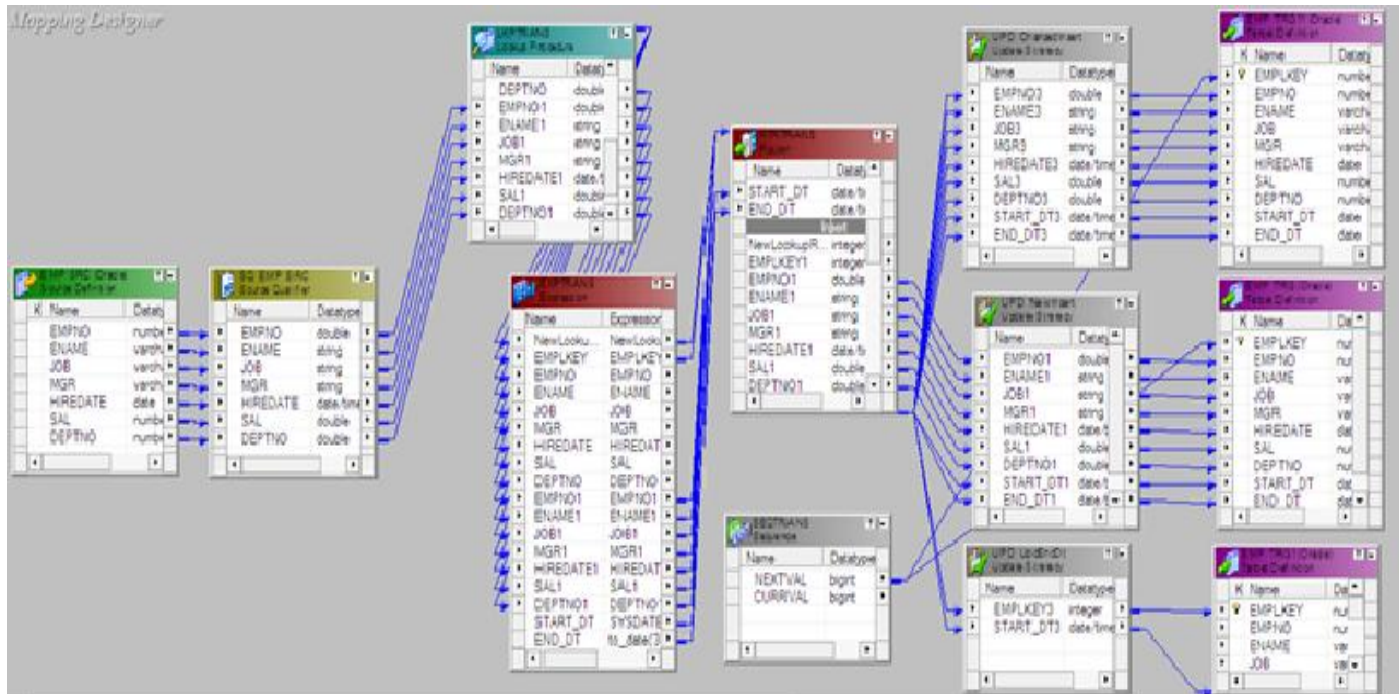


SCD Type 2 Using Dynamic Lookup



Source Table:

Create table EMP_SRC

(

EMPNO NUMBER,

ENAME VARCHAR2 (20),

JOB VARCHAR2 (10),

MGR VARCHAR2 (10),

HIREDATE DATE,

SAL NUMBER,

DEPTNO NUMBER

);

Target Table:

Create table EMP_TRG

(

EMPLKEY NUMBER,

EMPNO NUMBER,

ENAME VARCHAR2 (20),

JOB VARCHAR2 (10),

MGR VARCHAR2 (10),

HIREDATE DATE,

SAL NUMBER,

DEPTNO NUMBER,

START_DT DATE,

END_DT DATE

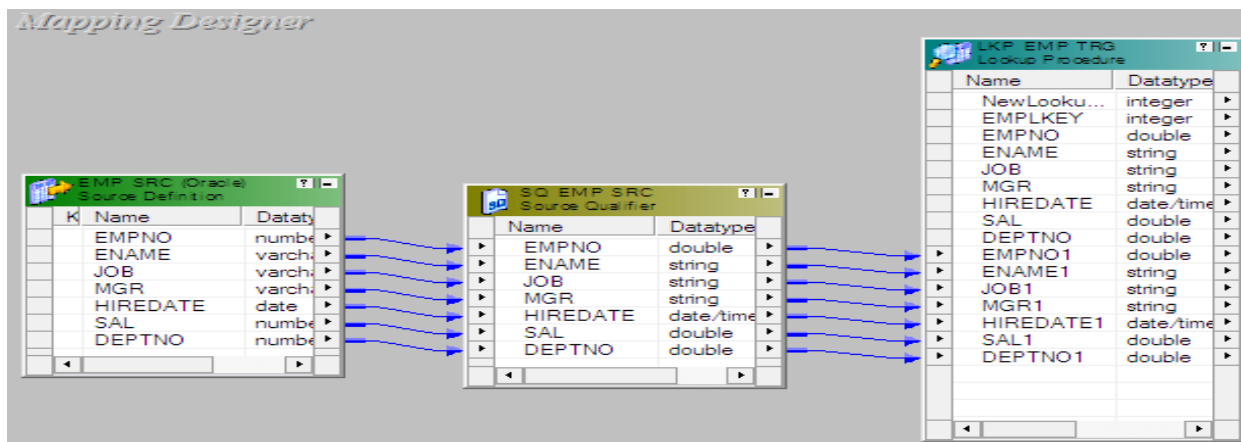
);

