

**Appendices -**  
**Advanced exercises**

# **ADV14** Loop and recursivity

## Purpose

- Produce a cooking recipe
- Use loop and recursivity

Recipe Almond milk pancakes, topped with blackberries compote

Parts number : 6/6 - Duration (minutes) : 5  
Pancakes recipe with almonds milk, yogurt and blackberries compote

Ingredients

- Some vanilla yogurts

Steps

- Step 1 : Sub recipe  
Sub-Recipe Pancakes

Parts number : 2/4 - Duration (minutes) : 70  
Recipe that I found in my Grandma's recipe book

Ingredients

- 1 1/4 cup flour
- 1 tablespoon sugar
- 1 teaspoon baking powder
- 2 eggs
- 1 tablespoon vegetable oil

Steps

- Step 1 : Sub recipe  
Sub-Recipe Almond milk

Parts number : 6/6 - Duration (minutes) : 720  
without lactose, the almond milk is smooth and full of protein

Ingredients

- 250 g of almonds
- 1 L of water
- 1 plant-based bag of milk or a clean cloth

Steps

- Step 1 : Soak almonds in water all the night (8 to 12 hours)
- Step 2 : Drain, rinse and place them in the bowl of a blender
- Step 3 : Add 1 L of water and mix at high speed during 2 minutes
- Step 4 : Filter the liquid throughout a plant-based bag of milk or a clean cloth
- Step 5 : Press down well with your hands to extract the maximum of milk
- Step 2 : In a large bowl, combine eggs and almond milk
- Step 3 : Mix with electric mixer until the mixture is frothy
- Step 4 : Add sugar and vegetable oil and mix for another minute
- Step 5 : Add flour and baking powder. Mix until dough is smooth
- Step 6 : Let mixture stand at least an hour in the refrigerator

- Step 2 : Sub recipe  
Sub-Recipe Blackberries compote

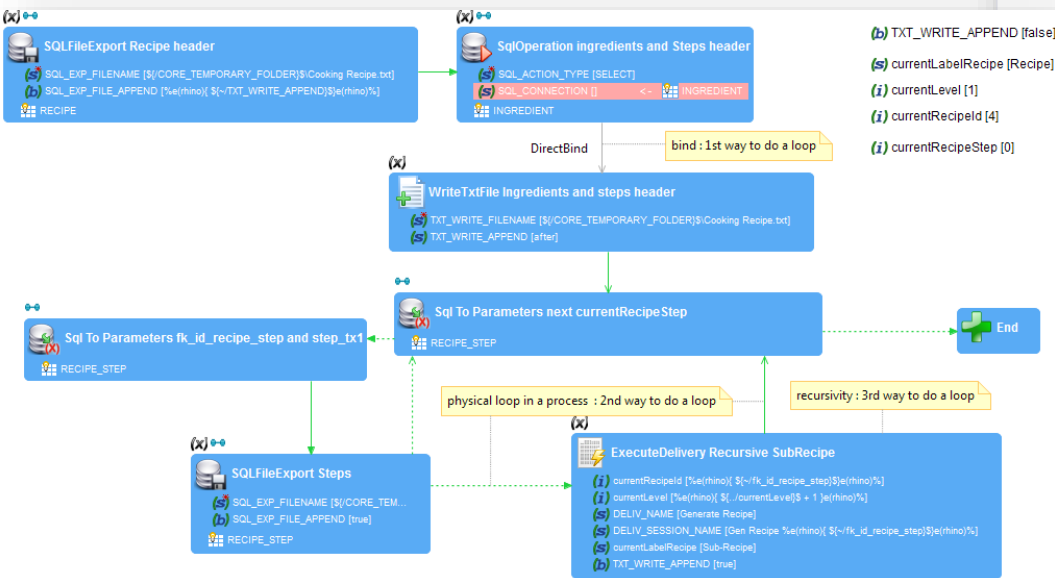
Parts number : 2/4 - Duration (minutes) : 10  
Blackberries compote, Almond flavoured

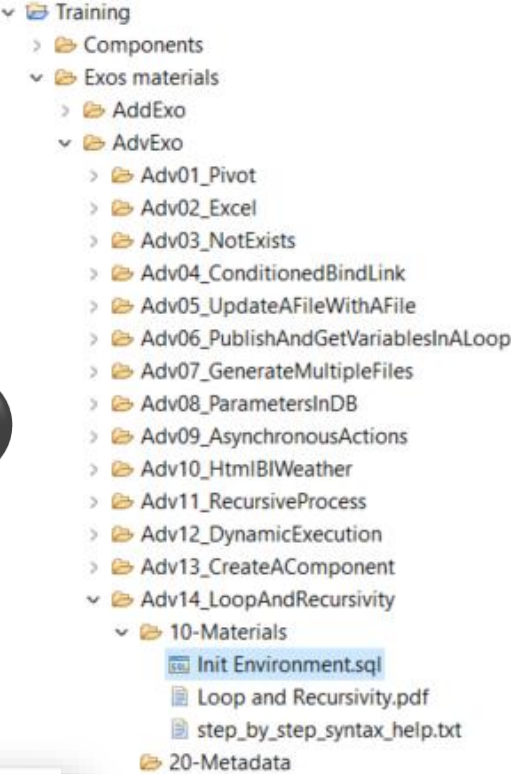
Ingredients

- 3 cups fresh or frozen blackberries
- 1/4 cup orange juice
- A few drops of almond extract
- 2 tablespoons sugar

