



Siebel Search Administration Guide

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Contents

Chapter 1: What's New in This Release

Chapter 2: Overview of Siebel Search

About Siebel Search	11
About Basic Search Retrieval Techniques	12
Basic Search Retrieval Type	12
Basic Search Techniques	12
Advanced Search Retrieval Techniques	13
Advanced Search Retrieval Techniques	13
Advanced Search Techniques	14
The Siebel Search User Experience	15
Common Siebel Search End-User Tasks	15
Search Operators and Connectives for Siebel Search	16
Search Queries Used with Siebel Search	18

Chapter 3: Overview of Siebel Search Setup and Maintenance

About Preconfiguration Steps for Siebel Search	21
About Siebel Search Deployment	22
Hardware Recommendations for Hummingbird SearchServer	23
About Configuration and Administration of Siebel Search	23
About Siebel Tools Configuration Tasks with Siebel Search	24
The Differences Between Find and Search Operations	25
About Visibility Control Enforcement	26
Visibility Control for Find	26
Visibility Control for Search	27
Filter Visibility for Search	27
Search Time and Index Time Filters	27
About Relevance Ranking Algorithms	28

Chapter 4: Sample Task Flow for Setting Up Siebel Search

About Setting Up Siebel Search	29
About Configuring Siebel Search Using Siebel Tools	29
Creating a Search Engine Object	30
Creating a Search Index	30
Creating a Search Category	31
Creating a Search Definition	31
About Configuring Find with Siebel Tools	31
Creating a Find Object	31
Process for Configuring the Search Center	32
Adding the Search End User Screen	32
Adding the Search Administration Screen	33
About Hummingbird Installation on Windows or UNIX	33
About Siebel Installations	33
Installing the Siebel Mobile client	34
Installing the Siebel Server	34
About Siebel Search Administration	34
Creating and Maintaining Search Indices	34
Setting Up Siebel Server for Remote Searching	34

Chapter 5: Installing Siebel Search Under Windows

Installation Requirements for Hummingbird SearchServer	37
Hummingbird Preinstallation Checklist	38
Upgrade Notes for Windows Users	38
Installing Hummingbird SearchServer 5.3 Under Windows	40
Configuring Siebel Server as a Search Server Under Windows	41
Additional Steps for Oracle Database Users Under Windows	41
Modifying Siebel Search Parameters for Installation of Hummingbird on an Existing Siebel Server	42
Setting Up Employee or Partner Users	45
Setting Up Customer Users	45
Setting Up Siebel Server for Remote Searching Under Windows	45
Creating a Hummingbird Client Connector Under Windows	46
Setting Up for Mobile Client Searching Under Windows	47

Chapter 6: Installing Siebel Search Under UNIX

- Preinstallation Checklist 50
- Installing Hummingbird SearchServer 5.3 Under UNIX 50
- Installing Hummingbird SearchServer 5.3 Patch 53
- Configuring Siebel Server as a Search Server Under UNIX 54
- Configuring a Previously Installed Siebel Server as a Search Server Under UNIX 54
- Configuring Siebel Server for Remote Searching Under UNIX 55
- DataDirect ODBC Driver Installation and Configuration 56
- Creating a DataDirect ODBC Data Source on Oracle Under UNIX 56
- Creating a DataDirect ODBC Data Source on DB2 Under UNIX 58
- Search Server Environment Variable Settings 61
- Creating a Hummingbird Client Connector Under UNIX 62

Chapter 7: Configuring Siebel Search Using Siebel Tools

- Siebel Search Preconfiguration Checklist 66
- About Siebel Tools Search Objects 66
- Siebel Tools Search Object Reference 67
 - The Search Engine Object 67
 - The Search Result Field Object 68
 - The Search Index Object 69
 - The Search Table 70
 - The Search Definition Object 71
- About Siebel Tools Find Objects 71
- Siebel Tools Find Object Reference 72
 - The Find Object 72
 - The Application Find Object 74
 - The Find Field Object 74
 - The Find View Object 76
 - The Find Field Locale Object 76
 - The Find Locale Object 77
 - The Find Pick View Object 77
- Configuration Tasks for Siebel Search 78
- Defining the Search Index Field Maps for Search Tables 78
- Indexing Fields to Enforce Visibility 79
 - Indexing Fields to Enforce Catalog Category Visibility 79

- Indexing Fields to Enforce Organizational Visibility 81
- Restricting the Indexing of Records 82
- Indexing File Attachments 83
- Creating an Additional Search Category Object 84
- Advanced Configuration Tasks for Siebel Search 86
- Associating Search Categories with New Search Definitions 86
- Creating Search or Find Pick Views 87
- Creating Preview Views 88
- Adding New Result Fields 88
- Creating Custom Result Fields 89
- Creating Search Filter Fields 91
- Using Search Filters in Filter Search Specifications 92
- Using Search Filter Fields on the Search Center User Interface 93
- Exposing Filter Fields in the Search Center 93
 - Search Administration for Filter Fields 94
 - Testing Filter Fields 95

Chapter 8: Administration of Siebel Search

- Siebel Search Preadministration Checklist 97
- Siebel Search Administration Overview 98
- Siebel Search Index Settings 100
 - Normalization Setting 100
 - Translation Table Setting 101
 - Hummingbird Stop File Setting 102
 - Text Reader Setting 104
 - Table Language Setting 104
 - Sample Database Index Setting Values 105
- Working with Search Indices 105
 - About Index Operations 105
 - Automating the Process of Refreshing Indices on Windows 106
 - Setting Up Your Workflow Process to Run Periodically 108
 - Uploading Index Files to the Server Database and File System 109
 - Enabling Mobile Client Index Searches 110
 - Synchronizing Indices on the Mobile Web Client 110
- Working with Indices Under UNIX 111
 - Refreshing Indices Under UNIX 113

Working with Resolution Documents and Literature Under UNIX	114
Indexing External Documents Under UNIX	115
Supporting Mobile Clients Under UNIX	115
Search Execution Settings	115
Character Set Execution Setting	115
Collation Sequence Setting	116
Maximum Execution Time Setting	117
Maximum Search Rows Setting	117
Search Term Separator Setting	118
Sample Database Values for Basic Search Settings	119
Advanced Search Execution Settings	119
Sample Values for Advanced Search Settings	120
Adding a Default Language	120
Exact Match Setting	120
Proximity Search Setting	121
Relevance Method Setting	122
Search Term Generator Setting	123
Thesaurus Filename Setting	125
Thesaurus Option Setting	125
Spell Check Setting	126
Show Matches Setting	127
Show Title for External Documents Setting	127
127	

Appendix A: Siebel Search Environmental Variables

Siebel Search Environmental Variable List	129
Siebel File Attachment Indexing	130

Appendix B: Troubleshooting the Setup of Siebel Search

Siebel Search Troubleshooting Key	131
Hummingbird Installation Troubleshooting	132
Basic Search Setup Troubleshooting	132
Visibility Troubleshooting	134
Hummingbird Client Connector Troubleshooting	136
Using the Verbose Parameter	136
SQL Troubleshooting	136

Appendix C: Syntax for Filter Search Specifications

Filter Search Specification Syntax	139
Precedence	139
Comparison Operators	140
Logical Operators	140
Pattern Matching with LIKE and NOT LIKE	140
Functions in Calculation Expressions	142
Filter Search Specification	142
Filter Searches from the User Interface	143
Filter Search Specification Syntax in Backus-Naur Format	143

Index

1

What's New in This Release

What's New in Siebel Search Administration Guide, Version 7.8, Rev. A

Table 1 lists changes in this version of the documentation to support release 7.8 of the software. These changes address customer enhancement requests.

Table 1. New Product Features in Siebel Search Administration Guide, Version 7.8, Rev. A

Topic	Description
"Upgrade Notes for Windows Users" on page 38	Modified topic. It has been updated to include a step to run the Hummingbird Connector Manager program. This step is required to remove existing connectors before an upgrade.
"Installing Hummingbird SearchServer 5.3 Under Windows" on page 40	Modified topic. It has been updated to include information on indexing remote server nodes in a distributed environment.
"Installing Hummingbird SearchServer 5.3 Under UNIX" on page 50	Modified topic. It has been updated to include information on indexing remote server nodes in a distributed environment.
"Creating a DataDirect ODBC Data Source on Oracle Under UNIX" on page 56	Modified topic. It has been updated to include information for Hummingbird SearchServer version 6.
"Creating a DataDirect ODBC Data Source on DB2 Under UNIX" on page 58	New topic. It covers creating a DataDirect data source on a DB2 database.
"Sample Values for Advanced Search Settings" on page 120	Modified topic. It has been updated to include sample values for the following settings: <ul style="list-style-type: none">■ Character Set■ Max Search Rows■ Normalization■ Search Term Separator■ Show Document Title
"Adding a Default Language" on page 120	New topic. It covers configuring the default language.

What's New in Siebel Search Administration Guide, Version 7.8

Table 2 lists changes in this version of the documentation to support release 7.8 of the software.

Table 2. New Product Features in Siebel Search Administration Guide, Version 7.8

Topic	Description
Chapter 4, "Sample Task Flow for Setting Up Siebel Search"	Added new chapter.
"Installing Hummingbird SearchServer 5.3 Under Windows" on page 40	Added new task topic to verify Hummingbird SearchServer installation under Windows.
"Modifying Siebel Search Parameters for Installation of Hummingbird on an Existing Siebel Server" on page 42	Added information to existing task.
"Installing Siebel Search Under UNIX" on page 49	Added information pertaining to Solaris and HP-UX platforms.
"Installing Hummingbird SearchServer 5.3 Patch" on page 53	Added new information to topic.
"Creating a DataDirect ODBC Data Source on Oracle Under UNIX" on page 56	Added information to topic.
"Configuring Siebel Search Using Siebel Tools" on page 65	Chapter information reordered into Reference topics and practical tasks.
"Indexing Fields to Enforce Visibility" on page 79	Topics rewritten to contain updated information. New tasks also added.
"Indexing File Attachments" on page 83	Added new information to topic.
"Thesaurus Option Setting" on page 125	Added more definitions to table of defined terms.
"Troubleshooting the Setup of Siebel Search" on page 131	Added new troubleshooting topics.

2

Overview of Siebel Search

This chapter contains the following topics:

- [“About Siebel Search” on page 11](#)
- [“About Basic Search Retrieval Techniques” on page 12](#)
- [“Advanced Search Retrieval Techniques” on page 13](#)
- [“The Siebel Search User Experience” on page 15](#)
- [“Common Siebel Search End-User Tasks” on page 15](#)
- [“Search Operators and Connectives for Siebel Search” on page 16](#)
- [“Search Queries Used with Siebel Search” on page 18](#)

About Siebel Search

Siebel Search is a text-retrieval tool that allows users of Oracle’s Siebel Business Applications to perform full-text searches across Siebel records and files found inside and outside the Siebel application structure. Personalized visibility rules can be applied to search results so users view only search results to which they have been given access. Documents and database records found by the search can be previewed in the browser, or launched in the native application.

NOTE: Siebel Search employs Hummingbird SearchServer and related components. A license to Hummingbird products is included with every license of Siebel Search. Hummingbird Search Indices, used by Siebel Search, cannot be used by another vendor’s search engine. Additionally, Hummingbird Search Indices can only be used by the Siebel application, because the Hummingbird software licensed with Siebel Search does not allow external use.

Certain Hummingbird products (Hummingbird SearchServer) are included in the Siebel Search product. Siebel Business Applications use license key numbers to allow your organization to access the products you have licensed. Oracle provides license keys only for the software programs and documentation for which you have acquired a license, as set forth in your company’s license agreement with Oracle. Software programs and documentation are Siebel Confidential Information, and must be treated as such in accordance with applicable terms of your company’s license agreement with Siebel. The license keys for Hummingbird in this guide have been generated for you. Your company’s license agreement with Oracle sets forth the permitted uses of these license keys, which include, but are not limited to requiring that you use these license keys only in combination with Siebel Programs and not on a stand alone basis.

Siebel Search is included with every license for Siebel Business Applications. Siebel Advanced Search, a separately licensed product, includes and expands the basic Boolean capabilities of Siebel Search, allowing customers to deploy natural language search capabilities like synonym, term proximity control, and word stemming, as well as automatic spell checking and the user-defined thesaurus. For information on the differences between Siebel Search and Siebel Advanced Search, see the following:

- [“About Basic Search Retrieval Techniques” on page 12](#)
- [“Advanced Search Retrieval Techniques” on page 13](#)

About Basic Search Retrieval Techniques

Basic Search capabilities are included in every Siebel application license. These capabilities allow you to perform full text searches using basic Boolean operators. Boolean operators allow you to create a more precise query. See [Table 3 on page 16](#) for a list of search operators and connective terms.

Basic Search Retrieval Type

Basic Siebel Search supports Boolean settings. For more information on Basic Search settings, see [“Search Execution Settings” on page 115](#).

Boolean Operators

A basic search license allows you to perform searches using the strict Boolean retrieval model which offers very precise control over what is retrieved during a search. This model excludes the text that does not conform exactly to the search criteria.

When searching for matching rows in a table or document, this model uses strict Boolean operations for combining search terms. There is no question of the degree to which a match is found—all matches must be exact.

For example, performing a search for Computers AND Monitors makes sure that only documents or database records containing both words are retrieved. For a list of Boolean operators, see [“Search Operators and Connectives” on page 16](#).

Basic Search Techniques

Basic Siebel Search supports a variety of search techniques. These techniques allow you to refine your search operations. For more information on setting up and administering basic Siebel Search default techniques, see [“Search Execution Settings” on page 115](#).

Single Term Search

This search technique allows you to enter a single keyword, and receive results based on that term. For example, if you enter the word *computer*, results that contain the word *computer* are returned.

Multiple Term Search

This search technique allows you to enter two or more keywords with spaces. The default Search Term Separator is assumed to be OR. For example, if you enter the text *computer windows server*, it translates, when you run the search, as *computer OR windows OR server*. The returned results include records that contain one of more of these terms. This differs from the operator AND, in that, the separator AND makes sure that records returned contain all search terms. For a list of multiple term search terms, see [“Search Query Examples” on page 18](#). For information on how to change or set the default search term separator, see [“Search Execution Settings” on page 115](#).

Phrase Searches

This search technique allows you to conduct a search for records where a chosen phrase is contained. For example, if you enter the phrase *“computer science”* (quotes included) records containing the word *computer* followed by a space, then the word *science* are returned.

Wildcard Searches

This search technique allows you to find pages containing words similar to a given word. You use the wildcard character either to represent a single character, or an optional sequence of characters. For example, if you enter *comput**, the search returns words that have the same prefix *comput*, such as *computer*, *computing*, and so on. For a list of wildcard symbols, see [“Search Query Examples” on page 18](#).

Special Character Searches

This search technique allows you to use special characters other than those provided by wildcard searches. For example, if you search for the word *on?line*, the search returns matches to *on;line*, *on.line*, *on line*, *on-line*, and so on. For a list of special characters, see [“Search Operators and Connectives” on page 16](#).

Advanced Search Retrieval Techniques

Siebel Advanced Search (a product separately licensed with Siebel Search) expands the capabilities of basic Siebel Search, providing you with the ability to choose advanced retrieval models such as proximity, synonym, linguistic, and intuitive searching.

Advanced Search Retrieval Techniques

The advanced search retrieval techniques support Boolean operators, but use them in a more statistical, fuzzy manner to determine whether a result should display, and at what relevancy. Both relax the strict Boolean interpretation of AND and OR, so partial matches still display in the results set. For more information on Advanced Search settings, see [Chapter 8, “Administration of Siebel Search.”](#) The Advanced Search Retrieval Techniques are described in the following topic.

Advanced Search Techniques

Siebel Advanced Search supports a variety of structured search techniques. Structured search techniques allow you to search using less restrictive, more intuitive search methods. For information on administering these search techniques, see [Chapter 8, "Administration of Siebel Search."](#) The Advanced Search Techniques are listed in the following sections.

Synonym Searching

Synonym Searching allows users to search for synonyms to the terms in their search criteria as well as the explicitly mentioned terms themselves. Siebel Advanced Search uses two thesauri to implement synonym searching, which are listed below.

NOTE: You cannot have both thesauri enabled at the same time. You must enable one thesaurus option or the other. For information, see ["Advanced Search Execution Settings" on page 119.](#)

- The Fulcrum International Thesaurus, which is automatically installed during the Fulcrum install.
- A user-created thesaurus, which supports user-defined synonyms. The synonyms can be words, numbers, abbreviations, or phrases. Fulcrum includes a sample thesaurus, support.fth, located in the Fulcrum\fultext directory. To view this thesaurus, open the Fulcrum\Fultext\support.fth file. For instructions on how to create a thesaurus, see the Hummingbird documentation on the *Siebel Business Applications Third-Party Bookshelf*.

For example, if you enter [computer], surrounded by brackets ([]), the results returned will be synonyms for the word computer including words like PC, machine, and so on. For information on setting up and administering this function, see ["Advanced Search Execution Settings" on page 119.](#)

Proximity Searching

This search technique is used to determine the proximity of two search terms. The criteria are determined by counting the number of indexed characters between the end of one search term and the start of another. It is similar to using the operator AND, but allows greater control to make sure that the two terms are near each other, and not at opposite ends of a long document. For example, if you enter *excel near project*, the returned results include pages with the word *excel* near the word *project*. For information on setting up and administering this function, see ["Advanced Search Execution Settings" on page 119.](#)

Linguistic Searching

This search technique allows users to search for terms in various combinations. Linguistic Searching controls how the variant word forms are treated, and allows users to set language options.

For example, a user enters *problem logging on*, and needs to see results that include logging, logged, logs, and so on. The Linguistic Searching function controls how the variant forms are treated, and allows users to set language options. For information on setting up and administering this function, see ["Advanced Search Execution Settings" on page 119.](#)

Approximate Searching

This technique is similar to spell checking in that slightly misspelled or incorrectly entered terms may still return the appropriate result. For example, if you search for *Sybel* you may still get matches for records with the keyword Siebel. These approximations are calculated automatically, and are not determined by matching to a dictionary.

The Siebel Search User Experience

The user experience of Siebel Search varies depending on the type of Siebel Business Application. For instance, the user experience of an Employee or Partner will vary significantly from the user experience of a customer.

The Employee or Partner User Experience

Employee or partner users of Siebel Search will have an experience that differs from the experience of customers. Those differences begin with the Search Center. The Search Center is a central location where users can perform searches and queries on database records and documents. The Look In drop-down list displays categories in the following order: Find Objects, which are database queries, followed by Search categories, and the Advanced Search category, both of which are searches on compiled search indices. The query entry values are persistent when the results are presented to allow users to understand what has been queried, and to refine and return to their query even after closing the search center window. Users can perform queries against database records from anywhere in their Siebel application.

To open the Search Center frame, you click the binocular button. Closing the Search Center window returns you to the full view of the screen.

The Customer User Experience

Siebel Search for customer applications can be accessed globally in the application from the toolbar. There are two ways in which a customer can perform a search. The user may enter a full-text query in the Search box, or may click the Advanced Search link, and perform a search against single or multiple categories.

Common Siebel Search End-User Tasks

Tasks commonly performed in Siebel Search, and Siebel Advanced Search are listed as follows:

- **Search using keywords.** The user can search using single or multiple keywords. In the case of multiple keywords, a default term separator is inserted between query terms.
- **Performing searches with Boolean operators.** Boolean operators refer to terms that allow a user to refine a search. These terms are AND, OR, and NEAR. For a list of search term operators including variant forms of Boolean operators, see [“Search Operators and Connectives for Siebel Search” on page 16](#).
- **Re-sort results of search and find operations.** After obtaining results of a Search or Find, the user may re-sort the results to better locate the desired item.

- **Searching using multiple categories with one search.** When performing an advanced search, the user may choose from a number of categories listed in the Search drop-down list against which they can search.
- **Refining a search.** Once a search result has been found, users can further refine their search by selecting new categories, modifying the query term, modifying the operators, or changing filter field values.
- **Searching for external documents.** Documents outside the Siebel file system can be searched for and retrieved.
- **Applying synonym searching using the user-defined thesaurus.** The user-defined thesaurus can be applied by placing brackets [] around any term.
- **Drilling down on a search result.** Search results can be presented in the form of links that allow the user to click the link, and drill down for further information.
- **Previewing a search result with the selected record in the main view area. (Search Center only).** When the Preview button in the Search Center is invoked, a database record is opened in a pop-up window allowing users to view the record without changing their current application context. External files are opened and presented in their native application.
- **Launch a SmartScript from the Search Center.** Employees and customers can retrieve SmartScripts as search results and launch them from the Search Center.
- **Setting the Customer Dashboard.** Employees can update the open dashboard with the selected search result. **(Search Center only)**

For information on administering listed search settings, see [“Administration of Siebel Search” on page 97](#).

Search Operators and Connectives for Siebel Search

In addition to AND and OR, and their symbolic equivalents ampersand (&) and vertical bar (|), Siebel Search can accept other operators, which are summarized in [Table 3](#).

Table 3. Search Operators and Connectives

Operators and Connectives	Effect
AND, and, (ampersand) &	Placed between terms, returns only items containing both terms.
OR, or, (vertical bar)	Placed between terms, returns items containing either term or both terms.

Table 3. Search Operators and Connectives

Operators and Connectives	Effect
NOT	The NOT operator used between two query terms can be used to limit the results in a query to records that contain the first term, but not the second term. Indices are built with one field mapping to a SUMMARY column, and all other fields or document text mapping to the EXTERNAL_TEXT column in the index. Queries with the NOT operator apply to both the External Text and Summary columns in the search index, and return records that satisfy the search criteria for both the name and summary fields.
(Asterisk) *	Placed anywhere in a string, returns items containing the string, or containing the string plus any additional characters at the position at which it appears, up to (or beginning with) a space.
(Question mark) ?	Placed anywhere in a string, returns items containing the characters specified in the string, such that any character may appear at the location of the question mark.
(Quotation marks) ""	Surrounds a string that, unless modified by a wildcard, must be matched exactly. Allows searching for groups of words in their exact order.
(Parentheses) ()	Specifies that the terms and operators surrounded by the parentheses be processed first, regardless of the default processing order.
NEAR, near	Specifies that the search for the term preceding or following NEAR be governed by the proximity in characters. This criterion is specified in the Options section of the Siebel Search Contents dialog box if Siebel Advanced Search is licensed. Note: using NEAR in a query that also contains grouping causes an error.
(Brackets) []	Used to specify Thesaurus searching options if Siebel Advanced Search is licensed.
White space character	In a pattern the space separates terms that must appear in a sequence. For example, when you enter "on line" (with quotes), this pattern would match any occurrence of the word ON followed by spaces, tabs, new lines, or any other white space characters in any combination, followed by the word LINE. Quotes are necessary when using white spaces between terms, because without them the terms are treated as different words.
(Hyphen) -	The hyphen character is treated as an optional punctuation character. The nonhyphenated forms include spaces or anything that is interpreted as a punctuation character in Fulcrum.
(Backslash) \	This is an escape character that, when placed immediately before any special pattern character (hyphen, *, backslash, ?, or space) in a pattern, causes the special pattern character to be interpreted literally.

Search Queries Used with Siebel Search

Table 4 shows a number of examples of queries using these operators and the results they return. Note that search operators are conventionally displayed in uppercase. However, query strings are not case-sensitive, and the operators need not be in uppercase. Also note that the result may be affected by the operator you selected in the Separate Terms With drop-down list in the Siebel Search options property sheet. This setting determines which operator is assumed when no Boolean operator appears in the query.

NOTE: When the special characters, shown in Table 4 are used, advanced features like synonym searching, and approximate searching will not be applied to searches.

For instructions on administering these settings, see Chapter 8, "Administration of Siebel Search."

Table 4. Search Query Examples

Operator	Query Type	Query Example	Separate Terms with	Returns All Records and Documents That:
AND	AND query	performance AND memory	N/A	Contain both <i>performance</i> and <i>memory</i>
&	AND query	performance & memory	N/A	Contain both <i>performance</i> and <i>memory</i>
OR	OR query	performance OR memory	N/A	Contain either <i>performance</i> or <i>memory</i>
	OR query	performance memory	N/A	Contain either <i>performance</i> or <i>memory</i>
""	Phrase query	"memory performance"	N/A	Contain the entire phrase, <i>memory performance</i>
		memory performance	AND	Contain both <i>performance</i> and <i>memory</i>
		memory performance	OR	Contain either <i>performance</i> or <i>memory</i>
"" ""	Multiple phrases	"Mi crosoft Wi ndows" "Sun Sol ari s"	AND	Contain both <i>Microsoft Windows</i> and <i>Sun Solaris</i>
"" ""	Multiple phrases	"Mi crosoft Wi ndows" "Sun Sol ari s"	OR	Contain either <i>Microsoft Windows</i> or <i>Sun Solaris</i>
?	Wildcard	operate?	N/A	Contain <i>operates</i> or <i>operated</i> , but not <i>operate</i>
?	Wildcard	?rag	N/A	Contain <i>brag</i> , <i>crag</i> , <i>drag</i> , or <i>frag</i>

Table 4. Search Query Examples

Operator	Query Type	Query Example	Separate Terms with	Returns All Records and Documents That:
*	Wildcard	*rang*	N/A	Contain any of <i>arrange</i> , <i>arranged</i> , <i>arranges</i> , <i>arranging</i> , <i>orange</i> , <i>orangutan</i> , <i>range</i> , <i>ranges</i> , <i>ranging</i> , <i>rang</i> , <i>sprang</i> , <i>strange</i> , <i>stranger</i> , <i>strangest</i> , <i>strangle</i> , <i>wrangle</i> , and so on.
()	Grouping	(word OR excel) AND NOT microsoft	N/A	Contain either <i>word</i> or <i>excel</i> but do not contain <i>microsoft</i>
()	Grouping	(word OR excel) NOT microsoft	N/A	(Error)
()	Grouping	word OR (excel AND NOT microsoft)	N/A	Either contain <i>word</i> , or contain <i>excel</i> and have no reference to <i>microsoft</i> (<i>microsoft</i> may appear in the same document as <i>word</i> , but not in the same document as <i>excel</i>)
	Multiple search terms	word OR excel NOT microsoft	N/A	Contain anything (finds all records and documents)
	Multiple search terms	word OR excel AND NOT microsoft	N/A	Contain either <i>word</i> or <i>excel</i> but do not contain <i>microsoft</i>
NEAR	Proximity	log* NEAR performance	N/A	Contain any form of the word <i>log</i> within <i>n</i> characters of <i>performance</i> , where <i>n</i> is the number set in the Near Means field of the Options area of the Siebel Search Contents dialog box (Advanced Search only)

3

Overview of Siebel Search Setup and Maintenance

This chapter includes the following topics:

- [“About Preconfiguration Steps for Siebel Search” on page 21](#)
- [“About Siebel Search Deployment” on page 22](#)
- [“About Configuration and Administration of Siebel Search” on page 23](#)
- [“About Siebel Tools Configuration Tasks with Siebel Search” on page 24](#)
- [“The Differences Between Find and Search Operations” on page 25](#)
- [“About Visibility Control Enforcement” on page 26](#)
- [“About Relevance Ranking Algorithms” on page 28](#)

About Preconfiguration Steps for Siebel Search

Enabling Siebel Search requires setting up a server to act as a Search server. This server will contain both the Siebel Server and the Hummingbird SearchServer. Indices must physically be located on this machine.

