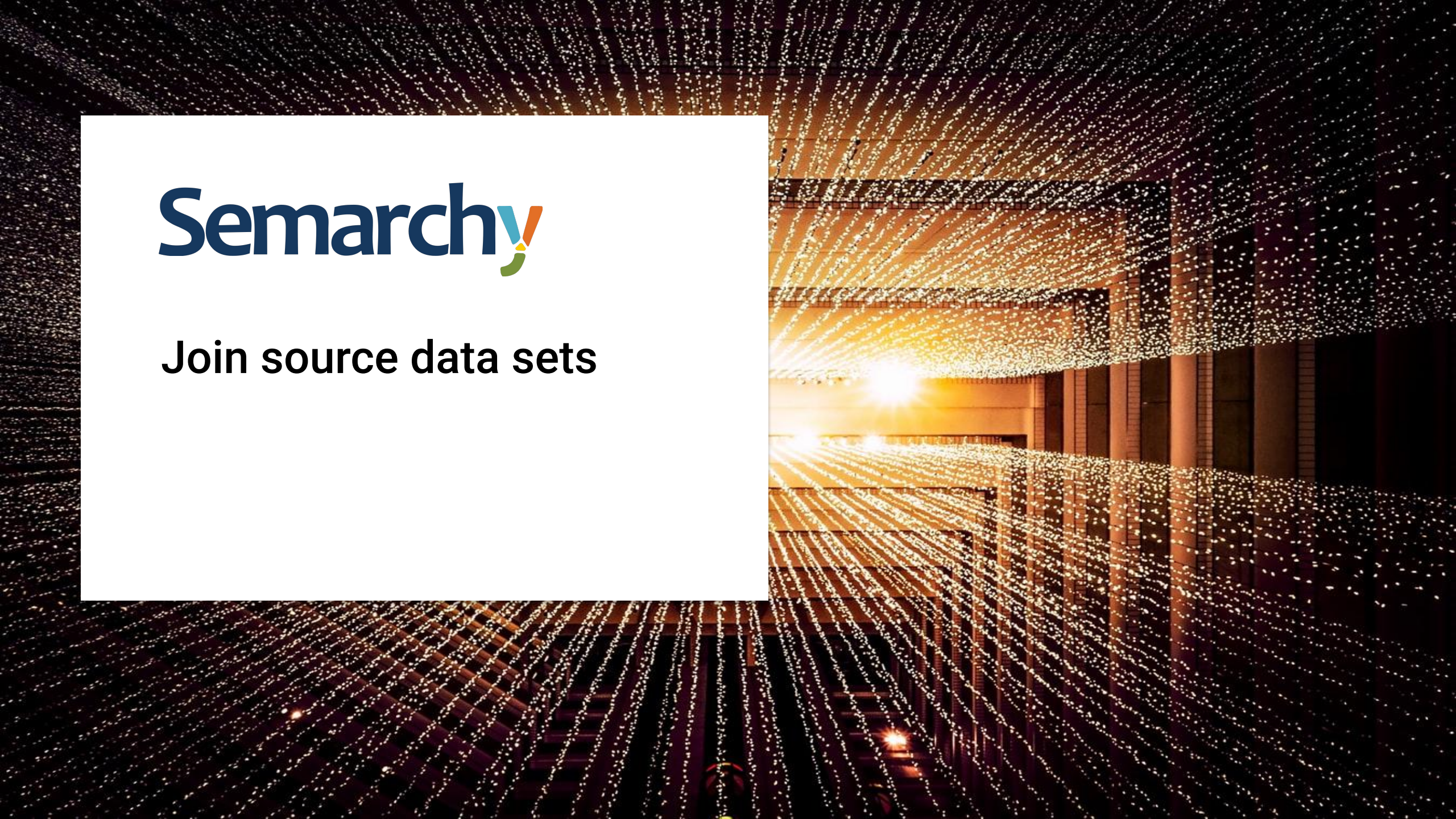

Semarchy
xDI DEV
C
Delving Mapping

xDI DEV

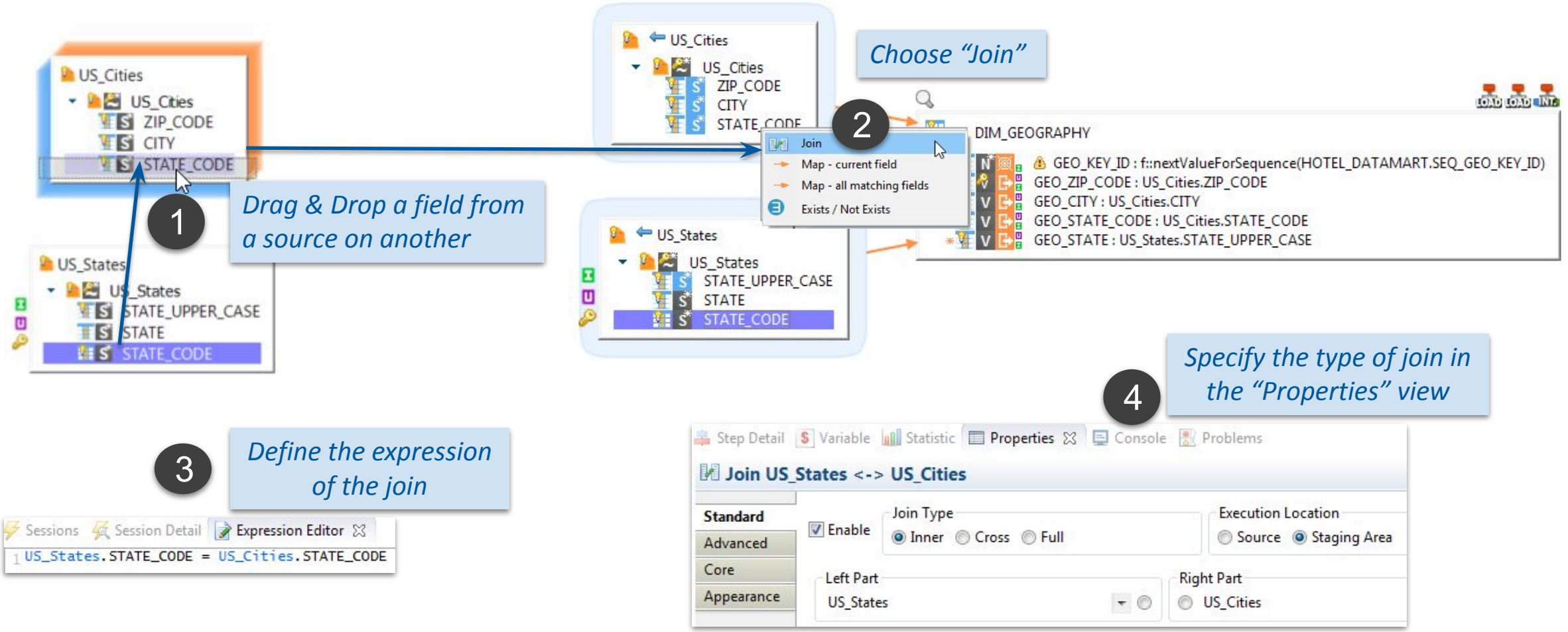
C Delving Mapping

C1 - Go deeper in the Mappings

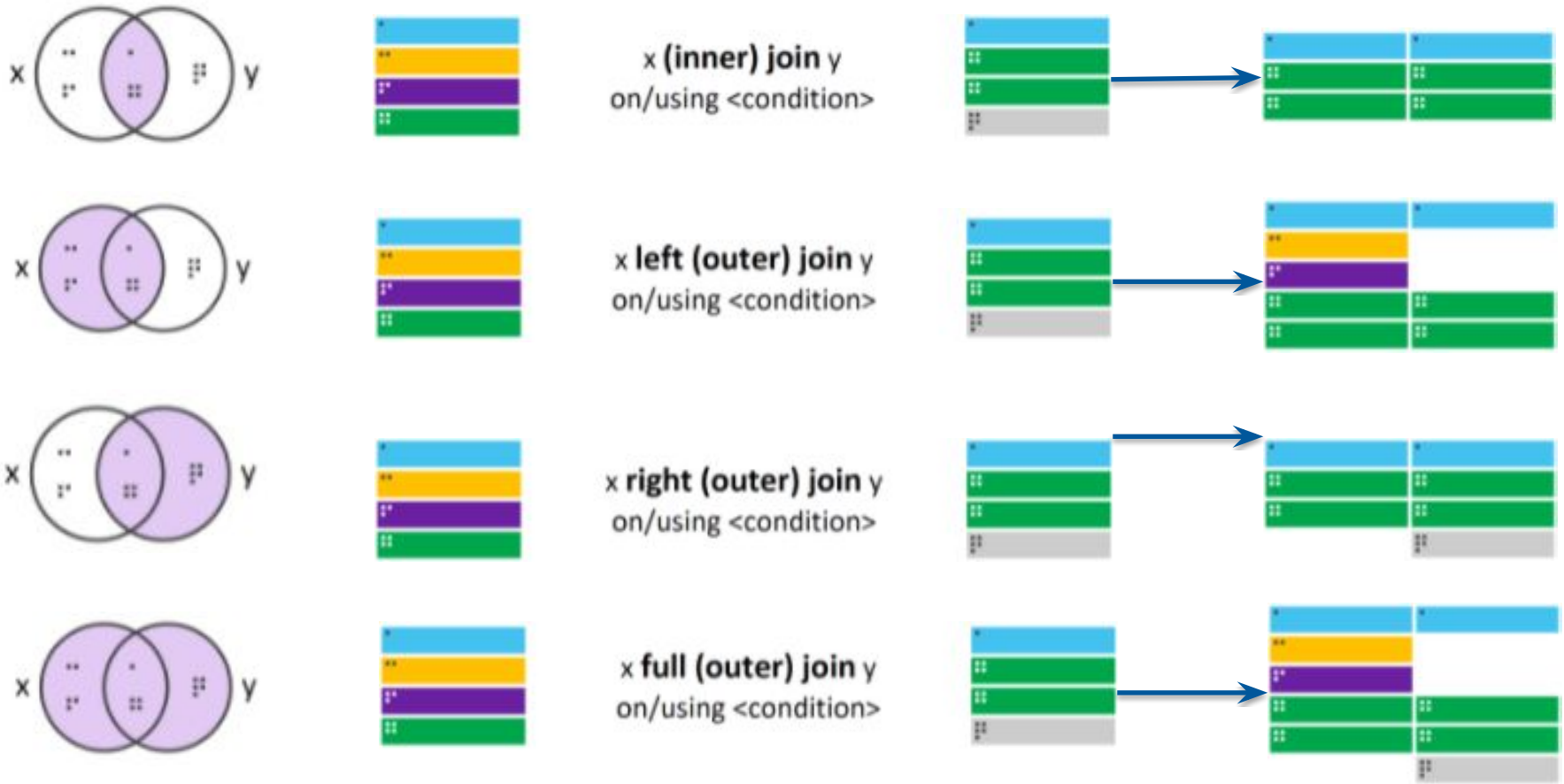


Join source data sets

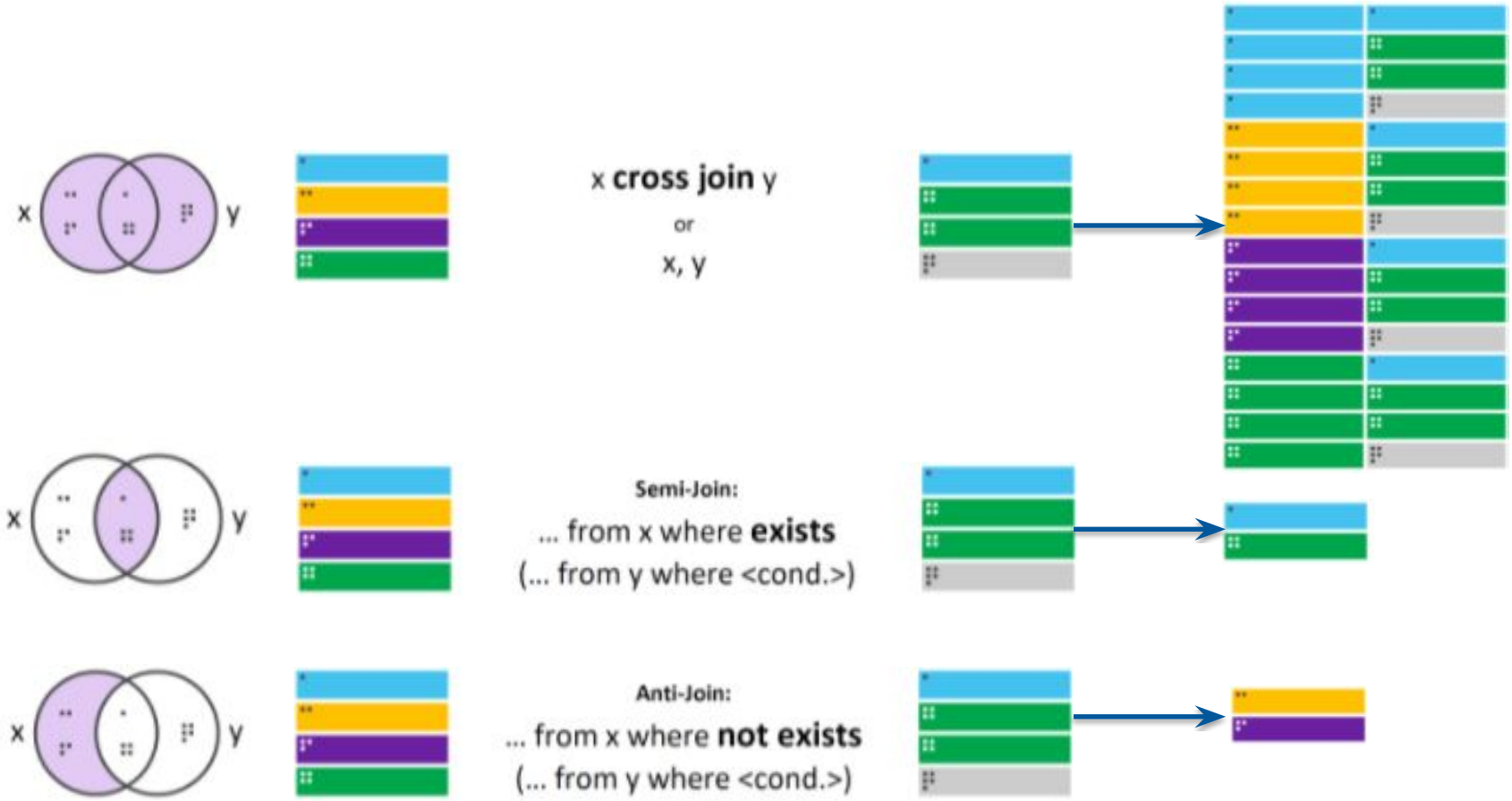
Defining joins



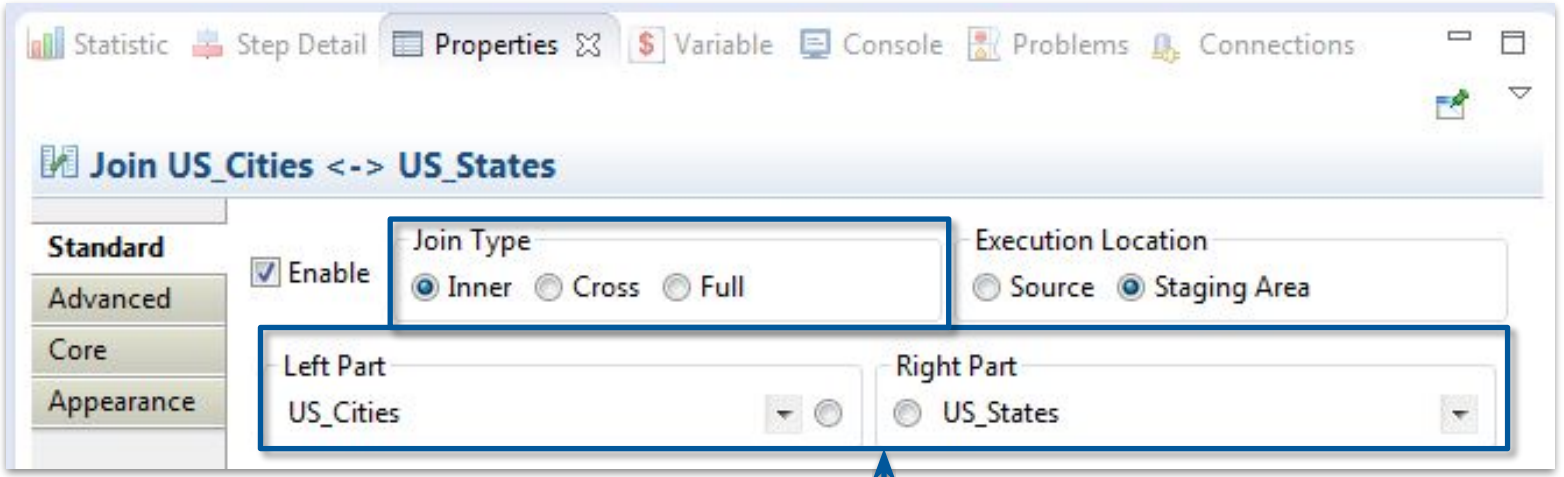
Join types



Join types



Join properties

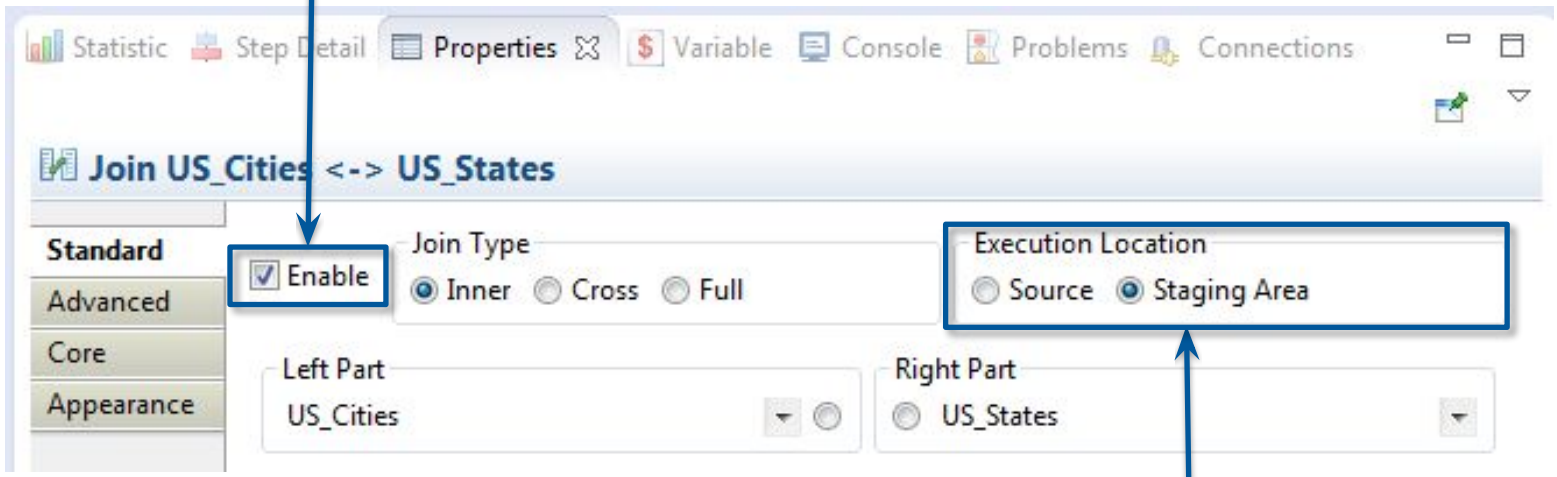


Join type

- **Inner :** Inner join between the tables
- **Cross :** Cross join (the expression won't be used)
- **Full :** Full outer join between the tables
- **Left / Right Part :** Click on the radio button to choose the right or left part

Join properties

Enable / disable the expression



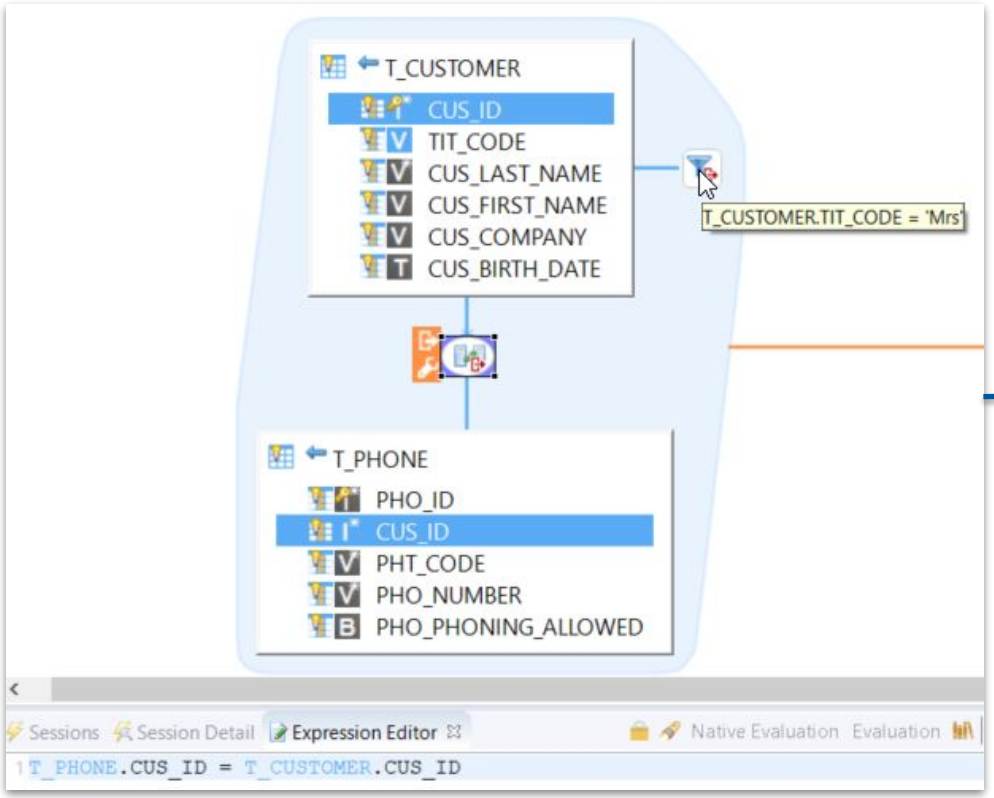
Location of the execution

- **Source :** Expression executed during the select on the source
- **Staging Area :** Expression executed during the select in the staging area

Outer Join and restrictions

If a restriction must be added on a source table with an “Outer Join”

- on the side of the master table (T_CUSTOMER in the sample): no particular issue



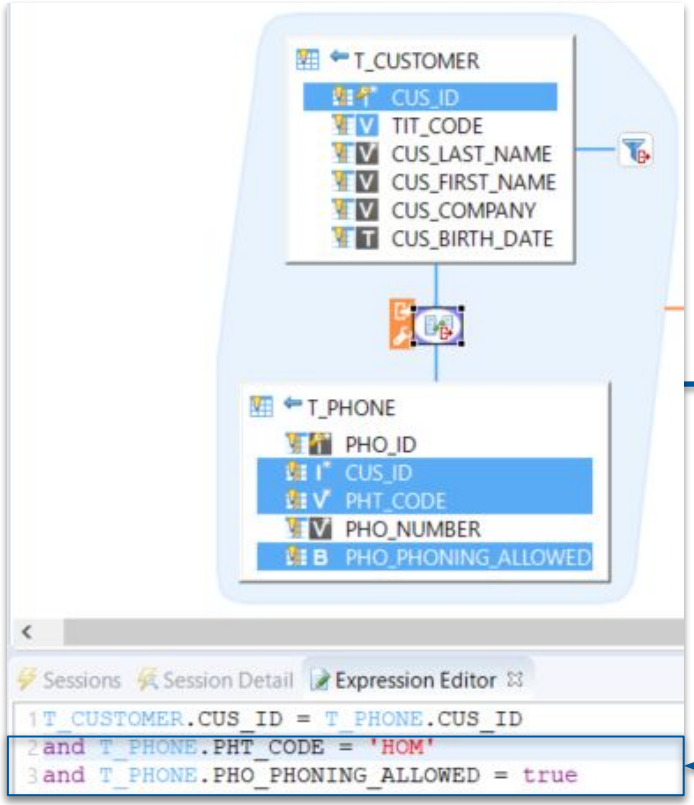

```
SELECT T_CUSTOMER.CUS_ID,CUS_LAST_NAME,CUS_FIRST_NAME,
       PHT_CODE,PHO_NUMBER,PHO_PHONING_ALLOWED
FROM   HOTEL_MANAGEMENT.T_CUSTOMER
       LEFT OUTER JOIN HOTEL_MANAGEMENT.T_PHONE
       ON T_CUSTOMER.CUS_ID = T_PHONE.CUS_ID
WHERE  T_CUSTOMER.TIT_CODE='Mrs'
```

CUS_ID	CUS_LAST_NAME	CUS_FIRST_NAME	PHT_CODE	PHO_NUMBER	PHO_PHONING_ALLOWED
56	FORBES	Karen	<null>	<null>	<null>
68	PEREZ	Miranda	<null>	<null>	<null>
74	HILL	Lindsey	<null>	<null>	<null>
9	JOHNSTON	Joanna	<null>	<null>	<null>
34	GALLAGHER	Mandy	OFF	(213)943-7544	TRUE
34	GALLAGHER	Mandy	HOM	(213)076-1097	TRUE
39	BORDLY	Emily	HOM	(509)218-7167	TRUE
39	BORDLY	Emily	OFF	(509)218-4780	TRUE
42	MALONE	Amy	HOM	(254)937-7660	TRUE
46	ESTUDIANTES	Carmen	HOM	(719)949-4488	TRUE
51	DAVIDS	Sally	HOM	(614)455-2222	TRUE
59	PERRY	Brenda	HOM	(212)420-5447	FALSE
59	PERRY	Brenda	OFF	(212)423-0202	TRUE
59	PERRY	Brenda	GSM	(917)420-0874	FALSE
63	LEE	Alison	<null>	<null>	<null>
83	DIAZ	Nick	HOM	(410)984-6371	TRUE
92	SHAW	Marlena	HOM	(212)927-7769	TRUE
92	SHAW	Marlena	OFF	(212)927-0796	TRUE
93	PALMER	Cody	HOM	(702)946-6667	TRUE
97	ARNOLD	Hannah	HOM	(254)590-5409	TRUE
97	ARNOLD	Hannah	HOM	(254)590-5451	TRUE
97	ARNOLD	Hannah	OFF	(254)590-3888	TRUE