ALTER TABLE EMP_TRG ADD (CONSTRAINT EMP_D_PK PRIMARY KEY (EMPLKEY));

Here we are giving primary key on EMPLKEY as Primary key is required to update the Target table.

Steps:-

- 1) Import Source EMP_SRC and Target EMP_TRG to designer.
- 2) Create a mapping named m_SCD_Type2 and drop source and Targets into mapping Designer.
- 3) Take lookup on target EMP_TRG.
- 4) Take all the ports from source qualifier to the look up.
- 5) Remove START_DT and END_DT from the lookup.



6) Give joining condition as EMPNO=EMPNO1.

7) In properties tab select 'Dynamic Cache' and 'Insert Else Update' Option .By selecting 'Dynamic Cache' a new port will be generated in look up which will be NewLookupRow Port as shown in above figure.

Edit Transformations

Transformation | Ports | Properties | Condition | Metadata Extensions

Select transformation: LKP_EMP_TRG

Transformation type: Lookup Procedure

Transformation Attribute	Value
Lookup policy on multiple match	Report Error
Lookup condition	EMPNO = EMPNO1
Connection Information	\$Target
Source Type	Database
Tracing Level	Normal
Lookup cache directory name	\$PMCacheDir
Lookup cache persistent	<input type="checkbox"/>
Lookup Data Cache Size	Auto
Lookup Index Cache Size	Auto
Dynamic Lookup Cache	<input checked="" type="checkbox"/>
Synchronize Dynamic Cache	<input type="checkbox"/>
Output Old Value On Update	<input type="checkbox"/>
Update Dynamic Cache Condition	TRUE
Cache File Name Prefix	
Re-cache from lookup source	<input type="checkbox"/>
Insert Else Update	<input checked="" type="checkbox"/>
Update Else Insert	<input type="checkbox"/>
Datetime Format	
Thousand Separator	None

Lookup Sql Override

Replacement query for lookup values

8) Generate SQL and Give Lookup Sql Override as :-

```
SELECT EMPLKEY AS EMPLKEY,
ENAME      AS ENAME,
JOB        AS JOB,
MGR        AS MGR,
HIREDATE   AS HIREDATE,
SAL        AS SAL,
DEPTNO     AS DEPTNO,
EMPNO      AS EMPNO
FROM EMP_TRG m
WHERE EMPLKEY =
( SELECT MAX(EMPLKEY) FROM EMP_TRG n WHERE m.EMPNO=n.EMPNO
)
```

Because we have to select for the maximum employee key and in that we have to do the changes.

If it is not selected then it will give duplicate value error after running the session as Dynamic lookup only returns unique rows.

9) Now in Ports tab of Lookup Transformation change the data type of EMPLKEY port as integer and it will create Sequence-ID as its Associated Expression as it is required for sequence generation and associate all the ports of the lookup with the incoming source rows as shown below.

Edit Transformations

Transformation: **LKP_EMP_TRG**
Transformation type: **Lookup Procedure**

Port Name	Datatype	Prec	Scale	I	O	L	R	Associated Expression	I...	L...
1 NewLookupRow	integer	10	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	- N/A -	<input type="checkbox"/>	<input type="checkbox"/>
2 EMPLKEY	integer	10	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sequence-ID	<input type="checkbox"/>	<input type="checkbox"/>
3 EMPNO	double	15	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EMPNO1	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4 ENAME	string	20	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ENAME1	<input type="checkbox"/>	<input type="checkbox"/>
5 JOB	string	10	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	JOB1	<input type="checkbox"/>	<input type="checkbox"/>
6 MGR	string	10	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	MGR1	<input type="checkbox"/>	<input type="checkbox"/>
7 HIREDATE	date/time	29	9	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	HIREDATE1	<input type="checkbox"/>	<input type="checkbox"/>
8 SAL	double	15	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SAL1	<input type="checkbox"/>	<input type="checkbox"/>
9 DEPTNO	double	15	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	DEPTNO1	<input type="checkbox"/>	<input type="checkbox"/>
10 EMPNO1	double	15	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	- N/A -	<input type="checkbox"/>	<input type="checkbox"/>
11 ENAME1	string	20	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	- N/A -	<input type="checkbox"/>	<input type="checkbox"/>
12 JOB1	string	10	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	- N/A -	<input type="checkbox"/>	<input type="checkbox"/>
13 MGR1	string	10	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	- N/A -	<input type="checkbox"/>	<input type="checkbox"/>
14 HIREDATE1	date/time	29	9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	- N/A -	<input type="checkbox"/>	<input type="checkbox"/>
15 SAL1	double	15	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	- N/A -	<input type="checkbox"/>	<input type="checkbox"/>
16 DEPTNO1	double	15	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	- N/A -	<input type="checkbox"/>	<input type="checkbox"/>

