## SCD1 Design approach:

This is one of the most widely used design approach.

SRC->SQ->LKP->EXP->RTR->UPD->TGT1 & TGT2

Understanding the Mapping: The Type 1 Dimension mapping performs the following tasks:

1. Selects all rows.
2. Caches the existing target as a lookup table.
3. Compares logical key columns in the source against corresponding columns in the target lookup table.
4. Compares source columns against corresponding target columns if key columns match.
5. Flags new rows as INSERT, changed rows as UPDATE and unchanged incoming rows as REJECT
6. Creates two data flows: one for new rows, one for changed rows.
7. Generates a primary key/surrogate key for new rows.
8. Inserts new rows to the target.
9. Updates changed rows in the target, overwriting existing rows.
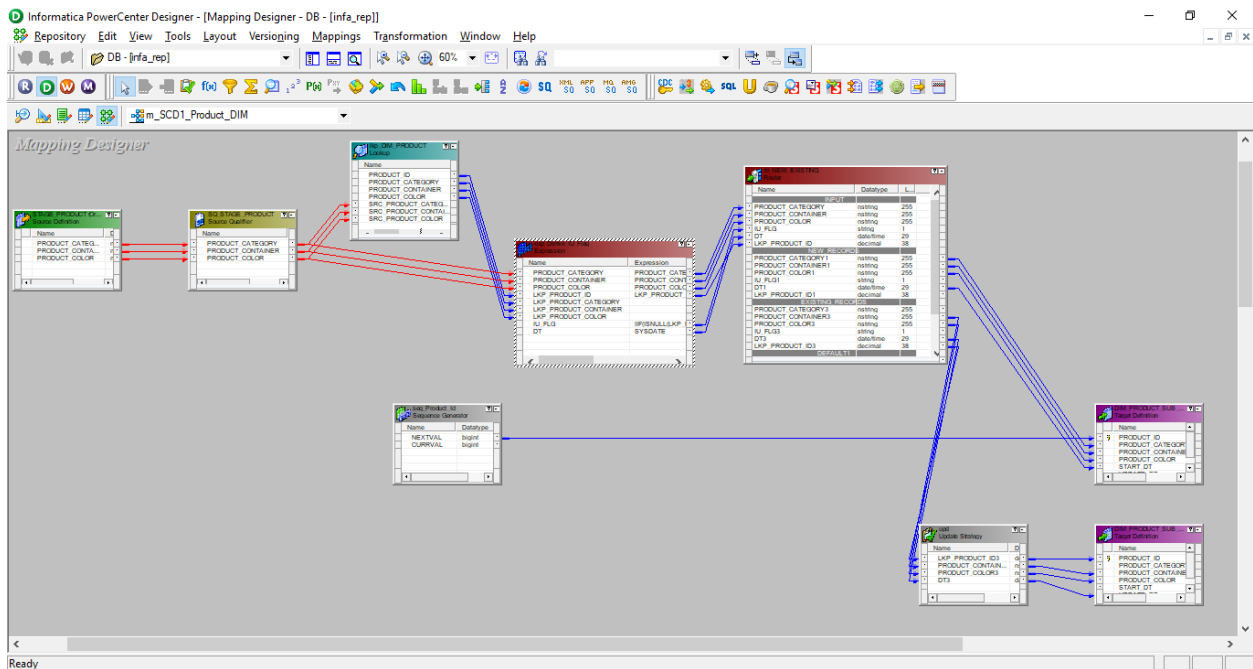
Lookup: Lookup on Target table. Pass the natural key from source to Lookup which can be used for condition between Source and Lookup. Get all the TYPE2 attributes from Lookup table.

Edit Transformations ✕

Transformation | Ports | Properties | Condition | Metadata Extensions

Select transformation: lkp_DIM_PRODUCT ▼

Transformation type: Lookup Procedure

	Port Name	Datatype	Prec	Scale	I	O	L	R	Associated Expression	I...	I...
1	PRODUCT_ID	decimal	38	0	☐	☑	☑	☐	- N/A -	☐	☐
2	PRODUCT_CATEGORY	nstring	255	0	☐	☑	☑	☐	- N/A -	☐	☑
3	PRODUCT_CONTAINER	nstring	255	0	☐	☑	☑	☐	- N/A -	☐	☐
4	PRODUCT_COLOR	nstring	255	0	☐	☑	☑	☐	- N/A -	☐	☐
5	SRC_PRODUCT_CATEGORY	nstring	255	0	☑	☐	☐	☐	- N/A -	☐	☐
6	SRC_PRODUCT_CONTAINER	nstring	255	0	☑	☐	☐	☐	- N/A -	☐	☐
7	SRC_PRODUCT_COLOR	nstring	255	0	☑	☐	☐	☐	- N/A -	☐	☐