Outer Join and restrictions

If a restriction must be added on a source table with an “Outer Join”

- not on the side of the master table (master table is T_CUSTOMER in the sample), set the restriction in the join clause instead of in the filter



CUS_ID	CUS_LAST_NAME	CUS_FIRST_NAME	PHT_CODE	PHO_NUMBER	PHO_PHONING_ALLOWED
56	FORBES	Karen	<null>	<null>	<null>
68	PEREZ	Miranda	<null>	<null>	<null>
74	HILL	Lindsey	<null>	<null>	<null>
9	JOHNSTON	Joanna	<null>	<null>	<null>
34	GALLAGHER	Mandy	HOM	(213)076-1097	TRUE
39	BORDLY	Emily	HOM	(509)218-7167	TRUE
42	MALONE	Amy	HOM	(254)937-7660	TRUE
46	ESTUDIANTES	Carmen	HOM	(719)949-4488	TRUE
51	DAVIDS	Sally	HOM	(614)455-2222	TRUE
59	PERRY	Brenda	<null>	<null>	<null>
63	LEE	Alison	<null>	<null>	<null>
83	DIAZ	Nick	HOM	(410)984-6371	TRUE
92	SHAW	Marlena	HOM	(212)927-7769	TRUE
93	PALMER	Cody	HOM	(702)946-6667	TRUE
97	ARNOLD	Hannah	HOM	(254)590-5409	TRUE
97	ARNOLD	Hannah	HOM	(254)590-5451	TRUE

These rows will not be returned if the restrictions are set in the filter (generated in the WHERE clause) instead of in the join

Demo

Inner & Outer Joins

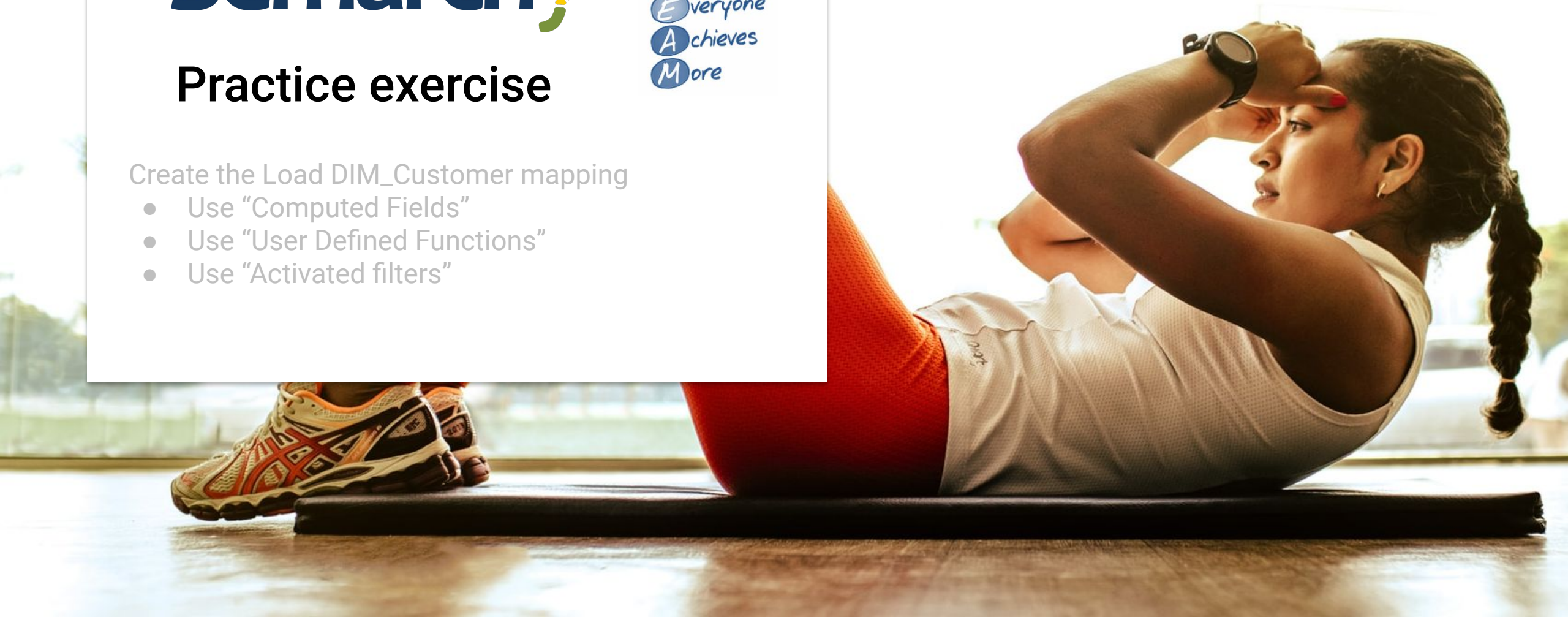
Semarchy

Together Everyone Achieves More

Practice exercise

Create the Load DIM_Customer mapping

- Use “Computed Fields”
- Use “User Defined Functions”
- Use “Activated filters”



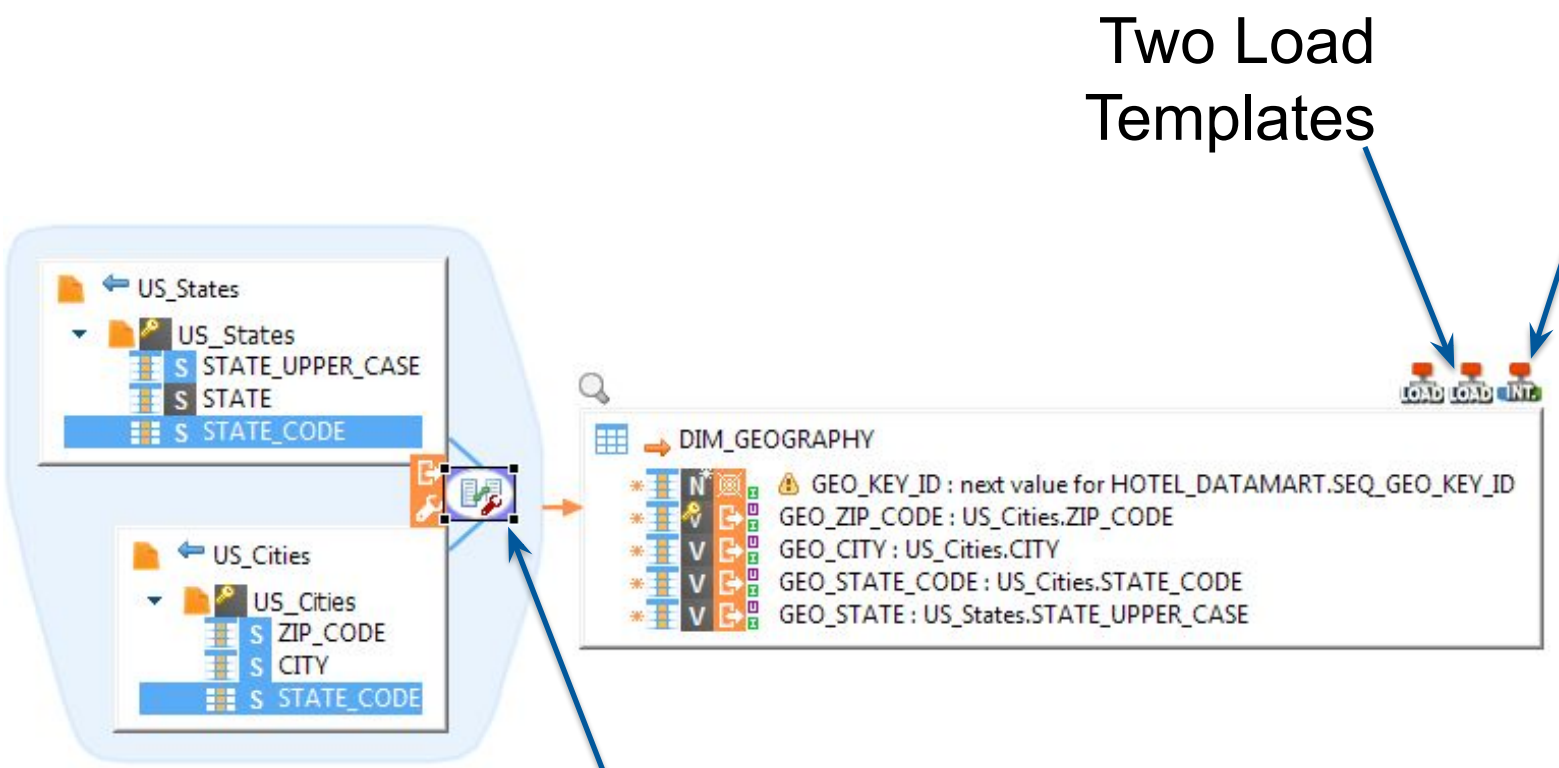
Semarchy

Related tutorial exercises

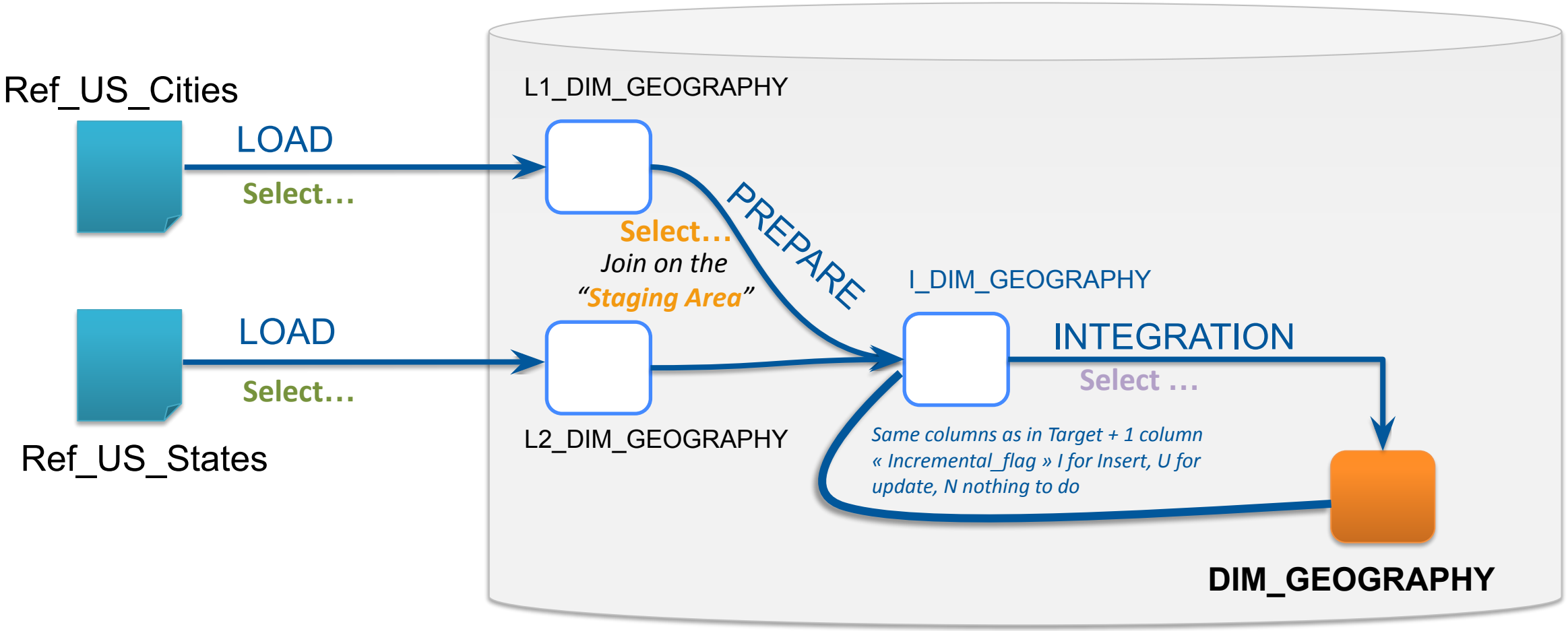
Creation a Mapping

- with joins
- with Outer joins

Analyzing the result on “Load DIM_GEOGRAPHY” mapping



Understanding the result

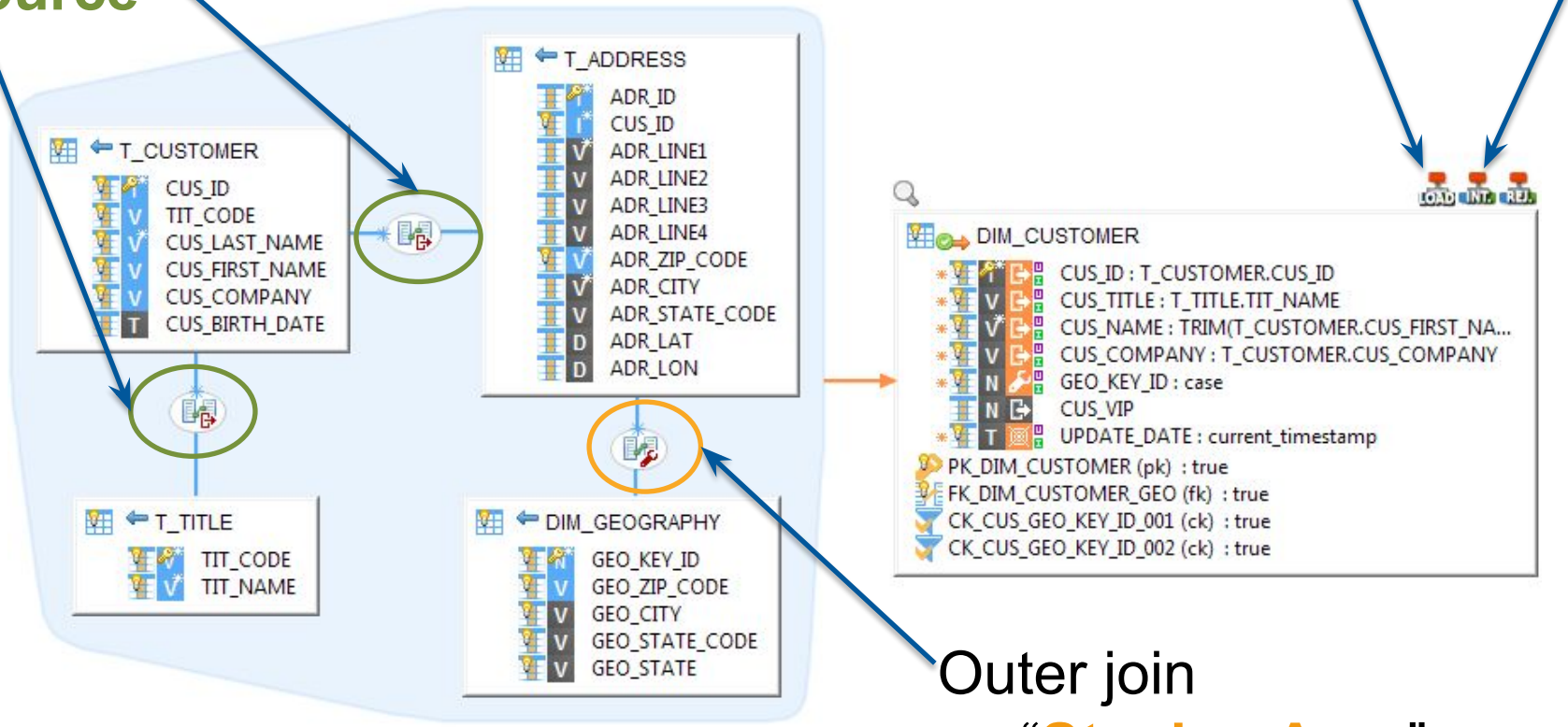


Analyzing the result : “Load DIM_CUSTOMER” mapping

Outer joins on “**Source**”

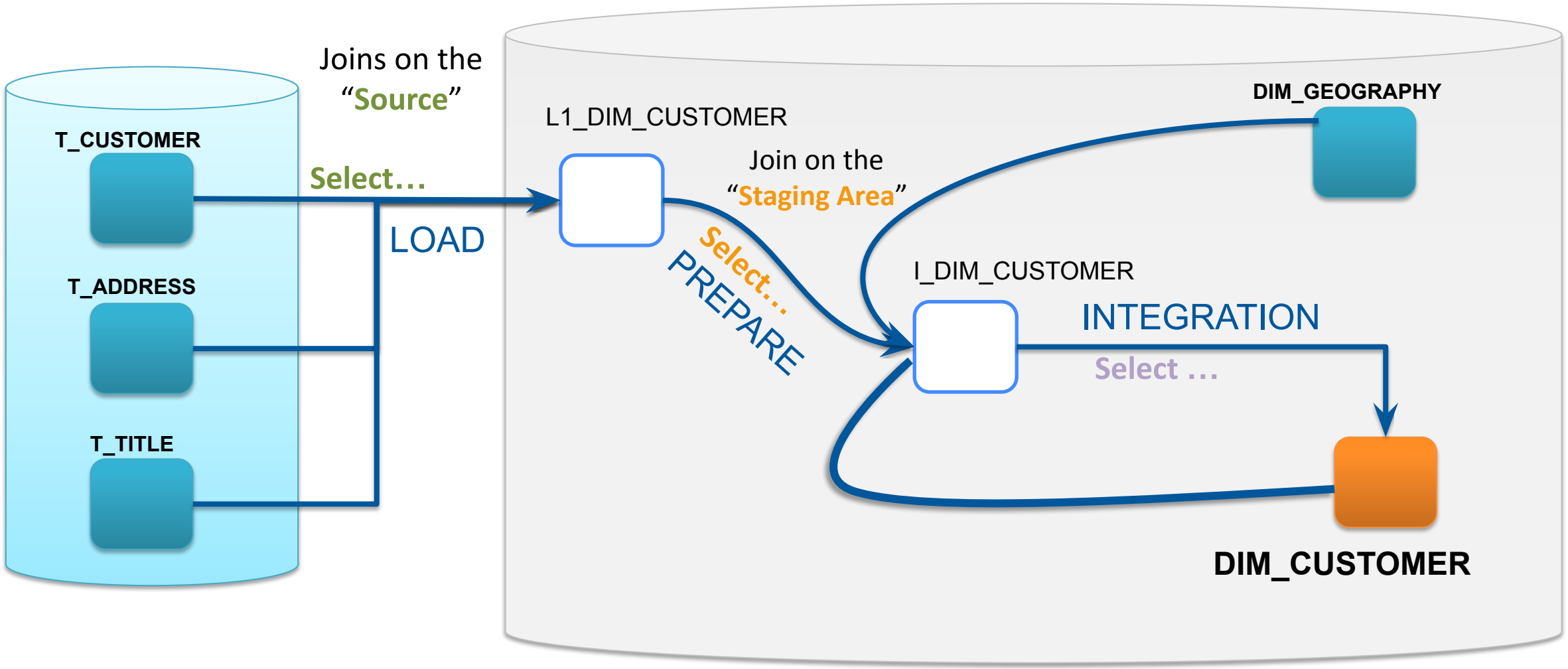
Load Template

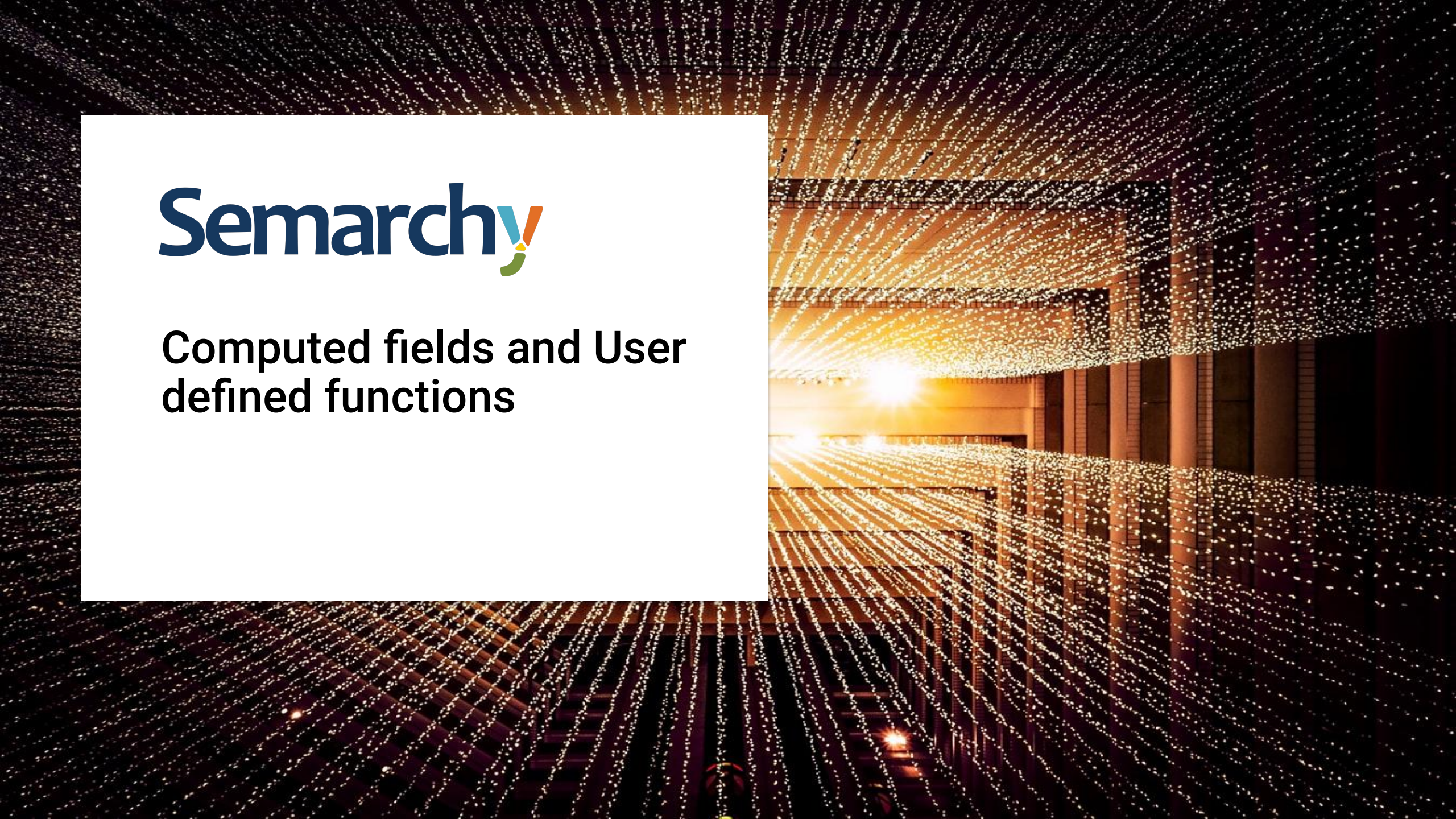
Integration Template



Outer join on “**Staging Area**”

