# IR Expert

IR Expert is an intelligent, concept-based information retrieval engine that searches the HP Service Manager database for similar or related information based on a natural language query. For example, instead of relying on exactly matching keywords to find similar incidents in the Incident Management database, Service Manager uses the IR Expert engine and the description of an incident to locate similar incidents. IR Expert assigns a probability of relevance to the query results, and ranks them by relevance to the original query.

The Knowledge Base tool is a front-end to IR Expert. The Knowledge Base form enables users with specific search and operator restrictions to access solutions, specific databases or files, and other relevant data without compromising system security.

IR Expert has lexical analysis for Chinese and Korean.

**How IR Expert evaluates documents for relevance**

IR Expert queries return results based on relevance to the query. To do this, IR Expert looks at each term used in an IR query and gives a ranking to the term, based on how often it appears in the stored documents.

A term found in many documents has a lower rank than a term found in a few documents. For example, if all of the incidents that customers report involve the Windows operating system, then the term “Window” is in almost every document and has a very small ranking.

After IR Expert assigns ranking, it gives each stored document a weight based on how many of the terms used in the query are in the document, and on how often a term is in the document. A document that contains a term twice has a greater weight than a document that contains the term once. Next, it compares the terms in the document with the terms in the query to see if there is a “phrase” match. If so, IR Expert gives that document a higher weight. Finally, IR Expert considers the most recently updated document to be the most relevant.

# IR keys and non-IR keys

An HP Service Manager file can contain only one IR key, and must contain a non-IR key. All files that contain an IR key must also contain another key that is Unique, with No Nulls, No Duplicates, or Nulls & Duplicates. An attempt to build an index for a file that contains only an IR key results in a regen error. The system builds the external IR indices, but removes the IR key from the Service Manager index.

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# Special considerations for using IR Expert

If you are an IR Expert administrator, it is important to know that IR Expert relies heavily upon shared memory.

In HP Service Manager, all IR index data is in the scirexpert table. If necessary, Service Manager creates scirexpert automatically the first time you run an IR Regen.

**IR Expert tasks**

IR Expert tasks involve:

* Accessing IR Expert from other applications.
* Managing queries.
* Creating solution candidates.
* Searching the Knowledge Base.

**Database Dictionary and IR Expert**

Installing IR Expert creates three changes in the Database Dictionary utility:

* The IR key types are available in the key list.
* The regenerate type IR Regen is available when keys in a file that contains an IR key has been modified.
* The Type field in the datadict.g record reflects the presence of an IR key in a file.

**Note**: An IR Regen does not necessarily rebuild any indices other than IR indices. If you modify any key other than an IR key, HP Service Manager may not recognize the change until you perform a full regen. The average IR Regen time is 1 minute for each 2,500 records.

Data Policy information (datadict file) is a critical factor in the IR Query application. It stores details on which files contain IR keys and which fields within those files are keyed for IR queries. You can access the datadict file by clicking **Tailoring** > **Data Policy**.

# Updates to IR files

You can update IR files in two modes:

## ****Synchronous mode****

The default mode. The system immediately writes All IR Expert updates into the IR Expert files. The IRQUEUE processor is not used.

## ****Asynchronous mode****

The system places changes to the IR key in a queue. They are not processed immediately. A separate background process (IRQUEUE), writes the accumulated updates into the IR index files. The changes are then available for searches. Query response time is faster when using Asynchronous IR. In asynchronous mode, updates to files that have an IR key do not have to wait for the completion of IR queries that are executing at the same time.

**Note**: If the IRQUEUE process is not running for any reason, changes to IR index data are not available to users. IR files do not reflect the newest IR index data and therefore will not retrieve newly added data. However, searches will work against existing IR data.

# Creating an IR file

An IR file contains information that duplicates data in other HP Service Manager tables, such as problem, cm3r and cm3t. Service Manager uses IR files for information retrieval.

You create the IR file as you would create any other Service Manager table. It must contain an IR key in addition to the key used in the link query. The field names do not have to be identical, but a number field must be the unique key in the IR files accessed by the probsummary, cm3t, and cm3r files.

There is a sample ir.probsummary table in the out-of-box Incident Management application. This table, and all ir.<filename> tables, are in the Service Manager Data directory.