NOTE: Hummingbird search indices, used by Siebel Search, cannot be used by another vendor's search engine. Additionally, Hummingbird search indices can only be used by the Siebel application, because the Hummingbird software licensed with Siebel Search does not allow external use.

Searches done from the Web client can be done directly on the URL corresponding to the Search server or through another Siebel Server. In the second case, the Siebel Server passes the search execution request through to the Search server. Administration, performed from the Web client, must be performed on the Search server, and not remotely through another Siebel Server. Mobile Web clients have the option of synchronizing the indices from the Search server to a local machine. In this case, Hummingbird client must be installed on the Mobile Web client to enable search execution.

About Siebel Search Deployment

You can deploy Siebel Search in one of three ways. [Figure 1](#) displays each of these scenarios. An overview of the tasks required to implement each of these search scenarios follows.

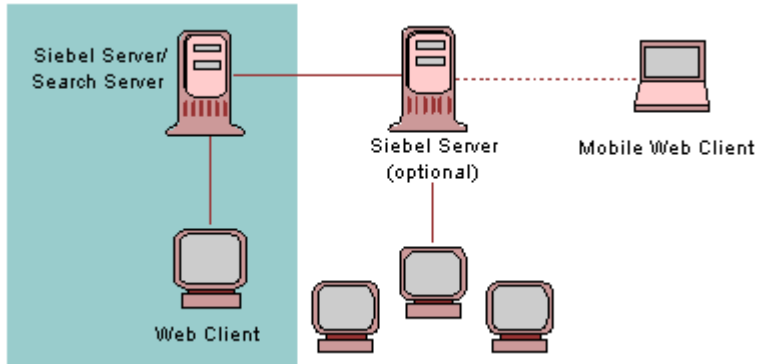


Figure 1. Siebel Search Architecture

Single Server and Web Client Search Deployment

A Search server consists of a Hummingbird SearchServer installation and a Siebel Server. This server is used to create and administer indices. You must have at least one SearchServer installation for a Siebel Search implementation to work. This installation scenario is the basis for all others that follow:

- Install Hummingbird SearchServer on a designated machine that will also contain the Siebel Server.
- Install Siebel Server software on the Siebel Server machine.

NOTE: You may install Hummingbird SearchServer on a machine where a Siebel Server is already installed. For information, see [“Modifying Siebel Search Parameters for Installation of Hummingbird on an Existing Siebel Server”](#) on page 42.

Multiple Servers and Web Client

This scenario contains a Siebel Server connected to a designated Search Server with a client connector.

In addition to installing Hummingbird and the Siebel Server software on your designated Search Server, you must also do the following:

- Install Siebel Server software onto additional server machines.
- Configure and enable Hummingbird client connector on the designated Search Server machine.

Mobile Web Client

The Mobile Web client is a mobile client that synchronizes with a Siebel Server to obtain updated information.

In addition to installing Hummingbird and Siebel Server software onto your designated Search Server, to deploy mobile client search capability, you must do the following:

- Install Hummingbird software on the mobile client machine.
- Make sure that the mobile clients have connectivity to a Siebel Server.

Hardware Recommendations for Hummingbird SearchServer

You can install the Hummingbird SearchServer on the same server as the Siebel Enterprise Server or the Siebel Database Server. For larger installations, however, it is recommended that you install SearchServer on a dedicated server, with a minimum of 250 megabytes (MB) of RAM. The central processing unit (CPU) and memory resources required for operation of the Hummingbird SearchServer increase with the number of active users at any one time. Each concurrent user requires approximately 2 MB of RAM on the server. A concurrent user is defined as an employee, or partner with search center open, or a customer with the Search view active.

Up to 50 MB of disk space is required on the application server for installation of the Hummingbird SearchServer software. The size of indices is approximately 30% of the size of the original text, and the indexing step requires temporary space of up to two to four times the ultimate size of the index files. Additionally, indices which are based on business components pointing to files in the Siebel file system require additional temporary storage space roughly equal to twice the size of the compressed files being indexed.

About Configuration and Administration of Siebel Search

You configure and administer Siebel Search using Siebel Tools, and through administration screens in your Siebel application. You configure Find objects solely using Siebel Tools. There are no administration screens for Find. For a discussion of the differences between Search and Find, see [“The Differences Between Find and Search Operations” on page 25](#).

Siebel Search uses a technology called full-text search where a search index is created that transforms the content of documents or database fields into a form that is very efficient for searching. At a high level, Siebel Tools configuration defines what these indices should be, and the task of administration creates the indices.

For information on Siebel Tools Configuration of Search, see [Chapter 7, “Configuring Siebel Search Using Siebel Tools.”](#) For information on Administration of Siebel Search, see [Chapter 8, “Administration of Siebel Search.”](#)

About Siebel Tools Configuration Tasks with Siebel Search

Siebel Tools is a declarative software development tool that allows you to configure the underlying data and data presentation of your Siebel application without making changes to the program source code. Standard Siebel applications provide a core set of search object definitions that you can use as a basis for your tailored application. There are no source code modifications, nor modifications to schema. Siebel Tools allows you to create and maintain a custom Siebel Repository file (.srf) to store your custom configurations.

Chapter 7, “Configuring Siebel Search Using Siebel Tools,” introduces and explains basic Siebel Tools object definitions, and outlines advanced configuration tasks that allow you to further customize your application. Some basic concepts, important for understanding how you use Siebel Tools to configure Search, are listed in the following topics.

About Find Objects

A Find object definition, which is set up in Siebel Tools, specifies what Find objects and fields are available when a user invokes a Find operation. Users have access to the Find objects that are associated to the application being used, depending on their responsibilities. You may also specify a default Find object for your Siebel application.

Each item in the Search Center’s Find list identifies a business component whose records can be searched for matching values that have been entered in the Keywords text box. For instance, if a user searches one term against the Accounts field, the search engine will take the entry, add an asterisk character (*) at the end of the term, and send that information to the query engine. Find queries are case sensitive by default, but this setting may be changed. If multiple fields are entered in the Search Center text box, the entries will be connected with a Boolean AND.

NOTE: You can enter the equal operator (=) before a query term, and the engine looks for an exact match instead of doing a *Starts with* (which appends a wildcard at the end of the query).

For more information on Find objects, see “About Siebel Tools Find Objects” on page 71.

About Search Objects

A Search Object is a logical entity that defines all search characteristics and behaviors for a chosen object. A Search Object includes in its definition attributes of a business component and fields to search upon, a drill down results view, a preview view, and records that may be associated with a particular result through the Attach function.

For more information on search objects, including standard and advanced Tools configuration of your Siebel Search operation, see “Configuring Siebel Search Using Siebel Tools” on page 65.

The Differences Between Find and Search Operations

Find is a tool that consists of a direct query on a database, and allows users to query on a field-by-field basis. Find objects are accessible from anywhere in your Siebel application through the Search Center (binoculars), and allows users to perform queries on specific predefined fields linked to specific business components (such as querying for an employee’s last name). Because Find directly queries the database instead of using indices, the results of these queries always match the actual data in the database. This makes Find appropriate for searching on transactional database tables that frequently are changing.

A Search operation by contrast, allows a simpler, broader search by not requiring the user to specify specific fields to search upon. Full text searches can be performed across multiple business components, fields and files with one operation. Search also gives you the option of searching through attachments. An important difference between search and find is the visibility applied to the results. For more information about the differences, see [“About Visibility Control Enforcement” on page 26](#).

Table 5 lists the actions a user can take and whether those actions can be completed with Find or Search, or both, and the differences between the two.

Table 5. Differences Between Find and Search

Feature	Find	Search or Full Text Search
Type of data source	Data is changed quite often, such as Activity or Opportunity records.	Data remains more constant, such as Solution or Literature.
Needs third-party software setup	No.	Yes. Hummingbird SearchServer.
Uses database queries	Yes.	No. Searches are run against search indices, which contain metadata held on a search server.
Supports full text search	No.	Yes.
Supports filter field search (also called parametric search).	Yes.	Yes.
Wildcard search	Apply to any characters, including space. In other words, it can span more than one word.	Does not apply to punctuation characters, such as a space, or comma. Applies to characters only within a word.
Supports Boolean operators	No.	Yes.

Table 5. Differences Between Find and Search

Feature	Find	Search or Full Text Search
Allows preview, attach, and drilldown operations	Yes.	Yes.
Supports both customer and employee applications	Yes, but is not configured by default.	Yes.
Needs additional license	No.	No. Basic search is included with every license of Siebel applications. For Advanced Search capabilities, you must license Advanced Search.
Case insensitive	Will be case insensitive if the Normalization setting in the Index Settings Administration screen is default. If the setting is set to None, then text entries will be case sensitive.	Yes.
Allows you to search on content in attachments	No.	Yes.

About Visibility Control Enforcement

Within Siebel Search, *visibility* determines the set of records displayed to the user from specific business components in the search results. The user’s access to records is determined through a combination of user position, Siebel Tools object attributes, and record values. For more information on setting up visibility within your Siebel application, see *Security Guide for Siebel Business Applications*.

Visibility Control for Find

Find operations within Siebel applications are set up in the following ways:

- **All Organizations view.** The user has access to all records.
- **All view.** User has access to all records in their own organization.
- **Team view.** User has access to records in their team.
- **My view.** User has access only to their own records.

For more information on visibility, see *Security Guide for Siebel Business Applications*.

Visibility Control for Search

Visibility control can be set up in Siebel Tools for each search index. Visibility rules are defined as follows:

- **Multiorganizational access control.** Multiorganizational visibility provides a logical layer above the visibility controls at the enterprise, limited, and personal levels. With it you can limit visibility at the individual level of information such as accounts, contacts, and opportunities within a single organization. Access is limited to individuals whose positions have been placed on virtual teams for each record. Additional entities, such as products and price lists are limited at the business organizational level rather than the level of individual user, and access is controlled at this level.
- **Catalog Category.** Limits access of groups of users to catalogs and categories of content. If catalog category control is used for a particular search object, any records that are not associated with any content category will not be displayed as a search result. For more information, see *Security Guide for Siebel Business Applications*.
- **Access Group.** You can index fields to enforce existing Access Group visibility rules within your Siebel enterprise. For more information, see *Security Guide for Siebel Business Applications*.

Filter Visibility for Search

Siebel Search also contains predefined search specifications that allow you to do the following:

- Create search categories with preset search specification. For example, if Literature status=published, then no records that are in draft form will be considered during a search. This visibility control is organization wide, no matter what the responsibility of the user is.
- Create multiple search categories on the same business component to give users greater granularity to control their searches. For example, you can have one search category in your application called *White Papers*, based on the literature business component, and another category called *Brochures*, which is also based on the literature business component. A user can then perform a search on white papers, without searching on all literature items.

NOTE: Two search categories cannot be added to the search definition if they share a search index.

Search Time and Index Time Filters

Search time filters can be either implicit or explicit filters of search results. Implicit filters are applied to search results in the form of a filter search specifications on the search category. Explicit filters come in the form of exposed user interface (UI) filter fields on the Search Center. For more information, see [“Using Search Filters in Filter Search Specifications” on page 92](#).

About Relevance Ranking Algorithms

Siebel Search includes a means to assess the *relevance value* for each row retrieved by a search. The ranking algorithms provide a means of ordering documents that are most relevant to the query, as opposed to ordering by date, or some other column in the index table.

You can base relevance values on the total number of words matched in a table row, or the number of original, search-term occurrences in a row. You may also specify that relevance be assessed by a statistical determination of term importance, combined with search term occurrences in the row.

You can turn relevance ranking on or off. Additionally, you can specify a minimum acceptable relevance level, which makes sure that rows with a calculated relevance below the set threshold are not included in the search result. For more information on setting up and administering Relevance Ranking, see [“Advanced Search Execution Settings” on page 119](#).

4

Sample Task Flow for Setting Up Siebel Search

This chapter contains the following topics:

- [“About Setting Up Siebel Search” on page 29](#)
- [“About Configuring Siebel Search Using Siebel Tools” on page 29](#)
- [“About Configuring Find with Siebel Tools” on page 31](#)
- [“Process for Configuring the Search Center” on page 32](#)
- [“About Hummingbird Installation on Windows or UNIX” on page 33](#)
- [“About Siebel Installations” on page 33](#)
- [“About Siebel Search Administration” on page 34](#)
- [“Setting Up Siebel Server for Remote Searching” on page 34](#)

About Setting Up Siebel Search

The process for configuring Siebel Search requires several steps. You must install Hummingbird SearchServer, Configure Search with Siebel Tools, and Administer Siebel Search in the Siebel Administration screens. The following topics provide conceptual overviews of the tasks involved with setting up Search. Each topic includes a cross reference to a detailed task. These topics include the following:

- [“About Configuring Siebel Search Using Siebel Tools” on page 29](#)
- [“About Configuring Find with Siebel Tools” on page 31](#)
- [“Process for Configuring the Search Center” on page 32](#)
- [“About Hummingbird Installation on Windows or UNIX” on page 33](#)
- [“About Siebel Installations” on page 33](#)
- [“About Siebel Search Administration” on page 34](#)

About Configuring Siebel Search Using Siebel Tools

The following processes detail the general flow of tasks you employ when configuring Siebel Search with Siebel Tools on a Siebel application.

Creating a Search Engine Object

This step is treated in greater detail in the [“Siebel Tools Search Object Reference” on page 67](#).

This step is already done during the installation. The only available search engine is Fulcrum, and the search adapter class name is CSSFulcrumSearchAdapter. For more information, see [“The Search Engine Object” on page 67](#).

Creating Search Result Fields

This step is treated in greater detail in the [“Siebel Tools Search Object Reference” on page 67](#).

Siebel applications contain a default set of fields that are actually system fields used by the parent search engine. You do not have to create additional fields, unless you have a requirement. For more information, see [“The Search Result Field Object” on page 68](#).

Creating a Search Index

This step is treated in greater detail in the [“Siebel Tools Search Object Reference” on page 67](#).

NOTE: There are many search indices that come with each Siebel application by default. If one does not meet your needs, you can create your own.

For more information on the Search Index object, see [“The Search Index Object” on page 69](#).

Creating a Search Table Object

This step is treated in greater detail in the [“Siebel Tools Search Object Reference” on page 67](#).

NOTE: This step is not required, unless you created a new search index in the previous step.

A search table is the actual physical index maintained by the third-party search engine, Hummingbird. For example, FUL_AUCT is the table created by Hummingbird, which contains an index of auction items. For more information, see [“The Search Table” on page 70](#).

Defining Search Index Fields

This step is treated in greater detail in the [“Configuration Tasks for Siebel Search” on page 78](#).

NOTE: This step is not required, unless you created a new index, or want to index more fields than are already available.

For more information, see [“Defining the Search Index Field Maps for Search Tables” on page 78](#).

Creating Search Filter Fields

This step is treated in greater detail in the [“Configuration Tasks for Siebel Search” on page 78](#).

NOTE: This step is not required, unless you created a new index, or you require more filter fields than are already available.

For more information, see [“Indexing Fields to Enforce Organizational Visibility”](#) on page 81.

Creating a Search Category

This step is treated in greater detail in the [“Siebel Tools Search Object Reference”](#) on page 67. A search category is an abstraction of the search index that allows you to define user interface elements, such as drilldown views, and pick views for particular categories. For more information, see [“Creating an Additional Search Category Object”](#) on page 84.

Creating Pick Views

This step is treated in greater detail in the [“Configuration Tasks for Siebel Search”](#) on page 78. You can associate search results from the Search Center to the active record in the top applet in the main content area of your Siebel application’s user interface. For more information, see [“Creating Search or Find Pick Views”](#) on page 87.

Creating a Search Definition

This step is treated in greater detail in the [“Siebel Tools Search Object Reference”](#) on page 67. The Search Definition object identifies a group of search categories that can be searched against. Each Siebel application is already configured with a predefined search definition. For more information, see [“The Search Definition Object”](#) on page 71.

Associating the Search Categories with the Parent Search Definition

This step is treated in greater detail in the [“Configuration Tasks for Siebel Search”](#) on page 78. When you have created all search categories, you must associate all search categories that you want to expose in your Siebel application with the appropriate search definition. For more information, see [“Advanced Configuration Tasks for Siebel Search”](#) on page 86.

About Configuring Find with Siebel Tools

Most Siebel applications already have a list of Find Objects, although you may need to perform further configuration based on your business needs.

Creating a Find Object

This step is treated in greater detail in the [“Siebel Tools Find Object Reference”](#) on page 72. A Find object definition creates one entry that can be added to the Search Center drop-down list, and a corresponding set of Find fields, and possible views.

NOTE: Most Siebel applications already have a list of Find Objects, though you may need to perform further configuration based on your business needs.

Creating Find Fields

This step is treated in greater detail in [“Siebel Tools Find Object Reference” on page 72](#). The find field appears as a text box in the Search Center when the parent Find is active. This find field accesses the fields of a Business Component that you want to use in the Find operation. For more information, see [“The Find Field Object” on page 74](#).

Creating a Find View

This step is treated in greater detail in [“Siebel Tools Find Object Reference” on page 72](#). The Find View is the list of views that determine the visibility of the Find object. The views specified Find View list must have the applet specified in the Find object. The sequence of the views in the list determines what visibility is used. The first accessible view determines which visibility is used. For more information, see [“The Find View Object” on page 76](#).

Creating an Application Find Object

This step is treated in greater detail in [“Siebel Tools Find Object Reference” on page 72](#). An application Find object definition associates one Find object definition with one application. For more information, see [“The Application Find Object” on page 74](#).

Process for Configuring the Search Center

You may need to perform some general configuration of the Search Center in Siebel Tools. At the least, make sure both of the following screens are enabled in your Siebel application. The tasks are as follows:

- [“Adding the Search End User Screen” on page 32](#). The Search Screen object contains the views used in the Search Center.
- [“Adding the Search Administration Screen” on page 33](#). This administration screen allows you to create indices, and set administrative and search execution options.

Adding the Search End User Screen

This topic covers adding the Search end user screen to your application.

To add the Search end user screen

- 1 Launch Siebel Tools, and lock the project.
- 2 In the Object Explorer, navigate to the Screen object, then query for the Search Screen.
- 3 In the Object Properties window, make sure that the Inactive field is set to FALSE. If the field is set to TRUE, the Screen object will not appear in the application.

Adding the Search Administration Screen

This topic covers adding the Search administration screen to your application.

To add the Search Administration screen

- 1 Launch Siebel Tools, and lock the project.
- 2 In the Object Explorer, navigate to the Screen object, then query for the Search Administration Screen.

Some of the property fields of the Search Administration Screen object are listed below. The Comments screen lists correct values to enter for the different properties.

Property	Comments
Default View	Drop-down list allows you to choose the default view that will be displayed on the Search Administration screen.
Help Identifier	Associates a screen with a Help file.
Inactive	Setting this property to FALSE makes the screen active. Setting to TRUE inactivates the screen.
Name	The screen name in Siebel Tools.
Viewbar Text	The name that will appear as the viewbar title.

About Hummingbird Installation on Windows or UNIX

Consult the installation chapter for the operating system you are using before installation. See either, [“Installing Siebel Search Under Windows” on page 37](#) or [“Installing Siebel Search Under UNIX” on page 49](#).

For information on installing Hummingbird, see [“Installing Siebel Search Under Windows” on page 37](#) or [“Installing Siebel Search Under UNIX” on page 49](#).

About Siebel Installations

This section provides an overview of the installation tasks you will perform when setting up your Siebel application. For specific instructions, see the *Siebel Installation Guide* for the operating system you are using.

Installing the Siebel Mobile client

After you install the Hummingbird software on your machine, it registers a key in the NT registry. Siebel Mobile Client Installer detects this key and replaces the parameter SearchInstallDir in the configuration files. This step is invisible to users. If Hummingbird is not installed, you will see an error in the Installer log file. You can modify this parameter, using any text editor.

Installing the Siebel Server

If you have installed the Hummingbird software on your machine, the Siebel Mobile Client Installer detects a registry key. The installer displays the following question prompt:

Do you want to configure a SearchServer?

If you select the default value of YES, the Siebel Installer replaces the SearchInstallDir in the Name Server shared memory with the correct path.

About Siebel Search Administration

After installing Hummingbird SearchServer, and using Siebel Tools to perform any additional configuration tasks on the default setup, you administer your search indices. For more information, see [“Administration of Siebel Search” on page 97](#).

Creating and Maintaining Search Indices

You create and maintain search indices using the Search Administration screen and its associated views in the Siebel client. The following topics are treated in [“Administration of Siebel Search” on page 97](#).

See the following tasks for further information:

- [“Siebel Search Index Settings” on page 100](#)
- [“Working with Search Indices” on page 105](#)
- [“Working with Indices Under UNIX” on page 111](#)
- [“Search Execution Settings” on page 115](#)
- [“Advanced Search Execution Settings” on page 119](#)

Setting Up Siebel Server for Remote Searching

This step is treated in greater detail in [“Installing Siebel Search Under Windows” on page 37](#), or [“Installing Siebel Search Under UNIX” on page 49](#).

To set up Siebel Search to allow remote searching, you must include at least one additional Siebel Server with a client connector that allows users access to the search indices, located on the Search Server. For more information, see [“Setting Up Siebel Server for Remote Searching Under Windows” on page 45](#), or [“Configuring Siebel Server for Remote Searching Under UNIX” on page 55](#).

5

Installing Siebel Search Under Windows

This chapter contains the following topics:

- [“Installation Requirements for Hummingbird SearchServer” on page 37](#)
- [“Hummingbird Preinstallation Checklist” on page 38](#)
- [“Upgrade Notes for Windows Users” on page 38](#)
- [“Installing Hummingbird SearchServer 5.3 Under Windows” on page 40](#)
- [“Configuring Siebel Server as a Search Server Under Windows” on page 41](#)
- [“Setting Up Employee or Partner Users” on page 45](#)
- [“Setting Up Siebel Server for Remote Searching Under Windows” on page 45](#)
- [“Setting Up for Mobile Client Searching Under Windows” on page 47](#)

Siebel Search uses Hummingbird SearchServer. For information about which versions of the Windows operating system are supported by Hummingbird SearchServer, see *Siebel System Requirements and Supported Platforms* on Oracle Technology Network.

Installation Requirements for Hummingbird SearchServer

Make sure that the following requirements are met before you begin the installation process:

- For easier configuration, the Hummingbird SearchServer must be installed on the designated Siebel Server before any Siebel software installations are performed. If you need to install Hummingbird SearchServer on a machine where a Siebel Server is already installed, see [“Modifying Siebel Search Parameters for Installation of Hummingbird on an Existing Siebel Server” on page 42](#).
- You must have administrator permission for the machine on which you want to install Hummingbird SearchServer. For information on setting up appropriate permissions for the installation, see *Siebel Installation Guide for Microsoft Windows: Servers, Mobile Web Clients, Tools*.
- If you plan to have very large indices (or frequent searches and indexing), use a dedicated Siebel Server.
- Make sure that you have enough disk space for the indices. Temporary space requirements for indexing can be two to four times the ultimate size of the index files.
- The Search server machine must have client connectivity to the Siebel database.
- You must determine where the external document indices will be kept. Create a share name for the location, and give all users read access to it.

- The Web Server, Siebel Server and Hummingbird SearchServer may be installed on independent machines. However, the Siebel Server that is dedicated to perform maintenance on search indices must be located on the same machine as the Hummingbird SearchServer.

Hummingbird Preinstallation Checklist

Before you can proceed with your installation, decide on the following issues. The following table provides a list of questions, and a column for your answers.

Question	Response
Will you be creating a Search Server or a Remote Search Server?	
Is this the only Search Server in your Siebel installation, or will you be using multiple Search Servers?	
Do you have a good understanding of the load on your system, when Search is deployed? Predetermining users and servers allows you to estimate the amount of memory, disk space, and processor power required to optimize the Search Server performance.	
What languages do you want to support in your searches?	
Are there any configuration changes you plan to make to Hummingbird SearchServer?	
Are you going to use Siebel Advanced Search?	
If you are using Siebel Advanced Search, are you going to customize the thesaurus, and the character variant files?	
With which applications will you be using Siebel Search?	
What operating system will you be using?	
What application server operating system will you be using?	
What database system will you be using?	
If you are upgrading from a previous release of Siebel Search, you must rebuild your indices.	
If you are upgrading from a previous release of Siebel Search you must rebuild your search index structure using Siebel Tools.	

Upgrade Notes for Windows Users

If any previous version of Hummingbird (formerly Fulcrum) SearchServer is already installed on your Windows machine, log on as a System Administrator, and use the following procedure to remove it before installing a new version of the Hummingbird SearchServer.

To remove an earlier version of Fulcrum

- 1** Run the Hummingbird Connector Manager program.
This step is required to remove all existing connectors.
- 2** From the Windows Start menu, choose Settings > Control Panel.
- 3** Double-click the Services icon.
- 4** Double-click on any of the listed Fulcrum services, then select disable.
These services may include:
 - SearchBuilder for VB/C++
 - Fulcrum FulView
 - International Linguistic Option
 - International Thesaurus Option
 - SearchServer
 - Fulcrum Server
 - SearchServer Desktop
 - SearchServer Administrator
 - Fulcrum Server Manager
 - Fulcrum Servlet Runner
- 5** When all the Fulcrum Services have been marked Disabled, close the Services Window.
- 6** On each server and client running SearchServer, do the following:
 - a** From the Windows Start menu, choose Settings > Control Panel > Add/Remove Programs.
 - b** From the list of installed programs, click any of the following that appear, and click Install/Uninstall:
 - SearchBuilder for C, SearchBuilder for VB/VC++, or SearchBuilder for VB/C++
 - Fulcrum FulView
 - International Linguistic Option
 - International Thesaurus Option
 - SearchServer
 - SearchServer Desktop
 - SearchServer Administrator
 - FTMF 5.2.1 Service Pack 1 for SearchServer 3.7.
 - Ir FulcrumEn 1.0.25
- 7** If your previously installed version of Fulcrum SearchServer is version 3.7 or earlier, you may be required to perform the following steps:
 - a** On the My Computer icon on your desktop, right-click, and choose Properties.

- b** Click the Environment tab.
- c** In the User Variables window, navigate to PATH, highlight the path including C:\Fullcrum\bin.
- d** Delete this portion of the path, then restart your machine.

Installing Hummingbird SearchServer 5.3 Under Windows

You can install Hummingbird SearchServer 5.3 from the third party directory of the Siebel network image. For more information about creating Siebel network images, see Siebel Installation Guides for the operating system you are using. For information about which versions of the Windows operating system are supported by Hummingbird SearchServer, see *System Requirements and Supported Platforms* on Oracle Technology Network. If you are using a distributed environment and need to index remote server nodes, Hummingbird SearchServer will need to be installed on each remote server node. Each remote server node is a standalone node that has its own Siebel Server, Name Server, and Database instance. Hummingbird indexes each node separately. For more information on Hummingbird nodes, see the Hummingbird documentation on the *Siebel Business Applications Third-Party Bookshelf*.

