Information Builders

WebFOCUS

Magnify Search Developer's Guide

Release 8.2 Version 02

May 21, 2019

Active Technologies, EDA, EDA/SQL, FIDEL, FOCUS, Information Builders, the Information Builders logo, iWay, iWay Software, Parlay, PC/FOCUS, RStat, Table Talk, Web390, WebFOCUS, WebFOCUS Active Technologies, and WebFOCUS Magnify are registered trademarks, and DataMigrator and Hyperstage are trademarks of Information Builders, Inc.

Adobe, the Adobe logo, Acrobat, Adobe Reader, Flash, Adobe Flash Builder, Flex, and PostScript are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

Due to the nature of this material, this document refers to numerous hardware and software products by their trademarks. In most, if not all cases, these designations are claimed as trademarks or registered trademarks by their respective companies. It is not this publisher's intent to use any of these names generically. The reader is therefore cautioned to investigate all claimed trademark rights before using any of these names other than to refer to the product described.

Copyright © 2019, by Information Builders, Inc. and iWay Software. All rights reserved. Patent Pending. This manual, or parts thereof, may not be reproduced in any form without the written permission of Information Builders, Inc.

Contents

Preface 7
Conventions 8
Related Publications 9
Customer Support 9
Information You Should Have 10
User Feedback 11
Information Builders Consulting and Training 11
1. Getting Started With Magnify Search 13
About Magnify Search 13
Magnify Search Architecture 13
2. Overview of Implementing Magnify Search 15
Planning for Enterprise Search 15
About the Magnify Feed Process 16
3. Magnify Search: Building Indexes With WebFOCUS Reports 19
Introducing Magnify Search Indexing 19
Indexing the Course File 20
Prerequisites for Indexing With the Movie and Car Files 42
Disable Procedure Parameters. 43
Indexing the Movie File 45
Indexing the Car File 54
Post-Indexing Verification 68
Word Cloud Usage Considerations 70
Force Closing an Index During a Feed Process 74
Upgrading Your Lucene Indexes 76
Magnify Distributed Indexes 78
Enable Distributed Indexes for Load Balancing 82
4. Indexing Using the FORMAT MAGNIFY Command 83
FORMAT MAGNIFY 83
Using FORMAT MAGNIFY With TEXT Fields. 89
Writing Magnify Feed Documents to Disk. 89
Using Sentiment Analysis With Magnify Search 90

5. Magnify Search Meta Tags 93
HTML Format for All Access Types 93
HTML Format Required for an External URL 95
File Indexing Specific Meta Tag Information 97
Sentiment Analysis Indexing 98
HTML Format for a Stand-alone Report Procedure 99
HTML Format for a Managed Reporting Procedure 100
HTML Format for a Business Intelligence Portal Item 101
HTML Format for an AUTORUN Procedure 103
6. Magnify Search Protocols 105
Magnify Search Protocols for Indexing Documents 105
General Specification. 106
Header Element. 106
Record Element. 107
Protocol Specification. 108
XML Protocol of Search Result Output. 112
Word Cloud and Category Tree Data Returned in Magnify Search XML Output. 112
7. Configuring the Adapter for Flat File to Search File Repositories 115
Overview 115
File Indexing Requirements. 116
Creating a New Application Mapping to the File Repository Directory 116
Defining a New Application Directory 118
Defining a File Monitor Synonym 119
Configuring the File Monitor Master File 121
Advanced Configuration. 123
Transforming Documents Into Searchable Content 124
Getting Started. 124
Configuring a FORMAT MAGNIFY Procedure 125
8. Auto Complete 131
Overview 131
Configuring Auto Complete 132

Generating Suggestion Indices. 133
Generating a Suggestion Index During the Regular Feed Process. 133
Generating a Suggestion Index Using a Batch/Script Program. 134
Usage Considerations. 135
Disabling Auto Complete. 135
Suggestion Limits. 136

9. Magnify Search Crawler 137

Overview 137
Prerequisites. 137
Deploying Magnify Search Crawler 138
Configuring Magnify Search Crawler 139

A. Supporting Information for iWay 145

Overview 145
About the Magnify Feed Process 146
Magnify Search Feed Example 148
XML File From the Listener. 150
Store Values. 151
Create HTML. 152
Feed to Search Engine. 155
Configuration Worksheets. 156

B. Magnify Search Error Handling 161

Magnify Error Handling 161
License for Indexing 162
Resolving OutOfMemoryError Exceptions 162

Preface

This content explains how to install, configure, and use Magnify Search, an Information Builders enterprise business intelligent search tool. It is intended for developers who need to create search applications with Magnify Search.

How This Manual Is Organized

This manual includes the following chapters:

	Chapter/Appendix	Contents
1	Getting Started With Magnify Search	Provides an overview of Magnify Search, highlighting its features and the underlying architecture.
2	Overview of Implementing Magnify Search	Provides an overview of the process to set up Magnify Search for use. A scenario with example parameters is provided here and carried through the remaining chapters to help illustrate the configuration steps.
3	Magnify Search: Building Indexes With WebFOCUS Reports	Contains examples in support of Magnify Search indexing.
4	Indexing Using the FORMAT MAGNIFY Command	Describes the requirements for indexing data using the FORMAT MAGNIFY command.
5	Magnify Search Meta Tags	Presents and describes the meta tags used with Magnify Search.
6	Magnify Search Protocols	Describes the Magnify Search protocols for indexing data.
7	Configuring the Adapter for Flat File to Search File Repositories	Describes how to configure the Adapter for Flat File to search file repositories.
8	Auto Complete	Describes how to configure Auto Complete for Magnify Search.
9	Magnify Search Crawler	Describes how to deploy and configure the Magnify Search Crawler.

	Chapter/Appendix	Contents
A	Supporting Information for iWay	Provides supporting information for iWay.
B	Magnify Search Error Handling	Presents error handling information for Magnify Search.

Conventions

The following table describes the conventions that are used in this manual.

Convention	Description

`THIS TYPEFACE`
or
`this typeface`
	Denotes syntax that you must enter exactly as shown.

`this typeface`	Represents a placeholder (or variable) in syntax for a value that you or the system must supply.
`underscore`	Indicates a default setting.
this typeface	Represents a placeholder (or variable), a cross-reference, or an important term. It may also indicate a button, menu item, or dialog box option that you can click or select.
Key + Key	Indicates keys that you must press simultaneously.
`{ }`	Indicates two or three choices. Type one of them, not the braces.
`[ ]`	Indicates a group of optional parameters. None are required, but you may select one of them. Type only the parameter in the brackets, not the brackets.
`|`	Separates mutually exclusive choices in syntax. Type one of them, not the symbol.
`...`	Indicates that you can enter a parameter multiple times. Type only the parameter, not the ellipsis (...).

Convention	Description
. . .	Indicates that there are (or could be) intervening or additional commands.

Related Publications

Visit our Technical Content Library at *http://documentation.informationbuilders.com*. You can also contact the Publications Order Department at (800) 969-4636.

Customer Support

Do you have questions about this product?

Join the Focal Point community. Focal Point is our online developer center and more than a message board. It is an interactive network of more than 3,000 developers from almost every profession and industry, collaborating on solutions and sharing tips and techniques. Access Focal Point at *http://forums.informationbuilders.com/eve/forums*.

You can also access support services electronically, 24 hours a day, with InfoResponse Online. InfoResponse Online is accessible through our website, *http://www.informationbuilders.com*. It connects you to the tracking system and known-problem database at the Information Builders support center. Registered users can open, update, and view the status of cases in the tracking system and read descriptions of reported software issues. New users can register immediately for this service. The technical support section of *www.informationbuilders.com* also provides usage techniques, diagnostic tips, and answers to frequently asked questions.

Call Information Builders Customer Support Services (CSS) at (800) 736-6130 or (212) 736-6130. Customer Support Consultants are available Monday through Friday between 8:00 a.m. and 8:00 p.m. EST to address all your questions. Information Builders consultants can also give you general guidance regarding product capabilities. Please be ready to provide your six-digit site code number (*xxxx.xx*) when you call.

To learn about the full range of available support services, ask your Information Builders representative about InfoResponse Online, or call (800) 969-INFO.

Information You Should Have

To help our consultants answer your questions effectively, be prepared to provide the following information when you call:

- ❑ Your six-digit site code (*xxxx.xx*).
- ❑ Your WebFOCUS configuration:
  - ❑ The front-end software you are using, including vendor and release.
  - ❑ The communications protocol (for example, TCP/IP or HLLAPI), including vendor and release.
  - ❑ The software release.
  - ❑ Your server version and release. You can find this information using the Version option in the Web Console.
- ❑ The stored procedure (preferably with line numbers) or SQL statements being used in server access.
- ❑ The Master File and Access File.
- ❑ The exact nature of the problem:
  - ❑ Are the results or the format incorrect? Are the text or calculations missing or misplaced?
  - ❑ Provide the error message and return code, if applicable.
  - ❑ Is this related to any other problem?
- ❑ Has the procedure or query ever worked in its present form? Has it been changed recently? How often does the problem occur?
- ❑ What release of the operating system are you using? Has it, your security system, communications protocol, or front-end software changed?
- ❑ Is this problem reproducible? If so, how?
- ❑ Have you tried to reproduce your problem in the simplest form possible? For example, if you are having problems joining two data sources, have you tried executing a query containing just the code to access the data source?
- ❑ Do you have a trace file?

- How is the problem affecting your business? Is it halting development or production? Do you just have questions about functionality or documentation?

User Feedback

In an effort to produce effective documentation, the Technical Content Management staff welcomes your opinions regarding this document. You can contact us through our website, *http://documentation.informationbuilders.com/connections.asp*.

Thank you, in advance, for your comments.

Information Builders Consulting and Training

Interested in training? Information Builders Education Department offers a wide variety of training courses for this and other Information Builders products.

For information on course descriptions, locations, and dates, or to register for classes, visit our website (*http://education.informationbuilders.com*) or call (800) 969-INFO to speak to an Education Representative.

Chapter 1

Getting Started With Magnify Search

This section introduces Magnify Search.

In this chapter:

- About Magnify Search
- Magnify Search Architecture

About Magnify Search

Magnify Search is an enterprise search tool that allows you to search your structured and unstructured business content, such as application data and database records, through an easy-to-use search interface. Because the Information Builders adapter product line provides access to over 300 data sources, Magnify Search acts as the single point of access to information that resides in multiple applications throughout your enterprise.

When you search for a keyword or phrase, Magnify Search scans the indexed content and returns a results page that includes a navigation tree to focus your search, and links that trigger dynamic WebFOCUS reports to present you with the most current information in your enterprise.

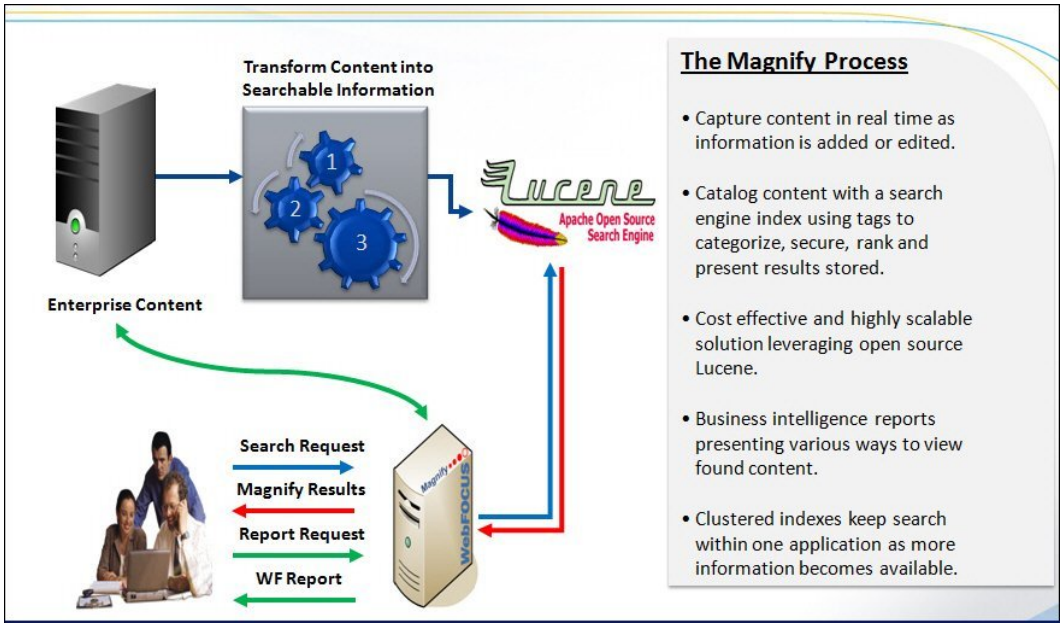
Through various configuration parameters in Magnify Search, you determine what data in your business content will be accessible to a search and which WebFOCUS report to run from a search results link. By using a combination of the Magnify Search style sheet (provided with the product) and these parameters, you can customize the appearance of your search results page.

Magnify Search Architecture

The Magnify Search platform connects end users to enterprise information through a single point of access in order to search across any content repository, including any structured or unstructured data, so that when a search is made, Magnify Search returns only the most relevant search results. End users can drill down on search results to analyze and understand their information.

Magnify search-based applications are built using methods to extract raw data and transform it into search results. During this process, data is enriched with categorizations and other metadata that Magnify Search can use in retrieving and presenting results. This includes item titles, images, geographical details, and drill-down links to associated reports or applications. These processes can be automated so that data storage facilities and file repositories are always kept in sync with Magnify Search. This means that whenever new information is added, old information is updated, or information has expired, Magnify Search will always be up-to-date.

The following diagram shows the interaction between the major components associated with Magnify Search.



Chapter 2

Overview of Implementing Magnify Search

This section provides a high-level look at the entire Magnify Search feed process, which is detailed in subsequent chapters.

This section also provides the scenario and example data that we use throughout the configuration steps to illustrate a typical configuration of Magnify Search.

In this chapter:

- Planning for Enterprise Search
- About the Magnify Feed Process

Planning for Enterprise Search

The following are some general guidelines that can help your organization prepare for a successful Magnify deployment.

Search versus Report.

- What do you want to search?
- How do you want the results to be presented?
- What details do you want to see?

Content Types.

- How is the information organized?
- What are the common attributes across your data?
- Are there relationships among the data?

Architecture.

- What information is searchable?
- What information will be used for reporting?
- How is information aggregated and filtered?

Transforming Data into Search Content.

Magnify can search on any structured or unstructured data that contains strings or numbers. Fields and file properties (state, type, and keywords) are designated as attributes of search content to be later used for sorting, filtering, and navigation.

Security.

Magnify provides security features to restrict access to specific pieces of data. When choosing a security model for your application, several factors will determine how to set up security when retrieving search results, such as integration with existing security infrastructure, who is authorized to access the search application, and what information each type of user will be able to access.

About the Magnify Feed Process

Linking the entire organization through the enterprise search overcomes operational, departmental, and regional boundaries. Enterprise search needs to provide a model to group information for users to easily classify both similar and dissimilar content, as well as to filter large results sets.

In addition, users need a simple, authentic, and interactive experience searching content. Setting up a search solution should allow administrators and developers to concentrate more on information availability and integrity and less on application design.

Note: Basic report writing knowledge is a prerequisite to perform the following tasks.

The following topics are addressed in this manual:

- Creating a procedure to review all available data.
- Creating a procedure to transform the data into search content.
- Configuring a procedure to index data with the Magnify search engine library.
- Reviewing the search-based application generated.

Note: If any type of parsing error occurs with your data, you will see a 403 error in the websecurity.log file. The possible reasons for this error are:

- **You are not licensed.** If this is the reason, check the license of your WebFOCUS software.
- **Invalid data.** If this is the reason, there will be a decimal representation of the invalid data in the websecurity.log file. You can either adjust the data so it becomes valid, or remove the invalid data.

- **The public user is not specified in our repository.** If this is the reason, add the public user to the repository.

Chapter 3

Magnify Search: Building Indexes With WebFOCUS Reports

This chapter presents three simple examples of feeding data to Magnify Search index libraries. Each example will build off the other, stepping through the process of transforming raw data into searchable information.

Completing these three examples illustrates core elements required to build a Magnify Search application.

In this chapter:

- Introducing Magnify Search Indexing
- Indexing the Course File
- Prerequisites for Indexing With the Movie and Car Files
- Indexing the Movie File
- Indexing the Car File
- Post-Indexing Verification
- Word Cloud Usage Considerations
- Force Closing an Index During a Feed Process
- Upgrading Your Lucene Indexes
- Magnify Distributed Indexes

Introducing Magnify Search Indexing

Magnify Search applications match user-submitted terms to terms in index libraries that were previously generated from enterprise data using Magnify Search WebFOCUS Reports. These reports are not like typical BI reports, as data output is modeled so that each column describes how it is used by the Magnify Search interface. For example, data designated as searchable content is parsed into an index library and is compared and matched to user-submitted search terms.

Some planning is required in order to determine what fields are needed and how they will be used. Some fields will be used to further enrich the data with images and other information. Other fields will drill down or link to other WebFOCUS reports and applications.

Once the information architecture is in place, simply drag each column into a WebFOCUS Report. Upon execution, the data is transformed to search content and fed to Magnify Search, where the data is stored in a Magnify Search index library, thereby becoming searchable.

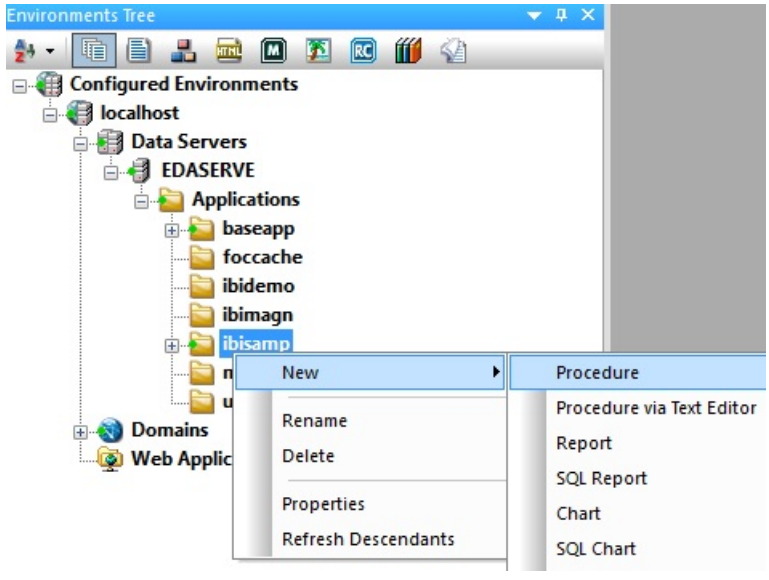
In essence, data will be laid out as a search result, rather than a report. The following screen shows search result for courses. It includes the display of Categories, Main Title, searchable contents, and additional links, while meta tags are used to define the underlying data in a search result.

Indexing the Course File

This section provides steps to review data and identify how fields will be used for search in order to build a WebFOCUS procedure to create Magnify index libraries.

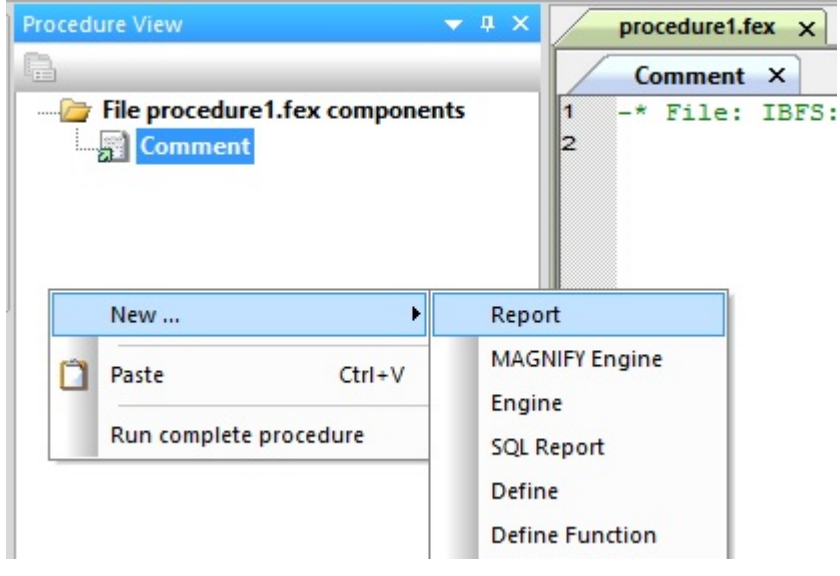
1. Create a procedure to review all available data.
2. In App Studio, create an application pointing to the sample directory, *ibisamp*, if not already created.

3. In the *ibisamp* application, create a new procedure, as shown in the following image.

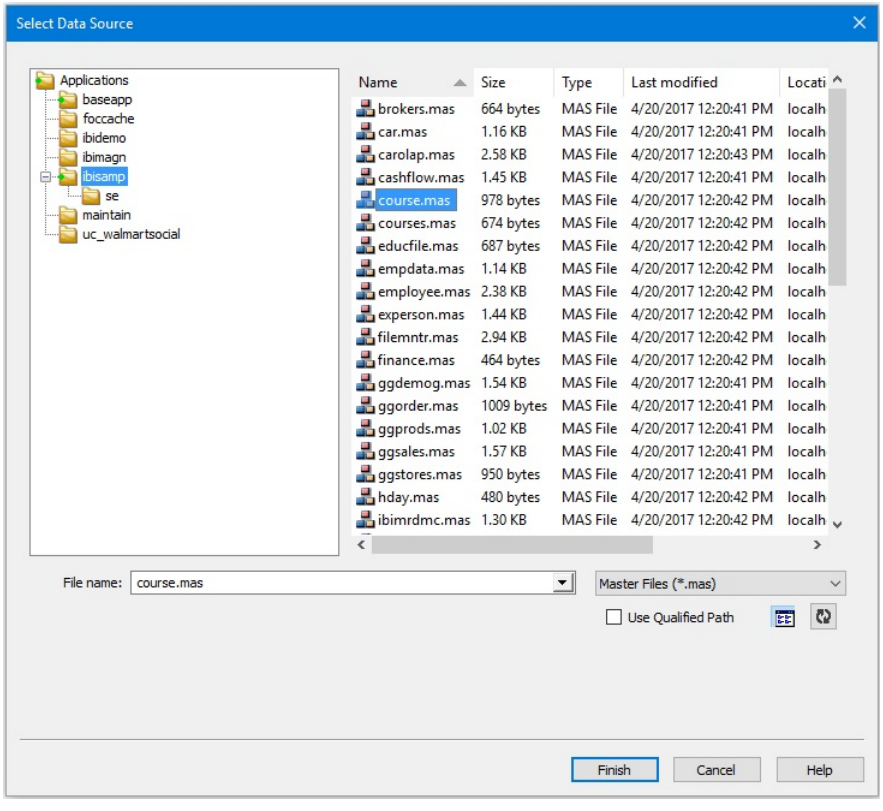


4. In the Procedure View panel, create a Report object.

   a. Right-click anywhere in the Procedure View panel select *New* and then click *Report* from the context menu, as shown in the following image.

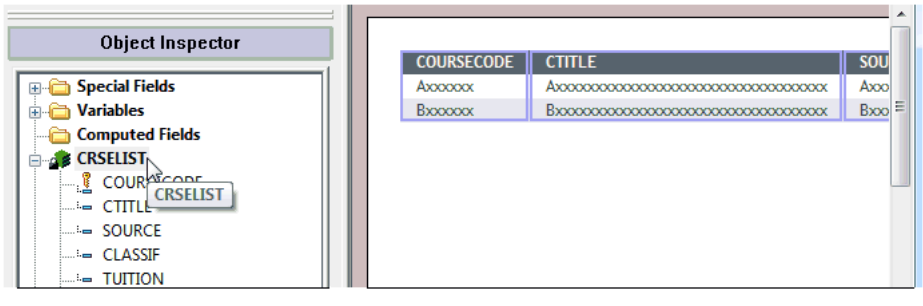


The Select Data Source dialog opens, as shown in the following image.

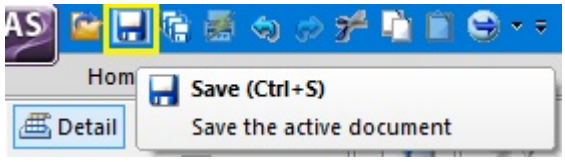


b. Select the *course.mas* Master File and click *Finish*.

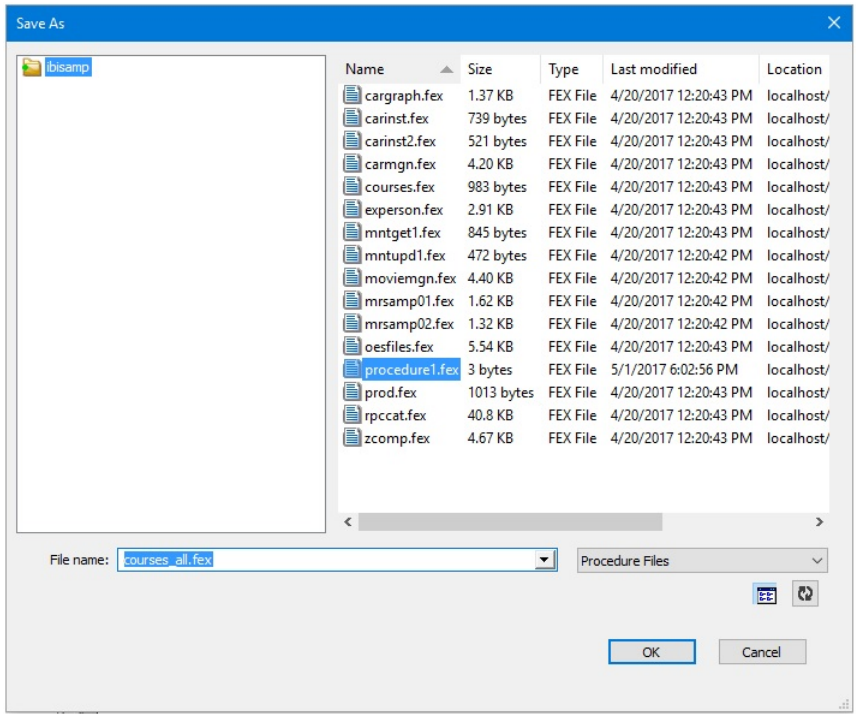
c. Double-click the *CRSELIST* segment to add all the fields to the report canvas, as shown in the following image.



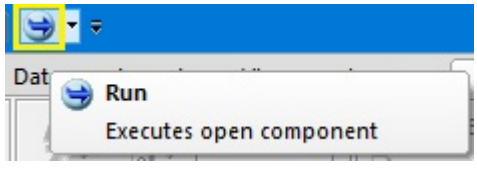
d. Click *Save* from the Quick Access Toolbar, as shown in the following image.



The Save As dialog opens, as shown in the following image.

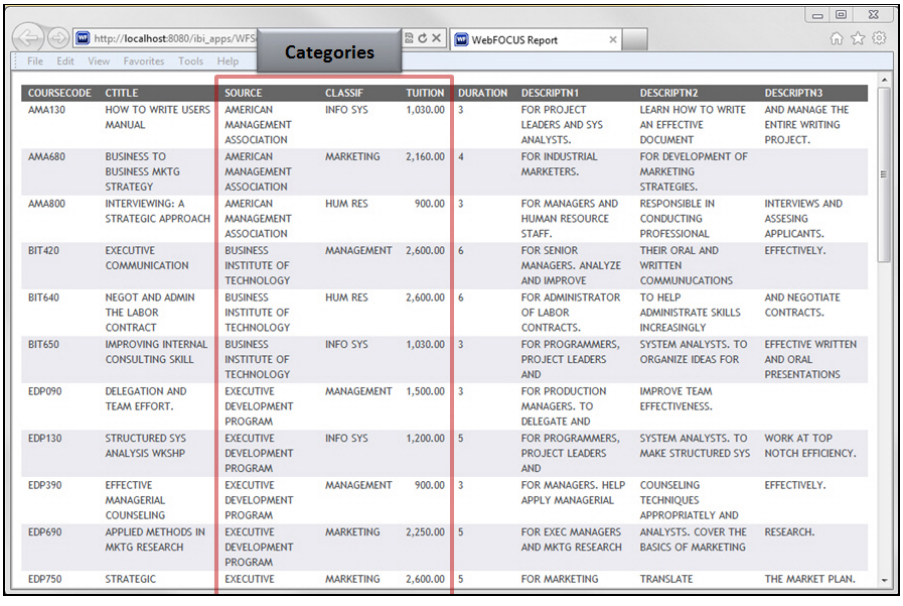


5. Specify a name for your procedure (for example, courses_all.fex) and click *OK*.
6. Click *Run* from the Quick Access Toolbar, as shown in the following image.



The report runs and is displayed in a browser window.

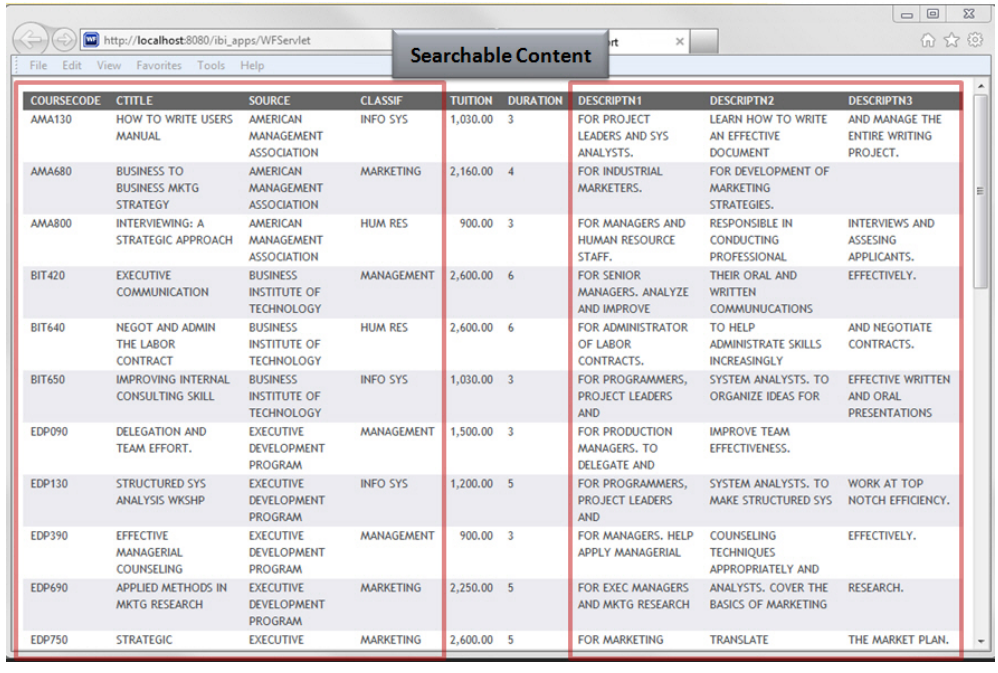
7. Identify fields to assign to the Magnify Category Tree, as shown in the following image.



COURSECODE	CTITLE	SOURCE	CLASSIF	TUITION	DURATION	DESCRIPTN1	DESCRIPTN2	DESCRIPTN3
AMA130	HOW TO WRITE USERS MANUAL	AMERICAN MANAGEMENT ASSOCIATION	INFO SYS	1,030.00	3	FOR PROJECT LEADERS AND SYS ANALYSTS.	LEARN HOW TO WRITE AN EFFECTIVE DOCUMENT	AND MANAGE THE ENTIRE WRITING PROJECT.
AMA680	BUSINESS TO BUSINESS MKTG STRATEGY	AMERICAN MANAGEMENT ASSOCIATION	MARKETING	2,160.00	4	FOR INDUSTRIAL MARKETERS.	FOR DEVELOPMENT OF MARKETING STRATEGIES.	
AMA800	INTERVIEWING: A STRATEGIC APPROACH	AMERICAN MANAGEMENT ASSOCIATION	HUM RES	900.00	3	FOR MANAGERS AND HUMAN RESOURCE STAFF.	RESPONSIBLE IN CONDUCTING PROFESSIONAL	INTERVIEWS AND ASSESING APPLICANTS.
BIT420	EXECUTIVE COMMUNICATION	BUSINESS INSTITUTE OF TECHNOLOGY	MANAGEMENT	2,600.00	6	FOR SENIOR MANAGERS. ANALYZE AND IMPROVE	THEIR ORAL AND WRITTEN COMMUNUCATIONS	EFFECTIVELY.
BIT640	NEGOT AND ADMIN THE LABOR CONTRACT	BUSINESS INSTITUTE OF TECHNOLOGY	HUM RES	2,600.00	6	FOR ADMINISTRATOR OF LABOR CONTRACTS.	TO HELP ADMINISTRATE SKILLS INCREASINGLY	AND NEGOTIATE CONTRACTS.
BIT650	IMPROVING INTERNAL CONSULTING SKILL	BUSINESS INSTITUTE OF TECHNOLOGY	INFO SYS	1,030.00	3	FOR PROGRAMMERS, PROJECT LEADERS AND	SYSTEM ANALYSTS. TO ORGANIZE IDEAS FOR	EFFECTIVE WRITTEN AND ORAL PRESENTATIONS
EDP090	DELEGATION AND TEAM EFFORT.	EXECUTIVE DEVELOPMENT PROGRAM	MANAGEMENT	1,500.00	3	FOR PRODUCTION MANAGERS. TO DELEGATE AND	IMPROVE TEAM EFFECTIVENESS.	
EDP130	STRUCTURED SYS ANALYSIS WKSHP	EXECUTIVE DEVELOPMENT PROGRAM	INFO SYS	1,200.00	5	FOR PROGRAMMERS, PROJECT LEADERS AND	SYSTEM ANALYSTS. TO MAKE STRUCTURED SYS	WORK AT TOP NOTCH EFFICIENCY.
EDP390	EFFECTIVE MANAGERIAL COUNSELING	EXECUTIVE DEVELOPMENT PROGRAM	MANAGEMENT	900.00	3	FOR MANAGERS. HELP APPLY MANAGERIAL	COUNSELING TECHNIQUES APPROPRIATELY AND	EFFECTIVELY.
EDP690	APPLIED METHODS IN MKTG RESEARCH	EXECUTIVE DEVELOPMENT PROGRAM	MARKETING	2,250.00	5	FOR EXEC MANAGERS AND MKTG RESEARCH	ANALYSTS. COVER THE BASICS OF MARKETING	RESEARCH.
EDP750	STRATEGIC	EXECUTIVE	MARKETING	2,600.00	5	FOR MARKETING	TRANSLATE	THE MARKET PLAN.

Note: Usually fields that make high-level groupings, typically those used as BY fields, make good categories. Although numerical values, like price, usually do not make good categories as is, they make excellent categories when converted to a range.

8. Identify fields to make searchable from the Magnify search interface, as shown in the following image.



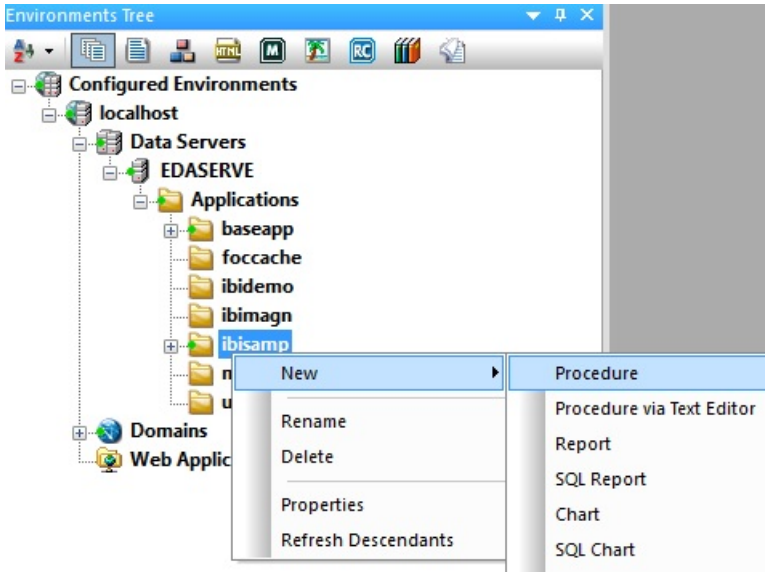
COURSECODE	CTITLE	SOURCE	CLASSIF	TUITION	DURATION	DESCRIPTN1	DESCRIPTN2	DESCRIPTN3
AMA130	HOW TO WRITE USERS MANUAL	AMERICAN MANAGEMENT ASSOCIATION	INFO SYS	1,030.00	3	FOR PROJECT LEADERS AND SYS ANALYSTS.	LEARN HOW TO WRITE AN EFFECTIVE DOCUMENT	AND MANAGE THE ENTIRE WRITING PROJECT.
AMA680	BUSINESS TO BUSINESS MKTG STRATEGY	AMERICAN MANAGEMENT ASSOCIATION	MARKETING	2,160.00	4	FOR INDUSTRIAL MARKETERS.	FOR DEVELOPMENT OF MARKETING STRATEGIES.	
AMA800	INTERVIEWING: A STRATEGIC APPROACH	AMERICAN MANAGEMENT ASSOCIATION	HUM RES	900.00	3	FOR MANAGERS AND HUMAN RESOURCE STAFF.	RESPONSIBLE IN CONDUCTING PROFESSIONAL	INTERVIEWS AND ASSESING APPLICANTS.
BIT420	EXECUTIVE COMMUNICATION	BUSINESS INSTITUTE OF TECHNOLOGY	MANAGEMENT	2,600.00	6	FOR SENIOR MANAGERS. ANALYZE AND IMPROVE	THEIR ORAL AND WRITTEN COMMUNUCATIONS	EFFECTIVELY.
BIT640	NEGOT AND ADMIN THE LABOR CONTRACT	BUSINESS INSTITUTE OF TECHNOLOGY	HUM RES	2,600.00	6	FOR ADMINISTRATOR OF LABOR CONTRACTS.	TO HELP ADMINISTRATE SKILLS INCREASINGLY	AND NEGOTIATE CONTRACTS.
BIT650	IMPROVING INTERNAL CONSULTING SKILL	BUSINESS INSTITUTE OF TECHNOLOGY	INFO SYS	1,030.00	3	FOR PROGRAMMERS, PROJECT LEADERS AND	SYSTEM ANALYSTS. TO ORGANIZE IDEAS FOR	EFFECTIVE WRITTEN AND ORAL PRESENTATIONS
EDP090	DELEGATION AND TEAM EFFORT.	EXECUTIVE DEVELOPMENT PROGRAM	MANAGEMENT	1,500.00	3	FOR PRODUCTION MANAGERS. TO DELEGATE AND	IMPROVE TEAM EFFECTIVENESS.	
EDP130	STRUCTURED SYS ANALYSIS WKSHP	EXECUTIVE DEVELOPMENT PROGRAM	INFO SYS	1,200.00	5	FOR PROGRAMMERS, PROJECT LEADERS AND	SYSTEM ANALYSTS. TO MAKE STRUCTURED SYS	WORK AT TOP NOTCH EFFICIENCY.
EDP390	EFFECTIVE MANAGERIAL COUNSELING	EXECUTIVE DEVELOPMENT PROGRAM	MANAGEMENT	900.00	3	FOR MANAGERS. HELP APPLY MANAGERIAL	COUNSELING TECHNIQUES APPROPRIATELY AND	EFFECTIVELY.
EDP690	APPLIED METHODS IN MKTG RESEARCH	EXECUTIVE DEVELOPMENT PROGRAM	MARKETING	2,250.00	5	FOR EXEC MANAGERS AND MKTG RESEARCH	ANALYSTS. COVER THE BASICS OF MARKETING	RESEARCH.
EDP750	STRATEGIC	EXECUTIVE	MARKETING	2,600.00	5	FOR MARKETING	TRANSLATE	THE MARKET PLAN.

Note: Searchable fields tend to be those that are alphanumeric strings, IDs, or any other data that is to be matched to searched terms.

9. Close the browser window that is running the report.
10. Close the Report canvas and the Procedure View panel.

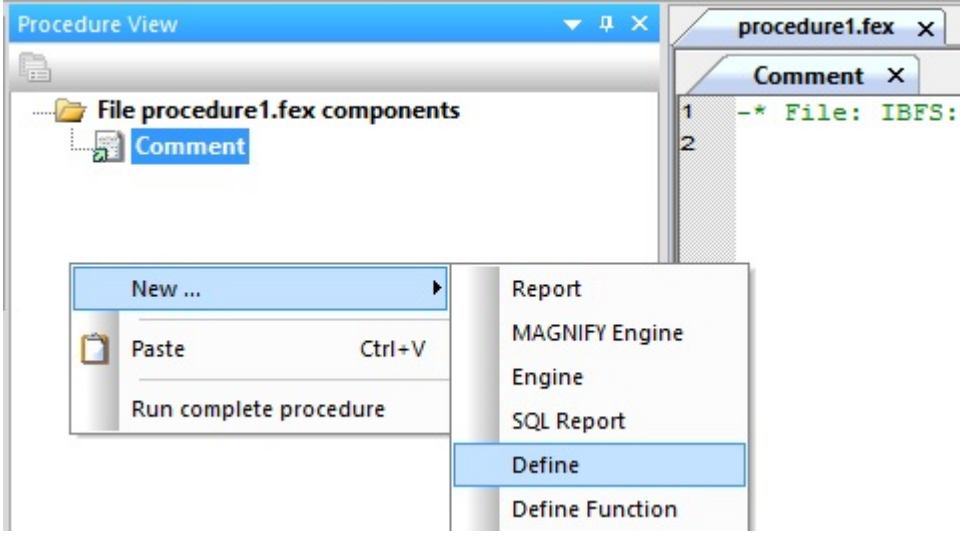
Create a procedure to transform the data into search content.

