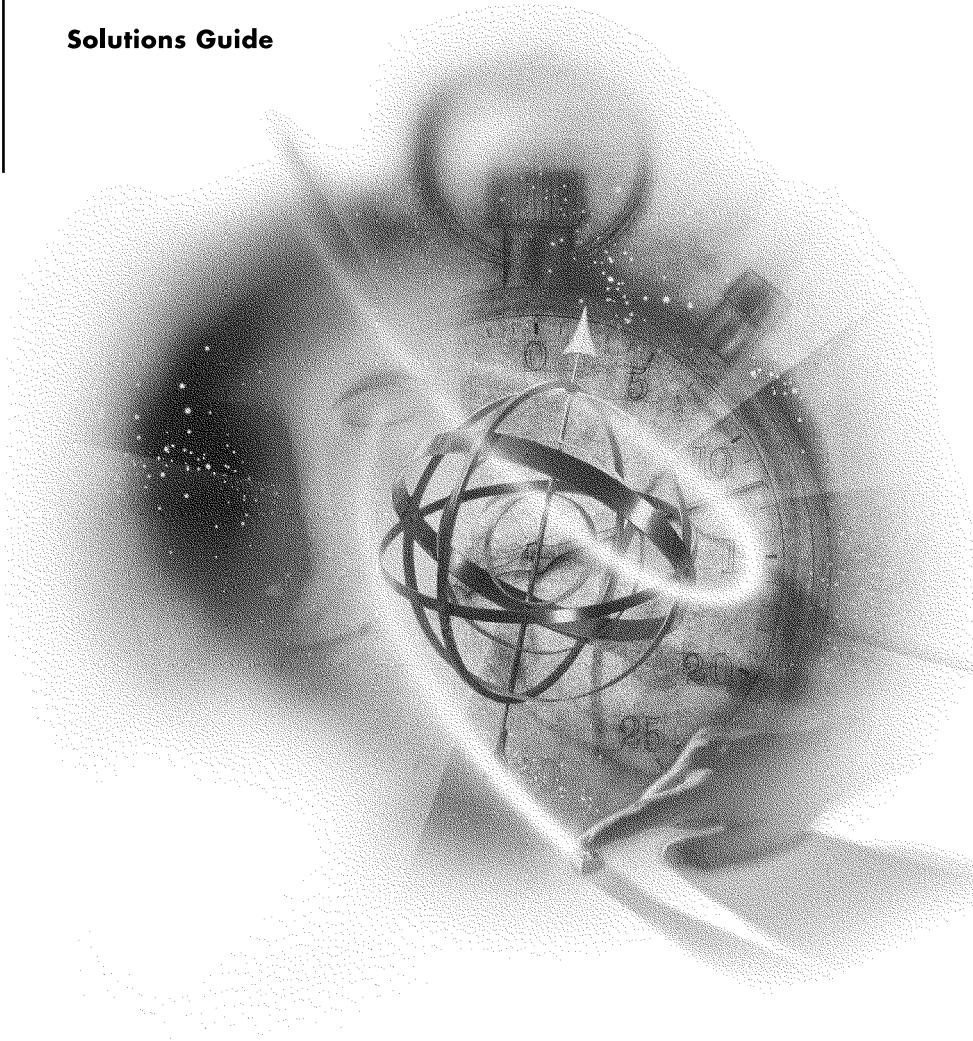NetWare Web Search

Solutions Guide

Novell®

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Novell, Inc.
122 East 1700 South
Provo, UT 84606
U.S.A.

www.novell.com

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Contents

Preface

NetWare® Web Search Server is the first NetWare-driven Internet and intranet search and print solution that offers immediate out-of-the-box search and print capabilities, as well as letting you create your own customized search solutions for use on your Web site or intranet.

This Solutions Guide provides the information you need to

◆ Create searchable content found on networks or Web servers.

◆ Customize the default search and print forms and templates.

◆ Create your own search and print forms and templates from scratch.

Getting Assistance

For assistance using NetWare Web Search Manager to manage collections and indexes, click any of the Help buttons from within NetWare Web Search Manager. For assssistance using the NetWare Web Search page, click the Help button located in the search form.

To Access the NetWare Web Search Manager

1 Type HTTPS://*domainname*:*portnumber* in your Web browser's address field, where portnumber is the portnumber of your NetWare Web Manager > press Enter.

2 Under NetWare Web Search Server, click the *server name* button, where *server name* is the name of your NetWare Web Search Server.

Web Browser Requirements

To configure any of the Web Services you have installed, you need a Web browser, such as Netscape Navigator or Navigator Gold* 3.0 or later, Netscape Communicator, Internet Explorer* or any other browser that supports Java* and JavaScript*. If you don't have a browser installed on your computer, install the version of Netscape Navigator from your Novell CD. You must enable Java or JavaScript in your Web browser because all of the configuration forms in Web Manager and the server managers use one or both of these forms of Java to function.

To enable Java in Netscape Navigator:

1 From the browser window, click Options > Network Preferences.

2 Select the Language tab and make sure Java and JavaScript are checked.

3 Click OK.

To enable Java in Netscape Communicator:

1 From the Communicator browser window, click Edit > Preferences.

2 Select the Advanced category in the left column.

3 Check the Enable Java and Enable JavaScript check boxes.

4 Click OK.

To enable Java in Internet Explorer 4 or higher:

1 From the Internet Explorer browser window, click Tools > Internet Options.

2 Select the Advanced tab.

3 Under Java VM, check Java JIT Compiler Enabled.

4 Click OK.

Novell Technical Support

The Novell Support Connection™ provides access to Novell's networking expertise through the Novell Support Connection Web site, the Novell Support Connection CD, and support programs for customers and partners.

By using the Novell Support Connection Web site or CD, you can connect to the same networking knowledge used by Novell technical support engineers.

In addition, the Web site provides an open Internet-based forum for users and partners to share technical support information and solutions. The forums are staffed by volunteer System Operators (SysOps) who are invited and sponsored by Novell to answer questions posted in the forums. The Web site also offers information on Advanced Technical Training videos, CBTs and conferences.

For additional support, we encourage users to contact a Novell partner. Users can locate qualified partners using the Novell Support Connection Web site. Searches are based on geographic location, product expertise, or both.

Visit Novell Support Connection at:

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To order the Novell Support Connection CD, call 1-800-377-4136 or 1-303-297-2725 or visit the Novell Support Connection Web site (http://support.novell.com).

1 Introducing NetWare Web Search Server

NetWare® Web Search Server offers a powerful full-text search engine you can use to add search capabilities to your Internet or intranet Web sites. Compatible with the NetWare Enterprise Web Server, you can create custom search forms and search result pages either from scratch or by using the templates provided with NetWare Web Search Server.

With NetWare Web Search Server, you can

- Search across multi-language data collections from a single interface.

- Print large collections of dispersed but related files as a single, coherently organized document.

- Customize the look and feel of search and print results, and error and response messages for each language (or collectively).

- Create themes that allow customized templates for each search scenario, such as a departmental intranet site and a corporate Internet site, each requiring a custom look and feel.

To conduct searches in multiple languages, NetWare Web Search Server requires a browser capable of sending search criteria as UTF-8 or Unicode strings.

Indexing File and Web Server Content for Searching

Using NetWare Web Search Server, you can index the file content found on your NetWare server, or you can index the content found on any Intranet or Internet site that can then be searched using the NetWare Web Search Server.

Indexing file or Web server content involves three fundamental tasks:

1. Defining the location of the files, called a *collection*, you want included in searches.

2. Building an index for each collection using NetWare Web Search Manager.

3. Testing your new index using the default search form and the search and print result templates.

You use the NetWare Web Search Manager to define collections and build indexes. Figure 1, "Steps to Creating a NetWare Web Search Index," on page 12 illustrates these three tasks.

Figure 1   Steps to Creating a NetWare Web Search Index
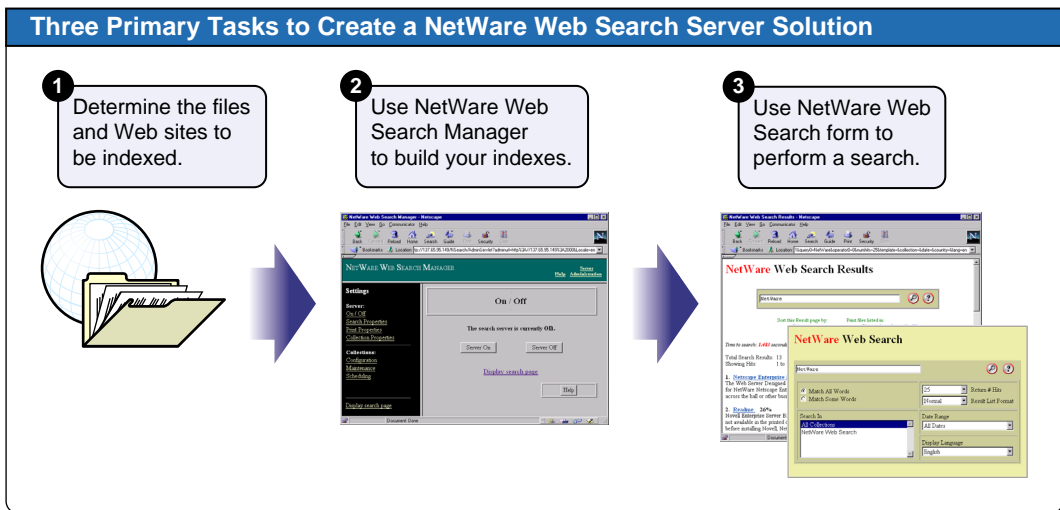
Repeat this process for each new collection you want to add. A collection can include files located in one or more directories on a file server, or files located in one or more directories on a Web server.