To install Hummingbird SearchServer under Windows

- 1** In Windows Explorer, navigate to the Siebel image location for the current software version such as D:\Siebel_Install_Image\7.8.1.0, and then navigate to the third party directory where the Hummingbird SearchServer installer is located.

- 2** Double-click setup.exe.

The Hummingbird installation screen appears with list of options. Click the Install Search Server option. Setup then prepares the InstallShield Wizard used to install the software.

- 3** Accept the license agreement, and then in the SearchServer 5.3 Setup dialog box, enter the serial number information listed in [Table 6](#).

Table 6. Hummingbird SearchServer Serial Number

Operating System	License Key
Microsoft Windows 2000/2003	BAB0F794D92E6150

- 4** In the Choose Destination Location dialog box, click Next to accept the default directory location, or click Browse to select your own location. When you have chosen your default directory, click Next.

NOTE: You are not required to change the default location to your Siebel server installation directory. Please accept the default directory location, unless you do not have disk space.

- 5** In the Select Components dialog box, accept the defaults, then click Next.
- 6** In the Hummingbird SS Servlet Runner Setup Options dialog box, accept the default port number, then click Next.

- 7 In the JDBC Driver Port Selection dialog box, accept default, then click Next.
- 8 Upon completion of SearchServer 5.3 setup, click Finish.

NOTE: For an environment where you have all operations running from one machine, or do not have a client connector set up, you do not need to have any of the Services running.

To verify Hummingbird SearchServer installation under Windows

- 1 Navigate to the Hummingbird SearchServer installation directory.
- 2 Open a command prompt and run the following command:

```
H: \>ftci n -9
```

Configuring Siebel Server as a Search Server Under Windows

After installing Hummingbird SearchServer on your designated search server machine, you must then install Siebel Server software. Make sure that this machine has connectivity to a Siebel Database Server.

NOTE: During the Siebel Server installation, the system checks whether Hummingbird has been installed on the local Server. If it has previously been installed, you will be prompted to accept or not accept setup of the Siebel Server as a Search Server. If Hummingbird is not installed, you will be asked questions related to connecting to a remote search server.

If you install Hummingbird after installing your Siebel Server, you must manually modify server parameters. For information on modifying server parameters, see [Table 7 on page 44](#).

To configure Siebel Server as a dedicated Search Server under Windows

- 1 Run Siebel Server installation wizard.
- 2 Click the Configure as Search Server checkbox to setup the Siebel Server as a search server.
- 3 Follow the remainder of the installation instructions, listed in *Siebel Server Installation Guide* for the operating system you are using.

Additional Steps for Oracle Database Users Under Windows

To create search indices on an Oracle database, you must set up an ODBC data source. The following procedure is for Windows 2000, other supported versions of Windows may differ slightly.

To set up an ODBC data source for an Oracle database

- 1 From the Windows Start menu, choose Settings > Control Panel.

- 2 In the Control Panel window, click Administrative Tools, then click Data Sources (ODBC).
The ODBC Data Source Administrator appears.
- 3 Click the System DSN tab, then click Add to create a new Data Source.
- 4 Click the Add button to create a new Data Source.
The ODBC Data Source Administrator window appears.
- 5 Select Oracle in Ora92 (Oracle native driver), and click OK.
- 6 In the Setup window, enter Siebel_Search for the Data Source Name, and your database connect string in the Server field.
- 7 Click OK.

Modifying Siebel Search Parameters for Installation of Hummingbird on an Existing Siebel Server

Table 7 on page 44 shows the Siebel Search Parameters and display names, and provides a definition for each. Typically, you will not need to modify these parameters. They are configured at the time of the installation by the Siebel Installation Wizard if Hummingbird is installed before you installed the Siebel Server. However, again, if you install Hummingbird after the Siebel Server installation, you will have to manually set some of these parameters. If you want to access these parameters, you access them in the configuration files, or in the name server shared memory.

The SearchDefName is different from other parameters because it is a server level parameter in the Siebel Server. For more information, see ["To view of modify parameters on the server."](#)

The Server parameters are stored in the siebns.dat file. The parameter changes should be set in this Server parameter file.

To view of modify parameters on the server

- 1 On the Siebel Server where Hummingbird is installed, navigate to Administration - Server Configuration > Servers.
- 2 Highlight the Siebel Server which serves as your dedicated search server.
- 3 Set the following parameters:
 - Search - Install Directory = <Hummingbird Root Dir>
 - Search - Remote Server = FALSE.

If you set this parameter to TRUE, the Index and Refresh buttons will be disabled in the Search Index Administration screen.

NOTE: If Search - Install Directory is not specified correctly, you will not be able to access Search Indices view or any valid Search Categories in Search Center.

To access parameters for a Mobile Client

You change these parameters for a mobile client under the [SIEBEL] section of the application configuration file.

NOTE: If you are *not* implementing Siebel Search, you must set the following component parameters under the [SIEBEL] section of the application configuration file, or in the name server shared memory:

- SearchEngine = CHANGE_ME
- RemoteSearchServer = FALSE

To access these parameters on the Siebel Developer Web Client or Mobile Web client you go to the configuration files. For example, in the `Bin\enu\agent.cfg` file for the Call Center application, you see these parameters under the [SIEBEL] section.

NOTE: The display name appears in the Administration - Server Configuration Screen in the Siebel Server.

Table 7. Siebel Search Parameters

Siebel Parameter	Display Name	Parameter Definition
SearchEngine	Search-Engine Name	The Search Engine name. Though the search engine is Hummingbird, it is listed in the application.CFG file as <i>Fulcrum</i> .
SearchDefName	Search-Definition Name	Identifies a group of search categories that can be searched against. Each Siebel application (for example, Call Center or eService) comes configured with a predefined search definition. The search definition is specified in the Application.cfg file or name server, and is used at run time to load the appropriate search categories.
SearchInstallDir	Search-Install Directory	The directory where Hummingbird is located, for example, <code>C:\PROGRAM FILES\Hummingbird\SearchServer<version></code> . If this is a Remote SearchServer, then point to the Hummingbird directory, for example, <code>D:\sea78\si ebsrvr\SEARCH\Fulcrum</code> .
RemoteSearchServer	Search- Remote Server	This parameter must be set to FALSE to allow administration work on any of the Hummingbird search indices. Setting this parameter to TRUE allows Remote Searching.
RemoteSearchServerPath	Search-Remote Server path	The machine and the port number that enable connectivity to the Remote Search Server, for example, <code>searchserver/tcp2048</code> .

NOTE: To view or modify the remaining three parameters, navigate to Administration - Server Configuration > Servers > Server Parameters. These parameters are not enterprise level parameters. Therefore, two servers in the enterprise may have different values. For example, in order to share the same enterprise information you install two Siebel Servers on two different machines, then you can choose to have different Hummingbird installation directories. In this case, the directory SearchInstallDir will have different values.

Setting Up Employee or Partner Users

Employee or partner users of Siebel Search in the Search Center must have the following views as part of their responsibility:

- Advanced Search Results View
- Advanced Search View
- Basic Search Results View
- Basic Search View
- Search Index Request View
- Search Selection View
- User Catalog Explorer View

Employees or partner users of Find operations in the Search Center must have the following Find views as part of their responsibility:

- Find View
- Find Results View

NOTE: After these views are added to the responsibility, the Windows Services for Siebel Server must be stopped and restarted in order for the Search Center to display Advanced Search correctly. For more information, see *Applications Administration Guide*.

Setting Up Customer Users

To allow customers to use Siebel Search on customer applications, you must associate the following views:

- Advanced Search View (DotCom)
- Advanced Search Results View (DotCom)
- Basic Search Results View (DotCom)
- Basic Search View (DotCom)

Setting Up Siebel Server for Remote Searching Under Windows

If you are going to set up Siebel Search with a remote server, you must, after creating Search Indices successfully on Dedicated SearchServer Siebel Server, enable a client connector that will allow users access to the search indices located on the Search Server.

Creating a Hummingbird Client Connector Under Windows

To configure Search Server to work in a client/server environment, you must configure the server, then the client. To enable remote searching, you must create a client connector on the machine where Hummingbird SearchServer was installed.

NOTE: Hummingbird client connector directory paths must not contain spaces.

Configuring a server node involves defining one or more services. Each service corresponds to a unique network access path that responds to a valid client connection request, by activating a Search Server process. The server process acts as the client's agent, and provides access to the set of tables associated with the access path. After configuring the server, you must configure the client, and use the client to verify the client and server configuration.

Configuring a Client Connector for Remote Searching

To create the server in the Hummingbird Connector Manager, complete the following steps.

NOTE: All directory paths listed below must be free of spaces.

To create a client connector on the server

- 1 From the Windows Start menu, choose Programs/Hummingbird/SearchServer/Hummingbird Connector Manager.
- 2 Locate the Siebel Server directory. For example: c:\siebsrvr\...
- 3 Click Setup, and then click Add in the Hummingbird Connector Server Service Setup dialog box.
- 4 Enter the values as shown below:
 - a Select Automatic to start the service automatically when the computer is started.
 - b Client Connector: The client connector uses the symbol for the network protocol in use, and the port. The default protocol along with port number is tcp2048.
 - c Fulcreate: Specify the location where the tables are created. For example, C:\SEA78\siebsrvr\search\ServerDataSrc\index.
 - d Fulsearch: Specify the directory or directories where the tables will be searched. Multiple directories must be separated by a semicolon. For example, C:\siebsrvr\search\ServerDataSrc\index; C:\program files\Hummingbird\SearchServer<version>\fulltext.
 - e Fultemp: Specify the location for temporary files during indexing and searching operations. For example, C:\siebsrvr\search\ServerDataSrc\temp.
- 5 For the Connection Security option, click Ignored (Ignored is the default option).
- 6 After completing the Client Connector setup, click OK to add the Client Connector Service and then click Close in Hummingbird Connector Service Setup.
- 7 Start the service by clicking OK, and then click Close.
- 8 In the Hummingbird Connector Service Setup, highlight the service and click Start.

- 9 If you wish, click Close. (If you close the window, you must reopen the Hummingbird Connector Manager when you want to stop the service.)

The service must be started before users can access the search indices through the client connector.

NOTE: You should start and stop the Hummingbird Client Connector through Hummingbird Connector Manager not directly in Windows Services Control Panel.

The service must be started before users can access the search indices through the client connector.

Configuring the Client for Remote Searching

To configure the client for remote searching in the Hummingbird Connector Manager, complete the following steps.

To configure Siebel Server for remote searching under Windows

- 1 Run Siebel Server installation wizard.
- 2 Enter the Remote Search Server Name, and Port Number.
- 3 Follow the remainder of the installation instructions listed in the *Siebel Server Installation Guide* for the operating system you are using.

NOTE: To configure an existing Siebel Server for remote searching under Windows, see [“Modifying Siebel Search Parameters for Installation of Hummingbird on an Existing Siebel Server”](#) on page 42.

Setting Up for Mobile Client Searching Under Windows

Mobile clients can use Siebel search in disconnected mode by installing and setting up the Hummingbird SearchServer software on their machine, and synchronizing the indices from the search server. Just like the search server installation, Hummingbird must be installed before proceeding with the Siebel mobile client installation. Provided you do this, all configurations will be set up automatically. Then, during the synchronization process, indices will be copied from the search server machine to the Siebel file system.

When a Mobile Client works in connected mode, the mobile client can send search requests to a remote search server. When installing the mobile client, you must enter a remote search server name and port number. For more information, see [“To configure Siebel Server for remote searching under Windows”](#) on page 47.

NOTE: You must perform Search Administration tasks through the Web Client in High Interactivity mode, you cannot perform Search Administration on either the Siebel Developer Web Client or the Mobile Client.

For more information on the following:

- **Hummingbird installation instructions.** For more information, see [“Installing Hummingbird SearchServer 5.3 Under Windows”](#) on page 40.
- **Index synchronization on a mobile client.** For more information, see [“Synchronizing Indices on the Mobile Web Client”](#) on page 110.

6

Installing Siebel Search Under UNIX

The following topics are contained in this chapter:

- [“Preinstallation Checklist” on page 50](#)
- [“Installing Hummingbird SearchServer 5.3 Under UNIX” on page 50](#)
- [“Installing Hummingbird SearchServer 5.3 Patch” on page 53](#)
- [“Configuring Siebel Server as a Search Server Under UNIX” on page 54](#)
- [“Configuring a Previously Installed Siebel Server as a Search Server Under UNIX” on page 54](#)
- [“Configuring Siebel Server for Remote Searching Under UNIX” on page 55](#)
- [“DataDirect ODBC Driver Installation and Configuration” on page 56](#)
- [“Search Server Environment Variable Settings” on page 61](#)
- [“Creating a DataDirect ODBC Data Source on Oracle Under UNIX” on page 56](#)
- [“Creating a DataDirect ODBC Data Source on DB2 Under UNIX” on page 58](#)
- [“Creating a Hummingbird Client Connector Under UNIX” on page 62](#)

Siebel Search uses Hummingbird SearchServer 5.3. Hummingbird SearchServer 5.3 server can be installed on an HP-UX, AIX or Solaris computer.

NOTE: It is recommended that you install the Hummingbird SearchServer on the designated Siebel Server before you install any Siebel software. If you want to install Hummingbird SearchServer after a Siebel Server installation, see [“Configuring a Previously Installed Siebel Server as a Search Server Under UNIX” on page 54](#).

For information about supported versions of HP-UX, AIX or Solaris operating systems, see *System Requirements and Supported Platforms* on Oracle Technology Network.

Make sure that the following requirements are met before you begin the installation process:

- You must have administrator permission for the machine on which you will be installing Hummingbird. For information on setting up appropriate permissions for the installation, see *Siebel Installation Guide for UNIX: Servers, Mobile Web Clients, Tools*.
- If you plan to have very large indices (or frequent searches and indexing), use a dedicated Siebel Server.
- Make sure that you have enough disk space for the indices. When the indexing engine is running, two sets of index files exist until the final sort file is merged with the existing dictionary and reference file. Until a single updated set of index files is generated, temporary space requirements for indexing can be two to four times the ultimate size of the index files.
- The Search Server machine must have client connectivity to the database.
- You must determine where the shared document indices will be kept, create a share name for the location, and give all users read access to it.

Preinstallation Checklist

Before you can proceed with your installation, decide on some installation issues. The following table provides a list of questions and a column for your answers.

Question	Response
Will the installation be for a Search Server or for a Remote Search Server?	
Is this the only Search Server in your Siebel installation, or will you be using multiple Search Servers?	
What languages do you want to support in your searches?	
Are there any configuration changes you plan to make to Hummingbird?	
Are you going to use Siebel Advanced Search?	
With which applications will you be using Siebel Search?	
Will you be installing Siebel Search for mobile client searching?	
What operating system will you be using?	
What application server operating system will you be using?	
What database system will you be using?	
If you are upgrading from a previous release of Siebel Search, will you need to rebuild your indices?	
If you are upgrading from the previous release of Siebel Search, will you need to rebuild your search index structure using Siebel Tools?	

Installing Hummingbird SearchServer 5.3 Under UNIX

The Hummingbird SearchServer 5.3 server can run on a HP-UX, AIX or Solaris computer. You can install Hummingbird SearchServer 5.3 from the installation directory on your Siebel network image. For more information about creating Siebel network images, see the Siebel Installation Guides for the operating system you are using.

If you are using a distributed environment and need to index remote server nodes, Hummingbird SearchServer will need to be installed on each remote server node. Each remote server node is a standalone node that has its own Siebel Server, Name Server, and Database instance. Hummingbird indexes each node separately. For more information on Hummingbird nodes, see the Hummingbird documentation on the *Siebel Business Applications Third-Party Bookshelf*.

In order to use Siebel Search, you must edit the library path variable in the Siebel script used for setting the environment variables (siebenv.csh or siebenv.sh) so that the library variable includes the Hummingbird library path. For example, you would edit the library path in the script as follows:

- For Solaris: `setenv LD_LIBRARY_PATH /export/home/fulcrum/lib:$LD_LIBRARY_PATH`
- For AIX: `setenv LIBPATH /export/home/fulcrum/lib:$LIBPATH`
- For HP-UX: `setenv SHLIB_PATH /export/home/fulcrum/lib:$SHLIB_PATH`

If you do not edit the library path as shown above, and source the new Siebel script before you start the Siebel servers, you may not be able to access the Search Indices View or any valid Search Categories in Search Center.

The following instructions pertain to installing Hummingbird on an AIX system. The procedures are the same for any UNIX system.

The license key listed in Table 8 will be required during the SearchServer installation. Make sure you have it available when you perform installation.

NOTE: To perform any of the tasks in this chapter, you must log in to the system using the same administrator login ID that you used when performing the Siebel Server installations.

Table 8. SearchServer License Key

Operating System	License Key
Solaris/AIX/HP-UX	2B77EB70372040A0

To install the Hummingbird SearchServer 5.3 under UNIX

- 1 Create a directory to install Hummingbird, then navigate to the Siebel image location for the current software version such as `D:/Siebel_Install_Image/7.8.1.0`, and then navigate to the directory where the Hummingbird installer is located.

For more information about creating Siebel network images, see *Siebel Installation Guide* for the operating system you are using.

- 2 Run install executable:

```
./install.sh
```

The Hummingbird installer script will run.

- 3 Type in the values displayed in bold as follows:

```
*****
* Search Server 5.3 UNIX Installer *
*****
```

1. View readme
2. Install SearchServer
3. Exit

```
**
```

Choose selection and press [ENTER]: **2**

```
*****
* Enter valid product license key: *
*****

2B77EB70372040A0 (this is the SearchServer + DatabaseBaseTextReader license key)

*****

* Choose destination location *
*****

Enter the path or press [d]+[ENTER] to use the default one
Default path:
/home/Hummingbird/SearchServer50
**

==>Enter your desired hummingbird installation locale here, for example: /export/
home/SearchServer53
*****

* Select components *
*****

Do you want to install SearchServer? [y/n]+[ENTER]
**

==>:  y
*****

* Select components *
*****

Do you want to install Database Text Reader? [y/n]+[ENTER]
**

==>:  y
**

Copying files...
**
```

**

Files have been copied successfully. Press any key+[ENTER] to continue.

**

[Enter]

* Search Server 5.3 UNIX Installer *

1. View readme
2. Install SearchServer
3. Exit

Choose selection and press [ENTER]: 3

Installing Hummingbird SearchServer 5.3 Patch

Following successful installation of Hummingbird SearchServer 5.3, you must then install the Hummingbird SearchServer 5.3 Patch from the third party directory on the Siebel network image.

To install Hummingbird SearchServer 5.3 patch

- 1 Copy the patch file from the release image to your local drive into its own directory.
- 2 Navigate to your Hummingbird directory, then decompress the patch file, for example:

```
' /export/home/SearchServer<version>'
```

```
' tar -xvf ss53DDpatch001aix.tar' (for AIX)
```

```
' tar -xvf ss53patch001hpux.tar' (for HP-UX)
```

- 3 Delete the patch file to save disk space.

NOTE: For AIX, go to DataDirect/lib directory, and run 'chmod +x *'. You will need executable permission to perform this task.

Configuring Siebel Server as a Search Server Under UNIX

After installing Hummingbird SearchServer software, you must then install Siebel Server software. During the Siebel Server installation you will be given the option of configuring the Siebel Server as a search server. These instructions are listed in the following procedure. For instructions on installing Siebel Server under UNIX, see *Siebel Installation Guide for UNIX: Servers, Mobile Web Clients, Tools*.

To configure the Siebel Server as a search server

- 1 Run the Siebel Server installation.

During the installation process you will be presented with the following message:

Do you want to configure a Search Server?

- Configure this server as a Search Server
 - Configure this server to point to a Remote Search Server
 - Skip
- 2 Select the first option to configure a Search Server.
You will then be prompted for the path of your Hummingbird installation.
 - 3 Enter the path to your Hummingbird installation, then follow the remainder of the installation instructions listed in *Siebel Installation Guide* for the operating system you are using for the operating system you are using.

Configuring a Previously Installed Siebel Server as a Search Server Under UNIX

If you are installing Hummingbird SearchServer on a machine where Siebel Server has already been installed, you must configure the Siebel Server to use the Hummingbird SearchServer.

To configure a previously installed Siebel Server as a Search Server

- 1 If applicable, install SearchServer 5.3 outside the Siebel root directory. For more information, see ["Installing Hummingbird SearchServer 5.3 Under UNIX" on page 50](#).
- 2 Apply the patch for DataDirect. For more information, see ["DataDirect ODBC Driver Installation and Configuration" on page 56](#).
- 3 Create a setfuladmin.sh file.
- 4 At the command prompt enter the following command:
`source Siebel environment (for example: /export/home/Siebel/ses/siebenv.csh)`
- 5 Add the library path to `fulcrum\lib` directory in your `siebenv.sh`.

- 6 Start Siebel Server process and log in using the Siebel Web Client.
NOTE: Do not use the Siebel Developer Web Client when administering Search.
- 7 Navigate to Administration - Server Configuration > Parameters, then perform the following query: Search*
- 8 Enter the Hummingbird root path in the Search - Install Directory.
 - Search – Install Directory: %fulcrum5%
 - Search – Remote Server: False
 - Search – Remote Server Path: <blank>
- 9 Restart your Siebel Server processes, then log and navigate to the Search Administration views to configure and create your indices.

Configuring Siebel Server for Remote Searching Under UNIX

During the Siebel Server installation you will be given the option of configuring the Siebel Server for Remote Searching. These instructions are listed in the following sections. For more information on installing Siebel Server under UNIX, see *Siebel Installation Guide for UNIX: Servers, Mobile Web Clients, Tools*.

To configure Siebel Server for remote searching

- 1 Run the Siebel Server installation.
During the installation process you will be presented with the following screen:
Do you want to configure a Search Server?
 - Configure this server as a Search Server
 - Configure this server to point to a Remote Search Server
 - Skip
- 2 Select second option to configure this server to point to a Remote Search Server.
You will then be prompted to enter the host name and port number of the Remote Search Server.
- 3 Enter the host name of your Remote Search Server.
- 4 Enter the port number of your Remote Search Server [2048].
- 5 Follow the remainder of the installation instructions listed in the *Siebel Installation Guide for UNIX: Servers, Mobile Web Clients, Tools*.

DataDirect ODBC Driver Installation and Configuration

SearchServer uses DataDirect ODBC drivers to connect to your database. You must install DataDirect, and then perform extra steps to set up an ODBC data source that DataDirect can use.

To install DataDirect ODBC drivers

- 1 Navigate to the Siebel image location for the current software version such as D:/Siebel_Install_Image/7.8.1.0, and then navigate to the third party directory where the DataDirect patch is located. For example:

```
cp [platform]_patch.tar.Z /export/home/fulcrum
```

- 2 Navigate to your Hummingbird directory, then decompress the patch file, for example:

```
cd /export/home/fulcrum  
uncompress [platform]_patch.tar.Z  
tar -xvf [platform]_patch.tar
```

This will create a "DataDirect" directory below fulcrum/ and replace some Hummingbird files.

- 3 Delete the patch file, for example:

```
rm [platform]_patch.tar
```

Creating a DataDirect ODBC Data Source on Oracle Under UNIX

You must configure a DataDirect ODBC data source to use with SearchServer. This topic covers creating a DataDirect ODBC data source on an Oracle database.

NOTE: There are different entry values for Hummingbird SearchServer Version 5.3.6 and Hummingbird SearchServer Version 6.

To create a DataDirect ODBC data source on an Oracle database

- 1 Navigate to the fulcrum/DataDirect, for example:

```
cd /export/home/fulcrum/DataDirect
```

- 2 Open the file odbc.ini in this directory with a text editor such as vi, for example:

```
vi odbc.ini
```

- 3 Apply the following changes to the file Odbc.ini:

- a Within the [ODBC] section, replace all instances of *<enter Connect ODBC installation path>* with the fully qualified path up to and including your `./DataDirect` directory.
- b Add a data source to the Odbc.ini file.

- 4 Under the [ODBC Data Sources] section, add a new line for your data source, for example:
 - For Hummingbird SearchServer Version 5.3.6
Siebel_Search=DataDirect 4.20 Oracle Wire Protocol Driver
 - For Hummingbird SearchServer Version 6
Siebel_Search=DataDirect 5.0 Oracle Wire Protocol Driver
- 5 Add a new section to odbc.ini for your own data source, specifying parameters for your database connection.

- a Add the following for SOLARIS and AIX:

```
[Siebel_Search]
Driver=<Install_Directory>/DataDirect/lib/<Driver>
Description=DataDirect <version> Oracle Wire Protocol
ApplicationUsingThreads=1
ArraySize=60000
CachedCursorLimit=32
CachedDescLimit=0
CatalogIncludesSynonyms=1
CatalogOptions=0
DefaultLongDataBuffLen=1024
DescribeAtPrepare=0
EnableDescribeParam=0
EnableNcharSupport=0
EnableScrollableCursors=1
EnableStaticCursorsForLongData=0
EnableTimestampWithTimezone=0
LocalTimezoneOffset=
LockTimeOut=-1
LogonID=<db_logon >
Password=<db_password >
HostName= <db_hostname >
PortNumber=<db_port>
SID=<SID>
```

ProcedureRetResults=0

- b** Add the following for HP-UX:

```
[Siebel_Search]
```

```
Driver=<Install_Directory>/DataDirect/lib/<Driver>
```

```
Description=DataDirect <version> Oracle Wire Protocol Driver
```

```
Database=<db name>
```

```
IpAddress=<db server>
```

```
LogonID=siebel
```

```
Password=<db password>
```

```
Package=db2pac
```

```
TcpPort=<portnumber>
```

where:

- *Install_Path* contains the path to the driver.
- *Driver* corresponds to the version of the driver for the Hummingbird SearchServer version, and the operating system that you are using, for example:
 - For Hummingbird SearchServer version 5.3.6, use driver HDora19.so (for SOLARIS and AIX), or HDora19.sl (for HP-UX).
 - For Hummingbird SearchServer version 6, use driver HDora20.so (for SOLARIS and AIX), or HDora20.sl (for HP-UX).
- *LogonID* is the ID you use to connect to the database.
- *Password* is the name of the password for the specified LogonID.
- *Hostname* is the name or the IP address of the server to which you want to connect.
- *Port Number*. Check the *.ini file for the port number.
- *SID* is the Oracle System Identifier that refers to the instance of Oracle running on your server.

- 6** Save your changes to odbc.ini.

Creating a DataDirect ODBC Data Source on DB2 Under UNIX

You must configure a DataDirect ODBC data source to use with SearchServer. This topic covers creating a DataDirect ODBC data source on a DB2 database.