Understanding the result

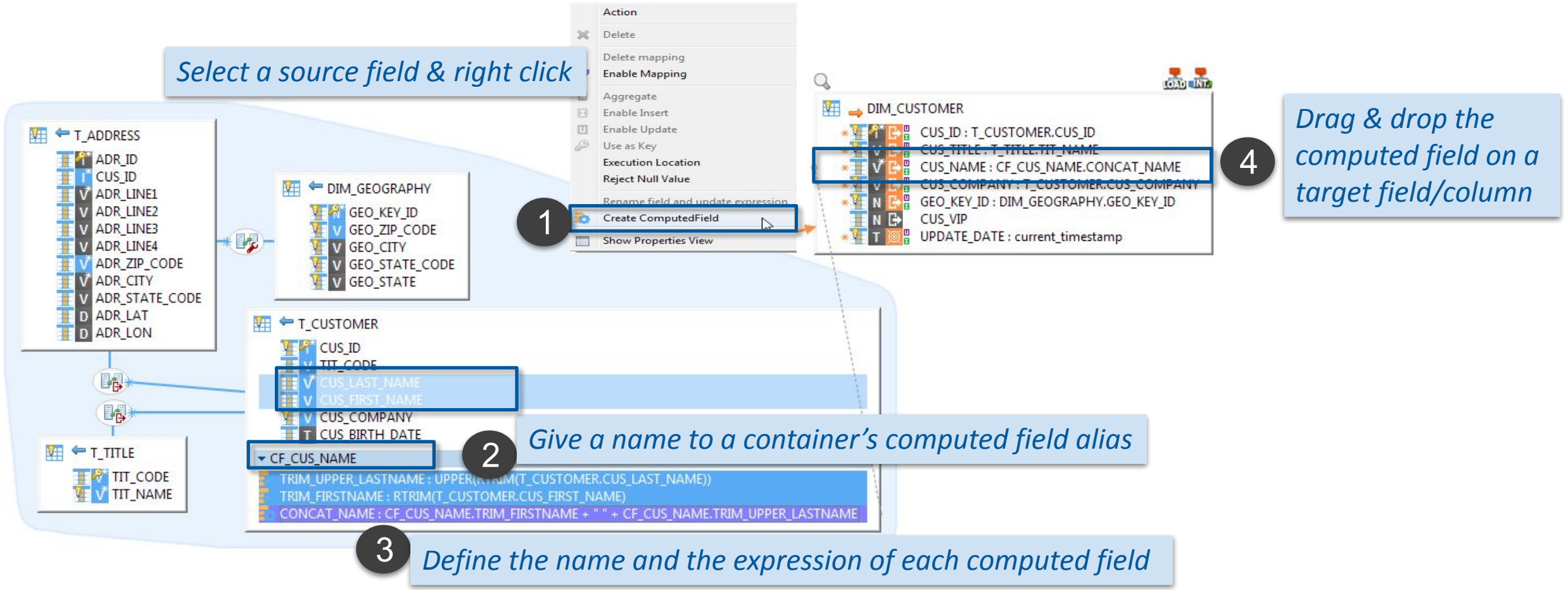




Computed fields and User defined functions

Computed fields in a mapping

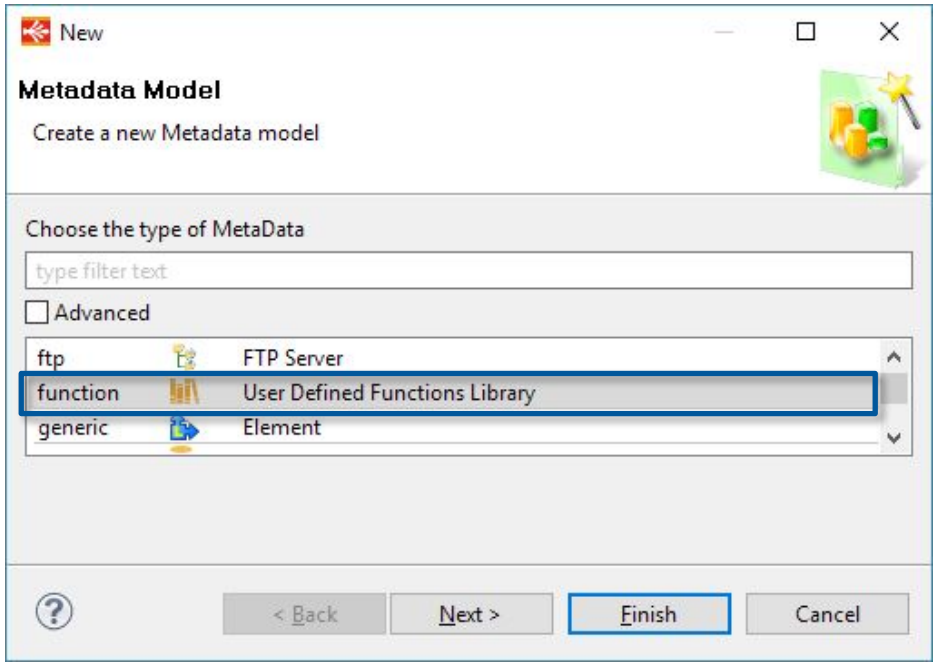
It is possible to add computed fields in the source of a mapping



User Defined Functions

Used to create functions libraries

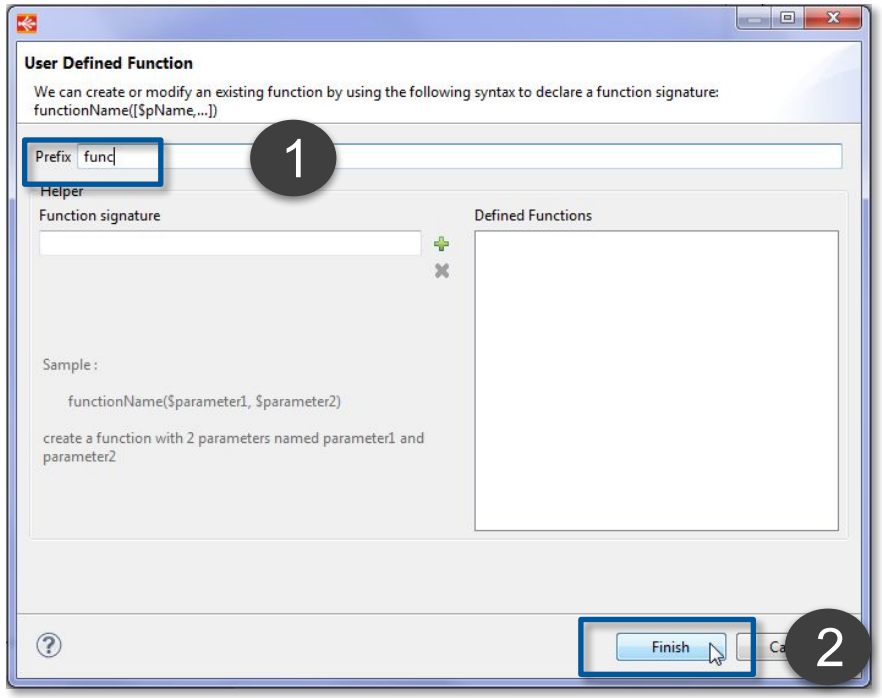
- Generated code can depend on the technology
- Can be used to define/centralize complex SQL expressions



C-Delving into mapping

User Defined Functions - Metadata

Define a prefix for the list of functions grouped in a given metadata

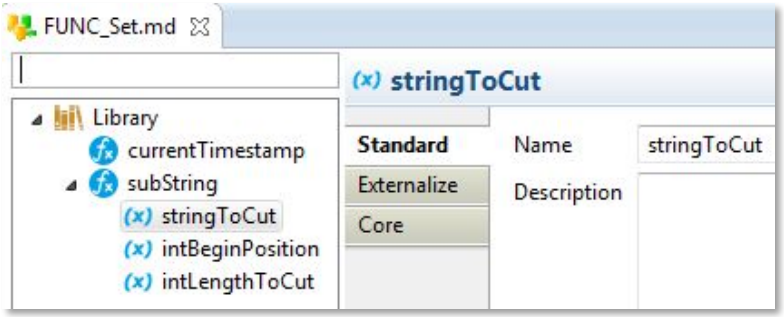



```
func::my_function(my_param1,my_param2)
```

User Defined Functions - Parameters

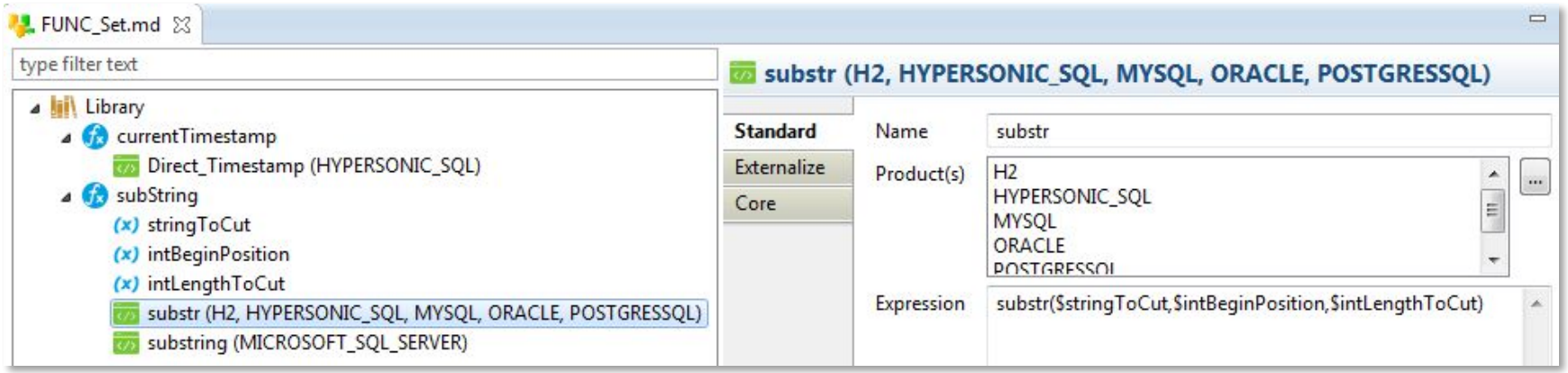
To add a function select ***New > Function*** on the root node. Give it a name and optionally a description

- *Then, create input and output parameters : right click on the function and select **New > Parameter***



User Defined Functions - Implementation

- Right click on the function and select
  - New > Implementation

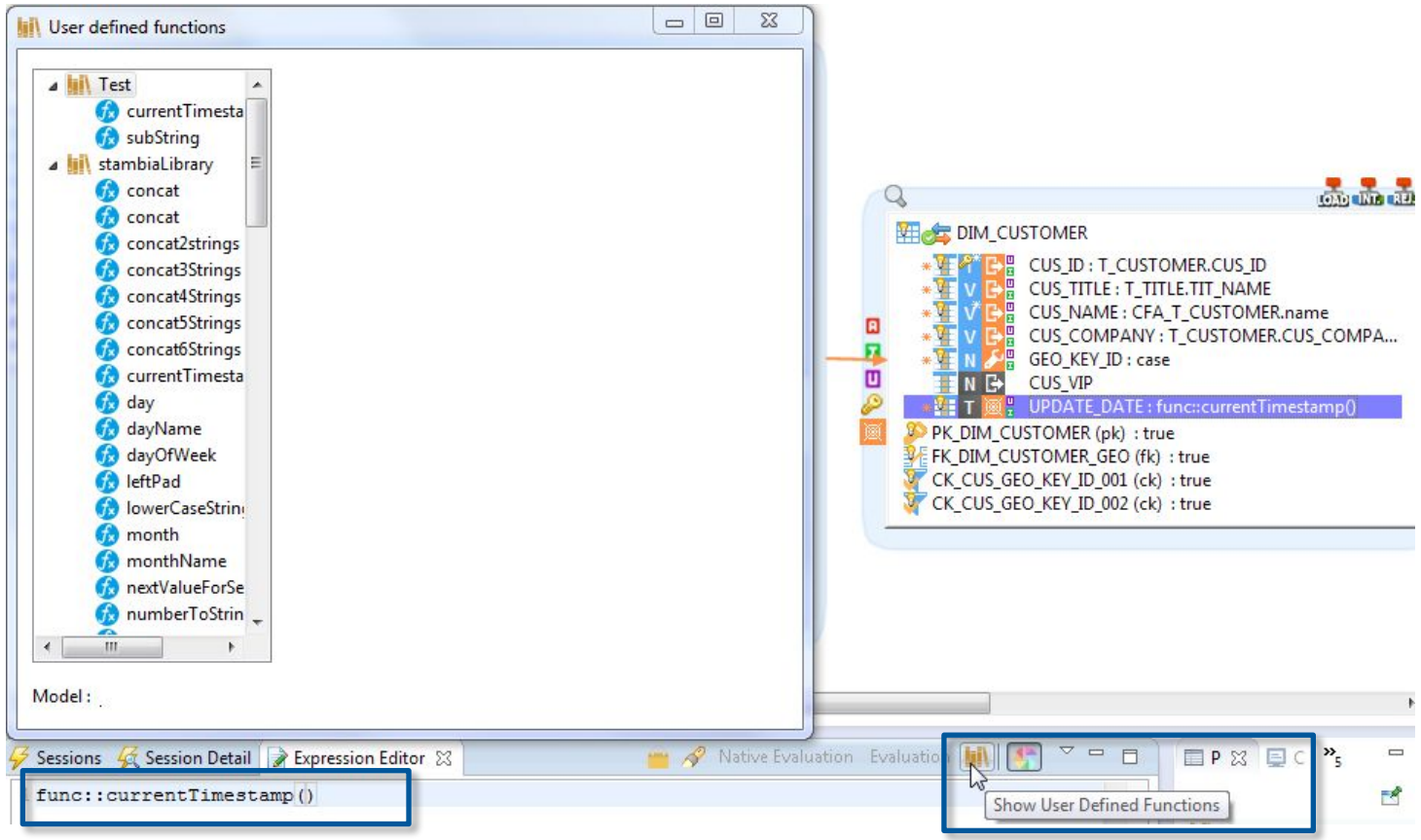


  - In the Product(s) box, you'll specify the technologies the implementation will be used for

When using the function in a Mapping, the right implementation will be automatically selected

User Defined Functions - Use

You can use auto completion (Ctrl – space) or open the UDF window as shown below.



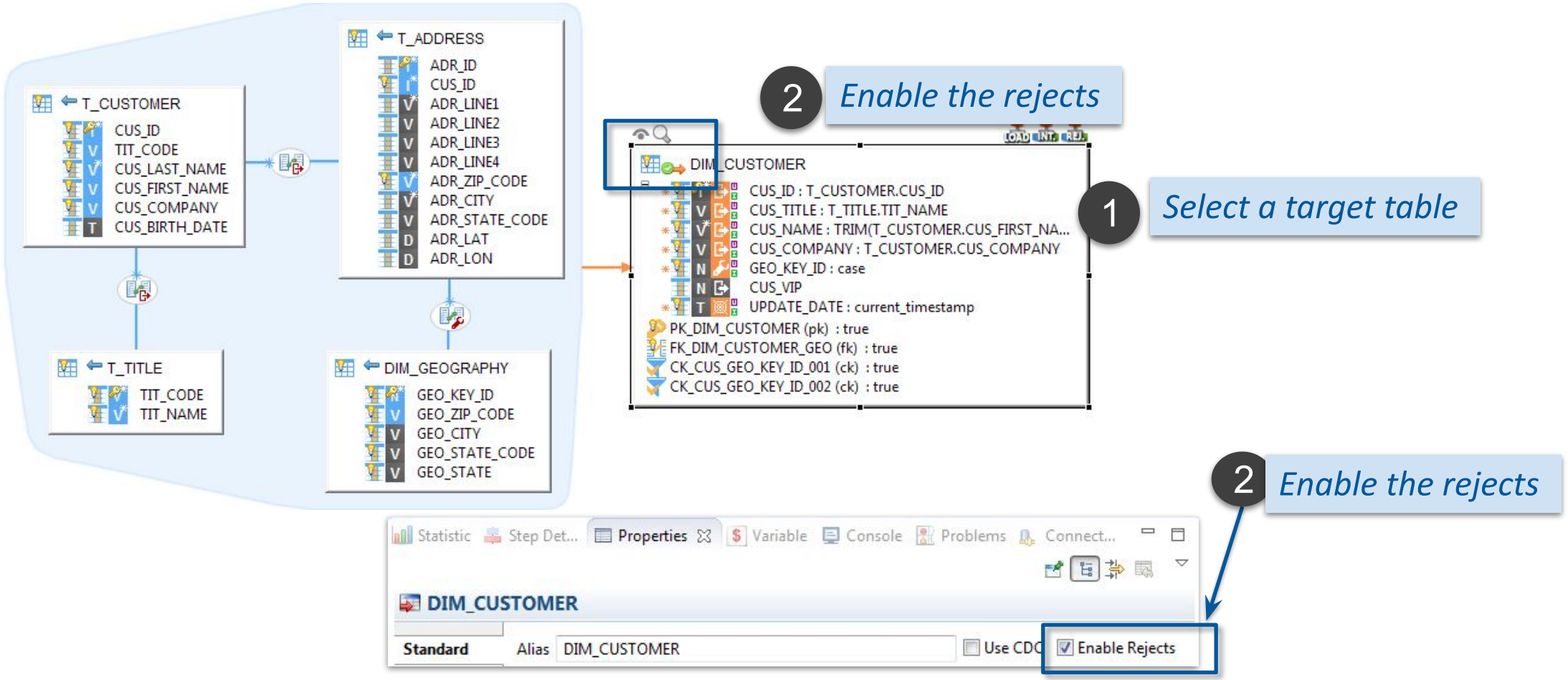
Semarchy

Reject management

https://www.youtube.com/watch?v=iJPSVGjDUpM&feature=youtu.be

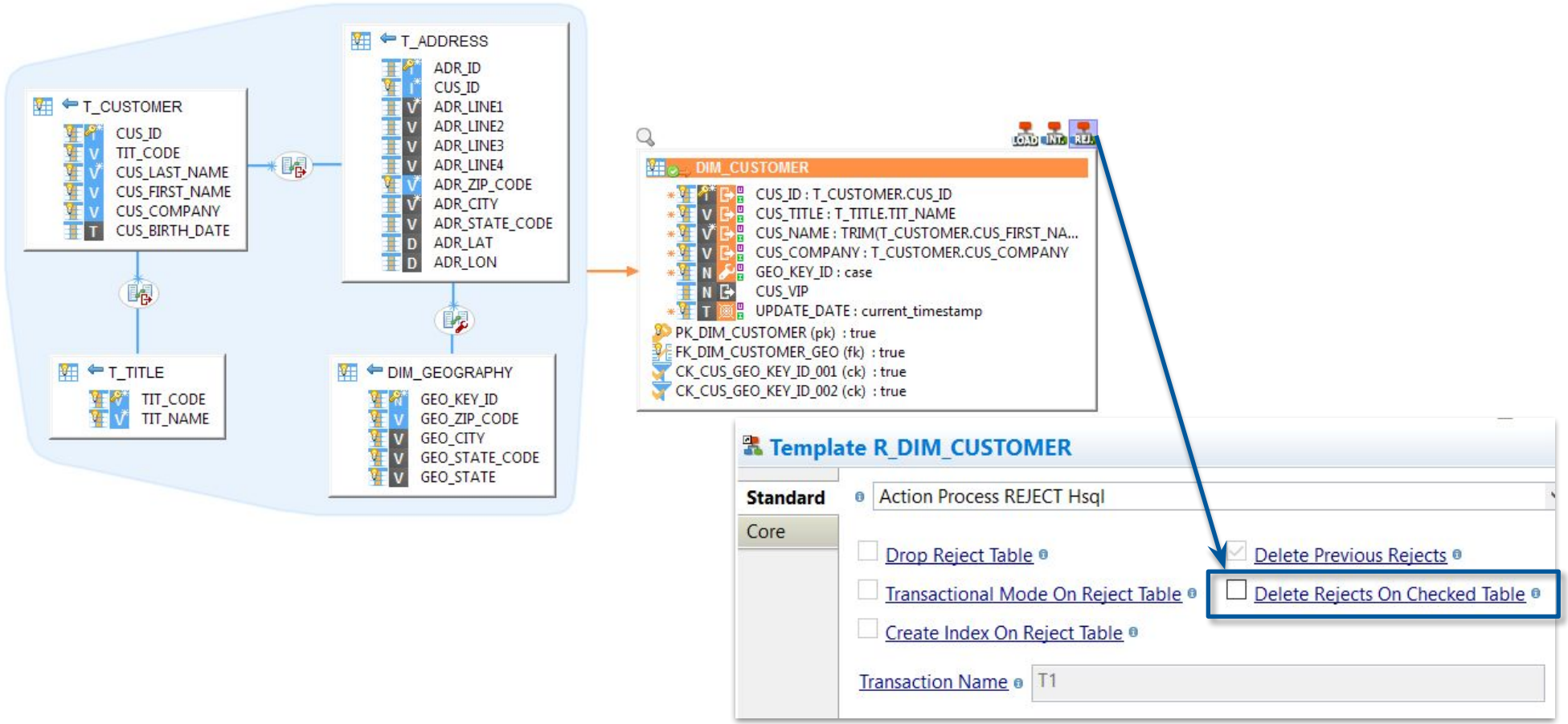
Managing the rejects

When designing the mappings, it is possible to activate the « Rejects Management »



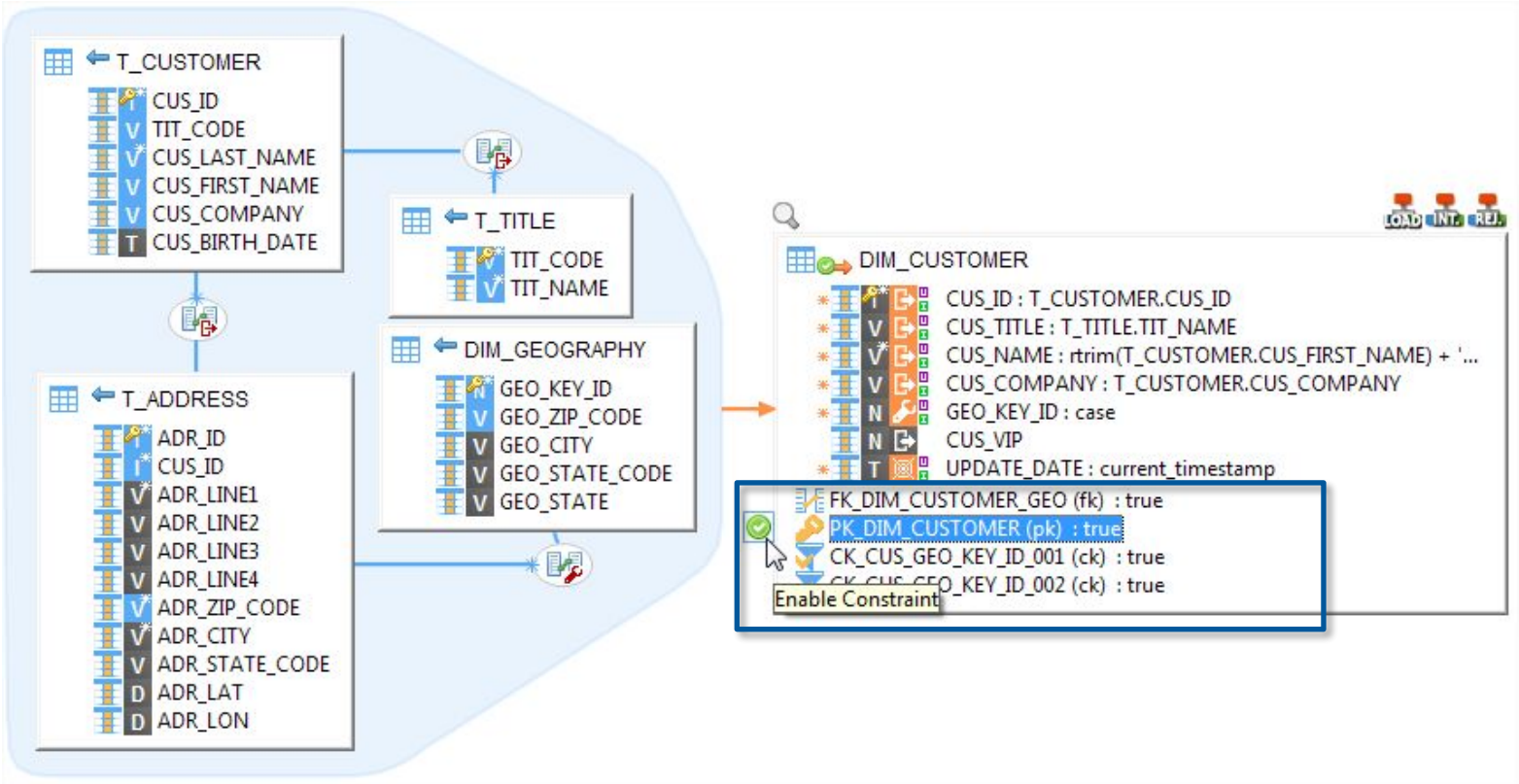
Managing the rejects

The mapping will use a Reject template to generate the appropriate SQL code



Managing the rejects

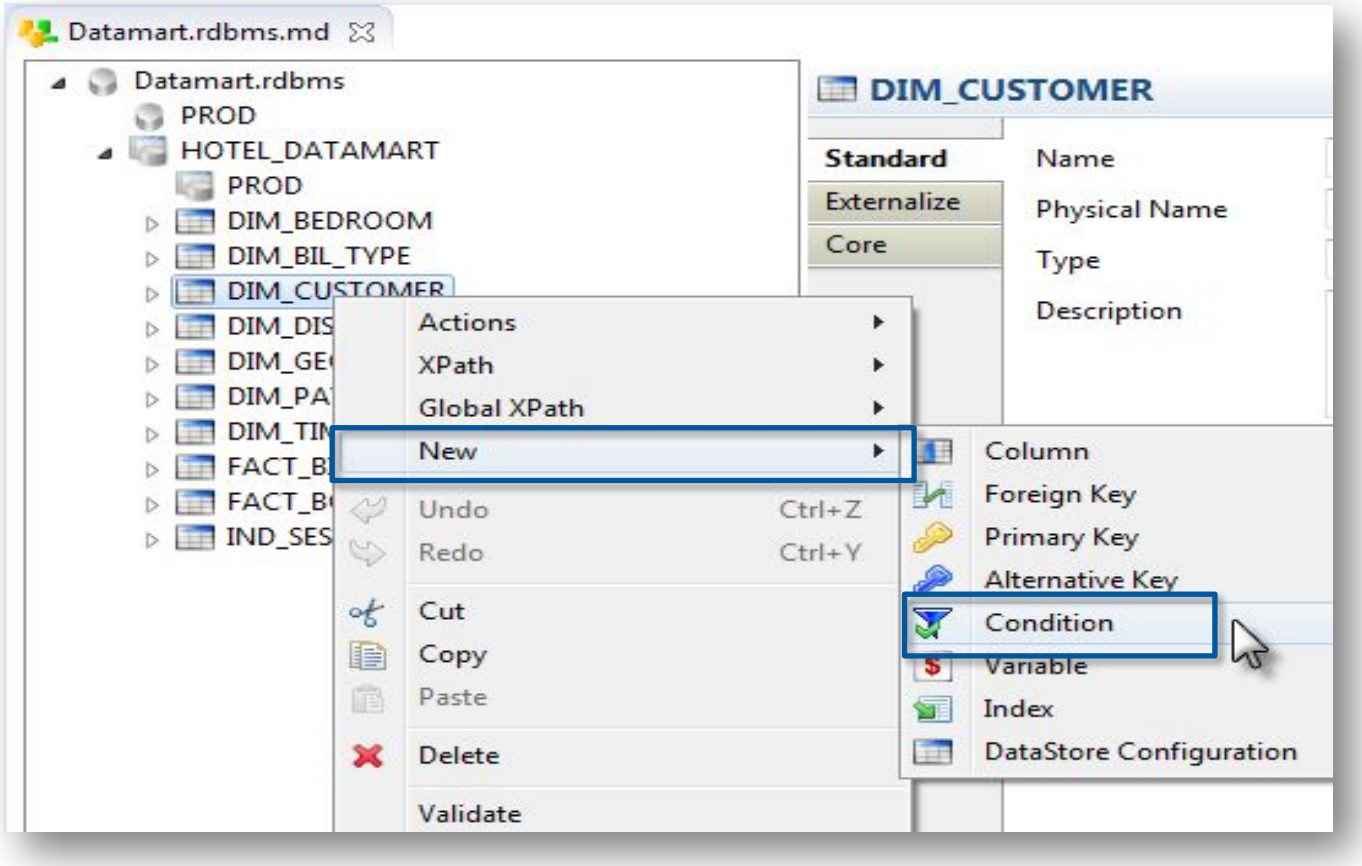
The mapping will check the data according to the rules activated on the target :



