
Search Engine Tools

SEARCH ENGINE TOOLS

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1 Purpose

If you experience problems with the search engine, such as long response times, the search engine tools help you measure critical search requests and find potential for optimizations.

To do this, you can use the IGQL and the ISQL tool. They are Java programs that execute search requests directly on the search database.

Both tools work exactly the same way. The only difference is that IGQL allows search requests using a Google-style syntax, while ISQL uses an SQL syntax. Both tools are in the /opt/helpers section of a WSM installation.

Note: These tools works only on the WSM default search database. Search indices created by the Lucene search engine are currently not supported.

2 IGQL

On windows, start the tool by double-clicking the file `igql.bat`. On Unix, copy the command line from the batch file.

After starting, the command prompt switches to :

```
GQL>
```

Now you can type Google-style search requests. The following example searches for occurrences of the String `compa*`:

```
GQL> compa*
/etc/help/en/cms/content/content0/language_manager_
/etc/help/en/cms/content/editing/toolbar/versionwarp
/etc/help/en/cms/content/editing1
/etc/help/en/cms/content/editing1/.../simple_ldap_user_syn
nchronisation
/etc/help/en/cms/content/editing1/media
/etc/help/en/cms/content/editing1/.../adding_constraints
/etc/help/en/cms/content/editing1/.../comparing_slaves_
/etc/help/en/cms/content/editing1/package
/etc/help/en/cms/content/editing1/workflows
/etc/help/en/cms/roles/editing
/etc/help/en/cms/user/user0/editing/editing
/etc/help/en/cms/user/user0/editing/replication
/etc/workflows/playground/conditional_workflow
/libs/MultiSiteManager/templates/manager
14 result(s), 30 occurrence(s)
execution time: 0.01s, I/O reads: 0, Block accesses: 237
```

The answer contains the following information:

- All handles that contain the search term(s)
- The total number of page hits
- The total number of occurrences
- Execution time for the search query
- Number of I/O reads. The search database internally works like a file system that stores a series of blocks. So the I/O number tells how many new blocks have been loaded from the database for this search query.
- Block accesses is the number of blocks that have been visited in the block cache to answer the query.

The full Google-style syntax is as follows:

```
query ::= (quoted|normal) { ws (quoted|normal) };
```

```
quoted ::= [op] "" { ['*'] <word> ['*'] ws } "";
```

```
normal ::= [op] ['*'] <word> ['*'] ;
```

`op ::= '+' | '-' | 'OR';`

`ws ::= <whitespace>`

If `op` is missing in front of a word or a quoted phrase, the query is combined AND-wise.

Examples:

foo bar is interpreted as: foo AND bar

foo OR bar is interpreted as: foo OR bar

foo -bar is interpreted as: foo AND NOT bar

3 ISQL

On windows, start the tool by double-clicking the file isql.bat. On Unix, copy the command line from the batch file.

After starting, the command prompt switches to:

```
SQL>
```

Now you can type SQL-style search requests. The following example searches for pages in the /apps and /libs section that have a title text:

```
SQL> select * from /apps,/libs where TitleText=""  
  
/apps/playground/templates/msm_example/constraint_templates/master  
...  
/libs/CFC/content/admin/tools/search  
/libs/CFC/content/admin/tools/uadm  
21 result(s), 31 occurrence(s)  
execution time: 16.31s, I/O reads: 37550, Block accesses:  
335015
```

```
SQL> select * from /apps,/libs where TitleText=""  
/apps/playground/templates/msm_example/constraint_templates/master  
...  
/libs/CFC/content/admin/tools/search  
/libs/CFC/content/admin/tools/uadm  
21 result(s), 31 occurrence(s)  
execution time: 4.17s, I/O reads: 0, Block accesses:  
335015
```

As you can see, the search result information returned is the same as for the IQGL tool, because the tools only differ in the query language used.

In this example, the same search was executed twice. The first time, there were 37550 I/O reads from the database, the second time none, all blocks were already in block cache so execution time went down from 16.3 seconds to 4.17.

Please note that the above example was only used to demonstrate the speed gain of the block cache. Avoid searching for anything (*) if possible, as this will return a large result set.

The full SQL Syntax is as follows:

```
statement ::= 'SELECT' objectclasslist 'FROM' pathlist ['WHERE'  
expression]['ORDER BY' orderlist];
```

```
objectclasslist ::= '*'
```

```
pathlist ::= path {',' path};
```

expression ::= simpleexpression | {'('} expression {'AND'|'OR'}
expression) {'}'};

simpleexpression ::= <propertyname> operator value |
<propertyname> 'LIKE' pattern;

orderlist ::= <propertyname> ['DESC'] {',' <propertyname>
['DESC']};

operator := ['=' | '<>'];

path ::= <path to a node>;

For pattern and path, you can use the following wildcards:

* or % : any number of characters

? or _ : replaces one character

For the field <propertyname>, you can add the wildcard * as
postfix. Prefixing with * is not allowed.