SIEBEL 7
eBusiness

SIEBEL SEARCH ADMINISTRATION GUIDE

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Siebel Systems, Inc., 2207 Bridgepointe Parkway, San Mateo, CA 94404

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Introduction

This guide provides an overview of Siebel Search and it is written from an employee and customer perspective. The primary focus of this guide is to provide configuration and administration instructions to allow you to set up Siebel Search on your Siebel application.

This book will be useful primarily to people whose title or job description matches one of the following:

Call Center Administrators	Persons responsible for setting up and maintaining a call center. Duties include designing and managing Computer Telephony Integration (CTI), SmartScripts, and message broadcasts.
Database Administrators	Persons who administer the database system, including data loading, system monitoring, backup and recovery, space allocation and sizing, and user account management.
Siebel Application Administrators	Persons responsible for planning, setting up, and maintaining Siebel applications.
Siebel Application Developers	Persons who plan, implement, and configure Siebel applications, possibly adding new functionality.
Siebel System Administrators	Persons responsible for the whole system, including installing, maintaining, and upgrading Siebel applications.

How This Guide Is Organized

This guide provides information necessary to implement, configure, and administer Siebel Search in your Siebel application.

Chapter 1, "About Siebel Search," provides an overview of Siebel Search functionality, including a list of common search operators and connectives.

Chapter 2, "The User Experience," provides an overview of Siebel Search from the user's point of view.

Chapter 3, "Overview of Search Setup and Maintenance," provides a conceptual overview of setup and maintenance of Siebel Search.

Chapter 4, "Installing Siebel Search Under Windows," provides instructions on setup of Siebel Search on Windows and UNIX environments.

Chapter 6, "Siebel Search Configuration Using Siebel Tools," provides instructions on configuring Search for your Siebel application using Siebel Tools.

Chapter 7, "Administration of Siebel Search," provides instructions on administering and maintaining your search indices.

Appendix A, "Siebel Search Environmental Variables," provides a list of environmental variables and search parameters.

Appendix B, "Troubleshooting," provides a list of common problems and troubleshooting solutions.

Appendix C, "Syntax For Filter Search Specifications," provides a list of filter search specification syntaxes.

Revision History

Siebel Search Administration Guide

July 2003 Bookshelf

Book Version: 7.5.3

Table 1. Changes Made in 7.5.3 for July 2003 Bookshelf

Topic	Revision
"Search Administration Overview" on page 104	New to 7.5.3: Added new topic.
"Testing Your Workflow Process" on page 118	New to 7.5.3: Added new topic.
"Verifying the Index and Refresh Process" on page 118	Revised for 7.5.3: Revised this topic.
"Uploading Index Files to the Server Database and File System" on page 119	New to 7.5.3: Added new topic.
"Synchronizing Indices on the Mobile Web Client" on page 120	Revised for 7.5.3: Revised this topic.
"Character Set Execution Setting" on page 128	New to 7.5.3: Added new topic.

January 2003 Bookshelf

Book Version: Rev A

Table 2. Changes Made in Rev. A for January 2003 Bookshelf

Topic	Revision
"Installing Hummingbird SearchServer 5.0 Under Windows"	Added further information on setup of search on Siebel server.
"Setting Up Employee or Partner Users"	Incomplete topic. Added more required views.

Table 2. Changes Made in Rev. A for January 2003 Bookshelf

Topic	Revision
Chapter 5, "Installing Siebel Search Under UNIX"	Added install information throughout for HP-UX.
"Creating a DataDirect ODBC Datasource Under UNIX"	■ Changes made throughout to reflect new datasource parameter entries for AIX, Solaris, and HP-UX. ■ Added entry for users of DB2 with OS 390.
"Creating a Hummingbird Client Connector Under UNIX"	Added new topic.
"Indexing Fields to Enforce Catalog Category Visibility"	Added two notes, further clarifying this topic.
"Creating Preview Views"	Added not specifying applet type in Tools that needs to be used to create a preview view.
"Text Reader Setting"	Added information further clarifying this topic.

About Siebel Search 1

Siebel Search is a text-retrieval tool that allows Siebel eBusiness Applications users to perform full-text searches across Siebel records and files found inside and outside the Siebel application structure. Users of the Search Center, an intuitive user interface, can perform complex searches from anywhere within their employee and partner Siebel eBusiness Application. Search results are ordered by relevancy and sorted according to rank. Personalized visibility rules can be applied to search results so each user will only view 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 their native application.

Siebel Search is included with every license for Siebel eBusiness 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.

NOTE: Certain Hummingbird products (Hummingbird Search Server) are included in the Siebel Search product. A license to these Hummingbird products is included with every license of the Siebel Search. Siebel eBusiness Applications use license key numbers to allow your organization to access the products you have licensed. We are providing you with 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 Siebel Systems, Inc. Software programs and documentation are Siebel "Confidential Information" and should be treated as such in accordance with applicable terms of your company's license agreement with Siebel. The license keys for Hummingbird found in this guide have been generated for you. Your company's license agreement with Siebel Systems, Inc. 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.

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 1 on page 22 for a list of search operators and connective terms.

Basic Search Retrieval Type

Basic Siebel Search supports basic Boolean settings. For more information on Basic Search settings see “Search Execution Settings” on page 128.

Boolean Operators

A basic search license allows you to perform searches using the strict Boolean retrieval model. The strict Boolean retrieval model offers very precise control over what is retrieved during a search. This model will exclude desired 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 degree to which a match is found—all matches must be exact.

For example: performing a search for Computers AND Monitors would make sure that only documents or database records containing both words would be retrieved.

For a list of Boolean operators see “Search Operators and Connectives” on page 22.

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 128.

Single Term Searches

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 which contain the word computer will be returned.

Multiple Terms Searches

This search technique allows you to enter two or more keywords with spaces. Here the default Search Term Separator is assumed to be OR.

For example: If you enter the text *computer windows server*, it will translate, when you run the search, as *computer OR windows OR server*. The returned results will 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 will contain all search terms.

For a list of multiple term search terms see "Search Query Examples" on page 24.

For information on how to change or set the default search term separator see "Search Execution Settings" on page 128.

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 will be 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 will return 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 24.

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 would return matches to online, on;line, on.line, on line, on-line, and so on.

For a list of special characters see "Search Operators and Connectives" on page 22.

Advanced Search Retrieval Techniques

Siebel Advanced Search (products separately licensed with both Siebel Search and Siebel Search for customer applications) 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 Types

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 7, "Administration of Siebel Search."

The Advanced Search Retrieval Techniques are introduced below.

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 7, "Administration of Siebel Search."

The Advanced Search Techniques are listed below.

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.

- 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.fts file. For instructions on how to create a thesaurus, see the Hummingbird documentation on the *Siebel eBusiness Third-Party Bookshelf*.

For example: If you enter [computer], surrounded by square brackets ([]) the results returned will be all 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 133.

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 nearby each other and not at opposite ends of a long document

For example: If you enter *excel near project* the returned results will 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 133.

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 would 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 133.

Approximate Searching

This technique is similar to spell checking in that slightly misspelled or misentered terms may still return the appropriate hit. 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.

2 The User Experience

The user experience of Siebel Search varies from that of the employee or partner and that of the 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 query entry values are persistent when the results are presented to allow users to understand what has been queried upon 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.

The Search Center frame is opened by clicking on the binocular icon and can be invoked from anywhere in the Siebel application. There is a hide button, as well as a close button. Closing the Search Center window returns users 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 user can perform a search. The user may enter a full-text query in the Search box, or the user may click the Advanced Search link, and perform a search against single or multiple categories.

Common End-User Tasks

Tasks commonly performed in Siebel Search are listed below. For information on administering listed search settings see "Administration of Siebel Search" on page 103.

- Search using keywords. The user can search against 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 which 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" on page 22.
- Searching on multiple categories with one search. When performing an advanced search, the user may choose from a number of categories listed in the 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.
- Changing the search settings used during a search. Searches can be constantly refined and changed.
- Searching for external documents. Documents outside the Siebel file system can be searched upon and retrieved.
- Applying synonym searching using the user-defined thesaurus. The user-defined thesaurus can be applied by placing brackets ([]) around any term.
- Drilling into a search result. Search results can be presented in the form of links which 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.
- Attaching a search result to a selected record in the Search Center window (Search Center only).

  Invoking the Attach feature allows a user to attach database records to the selected parent record in the Search Center window.

- Launch a SmartScript from the Search Center.
- Setting the Customer Dashboard. Employees can set the values in the selected search result into the open dashboard. (Search Center only).

Search Operators and Connectives

In addition to AND and OR, and their symbolic equivalents & and |, Siebel Search can accept other operators, which are summarized below in Table 1.

Table 1. Search Operators and Connectives

Operators and Connectives	Effect
AND, and, &	Placed between terms, returns only items containing both terms.
OR, or, |	Placed between terms, returns items containing either term or both terms.
*	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.
?	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.
“”	Surrounds a string that, unless modified by a wildcard, must be matched exactly; allows searching for groups of words in their exact order.
()	Orders that the terms and operators surrounded by the parentheses be processed first, regardless of the default processing order.
NEAR, near	Orders 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.
[]	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.

Table 1. Search Operators and Connectives

Operators and Connectives	Effect
-	The hyphen character is treated as an optional punctuation character. The non hyphenated forms include spaces or anything that is interpreted as a punctuation character in Fulcrum.
\	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.

NOTE: The NOT operator used between two query terms can be used to limit the results in a query to records which 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 which satisfy the search criteria for both the name and summary fields.

Search Queries

Table 2 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 your 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 these special characters are used, advanced features like synonym searching and approximate searching will not be applied to searches.

For instructions on administering these settings, see Chapter 7, "Administration of Siebel Search."