To create a DataDirect ODBC data source on a DB2 database

- 1 Navigate to the fulcrum/DataDirect, for example:
`cd /export/home/fulcrum/DataDirect`
- 2 Open the file `odbc.ini` in this directory with a text editor such as `vi`, for example:
`vi odbc.ini`
- 3 Apply the following changes to the file `Odbc.ini`:
 - a Within the [ODBC] section, replace all instances of *<enter Connect ODBC installation path>* with the fully qualified path up to and including your `./DataDirect` directory.
 - b Add a data source to the `Odbc.ini` file.
- 4 Under the [ODBC Data Sources] section, add a new line for your data source, for example:
 - For Hummingbird SearchServer Version 5.3.6
`Siebel_Search=DataDirect 4.20 DB2 Wire Protocol Driver`
 - For Hummingbird SearchServer Version 6
`Siebel_Search=DataDirect 5.0 DB2 Wire Protocol Driver`
- 5 Add a new section to `odbc.ini` for your own data source, specifying parameters for your database connection.
 - a Add the following for SOLARIS and AIX:
`[Siebel_Search]`
`Driver=<Install_Directory>/DataDirect/lib/<Driver>`
`Description=DataDirect <version> DB2 Wire Protocol`
`ApplicationUsingThreads=1`
`ArraySize=60000`
`CachedCursorLimit=32`
`CachedDescLimit=0`
`CatalogIncludesSynonyms=1`
`CatalogOptions=0`
`DefaultLongDataBuffLen=1024`
`DescribeAtPrepare=0`
`EnableDescribeParam=0`
`EnableNcharSupport=0`
`EnableScrollableCursors=1`
`EnableStaticCursorsForLongData=0`

EnableTimestampWithTimezone=0

LocalTimezoneOffset=

LockTimeOut=-1

LogonID=<db logon >

Password=<db password >

HostName= <db hostname >

PortNumber=<db port>

SID=<SID>

ProcedureRetResults=0

b Add the following for HP-UX:

[Siebel_Search]

Driver=<Install_Directory>/DataDirect/lib/<Driver>

Description=DataDirect <version> DB2 Wire Protocol Driver

Database=<db name>

IpAddress=<db server>

LogonID=siebel

Password=<db password>

Package=db2pac

TcpPort=<portnumber>

where:

- *Install_Path* contains the path to the driver HDdb219.sl (HP-UX) in your own setup.
- *Driver* corresponds to the version of the driver for the Hummingbird SearchServer version, and the operating system that you are using, for example:
 - For Hummingbird SearchServer version 5.3.6, use driver HDdb219.so (for SOLARIS and AIX), or HDdb219.sl (for HP-UX).
 - For Hummingbird SearchServer version 6, use driver HDdb220.so (for SOLARIS and AIX), or HDdb220.sl (for HP-UX).
- *LogonID* is the ID you use to connect to the database.
- *Password* is the name of the password for the specified LogonID.
- *Hostname* is the name or the IP address of the server to which you want to connect.
- *Port Number*. Check the *.ini file for the port number.

- 6 Save your changes to `odbc.ini`.

NOTE: For DB2 UDB or DB2/390 databases, you must use a different value for the `Package` parameter than that listed in the previous example. Moreover, for DB2 UDB, you must use `Database`. However, for DB2/390, you must use the `Location` and `Collection` parameters. You may need to confirm the correct values of these parameters with your Database Administrator. In the section [“Additional Step for Setting Up ODBC Datasources for DB2 Databases”](#) you run the `bind` program to connect to the DB2 database. If your database information is not configured correctly, your `bind` program will fail.

Additional Step for Setting Up ODBC Datasources for DB2 Databases

If you are using a DB2 database, you must perform the following additional step.

NOTE: You must use the user name and password specified above (`siebel` and `db2`) for this step to work correctly. You also must log in to the Siebel application with this user name and password (`siebel` and `db2`) whenever you want to create, or refresh indices.

To perform additional step to set up ODBC datasource for DB2 database

- 1 Run a program that binds a package with the database server you want to connect to.

You can do this by using the `bind19` program located in the `ful crum/DataDirect/lib` directory. You run the command with one argument, the name of the data source (in this case, `Siebel_Search`):

```
source '/export/home/ful crum/setful admin.csh'
' cd /export/home/ful crum/DataDirect/lib'
' ./bind19 Siebel_Search'
```

This step only needs to be done once, because other data sources can use the same `bind` package named `db2pac`. This parameter is specified by the `Package` variable in your data source configuration.

NOTE: `DataDirect` constrains the `Package` parameter to be no more than six characters in length.

Search Server Environment Variable Settings

In order to work correctly, Hummingbird requires you to create environment variables. For more information, see [Appendix A, “Siebel Search Environmental Variables.”](#) Unlike the Windows platform, in which Siebel code sets up the environment variables for you automatically, you must set it manually in UNIX. The following steps show you how to prepare a script file that sets these environment variables. Then, when you run Hummingbird and `DataDirect` utilities, you can use the `source` command to load these parameters, and set them in one step.

To prepare a script file to set up environmental variables

- 1 Navigate to your Hummingbird installation directory, and create a script file named `setfuladmin.csh` to set up Hummingbird environment variable like this:
- 2 Set variables (Change the following paths for `SIEBEL_ROOT` and `FULHOME` to the correct values for your installation.) For example:

```
vi setfuladmin.csh
```

```
setenv SIEBEL_ROOT /export/home/Siebel
```

```
setenv FULHOME /export/home/fulcrum
```

```
setenv FULSEARCH ${FULHOME}/ful text: ${SIEBEL_ROOT}/search/ServerDataSrc/index
```

```
setenv FULCREATE ${SIEBEL_ROOT}/search/ServerDataSrc/index
```

```
setenv FULTEMP ${SIEBEL_ROOT}/search/ServerDataSrc/temp
```

```
setenv PATH ${FULHOME}/bin: $PATH
```

```
setenv STRBLOBBLOC ${FULHOME}/ful text
```

```
setenv LXDATALOC ${FULHOME}/ful text/index
```

```
setenv LD_LIBRARY_PATH ${FULHOME}/DataDirect/lib: ${FULHOME}/lib: $LD_LIBRARY_PATH  
(for Solaris only)
```

```
setenv LIBPATH ${FULHOME}/DataDirect/lib: ${FULHOME}/lib: $LIBPATH (for Solaris and  
AIX only)
```

```
setenv SHLIB_PATH /export/home/fulcrum/lib: $SHLIB_PATH (for HP-UX only)
```

```
setenv ODBCINI ${FULHOME}/DataDirect/odbc.ini
```

Creating a Hummingbird Client Connector Under UNIX

In order to perform remote searches with Hummingbird under UNIX, you must create a client connector.

To create a Hummingbird client connector under UNIX

- 1 Run the Siebel script file `setfuladmin.csh`. This script file was created in [“Search Server Environment Variable Settings” on page 61](#).

2 Execute `ftserver -ftcp2048`.

When you execute `setfuladmin.csh`, several important environmental variables are set up for you. For more information on these environmental variables, see [“Siebel Search Environmental Variables” on page 129](#). You can specify a different port number to run the Hummingbird client connector when you run `ftserver`.

NOTE: These instructions pertain to running `ftserver` only from the command line. Your UNIX system administrator can allow you to run `ftserver` from the system startup, and to run it as a background process. For information, see the Hummingbird documentation.

7

Configuring Siebel Search Using Siebel Tools

This chapter contains the following topics:

- [“Siebel Search Preconfiguration Checklist” on page 66](#)
- [“About Siebel Tools Search Objects” on page 66](#)
- [“Siebel Tools Search Object Reference” on page 67](#)
- [“About Siebel Tools Find Objects” on page 71](#)
- [“Siebel Tools Find Object Reference” on page 72](#)
- [“Configuration Tasks for Siebel Search” on page 78](#)
- [“Defining the Search Index Field Maps for Search Tables” on page 78](#)
- [“Indexing Fields to Enforce Catalog Category Visibility” on page 79](#)
- [“Indexing Fields to Enforce Organizational Visibility” on page 81](#)
- [“Restricting the Indexing of Records” on page 82](#)
- [“Indexing File Attachments” on page 83](#)
- [“Creating an Additional Search Category Object” on page 84](#)
- [“Advanced Configuration Tasks for Siebel Search” on page 86](#)
- [“Advanced Configuration Tasks for Siebel Search” on page 86](#)
- [“Associating Search Categories with New Search Definitions” on page 86](#)
- [“Creating Search or Find Pick Views” on page 87](#)
- [“Creating Preview Views” on page 88](#)
- [“Adding New Result Fields” on page 88](#)
- [“Creating Custom Result Fields” on page 89](#)
- [“Creating Search Filter Fields” on page 91](#)
- [“Using Search Filters in Filter Search Specifications” on page 92](#)
- [“Using Search Filter Fields on the Search Center User Interface” on page 93](#)

This chapter assumes a knowledge of Siebel Tools. It does not provide basic Siebel Tools knowledge. For more information, see *Using Siebel Tools*.

Siebel Search Preconfiguration Checklist

Before you proceed with your configuration, you should decide on the following issues. The following table lists questions and provides a column for your answers.

Question	Response
Do you want to index a Unicode or a code page database?	
If indexing a Unicode database, do you want to optimize the index in a particular language? (This decision has to be made depending on which language data the database uses predominantly.)	
What do you want to search? Database tables and external documents?	
If searching database tables, what are the names of the tables and the business components?	
Do you know the approximate size of the table data that you plan to index? If indexing Siebel file attachments, the sizes must be determined as well. For a table that supports periodic indexing, as is the case with all Siebel generated Search Server tables, the index overhead is typically in the range of 25% to 50% of the total text size. For more information, see the Hummingbird documentation.	
If searching external documents, what is the location of the file server holding the external documents and the name of the highest-level directory containing those documents?	
What are the names of the Siebel database tables that you want to search, and their location on the network?	
Are you planning on making any configuration changes to Hummingbird?	
Do you have a license for Siebel Advanced Search?	
If you are using Siebel Advanced Search, do you want to customize the thesaurus and the character variant files?	
Will you be installing Siebel Search for the mobile client in disconnected mode?	

About Siebel Tools Search Objects

All the Siebel Tools objects necessary to build and configure basic Search capabilities in a Siebel application are set up automatically during the Siebel installation. This section explains each of these basic Siebel Tools objects, any rules and assumptions associated with them, and includes a list of relevant object properties. For more information, see [“Advanced Configuration Tasks for Siebel Search” on page 86](#).

Figure 2 displays all the Siebel Tools objects for Siebel Search and their relationship to one another.

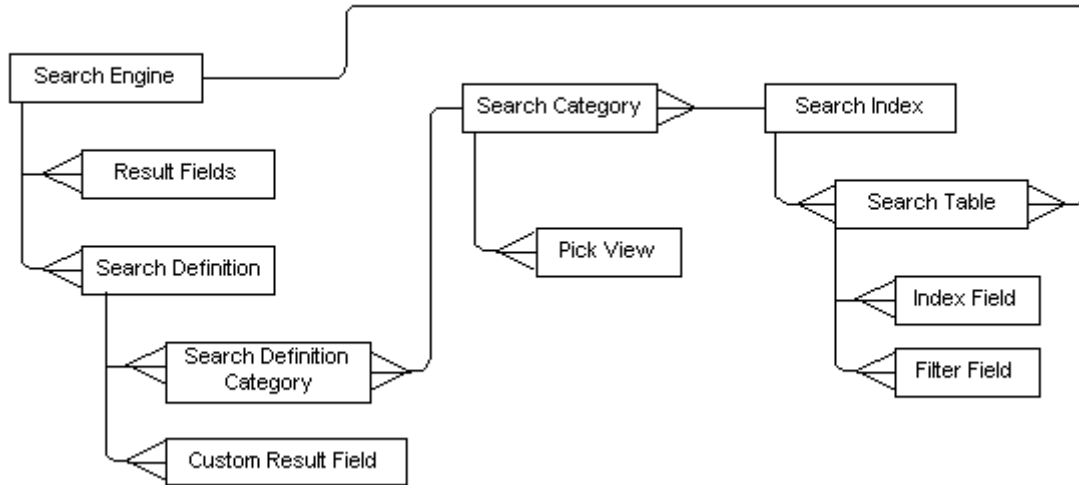


Figure 2. Search Objects in Siebel Tools

Siebel Tools Search Object Reference

This section contains reference information on Search Objects contained in your Siebel application. These include the following:

- [“The Search Engine Object” on page 67](#)
- [“The Search Result Field Object” on page 68](#)
- [“The Search Index Object” on page 69](#)
- [“The Search Table” on page 70](#)
- [“The Search Definition Object” on page 71](#)

The Search Engine Object

Fulcrum is the only search engine supported by Siebel Search. Fulcrum is predefined at the time of the Siebel installation. There is no need to define an additional search engine. The adapter class, `CSSFulcrumSearchAdapter`, is also specified at the time of installation.

Search Engine Properties

Table 9 lists the properties of the Search Engine object.

Table 9. Properties of the Search Engine Object

Property	Required	Description
Name	Required	The name of the search engine, for example, Fulcrum.
Class	Required	The C++ class name of the search adapter. For example, CSSFulcrumSearchAdapter is the adapter for the Hummingbird Search Engine.

The Search Result Field Object

The Search Result Field object lists all fields that are included with, and used by every search index table created for the search engine. Standard Result Fields are predefined for the search engine at installation. They represent an application-defined, physical column in the search table, or a reserved column required by the search engine. All search tables that belong to the search engine will include and use all fields defined under Result Fields.

Your Siebel application is installed with a default set of Search Engine Result Fields. There is no need to create additional fields, unless you have a requirement. For more information, see [“Advanced Configuration Tasks for Siebel Search” on page 86](#).

Rules and Assumptions for the Search Result Field Object

- All fields defined in this object will be created for all the search tables belonging to the search engine.
- Some of these fields can be customized for each search definition.

Properties of the Search Result Field Object

Table 10 lists the properties of the Search Result Field object.

The Search Index Object

Table 10. Properties of the Search Result Field Object

Property	Required	Description	Comments
Column	Required	The name of the physical column in the search index that varies with the vendor of your database software.	These columns may contain a column name or a function.
Create Column Flag	Optional	A flag that denotes which columns will be actually created in the Search Table.	Some fields defined are system columns that need not be explicitly created. They are automatically created by the search engine.
Data Type	Optional	Specifies the data type of the column. Valid values are Varchar, Char, and ApVarchar.	Required only for fields that are flagged TRUE in the Create column.
Index Mode	Optional	Specifies the index mode of the column. Valid values are literal, none, and normal.	The index mode specifies the type of indexing that is applied to the values.
Name	Required	The logical name of the field.	
Text Length	Optional	The amount of storage, in bytes, allocated to a field.	
Type	Required	A picklist with valid values displayed.	Attribute Type can take the following values: System, Data (Public), Data (Private). None of the predefined fields can be deleted. Additionally, Data (private) fields cannot be customized.

A default set of search indices are set up at the time you install the Siebel application. If you want to create additional indices, the rules, assumptions, and properties of the search index object are listed below.

The Search Index object is a logical name for a group of search engine specific entities. For example, the Search Index for Hummingbird will be a Hummingbird index table. Thus, the search index, Solution will map to an index table called FUL_SOLN.

Rules and Assumptions of the Search Index Object

- It is a good practice to index only master data (also called *referential data*), and not transactional data, because transactional data changes very often, and your index may not reflect the current data.

- Search engines are most powerful when used to search for text and keywords in voluminous documents and attachments in the database. The perfect candidates for Search are Literature, Solution, Product, FAQ, and Resolution documents. Your Siebel application includes preconfigured search indices, such as Product Literature, SmartScripts, Service Requests, and so on.
- Search supports Access Control and Organization visibility rules. The business component that you plan to index should support one of these visibility rules. It is also acceptable to index business components that have no visibility rules enforced. In such cases, all business component records will be visible to all users. For more information, see [“About Visibility Control Enforcement” on page 26](#).

Search Index Object Properties

Table 11 lists the properties for the Search Index object.

Table 11. Search Index Object Properties

Property	Required	Description
Name	Required	Logical name for the search index.
Index BusComp	Optional	Business Component that the index maps to. This field can be null if it is based on an external directory.
DB Table	Optional	Flag indicates if the object maps to a database table or not. If the search index is based on an external file system, this field should not be checked. In its default state, this flag is checked.

The Search Table

A search table physically represents the search index in Fulcrum. For example, the search index Literature is actually represented in Hummingbird as a table called FUL_LIT. The columns created for the search table are picked up from the Search Result Fields defined for the search engine. You do not need to create a new search table unless you previously created a new search index. If you do create a new search table, the table name and the search engine to which it is related must be specified.

Search Table Rules and Assumptions

There should only be one search table for each search index. Multiple entries will be ignored, and the first entry used. For example, the search index Literature must have only one search table called FUL_LIT for the search engine Hummingbird.

Properties of the Search Table Object

Table 12 lists the properties for the Search Table object.

Table 12. Properties of the Search Table Object

Property	Required	Description	Comments
Name	Required	Actual name of the index table or the collection.	
Engine Name	Required	Name of the search engine: Fulcrum.	Picked from the Search Engine Table
Inactive	Optional	A TRUE or FALSE value, which if TRUE, makes this object inactive. The default setting is FALSE.	
Comments	Optional		

The Search Definition Object

The Search Definition object identifies a group of search categories on which you can perform searches. Each Siebel application (for example, Call Center or eService) comes configured with a predefined search definition. The search definition is specified in the application .cfg file or name server, and is used at run time to load the appropriate search categories.

Search Definition Rules and Assumptions

- Multiple search categories that refer to the same search index cannot be associated with the same search definition.
- You must specify a name for the Search definition, and also specify the sort specification. The Sort Specification contains result fields.

About Siebel Tools Find Objects

As with Search objects, your Siebel application contains a list of application-specific Find objects. Find objects identify business components and corresponding fields that can be searched. Global Find items are used to perform find operations on particular business components. Following execution of a Find, the Results field in the Search Center lists records from the application that satisfy the Find criteria.

Figure 3 displays all the Siebel Tools objects for Find and their relationship to one another.

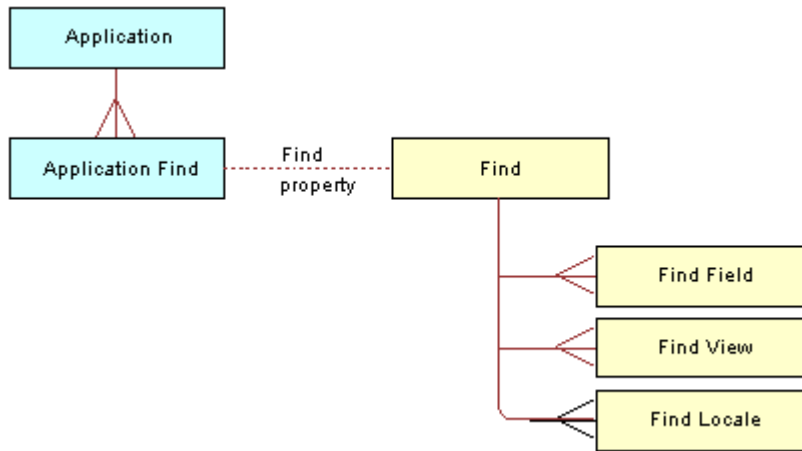


Figure 3. Find Tools Objects

Siebel Tools Find Object Reference

This section contains reference information on Find Objects contained in your Siebel application. These include the following:

- [“The Find Object” on page 72](#)
- [“The Application Find Object” on page 74](#)
- [“The Find Field Object” on page 74](#)
- [“The Find View Object” on page 76](#)
- [“The Find Field Locale Object” on page 76](#)
- [“The Find Locale Object” on page 77](#)
- [“The Find Pick View Object” on page 77](#)

The Find Object

A Find object definition creates one entry that can be added to the Search Center Look In drop-down list, and a corresponding set of find fields and possible views. The find fields and find views are implemented as child object definitions of the Find object.

Most applications already have a list of Find objects, though you may need to perform further configuration based on your business needs.

Find Object Properties

Table 13 lists the Find object properties.

Table 13. Find Object Properties

Property	Required	Description	Comments
Applet	Required	The applet that will be used by Find object.	It is required that the applet defined be on every one of the views defined in the Find views for the Find operation to work properly. When configuring the Find object, the choices you have for selecting come from the business component on the applet.
Destination Field	Optional	A TRUE or FALSE value, which if TRUE, highlights this Find object definition in Search Center drop-down list. This property applies only to the initial find operation in the application.	
Display Name	Optional	The name that will be displayed to the user, such as Accounts.	
Drilldown View	Optional	The view that appears when the user drills down. If this property is left blank, then the view is taken from the Find > Find View records.	If a Drilldown View is not specified, the view in the Find > Find Views that the user has access to will be used. You cannot disable the drilldown on find objects.
Name	Required	The name of the Find object definition. This is referenced when setting up Application Find object definitions that use this Find object definition.	
Preview	Optional	The view that appears when a user invokes the Preview button.	

The Application Find Object

An application Find object definition associates one Find object definition with one application. Application Find is a child object type of Application. The name of the Find object definition appears in the Find property in the Application Find object definition. Each application has multiple Find objects in the Search Center drop-down list, each one included by virtue of an Application Find object definition. You may also specify a default find in the Object Properties list.

Application Find Object Properties

Table 14 lists the Application Find object properties.

Table 14. Application Find Object Properties

Property	Required	Description	Comments
Default Find	Optional	Valid values are TRUE or FALSE. Setting this value to TRUE allows you to set the chosen Find object as the default Find object for your application. The default Find object will appear in the Look In drop-down list in the Search Center.	
Find	Required	The Find object definition to include in the application.	Examples: Contact, Account.
Name	Required	It is the same as the Find property.	
Sequence	Optional	The order relative to other finds that this Find object definition will be listed in the Search Center.	Integer value.
Text	Required	The translatable text that appears as the title of the Find dialog box.	

The Find Field Object

The Find Field is a child object type of Find. A Find Field object definition adds a find field to its parent Find object definition. The find field appears as a text box in the Search Center when the parent Find is active. Each child Find Field object definition provides the parent Find with a find value text box and corresponding Find field name to search.

Find Field Object Properties

Table 15 lists the Find Field object properties.

Table 15. Find Field Object Properties

Property	Required	Description
Display Name	Optional	The text (or key to localized text) that will be displayed for this find field when its parent Find object definition is active in the Search Center window.
Field	Required	The field being searched in the business component.
Name	Required	Name of the search field added.
Sequence	Optional	The position of this find field in the list of fields displayed in the Search Center-Find category for the parent Find object definition.
Display in Results	Optional	<p>Checking this option allows the field to be displayed on the find results applet in the Search Center. By default the whole field value will be displayed. But you can set a limit so that characters after the maximum length will be skipped and you will see an ellipsis (...) in the end. You must use the user property in Find Results List Applet to set the length limit. Use the following applet user properties:</p> <ul style="list-style-type: none"> ■ User Property Name: [Find object Name] ■ User Property Value: [Find Field] = [Length] <p>If there is more than one, use the following applet user property:</p> <p>User Property Value: [Find Field Name] = [Length], [Find Field Name] = [Length], [Find Field Name] = [Length] ...</p>
Display in Entry	Optional	Checking this option allows the field to be displayed on the find entry applet in the Search Center.
Drilldown View	Optional	Supports multiple drilldowns. When these properties are configured and "Display in Results" is set to TRUE, a drilldown link will be rendered for this field in the Find Results List.
Drilldown Business Component		
Drilldown Source Field		

Find Field Object Rules and Assumptions

- Boolean operators are not supported when searching on a Find object.
- The field specified in a find field must be a field that exists in the business component for the applet for the Find object definition.

- The Search Center-Find category and a query by example (QBE) can have different behavior for multivalue fields, because the Search Center will generate the same query as if you did an EXISTS query on the field in QBE. You can verify this by embedding your QBE expression with Exists(), for example, (Aga*).
- QBE supports both types of querying, but to keep the Search Center simple, Siebel applications implement a query that works in all cases. This query uses the syntax Ada* (where the wildcard, as indicated by an asterisk (*) is appended to the search text). If you want to mimic the behavior of the nonExists version with the Search Center-Find category, you must create a join from the primary ID field for the MVLink to the table containing the data. Then add a field to the table you joined to, and point your find field to this new field. This configuration change will cause the query to do a query on the join field that does not use EXISTS.
- If you want to do an exact search in a Find field, prefix the search text with an equal sign (=). For example, = Ada. The query uses the syntax = Ada. (No wildcard is appended to the text.)

The Find View Object

Each Find view object definition specifies a view that may be activated when the parent Find is initiated from the Search Center. Each find view specifies a different visibility level for the same business component. The views are acted upon in a fixed order, as specified in the Sequence property of the Find view object, until a view is encountered in which the user can view data. The visibility for this view is then applied to the results from the query on the Find object.

For a given user, the find operation uses the first find view object definition that is in the user's responsibility list. Because different views apply different visibility, you have the least restrictive views, first in the list, and the most restrictive, last. This order allows users with different responsibilities to find items using the most broad visibility that they have access to use.

Find View Object Properties

Table 16 lists the Find View object properties.

Table 16. Find View Object Properties

Property	Required	Description
Sequence	Optional	The order that views are used for the Find object definition.
View	Required	The name of the view to be used for the find operation when this find view is used.

The Find Field Locale Object

Locale objects are children of Find Field objects and contain all translatable information. Locale objects represent language-specific overrides used with the Find Field object type.

Find Field Locale Object Properties

Table 17 lists the Find Field Locale object properties.

Table 17. Find Field Locale Object Properties

Property	Required	Description
Display Name	Optional	The text or that will be displayed for this find field when its parent Find object definition is active in the Search Center.
Name	Required	The abbreviation of the language being used. For example, ENU = U.S. English.

The Find Locale Object

Find Locale objects are children of UI objects and contain all translatable information. They represent the language-specific overrides, used with the Find object type.

Find Locale Object Properties

Table 18 lists the Find Locale object properties.

Table 18. Find Locale Object Properties

Property	Required	Description
Display Name	Optional	
Name	Required	The abbreviation of the language. For example, ENU - U.S English.

The Find Pick View Object

Users can associate search results from the Search Center with the active record in the top applet in the main content area. The Pick View object, located under Search Category > Search Pick View > Find > Find Pick View, identifies the applet that can receive the selected item from the Search Results List as an associated record. This applies only to applets that can handle such associations. For more information see [“Creating Search or Find Pick Views” on page 87](#).

Find Pick View Object Properties

Table 19 lists the Find Pick View object properties.

Table 19. Find Pick View Object Properties

Property	Required	Description
Applet Name	Optional	Name of the applet
Name	Required	Logical name of the pick view
View Name	Required	Name of the view containing the applet

Configuration Tasks for Siebel Search

This section contains additional information on configuring Siebel Tools Search objects for your Siebel application. These include the following:

- [“Defining the Search Index Field Maps for Search Tables” on page 78](#)
- [“Indexing Fields to Enforce Visibility” on page 79](#)
- [“Restricting the Indexing of Records” on page 82](#)
- [“Indexing File Attachments” on page 83](#)
- [“Creating an Additional Search Category Object” on page 84](#)
- [“Advanced Configuration Tasks for Siebel Search” on page 86](#)

Defining the Search Index Field Maps for Search Tables

The Search Index Field Map object identifies the fields of a business component to be indexed. This object specifies to the search engine the result fields to which the business component fields (or Index Fields) will map. Only result fields marked as Data (Public) can be mapped. The contents of the index fields will be indexed in the search engine result fields. The business component field that is mapped to the summary column must be a required field in the business component. If this field is empty for a record that shows as a search result, then the unique ID will be substituted into the summary field.

NOTE: Last Updated Time is implicitly added to the DID file and need not be defined in Siebel Tools under the Search Index Field Map object.

Index Field Map Object Properties

Table 20 lists the properties for the Index Field Map object.