Default value: ✔

Description:

OK | Cancel | Apply | Help

Edit Transformations

Transformation | Ports | **Properties** | Condition | Metadata Extensions

Select transformation: lkp_DIM_PRODUCT ▼

Transformation type: Lookup Procedure

Transformation Attribute	Value
Lookup Sql Override	▼
Lookup table name	DIM_PRODUCT
Lookup Source Filter	
Lookup caching enabled	☑
Lookup policy on multiple match	Use Any Value
Lookup condition	PRODUCT_CATEGORY = SRC_PRODUCT_CATEGORY
Connection Information	$Target
Source Type	Database
Tracing Level	Normal
Lookup cache directory name	$PMCacheDir
Lookup cache persistent	☐
Lookup Data Cache Size	Auto
Lookup Index Cache Size	Auto
Dynamic Lookup Cache	☐
Synchronize Dynamic Cache	☐
Output Old Value On Update	☐
Update Dynamic Cache Condition	TRUE

Lookup Sql Override

Replacement query for lookup values

OK   Cancel   Apply   Help

Edit Transformations

Transformation | Ports | Properties | Condition | Metadata Extensions

Select transformation: lkp_DIM_PRODUCT

Transformation type: Lookup Procedure

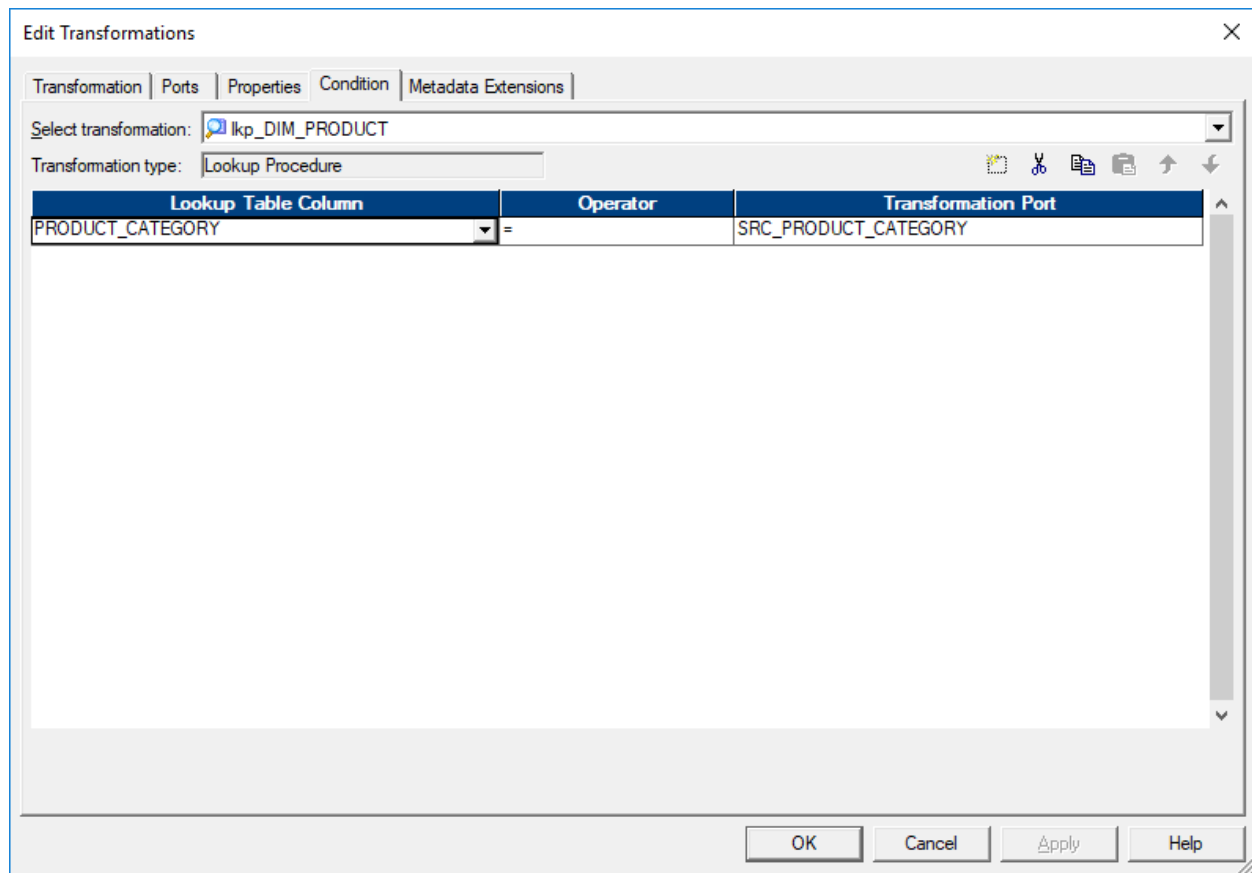| Lookup Table Column	Operator	Transformation Port
PRODUCT_CATEGORY	=	SRC_PRODUCT_CATEGORY

