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Compression of Active and Passive Transformation in Informatica

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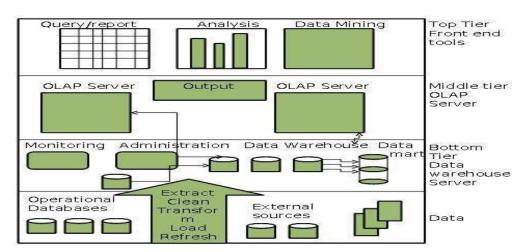
ABSTRACT: Informatica is a tool used to integrate the data to design data warehouse. The process of integration depends on transformation. The control of Informatica is transformation. Transformation is a conditional based logical processing. The Active and passive transformation in Informatica transform records in two distinct ways. Passive transformations cannot change the number of rows that pass during the mapping. An active transformation changes the number of rows that pass through the mapping. Transformation is considered to be the combinations of active/passive transformations. In this paper we discuss about the compression of active and passive transformation in Informatica.

KEYWORDS: Informatica, Active Transformation, Passive Transformations, ETL tools

1. I. INTRODUCTION

A data warehouse is the data (Meta/fact/dimension/aggregation) and the process managers (load/warehouse/query) that make information available, enabling people to make informed decisions. In other form Data Warehouse is subject oriented, time variant, Integrated and Non- volatile collection of data, it supports to high level management to take decision.

- Date Warehouse is built to support large data volumes cost-effectively.
- The relational database technology has evolved to satisfy the requirements of smaller online transaction processing (OLTP) system.
- The size and complexity of data warehouse systems make them very different form these traditional OLTP system



Date Warehouse Architecture is shown in below figure 1:

Fig 1: Data ware house Architecture



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Informatica is ETL tool. ETL means Extraction, Transformation and Loading. Informatica is one of the best ETL tool. The power of Informatica is integrate the data using different resource. Example:

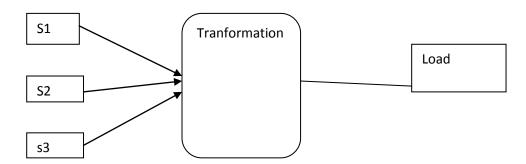


Fig 2: Integrated data in ETL

II.LITERATURE SURVEY

The author simple thought behind writing all the essential ingredients of Informatica, starting from to extraction, installation to working on client. Learn PowerCenter tool from Informatica. Informatica widely-used tool across the globe for various data integration process.[1]

Various Transformations takes raw data from source to staging area and do if any cleanin, reformatting and aggregation, etc that is required to get into the final format for reporting. This paper focus on how transformation can be done into ETL process to be implemented in informatica tool.[5]

III.LIST OF ACTIVE AND PASSIVE TRANSFORMATIONS

The below table 1 illustrates the list of active and passive transformations

Transformation	Туре	Description				
Aggregator	Active	Aggregate functions				
Custom	Passive	Replaces sensitive production date				
Expression	Passive	Calculate the values				
Filter	Active	Filter the date				
Input	Passive	Defines mapplet input rows.				
Application Source Qualifier	Active	Represents the rows				
Custom	Active or Passive	Procedure and DLL				
Data Masking	Passive	Replaces sensitive production data				
External Procedure	Passive	Calls a procedure				
НТТР	Passive	Connects to an HTTP server				
Input	Passive					
Joiner	Active	Joins data from different database				
Lookup	Active or Passive	Look up and return data form a flat file				
Normalizer	Active	Source qualifier for COBOL				
Output	Passive	Defines mapplet output rows				
Rank	Active	Limits records to a top or bottom range.				
Router	Active	Routes data into multiple ways				
Sequence Generator	Passive	Generates primary keys				



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Source Qualifier	Active	Represents the rows
SQL	Active or Passive	Runs SQL queries
Stored Procedure	Passive	Runs stored procedure
Transaction Control	Active	Commit and rollback
Union	Active	Merges data from different databases
Unstructured Data	Active and Passive	Merge data from different

Table 1: Active and passive Transformations

IV.PASSIVE TRANSFORMATION

Passive transformations may not alter the number of rows that pass during the mapping. Passive transformations one of the example is Expression transformation.

While Expression transformation is a linked, passive transformation can be used to compute values on a single row. Expression transformations are used for row-wise manipulation. For any type of manipulation you wish to perform on an individual record, use an Expression transformation. The Expression transformation allows the row-wise data, manipulates it, and passes it to the target. The transformation receives the data from the input port and sends the data out from output ports.

Here we use Expression transformation in this situation because the value of FULL NAME can be attained by concatenating FIRST_NAME and LAST_NAME of an individual record. Similarly, we can get TOTAL_SALARY using JAN_SALARY and FEB_SALARY. In other words, the manipulation required is row-wise.