Table 20. Index Field Map Object Properties

Property	Required	Description
Name	Required	Identifies a name for the field. This provides the ability to associate multiple index fields to result fields.
BC Field	Required	The active fields of the business component that is associated with the parent Search object. These fields will be included in the Search.
Result Field	Optional	Specifies the result field that maps to the index field. For example, you may want SR Abstract to be indexed in the Summary result field. By default, the contents of the index field are automatically indexed in the External Text result field. This is used during the generation of the script file.
Field Type	Optional	Specifies the type of the Index Field. These types are Attachment, Rev Num Organization, and Catalog Category, Access Group.
Sequence	Required	

Indexing Fields to Enforce Visibility

There are several ways to index fields to enforce visibility. They are listed below.

Indexing Fields to Enforce Catalog Category Visibility

You can index fields to enforce existing catalog category visibility rules within your Siebel enterprise. A product has to be associated to a catalog category that is associated to an access group. If you do not do this, the product will not be included in the index when the index is refreshed.

Then, when a Siebel application user searches on product, that user must be associated to an access group that is associated to a catalog category tied to the product, or the product is associated to a public category.

NOTE: In its preconfigured state, most search categories in Siebel Search apply catalog category visibility. For these search categories, this means that a record must be associated with an access category if it is to be available for searching. Additionally, the Catalog Type should not be null to allow the creation of Search Indexes that use Access Control visibility.

Rules and Assumptions

- The business component field Catalog Category ID must be mapped to Visibility ID result field, and the attribute Field Type must be set to Catalog Category.

- The Catalog Category Name business component field must be mapped to the Visibility Info result field and the Field Type set to Catalog Category. The catalog category name is indexed to differentiate similar search results from each other. For example, the solution *How to fix a modem* may belong to two different catalog categories, and thus may show up twice in the search results when there is a hit. On the user interface (UI), these two results are prefixed with the catalog category to which they belong.

NOTE: These fields are usually available if the business component supports catalog visibility. If they are not, they can be added to the Business Component through suitable joins. For more information, see *Using Siebel Tools*.

This task includes the following two steps:

- ["To set up an index field in Siebel Tools to enforce catalog category visibility"](#) on page 80
- ["To complete setup of an index field in the Siebel client to enforce catalog category visibility"](#) on page 80

To set up an index field in Siebel Tools to enforce catalog category visibility

- 1 In the Siebel Tools Object Explorer, navigate to Search Index, then choose the index for which the catalog category visibility is to be added.
- 2 In the Object Explorer navigate to Search Table > Search Index Field Map.
- 3 In the Search Index Field Maps window, create two new records and set properties according to the table below:

Business Component	Field Type	Result Field
Catalog Ids	Catalog Category	VisibilityId
Catalog Category Name	Catalog Category	Visibility Info

- 4 Compile the changes to the Siebel Repository File.

To complete setup of an index field in the Siebel client to enforce catalog category visibility

- 1 Navigate to Search Administration > Search Indices view, and select the search index.
- 2 Use the index button to create the new index with the new visibility type added.
- 3 Navigate to the Administration - Catalog > Catalog Administration view and make sure an active catalog exists.

Verify by making sure the Effective Start Date is in the past and Catalog Type is not set to null. The Catalog should have an Access Group to which the users belong.

- 4 Associate the objects to be indexed with a category of that catalog.
For example, Product News, Solutions, or Literature.

Indexing Fields to Enforce Organizational Visibility

You can index fields to enforce existing organizational visibility rules within your Siebel enterprise. To enforce organization visibility the business component that you are indexing should have a database table column (usually called BU_ID), which is single, or multiorganization enabled.

Consider the example of a service request record. The Service Request business component supports Organizational visibility via the Organization and Organization Id fields. Organizational visibility is not defined by default on the Service Request search index. To add organizational visibility to this search index, add two search index field maps (Organization Id mapped to result field VisibilityId, and Organization mapped to result field Visibility Info).

Rules and Assumptions for Indexing Fields to Enforce Organizational Visibility

The business component field Organization ID must be mapped to the Visibility ID result field and its attribute Field Type set to Organization.

NOTE: Only one visibility type is supported in a search index.

To index fields to enforce organizational visibility

- 1 In the Siebel Tools Object Explorer, navigate to the search index for which you will add organizational visibility.

For example Service Request.

- 2 In the Object Explorer navigate to Search Table > Search Index Field Map.

If another visibility type is already defined on the search index, inactivate the fields mapped to the VisibilityId and Visibility Info Results fields

- 3 In the Search Index Field Maps window, create a new record and set properties according to the table below:

Property	Value
BC Field	Organization Id
Field Type	Organization
Result Field	VisibilityId
Sequence	The next highest sequence number

- 4 Compile the changes to the srf.

To complete setup of an index field in the Siebel client to enforce organizational visibility

- 1 Navigate to the Administration - Search > Search Indices view, and select the search index.
- 2 Use the Index button to create the new index with the new visibility type added.

Restricting the Indexing of Records

The SearchServer database text reader (dbtr) permits partial table selection for improved performance. The text reader's table definition (which is defined in the Database Interface Definition or DID file) can include a WHERE clause to specify which rows are included in the selection. Using instructions found in the DID file, the database text reader generates SQL statements to acquire column data from databases and convert it to text for SearchServer. To constrain the scope of data that is indexed, you can define a Search Filter Field in Siebel Tools, for the Search Index that you want to constrain. The Search Filter Field object needs to have the Field Type set to Constraint and the constraint specification entered into the Column Name field of the object. These fields cannot be used in filter search specifications through a filter search specification, or exposed on the UI as filter fields.

CAUTION: The string you specify as the constraint is not checked for syntax. It is added to the Hummingbird DID file as is. For more information, see the Hummingbird SearchServer documentation.

For example, to index only Literature items that are marked external, you add a Search Filter Field in Tools under Literature Search Index -> "FUL_LIT" Search Table as shown in [Table 21](#).

Table 21. Sample Entry for Literature Search Filter Field

Object	Example Value
BC Field	Internal
Field Type	Constraint
Column Name	N
Data Type	Character
Index Mode	Literal
Text Length	1

Given the preceding filter field definition, the FUL_LIT.DID file generated by Siebel Search will have this extra line:

```
RESTRICT SIEBEL."S_LIT"."INT_FLG" = 'N'
```

The BC Field you select for a constraint filter field can be any field in the business component including joined fields. For example, to index only the Product that belongs to the Caterpillar organization, you add a Search Filter Field under Product Search Index -> "FUL_PROD" Search Table as shown in [Table 22](#).

Table 22. Sample entry for Literature Search Filter Field with Product Constraint

Object	Example Value
BC Field	Vendor (this is a join field)
Field Type	Constraint

Table 22. Sample entry for Literature Search Filter Field with Product Constraint

Object	Example Value
Column Name	Caterpillar
Data Type	Varchar
Index Mode	Literal
Text Length	100

The DID file generated will include the appropriate join clauses as well as the restrict clause:

```
RESTRICT SIEBEL."S_ORG_EXT"."NAME" = 'Caterpillar'
```

Indexing File Attachments

To index file attachments, the business component must be a file business component. For example, the C++ file attachment is based on should be CSSBCFile or a derivation of that file.

NOTE: Files in the Siebel file system will be accessed and indexed as part of the standard indexing operation. There is no need to decompress these files as a separate process.

Rules and Assumptions

All the business components based on files have the following standard fields with the following naming convention:

<three letter identifier>FileName and *<three letter identifier>FileRev*.

For example, in the case of the literature business component, the file names are LitFileName and LitFileRev. In Resolution Documents, the names are ResFileName and ResFileRev.

NOTE: It is essential to map these two fields to index file attachments.

To index Literature file attachments, follow this format:

- Map LitFileName to the External Text result field. Set the attribute Field Type to Attachment.
- Map LitFileRev to Revision Number result field. Set the attribute Field Type to Rev Num. Map this field to make sure that file revisions are included the next time you refresh the index.
- Other fields that need to be indexed cannot be mapped to the External Text result field. You may map these fields to the Summary field.

To index file attachments

- Add a Search Index using a business component such as Account Attachment, Activity Attachment, or Service Request Attachment and then add the following search index field maps (in order of BC Field, Field Type, Result Field):

Table 23. Search Index Field Maps

Business Component Field	Field Type	Result Field
Id	Row Id	RowId
ActivityFileRev	Rev Num	Revision Number
ActivityFileName	Attachment	External Text

Creating an Additional Search Category Object

A search category object is an abstraction over a search index that allows you to define user interface elements, such as drilldown views and pick views for particular categories. To configure the search category you must define the search category object, then associate it with a search index.

A search category maps to a search index and defines a category that can be searched against. For example, the categories Solution (Call Center) and Solution (eService) map to the same search index Solution but differ in other attributes like Drilldown View or Filter Search Spec (defined under Search Definition Category object in Tools). For more information, see *Using Siebel Tools*.

CAUTION: The drilldown view should be an active view on a screen associated with the application in which you are going to make the search category available. If the view is not on a screen or the screen not available in the application the following may happen: the search category will not appear in the search center, or if it is the only search category on the search definition, the search categories will not be able to be loaded.

Siebel applications are installed with a default set of Search Categories. If you have a requirement for more search categories, make sure that the following rules and assumptions are followed and that the following properties are included in your object definition.

Users can search on a keyword in Search Center and apply filter fields to that search.

Rules and Assumptions:

- Several search categories can be based on the same Search Index. This allows you define different drilldown views and pick views based on the same Search Index. For instance, the Solution (Call Center) category, will drill down on the Solution Resolution View and the category Solution (eService) to Solution Resolution View (eService).
- Pick views can be defined differently for different search categories. For more information, see [“Advanced Configuration Tasks for Siebel Search” on page 86](#).

- Preview views can be defined by the Business application user, allowing the user to define the type of pop-up view that will be displayed when the Preview button is invoked. For more information, see [“Creating Preview Views” on page 88](#).

Properties

Table 24 lists the properties for the Search Category object.

Table 24. Search Category Object Properties

Property	Required	Description
Name	Required	Logical name for the category.
Search Index	Required	Name of the search index.
Drilldown Business Component	Optional	The business component the user drills down on. If this property is left blank, then it is assumed that the result category does not map to a database table.
Drilldown View	Optional	The view that appears when the user drills down. If this property is left blank, then it is assumed that the result category does not map to a database table. You must add the views defined in the Drilldown View Property for the Search Categories used by the application to the user’s responsibility. If you do not do this, the user will have the ability to search on the Search Index and see the Search Results in the Search Results List Applet, but hyperlinks to the accompanying details will not be active, and the user will not have the ability to drill down on these detail records.
Destination Field	Optional	The field in the destination business component whose value equals the value of the result row ID, in the index business component. If no value is specified, then it defaults to ID, which is the row ID of the destination business component.
Result Identifier	Required	An acronym that is used in the Summary column in the search result.
Preview	Optional	The view that appears when a user invokes the Preview button.

The following task shows how to create a search category object.

To create a search category object

- 1 In the Siebel Tools Object Explorer, navigate to Search Category.
- 2 Right-click in the Search Categories window, and select New Record.
- 3 In the Properties window, fill in the necessary information.

Advanced Configuration Tasks for Siebel Search

Each Siebel application contains preconfigured Siebel Tools Objects that allow you to build search indices so users can perform searches. A number of additional Siebel Tools objects allow you to customize and further enhance your searching capabilities. These objects and their functions are described in the following procedures:

- [“Associating Search Categories with New Search Definitions” on page 86](#)
- [“Creating Search or Find Pick Views” on page 87](#)
- [“Creating Preview Views” on page 88](#)
- [“Adding New Result Fields” on page 88](#)
- [“Creating Custom Result Fields” on page 89](#)
- [“Creating Search Filter Fields” on page 91](#)
- [“Using Search Filters in Filter Search Specifications” on page 92](#)
- [“Using Search Filter Fields on the Search Center User Interface” on page 93](#)
- [“Exposing Filter Fields in the Search Center” on page 93](#)

Associating Search Categories with New Search Definitions

Identify all search categories that you want to expose in your application and associate them with the appropriate search definition. Also, specify the filter search specification for each search category. For more information, see [“Using Search Filters in Filter Search Specifications” on page 92](#).

To associate search categories with a search definition

- 1 Add the required search categories to the search definition.

For example, the Call Center Application uses the search definition Call Center Definition. Some of the search categories exposed in this application include Catalog Category, External Document, Literature, Product, and so on.

- 2 Optionally, you may specify an appropriate filter search specification for each category.

For example, with the search category Product in the Call Center Definition, you can restrict product search results by the Catalog Type of Buying by specifying a filter search specification like the following:

```
[Catalog Type]<>LookupValue(' CTLG_TYPE' , ' Buying' )
```

NOTE: The filter field `Catalog Type` needs to be already defined as a filter field for the associated search index. For more information, see [“Creating Search Filter Fields” on page 91](#).

Creating Search or Find Pick Views

Users can associate search results from the search center with the active record in the top applet in the main content area. The Pick View object, located under Search Category > Search Pick View, identifies the applet that can receive the selected item from the Search Results List as an associated record. This applies only to applets that can handle such associations.

In order to attach a record in the Search Results List Applet or Find Results List Applet to an active parent object in the Content Area, the relationship between the record and the applet must be many-to-many. In Siebel Tools, this relationship is implemented by creating a link between the two Business Components with an intersection table. If you check a Business Object and find out that a Search Category or Find object is one of its Business Components, and there is a many-to-many link between them, it is permissible to attach this result row to an object.

This association happens in the Business Object Layer, in terms of Siebel Three-Level Architecture. But to support the user to go to a view directly to verify the association, there is a requirement that Pick View be added to the Search Category object or Find object. This Pick View defines the view that users can go to after an association occurs, as well as the candidate association. You must add new Pick Views in order to add this Search Category or Find object to a Business Object.

Properties of the Pick View Object

Table 25 lists the properties for the Pick View object.

Table 25. Pick View Object Properties

Properties	Required	Description
Applet Name	Required	Name of the applet
View Name	Required	Name of the view containing the applet
Name	Required	Logical name of the pick view
Field Name	Optional	Name of the multivalue group field that will receive the search result

To create search and find pick views

- 1 Lock the project that will contain the Pick View object you want to add.
- 2 In the Object Explorer choose Search Category > Search Pick View.
- 3 In the Search Pick Views window, create a new record, and enter the required property values. See Table 25 for a description of the properties.
- 4 To commit your changes, click anywhere outside the modified row, or move outside the row using the up and down arrow keys.
- 5 Compile your changes to the SRF file.

Creating Preview Views

In order for a user to preview a result record, you must define the view to use for the preview. You define the view by setting the Preview property of the Search Category object or Find object. The view will show up in a pop-up browser when the user clicks on the Preview button. Siebel Search does not support any navigation in the pop-up Preview view. The Preview view is read-only with no navigation buttons.

When you have a preview view defined for a search category object, the Drilldown business component property must be populated. The the Drilldown View property does not have to be populated.

To create a preview view

- 1 Lock the project that will contain the Preview View object you want to add.
- 2 Choose an existing applet that best fits your preview purpose.
This applet must be a Form Applet, and must be based on the class CSSFrameBase.
- 3 Create a Base type Applet Web Template and comment it as being for Search Preview.
- 4 Map Data type Controls to Applet Web Template Items.
Do not map any button type controls that are command controls.
- 5 Configure a new view, and associate the applet in Base mode with your new view.
- 6 Associate this view with a screen that will exist in the application where you are running Search Center.
You do not need to provide Viewbar Text and Menu Text.
- 7 Compile your changes in the SRF file.

NOTE: Be sure to add the view to the user's responsibilities and restart the services to refresh the responsibilities.

Adding New Result Fields

Siebel Search is installed with a default set of Search Engine Result Fields. If you have a requirement for more result fields, make sure that the following rules and assumptions are adhered to.

Rules and Assumptions

- All fields defined will be created for all the Search Tables belonging to the parent search engine.
- You can customize Result Fields that are marked System or Data (Public). For more information, see ["Creating Custom Result Fields" on page 89](#).

To add new result fields

- 1 Lock the project that will contain the object you want to add.

- 2 Select Search Engine > Search Result Field in the Object Explorer.
- 3 Click in the Object List Editor window to make it active.
- 4 Choose Edit > New Record.
A new record appears.
- 5 Enter property values in the new row in the Object List Editor.
For more information, see [“The Search Result Field Object” on page 68](#) for a list of Result Field Object properties.
- 6 To commit your changes, click anywhere outside the modified row (or move outside the row with the up and down arrow keys.)
- 7 Compile your changes to the SRF file.

Creating Custom Result Fields

You can customize certain properties for result fields. For example, for Call Center Definition you may want to allow searching on Summary and Document Text result fields, but for eService Definition you may want to allow searching only on Document Text.

Other ways to customize search result fields are shown in [Table 26](#):

Table 26. Options for Customizing Search Result Fields

Business Need	Property	Task
Need to specify a keyword to be searched against.	Use in Search	Specify a keyword you wish to be searched against.
Want custom result field to be visible in results list.	Visible	Set this field TRUE or FALSE. TRUE will allow this search result field to be visible in the Search Center results.
Want to display different Display Name, width or text alignment.	<ul style="list-style-type: none"> ■ Display Name ■ Width ■ Text Alignment 	<ul style="list-style-type: none"> ■ Enter the desired display name. ■ Enter the width of the text field. ■ Choose Left or Right Text Alignment from the drop-down list.
Want to use a different Display Format or Scaling Factor.	Display Format, Scaling Factor	Scaling Factor: 0.001

Properties

Table 27 lists the properties for the Search Custom Result Field object.

Table 27. Search Custom Result Field Object Properties

Display Name	Required	Description
Display Name	Optional	The name to display in the user interface. This can be overridden.
Display Format	Optional	The format mask to apply to the data. This can be overridden.
Name	Required	The logical name of the field.
Scaling Factor	Optional	The multiplication factor for numeric columns. This can be overridden.
Sequence	Required	The order in which columns should appear. This can be overridden.
Text Alignment	Optional	The alignment of the text in the column. This can be overridden.
Use in Search	Optional	Indicates if this column is to be included in a search. This can be overridden.
Visible	Optional	Value is TRUE or FALSE; if TRUE, the field is displayed. This can be overridden.
Width	Required	The width, in pixels, of the display column. This can be overridden.

To create custom results fields

- 1 Lock the project that will contain the object you want to add.
- 2 In the Object Explorer window, select Search Engine > Search Definition > Search Custom Result Field.
- 3 In the Object List Editor, choose Edit > New Record.
- 4 Enter the required property values.
- 5 To commit your changes, click anywhere outside the modified row, or move outside the row with the up and down arrow keys.
- 6 Compile your changes to the SRF file.

Creating Search Filter Fields

Filter fields are special fields that are used to constrain search results, at the time a user conducts a search, for a search category. To configure search filter fields for a search index, you must identify business component fields that can be used to filter results. For example, searching against the search index Literature would retrieve all literature records that match the search query. But to restrict the search results to Literature records that are of the type Brochure, you must define the filter fields.

Siebel Search only supports indexing text and date fields (numeric fields are not supported) and you must only map business component fields that are of type DTYPE_TEXT, DTYPE_UTCDATETIME, DTYPE_DATETIME, UTC_DATE to filter columns.

For a list of supported syntax elements for filter search specifications, see [Appendix C, "Syntax for Filter Search Specifications."](#)

Business Component Fields that can be used as filter fields are as follows:

- **Map business component fields that have static pick lists associated with them.** Because the intention is to constrain search results, these types of fields make the most sense to use as filter fields. For example, in the Literature business component field, Sales Tool Type is associated with a pick list that has an LOV called SALES_TOOL_TYPE.
- **Map business component fields that are flags.** For example, in the Solution business component, the field Publish External is a flag that indicates if the Solution can be published externally. Search results can be restricted to only those solutions that have the flag set to TRUE.
- **Map business component fields that are Dates.** For example, the Solution business component. Created is a UTCDATETIME field.

Rules and Assumptions

- Filter fields are created as columns, only for the parent search table, unlike Result Fields that are created for all the search tables. For example, only FUL_LIT will contain the column SALES_TOOL_TYPE that represents the business component field Sales Tool Type.
- You must also specify the column name that will be used in the index table along with the index mode, data type, text length, and sequence.
- The BC Field can be text or date fields:
 - For text fields, the Data Type attribute must be Character or Varchar. The index Mode can be Literal, Normal or None. The Text Length can be an appropriate length that is equal to or greater than the length defined for the database column.
 - For date field, the Data Type attribute must be set to Date and the index mode must be set to Value. The Text Length field need not be specified. Users must only pick a BC field that is of type Datetime, Date, or UTCDateTime. If you specify any other field as a date filter field, at index time you will get an error. This rule is enforced to make sure that users do not accidentally map a character or numeric field to a Fulcrum date column.

NOTE: Numeric fields are not supported.

Using Search Filters in Filter Search Specifications

At search time results can be constrained implicitly through a filter search specification. This is typically defined under Search Engine > Search Definition > Search Definition Category object.

For text fields an example of filter search specification is as follows:

Consider the Search Category Literature in the Call Center Definition. To implicitly restrict search results on Literature to show only, for example, the Sales Tool Type of Brochure, you can specify a filter search specification like the following: [Sales Tool Type]=LookupValue('SALES_TOOL_TYPE', 'Brochure').

For more information, see [Appendix C, "Syntax for Filter Search Specifications."](#)

For date fields, an example of filter search specification is as follows. For the "Auction End Date" filter field example, you could add the Filter Field to the search category Auction Item in the eSales Search Definition. For example, to restrict results to only those Auction Items whose End Date is less than today's date, you may want to specify a filter search specification as follows: [Auction End Date] <= Today().

NOTE: Hummingbird SearchServer does not support indexing time fields, so if you index a datetime column the time part would be ignored.

Supported comparison operators are =, <>, <, >, <=, >. Other supported functions include the Today() function. You can also specify Today() + or - a certain number of days. For example, you could add the following to the Search Spec: [Auction End Date]<= Today() + 10. As always multiple filter search specification can be joined together by AND, OR, and NOT.

Table 28 lists search filter field object properties.

Table 28. Search Filter Field Object Properties

Property	Required	Description
Name (Business Component Field)	Required	The active fields of the business component that is associated with the parent Search Index object. These fields will be included in the search merely as filters.
Column Name	Required	The name of the physical column in the search index that varies with the vendor of your database software.
Data Type	Optional	Specifies the data type of the column. Valid values are varchar and char.
Index Mode	Optional	Specifies the index mode of the column. Valid values are literal, none and normal. The index mode specifies the type of indexing that is applied to the values in this field.
Sequence	Required	
Text Length	Optional	The amount of storage, in bytes, allocated to a field.

Using Search Filter Fields on the Search Center User Interface

Filter fields can also be exposed on the user interface to allow users to control the search results that are returned. Certain search indices like Solution, Literature, Service Requests, Decision Issues are exposed with filter fields in the preconfigured state. Filter fields will appear in the user interface as various user interface controls like drop-down lists, check boxes, pick lists, text box, and date controls.

In addition, for certain search categories like Solution, Literature, Service Request, Decision Issues and Product; filter fields are exposed on the user interface along with the Keywords control. This allows the user to refine their searches to a subset of records. For example, the Catalog Category field is exposed as a filter field on the UI. Users can search for the keyword Dell Computers only in the Catalog Category called Personal Computer.

To expose new filter fields in the Search Center, there are three major steps that you must follow, which are listed in the following section. The steps are Search Configuration, Search Administration, and Search Execution.

Exposing Filter Fields in the Search Center

The configuration steps that you must do to expose filter fields in the Search Center are as follows:

- 1** Determine the search category for which you want to expose filter fields.
For this example, assume you want to expose the date field Created for the Solution (Call Center) search category.
- 2** Define the filter fields for the search index.
You create a filter field called Created in the underlying search index Solution.
- 3** Check out the Search Execution or a relevant project in Tools, and create a copy of the Search Entry virtual business component to create your own custom business component.
For example, you would choose the Solution Search Entry business component. Retain the base fields like SearchText, Category, and SelectedSearchCategory.
- 4** Add filter fields to this business component.
The fields must be named the same as the filter fields for the Search Category that you plan to customize.
For example, add a field called Created to the business component. Because this is a date field, set the Type to DTYPE_UTCDATETIME. If the category uses Catalog Category visibility, then it may also be a good idea to expose the Catalog Category field on the UI.
Even though Catalog Category field is not really a filter field, it can still be exposed on the UI, as long as the search index includes this field in the index field map. For example, Solution Search Entry already exposes this field.

- 5 You now must create special filter applet (if one does not already exist).

A new filter applet will be needed to display the newly created filter fields in the search center and will be displayed instead of the Basic Search Applet or Basic Search Applet (DotCom), depending upon which application type in which this special applet is exposed. A copy of the Basic Search Applet or Basic Search Applet (DotCom) can be made for this purpose. This applet will have the newly created filter fields exposed to allow the user to enter values.

- a Use the Solution Search Applet and base it on the Solution Search Entry business component that you modified in the previous step.
 - b Add a control and base it on the new BC field Created that was created in the previous step. The applet should expose the Keywords control as well. Because the Created field is a date field, the Runtime attribute must be set to TRUE. This will draw the date picker control.
 - c Map the Control to an Applet Web Template Item.
- 6 Define this applet as a Toggle applet for the Basic Search Applet or Basic Search Applet (DotCom) and set properties according to the table below:

Property	Value
Name	For example, Solution Search Entry Applet, or any other unique name.
Applet	Solution Search Entry Applet.
Auto Toggle Field	SelectedSearchCategory. (It is important to retain this field in the BC.)
Auto Toggle Value	Solution (Call Center). This is the name of the search category as defined in Siebel Tools.

NOTE: Based on the search category that the user chooses at runtime, the toggle applet whose Auto Toggle Value matches the search category currently chosen will appear to the user.

- 7 Add the new business component you just created to the Search Execution business object. If you do not complete this step, you will get an error when accessing this search category in the Search Center.
- 8 Compile the changes to the SRF, and use this new SRF in your application.

Search Administration for Filter Fields

If you added a new search filter field in the previous steps, then you have to perform the following steps:

- 1 Create a new Search Index.

Whenever you add a new filter field, you are changing the schema of the Hummingbird table. Therefore, you must create the index again. Make sure that you have the right settings defined. It is important to choose the right Translation Table value depending on whether you connect to a Unicode, or a code page database. For more information, see [“Working with Search Indices” on page 105](#).

- 2 Index the category to which you added the filter field. For more information, see [“Working with Search Indices” on page 105](#).

- 3 Navigate to Search Administration > Advanced Search Settings.

Make sure the settings defined for the default language are correct. This information will be used at search time.

Testing Filter Fields

To test the filter fields at runtime follow the following steps.

- 1 Open the application that uses the search category for which you added the filter fields, then open the Search Center.
- 2 Choose the search category for which you created a special applet in Tools. The special filter fields and the keyword field should now be visible. If the search category uses Access Control visibility the Catalog Category field may also be visible depending on whether it is mapped.

In this example, you open the Call Center application, and then pick the Solution option. The special filter applet should appear with the Created field exposed on the UI.

- 3 Enter values in the fields, and then click Search.