**Note**: Service Manager creates these files automatically when you perform

**Start IR Asynchronous mode**

**User Role**: System Administrator

Asynchronous IR means that instead of every session directly updating IR indexes as data is updated, the IR index changes are logged to an internal table (irqueue), and a background process performs all the IR index updates separately.

To start asynchronous IR:

1. Stop all HP Service Manager servers running a horizontal scaling or classic load manager implementation.
2. Open the Service Manager initialization file (sm.ini) on each system and add the following line.  
   ir\_asynchronous:1

**Note**: You must add this parameter to each system running in a horizontally scaled implementation so that each server knows that the IR process is running asynchronously.

1. Save the initialization file.
2. Open the Service Manager configuration file (sm.cfg) on the system running the load balancer process and add the following line.  
   sm -que:ir
3. Save the configuration file.
4. Restart the Service Manager servers.

# IR Expert scirexpert file

HP Service Manager stores all IR index data in a single database table named scirexpert to ensure database independence. Service Manager creates the scirexpert file in the RDBMS.

When you run IR Regen, Service Manager checks the scirexpert file for an index. If the index is missing, it uses a flat file. After regenerating all IR indexes, all IR data resides in the scirexpert file. No flat files (ir.\*) exist. When you back up the database, you will back up the IR index (scirexpert) file.

Other IR procedures, such as regenerating IR indices and creating IR searches, remain the same.

**Regenerate IR keys**

**User Role**: System Administrator

To regenerate IR keys:

1. Click **System Definition** > **Tables**.
2. Double-click the table name containing the IR keys you want to regenerate. The System Definition utility for the table opens.
3. From the Table management section, click **Regenerate IR index**.

**Note**: This option is only available for tables that contain IR keys.

1. Specify the regeneration parameters, and then click **OK**.

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**Load data files with IR Expert keys**

**User Role**: System Administrator

IR keys are created when loading data into HP Service Manager, such as when moving files from a test system to a production system. Any files containing one or more IR keys will require an IR Regen of the new system.

If the file already exists in the new system and the file contains at least one record, you can add the IR key and perform the IR Regen before loading the records from your old system. Then Service Manager updates the IR indices as it adds each record during the load.

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**Build IR keys**

**User Role**: System Administrator

Define IR keys using the standard Database Dictionary utility in HP Service Manager. IR keys are composed of one or more array or scalar text fields. IR keys that combine array and scalar fields should define an array field as the first element of the key.

Use only text fields in an IR key. A text field is an array or scalar field that contains arbitrary information that not used for traditional queries. For example, the device file contains a scalar field called description. This field contains descriptive text about a device, such as:

* Does not support the new drawing package.
* This modem needs ventilation on the top and sides.

The assignment file contains an array field called operators. The operators array contains the exact login name of Service Manager operators, and is not a good candidate for an IR key since IR searches are relevance searches.

Follow these rules when defining IR keys:

* If a query contains a field that is part of an IR key, Service Manager always performs an IR search. IR Expert selects and presents records based upon relevance.
* If a query contains a field that is part of an IR key, your sort criteria are honored. IR queries always sort by relevance.

You can combine IR queries with traditional queries to specifically limit the answer set.

**Modify an IR Expert query**

**User Role**: System Administrator

To modify an IR Expert query:

1. Create and run an IR Expert query.
2. Open theMore Actions menu.
3. Click **Modify Query**.
4. IR Expert displays the query again. Change the search criteria or change the IR file (Knowledge Base) to be searched.
5. Press Enter to run the new query, or run the original query against the new file.

# Multiple files containing IR keys

The current release of HP Service Manager uses shared memory, and does not specify a practical limit on the number of files that can contain IR keys. The system caches the most frequently referenced data, making the number of files that have IR keys less of an issue.

Using multiple fields within the IR keys causes no real impact to IR performance. Service Manager takes all fields defined as part of the IR key and concatenates them for IR processing. It takes more time to concatenate five fields than two fields, but the difference is negligible. Multiple files with IR keys compete for use of the shared memory cache. You should allocate more shared memory as you increase the number of files with IR keys.

Consider using the Knowledge Base that enables you to store all corporate knowledge data into a single file (core) for IR processing.