Table 2. 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 *performance* and *memory*
&	AND query	`performance & memory`	N/A	Contain both *performance* and *memory*
OR	OR query	`performance OR memory`	N/A	Contain either *performance* or *memory*
|	OR query	`performance | memory`	N/A	Contain either *performance* or *memory*
""	Phrase query	`"memory performance"`	N/A	Contain the entire phrase, *memory performance*
		`memory performance`	AND	Contain both *performance* and *memory*
		`memory performance`	OR	Contain either *performance* or *memory*
"" ""	Multiple phrases	`"Microsoft Windows" "Sun Solaris"`	AND	Contain both *Microsoft Windows* and *Sun Solaris*
"" ""	Multiple phrases	`"Microsoft Windows" "Sun Solaris"`	OR	Contain either *Microsoft Windows* or *Sun Solaris*
?	Wildcard	`operate?`	N/A	Contain *operates* or *operated,* but not *operate*
?	Wildcard	`?rag`	N/A	Contain *brag, crag, drag,* or *frag*

Table 2. Search Query Examples

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

Overview of Search Setup and Maintenance 3

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 should physically be located on this machine. Searches done from the Web client can be done directly on the URL corresponding to the Search server or through another Siebel Server. In this case, the Siebel Server would pass 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 onto a local machine. In this case, Hummingbird is required to be installed on the Mobile Web client to enable search execution.

Deployment Overview

Siebel Search can be deployed in one or a combination of three ways. Figure 1 displays each of these scenarios. An overview of the tasks required to implement each of these search scenarios follows.

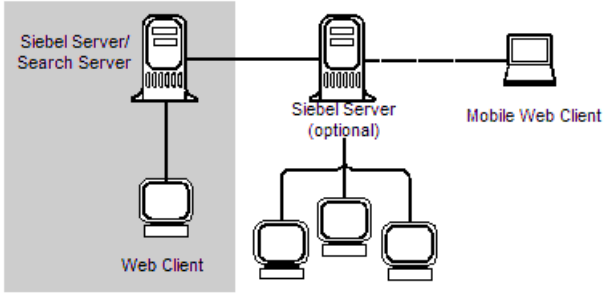

Figure 1. Siebel Search Architecture

Single Server and Web Client. A Search server consists of a Hummingbird installation and a Siebel Server. This server is used to create and administer indices. You must have at least one Search server installation for a Siebel Search rollout to work. This installation scenario is the basis for all others which follow.

- Install Hummingbird SearchServer onto a designated Siebel Server machine.
- Install Siebel Server software onto the Siebel Server machine.

Multiple Server and Web Client. A Siebel Server connected to a designated Search Server with a client connector.

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

- Install Siebel Server software onto additional enterprise machines.
- Install Hummingbird client connector onto the designated Search Server machine.

Mobile Web Client. A mobile client which synchronizes with a Siebel Server to obtain updated search indices.

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 onto the mobile client machine.
- Make sure that the mobile clients have connectivity to a Siebel Server.

Installation and Setup Overview

The concepts and methodology for setting up Siebel Search on your system are discussed in this chapter. You must follow the procedures in order to properly set up Siebel Search on your system. These steps are listed below.

1 Uninstall previous versions of Hummingbird SearchServer software (Windows only).

   Siebel Search 7 integrates with Hummingbird SearchServer 5.0. You must uninstall all previous versions of Hummingbird SearchServer software. See "Upgrade Notes for Windows Users" on page 39 for instructions.

2 Install Hummingbird SearchServer.

   This installation must take place on a designated Siebel Server machine. You must install Hummingbird before installing any Siebel Server software. Depending on your platform, see "Installing Hummingbird SearchServer 5.0 Under Windows" on page 41 or "Installing Hummingbird SearchServer 5.0 Under UNIX" on page 53 for installation instructions.

NOTE: If you are enabling Siebel Search capabilities for mobile clients, each mobile client machine must have Hummingbird software installed.

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3 Install Siebel Server software.

   You must install Siebel Server software on the same machine where Hummingbird was installed. This machine is your search server. Indices will be created and maintained on this machine. See "Configuring Siebel Server as a Search Server Under Windows" on page 43 or "Configuring Siebel Server as a Search Server Under UNIX" on page 56 depending on your platform.

   a Set up an ODBC data source (Windows users with Oracle database).

      You must create an ODBC data source to create search indices when using Windows with an Oracle database. See "Additional Steps for Oracle Database Users Under Windows" on page 43.

   b Set up DataDirect drivers (UNIX only).

      Hummingbird's Database Text Reader uses Merant's UNIX-based DataDirect ODBC driver. There are a number of configuration steps for setting up and configuring an OpenLink client. See "Search Server Environment Variable Settings" on page 60 for instructions.

4 Install a Hummingbird client connector (For Remote Searching only).

   The client connector gives users access to Hummingbird search capabilities from another machine. To enable remote searching, you must install a client connector on the machine you have designated as your search server.

   Depending on your platform, see "Creating a Hummingbird Client Connector Under Windows" on page 48, or "Creating a DataDirect ODBC Datasource Under UNIX" on page 61 for instructions on setting up a client connector.

5 Install Hummingbird SearchServer software on each mobile client that will be synchronizing the indices maintained on your search server (Mobile Client only).

   For installation instructions, see "Installing Hummingbird SearchServer 5.0 Under Windows" on page 41.

6 Make sure mobile client machines have access to a Siebel Server to synchronize indices (Mobile Client only).

   For instructions on synchronizing mobile clients with a Siebel Server, see "Setting Up for Mobile Client Searching Under Windows" on page 50.

7 Use Siebel Tools to perform any additional configuration or custom configuration on your search and advanced search operations.

   For instructions on configuring search operations with Siebel Tools, see Chapter 6, "Siebel Search Configuration Using Siebel Tools."

8 Set up search settings and index settings.

   For instructions on setting up search settings and index settings, see Chapter 7, "Administration of Siebel Search."

9 Build and maintain search indices.

   For instructions on building search indices, see Chapter 7, "Administration of Siebel Search."

Hardware Recommendations for Hummingbird SearchServer

Hummingbird SearchServer can be installed on the same server as the Siebel Enterprise Server or the Siebel Database Server. For larger installations, however, it is recommended that SearchServer be installed on a dedicated server, with a minimum of 250 MB of RAM. The CPU and memory resources required for operation of 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 2X the size of the compressed files being indexed.

Configuration and Administration of Siebel Search

Configuration and administration of Siebel Search is performed through Siebel Tools, and through administration screens in your Siebel application.

Find objects are configured solely through Siebel Tools. There are no administration screens for Find.

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 administration actually creates the indices.

For information on Siebel Tools Configuration of Search see Chapter 6, “Siebel Search Configuration Using Siebel Tools.”

For information on Administration of Siebel Search see Chapter 7, “Administration of Siebel Search.”

Introduction to Siebel Tools

Siebel Tools is a declarative software development tool which 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. Tools creates and maintains a custom Siebel Repository (.srf) file to store your custom configurations.

Chapter 6, "Siebel Search Configuration Using Siebel Tools," introduces and explains basic Tools object definitions and outlines advanced configuration tasks which allow you to further customize your application. Below are listed some basic concepts important to an understanding of Siebel Tools configuration of Search.

Find Objects

A Find object definition, which is set up in Siebel Tools, specifies what Find objects and fields will be available when a user invokes a Find operation.

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, the entries will be connected with a Boolean AND.

NOTE: You can enter the operator = before a query term and the engine will look 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 "Siebel Tools Objects for Find" on page 82.

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 such as business component and field to search upon, drill down results views, and records which may be associated with a particular result.

For more information on search objects, including standard and advanced Tools configuration of your Siebel Search operation, see "Siebel Search Configuration Using Siebel Tools" on page 67.

The Differences Between Search and Find Operations

Find is a powerful tool that consists of a direct query on a database and allows users to query on a field by field basis. Find is accessible from anywhere in your Siebel application, and allows users to perform queries on specific predefined fields linked to specific business components (such as querying for an employee last name). Since Find directly queries the database instead of using indices, the results of these queries always match with 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 the business component or field to search upon. Full text searches can be performed across multiple business components and files with one operation. An important difference between search and find is the visibility applied to the results. See "Visibility Control" on page 33 for details on the differences.

Visibility Control

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 eBusiness Applications*.

Visibility Control for Find

Find operations within Siebel applications are instituted in the following ways:

- **Position visibility:** This view displays data associated with the user's logged on ID. This view displays only those records to which the logged-on user has Team visibility— that is, account records in which the user's positions appears in the team multi-value group.
- **Team visibility:** This view displays only those records to which the logged-on user has Manager visibility—that is, records from which the primary position on the account team is the logged-on manager's direct or indirect subordinate.
- **Organizational visibility:** This view displays data associated with the same organization to which the logged on user's position belongs.

Each view within Find has a certain visibility to which it is associated. These views are listed in order as part of the find object. When a user invokes a Find operation, the system scans the views from top to bottom until it finds a view to which the user has visibility. The visibility used for this view will be applied to the Find result set.

Visibility Control for Search

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

- **Multi-Organizational access control.** Multi-org 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 display as a search result. For more information, see *Security Guide for Siebel eBusiness 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 eBusiness Applications*.

Filter Visibility for Search

Siebel Search also contains predefined search specifications which 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 the responsibility of the user.
- 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.

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 specs on the search category. Explicit filters come in the form of exposed UI filter fields on the Search Center. For more information, see "Using Search Filters in Filter Search Specs" on page 97.

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.

Relevance ranking can be turned 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 133.

Installing Siebel Search Under Windows 4

Siebel Search uses Hummingbird SearchServer 5.0, the successor product to previous Fulcrum versions. For information about which versions of the Windows operating system are supported by Hummingbird SearchServer, see the system requirements and supported platforms documentation for your Siebel application.

CAUTION: The Hummingbird SearchServer 5.0 server should be installed on the designated Siebel Server before any Siebel software installations can be performed.

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 installation, see the *Siebel Server Installation Guide* for the operating system you are using.
- If you plan to have very large indices (or frequent searches and indexing), you should use a dedicated Siebel Server.
- Make sure that you have enough disk space for the indices. When the indexing engine is run, 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.
- The Web Server, Siebel Server and Fulcrum Server may be installed on independent machines.

Preinstallation Checklist

Before you can proceed with your installation, you should decide on the following 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 install, or will you be using multiple Search Servers?	
Do you have a good understanding of the load on your system, once Search is deployed? Predetermining users and servers, will allow 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?	
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?	
What applications will you be using Siebel Search with?	
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?	

Question	Response
If you are upgrading from a previous release of Siebel Search, you will need to rebuild your indices.	
If you are upgrading from a previous release of Siebel Search you will need to 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 version 5.0 of SearchServer.

NOTE: Siebel Search integrates with Hummingbird SearchServer 5.0. If you have used a prior version of Siebel Search, you *must* upgrade Hummingbird SearchServer to version 5.0.