Indexing a Web server (or Web site) involves a process known as crawling. The Web Search Server begins indexing files on a Web server at the directory level you specify and continues to index along hypertext links until reaching a dead-end, which occurs when either a linked file cannot be found or when there are no more links defined.

Using NetWare Web Search Manager

NetWare Web Search Manager is the tool you use to create and manage collections and their associated indexes.

To run NetWare Web Search Manager:

1 Type HTTPS://*domainname*:*portnumber* in your Web browser's address field, where *portnumber* is the port number of your NetWare Web Manager > press Enter.

HINT: You must use the HTTP*S* protocol because NetWare Web Manager uses Secure Sockets Layer (SSL). Refer to the NetWare Web Manager Administration Guide for more information.

2 Under NetWare Web Search Server, click the *server name* button, where *server name* is the name of your NetWare Web Search Server.

Refer to the Web Search Manager's online Help for information about creating and managing collections and indexes.

Taking a Test Run

When you install NetWare Web Manager, the contents of the /NSEARCH/ DOCS directory located at the root of your server's SYS volume is indexed automatically. After restarting your server upon completion of the install, Web Search Server then automatically performs a crawl of your NetWare Web Server's Docs root directory.

Once you start the Enterprise Web Server, you can open the search page using your Web browser and perform a search on the contents of the /NSEARCH/ DOCS directory.

To test NetWare Web Search:

1. Type HTTP://*domainname*/novellsearch in your Web browser's address field > press Enter.

IMPORTANT: The URL is case sensitive. Use the exact case shown above.

2. Type NetWare in the Search field > press Enter.

TOOL TIP The Search form template, SearchTemplate.html, is stored on your SYS volume at /NSEARCH/TEMPLATES. See "Customizing Your Web Search Solution" on page 14 for information about how to customize templates.

Customizing Your Web Search Solution

Once you've defined one or more collections and created indexes for them using NetWare Web Manager, you can customize your Web Search solution by modifying the default search form and result and print templates, or by creating a new search solution from scratch using the variables and parameters described in "Working with Template Variables and Search Parameters" on page 31.

For more information about modifying the default search form and the search and print templates to create your own custom search solution, see Chapter 3, "Building a Custom Search Solution," on page 23.

Where to Go from Here

Once you have successfully installed NetWare Web Search, you can define additional collections, index them, and begin using the default search form to conduct searches.

However, if you want a more customized solution or you just want a better understanding of how NetWare Web Search works, continue to "Understanding Templates" on page 15.

2 Understanding Templates

NetWare® Web Search Server utilizes templates to generate search forms and search and print results, as well as user feedback such as error or response messages.

A template is an HTML document containing one or more Web Search Server variables. Variables are used to produce dynamic results when a user performs a search on the collections you have defined.

This chapter describes how templates work and discusses the default NetWare Web Search Server templates that are included. To learn how to customize the default templates, see "Building a Custom Search Solution" on page 23, and "Working with Template Variables and Search Parameters" on page 31.

How Templates Work

As defined above, a template is an HTML document containing one or more Web Search Server variables. When a user searches your Web Search Server collection, they use a Web browser to access the search form template. NetWare Web Search Server includes a search form template. See Figure 2, "The NetWare Web Search Form as it Appears in a Web Browser," on page 16.

TOOL TIP The Search form template, SearchTemplate.html, is stored on your SYS volume at /NSEARCH/TEMPLATES. See "Customizing Your Web Search Solution" on page 14 for information about how to customize templates.

Figure 2   The NetWare Web Search Form as it Appears in a Web Browser
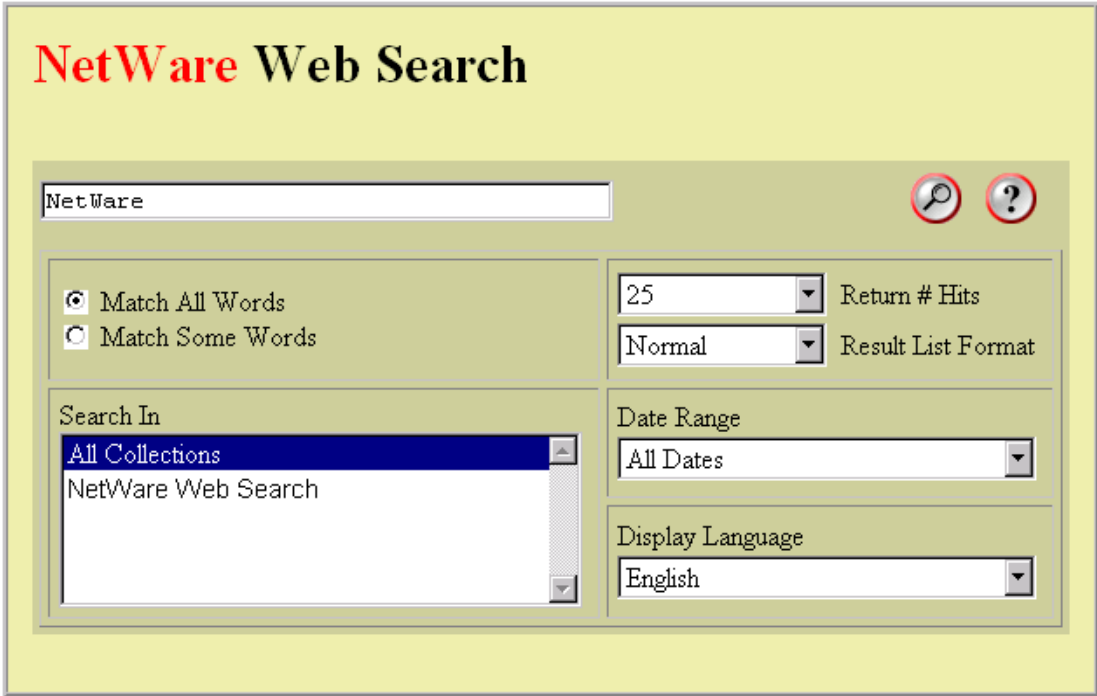
The Web Search form is used to capture user input, search the collections, and then return the results in either a search or print template, which appears to the user in a dynamically-updated HTML document.

The default search result templates display hits according to user selections on the search form. There are actually three different result templates: Normal, Verbose, and Terse. For more information about these search result templates, see Table 2 on page 19. There are also templates for each of eleven different languages. For a discussion about creating templates for international languages, see "Introducing NetWare Web Search Server" on page 11.

The Verbose template, which the user selects from the Result List Format drop-down list on the Search form, allows users to sort search results by relevance, title, language, date, file size, or URL. See Figure 3, "The Search Results Page Produced by the Normal Search Results Template," on page 17.

Figure 3   The Search Results Page Produced by the Normal Search Results Template
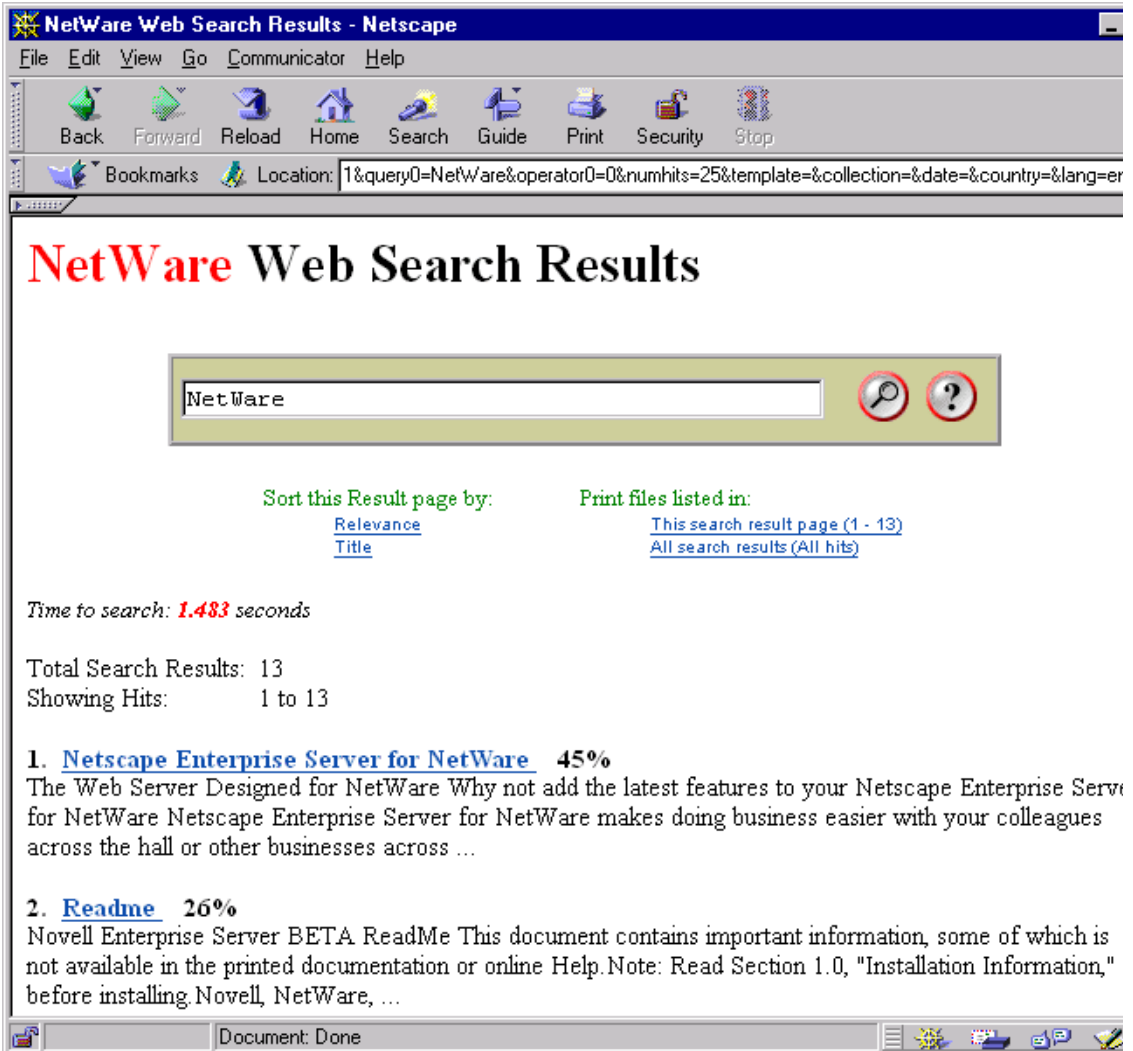
You can also customize the search form to include additional parameters that allow you to offer more options to your users for more accurate searching.