Default value:

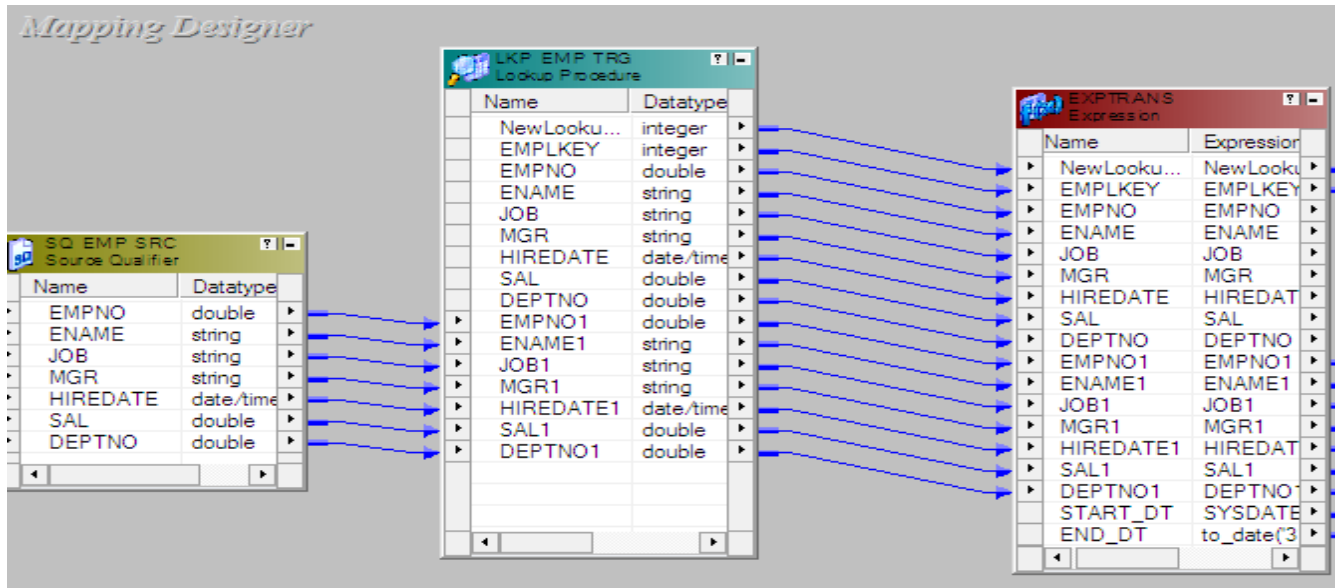
Description:

OK Cancel Apply Help

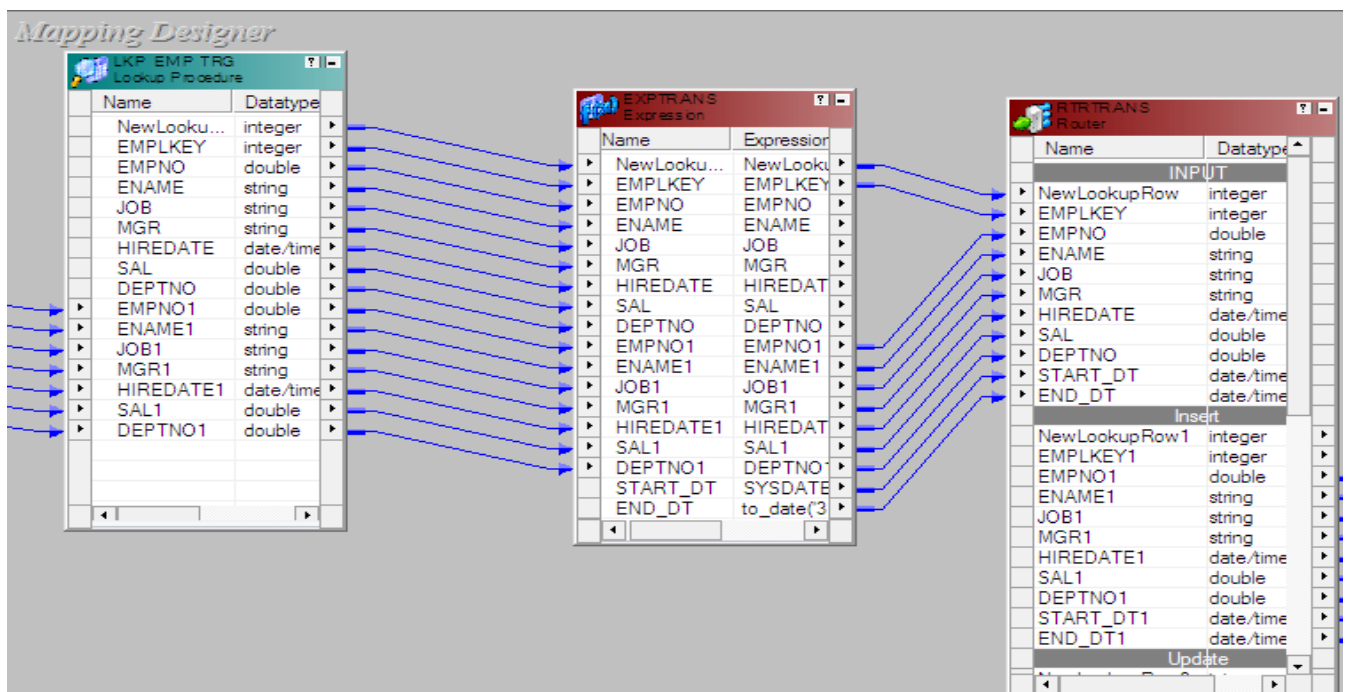
10) Now take all the ports from the lookup to the expression transformation.