OK | Cancel | Apply | Help

Expression: Derive Flag which can mark incoming records as either INSERT or UPDATE or REJECT.

To understand if there is any incoming data which there in the target are already and if these incoming data are actual updates which means they are different from target data. MD5 provides a hash number, hence is used for combination of source attributes and target attributes and then compare source attributes with target attributes to understand if there is any actual change.

Edit Transformations

Transformation | Ports | Properties | Metadata Extensions

Select transformation: `f⦿` exp_Derive_IU_Flag

Transformation type: Expression

	Port Name	Datatype	Prec	Scale	I	O	V	Expression
1	PRODUCT_CATEGORY	nstring	255	0	☑	☑	☐	PRODUCT_CATEGORY
2	PRODUCT_CONTAINER	nstring	255	0	☑	☑	☐	PRODUCT_CONTAINER
3	PRODUCT_COLOR	nstring	255	0	☑	☑	☐	PRODUCT_COLOR
4	LKP_PRODUCT_ID	decimal	38	0	☑	☑	☐	LKP_PRODUCT_ID
5	LKP_PRODUCT_CATEGORY	nstring	255	0	☑	☐	☐	
6	LKP_PRODUCT_CONTAINER	nstring	255	0	☑	☐	☐	
7	LKP_PRODUCT_COLOR	nstring	255	0	☑	☐	☐	
8	V_SRC_MD5	string	1000	0	☐	☐	☑	MD5(PRODUCT_CATEGORY‖PRODUCT...
9	V_TGT_MD5	string	1000	0	☐	☐	☑	MD5(LKP_PRODUCT_CATEGORY‖LKP_...
10	IU_FLG	string	1	0	☐	☑	☐	IIF(ISNULL(LKP_PRODUCT_ID),'I',...
11	DT	date/time	29	9	☐	☑	☐	SYSDATE

Default value:

Description:

OK | Cancel | Apply | Help

Expression Editor: V_SRC_MD5 - exp_Derive_IU_Flag (Expression)

Functions | Ports | Variables ◀ ▶

Validate | Refresh

- ⊞ 📁 All Functions
- ⊞ 📁 Character
- ⊞ 📁 Conversion
- ⊞ 📁 Data Cleansing
- ⊞ 📁 Date
- ⊞ 📁 Encoding
- ⊞ 📁 Financial
- ⊞ 📁 Numerical
- ⊞ 📁 Scientific
- ⊞ 📁 Special
- ⊞ 📁 Test
-   📁 User Defined Functions
- ⊞ 📁 Variables

Functions in the All Functions group.

