) (M)
    - <> RepEmail (string) (M)
    - <> Product1 (string)
    - <> Product1Comments (string) (M)

Record[1] (F) ✓

- @ recordNumber
- <> Firstname (string) (M)
- <> Lastname (string) (M)
- <> Company (string) (M)
- <> Street1 (integer) (M)
- <> Street2 (string) (M)
- <> City (string) (M)
- <> State (string) (M)
- <> Zip (integer) (M)
- <> UniqueId (string) (M)
- <> RepEmail (string) (M)
- <> Product (string) (M) ✓
- <> Comments (string) (M) ✓
- <> Rating (string) (M) ✓

Record[2] (F)

String Date Aggregation Conditional Axis Boolean Context XSL Template DB

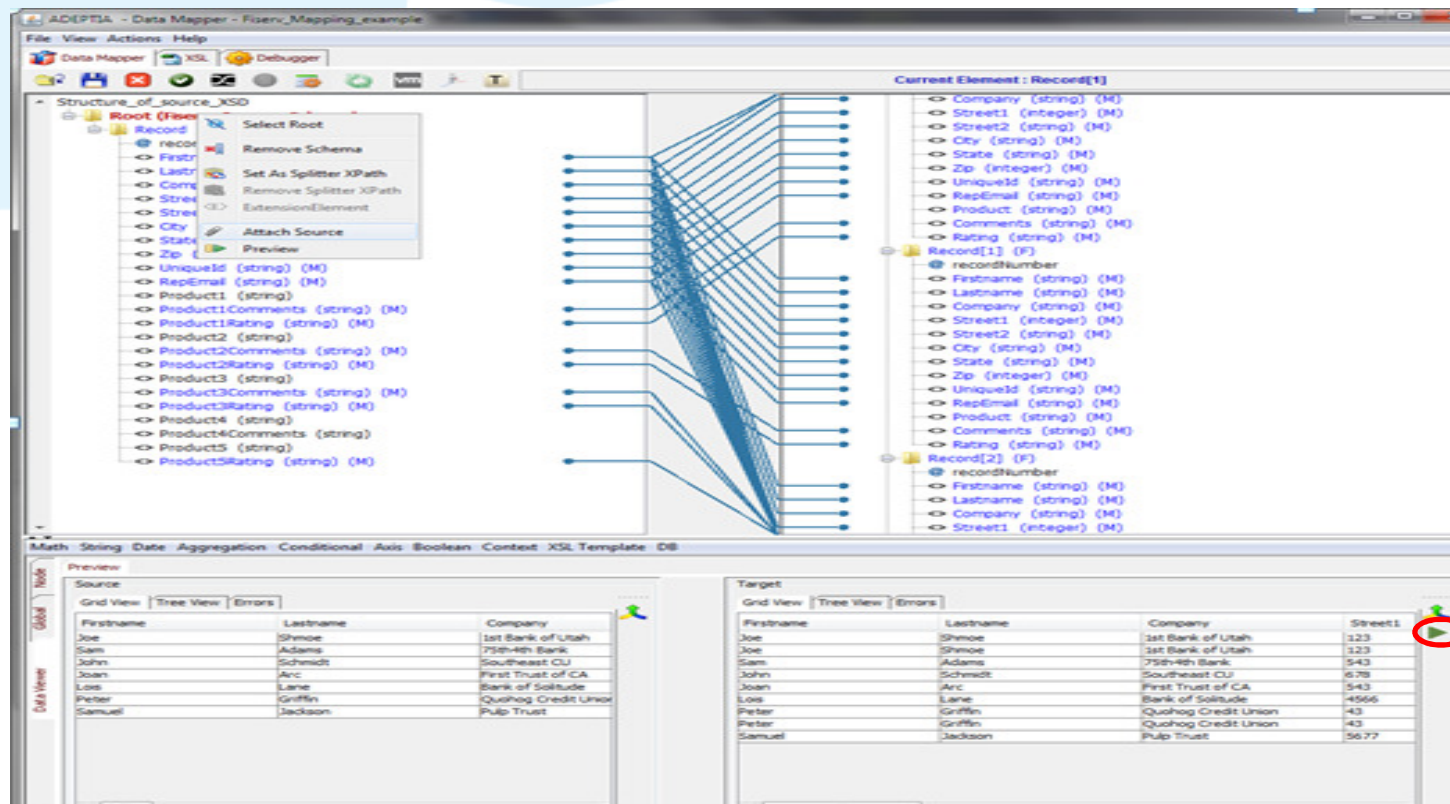
Mapping Rules | Textual Rules | Local Variables | Properties

· XPath: /Root/Record[1]

· ForEach: \$Input\_UseCase\_Source\_schema\_for\_PivotMapping/Root/Record[Product2Rating = 'High' or Product2Rating = 'Low']

Step 3. Now let's TEST the mapping output.

Right click on the Root and Attach Source and then click on Preview.  
In the bottom Data Viewer you can see the data. Click on the > button on the right to See the results.








To create a run-time orchestration

Step 4: Go to Develop > Services > Source and click on File and create a new Source  
Go to Develop > Services > Target and click on File and create a new Target

#### Standard Properties

Name*	UseCase_PivotMapping_Sample_Source	X
Description*	get source file	
File Path*	C:\1data\	
File Name*	sample.xlsx	
Name*	UseCase_PivotMapping_target	
Description*	target location to produce desired output	
File Path*	c:\1data\	
File Name*	Output_	
Time Stamp	yyymmdd	HH-mm-ss.SSS
Create Unique File	<input type="checkbox"/>	
File Extension*	xlsx	

Step 5: Go to Develop > Process > Process Flow and click on “Create New”  
To execute go to Develop > Process > Process flow and click on Execute icon next to the Process name.

	Name	Description	Owner	Project Name
	UseCase_PivotMapping_orchestration	orchestration to create target file at run-time based on pivot m...	admin	UseCase_Pivot_Mapping

Refer to the video available for this use case in Support forum to see how to build and run this process



## More description on the process flow



File source

Double click on the activity and change File Type Property to xlsx.

Mapping activity

Double click on the activity and change File Type Property to xlsx.

File Target

Also change the Transformer Property to XMLtoStream

Idea of using orchestration is that it provides greater extensibility by adding more activities and creating a more holistic process flow. You can add gateways, exception handling, call sub processes, send data to multiple targets such as Web Services etc. Attaching the process to an event or a batch is also possible.

## For business users

For Business Users a simple screen to create the same orchestration is also available by Going to Develop > Solutions > Data Interface. Here you can create or select pre-existing Activities for each of the categories as defined below. You can also create an Event to Deploy the interface by creating and activating an Event.

### New Data Interfaces

Name \*

Description \*

▸ Design Properties

▾ Configure Properties

Source Schema Type

Source Schema Name

Target Type

Target Name

Target Schema Type

Target Schema Name

Mapping

Leading the  
**Integration**  
Revolution

Your business problems have changed.  
Why hasn't your integration solution?

Thank You!



ADEPTIA