Steps

- Step 1 : In a small saucepan, combine orange juice, almond extract and sugar
- Step 2 : Reduce slightly over medium heat
- Step 3 : Add blackberries and cook for 5 minutes
- Step 3 : cook the pancakes one by one, in a lightly buttered pan
- Step 4 : Top with vanilla yogurt and a good spoonful of blackberries compote





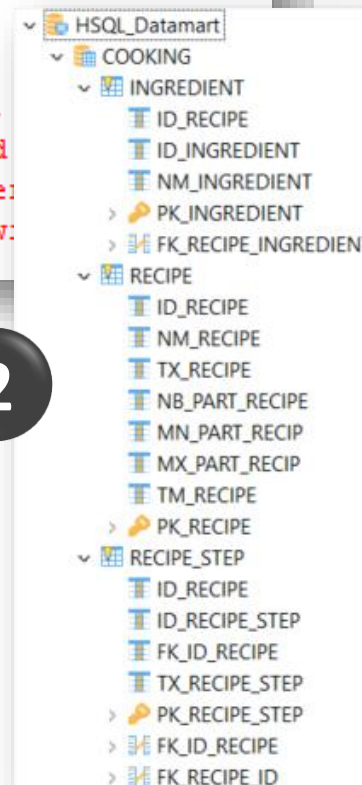
1

- ❖ 1 - Execute the SQL file (Init Environment.sql) to create & load the required tables on a Datamart connection

Execute current SQL. Current SQL is the selected text or the complete file content if nothing is selected.

```

CREATE SCHEMA cooking;
CREATE TABLE cooking.recipe (
id_recipe      INTEGER NOT NULL,
nm_recipe      VARCHAR(100),
tx_recipe      VARCHAR(500),
mn_part_recip  INTEGER,
mx_part_recip  INTEGER,
tm_recipe      INTEGER,
CONSTRAINT pk_recipe PRIMARY KEY (id_recipe));
INSERT INTO cooking.recipe VALUES (1,'Almond milk','Without lactose,
INSERT INTO cooking.recipe VALUES (2,'Pancakes','Recipe that I found
INSERT INTO cooking.recipe VALUES (3,'Blackberries compote','Blackbe
INSERT INTO cooking.recipe VALUES (4,'Almond milk pancakes, topped w
    
```



2

- ❖ 2 - Reverse the schema and the tables

## ❖ 3 - Create the following parameters

(b) TXT\_WRITE\_APPEND [false]  
(s) currentLabelRecipe [Recipe]  
(i) currentLevel [1]  
(i) currentRecipeId [4]  
(i) currentRecipeStep [0]

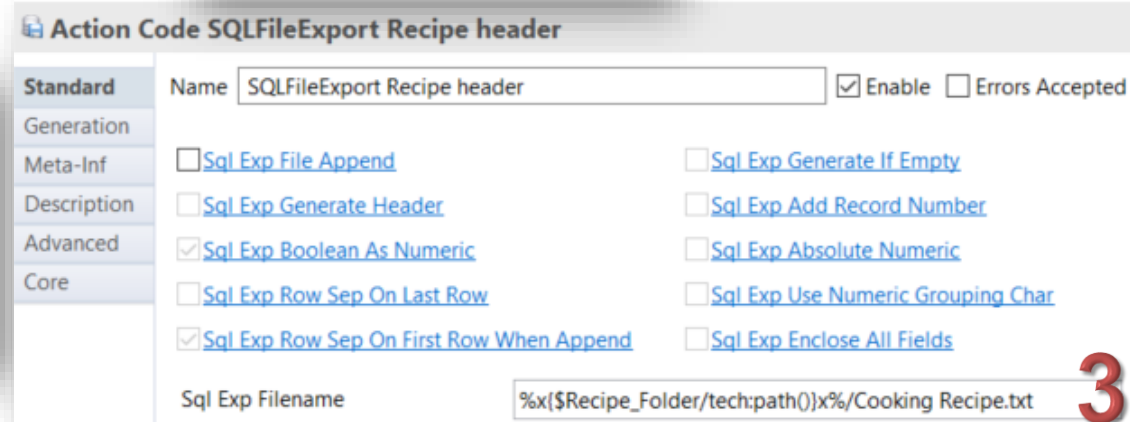
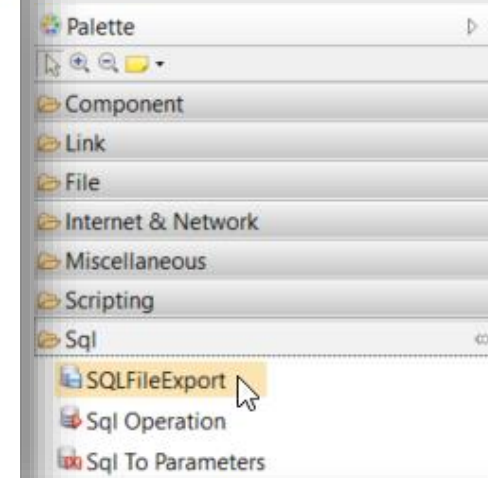
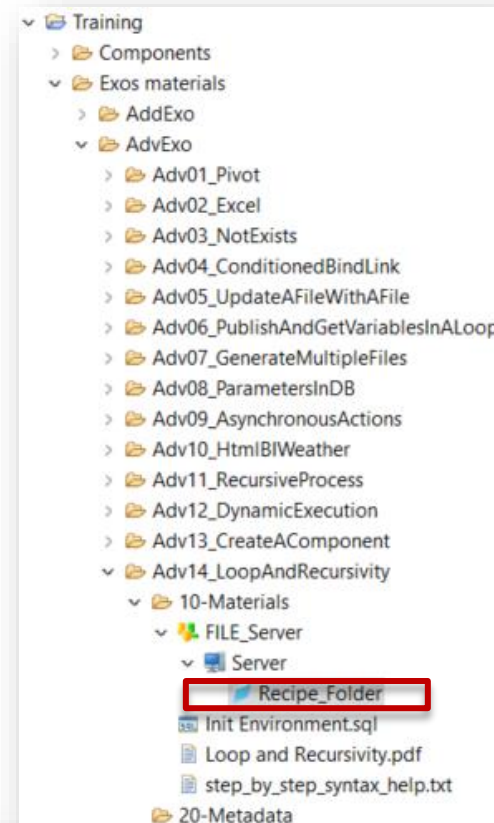
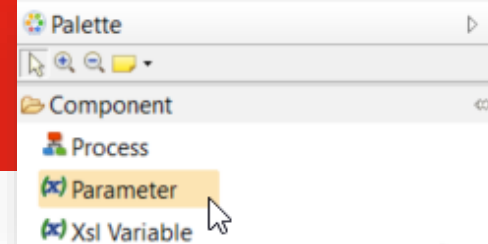
3