`MD5(PRODUCT_CATEGORY||PRODUCT_CONTAINER||PRODUCT_COLOR)`

Port	Type	Value

Result :

Evaluate

OK | Cancel | Comments | Help

Expression Editor: V_TGT_MD5 - exp_Derive_IU_Flag (Expression)

Functions | Ports | Variables

- All Functions
- Character
- Conversion
- Data Cleansing
- Date
- Encoding
- Financial
- Numerical
- Scientific
- Special
- Test
- User Defined Functions
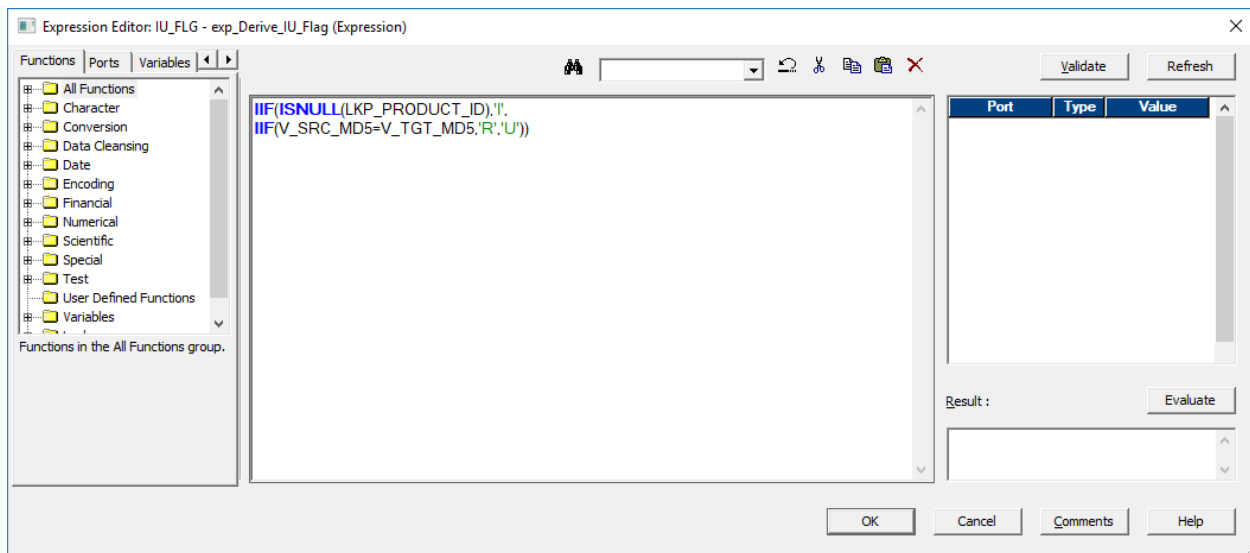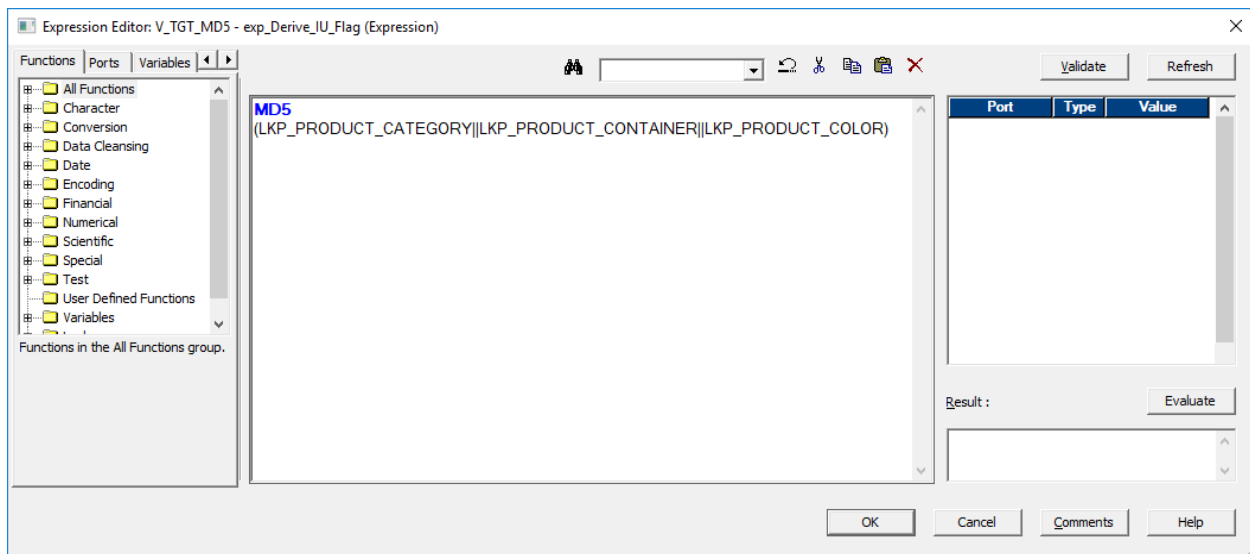- Variables

