**Oracle – Returning a recordset from a stored procedure**

In Oracle, returning a record set from a stored procedure to the calling client application is not as straight forward as simply doing a select from a table in the stored procedure code.  One needs to make use of a reference cursor.  In this blog post, we will cover how one can achieve this in Oracle.  First, let us create a table and populate it with small set of data.

CREATE TABLE Invoice  
(  
INVOICE\_NUMBER      NUMBER(9) NOT NULL,  
INVOICE\_DATE        DATE NOT NULL,  
CLIENT\_ID           NUMBER(9)     NOT NULL,  
INVOICE\_AMT         NUMBER(9,2) DEFAULT 0 NOT NULL,  
PAID\_FLAG           NUMBER(1) DEFAULT 0 NOT NULL, — 0 Not paid/ 1 paid  
CONSTRAINT PK\_INVOICE PRIMARY KEY(INVOICE\_NUMBER)  
)  
— TABLESPACE Clause  
/

CREATE SEQUENCE INVOICE\_SEQ  
START WITH 1  
CACHE 100  
/

INSERT INTO INVOICE(Invoice\_Number, Invoice\_date, client\_ID, Invoice\_Amt)  
VALUES(INVOICE\_SEQ.NEXTVAL, sysdate,101,1100.00);

INSERT INTO INVOICE(Invoice\_Number, Invoice\_date, client\_ID, Invoice\_Amt)  
VALUES(INVOICE\_SEQ.NEXTVAL, sysdate,102,1100.00);

INSERT INTO INVOICE(Invoice\_Number, Invoice\_date, client\_ID, Invoice\_Amt)  
VALUES(INVOICE\_SEQ.NEXTVAL, sysdate,103,1100.00);

INSERT INTO INVOICE(Invoice\_Number, Invoice\_date, client\_ID, Invoice\_Amt)  
VALUES(INVOICE\_SEQ.NEXTVAL, sysdate,104,1100.00);

Oracle uses cursor variables to pass query result sets between PL/SQL sub programs and to the client application. A cursor variable has data type REF CURSOR and that is what is normally known as a ref cursor (we will cover more on the ref cursors in one of our future posts). Following is the code snippet to return a result set from the stored procedure.

To create a cursor variable first we need to define a REF CURSOR type and then declare the cursor variable of that type.  To avoid declaring the same REF CURSOR type in each program, we will create one global type in a package specification and declare cursor of that type in our procedure.

Run following scripts to create package and procedure from SQL\*Plus prompt. Testing script is to test the execution of the procedure.

/\* Create package \*/  
CREATE OR REPLACE PACKAGE types  
AS  
type cursorType is ref cursor;  
END;  
/

– Here we have declared cursor variable of type cursorType as an output variable.  
CREATE OR REPLACE PROCEDURE DEC\_RTN\_RECORDSET  
(  
p\_InvoiceDate      IN   DATE,  
p\_ResultSet        OUT  TYPES.cursorType  
)  
AS  
BEGIN  
OPEN p\_ResultSet FOR  
SELECT Invoice\_Number, Invoice\_Date, Client\_ID, Invoice\_Amt  
FROM Invoice  
WHERE Invoice\_date <= p\_InvoiceDate  
ORDER BY Invoice\_number;

END DEC\_RTN\_RECORDSET;  
/

– Testing  
VARIABLE resultSet  REFCURSOR  
EXEC DEC\_RTN\_RECORDSET(sysdate, :resultSet);  
PRINT :resultSet

Following is the output. It is formatted for more readability.

Invoice\_Number       Invoice\_Date  Client\_ID     Invoice\_Amt  
————–       ————  ———     ———–  
1       25-JAN-07           101            1100  
2       25-JAN-07           102            1100  
3       25-JAN-07           103            1100  
4       25-JAN-07           104            1100