For an overview of how Web Search Server works, and for more information about customizing your search solution, see "Building a Custom Search Solution" on page 23.

Exploring the Default Search and Print Templates

NetWare Web Search Server includes several default templates used to create search forms and to format, display, and print search results for users.

You can use the templates as they are, or you can modify them to look and feel how you want them to. You can also create as many additional templates as you need, or replace the default templates with your own templates.

NetWare Web Search includes the five template categories:

- Search Page Templates
- Search Result Templates
- Print Result Templates
- Error Message Template
- Response Message Template

TOOL TIP The templates are stored on your SYS volume at NSEARCH/ TEMPLATES.

Search Page Templates

NetWare Web Search includes two search page templates that are used to generate a search page. Refer to Table 1 on page 18 for information about each search page template.

Table 1   List of Default Search Page Templates

Template Name	Purpose
SearchTemplate.html	Detects the language and country of the client browser and returns a dynamic search page in the matching country and language. This template also lets users select and search specific indexes and is the default search template used by NetWare Web Search Server.
SearchTemplate.Simple	Same as SearchTemplate.html, except that this template contains no dynamic collection variables and can be used when you don't want to provide users with a list of all collections.

Search Result Templates

NetWare Web Search includes several ready-made result templates. Refer to Table 2 on page 19 for information about each result list template.

Table 2   List of Default Search Result Templates

Template Name	Purpose
ResultListTemplate.html	Formats and organizes search results and offers additional sorting functions to the user.
ResultListNoHitsTemplate.html	Used to indicate when no hits were found during a search and offers users a chance to refine their search.
ResultListTerseTemplate.html	Similar to ResultListTemplate but returns less information, such as headings only.
ResultListVerboseTemplate.html	Similar to ResultListTemplate, but returns more infromation, as as file date, time, language, etc. Additional sort options are also provided.

Print Result Templates

From the search results page, users have the option of printing all files matching their search, or only those files displayed on the current search results page. When one of these options is chosen, the print result template is displayed. Refer to Table 3 on page 19 for information about the print result templates.

Table 3   List of Default Print Result Templates

Template Name	Purpose
PrintResultTemplate.html	Formats and organizes search results and offers additional sorting functions to the user in a way that is optimized for printing.

Template Name	Purpose
PrintResultNoHitsTemplate.html	Used to indicate when no hits were found during a search and offers users a chance to refine their search.

The print result template formats and organizes search results, optimized for printing, including a complete table of contents. The table of contents includes hypertext links for use online.

Error and Response Message Templates

In addition to the print, search, and search result templates, the error and response message templates are returned when an error occurs, or when information is needed from the user.

The default response message template is returned to convey a specific message to the user, such as "Print job exceeds recommended size limits", typically returned when a user attempts to print more content than the Web administrator has allowed.

TOOL TIP The error and response message templates can be found on your SYS volume at /NSEARCH/TEMPLATES/ErrorMessageTemplate.HTML and ResponseMessageTemplate.HTML.

Working with Additional Languages

NetWare Web Search includes each of the templates described above in each of several languages. Using standard encoding practices, you can internationalize your templates.

Any changes made to the default templates should also be made to the language templates you will use. For a more complete discussion about creating a multi-lingual search solution, see "Introducing NetWare Web Search Server" on page 11.

Where to Go from Here

If you are familiar with HTML and want to customize the search form and templates, or create a completely new search solution using NetWare Web Search, continue on to .

3 Building a Custom Search Solution

You can create a custom search solution by modifying the default NetWare®
Web Search templates. The default search page template includes some
fundamental options for users, but you can add or remove options and modify
the form layout and design to give the search form the look, feel and function
you need.

If you are confident with HTML programming, you can start with the default
search page template to get a feel for the available parameters and then begin
coding completely new search and print templates from scratch.

For more information about the necessary components for building a solution
from scratch, see "Working with Template Variables and Search Parameters"
on page 31.

How NetWare Web Search Works

Before you begin customizing NetWare Web Search, you might want to first
understand how Web Search works. Understanding this will help you
determine what to customize and help you understand the role of templates,
variables, and parameters in Web Search.

Figure 4, "How NetWare Web Search Handles a Search String," on page 24
shows how a user's search string is handled and how results are generated and
displayed.

Figure 4   How NetWare Web Search Handles a Search String
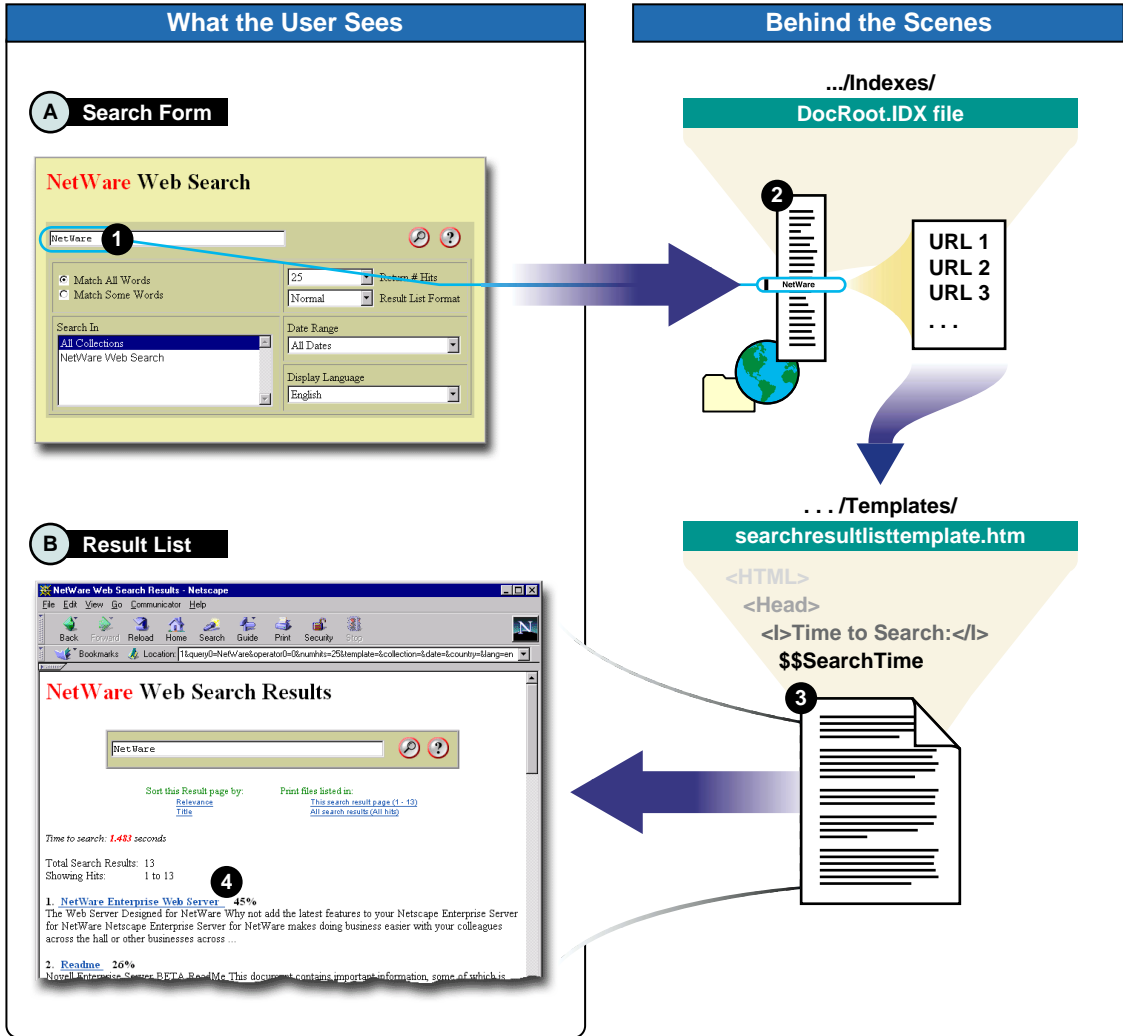
In this diagram, the user enters a search string such as "NetWare" (1). The search string is then searched for in the index file (2). If the search string is located, the Uniform Resource Locators (URLs) are passed on to the search results template (3) and displayed to the user (4).

How to Create a Customized Search Solution

You can extend the capabilities of NetWare Web Search Server by customizing the templates.

The first step in customizing Web Search Server is to determine which components of Web Search you want to customize. For example, if you only wanted to add a few additional search features to the search page template and modify its background color and table size, you would modify the SearchTemplate.html or SearchTemplate.Simple files.

This section discusses how to customize the search, print and result templates and how to use available parameters and variables to create a customized search solution.

Customizing the Search Templates

You can customize the design and functionality of the static or dynamic search templates by

- Modifying HTML code
- Adding or removing search parameters

If you are familiar with HTML, you can quickly modify the design of the default (dynamic) Web Search template, or the static search template. For example, you can change the background color of the search table, resize it, or add new graphics.

To modify the functionality of the default Web Search template, you can add or remove search parameters. Search parameters are used to communicate with NetWare Web Search. By embedding them in the correct places in your HTML source, you can extend or limit the functionality of the default Web Search templates.