1. In the *ibisamp* application, create a new procedure, as shown in the following image.

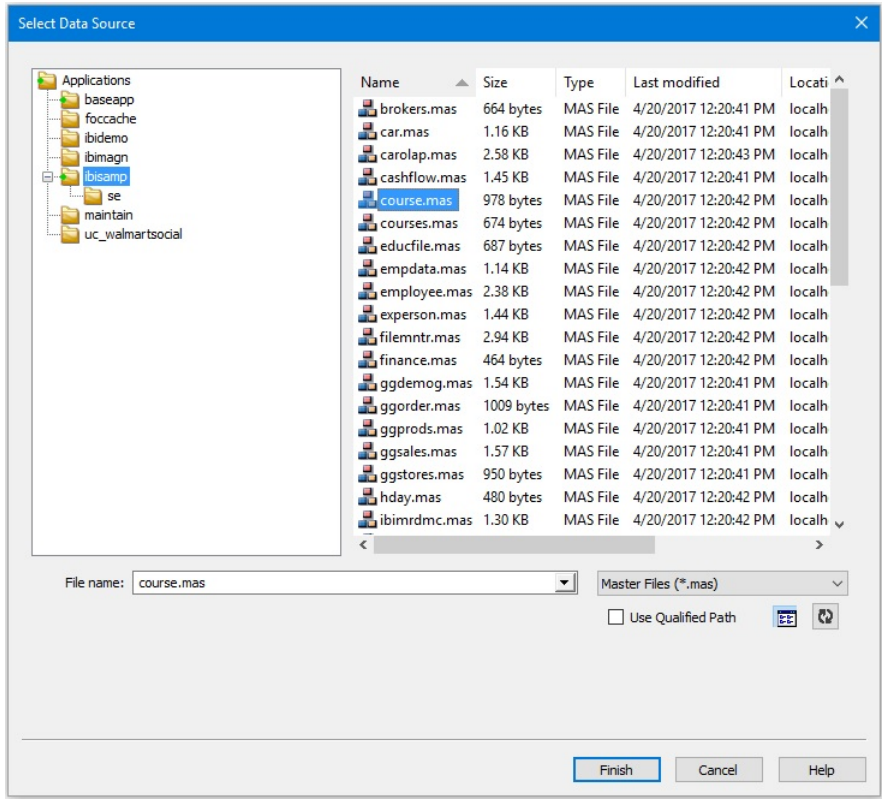


2. In the Procedure View panel, create a Define object.

   a. Right-click anywhere in the Procedure View panel select *New* and then click *Define* from the context menu, as shown in the following image.



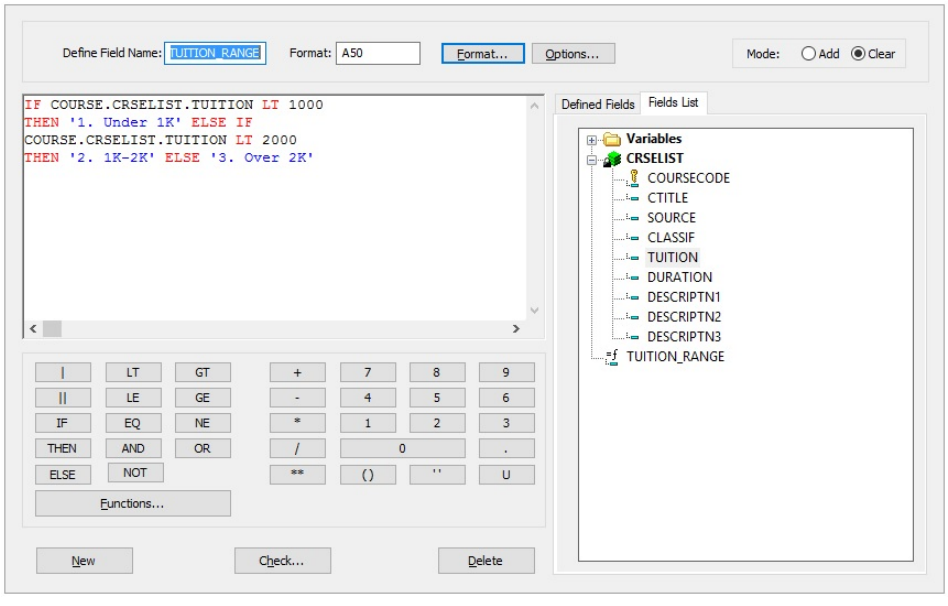
The Select Data Source dialog opens, as shown in the following image.



b. Select the *course.mas* Master File and click *Finish*.

3. In the Define dialog that opens, create fields to enrich the data, as defined in the table below.

   a. Add each define attribute using the Field, Format, and Value information shown in the table, as shown in the following image.



   b. Confirm that there are no errors by clicking the *Check* button.

   c. Create the next Defined field by clicking the *New* button.

   d. Repeat for each field listed below.

      Note: You can copy and paste Field, Format, and Value information from the table below into their respective places in the Define dialog.

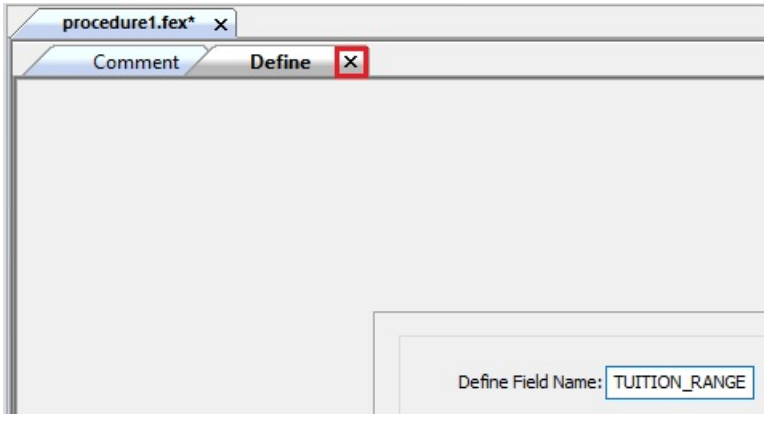
Field	Format	Value	Purpose
SYSSOURCE	A25	`'School Courses'`	Hard-coded category value.
TUITION_RANGE	A50	`IF COURSE.CRSELIST.TUITION LT 1000 THEN '1. Under 1K' ELSE IF COURSE.CRSELIST.TUITION LT 2000 THEN'2. 1K-2K' ELSE '3. Over 2K'`	Granular data rolled up into a range.

Field	Format	Value	Purpose
SEARCHTITLE	A2000	`'<b>Course Name:' | COURSE.CRSELIST.CTITLE |'('| COURSE.CRSELIST.COURSECODE ||')</b>'`	Text shown as the search result main title.
TITLE_URL	A2000	`'/ibi_apps/WFServlet?' || 'FXK=' || COURSE.CRSELIST.COURSECODE ||'&'||'IBIF_ex=courses_detail' ||'&'|| 'IBIAPP_app=magnify_courses'`	The main drill-down link for the main title of the search results. In this case, a BI report passing the course code.
LINK_DISPLAY_NAME1	A2000	`'Search Other Department Courses'`	Additional drill-down text.
LINK_URL1	A2000	`'ibi_apps/search' ||'q='|| COURSE.CRSELIST.SOURCE`	Additional drill-down link.
LINK_DISPLAY_NAME2	A2000	`'All Courses in this Subject'`	Additional drill-down text.
LINK_URL2	A2000	`'/ibi_apps/WFServlet?' || 'FXK=' || COURSE.CRSELIST.CLASSIF ||'&'||'IBIF_ex=courses_similar' ||'&'|| 'IBIAPP_app=magnify_courses'`	Additional drill-down link.
HARDCODED	A50	`'schools course'`	Additional searchable content not originally found with the data.

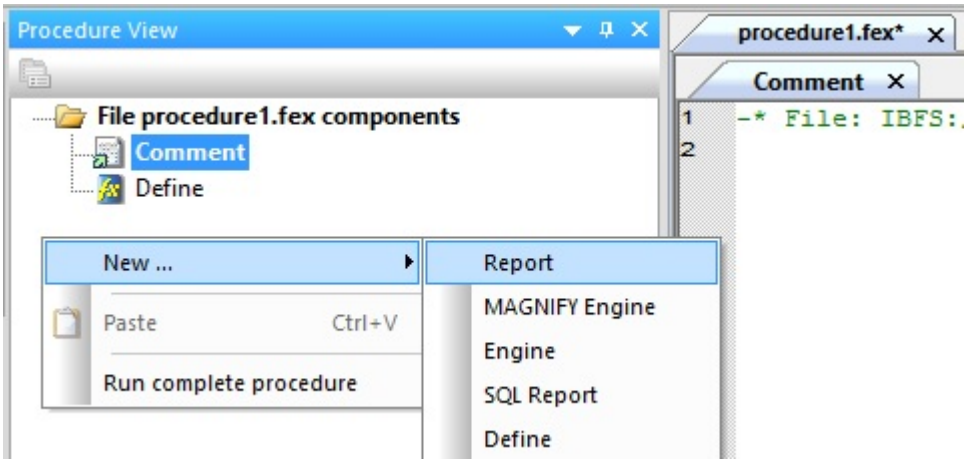
For more information, see *Indexing Using the FORMAT MAGNIFY Command* on page 83.

Note: The URL value being referenced for the TITLE_URL and Link_URL2 fields does not exist. Therefore, when executed, the links for the main title link and second additional link of the search results will not drill down to a valid webpage.

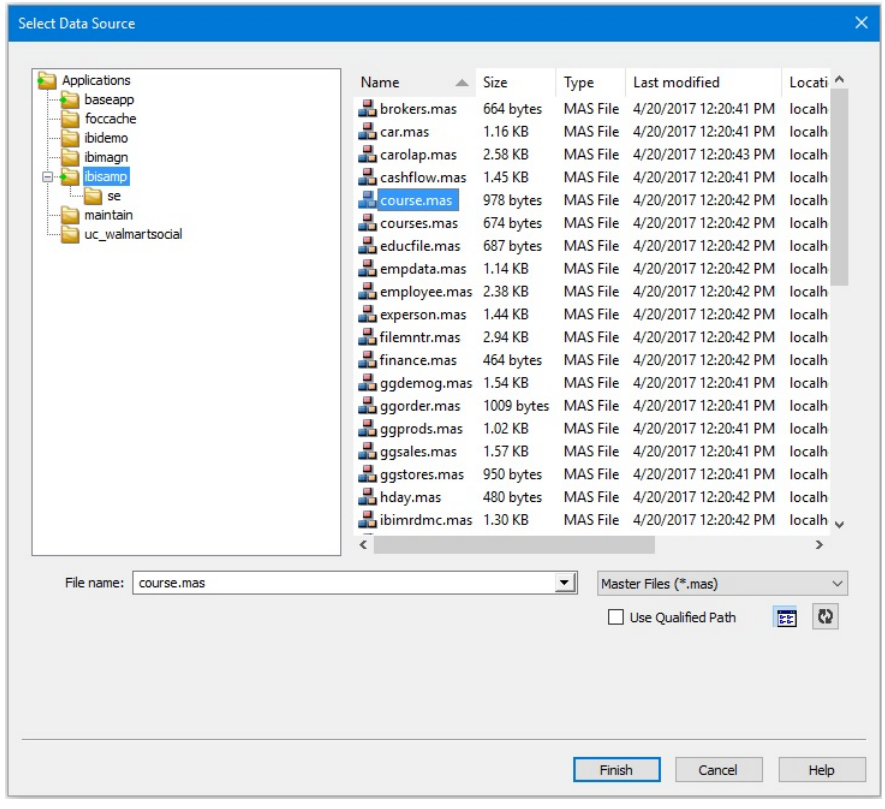
e. Close the Define dialog by closing the Define tab, as shown in the following image.



4. In the Procedure View panel, create a Report object.



The Select Data Source dialog opens, as shown in the following image.

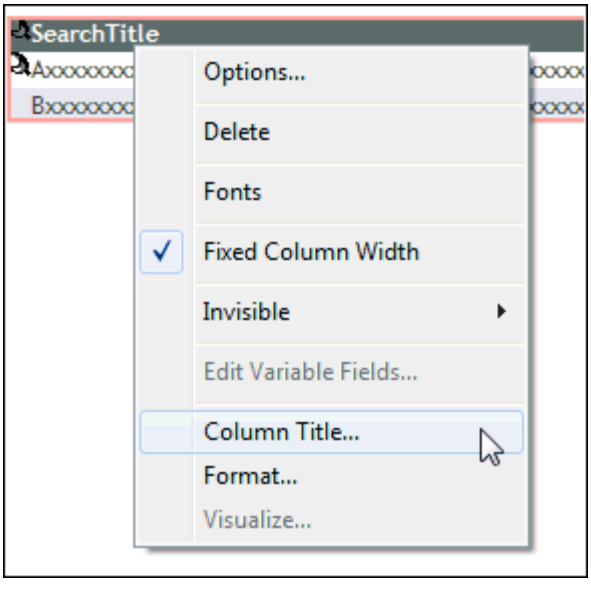


Select the *course.mas* Master File and click *Finish*.

5. Add fields to the Report canvas.
   a. In the Object Inspector, double-click the field name for all fields defined in the following table.
   b. Update the Column Title.

      ❏ On the report canvas, select the added field.

- ❑ Right-click and select *Column Title*, as shown in the following image.



- ❑ Enter a new Column Title (case-sensitive), as shown in the table below.
- ❑ Click *OK*.

c. Repeat step 5b for each field listed in the following table.

Field	Column Title (Case-Sensitive)	Purpose
COURSECODE	MagnifyID	Unique identifiers (required)
COURSECODE	WF_INDEX_UNIQUE_KEY	Unique identifiers (required)
SYSSOURCE	C1_Source_System	Category
SOURCE	C2_Department	Category
CLASSIF	C3_Subject	Category
TUITION_RANGE	C4_Tuition_Range	Category
SEARCHTITLE	SearchTitle	Drill-down link information
TITLE_URL		Drill-down link information

Field	Column Title (Case-Sensitive)	Purpose
LINK_DISPLAY_NAME1		Drill-down link information
LINK_URL1		Drill-down link information
LINK_DISPLAY_NAME2		Drill-down link information
LINK_URL2		Drill-down link information
DESCRIPTN1	S_DESCRIPTN1	Searchable content
DESCRIPTN2	S_DESCRIPTN2	Searchable content
DESCRIPTN3	S_DESCRIPTN3	Searchable content
CTITLE	S_CTITLE	Searchable content
COURSECODE	S_COURSECODE	Searchable content
SYSSOURCE	S_SYSSOURCE	Searchable content
SOURCE	S_SOURCE	Searchable content
CLASSIF	S_CLASSIF	Searchable content
HARDCODED	S_HARDCODED	Searchable content

Note: The resulting column title dictates how the data will be used in the search interface.

For more information, see *Indexing Using the FORMAT MAGNIFY Command* on page 83.

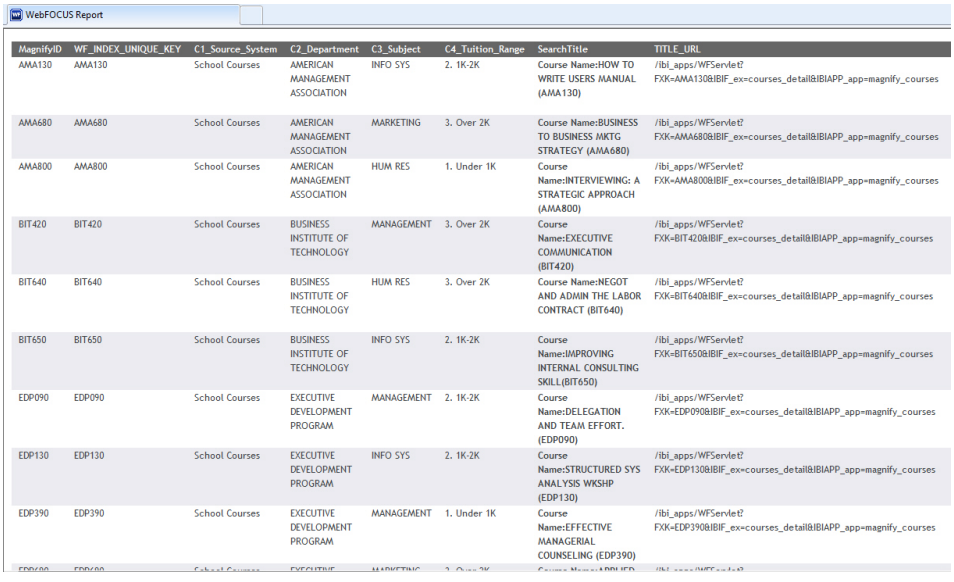
d. Click *Save* from the Quick Access Toolbar.

   The Save As dialog opens.

   Specify a name for your procedure (for example, courses_transform.fex) and click *OK*.

e. Click *Run* from the Quick Access Toolbar.

f. Review how the data is applied in their respective column titles, as shown in the following image.



WebFOCUS Report

MagnifyID	WF_INDEX_UNIQUE_KEY	C1_Source_System	C2_Department	C3_Subject	C4_Tuition_Range	SearchTitle	TITLE_URL
AMA130	AMA130	School Courses	AMERICAN MANAGEMENT ASSOCIATION	INFO SYS	2. 1K-2K	Course Name:HOW TO WRITE USERS MANUAL (AMA130)	/ibi_apps/WFServlet?FXK=AMA130&IBIF_ex=courses_detail&IBIAPP_app=magnify_courses
AMA680	AMA680	School Courses	AMERICAN MANAGEMENT ASSOCIATION	MARKETING	3. Over 2K	Course Name:BUSINESS TO BUSINESS MKTG STRATEGY (AMA680)	/ibi_apps/WFServlet?FXK=AMA680&IBIF_ex=courses_detail&IBIAPP_app=magnify_courses
AMA800	AMA800	School Courses	AMERICAN MANAGEMENT ASSOCIATION	HUM RES	1. Under 1K	Course Name:INTERVIEWING: A STRATEGIC APPROACH (AMA800)	/ibi_apps/WFServlet?FXK=AMA800&IBIF_ex=courses_detail&IBIAPP_app=magnify_courses
BIT420	BIT420	School Courses	BUSINESS INSTITUTE OF TECHNOLOGY	MANAGEMENT	3. Over 2K	Course Name:EXECUTIVE COMMUNICATION (BIT420)	/ibi_apps/WFServlet?FXK=BIT420&IBIF_ex=courses_detail&IBIAPP_app=magnify_courses
BIT640	BIT640	School Courses	BUSINESS INSTITUTE OF TECHNOLOGY	HUM RES	3. Over 2K	Course Name:NEGOT AND ADMIN THE LABOR CONTRACT (BIT640)	/ibi_apps/WFServlet?FXK=BIT640&IBIF_ex=courses_detail&IBIAPP_app=magnify_courses
BIT650	BIT650	School Courses	BUSINESS INSTITUTE OF TECHNOLOGY	INFO SYS	2. 1K-2K	Course Name:IMPROVING INTERNAL CONSULTING SKILL(BIT650)	/ibi_apps/WFServlet?FXK=BIT650&IBIF_ex=courses_detail&IBIAPP_app=magnify_courses
EDP090	EDP090	School Courses	EXECUTIVE DEVELOPMENT PROGRAM	MANAGEMENT	2. 1K-2K	Course Name:DELEGATION AND TEAM EFFORT. (EDP090)	/ibi_apps/WFServlet?FXK=EDP090&IBIF_ex=courses_detail&IBIAPP_app=magnify_courses
EDP130	EDP130	School Courses	EXECUTIVE DEVELOPMENT PROGRAM	INFO SYS	2. 1K-2K	Course Name:STRUCTURED SYS ANALYSIS WKSHP (EDP130)	/ibi_apps/WFServlet?FXK=EDP130&IBIF_ex=courses_detail&IBIAPP_app=magnify_courses
EDP390	EDP390	School Courses	EXECUTIVE DEVELOPMENT PROGRAM	MANAGEMENT	1. Under 1K	Course Name:EFFECTIVE MANAGERIAL COUNSELING (EDP390)	/ibi_apps/WFServlet?FXK=EDP390&IBIF_ex=courses_detail&IBIAPP_app=magnify_courses

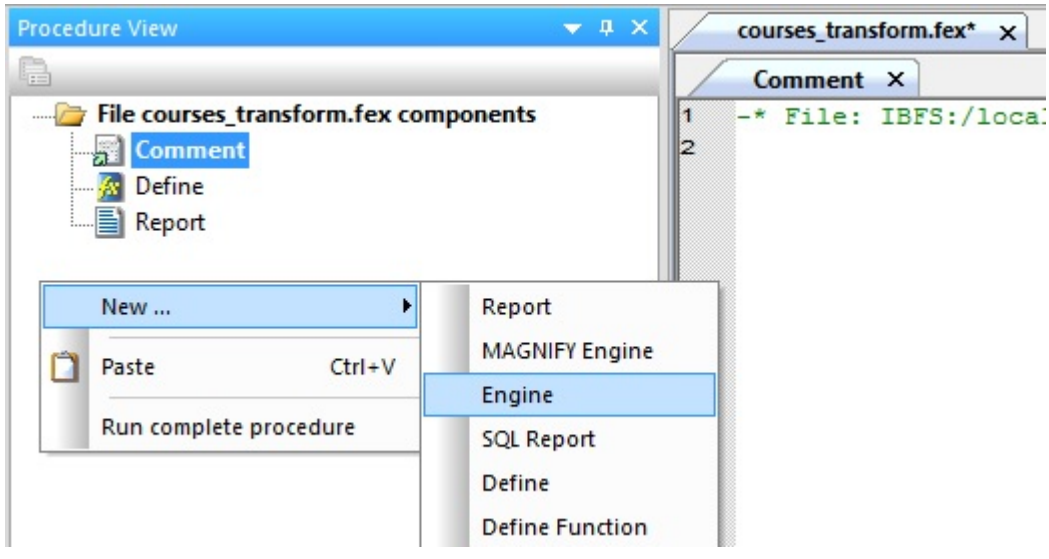
g. Close the browser window that is running the report.

h. Close the Report canvas.

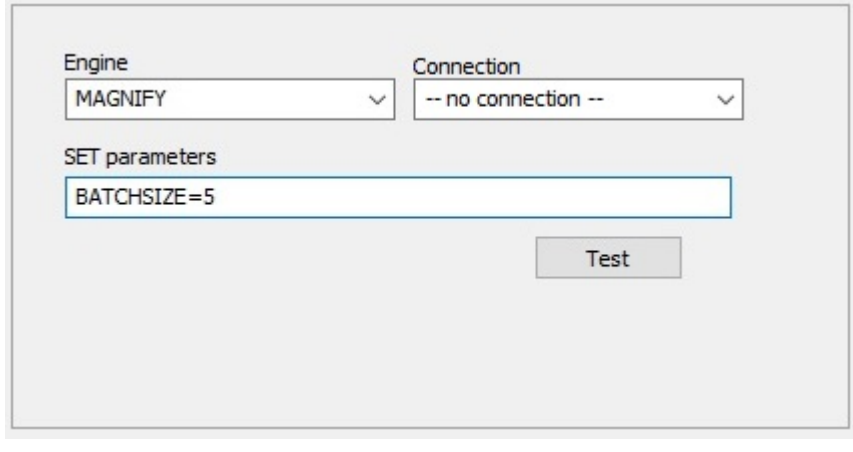
i. Return to the Procedure View panel.

Update the procedure to feed data to the Magnify index library.

1. In Procedure View panel, create an Engine object.
   a. To create each Engine object, right-click anywhere in the Procedure View panel select *New* and then click *Engine* from the context menu, as shown in the following image. For a list of Engine objects, see *Engine Parameters* on page 41



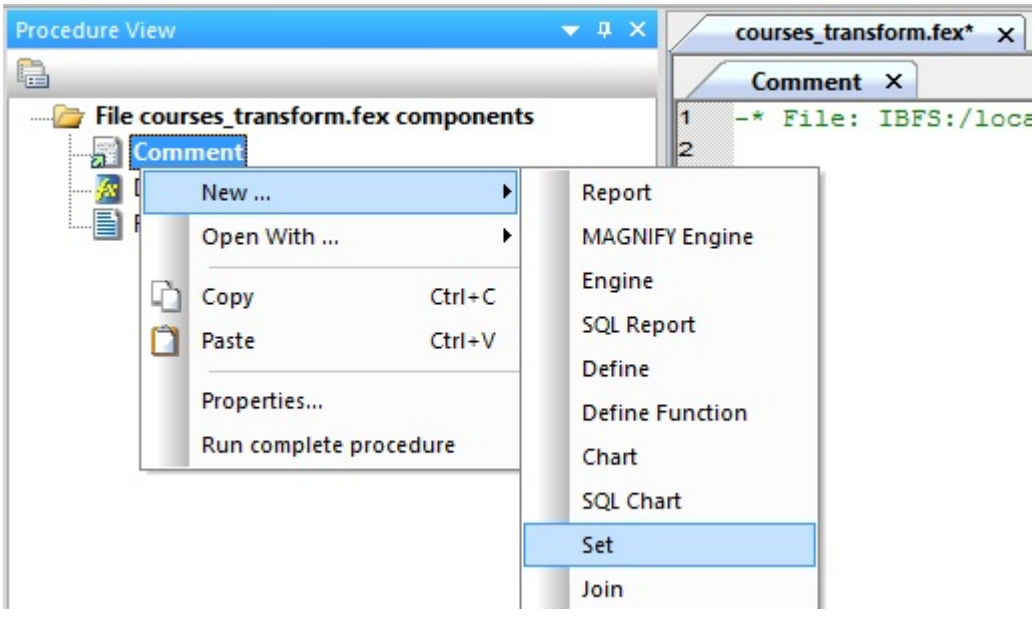
   b. The ENGINE dialog box opens, as shown in the following image. Add each Engine attribute using the Engine, Connection, and SET parameters information in the *Engine Parameters* on page 41 table.
   c. After each entry, click *OK*.
   d. Define each Engine object using the ENGINE dialog box (Engine, Connection, and SET parameters fields), as shown in the following image.



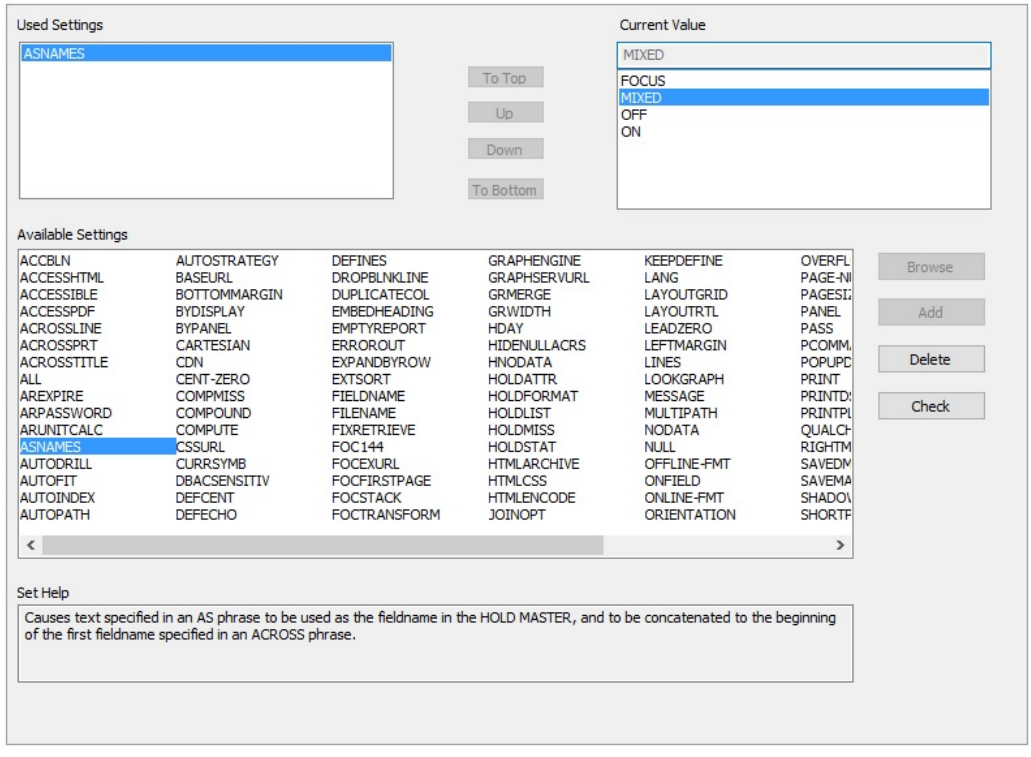
For more information on the individual parameters that you must specify, see *Engine Parameters* on page 41.

Note: If the MAGNIFY engine (case-sensitive) does not display in the list, you must type it in manually. In addition, for connections listed as no connection, you must select *no connection* in order to activate the SET parameter field. The preceding image shows an Engine entry.

2. In the Procedure View panel, create a Set object before the Define object and after the Engine objects.
3. Right-click in the Procedure View panel select *New* and then click *Set* from the context menu, as shown in the following image.



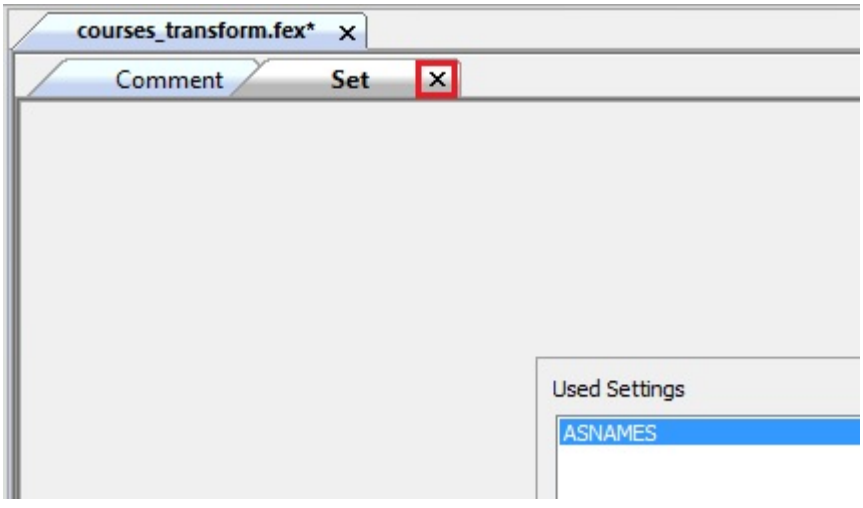
The Set dialog opens, as shown in the following image



4. Under Available Settings, double-click *ASNAMES*.
5. Under Current Value, select *MIXED*.

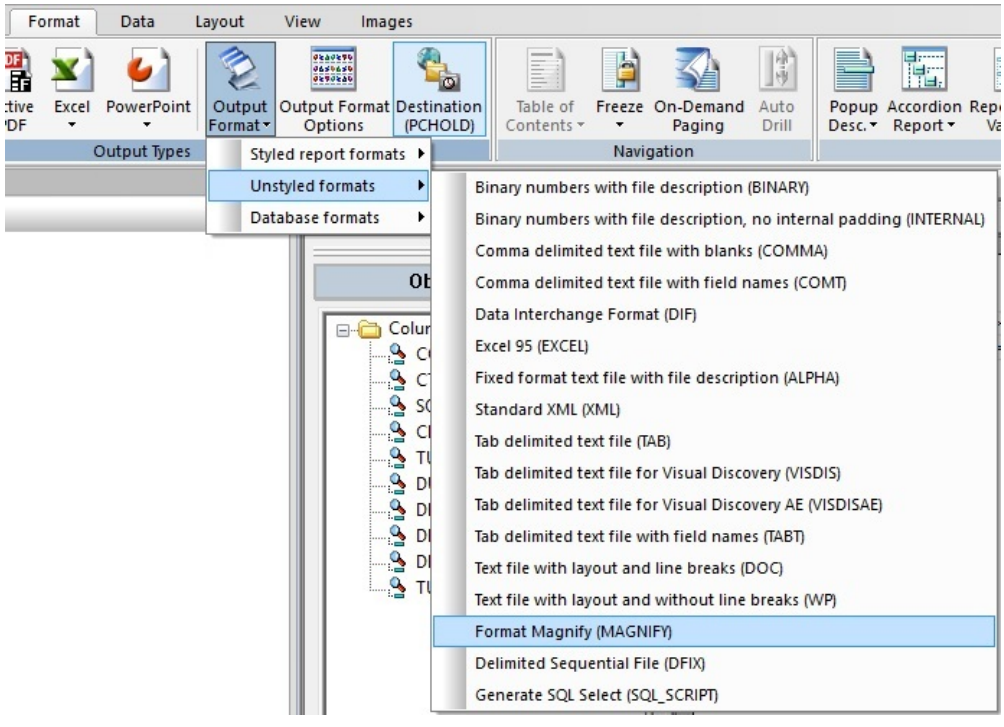
   Note: You must set the ASNAMES setting to MIXED in order to preserve case-sensitivity. For more information, see *Indexing Using the FORMAT MAGNIFY Command* on page 83.

6. Close the Set dialog by closing the Set tab, as shown in the following image.



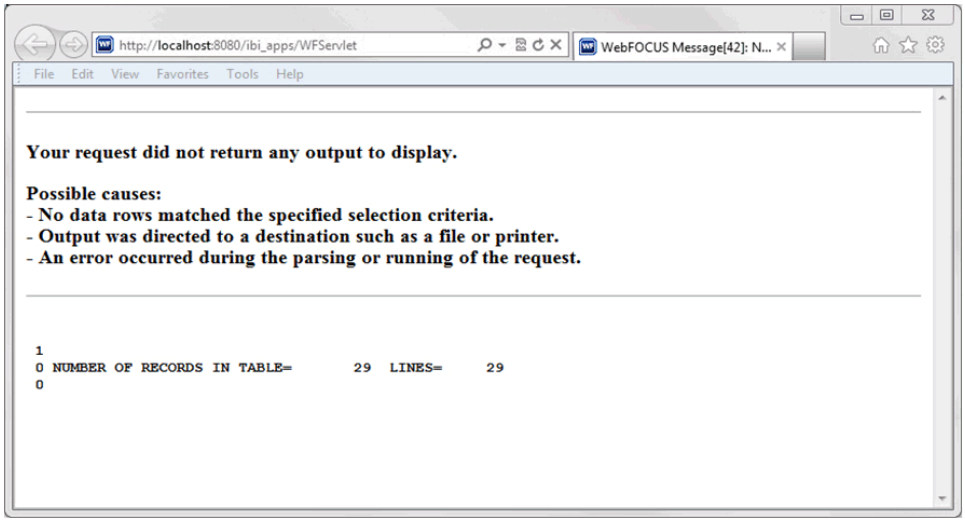
7. Click *Save* and then click *Run* from the Quick Access Toolbar.
   a. Confirm that there were no errors.
   b. Confirm that raw data is modeled and enriched accordingly.
   c. Close the browser.
8. Change the output type in the Report object.
   a. Double-click the *Report* object to open the Report canvas.
   b. Click the *Format* tab.
   c. Select the *Output Format* drop-down.

d. Expand the *Unstyled formats* menu and select *Format Magnify (MAGNIFY)*, as shown in the following image.



e. Click *Save* and then click *Run* from the Quick Access Toolbar.

f. Confirm that there are no errors, such as the following.



Note: If you receive an error message indicating that your Magnify server is not licensed for indexing, please contact your WebFOCUS Administrator. For more information on this error message, see *Magnify Search Error Handling* on page 161.

Once complete, review the search-based application generated.

1. Open a web browser.
2. Navigate to the Magnify search page:

   `http://host:port/wfcontext_root/search`

   where:

   host:port

   Is the machine name and port number where WebFOCUS is installed.

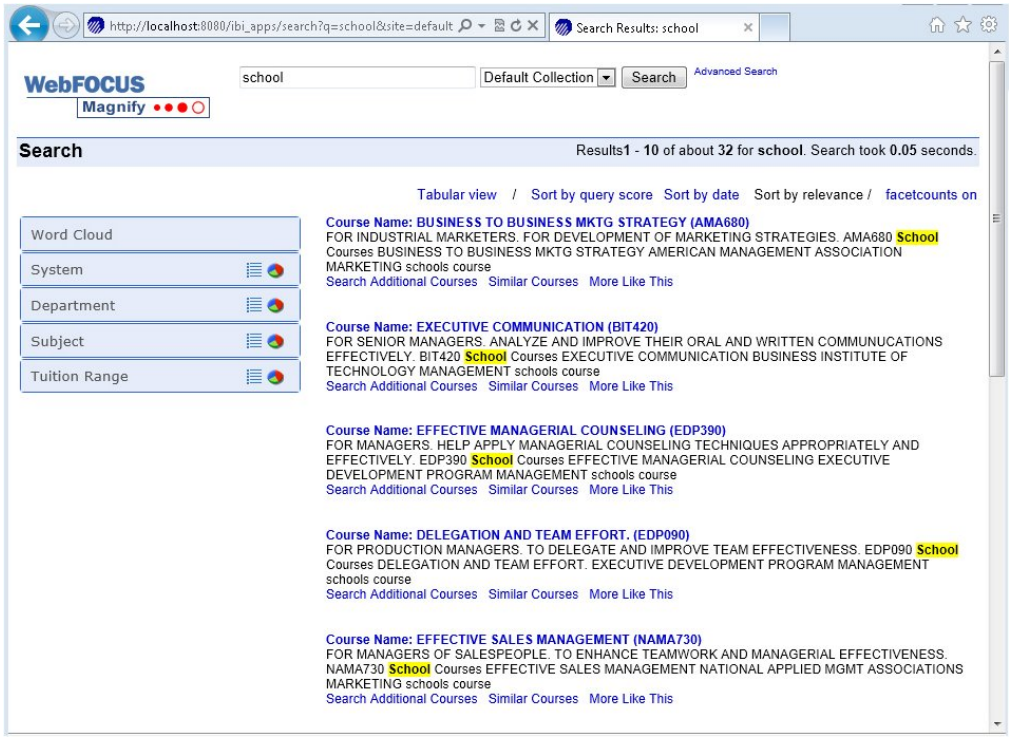
   wfcontext_root

   Is the WebFOCUS application root.

   Notes:

   - By default, this can be http://localhost:8080/ibi_apps/search. However, this link can vary based on your WebFOCUS configuration.
   - Sample or default URLs are for informational purposes only and may not resolve correctly, if at all.

3. Perform a search test by typing *school* in the Search box and clicking *Search*, as shown in the following image.



4. Review the results returned and search to identify how the data has been applied to the Magnify search interface.
5. Close the browser window.
6. Close the Report canvas.
7. Close the Procedure View panel.

Reference: Engine Parameters

You can copy and paste Engine, Connection, or SET parameter information from the following table to their respective places in the Engine object.

Engine	Connection	SET parameter	Purpose
MAGNIFY	MY_PC 'http://localhost:8080/ibi_apps/saxfeed'		Connection string **Note:** Sample or default URLs are for informational purposes only and may not resolve correctly, if at all.
MAGNIFY	-- no connection --	BASEURL=http://localhost:8080/	Feed URL ID
MAGNIFY	-- no connection --	DATASOURCE=school_courses	Index library name
MAGNIFY	-- no connection --	BATCHSIZE=5	Feed increment

For more information, see *Indexing Using the FORMAT MAGNIFY Command* on page 83.

Prerequisites for Indexing With the Movie and Car Files

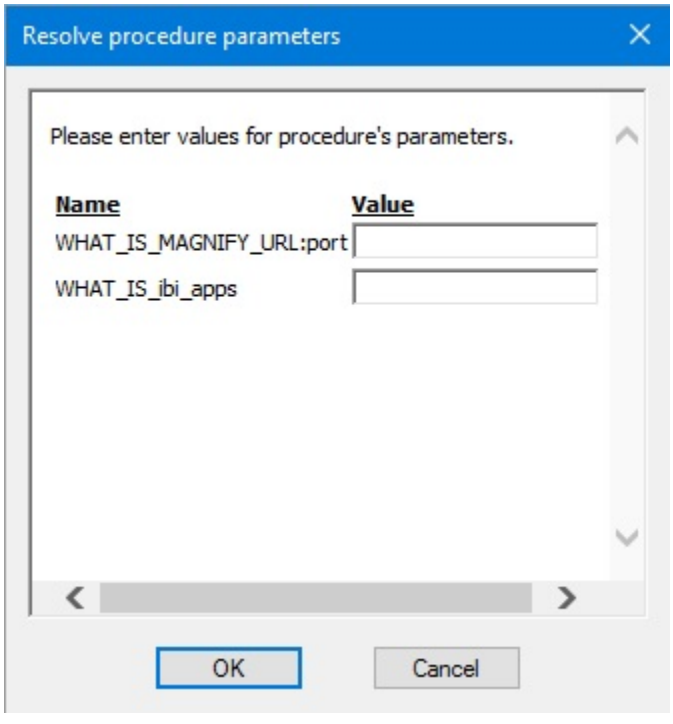
The Movie and Car files create indexes based on the WebFOCUS configuration settings. Because the WebFOCUS environment settings can vary, they first prompt for the same specific setting.