Adding constraints

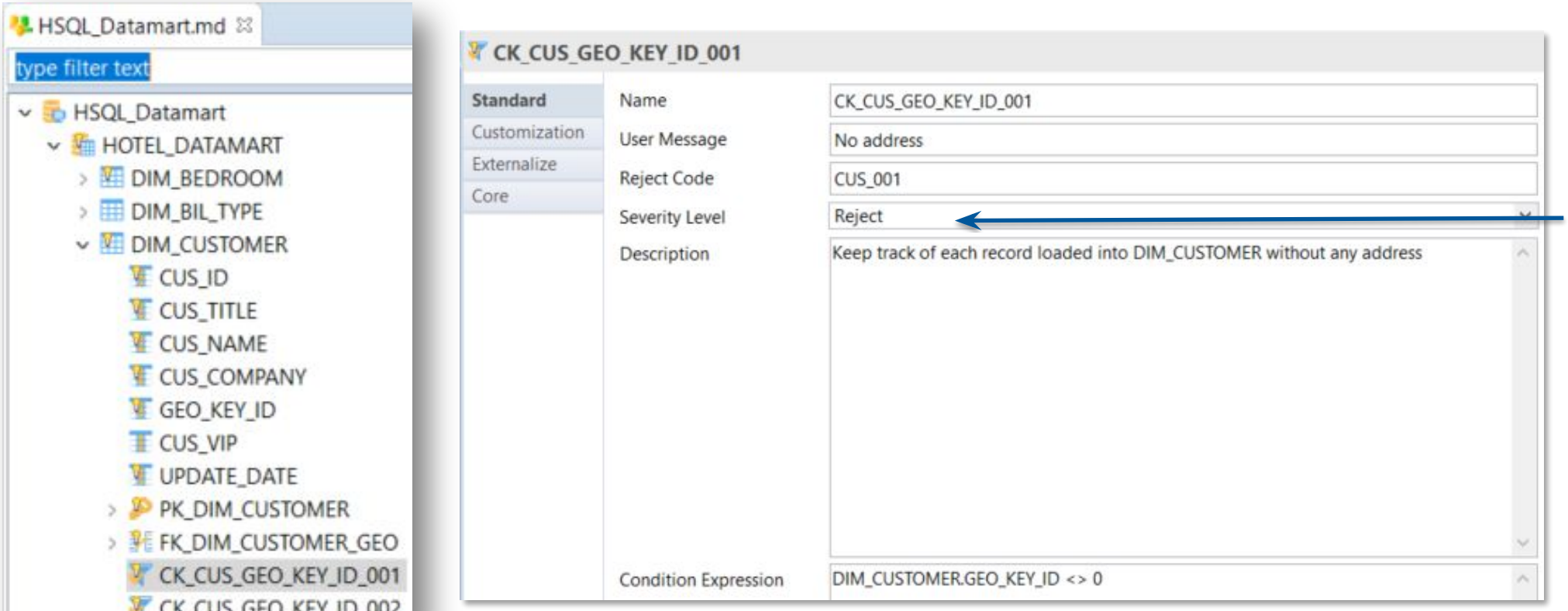
It is possible to add constraints in the metadata file in order to check them in a mapping

The Metadata file must be in the work zone: double click on it in the project explorer to open it



Adding constraints

Six properties to be defined for each condition



Occurs of "Fatal" "Severity Level" will generate an error for the mapping during execution

Semarchy

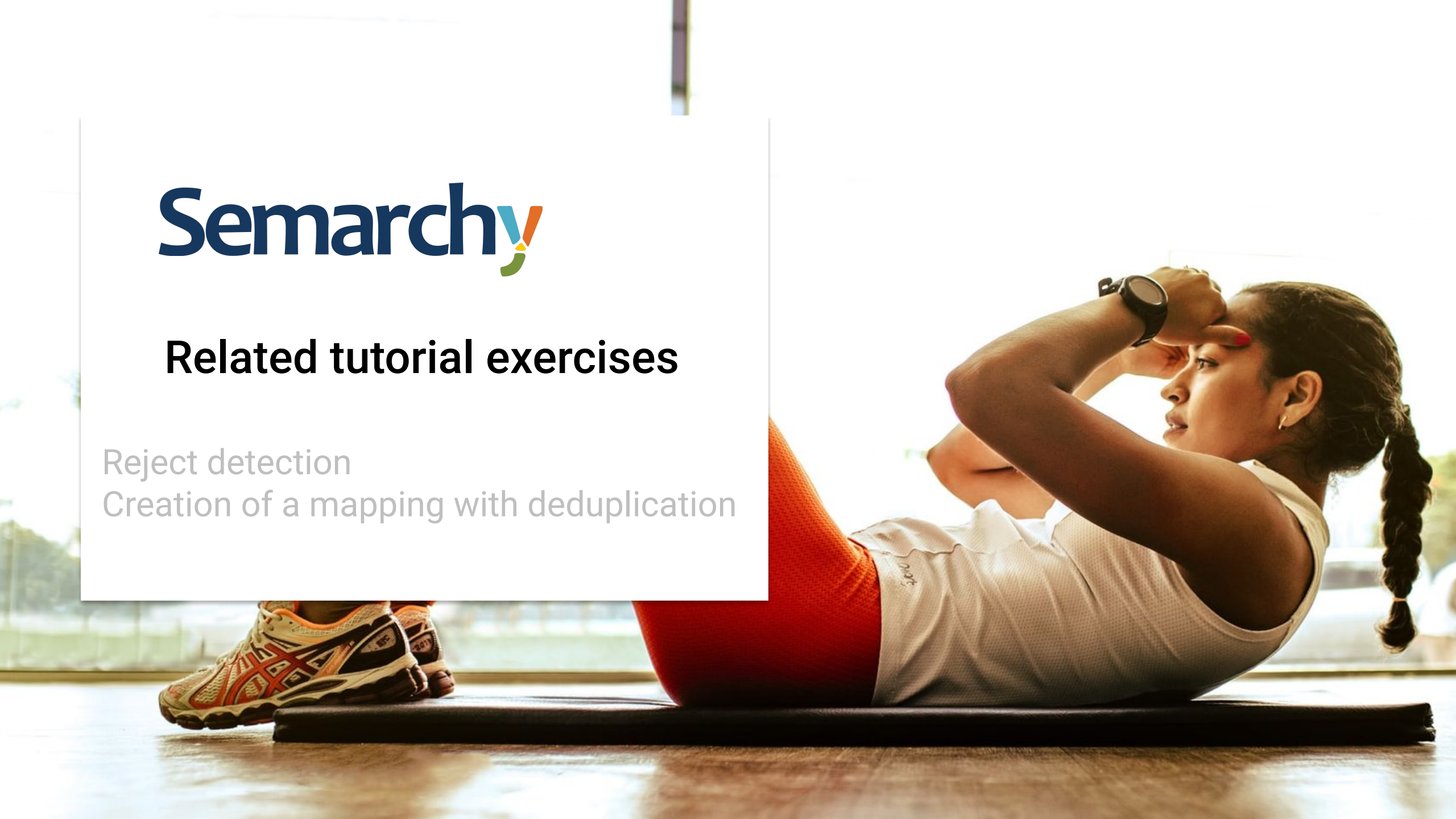
Demo

Manage rejects

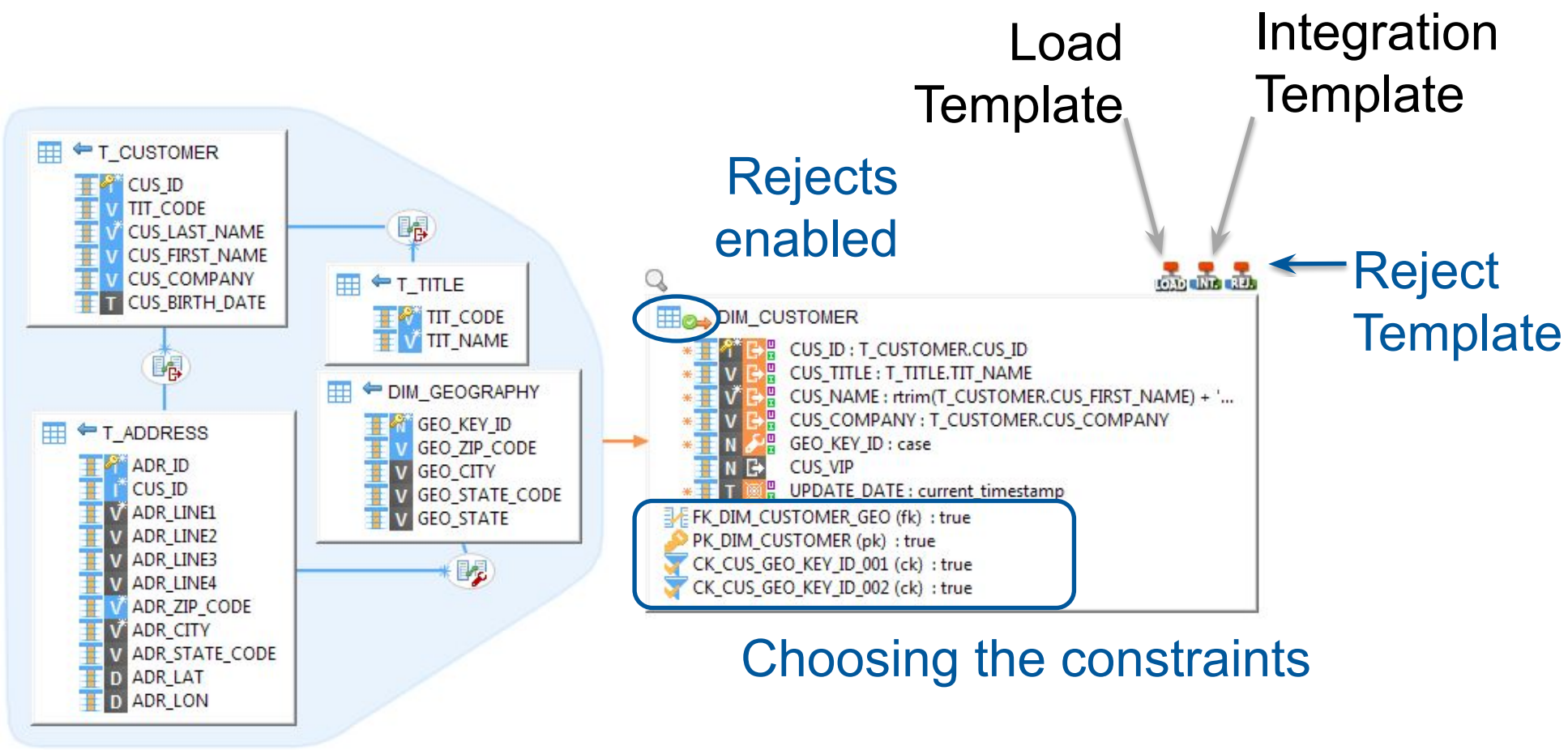
Semarchy

Related tutorial exercises

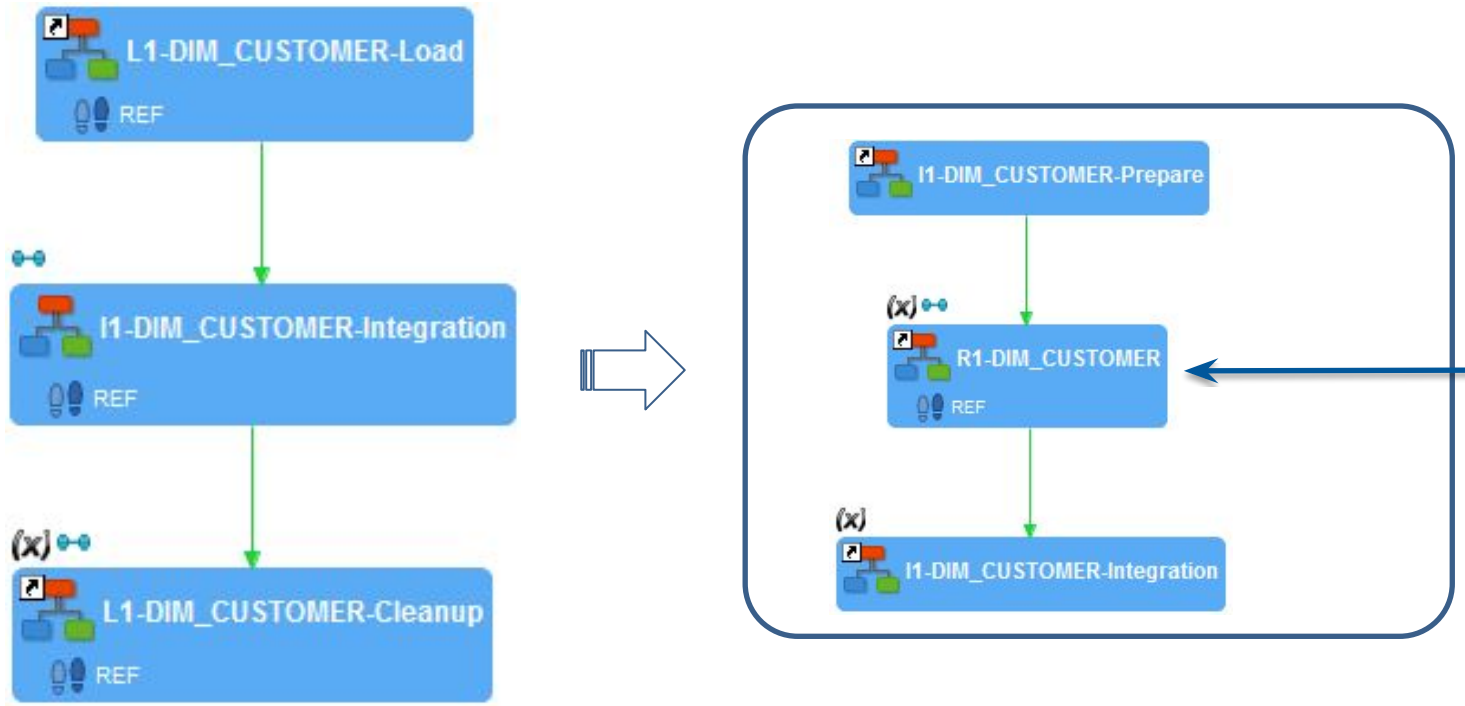
Reject detection
Creation of a mapping with deduplication



Analyzing the result : Load DIM_CUSTOMER

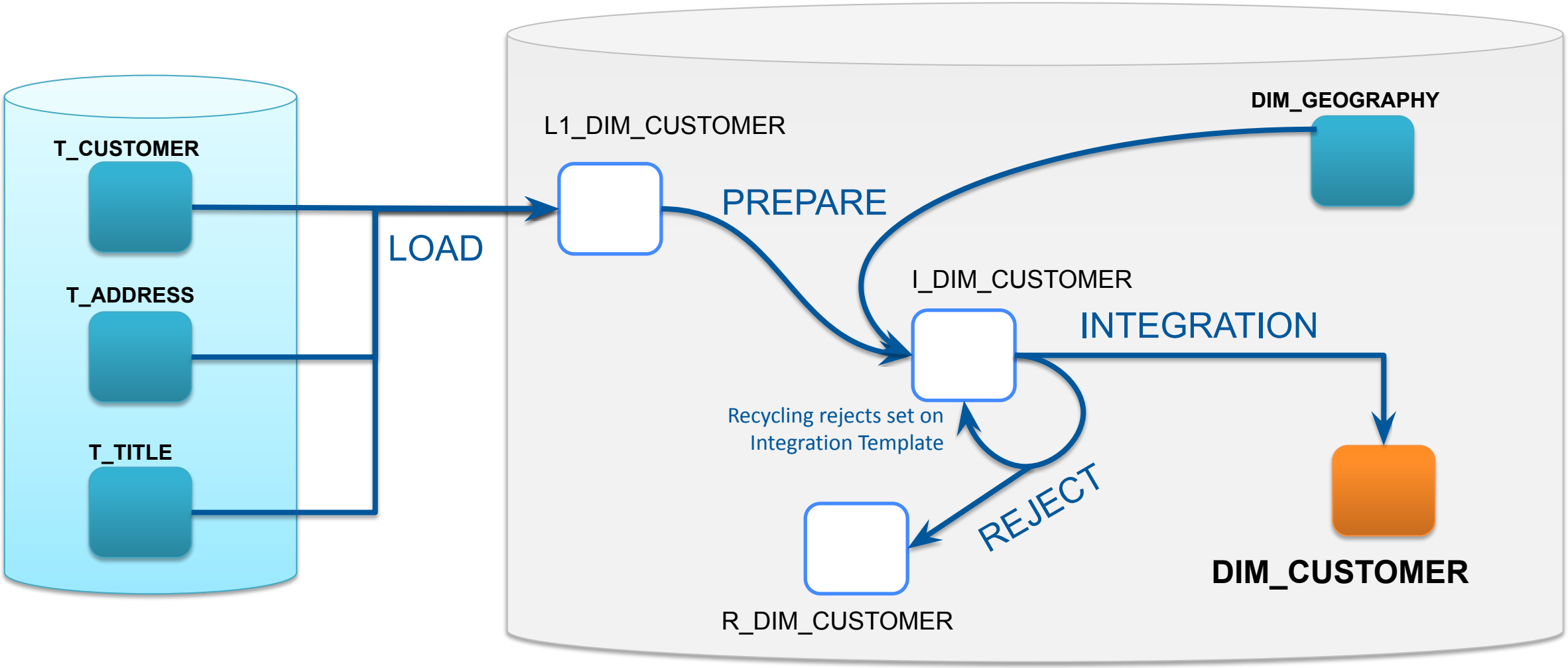


Analyzing the results



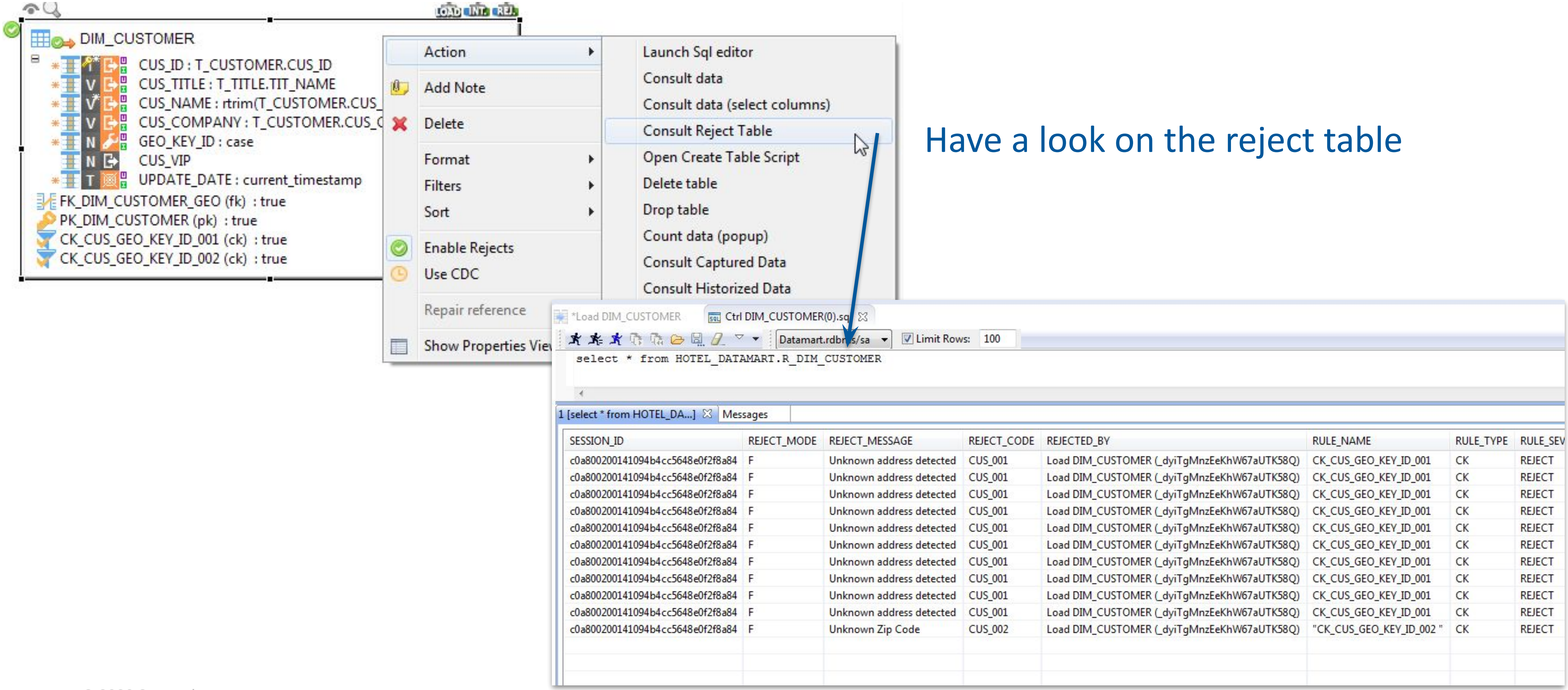
A new step appears, generated by the reject template

Understanding the result



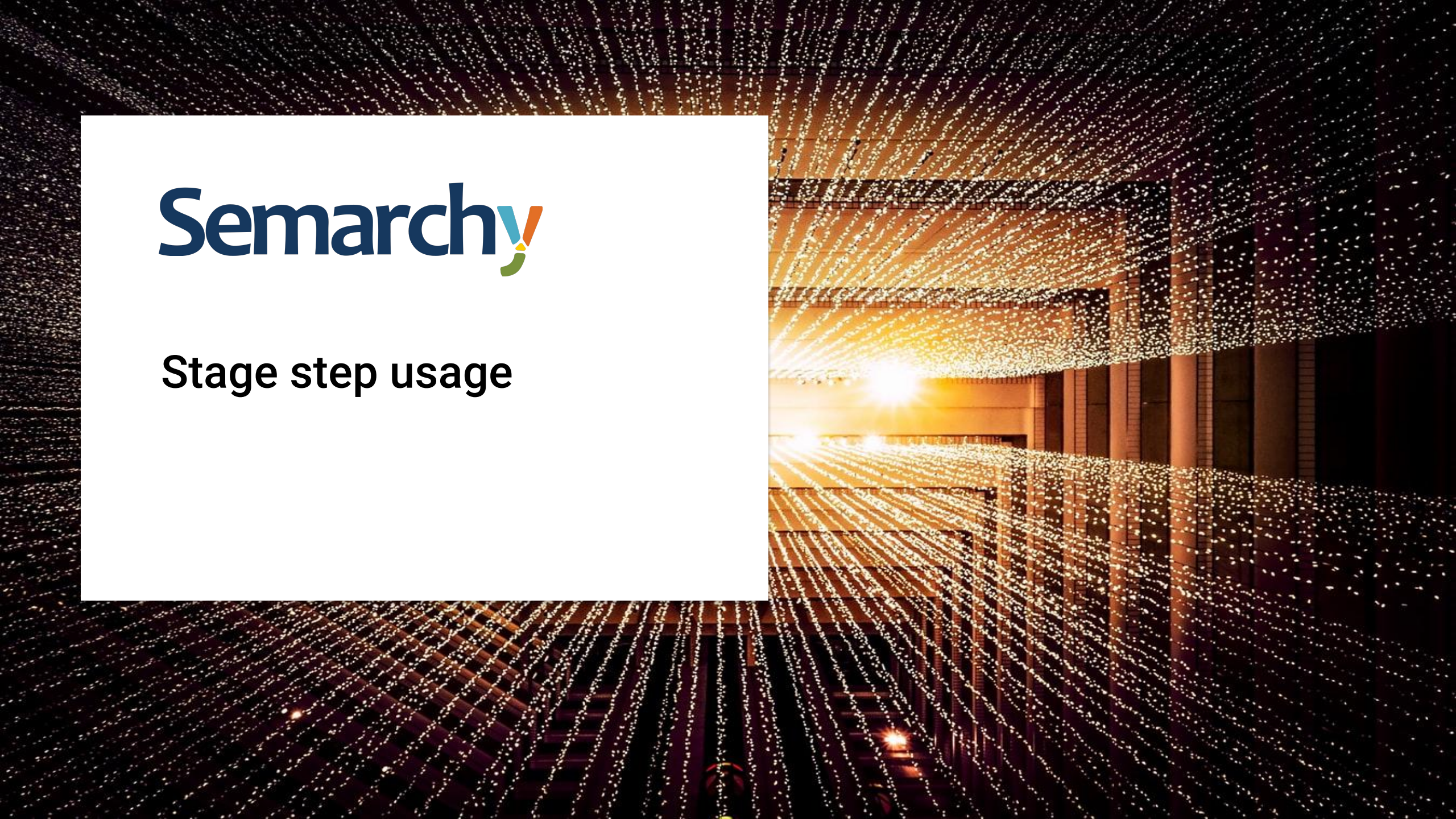
Semarchy

Analyzing the results



SESSION_ID	REJECT_MODE	REJECT_MESSAGE	REJECT_CODE	REJECTED_BY	RULE_NAME	RULE_TYPE	RULE_SEV
c0a800200141094b4cc5648e0f2f8a84	F	Unknown address detected	CUS_001	Load DIM_CUSTOMER (_dyiTgMnzEeKhW67aUTK58Q)	CK_CUS_GEO_KEY_ID_001	CK	REJECT
c0a800200141094b4cc5648e0f2f8a84	F	Unknown address detected	CUS_001	Load DIM_CUSTOMER (_dyiTgMnzEeKhW67aUTK58Q)	CK_CUS_GEO_KEY_ID_001	CK	REJECT
c0a800200141094b4cc5648e0f2f8a84	F	Unknown address detected	CUS_001	Load DIM_CUSTOMER (_dyiTgMnzEeKhW67aUTK58Q)	CK_CUS_GEO_KEY_ID_001	CK	REJECT
c0a800200141094b4cc5648e0f2f8a84	F	Unknown address detected	CUS_001	Load DIM_CUSTOMER (_dyiTgMnzEeKhW67aUTK58Q)	CK_CUS_GEO_KEY_ID_001	CK	REJECT
c0a800200141094b4cc5648e0f2f8a84	F	Unknown address detected	CUS_001	Load DIM_CUSTOMER (_dyiTgMnzEeKhW67aUTK58Q)	CK_CUS_GEO_KEY_ID_001	CK	REJECT
c0a800200141094b4cc5648e0f2f8a84	F	Unknown address detected	CUS_001	Load DIM_CUSTOMER (_dyiTgMnzEeKhW67aUTK58Q)	CK_CUS_GEO_KEY_ID_001	CK	REJECT
c0a800200141094b4cc5648e0f2f8a84	F	Unknown address detected	CUS_001	Load DIM_CUSTOMER (_dyiTgMnzEeKhW67aUTK58Q)	CK_CUS_GEO_KEY_ID_001	CK	REJECT
c0a800200141094b4cc5648e0f2f8a84	F	Unknown address detected	CUS_001	Load DIM_CUSTOMER (_dyiTgMnzEeKhW67aUTK58Q)	CK_CUS_GEO_KEY_ID_001	CK	REJECT
c0a800200141094b4cc5648e0f2f8a84	F	Unknown address detected	CUS_001	Load DIM_CUSTOMER (_dyiTgMnzEeKhW67aUTK58Q)	CK_CUS_GEO_KEY_ID_001	CK	REJECT
c0a800200141094b4cc5648e0f2f8a84	F	Unknown address detected	CUS_001	Load DIM_CUSTOMER (_dyiTgMnzEeKhW67aUTK58Q)	CK_CUS_GEO_KEY_ID_001	CK	REJECT
c0a800200141094b4cc5648e0f2f8a84	F	Unknown Zip Code	CUS_002	Load DIM_CUSTOMER (_dyiTgMnzEeKhW67aUTK58Q)	"CK_CUS_GEO_KEY_ID_002 "	CK	REJECT