For example, if you wanted your users to use a specific set of templates found in a themes directory, you would add the following HTML code, including the theme parameter, to the SearchTemplate.HTML file:

```
<INPUT TYPE="Hidden" NAME="theme name"
VALUE="$$QueryTemplateTheme">
```

This sample HTML code tells Web Search to look for templates only in the spcified template directory. All themes are located within the templates directory specified in Web Search Manager.

TOOL TIP For a complete list of available search parameters, see Table 9 on page 43.

Customizing Search Result Templates

NetWare Web Search Server includes several default search result templates that are used to display hits, provide feedback to a user, or request information from a user after a search is performed. For more information about the default search result templates, see "Understanding Templates" on page 15.

You can customize the design and functionality of the default search result template, the template used when a user selects Normal from the Result List Format drop-down list in the NetWare Web Search form. For information about how to access the NetWare Web Search form, see "Taking a Test Run" on page 13.

Customizing the default search result template involves

- Modifying the HTML code
- Adding or removing search result variables

If you are familiar with HTML, you can quickly modify the design of the default search result template. For example, you can change the background color, link colors, or add new graphics.

To modify the functionality of the default search result template, you add or remove search result variables. Search result variables are placed in the template where you want search results to be displayed.

For example, if you wanted to display the total number of hits returned when a user performs a search (a feature this is already implemented in the default search result template), and you wanted the information to appear in the upper left corner of the search results page, you would add the following HTML code to the search result template (HTML) file:

```
<tr>
<td>Total Search Results: </td>
<td>  $$TotalHits</td> </tr>
```

After a user performs a search, the $$TotalHits variable would be replaced by the actual total number of hits found during the search.

The $$TotalHits variable is used to retrieve the total number of hits found during a search. You can place this variable anywhere in the results list template to organize the display of information in the way you want.

TOOL TIP Default search result templates are located in SYS:NSEARCH\TEMPLATES\. For a complete list of search result variables that you can use to customize default search result templates or to create new ones, see Table 5 on page 33.

Customizing Print Result Templates

NetWare Web Search Server includes two default print result templates: the default print result template and a "no hits" template. Print result templates are used to organize and format search results for printing, and to provide feedback to a user when no hits are found. For more information about the default print result templates, see "Understanding Templates" on page 15.

You can customize the design and functionality of the default print result template in the same way you customize the search result template by

- ◆ Modifying the HTML code
- ◆ Adding or removing print result variables

If you are familiar with HTML, you can quickly modify the design of the default print result template. For example, you can change the background color, link colors, or add new graphics.

To modify the functionality of the default print results template, you add or remove print result variables. Variables are placed in the template where you want search results to be displayed.

For example, if you wanted to remove the table of contents from the default print results template, you would remove, or comment out, the following HTML code in the PRINTRESULTLIST.HTML template, which would include the $$BeginTOCList variable:

```
<CENTER><H2>Table of Contents</H2></CENTER>

<p>

<!--          TABLE OF CONTENTS                  -->

$$BeginTOCList[<BIG><B>$$Product</B></BIG>

<DL>]
```

```
<DT><A HREF="#$$Bookmark"><BIG>$$Title</BIG></A>

<SPACER TYPE=HORIZONTAL SIZE=20>

<I><SMALL>[$$URL]</SMALL></I>

$$EndTOCList[</DL>

]
```

You could either save your changes in the default print result list template, or you could save it using a new name and thereby create an alternative template for users who don't want a table of contents in the print results. To be effective, you would then have to add a hypertext link in the search result template that would link to your new template.

TOOL TIP Default print result templates can be found at SYS:\NSEARCH\TEMPLATES. For a complete list of print result variables that you can use to customize default search result templates or to create new ones, see .

Customizing Error and Response Message Templates

Error and response messages are used to either provide feedback to the user, or to request information from the user.

Error and response message templates are used to display the content of error and response messages sent to them by the Web Search Server. Similar to search and print templates, error and response templates can be customized. However, because the contents of error and response messages are built in to NetWare Web Search Server, you cannot modify the contents of the messages or the button objects that might appear, depending on the type of response being generated.

Customizing Error Messages

There are several error messages that can be returned to a user. For example, when a user incorrectly uses a search operator in a search form, they might get the message, "Search Error: Incorrect use of Boolean operator." An error number might also appear.

While you can utilize HTML tags to format an error message, add or remove variables to determine what information is shown to the user, or even reorganize where the messages will appear in the template, you cannot modify the message itself.

Customizing Response Messages

The same concepts apply to response messages, but response messages return buttons that a user can click. Which buttons appear are determined by the NetWare Web Search Server. While you can modify the labels of these buttons, you cannot determine which buttons will appear, or when.

Testing Your Search and Print Solution

Once you've completed customizing the templates and the search form, you can test them in your Web browser by pointing to the search form URL and entering a search string. See "Taking a Test Run" on page 13 for information about how to access the NetWare Web Search form.

HINT: Remember that a search cannot be performed until you have defined at least one collection and indexed it using NetWare Web Search Manager. Refer to Web Search Manger's online Help for the steps required in defining a collection and building an index. Also, see "Introducing NetWare Web Search Server" on page 11 for an overview of collections and indexes.

Where to Go from Here

If you want to build a complete custom search solution by creating your own search and print templates and search forms from scratch, refer to "Working with Template Variables and Search Parameters" on page 31.

4 Working with Template Variables and Search Parameters

If you are a developer or are comfortable programming in HTML and working with variables and parameters, you can create an advanced search solution that your users can use to peform complex searches.

Building an advanced search solution involves the use of search and print template variables, and the use of search parameters to create or customize search and print templates, and to create or customize one or more search forms.

You must also have used NetWare® Web Search Manager to define one or more collections and created an index for each collection.

The Web Search Manager is accessed from NetWare Web Manager. For more information about using NetWare Web Manager, visit the Novell Documentation Web site (http://www.novell.com/documentation).

Guidelines for Using Variables

Please note the following guidelines when using variables to either customize the default templates, or to create new templates from scratch:

- *Case Sensitivity*: All variables are case sensitive. Changing case in a variable will cause Web Search to ignore the variable.

- *Variable Formatting*: All variables must be used exactly as they appear in the tables below. variables always begin with two dollar signs ($$) next to each other.

- *Success of a Variable*: The inclusion of a variable does not guarantee that information will be returned after a search is performed. For example,

using the *$$Author* variable may not return the name of a document's author if that information is not included in the meta tag of the document.

◆ *Internationalizing Templates*: If you want to internationalize your templates, you must create a template for each language you want to support in your search solution. For more information about languages, see "Introducing NetWare Web Search Server" on page 11.

For more information about how to implement variables in a search or print template, or how to implement search parameters in an HTML document to create a search form, see "Building a Custom Search Solution" on page 23.

Exploring Search Page Variables

The following table lists all available search page variables that can be used to extend the functionality of the default search templates (SearchTemplate.html or SearchTemplate.Simple), or to create new templates from scratch.

Table 4   Search Page Variables

Variable Name	Description of Use
$$BeginCollectionsLoop	Begins the repeating section in the search template where collection information will be written.
$$EndCollectionsLoop	Ends the repeating section in the search template where collection information will be written.
$$ServerCollectionName	Inserts the name of the collection defined in the Web Search Manager.
$$ServerCollectionDescription	Inserts the description of a collection as found in the Web Search Manager.
$$TemplateName	Identifies the filename of the template.
$$TemplateLocale	Identifies the locale of the template, such as zh_TW.
$$TemplateTheme	Identifies the theme (or theme directory) in which you want to place the template.

Variable Name	Description of Use
$$IncludeFile	Automatically pulls in the designated template at the location of this variable. The included template can contain other template variables, which will be processed as though they were a part of the original template. The template name parameter can either be a full FILE:// URL based on the file system of the server or a relative path based on the location of the parent template. The template name parameter can be located within quotation marks. See the SEARCHRESULTTEMPLATE.HTML file for an example use of the this variable.
$$Counter*variablenumber*, *incrementnumber*	Inserts the value of the specified var# counter into the search result page. All counters initialize to zero. The optional second parameter specifies the amount to increment or decrement the current value. A maximum of 10 counters is supported. $$Counter[1]= insert value of counter #1 $$Counter[1,1]= increment counter #1 by 1 and display the new value $$Counter[5,-3]= decrement counter #5 by 3 and display the new value.
$$ResultEncoding	Identifies the encoding used to return the current search results page.
$$QueryTemplateTheme	Identifies the theme requested by the search client.

Exploring Search Result Variables

The following table lists all available search result variables that can be used to extend the functionality of the default search result templates, or to create new templates from scratch.

Table 5   Search Result Variables

Variable Name	Description of Use
$$Author	The name of the original author of a document returned in a hit.
$$DateTime[*dateformat*]	The date and time of a hit. This is automatically written in Java's medium format using the client's locale (all calendars, translations, date and time formats are observed). $$DateTime[ ] can use an optional date and time format provided within the brackets [ ]. The text should conform to the Java *DateFormat* syntax.

Variable Name	Description of Use
$$Description	The abstract, description, or 1st 255 display bytes of the result item.
$$IncludeFile*templatename*	See the description for this variable in Table 4 on page 32.
$$Language	The language of the result item. $$Language is displayed in the language of the client's locale.
$$Number	The hit number of the current result item. Possible numbers begin with 1 and end with $$TotalHits. $$Number is displayed using the client's locale.
$$Relevance	The significance of the current result item. 1% - 100%.
$$Size	The size of the data pointed to by the result item's URL. $$Size is displayed using the client's locale.
$$Title	Title of the result item. For empty titles, <title unavailable> is displayed. The TITLE variable is localized using the client's locale.
$$URL	URL of the result item.
$$BeginLoop	End of the header section. Beginning of the repeating body section. This section is repeatedly parsed until there are no further result items to process.
$$EndLoop	End of the repeating body section. Beginning of the footer section.
$$BeginCollectionsLoop	The beginning of a repetitive section that will be re-processed for each collection the user specified in the search query. See also $$QueryCollection
$$EndCollectionsLoop	The end of a repetitive section that will be re-processed for each collection the user specified in the search query. See also $$QueryCollection
$$BeginReturnFieldsLoop	The beginning of a repetitive section that will be re-processed for each return field the user specified in the search query. See also $$QueryReturnField
$$EndReturnFieldsLoop	The end of a repetitive section that will be re-processed for each return field the user specified in the search query. See also $$QueryReturnField
$$Counter*variablenumber*, *incrementnumber*	See the description for this variable in Table 4 on page 32.