Create two output ports in expression as START_DT and END_DT with data type as **date/time** and expression as SYSDATE for START_DT and for END_DT as *to_date('31-DEC-2199','DD-MON-YYYY')*.

As END_DT has to be the Maximum Date.



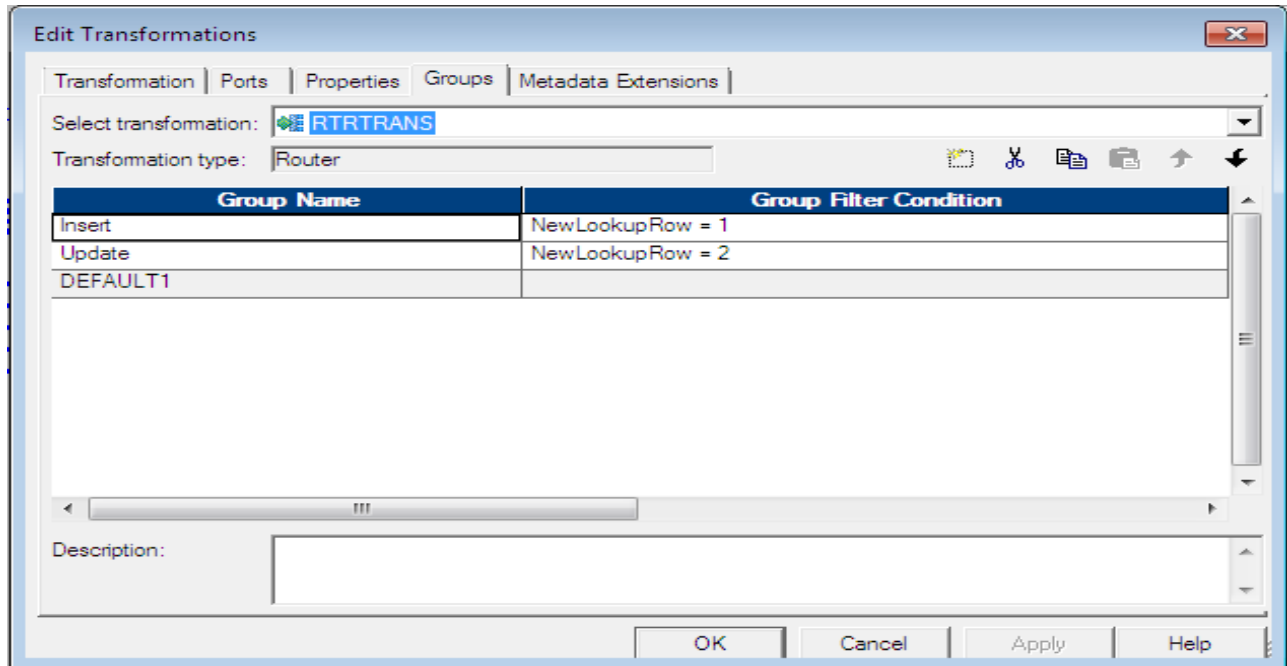
11) Now Take NewlookupRow , EMPLKEY port from lookup and all the ports which are coming from source qualifier to lookup which is ending with 1 like EMPNO1,ENAME1 etc. and START_DT and END_DT from Expression transformation to the router transformation. Or you can change the names of ports ending with 1 as in_EMPNO and in_ENAME etc. depending upon your understanding.