For these examples, you must initially disable procedure parameters.

Before changes are made, it is recommended that you back up the following files: carmgn.fex and moviesmgn.fex. These files are in the \ibi\apps\ibisamp folder.

Disable Procedure Parameters

You will be prompted for two parameters when the carmgn.fex and moviesmgn.fex files are opened in the Report canvas or when you execute the Format Magnify Movie and Car examples. These parameters are required in order for the WebFOCUS procedure to know where to send its output to feed Magnify Search. The first parameter is for the sever that Magnify Search is installed on (which may include a port number), and the second is the WebFOCUS context root, in which Magnify Search is defined, as shown in the following image.



WHAT_IS_MAGNIFY_URL:port. *host:port*

WHAT_IS_ibi_apps. *wfcontext_root*

where:

host:port

Is the machine name and port number where WebFOCUS is installed.

wfcontext_root

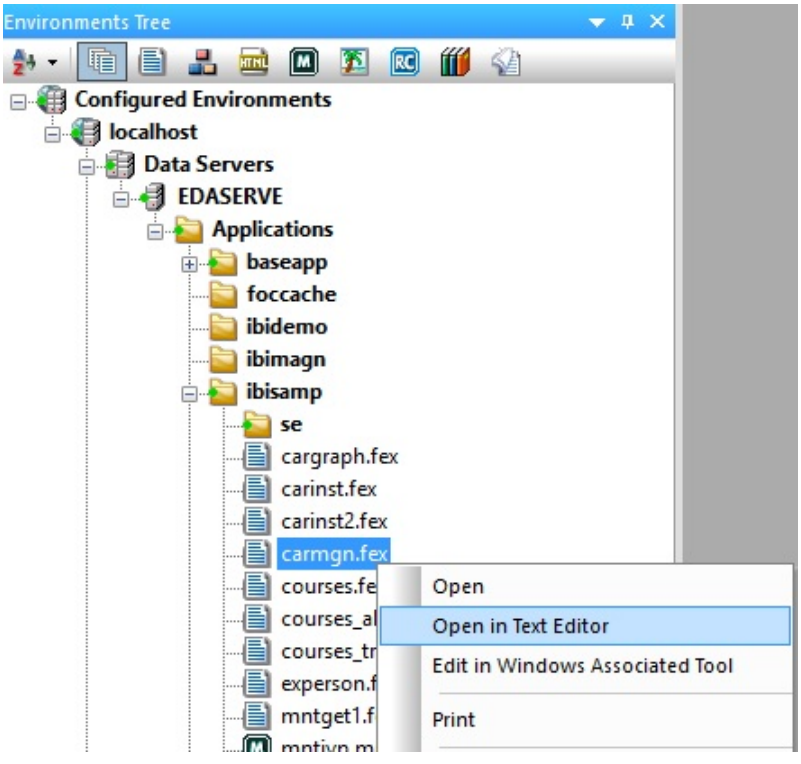
Is the WebFOCUS application root.

By default, *host:port* is *localhost:8080* and *wfcontext_root* is *ibi_apps*, but because installations can be configured differently, you may need to confirm this with your WebFOCUS Administrator.

Note: If you do not want to receive this prompt, you can edit the code of the procedure to disable these prompts.

To comment out the prompts:

1. In App Studio, navigate to *Data Servers* under *Configured Environments*, expand *Applications* and then the *ibisamp* folder.



2. Right-click the *carmgn.fex* or *moviesmgn.fex* file and then select *Open in Text Editor* from the context menu.

   The file you selected (*carmgn.fex* or *moviesmgn.fex*) opens as a new tab in the main workspace area and provides you with a text view of the code.

3. Uncomment the -*DEFAULTS lines, as shown in the following images.
4. Enter your WebFOCUS configuration.

   Note: The first image shows the original view of the code, and the second image shows the result after these lines have been uncommented.

FROM:

```
-*-------------------------------------------------------
-*DEFAULTS &WHAT_IS_MAGNIFY_URL:port='localhost:8080';
-*DEFAULTS &WHAT_IS_ibi_apps='ibi_apps';
SET ASNAMES=MIXED
ENGINE MAGNIFY SET CONNECTION_ATTRIBUTES  MY_PC 'http:/
ENGINE MAGNIFY SET BASEURL=http://&WHAT_IS_MAGNIFY_URL:
```

TO (using your host:port and wfcontext_root):

```
-*-------------------------------------------------------
-DEFAULTS &WHAT_IS_MAGNIFY_URL:port='localhost:8080';
-DEFAULTS &WHAT_IS_ibi_apps='ibi_apps';
SET ASNAMES=MIXED
ENGINE MAGNIFY SET CONNECTION_ATTRIBUTES  MY_PC 'http://&WH
ENGINE MAGNIFY SET BASEURL=http://&WHAT_IS_MAGNIFY_URL:port
```

5. Save and close the file.

   Note: The prompts should no longer display.

Indexing the Movie File

This section illustrates Magnify Search indexing by feeding the Movie file. The data has already been assigned to Magnify Search Meta Tags and other reserved alias names to create a Magnify Search index library based on the Movie information.

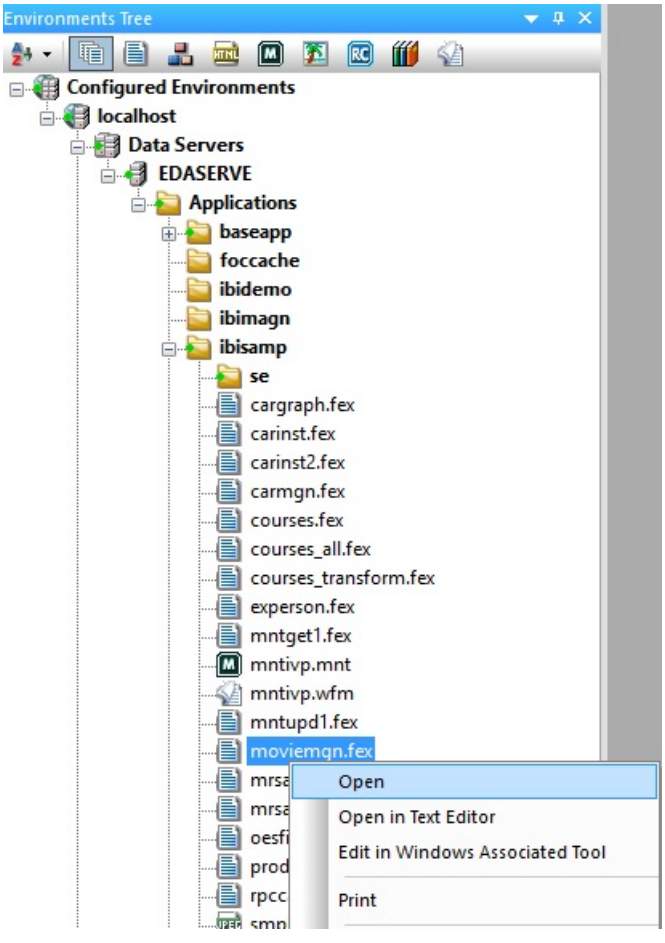
1. Open the Movie file to review all available data.

   In App Studio, create a project pointing to the sample directory, *ibisamp*, if not already created.

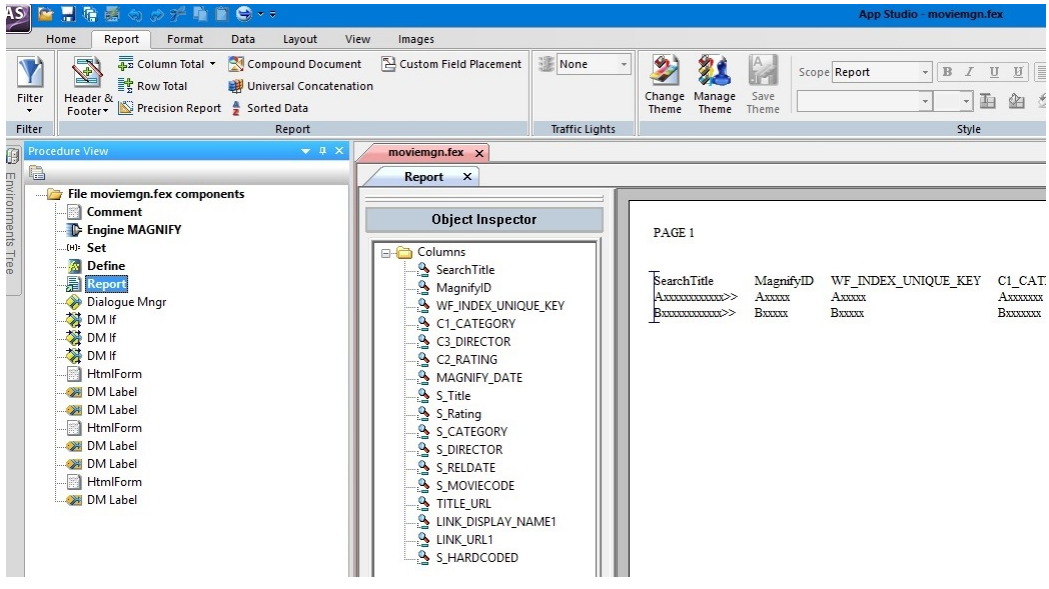
2. Review the Movie file (*moviemgn.fex*).

Note: This file is installed with the WebFOCUS Reporting Server under the *ibisamp* application directory.

a. Right-click the *moviemgn.fex* file and select *Open* from the context menu, as shown in the following image.

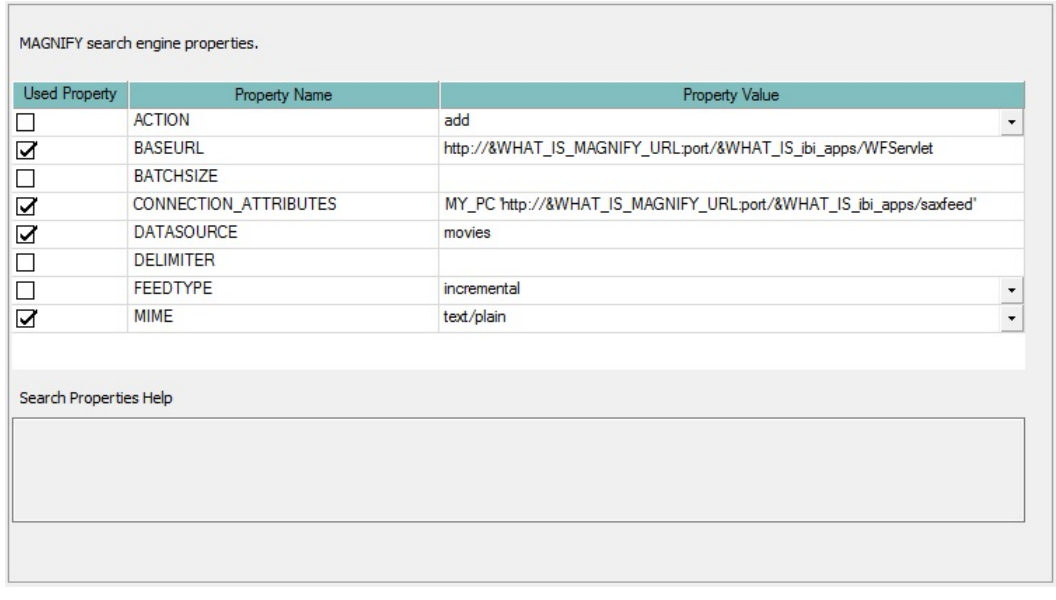


The Procedure View panel is opened for the *moviemgn.fex* file, as shown in the following image.



b. Double-click the *Engine MAGNIFY* object in the Procedure View panel.

The MAGNIFY search engine properties dialog opens, as shown in the following image.

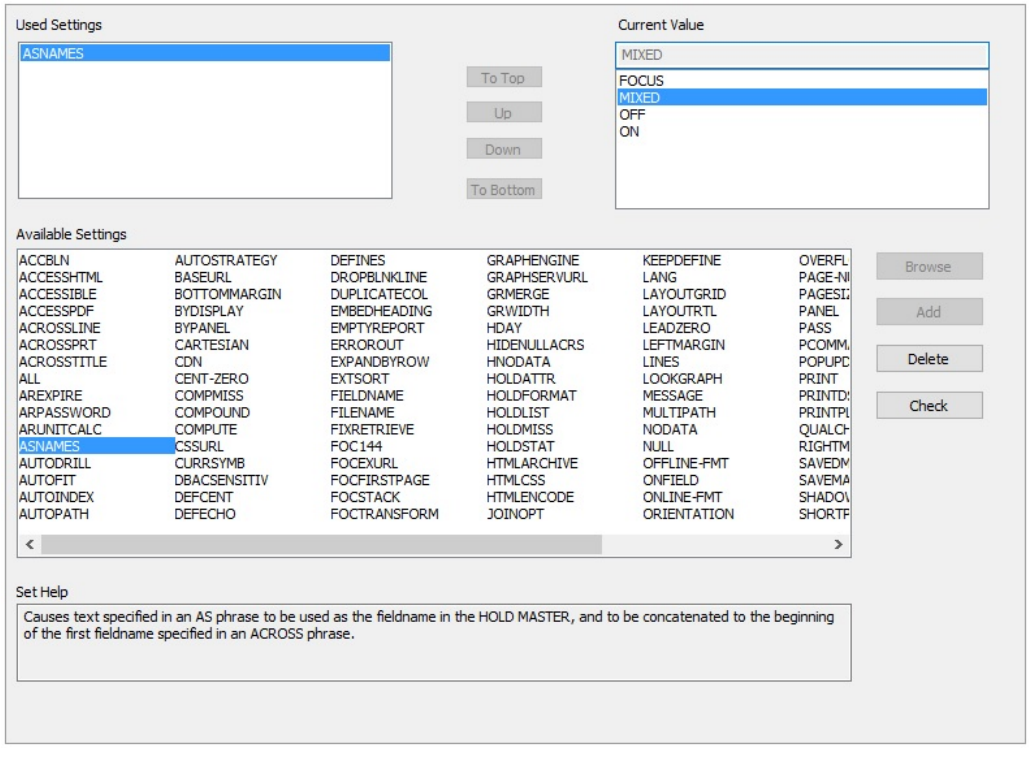


Review the following properties:

- **CONNECTION_ATTRIBUTES.** Magnify Search location.
- **BASEURL.** WebFOCUS procedure URL.
- **MIME.** Document type.
- **DATASOURCE.** Magnify Search index library destination directory.

c. Double-click the *Set* object in the Procedure View panel.

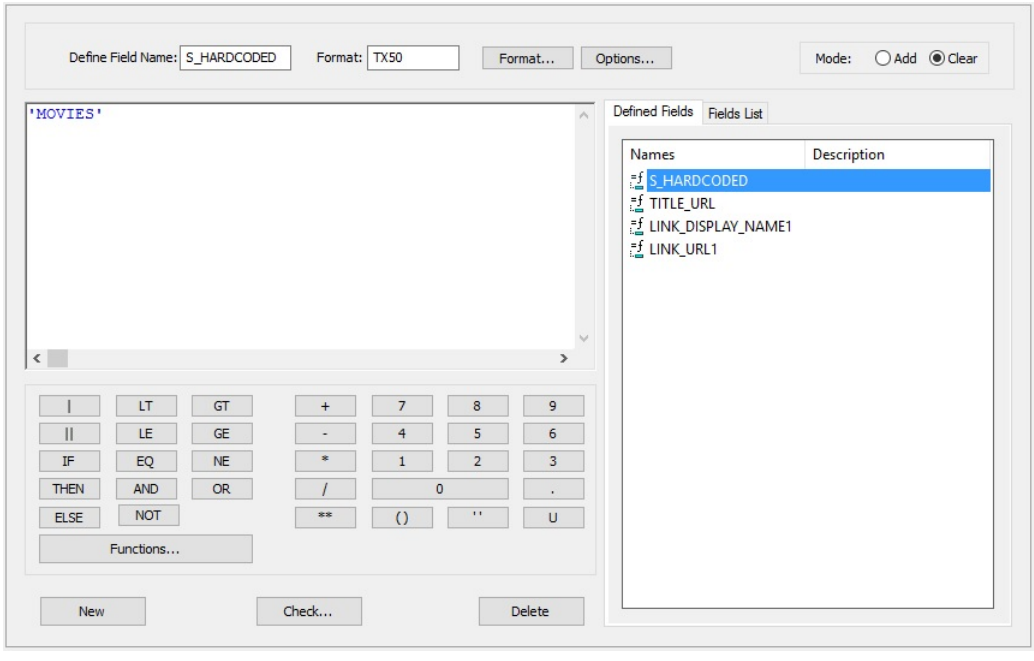
The Set dialog opens, as shown in the following image



Note: You must set the ASNAMES setting to MIXED in order to preserve case-sensitivity.

d. Double-click the *Define* object in the Procedure View panel.

The Define dialog opens, as shown in the following image.



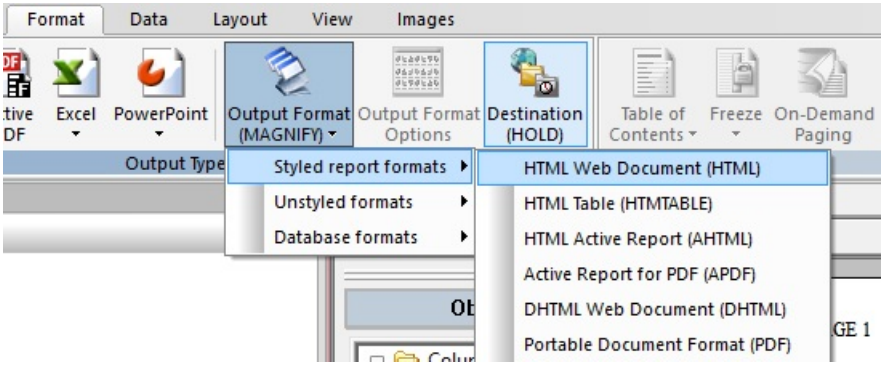
Review the following defined fields:

- **S_HARDCODED.** Optional hard-coded content to be included with the data being indexed. This can include values that are not otherwise found in the original data.
- **TITLE_URL.** One or more fields to dynamically build the main title drill-down link of each search result.
- **LINK_DISPLAY_NAME1.** One or more fields used as the string name for the first additional link.
- **LINK_URL1.** One or more fields to dynamically build the first additional drill-down link for search result.

e. Double-click the *Report* object in the Procedure View panel and change the output format.

- Click the *Format* tab.
- Select the *Output Format* drop-down.

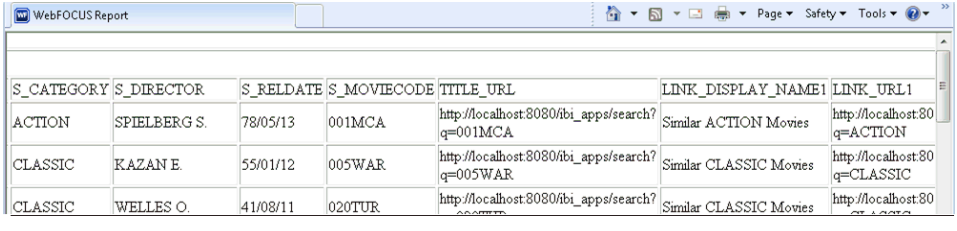
- ❑ Expand the *Styled report formats* menu and select *HTML Web document (HTML)*, as shown in the following image.



- ❑ Click *Save* and then click *Run* from the Quick Access Toolbar.
- ❑ Review how the data is modeled. Notice what mix of fields are used to define various Magnify Search elements by the naming conventions used in the column titles.

  Note: The column naming conventions are discussed in more detail in *Indexing the Car File* on page 54

- ❑ Scroll to the rightmost side of the report to see all column names, as shown in the following image.



S_CATEGORY	S_DIRECTOR	S_RELDATE	S_MOVIECODE	TITLE_URL	LINK_DISPLAY_NAME1	LINK_URL1
ACTION	SPIELBERG S.	78/05/13	001MCA	http://localhost:8080/ibi_apps/search?q=001MCA	Similar ACTION Movies	http://localhost:80 q=ACTION
CLASSIC	KAZAN E.	55/01/12	005WAR	http://localhost:8080/ibi_apps/search?q=005WAR	Similar CLASSIC Movies	http://localhost:80 q=CLASSIC
CLASSIC	WELLES O.	41/08/11	020TUR	http://localhost:8080/ibi_apps/search?	Similar CLASSIC Movies	http://localhost:80

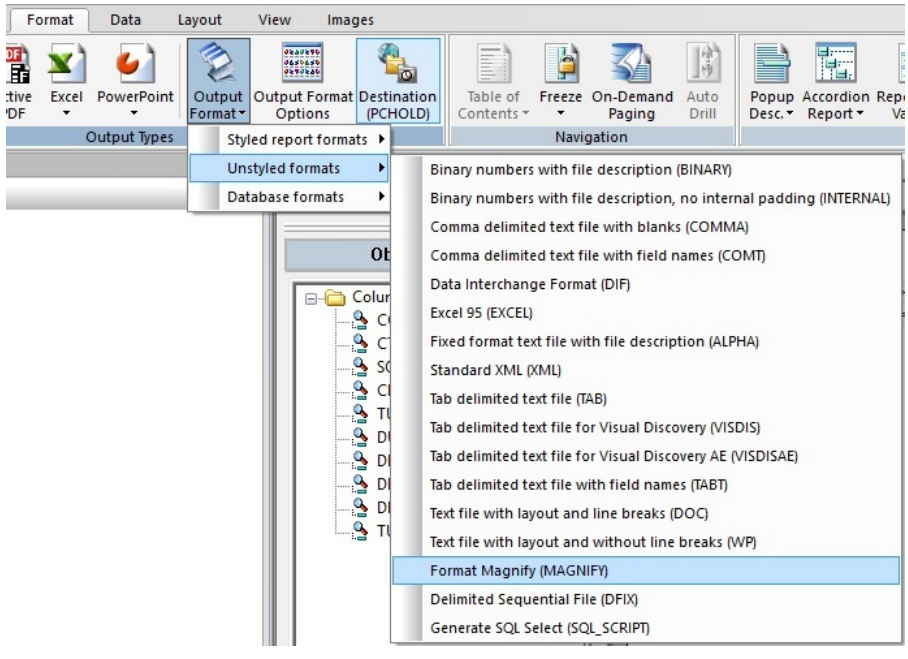
f. Close the browser window that is running the report.

3. Index the Movie File with Format Magnify.

   a. Double-click the *Report* object in the Procedure View panel and change the output format.

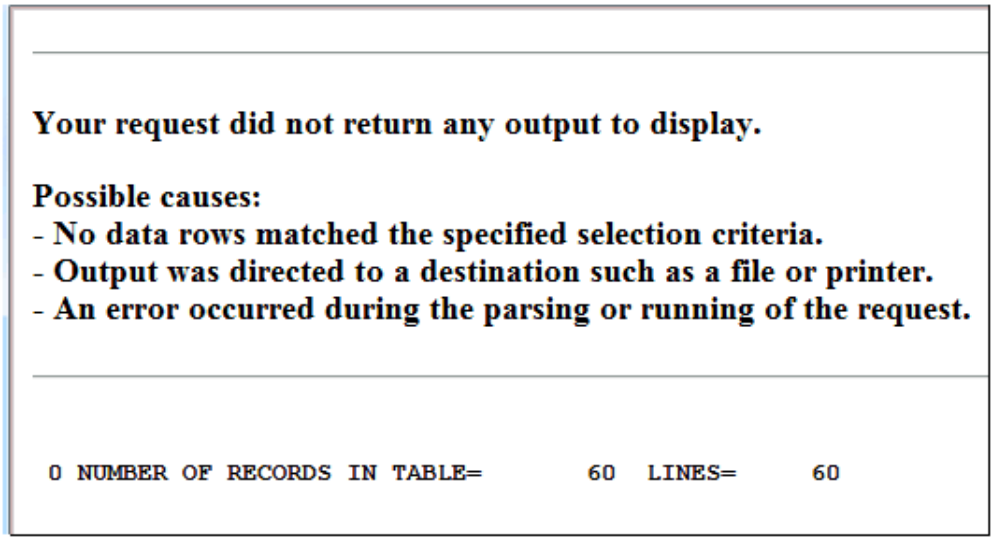
   - ❑ Click the *Format* tab.
   - ❑ Select the *Output Format* drop-down.

❏ Expand the *Unstyled formats* menu and select *Format Magnify (MAGNIFY)*, as shown in the following image.



❏ Click *Save* and then click *Run* from the Quick Access Toolbar.

b. Confirm that there are no errors, such the one shown in the following image. Note that upon execution, the Reporting Server will process the request by transforming the report output into the Magnify Search feed protocol.



c. Close the browser window that is running the report.

d. Close the Procedure View panel.

4. Review the search-based application generated.

a. Open a web browser.

b. Confirm that the *collections.xml* file is set accordingly.

c. Navigate to the Magnify search page:

`http://host:port/wfcontext_root/search`

where:

host:port

Is the machine name and port number where WebFOCUS is installed.

wfcontext_root

Is the WebFOCUS application root.

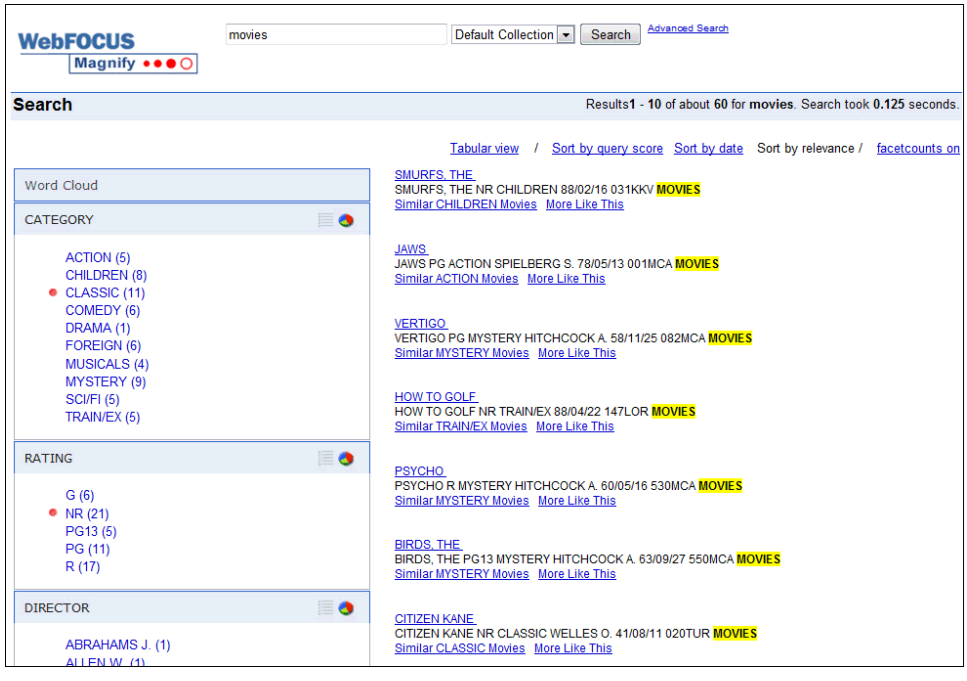
Note: Sample or default URLs are for informational purposes only and may not resolve correctly, if at all.

To return to the out-of-the-box Magnify Search configuration, restore the original version of the *collections.xml* file. Restart the application server or use the *Refresh Collections* option in the Magnify Search administration console.

Go to:

`http://localhost:8080/ibi_apps/search`

d. Perform a search test by typing *movies* in the Search box and clicking *Search* as shown in the following image.



e. Review the results returned and identify how the data from the procedure has been applied to the Magnify Search interface.

f. Close the browser window.

Indexing the Car File

This section illustrates Magnify indexing by feeding the Car file. In this example, multiple rows will be aggregated into a single row, in order to rollup data according to a single dimension to create a more robust, inclusive or higher-level search result. For example, this is the difference between showing a single search result for an entire order or showing a search result for each item purchased in an order.

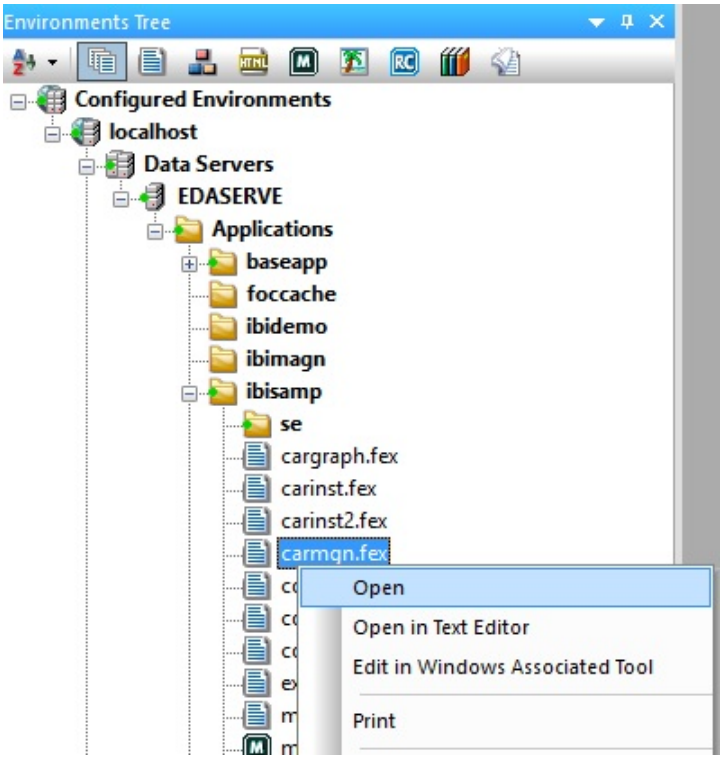
1. Open the Car file to review all available data.

   a. In App Studio, create a project pointing to the sample directory, *ibisamp*, if not already created.

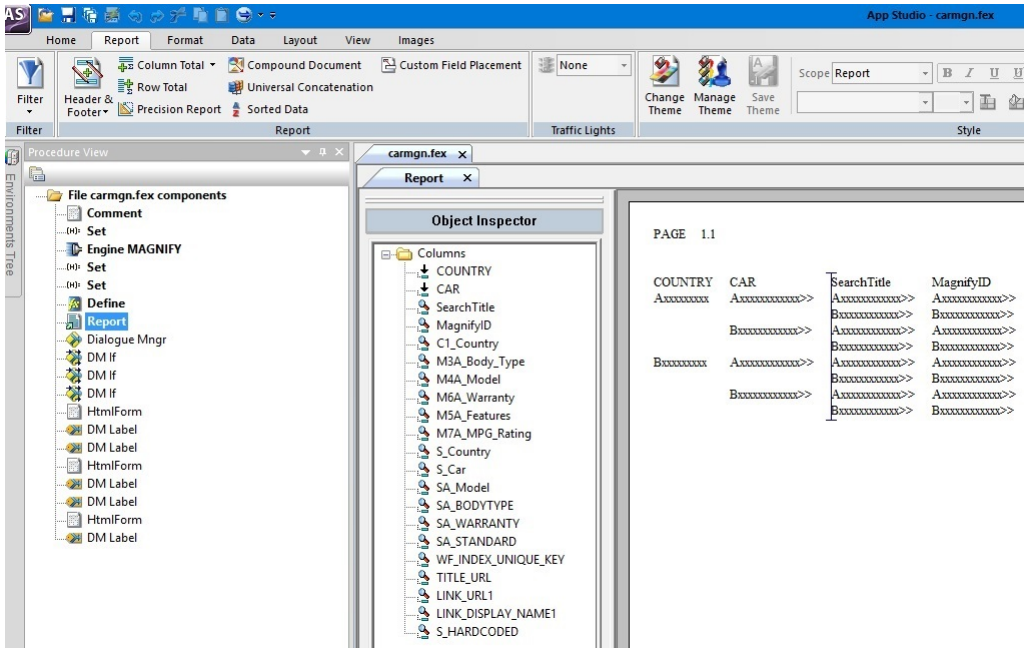
2. Review the Car file (*carmgn.fex*)

   Note: This file is installed with the WebFOCUS Reporting Server under the *ibisamp* application directory.

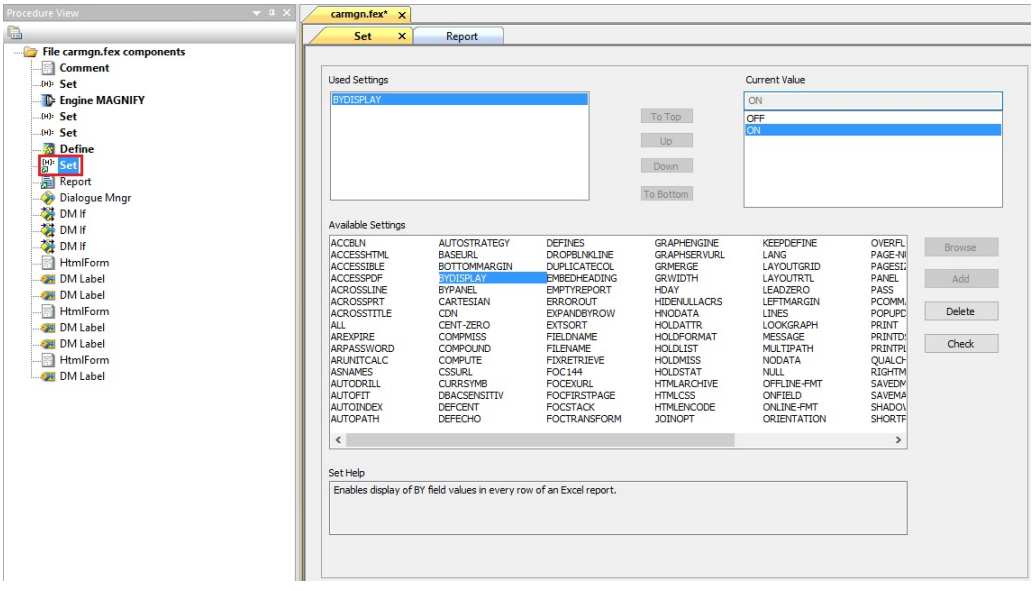
   a. Right-click the *carmgn.fex* file and select *Open* from the context menu, as shown in the following image.



The Procedure View panel is opened for the *carmgn.fex* file, as shown in the following image.

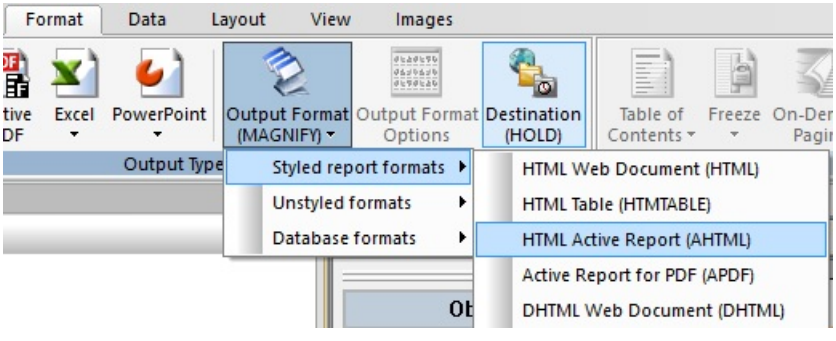


b. Add a Set object before the Report object and set the *BYDISPLAY* parameter to *ON* to show repeated BY values, as shown in the following image.



c. Double-click the *Report* object in the Procedure View panel to change the Output Format.

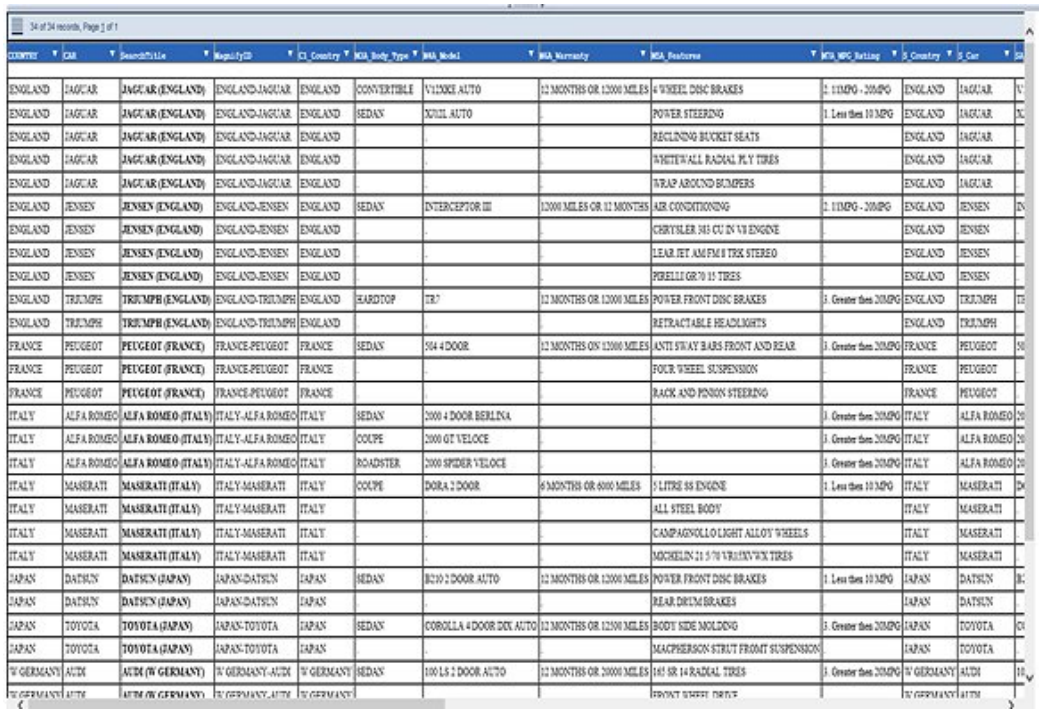
- ❏ Click the *Format* tab.
- ❏ Select the *Output Format* drop-down.
- ❏ From the Output Format drop-down list, expand *Styled report formats* and select *HTML Active Report (AHTML)*, as shown in the following image.



Note: If you are not licensed for Active Technology, select *HTML Web Document (HTML)* instead. In that case, you will not be able to run the aggregation reports.

❑ Click *Save* and then click *Run* from the Quick Access Toolbar.

d. Review the naming conventions and data, as shown in the following image.