## ❖ 4 - Add a SQLFileExport action to generate the header of the recipe with a SELECT



4

```
1 SELECT SPACE(CAST(%e(rhino){ ${../currentLevel}$ - 1}e(rhino)% AS INTEG ^
2 SPACE(CAST(%e(rhino){ ${../currentLevel}$ - 1}e(rhino)% AS INTEG
3 SPACE(CAST(%e(rhino){ ${../currentLevel}$ - 1}e(rhino)% AS INTEG
4 ' - Duration (minutes) : '+TM_RECIPE+CHAR(13)+CHAR(10)+
5 SPACE(CAST(%e(rhino){ ${../currentLevel}$ - 1}e(rhino)% AS INTEG
6 SPACE(CAST(%e(rhino){ ${../currentLevel}$ - 1}e(rhino)% AS INTEG
7 SPACE(CAST(%e(rhino){ ${../currentLevel}$ - 1}e(rhino)% AS INTEG
8 FROM COOKING.RECIPE
9 WHERE RECIPE.ID_RECIPE=%e(rhino){ ${../currentRecipeId}$}e(rhino)%
```



3



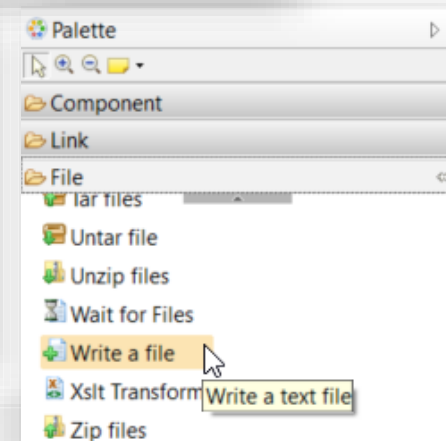
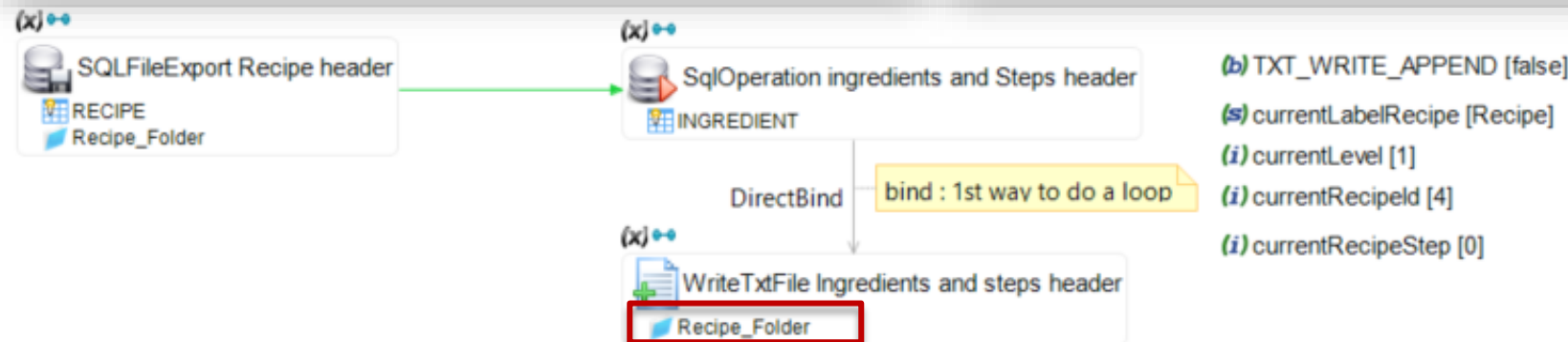
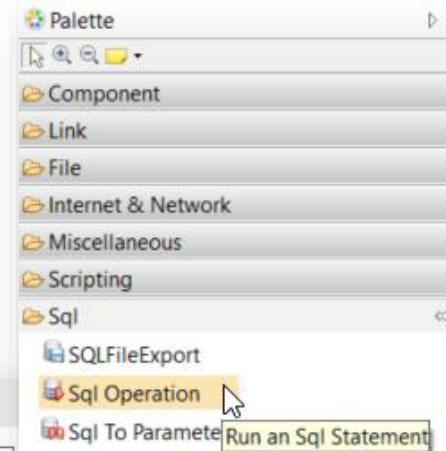
- ❖ 5 - Add a SQL Operation and a WriteTxtFile actions to write the ingredients and the step header linked with a “bind link” (1<sup>st</sup> way to do a loop)

```
1 SELECT TXT_TO_ADD
2 FROM (
3 SELECT ID_INGREDIENT, SPACE(CAST(%e(rhino)($../currentLevel)$ - 1)
4 FROM COOKING.INGREDIENT
5 WHERE INGREDIENT.ID_RECIPE=%e(rhino)($../currentRecipeId)$)e(rhino)
6 UNION ALL
7 SELECT 998, SPACE(CAST(%e(rhino)($../currentLevel)$ - 1)e(rhino)%
8 UNION ALL
9 SELECT 999, SPACE(CAST(%e(rhino)($../currentLevel)$ - 1)e(rhino)%
10 ORDER BY ID_INGREDIENT
```