Have a look on the reject table



Stage step usage

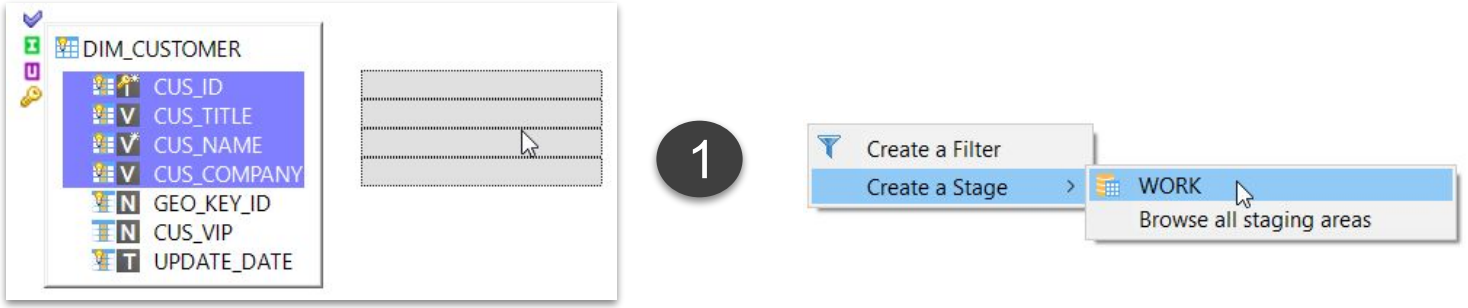
Staging transformation

You can use a "*stage area*" to build intermediate transformation

Two ways to create a stage

1. Drag & drop a RDBMS schema

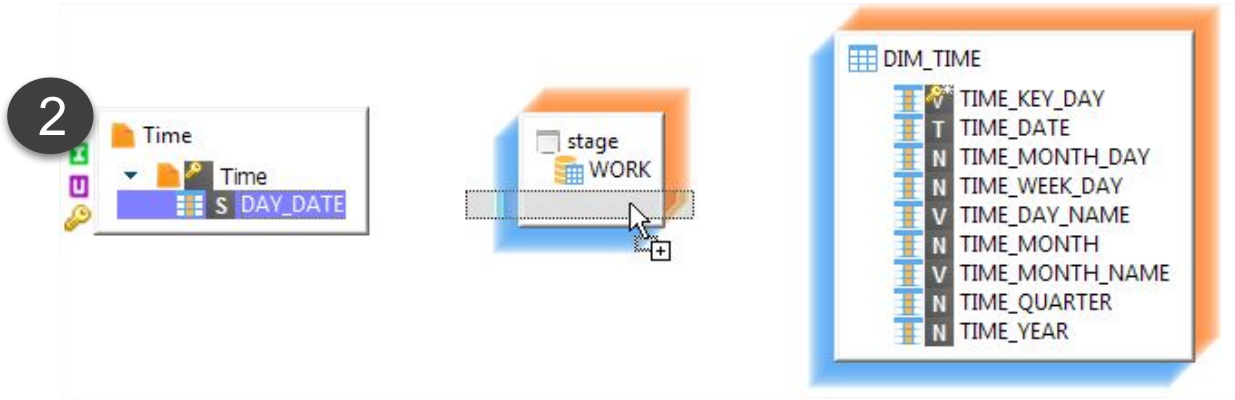
2. Drag & drop a list of source columns directly



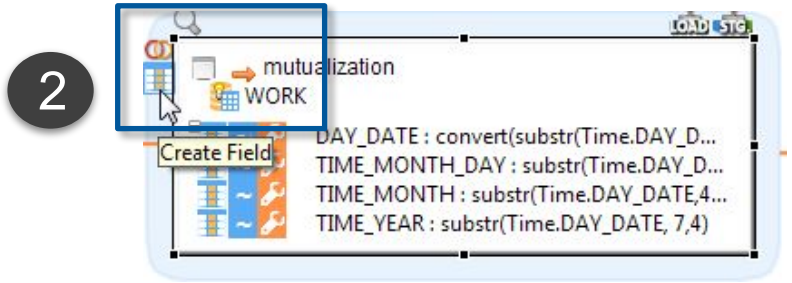
Staging transformation

Two ways to add fields

1. Drag & Drop source columns in the stage component

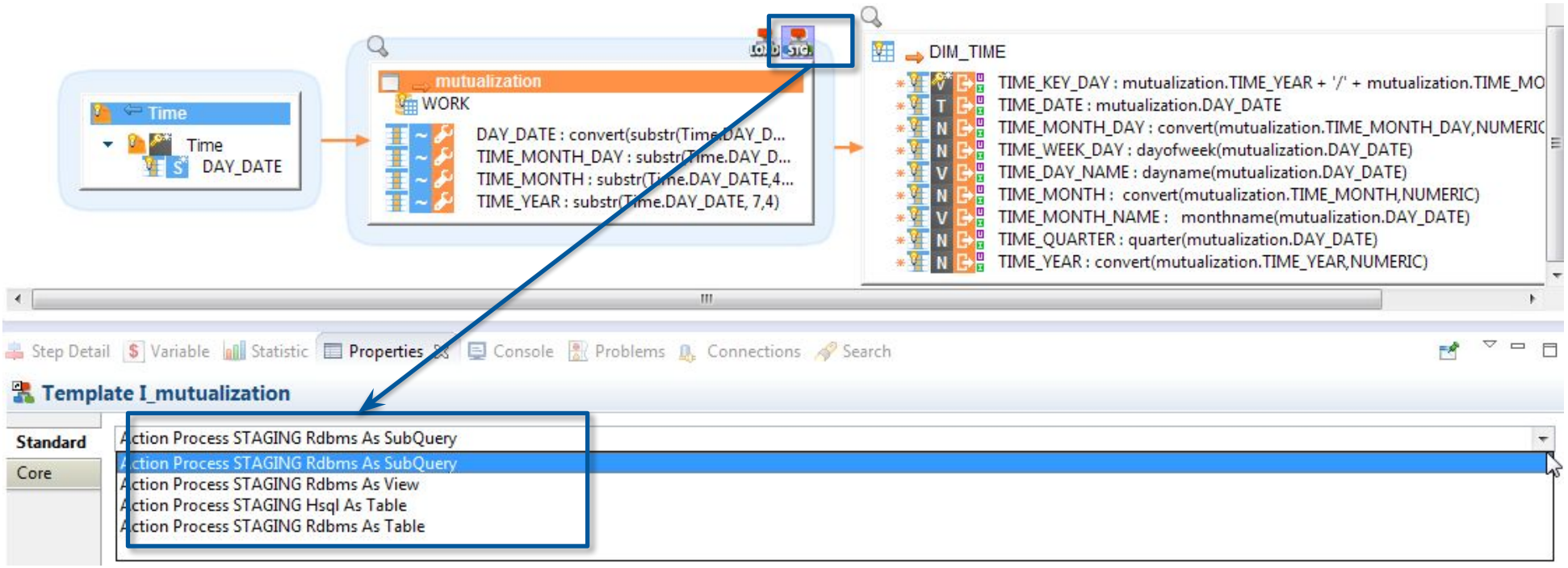


2. Or click on Create Field button



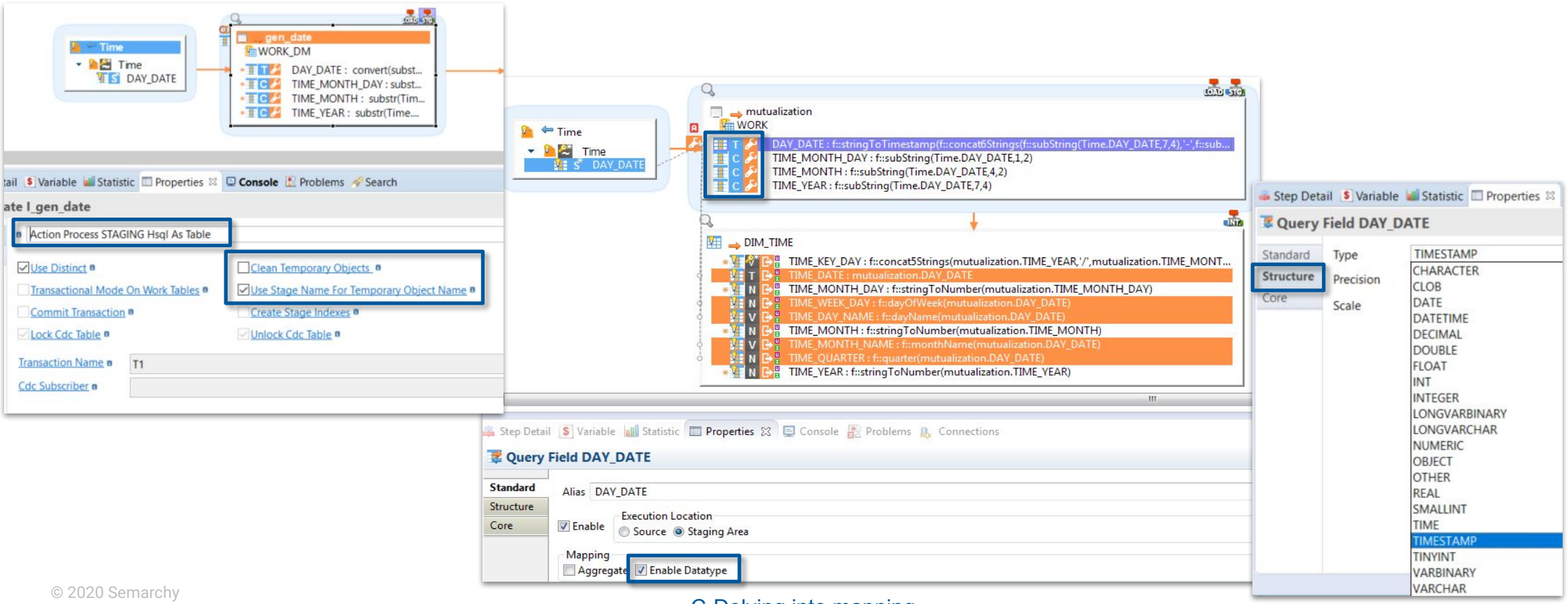
Staging transformation

You can choose the action on the stage in the list of stage Templates



Stage As Table & Data Types

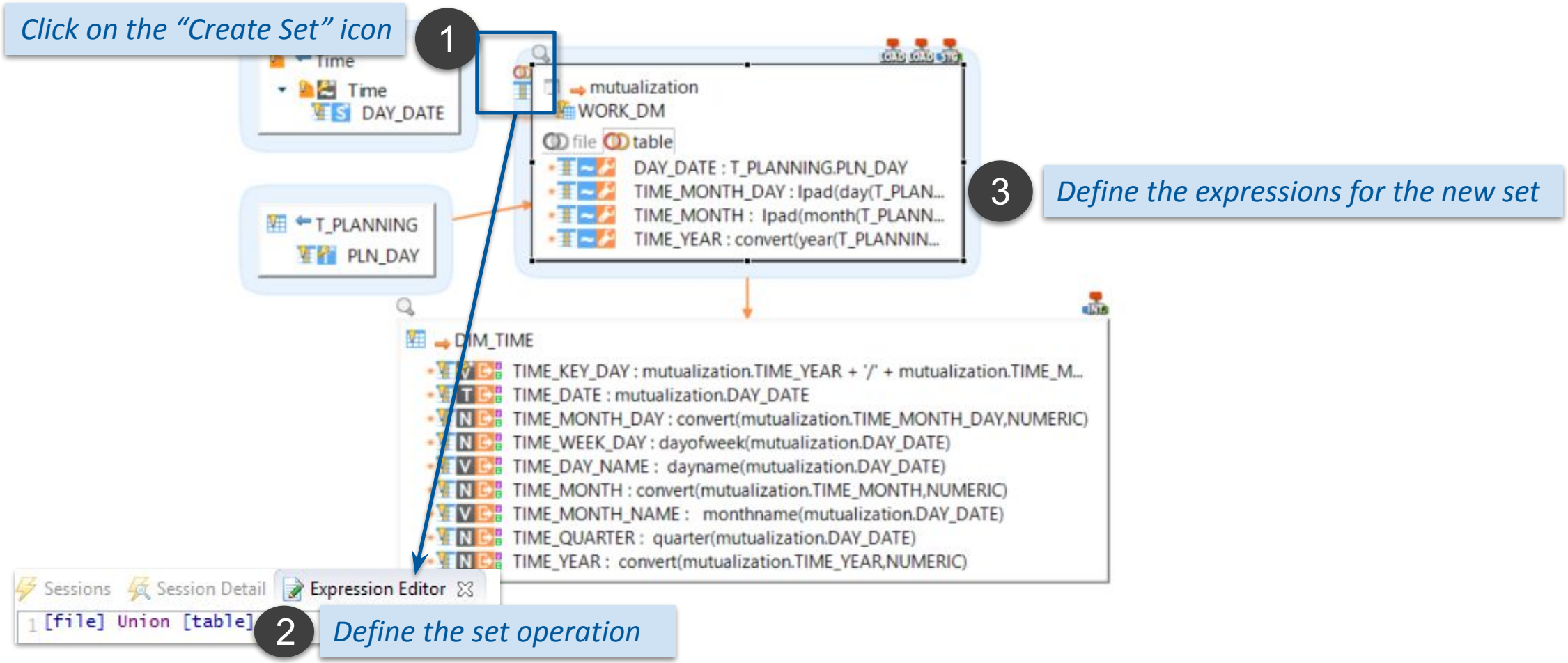
If you want to create a table with the stage fields, it's possible to define their data types :



C-Delving into mapping

Create Set in a stage

You can choose ‘Create Set’ in a stage to add a new set of sources



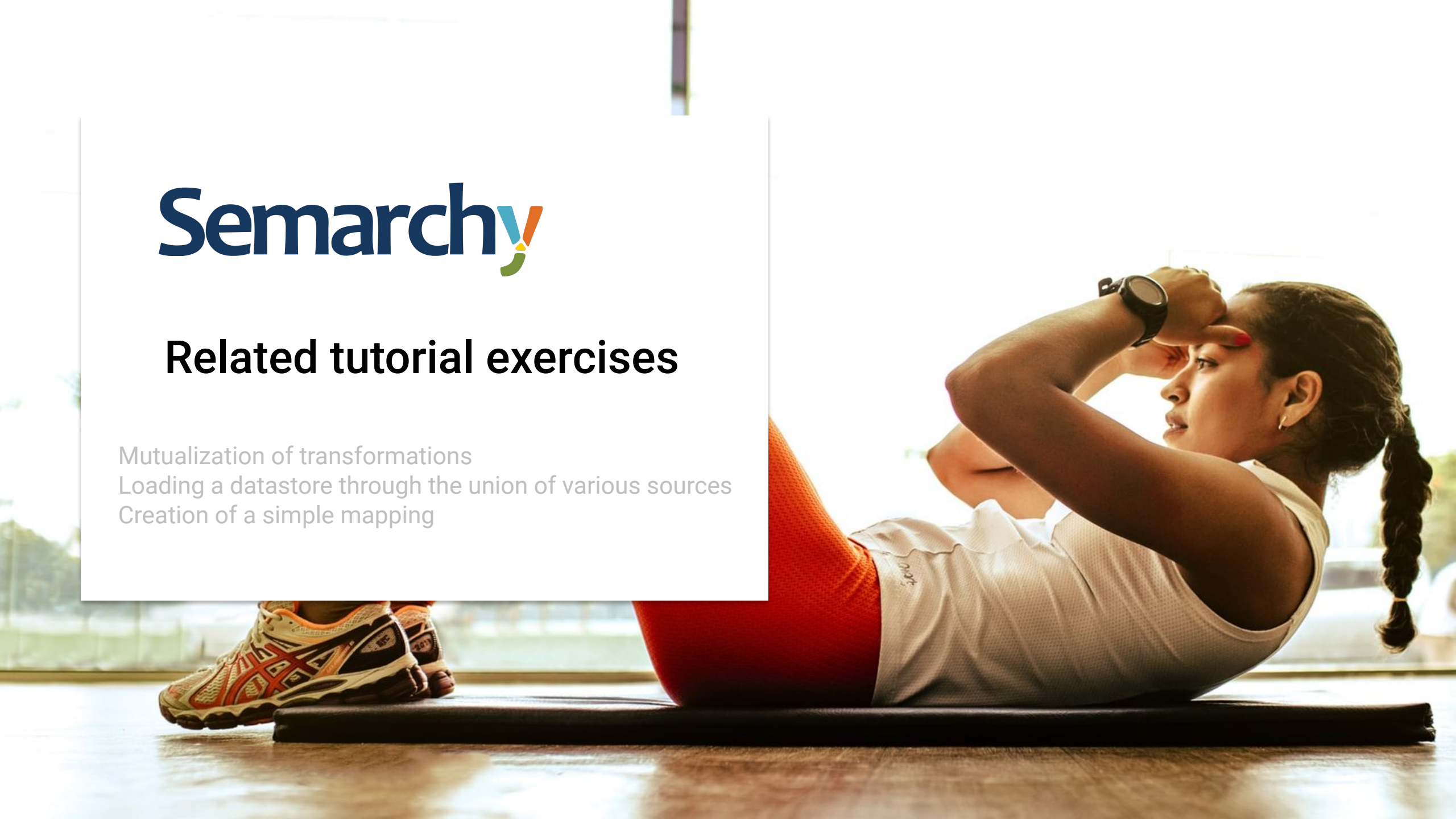
Demo

Create stages & sets

Semarchy

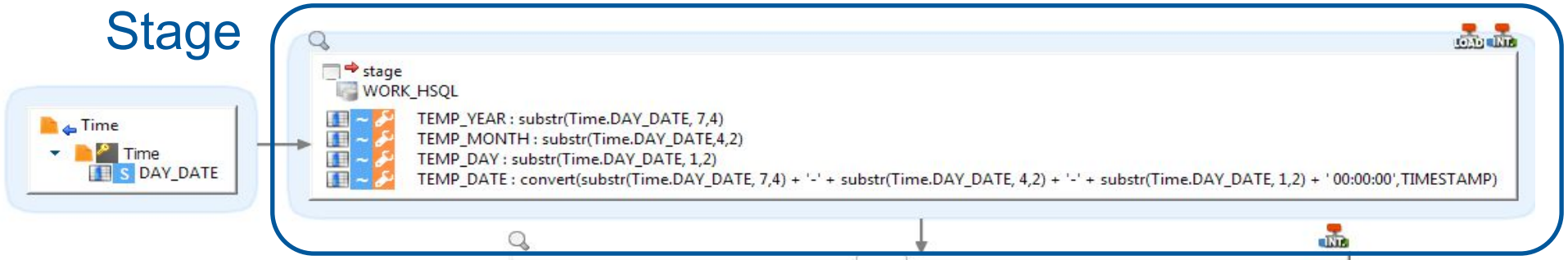
Related tutorial exercises

Mutualization of transformations
Loading a datastore through the union of various sources
Creation of a simple mapping



Analyzing the result : DIM_TIME

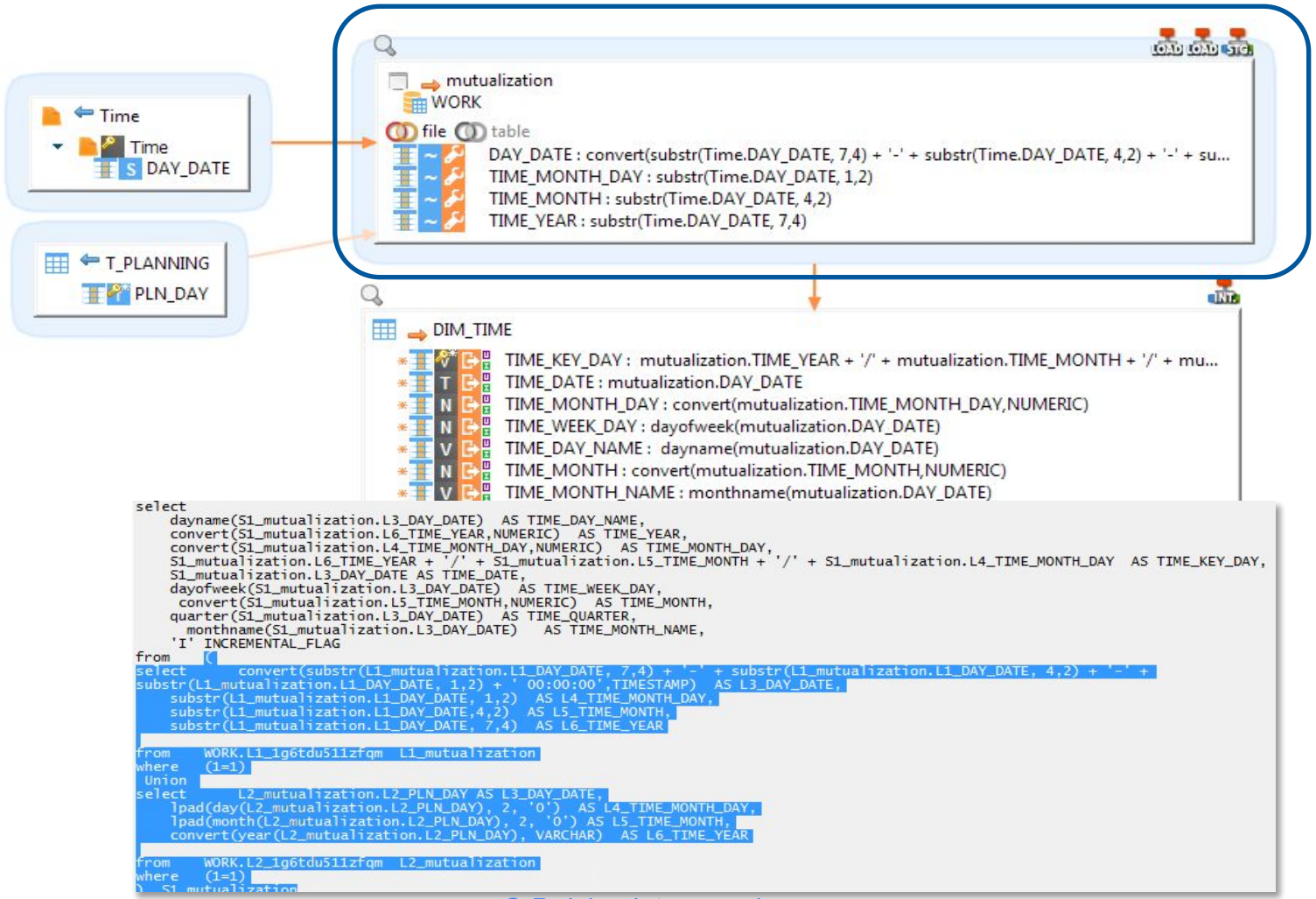
Stage




```
select
    dayname(S1_mutualization.L2_DAY_DATE)  AS TIME_DAY_NAME,
    convert(S1_mutualization.L5_TIME_YEAR,NUMERIC)  AS TIME_YEAR,
    convert(S1_mutualization.L3_TIME_MONTH_DAY,NUMERIC)  AS TIME_MONTH_DAY,
    S1_mutualization.L5_TIME_YEAR + '/' + S1_mutualization.L4_TIME_MONTH + '/' + S1_mutualization.L3_TIME_MONTH_DAY  AS TIME_KEY_DAY,
    S1_mutualization.L2_DAY_DATE AS TIME_DATE,
    dayofweek(S1_mutualization.L2_DAY_DATE)  AS TIME_WEEK_DAY,
     convert(S1_mutualization.L4_TIME_MONTH,NUMERIC)  AS TIME_MONTH,
    quarter(S1_mutualization.L2_DAY_DATE)  AS TIME_QUARTER,
      monthname(S1_mutualization.L2_DAY_DATE)   AS TIME_MONTH_NAME,
    'I' INCREMENTAL_FLAG
from    (
select      DISTINCT convert(substr(L1_mutualization.L1_DAY_DATE, 7,4) + '-' + substr(L1_mutualization.L1_DAY_DATE, 4,2) + '-' +
substr(L1_mutualization.L1_DAY_DATE, 1,2) + ' 00:00:00',TIMESTAMP)  AS L2_DAY_DATE,
    substr(L1_mutualization.L1_DAY_DATE, 1,2)  AS L3_TIME_MONTH_DAY,
    substr(L1_mutualization.L1_DAY_DATE,4,2)  AS L4_TIME_MONTH,
    substr(L1_mutualization.L1_DAY_DATE, 7,4)  AS L5_TIME_YEAR

from    WORK.L1_1g5coybccgp66  L1_mutualization
where   (1=1)
)  S1_mutualization
```