Variable Name	Description of Use
$$FirstHit	The hit number of the first item in the current result page. $$FirstHit is displayed using the client's locale.
$$LastHit	The hit number of the last item in the current result page. $$LastHit is displayed using the client's locale.
$$TotalHits	The total number of hits that match the search query. This is not the same as the number of hits displayed in any particular result page. $$TotalHits is displayed using the client's locale.
$$PageNum[*page#*]	Inserts a user-specified search result page number. The optional page# parameter identifies the relative page from the current result page. That is, minus one (-1) refers to the page immediately before the current page and one (1) references the page immediately after. Zero refers to the current page. The page number is inserted only if the designated page exists.
$$TemplateName	See the description for this variable in Table 4 on page 32.
$$TemplateLocale	See the description for this variable in Table 4 on page 32.
$$TemplateTheme	See the description for this variable in Table 4 on page 32.
$$ResultEncoding	See the description for this variable in Table 4 on page 32.
$$SearchFor	Query entered by the client into the search field.
$$SearchTime	Inserts the amount of time used to process the current search request. $$SearchTime is displayed using the client's locale.
$$MoreHits[*page#*, *text*]	A conditional text section to be included only if there are additional hits in the search results that can be retrieved. If the first section of the conditional text contains a number followed by a comma (e.g. $$MoreHits[3, text to be included]), then the server will first determine if the designated search results page exists. If the page# is missing, 1 (the next page) is assumed. If the designated page is available, the remaining text after the comma and up to the closing bracket is written to the result page. Note that the initial number is relative to the current page. That is, -1 references the page immediately before the current page and 1 references the page immediately after. Zero refers to either the previous page, or the next page.

Variable Name	Description of Use
$$MoreHitsURL*pagenumber*	The URL needed to display another page of search results. The optional parameter identifies the desired search result page number. If not provided, 1 is assumed. Note that the page number of relative to the current page. That is, -1 refers to the page immediately before the current page and 1 references the page immediately after. Zero refers to the current page.
	The URL is inserted only if the designated page exists.
$$PrintURL*firsthitnumber*, *numberofhits*]	The URL used to print the hits listed on the current search result page.
	The optional parameters can be specified to define the beginning search result number and the number of search results to include in the print job.
	The *numberofhits* parameter can use the $$TotalHits template variable.
$$SortByURL[*sortfield.sortorder* ...]	The URL used to show the current result page sorted by one or more search result fields.
	Sort field names include: *title*, *author*, *changedate*, *filelength*, *language*, *summary*, *relevance*, *url*, and *document_number*.
	Optional sort orders include *ascending* and *descending*.
	Sort field name and sort order are separated by a period.
	Multiple sort fields are separated by a space.
$$NumQueryItems	The number of query items contained within the current query. While most queries use only 1 query item, it is possible to construct a query with multiple search criteria, each weighted with a value between 1 and 100. While the resultant search contains hits from each of the queries, the search results are organized with the most relevant hits first (from any of the individual queries).
$$QueryCollection	The name(s) of the collections the user specified in the search query. See also $$Begin/EndCollectionsLoop
$$QueryCountry	The country requested by the client. Note that this must be an upper-case, 2-character value as specified in ISO 3166-1.
$$QueryDate	The begin date requested by the client.

Variable Name	Description of Use
$$QueryLanguage	The language requested by the client. Note that this must be a lower-case, 2-character value as specified in ISO 639.
$$QueryNumHits	The number of search results requested by the client.
$$QueryOperator	The type of the current search: ◆ Zero (0) = boolean AND search ◆ One (1) = boolean OR search ◆ Two (2) = phrase search
$$QueryReturnField	The name(s) of the return fields the user specified in the search query. See also $$Begin/EndReturnFieldsLoop
$$QueryTemplate	The template name requested by the client.
$$QueryVersion	The version number of the current query format.

Exploring Print Result Variables

The following table lists all available print result variables that can be used to extend the functionality of the default print result templates, or to create new templates from scratch. For more information about how to implement variables in a template (HTML) page, see "Building a Custom Search Solution" on page 23.

Table 6	Print Result Variables

Variable Name	Description of Use
$$BeginTOCList[*text*]	Beginning of the table of contents repeating section. This section is repeatedly parsed until there are no further TOC result items to process. This is a conditional text section. The items within the brackets [] are processed only if the current item represents a change in the depth of the hierarchy. If $$Product appears within the conditional text, it will be replaced only if the current item also represents a new product.

Variable Name	Description of Use
$$EndTOCList[*text*]	End of the table of contents section.
	This is a conditional text section. The items within the brackets [] are written out each time a result item occurs that decreases the depth of the hierarchy. If the depth of the current item is several levels less than the previous item, the text within the conditional text block is written out that many times.
$$BeginLoop	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$EndLoop	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$Bookmark	The HTML anchor name of the current result item. This can be used to jump from a TOC entry to the corresponding section within the print job. All bookmark entries begin with "novell_print_toc_" and are followed by the number of the current result item, as in novell_print_toc_1.
$$TotalHits	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$Description	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$Number	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$Product	The name of the product associated with the current item in the table of contents.
	This only displays if this is the first result item within that product.
	See also $$BeginTOCList[]
$$Title	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$URL	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$URLContent	The entire contents of the URL are placed into the template at this location. The URL contents are not parsed to validate their data type, formatting, or functionality. Only text/plain and text/html files are printed. All other files are inserted into the print job as an error message.
$$TemplateName	See the description of this variable in Table 4 on page 32.

Variable Name	Description of Use
$$TemplateLocale	See the description of this variable in Table 4 on page 32.
$$TemplateTheme	See the description of this variable in Table 4 on page 32.
$$IncludeFile	See the description of this variable in Table 4 on page 32.
$$Counter*variablenumber*, *incrementnumber*	See the description of this variable in Table 4 on page 32.
$$ResultEncoding	See the description of this variable in Table 4 on page 32.
$$QueryTemplateTheme	See the description of this variable in Table 4 on page 32.

Exploring Error Message Variables

The following table lists all available error message variables that can be used to enhance the organization of the default error message template, or to create new templates from scratch. For more information about how to implement variables in a template (HTML), see "Building a Custom Search Solution" on page 23.

Table 7   Error Message Variables

Variable Name	Description of Use
$$ErrorNumber	A numeric version of the error.
$$ErrorMessage	A text version of the error. Generally quite terse.
$$ErrorDescription	A longer version of the message. This may include additional error details or problem resolution information.
$$BeginLoop	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$EndLoop	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$NumQueryItems	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$QueryCollection	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.

Variable Name	Description of Use
$$QueryCountry	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$QueryDate	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$QueryDirFilter	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$QueryFileFilter	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$QueryKeywordFlag	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$QueryLanguage	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$QueryOperator	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$QueryReturnField	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$QuerySubDirFlag	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$QuerySynonymFlag	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$QueryTemplate	See the description for this variable in Table 5 on page 33.
$$QueryVersion	For a description of this item, refer to the equivalent search result variable in Table 5 on page 33.
$$TemplateName	See the description of this variable in Table 4 on page 32.
$$TemplateLocale	See the description of this variable in Table 4 on page 32.
$$TemplateTheme	See the description of this variable in Table 4 on page 32.
$$IncludeFile	See the description of this variable in Table 4 on page 32.
$$Counter*variablenumber*, *incrementnumber*	See the description of this variable in Table 4 on page 32.

Variable Name	Description of Use
$$ResultEncoding	See the description of this variable in Table 4 on page 32.
$$QueryTemplateTheme	See the description of this variable in Table 4 on page 32.

Exploring Response Message Variables

The following table lists all available response message variables that can be used to enhance the organization of the default response message templates, or to create new templates from scratch. For more information about how to implement variables in a template (HTML), see "Building a Custom Search Solution" on page 23.

HINT: The repeating variables *$$BeginLoop* and *$$EndLoop* should not be used in a response message and will be ignored if used.

Table 8   Response Message Variables

Variable Name	Description of Use
$$ResponseNumber	A numeric version of the response required of the user.
$$ResponseMessage	A text version of the response required of the user. Generally quite terse. Can often be used as a title.
$$ResponseDescription	A longer version of the message. This may include additional details or "see also" type information.
$$URL	Inserts the URL to use when the parent button is clicked. This must appear within the brackets of a button's conditional text section.
	The URL logic is generated by the server.
$$Yes[*text*]	If the Yes button is specified by Server logic, parses and inserts the conditional text into the response page.
$$No[*text*]	If the No button is specified by Server logic, parses and inserts the conditional text into the response page.
$$OK[*text*]	If the OK button is specified by Server logic, parses and inserts the conditional text into the response page.
	Currently used by PrintServlet when a print job exceeds the maximum print job size.