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## Action Code SqlOperation ingredients and Steps header

Standard	Name	SqlOperation ingredients and Steps header
Generation		
Meta-Inf	<input type="checkbox"/> Sql Multi Queries	<input type="checkbox"/> Sql Wait Data
Description		
Advanced	Sql Connection	
Core	Sql Action Type	SELECT



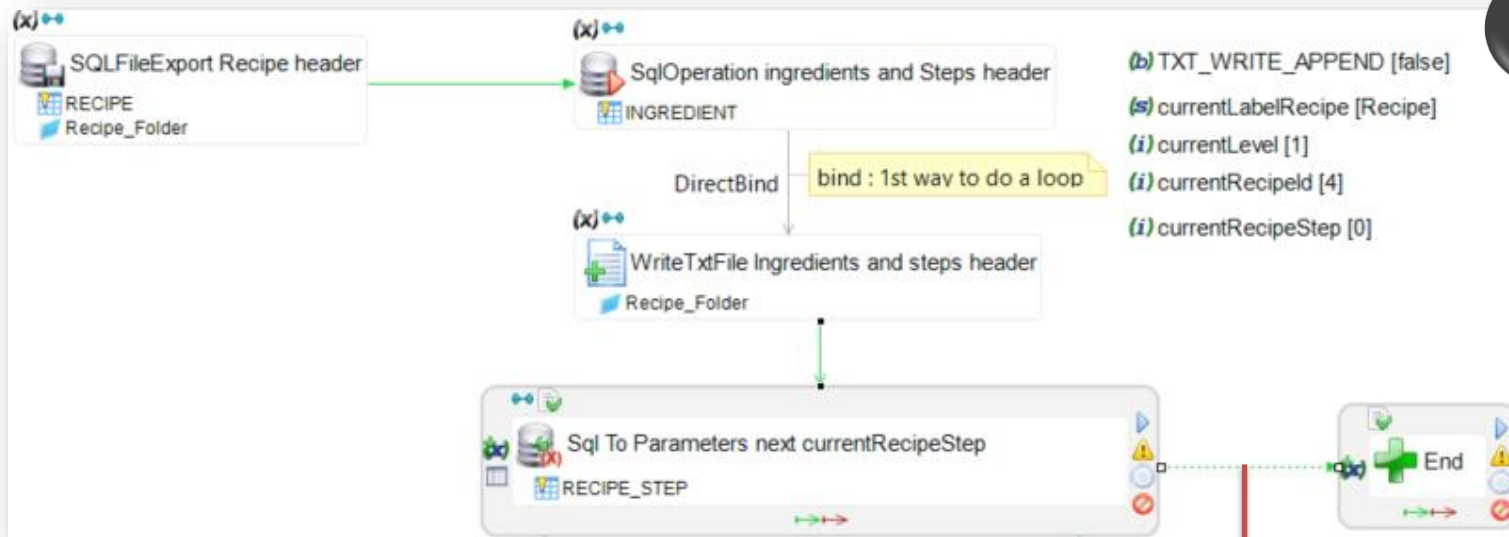
```
1 : {TXT_TO_ADD} :
```

## Action Code WriteTxtFile Ingredients and steps header

Standard	Name	WriteTxtFile Ingredients and steps header
Generation		
Meta-Inf	<input checked="" type="checkbox"/> Txt Write Append Line Separator	
Description		
Advanced	Txt Write Filename	%x(\$Recipe_Folder/tech:path())x%/Cooking Recipe.txt
Core	Txt Write Append	after