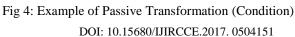
The below figure 3 shows the example of passive transformation overview

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K.	Name	Datatype		Name	Datatype			Name	Expression		K	Name	Datatype
	EMPLOYEE_ID	number 🕨		EMPLOYEE_ID	decimal	•	 ۲	EMPLOYEE_ID	EMPLOYEE .		•	EMPLOYEE ID	number
	FIRST_NAME	string 🕨		FIRST_NAME	string	P.	 ۲	FIRST_NAME	FIRST_NAM		•	FULL NAME	string
	LAST_NAME	string 🕨		LAST_NAME	string	F	 ۲	LAST_NAME	LAST_NAME		•	AGE	number
	AGE	number 🕨		 AGE 	decimal	F	 ۲	AGE	AGE 🕨 🗕 🗕		•	TOTAL SALARY	number
	JAN_SALARY	number 🕨		JAN_SALARY	decimal	F	 ۲	JAN_SALARY	JAN_SALAR •	-	•	LOCATION	strina
	FEB_SALARY	number 🕨		FEB_SALARY	decimal	P.	 ۲	FEB_SALARY	FEB_SALAR •				
	LOCATION	string 🕨		LOCATION	string	P.	 ۲	LOCATION	LOCATION 🕨 🛶				
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Fig 3: Example of Passive Transformation (Overview)

The below figure 4 illustrates the example of passive transformation condition

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V.ACTIVE TRANSFORMATION

Active transformation is used to change the number of rows that pass during the mapping. A transformation is said to be active when the number of input rows to the transformation is not equal to the number of output rows from the transformation. Sorter transformation passes the rows from the source to target that which meets the Sorter condition. Sorter transformation can be used to sort the data in an ascending or descending order based on single or multiple

keys. A sample mapping showing Sorter transformation is displayed in the following screenshot:

The below figure 5 illustrates the example of Active transformation overview

Κ.	Name	Datatype		Name	Datatype			Name	Key	Datatyp			K. Name	Data
Ŷ	EMPLOYEE_ID	number(p *		EMPLOYEE_ID	decimal	Þ	. •	EMPLOYEE_ID		decimal 🕨		• •	EMPLOYEE_ID	numt
	FIRST_NAME	varchar2 🕨	·	FIRST_NAME	string	F	۰	FIRST_NAME		string 🕨	>i	•	FIRST_NAME	string
	LAST_NAME	varchar2 🕨	⊢ —→	LAST_NAME	string	F	۰ م	LAST_NAME		string 🕨	>i	۲	LAST_NAME	string
	EMAIL	varchar2 🕨		EMAIL	string	F	۰ م	EMAIL		string 🕨	>i	۲	EMAIL	string
	PHONE_NUMB	varchar2 🕨	→	PHONE_NUM	. string	F	- •	PHONE_NUM		string 🕨		۲	PHONE_NUMB	string
	HIRE_DATE	date 🕨		HIRE_DATE	date/time	F	۰ م	HIRE_DATE		date/tim 🕨		۲	HIRE_DATE	date
	JOB_ID	varchar2 🕨	⊢ → •	JOB_ID	string	F	- •	JOB_ID		string 🕨		۲	JOB_ID	string
	SALARY	number(p +	⊢ → •	SALARY	decimal	F	- •	SALARY		decimal 🕨		•	SALARY	num
	COMMISSION	number(p +	⊢ → •	 COMMISSION 	. decimal	F	- •	COMMISSION		decimal 🕨		•	COMMISSION	numb
8	MANAGER_ID	number(p +	⊢ —→ •	MANAGER_ID	decimal	F	- •	MANAGER_ID		decimal 🕨		٠ ۲	MANAGER_ID	num
8	DEPARTMENT	number(p +	⊢−−− ► •	DEPARTMEN	decimal	P.	S 🕨	DEPARTMEN	Yes	decimal 🕨	>	Þ.	DEPARTMENT	numb

Fig 5: Example of Active Transformation (Overview)

In this mapping, we wish to sort the data based on the DEPARTMENT_ID field. To achieve this, mark the key port for the DEPARTMENT_ID columns in the Sorter transformation and select from the drop-down list what you wish to have as the Ascending or Descending sorting, as shown in the following screenshot:

The below figure 6 shows the example of Active transformation Condition

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Fig 6: Example of Active Transformation (Condition)



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Different between Active and Passive Transformation:

- In Informatica, an active transformation can change the number of rows that pass through it.
- A filter transformation that removes rows that do not meet the filter condition.
- A passive transformation does not change the number of rows that pass through it.
- An **Expression/Lookup/Sequence Generator transformation** that presents a calculation on data and passes all rows during the transformation.

VI.CONCLUSION

A transformation is an object that produces, transforms, or passes data. Informatica Developer presents a set of transformations that perform particular functions. For example, an Aggregator transformation performs calculations on groups of data. A transformation in a mapping signifies the operations that the Data Integration Service presents on the data. Data passes through transformation ports that you link in a mapping or mapplet. Transformations can be active or passive. Transformations can be connected to the data flow, or they can be unconnected to the data flow. In this paper, we performed compression on active and passive transformations. Finally we observed that both the transformations are equal, similarly active transformation shows more effect on transformations.

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