Variable Name	Description of Use
$$Cancel[*text*]	If the Cancel button is specified by Server logic, parses and inserts the conditional text into the response page.
	Currently used by PrintServlet when a print job exceeds the print job size warning limit.
$$Continue[*text*]	If the Continue button is specified by Server logic, parses and inserts the conditional text into the response page.
	Currently used by PrintServlet when a print job exceeds the print job size warning limit.
$$Ignore[*text*]	If the Ignore button is specified by Server logic, parses and inserts the conditional text into the response page.
$$Retry[*text*]	If the Retry button is specified by Server logic, parses and inserts the conditional text into the response page.
$$Prev[*text*]	If the Previous button is specified by Server logic, parses and inserts the conditional text into the response page.
$$Help[*text*]	If the Next button is specified by Server logic, parses and inserts the conditional text into the response page.
$$TemplateName	See the description of this variable in Table 4 on page 32.
$$TemplateLocale	See the description of this variable in Table 4 on page 32.
$$TemplateTheme	See the description of this variable in Table 4 on page 32.
$$IncludeFile	See the description of this variable in Table 4 on page 32.
$$Counter*variablenumber*, *incrementnumber*	See the description of this variable in Table 4 on page 32.
$$ResultEncoding	See the description of this variable in Table 4 on page 32.
$$QueryTemplateTheme	See the description of this variable in Table 4 on page 32.

Exploring Search Parameters

The following table lists all available search parameters, including required syntax, a description of their use, and an example. Each of these parameters can be used to extend or enhance the functionality of the search page templates, or to create new search page templates from scratch. For more

information about how to implement parameters in an HTML document, see "Building a Custom Search Solution" on page 23.

HINT: If you use a parameter but leave its value blank, the default value for that parameter will be used. Defaults are also listed in the Search Parameters table.

Table 9   Search Parameters

Parameter Name	Value	Description of Use
queryitems	Integer	**Syntax**: queryitems=*number* **Example**: queryitems=0 Identifies the number of queries that are part of the current search. By assigning a number greater than one (1), you can then pass multiple queries at once. The default queryitems number is zero (0).
query*number*	String	**Syntax**: query*number*=searchcriteria **Example**: query0=novell+AND+groupwise The actual search criteria that is passed to the Web Search Server. The next four or five parameters below belong to this parameter and are identified by adding the unique number to them.
id*number*	String	**Syntax**: id*number*=*documentID* **Example**: &id0=z1.0010.&id0=z1.0020 A document ID that is used to narrow a search. You can specify more than one ID by using the same field name more than once. The default is null.
operator*number*	Integer	**Syntax**: operator*number*=*number* **Example**: operator0=1 Indicates which operator to use between two or more words in a search. Zero (0) equals AND, one (1) equals OR, and two (2) equals PHRASE.

Parameter Name	Value	Description of Use
weight*number*	Integer	**Syntax**: weight*number*=*number* **Example**: weight0=75 Allows you to assign a level of importance to one or more search criteria. Web Search Server uses this number along with the relevance number to determine a search criteria's final relevance and then orders the results accordingly. You can choose a number from zero (0) to one-hundred (100).
type*number*	Integer	**Syntax**: type*number*=*number* **Example**: type0=2 Indicates the type of search. Options include: **0**: A normal search; 0 is the default. **1**: Searches only the given document numbers. **2**: A root search used by the search tree control to get the top tree nodes. **3**: Used to get the children of the given document number. **4**: Searches the descendants of the given document numbers and is used to narrow a search or a print request, including all of its children.
collection	String	**Syntax**: collection=*collection name* **Example**: collection=Statistics Allows you to restrict a search to one or more specified collections. The collection name you specify using the COLLECTION parameter must exactly match the name of the collection. You can specify more than one collection by using the same key word, as in collection=DocRoot&collection=myCollection.

Parameter Name	Value	Description of Use
date	Integer	**Syntax**: date=*number* **Example**: date=-7905600000 Allows you to specify a date range to be searched in milliseconds. The example above shows the number of milliseconds spanning a three-month time frame. The minus sign (-) before the number indicates three months back in time. If you pass a positive number such as 940457147873, then Web Search will create a date and time based on the number of milliseconds elapsed since January 1, 1970; 12:00 a.m. The example number 940457147873 produces the search start date of October 20, 1999, at 4:05:47 p.m.
numhits	Integer	**Syntax**: numhits=*number* **Example**: numhits=25 Indicates the number of hits you want returned at one time in the search results page. The default number of hits returned at one time is 25.
starthit	Integer	**Syntax**: starthit=*number* **Example**: starthit=35 Indicates the hit number you want Web Search to begin searching from. If you entered 35 as the STARTHIT parameter value, Web Search would return hits beginning with hit number 35. The default STARTHIT number is 1.

Parameter Name	Value	Description of Use
lang	String	**Syntax**: lang=*language code*
		Example: lang=ja
		Allows you to specify a language using the two-character, lower-case language value derived from ISO6391.
		See "Where to Go from Here" on page 49 for the URL where you can refer to the ISO639 listing of language codes.
		The default is "en" for English.
country	String	**Syntax**: country=*country code*
		Example: country=TW
		Allows you to specify your country using the two-character, upper-case country value derived from ISO3166.
		See "Where to Go from Here" on page 49 for the URL where you can refer to the ISO3166 listing of country codes.
		This is the two character country code. The default is null.

Parameter Name	Value	Description of Use
template	String	**Syntax**: template=*filename*
		Example: template=ResultList.html
		Allows you to specify a specific results template you want your search results returned in. The following list of templates are the default templates included with the Web Search Server. However, your Web Search Server administrator may have created custom templates using different names. Check with your administrator if these templates do not work for you. You must type the names of these templates exactly as they appear in the list:
		◆ ResultListTemplate.html
		◆ ResultListTerseTemplate.html
		◆ ResultListVerbose.html
		◆ PrintResultTemplate.html
		Localized versions for multiple languages can also be used. See "Working with Additional Languages" on page 20.
theme	String	**Syntax**: theme=*theme name*
		Example: theme=Intranet
		The name of the theme, or directory, where a theme's search and print templates are stored.
showfirsthit	Boolean	**Syntax**: showfirsthit=*value*
		Example: showfirsthit=True
		If true, rather than displaying the search results page, this parameter automatically goes to the URL of the first hit on the current page.

Parameter Name	Value	Description of Use
retfield	String	**Syntax**: retfield=*field name*
		Example: retfield=title
		Allows you to determine the level of detail given about each result item. The fewer the details, the faster a search is returned to a user.
		Fields include *title*, *author*, *url*, *changedate*, *language*, *summary*, *relevance,* and *filelength*.
		NOTE: Type these fields exactly as they appear.
		To specify more than one field, use the RETFIELD parameter and value, separated by an ampersand (&) as in
		retfield=title&retfield=author.
buttonpressed	String	**Syntax**: buttonpressed=*button name*
		Example: buttonpressed=Cancel
		A button pressed by the user. If this value is part of the query, then a response message should not be sent to the client.
		Options include Yes, No, OK, Cancel, Continue, Ignore, Retry, Prev, Next, and Help.
gettotalhits	Boolean	**Syntax**: gettotalhits=*value*
		Example: gettotalhits=false
		Allows you to enable or disable the total number of hits parameter. For example, if you set the GETTOTALHITS parameter to FALSE, the Total Number of Hits label on the results page will display zero (0). Setting this parameter to TRUE will show the total number of hits found during the search.
		The default is True.

Parameter Name	Value	Description of Use
retencoding	String	**Syntax**: retencoding=*content type* **Example**: retencoding=iso-8859-1 Allows you to specify a character set encoding to be used by all results pages returned to users. The default is UTF8.
sortkeys	Integer	**Syntax**: sortkeys=*number* **Example**: sortkeys=1 Allows you to specify the number of sort fields that should be used to sort the search results.
sortfield	String	**Syntax**: sortfield*number*=*number* **Example**: sortfield1=title Allows you to specify the sort order of results returned in a results page. Refer to the RETFIELD parameter for a list of available fields.
sortorder	Integer	**Syntax**: sortorder*number*=*number* **Example**: sortorder1=0 Allows you to specify the alphanumeric ordering of search result items, or hits. Options include: ◆ Zero (0) = Ascending ◆ One (1) = Descending ◆ Two (2) = Default for each field.

Where to Go from Here

For additional information or technical support, visit the Support Connection Web site (http://support.novell.com).

For information about ISO 639, visit http://www.ics.uci.edu/pub/ietf/http/related/iso639 (http://www.ics.uci.edu/pub/ietf/http/related/iso639.txt).

5 Internationalizing Your Search Solution

NetWare® Web Search Server is capable of handling search queries, search results, templates, and Web content in many languages and character sets. Web Search can auto-detect languages and character sets, but to ensure a complete international search solution, you must identify language, country, and character information throughout your Web Search implementation.

This section discusses all of the issues related to supporting multiple languages from a single search solution.

Working with Multiple Languages

Customizing your search solution is important only if you wish to allow your users to conduct language-specific searches. You specify the language of a template by inserting a language identifier in the meta tag of your templates or HTML files. The language identifier can also be used in Search Results pages to allow users to quickly recognize the search results that interest them.

NetWare Web Search Server also allows web clients to specify their locale at the time the search query is entered. The default Search page illustrates this feature by auto-detecting a user's locale and selecting the appropriate language from the "Display Languge" dropdown combo-box. This selection sends two parameters to the Web Search Server: language and country. The country parameter is almost always blank. The search engine uses this information to find locale-specific versions of the templates used to return search results.

To specify the language of a template or of any HTML content that gets indexed as part of your collections, you must enter a language identifier within an HTML file's header section. For example, if you wanted to identify a Russian template, you would add the following meta tag:

```
<meta http-equiv="Content-Language" content="ru">
```

In some cases, such as Traditional and Simplified Chinese, you will need to use the two-character, upper-case country codes. For example:

```
<meta http-equiv="Content-Language" content="zh-TW">
```

```
<meta http-equiv="Content-Language" content="zh-CN">
```

The first line of the example indicates the Chinese language (ZH) and the geographic location as Taiwan. The second line of the example indicates the Chinese lanuage (ZH), but specifies China as the geographic loacation.