## ❖ 6 - Add a Sql To Parameters and an Empty Actions

- The links (one for the moment) arriving on “Sql To Parameters” action must be “Not mandatory”
- There is an execution condition to end the process

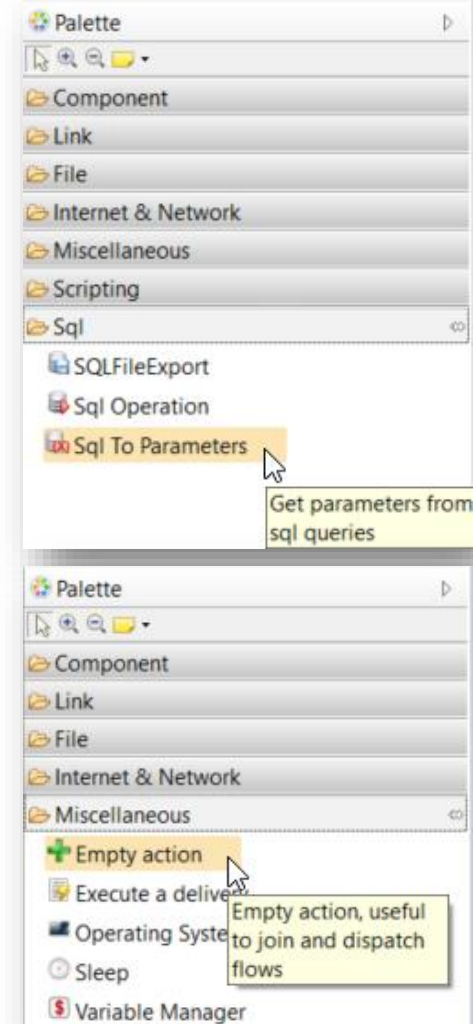


6

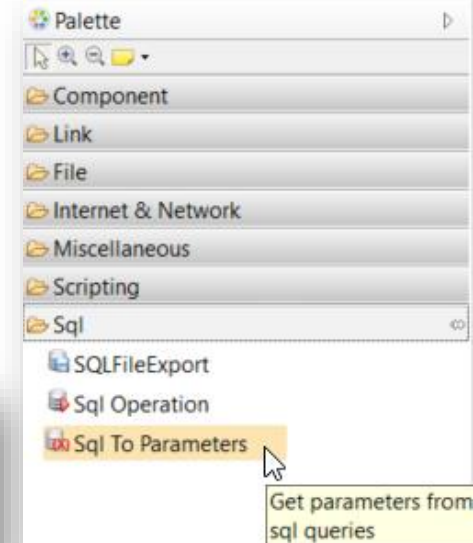
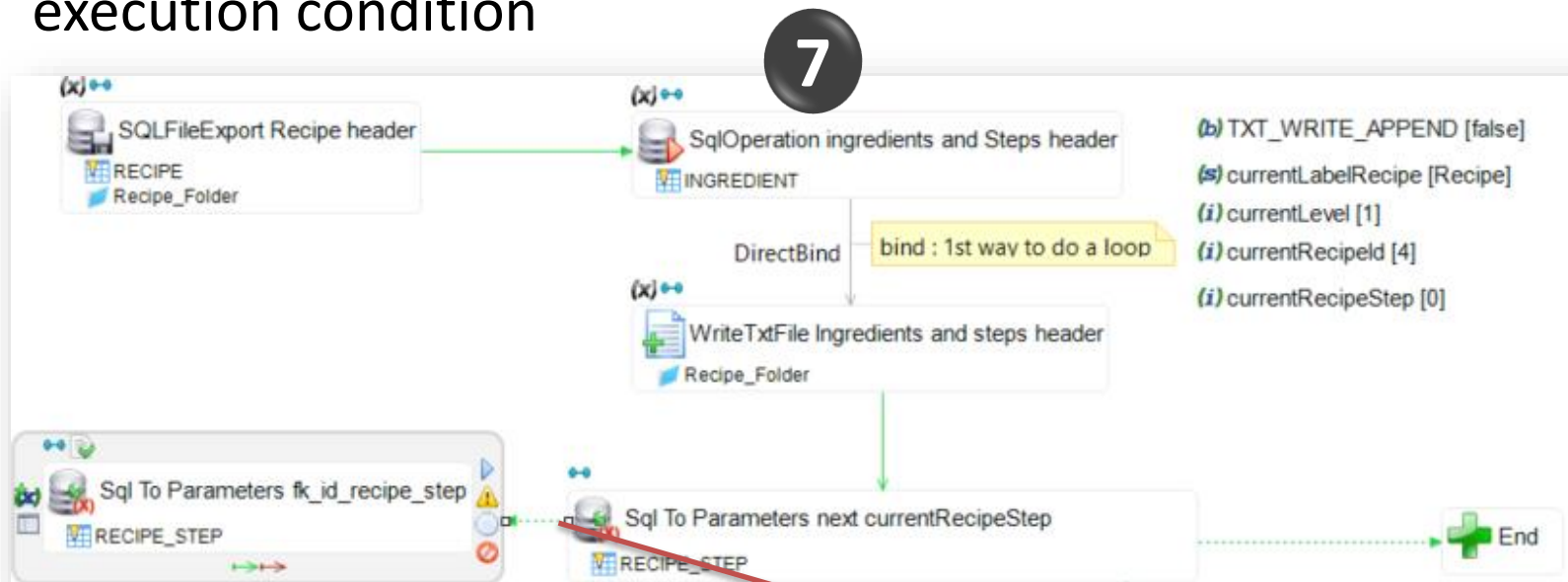
```

1 <sqlToParameters>
2 <parameter name="/currentRecipeStep" type="Integer">
3 SELECT COALESCE(MIN(ID_RECIPE_STEP),0)
4 FROM COOKING.RECIPE_STEP
5 WHERE ID_RECIPE_STEP > %(rhino) ${~/currentRecipeStep}$ %(rhino)
6 AND ID_RECIPE = %(rhino) ${~/currentRecipeId}$ %(rhino)
7 </parameter>
8 </sqlToParameters>
    
```