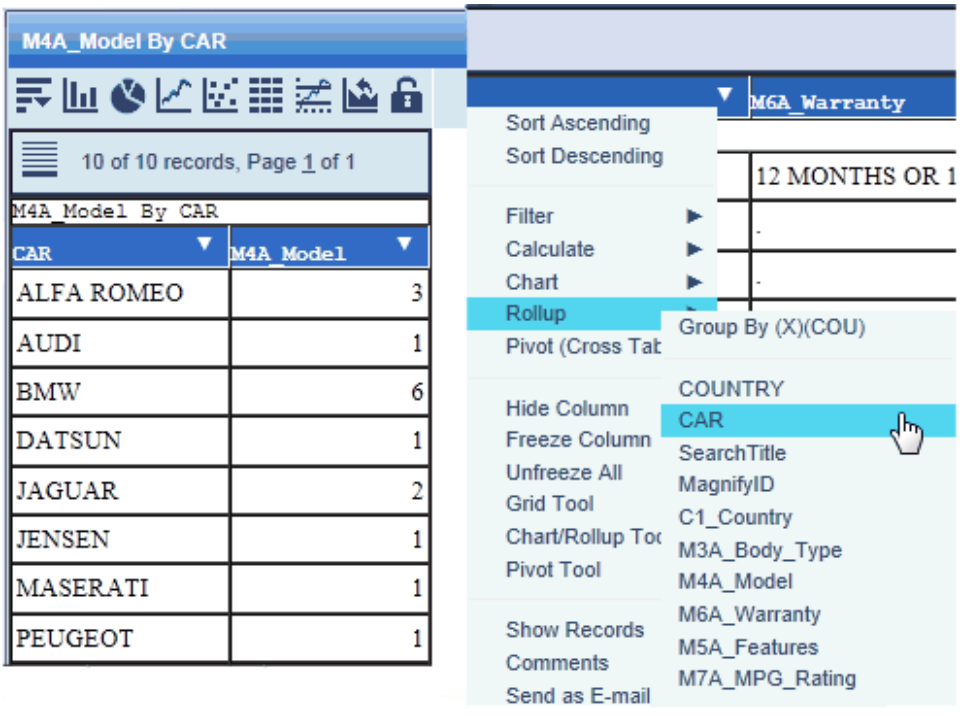
COUNTRY	CAR	SearchTitle	MagnifyID	C1_Country	MDA_Body_Type	MDA_Model	MDA_Warranty	MDA_Features	MDA_MPG_Rating	S_Country	S_Car
ENGLAND	JAGUAR	JAGUAR (ENGLAND)	ENGLAND-JAGUAR	ENGLAND	CONVERTIBLE	V12XKE AUTO	12 MONTHS OR 12000 MILES	4 WHEEL DISC BRAKES	2. 11MPG - 20MPG	ENGLAND	JAGUAR
ENGLAND	JAGUAR	JAGUAR (ENGLAND)	ENGLAND-JAGUAR	ENGLAND	SEDAN	XJ12L AUTO		POWER STEERING	1. Less then 10 MPG	ENGLAND	JAGUAR
ENGLAND	JAGUAR	JAGUAR (ENGLAND)	ENGLAND-JAGUAR	ENGLAND				RECLINING BUCKET SEATS		ENGLAND	JAGUAR
ENGLAND	JAGUAR	JAGUAR (ENGLAND)	ENGLAND-JAGUAR	ENGLAND				WHITEWALL RADIAL PLY TIRES		ENGLAND	JAGUAR
ENGLAND	JAGUAR	JAGUAR (ENGLAND)	ENGLAND-JAGUAR	ENGLAND				WRAP AROUND BUMPERS		ENGLAND	JAGUAR
ENGLAND	JENSEN	JENSEN (ENGLAND)	ENGLAND-JENSEN	ENGLAND	SEDAN	INTERCEPTOR III	12000 MILES OR 12 MONTHS	AIR CONDITIONING	2. 11MPG - 20MPG	ENGLAND	JENSEN
ENGLAND	JENSEN	JENSEN (ENGLAND)	ENGLAND-JENSEN	ENGLAND				CHRYSLER 383 CU IN V8 ENGINE		ENGLAND	JENSEN
ENGLAND	JENSEN	JENSEN (ENGLAND)	ENGLAND-JENSEN	ENGLAND				LEAR JET AM/FM 8 TRK STEREO		ENGLAND	JENSEN
ENGLAND	JENSEN	JENSEN (ENGLAND)	ENGLAND-JENSEN	ENGLAND				PIRELLI GR70 15 TIRES		ENGLAND	JENSEN
ENGLAND	TRIUMPH	TRIUMPH (ENGLAND)	ENGLAND-TRIUMPH	ENGLAND	HARDTOP	TR7	12 MONTHS OR 12000 MILES	POWER FRONT DISC BRAKES	3. Greater then 20MPG	ENGLAND	TRIUMPH
ENGLAND	TRIUMPH	TRIUMPH (ENGLAND)	ENGLAND-TRIUMPH	ENGLAND				RETRACTABLE HEADLIGHTS		ENGLAND	TRIUMPH
FRANCE	PEUGEOT	PEUGEOT (FRANCE)	FRANCE-PEUGEOT	FRANCE	SEDAN	504 4 DOOR	12 MONTHS ON 12000 MILES	ANTI SWAY BARS FRONT AND REAR	3. Greater then 20MPG	FRANCE	PEUGEOT
FRANCE	PEUGEOT	PEUGEOT (FRANCE)	FRANCE-PEUGEOT	FRANCE				FOUR WHEEL SUSPENSION		FRANCE	PEUGEOT
FRANCE	PEUGEOT	PEUGEOT (FRANCE)	FRANCE-PEUGEOT	FRANCE				RACK AND PINION STEERING		FRANCE	PEUGEOT
ITALY	ALFA ROMEO	ALFA ROMEO (ITALY)	ITALY-ALFA ROMEO	ITALY	SEDAN	2000 4 DOOR BERLINA			3. Greater then 20MPG	ITALY	ALFA ROMEO
ITALY	ALFA ROMEO	ALFA ROMEO (ITALY)	ITALY-ALFA ROMEO	ITALY	COUPE	2000 GT VELOCE			3. Greater then 20MPG	ITALY	ALFA ROMEO
ITALY	ALFA ROMEO	ALFA ROMEO (ITALY)	ITALY-ALFA ROMEO	ITALY	ROADSTER	2000 SPIDER VELOCE			3. Greater then 20MPG	ITALY	ALFA ROMEO
ITALY	MASERATI	MASERATI (ITALY)	ITALY-MASERATI	ITALY	COUPE	DORA 2 DOOR	6 MONTHS OR 6000 MILES	5 LITRE SS ENGINE	1. Less then 10 MPG	ITALY	MASERATI
ITALY	MASERATI	MASERATI (ITALY)	ITALY-MASERATI	ITALY				ALL STEEL BODY		ITALY	MASERATI
ITALY	MASERATI	MASERATI (ITALY)	ITALY-MASERATI	ITALY				CAMPAGNOLLO LIGHT ALLOY WHEELS		ITALY	MASERATI
ITALY	MASERATI	MASERATI (ITALY)	ITALY-MASERATI	ITALY				MICHELIN 215 70 VR15HVWX TIRES		ITALY	MASERATI
JAPAN	DATSUN	DATSUN (JAPAN)	JAPAN-DATSUN	JAPAN	SEDAN	B210 2 DOOR AUTO	12 MONTHS OR 12000 MILES	POWER FRONT DISC BRAKES	1. Less then 10 MPG	JAPAN	DATSUN
JAPAN	DATSUN	DATSUN (JAPAN)	JAPAN-DATSUN	JAPAN				REAR DRUM BRAKES		JAPAN	DATSUN
JAPAN	TOYOTA	TOYOTA (JAPAN)	JAPAN-TOYOTA	JAPAN	SEDAN	COROLLA 4 DOOR DIX AUTO	12 MONTHS OR 12500 MILES	BODY SIDE MOLDING	3. Greater then 20MPG	JAPAN	TOYOTA
JAPAN	TOYOTA	TOYOTA (JAPAN)	JAPAN-TOYOTA	JAPAN				MACPHERSON STRUT FRONT SUSPENSION		JAPAN	TOYOTA
W GERMANY	AUDI	AUDI (W GERMANY)	W GERMANY-AUDI	W GERMANY	SEDAN	100 LS 2 DOOR AUTO	12 MONTHS OR 20000 MILES	165 SR 14 RADIAL TIRES	3. Greater then 20MPG	W GERMANY	AUDI

❑ Review the Record Context.

Note: Notice how multiple rows in the Car data can be used to describe a single entity based on the rollup level. In this case, there are Countries and Cars. Depending on the use case, each entity can be created as its own search result. This is done by using the highest-level field as the primary BY field. Columns are named accordingly to identify where to aggregate values across multiple rows. For example, aggregating on the COUNTRY field will generate five search results, one for each country. Therefore, separate searches for *Jensen* and *Jaguar* will both return *England* as the search result.

At another level, the Car data has 18 individual models. However, if users are to search for any model, only a single car type search result would be returned.

For example, rolling up Model By Car reveals that there are 10 cars. Thus, 6 rows of data found for BMW will be aggregated into a single search result, as shown in the following image.

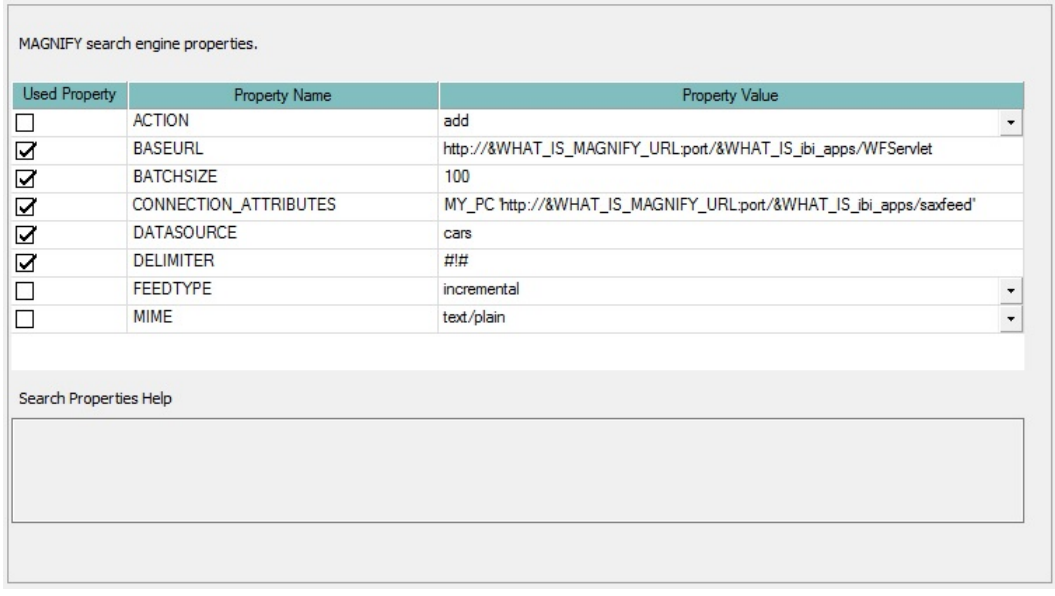


- ❑ Close the browser window that is running the report.

3. Index the Car file.

   a. Double-click the *Engine MAGNIFY* object in the Procedure View panel.

The MAGNIFY search engine properties dialog opens, as shown in the following image.



Review the following properties:

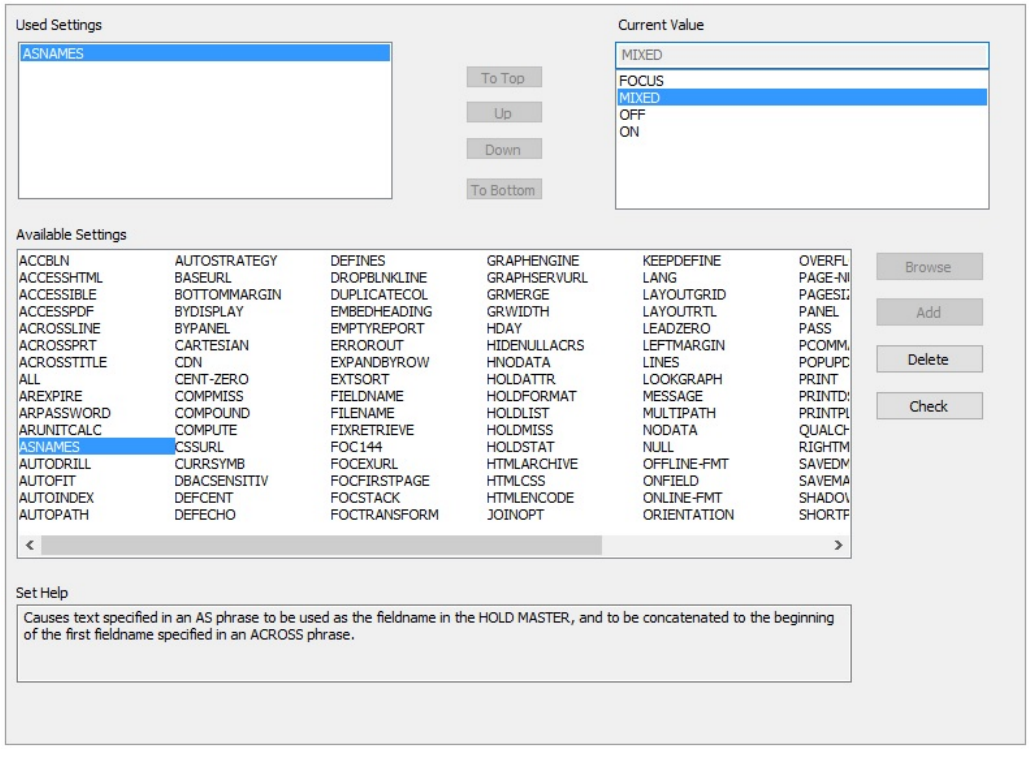
- **DELIMITER.** Used internally to separate a list of values generated by the Format Magnify procedure in order to aggregate multiple rows into a single search result. This value should be a unique value not found anywhere in the content that is being indexed.
- **BATCHSIZE.** Incremental number of records to feed to Magnify at a time.

  Note: Batchsize is critical when indexing large volumes of data. This setting will process all records but only send feeds to Magnify in the batch size specified, thereby sending data in increments.

The remaining Engine objects were covered in the *Indexing the Movie File* on page 45.

b. Double-click the *Set* object in the Procedure View panel.

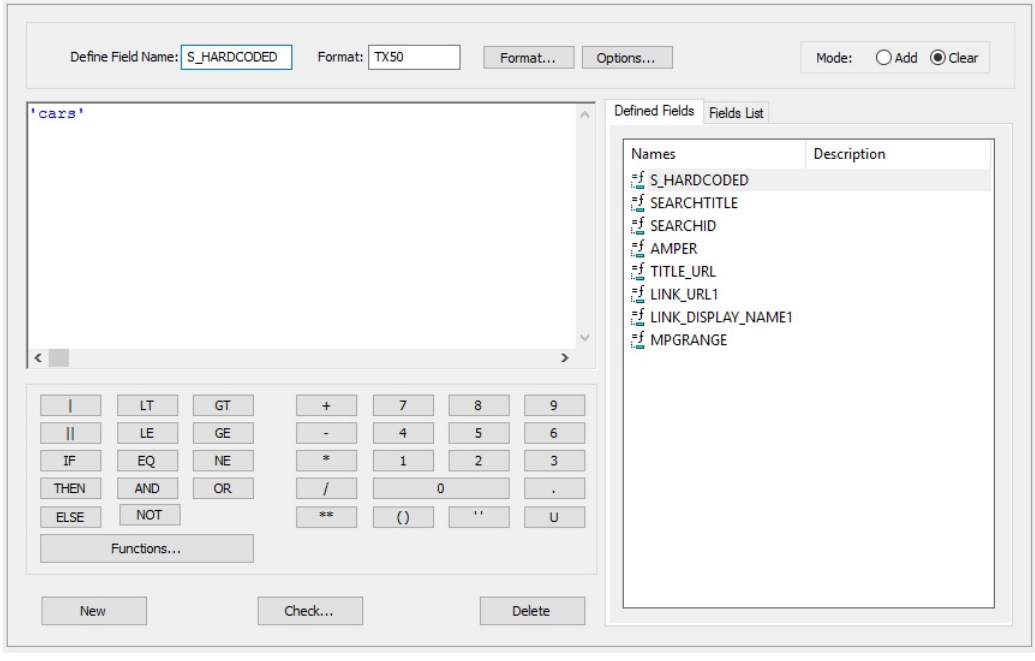
The Set dialog opens, as shown in the following image.



Note: You must set the ASNAMES setting to MIXED in order to preserve case-sensitivity.

c. Double-click the *Define* object in the Procedure View panel.

The Define dialog opens, as shown in the following image.



- ❏ Review each Define field.
- ❏ Close the Define dialog.

d. Double-click the *Report* object in the Procedure View panel.

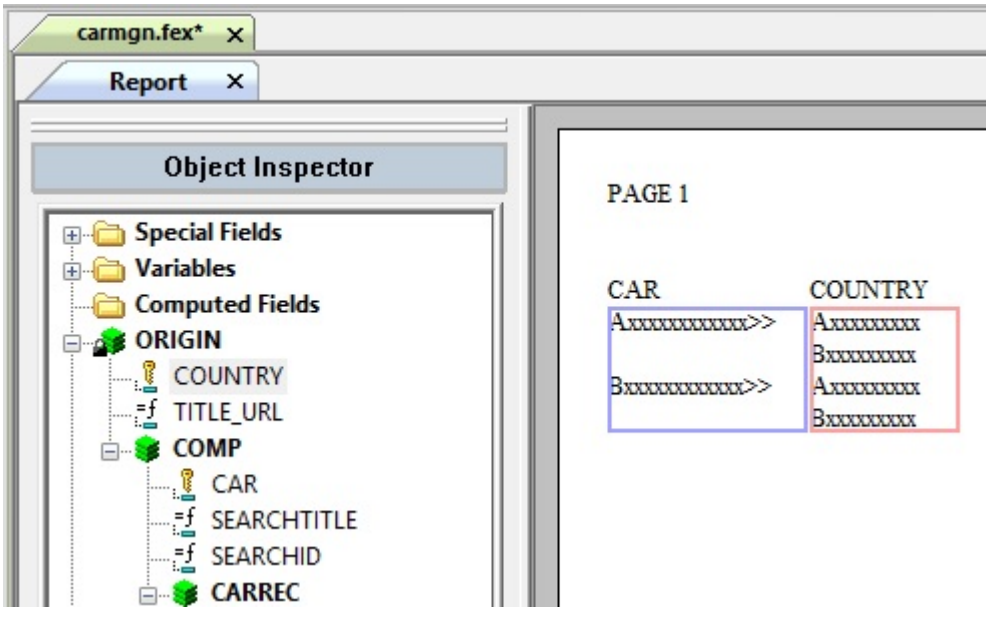
Note: The following steps give you hands-on experience in recreating this procedure by starting fresh. This step can be skipped in order to follow along, similar to the hands-off approach in the *Indexing the Movie File* on page 45.

e. In the Report canvas, delete all the fields by selecting all of them (or using *Ctrl+A*) and then pressing *Delete*.

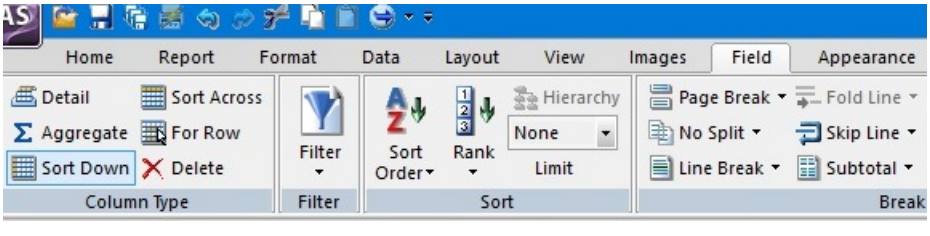
f. Build the Format Magnify Report.

- ❏ In the Object Inspector, double-click on the field *CAR* and the field *COUNTRY*.

- In the Report canvas, while holding Shift, select both the *COUNTRY* and *CAR* columns.

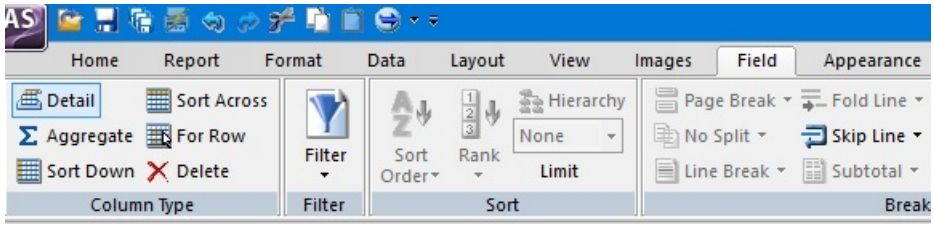


- On the toolbar, click *Sort Down*, as shown in the following image.

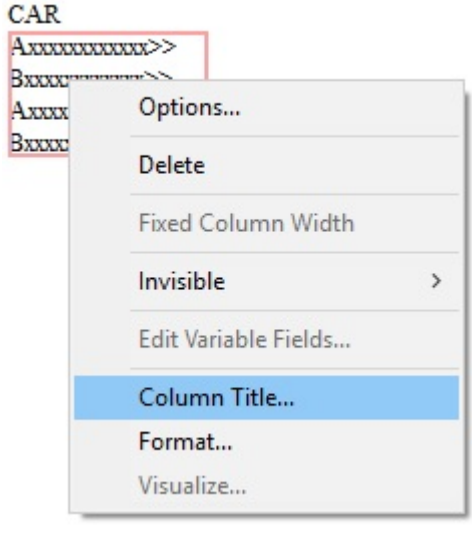


g. In the Report canvas, click to the right side of *CAR* to begin adding more columns to the report.

h. On the toolbar, click *Detail*, as shown in the following image.



- ❑ In the Object Inspector, add the remaining columns. These are listed in the following table. After the column is added to the Report canvas, right-click on the column and select *Column Title*, as shown in the following image.



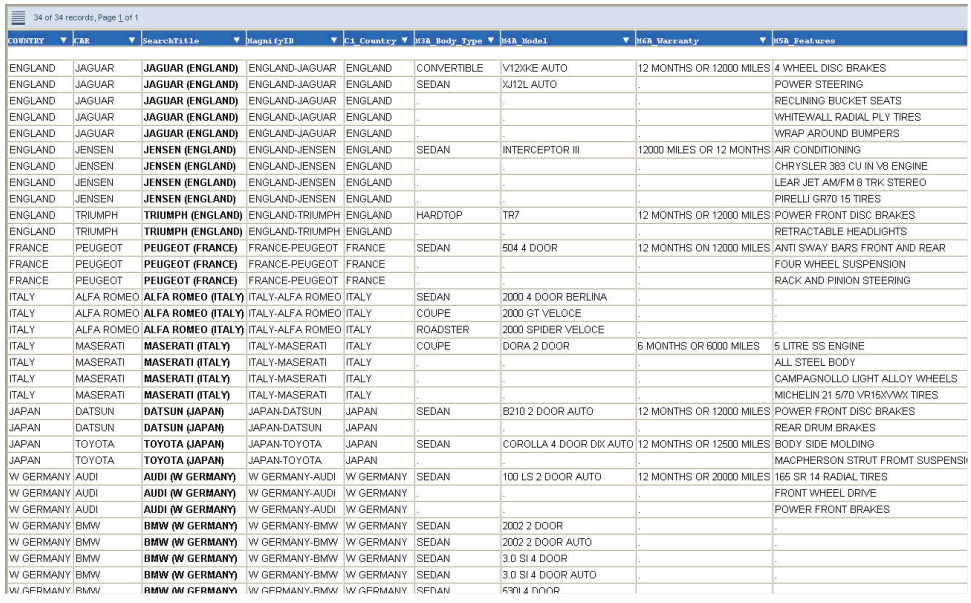
- ❑ Add Fields and Column Titles for the following:

Column	Column Title	Purpose
SEARCHTITLE	SearchTitle	Format Magnify Reserved Alias Name (case-sensitive)
SEARCHID	MagnifyID	Format Magnify Reserved Alias Name (case-sensitive)
COUNTRY	C1_Country	Category

Column	Column Title	Purpose
BODYTYPE	M3A_Body_Type	Multiple Category
MODEL	M4A_Model	Multiple Category
WARRANTY	M6A_Warranty	Multiple Category
STANDARD	M5A_Features	Multiple Category
MPGRANGE	M7A_MPG_Rating	Multiple Category
COUNTRY	S_Country	Searchable Content
CAR	S_Car	Searchable Content
MODEL	SA_Model	Aggregated Searchable Content
BODYTYPE	SA_BODYTYPE	Aggregated Searchable Content
WARRANTY	SA_WARRANTY	Aggregated Searchable Content
STANDARD	SA_STANDARD	Aggregated Searchable Content
SEARCHID	WF_INDEX_UNIQUE_KEY	Magnify Meta Tag
TITLE_URL	<not needed>	Magnify Meta Tag
LINK_URL1	<not needed>	Magnify Meta Tag
LINK_DISPLAY_NAME1	<not needed>	Magnify Meta Tag
S_HARDCODED	<not needed>	Searchable content (last because it is a TX field type)

i. Click *Save* and then click *Run* from the Quick Access Toolbar.

Note: Each Car will include multiple rows as part of its single search result, thereby searching either *Jaguar V12XKE Auto* or *XJ12L Auto* will return the aggregated Jaguar search result, as shown in the following image.



34 of 34 records, Page 1 of 1

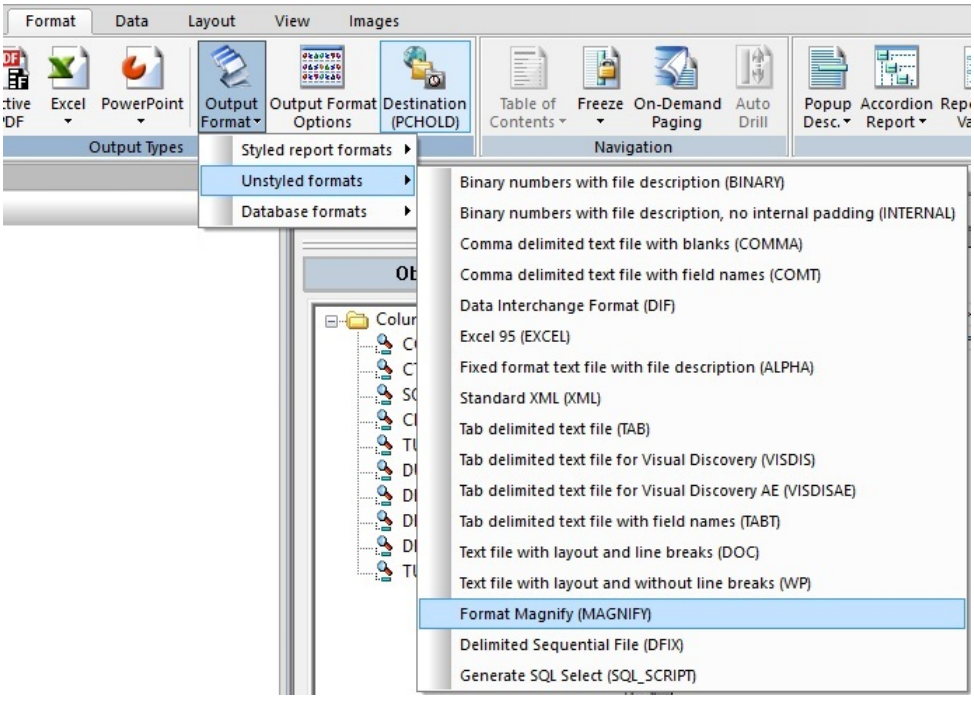
COUNTRY	CAR	SearchTitle	MagnifyID	C1_Country	H3A_Body_Type	H4R_Model	H6A_Warranty	H5R_Features
ENGLAND	JAGUAR	**JAGUAR (ENGLAND)**	ENGLAND-JAGUAR	ENGLAND	CONVERTIBLE	V12XKE AUTO	12 MONTHS OR 12000 MILES	4 WHEEL DISC BRAKES
ENGLAND	JAGUAR	**JAGUAR (ENGLAND)**	ENGLAND-JAGUAR	ENGLAND	SEDAN	XJ12L AUTO	.	POWER STEERING
ENGLAND	JAGUAR	**JAGUAR (ENGLAND)**	ENGLAND-JAGUAR	ENGLAND	.	.	.	RECLINING BUCKET SEATS
ENGLAND	JAGUAR	**JAGUAR (ENGLAND)**	ENGLAND-JAGUAR	ENGLAND	.	.	.	WHITEWALL RADIAL PLY TIRES
ENGLAND	JAGUAR	**JAGUAR (ENGLAND)**	ENGLAND-JAGUAR	ENGLAND	.	.	.	WRAP AROUND BUMPERS
ENGLAND	JENSEN	**JENSEN (ENGLAND)**	ENGLAND-JENSEN	ENGLAND	SEDAN	INTERCEPTOR III	12000 MILES OR 12 MONTHS	AIR CONDITIONING
ENGLAND	JENSEN	**JENSEN (ENGLAND)**	ENGLAND-JENSEN	ENGLAND	.	.	.	CHRYSLER 383 CU IN V8 ENGINE
ENGLAND	JENSEN	**JENSEN (ENGLAND)**	ENGLAND-JENSEN	ENGLAND	.	.	.	LEAR JET AM/FM 8 TRK STEREO
ENGLAND	JENSEN	**JENSEN (ENGLAND)**	ENGLAND-JENSEN	ENGLAND	.	.	.	PIRELLI GR70 15 TIRES
ENGLAND	TRIUMPH	**TRIUMPH (ENGLAND)**	ENGLAND-TRIUMPH	ENGLAND	HARDTOP	TR7	12 MONTHS OR 12000 MILES	POWER FRONT DISC BRAKES
ENGLAND	TRIUMPH	**TRIUMPH (ENGLAND)**	ENGLAND-TRIUMPH	ENGLAND	.	.	.	RETRACTABLE HEADLIGHTS
FRANCE	PEUGEOT	**PEUGEOT (FRANCE)**	FRANCE-PEUGEOT	FRANCE	SEDAN	504 4 DOOR	12 MONTHS ON 12000 MILES	ANTI SWAY BARS FRONT AND REAR
FRANCE	PEUGEOT	**PEUGEOT (FRANCE)**	FRANCE-PEUGEOT	FRANCE	.	.	.	FOUR WHEEL SUSPENSION
FRANCE	PEUGEOT	**PEUGEOT (FRANCE)**	FRANCE-PEUGEOT	FRANCE	.	.	.	RACK AND PINION STEERING
ITALY	ALFA ROMEO	**ALFA ROMEO (ITALY)**	ITALY-ALFA ROMEO	ITALY	SEDAN	2000 4 DOOR BERLINA	.	.
ITALY	ALFA ROMEO	**ALFA ROMEO (ITALY)**	ITALY-ALFA ROMEO	ITALY	COUPE	2000 GT VELOCE	.	.
ITALY	ALFA ROMEO	**ALFA ROMEO (ITALY)**	ITALY-ALFA ROMEO	ITALY	ROADSTER	2000 SPIDER VELOCE	.	.
ITALY	MASERATI	**MASERATI (ITALY)**	ITALY-MASERATI	ITALY	COUPE	DORA 2 DOOR	6 MONTHS OR 6000 MILES	5 LITRE SS ENGINE
ITALY	MASERATI	**MASERATI (ITALY)**	ITALY-MASERATI	ITALY	.	.	.	ALL STEEL BODY
ITALY	MASERATI	**MASERATI (ITALY)**	ITALY-MASERATI	ITALY	.	.	.	CAMPAGNOLLO LIGHT ALLOY WHEELS
ITALY	MASERATI	**MASERATI (ITALY)**	ITALY-MASERATI	ITALY	.	.	.	MICHELIN 21 5/70 VR15XVWX TIRES
JAPAN	DATSUN	**DATSUN (JAPAN)**	JAPAN-DATSUN	JAPAN	SEDAN	B210 2 DOOR AUTO	12 MONTHS OR 12000 MILES	POWER FRONT DISC BRAKES
JAPAN	DATSUN	**DATSUN (JAPAN)**	JAPAN-DATSUN	JAPAN	.	.	.	REAR DRUM BRAKES
JAPAN	TOYOTA	**TOYOTA (JAPAN)**	JAPAN-TOYOTA	JAPAN	SEDAN	COROLLA 4 DOOR DIX AUTO	12 MONTHS OR 12500 MILES	BODY SIDE MOLDING
JAPAN	TOYOTA	**TOYOTA (JAPAN)**	JAPAN-TOYOTA	JAPAN	.	.	.	MACPHERSON STRUT FROMT SUSPENSI
W GERMANY	AUDI	**AUDI (W GERMANY)**	W GERMANY-AUDI	W GERMANY	SEDAN	100 LS 2 DOOR AUTO	12 MONTHS OR 20000 MILES	165 SR 14 RADIAL TIRES
W GERMANY	AUDI	**AUDI (W GERMANY)**	W GERMANY-AUDI	W GERMANY	.	.	.	FRONT WHEEL DRIVE
W GERMANY	AUDI	**AUDI (W GERMANY)**	W GERMANY-AUDI	W GERMANY	.	.	.	POWER FRONT BRAKES
W GERMANY	BMW	**BMW (W GERMANY)**	W GERMANY-BMW	W GERMANY	SEDAN	2002 2 DOOR	.	.
W GERMANY	BMW	**BMW (W GERMANY)**	W GERMANY-BMW	W GERMANY	SEDAN	2002 2 DOOR AUTO	.	.
W GERMANY	BMW	**BMW (W GERMANY)**	W GERMANY-BMW	W GERMANY	SEDAN	3.0 SI 4 DOOR	.	.
W GERMANY	BMW	**BMW (W GERMANY)**	W GERMANY-BMW	W GERMANY	SEDAN	3.0 SI 4 DOOR AUTO	.	.
W GERMANY	BMW	**BMW (W GERMANY)**	W GERMANY-BMW	W GERMANY	SEDAN	530I 4 DOOR		

j. Close the browser window that is running the report and return to the Report canvas.

k. Change the Output Format as follows:

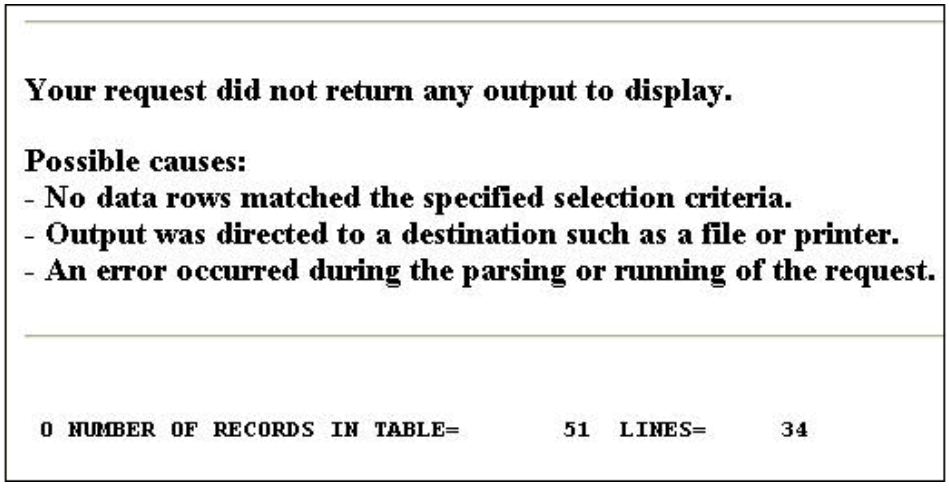
- ❏ Click the *Format* tab.
- ❏ Select the *Output Format* drop-down.

- Expand the *Unstyled formats* menu and select *Format Magnify (MAGNIFY)*, as shown in the following image.



- Click *Save* and then click *Run* from the Quick Access Toolbar.
- Confirm that there are no errors. Upon execution, the WebFOCUS Reporting Server will process the request by transforming the report output into the Magnify feed protocol.

Note: Not every row is sent to Magnify. Fifty-one rows are aggregated into 34, as shown in the following image.



As part of the Magnify output, the 34 records are further aggregated into 10 search results.

- ❑ Close the browser window that is running the report.
- ❑ Close the Procedure View panel.

4. Review the search-based application generated.
   a. Open a web browser.
   b. Navigate to the Magnify search page:

      `http://host:port/wfcontext_root/search`

      where:

      host:*port*

      Is the machine name and port number where WebFOCUS is installed.

      `wfcontext_root`

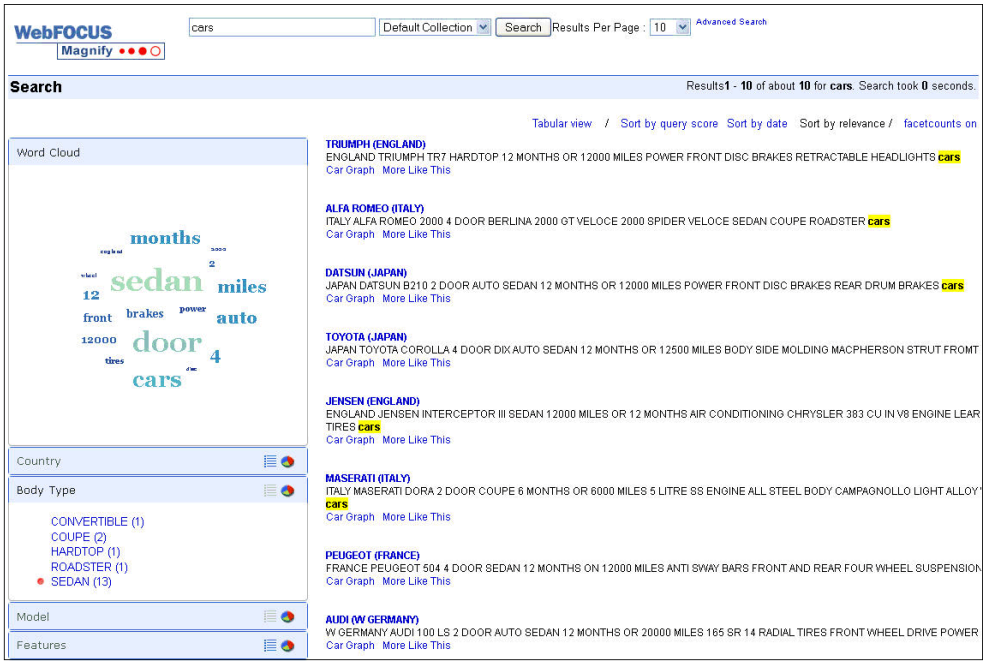
      Is the WebFOCUS application root.

      Note: Sample or default URLs are for informational purposes only and may not resolve correctly, if at all.

      To return to the Magnify interface, the default URL is:

      `http://localhost:8080/ibi_apps/search`

c. Perform a search test by typing *cars* in the Search box and clicking *Search*as shown in the following image.



d. Review the returned results and search to identify how the data has been applied to the Magnify search interface.

e. Close the browser window.

f. Close App Studio.

Post-Indexing Verification

This section will briefly describe some administrative features to validate the Magnify feed.

Note: For more information, see the *Magnify Search Security and Administration* manual.

1. Monitor the Indexing Process from the Magnify Console.

   a. Launch WebFOCUS using the following URL and log on:

   `http://host:port/wfcontext_root`

   where:

   host:port

   Is the machine name and port number where WebFOCUS is installed.

wfcontext_root

Is the WebFOCUS application root. By default, this ibi_apps.

Note: Sample or default URLs are for informational purposes only and may not resolve correctly, if at all.

b. From the main menu, select *Administration*, and then *Magnify Console*.

- Under the *Diagnostics* section, click on *Index Monitor*.
- Notice how many records were indexed.
- Copy the Directory Name under *Index Library Status*. This will be used to locate the physical Magnify Index library files, as shown in the following image.

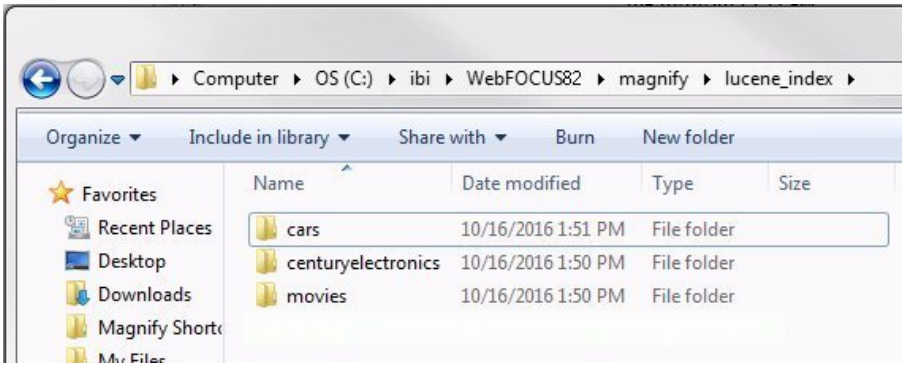
Index Library Status

The below information provides information about content feed to each Magnify index library. This information is refreshe

	Open Time	Close Time	Last Deleted Time	Minutes Open	Directory Name	Count of Records Loaded	Actual Documents in the index	Total Documents including deletes in the index
1	14:26:03	14:28:08		2.09	C:/ibi/WebFOCUS82 /magnify/lucene_index/movies	60	60	60
2	14:57:44	14:59:44		2.00	C:/ibi/WebFOCUS82 /magnify/lucene_index/cars	10	10	10
				4.09	Total	70	70	70

2. Close the Magnify Console and the browser window.
3. Verify the creation of the Magnify Index Library.
   a. Navigate to Index Library folder.

Open Windows Explorer (or press the Windows logo key+E), and paste the Directory Name copied from step 1b in the browser bar. You can also type the directory path to the Magnify index libraries, for example \ibi\WebFOCUS82\magnify\lucene_index, by default, as shown in the following image.



Note: The path that you use depends on your configuration. If you are using the WebFOCUS Client, the preceding path is acceptable. If you are using App Studio as a stand-alone, the path will be \ibi\AppStudio82\magnify\lucene_index\.