To remove an earlier version of Fulcrum

1. From the Windows Start menu, choose Settings > Control Panel.
2. Double-click the Services icon.
3. 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

4 Once all the Fulcrum Services have been marked Disabled, close the Services Window.

5 On each server and client running SearchServer 3.7, do the following:

a Note the directory in which Hummingbird is currently installed (the default is c:\Program Files\Hummingbird). You will be installing SearchServer 5.0 in the same directory.

b From the Windows Start menu, choose Settings > Control Panel > Add/ Remove Programs.

c 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

NOTE: If your previously installed version of Fulcrum SearchServer is version 3.7 or earlier, you may be required to perform the following steps:

6 On the My Computer icon on your desktop, right click and choose Properties.

7 Click the Environment tab.

8 In the User Variables window, navigate to PATH, highlight the path including c:\Fulcrum\bin.

9 Delete this portion of the path, then restart your machine.

Installing Hummingbird SearchServer 5.0 Under Windows

You can install Hummingbird SearchServer 5.0 from the Siebel Windows Server Ancillary Programs CD-ROM or from its location on your network. For information about which versions of the Windows operating system are supported by Hummingbird SearchServer, see the system requirements and supported platforms documentation for your Siebel application.

To install Hummingbird SearchServer under Windows

1 On the Siebel Windows Server Programs CD-ROM, or on a network directory containing the Siebel install files, navigate to Thirdpty*language*\Hummingbird\enu.

2 Double-click setup.exe.

Hummingbird installation screen appears with list of options. Click 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 5.0 Setup dialog box, enter the required information, including, in the serial number field, the license key listed in Table 3.

Table 3. SearchServer License Key

Operating System	License Key
Microsoft Windows 2000	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, and 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 Choose a program folder, then click Next to start the installation.

9 Click Finish, then in the Question dialog box, click Yes to start the new services.

10 On the ancillary products CD, open up the windows_patch_t.zip file in the patch directory. Extract this to the SearchServer install directory (for example, Hummingbird\SearchServer50) with the Use Folder Names option selected.

NOTE: Before installing the patch, stop the following services if you have them running: Hummingbird Search Service for Java, Hummingbird SS Servlet Runner, and Hummingbird STR Service.

NOTE: If you are using an Oracle database under Windows, see "Additional Steps for Oracle Database Users Under Windows" on page 43.

Configuring Siebel Server as a Search Server Under Windows

After installing Hummingbird SearchServer 5.0 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 will check whether Hummingbird has been installed. If it has previously been installed, you will be required to answer questions regarding search server setup. 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 will need to manually modify server parameters. For information on modifying server parameters, see Table 4 on page 46.

To configure Siebel Server as a 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 procedure below is for Windows 2000.

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 Microsoft ODBC for Oracle, 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.

Siebel Search Parameters

If you install Hummingbird *after* installing your Siebel Server, you will need to manually modify server parameters.

Table 4 on page 46 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 installation by the Siebel Installation Wizard if Hummingbird is installed before you installed the Siebel Server. However, if you install Hummingbird after the Siebel Server installation, you will have to manually set some of these parameters. If you need to access these parameters, they can be accessed in the configuration files or in the name server shared memory.

The SearchDefName is different from other parameters because it is an enterprise level parameter in the Siebel Server. See "To view or modify the SearchDefName parameter" for information.

To access the parameters on the server

1. Navigate to Server Administration > Servers.
2. Click the Server Parameters view tab.

   Retrieve or modify these parameters.

To view or modify the SearchDefName parameter

1. Navigate to Server Administration > Enterprise Configuration.
2. Click the Component Definitions view tab.
3. Select a component in the Enterprise Configuration screen.

   For example, Call Center Object Manager.
4. Query for Search - Definition Name in the Component Definition View.

   This will allow you to see the Search Definition for the chosen component. This definition will be used for all servers in the current enterprise.

To access these parameters on the dedicated or mobile Web client you go to the configuration files. For example, in the bin\enu\uagent.cfg file for the Call Center application, you will see these parameters under the [SIEBEL] section.

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

Table 4. Siebel Search Parameters

Siebel Parameter	Display Name	Parameter Definition
SearchEngine	Search- Engine Name	The Search Engine name. In the case of Version 7, the Search Engine definition is Fulcrum.
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 runtime to load the appropriate search categories.
SearchInstallDir	Search- Install Directory	The directory where Fulcrum is located. For example: C:\PROGRAM FILES\FULCRUM.
RemoteSearchServer	Search- Remote Server	This parameter must be set to FALSE to allow administration work on any of the Fulcrum search indices. Setting this parameter to TRUE allows Remote Searching.
RemoteSearchServerPath	Search- Remote Server path	The machine and the port number that enables connectivity to the Remote Search Server. For example: searchserver/tcp2048.

NOTE: To view or modify the remaining four parameters, navigate to Server Administration > 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

Any employee or partner users of Siebel Search in 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
- Find View
- Find Results View
- Search Selection View
- User Catalog Explorer View

NOTE: After these views are added to the responsibility, the Windows Services for Siebel Server should be stopped and restarted in order for the Search Center to display Advanced Search correctly.

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

Setting Up Siebel Server for Remote Searching Under Windows

If you are going to set up Siebel Search with remote searching, you must include at least one additional Siebel Server with 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 5.0 to work in a client/server environment, you need to configure the server, then the client. To enable remote searching, you must create a client connector on the machine where Hummingbird Search Server 5.0 was installed.

Configuring a server node involves defining one or more services, each of which corresponds to a unique network access path that will respond 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 should configure the client and use it to verify the client and server configuration.

Configuring the Server for Remote Searching

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

To create a client connector on the server

1. From the Windows Start menu, choose Programs/Hummingbird/Search Server 5.0/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 will be created. Multiple directories must be semi-colon separated. For example, C:\siebsrvr\search\ServerDataSrc\index.

   d Fulsearch: Specify the directory or directories where the tables will be searched. For example, C:\program files\Hummingbird\Search Server5.0\fultext;C:\siebsrvr\search\ServerDataSrc\index.

   e Fultemp: Specify the location for temporary files during indexing and searching operations. For example, C:\siebsrvr\search\ServerDataSrc\temp.

   For information on Environmental Variables, see Appendix A, "Siebel Search Environmental Variables."

5 For the Connection Security option, choose Ignored (default is also the Ignored option).

6 Start the service by clicking OK, and then click Close.

7 Highlight the service and click Start.

8 If you wish, click Close. (If you close the window, you will have to 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.

Configuring the Client for Remote Searching

To create 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.

Setting Up for Mobile Client Searching Under Windows

Mobile clients can use Siebel search in disconnected mode by installing and setting up Hummingbird on their machine, and synchronizing the indices from the search server. Just as with the search server installation, Hummingbird should be installed before proceeding with the Siebel mobile client installation. As long as this is done, all configurations will be set up automatically. Then, during the synchronization process, indices will be copied from the search server machine into the Siebel file system.

When Mobile clients work in connected mode, the mobile client can send search requests to a remote search server. When installing mobile clients, you will be required to enter a remote search server name and port number. See "To configure Siebel Server for remote searching under Windows" on page 50 for details.

For more information on:

- Hummingbird installation instructions, see "Installing Hummingbird SearchServer 5.0 Under Windows" on page 41.
- Index synchronization on a mobile client, see "Synchronizing Indices on the Mobile Web Client" on page 120.

Installing Siebel Search Under UNIX 5

Siebel Search uses Hummingbird SearchServer 5.0. Hummingbird SearchServer 5.0 server can be installed on an AIX or Solaris computer.

CAUTION: It is recommended that the Hummingbird SearchServer server be installed on the designated Siebel Server before any Siebel software installations can be performed. If you need to install Hummingbird SearchServer after a Siebel Server installation, see "Configuring a Previously Installed Siebel Server as a Search Server Under UNIX" on page 57.

For information about supported versions of AIX or Solaris operating systems see the system requirements and supported platforms documentation for your Siebel application.

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), or "setenv SHLIB_PATH /export/home/fulcrum/lib:$ SHLIB_PATH" (for HP-UX). 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.

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 installation, see *Siebel Server Installation Guide* for the operating system you are using.
- If you plan to have very large indices (or frequent searches and indexing), you should use a dedicated Siebel Server.
- Make sure that you have enough disk space for the indices. When the indexing engine is run, 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, you should 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 install, 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?	

Question	Response
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, you will need to rebuild your indices.	
If you are upgrading from previous release of Siebel Search you will need to rebuild your search index structure using Siebel Tools.	

Installing Hummingbird SearchServer 5.0 Under UNIX

The Hummingbird SearchServer 5.0 server can run on a AIX or Solaris computer. You can install Fulcrum SearchServer 5.0 from the Siebel UNIX Server Ancillary Programs CD-ROM or from its location on your network.

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), or "setenv SHLIB_PATH /export/home/fulcrum/lib:$ SHLIB_PATH" (for HP-UX). 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.

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

The license key listed in Table 5 will be required during 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 into the system using the same administrator login ID that you used when performing the Siebel Server installations.

Table 5. SearchServer License Key

Operating System	License Key
Solaris/AIX	2B77EB70372040A0

To install the Hummingbird SearchServer 5.0 under UNIX

1. Create a directory to install Hummingbird, then navigate to the Hummingbird installer on the release CD (/thirdparty/fulcrum/enu/[platform]/).
2. Run install executable

   ./install.sh

   The Hummingbird installer script will run.
3. Type in the bold values as shown below.

```
**********************************
* Search Server 5.0 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 fulcrum installation locale here, for
example:/export/home/fulcrum

**********************

* 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 5.0 UNIX Installer *

***********************************

1. View readme

2. Install SearchServer

3. Exit

Choose selection and press [ENTER]:3
```

Configuring Siebel Server as a Search Server Under UNIX

After installing Hummingbird SearchServer software, you must then install Siebel Server software. During Siebel Server installation you will be given the option of configuring the Siebel Server as a search server. These instructions are listed below.

For instructions on installing Siebel Server under UNIX see *Siebel Server Installation Guide for UNIX*.

To configure Siebel Server as a search server

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 option 1 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 Server Installation Guide* 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 onto a machine where Siebel Server has already been installed, you will need to configure the Siebel Server to use the Hummingbird SearchServer.