Execution	Execution
Generation	Execution Type Successful
Meta-Inf	Triggering Behavior Mandatory
Description	Condition
Core	<code>\$/currentRecipeStep\$ == 0</code>



- ❖ 7 - Add a Sql To Parameters action to catch the recipe id of a potential sub recipe
  - The link arriving on “Sql To Parameters” action contains an execution condition



Expression Editor

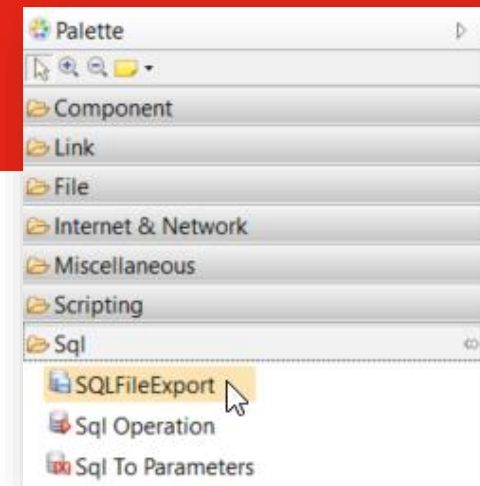
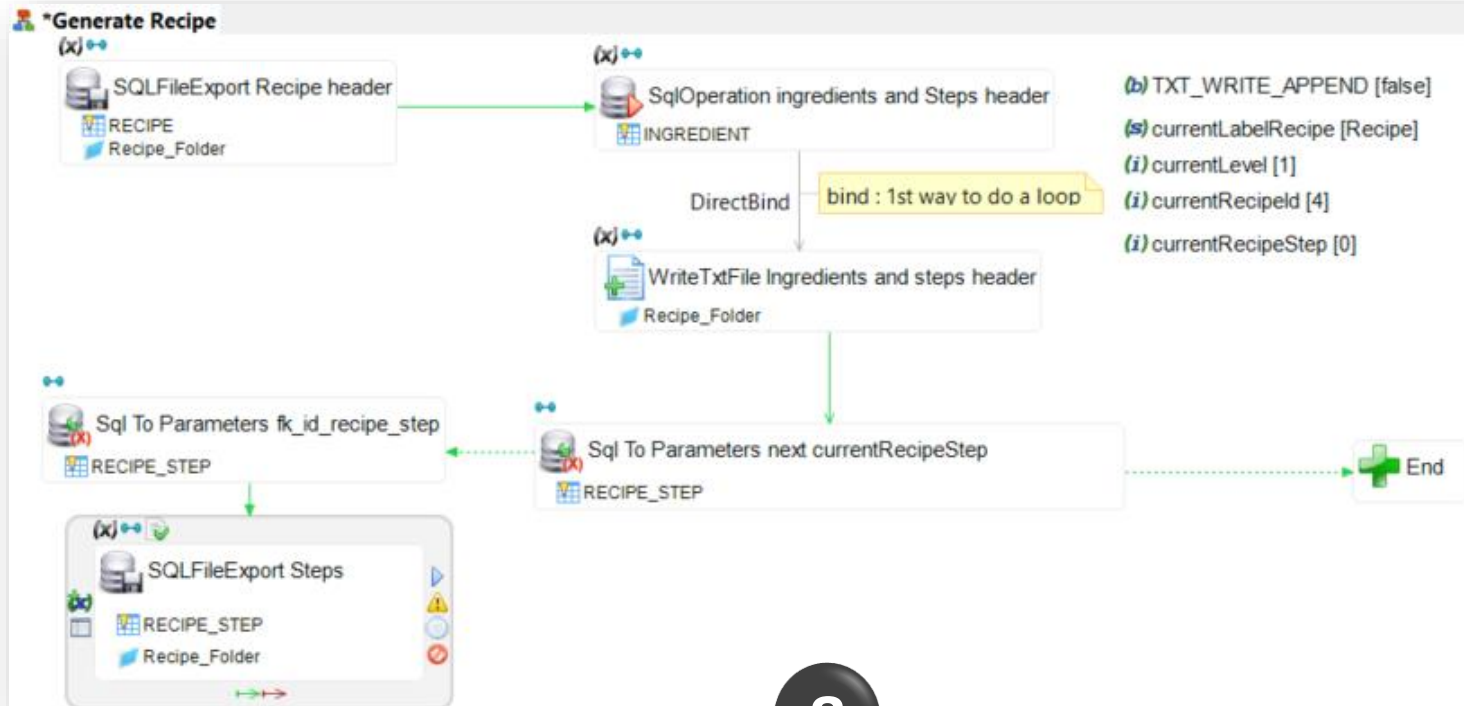
```

1 <sqlToParameters>
2 <parameter name="/fk_id_recipe_step" type="Integer">
3 SELECT COALESCE(FK_ID_RECIPES,0) FK_ID_RECIPES
4 FROM COOKING.RECIPES
5 WHERE ID_RECIPES=%e(rhino)${../currentRecipeId}$e(rhino)%
6 AND ID_RECIPES_STEP=%e(rhino)${../currentRecipeStep}$e(rhino)%
7 </parameter>
8 </sqlToParameters>
    
```