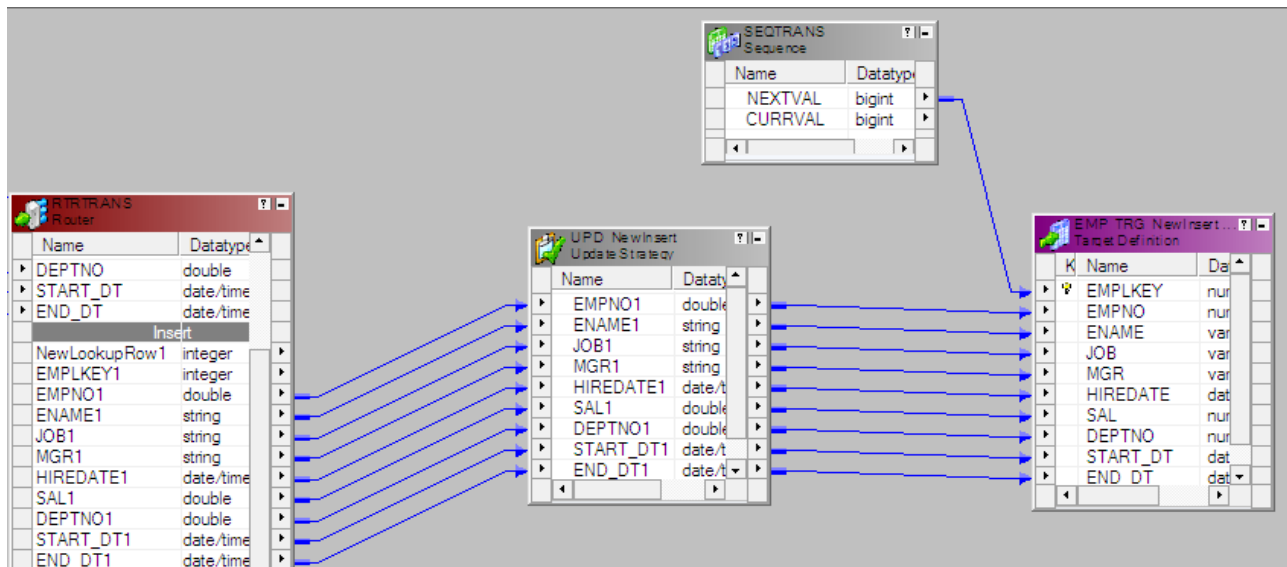
12) Create two groups in Router as Insert and Update with values:

Insert- NewLookupRow = 1

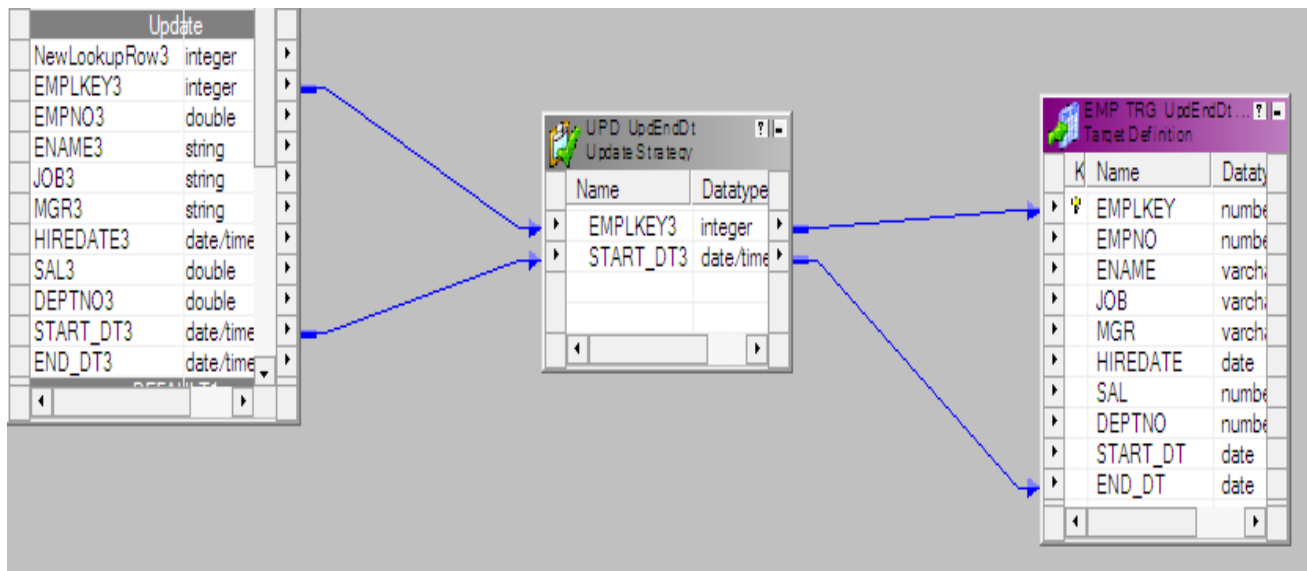
Update- NewLookupRow = 2



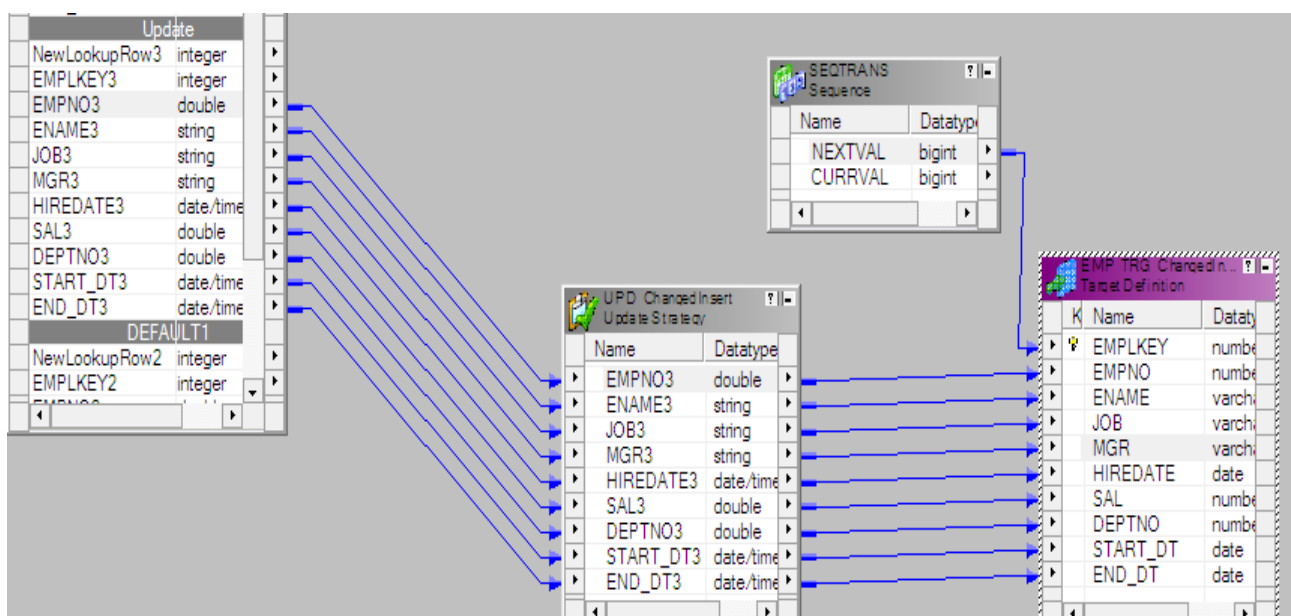
13) Now take all the ports except NewLookupRow and EMPLKEY from 'Insert' group to first Update Strategy Transformation which will be 'UPD_NewInsert' with Expression as DD_INSERT. Now take all ports from Update Strategy Transformation and connect with all the ports of the first instance of the Target except EMPLKEY. Take one Sequence Generator Transformation and connect NEXTVAL Port to the EMPLKEY Port of first instance of the Target EMP_TRG_NewInsert.



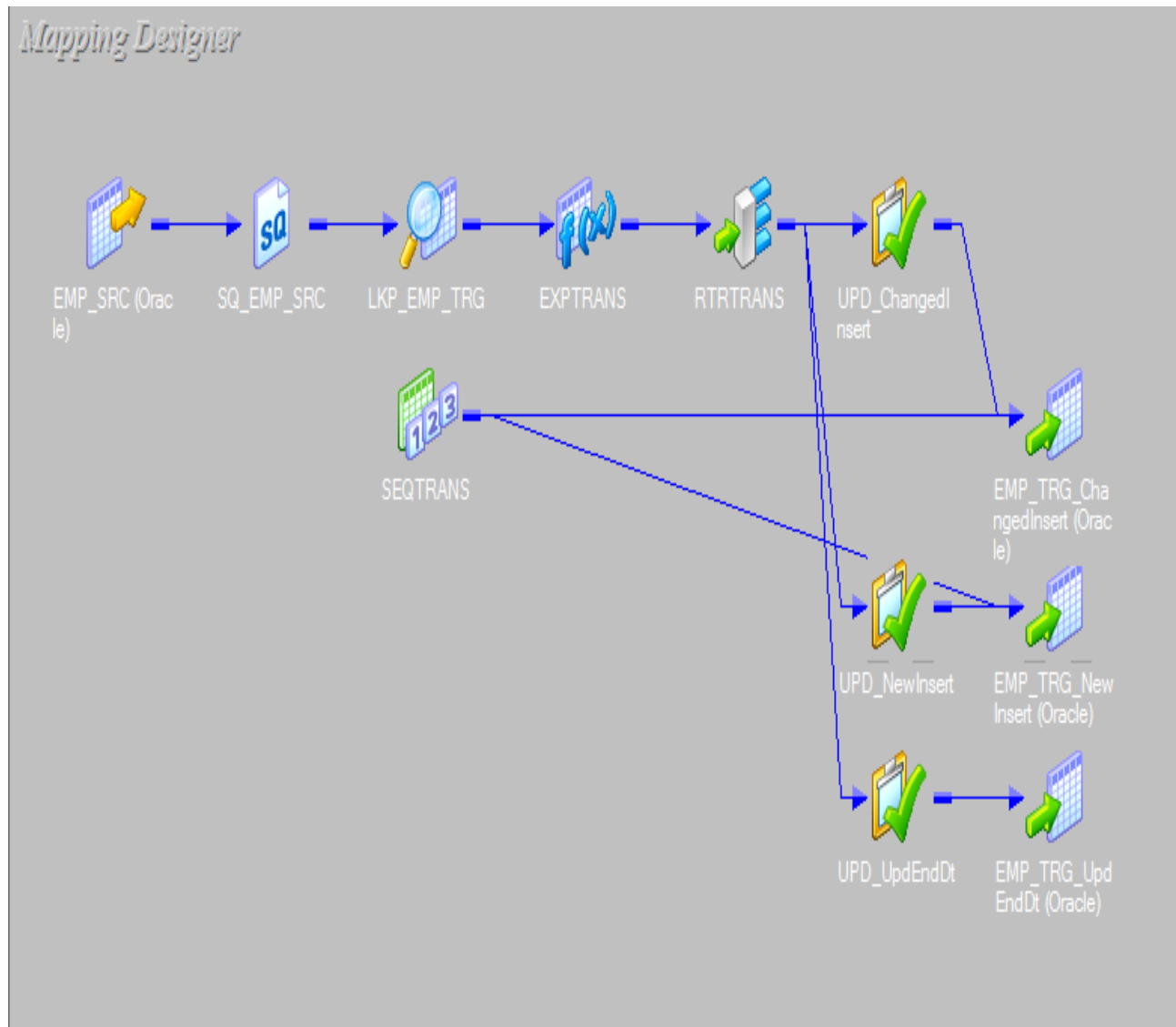
14) Now take only EMPLKEY and START_DT port from the 'Update' group of Router Transformation to the second Update Strategy Transformation which will be 'UPD_UpdEndDt' with Expression as DD_UPDATE. Now connect EMPLKEY port from second Update Strategy Transformation with EMPLKEY port of the second instance of the Target EMP_TRG_UpdEndDt and connect Start date from this Update Strategy Transformation to the END_DT of the second instance of the Target. This will be for Updating End Date.