Enter the text you want to search for in the Keywords field and values in the other fields that may be used to filter the search results. For example, you may want to restrict the results to a particular Catalog Category. You enter, as an example, a date value like > 12/12/01 in the Created field, then enter any keyword like motors, and click Search.

The results that come back contain the keyword you look for, and also be constrained by the filter values.

All solutions with the Created Date greater, in other words later, than the stated date and with the keyword motors will be returned.

General Notes on Testing

The following contains a list of general notes to do with testing your Siebel Search setup.

- If the filter fields exposed on the UI are also used in the filter search specification, the UI values will be ignored. The filter search specification always takes precedence over the UI filters.
- UI filter fields cannot be exposed for advanced search category.
- Boolean searches are not supported on filter fields. For example, entering a search keyword like Installation AND Upgrade in the filter field is not supported.

8

Administration of Siebel Search

This chapter contains the following topics:

- “Siebel Search Preadministration Checklist” on page 97
- “Siebel Search Administration Overview” on page 98
- “Siebel Search Index Settings” on page 100
- “Working with Search Indices” on page 105
- “Working with Indices Under UNIX” on page 111
- “Search Execution Settings” on page 115
- “Advanced Search Execution Settings” on page 119

Siebel Search Preadministration Checklist

Before you proceed with administration, you may want to decide on the following issues. A column is provided for your answers.

Question	Response
What do you want to search? Database tables and external documents?	
If searching for external documents, what is the location of the file server holding the external documents, and the name of the highest-level directory containing those documents?	
What are the names of the Siebel database tables, and the business components and their location on the network?	
Are you going to make any configuration changes to Hummingbird?	
Do you use Siebel Advanced Search?	
If you are using Siebel Advanced Search, do you want to customize the thesaurus and the character variant files?	
Will you be installing Siebel Search for the mobile client in disconnected mode?	

Siebel Search Administration Overview

After installing Hummingbird SearchServer, and using Siebel Tools to perform any additional configuration tasks on the default setup, you administer your search indices. This chapter groups administration tasks into the following order:

Index Settings

These settings allow you to define settings that affect and enhance your searches. These settings allow you to perform the following tasks:

- Create an index setting: To create a new index setting, you go to the Index Settings view. For more information, see [“Siebel Search Index Settings” on page 100](#).
- Define your normalization strategy: This setting allows you to define your normalization strategy for your data. See [“Normalization Setting” on page 100](#).
- Set the translation table: If you are using a code page database, this setting allows you to set the translation table that Hummingbird will apply to data obtained from the database. For more information, see [“Translation Table Setting” on page 101](#).
- Work with the Hummingbird stop file: This setting allows you to maintain a system file that contains a list of words not to be indexed. This will increase the speed of your searches by eliminating common words from consideration. For more information, see [“Hummingbird Stop File Setting” on page 102](#).
- Define the text reader: You use this setting when you are indexing external documents. The Hummingbird text readers allow you to access documents in most formats. For more information, see [“Text Reader Setting” on page 104](#).
- Set the table language: This setting specifies the language the table is created in, which enables linguistic processing. For more information, see [“Table Language Setting” on page 104](#).
- Access sample database index setting values: This topic lists the default values for the sample database. For more information, see [“Sample Database Index Setting Values” on page 105](#).

Working with Indices

These topics detail tasks that affect the behavior of your indices. You define new indices in Siebel Tools. For information on defining new search indices, see [“The Search Index Object” on page 69](#):

- Index and refresh your indices: You can manually index and refresh your indices from the Search Indices View. For information, see [“Working with Search Indices” on page 105](#).
- Automate your index refresh process: This section includes information on automating the refresh process, as well as troubleshooting information. See [“Automating the Process of Refreshing Indices on Windows” on page 106](#).
- Set up a workflow: For more information, see [“Setting Up Your Workflow Process to Run Periodically” on page 108](#).
- Upload your index files to the server database and file system: If you are supporting mobile client searches, you need to upload index files to the server database, and file system. For more information, see [“Uploading Index Files to the Server Database and File System” on page 109](#).

- Allow mobile client machines to synchronize indices: This topic contains information on allowing downloading and synchronization of indices onto a mobile client. For more information, see [“Synchronizing Indices on the Mobile Web Client” on page 110](#).

Working with Indices Under UNIX

These topics provide information on maintaining indices in a UNIX environment:

- Create FTE and DID scripts. See [“Working with Indices Under UNIX” on page 111](#).
- Execute scripts to create search indices. See [“Working with Indices Under UNIX” on page 111](#).
- Refresh indices. See [“Refreshing Indices Under UNIX” on page 113](#).
- Work with resolution documents and literature. See [“Working with Resolution Documents and Literature Under UNIX” on page 114](#).
- Index external documents. See [“Indexing External Documents Under UNIX” on page 115](#).
- Support mobile clients. See [“Supporting Mobile Clients Under UNIX” on page 115](#).

Search Execution Settings

You define basic search properties in the Basic Settings views on the Search Administration screen. These views allow you to perform the following tasks:

- Choose a character set. You can define the character set you will be supporting for your searches. If you are using a code page database, you define the character set type in this screen. See [“Character Set Execution Setting” on page 115](#) for details.
- Define the collation sequence setting. This setting allows you to specify the name of a collation function that is used to determine the ordering of character strings. See [“Collation Sequence Setting” on page 116](#).
- Set the maximum time for search executions. See [“Maximum Execution Time Setting” on page 117](#).
- Set the maximum number of rows searched. Defining the maximum number of rows searched allows you to increase the speed of your searches. See [“Maximum Search Rows Setting” on page 117](#).
- Define the search term separator. You can define the default search term separator that will be inserted into search strings when none is provided by the user. For more information, see [“Search Term Separator Setting” on page 118](#).

Advanced Search Execution Settings

These views on the Search Administration screen are where you access and define advanced search settings. Advanced Search is a separately licensed module. From these views you can perform the following tasks:

- Define the exact match setting. With this setting you can turn on or off the word stemming feature. For more information, see [“Exact Match Setting” on page 120](#).

- Set the proximity search setting. With this setting you can define the default number of characters to be searched against between search terms. For more information, see [“Proximity Search Setting” on page 121](#).
- Define the relevance method. Defining the retrieval model allows you to define how close a given document must be to a given query. See [“Relevance Method Setting” on page 122](#).
- Define the term generator setting. Using this view allows you to make thesaurus settings. For more information, see [“Relevance Method Setting” on page 122](#).
- Define the thesaurus file name. This setting allows you to modify the thesaurus file supplied with SearchServer or create your own source file using a text editor. See [“Thesaurus Filename Setting” on page 125](#).
- Define the thesaurus option setting. This setting allows you to set the type of expansion performed when an end user specifies a thesaurus file name. For more information, see [“Thesaurus Option Setting” on page 125](#).
- Set the spell check setting. See [“Spell Check Setting” on page 126](#).
- Show the title for external documents. If you are using Windows, this setting will allow you to display the title of documents in the search results window. For more information, see [“Show Title for External Documents Setting” on page 127](#).
- Access the sample database settings for Advanced Search Settings. See [“” on page 127](#).

Siebel Search Index Settings

You define and change index creation settings from the Index Settings view. Index settings are explained in the following section.

To create an index setting

- 1 Navigate to Administration - Search > Index Settings.
- 2 From the Index Setting Properties menu, select New Record.
- 3 Click in the Name field to make the field active, and then from the drop-down list, choose the appropriate type of index setting.
- 4 Click in the Value field, enter the appropriate value, and then step off the record to save it.

Normalization Setting

This setting selects the case normalization strategy to use when indexing the data in the table. Normalization is always performed on the data after it is translated to Unicode. The value specified can be DEFAULT (lowercase letters are mapped to uppercase letters) or NONE (no case normalization mapping is done).

Example

Property: Normalization

Value: DEFAULT (or NONE)

To create the normalization setting

- 1 Navigate to Administration - Search > Index Settings.
- 2 In the Index Setting Properties list, click New.
- 3 From the Name drop-down list, select Normalization.
- 4 From the Value drop-down list, select the appropriate normalization setting, then step off the record to save it.

Translation Table Setting

This setting specifies the translation table the SearchServer database text reader applies to data obtained from the database. When indexing Unicode databases this setting is ignored. When indexing code page databases, use [Table 29 on page 101](#) for values.

Example

Property: Translation Table

Value: WIN_LATIN1

Table 29. Translation Table Settings

Character Set	SearchServer Syntax	Appropriate Normalization	Associated FTICS
DOS	DOS	DEFAULT	FTCS94
HP Roman 8	HP_ROMAN_8	DEFAULT	FTCS94
IBM-850	IBM_CP-850	DEFAULT	FTCS94
ISO 8859-1 (Latin-1)	ISO_LATIN1	DEFAULT	FTCS94
ISO 8859-2 (Latin-2)	ISO_LATIN2	DEFAULT	FTCS94
ISO 8859-6	ISO_8859-6	ARABIC	AFTCS
ISO 8859-7	ISO_8859-7	EUROPA3	EFTCS94
ISO 8859-9	ISO_8859_9	DEFAULT	FTCS94

Table 29. Translation Table Settings

Character Set	SearchServer Syntax	Appropriate Normalization	Associated FTCS
UTF-8 (Unicode Translation Format 8-bit)	UTF8_FTCS	DEFAULT	FTCS94
	UTF8_EFTCS	EUROPA3	EFTCS94
	UTF8_AFTCS	ARABIC	AFTCS94
	UTF8_JFTCS	JAPANESE	JFTCS
Windows Arabic	WIN_ARAB	ARABIC	AFTCS
Windows Europa3	EUROPA3	EUROPA3	EFTCS94
Windows Latin-1	WIN_LATIN1	DEFAULT	FTCS94
Windows Latin-2	WIN_LATIN2	DEFAULT	FTCS94

To change translation table settings

- 1 Navigate to Administration - Search > Index Settings.
- 2 In the Index Settings Properties view, click in the Translation Table row.
- 3 From the drop-down list in the Value column, select the appropriate Translation Table setting, and then step off the record to save it.

Hummingbird Stop File Setting

This setting specifies an operating system file that contains a list of words not to be indexed. Typically, these are words with little semantic value. Using the Stop File can significantly reduce the size of indices by removing words that are not useful for searching. For example, prepositions and articles can be safely removed from indices in most cases.

The stop file is assumed to be in the directory where the table configuration is created unless the stop file name is a fully qualified path name. The default value, an empty string, specifies that no stop file is used. In this case, SearchServer provides a stop file called FULTEXT.STP, which can be used by explicitly specifying it in this parameter. The default stop file contains the following words:

after, also, an and, as, at, be, because, before, between, but, by, for, from, however, if, in into, of, or, other, out, since, such, than, that, the, there, these, this, those, to, under, upon, when, where, whether, which, with, within, without

The stop file can contain a maximum of 1024 stop words totaling not more than 10,000 characters. The stop file is a text file that can be edited in Notepad, or any other plain-text editor.

To customize the stop file, open it in a text editor, directly modify it, then save it using the same name.

CAUTION: If you choose to customize the stop file after you have created an index, you must regenerate all indices associated with that particular stop file. Also, if you are supporting Mobile Client searching, you must remove the absolute path, and leave only the stop file name `fultext.stp`, and make sure that the stop file is in the index directory (`index directory/siebel root/search/{datasource}/index/`).

Usually, you specify a stop file that is appropriate for the language of the documents you are indexing. SearchServer provides several stop files that are listed in [Table 30](#).

Table 30. Hummingbird SearchServer Stop Files

SearchServer Stop File	Description
<code>csource.stp</code>	Used with the C-language Source Code text reader.
<code>fulfra.stp</code>	Uses the multilingual unicode parser with default options, and contains French-language stop words.
<code>fultext.stp</code>	Uses the multilingual unicode parser with default options, and contains English-language stop words.
<code>ixkor.stp</code>	Uses the InXight-based ixasian parser for Korean-language text.
<code>ixjap.stp</code>	Uses the InXight-based ixasian parser for Japanese-language text.
<code>ixschi.stp</code>	Uses the InXight-based ixasian parser for simplified Chinese-language text.
<code>ixchi</code>	Uses the InXight-based ixasian parser for traditional Chinese-language text.
<code>japan.stp</code>	Included to support old collections. <code>fultext.stp</code> is used to support Japanese-language text. This file is empty.
<code>korean.stp</code>	Used for Korean-language text using n-grams. The Unicode parser is used with <code>k=1</code> set to map han characters to hangul.
<code>wspprox.stp</code>	Used when indexing with support for Word, Sentence, and Paragraph Proximity.

Example

Property: Stop File

Value: `C:\Program Files\HUMMINGBIRD\ful text\ful text.stp`

To change the stop file location under Windows

- 1 Navigate to Administration - Search > Index Settings.
- 2 In the Index Setting Properties list click in the Stop file row.

- 3 From the drop-down list in the Value column, select the value that matches the stop file path, then step off the record to save it.

CAUTION: UNIX users: The provided sample database has a default stop file located at the following path: C:\PROGRAM FILES\HUMMINGBIRD\FULTEXT\FULTEXT.STP. This path is invalid with a UNIX system. You must change the stop file location to a path similar to the following example: /export/home/hummingbird/fultext/fultext.stp.

Text Reader Setting

The Text Reader setting is important if you are going to be indexing external documents. Hummingbird SearchServer provides text readers that allow you to access documents stored in most formats. Hummingbird additionally has a text reader that reads and indexes documents written in HTML. If you have file formats that are not supported by the provided text reader, it is possible to build custom text readers. For information on creating custom text readers, see the Hummingbird documentation.

NOTE: Under most circumstances, the default text reader can be used. In this case, if no text reader setting is entered, the default text reader can be used.

Table Language Setting

Specifies the language the table is created in, so that linguistic processing package associated to the language can expand the nuances of terms and phrases particular to that language.

In SearchServer, stemming is done at index time. Because stems are generated only for a particular language, this setting must be used only when the table that is being indexed contains words predominantly from one language. You need to decide upon setup. Not setting this parameter implies word stemming is disabled, and hence stems will not be generated.

NOTE: Because Unicode databases could have records in several languages, this parameter will not be turned on in the preconfigured setting.

Example

Setting: Table Language

Value: ENGLISH

Sample Database Index Setting Values

Table 31 lists the default values for Index Settings in the sample database.

Table 31. Sample Database Index Setting Values

Index Setting	Value
Normalization	DEFAULT.
Stop file	D: \Program Files\Hummingbird\SearchServer<version>\full text\full text.stp.
Translation Table	Win_1252.

Working with Search Indices

You create and update search indices from the Search Indices View. You define new search indices in Siebel Tools. For instructions on defining new search indices, see [“The Search Index Object” on page 69](#).

CAUTION: The index building operation must be allowed to finish. You must not stop the operation at its midpoint. Once ExecSQL completes the index building operation, results will be returned. Response time for an indexing operation is positively correlated with the size of your index.

The Search Indices View lists all index settings that you previously created, and all search indices that may be administered.

NOTE: After indexing a database, or external documents, it is advisable to navigate to your temp directory, and delete files for optimal performance.

About Index Operations

If you are using a host Search Server, and remote servers, you must connect to the host to index or refresh the indices.

To index a search index

- 1 Navigate to Administration - Search > Search Indices.
- 2 In the Index Settings list, select the Index Setting that you would like to use for creating the Search Index.
- 3 In the Search Index view, click in the row containing the index.

- 4 Click the Index button.

A pop-up window appears for the duration of the indexing operation.

NOTE: When a Siebel Server starts, it caches information about the available indices, and will not automatically reset its cached list of search categories when a new index is subsequently created. When creating new indices, the Reset Categories menu item must be chosen from the applet menu on the Search Administration Settings List Applet (Read Only) applet in the Search Indices View. This action resets the cached list of categories for the current Siebel Server. This must be done on all servers in the enterprise.

To refresh an index

- 1 Navigate to Administration - Search > Search Indices.
- 2 In the Index Settings list, select the desired Index Setting.
- 3 In the Search Index view, click in the row containing the index.
- 4 Click the Refresh button.

To refresh all indices

- 1 Navigate to Administration - Search > Search Indices.
- 2 In the Index Settings list, select the desired Index Setting.
- 3 Click the Refresh All button.

Automating the Process of Refreshing Indices on Windows

This section details the process for automating the index refresh process.

CAUTION: If your Search Server is on a UNIX machine, you cannot completely automate the Refresh and Refresh All tasks. With the steps outlined in the following procedure, you can automate the creation of the refresh and refresh all scripts on the UNIX machine. However, you will still need to manually run the `execsql` command on the UNIX machine in order to actually regenerate the indices. For more information on this command, see ["Refreshing Indices Under UNIX"](#) on page 113.

To create a workflow process to enable Refresh or Refresh All functionality

- 1 In the Siebel Tools Object Explorer, select the Workflow Process object.
- 2 In the Object Explorer List Editor, create a new Workflow Process with the following values:

Property	Description
Process Name	The name of the process.
Status	Defaults to In Progress.

Property	Description
Workflow Mode	The workflow Mode will default to Service Flow. A service workflow process executes a set of operations upon event invocation.
Group	This field applies to pre-Siebel 7.7 workflows. NOTE: Do not use this field for new workflows you create. Use the Project field instead.
Project	The name of the project to which the workflow process belongs.
Business Object Search Administration	Base the Workflow on the Search Administration Business object.

- 3 When you have finished creating the process, right-click the record and select Edit Workflow Process to access the Workflow Process Designer.
- 4 In the Workflow Process Designer, create a workflow that includes a Business Service object. After you have added a Business Service graphic to the designer, select the business service step. In the Workflow Steps applet, highlight the branch corresponding to the business service step. For the business service step, locate the properties called "Business Service Name", "Business Service Method."
- 5 Configure a Business Service by doing the following:
 - a In the Business Service field, enter Search Admin Service.
 - b In the Method field, enter "Refresh Index" or "Refresh All".

If you selected Refresh Index, you will need to add the following two arguments in the Input Arguments applet in this view.

NOTE: If you selected Refresh All, you will only need to add the Index Setting parameter as shown below.

Arguments	Description
Index Setting	Name of the Index Setting you want to use for the Refresh. For this argument the Type must be Literal, and the Value must be the name of your setting.
Index Name	Name of the index you wish to refresh. For this argument, the Type should be Literal and the Value should be the name of the index, such as Solution. If you selected Refresh All, you will need to add one argument in the Input Arguments applet in this view.

- 6 Return to the All Processes tab within the Workflow Processes view, then click the Deploy button.

To test your workflow process

- 1 In the Workflow Processes list view, select the Workflow Process you created.
- 2 Right-click, and select Simulate Workflow Process.
This starts the Workflow Simulation. For more information on setting up the Siebel Tools application for Workflow Process Simulation, see *Siebel Business Process Designer Administration Guide*.
- 3 During the Workflow Simulation, run through the newly created workflow process.

Verifying the Index and Refresh Process

You can verify that the index was refreshed by checking the Index Status column in the Search Indices view for a given index, or by checking the new log file in the Siebel/search/ServerDataSrc/index directory. For more information about the success of the indexing process, you can check the .dil file in the Siebel/search/ServerDataSrc/scripts directory. On the new workflow process has been verified preform the following task:

To deploy a new workflow process

- 1 In Siebel Tools, select the workflow process and click the Deploy button.
- 2 In the Siebel Client application, navigate to the Administration - Business Process > Workflow Deployment view and activate the workflow process.

Setting Up Your Workflow Process to Run Periodically

One way to configure your Workflow Process to run on a periodic basis is to set up a Repeating Component Request that starts your Workflow Process at specific time intervals.

To set up periodic workflow processes

- 1 Navigate to Administration - Server Management > Jobs.
- 2 Click New to create a new job request record, and fill in the following fields:

Field	Comments
Component/Job	Enter Workflow Process Manager in the Component/Job field.
Repeating?	Click in this field to set this flag to True to enable the repeating task.

Field	Comments
Repeat Unit	Enter your desired Repeat Unit in the detail applet.
Repeat Interval	Enter your desired Repeat Interval. For example, a Repeat Unit of Weeks and a Repeat Interval of 1 would run your Workflow Process on a weekly basis.

- 3 In the Job Parameters fill in the following values:

Field	Comments
Name	Select Workflow Process Name.
Value	Enter the name of the Workflow Process you wish to run periodically.

- 4 In the Jobs list, click the Start button.
The Status field changes from Creating to Queued.

To troubleshoot your workflow process

- 1 Navigate to Administration - Server Management > Jobs.
- 2 In the Jobs list, select the desired job, then click the Repeating Instances view tab.

This view shows the status of each job instance and also completion information. If any errors have occurred during execution of the job instance, you can get more detailed information about the error in the WfProcMgr log file in the Siebel/log directory.

Uploading Index Files to the Server Database and File System

A mobile Web client user does not need to build indices in order to perform searches on a mobile client machine. To allow a mobile client user to perform searches, you need to upload the index files from the server database and file system. The user can then download the previously built indices from the Siebel Server to the mobile client machine, using Siebel Remote technology.

When you create or refresh indices using the Index or the Refresh button in the Search Indices view, the index files are created in the Siebel /search/ServerDataSrc/index directory. To support search in the mobile Web client, you need to upload the index files to the server database and file system.

To enhance performance, the Upload Index operation has made a separate operation from the Index/Refresh operation.

To upload index files to the server database and file system

- 1 Navigate to Administration - Search > Search Indices.
- 2 In the Search Index view, select the index you want to upload, then view menu, and select Upload Index.

NOTE: Executing this command will upload the index files (five or six for each category) to the server database and the Siebel file system. You need to make sure the file system is valid and is working. If you use a custom stop file, this stop file will also be uploaded.

Enabling Mobile Client Index Searches

To enable a Mobile Web Client machine to use Search indices, you must make sure you have performed the following steps:

- 1 Enable all search indices you want to enable for searching. For more information, see [“Uploading Index Files to the Server Database and File System” on page 109](#).

Uploading index files will create records in the Search Administration view, which are used solely by the Mobile Web Client.

- 2 Make sure the view “Search Index Request View” is part of the responsibilities of your Mobile users. For more information, see [“Setting Up Employee or Partner Users” on page 45](#).

Synchronizing Indices on the Mobile Web Client

To allow synchronization of indices on the mobile client machine you must enable downloading from the Mobile Search Administration view. The user will then need to download the index files onto the mobile client machine. Do the following procedure only once for each search index.

NOTE: The appropriate size of the index is listed in bytes in the Index Size column of the Mobile Administration screen. The index size and connection speed affects synchronizing indices.

By default the data synchronization process will not synchronize the files in the file system. When you check the Download column as described in the following procedure, you are requesting that the synchronization manager download the index files to a local machine in the next synchronization session. These files will then be stored in the file system on your local machine, and you will need to use the Uncompress command to copy them to the correct directory:

Si ebel \search\Local \i ndex.

To synchronize indices on a mobile client

- 1 Navigate to Administration - Search > Mobile Search Administration.
- 2 In the Download column, check each index you would like to download to the mobile client machine.
- 3 Synchronize the database against the Search Server.
- 4 Return to the Mobile Search Administration screen.

- 5 From the Mobile Administration menu, choose Uncompress.

Working with Indices Under UNIX

After executing the Index command from the Search Index menu for a chosen index, the index files are not yet generated. One DID file and one FTE file are created in /export/home/Siebel/search/ServerDataSrc/scripts directory. You need to use Hummingbird's execsql utility to create an index. Hummingbird uses DataDirect ODBC drivers to connect to the Siebel database during the indexing process.

For DataDirect installation and configuration instructions, see [“DataDirect ODBC Driver Installation and Configuration” on page 56](#).

The procedures for indexing under UNIX are described in the following.

To create FTE and DID scripts for search categories

- 1 Log in to the Siebel application.

NOTE: If you are connected to a DB2 database, you need to log in using the username (siebel) and password (db2). This is required in order for indexing or refreshing to work correctly. During the process of indexing and refreshing, the DataDirect DB2 data source will be used. You must log in to the Siebel application using (siebel and db2) because this is the username and password that the DataDirect driver uses to connect to the DB2 database. For information on setting up an DataDirect data source, see [“Creating a DataDirect ODBC Data Source on Oracle Under UNIX” on page 56](#).

- 2 Navigate to the Administration - Search screen.
- 3 In the Index Settings applet, select the setting you want to use for UNIX.
You may copy the default setting and rename as: Default Setting for UNIX.
- 4 On the Index Setting Properties applet, verify that the following index settings are available:
 - LOGCONTROL = ALLEDETAILS
 - NORMALIZATION = DEFAULT
 - STOPFILE = /export/home/fulcrum/fultext/fultext.stp
 - TRANSLATION TABLE = ISO Latin1

NOTE: If you are using a Unicode database, this setting is ignored, so its value is irrelevant.

- 5 Pick the correct Translation Table for your language.

- 6 Go to Search Indices View, and click the Index button to index the Search Categories you have chosen.

For example, if you want to index the Solution category, select Solution row, and click the index command. Although you do not see any change to the UI, two scripts files (FUL_SOLN.DID, FUL_SOLN.FTE) have actually been created in your \$SIEBEL_ROOT/search/ServerDataSrc/scripts directory.

NOTE: In order to use Siebel Search, you will need to edit the library path variable in the Siebel script used for setting environment variables (siebenv.csh or siebenv.sh) so that the library variable includes the Hummingbird library path. For example, you would edit the library path in the script as follows: `setenv LD_LIBRARY_PATH /export/home/fulcrum/lib:$LD_LIBRARY_PATH` (for Solaris), or `setenv LIBPATH /export/home/fulcrum/lib:$LIBPATH` (for AIX). If you do not add this to the library path, and source the new Siebel script before you start the Siebel servers, you may not be able to access the Search Indices View or any valid Search Categories in Search Center.

To execute index scripts to create search indices

- 1 Open a UNIX shell and log in as a Siebel administrator or installation user, and navigate to the Hummingbird installation directory.
- 2 Source `setfuladmin.csh`
For information on creating this script file, see [“Search Server Environment Variable Settings” on page 61](#).
- 3 Go to `$SIEBEL_ROOT/search/ServerDataSrc/scripts`.
You will see the two scripts created (.DID and .FTE) for your search category.

- 4 Run “execsql -OFUL_SOLN.FTE” to create an index for the Solution category (or run another FTE file to create other indices).

The time it takes for a return on records will depend on how many records you have in your database tables.

Seven files will be created for the search category you created under SIEBEL_ROOT/search/ServerDataSrc/index directory. You can verify that the index was created by running execsql. You will not see any prompt appear when you type “execsql” and press <ENTER>, but you can then run select count(*) from ful_soln;

After you press Enter, you should see the number of records being created:

```
sl ass420r2{sl qusr7s}/> execsql
select count(*) from ful_soln;
CursorName = SQL_CUR00001
RowCount = 1
NumResul tCol s = 1: COUNT(*)
val ues:
(293)
```

If you do not see the expected number of records, there may have been some problems during the index creation. You can open the ful_soln.log file in the index subdirectory (or other log files for other categories) and check the error. There is also a file with .dil file extension name created in the scripts subdirectory. It will give you some useful information. Make sure your database server information is valid.