# List: Information Retrieval (IR) expert parameters

The following table lists the startup parameters you can set from the HP Service Manager server's OS command prompt or from the HP Service Manager initialization file (sm.ini).

These parameters determine how HP Service Manager indexes and retrieves information using IR Expert.

|  |  |
| --- | --- |
| **Startup parameter** | **Brief description** |
| [ir\_asynchronous](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_asynchronous.htm) | Defines whether the Service Manager server immediately updates information retrieval files (synchronously) or whether the server creates a schedule record to process the files (asynchronously). |
| [ir\_autostop](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_autostop.htm) | Defines whether the Service Manager server stops an Information Retrieval (IR) search when a search term appears in more than 500 documents. |
| [ir\_boost\_same\_sequence](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_boost_same_sequence.htm) | Defines whether the Service Manager server increases the search weighting boost for documents that match the query term sequence. |
| [ir\_cluster\_closeness](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_cluster_closeness.htm) | Defines the percentage record similarity variance that records can have in an Information Retrieval search. |
| [ir\_cluster\_symbol](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_cluster_symbol.htm) | Defines the alphanumeric character that indicates the system should perform a clustered query. |
| [ir\_disable](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_disable.htm) | Allows you to disable the IR keys on your existing Service Manager system, so that the upgrade process runs faster. |
| [ir\_language](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_language.htm) | Defines the language of the text you want Information Retrieval to index. |
| [ir\_languagefiles\_path](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_languagefiles_path.htm) | Defines the path to Information Retrieval language files that contain stop words, the stem dictionary, the suffix dictionary, and the normal dictionary. |
| [ir\_max\_clusters](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_max_clusters.htm) | Defines the maximum number of clusters to return in an Information Retrieval search. |
| [ir\_max\_deep\_distance](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_max_deep_distance.htm) | Defines the maximum number of insertions, deletions, or substitutions that can occur in automatic spelling correction. |
| [ir\_max\_relevant\_answers](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_max_relevant_answers.htm) | Defines the maximum number of relevant records an Information Retrieval search can return. |
| [ir\_max\_shallow\_distance](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_max_shallow_distance.htm) | Defines the maximum number of letters different a search term can be from an index term during an Information Retrieval (IR) search. |
| [ir\_max\_shared](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_max_shared.htm) | Defines the maximum bytes of shared storage you want IR Expert to use. |
| [ir\_min\_cluster\_members](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_min_cluster_members.htm) | Defines the minimum number of records that Service Manager allows in any one cluster. |
| [ir\_minidf](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_minidf.htm) | Defines the minimum relevance ranking that search terms must have for Service Manager to include them in Information Retrieval (IR) search results. |
| [ir\_prefix](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_prefix.htm) | Defines the path to the Information Retrieval (IR) database files that contain the index. |
| [ir\_query\_drop\_off](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_query_drop_off.htm) | Defines the maximum percentage deviation from the original search term Service Manager can use to find related records. |
| [ir\_save\_interval](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_save_interval.htm) | Defines how often Service Manager saves Information Retrieval (IR) indexes to disk. |
| [ir\_sharedlock](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_sharedlock.htm) | Locks the shared memory allocated to Information Retrieval (IR) and prevents other Service Manager applications from accessing it. |
| [ir\_techload](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_techload.htm) | Loads the techterms dictionary into shared memory. |
| [ir\_term\_drop\_off](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_term_drop_off.htm) | Defines the maximum percentage frequency that search terms can have in the Information Retrieval (IR) index for Service Manager to include them in search results. |
| [ir\_timelimit](http://localhost:8083/help/topic/parameters/reference/ir_expert_parameters_ir_timelimit.htm) | Defines the maximum number of seconds that an Information Retrieval (IR) query can run. |

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**Information retrieval (IR) expert parameters: ir\_cluster\_closeness**

**Parameter**

ir\_cluster\_closeness

**Description**

This parameter defines the percentage record similarity variance that records can have in an Information Retrieval search. As the percentage increases, clusters become larger and more loosely related.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

20

**Possible values**

Percentage variance

**Example usage**

Command line: sm -httpPort:13080 -ir\_cluster\_closeness:25

Initialization file: ir\_cluster\_closeness:25

**Information retrieval (IR) expert parameters: ir\_prefix**

**Parameter**

ir\_prefix

**Description**

This parameter defines the path to the Information Retrieval (IR) database files that contain the index.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

*HP Service Manager installation folder*\RUN

**Possible values**

Path to IR database files

**Example usage**

Command line: sm -httpPort:13080 -ir\_prefix:*HP Service Manager installation folder*

Initialization file: ir\_prefix:*HP Service Manager installation folder*

**Information retrieval (IR) expert parameters: ir\_language**

**Parameter**

ir\_language

**Description**

This parameter defines the language of the text you want Information Retrieval to index.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes  
**Note:** Do an IR Regen after setting or changing this parameter.

