DB/C FS - Improving SQL Performance

Produce Pro does not use a relational database. Instead it uses an ISAM (an acronym for indexed sequential access method) database. The FS ODBC driver can take SQL queries, and hand them to the DB/C FS service running on the Produce Pro server. The DB/C FS service parses the SQL query and translates it to a program in memory that can read through the ISAM database. The DB/C FS service will try to guess the best index or partial index to use to read through the database and find matching records.

To find the best index this, DB/C FS looks at the tables after the FROM and JOIN statements and reads through the data files starting with the leftmost table (indexed data file). It uses the information after the WHERE clause to automatically figure out the best index to use for reading through the records. The order of the information in the WHERE clause will not matter.

To make the query run as fast as possible, look over the DBD (FS database definition) file and see what the index information is for each table in the SQL query. For example the Product Repacks table shows information about 6 different index files and keys that can be used:

TABLE=Product\_repacks\_0001\_XR

DESCRIPTION=XR0001

TEXTFILE=XR0001.TXT:PD

READONLY

INDEXFILE=XR0001.ISI:PDI

-- **KEY1** is Reference

INDEXFILE=XR00012.ISI:PDI

-- **KEY2** is Status, Date, Time, Reference

INDEXFILE=XR00013.ISI:PDI

-- **KEY3** is Status, Repack Business date, Business day time, Reference

INDEXFILE=XR00014.ISI:PDI

-- **KEY4** is Vendor reference number, Reference

INDEXFILE=XR00015.ISI:PDI

-- **KEY5** is Warehouse, Reference

INDEXFILE=XR00016.ISI:PDI

-- **KEY6** is Repack batch ID, Reference

FIXEDLENGTH=848

If you are trying to query to find a repack on a certain Date, KEY2 should be used because Date is part of the key information. You should make sure that you have as many columns as possible that are part of the key, starting with the leftmost column that comprises the key, in the WHERE clause. If you do not have all of the columns in the WHERE clause for the key, that is OK, it is known as using a partial key. So for example for KEY2 you could specify **WHERE Status = ‘O’ AND Date = ‘20210901’** and KEY2 would automatically be used. This is not a requirement, but queries will run much faster if you are able to do this.

The tables in a JOIN are processed from left to right. With this in mind, the tables should be ordered so that the left table(s) can provide data which can be used with indexes of the right table(s). Doing this will enhance performance.

The use of <>, NOT LIKE, NOT BETWEEN, NOT IN and dissimilar OR conditions are not recommended on large files as indexes will not be utilized and the entire text file will be read sequentially.

**02/28/2023 - Jason Dunham**

There is now a GEN\_DOC command in DBMMNT.

DBMMNT is the program where you can generate the DBD files.

It will go through the entire database and generate a csv document

It will list the indexes for the table then define the columns. And it will point to a parent table if it knows it.

Example Broker Vendor points to the VM table.