Execution	Execution
Generation	Execution Type <span>Successful</span>
Meta-Inf	Triggering Behavior <span>Mandatory</span>
Description	Condition
Core	<span><code>\$(~/currentRecipeStep)\$ != 0</code></span>



## ❖ 8 - Add a SQLFileExport action to found the text of the current step



8

Sessions Session Detail Expression Editor

```

1 SELECT SPACE(CAST(%e(rhino){ ${../currentLevel}$ - 1}e(rhino)
2      '- Step '+ID_RECIPE_STEP+' : '+COALESCE(TX_RECIPE_STI
3 FROM   COOKING.RECIPE_STEP
4 WHERE  ID_RECIPE=%e(rhino){ ${../currentRecipeId}$}e(rhino)
5 AND    ID_RECIPE_STEP=%e(rhino){ ${../currentRecipeStep}$}e(r
    
```

**Action Code SQLFileExport Steps**

Standard Name:  ☒ Enable ☐ Errors Accepted

Generation

Meta-Inf

Description

Advanced

Core

☒ [Sql Exp File Append](#) ☐ [Sql Exp Generate If Empty](#)

☐ [Sql Exp Generate Header](#) ☐ [Sql Exp Add Record Number](#)

☒ [Sql Exp Boolean As Numeric](#) ☐ [Sql Exp Absolute Numeric](#)

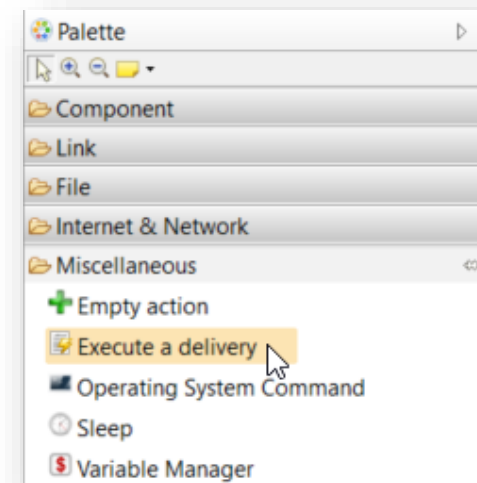
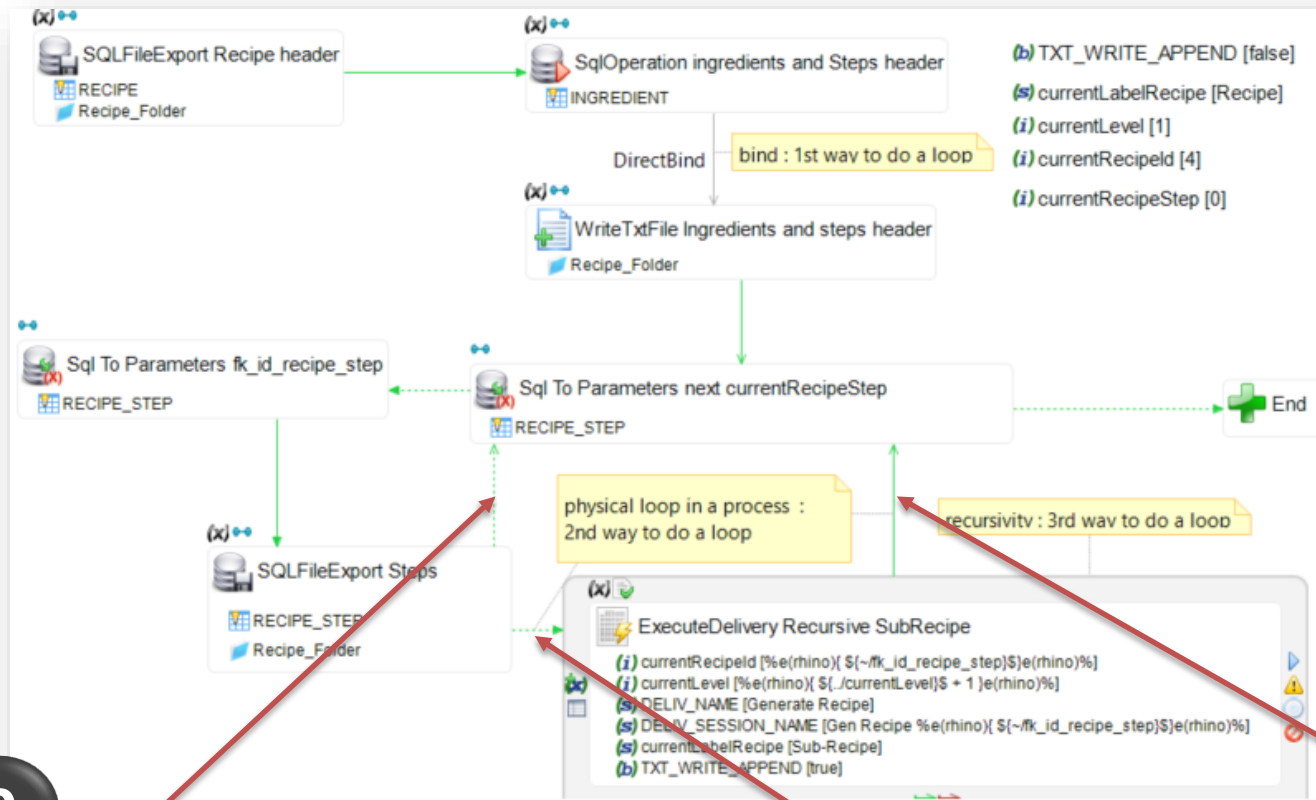
☐ [Sql Exp Row Sep On Last Row](#) ☐ [Sql Exp Use Numeric Grouping Char](#)

