



Implementation of Data Migration between Two Different Databases for Discrete Table

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ABSTRACT: To begin this project, we will try to Migrate table from Oracle platform to MS Access platform for the initial process of the project. Our goal is to keep the main structure of the table in intact format, means we will get the original database structure with its original data and as well as its primary key too (if there is any primary key present in table) after data migration process is over. This whole process is called as data migration between two different databases in our project. And in our project we will get the tables in MS Access Platform as it was in the Oracle Platform.

KEYWORDS: Databases, Migrate, Table, Goal, Oracle, MS Access, Intact.

I. INTRODUCTION

Here, we will work and find out how data will be migrated from Oracle to MS Access platform keeping the entire structure of the database intact.

As our work progressed, we found out how the details of the table structure can be fetched from Oracle, which means Oracle itself is allowing copying its table's structure. If we were unable to collect these data about the structure through SQL, then we had to think about how to break the security of the DBA part of the Oracle in an ethical manner.

To start our work at first we created a table named P1111 in oracle platform by writing SQL command, as SQL commands are universally accepted in every database platform. And after that we have to insert some values in that table, as we want to migrate data from one platform to another (here in our project we are using MS Access as the 2nd platform).

This P1111 table will have a primary key, but does not have any foreign key as this table does not have any parent table or child table.

So our aim is to have the same result means same table structure and as well as the data and keys (primary key etc.) after migration process.

II. RELATED WORK

2.1 Creation of table structure in MS Access:

To migrate the table, at first we had to get the details about the structure of the table which was to be migrated. If multiple tables were related with each other, means more than one table was joined with reference keys, and then we had to get the details of every table's structure and so on. This information about the tables was used later to create the same tables with similar relations to other tables in MS Access.

To get the actual structure of a table in Oracle we use "desc <table name>" command. But as we were working with VB and using SQL so we had to find the equivalent command of "desc" in SQL. We can get the structure from the table in oracle named "all_tab_columns". All required fields were taken from "all_tab_columns" using the proper SQL command.

The required fields to be fetched from "all_tab_columns" table were the field name, data type, data length, constraint name, constraint type. This information was later used to define or create the main structure of the table in MS Access.

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 4, Issue 2, February 2016

COLUMN_NAME	DATA_TYPE	DATA_LENGTH	CONSTRAINT_NAME	CON
B	VARCHAR2		10 SYS_C005561	P
C	VARCHAR2		10 SYS_C005561	P

Fig. 2.1

The output of “desc” equivalent SQL command for a particular table having 2 Primary keys-B, C

2.2 Getting information from table user constraint:

In the following fig 2.1 constraint name, constraint type and r_constraint name from “user_constraint” table are shown:

CONSTRAINT_NAME	CON	R_CONSTRAINT_NAME
SYS_C005561	P	

Fig. 2.2

Output of SQL command with constraint name and their type

2.3 Finding the primary key in the table:

Primary key is the important part of any table, as it can uniquely identify any tuple from other tuples. It cannot be null. It also has vital role at the time of inserting any data tuple wise in a table. So, to fetch the information about primary key of any table and store it in a variable is very important. This will be used during the creation of the table in MS Access. So, we had to use the SQL command to find the primary key in the table.

The following fig 2.1 shows the primary key present in a particular table. It provides the information about column name, constraint name, r_constraint name and constraint (CON).

TABLE_NAME	COLUMN_NAME	CON	CONSTRAINT_NAME	R_CONSTRAINT_NAME
P1111	B	P	SYS_C005561	

Fig. 2.3

Information about Primary key

In the above figure 2.1 is for a table, let named P1111 and column_name is the field which is the primary key of that table and “P” in the column of “CON” means the corresponding field is primary key.

This command is also capable of finding the composite key (when more than one field together uniquely identifies the tuple, it is called composite key).

As discussed in section 2.2, that information was used to get the primary key.