4. Close Windows Explorer.

Word Cloud Usage Considerations

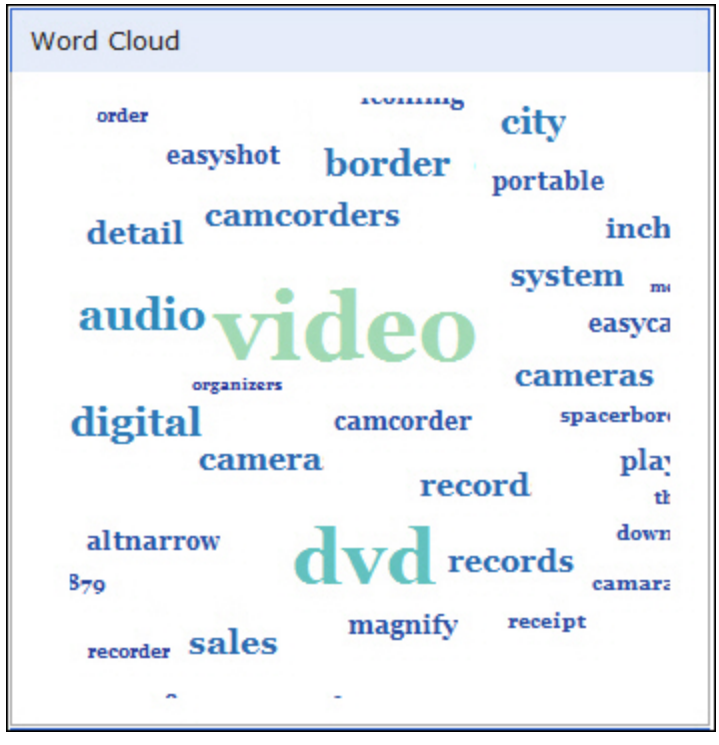
The Word Cloud is a textual chart that is built into Magnify to make it easier to narrow a search. The Word Cloud is an accumulation of the most frequently found words across the search results returned. The Word Cloud always shows words as part of the latest result set.

Word Cloud presents words related to your search in a cloud-like image. You can click on these words to quickly refine the search.

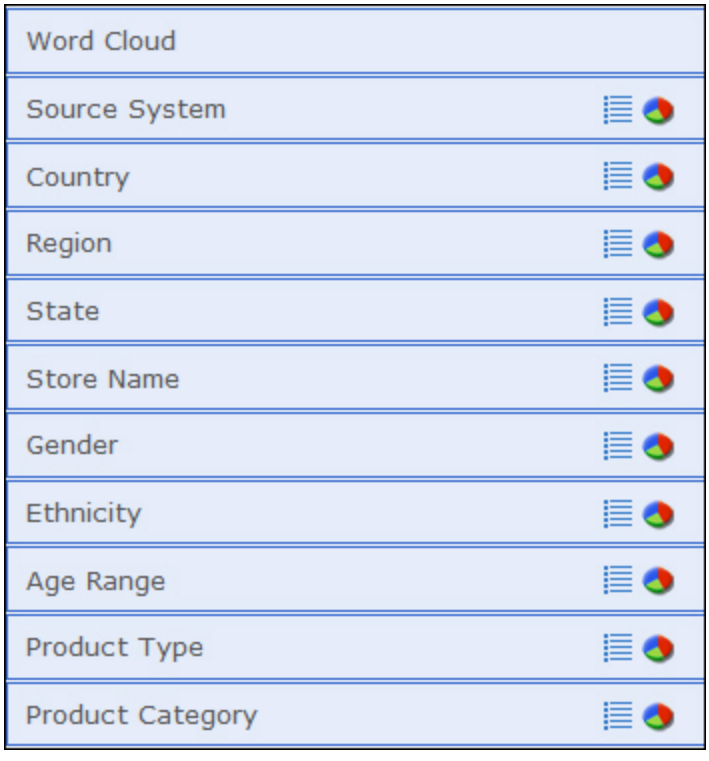
Specifically, when you click on a word or a sequential series of words in the Word Cloud, your search results are modified based on what you select. For example, if a search was conducted on the word video, some of the words that might display in the Word Cloud include DVR, camera, and recording. When you click on one of these words, your results narrow based on that selection. In most cases, the search results in the display of fewer records.

Note: Word Cloud terms are populated based on the most frequent terms found for each search result and then aggregated for all search results returned. *More Like This* locates the words that are most frequently found in the index for each search result.

The following image shows the Word Cloud when a search has been conducted on the term *video*.

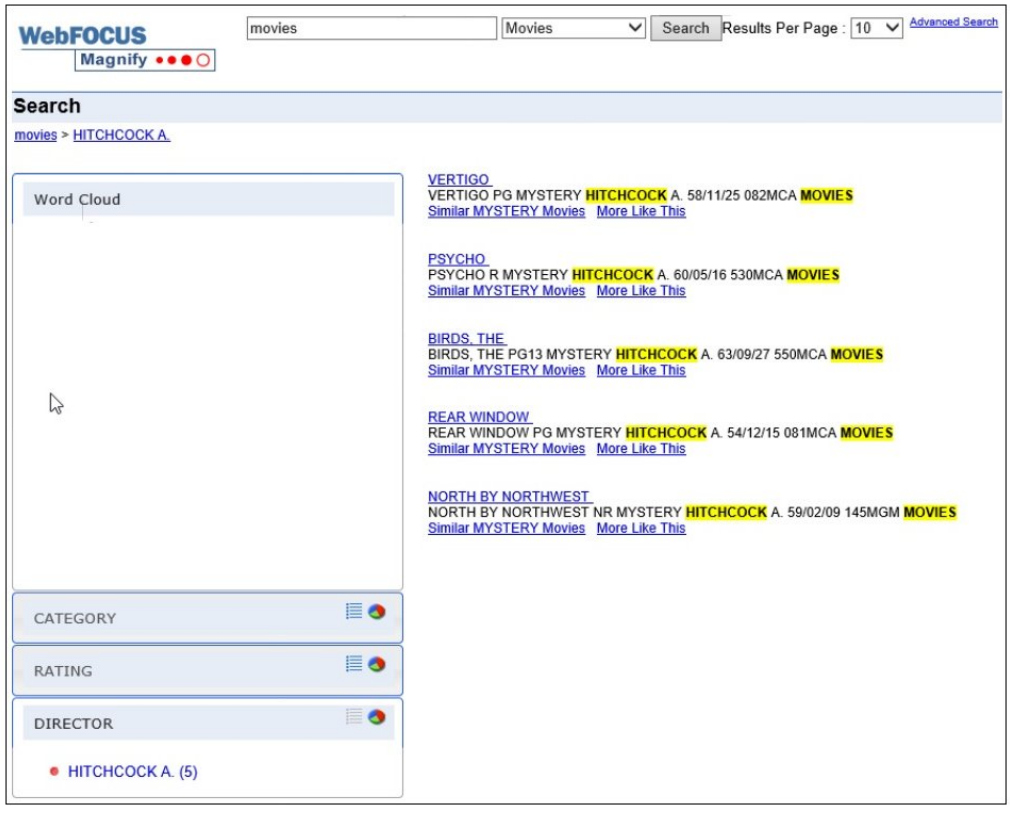


You can access Word Cloud by clicking the top box in the list of categories, as shown in the following image. You can collapse Word Cloud by clicking the box again.

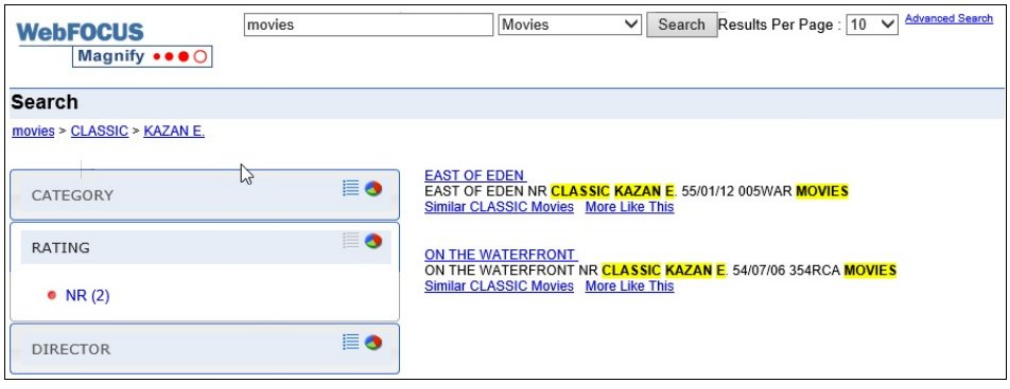


Note: You may encounter instances where the Word Cloud is empty or disappears from the left pane of the search result area. This occurs when performing a search where a very limited number of results are returned or where the original searchable content is also very limited. There may not be a large enough pool of words to create the Word Cloud.

The following image shows an example when the World Cloud is empty for a search result.



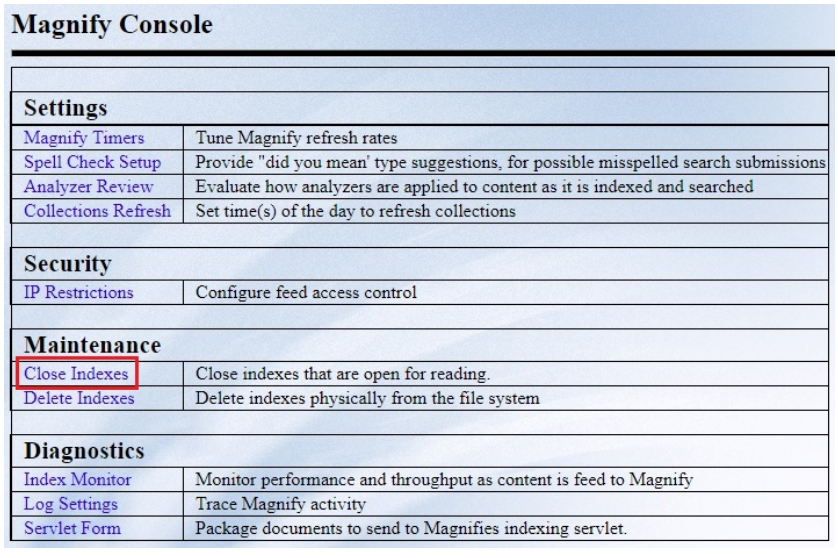
The following image shows an example when the World Cloud category has disappeared from the left pane of the search result area.



Force Closing an Index During a Feed Process

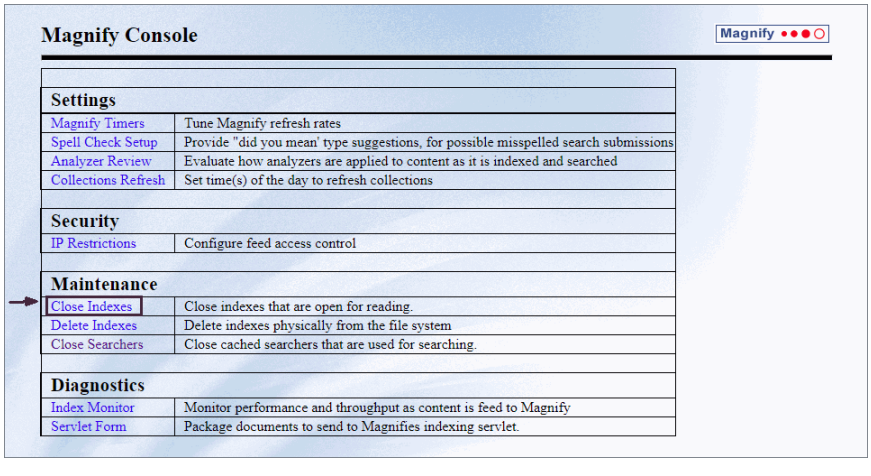
You may encounter a situation when an index will not close automatically as part of the feed process. As a workaround, you must force close the index.

Indexes can now be closed on demand from the Close Indexes page in the Magnify Console. To access the Close Indexes page, navigate to the Maintenance section and click *Close Indexes*, as shown in the following image.



Magnify Console

Settings	
Magnify Timers	Tune Magnify refresh rates
Spell Check Setup	Provide "did you mean' type suggestions, for possible misspelled search submissions
Analyzer Review	Evaluate how analyzers are applied to content as it is indexed and searched
Collections Refresh	Set time(s) of the day to refresh collections
Security	
IP Restrictions	Configure feed access control
Maintenance	
Close Indexes	Close indexes that are open for reading.
Delete Indexes	Delete indexes physically from the file system
Diagnostics	
Index Monitor	Monitor performance and throughput as content is feed to Magnify
Log Settings	Trace Magnify activity
Servlet Form	Package documents to send to Magnifies indexing servlet.

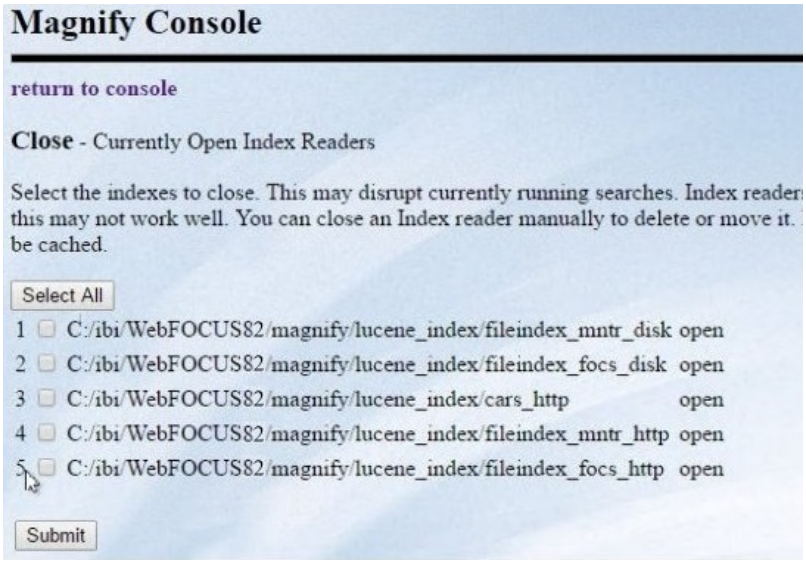


Magnify Console

Magnify

Settings	
Magnify Timers	Tune Magnify refresh rates
Spell Check Setup	Provide "did you mean' type suggestions, for possible misspelled search submissions
Analyzer Review	Evaluate how analyzers are applied to content as it is indexed and searched
Collections Refresh	Set time(s) of the day to refresh collections
Security	
IP Restrictions	Configure feed access control
Maintenance	
Close Indexes	Close indexes that are open for reading.
Delete Indexes	Delete indexes physically from the file system
Close Searchers	Close cached searchers that are used for searching.
Diagnostics	
Index Monitor	Monitor performance and throughput as content is feed to Magnify
Servlet Form	Package documents to send to Magnifies indexing servlet.

The Close Indexes page opens, as shown in the following image.



Select an index from the list that is currently open, which you want to close, and click *Submit*.

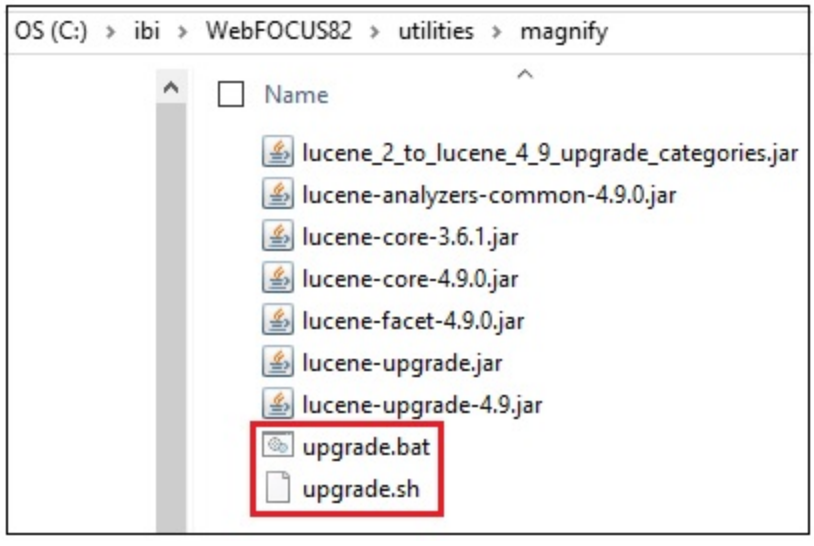
Upgrading Your Lucene Indexes

As of WebFOCUS Release 8.2 Version 01 and higher, Magnify Search requires Lucene indexes to be at the version 4.x level. Earlier versions of Lucene indexes (for example, version 2.x) will not function.

Magnify Search provides an upgrade utility that is packaged with your WebFOCUS installation in the following directory:

```
drive:\ibi\WebFOCUS82\utilities\magnify
```

A batch file for Windows platforms named *upgrade.bat* and a shell script for UNIX/Linux platforms named *upgrade.sh* is available, as shown in the following image.



Perform the following steps to upgrade any earlier versions of Lucene indexes to version 4.9 using the available upgrade utility. For demonstration purposes, the upgrade utility for Windows platforms (*upgrade.bat*) is used. However, the general steps in this procedure are also applicable when using the upgrade utility for UNIX/Linux platforms (*upgrade.sh*).

Note: Before proceeding, it is recommended that you create a backup of your existing Lucene index, since this utility replaces the entire index in the specified directory path.

1. Run the *upgrade.bat* file.

   The following prompt is displayed in a command console window:

   ```
   Enter OLD Lucene Index Location (default-C:\ibi\WebFOCUS82\magnify
   \lucene_index):
   ```

2. Specify the directory path to the old Lucene index and press *Enter*.

   Note: If you enter an invalid path, the upgrade utility displays a warning indicating that the directory does not exist and prompts you to re-enter the path. If this is the case, press *y* to continue and enter the correct path.

   The following prompt is displayed:

   ```
   Enter NEW Lucene Index Location (default-C:\ibi\WebFOCUS82\magnify
   \lucene4_index):
   ```

3. Specify the directory path to where you require the upgraded Lucene index to be created and press *Enter*.

   The following message is displayed:

   ```
   Upgrading Lucene Indeces ......
   ```

   Notes:

   - Depending on the amount and size of indexes that are being upgraded by this utility, this operation may take some time to complete. However, status messages are actively displayed in the command console window, which indicate the progress.
   - If an index of the same name as an *old* index exists, then it will be overwritten by the upgraded version of the index.

   After the upgrade process has finished, the command console window automatically closes.

4. Navigate to the directory path you specified where the upgraded Lucene indexes are created and verify that the corresponding indexes are available.

Magnify Distributed Indexes

Magnify indexes can be distributed across load balanced or indexed environments, multiple WebFOCUS installs, and mounted drives or across other similar networked devices. This means an index is virtually indexed together by actual indexes residing in multiple locations, with each location being an index that makes up the greater virtual index.

To do so, a shared directory is first setup as central location to receive incoming feed documents, which are then indexed with one of the available distributed indexes. Then, when searches are performed, all distributed indexes are queried at once, and all results are merged together into a single result set for the end user.

Each index can be independently searched, but this represents only a portion of all the information that is expected to be made searchable and is only accomplished when searching all indexes in parallel. Due to this, the collection file should be configured so that an index not only references the local index, but has bidirectional pointers to all other indexes in other locations. Each of these locations is represented by their own collection file and each must be processed in their own application server space.

Requirements:

1. In order to feed data to a shared directory, the feed to disk method must be employed. In order to index fed data to distributed indexes, each index must be run in its own application server instance.

2. This is only used with the Magnify feedtype of FULL where unique identification is not used and duplicate records can exist.

The following procedures will walk you through how to enable and configure Magnify to concurrently index incoming feed documents across indexes.

Procedure: How to Set Up Your Network Connected Environment

1. Confirm each machine can connect with one another.
2. Designate one directory to store incoming feed documents. This is shared to feeding machines and those machines part of the index with read and write permissions. It is recommended to use the default WebFOCUS feedcache directory.
3. In the WebFOCUS administration console for each WebFOCUS installation that is included, set the Magnify feed cache directory to the above shared path. On the local machine, the DOS path can be used.
4. Create a directory to store the index in each WebFOCUS installation that is included. You must confirm that the local machine has write access, but also has shared access with read permissions to all other machines. By default, it is recommended to use the default Magnify index directory. In addition, it is recommended that a subdirectory be created within this directory to help future-organize indexes, such as the automatic index directory creation and dynamic partitioning.

   For example, the directory can be set as: magnify\lucene_index\mag. Then, the index can be created under the following directory: mag\index.

Procedure: How to Map Indexes

1. Create a collections file for each index to be represented. Make sure to perform the following steps on each file.
2. Edit the *collections.xml* file.
3. Configure any pointers to the index locations. Doing so defines where to load indexes with data from feeds that are picked up from the shared feedcache directory. To do so:
   1. Add an index element for each index participating in the greater index.
   2. Use a unique name and make sure that the directory points to the location of the index.
      - ❏ For local locations, this is the DOS path.
      - ❏ For remote locations, this is the UNC path.
   3. Include the feed element for the datasource.

Note:

- There is only one feed element defined in the set of indexes.
- The one feed element that is defined is placed within the index element for the index being represented.

```
<!--  ************************************************************
        INDEXES
        Indexes point to specific directories, where . defaults
        to Magnify's root dir. directory can point to any
        physical path on the local machine (absolute or relative).

        indexes can be referenced as a member of the groups defined
        in collections.
************************************************************  -->
    <indexes>
        <index name="magcluster1" directory="magcluster/magcluster81">
            <feed datasource="magcluster81"/>
        </index>
        <index name="magcluster2" directory="\\install8105m\magcluster\magcluster81"></index>
        <index name="magcluster3" directory="\\installcluster\magcluster\magcluster81"></index>
        <index name="magcluster4" directory="\\installcluster1\magcluster\magcluster81"></index>
    </indexes>
```

4. Group the indexes into a greater index in order to perform a search.

   Tips:

   - Create each index as a group component.

- The group component can then be referenced like any other index through the collections drop-down menu.

```
<!--  ************************************************************
        COLLECTIONS
        The collections are groups of directories found in the
        Magnify's root Lucene index directory as defined in the
        WebFOCUS Admin console. By default this is:
        \ibi\WebFOCUS77\magnify\lucene_index

        In the below example, wildcard folder names can be used.
        .* is all folders in the root dir whereas century.*
        will search only folder beginning with century.
        Only one wildcard component per group.

        otherwise, assign member to a case sensitive folder name

        <group name="centstores" id="centstores">
            <component id="centurystores"       member="centurystores"/>
            <component id="centuryemployees"    member="centuryemployees"/>
        </group>
************************************************************  -->
    <collections>
        <group name="default_collection" id="default_collection">
            <component id="allindexes" member=".*"/>
        </group>
        <group name="cluster" id="clusterID">
            <component id="cluster0"    member="magcluster1"/>
            <component id="cluster1"    member="magcluster2"/>
            <component id="cluster2"    member="magcluster3"/>
            <component id="cluster3"    member="magcluster4"/>
        </group>
    </collections>
```

5. Create a version for each index. You can do this by either directly copying the index to any additional WebFOCUS Magnify installations, or renaming them accordingly.

Procedure: How to Configure Application Server Settings

The following settings are enabled through your WebFOCUS Client application server that is configured with your WebFOCUS environment. An example of the application server is Apache Tomcat.

1. Force the application server to lock files from being distributed to other indexes once they are picked up for processing. To do this, add the following Java setting to your application server:

```
-DIBI_Magnify_FeedCache_Locking_Enable=true
```

2. Set the length of time (in minutes) that the application server waits to unlock a file to be distributed. To do this, add the following Java setting to your application server:

   ```
   -DIBI_Magnify_FeedCache_Lock_File_Lifetime_Minutes=5
   ```

3. Set the collection file representing the index.

   This is used when using one WebFOCUS Magnify install across multiple application server instances. To do this, add the following Java setting to your application server:

   ```
   -DIBI_Magnify_Collections_File_Name=collections[N].xml
   ```

Notes:

- When performing these steps, take the usual WAR file considerations.
- The first search performed will be slow, as memory is being loaded.
- This technique works across all supported operating systems.

Enable Distributed Indexes for Load Balancing

One limitation to using this technique is that WebFOCUS Magnify can still only be configured to a single collection file, meaning that the only way to get to Magnify is through one collection file. This results in mapping pointers to other collection files in order to virtually represent the large single index when distributing indexes.

This is a challenge in a load balanced environment where entry to Magnify should occur from any index or in the collection file.

To enable and configure Magnify for multi-collection entry point for bi-directional collection configuration, reference in load-balanced environment.

Chapter 4

Indexing Using the FORMAT MAGNIFY Command

This section describes the requirements for indexing data using the FORMAT MAGNIFY command. FORMAT MAGNIFY defines the connection settings to Magnify Search and then defines how data maps to the search interface using a combination of alias names and Magnify Search Meta Tags.

In this chapter:

- FORMAT MAGNIFY
- Using Sentiment Analysis With Magnify Search

FORMAT MAGNIFY

The following is a sample MOVIES Master File that contains several field names, which can be used to index the MOVIES data. The movies.mas Master File is located in the \ibi\apps \ibisamp directory of your WebFOCUS Reporting Server installation.

```
FILENAME=MOVIES,SUFFIX=FOC
SEGNAME=MOVINFO,SEGTYPE=S1
    FIELDNAME=MOVIECODE, ALIAS=MCOD,FORMAT=A6, INDEX=I, $
    FIELDNAME=TITLE, ALIAS=MTL,FORMAT=A39, $
 FIELDNAME=CATEGORY, ALIAS=CLASS,FORMAT=A8, $
    FIELDNAME=DIRECTOR, ALIAS=DIR,FORMAT=A17, $
    FIELDNAME=RATING, ALIAS=RTG,FORMAT=A4, $
    FIELDNAME=RELDATE, ALIAS=RDAT,FORMAT=YMD, $
 FIELDNAME=WHOLESALEPR, ALIAS=WPRC,FORMAT=F6.2, $
    FIELDNAME=LISTPR, ALIAS=LPRC,FORMAT=F6.2, $
 FIELDNAME=COPIES,ALIAS=NOC, FORMAT=I3, $
```

WebFOCUS developers can use DEFINE fields and AS statements in the report procedure to define the following search components required for each WebFOCUS procedure using Format Magnify:

ALIAS AND PREFIX NAMES

Type	Alias Name or Prefix	Description
Title	SearchTitle **Note:** This is required.	A single field, or a concatenation of fields or strings. This can include a concatenation of static strings and various columns. The name is case-sensitive and is assigned to the TITLE meta tag.
Unique ID	MagnifyID **Note:** This is required.	Primary Key fields. Unique IDs are unique within each Library Index directory.
Categories	C_ or M_<category> **Note:** Although this is optional, it is highly recommended to define some high-level groupings to assist end users in narrowing results sets with the Category Tree.	Category Field name used in the Dynamic Categorization Tree (pre-parsed). It is recommended to use a enough categories to make the information easier to read for the end user. Category Fields are mapped in the order they appear. Use underscores to include spaces in the C_ or M_ names. C_ and M_ are converted to the FX values as part of the feed document output. The C#_ and M#_ prefixes can be used to set the order of the categories in the Dynamic Categorization Tree. **Note:** When using the M#_ prefix, add *A* to accumulate all values found at the lowest-level BY statement. The C_ prefix converts to the FXV meta tag. The M_ prefix converts to the FXM meta tag in the URL of the record.
Magnify Attributes	Magnify Attributes	Reserved META tag names, which are case-sensitive. For more information on the available Meta tags, see *Magnify Search Meta Tags* on page 93.

Type	Alias Name or Prefix	Description
Other Attributes	Other Attributes	Any other field or virtual field. All other fields are added as meta tags based on the Field or Alias name and their respective value.
Search Body	S_<fieldname> **Note:** This is required.	Concatenation of fields and virtual fields. The S_ prefix maps to the BODY meta tag in the document and the IBI_CONTENT field in the index library. Fields can be of any data type. The TX fields must be the last field in a PRINT statement. Search fields can be accumulated by prefixing them with SA_. Any field of any data type can be assigned the S_ or SA_ prefix.

The procedure must also define the following required Magnify search engine properties, which control the feed process.

CONNECTION STRING ENGINE PROPERTIES

Property	Description	Example
CONNECTION _ATTRIBUTES	Magnify Indexing Servlet	http://localhost:8080/ibi_apps/saxfeed
BASEURL	WebFOCUS Report base URL	http://localhost:8080/ibi_apps/WFServlet
MIME	Document mime type	text/plain

Property	Description	Example
ACTION	Possible values are as follows: ❑ **add.** Inserts or updates a record. A record is updated if its WF_INDEX_UNIQUE_KEY value already exists in the index. Yearly add is the default value. For more information, see *Magnify Search Meta Tags* on page 93. ❑ **delete.** The WF_INDEX_UNIQUE_KEY of the record value is found and deleted from the index.	MagnifyAction/A10 = 'add';
DATASOURCE	Magnify index library directory	Movies [:10KB|MB|GB] For more information on how dynamic partitioning is configured, see the *Magnify Search Security and Administration* manual.
BATCHSIZE	Number of records to burst at a time. **Note:** This is always recommended.	100
DELIMITER	Separator for multiple categorizations. **Note:** This is used in conjunction with aggregation-based alias names (as seen in next section by c#A_ and SA_).	#!#

Property	Description	Example
FEEDTYPE (Optional)	Sets the document-level Magnify feed property to determine how data is added to the index. This property can be set to one of the following values: ❑ **FULL.** Adds all data to the index from the data source. If a record is repeated in the feed, it is duplicated in the Magnify index library. Therefore, the full feedtype is recommended only when there are no duplicate records. ❑ **INCREMENTAL (default).** Updates an existing record in the index or adds the data as a new record. The record is first matched using the WF_INDEX_UNIQUE_KEY meta tag. Otherwise, the URL value is used. This mode prevents duplicate records from being added to the index library.	MAGNIFY SET FEEDTYPE = FULL

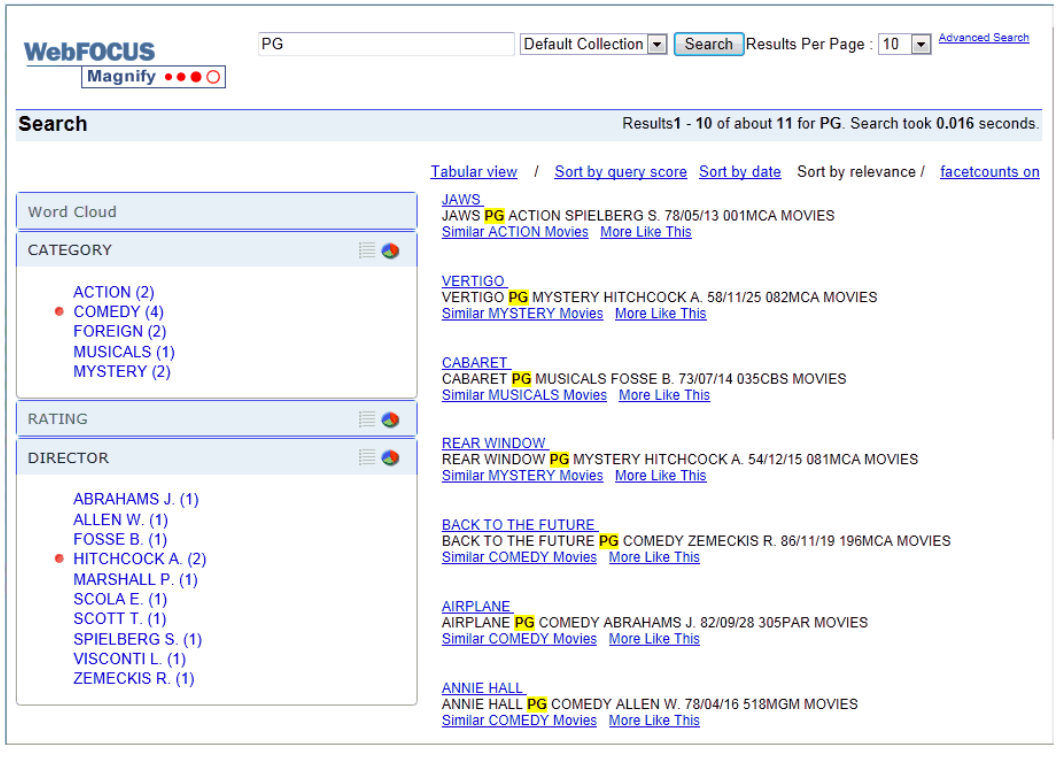
Note: If the data contains non-ASCII characters, UTF-8 encoding is required, and the WebFOCUS Reporting Server must be set to National Language Support (NLS) UTF-8. In addition, the ENGINE SET Statements can be overridden on a record by record basis by using the MagnifyBaseURL, MagnifyMime, MagnifyAction, and MagnifyDatasource values.

Reference: Sample WebFOCUS Procedure

The following is a report procedure that defines the required search properties used to create an index using the MOVIES data. The carmgn.fex and moviesmgn.fex sample procedures are included in the ibisamp directory of the WebFOCUS Reporting Server installation.

```
-**********Engine settings
ENGINE MAGNIFY SET CONNECTION_ATTRIBUTES MY_PC
'http://localhost:8080/ibi_apps/saxfeed'
ENGINE MAGNIFY SET BaseURL=http://localhost:8080/ibi_apps/WFServlet
ENGINE MAGNIFY SET MIME=text/plain
ENGINE MAGNIFY SET DATASOURCE=movies
ENGINE MAGNIFY SET DELIMITER=#!#
ENGINE MAGNIFY SET BATCHSIZE=2
-****** required SET command
SET ASNAMES=MIXED
-****** Application Path
APP HOLD test
DEFINE FILE MOVIES
OLD_DATE/I8YYMD= 20100915;
NEW_DATE/YYMD = OLD_DATE;
-******
MagnifyAction/A10 = 'add';
SEARCHBODY/TX50=TITLE|CATEGORY|DIRECTOR|RATING;
END

TABLE FILE MOVIES
PRINT
   TITLE       AS 'SearchTitle'
-* Magnify Attribute
   MOVIECODE   AS 'MagnifyID'
   MOVIECODE   AS 'WF_INDEX_UNIQUE_KEY'
-* category variable start with C_
   CATEGORY    AS 'C_CATEGORY'
   DIRECTOR    AS 'C_DIRECTOR'
   RATING
   MagnifyAction
-* search variables start with S_
   TITLE       AS 'S_Title'
   CATEGORY    AS 'S_CATEGORY'
   DIRECTOR    AS 'S_DIRECTOR'
   RELDATE     AS 'S_RELDATE'
   OLD_DATE    AS 'S_OLD_DATE'
   NEW_DATE    AS 'S_NEW_DATE'
   SEARCHBODY  AS 'S_SearchBody'
ON TABLE HOLD FORMAT MAGNIFY AS MAGN_MOVIES_BATCH
END
```

When the report procedure is executed, the index is generated and the data from the Movie database is available for searching, as shown in the following image.



Using FORMAT MAGNIFY With TEXT Fields

Using FORMAT MAGNIFY with TEXT fields that are larger than 32K in size generates a FOCSORT error because the FOCSORT threshold (2GB) is reached.

The TEXT field must be set as a Binary Large Object (BLOB) field (ACTUAL and USAGE) so that it bypasses the FOCSORT and uses the FOCCACHE instead. This technique writes the content out to disk in chunks as it is processed and is delivered to Magnify as an incoming document.

Writing Magnify Feed Documents to Disk

Modifying ENGINE MAGNIFY SET commands for FORMAT MAGNIFY that instructs the WebFOCUS Reporting Server to write Magnify feed documents to disk rather than posting through HTTP are now supported.

Procedure: How to Write Magnify Feed Documents to Disk

You can follow the same instructions that currently exist for configuring FORMAT MAGNIFY with the following differences:

1. Add the following two lines:

   ```
   APP MAP <variable_name> "c:\ibi\WebFOCUS82\magnify\feedcache"

   APP HOLD <variable_name>
   ```

2. Set the ENGINE MAGNIFY SET CONNECTION_ATTRIBUTES parameter to a blank value.
3. Ensure that the ON TABLE HOLD FORMAT MAGNIFY statement ends with:

   ```
   AS <variable_name>
   ```

   Otherwise, the following error is generated:

   ```
   (FOC44971) Explicit SET command has to be issued for
   CONNECTION_ATTRIBUTES.
   ```

Using Sentiment Analysis With Magnify Search

Sentiment analysis is the study of consumer feelings and attitudes towards a product or service, such as positive, negative, or neutral. You can use Magnify Search to analyze textual feedback provided in social media platforms, product reviews, and other searchable content.

To use sentiment analysis with Magnify Search, the following requirements are needed.

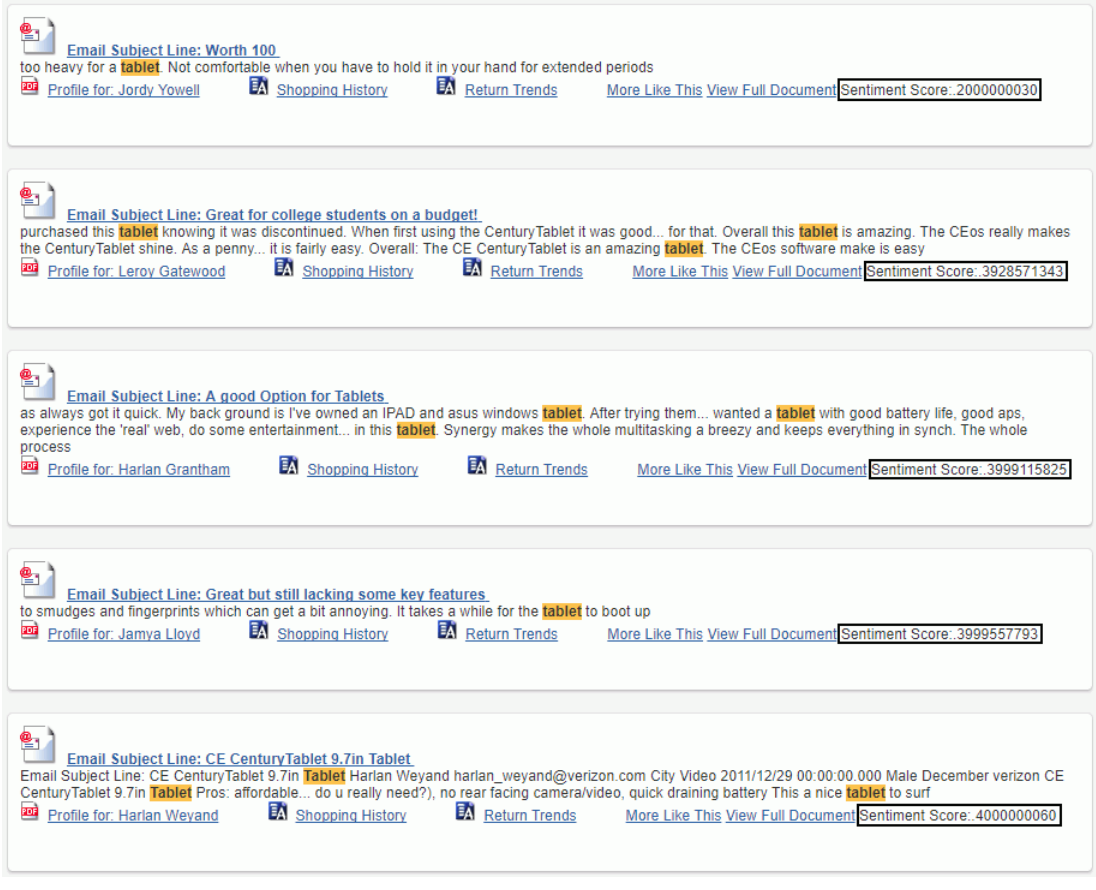
- ❏ The developer environment needs to have the WAND Sentiment Analysis Server and Adapter configured.
- ❏ The sample synonyms must be created as explained in the *WebFOCUS Social Media Integration Guide* technical content.
- ❏ In the HOLD FORMAT MAGNIFY procedure, add the IBI_Sentiment_score metatag as an ASNAME for the SCORERESULT field.

The following HOLD FORMAT MAGNIFY procedure shows the code line SCORERESULT AS 'IBI_Sentiment_score' added to the procedure.

```
ENGINE MAGNIFY SET CONNECTION_ATTRIBUTES MY_PC ''
APP MAP SENT_MAG "C:/ibi/webfocus82/magnify/feedcache"
APP HOLD SENT_MAG
ENGINE MAGNIFY SET BASEURL=http://localhost:8080/ibi_apps/WFServlet
ENGINE MAGNIFY SET MIME=text/plain
ENGINE MAGNIFY SET DATASOURCE=sentiment
SET ASNAMES=MIXED

JOIN TEXT1 IN twitter/trump_v_clinton TO TEXT IN wand/wandscore

DEFINE FILE twitter/trump_v_clinton
    S_HARDCODED/TX50='Election 2016';
    TITLE_URL/A2000='http://localhost:8080/ibi_apps/search?q=' || NAME || '&' ||
          'collections=collections_sentiment.xml' || '&' ||
          'proxystylesheet=en/en_stylesheet_sentiment' || '&' ||
          'site=sentiment';
    LINK_DISPLAY_NAME1/A2000= SCREEN_NAME;
    LINK_URL1/A512='http://localhost:8080/ibi_apps/search?q=' || SCREEN_NAME || '&' ||
          'collections=collections_sentiment.xml' || '&' ||
          'proxystylesheet=en/en_stylesheet_sentiment' || '&' ||
          'site=sentiment';
    Sentiment_Score/A7 = IF SCORERESULT LT 0 THEN 'Bad'
          ELSE IF SCORERESULT EQ 0 THEN 'Neutral'
          ELSE 'Good';
END

TABLE FILE twitter/trump_v_clinton
PRINT
     SCREEN_NAME AS 'SearchTitle'
     SCREEN_NAME AS 'MagnifyID'
     SCREEN_NAME AS 'WF_INDEX_UNIQUE_KEY'
     NAME AS 'C1_NAME'
     SCREEN_NAME AS 'C2_SCREEN_NAME'
     CREATED_AT AS 'S_CREATED_AT'
     TEXT1 AS 'S_TEXT1'
     NAME AS 'S_NAME'
     SCREEN_NAME AS 'S_SCREEN_NAME'
     SCORERESULT AS 'IBI_Sentiment_score'
     Sentiment_Score AS 'C3_Sentiment_Score'
     TITLE_URL
     LINK_DISPLAY_NAME1
     LINK_URL1
     S_HARDCODED
ON TABLE HOLD FORMAT MAGNIFY AS SENT_MAG
END
```

After the search index is created, when you search for a term in Magnify Search, you can filter your data so that you are only searching for results that most likely contain sentiment scores, such as product reviews.