Analyzing the result : DIM_TIME



Stage

C-Delving into mapping

xDI DEV

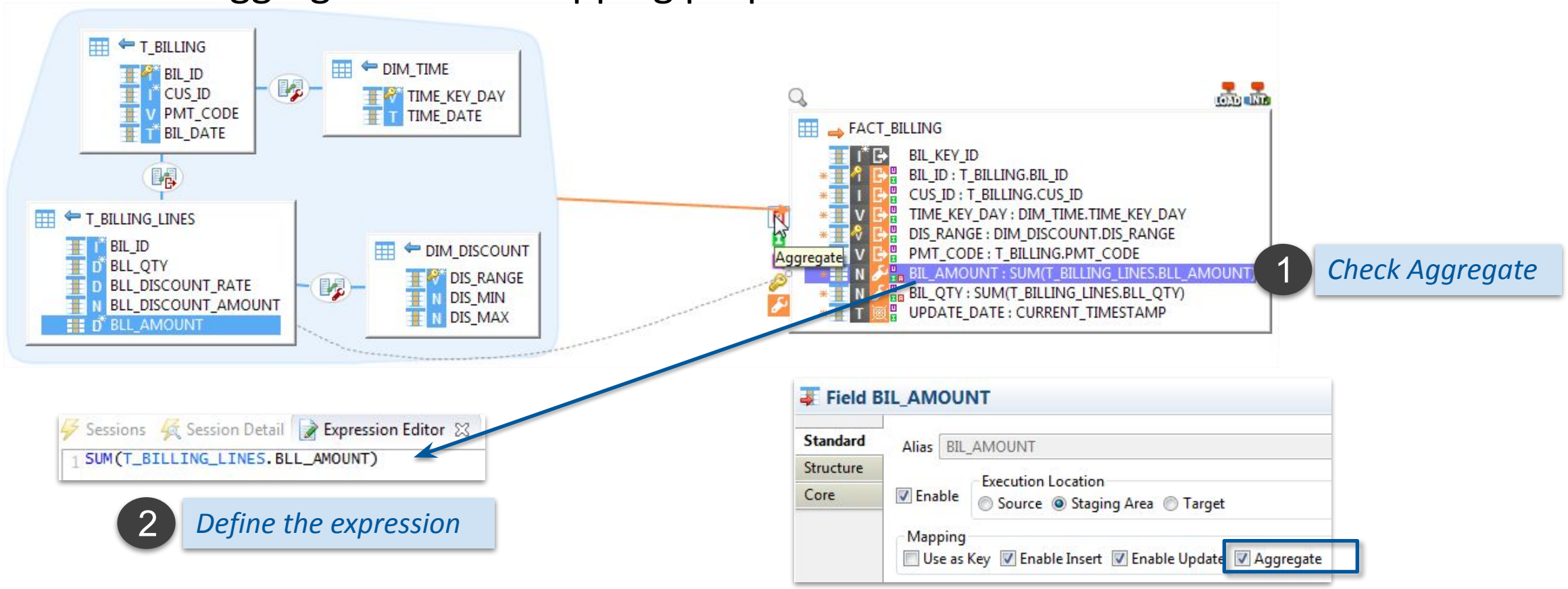
C Delving Mapping

C2 - Feedback on Mapping deepening

Manage aggregates

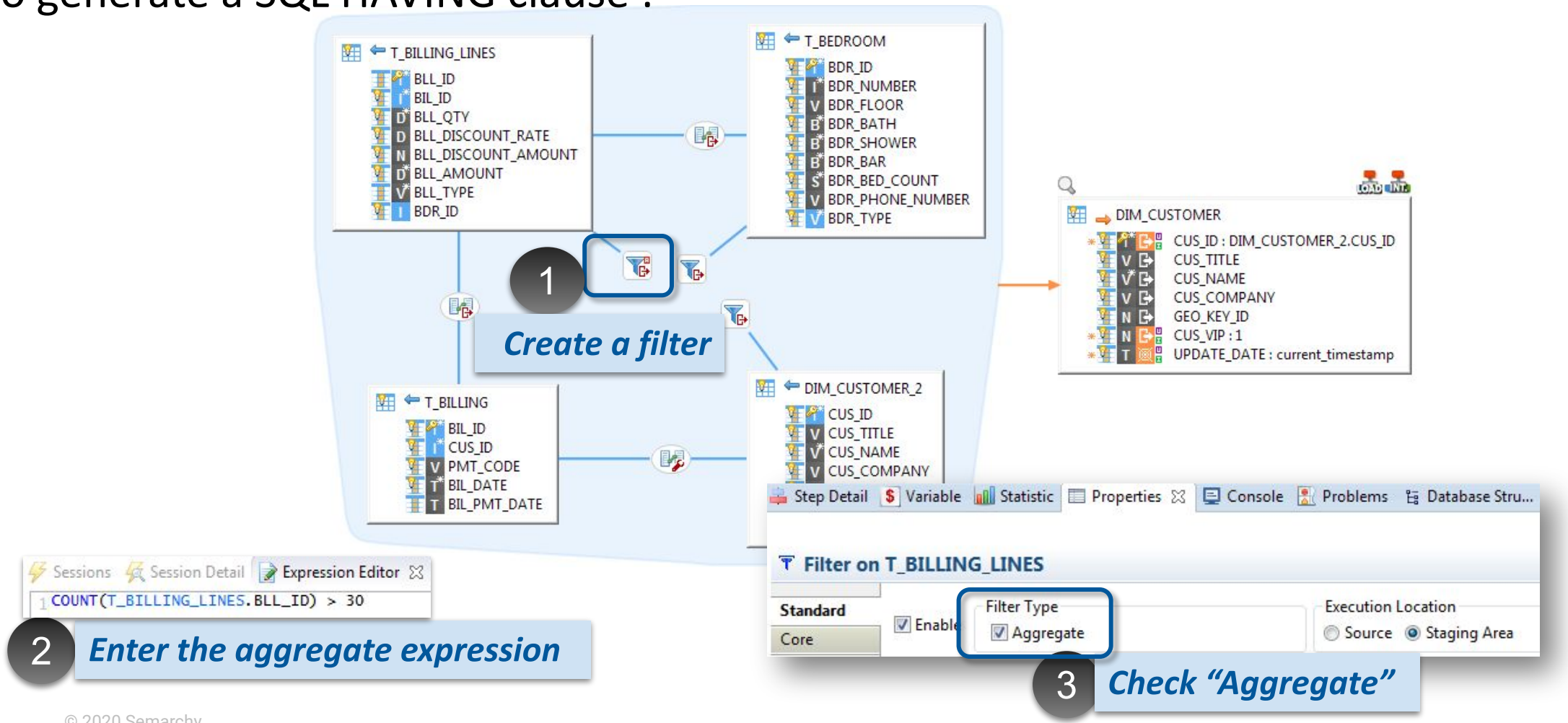
Managing aggregates

To do an aggregation, just define your expression in the Expression Editor and choose Aggregate in the mapping properties



Managing HAVING clause

To generate a SQL HAVING clause :



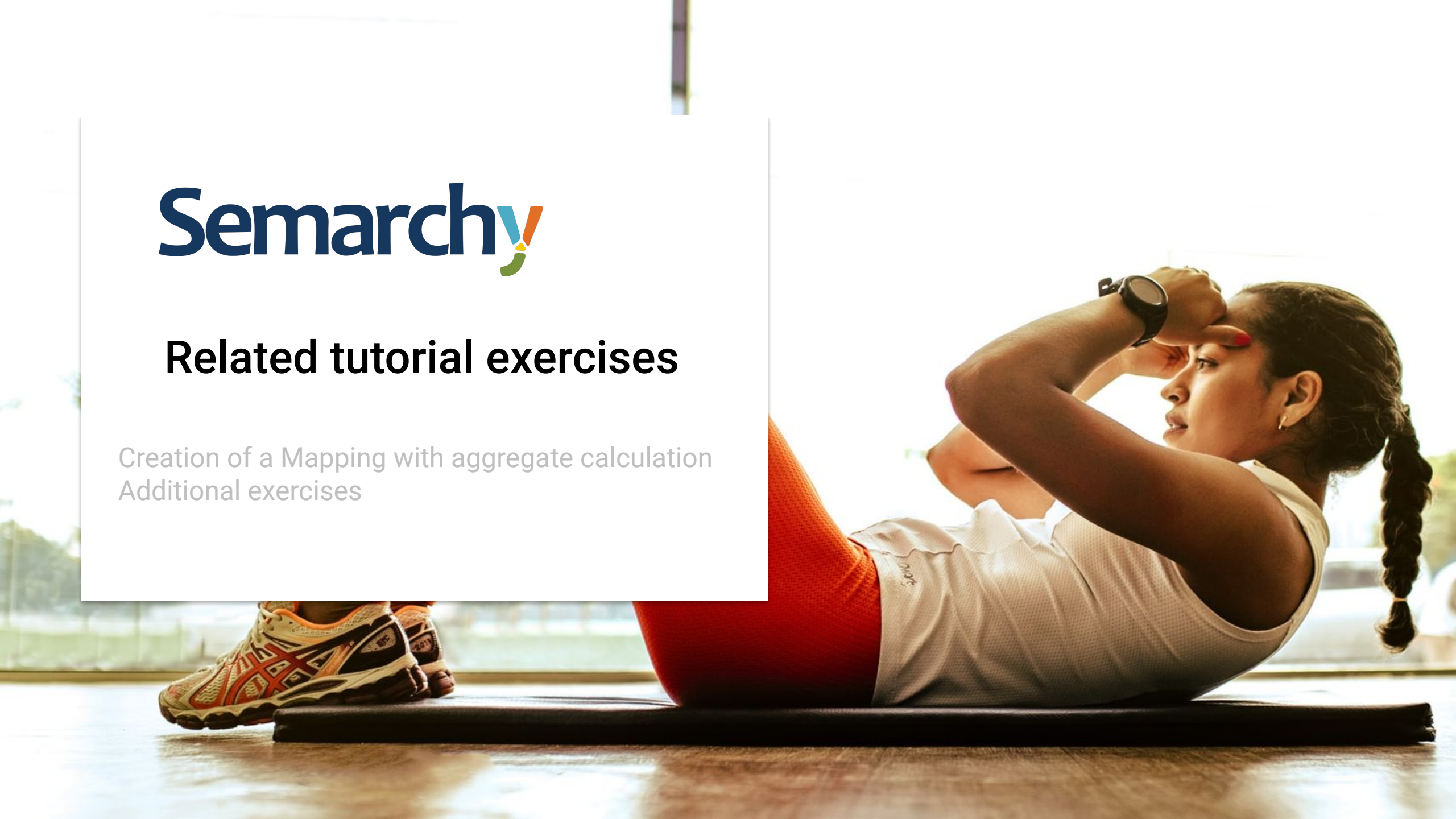
Demo

Aggregates

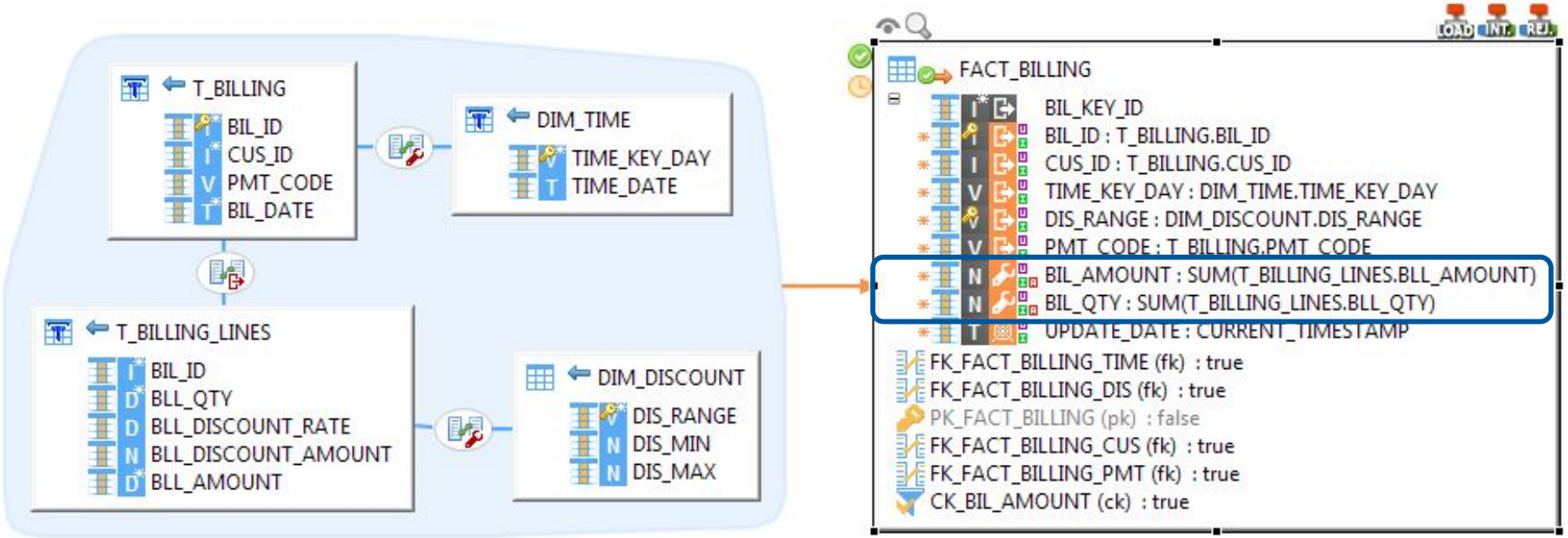
Semarchy

Related tutorial exercises

Creation of a Mapping with aggregate calculation
Additional exercises

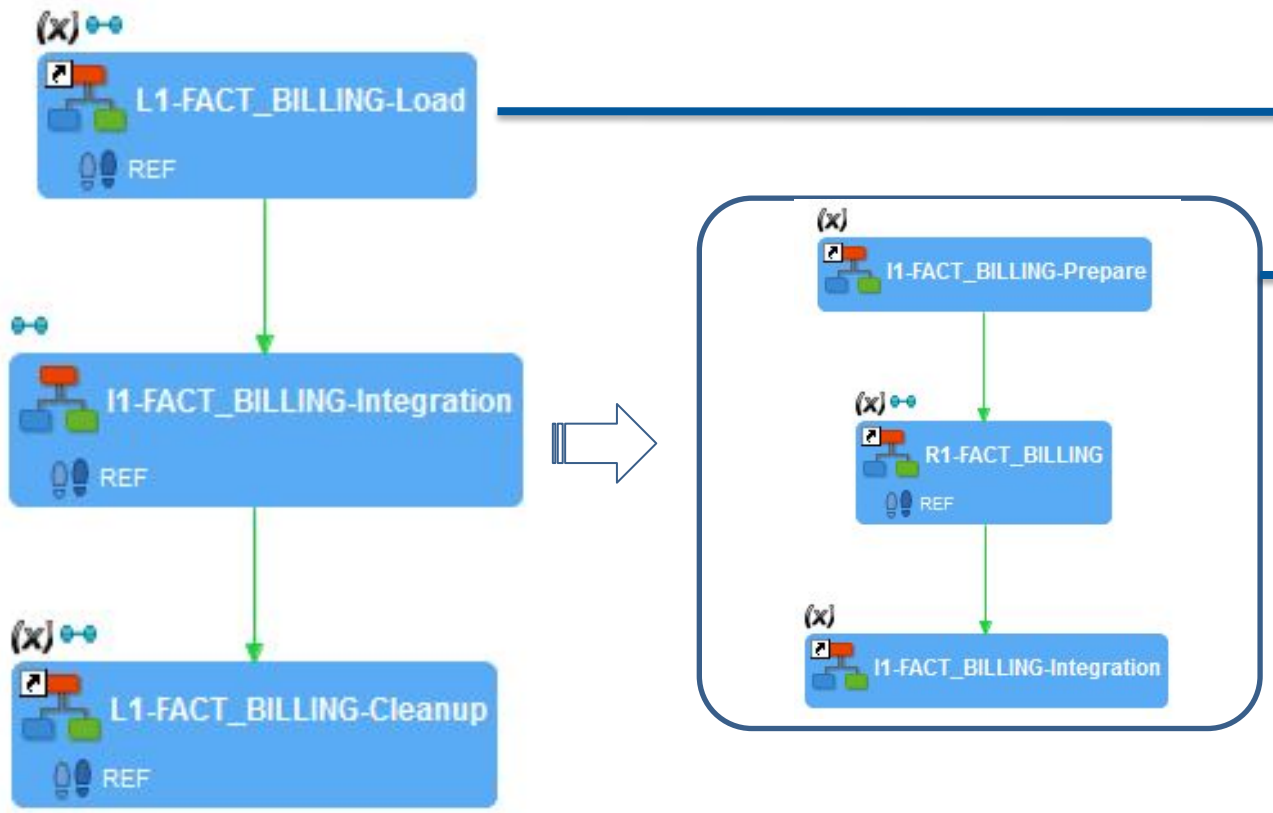


Analyzing the result



Aggregation on the “Staging Area” location

Analyzing the result

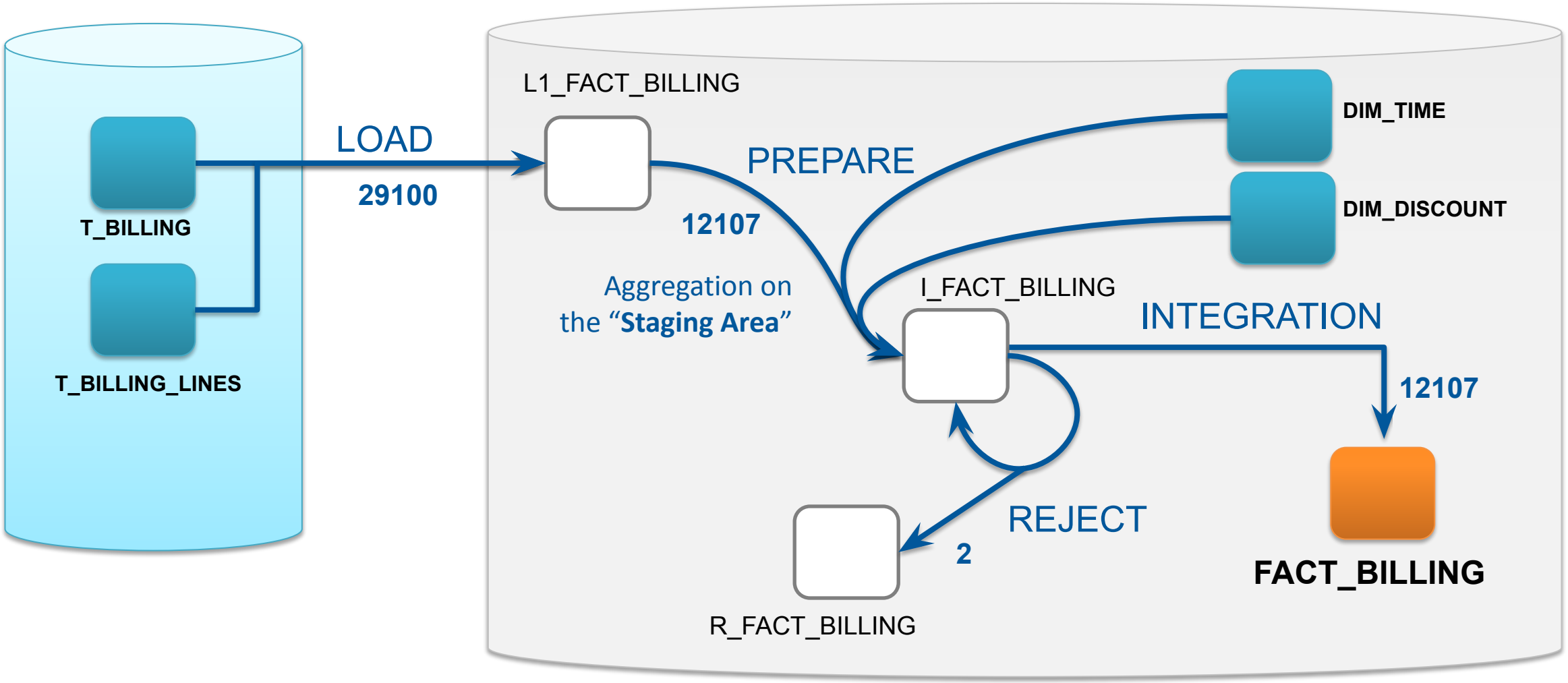


Name	Value
SUM(SQL_NB_ROWS)	29 100

Name	Value
SUM(SQL_NB_ROWS)	12 107

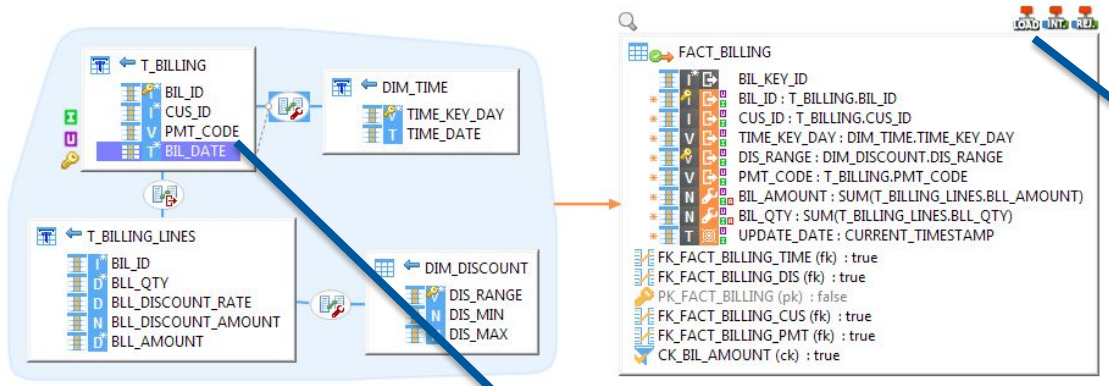
The aggregation is done on the “**Staging Area**”

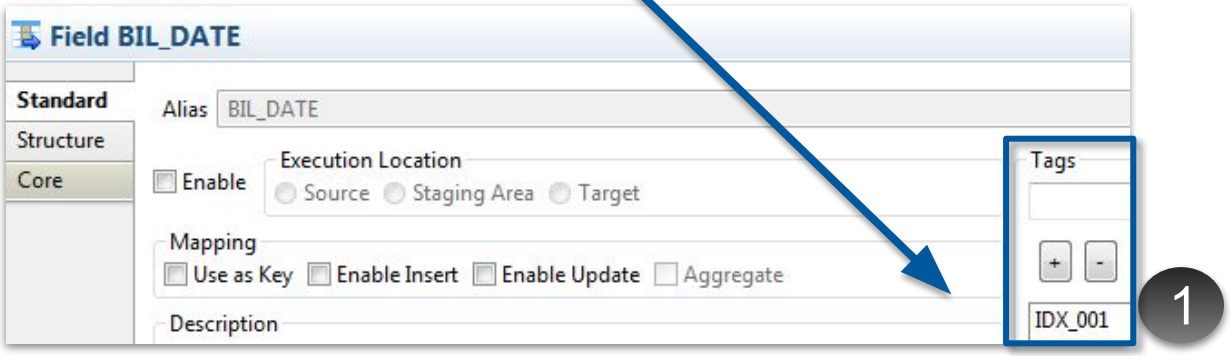
Understanding the result



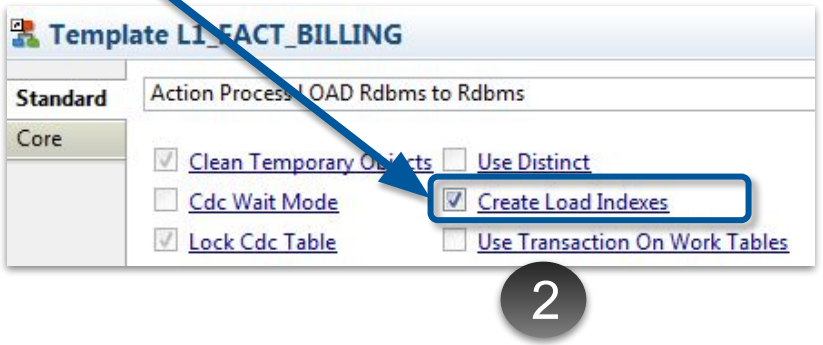
Increase the performances

In order to improve the performance, it’s possible to add an index on the load table