To configure a previously installed Siebel Server as a Search Server

1. At the command prompt enter the following commands:

   a. `source Siebel environment` (for example: /export/home/Siebel/ses/siebenv.csh)

   b. Run config_server (for example: /config_server). Type the bold values as shown below.

```
smtn1125s043% ./config_server

     1)  smtn1125s043
```

```
     2)  Create a new Siebel Server

     3)  Delete an existing Siebel Server

Select a server to configure, Create a new Server, or Delete an
existing Server

[1] 1

Siebel Server Configuration Wizard

These are the parameters and current values for the Server
Parameters:

    Description of this Siebel Server = Siebel Server smtn1125s043

Would you like to configure this section? (Y to configure, N to
accept values as shown) [Y] Y

Enter a description for this Siebel Server [Siebel Server
smtn1125s043] [Enter]

These are the parameters and current values for the eBriefing and
eContent Services configuration:

    Licensing Option = None

    1)  eBriefings

    2)  eBriefings and eContent Services

    3)  None

Select the appropriate licensing option for eBriefing and eContent
Services [3] 3

These are the parameters and current values for the Configure
Search Server:

    Configure Search Server = [1]

    1)  Configure this server as a Search Server

    2)  Configure this server to point to a Remote Search Server

    3)  Skip

Do you want to configure a Search Server? [1]  1
```

```
Please specify the path of the Fulcrum 5.0 installation
[] /export/home/fulcrum (Enter the path to your SearchServer
installation.)
```

Configuring Siebel Server for Remote Searching Under UNIX

During Siebel Server installation you will be given the option of configuring the Siebel Server for Remote Searching. These instructions are listed below.

For instructions on installing Siebel Server under UNIX see *Siebel Server Installation Guide for UNIX*.

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 option 2 to configure this server to point to a Remote Search Server.

   You will then be prompted to enter the hostname and port number of the Remote Search Server.

3. Enter the hostname 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 Server Installation Guide for UNIX*.

DataDirect ODBC Driver Installation and Configuration

SearchServer 5.0 uses DataDirect ODBC drivers to connect to your database. You will need to install DataDirect, and then perform extra steps to setup an ODBC datasource that DataDirect can use.

To install DataDirect ODBC drivers

1. Copy the patch file from the release CD to your Hummingbird install directory. The patch is located on the release CD at /thirdparty/fulcrum/enu/[platform]/patch/[platform]_patch.tar.Z. For example:

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

2. Navigate to your Hummingbird directory, then uncompress the patch file, for example:

   run 'cd /export/home/fulcrum'

   run 'uncompress [platform]_patch.tar.Z'

   run 'tar -xvf [platform]_patch.tar'

   This will create a “DataDirect” directory below fulcrum/ and replace some Fulcrum files.

3. Delete the patch file, for example:

   run 'rm [platform]_patch.tar''

Search Server Environment Variable Settings

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 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. 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:

   vi setfuladmin.csh

2. Set variables (Change the paths below for SIEBEL_ROOT and FULHOME to the correct values for your installation.)

   For example:

```
setenv SIEBEL_ROOT /export/home/Siebel

setenv FULHOME /export/home/fulcrum

setenv FULSEARCH ${FULHOME}/fultext:${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}/fultext

setenv LXDATALOC ${FULHOME}/fultext/inxight

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

setenv LIBPATH ${FULHOME}/DataDirect/lib:${FULHOME}/lib:$LIBPATH
(for aix only)

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

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

Creating a DataDirect ODBC Datasource Under UNIX

You need to configure a DataDirect ODBC datasource to use with SearchServer.

To create a DataDirect ODBC datasource

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. There are a number of changes that need to be made in the odbc.ini file:

   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 datasource to odbc.ini.

For Oracle Databases

Under the "[ODBC Data Sources]" section, add a new line for your datasource, for example:

"Siebel_Search = DataDirect 4.10 Oracle Wire Protocol" **(AIX)**

"Siebel_Search = DataDirect 4.0 Oracle Wire Protocol" **(Solaris)**

"Siebel_Search = DataDirect 4.10 Oracle Wire Protocol" **(HP-UX)**

Now you need to add a new section to odbc.ini for your own datasource, specifying parameters for your database connection. For example:

```
[Siebel_Search]

Driver=/export/home/fulcrum/DataDirect/lib/HDora18.so (AIX)
Driver=/export/home/fulcrum/DataDirect/lib/HDora17.so (Solaris)
Driver=/export/home/fulcrum/DataDirect/lib/HDora18.sl (HP-UX)

Description=DataDirect 4.10 Oracle Wire Protocol (AIX)
Description=DataDirect 4.0 Oracle Wire Protocol (Solaris)
Description=DataDirect 4.10 Oracle Wire Protocol (HP-UX)

LogonID=<your login>
```

```
Password=<your password>

HostName=<Oracle database host name>

PortNumber=<Oracle database port number>

SID=<Oracle System Identifier>

CatalogOptions=0

ProcedureRetResults=0

EnableDescribeParam=0

EnableStaticCursorsForLongData=0

ApplicationUsingThreads=1
```

where

Driver contains the path to the driver HDora18.so **(AIX)** and HDora17.so **(Solaris)** and HDora18.sl **(HP-UX)** in your own setup.

LogonID is the ID you use to connect to the database.

Password is the name of the password for the specified LogonID.

Host is the name or the IP address of the server to which you want to connect.

Port Number is the port number of your Oracle listener. See your database administrator for the correct number.

SID is the Oracle System Identifier that refers to the instance of Oracle running on your server.

Now save your changes to odbc.ini.

For DB2 Databases

Under the "[ODBC Data Sources]" section, add a new line for your datasource. For example:

```
"siebsrvr_siebel=DataDirect 4.10 DB2 Wire Protocol Driver"
```

Now you need to add a new section for your datasource, specifying the parameters specific to your database connection, for example:

```
[siebsrvr_siebel]
Driver=/export/home/fulcrum/DataDirect/lib/HDdb218.so
Description=DataDirect 4.10 DB2 Wire Protocol Driver
LogonID=siebel
Password=db2
IpAddress=devaix3
Database=UDEV75 (for UDB)
Location=UDEV75 (for DB2/390)
Collection=SIEB (for DB2/390)
TcpPort=57010
Package=db2pac  (for UDB)
Package=DB2PAC  (for DB2/390)
Action=REPLACE
```

where

Driver contains the path to the driver HDdb218.so in your own setup.

IpAddress is the database server machine name or IP address

Database is the name of your database

TcpPort is the port you are using to connect to the database

Now save your changes to odbc.ini.

NOTE: For DB2 UDB or DB2/390 databases, you should use a different value for the Package parameter than that listed in the previous example. Moreover, for DB2 UDB, you should use Database but for DB2/390, you should 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 DB2 Databases Only" you will 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 DB2 Databases Only

If you are using a DB2 database, you will need to perform the following additional step.

NOTE: You will need to use the username and password specified above (siebel and db2) for this step to work correctly. You will also need to log into the Siebel application with this user name and password (siebel and db2) whenever you wish to create or refresh indices.

For this additional step, you need to run a program that binds a package for the database server you need to connect to. You can do this by using the "bind18" program located in the fulcrum/DataDirect/lib directory. You run the command with 1 argument, the name of the datasource (in this case, siebsrvr_siebel).

1. source '/export/home/fulcrum/setfuladmin.csh'
2. run 'cd /export/home/fulcrum/DataDirect/lib'
3. run './bind18 siebsrvr_siebel'

This step only needs to be done once, because other datasources can use the same bind package named “db2pac”. This parameter is specified by the “Package” variable in your datasource configuration.

NOTE: DataDirect constrains the “Package” parameter to be no more than 6 characters in length.

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 source setfuladmin.csh. This script file was created in “Search Server Environment Variable Settings” on page 60.
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 143. You can specify a different port number to run the Hummingbird client connector when you run ftserver.

NOTE: These instructions only pertain to running ftserver from the command line. Your UNIX system administrator can allow you to run ftserver from the system startup and run it as a background process. For information on this procedure, see the Hummingbird documentation on the *Siebel eBusiness Third-Party Bookshelf*.

Siebel Search Configuration Using Siebel Tools 6

This chapter assumes a knowledge of Siebel Tools. It does not provide basic Siebel Tools knowledge. For information about Siebel Tools see *Siebel Tools Reference*.

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 on database tables, what are the names of the tables and the business components?	
Do you know the approximate sizes of the table data that you plan to index? If indexing Siebel file attachments, the sizes should 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 information, see the Hummingbird documentation.	

Question	Response
If searching on 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 names of the Siebel database tables that you want to search and their location on the network?	
What configuration changes (if any) you plan to make 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 mobile client in disconnected mode?	

Basic Siebel Tools Objects for Search

All the Siebel Tools objects necessary to build and configure basic Search capabilities in a Siebel application are set up automatically during 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 information on custom configuration of search operations, see “Advanced Configuration of Search Operations” on page 89.

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

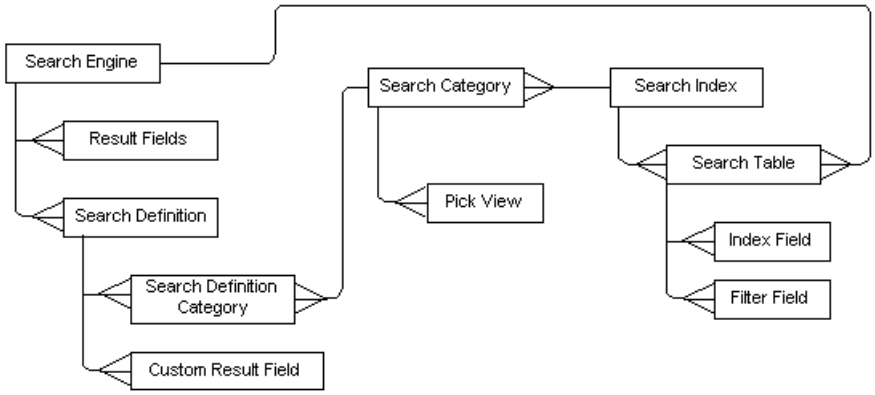

Figure 2. Search Objects in Siebel Tools

The Search Engine

Hummingbird is the only search engine supported by Siebel Search. Hummingbird is predefined at the time of Siebel installation. There is no need to define an additional search engine.

The Search Engine Object

The search engine is predefined by Siebel during initial installation as Hummingbird. The adapter class, CSSFulcrumSearchAdapter is also specified.

Properties

Table 6 lists the properties for the Search Engine object.

Table 6. Search Engine Object Properties

Property	Required	Description	Comments
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 Fulcrum 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 and 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.

Siebel 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 instructions on how to customize the result fields see "Advanced Configuration of Search Operations" on page 89.

Rules and Assumptions

- All fields defined here 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

Table 7 lists the properties for the Search Result Field object.

Table 7. Search Result Field Object Properties

Property	Required	Description	Comments
Column Name	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 on 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.

The Search Index

A default set of search indices are set up at the time of Siebel installation. There is no need to create new search indices. Should you need to create additional indices, the rules and assumptions and properties of the search index object are listed below.

The Search Index Object

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

- It is a good practice to only index master data (also called referential data), and not transactional data as transactional data change 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. Siebel 7 includes preconfigured search indices, such as Product Literature, SmartScripts, Service Requests, and so on.
- Search supports Access Control and Organization visibility rules. The buscomp that you plan to index should support one of these rules. It is also acceptable to index buscomp that have no visibility rules enforced. In such cases, all buscomp records will be visible to all users. For further information on Access Control, see "Visibility Control" on page 33.

Properties

Table 8 lists the properties for the Search Index object.

Table 8. Search Index Object Properties

Property	Required	Description	Comments
Name	Required	Logical name for the search index.	

Table 8. Search Index Object Properties

Property	Required	Description	Comments
Index Buscomp	Optional	Buscomp 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. The default case is checked.	

The Search Table

A search table physically represents the search index in Hummingbird. 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.

Rules and Assumptions

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

Properties

Table 9 lists the properties for the Search Table object.

Table 9. Search Table Object Properties

Property	Required	Description	Comments
Table Name	Required	Actual name of the index table or the collection.	
Engine	Required	Name of the search engine. For example, Fulcrum or Hummingbird.	Picked from the Search Engine Table
Inactive	Optional		
Comments	Optional		

Defining Index Field Maps for Search Tables

The Index Field Map object identifies fields of a buscomp to be indexed. This object specifies to the search engine the result fields to which the buscomp fields (or Index Fields) will map. Only result fields marked as Data (Public) can be mapped. Contents of the index fields will be indexed into the search engine result fields. The business component field that is mapped to the summary column should 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 Tools under the Search Index Field Map object. Id is explicitly defined in Siebel Tools.

Properties

Table 10 lists the properties for the Index Fields object.

Table 10. Index Field Map Object Properties

Property	Required	Description	Comments
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 buscomp 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 into the Summary result field. By default, the contents of the index field are automatically indexed into the External Text result field. Note that the result field Document Text has been renamed to External Text in Siebel software versions from version 7.5 and beyond.	Used during the script file generation.
Field Type	Optional	Specifies the type of the Index Field. These types are Attachment, Rev Num Organization, and Catalog Category, Access Group. NOTE: In Version 7, the 7.0 field type of Group has been renamed to Catalog Category. If you (the customer) have created any custom entries, the Tools migration script should automatically make this change.	
Sequence	Required		

Indexing File Attachments

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

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

Rules and Assumptions

All file based buscomps have the format, <three letter identifier>FileName and <three letter identifier>FileRev. For example, in the case of the literature buscomp, 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:

- LitFileName needs to be mapped to the External Text result field. The attribute Field Type has to be set to Attachment.
- LitFileRev needs to be mapped to Revision Number result field. The attribute Field Type has to be set 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 can map these fields to the Summary field.

Indexing Fields to Enforce Catalog Category Visibility

You can index fields to enforce existing catalog category visibility rules within your Siebel enterprise.

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 for it to be available for searching. Additionally, the Catalog Type should not be set to null to allow the creation of Search Indexes that use Access Control visibility.

Rules and Assumptions

- The buscomp field Catalog Category Id should be mapped to Visibility Id result field and the attribute Field Type should be set to Catalog Category.
- The Catalog Category Name buscomp field should be mapped to 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 UI, these two results are prefixed with the catalog category to which they belong.

NOTE: These fields are usually available if the buscomp supports catalog visibility. If they are not, they can be added to the business component through suitable joins. See *Siebel Tools Reference* for information.

Indexing Fields to Enforce Access Group Visibility

You can index fields to enforce existing Access Group visibility rules within your Siebel enterprise.

NOTE: Some search categories used in the ERM application are preconfigured to support access group visibility.

Rules and Assumptions

The buscomp field Access Group Id should be mapped to Visibility Id result field and the attribute Field Type should be set to Access Group.

NOTE: This field is usually available if the buscomp supports Access Group visibility. If the field is not available, it can be added to the business component through suitable joins. See *Siebel Tools Reference* for information.

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 buscomp that you are indexing should have a database table column (usually called BU_ID), that is single or multi-org enabled.

Rules and Assumptions

The buscomp field Organization Id should be mapped to the Visibility Id result field and its attribute Field Type set to Organization.

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

Restricting the Indexing of Records

The Search Server 5.0 database text reader (dbtr) permits partial table selection for improved performance. The text reader's table definition (which is defined in the DID file) can include a WHERE clause to specify which rows are included in the selection. 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 wish to constrain. The Search Filter Field object needs to have the Field Type set to Constraint and the constraint spec should be filled in the Column Name field. The string specified as the constraint is not checked for syntax and is added as is to the Hummingbird DID file. For more information, see the Hummingbird Search Server documentation.

NOTE: These fields cannot be used in filter search specs through a filter search spec or exposed on the UI as filter fields.

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:

- BC Field: "Internal"
- Field Type: "Constraint"
- Column Name: "= 'N'"
- Data Type: Character
- Index Mode: Literal
- Text Length: 1

Given the above 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 buscomp including joined fields. For example, to index only the Product that belongs to Caterpillar organization, you add a Search Filter Field under Product Search Index -> "FUL_PROD" Search Table:

- BC Field: “Vendor” (this is a join field)
- Field Type: “Constraint”
- 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'

The Search Category

A search category 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 to a search index.

Creating a Search Category

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). See *Siebel Tools Reference* for further information.

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, just so that they could define different drilldown views and pick views. For instance, the Solution (Call Center) category, will drill down into 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 on creating pick views, see "Advanced Configuration of Search Operations" on page 89.
- Preview views can be defined by the eBusiness application user, allowing the user to define the type of pop-up view that will be displayed when Preview button is invoked. For more information on creating preview views, see "Creating Preview Views" on page 92.

Properties

Table 11 lists the properties for the Search Category object.

Table 11. Search Category Object Properties

Property	Required	Description	Comments
Name	Required	Logical name for the category.	
Search Index	Required	Name of the search index.	
Drilldown Buscomp	Optional	The business component the user will drill down to. 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.	
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.	

Table 11. Search Category Object Properties

Property	Required	Description	Comments
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 Search Definition

The Search Definition object 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.

Rules and Assumptions

- Multiple search categories that refer to the same search index cannot be associated to 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.

Siebel Tools Objects for Find

As with Search objects, your Siebel application contains a list of application-specific Find objects. Find objects identify business components whose records can be searched for matching values that have been entered in the Search Center text boxes. Global Find items are used to perform finds on particular business components, and have corresponding names such as All Accounts, All Products, and so on. 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.

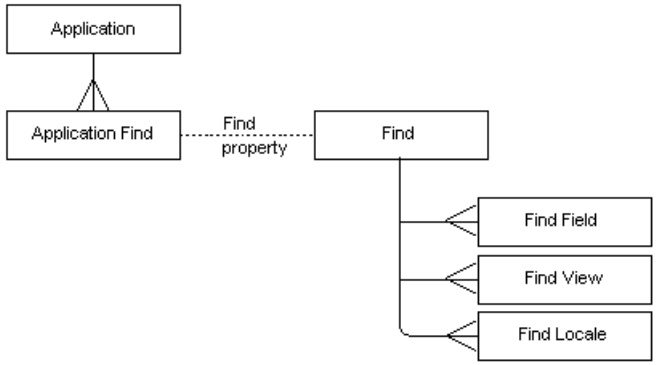

Figure 3. Find Tools Objects

Find Objects

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. The find fields and find views are implemented as child object definitions of the find.

Most applications already have a list of Find Objects, though some further configuration may need to be done.

Properties

Table 12 lists the Find Object properties.

Table 12. Find Object Properties

Property	Required	Description	Comments
Applet	Required	The applet that will be used by the find. This applet must be included in the view specified for every Find View object definition for the Find object.	
Destination Field	Optional	A TRUE or FALSE value that, 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.	Leave for future release.
Display Name	Optional		
Menu Text	Optional	Reserved for future use.	Not applicable.
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.	
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.	

Application Find Objects

An application find object definition associates one Find object definition to 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 finds in the Search Center drop-down list, each one included by virtue of an Application Find object definition.

Properties

Table 13 lists the Application Find object properties.

Table 13. Application Find Object Properties

Property	Required	Description	Comments
Find	Required	The name of the find object definition to include in the application.	Examples: Contact, Account.
Name	Required	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.	

Find Field Objects

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 field name to search.

Properties

Table 14 lists the Find Field object properties.

Table 14. 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.

Table 14. Find Field Object Properties

Property	Required	Description
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.
Title	Optional	Reserved for future use.
Display in Results	Optional	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 max length will be skipped and you will see an ellipsis (...) in the end. You need to use the user property in Find Results List Applet to set the length limit. Use the following applet user properties. ■ User Property Name: [Find Object Name] ■ User Property Value: [Find Field] = [Length] or if more than one, ■ User Property Value: [Find Field Name] = [Length], [Find Field Name] = [Length], [Find Field Name] = [Length] ...
Display in Entry	Optional	Checking this option allows the field to be displayed on the find entry applet in the Search Center.

Rules and Assumptions

- 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 multi-value 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 non-Exists version with the Search Center-Find category, you should create a join from the primary ID field for the MVLink to the table containing the data. Then add a field on the table you joined to and point your find field to this new field. This change will cause the query to use the syntax EXISTS (Ada*).

- If you want to do an exact search in a Find field, prefix the search text with an equal sign (=) sign. For example, = Ada. The query uses the syntax = Ada. (No wildcard is appended to the text)

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 with a different visibility level for the same business component. The views are tried 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 see 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 will use the first find view object definition that is in the user's responsibility list. Because different views apply different visibility, you would 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.

Properties

Table 15 lists the Find View object properties.

Table 15. Find View Object Properties

Property	Required	Description	Comments
Sequence	Optional	The order that views are to be considered for usage 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.	

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.

Properties

Table 16 lists the Find Field Locale object properties.

Table 16. Find Field Locale Object Properties

Property	Required	Description	Comments
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.	
Name	Required	The abbreviation of the language being used.	For example, ENU = U.S. English.

Find Locale Object

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

Properties

Table 17 lists the Find Locale object properties.

Table 17. Find Locale Object Properties

Property	Required	Description	Comments
Display Name	Optional		
Name	Required	The abbreviation of the language being used.	For example, ENU = U.S. English.

Find Pick View Object

Users can associate search results from the search center to 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 91.

Properties

Table 18 lists the Find Pick View object properties.

Table 18. Find Pick View Object Properties

Property	Required	Description	Comments
Applet Name	Optional	Name of the applet	
Field Name	Optional	Name of the view containing the applet	
Name	Required	Logical name of the pick view	
View Name	Required	Name of the view containing the applet	
Property Field Name	Optional	Name of the multi-value group field that will receive the search result	

Advanced Configuration of Search Operations

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 below.

Associating Search Categories to New Search Definitions

Identify all search categories that you want to expose in your application and associate them to the appropriate search definition. Also, specify the filter search spec for each search category.

To associate search categories to 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, for the search category Product in the Call Center Definition to restrict product search results by the Catalog Type of Buying, you may want to specify 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. See "Creating Search Filter Fields" on page 96 for information.

Using Child Business Components as the Base Business Component for Find or Search Categories

This feature allows you to drilldown to a view that is not displaying the search object buscomp as primary. Therefore, it is possible to base a search index or find category on a business component used as the child applet for the drilldown view. For example, a search category could be based on Service Request Attachments and the drilldown view, be the Service Request attachment view. In this case, the following logic would be applied when the result is drilled into:

1 Retrieve the business object of the drilldown view defined for the find or search category.

2 Determine the business component hierarchy from the business object. Find the unique ID (for example, SR ID) for the parent buscomp (Service Request) on the drilldown view by pulling from the child business component upon which the search or find category is based (Service Request Attachment).

3 Set the search spec using that unique ID for that parent business component and drilldown to that view.

Creating Search or Find Pick Views

Users can associate search results from the search center to 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 intersectional 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 an 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 association happens, as well as the candidate association. You will need to add new Pick Views in order to add this Search Category or Find Object to a Business Object.

Properties

Table 19 lists the properties for the Pick View object.

Table 19. Pick View Object Properties

Properties	Required	Description	Comments
Applet	Required	Name of the applet	
View	Required	Name of the view containing the applet	
Name	Required	Logical name of the pick view	
Destination Field	Optional	Name of the multi-value group field that will receive the search result	

To create 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.

   A new record appears.
3. Enter the required property values for the new record.