The following image shows customer product reviews written for the Century Electronics tablet. Sentiment scores are included. In this example, the higher the decimal number is, the more positive the feedback.



For more information about sentiment scores, see the *Magnify Search End User Manual* technical content.

Chapter 5

Magnify Search Meta Tags

This chapter presents and describes the meta tags used with Magnify Search.

Note: Magnify Search meta tags are case-sensitive.

In this chapter:

- HTML Format for All Access Types
- HTML Format Required for an External URL
- File Indexing Specific Meta Tag Information
- Sentiment Analysis Indexing
- HTML Format for a Stand-alone Report Procedure
- HTML Format for a Managed Reporting Procedure
- HTML Format for a Business Intelligence Portal Item
- HTML Format for an AUTORUN Procedure

HTML Format for All Access Types

The following table describes the HTML format required for all access types.

Parameter	Value
TITLE	Text displayed as the main link of the search result.
Custom Meta Tags	
"X" CONTENT="Y"	Meta tags that are stored with the search result, but are not indexed or available for searching.
Unique Key	

Parameter	Value
WF_INDEX_UNIQUE_KEY	Used to identify a unique document when updating or deleting records from the index. This can be the document URL address or a database field value. **Important:** This is a required meta tag and must be unique within each index library.
Date Information	
MAGNIFY_DATE	By default, Magnify adds a date field for each record. The date field value contains the date in which the record was indexed. Optionally, you can add your own date information by adding a *date* META tag in your transformation. If date information is provided with the record, Magnify will include this value in the index and not the default date value. The recommended format for the date is as follows: *yyyy-mm-dd* where: *yyyy* Is the year. *mm* Is the month. *dd* Is the day.
Data That Can be Searched On	
BODY	Data to be indexed (and therefore searchable) by the search engine.
Image for Snippet	

Parameter	Value
HTML_LEFT_OF_SNIPPET	META element used to include an image next to the main results link. For example, in a retail use case scenario, you may want to display product images that correspond to the search results. Any valid HTML including an iframe of content is supported. **Note:** The width and height of the image must be resized to 40 pixels. Otherwise, the search results will cascade to the right side of the screen. To review sample syntax for the HTML_LEFT_OF_SNIPPET parameter, open the *magdemo_index_products.fex* file using an editor, which is located in the following folder of your WebFOCUS installation: `drive:\ibi\apps\ibimagn` Navigate to the DEFINE section in this FOCEXEC.

HTML Format Required for an External URL

The following table describes the HTML format required for an external URL.

Note: This is the recommended approach to creating drill-down links. In addition, you can only assign one Title to a search result.

Parameter	Value
Main Title Link	
"TITLE_URL"	URL of the title link. Set by TITLE.
"LINK_URL*n*"	URL of the *n*th link.
Additional Links	
"LINK_DISPLAY_NAME*n*"	Name of additional search result links. Where *n* is the sequential number of the link you are creating (1, 2, 3, and so on).

Parameter	Value
Target for Search Results	

"TITLE_TARGET"	Specifies the target in which the results of the main search result link display. Valid values are as follows:
	`_blank`
	Displays the results in a new browser window.
	`_self`
	Replaces the current browser window with the search results. This is the default.
	`_parent`
	Displays the results in the parent frame.
	`_top`
	Replaces the top-most frame with the search results.
	`frame name`
	Displays the search result in the frame specified.

Parameter	Value

"LINK_TARGET*n*"	Specifies the target in which the results for each additional link display. Valid values are as follows:
	`_blank`
	Displays the results in a new browser window.
	`_self`
	Replaces the current browser window with the search results. This is the default.
	`_parent`
	Displays the results in the parent frame.
	`_top`
	Replaces the top-most frame with the search results.
	`frame name`
	Displays the search result in the frame specified.
	Where *n* must be in sequential order (1, 2, 3, and so on).

File Indexing Specific Meta Tag Information

The following table describes optional meta tag information when indexing documents.

Parameter	Value
File Metadata Information	
“MAGNIFY_ACTION_FILE_PROPERTY_FIELD”	Defines the meta-properties of the file in the Dynamic Categorization Tree. It is a comma-separated list of file properties for Magnify to include with the Dynamic Categorization Tree.

Parameter	Value
"MAGNIFY_ACTION_FILE_PROPERTY_TITLE"	Defines the text used to display the meta-properties of the file that are included in the Dynamic Categorization Tree. It is a comma-separated list corresponding to the same order as MAGNIFY_ACTION_FILE_PROPERTY_FIELD.
"MAGNIFY_ACTION_FILE_PROPERTY_BODY"	Defines the meta-property values of the file to be indexed as part of the file searchable content. It is a comma-separated list according to the first meta tag. **Note:** This is joined by Magnify to the BODY meta tag.
"MAGNIFY_ACTION_FILE_BODY"	Defines any additional static values used to enrich file content, such as data from the database records, an email, or hardcoded structured or unstructured values. **Note:** This is joined by Magnify to the BODY meta tag.

Sentiment Analysis Indexing

The following table defines and describes the meta tag that is used for Sentiment Analysis.

Parameter	Value
“IBI_Sentiment_score”	This is reserved for the sentiment score previously determined using the WebFOCUS Sentiment Analysis. For more information, see the *WebFOCUS Social Media Integration Guide (Chapter 7, Using the Adapter for WAND Sentiment Analysis)*. When Magnify search results with this meta tag are presented to the end user, sorting by sentiment will appear in the search interface, as described in the *Magnify End User* manual.

HTML Format for a Stand-alone Report Procedure

The following table describes the HTML format required for a stand-alone report procedure. This is used as an alternative to building search result drill-down links.

Parameter	Value
WebFOCUS Standard Report Access Details	
"FOCEXEC_FOR_TITLE"	WebFOCUS report (FOCEXEC) to be executed when you click the title link.
"FOCSOURCEDATABASE_FOR_TITLE"	Name of the database accessed when you click the title link.
"FOCEXECCAPPNAME_FOR_TITLE"	Name of the FOCUS application accessed (where the FOCEXEC resides) when you click the title link.
Additional Links	
"LINK_DISPLAY_NAME*n*"	Name of additional search result links. Can include images, if necessary. Where *n* is the sequential number of the link you are creating (1, 2, 3, and so on).
"FOCEXEC*n*"	Name of the report procedure that will be executed when *n*th link is clicked.

Parameter	Value
"FOCSOURCEDATABASE*n*"	Name of the data source for the *n*th link. Where *n* is the sequential number of the link (1, 2, 3, and so on).
"FOCEXECAPPNAME*n*"	FOCUS application name for the *n*th link. Where *n* is the sequential number of the link (1, 2, 3, and so on).

HTML Format for a Managed Reporting Procedure

The following table describes the HTML format for a Managed Reporting report procedure.

Parameter	Value
WebFOCUS Managed Reporting Access Details	
"IBIMR_action_FOR_TITLE" "IBIMR_sub_action_FOR_TITLE" "IBIMR_fex_FOR_TITLE" "IBIMR_folder_FOR_TITLE" "IBIMR_drill_FOR_TITLE" "IBIMR_domain_FOR_TITLE"	Parameters to use for a Managed Reporting report that will execute when the main link is clicked.
Additional Links	
"LINK_DISPLAY_NAME*n*"	Name of additional search result links. Where *n* is the sequential number of the link you are creating (1, 2, 3, and so on).

Parameter	Value
"IBIMR_action*n*" "IBIMR_sub_action*n*" "IBIMR_fex*n*" "IBIMR_folder*N*" "IBIMR_drill*n*" "IBIMR_domain*n*"	Parameter to the Managed Reporting report for the *n* link.

HTML Format for a Business Intelligence Portal Item

For security purposes, the BI Portal is locked down by disabling anonymous authentication for the public users in WebFOCUS. Any requests made outside of the BI Portal will require authentication. To disable anonymous authentication, WebFOCUS Administrators must complete the following steps:

1. Navigate to the ibi\WebFOCUS82\config directory.
2. Edit the securitysettings.xml file.
3. Set the anonymousAuthEnabled value to *false*.
4. Save the file and restart the application server.

The following table describes the HTML format for BI Portal items.

Parameter	Value
WebFOCUS BI Portal Access Details	

Parameter	Value
"LINK_URL*n*"	Parameter to use for a Business Intelligence Portal item that will execute when the main link is clicked. The value of LINK_URL, must be as follows: `http://host:port/context_root/views.bip?BIP_REQUEST_TYPE=BIP_RUN&BIP_folder=IBFS:/WFC/Repository/FolderName&BIP_item=ObjectName` where: *host*:*port* Is the name of the application server and port number where WebFOCUS is installed. *FolderName* Is the directory that contains the BI Portal item. *ObjectName* Is a report procedure (.fex), URL (.url), or HTML page (.html). **Note:** Sample or default URLs are for informational purposes only and may not resolve correctly, if at all. Special characters and NLS characters may need to be encoded. For example, the following are common special characters and their corresponding encoding: : Is encoded as %253A / Is encoded as %252F
Additional Links	

Parameter	Value
"LINK_DISPLAY_NAME*n*"	Name of additional search result links. Where *n* is the sequential number of the link you are creating (1, 2, 3, and so on).

HTML Format for an AUTORUN Procedure

An AUTORUN procedure converts a search result into a report. Using a number at the end of an AUTORUN parameter allows multiple procedures to run in numerical order. The following table describes the HTML format required for an AUTORUN procedure, where *n* is the sequential number of the AUTORUN procedure, such as 1, 2, 3, and other numbers.

Parameter	Value
"AUTORUN*n*"	The URL that will be executed.
"AUTORUN_STYLE*n*"	The CSS attributes that will be applied to the output of the URL.
"AUTORUN_APPEND_CATEGORIES*n*"	The true or false value for adding categories to the URL.

Chapter 6

Magnify Search Protocols

This section describes the Magnify Search protocols for indexing data. It describes the feed document expected by Magnify Search to index data as search results. Using Format Magnify handles this for developers. Using iWay or DataMigrator will model the output in the protocols that follow.

In this chapter:

- Magnify Search Protocols for Indexing Documents

Magnify Search Protocols for Indexing Documents

When Magnify Search is fed data to be stored as search content, it expects an incoming document in a specific format. Using Format Magnify, the WebFOCUS protocol is transformed by the WebFOCUS Reporting Server into a document following these protocols. Using DataMigrator, the document is manually created and must adhere to these protocols. In iWay, the IEI Feed Agent converts the process flow output to adhere to those protocols. The incoming feed document can contain one or more records or search results.

iWay Service Manager (iSM) and the FORMAT MAGNIFY command can be used to extract, transform, and load data into the Magnify Search index library from various sources, such as databases, legacy systems, and transactional messages. Each document generated must be well-formed XML that adheres to the Magnify Search feed protocol. This section describes the required document format, whether you are using the IEI Feed Agent in iSM or the FORMAT MAGNIFY command to feed data to Magnify Search.

Note: The IEI Feed Agent and FORMAT MAGNIFY command generate the final document in adherence with the Magnify Search protocols. However, the developer must prepare the data in accordance with these protocols.

The following image illustrates a well-formed XML document that adheres to the Magnify Search protocol specification.

```
<?xml version="1.0" encoding="UTF-8"?>
<gsafeed>
    <header>
        <feedtype></feedtype>
        <datasource></datasource>
    </header>
    <group>
        <record action="" mimetype="" lock ="" url="">
            <content encoding="base64binary"> </content>
        </record>
    </group>
</gsafeed>
```

General Specification

Each incoming feed document that is indexed by Magnify Search requires a header and record element. These elements provide information, such as how the document should be fed to the index library and the type of document that is being indexed.

Header Element

The header section contains the following document-level Magnify Search feed properties:

`feedtype`

Contains one of the following values:

- `full` replaces all previous data in the index from the data source. If a record is repeated in the feed, it is duplicated in the Magnify Search index library. Therefore, the full feedtype is recommended only when there are no duplicate records.
- `incremental` updates an existing record in the index or adds the data as a new record. The record is first matched using the WF_INDEX_UNIQUE_KEY meta tag. Otherwise, the URL value is used. This mode prevents duplicate records from being added to the index library.

Important: It is a best practice to always index data using WF_INDEX_UNIQUE_KEY.

`datasource`

Is the source of the data to be fed to the search engine. If the library is not found, Magnify Search creates it dynamically. Magnify Search index libraries are created in the location specified by the magnify_root parameter configured in the WebFOCUS Administration Console. For more information, see the *Magnify Search Security and Administration* manual.

Record Element

The record element contains attributes that define record-level Magnify Search feed properties and the content being indexed. The information contained in the record element varies for each protocol. However, the record element defines the following for each protocol:

`attribute:action`

The action attribute specifies how to apply each record found in the incoming document to a Magnify Search index and contains one of the following values:

- `ADD` inserts or updates a record. Adds are influenced based on the feedtype set and require UNIQUE_KEY for update.
- `DELETE` prevents a document from being searchable. The disk space is reserved until it is reused by the index library when space is needed or when an administrator optimizes the index.

`attribute:mimetype`

The mime type attribute defines the type of content to process in the content section of the record. This value is specific to each protocol.

Note: This attribute can be defined per record when more than one record is sent in a single document.

`attribute:url`

Specifies the default record ID in the Magnify Search index library. In addition, this URL is used by the Magnify Search interface as follows:

1. Provides the information required to build the Dynamic Categorization Tree.
2. Gets concatenated with the meta tags for accessing WebFOCUS reports.

Note: The URL must be encoded.

The document and record-level properties are defined in the IEI Feed Agent properties tab in iWay Integration Tools (iIT) Designer and in the FORMAT MAGNIFY ENGINE SET statements. The base URL is defined by the BASE URL property in both the IEI Feed Agent and FORMAT MAGNIFY statements. The query string parameters appended to the records URL attribute are generated by user-defined properties of the IEI Feed Agent or in the FORMAT MAGNIFY alias naming conventions.

`node:content`

Defines the actual document being indexed with Magnify Search. The attribute encoding must be set to base64binary, and the content assigned within this node must be base64 encoded.

The content document is generated using the iWay process flow described in *Supporting Information for iWay* on page 145 or the *Indexing Using the FORMAT MAGNIFY Command* on page 83.

Protocol Specification

Depending on the type of data being indexed within the content document, Magnify Search requires the data to be packaged following a specific protocol. Magnify Search uses the following protocols for accepting documents from a feed process:

- **Record.** Used for structured and semi-structured data.
- **URL.** Used for web-accessible files.
- **Document.** Used for embedded files.

Reference: Record Protocol

The record protocol is used for structured and semi-structured data sources like database records. The mime type attribute of the record must be set to *text/plain*. The document inserted into the content section is also an XML document with a Target_Root element and a HEAD section. The following elements are contained in the HEAD section:

- **TITLE.** Is the text assigned as the Search Results main link text. This can be enriched with HTML.
- **META TAG.** Is the field name and its value stored in the index with the search result. For more information on the available meta tags, see *Supporting Information for iWay* on page 145.
- **BODY.** Content indexed and made available for searching.

Note: The BODY element is stored as IBI_CONTENT in the Magnify Search index library, which can be accessed using tools such as Lucene Luke.

The following image illustrates a decoded document that can be indexed using the record protocol.

```
<gsafeed>
    <header>
        <feedtype>INCREMENTAL</feedtype>
        <datasource>formatproducts</datasource>
    </header>
    <group>
        <record action="add" mimetype="text/plain"
                url="http://localhost:8080/ibi_apps/WFServlet?FXK=21799&FXF1=System_Source&FXV1=Product Catalog&FXT1=<span id=10>System
Source</span>&FXF2=Product_Type&FXV2=Video&FXT2=<span id=11>Product Type</span>&FXF3=Product_Category&FXV3=VCR&FXT3=<span id=12>Product
Category</span>">
            <content encoding="base64binary">
                <?xml version="1.0" encoding="UTF-8"?>
                <Target_Root>
                    <HEAD>
                        <TITLE>Catalog Item: World Wide VHS VCR (VCR-100W)</TITLE>
                        <META name="PRODUCTID" content="21799"/>
                        <META name="System_Source" content="Product Catalog"/>
                        <META name="Product_Type" content="Video"/>
                        <META name="Product_Category" content="VCR"/>
                        <META name="ProductName" content="World Wide VHS VCR"/>
                        <META name="ProductNumber" content="2024"/>
                        <META name="TITLE_URL" content="http://localhost:8080/ibi_apps/WFServlet?FXK=21799&IBIF_ex=profile"/>
                        <META name="LINK_DISPLAY_NAME1" content="See Similar Products"/>
                        <META name="LINK_URL1" content="http://localhost:8080/ibi_apps/WFServlet?FXK=21799&IBIF_ex=related"/>
                        <META name="LINK_DISPLAY_NAME2" content="Return Trends"/>
                        <META name="LINK_URL2" content="http://localhost:8080/ibi_apps/WFServlet?FXK=21799&IBIF_ex=returns"/>
                        <META name="LINK_DISPLAY_NAME3" content="Product Forecasting"/>
                        <META name="LINK_URL3" content="http://localhost:8080/approot/ibimagn/forecast.htm?WDIM1VAL=Video"/>
                        <META name="SECURITY_PLUGIN" content=""/>
                        <META name="WF_INDEX_UNIQUE_KEY" content="21799"/>
                        <BODY>Product Catalog 21799 2024 Video VCR Century Electronics VCRs offer and affordable way to capture and
playback video. Compact and easy to connect, these VCRs are perfect additions to your conference room or studio. World Wide VHS VCR Many
countries have different incompatible TV broadcasting systems. The Century Electronic World Wide VHS VCR plays all video signal formats
of any type. This is the true multisystem definition. VCR-100W 399.0000 300.0000  Magnify CentSales Products Catalog Item </BODY>
                    </HEAD>
                </Target_Root>
            </content>
        </record>
    </group>
</gsafeed>
```

Note: Magnify Search requires base64 encoded content and an encoded record URL.

Reference: URL Protocol

The URL protocol is used for web-accessible files and is recommended for larger files. Magnify Search fetches the document, reads it, and indexes the content. The mime type attribute of the record must be set to *application/openurl*. Magnify Search locates the file based on the URL attribute value of the record. If a URL cannot be accessed or indexed, it is logged in the application server log files. The document inserted into the content section is also an XML document with an ENCODEDDOCUMENT root element containing HEAD, DOCUMENT, and AUTHENTICATION sections.

The following elements are contained in the HEAD section:

- **TITLE.** Is the text assigned as the Search Results main link text. This can be enriched with HTML.
- **META TAG.** Is the field name and its value stored in the index with the search result. For more information on the available meta tags, see *Supporting Information for iWay* on page 145.

The DOCUMENT section contains the following attributes:

- **Password.** Required if the file is password protected. The password is used to read the file for indexing and is optional.
- **Mimetype.** Must be set to *file/auto*. The document is passed to the Magnify Search parser to process various file types based on information found in the document header.

The content element is empty, since Magnify Search fetches the content based on the URL attribute value of the record.

The AUTHENTICATION section contains the *wwwauthenticateuserid* and *wwwauthenticatepassword* attributes, which are used to access the domain where the document is located.

The contents of the document indexed are stored as IBI_CONTENT in the Magnify Search index library, which can be accessed using tools such as Lucene Luke.

The following image illustrates a decoded document that can be indexed using the URL protocol.

```
<?xml version="1.0" encoding="UTF-8"?>
<gsafeed>
    <header>
        <feedtype>INCREMENTAL</feedtype>
        <datasource>formatassets</datasource>
    </header>
    <group>
        <record action="add" mimetype="application/openurl" lock="false"
            url="http://localhost:8080/approot/ibimagn/files/Corporate Calendar.ppt
?FXK=http://localhost:8080/approot/ibimagn/files/Corporate+Calendar.ppt&FXF1=System_Source&FXV1=File Server&FXT1=<span id=10>System
Source</span>&FXF2=File_Format&FXV2=MS PowerPoint&FXT2=<span id=92>File Format</span>&FXF3=File_Size_Ranges&FXV3=1MB-10MB&FXT3=<span
id=93>File Size Ranges</span>&delimiter=#!#" >
            <content encoding="base64binary">
                <?xml version="1.0" encoding="UTF-8"?>
                <ENCODEDDOCUMENT>
                    <HEAD>
                        <TITLE>File Asset: Corporate Calendar (1.28MB)</TITLE>
                        <META name="System_Source" content="File Server"/>
                        <META name="File_Format" content="MS PowerPoint"/>
                        <META name="File_Size_Ranges" content="1MB-10MB"/>
                        <META name="date" content="09/17/2010 09:22 PM"/>
                        <META name="TITLE_URL" content="http://localhost:8080/approot/ibimagn/files/Corporate Calendar.ppt"/>
                        <META name="SECURITY_PLUGIN" content=""/>
                        <META name="WF_INDEX_UNIQUE_KEY" content="c:\ibi\apps\ibimagn\files\Corporate Calendar.ppt"/>
                        <META name="MAGNIFY_ACTION_FILE_PROPERTY_FIELD" content="Subject,Author,Category,Keywords"/>
                        <META name="MAGNIFY_ACTION_FILE_PROPERTY_TITLE" content="Subject,Author,Category,Key Terms"/>
                        <META name="MAGNIFY_ACTION_FILE_PROPERTY_BODY" content="Title,Subject,Author,Category,Keywords"/>
                        <META name="MAGNIFY_ACTION_FILE_BODY" content="Magnify CentSales Assets File Server "/>
                    </HEAD>
                    <DOCUMENT password="" mimetype="file/auto" />
                    <AUTHENTICATION wwwauthenticateuserid="" wwwauthenticatepassword="" />
                </ENCODEDDOCUMENT>
            </content>
        </record>
    </group>
</gsafeed>
```

Note: Magnify Search requires base64 encoded content and an encoded record URL.

Reference: Document Protocol

The document protocol is used when files can be embedded into the document that is being indexed. Magnify Search reads in and indexes the content of the document. The mime type attribute of the record must be set to *application/encodeddocument*.

The document inserted into the content section is an XML document with an ENCODEDDOCUMENT root element containing a HEAD and DOCUMENT section.

The following elements are contained in the HEAD section:

- **TITLE.** Is the text assigned as the Search Results main link text. This can be enriched with HTML.
- **META TAG.** Is the field name and its value stored in the index with the search result. For more information on the available meta tags, see *Supporting Information for iWay* on page 145.

The DOCUMENT section contains attributes about the embedded file within the document tags. Encoding must be set to *base64binary*. The mime type must be set to *file/auto*. The fetched document is passed to the Magnify Search parser to process various file types based on information natively found in the document header. A password is required if the file is password protected. The password is used to read the file for indexing and is optional.

The contents of the document indexed are stored as IBI_CONTENT in the Magnify Search index library, which can be accessed using tools such as Lucene Luke.

The following image illustrates a decoded document that can be indexed using the document protocol.

```
<?xml version="1.0" encoding="UTF-8"?>
<gsafeed>
    <header>
        <datasource>centuryassets</datasource>
        <feedtype>incremental</feedtype>
    </header>
    <group>
        <record mimetype="application/encodeddocument" action="add" url=
"http://localhost:8080/ibi_apps/WFServlet?FXK=http://localhost:8080/approot/ibimagn/files/MyPresentation.ppt&FXF1=C_System_Source&FXV1=File Server&FXT1=<span id=a>System
Source</span>&FXF5=C_File_Format&FXT5=<span id=e>File Format</span>&FXV5=Microsoft PowerPoint" >
            <content encoding="base64binary">
                <?xml version="1.0" encoding="UTF-8"?>
                <ENCODEDDOCUMENT>
                    <HEAD>
                        <TITLE>File Asset: Customer Satisfaction Improvement Plan</TITLE>
                        <META name="C_System_Source" content="File Server"/>
                        <META name="C_File_Format" content="Microsoft PowerPoint"/>
                        <META name="File_Folder" content="files"/>
                        <META name="File_Year" content="2003"/>
                        <META name="date" content="4/28/2004"/>
                        <META name="FileKBSize" content="48"/>
                        <META name="SECURITY_PLUGIN" content=""/>
                        <META name="WF_INDEX_UNIQUE_KEY" content="http://localhost:8080/approot/ibimagn/files/MyPresentation.ppt"/>
                        <META name="TITLE_URL" content="http://localhost:8080/approot/ibimagn/files/MyPresentation.ppt"/>
                    </HEAD>
                    <DOCUMENT ENCODING="base64binary" MIMETYPE="file/auto">...99//0999dii...</DOCUMENT>
                </ENCODEDDOCUMENT>
            </content>
        </record>
    </group>
</gsafeed>
```

Note: Magnify Search requires base64 encoded content and an encoded record URL.

Embedding files into the Magnify Search feed document can be done using the file object in iWay Service Manager (iSM). For more information on the iWay process flow, see *Supporting Information for iWay* on page 145. The embedded file must be base64 encoded.

XML Protocol of Search Result Output

Magnify search results adhere to the Google Search Protocol and can be consumed by other applications, such as a dashboard. Magnify Search currently supports the following XML tags:

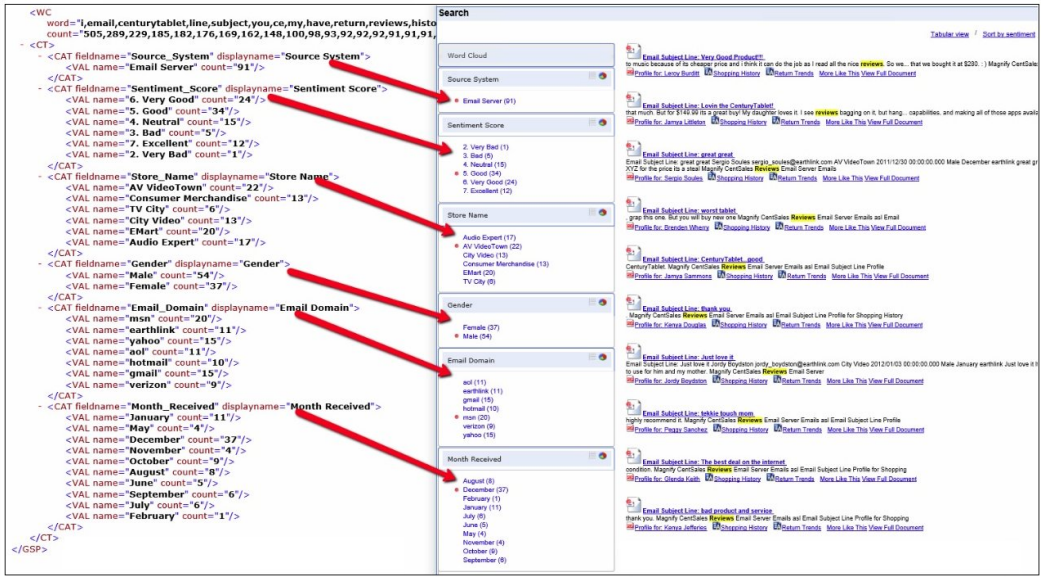
- TM
- Q
- PARAM
- RES
- M
- NB
- NU
- R
- MT
- S
- **WC.** Describe Word Cloud terms and their counts.
- **CT.** Describe Category Tree Fields, Items, and their respective counts.

For more information on the Google Search Protocol tags, see *https://developers.google.com/custom-search/docs/xml_results*.

Word Cloud and Category Tree Data Returned in Magnify Search XML Output

Word Cloud data is returned in a WC element that includes the *count* and *word* attributes. Each attribute contains a comma-separated list where the parallel order between count and word correlate. This means that the first word has a count of the first number listed.

Category Tree data is returned in a CT element with a CAT sub-element for each Category field with attributes for the source field name (*fieldname*) and the text to display in the interface (*displayname*). Each Category field has VAL sub-elements for each of the Category values (*name*) and the corresponding counts (*count*). The following image shows an example of a Magnify Search XML output document, where the data identified by the CT element is used to build the Category Tree in the Magnify search results.

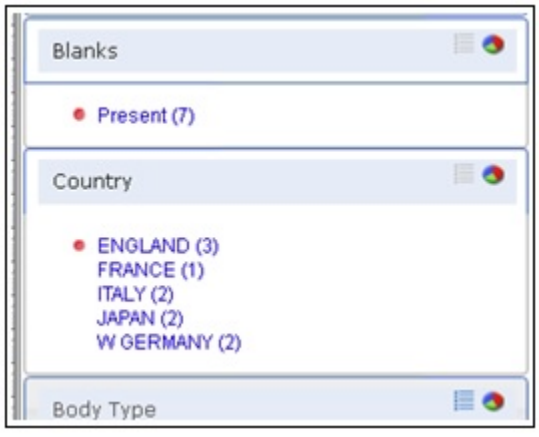


Showing Search Results in the Category Tree That Have Blank or Empty Category Values

By default, blank or empty values are not represented in the Category Tree.

For example, the following feed procedure creates blank category values for all *Country=England* results and the Category Value *'Present'* for all other countries.

In this scenario, the Category Tree is represented as shown in the following image.



The developer of the feed procedure must determine what constitutes a blank versus empty value. Based on this decision, the developer must use a DECODE or IF/THEN/ELSE to provide a real representative value illustrating differences between EMPTY, BLANK, NULL, UNDEFINED, if and when relevant.

To summarize, values of type EMPTY, BLANK, NULL, and UNDEFINED (if required to be represented in the Category Tree) should use the DECODE or IF/THEN/ELSE to assign a physical textual representation.

Chapter 7

Configuring the Adapter for Flat File to Search File Repositories

This chapter describes how to configure the Adapter for Flat File to monitor the repositories.

In this chapter:

- Overview
- Creating a New Application Mapping to the File Repository Directory
- Defining a New Application Directory
- Defining a File Monitor Synonym
- Configuring the File Monitor Master File
- Transforming Documents Into Searchable Content
- Configuring a FORMAT MAGNIFY Procedure

Overview

Using the Adapter for Flat File, developers can index file repositories with Magnify using WebFOCUS protocols and keep them synchronized as new files are added, modified, renamed, moved, or deleted in the repository. This chapter describes how to configure the Adapter for Flat File to monitor file repositories.

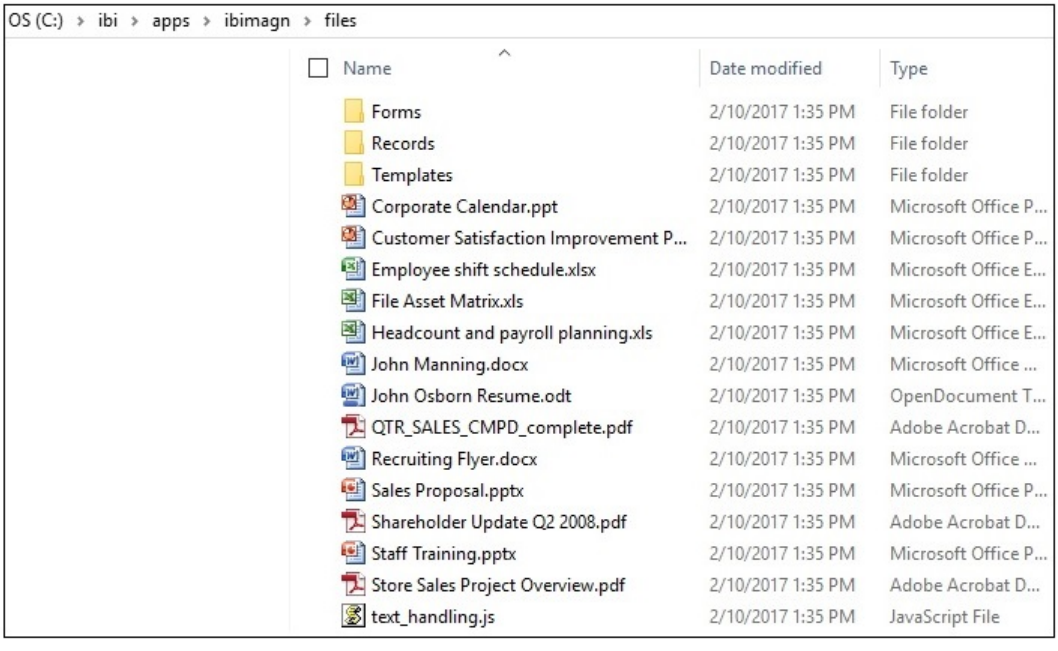
The following are the required configuration steps:

1. Create a new application mapping to the file repository directory.
2. Define a new application directory.
3. Define a file monitor synonym.
4. Configure the file monitor Master File.
5. Update the synonym to point to the application mapping.
6. Configure a FORMAT MAGNIFY procedure that uses the file monitor synonym to index the application mapping directory that is being monitored.

File Indexing Requirements

Ensure that the following file indexing requirements are met:

- ❑ Files must be accessible from a URL and a File system, as shown in the following image.



- ❑ A persistence file (_m_<*user*>.chp) will be created for the Adapter for Flat File to monitor changes to the application mapping directory:

Note: Only changes from the last TABLE request are stored in the persistence file.

Creating a New Application Mapping to the File Repository Directory

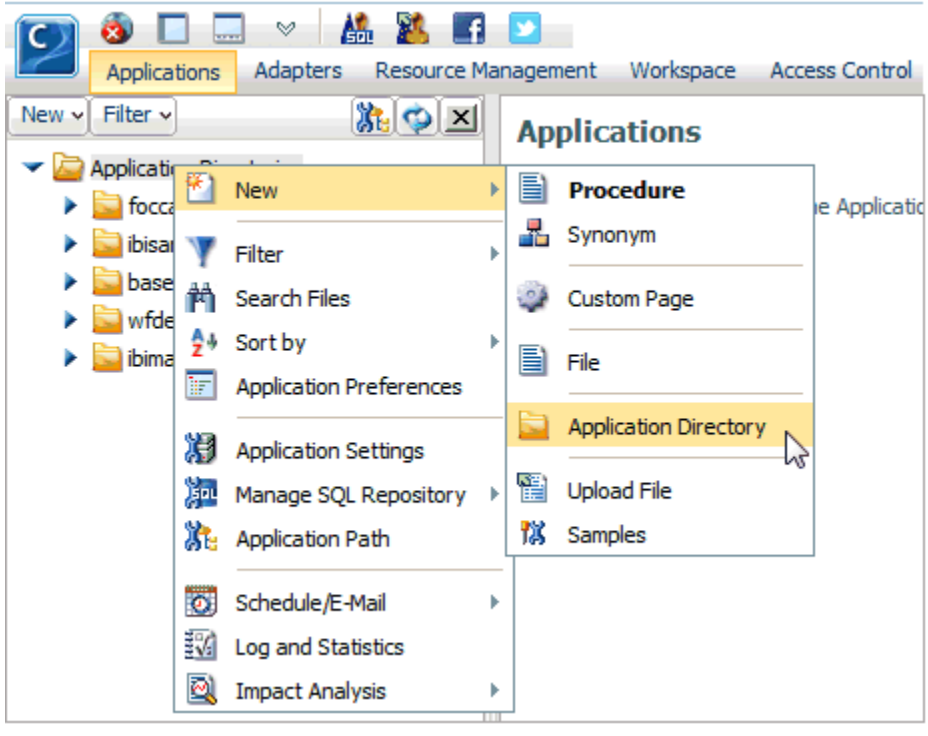
This section describes how to create a new application mapping to the file repository directory.

Procedure: How to Create a New Application Mapping to the File Repository Directory

To create a new application mapping:

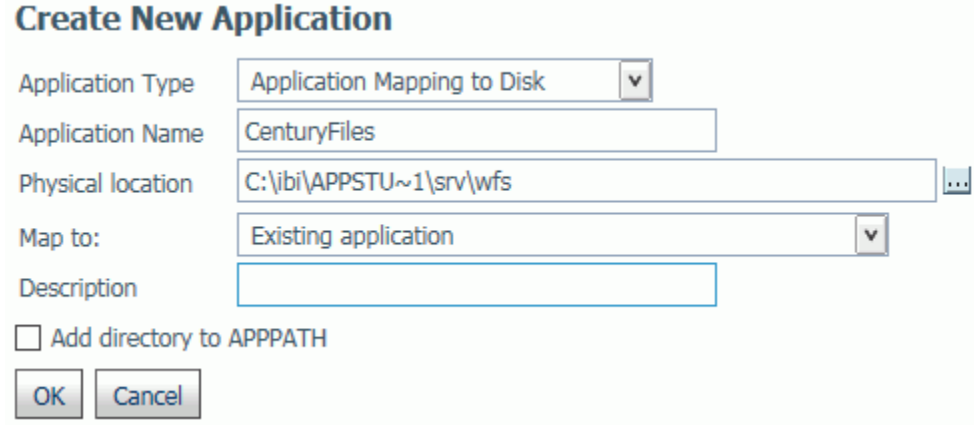
1. Log on to the WebFOCUS Reporting Server console.
2. Click the *Applications* tab.

3. Right-click *Application Directories* in the left pane, select *New*, and then *Application Directory*, as shown in the following image.



The Create New Application pane opens.

4. Select *Application Mapping to Disk* from the Application Type drop-down menu, as shown in the following image.



5. In the *Application Name* field, type a name for the new application (for example, CenturyFiles).
6. Clear the *Add directory to APPPATH* check box.
7. Click *OK*.

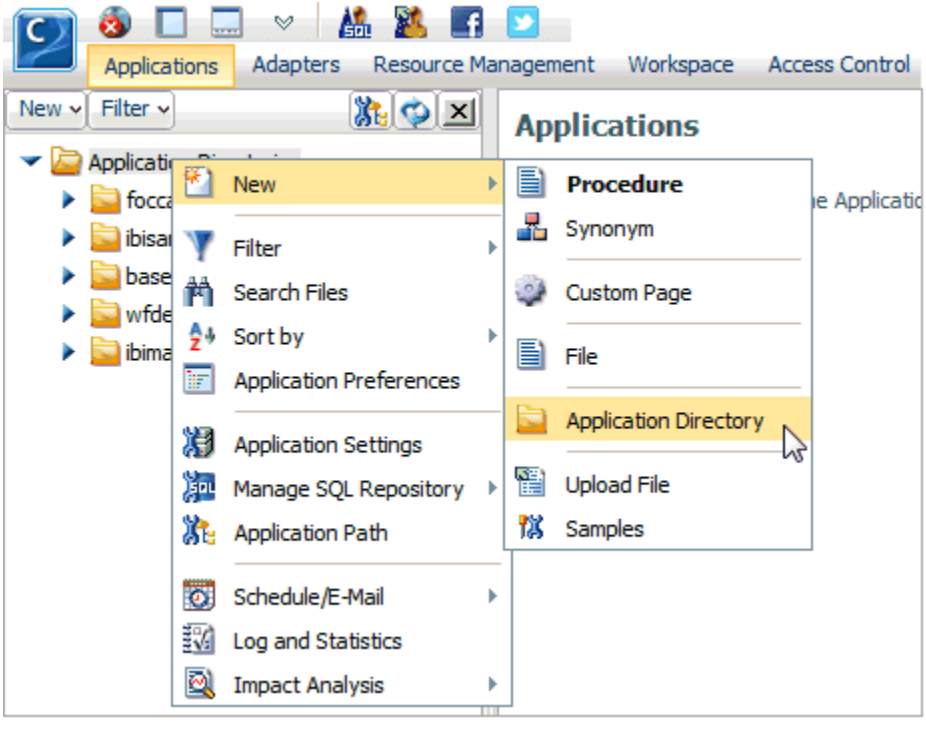
Defining a New Application Directory

This section describes how to define a new application directory.

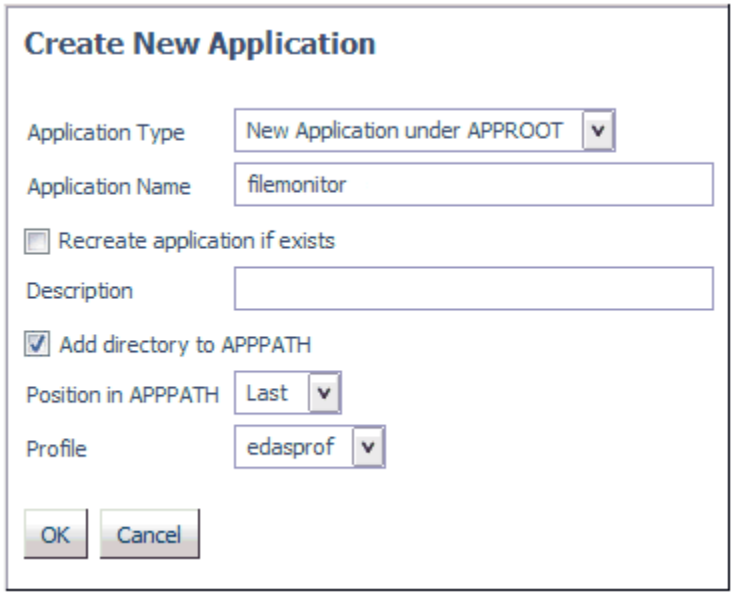
Procedure: How to Define a New Application Directory

To define a new application directory:

1. Log on to the WebFOCUS Reporting Server console.
2. Click the *Applications* tab.
3. Right-click *Application Directories* in the left pane, select *New*, and then *Application Directory*, as shown in the following image.