**Default value**

English

**Possible values**

English

German

**Example usage**

Command line: sm -httpPort:13080 -ir\_language:German

Initialization file: ir\_language:German

**Information retrieval (IR) expert parameters: ir\_timelimit**

**Parameter**

ir\_timelimit

**Description**

This parameter defines the maximum number of seconds that an Information Retrieval (IR) query can run. Service Manager stops queries that exceed this time limit.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

None

**Possible values**

Number of seconds

**Example usage**

Command line: sm -httpPort:13080 -ir\_timelimit:30

Initialization file: ir\_timelimit:30

**Information retrieval (IR) expert parameters: ir\_save\_interval**

**Parameter**

ir\_save\_interval

**Description**

This parameter defines how often Service Manager saves Information Retrieval (IR) indexes to disk.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

None

**Possible values**

Number of minutes

**Example usage**

Command line: sm -httpPort:13080 -ir\_save\_interval:10

Initialization file: ir\_save\_interval:10

**Information retrieval (IR) expert parameters: ir\_max\_clusters**

**Parameter**

ir\_max\_clusters

**Description**

This parameter defines the maximum number of clusters to return in an Information Retrieval search.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

100

**Possible values**

Number of clusters to return

**Example usage**

Command line: sm -httpPort:13080 -ir\_max\_clusters:125

Initialization file: ir\_max\_clusters:125

**Information retrieval (IR) expert parameters: ir\_max\_relevant\_answers**

**Parameter**

ir\_max\_relevant\_answers

**Description**

This parameter defines the maximum number of relevant records an Information Retrieval search can return.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

50

**Possible values**

Number of relevant records

**Example usage**

Command line: sm -httpPort:13080 -ir\_max\_relevant\_answers:100

Initialization file: ir\_max\_relevant\_answers:100

**Information retrieval (IR) expert parameters: ir\_min\_cluster\_members**

**Parameter**

ir\_min\_cluster\_members

**Description**

This parameter defines the minimum number of records that Service Manager allows in any one cluster.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

3

**Possible values**

Number of records

**Example usage**

Command line: sm -httpPort:13080 -ir\_min\_cluster\_members:4

Initialization file: ir\_min\_cluster\_members:4

**Information retrieval (IR) expert parameters: ir\_techload**

**Parameter**

ir\_techload

**Description**

This parameter loads the techterms dictionary into shared memory.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

None

**Possible values**

None

**Example usage**

Command line: sm -ir\_techload

Initialization file: ir\_techload

**Information retrieval (IR) expert parameters: ir\_autostop**

**Parameter**

ir\_autostop

**Description**

This parameter defines whether the Service Manager server stops an Information Retrieval (IR) search when a search term appears in more than 500 documents. When enabled, IR considers a term irrelevant and stops tracking it when the term appears in more than 500 documents. However those 500 index entries remain in the system.

By allowing IR to autostop terms the size of the IR files is limited and therefore the performance of IR improves. If you do not use the autostop feature then you should make sure that terms that are frequently used but of no interest in retrievals are placed in the IR stop file.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

0

**Possible values**

0 (Disable)

1 (Enable)

**Example usage**

Command line: sm -httpPort:13080 -ir\_autostop:1

Initialization file: ir\_autostop:1

**Information retrieval (IR) expert parameters: ir\_max\_shared**

**Parameter**

ir\_max\_shared

**Description**

This parameter defines the maximum bytes of shared storage you want IR Expert to use. Increasing the amount of shared memory improves IR performance. Each IR file uses about 320,000 bytes of information in a hash space that is not counted by this parameter.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

None

**Possible values**

Amount of shared memory in bytes

Minimum value of 8000 up to a maximum of 80% of the shared memory byte value

**Example usage**

Command line: sm -httpPort:13080 -ir\_max\_shared:8000

Initialization file: ir\_max\_shared:8000

**Information retrieval (IR) expert parameters: ir\_asynchronous**

**Parameter**

ir\_asynchronous

**Description**

This parameter defines whether the Service Manager server immediately updates information retrieval files (synchronously) or whether the server creates a schedule record to process the files (asynchronously).