Functions in the All Functions group.

```
MD5
(LKP_PRODUCT_CATEGORY||LKP_PRODUCT_CONTAINER||LKP_PRODUCT_COLOR)
```

Port	Type	Value

Result :

Validate | Refresh | Evaluate

OK | Cancel | Comments | Help

Expression Editor: IU_FLG - exp_Derive_IU_Flag (Expression)

Functions | Ports | Variables

- All Functions
- Character
- Conversion
- Data Cleansing
- Date
- Encoding
- Financial
- Numerical
- Scientific
- Special
- Test
- User Defined Functions
- Variables

Functions in the All Functions group.

```
IIF(ISNULL(LKP_PRODUCT_ID),'I',
IIF(V_SRC_MD5=V_TGT_MD5,'R','U'))
```

Port	Type	Value

Result :

Validate | Refresh | Evaluate

OK | Cancel | Comments | Help

Router: Rout records for either INSERT or UPDATE pipeline based on filter condition.

Edit Transformations

Transformation | Ports | Properties | Groups | Metadata Extensions

Select transformation: rtr_NEW_EXISTING

Transformation type: Router

Group Name	Group Filter Condition
NEW_RECORDS	IU_FLG='I'
EXISTING_RECORDS	IU_FLG='U'
DEFAULT1	

Description:

OK   Cancel   Apply   Help

Sequence Generator: Used to generate sequence for loading surrogate key

UPDATE: DD_UPDATE to update the record in target. Ensure that Target structure is having a key as primary key otherwise their update does not work as expected.

Target Designer: Please ensure that you have defined PRODUCT_ID as primary key. This is required for firing UPDATE on the target database as based on primary key WHERE condition happens.

WORKFLOW: Create workflow with default properties consisting off session.
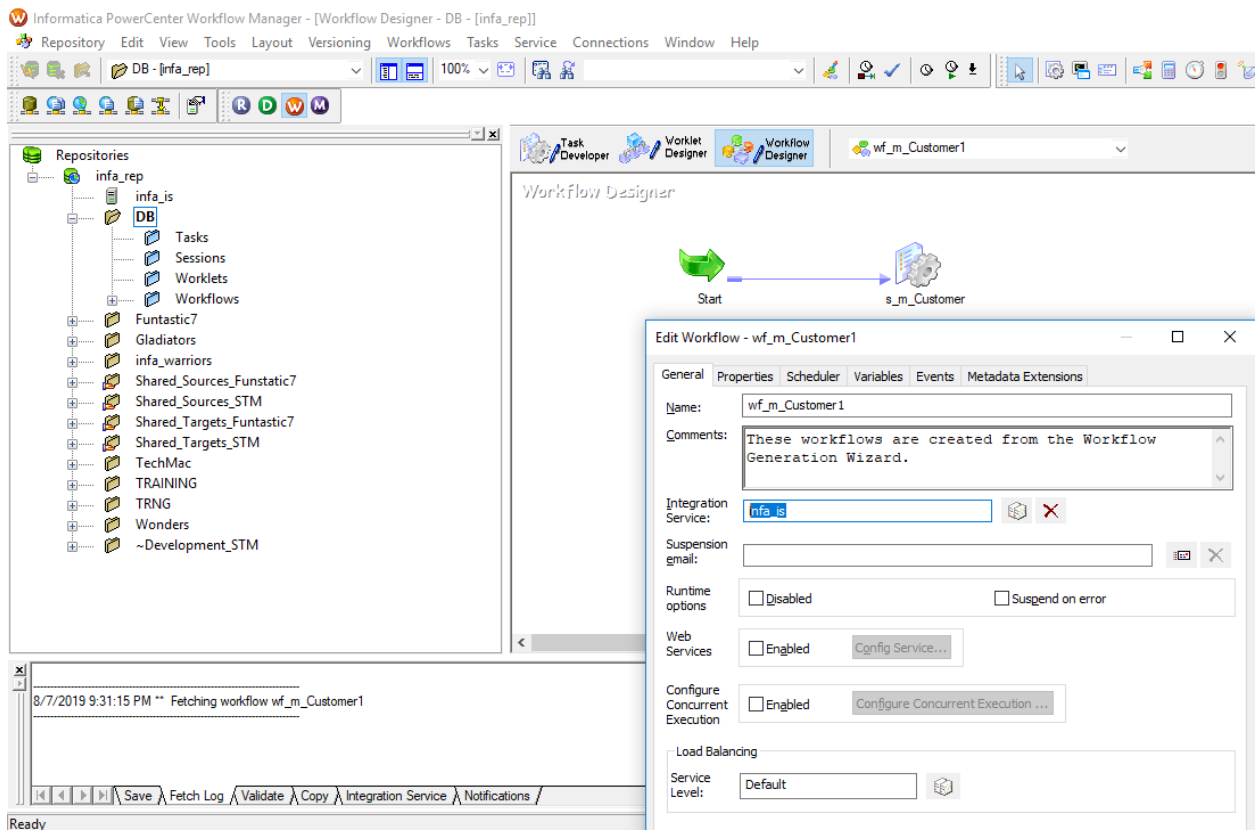
SESSION: Ensure that session corresponding to the SCD1 mapping is marked as DATA DRIVEN as shown below.