This combination of language and country codes is called a *locale*. For more information about locales, refer to .

Specifying Locales within Template File Names

NetWare Web Search Server consists of three primary servlets: *SearchServlet*, *PrintServlet*, and *AdminServlet*. Each servlet returns information to the Web client using server-side templates. For more information about templates, see .

After determining a Web client's locale, Web Search attempts to locate a matching search result template. That is, each of the Web Search services will automatically attempt to locate a version of the requested template that most closely matches the Web client's locale.

HINT: NetWare Web Search is unable to fin locale-specific templates without the two-character language code and the optional two-character country code. See for more information about language code syntax.

For example, if a Web client requests to see search results using the ResultListTemplate.html file and the client is a Chinese language user from Taiwan, and the server is Russian, then Web Search will try to find a Chinese-Taiwan version of the template first.

The first locale-specific lookup for the Chinese search user would be ResultListTemplate_zh_TW.html since that exactly matches the client's language and country. The following list illustrates the template names the system would look up in order of priority.

TOOL TIP Templates are stored on the SYS volume of your NetWare server in /NSEARCH/TEMPLATES.

Table 10   **The Order in Which Web Search Examines The Templates to Select a Matching Language for the User**

Template Names	What Web Search Concludes
1. ResultListTemplate_zh_TW.html	Specific client locale
2. ResultListTemplate_zh.html	Simplified client locale
3. ResultListTemplate.html	Client requested name
4. ResultListTemplate_ru.html	Specific server locale (no simplified versions)
5. ResultListTemplate_en.html	English language version
6. ResultListTemplate.html	Up to the first underscore (_)

If this scenario were reversed so that the search client was Russian and the server was Chinese (Taiwan), and the client requested the ResultListTemplate_ja.html template, then the lookup order would follow the order shown in .

Table 11   **The Order in Which Web Search Examines the Templates to Select a Matching Language for the User**

Template Names	What Web Search Concludes
1. ResultListTemplate_ja_ru.html	Specific client locale (no simplified versions)
2. ResultListTemplate_ja.html	Client requested name
3. ResultListTemplate_ja_zh_TW.html	Specific server locale
4. ResultListTemplate_ja_zh.html	Simplified server locale
5. ResultListTemplate_ja_en.html	English language version
6. ResultListTemplate.html	Up to the first underscore (_)

All templates undergo this rigorous lookup system. Once a template is located, it's name is stored and associated with the original client locale so that all subsequent requests for that template from the same locale automatically find the template without performing the same rigorous lookup.

No further lookups are attempted for that combination of client locale and template name until the NetWare Web Search Server is restarted. If all template lookups fail, then an error message is returned to the client performing the search.

Understanding Character Set Encodings

A character set is a grouping of alphabetic, numeric, and other characters that have some relationship in common. For example, the standard ASCII character set includes letters, numbers, symbols, and control codes that make up the ASCII coding scheme.

A *character set encoding* is the mapping of a character set to a value that can be understood and processed by a computer.

NetWare Web Search relies on character set encodings to identify the characters used when performing a search, reading a template, posting results to a Web browser, or indexing web-based content. If the encoding information is missing in any of these areas, NetWare Web Search uses the default encodings identified in the *SearchServlet* and *PrintServlet* properties files. You can modify these settings using NetWare Web Search Manager.

Because most languages have several encodings by which their character sets are identified, NetWare Web Search Server supports a wide variety of character set encodings and encoding aliases

HINT: Some examples of character set encodings include iso-8859-1, shift_jis, big5, and latin2. The official list of registered encodings is available from the Internet Assigned Numbers Authority (See Table 12 on page 60). These are the official names for character sets that can be used in the Internet and may be referred to in Internet documentation. However, not all IANA-registered character set encodings are supported by NetWare Web Search Server. Refer to Table 12 on page 60 for a list of encodings and encoding aliases that are supported by NetWare Web Search Server.

Understanding Unicode and UTF8

Unicode is a 16-bit character encoding standard developed by the Unicode Consortium. By using two bytes to represent each character, Unicode enables almost all of the written languages of the world to be represented using a single character set. Unicode does not require any special processing to access any character in any language.

This makes Unicode very easy to use when processing text from multiple languages and scripts. This is the reason NetWare Web Search converts all external files into Unicode for processing.

As already mentioned, Unicode is two bytes wide for all characters. While this is ideal for computer processing, it doubles the size of all single-byte languages. This has a significant impact on Internet performance. For this reason, NetWare Web Search also supports an alternate representation of Unicode known as UTF-8. UTF-8 is a Unicode Transformation Format that uses sequences of 1 to 6 bytes to represent all the characters in the Unicode standard. Most notably, ASCII characters are transmitted without any conversion at all. This means that most Internet content is already in the UTF-8 representation. Many Asian languages, however, require three bytes per character in the UTF-8 format. Other languages can require up to six bytes to represent each of their characters.

You will have to choose if Unicode or UTF-8 best meets your needs when creating HTML content, Web Search templates, or search pages.

Search Encodings

The only encodings NetWare Web Search currently supports when performing a search are Unicode and UTF-8. Therefore, any page that allows a Web users to enter a search must ensure that the results are passed to the server in one of these two formats. See "Template Encodings" on page 58 for more information.

To pass Unicode characters to NetWare Web Search, use the syntax %uHHHH, where

- Percent sign (%): Used as the CGI escape character.

- Lowercase letter U (u): Indicates that the following 4 characters represent a Unicode value.

- Four uppercase H letters (HHHH): Indicates four hexadecimal characters, such as 0-9, A-F.

To pass UTF-8 characters to NetWare Web Search, just use normal ASCII characters or the syntax %HH... for all other characters, where

- % is the CGI escape character

- HH indicates two hexidecimal characters (0-9, A-F)

- . . . indicates additional %HH groupings that may be required to properly transmit a character

HINT: Note that if the encoding of the page containing a search form is already set to UTF-8 or Unicode, most browsers automatically transmit the entered search text correctly using the designated encoding.

NetWare Web Search uses UTF-8 in its sample search pages.

Response Encodings

One of the many parameters that can be sent when conducting a search is the encoding that should be used when returning the results back to the browser. All NetWare Web Search encodings listed in Appendix A, "List of Combined Character Sets," on page 61 can be used.

If the search result page contains the ability to refine or redo the search, then the response encoding can significantly impact the possible characters that can be entered when conducting the next search from this page. For example, if the user requests results in the iso-8859-1 encoding (HTML's default), then only iso-8859-1 characters can be entered in the subsequent search from that page. Other characters can still be sent to the Web Search services using the %uHHHH and %HH formats, but the browser will not allow users to enter normal text characters other than that supported by iso-8859-1.

Although Web Search will return search results from many languages, some characters found in titles and descriptions may be returned as question marks (?) indicating that these characters are not available in the current response encoding. If a character can be represented in the current encoding, but a font is not available, many browsers will substitute an alternate character such as an empty box character. Once the appropriate fonts have been installed, these characters will then display properly.

By default, NetWare Web Search returns all search, print, and administration pages in UTF-8.

HTML Encodings

Since HTML content can contain text written in many character sets, all HTML files need to include a tag that identifies the character set encoding. To identify the encoding of an HTML file (or search template), use the following meta tag at the top of the file's header section:

```
<meta http-equiv="Content-Type" content="text/html;
charset=Shift_JIS">
```

In this example, you would replace Shift_JIS with the appropriate Internet Assigned Numbers Authority (IANA)-assigned encoding value.

It is very important that the CHARSET value accurately represent the character set encoding that was actually used when the HTML web content or Web Search template was created. A correct entry allows WebSearch to

accurately interpret and convert the characters in the document. An incorrect entry prevents WebSearch from being able to read the characters as valid data in the authored language.

IMPORTANT: Improperly identifyied characters result in garbled text. In some cases, the web-based content cannot be properly indexed or printed. In its most severe cases, the document being read may produce a server-side exception, which will ultimately discontinue processing the document and perhaps the entire current operation.

Because Web Search is Unicode-based, when reading templates or when indexing or printing HTML content, all character encodings are converted from their source encoding to Unicode for internal processing.

During indexing, if a document contains characters not supported by the designated encoding, if the document doesn't have an encoding designation, or if the designation is innacurate, the indexer will do its best to recover, but if it cannot, it may index the information incorrectly or quit indexing that page entirely.

When reading a template file, Web Search might automatically cease processing the file if it contains any characters not supported by the current encoding. It will try to ignore the invalid text and continue, but this might not be possible.

When displaying search results or when printing HTML content, any character that does not match the specified response encoding will receive a question mark (?) in its place when rendered at the browser. Although some characters are properly supported by the current encoding, the browser may not have the required fonts to display the characters. In this case, users might see square boxes representing these characters. This is an indication that the valid character reached the browser, but the operating system could not provide a font to properly render the character. The user would than have to either change fonts or install the correct fonts in order to properly display the characters.

HINT: Note that if a document does not contain a CHARSET encoding value, the default encoding for HTML documents is ISO-8859-1, also known as Latin1. The default encoding for plain text documents is US-ASCII.

Web Search also allows administrators to define the default encodings for templates, HTML content when printing, and search and print responses. Refer to the NetWare Web Manager Help for information about changing the default encodings.

Template Encodings

All HTML documents should include a Content-Type meta tag identifying their character set encodings. The character set encoding allows HTML Web clients (or browsers) to understand the contents of the file. This tag is also used by browsers to automatically switch their display system and fonts to correctly show the Web page's contents. This allows users to surf the World Wide Web without having to constantly change their display system as they encounter content from various languages and characters sets.

However, because NetWare Web Search allows administrator's to specify both template encodings and response encodings, browsers might get confused when presented with the valid response encoding in the HTTP header, and one or more alternate encodings from the Content-Type meta tags within the file that was part of the original Web Search template.