You can start the processing of scheduled IR records using the command sm -que:ir. If for some reason the schedule process stops without cleaning out shared memory, you can start the process again with the command sm -que:ir.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

0

**Possible values**

0 (synchronous record handling)

1 (asynchronous record handling)

**Example usage**

Command line: sm -httpPort:13080 -ir\_asynchronous:1

Initialization file: ir\_asynchronous:1

**Information retrieval (IR) expert parameters: ir\_sharedlock**

**Parameter**

ir\_sharedlock

**Description**

This parameter locks the shared memory allocated to Information Retrieval (IR) and prevents other Service Manager applications from accessing it. Locking IR's shared memory can improve search performance but may require additional memory for optimal performance of other Service Manager applications.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

None

**Possible values**

None

**Example usage**

Command line: sm -ir\_sharedlock

Initialization file: -ir\_sharedlock

**Information retrieval (IR) expert parameters: ir\_cluster\_symbol**

**Parameter**

ir\_cluster\_symbol

**Description**

This parameter defines the alphanumeric character that indicates the system should perform a clustered query. When the system performs a clustered query, Information Retrieval searches all documents within the index to find documents with similar issues. Clustered queries are made to identify common errors.

**Important:** Clustered queries require a great deal of system resources and should only be done by a knowledge expert who is trying to identify common errors.

**Valid if set from**

server's OS command prompt

**Requires restart of Service Manager server?**

Yes

**Default value**

None

**Possible values**

Alphanumeric character

**Example usage**

Command line: sm -httpPort:13080 -ir\_cluster\_symbol:c

Initialization file: ir\_cluster\_symbol:c

**Information retrieval (IR) expert parameters: ir\_languagefiles\_path**

**Parameter**

ir\_languagefiles\_path

**Description**

This parameter defines the path to Information Retrieval language files that contain stop words, the stem dictionary, the suffix dictionary, and the normal dictionary.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

*Service Manager installation folder*\RUN

**Possible values**

Path to the IR language files

**Example usage**

Command line: sm -httpPort:13080 -ir\_languagefiles\_path:*Service Manager installation folder*

Initialization file: ir\_languagefiles\_path:*Service Manager installation folder*

**Information retrieval (IR) expert parameters: ir\_disable**

**Parameter**

ir\_disable

**Description**

This parameter allows you to disable the IR keys on your existing Service Manager system, so that the upgrade process runs faster.

**Note**: After the application upgrade succeeds, you can enable the IR keys again by removing the ir\_disable:1 entry from the sm.ini file.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Possible values**

1 (Disable)

**Example usage**

Command line: sm ir\_disable:1

Initialization file: ir\_disable:1

**Information retrieval (IR) expert parameters: ir\_query\_drop\_off**

**Parameter**

ir\_query\_drop\_off

**Description**

This parameter defines the maximum percentage deviation from the original search term Service Manager can use to find related records. As this percentage increases Service Manager includes more variations of the search terms in query results.

For example, with the default 50% variance Service Manager can vary a six letter search term by three letters. Thus if the search word were cables, Service Manager could include variations such as tables and cabins in the search.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

50

**Possible values**

Maximum percentage of search term variance

**Example usage**

Command line: sm -httpPort:13080 -ir\_query\_drop\_off:66

Initialization file: ir\_query\_drop\_off:66

**Information retrieval (IR) expert parameters: ir\_max\_deep\_distance**

**Parameter**

ir\_max\_deep\_distance

**Description**

This parameter defines the maximum number of insertions, deletions, or substitutions that can occur in automatic spelling correction.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

2

**Possible values**

Number of insertions, deletions, or substitutions allowed during automatic spelling correction

