

Application Flexibility Enhanced with V5R1 DB2 UDB

By Kent Milligan

The DB2 UDB for iSeries V5R1 enhancements make it easier to port applications from DB2 and non-DB2 databases. These portability improvements include SQL Triggers, DB2 XML Extenders, and ODBC Version 3.5 support. There are also improvements to the world-class availability and ease-of-use provided by DB2 UDB.

SQL Triggers

Triggers have been available on the iSeries since V3R1, but many developers prefer an SQL-based interface for creating triggers. Although it's a different interface, SQL triggers provide equivalent functionality with the current external trigger implementation (i.e., ADDPFTRG). SQL triggers include transition variables that allow the trigger logic to reference the same before and after column values that are available in the trigger buffer of external triggers. **Figure 1** contains an example of a trigger to keep track of expensive travel that may need to be audited.

Another bonus is that the ILE C compiler is no longer required for the SQL procedural language. The DB2 SQL Development kit is now the only product that must be installed on your system when creating SQL triggers, procedures, and UDFs. SQL triggers also go beyond the capabilities of external triggers by allowing triggers to be defined at the column level and by allowing the execution to be based on a row or statement level. Both external and SQL triggers benefit from the lifting of the maximum trigger limit on a table from 6 to 300 as well as the ability to disable a trigger with the new CHGPFTRG command.

Other SQL enhancements

The FETCH FIRST n ROWS ONLY clause was added to make it easier to write reports that return the "Top N" items. Support for right outer joins and the ability to include a scalar subselect on the select list also give you more flexibility when developing iSeries applications.



The LIKE clause was also enhanced with expression support and improved performance.

The ODBC Version 3.5 upgrades make the latest ODBC specifications available to distributed applications being developed for the iSeries – including support for MTS. The SQL CLI application interface was also improved with faster handle allocation and an 80,000 handle limit.

Java is a key interface for DB2, and in V5R1 support for result sets on Java Stored Procedures was added along with the ability to create Java UDFs.

DB2 UDB Extenders for iSeries

This is a new licensed product that makes the DB2 XML Extender and DB2 Text Extender available to iSeries applications. The DB2 XML Extender will let you store and access XML documents and create XML documents from existing data (and vice versa).

The DB2 Text Extender and its text search engine provide high-performing, sophisticated text search capabilities for DB2 and IFS data to your applications. These capabilities, which are available via SQL, include fuzzy and proximity searches.

```
CREATE TRIGGER big_spenders
AFTER INSERT ON expenses
REFERENCING NEW AS n
FOR EACH ROW
WHEN (n.totalamount > 10000)
BEGIN
  DECLARE emplname CHAR(30);

  SET emplname = (SELECT lname FROM employee WHERE empid=n.empno);

  IF emplname<>'CEO' THEN
    INSERT INTO travel_audit
      VALUES(n.empno, emplname, n.deptno, n.totalamount, n.enddate);
  END IF;
END
```

Figure 1

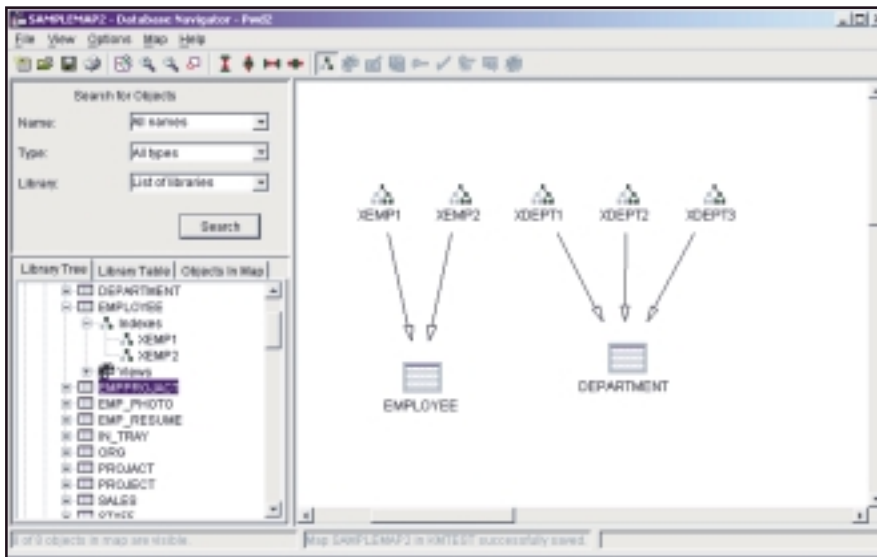


Figure 2

Database Navigator

...is a new tool that makes it easier to manage your database objects on the iSeries by giving you the ability to graphically view the relationships between your database objects. For example, a graphic showing all of the indexes defined over a table. (Figure 2.)

Generate SQL

...allows you to use Operations Navigator interface to generate the SQL statement for almost any database object. To see the SQL statement source, all you need to do is just right click on the object. The SQL statement can be displayed in the SQL Script window or saved directly to a PC file or OS/400 source file member. This tool can also be used to help you convert database definitions from DDS to SQL.

Availability Enhancements

The journal minimal data option enables DB2 to only copy the row data that was actually changed into the journal. If you have a 200 byte record and only update a 4 byte product code, then normally 200 bytes are copied into the journal.

The journal minimal data option results in just the 4 byte product code column being copied into the journal entry. The smaller journal entry will reduce the growth rate and swapping rate of your journal receivers.

A business transaction workload run in the lab ran about 3-4% faster with the journal minimal data option and the journal entry size was reduced almost by 50%. The richer SQL functionality in V5R1 makes it much easier to port applications and give you more flexibility as

you develop and enhance iSeries applications, by allowing DB2 to do more of the work.

For More Information

For a self-study DB Navigator tutorial, including all OpsNav tutorials, go to: Ibm.com/eserver/iseries/developer/education/ibo/record.html?db2nav

For V5R1 Internet-based presentations on DB2 UDB & DB2 UDB Extenders for iSeries, go to:

Ibm.com/eserver/iseries/developer/education/ibo/view.html?biz

For DB2 UDB for iSeries porting information, go to:

ibm.com/eserver/iseries/developer/db2/porting.html 



Kent Milligan will be speaking about DB2 UDB at the next TUG MoM, on September 19, 2001. See "The Agenda" on page 24, for more details.

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