The Create New Application pane opens, as shown in the following image.



4. Select *New Application under APPROOT* from the Application Type drop-down list.
5. In the *Application Name* field, type a name for the new application (for example, *filemonitor*).
6. Select the *Add directory to APPPATH* check box.
7. Select *Last* from the *Position in APPPATH* drop-down menu.
8. Click *OK*.

Defining a File Monitor Synonym

This section describes how to define a flat file monitor synonym. An example is included with the Reporting Server install in the folder ibsamp. This can be copied and used as a template to build specific flat file adapter monitors.

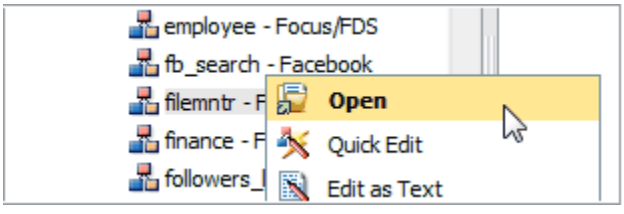
Procedure: How to Define a File Monitor Synonym

To define a file monitor synonym:

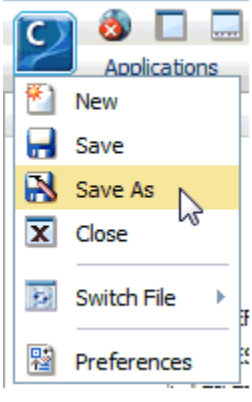
1. Copy the *filemntr.acx* file from *ibisamp* to the *filemonitor* application folder and rename this file to *fileindexing.acx*.
2. Log on to the WebFOCUS Reporting Server console.

3. Click the *Applications* tab.
4. Expand *Application Directories* in the left pane and then the *ibisamp* folder.

   Note: You may need to add ibisamp to the APP PATH, if necessary.
5. Right-click *filemntr - Flat File* and select *Open*, as shown in the following image.



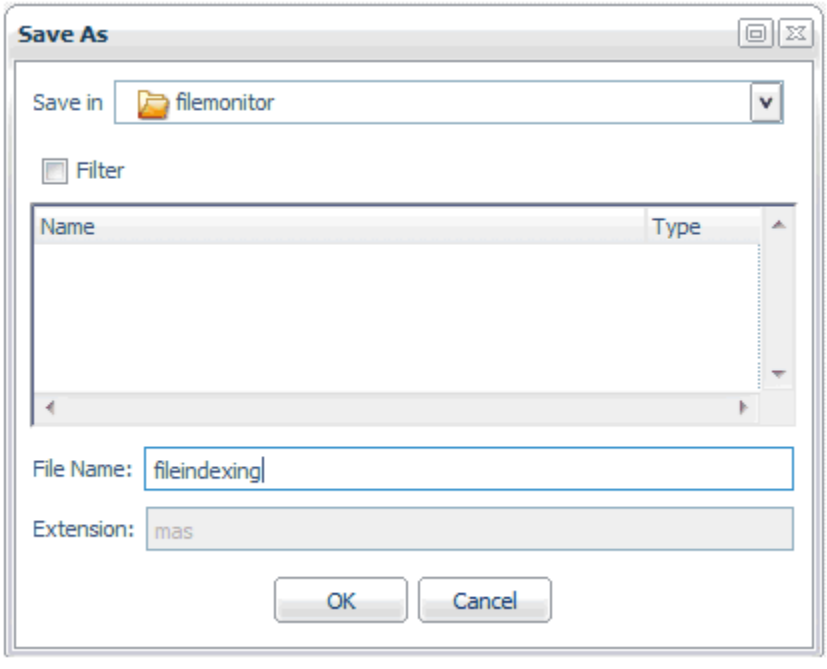
6. Click the console icon and select *Save As*, as shown in the following image.



   Note: You may want to backup this file first to ensure the integrity of the template.

   The Save As dialog box opens.
7. Use the *Save in* drop-down menu to navigate to the *filemonitor* Application Directory.

8. Type *fileindexing* in the *File Name* field, as shown in the following image.



9. Click *OK*.

Configuring the File Monitor Master File

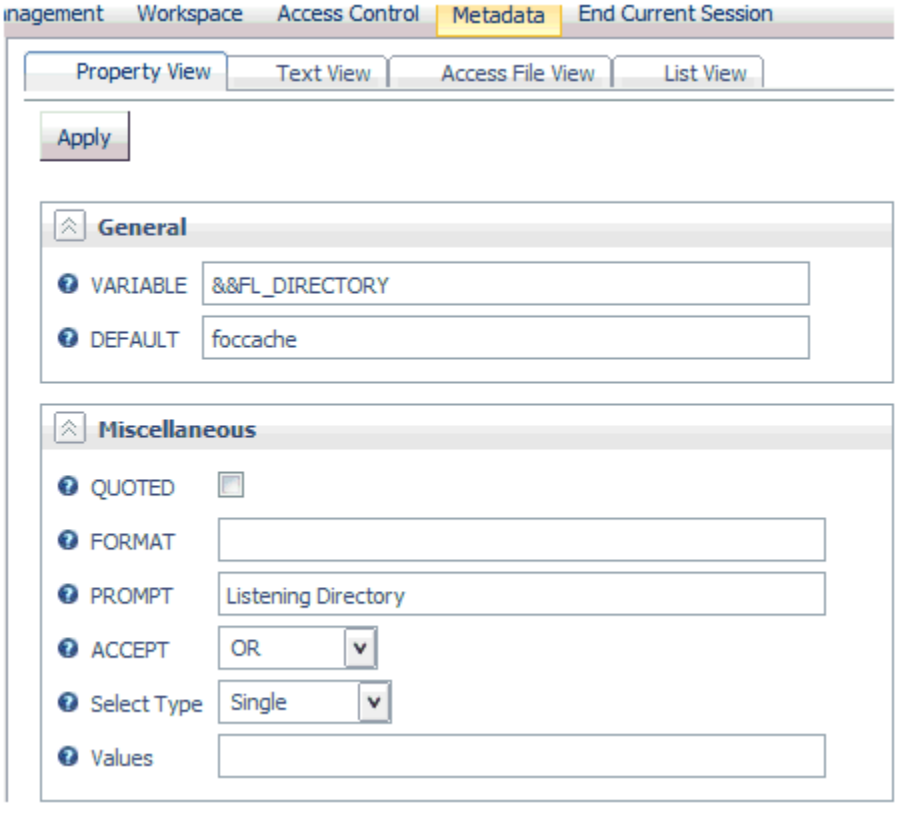
This section describes how to configure the file monitor Master File.

Procedure: How to Configure the File Monitor Master File

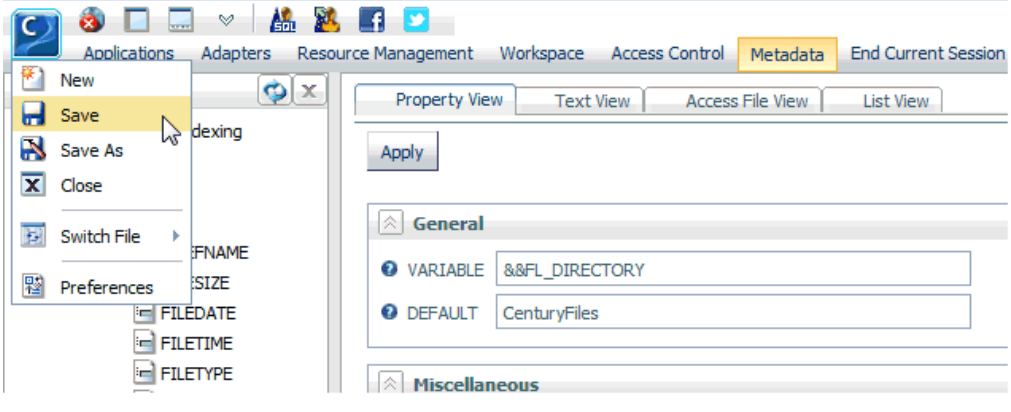
To configure the file monitor Master File:

1. Log on to the WebFOCUS Reporting Server console.
2. Click the *Applications* tab.
3. Expand the *filemonitor* application in the left pane.
4. Double-click the *fileindexing* Master File.
5. Expand the *Variables* folder in the left pane and double-click the *&&FL_DIRECTORY* variable.

The Property View tab opens in the right pane, as shown in the following image.



6. Type *CenturyFiles* in the DEFAULT field.
7. Click *Apply* and then *Save*, as shown in the following image.



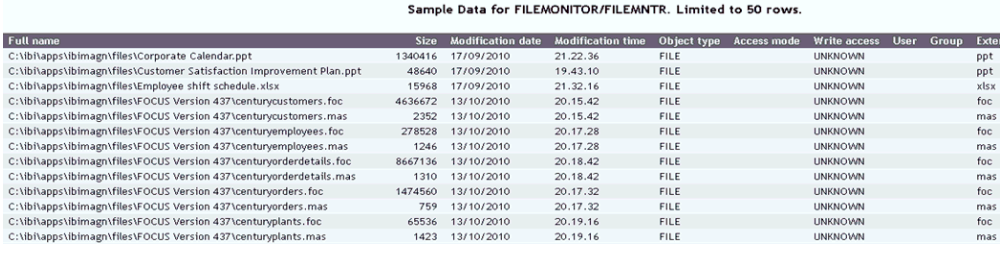
You can now validate the sample data before continuing.

8. Click the *Applications* tab.
9. Right-click the *fileindexing* synonym and select *Sample Data*.

   The Sample Data pane opens.

10. Click the *Sample Data* button.

    Sample data is returned for the synonym, as shown in the following image.



Sample Data for FILEMONITOR/FILEMNTR. Limited to 50 rows.

Full name	Size	Modification date	Modification time	Object type	Access mode	Write access	User	Group	Exte
C:\ibi\apps\ibimagn\files\Corporate Calendar.ppt	1340416	17/09/2010	21.22.36	FILE		UNKNOWN			ppt
C:\ibi\apps\ibimagn\files\Customer Satisfaction Improvement Plan.ppt	48640	17/09/2010	19.43.10	FILE		UNKNOWN			ppt
C:\ibi\apps\ibimagn\files\Employee shift schedule.xlsx	15968	17/09/2010	21.32.16	FILE		UNKNOWN			xlsx
C:\ibi\apps\ibimagn\files\FOCUS Version 437\centurycustomers.foc	4636672	13/10/2010	20.15.42	FILE		UNKNOWN			foc
C:\ibi\apps\ibimagn\files\FOCUS Version 437\centurycustomers.mas	2352	13/10/2010	20.15.42	FILE		UNKNOWN			mas
C:\ibi\apps\ibimagn\files\FOCUS Version 437\centuryemployees.foc	278528	13/10/2010	20.17.28	FILE		UNKNOWN			foc
C:\ibi\apps\ibimagn\files\FOCUS Version 437\centuryemployees.mas	1246	13/10/2010	20.17.28	FILE		UNKNOWN			mas
C:\ibi\apps\ibimagn\files\FOCUS Version 437\centuryorderdetails.foc	8667136	13/10/2010	20.18.42	FILE		UNKNOWN			foc
C:\ibi\apps\ibimagn\files\FOCUS Version 437\centuryorderdetails.mas	1310	13/10/2010	20.18.42	FILE		UNKNOWN			mas
C:\ibi\apps\ibimagn\files\FOCUS Version 437\centuryorders.foc	1474560	13/10/2010	20.17.32	FILE		UNKNOWN			foc
C:\ibi\apps\ibimagn\files\FOCUS Version 437\centuryorders.mas	759	13/10/2010	20.17.32	FILE		UNKNOWN			mas
C:\ibi\apps\ibimagn\files\FOCUS Version 437\centuryplants.foc	65536	13/10/2010	20.19.16	FILE		UNKNOWN			foc
C:\ibi\apps\ibimagn\files\FOCUS Version 437\centuryplants.mas	1423	13/10/2010	20.19.16	FILE		UNKNOWN			mas

Advanced Configuration

The following table lists and describes the variables that can be modified for customized requirements.

Variable	Default Value	Description
&&FL_NAME	*	Monitor all files by any name or limit to a specific name or naming convention.
&&FL_EXTENSION	*	Monitor all files by any extension type or limit to a specific extension type.
&&FL_POLLING	120	Frequency time (in seconds) to check for changes. **Note:** This is the recommended setting for faster turnover.
&&FL_TIMEOUT	30	Timeout (in seconds) to stop checking for changes if none are found. **Note:** This is the recommended setting for faster turnover.
&&FL_DISCARD	KEEP	Files will remain where originally located.

Variable	Default Value	Description
&&FL_PICKUP	MONITOR	Indicates when changes are noticed in the directory.
&&FL_MAXFILES	blank	A blank value indicates to pick up all files that are found.

Note: Modifying these variables is not recommended. They should only be modified for specific cases, unless noted.

Transforming Documents Into Searchable Content

Using FORMAT MAGNIFY, raw data can be transformed on the server. The output is used to create an XML document that Magnify indexes as searchable content. At a high level, the tasks that are required include extracting, transforming, and feeding content to Magnify. This is very similar to building a WebFOCUS report, where data is modeled, a report is designed, and then a procedure is executed. Every row that is created is then catalogued with Magnify as a search result.

Getting Started

The following guidelines can assist you when configuring a search:

- Review the data and build context by joining common relationships.
- Identify high-level groups and designate searchable data.
- Enhance and enrich the data with drilldowns and security.
- Aggregate data by merging multiple rows into a single search result.
- Configure the feed and index with Magnify.
- Schedule feeds for full-search life cycles.

Immediate benefits that result include:

- Discovering information with categorizations.
- Searching across tables and rows.
- Associating search content with business intelligence reporting.

Configuring a FORMAT MAGNIFY Procedure

This section describes how to configure a FORMAT MAGNIFY procedure.

Procedure: How to Configure a FORMAT MAGNIFY Procedure

To configure a FORMAT MAGNIFY procedure:

1. Open WebFOCUS App Studio.
2. Create a new project called *filemonitor*.

   You can also navigate to Data Servers, EDASERVE, or Applications, and select *filemonitor*, which was created in *Defining a New Application Directory* on page 118.
3. Create a new procedure called *magnify_file_indexing* using the Procedure Viewer.
4. Add a DEFINE object to the procedure.
5. Select the *fileindexing.mas* Master File.
6. Add the defined fields for paths, as listed in the following table.

   The following table illustrates switching a DOS path for a URL path.

Field	Format	Value
ROOT_DOS_PATH	A15	`‘C:\ibi\apps\’`
ROOT_WEB_PATH	A15	`'/approot/'`
DOS_PATH_LEN	I6	`ARGLEN(15, ROOT_DOS_PATH, 'I6')`
WEB_PATH_LEN	I6	`ARGLEN(15, ROOT_WEB_PATH, 'I6')`
TEMPWEBPATH	A4000V	`STRREP(4000,FILEFNAME,DOS_PATH_LEN, ROOT_DOS_PATH,WEB_PATH_LEN,ROOT_WEB_PATH, 4000,'A4000')`
FILEWEBPATHRELATIVE	A4000V	`STRREP(4000,TEMPWEBPATH,1,'\',1,'/',4000, 'A4000')`
FILEWEBPATHABSOLUTE	A5000V	`'http://localhost:8080' || FILEWEBPATHRELATIVE`
PARENTFOLDER	A4000V	`GETTOK(FILEFNAME,4000,-2,'\',1000,'A1000')`

Field	Format	Value
FILENAMEEXT	A4000V	`GETTOK(FILEFNAME,4000,-1,'\',1000,'A1000')`
FILENAME	A4000V	`GETTOK(FILENAMEEXT,4000,1,'.',1000,'A1000')`

Notes:

- Use the file path to retrieve the HTTP path.
- Retrieve additional information from the file name.

7. Add the defined fields to generate file metadata, as listed in the following table:

Field	Format	Value

MAGNIFYACTION	A25	`DECODE FILEMONST( 'DELETED' 'delete'`
		`'MODIFIED' 'add'`
		`'ADDED' 'add'`
		`'RENAMED NEW' 'add'`
		`'RENAMED OLD' 'delete'`
		`'' 'add' ELSE 'add')`

FILESIZERANGE	A50	`IF FILESIZE LT 551200 THEN '1. 1 KB - 500 KB'`
		`ELSE IF FILESIZE LT 1102400 THEN '2. 501 KB - 1 MB'`
		`ELSE IF FILESIZE LT 10485760 THEN '3. 1 MB - 10 MB'`
		`ELSE IF FILESIZE LT 104857600 THEN '4. 10 MB - 100 MB'`
		`ELSE IF FILESIZE LT 1073741824 THEN '5. 100 MB - 1 GB'`
		`ELSE '6. 1 GB or higher'`

FILEFORMAT	A56	`DECODE FILEEXTN( 'ppt' 'MS PowerPoint 97-2003/2010'`
		`'pptx' 'MS PowerPoint 97-2003/2010'`
		`'xls' 'MS Excel 97-2003/2010'`
		`'xlsx' 'MS Excel 97-2003/2010'`
		`'doc' 'MS Word 97-2003/2010'`
		`'docx' 'MS Word 97-2003/2010'`
		`'pdf' 'Portable Document Format'`
		`'odt' 'Open Office Writer'`
		`'mas' 'WebFOCUS Master File'`
		`'sql' 'SQL Queries'`
		`'zip' 'Archive'`
		`'txt' 'Text File'`
		`'jpg' 'Image' ELSE 'Unknown')`

8. Add the defined fields to generate search result metadata, as listed in the following table:

Field	Format	Value
SYSSOURCE	A25	`'File Repository'`
SEARCHTITLE	A2000	`'<b>File: ' | FILENAME | '(' || FILEEXTN || ')</b> DOS Path: ' | FILEFNAME`
SEARCHTITLETEMP	A2000	`'File: ' | FILENAME | '(' || FILEEXTN || ') DOS Path: ' | FILEFNAME`
TITLE_URL	A4000	`FILEWEBPATHRELATIVE`
MAGNIFY_ACTUAL_MAGNIFY_DATE	A25	`'datetime'`
MAGNIFY_USAGE_MAGNIFY_DATE	A25	`'dd/MM/yyyy'`
MAGNIFY_ACTION_FILE_BODY	A5000	`SYSSOURCE | ' ' | FILEFNAME | ' ' | FILEEXT | ' ' | FILEFORMAT | ' ' | SEARCHTITLETEMP`
MAGNIFY_ACTION_FILE_PROPERTY_FIELD	A255V	`'Subject,Author,Category,Keywords'`
MAGNIFY_ACTION_FILE_PROPERTY_TITLE	A255V	`'Subject,Author,Category,Key Terms'`
MAGNIFY_ACTION_FILE_PROPERTY_BODY	A255V	`'Title,Subject,Author,Category,Keywords'`

9. Save and close the DEFINE object for the procedure.
10. Add a REPORT object to the procedure.
11. Select the *fileindexing.mas* Master File.
12. Add the fields and set the column titles, as listed in the following table:

    Note: The column titles are case-sensitive.

Field	Column Title
FILEWEBPATHABSOLUTE	MagnifyBaseURL
MAGNIFYACTION	MagnifyAction

Field	Column Title
SEARCHTITLE	SearchTitle
FILEWEBPATHABSOLUTE	MagnifyID
FILEWEBPATHABSOLUTE	WF_INDEX_UNIQUE_KEY
SYSSOURCE	C1_Source_System
PARENTFOLDER	C2_Parent_Directory
FILEFORMAT	C3_File_Format
FILESIZERANGE	C4_File_Size_Ranges
TITLE_URL	
FILEDATE	MAGNIFY_DATE
MAGNIFY_ACTUAL_MAGNIFY_DATE	
MAGNIFY_USAGE_MAGNIFY_DATE	
MAGNIFY_ACTION_FILE_PROPERTY_FIELD	
MAGNIFY_ACTION_FILE_PROPERTY_TITLE	
MAGNIFY_ACTION_FILE_PROPERTY_BODY	
MAGNIFY_ACTION_FILE_BODY	

The following column titles are always required:

- MagnifyBaseURL - used by Magnify to find the file for indexing
- SearchTitle
- MagnifyID
- WF_INDEX_UNIQUE_KEY

MagnifyAction, Categories, and Magnify Meta Tags are always recommended.

13. Save and close the REPORT object for the procedure.
14. Set the Magnify Engine statements. Before the DEFINE object, add the ENGINE objects as listed in the following table:

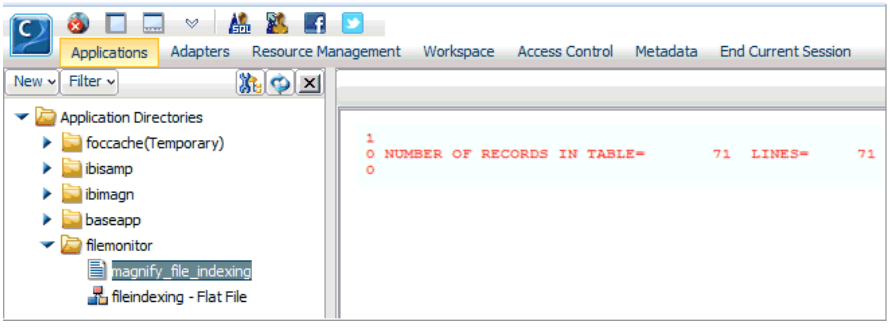
Connection	SET Parameters
`MY_PC 'http://localhost:8080/ibi_apps/saxfeed'`	**Note:** Sample or default URLs are for informational purposes only and may not resolve correctly, if at all.
– no connection –	`BASEURL=http://localhost:8080/ibi_apps/WFServlet`
– no connection –	`DATASOURCE=file_index`
– no connection –	`MIME=application/openurl`
– no connection –	`BATCHSIZE=10`

Notes:

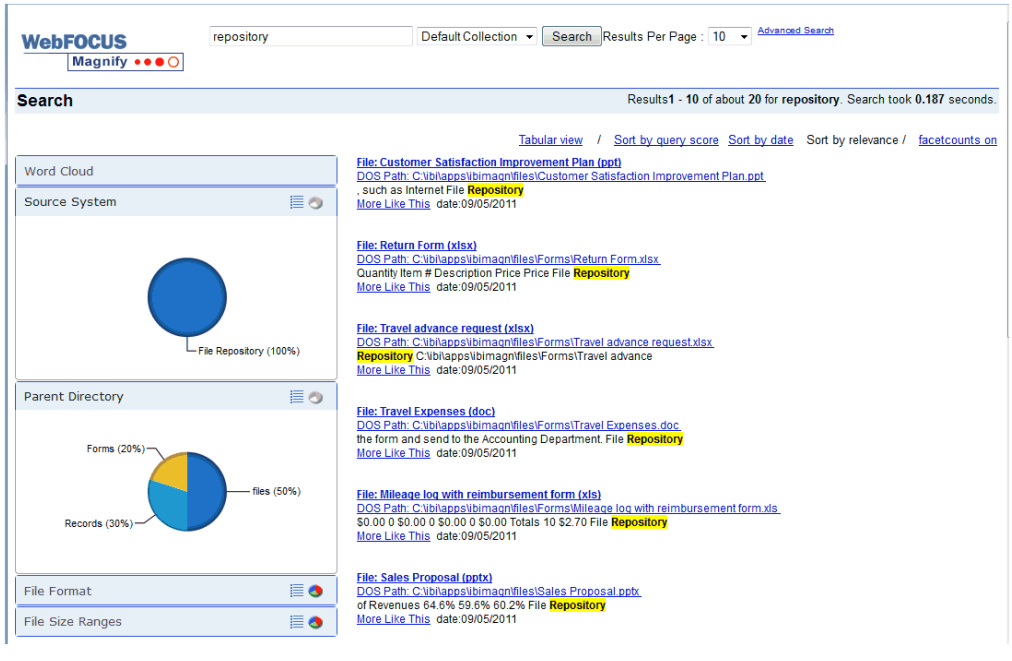
- Connection Setting, BASEURL, and DATASOURCE are required.
- BATCHSIZE is always recommended.
- MIME is required for file indexing.

15. After the ENGINE objects, add a SET object with Used settings *ASNAMES* and Current value *MIXED* .
16. Save the SET object for the procedure.
17. Open the REPORT object and change the format type.
    a. Click *Options*.
    b. Select *Output Format*.
    c. Expand *Unstyled Formats*.
    d. Select *Format Magnify (MAGNIFY)*.
    e. Click *Apply* and then *OK*.
18. Save and close the procedure.
19. Copy the files being monitored to the *filemonitor* application folder. Change the application folder mapping to this folder, or issue an APP MAP command to point to this folder in the procedure.

20. Run the procedure and confirm that there are no errors, as shown in the following image.



21. Review the search-based application, as shown in the following image.



Chapter 8

Auto Complete

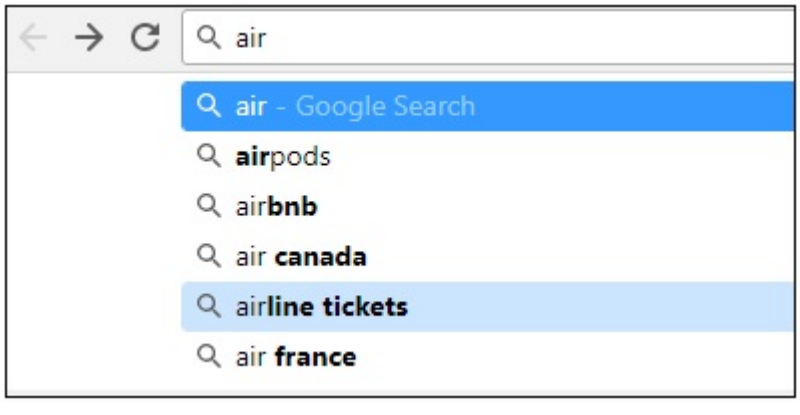
This section describes how to configure Auto Complete for Magnify Search.

In this chapter:

- Overview
- Configuring Auto Complete

Overview

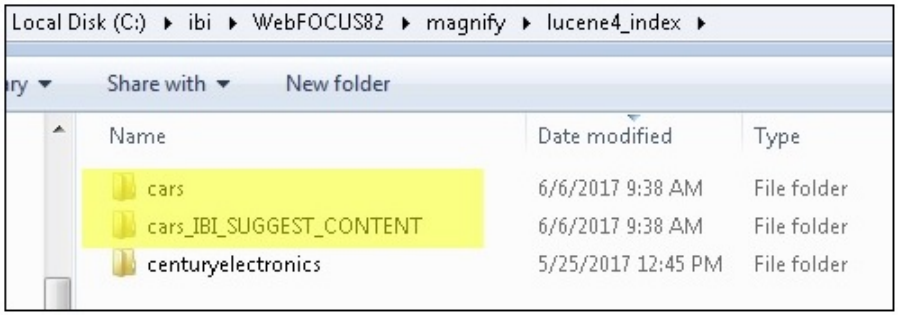
Most search engines have the capability to present users with completed suggestions in their search field based on the initial letters of a term being specified. The following image shows an example from Google.com where a user is typing "air" into the search field. Several completed suggestions are generated, including "airline tickets", which is a popular search term for many users.



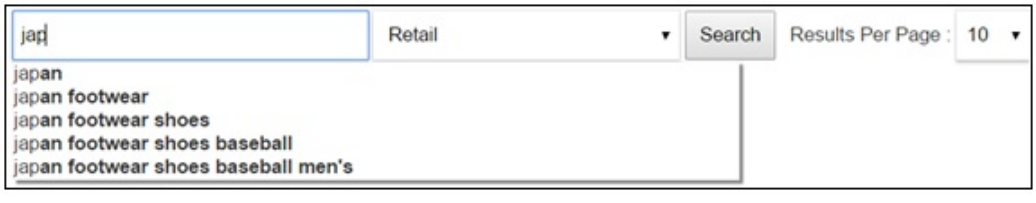
This functionality is also available with Magnify Search and is referred to as *Auto Complete*. When configured, a user can select a suggested term from the Auto Complete drop-down, which guarantees that search results will be found for the selected term. Since Magnify Search has been available long before the implementation of this new facility, users have the ability to enable Auto Complete on existing indices, as well as newly created indices. The implementation of Auto Complete is being handled as a separate Magnify Search index that contains the Auto Complete *suggestions*.

Configuring Auto Complete

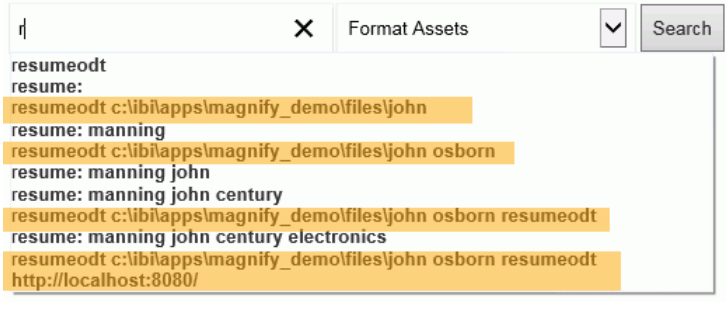
To use Auto Complete with Magnify Search, you must first generate a *suggestion* index for each index you will be searching against. These suggestion indices must be stored in the same location where your standard indices are located and have a suffix of *_IBI_SUGGEST_CONTENT*. In the following example, the *cars* index is located in C:\ibi\WebFOCUS82\magnify \lucene4_index along with a new corresponding suggestion index called *cars_IBI_SUGGEST_CONTENT*.



Once you create the suggestion index, users can see the suggested terms as they type in the Magnify Search query field, as shown in the following image.



Auto Complete will also suggest any URLs or file paths saved in your suggestion index, as shown in the following image.



Generating Suggestion Indices

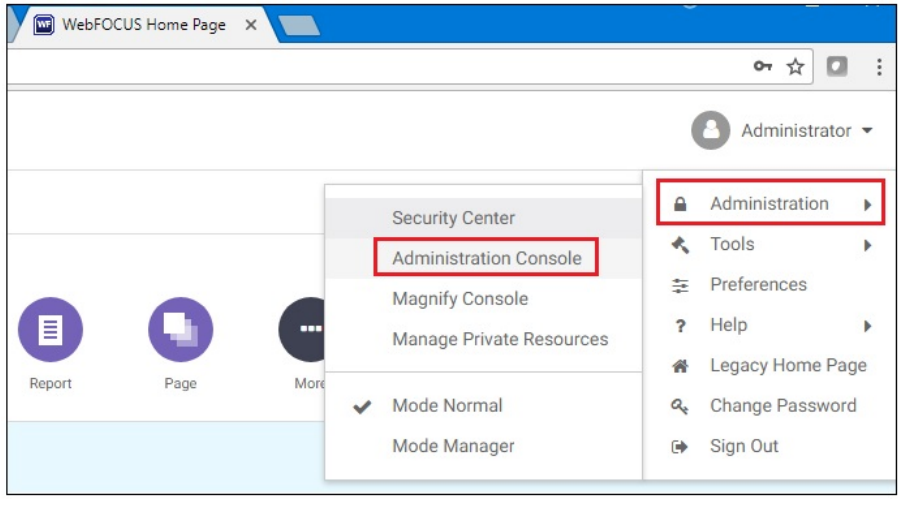
You can generate a suggestion index for Auto Complete in two different ways:

1. During the regular feed process.
2. Using a batch/script program.

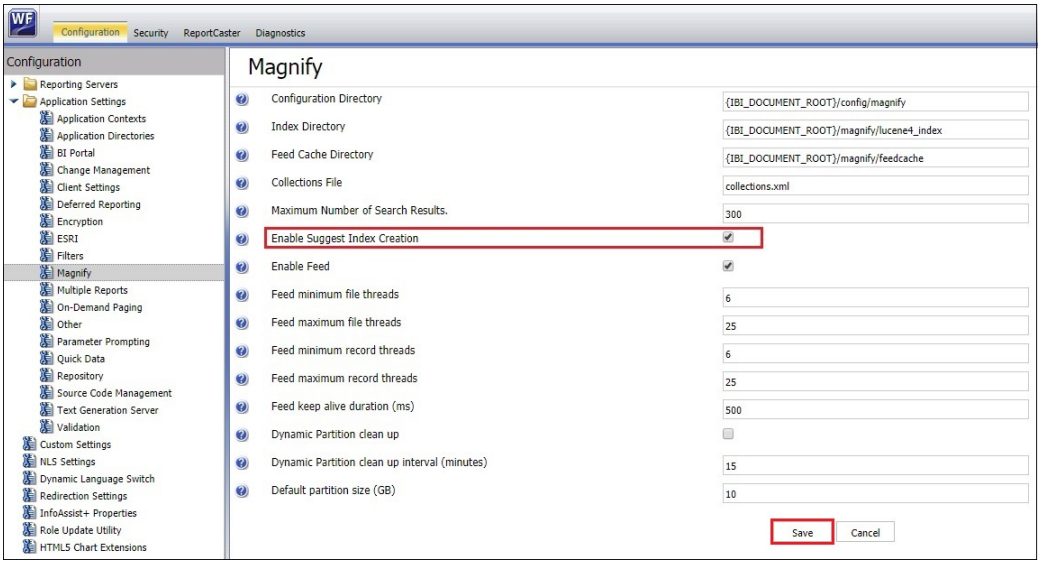
Generating a Suggestion Index During the Regular Feed Process

You can generate a suggestion index during your regular feed process by enabling the *Enable Suggest Index Creation* parameter (IBI_MAGNIFY_ENABLE_SUGGEST_INDEX_CREATION) in the Magnify settings page of the WebFOCUS Administration Console.

1. Navigate to the WebFOCUS Administration Console, as shown in the following image.



2. From the Configuration tab under Application Settings, click *Magnify*, as shown in the following image.



3. Click the check box that corresponds to the *Enable Suggest Index Creation* parameter.

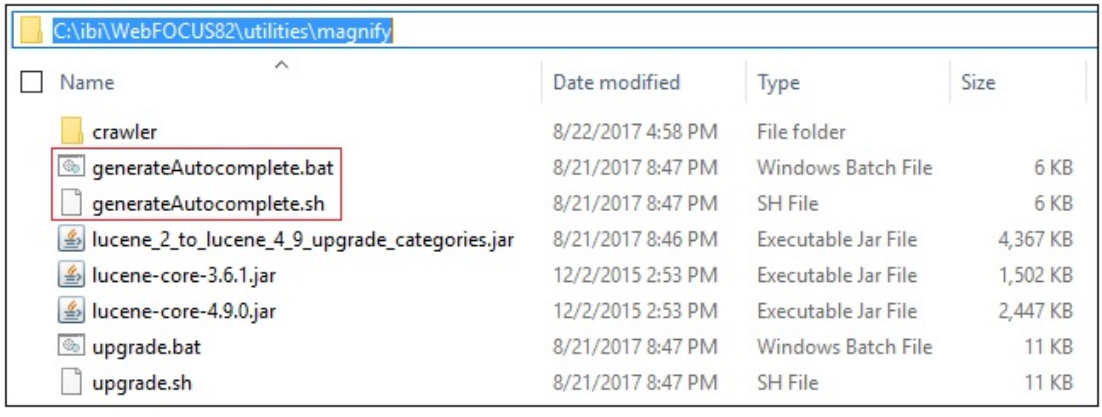
   By default, this parameter is not enabled.

4. Click *Save*.

Generating a Suggestion Index Using a Batch/Script Program

If you have already created regular indices (for example, in a prior release), then you can use the batch file (*generateAutocomplete.bat*) for Windows platforms or script file (*generateAutocomplete.sh*) for Unix/Linux platforms to generate suggestion indices on existing indices.

These batch/script programs are located in the *drive:\ibi\WebFOCUSxx\utilities\magnify* folder of your WebFOCUS installation, as shown in the following image.



Note: Any existing index must be upgraded to the Lucene 4.9 level before running the batch/script program to generate the suggestion index for Auto Complete.

This batch/script program reads the available indices in the Magnify Search index folder and generates suggestion indices for each index. It generates a log file in the regular *drive:\ibi\WebFOCUSxx\logs* folder, named *Generate_AutoComplete_Index.log*, which can be used to review what was done and to see any errors that may have occurred. The batch/script program defaults to the *drive:\ibi\WebFOCUSxx\magnify\lucene4_index* folder to locate indices, but does allow you to override this default path when run interactively.

If you are using the batch/script program and the index location specified does not have any indices, then the following message is displayed:

```
*** No Lucene Indices to generate autocomplete indices for in path %indexloc
% !!!
```

Usage Considerations

This section describes several usage considerations for Auto Complete with Magnify Search.

Disabling Auto Complete

At this time, Magnify Search does not provide an individualized search experience, so either all users of Magnify Search use the Auto Complete feature or they do not use it. However, a WebFOCUS administrator can disable the Auto Complete feature by:

1. Disabling the *Enable Suggest Index Creation* parameter (IBI_MAGNIFY_ENABLE_SUGGEST_INDEX_CREATION) in the Magnify settings page of the WebFOCUS Administration Console.

2. Deleting all suggestion indices or moving them to another location (outside the Magnify Search index path).

If the WebFOCUS administrator decides to enable Auto Complete at some point, they can regenerate the suggestion indices or move the suggestion indices back to the Magnify Search index path.

Suggestion Limits

The Auto Complete drop-down list of suggestions (terms) is limited to a maximum of 10 entries, provided there are at least 10 entries to display. If the search term you begin to type displays less than 10 entries, then the drop-down list will only show that number of entries.

Chapter 9

Magnify Search Crawler

This section describes how to deploy and configure the Magnify Search Crawler.

In this chapter:

- Overview
- Deploying Magnify Search Crawler
- Configuring Magnify Search Crawler

Overview

Magnify Search Crawler (referred to as the Crawler in this document) is a useful addition to Magnify Search. This feature enables you to gather content from internal or external websites that you identify and allow this content to be searchable through Magnify. The Crawler is:

- A lightweight, standalone Java program that can be deployed on any platform and can be included in batch scripts for automation or be run as a service in the background.
- Highly efficient with options for running multiple threads in parallel.
- Highly flexible with configuration options in the following areas:
  - Logging levels.
  - URL filtering.
  - Meta tag injection.
  - Index name customization based on URL patterns.
  - Category injection based on URL patterns.

Prerequisites

Before continuing, confirm the following prerequisites in your environment:

- Java Development Kit (JDK) Version 1.6 and higher.
- A running instance of Magnify Search on a local or remote server.

- An internal or external website to be crawled for content, which does not block access to crawler types of applications.

Deploying Magnify Search Crawler

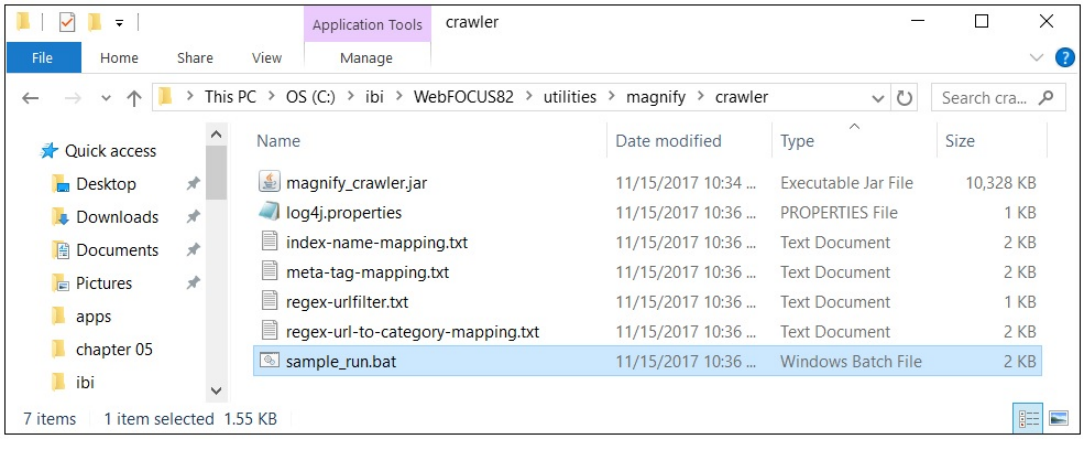
Magnify Search Crawler is packaged in the following directory of your WebFOCUS installation:

drive:\ibi\WebFOCUS82\utilities\magnify\crawler

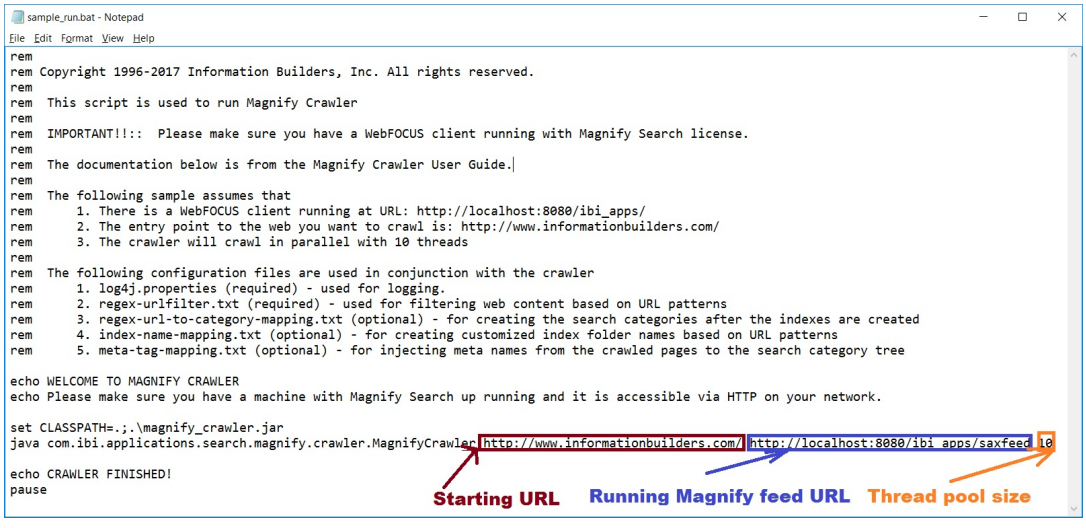
The *crawler* folder contains all of the source code and dependent third-party code in the form of various .jar files. This folder also contains the following group of configuration files:

- *index-name-mapping.txt*
- *log4j.properties*
- *meta-tag-mapping.txt*
- *regex-urlfilter.txt*
- *regex-url-to-category-mapping.txt*

A batch file named *sample_run.bat* is provided, which is a batch script to invoke the Crawler program.