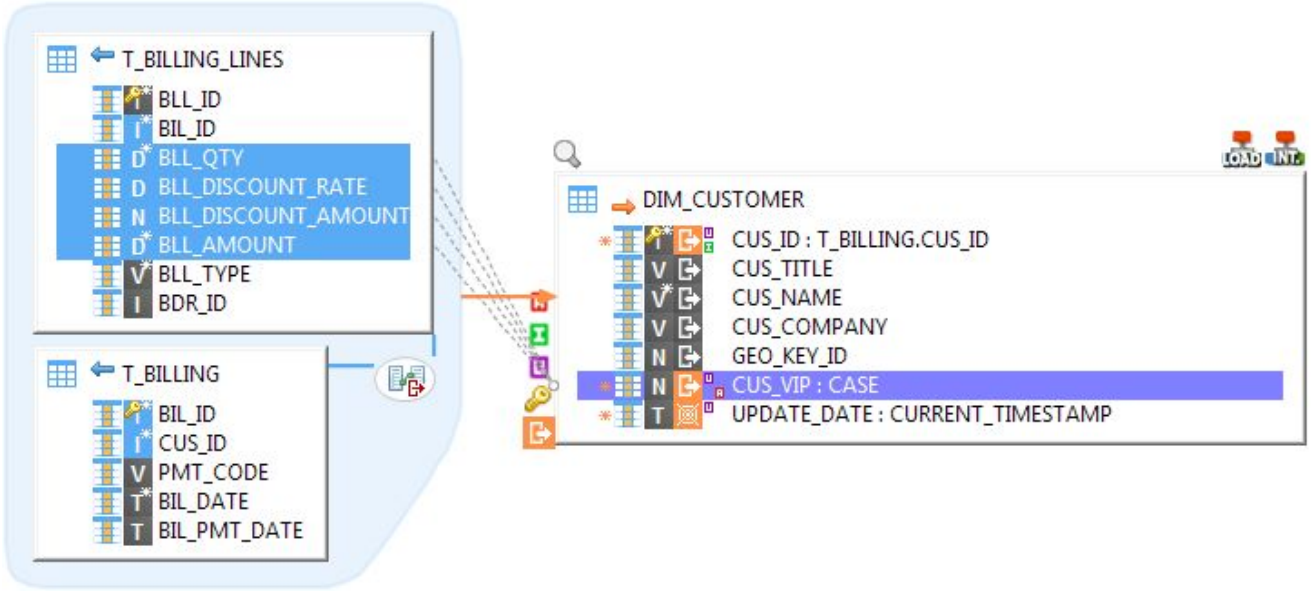
Add a tag on the column

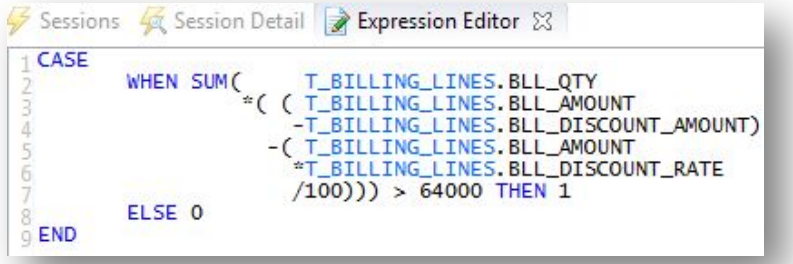


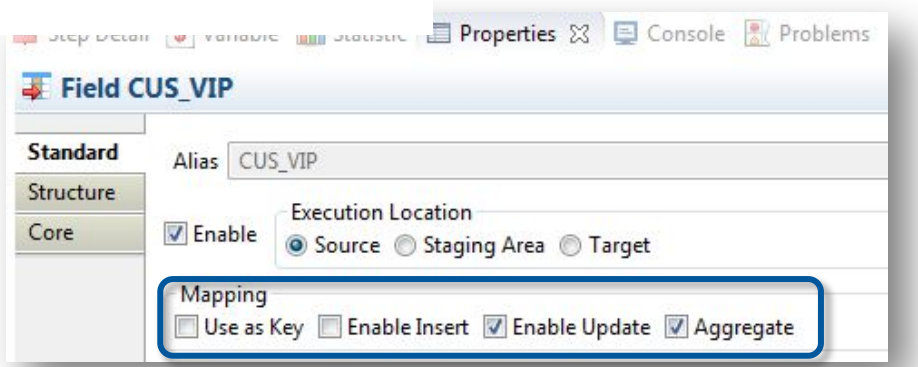
Activate the index creation

Note : *the index tags must begin with « IDX » in uppercase*

Analyzing the result

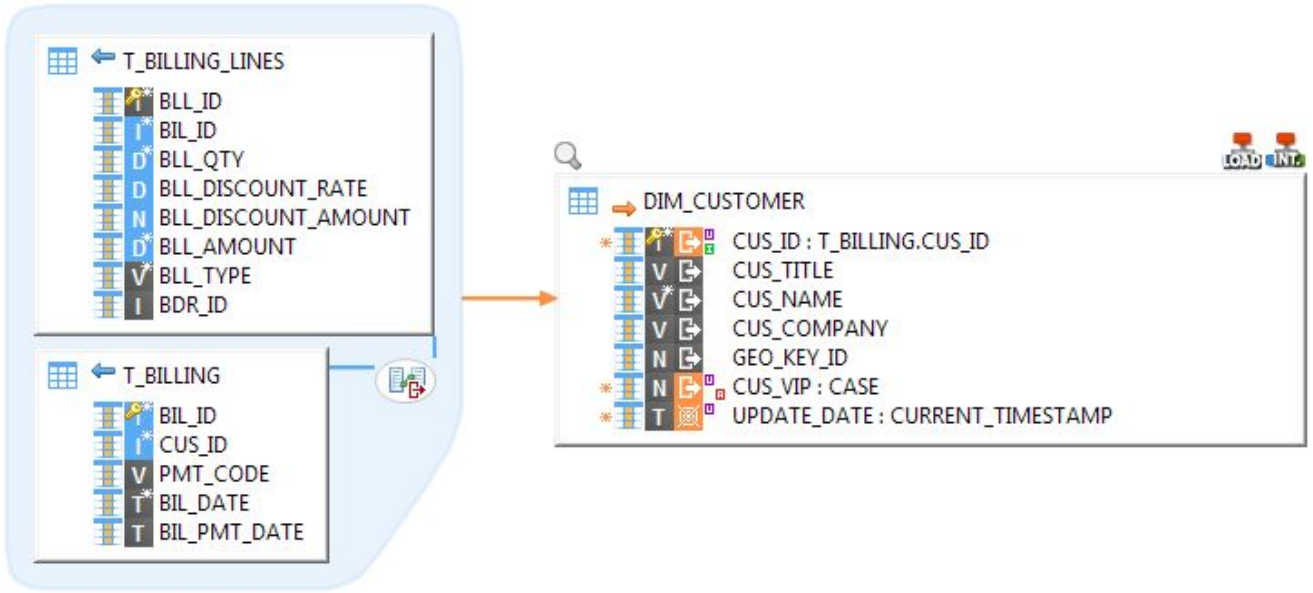


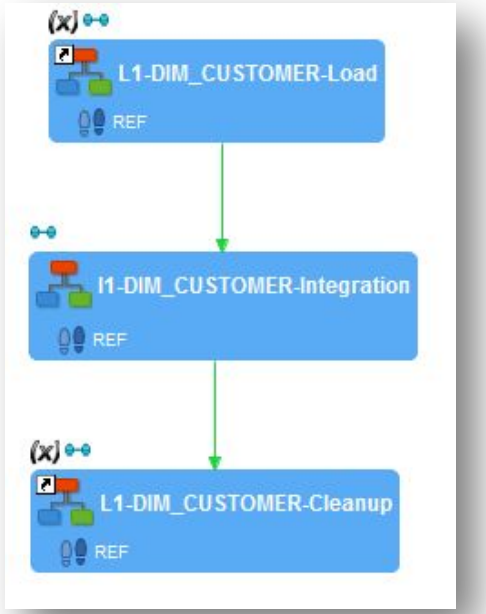


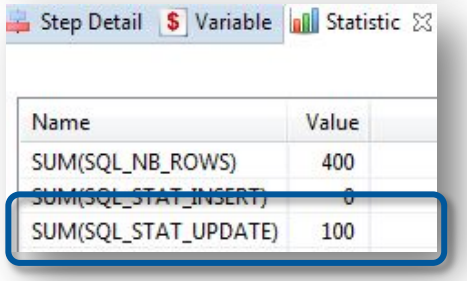


C-Delving into mapping

Analyzing the result

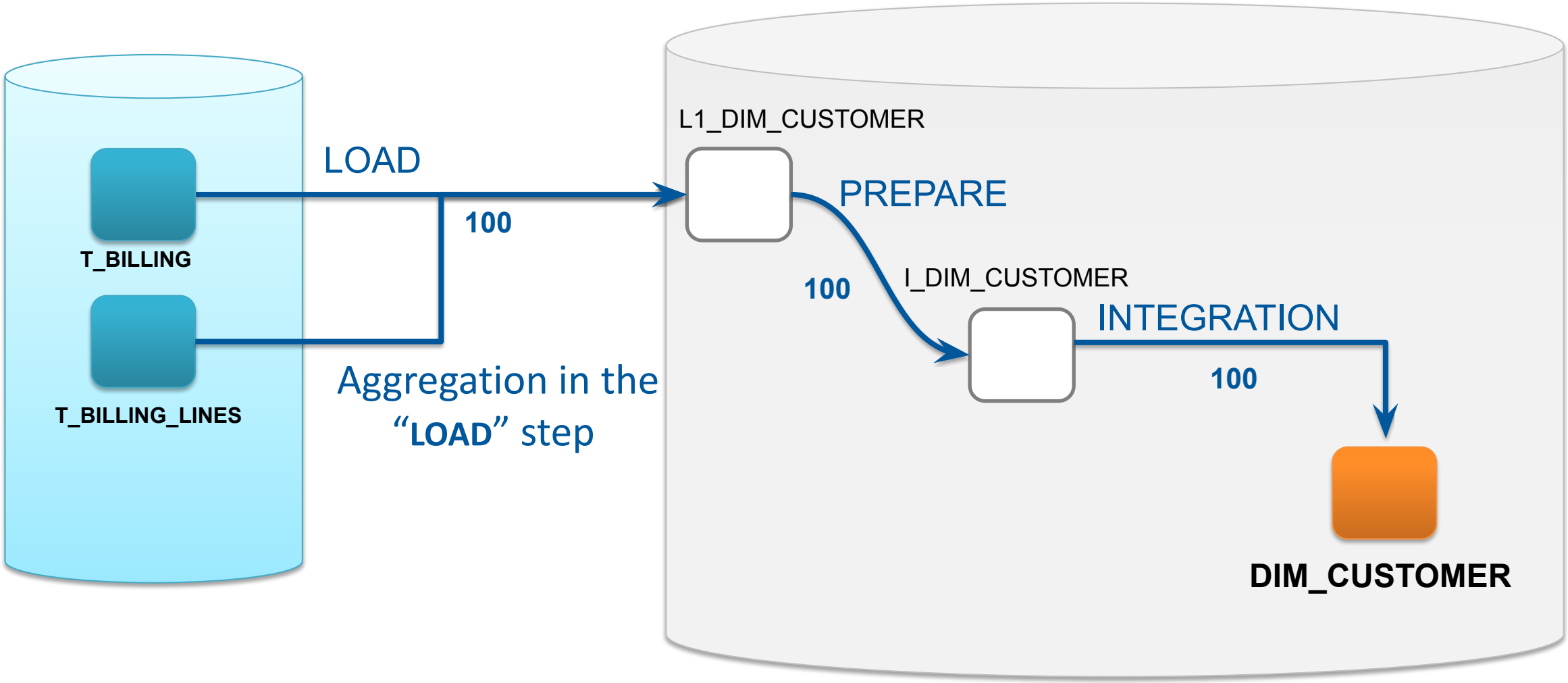




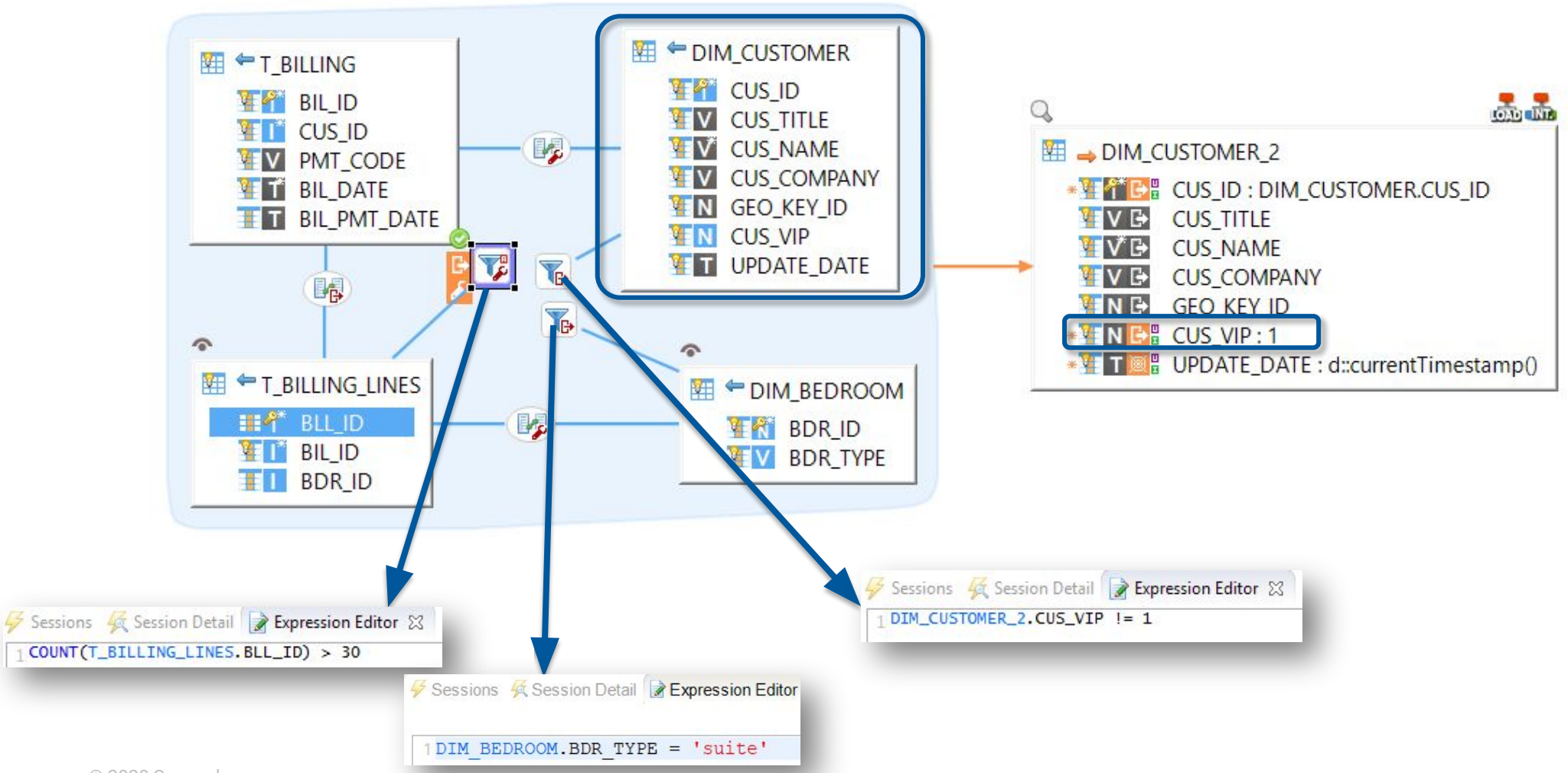


C-Delving into mapping

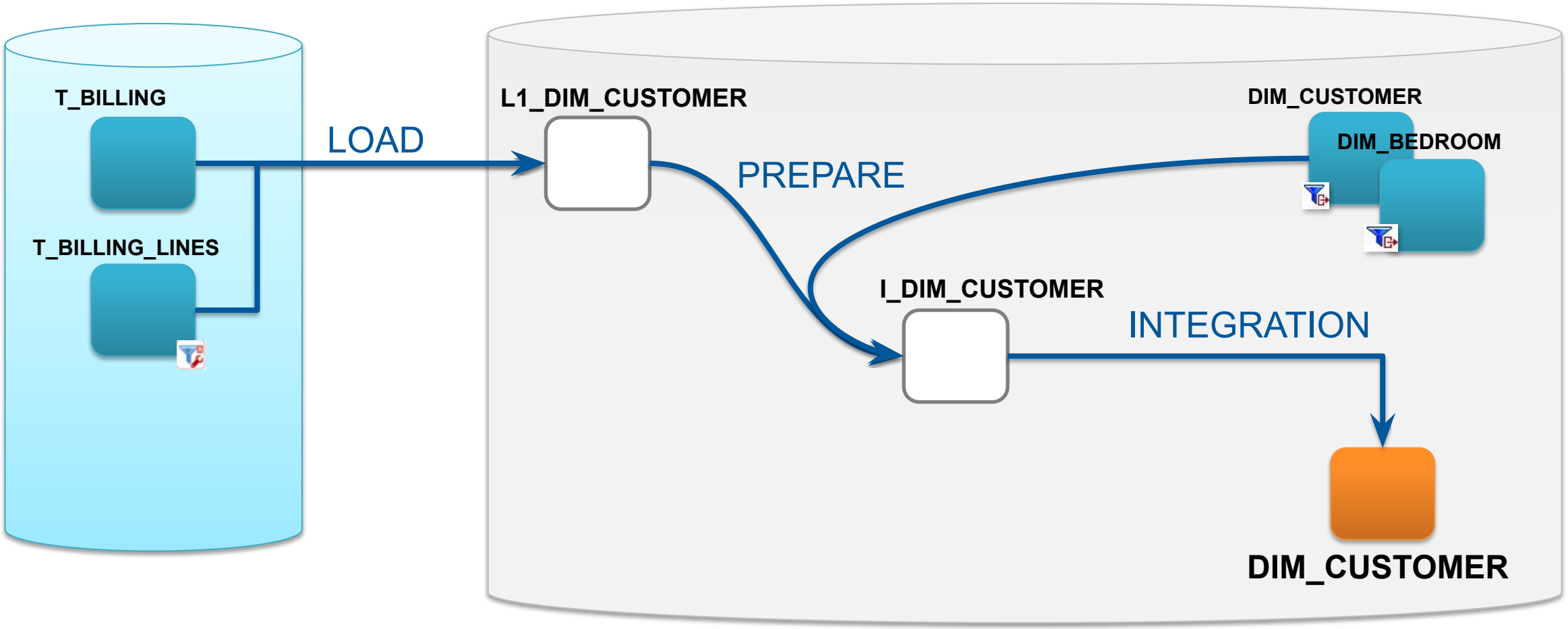
Understanding the result



Analyzing the result



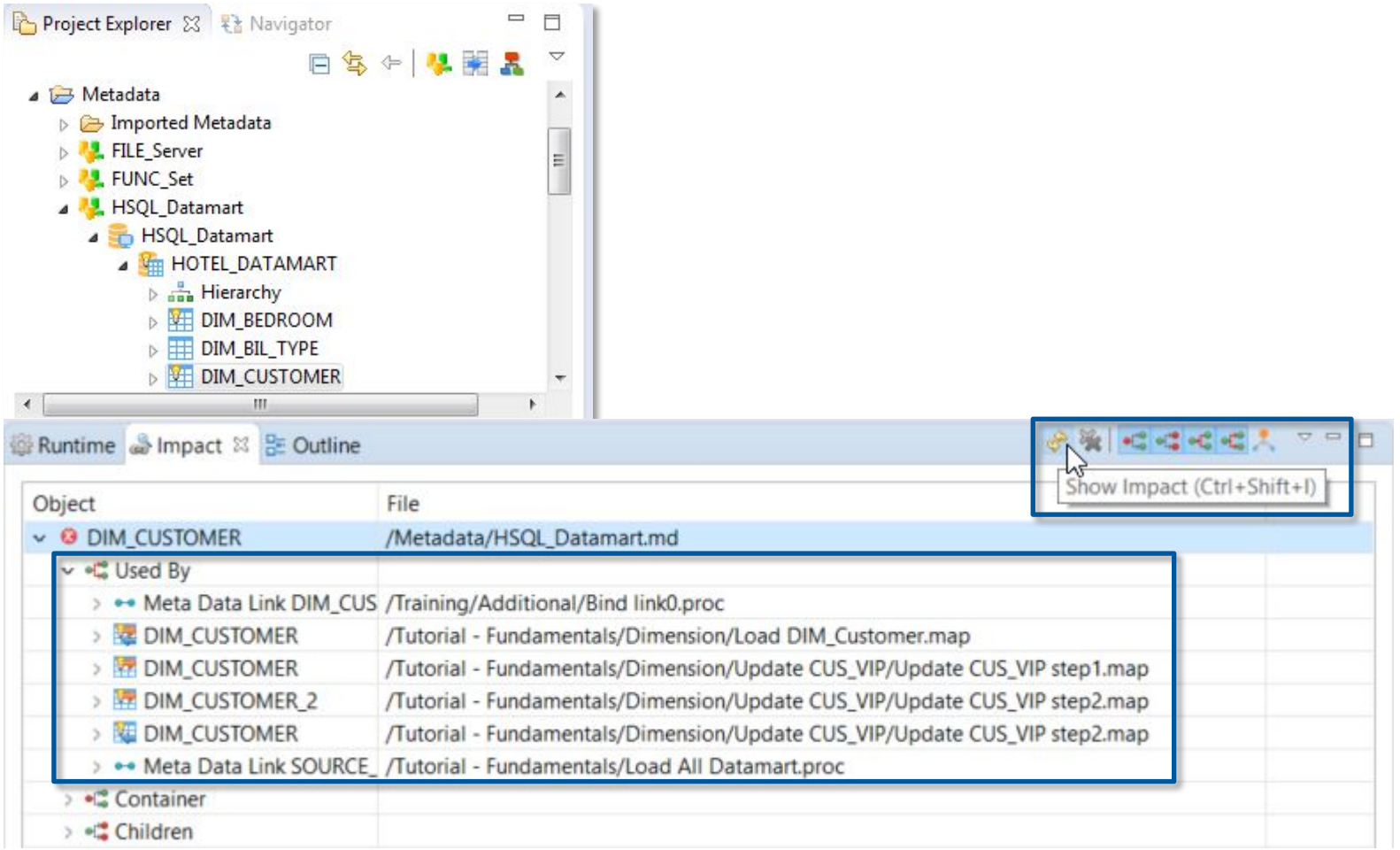
Understanding the result



Impact management & navigate in metadatas

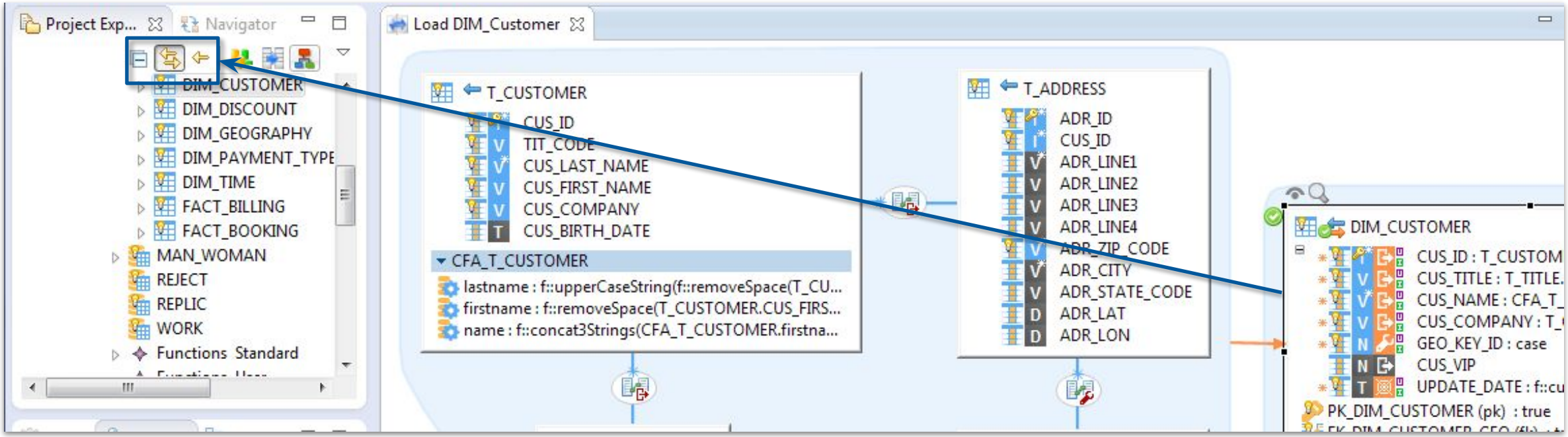
Impact management

Impact view can be used to help developers find the relationships between objects :



Navigate in Metadatas

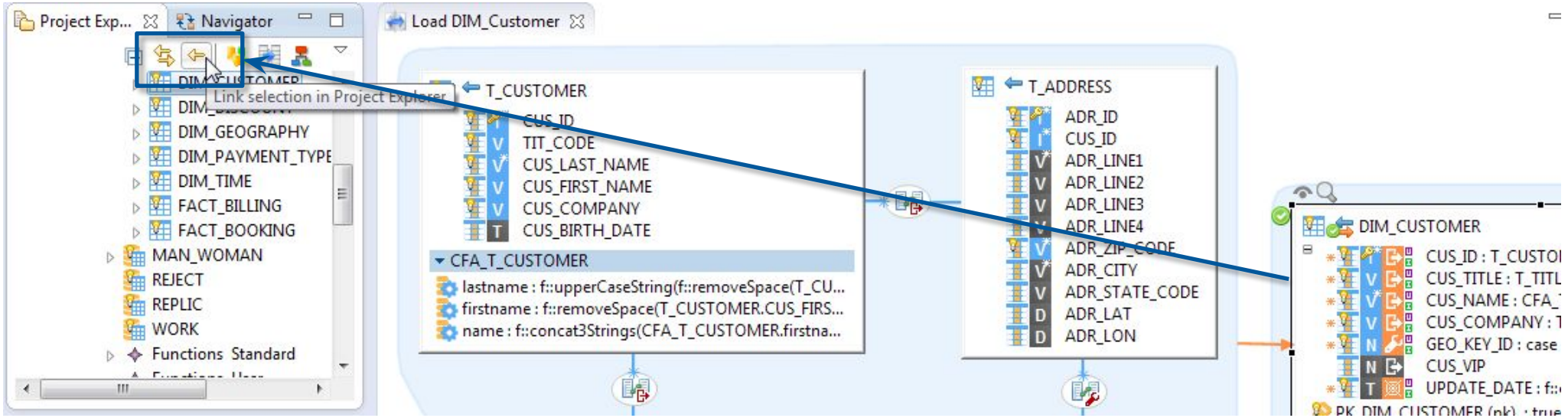
Use the “Link with Editor” button (push button switch) to find the related Metadata in the Project Explorer



Take care not to forget to unset the button after !