As here for a single individual table presented in a certain database is not linked with any other table by any foreign key so there is no parent table and no child table present in that database. So for this reason this table (e.g. – P1111) can be migrating directly in MS Access from Oracle with its intact format. (graphs)

III. SIMULATION RESULTS

Here, we are trying to migrate an Oracle table named P1111, and which is having 2 columns named B and C. And we are trying to migrate this table including intact form of its data and structure into MS Access format.

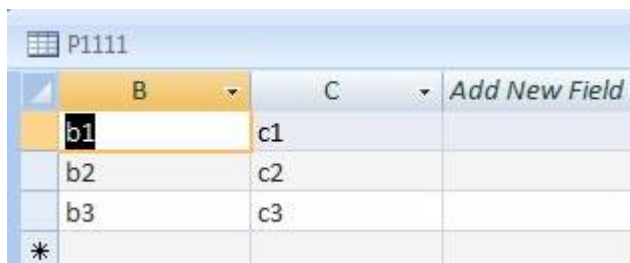
B	C
b1	c1
b2	c2
b3	c3

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International Journal of Innovative Research in Computer and Communication Engineering

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Vol. 4, Issue 2, February 2016



The screenshot shows a table named 'P1111' in MS Access. The table has three columns: 'B', 'C', and 'Add New Field'. The data rows are as follows:

B	C	Add New Field
b1	c1	
b2	c2	
b3	c3	
*		

Fig. 3.1

Structure of MS Access Database after migration from Oracle Database

The above figure 3.1 is the obtained result after a successful migration process is over. The same process has been done at least 32 numbers of tables of Oracle platform, and every time we get the results as desired after a successful migration process.

IV. CONCLUSION AND FUTURE WORK

As our initial goal was to migrate database into MS Access, so we are able to convert this database into MS Access from Oracle. As Oracle is providing some of its basic table to be read, so we can get the idea about the actual structure of table in Oracle, so that same structure can be created in MS Access. Here, no need of breaking the security of DBA is needed.

As we migrate the database from Oracle platform to MS-Access platform for the first attempt. It can be done by other platforms too, e.g.: Mysql, PostgreSQL platforms.

In this project we are working with a single table and it's data, which will have one primary key only. So there is a chance to have foreign keys which will produce parent table and child table of that particular table. So those tables will be inter related by those foreign keys and as a result there will be parent child relation. So, in that case to migrate a table with its intact structure and it's data we have to migrate the parent tables and after that it's child tables too. And this entire process can be emphasised in this project in future.

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BIOGRAPHY



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International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 4, Issue 2, February 2016



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Achievements:

1. Got 431st Rank on NEST (Nationwide Education And Scholarship Test) Aptitude Test 2013,
2. Scored among the top 24 % (76 percentile) on NIIT 8th National IT Aptitude Test 2012.



Prof. Dr. Pranam Paul, Assistant Professor and Departmental Head, CA Department, Narula Institute of Technology (NIT), Agarpara had completed MCA in 2005. Then my carrier had been started as an academician from MCKV Institute of Technology, Liluah. Parallely, at the same time, I continued my research work. At October, 2006, National Institute of Technology (NIT), Durgapur had agreed to enroll my name as a registered Ph.D. scholar. Then I had joined Bengal College of Engineering and Technology, Durgapur. After that Dr. B. C. Roy Engineering College hired me in the MCA department at 2007. At the age of 30, I had got Ph.D. from National Institute of Technology, Durgapur, WestBengal. I had submitted his Ph.D. thesis only within 2 Years and 5 Months. After completing the Ph.D., I had joined Narula Institute of Technology in Computer Application Department. Parallely I continue my research work. For that, I have 39 International Journal Publications among 54 accepted papers in different areas. I also reviewer of International Journal of Network Security (IJNS), Taiwan and International Journal of Computer Science Issue (IJCSI); Republic of Mauritius.

Achievements

1. Accepted my name for publication in "Who's Who Science and Engineering, 2011 – 2012" published by "Marquis Who's Who", USA on 31st Dec 2010
2. Selected his name as "Top 100 Engineers' 2011", by "International Biographical Centre", Cambridge, England
3. Selected his name as "Outstanding 2000 Intellectuals of the 21st Century, 2012", by "International Biographical Centre", Cambridge, England