☒ [Sql Exp Row Sep On First Row When Append](#) ☐ [Sql Exp Enclose All Fields](#)

Sql Exp Filename:



- ❖ 9 - Add an ExecuteDelivery calling the same process to generate the recursivity
  - Execution conditions must be set to check if there is a sub recipe or not



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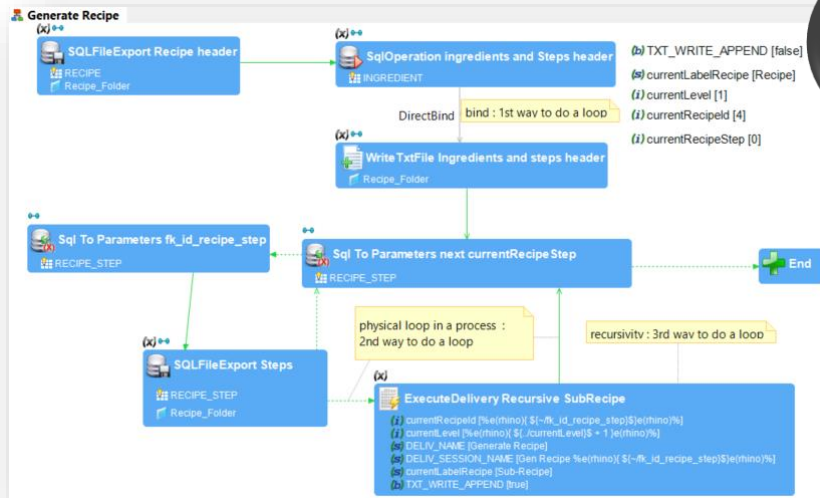
Execution	Execution
Generation	Execution Type Successful
Meta-Inf	Triggering Behavior Not Mandatory
Description	Condition
Core	<code>\${~/fk_id_recipe_step}\$ == 0</code>

Execution	Execution
Generation	Execution Type Successful
Meta-Inf	Triggering Behavior Mandatory
Description	Condition
Core	<code>\${~/fk_id_recipe_step}\$ != 0</code>

Execution	Execution
Generation	Execution Type Successful
Meta-Inf	Triggering Behavior Not Mandatory
Description	Condition
Core	

## 10 – Execute the recursive process

10



Start Time	Name
2020/07/09 10:33:51.332	Generate Recipe
2020/07/09 10:33:58.022	Gen Recipe 3
2020/07/09 10:33:52.579	Gen Recipe 2
2020/07/09 10:33:53.473	Gen Recipe 1.0

- Training
  - Components
  - Exos materials
  - Files\_In
  - Files\_Out
    - ActivityGenerator
    - AsynchronousAction
    - Bind
    - ComplexQuery
    - GenerateAlert
    - HierarchicalFiles
    - html
    - Json
    - Loop
    - Mail
    - MultiGenFiles
    - MultipleFilesGen
    - OS\_Command
    - Pivot\_Best\_Worst
  - Recipe
    - Cooking Recipe.txt

Cooking Recipe.txt

```
Recipe Almond milk pancakes, topped with blackberries compote
=====
Parts number : 6/6 - Duration (minutes) : 5
Pancakes recipe with almonds milk, yogurt and blackberries compote
Ingredients
-----
- Some vanilla yogurts
Steps
-----
- Step 1 : Sub recipe
  Sub-Recipe Pancakes
  =====
  Parts number : 2/4 - Duration (minutes) : 70
  Recipe that I found in my Grandma's recipe book
  Ingredients
  -----
  - 1 1/4 cup flour
  - 1 tablespoon sugar
  - 1 teaspoon baking powder
  - 2 eggs
  - 1 tablespoon vegetable oil
  Steps
  -----
  - Step 1 : Sub recipe
    Sub-Recipe Almond milk
    =====
    Parts number : 6/6 - Duration (minutes) : 720
    Without lactose, the almond milk is smooth and full of protein
    Ingredients
    -----
    - 250 g of almonds
```