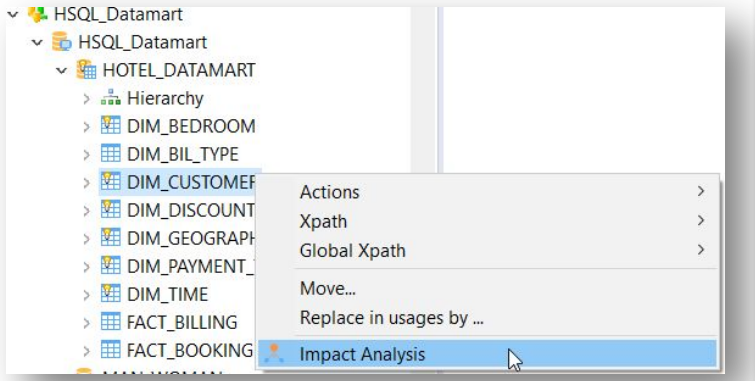
Navigate in Metadatas

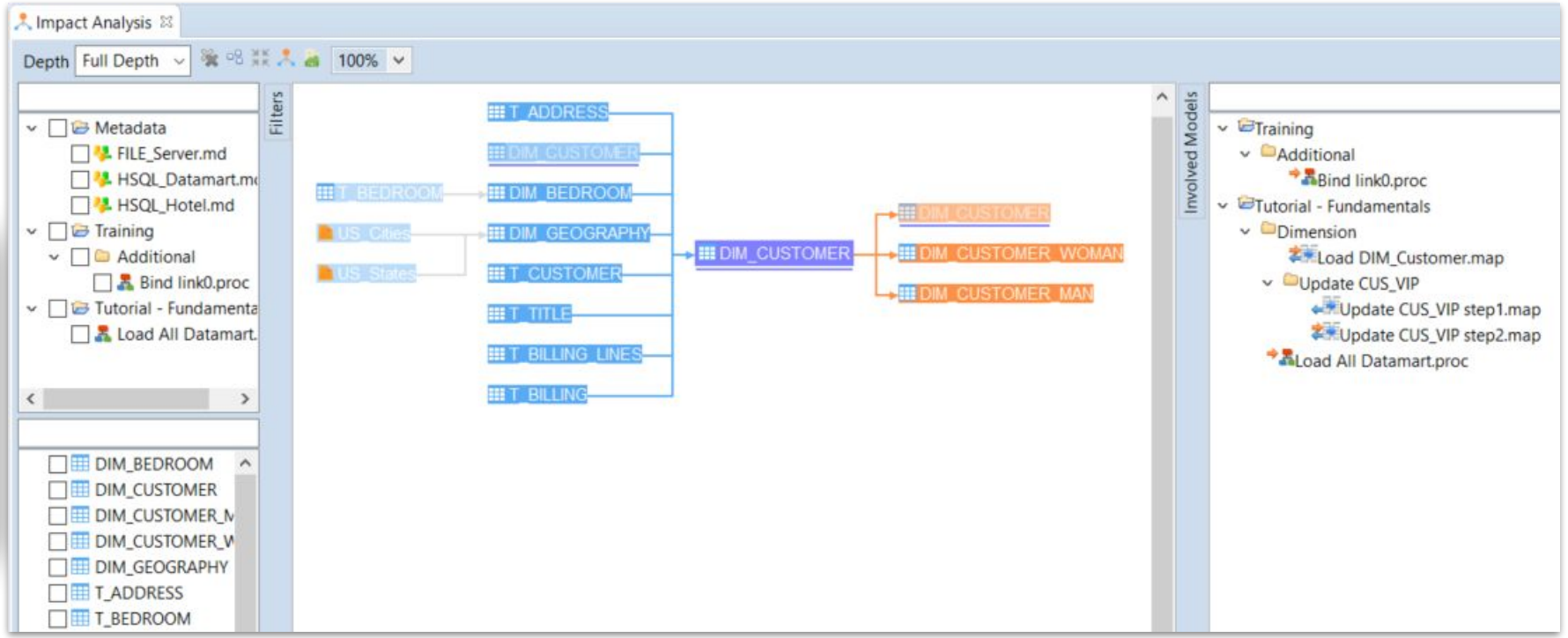
The “Link selection in Project Explorer” button to find the related Metadata in the Project Explorer



As the 'Link with Editor' button, it allows to focus in the Project Explorer on the select item, with the difference that the new one performs a one-shot link

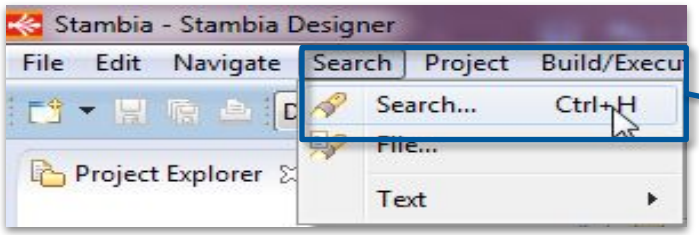
Impact management : impact analysis

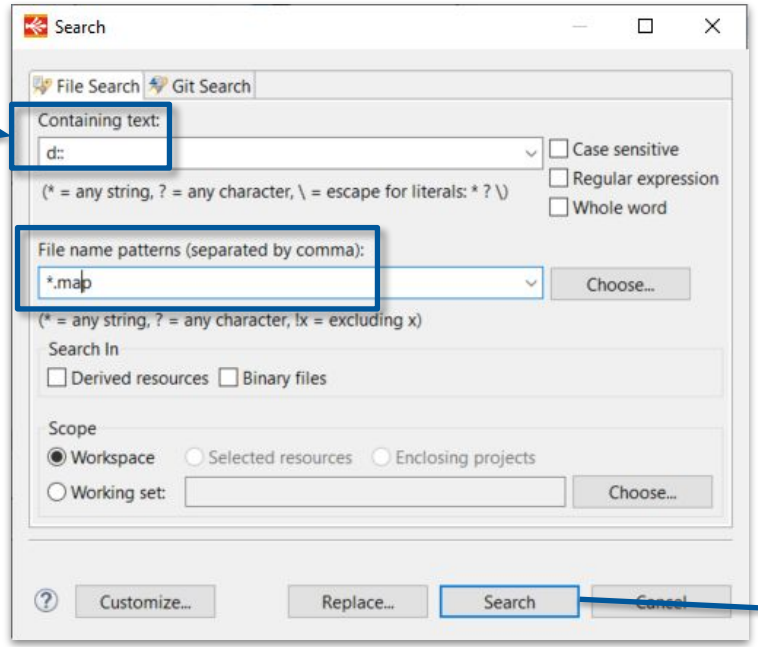


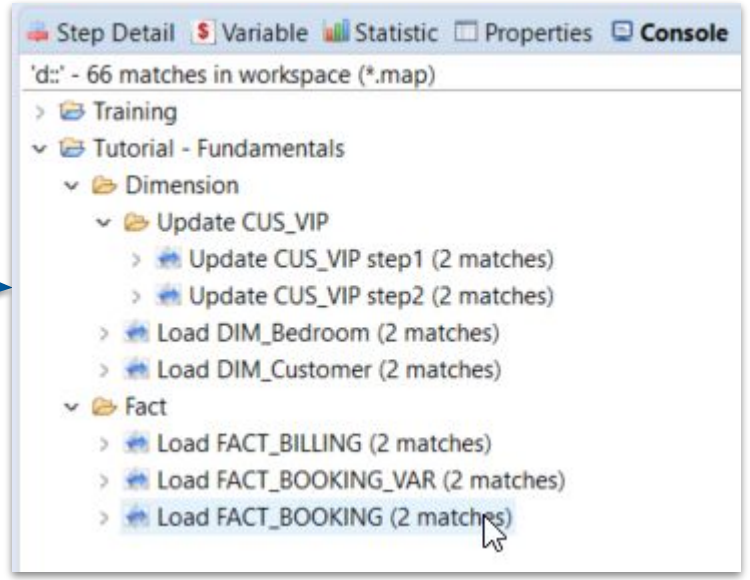


Navigate in resource files

Use the search menu to find text in the Workspace





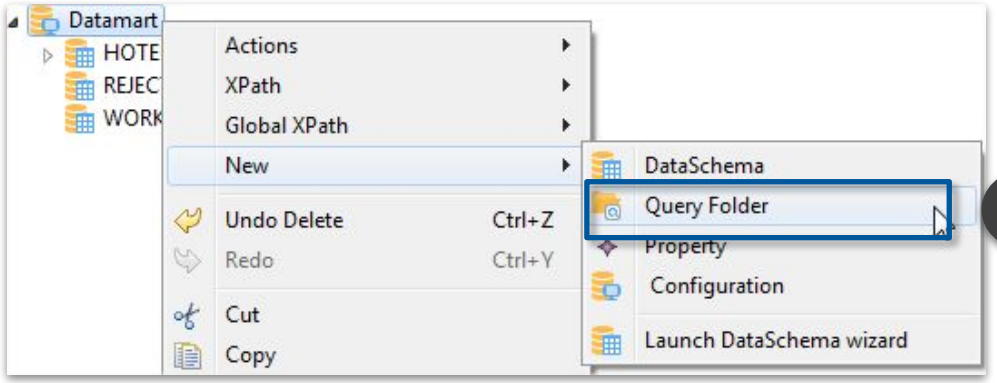



Semarchy
Query Metadata

Query metadata

It’s possible to define a query as a metadata to use it in a mapping

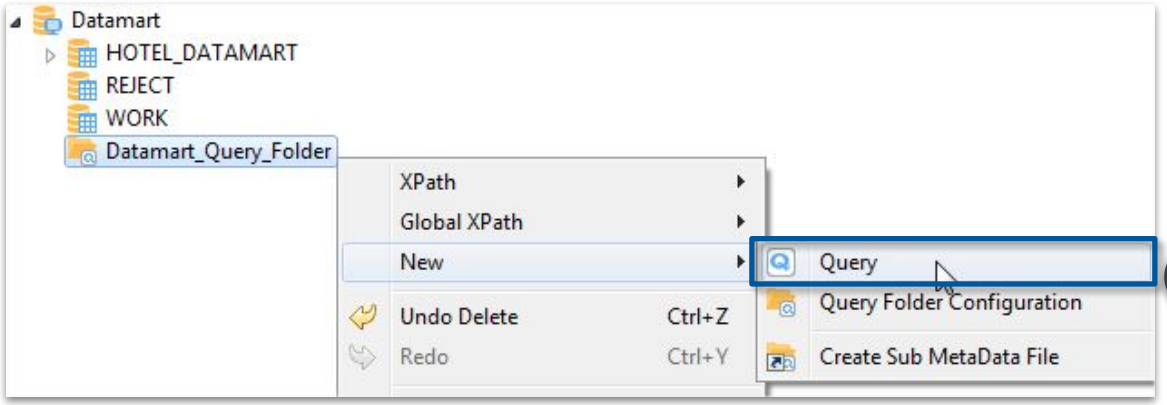
1. Create a query folder



Create a query folder (define a name) to store the query to use on this database

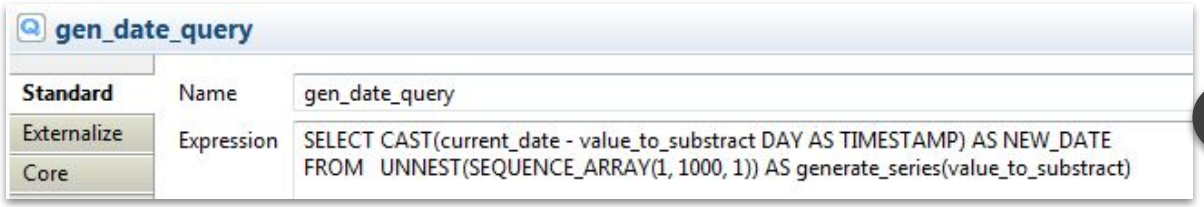
Query metadata

2. Create a query and define the SQL expression



2 *Create a query*

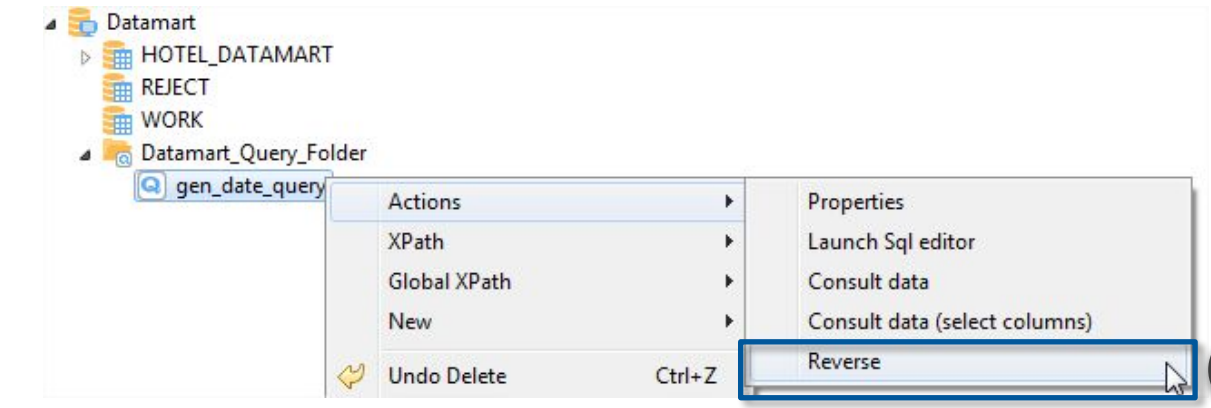
3. Define the name & the SQL expression



3 *Define a name and the SQL expression WITH a defined alias on each expression on the SELECT clause*

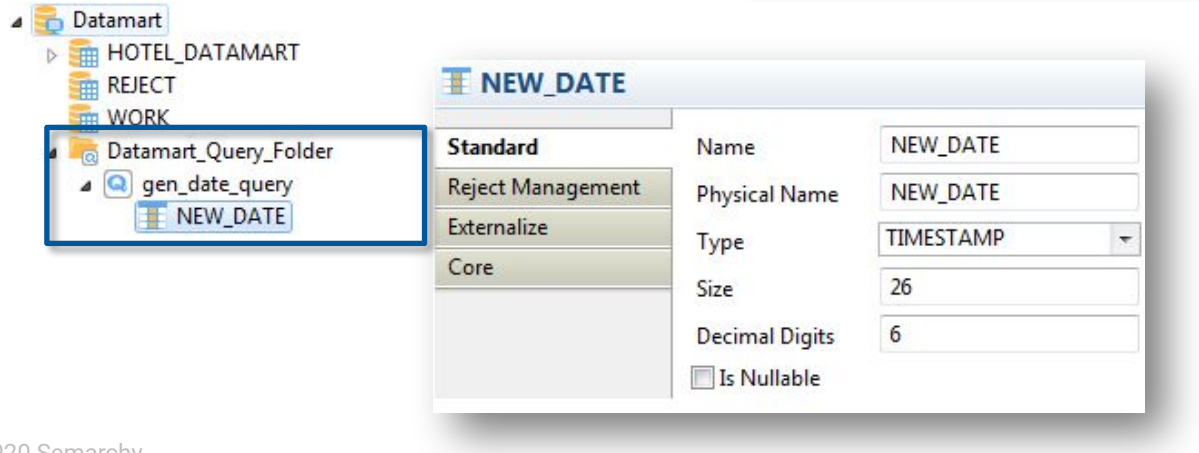
Query metadata

4. **Save** the query and finally "**Reverse**" the query to retrieve the columns



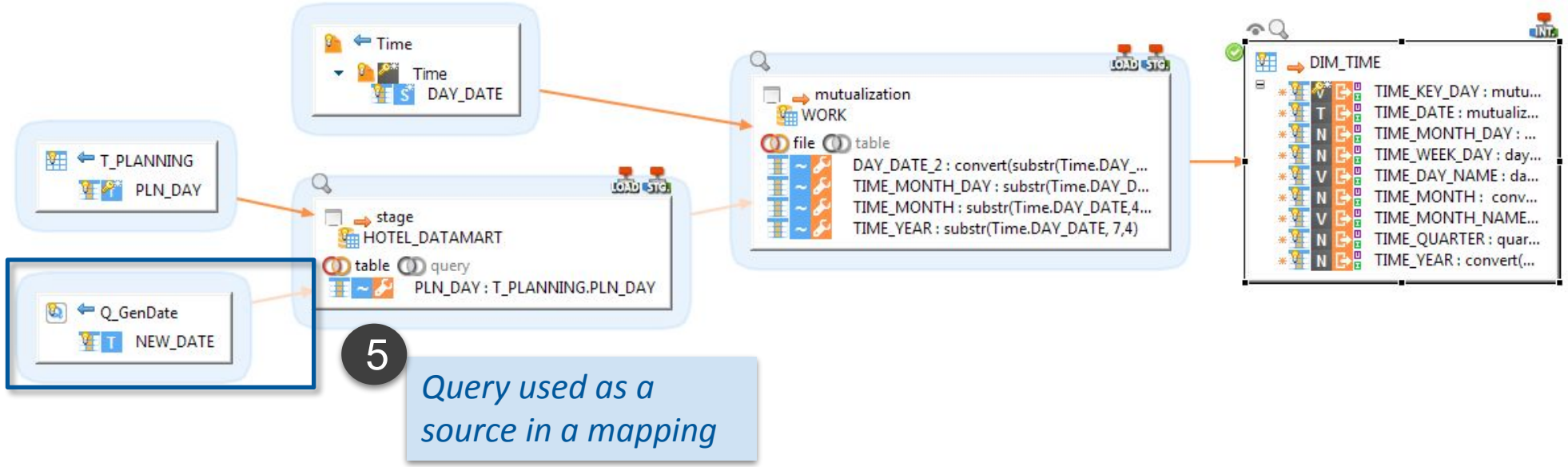
4

Reverse to have the corresponding columns of the alias in the expressions of the SELECT clause



Query metadata

5. It’s now possible to use this query in mappings

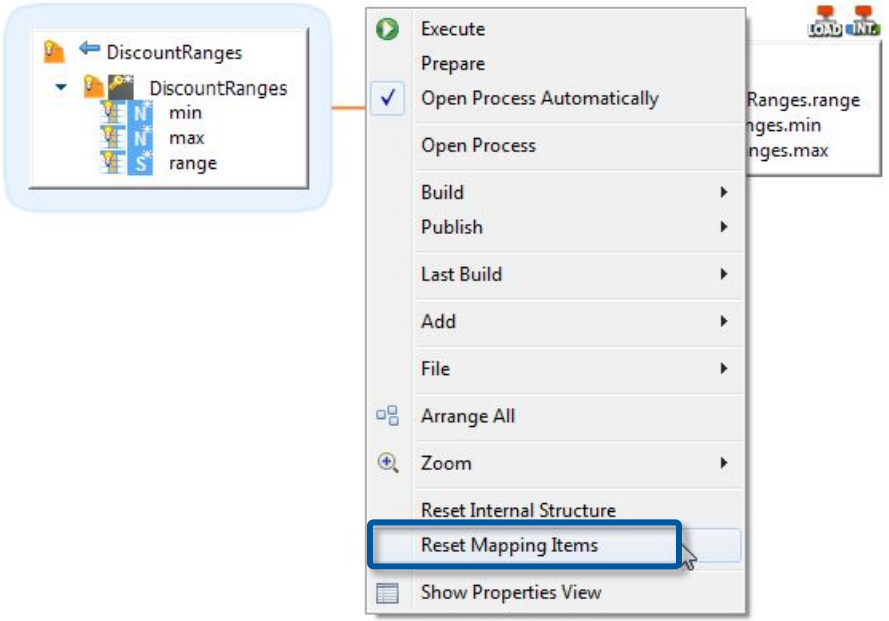



Semarchy
Tips to fix mapping, processes and locked demo databases

How to repair mapping and processes ?

To repair mapping

- Right click & “Reset Mapping Items” inside a mapping

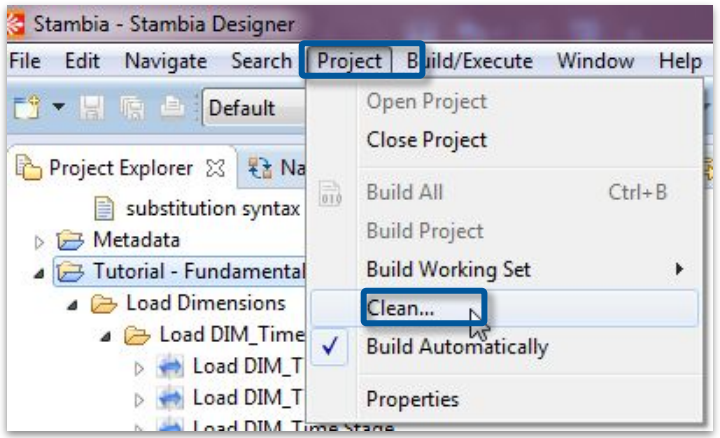


- Right click in Project Explorer, Advanced, Reinit diagram

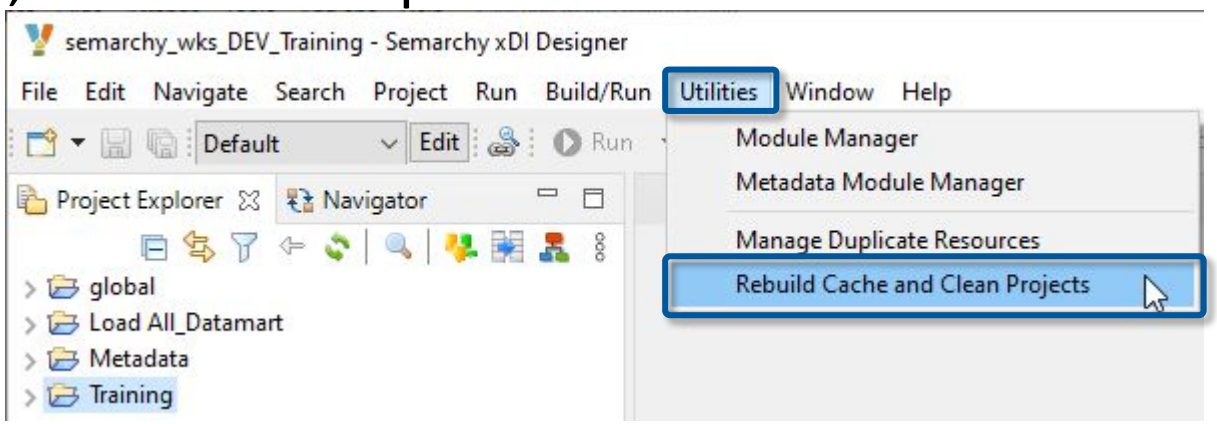
How to repair mapping and processes ?

To repair mapping or processes

- In menu, to clean a project



- In impact view, for the workspace

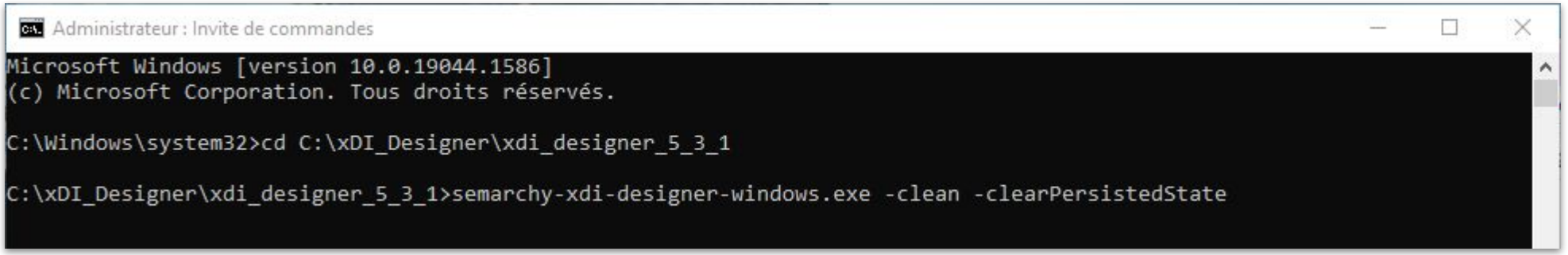


How to repair a workspace

To clean a workspace with errors

- Close your Designer
- Enter in command line, under the Designer folder

  semarchy-xdi-designer-windows.exe -clean -clearPersistedState



To go further

Document Type	Link
English video Learn about Data Reject management	https://www.youtube.com/watch?v=iJPSVGjDUpM
Stambia.org article Using Metadata queries	https://stambia.org/doc/77-development-hints-and-tips/metadata/216-using-metadata-queries
Stambia.org article Getting started with User Defined Functions	https://stambia.org/doc/218-development-hints-and-tips/user-defined-functions/537-getting-started-with-user-defined-functions
Stambia.org article Getting started with User Defined Functions (2)	https://stambia.org/doc/218-development-hints-and-tips/user-defined-functions/685-getting-started-with-user-defined-functions-2
Stambia.org article Changing the name of the temporary tables	https://stambia.org/doc/77-development-hints-and-tips/metadata/176-changing-the-name-of-temporary-tables
Stambia.org article Combining multiple sources with SQL set operator	https://stambia.org/doc/221-development-hints-and-tips/mapping-stages/672-combining-multiples-sources-with-sql-set-operators
Stambia.org article Defining Data Types on stage fields	https://stambia.org/doc/221-development-hints-and-tips/mapping-stages/539-defining-datatypes-on-stage-fields


Semarchy
Questions?