If you encounter problems, and need to generate the indices again, you must manually remove all generated scripts and the seven files that are created in the previous failure in the index subdirectory:

- a cd /export/home/si ebel /search/ServerDataSrc/i ndex
- b rm ful_sol n. *

- 5 If your index is created successfully, you can then go to the Siebel Call Center, Search Administration Screen. You should see the number of records for your Search category: in this case 293 records for FUL_SOLN.

CAUTION: In order to work correctly, Hummingbird requires you to create environment variables. See Appendix A, “Siebel Search Environmental Variables” for further information. Unlike the Windows platform, in which Siebel code will set it up for you automatically, you need to set it manually in UNIX. The following steps will show you how to prepare a script file that sets these environment variables.

Refreshing Indices Under UNIX

Like the Index command, Refresh and Refresh All commands will not execute automatically. Refresh scripts will be created that you will later use. Refresh All will also generate individual refresh scripts for each index.

After executing the Refresh command you then run the following command to refresh on the individual index file:

```
execsql -OFUL_XXXX_REFRESH
```

After executing the Refresh All command, you then run:

```
execsql -OREFRESH.FTE
```

NOTE: If you are connected to a DB2 database, you need to log in using the username (siebel) and password (db2). This is required in order for indexing or refreshing to work correctly. During the process of indexing and refreshing, the DataDirect DB2 data source will be used. You must log in to the Siebel application using (siebel and db2), because this is the username and password that the DataDirect driver uses to connect to the DB2 database. For information on setting up an DataDirect data source, see [“Creating a DataDirect ODBC Data Source on Oracle Under UNIX” on page 56](#).

Working with Resolution Documents and Literature Under UNIX

Resolution documents and Literature are two special indices. The two Search Categories are different from other categories, because they have attachments stored in the Siebel file system. When you click on the Index button in the Search Index View, the Siebel Server will not only create two scripts files, but it will also retrieve the attachments from the Siebel file system and decompress them. They will be stored in the /export/home/siebel/temp/search directory. If these files are not on the directory, please check the following:

- Is the file system valid? Work with the Siebel administrator to confirm if the file system is valid. You can also go to the Literature Administration View or Resolution Documents Administration View to try to create new records. If the records can be uploaded successfully, the file system must be valid.
- Does the file system contain the correct set of attachments? In the Literature Administration view or Resolution Documents Administration view, try to click on the hyperlink text for Name or File Name files. Clicking the hyperlink will give you access to the attached file in its native application. For example, you can see a Microsoft Word document or PowerPoint file in the pop-up window that has Microsoft Office embedded. If you cannot find the in the file system, work with your Siebel administrator to resolve this issue.

NOTE: You cannot index Literature documents with more than 178 characters.

After the scripts are created and the attachments are created in the /export/home/siebel/temp/search directory, you can then use the execsql utility to create the index file as described in [“To execute index scripts to create search indices” on page 112](#).

Every time you click on the Index button for Literature or Resolution Documents, the existing attachment files will be removed, and the Siebel Server will retrieve the correct set of attachments again. This behavior also works when the Refresh button is clicked for these two search categories. So, when you plan to create an index for Literature and Resolution Documents, finish one category first and then create the other. Otherwise, the attachments created for the first category will be removed when you click on the Index or Refresh button for the second category, and the first index may fail, because the `execsql` utility cannot find attachments in the `/export/home/siebel/temp/search` directory.

NOTE: Because Literature and Resolution Documents are so unusual, you cannot execute the RefreshAll script (`FUL_REFRESH.FTE`) to refresh Literature and Resolution Documents. You will need to refresh them by running the individual script files.

Indexing External Documents Under UNIX

If you plan to create indices for external documents, make sure you have a valid path that stores your documents. You have to either copy these documents to your UNIX machines that run the Siebel Server, or copy to a network path that is mounted and accessible to your server. Hummingbird does not need to connect to the database to index external documents. Therefore, Hummingbird does not use DataDirect's ODBC driver in this case. When you click the Index button, you will only see the FTE file, but not the DID file.

Supporting Mobile Clients Under UNIX

A mobile Web client user does not need to build indices in order to perform searches on a mobile machine. You need to upload the index files to the server database and file system. The user can then download the previously built indices from the Siebel Server to the mobile client machine using Siebel Remote technology. For more information, see [“Uploading Index Files to the Server Database and File System” on page 109](#), and [“Synchronizing Indices on the Mobile Web Client” on page 110](#).

Search Execution Settings

You define basic search properties from the Basic Settings view. You have different settings for each language. There is one default setting for each language.

Character Set Execution Setting

This setting allows you to change the character set type to match your database requirements. The default character set is UTF-8. To perform searches against a non-Unicode, or code page database, you need to create a new character set type.

To create a new character set type

- 1 Navigate to Administration - Data > List of Values.

- 2 In the List of Values list, query for the following: FULCRUM_PROP_CHAR_SET.
- 3 From the List of Values menu, select Copy Record.
A copy of the existing record appears.
- 4 In the Display Value and Language-Independent Code fields enter the appropriate character set, for example, Win_1252, then step off the record to save it.

Collation Sequence Setting

This setting specifies the name of a collation function that is used to determine the ordering of character strings. The default collation sequence provides dictionary ordering for English and French text being returned by most Latin 1 languages.

Example

Property: Collation Sequence

Value: DICTIONARY_LATIN1

In Windows 32-bit environments, the following collation sequences are included in the fultext.ftc system configuration file. You can use any of them by specifying the name in the SET COLLATION_SEQUENCE statement. They all require that their respective locale be installed on the Windows system.

All supported locales are listed as follows:

- | | |
|-------------------------|------------------------|
| ■ AFRIKAANS | ■ BASQUE |
| ■ CATALAN | ■ DANISH |
| ■ DUTCH | ■ DUTCH_BELGIAN |
| ■ ENGLISH_USA | ■ ENGLISH_UK |
| ■ ENGLISH_CANADIAN | ■ ENGLISH_NEW_ZEALAND |
| ■ ENGLISH_AUSTRALIAN | ■ ENGLISH_IRELAND |
| ■ ENGLISH_SOUTH_AFRICAN | ■ FINNISH |
| ■ FRENCH | ■ FRENCH_BELGIAN |
| ■ FRENCH_SWISS | ■ FRENCH_CANADIAN |
| ■ FRENCH_LUXEMBOURG | ■ GERMAN |
| ■ GERMAN_SWISS | ■ GERMAN_AUSTRIAN |
| ■ GERMAN_LUXEMBOURG | ■ GERMAN_LIECHTENSTEIN |
| ■ ICELANDIC | ■ INDONESIAN |
| ■ ITALIAN | ■ ITALIAN_SWISS |
| ■ JAPAN_EUC | ■ JAPAN_SJS |
| ■ JAPAN_UTF8 | ■ KOREA_87 |
| ■ KOREA_UTF8 | ■ NORWEGIAN_BOKMAL |
| ■ NORWEGIAN_NYNORSK | ■ PORTUGUESE |

- PROTUGUESE_BRAZILIAN
- SPANISH
- SWEDISH
- SPANISH_MEXICAN
- SPANISH_MODERN
-

To create collation sequence setting

- 1 Navigate to Administration - Search > Basic Settings.
- 2 From the Setting Properties menu, select New Record.
A new row appears in the Setting Properties list.
- 3 Click in the Name column of the new row, and from the drop-down list, select Collation Sequence.
- 4 Click in the Value column of the new row, and in the text box, enter the Dictionary value, and then step off the record to save it.

Maximum Execution Time Setting

This setting specifies the maximum execution time, in milliseconds, for searches. The numeric value that is specified can be rounded up to the nearest second, depending on your operating system.

The default value is zero (0), which allows SearchServer to execute for an unlimited amount of time.

Example

Property: Max Exec Time

Value: 200

To set the maximum execution time setting

- 1 Navigate to Administration - Search > Basic Settings.
- 2 From the Setting Properties menu, select New Record.
A new row appears in the Setting Properties list.
- 3 Click in the Name column of the new row, and from the drop-down list, select Max Exec Time.
- 4 Click in the Value column of the new row, and in the text box, enter the maximum search time value, and then step off the record to save it.

Maximum Search Rows Setting

This setting specifies the maximum number of rows to be included in a working table. Setting this value permits an application to stop very general searches from returning too many rows. For example, you can limit the search so that it retrieves only 10 result rows. The default value is zero (0), which allows SearchServer to retrieve an unlimited number of rows.

Example

Property: Max Search Rows

Value: 500

To create max search rows setting

- 1 Navigate to Administration - Search > Basic Settings.
- 2 From the Setting Properties menu, select New Record.
A new row appears in the Setting Properties list.
- 3 Click in the Name column of the new row, and from the drop-down list, select Max Search Rows.
- 4 Click in the Value column of the new row, and in the text box, enter the maximum rows searched, and then step off the record to save it.

Search Term Separator Setting

This setting specifies the default search term separator to be used. Valid values for this setting are AND or OR.

Example

Property: Search Term Separator

Value: OR

To set the search term separator setting

- 1 Navigate to Administration - Search > Basic Settings.
- 2 From the Setting Properties menu, select New Record.
A new row appears in the Setting Properties list.
- 3 Click in the Name column of the new row, and from the drop-down list, select Search Term Separator.
- 4 Click in the Value column of the new row, and in the text box, enter the value AND or OR, and then step off the record to save it.

Sample Database Values for Basic Search Settings

Table 32 lists the default values for Basic Search Settings in the sample database. You access these values in the Basic Search Administration view of the Search Administration Screen.

Table 32. Sample Database Values for Basic Search Settings

Setting	Value
Character Set	UTF8
Max Search Rows	500
Relevance Method	2:1
Search Term Separator	OR

Advanced Search Execution Settings

With an Advanced Search license you get all the functionality of basic Search, as well as a number of other search settings that allow users to perform precise searches. Advanced Search execution settings are administered from the Advanced Settings view. These settings include the following:

- [“Sample Values for Advanced Search Settings” on page 120](#)
- [“Adding a Default Language” on page 120](#)
- [“Exact Match Setting” on page 120](#)
- [“Proximity Search Setting” on page 121](#)
- [“Relevance Method Setting” on page 122](#)
- [“Search Term Generator Setting” on page 123](#)
- [“Thesaurus Filename Setting” on page 125](#)
- [“Thesaurus Option Setting” on page 125](#)
- [“Spell Check Setting” on page 126](#)
- [“Show Matches Setting” on page 127](#)
- [“Show Title for External Documents Setting” on page 127](#)

Sample Values for Advanced Search Settings

Table 33 lists the default values for Advanced Search Settings in the sample database.

Table 33. Sample Database Values for Advanced Search Setting

Setting	Value
Character Set	UTF8. UTF8 is required for languages that use special characters, such as French.
Max Search Rows	80
Normalization	DEFAULT
Proximity Search	80
Relevance Method	2:4
Spell Check	TRUE
Search Term Separator	OR
Show Document Title	TRUE
Term Generator	word!ftiet/inflect
Thesaurus Option	WORD_MODIFY

Adding a Default Language

The default language is configured in the Advanced Settings view of the Administration - Search screen.

To add a default language

- 1 Navigate to the Administration - Search screen, and then the Advanced Settings view.
- 2 From the Settings menu, select New Record.
A new row appears in the Settings view.
- 3 Enter a unique name, such as Advanced Setting (French).
- 4 Select the language, such as FRA.
- 5 Select the Default option.

Exact Match Setting

If this flag is set, then the word stemming function is turned off for all searches. Word stemming is turned on by using the Term Generator property. Valid values for the Exact Match Setting are TRUE and FALSE.

If the flag is set to TRUE, then the word stemming function is turned off for all searches. Word stems are created at index time for each index, and are optimized for a language. Word stemming is automatically turned on if stems are available for the index currently being searched.

Example

Property: Exact Match

Value: TRUE

To administer exact match setting

- 1 Navigate to Administration - Search > Advanced Settings.
- 2 From the Setting Properties menu, select New Record.
A new row appears in the Setting Properties list.
- 3 Click in the Name column of the new row, and from the drop-down list, select Exact Match.
- 4 Click in the Value column of the new row, and from the drop-down list, select TRUE to disable word stemming for searches, or FALSE to enable word stemming for searches, and then step off the record to save it.

Proximity Search Setting

This setting allows you to specify the default number of characters to search between search terms.

Example

Property: Proximity Search

Value: 50

To create the proximity search setting

- 1 Navigate to Administration - Search > Advanced Settings.
- 2 From the Setting Properties menu, select New Record.
A new row appears in the Setting Properties list.
- 3 Click in the Name column of the new row, and from the drop-down list, select Proximity Search.
- 4 Click in the Value column of the new row, and in the text box, enter a value to represent the number of characters, and then step off the record to save it.

Relevance Method Setting

This setting determines the retrieval model and relevance algorithm to be used in search calculations. Document relevance is used to describe how closely a given document matches a query. The relevance of a document can determine the order of the search result that is displayed.

There are three retrieval models that can be specified. Each model has a different impact on the search results when used with a ranking algorithm. The RELEVANCE function combines the retrieval model and ranking algorithms to provide a calculated relevance value that estimates the similarity between the row and the query criteria.

Example

Property: Relevance Method

Value: V2:4

There are three retrieval models that can be specified:

- **Strict Boolean.** When searching for matching rows in a table, this model uses strict Boolean operations for combining search terms. There is no measurement of the degree to which a match is found.
- **Fuzzy Boolean (F).** Similar to the strict Boolean model, this model differs in that it does not rule out rows that contain only some of the terms.
- **Vector Space (V).** This retrieval model relaxes the strict Boolean model by allowing the match to be measured by using some of the search terms. The relevance value is based on the proportion of the most relevant search terms that are matched in the row.

Table 34 lists the options available when setting up relevance ranking.

Table 34. Relevance Ranking Options

Values	Relevance Ranking	Description
2:1	Hits Count (Algorithm 1)	Counts the total number of occurrences of the individual words (not phrases) matched, regardless of the term frequency within the table. This value is only valid when the retrieval method is set to Boolean.
2:2	Terms Count (Algorithm 2)	Counts the number of search terms matched. The frequency of the occurrences of the terms is not considered. This value is only valid when the retrieval method is set to Boolean.

Table 34. Relevance Ranking Options

Values	Relevance Ranking	Description
2:3	Terms Ordered (Algorithm 3)	Uses a mathematical formula that computes the relevance statistically. It combines the characteristics of algorithms 1 and 2, and takes into account not only the number of occurrences of each search term, but also a statistical measurement of how common the term is over all the rows in the table (document frequency). This value is valid using the following retrieval methods: Boolean, Fuzzy, or Vector. The optimized retrieval methods are Fuzzy or Vector.
2:4	Critical Terms Ordered (Algorithm 4)	Uses a mathematical formula that computes the relevance statistically, and accentuates the effect of the inverse document frequency. It squares the search term importance before multiplying it with the number of occurrences of the search term. This value is valid using the following retrieval methods: Boolean, Fuzzy, or Vector. The optimized retrieval methods are Fuzzy or Vector.

To administer the relevance method

- 1 Navigate to Administration - Search > Advanced Settings.
- 2 From the Setting Properties menu, select New Record.
A new row appears in the Setting Properties list.
- 3 Click in the Name column of the new row, and from the drop-down list, select Relevance Method.
- 4 Click in the Value column of the new row, and from the drop-down list, select the appropriate relevance setting, then step off the record to save it.

Search Term Generator Setting

This setting can be used to set the international thesaurus filter (word!ftiet) to support synonym, suffix searches and so on, and also to support word stemming by using the linguistic rules filter (word!ftelp). The character string literal uses the format specified for the linguistic/international thesaurus specification of the THESAURUS function. Be extremely careful when entering values for the term generator function. For more information, see the Hummingbird SearchServer Documentation on the *Siebel Business Applications Third-Party Bookshelf*. The options are as follows: base, compound, inflect, lang=linguistic rules language, root, single.

Linguistic Searches

- Syntax: word!ftelp/<options>

Options may be: base, compound, inflect, lang=linguistic rules language, root, single

- Examples are as follows:

- word!ftelp/inflect
- word!ftelp/base
- word!ftelp/root

International Thesaurus

- Syntax: word!ftiet/<options>

Options may be: inflect, lang=linguistic rules language, limit <unsigned integer>, recap

- Example: word!ftiet/inflect

Table 35 explains the term generator setting in more detail.

Table 35. Options for Search Term Generator

Option	Effect
BASE	Includes the uninflected stem of the input word in the output. If there is more than one stem, all stems are returned unless /single is specified, in which case, only the first stem is returned.
COMPOUND	Performs preprocessing normalization of the search term that can generate additional search terms that are the components of a compound word. This option is only valid for German, Swedish, and Dutch. Linguistic expansion operations only work on tables, which were indexed with the Table Language index setting, set to TRUE.
INFLECT	Expands the base forms or stems to the inflected forms that occur in the table being searched. If there is more than one stem, all stems are returned unless /single is specified, in which case, only the first stem is returned. This expansion can only be performed for tables, which were indexed with the Table Language index setting, set to TRUE.
LANG=<language name>	Specifies that the rules of that language be used. The linguistic rules language options are english, French, german, Italian, Spanish, Swedish, dutch, Portuguese, finnish, bokmal, nynorsk The international thesaurus language options are Usenglish, ukenglish, Danish, dutch, finnish, german, Italian, Norwegian, Spanish, Swedish, brportuguese, euportuguese. NOTE: Asian languages are not supported.
LIMIT	Specifies the maximum number of synonyms for the search term in the search result.

Table 35. Options for Search Term Generator

Option	Effect
RECAP	Recapitalizes the returned synonyms. If the search term contains an initial uppercase letter, all uppercase letter, or all lowercase letters, the synonyms returned match the capitalization of the search term. If this option is not specified all the synonyms are returned in lowercase letters
ROOT	Includes the uninflected stem of the input word in the output. If there is more than one stem, all stems are returned unless /single is specified, in which case, only the first stem is output.
SINGLE	Makes sure the output consists of a single word. If no match is found, the original is returned. Otherwise, the first word is returned.

Thesaurus Filename Setting

The customized thesaurus file contains rules for generating plural and possessive variants of search terms, long forms of certain abbreviations, and synonyms for selected search terms. This process is called thesaurus expansion. You can modify the thesaurus source file supplied with SearchServer (SUPPORT.FTS), or create your own source file using a text editor.

To customize the thesaurus, see the Hummingbird documentation.

Example

Property: Thesaurus Filename

Value: C:\Program Files\HUMMINGBIRD\ful text\support. fth

To change thesaurus filename path

- 1 Navigate to Administration - Search > Advanced Settings.
- 2 In the Setting Properties view, click in the Thesaurus Filename row, enter the new path, and then step off the record to save it.

Thesaurus Option Setting

This setting specifies the thesaurus operator that will determine the type of expansion performed, when an end user specifies a thesaurus filename. To turn on thesaurus searches of this kind, the end user wraps a word with brackets ([]). The valid values you enter for this property are listed in the following example. This setting is used for all instances of the search whenever a search term is enclosed within brackets ([]).

Example

Property: Thesaurus Option

Value: WORD_SUFFIX

Possible properties and the effects for the usage of the Thesaurus appear in [Table 36](#).

Table 36. Thesaurus Properties

Property	Effect
WORD_SYNONYM	Includes the synonyms defined in the thesaurus
WORD_SUFFIX	Expands the word or phrase to include their plural and possessive forms. For example, if you search on the word, DISK, the results returned would include DISKS and DISK'S.
WORD_SIMILARITY	Uses a combination of the WORD_SYNONYM and WORD_SUFFIX options. This option gives the synonym processing priority over the suffix processing. If there is a synonym match, there is no further search for an additional suffix match. However, if there is no synonym match, then suffix processing is performed.
WORD_MODIFY	Uses the linguistic processing filter to expand searched terms. This filter and its related options are specified in the thesaurus file parameter of this function. For example, if you use the international filter with the linguistic rules filter enabled and search on the word DISK, the following actions occur: First the term is expanded through the international thesaurus filter, and then the resulting synonyms are run through the linguistic filter rules filter to be inflected. For more on this setting, see "Search Term Generator Setting" on page 123 .
WORD_BROADEN and WORD_NARROW	equivalent to the WORD_SYNONYM option. These settings are included for clarity if the thesaurus file specified in the function is intended to broaden or narrow the term specified. For example, if you search on DISK, the results returned would include DISC, AND DISK.

Spell Check Setting

The SPELL feature supported in Search Server 4.0 has been changed. In the Advanced Search Settings view, if there is an entry named Spell Check with the value TRUE added, then the search engine will do an approximate search that can erase spelling mistakes. An example would be a search on Product with keyword *Computar*, which would return products with keyword Computer.

The approximate search feature (also known as fuzzy searching, or approximate term matching) makes it possible for SearchServer to find words in the table even if they are misspelled in the query. This feature is most useful for searches involving proper nouns, such as customers' searches for product names in an e-Commerce application.

Example:

Property: Spell Check

Value: TRUE

Show Matches Setting

This setting allows you to display highlighted hit words in the results list. For instance, if a user searches for the word test, the word test would be highlighted in all results.

To enable Show Matches setting

- 1 Navigate to Administration - Search > Advanced Settings.
- 2 In the Setting Properties list, click New.
- 3 From the Name drop-down, select Show Matches.
- 4 From the Value field drop-down, select TRUE to enable the Show Matches parameter.

Show Title for External Documents Setting

NOTE: This setting has an effect only on Windows.

By default (on both UNIX and Windows), the filename of external documents is shown in the Summary column in the search result list. If you add the search setting property Show Document Title with the value TRUE, then on Windows only, the title of the document will be shown. The value is picked up from the document's OLE (Object Linking and Embedding) properties for external documents, which reside in the Windows file system. If the title is empty, the filename is displayed.

Example

Property: ShowDocument Title

Value: TRUE

A

Siebel Search Environmental Variables

This appendix contains the following topics:

- “Siebel Search Environmental Variable List” on page 129
- “Siebel File Attachment Indexing” on page 130

Siebel Search Environmental Variable List

Table 37 lists the environmental variables required for a Windows implementation of Siebel Search.

NOTE: Under most instances of a Siebel Search implementation in a Windows environment, these variables do not need to be set as they are automatically generated during runtime.

There are no ODBC drivers used in a Windows implementation, and thus no data source information is made implicit. All control parameters that are normally specified in the data source must be defined as environmental variables. These are FULSEARCH, FULCREATE, FULTEMP, and optionally, FTNPATH.

NOTE: Although these variables are called Siebel Environmental Variables, the Hummingbird SearchServer uses them. These variables are also used in UNIX. However, on UNIX, these parameters are set in the setfuladmin.csh environmental variable. These parameters should only be sourced in when creating and updating the search indices. Sourcing the Fulcrum environmental variable together with siebenv to start Siebel Service Processes can cause a conflict with DateDirect and the Siebel ODBCINI.

Table 37. Siebel Environmental Variables

Environmental Variable	Environmental Variable Definition
FULCREATE	This is the location that was specified in the Preinstallation Checklist as the storage location of the indices.
FULSEARCH	This is the directory or directories that Hummingbird will search. There can be more than one directory, and multiple directory entries must be separated by semicolons, without spaces. The list must always include the Fulcrum\Fultext directory.
FULTEMP	The directory that Hummingbird uses to store temporary data, normally the directory pointed to by the TEMP environment variable.
FTNPATH	The address and name of the client connector. This is the SearchServer machine name and address for users. This is case sensitive, and must be entered in lowercase when required.

The following are examples of how these Hummingbird environment variables can be set. It is assumed that the Siebel installations are located in the C:\SIEBEL78 directory.

Search Server Configuration. If you configure your Siebel Server as Search Server, the following parameters will be set:

- FULCREATE: C:\SIEBEL78\search\ServerDataSrc\index
- FULSEARCH: C:\program files\fulcrum\fultext;C:\SIEBEL78\search\ServerDataSrc\index
- FULTEMP: C:\SIEBEL78\search\ServerDataSrc\temp
- FTNPATH: (empty)

Remote Search Server. If you configure your Siebel Server to connect to a remote Search Server with port number 2048, the following parameters will be set:

- FULCREATE: (empty)
- FULSEARCH: C:\SIEBEL78\search\fulcrum\ful text
- FULTEMP: C:\SIEBEL78\search\ServerDataSrc\temp
- FTNPATH: searchserver/tcp2048

Typically, you will not need to set these variables, because the Siebel Search code will set them at run time.

Hummingbird Client Connector. If you configure a Hummingbird Client Connector, which is required to set up a remote Search Server, note the following example:

- Client Connector: tcp2048
- FULCREATE: C:\SIEBEL78\search\ServerDataSrc\index
- FULSEARCH: C:\PROGRAM FILES\FULCRUM\FULTEXT;C:\SIEBEL78\search\ServerDataSrc\index
- FULTEMP: C:\SIEBEL78\search\ServerDataSrc\temp

Siebel File Attachment Indexing

When indexing file attachments stored in the Siebel file system, they are first decompressed and stored at a temporary location. The indexer then proceeds to index the attachments from this location. The temporary location is determined by the Application Temp Dir parameter, which you set in Server Manager > Enterprise Operations.

B

Troubleshooting the Setup of Siebel Search

This appendix contains the following topics:

- [“Siebel Search Troubleshooting Key” on page 131](#)
- [“Hummingbird Installation Troubleshooting” on page 132](#)
- [“Basic Search Setup Troubleshooting” on page 132](#)
- [“Visibility Troubleshooting” on page 134](#)
- [“Hummingbird Client Connector Troubleshooting” on page 136](#)
- [“Using the Verbose Parameter” on page 136](#)
- [“SQL Troubleshooting” on page 136](#)

Siebel Search Troubleshooting Key

[Table 38](#) lists the potential symptoms with cross references to the sections in this appendix that you can refer to.

Table 38. Hummingbird Setup Troubleshooting Key

For These Symptoms	See These Topics
Only Find objects show up (in Search Center). Error message says Search is not set up in Customer Search	“Hummingbird Installation Troubleshooting” on page 132 and “Basic Search Setup Troubleshooting” on page 132.
Error when going to the Search Administration screens: “The Fulcrum library can not be loaded. The Fulcrum installation may not be set up correctly. Please contact your system administrator.”	“Hummingbird Installation Troubleshooting” on page 132 and “Basic Search Setup Troubleshooting” on page 132.
Index function is unavailable in the Search Administration view	“Basic Search Setup Troubleshooting” on page 132.
Error when indexing	“Hummingbird Installation Troubleshooting” on page 132 and “Basic Search Setup Troubleshooting” on page 132.
Zero records when indexing	“Basic Search Setup Troubleshooting” on page 132 and “Visibility Troubleshooting” on page 134

Table 38. Hummingbird Setup Troubleshooting Key

For These Symptoms	See These Topics
Expected records not found	“Visibility Troubleshooting” on page 134
Error when searching Search Center (Fulcrum error)	“Hummingbird Installation Troubleshooting” on page 132 , and “Visibility Troubleshooting” on page 134
Advanced Search not working as expected	“Using the Verbose Parameter” on page 136
You need to track indexing problems more thoroughly in the log file.	“Using the Verbose Parameter” on page 136
You need to see SQL sent to the Hummingbird Search Engine from the Siebel Search Center.	“SQL Troubleshooting” on page 136

Hummingbird Installation Troubleshooting

This topic lists frequently asked questions on Hummingbird installation.

Is Hummingbird installed?