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 need to 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 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 should be a Form Applet and it needs to 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 to your new view.
6. Add responsibility and license key for this new view.
7. Associate this view to 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.
8. Compile your changes to the SRF file.

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.
- Result Fields that are marked System or Data (Public) can be customized. See "Creating Custom Result Fields" on page 94 below for more information.

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.

   See "The Search Result Field Object" on page 70 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 results 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 as follows:

- To be Used in Search, meaning the specified search keyword will be searched against these columns.
- To be Visible in the search results applet.
- To be displayed with a different Display Name, Widths or Text Alignment.
- To use a different Display Format or Scaling Factor.

Properties

Table 20 lists the properties for the Search Custom Result Field object.

Table 20. Search Custom Result Field Object Properties

Display Name	Required	Description	Comments
Display Name	Optional	The name to display in the user interface	Can be overridden
Display Format	Optional	The format mask to apply to the data	Can be overridden
Name	Required	The logical name of the field	
Scaling Factor	Optional	The multiplication factor for numeric columns	Can be overridden
Sequence	Required	The order in which columns should appear	Can be overridden
Text Alignment	Optional	The alignment of the text in the column	Can be overridden
Use in Search	Optional	Indicates if this column is to be included in a search	Can be overridden
Visible	Optional	Value is TRUE or FALSE; if TRUE, the field is displayed	Can be overridden
Width	Required	The width, in pixels, of the display column	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 for a search category. To configure search time filter fields for a search index, you need to identify buscomp 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 need to define filter fields.

Siebel Search only supports indexing text and date fields (numeric fields are not supported) and you should only map buscomp 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 buscomp fields that have static pick lists associated to them. Since 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 buscomp field Sales Tool Type is associated to a pick list that has an LOV called SALES_TOOL_TYPE.
- Map buscomp fields that are flags. For example, in the Solution buscomp, 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 buscomp fields that are Dates. For example, the Solution buscomp, 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 buscomp 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 should 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 accidently map a character or numeric field to a Fulcrum date column.

NOTE: Numeric fields are not supported.

Using Search Filters in Filter Search Specs

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

For text fields an example of filter search spec is as follows. For the search category Literature in the Call Center Definition, to restrict literature search results implicitly, by the Sales Tool Type of Brochure, you may want to specify a filter search specification like the following: [Sales Tool Type] = LookupValue('SALES_TOOL_TYPE', 'Brochure').

For information on Search filter syntax, see Appendix C, "Syntax For Filter Search Specifications."

For date fields, an example of filter search spec 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 that today's date, you may want to specify a filter search specification as follows. [Auction End Date] < = Today().

NOTE: Hummingbird Search Server 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 spec can be joined together by AND, OR, and NOT.

Table 21 lists search filter field object properties.

Table 21. Search Filter Field Object Properties

Property	Required	Description	Comments
Name (Buscomp Field)	Required	The active fields of the buscomp 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 which 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 on 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 UI

Filter fields can also be exposed on the UI to allow users to control the search results that get returned. Certain search indices like Solution, Literature, Service Requests, Decision Issues come exposed with filter fields in the preconfigured state. Filter fields will appear on the UI as various UI 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 UI 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 which you need to follow, which are listed below. The steps are Search Configuration, Search Administration, and Search Execution.

Search Configuration

The configuration steps that need to be done to expose filter fields in the Search Center are listed below.

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 would 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 buscomp. Retain the base fields like SearchText, Category, and SelectedSearchCategory.

4 Add filter fields to this buscomp.

The fields should 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 buscomp. Since 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.

  NOTE: 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 the example, Solution Search Entry already exposes this field.

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

The filter applet will be used in the place of the Basic Search Applet or Basic Search Applet (DotCom), depending on which application type this special applet is exposed. Use the DotCom version of the applet for customer applications and the other one for High interactivity or SI + **(??)** apps. A copy of the Basic Search Applet or Basic Search Applet (DotCom) can be made for this purpose. This applet will have the filter fields exposed as some UI control, apart from the Keyword control, to allow the user to enter values.

a For the example, you will use the Solution Search Applet that is based on the Solution Search Entry buscomp that you modified in the previous step.

b Then add a control based on the new BC field Created that was created in the previous step. The applet should expose the Keywords control as well.

c Since Created is a date field, the Runtime attribute should be set to TRUE. This will draw the date picker control.

d You must also 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 add the following values.

- Name: Solution Search Entry Applet (or some 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) - The name of the search category that is defined in Tools.

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

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 Now compile the changes to the SRF and use this new SRF in your application.

Search Administration

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 the index has to be created 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 information on creating new search indices, see "Working with Indices" on page 115.

2 Index the category to which you added the filter field. For information on generating indices, see "Working with Indices" on page 115.

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.

Search Execution

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

1. Open up 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 + 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 the example, you would 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 would 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 should contain the keyword you look for and also be constrained by the filter values.

   All solutions with the Created date > than the mentioned date and with the keyword motors will be returned.

Notes

- If the filter fields exposed on the UI are also used in the filter search spec, the UI values will be ignored. The filter search spec 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.

Administration of Siebel Search 7

This chapter describes how to administer Siebel Search under your Windows or UNIX system. Using the procedures provided in this chapter, you will be able to define and change your index creation settings, administer your indices, allow mobile users to synchronize updated indices to their local databases, and administer search execution settings and advanced search execution settings.

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 on database tables, what are the names of the tables and the business components?	
If searching on 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 names of the Siebel database tables that you want to search and their location on the network?	
What configuration changes (if any) you plan to make to Hummingbird?	
Do you use Siebel Advanced Search?	

Question	Response
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 mobile client in disconnected mode?	

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 order which follows.

Index Settings. These settings allow you to define settings which affect and enhance your searches. These settings allow 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 "Index Settings" on page 107.
- Define your normalization strategy: This setting allows you to define your normalization strategy for your data. See "Normalization Setting" on page 108.
- 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. See "Translation Table Setting" on page 109.
- Work with the Hummingbird stop file: This setting allows you to maintain a system file which contains a list of words not to be indexed. This will increase the speed of your searches by eliminating common words from consideration. See "Hummingbird Stop File Setting" on page 111.
- 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. See "Text Reader Setting" on page 113.

- Set the table language: This setting specifies the language the table is created in, which enables linguistic processing. See "Table Language Setting" on page 113.
- Access sample database index setting values: This topic lists the default values for the sample database. See "Sample Database Index Setting Values" on page 114.

Working With Indices. These topics detail tasks which affect the behavior of your indices. You define new indices in Siebel Tools. For information on defining new search indices, see "The Search Index" on page 71.

- Index and refresh your indices: You can manually index and refresh your indices from the Search Indices View. For information, see "Working with Indices" on page 115.
- 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 page 117.
- Set up a workflow: For more information, see "Setting Up Your Workflow Process to Run Periodically" on page 118.
- Upload your index files to 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. See "Uploading Index Files to the Server Database and File System" on page 119.
- Allow mobile client machines to synchronize indices: This topic contains information on allowing downloading and synchronization of indices onto a mobile client. See "Synchronizing Indices on the Mobile Web Client" on page 120.

Working with Indices Under UNIX. These topics provide information on maintaining indices in a UNIX environment. These provide necessary information to:

- Create FTE and DID scripts. See "Working with Indices Under UNIX" on page 121.
- Execute scripts to create search indices. See "Working with Indices Under UNIX" on page 121.
- Refresh Indices. See "Refreshing Indices Under UNIX" on page 125.

- Work with Resolution Documents and Literature. See "Working with Resolution Documents and Literature Under UNIX" on page 126.
- Index external documents. See "Indexing External Documents Under UNIX" on page 127.
- Support mobile clients. See "Supporting Mobile Clients Under UNIX" on page 127.

Search Execution Settings. You define basic search properties in the Basic Settings screen and its associated views. 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 128 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 128.
- Set the maximum time for search executions. See "Max Exec Time Setting" on page 130.
- Set the maximum number of rows searched. Defining the maximum number of rows searched on allows you to increase the speed of your searches. See "Max Search Rows Setting" on page 131.
- Set the server report time. This setting allows you to specify the maximum interval (in milliseconds) during which a SearchServer API function will be permitted to execute before returning control to the application. See "Server Report Time Setting" on page 131.
- Define the search term separator. You can define the default search term separator which will be inserted into search strings when none is provided by the user. For more information, see "Search Term Separator Setting" on page 132.

Advanced Search Execution Settings. This screen is where you access and define advanced search settings. Advanced Search is a separately licensed module. From this screen 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 133.
- 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 134.
- 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 135.
- Define the term generator setting. Using this view allows you to make thesaurus settings. For more information, see "Relevance Method Setting" on page 135.
- 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 139.
- 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 140.
- Set the Spell check setting. See "Spell Check Setting" on page 140.
- 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 141.
- Access sample database settings for Advanced Search Settings. See "Sample Database Values for Advanced Search Settings" on page 141.

Index Settings

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

To create an index setting

1. Navigate to Search Administration > 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 onto 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 Search Administration > Index Settings.
2. In the Index Setting Properties view, click on the Normalization record.

   The Index Setting Properties list appears.
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 24 on page 114 for values.

Example

Property: Translation Table

Value: WIN_LATIN1

Table 22. 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
Macintosh	MACINTOSH	DEFAULT	FTCS94
UTF-8 (Unicode Translation Format 8-bit)	UTF8_FTCS UTF8_EFTCS UTF8_AFTCS UTF8_JFTCS	DEFAULT EUROPA3 ARABIC JAPANESE	FTCS94 EFTCS94 AFTCS94 JFTCS
Windows Arabic	WIN_ARAB	ARABIC	AFTCS
Windows Europa3	EUROPA3	EUROPA3	EFTCS94

Table 22. Translation Table Settings

Character Set	SearchServer Syntax	Appropriate Normalization	Associated FTICS
Windows Latin-1	WIN_LATIN1	DEFAULT	FTCS94
Windows Latin-2	WIN_LATIN2	DEFAULT	FTCS94

To change translation table settings

1. Navigate to Search Administration > Index Settings.
2. In the Index Settings Properties view, click in the Translation Table row to make the row active.
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. Use of 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 1,024 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 need to 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/siebelroot/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 which are listed in Table 23.

Table 23. Hummingbird SearchServer Stop Files

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

Example

Property: Stop File

Value: C:\Program Files\HUMMINGBIRD\fultext\fultext.stp

To change the stop file location under Windows

1 Navigate to Search Administration > Index Settings.

2 In the Index Setting Properties list, select Stopfile, and then click in the Value column to make the row active.

3 Change the value to match your stop file path, and 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 filter 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, this default text reader will 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 Search Server 5.0, stemming is done at index time. Since stems are generated only for a particular language this setting should 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: Since 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 24 lists the default values for Index Settings in the sample database.

Table 24. Sample Database Index Setting Values

Index Setting	Value
Normalization	DEFAULT.
Stopfile	D:\Program Files\Hummingbird\SearchServer 5.0\fultext\fultext.stp.
Translation Table	Win_1252.

Working with 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" on page 71.

CAUTION: The index building operation should be allowed to finish. You should 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 consists of two lists. The primary list includes all index settings that you previously created. The secondary lists displays all the search indices which 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.

To index a search index

1. Navigate to Search Administration > 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 should be chosen from the applet menu on the Search Admin 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 Search Administration > 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 Refresh button.

To refresh all indices

1 Navigate to Search Administration > 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 Refresh All button.

Automating the Process of Refreshing Indices

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 below, 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, please refer to the "Refreshing Indices Under UNIX" on page 125.

To create a workflow process to Refresh or Refresh All

1. Navigate to Business Process Administration > Workflow Processes.
2. Create a new Workflow Process based on the Search Administration Business Object.
3. Navigate to the Process Designer for the new process you created.
   a. Within the Designer, create a workflow that includes a Business Service object. After you have added a Business Service graphic to the designer, double-click on the graphic to drill into the Business Service instance.

   To configure the Business Service, you will need to do the following:

   b. Enter Search Admin Service in the Business Service field.
   c. Enter Refresh Index or Refresh All in the Method field.

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

   d. **Index Setting.** This is the name of the Index Setting you wish to use for the Refresh. For this argument the Type should be Literal and the Value should be the name of your setting.

e **Index Name.** This is the 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.

4 Return to the All Processes tab within the Workflow Processes view. Click on the Activate button.

Testing Your Workflow Process

You can test your workflow by clicking on the Process Simulator view tab and running though the Workflow Process you created. As you test the Process Designer from, for example, the Call Center Object Manager, you will have the OM Search - Definition Name parameter already filed by a valid value. In this case the value will be the Call Center definition.

However, when you make a Component Request with the above Workflow Process, the invocation will need the Search - Definition Name parameter from the Workflow Process Manager parameters. As this value is not set by the installer by default (there is more than one possible value), you will get an error similar to the following: OMS-00107: Object manager error: ([0] The Search Definition name has not been specified.

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.

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 Server Component Requests > Repeating Component Requests.
2. Create a new Server Component Request.
   a. Enter Workflow Process Manager in the Component/Job field.
   b. Enter your desired Repeat Interval and Repeat Unit in the detail applet. 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 Component Request Parameters view, create a new parameter.
   a. In the Name field, select Workflow Process Name, and in the Value field, enter the name of the Workflow Process you wish to run periodically.
4. Click the Submit Repeating Job button in the Repeating Component Request view.

Troubleshooting

To check the status of your Repeating Component Request, or to see if any errors occurred while the Component Request was running, navigate to Server Component Requests > My Repeating Component Requests Detail. The My Repeating Component Requests Detail view within this screen shows the status of a given Component Request. If any errors have occurred during execution of the Component Request, 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 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.

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.

Prior to Siebel 7, the Index and the Refresh operations automatically uploaded the index files to the server database and file system. To enhance performance, the Upload Index operation has been made a separate operation from the Index/Refresh operation.

To upload index files to the server database and file system

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

NOTE: Executing this command will upload the index files (5 or 6 per 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.

Synchronizing Indices on the Mobile Web Client

To allow synchronization of indices onto 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. This process, detailed below, need only be done 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 task below, you are requesting that the synchronization manager download the index files to a local machine in the next synchronization. These files will then be stored in the file system in your local machine and you will need to use the Uncompress command to copy them to the correct directory: (Siebel\search\Local\index).

To synchronize indices onto a mobile client

1. Navigate to Search Administration > 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. 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 60.

The procedures for indexing under UNIX are described below.

To create FTE and DID scripts for search categories

1 Log into 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 datasource will be used. You must log into 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 datasource, see "Creating a DataDirect ODBC Datasource Under UNIX" on page 61.

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2 Navigate to Search Administration > Index Settings.

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 = ALLDETAILS TEMPORARY
- NORMALIZATION = DEFAULT
- STOPFILE = /export/home/fulcrum/fultext/fultext.stp
- TRANSLATION TABLE = WIN_1252

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 60.

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 -0FUL_SOLN.FTE” to create an index for the Solution category (or run another FTE file to create other indices).

It may take a while until you see the prompt return, depending on how many records you have in your database tables.

There will be seven files 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:

```
slass420r2{slqusr7s}/> execsql

select count(*) from ful_soln;

CursorName = SQL_CUR00001

RowCount = 1

NumResultCols = 1: COUNT(*)

values:

(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. You should make sure your database server information is valid.

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

a Run “cd /export/home/siebel/search/ServerDataSrc/index

b Run “rm ful_soln.*”

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 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 "execsql -0FUL_XXXX_REFRESH" to refresh on the individual index file.

After executing the Refresh All command, you then run "execsql -0REFRESH.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 datasource will be used. You must log into 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 datasource, see "Creating a DataDirect ODBC Datasource Under UNIX" on page 61.

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 uncompress 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 should 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 popup window that has Microsoft Office embedded. If the file cannot be found in the file system, work with your Siebel administrator to resolve this issue.

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 index file as described above.

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 execsql utility cannot find attachments in the /export/home/siebel/temp/search directory.

NOTE: Since Literature and Resolution Documents are so unusual, the RefreshAll script (FUL_REFRESH.FTE) cannot be used 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 no 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 119, and "Synchronizing Indices on the Mobile Web Client" on page 120.

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 per language. When you are in the Search Administration screens, you access this view from the Show drop-down list.

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 Site Map > Application Administration > 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 languages based on Latin 1.

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 below.

- 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_MEXICAN
- SPANISH
- SPANISH_MODERN
- SWEDISH

To create collation sequence setting

1 Navigate to Search Administration > 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.

Max Exec 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 the your operating system.

Setting this value permits an application to stop these statements from executing for a long period of time. These are the only statements that are executed in stages, and the only statements that are affected by the SET MAX_EXEC_TIME statement.

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

Example

Property: Max Exec Time

Value: 200

To create max exec time setting

1 Navigate to Search Administration > 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.

Max 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 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 Search Administration > 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.

Server Report Time Setting

This setting specifies the maximum interval (in milliseconds), during which a SearchServer API function will be permitted to execute before returning control to the application. The numeric value that is specified can be rounded up to the nearest second, depending on the operating system.

Example

Property: Server Report Time

Value: 200

To create server report time setting

1. Navigate to Search Administration > 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 Server Report Time.

4 Click in the Value column of the new row, and in the text box, enter the server report time value, 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 create search term separator setting

1 Navigate to Search Administration > 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 25 lists the default values for Basic Search Settings in the sample database.

Table 25. Sample Database Index Setting Values

Setting Name	Value
Setting Name	Value
Character Set	UTF8
Max Search Rows	500
Normalization	DEFAULT
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 which allow users to perform precise searches. Advanced Search execution settings are administered from the Advanced Settings view.

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 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 is 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 Search Administration > 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 Search Administration > 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 26 lists the options available when setting up relevance ranking.