Edit the *sample_run.bat* file to match your deployment environment and preferences. For example:



The main Crawler program is contained within *magnify_crawler.jar* (*com.ibi.applications.search.magnify.crawler.MagnifyCrawler*), which takes two required arguments and one optional argument:

- The first argument (required) is the *Starting URL*, which is the entry point to the website to be crawled.
- The second argument (required) is the *Magnify server URL*, which can be either local or remote.
- The third argument (optional) represents the crawler *Thread pool size*. If this argument is missing, then a default value of 1 is applied, which indicates that the Crawler will process web pages in a linear process (one at a time). In most cases, you would want to specify a value that allows the Crawler to run more efficiently using multiple threads. Keep in mind that available system memory and CPU speed impacts the performance as well.

Configuring Magnify Search Crawler

The Crawler allows you to customize various aspects of the crawling behavior, such as:

- Specifying the depth (in levels) to avoid recursive hyper links on web pages.
- Limiting the Crawler to a specific website to avoid crawling the entire Internet, which will never stop.

- Assigning a web page or PDF document to a specific category in the Magnify Search result.

This section describes the various configuration options that are available so that the Crawler meets your requirements.

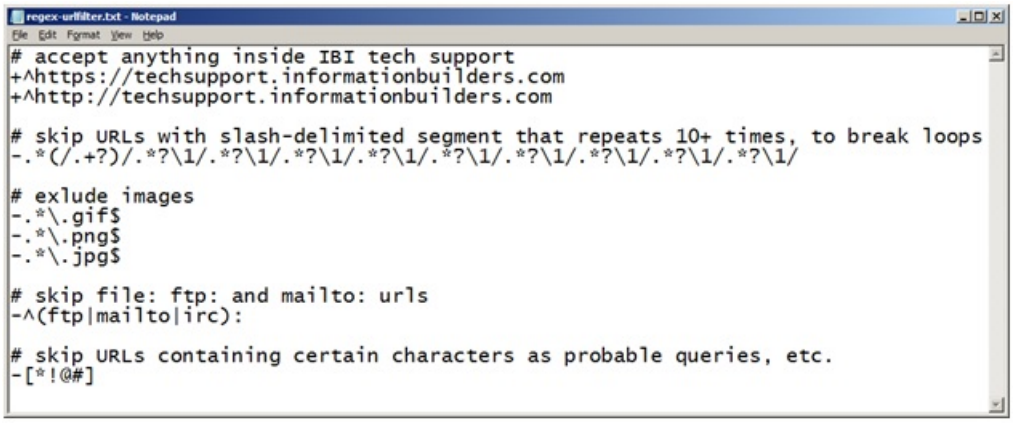
1. Configure logging configuration by editing the *log4j.properties* file, which is **required**.

   The Crawler uses the Apache log4j logging framework for logging purpose. For more information, see *https://logging.apache.org/log4j/1.2/manual.html*.

2. Configure URL filtering by editing the *regex-urlfilter.txt* file, which is **required**.

   The Crawler allows the user to restrict what pages or documents to crawl by URL pattern matching using Java Regular Expressions. For more information on the syntax used for Java Regular Expressions, see *http://docs.oracle.com/javase/tutorial/essential/regex/*.

   All comment lines begin with a pound sign (#) character. Each non-comment, non-blank line contains a regular expression prefixed by a plus sign (+) or minus sign (-) character, where '+' indicates to include and '-' indicates to exclude. For a website to be crawled, its URL must match all of the regular expressions that are included. However, it will be ignored as long as its URL matches any one of the excluded regular expressions. For example, the configuration shown in the following image will crawl anything within the Information Builders Technical Support Center website.



3. Configure meta tag injection by editing the *meta-tag-mapping.txt* file, which is **optional**.

   This configuration file is used to inject META names from the crawled pages to the Magnify Search category tree. Most of the documents (HTML, PDF, Word, Excel, and so on.) would contain META information. The Crawler extracts that information and saves it to the index files so that the document can be displayed under a designated category tree during search. All comment lines begin with a pound sign (#) character.

   Syntax:

Meta tag name->Category tree display name

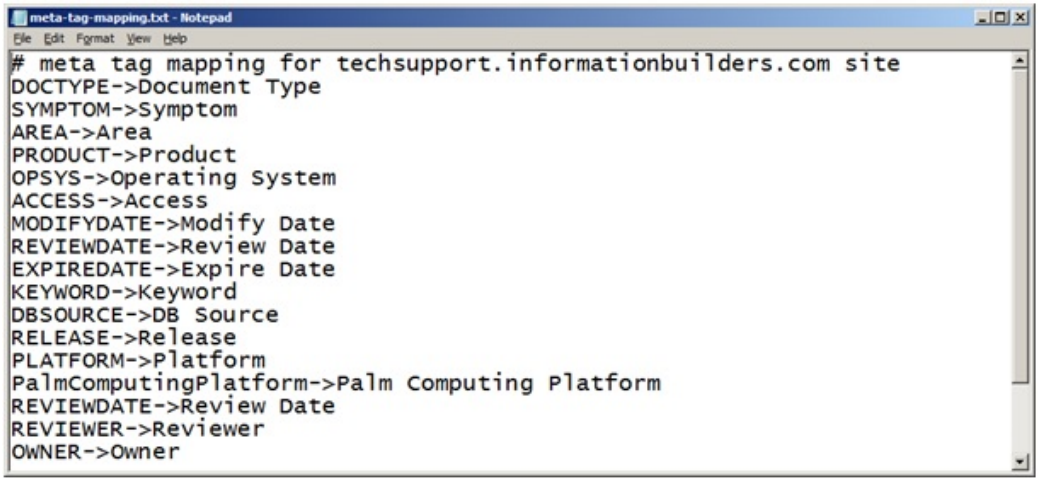
Consider a scenario where a web page that was crawled contained the following META tags:

```
<meta name="description" content="Free Web tutorials">
<meta name="keywords" content="HTML,CSS,XML,JavaScript">
<meta name="author" content="Hege Refsnes">
<meta charset="UTF-8">
```

For example, you only want to include the "author" information in the category tree when the search result is displayed. In addition, you want it be displayed as "Author" with the first letter in uppercase. In this case, you would need to add the following entry into the *meta-tag-mapping.txt* file:

```
author->Author
```

The following is an example of a configured *meta-tag-mapping.txt* file for the Information Builders Technical Support Center website.



4. Configure index name customization by editing the *index-name-mapping.txt* file, which is **optional**.

   This configuration file is used to map web documents to a predefined index name based on its URL pattern. All comment lines begin with a pound sign (#) character.

   Syntax:

   regex pattern->index name

   For example, if you want to save all web pages that begin with `http://www.abc.com/news/` to an index folder named `abc_news`, then you can add the following entry in this file:

```
^http://www.abc.com/news/->abc_news
```

If no matches are found, then the default index name is the domain name, replacing the dot (.) character with the underscore (_). For more information on the syntax used for Java Regular Expressions, see *http://docs.oracle.com/javase/tutorial/essential/regex/*.

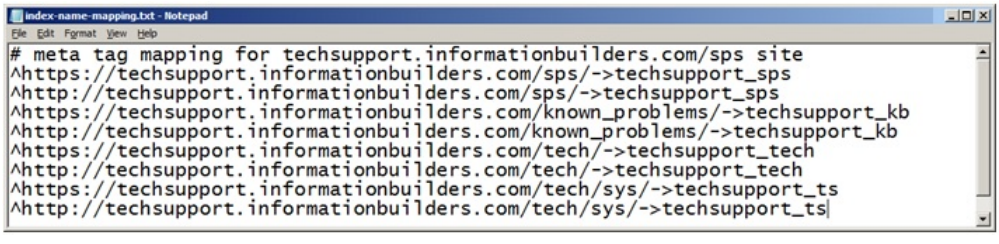
Warning: If there are any duplicates or overlaps in the URL pattern, then the first matched rule is used. Therefore, the order of the entries in this configuration file is important.

For example:

```
^http://www.abc.com/news/->abc_news
^http://www.abc.com/news/worldnews/->abc_worldnews
```

The page with the URL `http://www.abc.com/news/worldnews/wn1.html` will be indexed to an index folder named `abc_news`. If you want this page to go to an index folder named `abc_worldnews`, then you must reverse the order of the above two entries.

The following is an example of a configured *index-name-mapping.txt* file for the Information Builders Technical Support Center website.



5. Configure category injection by editing the *regex-url-to-category-mapping.txt* file, which is **optional**.

   This configuration file is used to inject category names to a specified web document that has been crawled.

   Syntax:

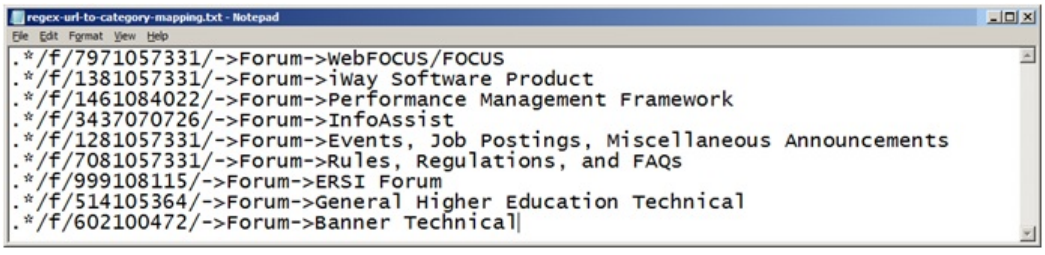
   ```
   regex pattern->category name->category value
   ```

   For example, a web page URL contains `.*/f/23445/` as a pattern. You want this page to be displayed under a category called *Forum* with the value *WebFOCUS/FOCUS Forum on Focal Point*. To accomplish this, you must add the following entry in the configuration file:

   ```
   .*/f/23445->Forum->WebFOCUS/FOCUS Forum on Focal Point
   ```

   For more information on the syntax used for Java Regular Expressions, see *http://docs.oracle.com/javase/tutorial/essential/regex/*.

The following is an example of a configured *regex-url-to-category-mapping.txt* file for the Information Builders Focal Point User Forum website.



Appendix A

Supporting Information for iWay

This appendix provides supporting information on iWay.

In this appendix:

- Overview
- About the Magnify Feed Process
- Magnify Search Feed Example

Overview

At a high-level, iWay Service Manager (iSM) monitors your data source and feeds the information that you have designated for searching to a search engine, which indexes that information. When a search request is made, the search engine returns relevant information from the indexed content to Magnify.

The listener, contained in an iWay channel, is designed in iWay Integration Tools (iIT) to monitor the data source that holds the information you want made available to search. The listener detects changes to the data source and sends a record of this information in an XML document through the channel to an iWay process flow.

You will design the process flow using iIT Designer to process and enhance the information with metadata that Magnify can use in retrieving and presenting search results. This metadata includes the data source fields that hold relevant data, titles for the search result links, images to appear with a link, and the WebFOCUS reports you want run from a link. A transformation is designed (using the iIT Transformer) to convert the incoming XML document to an HTML document required by the search engine. The process flow then feeds the HTML document to the search engine, which indexes the information for searching. The process flow includes search engine configuration parameters to direct the indexing process.

About the Magnify Feed Process

To configure Magnify, you will be using a combination of the WebFOCUS Administration Console, iWay Service Manager (iSM), iWay Integration Tools (iIT). Within iIT, you will be using iIT Designer to build a process flow and the iIT Transformer to convert the XML documents coming into the process flow to HTML documents for the search engine. This guide provides detailed instructions on using these tools to accomplish the task of configuring Magnify. For additional information on these tools, see the following documentation:

- *iWay Service Manager User's Guide Version 7.0.x*
- *iWay Integration Tools Designer User's Guide Version 7.0.x*
- *iWay Integration Tools Transformer User's Guide Version 7.0.x*

Note: Magnify requires iWay Service Manager (iSM) Version 7.0 or higher with the latest cumulative patch.

iSM uses the concept of a channel to contain iWay components, which you assemble to perform a task. A channel must always contain three subcontainers referred to as an inlet, a route, and an outlet through which a document flows. In this application, the term document can mean a database record, a flat file, a message such as an MQ message, and so on. Each subcontainer of the channel is designed to hold a specific iWay component. An inlet can only contain a listener, a decryptor, or a preparser. A route can only contain a transform or a process flow. And an outlet can only contain an encryptor, a preemitter, or an emitter.

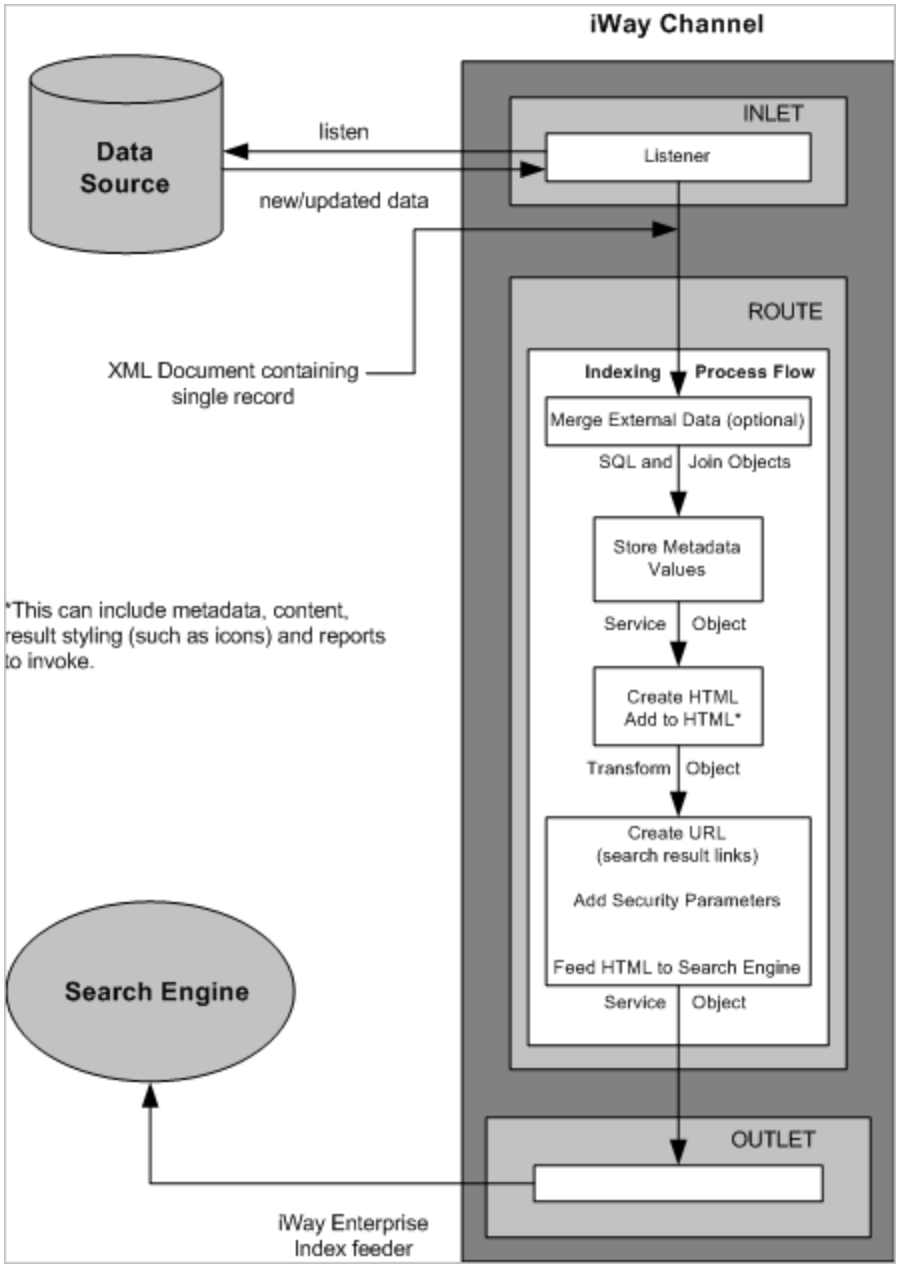
To start, you will need to configure the search engine and create an iWay channel that contains a listener to extract sample XML documents from the data source. The data source structure is revealed in these documents and used later when creating the indexing process flow. These tasks are performed using the WebFOCUS Administration Console and iIT.

You will need to then configure an indexing process flow using iIT Designer, where you select the business content within the data source that you want accessible to a search and package it in a way that the search engine can use to return the appropriate search results. This configuration process is also called transaction indexing.

Once the process flow is tested and published, you can reconfigure the channel set up to extract the document structure to use a new route that contains the indexing process flow, and deploy the channel to start the listening and indexing process.

Note: iSM provides a design-time repository called the Registry, where you assemble and manage iWay resources, such as listeners, process flows, transforms, channels, and so on. This allows you to configure design-time components without referencing a specific run-time server. Once you define and assemble the components you need, they can be deployed to one or more run-time instances of iSM.

The following diagram illustrates the major configuration elements and the tasks in the transaction indexing process.



The following is a summary of the Magnify configuration process:

- Configure the search engine.
- Configure an iWay channel with a listener to monitor your data source and retrieve sample data (in an XML document) that is representative of the information you want to index in the search engine. This channel will route the XML document to an emitter (contained in the channel outlet), and deposit it into a designated directory. You will refer to the information in this document when you set up the iWay indexing process flow.
- Create an indexing process flow that:
  - Identifies items in the data file (an XML document sent to the flow by the listener) that you want accessible to a search.
  - Optionally, merges data from another data source with the data in the loaded document.
  - Converts the XML document to an HTML document (required by the search engine) using iIT Transformer.
  - Defines the search result link titles and graphic search aids, such as icons and images.
  - Identifies the WebFOCUS reports that will be called when selecting specific search result links.
  - Optionally defines security parameters that determine who has access to specific search results.
  - Sends this search configuration information to the search engine for indexing using the iWay Enterprise Index feeder (iEI).
- Test and publish the indexing process flow.
- Add a route to your channel in iIT that contains the indexing process flow.
- Reconfigure the channel created earlier to replace the route with the indexing process flow route, and replace the outlet.
- Build and deploy the channel to start the listening process.

Magnify Search Feed Example

To help explain the configuration process, we will use an example of a sporting goods business that wants to make its merchandise searchable using Magnify. In this section, we take a high-level look at configuring Magnify by introducing the main configuration elements that can be applied to any configuration.

Note: You can obtain the sample reports and Lucene index using the following Information Builders Technical Support website:

http://techsupport.informationbuilders.com/tech/wbf/wbf_tmo_magnify_sampapp.html

In advance of the configuration, we gather the following:

- An example of the XML file generated by the listener on the database.
- The name of the database, retaildb.
- The WebFOCUS report to call from the search result link. We want to call the prddet.fex FOCEXEC, which resides in the retail application using the retaildb database.

In addition, we will include two links that will appear below the main results link and have them call WebFOCUS reports when clicked. These links and reports are:

- *Product Sheet*, which displays a PDF version of the report.

  For this, we will use the prddet2.fex FOCEXEC, which resides in the retail application using the retaildb database.

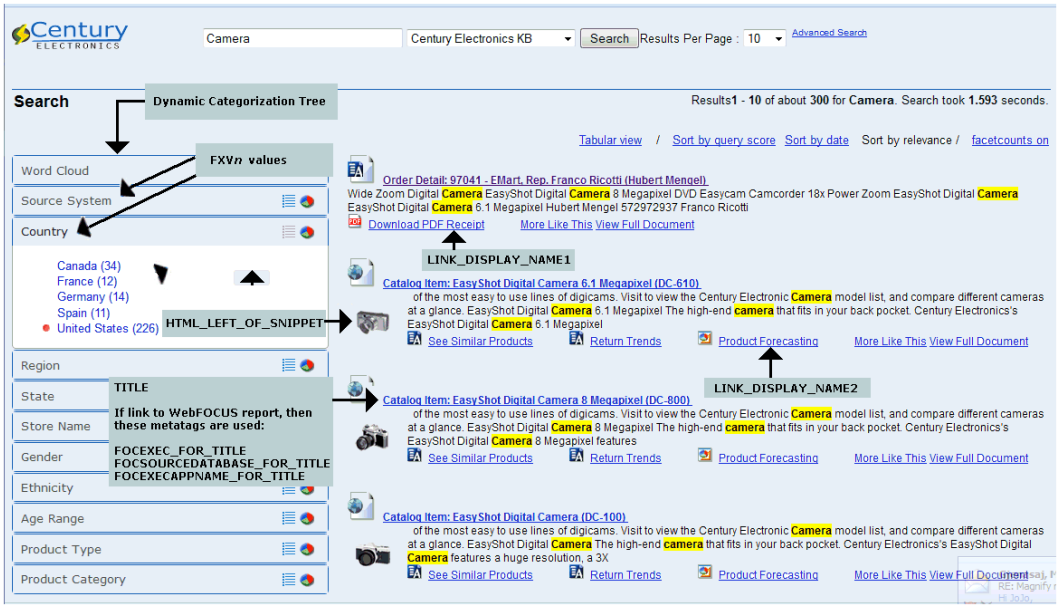
- *Summary Report*, which displays a parameterized report.

  For this, we will use the prdsum.fex FOCEXEC, which resides in the retail application using the retaildb database.

The following image shows how the search results page looks when you perform a search for *camera*. The elements we will be configuring are:

- the items in the Dynamic Categorization Tree (appearing on the left side of the page),
- the search results links with an image of the related camera (appearing on the right side of the page),
- and two additional links for each search result (appearing under the main result link) that will trigger a WebFOCUS report.

The following image shows how the search results page looks when you perform a search for *camera*.



The elements that you will configure include:

- Items in the Dynamic Categorization Tree (appearing on the left side of the page).
- Search results links with an image of the related camera (appearing on the right side of the page).
- Two additional links for each search result (appearing under the main result link) that will trigger a WebFOCUS report.

XML File From the Listener

The following is an XML file that has been captured by the listener. This file contains a single record about a sports shoe and is representative of the XML format the listener will create from our database structure.

The data includes information about the shoe, such as the brand, the style, the department it is associated with, the price range it falls into, the actual price of the shoe, and a reference to an image of the shoe.

```
<?xml version="1.0" encoding="ISO-8859-1" ?>
<RetailDB table="retaildb">
  <row>
     <retaildb.ImgURL
        type="12">http://vlamdemo.ibi.com:8080/ibi_apps/retail/101.gif
</retaildb.ImgURL>
     <retaildb.Department type="12">Footwear</retaildb.Department>
     <retaildb.Category type="12">Shoes</retaildb.Category>
     <retaildb.Sports type="12">Baseball</retaildb.Sports>
     <retaildb.Gender type="12">Men's</retaildb.Gender>
     <retaildb.Brand type="12">Acme</retaildb.Brand>
     <retaildb.Style type="12">Mid-cut</retaildb.Style>
     <retaildb.Color type="12">Red</retaildb.Color>
     <retaildb.Name type="12">Acme Delux Classic
Baseball Spike Mens         </retaildb.Name>
     <retaildb.Description type="-1">This men&apos;s
Acme Delux           Classic baseball cleat showcases which disperses
impact forces,          providing exceptional cushioning. Delux
promotes a controlled flex for          all three primary baseball
movements: running, batting, and          throwing, while the Spike
technology enhances lateral stability and          traction.
      </retaildb.Description>
      <retaildb.Price type="2">94.99</retaildb.Price>
      <retaildb.PriceRange type="12">$75.00 - $99.99<retaildb.PriceRange>
      <retaildb.Promotion type="12">Regular Price</retaildb.Promotion>
      <retaildb.updated null="y" type="-6"/>
      <retaildb.productid type="4">1</retaildb.productid>
      <retaildb.ImgHTML type="12"><img src=
         "http://vlamdemo.ibi.com:8080/ibi_apps/retail/101.gif">
      </retaildb.ImgHTML>
    </row>
</RetailDB>
```

Store Values

Using the XML document captured by the listener, we need to identify the fields we want to appear in the Dynamic Categorization Tree on the search results page and store them using metadata parameters. We decided on the following fields for the Dynamic Categorization Tree:

- Brand
- Category
- Color
- Department
- Gender
- Price Range
- Price

- Promotion
- Sports
- Style

You can define these items, which are database field values, using the metadata parameter FXV *n*, where *n* is the sequential number we assign for the field value being identified. We will assign the parameters, as follows:

FXV1 = Brand

FXV2 = Category

FXV3 = Color

and so on, through FXV10 = Style

We also need to determine which field or fields to use as the unique identifier (key) of this record. We assign the identifier metadata parameter, as follows:

FXK = productid

Create HTML

Transform the XML document into an HTML document, which the search engine requires for indexing. In the HTML document we will also include the parameters for the two additional results links, Product Sheet and Summary Report.

Note: The HTML documents must be XHTML 1.0 compliant.

The following is the transformed HTML document. It follows a specific structure required by the search engine, which includes HTML, HEAD, TITLE, META tags, and BODY tag.

```
<?xml version="1.0" encoding="UTF-8" ?>
<HTML>
  <HEAD>
    <TITLE>Acme Delux Classic Baseball Spike Mens
    </TITLE>
      <META name="Department" content="Footwear" />
      <META name="Category" content="Shoes" />
      <META name="Sports" content="Baseball" />
      <META name="Gender" content="Men's" />
      <META name="Brand" content="Acme" />
      <META name="FOCEXEC_FOR_TITLE" content="prddet" />
      <META name="FOCSOURCEDATABASE_FOR_TITLE" content="RetailDB" />
      <META name="FOCEXECAPPNAME_FOR_TITLE" content="retail" />
      <META name="LINK_DISPLAY_NAME2" content="Summary Report" />
      <META name="FOCEXEC2" content="prdsum" />
      <META name="FOCSOURCEDATABASE2" content="RetailDB" />
      <META name="FOCEXECAPPNAME2" content="retail" />
      <META name="Style" content="Classic" />
      <META name="Color" content="Red" />
      <META name="PriceRange" content="$75.00 - $99.99" />
      <META name="Promotion" content="Regular Price" />
      <META name="LINK_DISPLAY_NAME1" content="Product Sheet &lt;img
          src=&quot; http://vlamdemo.ibi.com:8080/ibi_html/javaassist
          images/mr/mr_ex_pdf.gif";border=&quot;0&quot;&gt;" />
      <META name="FOCEXEC1" content="prddet2" />
      <META name="FOCSOURCEDATABASE1" content="RetailDB" />
      <META name="FOCEXECAPPNAME1" content="retail" />
      <META name="HTML_LEFT_OF_SNIPPET" content="&lt;img att=&quot;
          src=&quot;http://vlamdemo.ibi.com:8080/ibi_apps/retail
          101.gif&quot;&gt;" />
      <META name="Price" content="94.99" />
  </HEAD>
  <BODY>Footwear Shoes Baseball Men's Acme Delux Classic Baseball
      Spike Mens This men's Delux Classic baseball cleat showcases
      which disperses impact forces, providing exceptional cushioning.
      Delux promotes a controlled flex for all three primary baseball
      movements: running, batting, and throwing, while the Spike
      technology enhances lateral stability and traction. 94.99
      $75.00 -$99.99 Regular Price 1 Sporting
  </BODY>
</HTML>
```

While creating the HTML structure in the transform:

- Add a title for the search results link in the title element (<TITLE> </TITLE>).
- Add a META element for each Dynamic Categorization field value we previously stored, using the following format:

```
<META name = "Brand" content = "Acme" />

<META name = "Category" content = "Shoes" />

<META name = "Color" content = "Red" />
```

```
<META name = "Department" content = "Footwear" />

<META name = "Gender" content = "Men's" />

<META name = "Price Range" content = "$75.00 - $99.99" />

<META name = "Price" content = "94.99" />

<META name = "Promotion" content = "Regular Price" />

<META name = "Sports" content = "Baseball" />

<META name = "Style" content = "Classic" />
```

- Add META elements to define the WebFOCUS report to be called when the search results link is clicked. The following is the format for these required META elements:

```
<META name = "FOCEXEC_FOR_TITLE" content = "prddet" />

<META name = "FOCSOURCEDATABASE_FOR_TITLE" content = "RetailDB" />

<META name = "FOCEXECAPPNAME_FOR_TITLE" content = "retail" />
```

- Add META elements for the additional links, Product Sheet and Summary Report, using the following format. Note the path to the image of the PDF icon appears in the Product Sheet META element.

```
<META name = "LINK_DISPLAY_NAME1" content = "Product Sheet" &lt;img
att=&quot; src=&quot; http://vlamdemo.ibi.com:8080/ibi_html/
javaassist images/mr/mr_ex_pdf.gif";border=&quot;0&quot;&gt;" />

<META name="FOCEXEC1" content="prddet2" />

<META name="FOCSOURCEDATABASE1" content="RetailDB" />

<META name="FOCEXECAPPNAME1" content="retail" />

<META name = "LINK_DISPLAY_NAME2" content = "Summary Report" />

<META name="FOCEXEC2" content="prdsum" />

<META name="FOCSOURCEDATABASE2" content="RetailDB" />

<META name="FOCEXECAPPNAME2" content="retail" />
```

- Add a META element to include the image of the shoe next to the main results link, using the following format:

```
<META name="HTML_LEFT_OF_SNIPPET" content="&lt;img att=&quot;
src=&quot; http://vlamdemo.ibi.com:8080/ibi_apps/retail
101.gif&quot;&gt;" />
```

- Add a BODY element that contains the phrase or words a user might enter to retrieve this information. For instance, the only way a user search for *baseball shoe* will return this record is if we include the words *baseball* and *shoe* in this BODY element.

Feed to Search Engine

This section details the creation of the URL that will retrieve a search result. The information needed to create the URL includes the category fields we chose from the record for the Dynamic Categorization Tree. Parameters we will add in the Feed to Search Engine object represent these category fields. The following uses the Brand and Category fields to show these parameters:

```
FXF1 = Brand
FXT1 = Brand
FXV1 = SREG(FXV1)
FXF2 = Category
FXT2 = Category
FXV2 = SREG(FXV2)
```

The FXF *n* parameter is the record field, and FXT *n* parameter is the field title (name) you want to appear to represent that field, where *n* is the sequential number (1, 2, 3, and so on) of the field you are defining.

The SREG(FXV1) is a value in a special register you defined in the Store Values object as FXV*n*. Be sure the values here match those that were created in the Store Values object.

If needed, you can change the name that appears in the Dynamic Categorization Tree by typing another value in the FXT*n* parameter. For instance, you could change our example FXT1 = Brand to FXT1 = Brand Name.

At this point, the HTML document contains all the parameters necessary to meet the search requirements of the company. The process flow then sends this document on to the search engine.

Note: The FX meta tags must be sequential in order. If a set of FX meta tags is removed, the remaining meta tags must be renumbered. Otherwise, the links on the Dynamic Categorization Tree will produce an error.

You can also specify multiple values for a field by using the FXM*n* parameter. FXM*n* is used in place of FXV*n* when using multiple values and contains a unique delimiter that is used to assign each value its own category in the Dynamic CategorizationTree. The delimiter can be any value, but it should be unique and not used in the field value. You must use delimiter as the metadata parameter name to define the delimiter value.

Note: The FXM*n* metadata parameter is not available in the Magnify Prototype Wizard.

Configuration Worksheets

It is helpful to gather information before you start configuring the transaction indexing process flow.

Use the following worksheet to record information needed to create the URL.

Information to Create URL		
List of names you want to appear in the Dynamic Categorization Tree.	n/a	Brand, Department, Price, and so on.
Database field value in the XML document that you want to appear in Dynamic Categorization Tree.	FXV*n* where *n* = 1, 2, 3, and so on.	FXV1 = Acme FXV2 = Footwear
One or more fields in the XML file that uniquely identify the record.	FXK FXK*n* where *n* = 2, 3, and so on.	FXK = productid

Information to Create URL		

Title associated with the database field. This will be the name that appears in the Dynamic Categorization Tree.
 	
Note: The default for the Category Tree sort order is alphabetically based on the values assigned to FXT*n*. HTML span tags, which are not presented in the user interface, can be used to customize the sort order. For example, in the following syntax, the id attribute is used to sort *Category* before *Brand* on the Dynamic Categorization Tree:
 	
`<span id=11>Brand</span>`
`<span id=10>Category</span>`
	FXT*n*
	
	where *n* = 1, 2, 3, and so on.
		FXT1 = Brand
		
		FXT2 = Department

Associated database field name.	FXF*n* where *n* = 1, 2, 3, and so on.	FXF1 = Brand FXF2 = Department

Use the following worksheet to record information needed to create the HTML document to be indexed.

Information to Create HTML Document to be Indexed		
Title for the search result link.	n/a	Acme Delux Classic Baseball Spike Mens
Name of the data source.	FOCSOURCEDATABASE_FOR_TITLE	retaildb

Information to Create HTML Document to be Indexed		
Name of the WebFOCUS report you want to run from the search result link.	FOCEXEC_FOR_TITLE	prddet.fex
Name of the application where the FOCEXEC resides.	FOCEXECAPPNAME_FOR_TITLE	retail
Additional Links		
Name of the first link.	LINK_DISPLAY_NAME1	Product Sheet
Name of the image to accompany the link title.	Add the path to the image in the LINK_DISPLAY_NAME1 value.	"Product Sheet <img src="http://machine.ibi.com:8080/ibi_html/javaassist/images/mr_ex_pdf.gif" border="0">"
Name of the WebFOCUS report you want to run from this link.	FOCEXEC1	prddet2.fex
Name of the application where the FOCEXEC resides.	FOCEXECAPPNAME1	retail
Name of the data source.	FOCSOURCEDATABASE1	retaildb
Name of the second link.	LINK_DISPLAY_NAME2	Summary Report

Information to Create HTML Document to be Indexed		
Name of the WebFOCUS report you want to run from this link.	FOCEXEC2	prdsum.fex
Name of the application where the FOCEXEC resides.	FOCEXECAPPNAME2	retail
Name of the data source.	FOCSOURCEDATABASE2	retaildb
Name of the image to accompany the link title.	Add the path to the image in the LINK_DISPLAY_NAME2 value.	see example for LINK_DISPLAY_NAME1

For more information on feeding data to Magnify, see *Magnify Search Protocols* on page 105.

Appendix B

Magnify Search Error Handling

This appendix presents error handling information for Magnify Search.

In this appendix:

- Magnify Error Handling
- License for Indexing
- Resolving OutOfMemoryError Exceptions

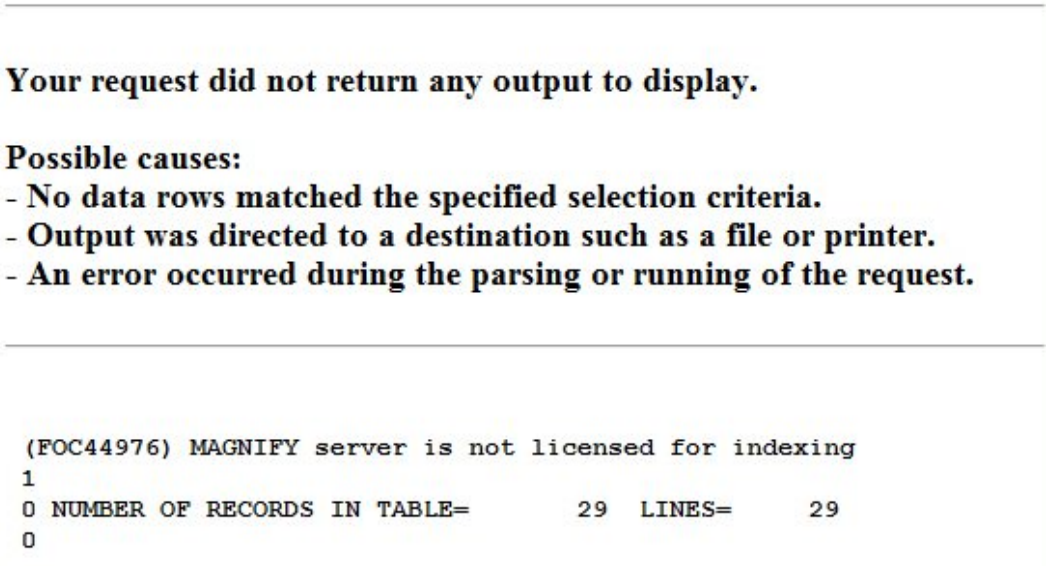
Magnify Error Handling

The following table summarizes the various code texts and descriptions that may display.

Code Number	Code Text	Description
1	HTRC_PROTOCOL_ERR	There was an error in formatting the document feed. Check the WebFOCUS procedure syntax.
2	HTRC_TIMEOUT_ERR	There was a timeout trying to connect to the application server. Check connection strings, application server logs, and network resources.
3	HTRC_COMM_ERR	There was a communication error between WebFOCUS and the application server. Check connection strings and application server logs.
4	HTRC_INTERNAL_ERR	There was an internal WebFOCUS error. Check Reporting Server and WebFOCUS Client logs.
5	HTRC_CERTIFICATE_ERR	Issues were found with configured certificates. Check application server logs.

License for Indexing

When running a report object in App Studio, you may encounter an error message indicating that your Magnify server is not licensed for indexing, as shown in the following image.



If you encounter this error message, contact your WebFOCUS Administrator to obtain the license that you will need to proceed.

Resolving OutOfMemoryError Exceptions

You may encounter situations where Magnify Search may crash due to an *OutOfMemoryError* exception.

As a workaround, when starting your application server, add the following command-line option to Java:

```
$ java -XX:+HeapDumpOnOutOfMemoryError
```

This command-line option generates a heap dump when an allocation from the Java heap or the permanent generation cannot be satisfied. In addition, this command-line option is not resource intensive, so it can be useful in production environment when resolving *OutOfMemoryError* exceptions.

You can also specify this option during runtime using the MBeans tab in the *jconsole* utility.

The heap dump is in HPROF binary format, which can be analyzed using any tools that can import this format.

For example, you can download the Eclipse Memory Analyzer tool for this purpose from the following website:

http://www.eclipse.org/mat/

Open the heap dump (.hprof) file using Eclipse Memory Analyzer, which will provide you with the required information you can review and also send to Information Builders Technical Support to help you diagnose the issue.

Index

A

adding META elements *152*

B

BODY tag *152*

C

configuration worksheets *156*
configuring Magnify Search *146*
creating HTML *152*

D

Dynamic Categorization Tree *151*, *155*

F

Feed to Search Engine object *155*

H

HEAD *152*
HTML *152*

I

implementing Magnify Search *15*
iWay Integration Tools Designer *146*
iWay Integration Tools Transformer *146*
iWay Service Manager *146*

L

listener *150*

M

Magnify Search *13*
    configuring *15*
META tags *152*

P

process flows *146*

T

TITLE *152*

X

XML document captured by the listener *151*
XML file from the listener *150*

Feedback

Customer success is our top priority. Connect with us today!

Information Builders Technical Content Management team is comprised of many talented individuals who work together to design and deliver quality technical documentation products. Your feedback supports our ongoing efforts!

You can also preview new innovations to get an early look at new content products and services. Your participation helps us create great experiences for every customer.

To send us feedback or make a connection, contact Sarah Buccellato, Technical Editor, Technical Content Management at *Sarah_Buccellato@ibi.com.*

To request permission to repurpose copyrighted material, please contact Frances Gambino, Vice President, Technical Content Management at *Frances_Gambino@ibi.com.*

WebFOCUS

Magnify Search Developer's Guide

Release 8.2 Version 02

DN4501653.0519

Information Builders, Inc.
Two Penn Plaza
New York, NY 10121-2898