Hummingbird is required to be installed on the Search server to allow Siebel Search. See [Chapter 5, “Installing Siebel Search Under Windows”](#) for instructions on installing Siebel Search.

How to check. In Windows, go to Programs from the Start menu and look for a program group called Fulcrum. Open up ExecSQL. On the splash screen, you should see the Hummingbird version.

Is more than one version of Hummingbird installed?

If an older version of Fulcrum is still installed or incompletely removed, then Siebel Search may not work. The older version must be completely uninstalled. See [“Upgrade Notes for Windows Users” on page 38](#) for information about removing older versions of Fulcrum from the machine.

How to check. Go to the Add/Remove Programs icon in Windows Settings > Control Panel. Fulcrum 3.7e and earlier versions have multiple programs installed. In addition, check the path variables for the machine, and make sure that the Fulcrum reference only points to the current version of Hummingbird.

Basic Search Setup Troubleshooting

This topic lists frequently asked questions on Basic Search setup.

Have you ever built or copied indices?

In order to use Siebel Search, Search indices must be built. For testing purposes, indices already built in another setup (for example, in the sample database) can be copied into the correct index location. See [Chapter 5, “Installing Siebel Search Under Windows,”](#) and [Chapter 8, “Administration of Siebel Search”](#) for instructions on installing Hummingbird and creating indices respectively.

How to check. Search indices are always located in the same location. You can go to the `\Siebel_Root\search\sample\index` directory, and you should see a set of around six files for each index that will have labels that start with *FUL* followed by the index name. Some of the file sizes may be 1 kilobyte (KB), but most will be larger.

Did you install Hummingbird before installing the Siebel Server?

It is recommended that Hummingbird be installed before the Siebel Server in order to minimize configuration. If you installed Hummingbird after you installed Siebel Server, you will need to modify some search parameters.

How to check. See [“Modifying Siebel Search Parameters for Installation of Hummingbird on an Existing Siebel Server” on page 42](#) for information on viewing and modifying the Search Parameters. You perform these modifications through the server administration screens for a server, and through the `.cfg` file for sample searching.

Are there multiple application servers pointing to a single Search Server?

Search administration must be done by pointing directly to the application server residing with the Search Server itself. If you point to another application server, then you will not be able to administer Siebel Search.

When using Resonate, be careful to connect to the correct Siebel server.

Did you create indices after opening up Search Center, or after doing a search during the current session?

When the Search Center is first opened in a server session, or a search view is displayed in the customer applications, the list of available search indices information is cached for all users. This means that any new indices created during the current session will not show up in this session, or in subsequent sessions. To refresh the cache it is important to connect to each Siebel server directly. Go to the Search Administration - Search Indices view, and choose the Reload Categories menu item from the top applet. This will reload the new list of available indices for that server. The servers do not have to be restarted. Simply opening a new session will show the new list of search categories.

How to check. After restarting the server and clients, you will now see the indices.

Is your stop file setting pointing to the correct Hummingbird location?

When indexing, a file called a stop file is used to eliminate unnecessary words. The location of this stop file is in `\Fulcrum_Root\fultext\fultext.stp`. This value must be set for the stop file location in the Search Index Settings view.

How to check. Go to the Search administration screens and the Search Index Settings view. There is a setting called Stop File that should point to the actual location of the stop file. For mobile client administration, copy the stop file to the index folder, and change the setting to the name of the stop file.

Is the file system set up correctly?

Building an index is dependent on the file system. Problems with the file system may cause errors when indexing.

How to check. Go to the Resolution Documents Administration view, and try to open files and save new files to your Siebel application. You should not receive any errors.

Are you trying to index from the sample database?

Only data in databases connected to a server by ODBC connectors can be used to build new indices. If you try to index while pointing to the sample database, you will create new indices with zero records in them.

How to check. When you are indexing from the search administration view, you will see a result of zero (0) records indexed.

Visibility Troubleshooting

This topic lists frequently asked questions on visibility.

Are the records you are indexing related to categories?

Most search categories are set up to apply access catalog category visibility. If a record is found when indexing that is not associated with any category, then it will not be indexed.

Catalog categories need to be active and should have valid Start and End dates.

How to check. Go to the Administration Screen for the record being indexed (for example, Solution Administration), and check whether the records are associated with categories. If not, two things must happen. The records must be associated with categories, then the index must be recreated or refreshed. You may also modify the search category to remove the access group visibility. See [“Indexing Fields to Enforce Catalog Category Visibility” on page 79](#) for information on modifying visibility for a search index.

Do you get zero records for one search category while other search categories return records?

If no records show up for any index, then this may be because none of the indices contain any records.

You may also have incorrect Advanced Search Settings. The settings to look for are Character Set and Term Generator:

- In SearchServer, the character set should always be UTF8.

- If a linguistic filter is specified in the Term Generator property, make sure that the SPELL option is not specified. This has been deprecated in Search Server 5.3, but was supported in 4.0. For example, word!ftelp/inflect/spell must be changed to just word!ftelp/inflect

How to check. Choose a search category and search for asterisk (*). You should get a full list of all records available in the index. You can also check in the search administration view whether each search index contains any records.

Is the Search Filter specification eliminating the records you expect to see?

Search categories often have search specifications applied to them as part of their Siebel Tools definition. These search specifications will filter out records from results if they do not meet the required search specification.

How to check. First perform an Index Refresh operation, as any modified records that have not been refreshed in the indices, may be filtered out.

If the expected records are still not being displayed, open Siebel Tools, and go to the Search Engine > Search Definition > Search Definition Category to see if there is a search specification. Compare this specification to the records you were expecting to see as search results. Also, you will need to perform an Index Refresh operation to display any new or modified records.

Why is index generation taking so long?

Requirements. Make sure that the index setting Log Control is not set. It is important that the logging level be only what is required for problem solving (remove this setting if no problems are encountered). This is because excessive logging reduces database text reader performance and may consume considerable disk space.

How to check. The .dil files generated for each index operation will be small (a few kilobytes).

Why do search categories not show up when connecting remotely to a search server using a client connector?

It is important to make sure that both the Hummingbird Connect Manager and Hummingbird Connector services are started. Also the account used to log on to the service must be a valid user/system account with the proper rights set. It is also important to make sure that the directories specified in the FULTEMP and FULCREATE variables in the client connector have read/write access. Search Server writes to these directories. See the Planning and Installation Guide of the Search Server Documentation for more details.

How to check. To verify that the server and client are configured properly, run ExecSQL and execute the script tbls.ftc. This file comes with the Search Server installation. This script will list each table found on the local node by path, followed by the names of each remote node and their respective tables.

NOTE: ExecSQL is a command line utility that you can use to execute SearchSQL statements and run scripts. See the Data Preparation and Administration Guide of the Search Server documentation for more information on using this utility.

Hummingbird Client Connector Troubleshooting

This topic lists frequently asked questions on the Hummingbird client connector.

When can I start and stop the client connector?

By starting a client server, you enable communication between the client and the server. Stopping a client connection not only prevents a client connector from listening for new client connections, it also stops all currently connected clients. You have to stop the client connector prior to making modifications to it. For example, the client connector must not be running if you want to make changes to the connection security option of the connector or Startup type of the connector.

For instructions on how to troubleshoot the client connector, see [“Hummingbird Client Connector Troubleshooting” on page 136](#).

The following tasks illustrate how to stop and start the Hummingbird Client Connector.

To start a client connector

- 1 On the Start menu, click Programs/Hummingbird/Search Server <version>/Hummingbird Connector Manager.
- 2 In the Hummingbird Server Service Setup dialog box, click Start.

To stop a client connector

- 1 In the Hummingbird Server Service Setup dialog box, click Stop.
- 2 You will be prompted to confirm this action.
- 3 Click OK.

Using the Verbose Parameter

By default, there is very little information added to the index log following a VALIDATE INDEX. If you had problems and want to track them more thoroughly in the log file, you must use the VERBOSE parameter with the VALIDATE INDEX request in the .DID file and run manually, using ExecSql.

Example

```
VALIDATE INDEX FUL_SOLN VERBOSE VALIDATE TABLE;
```

SQL Troubleshooting

This topic lists frequently asked questions on the SQL generated by the Siebel Object Manager.

Is it possible to see the SQL sent to the Fulcrum search engine from the Siebel Search Center?

From Siebel 7.0.5 and 7.5.3 onward, it is possible to see the SQL generated by the Siebel Object Manager to be sent to the Fulcrum Search Engine by setting the 'Generic Log' event parameter. This can be set either using the `srvrmgr` command line or the Administration - Server Configuration screen.

To use the `srvrmgr` command line

- `change evtloglvl genericlog=4 for comp <Comp_Alias_Name>`

To use the Server Administration screen

- 1 Navigate to Administration - Server Configuration.
- 2 Select the object manager and set the 'Generic Log' event parameter to equal 4.

There is no requirement to restart the Siebel server in order to have the change in the event parameters picked up, the user must simply start a new session connecting to the object manager. The log file where this SQL will be generated to is the object manager log file in the Siebel server log directory. For an example, see ["Example of SQL generated in the object manager log file" on page 137](#).

Example of SQL generated in the object manager log file

GenericLog GenericDetail 4 2003-12-12 12:36:49 Siebel Search: Executing search. The select statement is

```
SELECT
    ROW_ID, SUMMARY, FILE_NAME, FT_DNAME, REVNUM, VIS_ID,
    TEXT_READER, FT_TEXT_STATUS, TABLENAME(), Rel evance(),
    FT_ORIGINAL_SIZE,
    FULLNAME(), VIS_INFO, DESCRIPTION, PRIVATE_FLG, TITLE, VERSION
FROM "FUL_LIT"

WHERE
    (FUL_LIT.VIS_ID IN ('0-3P1KT') AND
    (FUL_LIT.SALES_TOOL_TYPE <> 'Component') AND
    (FUL_LIT.SUMMARY CONTAINS ~ 'null' OR
    FUL_LIT.EXTERNAL_TEXT CONTAINS ~ 'null' ))

ORDER BY 10 DESC
```


C

Syntax for Filter Search Specifications

This appendix lists the syntax requirements for filtering Search within Siebel Search. Topics include the following:

- [“Filter Search Specification Syntax” on page 139](#)

Filter Search Specification Syntax

This section describes the supported syntax elements for filter search specifications. The filter search specification is parsed based on the validation rules determined by SearchServer for searching on unstructured text. For more information, see the Hummingbird Search SQL Reference Guide of the SearchServer.

Precedence

Precedence refers to the order in which the SearchServer evaluates the various search operators within the filter search query specification. [Table 39](#) shows the levels of precedence. SearchServer follows the standard rules of precedence. Expressions within parentheses are evaluated first. Using parentheses can alter the order of precedence within an expression.

Oracle’s Siebel Business Applications evaluate the expression within the parentheses first, before evaluating the expression outside.

Table 39. Level of Precedence

Level	Operator
1	()
2	NOT
3	AND
4	OR

Comparison Operators

Table 40 describes the purpose of each comparison operator, and gives an example of how it is used.

Table 40. Comparison Operators

Operator	Purpose	Example
=	Equality Text	[Publish External] = "Y"
<>	Inequality text	[Role] <> LookupValue ("ROLE_TYPE", "Manager")
>	Greater than	[Start Date] > Today()
<	Less than	[End Date] < Today() + 4
>=	Greater than or equal to	[Start Date] >= Today()
<=	Less than or equal to	[End Date] <= Today() - 4

NOTE: The last four operators are used only for Date fields.

Logical Operators

Table 41 explains what a value of TRUE or FALSE means for each logical operator.

Table 41. Logical Operators

Operator	Returns TRUE	Returns FALSE
AND	If all component conditions evaluate to TRUE	If any component condition evaluates to FALSE
OR	If any component condition evaluates to TRUE	If all component conditions evaluate to FALSE

Pattern Matching with LIKE and NOT LIKE

The LIKE operator is used in character string comparisons with pattern matching.

The syntax is as follows:

char1 LIKE *char2*

where:

- *char1* is the value to be compared with the pattern.
- *char2* is the pattern to which *char1* is compared. The NOT logical operator can be used in conjunction with LIKE to exclude patterns.

The syntax including the NOT logical operator is one of the following:

char1 NOT LIKE *char2*

NOT (*char1* LIKE *char2*)

While the equal (=) operator does exact matching, the LIKE operator matches a portion of one character value to another. Patterns can use special characters to denote different characters. These characters are given in [Table 42](#).

Table 42. Pattern Matching Using Special Characters

Character	Purpose	Example
*	Zero or more characters	[Sales Type] LIKE Sales* returns all records whose [Sales Type] value starts with the characters Sales, as in Sales-Brochure, Sales-Presentation, and so on.
?	One character	[Sales Type] NOT LIKE Sale? returns all records whose [Sales Type] value was five characters long, and did not start with the letters Sales. Records with the word Sales would not be returned.

Functions in Calculation Expressions

Functions that can be used in the filter search specification are listed in [Table 43](#).

Table 43. Functions That May Be Used in Filter Search Specifications

Character	Purpose	Example
GetProfileAttr ("[Attribute]")	String	Returns the value stored in the profile attribute if that attribute has been defined. Used in personalization to retrieve values of attributes in a user profile and to pass information from a script to the UI. Set a session-specific personalization attribute equal to the value of the shared global, and reference the personalization attribute in a calculated field. NOTE: For an undefined attribute or for an attribute that has not been set up, GetProfileAttr returns NULL. Search Server does not support NULL values in the query.
LookupValue (type, lang_ind_code)	String	Finds a row in S_LST_OF_VAL table where the TYPE column matches the type argument, the CODE column matches the lang_ind_code argument, and the LANG_ID column matches the language code of the currently active language. Returns the display value (the VAL column) for the row. This function is used to obtain the translation of the specified untranslated value in the specified LOV into the currently active language.
Today	Date	Today's date (for example, 6/30/04).
GetValidCatalogCategories()	String	Returns a list of valid catalog categories for the current logged in user.

Filter Search Specification

Assigning a search expression to an object definition's Search Specification property is similar to the predefined query's expression; however, identifying the business component and specifying the reserved word Search is not required.

NOTE: The Search Specification expression must be on one line. If more than one line is used the search specification may not get processed correctly.

Examples of the Filter Search Specification

- [Close Date] > "04/15/95"
- [Sales Tool Type] LIKE "Cal*"

- [Start Date] >= Today () AND [End Date] <= Today() + 100
- [Solution Type] = LookupValue ("SOLUTION_TYPE", "Solution") AND ([Publish External] = "Y"
- [PriceListId]=GetProfileAttr("DefaultPriceListId")

NOTE: For date formats in filter Search Specification, use the business component format. To reference a field value, you must use [Filter Field Name]. Also, string constants must be enclosed in double quotation marks ("string").

In the preceding examples, the fields declared must exist within the designated search filter field object definition. Some special fields that can be used are the ID field.

Filter Searches from the User Interface

The syntax is slightly different for searches on filter fields that you do from the user interface. Only single values are accepted and logical operators are not supported.

Example

- > '12/12/01'
- "Sales*"

Filter Search Specification Syntax in Backus-Naur Format

Users can perform filter searching through the user interface controls (exposed through a special filter applet), or specified in the filter search Specification property of the Search Definition category. The syntax is slightly different when done through the user interface, but in all cases the syntax is simple BNF (Backus-Naur Format).

Examples

Search Statement

- : condition
 - : expression
- condition
- : comparison
 - : condition [AND | OR] condition
- comparison
- : expression [= | < | > | <= | >= | [NOT] LIKE] expression
- expression
- : constant

■ : identifier

■ : function

constant

■ : string (double quoted)

■ : date (double quoted) "MM/DD/YY" (separator must be a forward slash/)

identifier

■ : [filter field name]

NOTE: Searches on filter fields from the UI do not support the logical operators AND or OR.

Index

- A**
- access control visibility**
 - about 27
 - indexing fields to enforce 79
 - administration**
 - See also* search execution settings
 - cached list of categories, resetting 106
 - Fulcrum stop file setting, about 102
 - Fulcrum stop file setting, changing under Windows 103
 - index settings, about and creating 100
 - normalization setting, about 100
 - normalization setting, creating 101
 - preadministration checklist 97
 - search indexes, indexing 105
 - search indexes, refreshing 106
 - search indexes, refreshing all indexes 106
 - search indexes, working with 105
 - Siebel Search, about 23
 - text reader setting, changing 104
 - transaction table settings, changing 102
 - transaction table settings, table of 101
 - UNIX, FTE and DID scripts, creating 111
 - UNIX, indexing external documents 115
 - UNIX, refreshing indices 113
 - UNIX, working with resolution documents and literature 114
 - Advanced Search**
 - link, about using 15
 - advanced Search License. *See* Search License, advanced**
 - algorithms, about ranking algorithms used in Siebel Search 28**
 - application find objects, table of 74**
 - attachments**
 - indexing 83
 - rules and assumptions 83
- B**
- binocular icon, using to open Search Center 15**
 - Boolean operators**
 - advanced search, about 13
 - basic search, about 12
 - Fuzzy Boolean retrieval model, about 122
 - Strict Boolean retrieval model, about 122
- C**
- configuring Siebel Search, about 23**
 - connectives, table of connectives and search operators 16**
 - customer applications, accessing Siebel Search and performing search 15**
- D**
- DID and FTE scripts, creating 111**
- E**
- exact match setting, administering 120**
 - external documents, indexing under UNIX 115**
- F**
- file attachments**
 - indexing 83
 - rules and assumptions 83
 - filter fields**
 - creating, procedure 92
 - filter visibility for search, about 27**
 - Find Field Locale object properties, table of 77**
 - Find Field object**
 - properties, table of 75
 - rules and assumptions 75
 - Find Locale object properties, table of 77**
 - Find objects**
 - See also* Siebel Tools
 - application find objects, table of 74
 - described 24
 - Find Field Locale object properties, table of 77
 - Find Field object properties, rules and assumptions 75
 - Find Field object properties, table of 75
 - Find Locale object properties, table of 77
 - Find Pick View object properties, table of 77
 - Find view object, about 76
 - Find view object, properties 76
 - properties, table of 73
 - Siebel Tools object and their relationships, diagram 72
 - Siebel Tools object for find, about 71

Find operation, differences between Search and Find 25**Find view objects**

- about 76
- properties 76

FTE and DID scripts, creating 111**Fulcrum**

- See also* Fulcrum SearchServer; Siebel environment variables
- basic setup troubleshooting 132
- character set, changing under UNIX 104
- Client Connector, setting example 130
- installation license keys, table of 50
- setup troubleshooting key, table 131
- stop file setting, about 102
- stop file setting, changing under Windows 103
- text reader license keys, table of 50
- visibility, troubleshooting 134

Fulcrum SearchServer

- See also* Fulcrum
- hardware requirements 23
- UNIX, before installing 49
- UNIX, installing under 50
- Windows, before installing on 37
- Windows, creating a client connector 46
- Windows, installing Fulcrum 4.0 40
- Windows, removing Fulcrum 38

Fuzzy Boolean, relevance method setting 122**H****help**

- Fulcrum basic setup troubleshooting 132
- Fulcrum setup troubleshooting key, table 131
- Fulcrum visibility, troubleshooting 134

I**Index Field Map objects**

- defining 78
- properties, table of 79

index settings

- See also* indexes
- creating 100
- Fulcrum stop file setting, about 102
- Fulcrum stop file setting, changing under Windows 103
- normalization setting, about 100
- normalization setting, creating 101
- text reader setting, changing 104
- transaction table setting, changing 102
- transaction table settings, table of 101

indexes

- See also* index settings
- cache list of categories, resetting 106
- refreshing all indexes 106
- refreshing an index 106
- search indexes, indexing 105
- UNIX, creating FTE and DID scripts 111
- UNIX, refreshing 113
- working with, about 105

installation

- See also* windows, installing on

J**Japanese language**

- text reader setting, changing 104

L**Linguistic Searching, about** 14**M****max exec time setting, administering** 117**max search rows setting, administering** 117**mobile Web clients**

- setup, process overview 22
- Windows, setting up 47

multi organizational access control, about 27**multiple term searches, about** 13**N****normalization setting**

- about 100
- creating 101

NOT operator, about using to limit query results 17**O****operators**

- connective and search operators, table of 16
- NOT operator, about using to limit query results 17

Oracle database

- Windows Siebel Server, setting up ODBC data source 41

organizational visibility

- indexing fields to enforce 81
- view, about 26

P**parameters**

Siebel Search, about 42
 Siebel Search, table of 44
 Siebel Search, viewing or modifying 44
 thesaurus, table of 126

phase searches, about 13

pick views
 creating 87
 creating, about 87
 properties, table of 87

Position visibility view, about 26, 27

preinstallation checklist
 UNIX 50
 Windows install 38

preview views
 creating 88
 creating, about 88

proximity searches
 about 14
 setting, administering 121

Q

queries, table of search query examples 18

R

ranking algorithm, about 28

records, about determining display of 26

relevance method setting
 administering 122
 relevance ranking options, table of 122

Remote Search Server, setting example 130

remote searching
 Siebel Server, setting up for 45
 UNIX, configuring Siebel Server for 55

resolution documents, working with under UNIX 114

Result fields
 custom fields, about creating 89
 custom fields, creating (procedure) 90
 custom fields, properties (table) 90
 new fields, adding 88
 new fields, rules and assumptions 88

retrieval types. See searching

S

Search box, about using 15

search categories
 new search definition, associating with 86
 properties, table of 85
 rules and assumptions 84

Search Center, described 15

Search Definition object, about and rule and

assumptions 71

search engine
See also search indexes; Siebel Tools; Search Engine Results fields
 Search Engine object, properties 67
 Search Result Field object, about 68
 Search Result Field object, properties 68
 Search Result Field object, rules and assumptions 68

Search Engine Results fields
See also search engine
 custom fields, about creating 89
 custom fields, creating (procedure) 90
 custom fields, properties (table) 90
 new field, adding 88
 new field, rules and assumptions 88

search execution settings
See also administration; search execution settings, advanced
 about and diagram 115
 max exec time setting, administering 117
 max search rows setting, administering 117
 search term separator setting, administering 118

search execution settings, advanced
See also administration; search execution settings
 about 119
 exact match setting, administering 120
 proximity search setting, administering 121
 relevance method setting, administering 122
 relevance ranking options, table of 122
 term generator setting, administering 123
 thesaurus filename setting, administering 125
 thesaurus option setting, administering 125

Search Index object, rules and assumptions 69

search indexes
See also search engine; search categories; Siebel Tools
 about 23
 access control visibility, indexing fields to enforce 79
 cached list of categories, resetting 106
 file attachments, indexing 83
 file attachments, rules and assumptions 83
 index, refreshing 106
 indexes, refreshing all 106

- indexing 105
 - organizational visibility, indexing fields to enforce 81
 - properties, table of 70
 - Search Index object, rules and assumptions 69
 - search tables, defining Index Field Maps 78
 - search tables, Index Field Maps, properties (table) 79
 - search tables, properties (table of) 71
 - search tables, rules and assumptions 70
 - working with, about 105
 - Search License, advanced**
 - about 119
 - exact match setting, administering 120
 - proximity search setting, administering 121
 - relevance method setting, administering 122
 - relevance ranking options, table of 122
 - term generator setting, administering 123
 - thesaurus filename setting, administering 125
 - thesaurus option setting, administering 125
 - Search object, described** 24
 - search operations, advanced**
 - filter field, creating (procedure) 92
 - pick views, about creating 87
 - pick views, creating 87
 - pick views, properties (table) 87
 - preview views, about creating 88
 - preview views, creating 88
 - search categories, associating to new search definition 86
 - Search Result Field object**
 - about 68
 - properties, table of 68
 - rules and assumptions 68
 - search server**
 - configuration, setting example 130
 - Siebel Server, configuring under UNIX 54
 - search tables**
 - Index Field Map, defining 78
 - Index Field Map, properties (table) 79
 - properties, table of 71
 - rules and assumptions 70
 - search term generator options, table of** 124
 - search term separator setting, administering** 118
 - searching**
 - Find operation, difference between 25
 - operators and connectives for Siebel Search 16
 - queries, search query examples (table) 18
 - retrieval type, advanced search 13
 - retrieval type, basic search 12
 - search techniques, advanced search 14
 - search techniques, basic search 12
 - search term separator, setting default 118
 - server**
 - multiple server, process setup overview 22
 - setup process overview 22
 - setup**
 - process overview and architecture diagram 21
 - Siebel environment variables**
 - about 129
 - examples 130
 - table of 129
 - Siebel Search**
 - about 11
 - common end-user tasks, list of 15
 - configuring and administering, about 23
 - customer applications, accessing and performing search 15
 - operators and connectives, table of 16
 - parameters, about 42
 - parameters, table of 44
 - parameters, viewing or modifying 44
 - predefined search specifications. about 27
 - Siebel Server**
 - See also* Oracle database
 - remote searching, setting up for 45
 - UNIX, configuring as search server 54
 - UNIX, configuring for remote searching 55
 - Windows, configuring under 41
 - Siebel Tools**
 - See also* Find objects; search engine; search indexes
 - Find object, described 24
 - preconfiguration checklist 65
 - Search object, described 24
 - search objects (diagram) 66
 - single term searches, about** 12
 - special character searches, about** 13
 - spell checking, about** 15
 - stop file setting, about** 102
 - Strict Boolean, relevance method setting** 122
 - Synonym Searching, about** 14
- T**
- table, setting maximum number of rows included** 117

Team visibility view, about 26
term generator setting, administering 123
text reader setting, changing 104
thesaurus
 filename setting, administering 125
 option setting, administering 125
 parameters, table of 126
transaction table settings
 changing 102
 table of 101
troubleshooting
 Fulcrum setup troubleshooting key,
 table 131
 Fulcrum visibility 134
 Fulcrum, basic setup 132

U

UNIX

external documents, indexing 115
 FTE and DID scripts, creating 111
 Fulcrum character set, changing 104
 Fulcrum SearchServer, before installing 49
 Fulcrum SearchServer, installing under 50
 Fulcrum stop file location, about
 changing 104
 indices, refreshing 113
 preadministration checklist 97
 preinstallation checklist 50
 resolution documents and literature, working
 with 114
 Siebel environment variables, about 129
 Siebel environment variables,
 examples 130
 Siebel environment variables, table of 129
 Siebel Server, configuring as search
 server 54
 Siebel Server, configuring for remote
 searching 55

V

**Vector Space. relevance method
 setting** 122

visibility

access control, indexing fields to
 enforce 79
 defined 26
 filter visibility for search 27
 Find operations, controls 26
 organizational visibility, indexing fields to
 enforce 81
 Search, controls 27
 troubleshooting 134

W

Web client, process setup overview 22

wildcard searches, about 13

Windows

Fulcrum stop file location, changing 103
 preadministration checklist 97
 Siebel environment variables, about 129
 Siebel environment variables,
 examples 130
 Siebel environment variables, table of 129
 transaction table settings 102

Windows, installing on

Fulcrum SearchServer 4.0, installing 40
 Fulcrum SearchServer, before installing 37
 mobile Web client, setting up 47
 Oracle database. setting up ODBC data
 source 41
 preinstallation checklist 38
 remote search, setting up Siebel Server
 for 45
 Siebel Server, configuring 41
 upgrade notes, removing Fulcrum 38