Edit Tasks

General | Properties | Config Object | Mapping | Components | Metadata Extensions

Select task: ⬛ s_m_Customer [▾] [Rename]

Task type: Session   ☐ Make reusable

Description:
```
[                                                    ]
```

Mapping name: m_Customer

Resources: [   ] [Edit]

☑ Fail parent if this task fails   Treat the input links as:
☐ Fail parent if this task does not run   ◉ AND   ○ OR
☐ Disable this task

[OK] [Cancel] [Apply] [Help]

Edit Tasks

General | Properties | Config Object | Mapping | Components | Metadata Extensions

Select task: s_m_Customer [▾]
Task type: Session

Attribute	Value
General Options	
Write Backward Compatible Session Log File	☐
Session Log File Name	s_m_Customer.log
Session Log File directory	$PMSessionLogDir\
Parameter Filename	
Enable Test Load	☐
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	☑
Rollback Transactions on Errors	☐
Recovery Strategy	Fail task and continue workflow
Java Classpath	
Performance	
DTM buffer size	24000000
Collect performance data	☐
Write performance data to repository	☐
Incremental Aggregation	☐
Reinitialize aggregate cache	☐
Enable high precision	☐
Session retry on deadlock	☐
Pushdown Optimization	None

Treat source rows as

Specify the source row type.

[OK] [Cancel] [Apply] [Help]

Edit Tasks

General | Properties | Config Object | Mapping | Components | Metadata Extensions

Select task: s_m_Customer
Task type: Session

- Start Page
- Pushdown Optimization
- Connections
- Memory Properties
- Files, Directories and Com
- Sources
  - SQ_CUSTOMER_SRC
- Targets
  - CUSTOMER_TGT
- Transformations
  - emp_reusable
  - exp

m_Customer.SQ_CUSTOMER_SRC

Readers

Instance	Readers
SQ_CUSTOMER_SRC	Relational Reader

Connections

Type	Value	Connections
SQ_CUSTOMER_SRC - DB Connection		
Relational	informbdm	DB Connection

Properties — Show Session Level Properties

Attribute	Value
SQ_CUSTOMER_SRC - Source Qualifier	
User Defined Join	
Number Of Sorted Ports	0
Tracing Level	Normal
Select Distinct	☐

informbdm

Transfo... | Partitions

OK | Cancel | Apply | Help

Edit Tasks

General | Properties | Config Object | Mapping | Components | Metadata Extensions

Select task: s_m_Customer
Task type: Session

- Start Page
- Pushdown Optimization
- Connections
- Memory Properties
- Files, Directories and Com
- Sources
  - SQ_CUSTOMER_SRC
- Targets
  - CUSTOMER_TGT
- Transformations
  - emp_reusable
  - exp

m_Customer.CUSTOMER_TGT

Writers

Connections

Type	Value	Connections
Relational	informbdm	DB Connection

Properties — Show Session Level Properties

Attribute	Value
CUSTOMER_TGT - Relational Writer	
Target load type	Normal
Insert	☑
Update as Update	☑
Update as Insert	☐
Update else Insert	☐
Delete	☑
Truncate target table option	☐
Reject file directory	$PMBadFileDir\
Reject filename	customer_tgt.bad

Oracle_RBS

Transfo... | Partitions

OK | Cancel | Apply | Help