Table 26. 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.
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 relevance method

1. Navigate to Search Administration > 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.

Term Generator Setting

This setting can be used for two purposes. One is 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, refer to Hummingbird Search Server Documentation on the *Siebel eBusiness Third-Party Bookshelf*.

Options may be: 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:
  - 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 27 explains the term generator setting in more detail.

Table 27. Search Term Generator Options

Option	Effect
BASE	Includes the uninflected stem of the input word in the output. If there is more than one stem, all stems are output unless / single is specified, in which case, only the first stem is output.
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 output unless /single is specified, in which case, only the first stem is output. 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 areUsenglish, 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.
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

Table 27. Search Term Generator Options

Option	Effect
ROOT	Includes the uninflected stem of the input word in the output. If there is more than one stem, all stems are output 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\fultext\support.fth

To change thesaurus filename path

1. Navigate to Search Administration > 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 file name. To turn on thesaurus searches of this kind, the end user wraps a word with square 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 square brackets ([]).

Example

Property: Thesaurus Option

Value: WORD_SUFFIX

Possible values for the usage of the Thesaurus appear in Table 28.

Table 28. Thesaurus Properties

Property	Effect
WORD_SYNONYM	Includes the synonyms defined in the thesaurus
WORD_SUFFIX	Includes the plurals and possessives defined in the thesaurus
WORD_SIMILARITY	Combines WORD_SYNONYM and WORD_SUFFIX

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 Search Server 5.0 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 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 on the search result list. If you add the search setting property Show Document Title with the value TRUE, then on Windows alone the title of the document will be shown. The value is picked up from the document's OLE properties for external documents, which reside in the NT file system. If title is empty, the filename is displayed.

Example

Property: ShowDocument Title

Value: TRUE

Sample Database Values for Advanced Search Settings

Table 29 lists the default values for Advanced Search Settings in the sample database.

Table 29. Sample Database Advanced Search Setting Values

Setting Name	Value
Setting Name	Value
Proximity Search	80
Relevance Method	2:4
Spell Check	TRUE

Table 29. Sample Database Advanced Search Setting Values

Setting Name	Value
Term Generator	word!ftiet/inflect
Thesaurus Option	WORD_MODIFY

Pro

Siebel Search Environmental Variables A

Table 30 lists the environmental variables required for a Windows implementation of Siebel Search. 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, they are used by Hummingbird SearchServer itself. These variables are also used in UNIX.

Table 30. Siebel Environmental Variables

Environmental Variable	Environmental Variable Definition
FULCREATE	This is the location that was specified in the Pre-Installation 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 to users. This is case sensitive, and should be entered in lowercase when required.

The following are examples of how these Hummingbird environment variables can be set. It is assumed any Siebel installations are located in the C:\SIEBEL70 directory.

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

- FULCREATE: `C:\SIEBEL70\search\ServerDataSrc\index`
- FULSEARCH:
  `C:\program files\fulcrum\fultext;C:\SIEBEL70\search\ServerDataSrc\index`
- FULTEMP: `C:\SIEBEL70\search\ServerDataSrc\temp`
- FTNPATH: (empty)

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

- FULCREATE: (empty)
- FULSEARCH:`C:\SIEBEL70\search\fulcrum\fultext`
- FULTEMP: `C:\SIEBEL70\search\ServerDataSrc\temp`
- FTNPATH: `searchserver/tcp2048`

Typically, you will not need to set these variables, as Siebel Search code will set them at the 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:\SIEBEL70\search\ServerDataSrc\index`
- FULSEARCH:
  `C:\PROGRAM FILES\FULCRUM\FULTEXT;C:\SIEBEL70\search\ServerDataSrc\index`
- FULTEMP: `C:\SIEBEL70\search\ServerDataSrc\temp`

Siebel File Attachment Indexing

When indexing file attachments stored in the Siebel file system, they are first uncompressed 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 is set in Server Manager > Enterprise Operations.

Troubleshooting B

This appendix lists potential problems associated with setup and implementation of Siebel Search. Table 31 lists potential symptoms along with a cross reference to areas in the appendix you should refer to.

Table 31. Hummingbird Setup Troubleshooting Key

For These Symptoms	Refer to These Questions
Only Find objects show up (in Search Center). Error message says Search is not set up in Customer Search	(1), (2), (3), (4), (6)
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.”	(1), (2), (4)
Index function is unavailable in the Search Administration view	(5)
Error when indexing	(4), (7), (8), (9), (10)
Zero records when indexing	(11), (12)
Expected records not found	(12), (13), (14), (15)
Error when searching search center (Fulcrum error)	(2), (4), (16), (17)
Advanced Search not working as expected	(18)

Hummingbird Installation

1 **Question.** Is Hummingbird Version 5.0 installed?

Requirement. Hummingbird is required to be installed on the Search server to allow Siebel Search. See Chapter 4 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 splashscreen, you should see that the version is 5.0.

2 **Question.** Is more than one version of Hummingbird installed?

Requirement. 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 39 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 5.0.

Basic Setup

3 **Question.** Have you ever built or copied indices?

Requirement. 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 4 and Chapter 7 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 KB, but most will be larger.

4 **Question.** Did you install Hummingbird before installing the Siebel Server?

Requirement. It is recommended that Hummingbird 5.0 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 "Siebel Search Parameters" on page 45 for information on viewing and modifying the Search Parameters. These modifications are done through the server administration screens for a server, and through the .cfg file for sample searching.

5 **Question.** Are there multiple application servers pointing to a single Search Server?

Requirement. 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.

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

---

6 **Question.** Did you create indices after opening up Search Center or after doing a search during the current session?

Requirement. 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.

7 **Question.** Is your stop file setting pointing to the correct Hummingbird location?

Requirement. 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 which 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.

8 **Question.** Are you setting up SearchServer on a UNIX machine?

Requirement. UNIX does require some additional steps to set up the ODBC data connector. See Chapter 5, "Installing Siebel Search Under UNIX" for more information.

9 **Question.** Are you setting up SearchServer under Windows on an Oracle database?

Requirement. There is one additional step required for setting up search under an Oracle database. See "Additional Steps for Oracle Database Users Under Windows" on page 43 for details on setting up the ODBC data source. If you are using UNIX, see "DataDirect ODBC Driver Installation and Configuration" on page 60.

10 **Question.** Is the file system set up correctly?

Requirement. 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 the application. You should not receive any errors.

11 **Question.** Are you trying to index off of the sample database?

Requirement. 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 0 records indexed.

Visibility

12 **Question.** Are the records you are indexing related to categories?

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

NOTE: 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, then the records must be associated with categories and then the index must be recreated or refreshed, or the search category must be modified to remove the access group visibility. See "Indexing Fields to Enforce Catalog Category Visibility" on page 77 for information on modifying visibility for a search index.

13 **Question.** Do you get zero records for one search category while other search categories return records?

Requirement. 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 Search Server 5.0, 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 5.0 but was supported in 4.0. For example, word!ftelp/inflect/spell should 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.

14 **Question.** Is the Search Filter spec eliminating the records you expect to see?

Requirements. Search categories often have search specs applied on them as part of their Siebel Tools definition. This search spec will filter out records from results if they do not meet the required search spec.

How to check. In Siebel Tools, go to the Search Engine > Search Definition > Search Definition Category to see if there is a search spec. Compare this spec to the records you were expecting to see as search results.

15 **Question.** Why is index generation taking so long?

Requirements. Make sure that the index setting Log Control is not set. It is important that the level of logging should 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 Kb).

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

Requirement. It is important to make sure that both the Hummingbird Connect Manager and Hummingbird Connector services are started. Also the account used to logon to the service must be a valid user/system account with the proper rights set. It's 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. Please refer to 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.fte. 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. Please refer to the Data Preparation and Administration Guide of the Search Server documentation for more information on using this utility.

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17 **Question.** When can I start and stop the client connector?

Requirements. 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.

To start a client connector

- On the Start menu, click Programs/Hummingbird/Search Server 5.0/ Hummingbird Connector Manager.
- In the Hummingbird Server Service Setup dialog box, click Start.

To stop a client connector

- In the Hummingbird Server Service Setup dialog box, click Stop.

- You will be prompted to confirm this action.
- Click OK.

Advanced Search Settings

18 **Question.** Do you have the Advanced Search Settings set up correctly?

Requirements. The Term Generator, Thesaurus Filename, Thesaurus Option, and Translation settings must be set to valid values in order to avoid searching errors.

How to check. See "Advanced Search Execution Settings" on page 133 for details on how to set these values.

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 should 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;

Syntax For Filter Search Specifications C

This section lists syntax requirements for filtering Search within Siebel Search 7.

Filter Search Spec Syntax

This section describes the supported syntax elements for filter search specifications. The filter search spec is parsed based on the validation rules determined by SearchServer 5.0 for searching on unstructured text. For more information, see the Hummingbird Search SQL Reference Guide of the Search Server 5.0.

Precedence

Precedence refers to the order in which the SearchServer evaluates the various search operators within the filter search query specification. Table 32 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.

Siebel Applications evaluate the expression within the parentheses first, before evaluating the expression outside.

Table 32. Level of Precedence

Level	Operator
1	()
2	NOT
3	AND
4	OR

Comparison Operators

Table 33 describes the purpose of each comparison operator and gives an example of how it is used.

Table 33. 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 4 operators are used only for Date fields.

Logical Operators

Table 34 explains what a value of TRUE or FALSE means for each logical operator.

Table 34. 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

NOTE: The Search Engine Table property for View and Applet must be based on the same table as the index. For example, if the search index is based on S_EVT_ACT, then the view should be based on action and the applet should be based on action. 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 and 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:

- *char1* NOT LIKE *char2*

  or

- 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 35.

Table 35. Pattern Matching Using Special Characters

Character	Purpose	Example
*	Zero or more characters	[Sales Type] LIKE Sales* would return 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? would return all records whose [Sales Type] value was 5 characters long and did not start with the letters Sales. Records with Sales would not.

Functions in Calculation Expressions

Functions that can be used in the filter search specification are listed in Table 36.

Table 36. Functions that May be Used in Filter Search Specs

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 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, 6/30/02).
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 spec 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 done 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

Filter searching can be performed through the user interface controls (exposed through 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

H

I

J

L

M

N

O

P

Q

R

S

T

U

V

W