15) Now take all the ports except NewLookupRow and EMPLKEY from 'Update' group of Router Transformation to third Update Strategy Transformation which will be 'UPD_ChangedInsert' with Expression as DD_INSERT. Now take all ports from Update Strategy Transformation and connect with all the ports of the third instance of Target except EMPLKEY. Connect NEXTVAL Port from the Sequence Generator Transformation to the EMPLKEY Port of third instance of the Target EMP_TRG_ChangedInsert.



16) Save the Mapping and finally the Mapping will look like this :



17) Now create a Workflow and a session task for this mapping. Give the proper connections for the source, Lookup and all the target instances by editing the session in Mapping Tab.

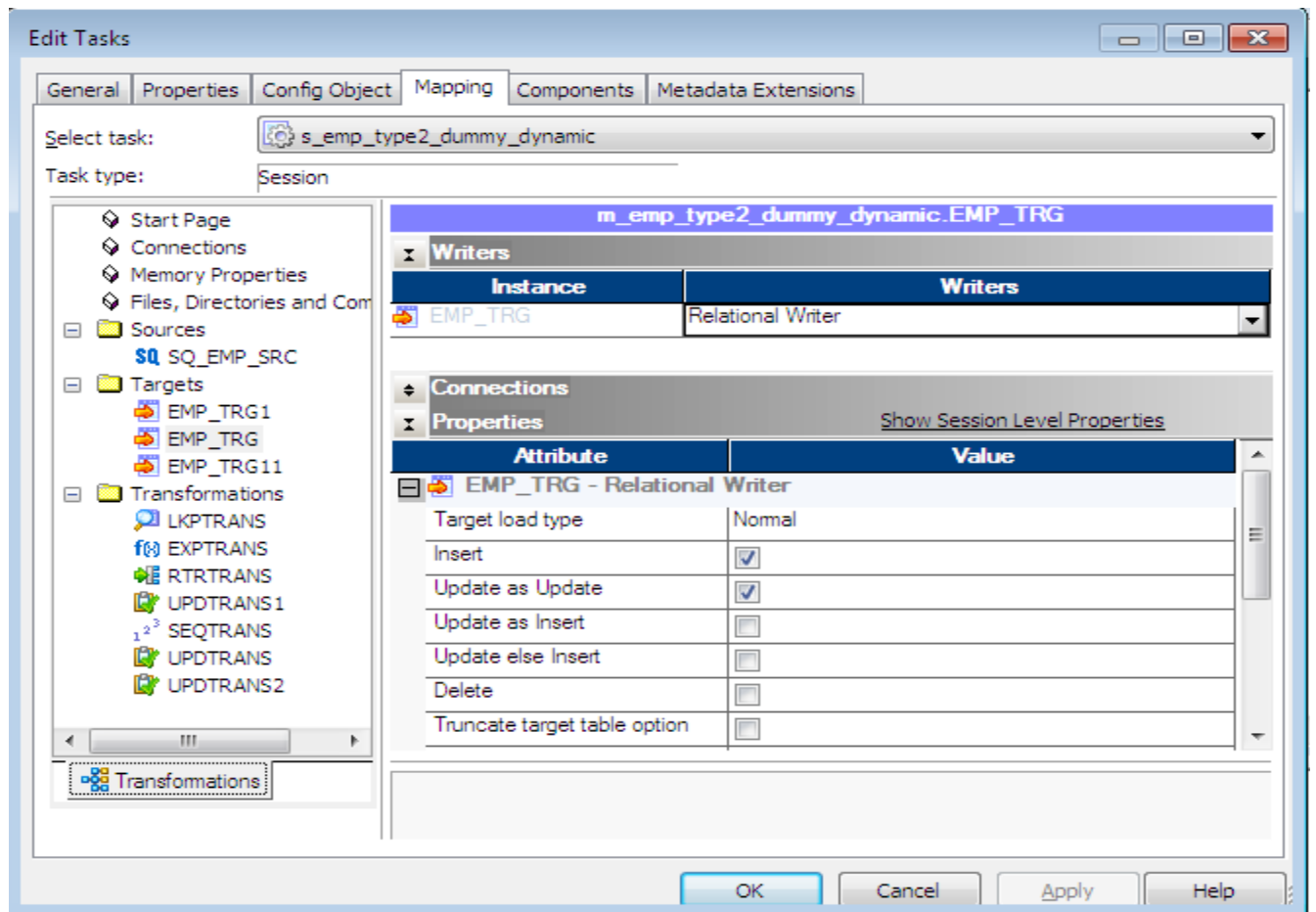
In Mapping Tab set the properties for all the Target instances as:

Target load Type – Normal

Insert – Checked

Update as Update – Checked

All other fields should be Unchecked.



18) In Properties Tab set 'Treat source rows as' as 'Data driven'.

The screenshot shows the 'Edit Tasks' dialog box with the 'Properties' tab selected. The 'Select task:' dropdown is set to 's_emp_type2_dummy_dynamic'. The 'Task type:' is 'Session'. Below this is a table with 'Attribute' and 'Value' columns. The 'Treat source rows as' attribute is highlighted with a red circle, and its value is 'Data driven'. Other attributes include 'Write Backward Compatible Session Log File', 'Session Log File Name', 'Session Log File directory', 'Parameter Filename', 'Enable Test Load', 'Number of rows to test', '\$Source connection value', '\$Target connection value', 'Commit Type', 'Commit Interval', 'Commit On End Of File', 'Rollback Transactions on Errors', and 'Recovery Strategy'.

Attribute	Value
General Options	
Write Backward Compatible Session Log File	<input type="checkbox"/>
Session Log File Name	s_emp_type2_dummy_dynamic.log
Session Log File directory	\$PMSessionLogDir\
Parameter Filename	
Enable Test Load	<input type="checkbox"/>
Number of rows to test	1
\$Source connection value	
\$Target connection value	
Treat source rows as	Data driven
Commit Type	Target
Commit Interval	10000
Commit On End Of File	<input checked="" type="checkbox"/>
Rollback Transactions on Errors	<input type="checkbox"/>
Recovery Strategy	Fail task and continue workflow

General Options

General

OK Cancel Apply Help

Now refresh the mapping and save and start the workflow.

Check for all the scenarios at Source level and Target level that is required in SCD Type 2 to maintain the history with the combination of START_DT and END_DT.

Use of Dynamic cache in mapping:-

- Create a lookup with the property “Dynamic Cache Enable” checked.
- Associate all the lookup ports with the other Input ports for those which are not in the joining conditions
- If want to output Old values instead of new values after updating the new lookup cache, use property “Output old value on Update”
- Set the session property “Treat Source Row as” as “Data Driven”
- Set the property “Insert” and “Update as Update” for all target instances getting affected by Dynamic Lookup cache in Session
- Unselect property “Delete” in session for all the targets
- You have to associate the input ports to all the lookup ports; hence you cannot use columns which are not in source in the dynamic lookup.
- As all the source rows are flagged as Insert, Select “Insert Else Update” in the Lookup Properties
- If you want to use “Update Else Insert” You need to make all the rows as “Update”
- When mark as ‘Insert else update’ following things happen:-

Insert Else Update Option	Row Found in Cache	Data Cache is Different	Lookup Cache Result	NewLookupRow Value
Not Selected	Yes	Yes	Update	0
Not Selected	Yes	No	No Change	0
Not Selected	No	NA	Insert	1
Selected	Yes	Yes	Update	2
Selected	Yes	No	No Change	0
Selected	No	NA	Insert	1

- When mark as 'Update else Insert' following things happen:-

Insert Else Update Option	Row Found in Cache	Data Cache is Different	Lookup Cache Result	NewLookupRow Value
Not Selected	Yes	Yes	Update	2
Not Selected	Yes	No	No Change	0
Not Selected	No	NA	No Change	0
Selected	Yes	Yes	Update	2
Selected	Yes	No	No Change	0
Selected	No	NA	Insert	1