

Infotip 9

Using indexes in i4Query

Pre-requisites:

- i4Query v 5.06.33s or later.
- Your system administrator has to give you access to use indexes for i4Query.

An issue using i4Query (and any reporting tool) on larger files of several hundred thousand or millions of records, is the time it takes to find and select records. This is not as noticeable on smaller files. i4Query in its native mode does a serial scan through the complete file, finding all records that match the selection criteria.

If this is a file of 400,000 records and you only wish to find records for an individual code (e.g. a stock code or employee code) then i4Query will scan all the 400,000 records to find, for example, the 2000 records that you require.

A technique that dramatically improves the response time is the use of indexes. Indexes are additional files within the infoware database that pre-sort the data in a file. You may have multiple indexes on the one file. For example, in a stock system you may have indexes on product code and product description (as well as other indexes). i4Query can use these indexes to dramatically improve the response time - rather than scanning the whole file.

If there is an index where the first field is built on the same field that is part of your *i4 Query - Selection Criteria*, then only records matching that search value will be scanned. For example, if you have a payroll transaction file with 400,000 records, but you wish to review the transactions for an employee who has 2000 records, use the index built on employee number. Then only 2000 records would be scanned, giving a dramatic and significant decrease in response time (taking a few seconds compared to scanning through 400,000 records).

You may apply other selection criteria to select less than the 2000 records (e.g. only records in an accounting period range) but this means only 2000 records will be scanned to select the required records. **Let's see how we can use indexes.**

In this example, we will select all the transactions for employee number 123 within the accounting period range from July 2009 to June 2010 (a financial year).

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i4 Query - Selection Criteria

And /Or	('s	Field	Rel	Value)'s	Index Val	Excel Plugin Prompt
		pytran- Accounting Period (6,laccper)	ge	200907			
And		pytran- Accounting Period (6,laccper)	le	201006			
And		pytran- Employee Number (5,.0)	eq	123		From	

Use pytran Index: **A - Employee Number (5,.0,a)**

No. of Selection Lines:

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- A - Employee Number (5,.0,a)
- B - Branch (2,AU,a)
- C - Current Status (2,YN,a)
- D - Empl./Date (yyymd) (13,*,a)
- E - Employee Number (5,.0,a)
- F - Duty Roster key (17,*,a)
- G - Accounting Period (6,laccper,a)
- H - Current Status (1,YN,a)
- I - Job (10,AU,a)
- J - Current Status (1,YN,a)
- K - Current Status (1,YN,a)
- L - Branch (2,AU,a)
- M - Award (2,.0,a)
- N - Company (2,AU,a)
- O - Pay Period (6,lwkper,a)

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At the bottom of the i4Query selection criteria there is a drop down list of all indexes for the data table selected (providing your i4Query user has been granted access to use indexes in reporting). In the case of the payroll transaction (pytran) data table you can see there are a number of indexes.

In determining which index to use you have to decide whether it is quicker to select all the transactions for the financial year and only filter out employee 123 (in which case could use index G built on accounting period), or select all the transactions for employee 123 and only filter out the accounting period transactions required.

In this instance it is obviously quicker to use an index built on employee number, as there are less transactions for an employee than selecting all transactions within a particular accounting period range.

To do this you could select either index A or E. For this example we will select index A.

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i4 Query - Selection Criteria


And /Or	('s	Field	Rel	Value)'s	Index Val	Excel Plugin Prompt
		pytran- Accounting Period (6,laccper)	ge	200907			
And		pytran- Accounting Period (6,laccper)	le	201006			
And		pytran- Employee Number (5,.0)	eq	123		From	

Use pytran Index: A - Employee Number (5,.0,a)

No. of Selection Lines: 5 [Refresh](#)


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Now we must tell i4Query which selection criteria line to use the index.

In the *index value* field, select the *From* option from the drop down box. In this example, as we are selecting only one specific employee number i.e. employee number eq 123, the *From* value also means “equals to” (if you are selecting an individual field only).

Now run the i4Query.

You will find i4Query executes very quickly as it has to scan through fewer records to select the required data.

Can I select a range of values using an index?

Yes, you can also select a range of values using an index. In the following example, all employees between 123 and 130 are selected.

In the third selection criteria line

- Employee number GE 123
The index value is *From* to determine the lower part of the range.

Then on the fourth line,

- Employee number LE 130
The index value is *To*.

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i4 Query - Selection Criteria

And /Or	('s	Field	Rel	Value)'s	Index Val	Excel Plugin Prompt
	▼	pytran- Accounting Period (6,laccper) ▼	ge ▼	200907		▼	
And ▼	▼	pytran- Accounting Period (6,laccper) ▼	le ▼	201006		▼	
And ▼	▼	pytran- Employee Number (5,.0) ▼	ge ▼	123		From ▼	
	▼	pytran- Employee Number (5,.0) ▼	le ▼	130		To ▼	
	▼					▼	

Use pytran Index: A - Employee Number (5,.0,a) ▼

No. of Selection Lines: Refresh

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You can now run i4Query, and this will quickly select all the transactions for all employees in a continuous range from 123 to 130, and then filter out only those transactions that belong to the accounting period range.

Any questions please contact support@satsof.com.au

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