**Example usage**

Command line: sm -httpPort:13080 -ir\_max\_deep\_distance:3

Initialization file: ir\_max\_deep\_distance:3

**Information retrieval (IR) expert parameters: ir\_boost\_same\_sequence**

**Parameter**

ir\_boost\_same\_sequence

**Description**

This parameter defines whether the Service Manager server increases the search weighting boost for documents that match the query term sequence. When enabled, terms used in a document that match the same sequence as terms used in the query will be considered more relevant that documents that contain the terms but not in the same sequence.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

0

**Possible values**

0 (Disable)

1 (Enable)

**Example usage**

Command line: sm -httpPort:13080 -ir\_boost\_same\_sequence:1

Initialization file: ir\_boost\_same\_sequence:1

**Information retrieval (IR) expert parameters: ir\_minidf**

**Parameter**

ir\_minidf

**Description**

This parameter defines the minimum relevance ranking that search terms must have for Service Manager to include them in Information Retrieval (IR) search results. Service Manager ranks each search term based on how frequently it appears in the index. The less frequent a term is in the index, the more relevance Service Manager assigns to it in search results. If a term appears too frequently in the index then Service Manager ignores the search term as if it were in the stop word list.

Service Manager determines a relevance ranking for each search term by computing an IDF value. Service Manager uses the following formula to compute the IDF value of search terms: [natural log (*terms in index*/*number of instances of search term in index*)]+1

For example, in an index of 1000 terms, a search term that appears 250 times in the index has an IDF value of 2.4. Since this is below the minimum value of 2.5, Service Manager ignores the term as too frequent. A search term that appears only 10 times in the index however has an IDF value of 5.6, and since this term exceeds the minimum IDF value threshold, Service Manager includes it in the search results.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

2.5

**Possible values**

Minimum IDF value

**Example usage**

Command line: sm -httpPort:13080 -ir\_minidf:2.4

Initialization file: ir\_minidf:2.4

**Information retrieval (IR) expert parameters: ir\_max\_shallow\_distance**

**Parameter**

ir\_max\_shallow\_distance

**Description**

This parameter defines the maximum number of letters different a search term can be from an index term during an Information Retrieval (IR) search. You can also use this parameter to turn off spelling correction.

IR spelling correction occurs when a term used in the query is not within the IR index files. IR looks at all the terms that are in the index to determine the term that most closely matches the search term. If the number of changes required to change the query term to a known IR term is within the limits set by ir\_max\_shallow\_distance and ir\_max\_deep\_distance:n parameters, then the query uses the IR term. This search process is also known as a fuzzy search.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

1

**Possible values**

-1 (Disabled)

Number of letters different from search term (Enabled)

**Example usage**

Command line: sm -httpPort:13080 -ir\_max\_shallow\_distance:2

Initialization file: ir\_max\_shallow\_distance:2

# Information retrieval (IR) expert parameters: ir\_term\_drop\_off

**Parameter**

ir\_term\_drop\_off

**Description**

This parameter defines the maximum percentage frequency that search terms can have in the Information Retrieval (IR) index for Service Manager to include them in search results. Service Manager ranks each search term based on how frequently it appears in the index. The less frequent a term is in the index, the more relevance Service Manager assigns to it in search results. If a term appears too frequently in the index then Service Manager ignores the search term as if it were in the stop word list.

Service Manager determines both a term search frequency and a relevance ranking for each search term. The search term frequency is a simple percentage.  
number of instances of search term in index/terms in index \* 100

The relevance ranking is determined by computing an IDF value. Service Manager uses the following formula to compute the IDF value of search terms:

[natural log (terms in index/number of instances of search term in index)]+1

For example, in an index of 1000 terms, a search term that appears 250 times in the index has a frequency percentage of 25% and an IDF value of 2.4. Since this is above the maximum frequency percentage value of 22%, Service Manager ignores the term as too frequent. A search term that appears only 10 times in a 1000 term index however has a frequency percentage of 1% and an IDF value of 5.6. Since this term is within the percentage frequency threshold, Service Manager includes it in the search results, although it will not be as relevant as search terms with a lower IDF value.

**Valid if set from**

server's OS command prompt

Initialization file (sm.ini)

**Requires restart of Service Manager server?**

Yes

**Default value**

22

**Possible values**

Maximum percentage frequency

**Example usage**

Command line: sm -httpPort:13080 -ir\_term\_drop\_off:25

Initialization file: ir\_term\_drop\_off:25

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