NOTE: $$IncludeFile[ ] templates can also contain their own Content-Type meta tags.

To solve this problem, NetWare Web Search allows placing the Content-Type meta tag specifying the template's encoding within an HTML comment. This effectively obscures the original template encoding from the browser, but still allows Web Search to read the encoding when the template file is processed.

A sample WebSearch template is illustrated below. The Content-Type meta tag has been hidden inside of an HTML comment. This template can be embedded within other templates using the $$IncludeFile[] template variable without effecting Web Search's ability to distinguish between the various encodings. This file can also be processed and then sent to a user's Web browser without conflicting with the response encoding provided by Web Search in the HTTP response headers.

```
<html>
<head>

<!-- Note that the HTML encoding command (meta tag) is hidden
within a comment so that it does not affect a user's browser
display. -->

<!-- The actual encoding used when sending this file to the
user is controlled by the response encoding -->

<!-- <META HTTP-EQUIV="Content-Type" CONTENT="text/html;
charset=iso-8859-1"> -->

</head>
<body>
```

```
Template data here.

</body>
</html>
```

Encoding Issues When Printing

When NetWare Web Search processes a print request, it gathers the entire contents of each file and builds an appended print job page, one file after another. Each file can contain its own Content-Type meta tag identifying its encoding. Each file's encoding will be used by Web Search to convert that file into Unicode before being sent out using the response encoding.

Unfortunately, all of these encoding meta tags may confuse the browser's display system. While Web Search has already properly converted the files into a single response encoding, the browser sees the Content-Type meta tags which tell it to do something else, and gets confused.

The way to solve this problem is to create a print results template that contains a Content-Type meta tag encoding at both the top and bottom of the file, before and after the various documents get printed. All current browsers take either the first Content-Type meta tag that they encouter or the last. Constructing a print template with both satisfies all browsers.

Languages Included in the Default Templates

There are additional search and print templates for each of the following languages:

- ◆ English
- ◆ Portuguese
- ◆ French
- ◆ Italian
- ◆ German
- ◆ Spanish
- ◆ Russian
- ◆ Korean
- ◆ Traditional and Simplified Chinese
- ◆ Japanese

HINT: Templates are stored on the SYS volume of your NetWare server at /NSEARCH/TEMPLATES.

Where to Go From Here

The following table offers a list of additional resources for learning more about locales, country and language codes, and encodings.

Table 12   **List of additional information resources.**

Component	Resource Location
Language and Country Codes (Locale)	See RFC1766 (http://www.ietf.org/rfc/rfc1766.txt).
	NOTE: While RFC1766 uses the hyphen character (-) to separate language and country information, Web Search uses the underscore character (_) in order to conform to the Java convention.
	See ISO639 (http://www.ics.edu/pub/ietf/http/related/iso639.txt).
	See ISO3166 (http://www.chemie.fu-berlin.de/diverse/doc/ISO_3166.html).
Character Sets	See Internet Assigned Numbers Authority (IANA) Character Set registry (http://www.isi.edu/in-notes/iana/assignments/character-sets).
Unicode	See the Unicode Consortium home page at http://www.unicode.org/.
UTF-8	See *UTF-8: A Transformation Format of ISO10646* (ftp://nis.nsf.net/internet/documents/rfc/rfc2279.txt).

A List of Combined Character Sets

The following tables list the character set encoding names and aliases that WebSearch recognizes when indexing, searching, displaying, or printing files. This information is a sub-set of the character names registered by the Internet Assigned Numbers Authority (IANA).

Whenever possible, the items listed in the first column of each table are the preferred MIME names listed in the Internet Assigned Numbers Authority (IANA) Character Sets registry. If a preferred MIME name is not available, items in the first column represent the primary registered names.

Items in the second column of each table are aliases which are also at times used to identify that encoding.

Note that not all aliases exactly represent the parent encoding under which they are listed. In these cases, they overlap significantly enough that they will be handled identically by the various NetWare Web Search engines.

NOTE: Character encodings appear in the exact case specified in the Internet Assigned Numbers Authority (IANA) Character Sets registry. Some uses of these encodings are case-sensitive. However, NetWare Web Search ignores the case of these encodings.

ASCII

Table 13   **ASCII character set.**

Preferred MIME Name or Primary Registered Name	Encoding Names
US-ASCII (MIBenum: 3)*	ANSI_X3.4-1968
	ANSI_X3.4-1986
	ASCII
	ascii7
	iso_646-us
	ISO646-US
	ISO_646.irv:1991
	iso-ir-6
	646
	us
	IBM367
	cp367
	csASCII
IBM437 (MIBenum: 2011)	ibm-437
	cp437
	437
	csPC8CodePage437

* A MIBEnum is a record number corresponding to an entry in IANA's Management Information Base.

European

Table 14   **European character set.**

Preferred MIME Name or Primary Registered Name	Encoding Aliases
windows-1252 (MIBenum: 2252)	cp1252
	ms1252
	win1252
	ansi
	ansi-1252
ISO-8859-1 (MIBenum: 4)	ISO_8859-1:1987
	ISO_8859-1
	iso8859-1
	iso8859_1
	8859_1
	iso-ir-100
	IBM819
	ibm-819
	CP819
	819
	l1
	latin1
	csISOLatin1

Preferred MIME Name or Primary Registered Name	Encoding Aliases
ISO-8859-2 (MIBenum: 5)	ISO_8859-2:1987
	ISO_8859-2
	iso8859-2
	iso8859_2
	8859_2
	iso-ir-101
	IBM912
	ibm-912
	cp912
	912
	l2
	latin2
	csISOLatin2
ISO-8859-3 (MIBenum: 6)	ISO_8859-3:1988
	ISO_8859-3
	iso8859-3
	iso8859_3
	8859-3
	iso-ir-109
	IBM913
	ibm-913
	cp913
	913
	l3
	latin3
	csISOLatin3

Preferred MIME Name or Primary Registered Name	Encoding Aliases
ISO-8859-4 (MIBenum: 7)	ISO_8859-4:1988
	ISO_8859-4
	iso8859-4
	iso8859_4
	8859-4
	iso-ir-110
	IBM914
	ibm-914
	cp914
	914
	l4
	latin4
	csISOLatin4
windows-1250 (MIBenum: 2250)	cp1250
	ms1250
	win1250
IBM850 (MIBenum: 2009) (UNICODE)	ibm-850
	cp850
	850
	csPC850Multilingual
IBM852 (MIBenum: 2010)	ibm-852
	cp852
	852
	csPCp852

Preferred MIME Name or Primary Registered Name	Encoding Aliases
IBM860 (MIBenum: 2048)	ibm-860
	cp860
	860
	csIBM860
IBM863 (MIBenum: 2050)	ibm-863
	cp863
	863
	csIBM863
IBM865 (MIBenum: 2052)	ibm-865
	cp865
	865
	csIBM865

Cyrillic

Table 15   **Cyrillic**

Preferred MIME Name or Primary Registered Name	Encoding Aliases
ISO-8859-5 (MIBenum: 8)	ISO_8859-5:1988
	ISO_8859-5
	iso8859-5
	iso8859_5
	8859-5
	iso-ir-144
	IBM915
	ibm-915
	cp915
	915
	cyrillic
	csISOLatinCyrillic
KOI8-R (MIBenum: 2084)	koi8_r
	koi8
	cp878
	cp-878
	csKOI8R
windows-1251 (MIBenum: 2251)	win1251
	cp1251
	ms1251

Arabic

Table 16   **Arabic**

Preferred MIME Name or Primary Registered Name	Encoding Aliases
ISO-8859-6 (MIBenum: 9)	ISO_8859-6:1987
	ISO_8859-6
	iso8859-6
	iso8859_6
	8859_6
	IBM1089
	ibm-1089
	cp1089
	1089
	iso-ir-127
	ECMA-114
	ASMO-708
	arabic
	csISOLatinArabic
windows-1256 (MIBenum: 2256)	cp1256
	win1256
	ms1256

Greek

Table 17   **Greek**

Preferred MIME Name or Primary Registered Name	Encoding Aliases
ISO-8859-7 (MIBenum: 10)	ISO_8859-7:1987
	ISO_8859-7
	iso8859-7
	8859_7
	IBM813
	ibm-813
	cp813
	813
	iso-ir-126
	ELOT_928
	ECMA-118
	greek
	greek8
	csISOLatinGreek
windows-1253 (MIBenum: 2253)	cp1253
	ms1253
	win1253

Hebrew

Table 18   Hebrew

Preferred MIME Name or Primary Registered Name	Encoding Aliases
ISO-8859-8 (MIBenum: 11)	ISO_8859-8:1988
	ISO_8859-8
	iso8859-8
	8859_8
	ibm916
	ibm-916
	cp916
	916
	iso-ir-138
	hebrew
	csISOLatinHebrew
windows-1255 (MIBenum: 2255)	win1255
	cp1255
	ms1255

Turkish

Table 19   **Turkish**

Preferred MIME Name or Primary Registered Name	Encoding Aliases
ISO-8859-9 (MIBenum: 12)	ISO_8859-9:1989
	ISO_8859-9
	iso8859-9
	8859_9
	ibm920
	ibm-920
	cp920
	920
	iso-ir-148
	l5
	latin5
	csISOLatin5
windows-1254 (MIBenum: 2254)	win1254
	cp1254
	ms1254

Japanese

Table 20   **Japanese**

Preferred MIME Name or Primary Registered Name	Encoding Aliases
ISO-2022-JP (MIBenum: 39)	iso2022-jp
	iso-2022-jis
	junet
	jis
	jis_encoding
	csJISEncoding
	csISO2022JP
ISO-2022-JP-2 (MIBenum: 40)	iso-2022-jp2
	csISO2022JP2

Preferred MIME Name or Primary Registered Name	Encoding Aliases
Shift_JIS (MIBenum: 17/2024)	sjis
	shift-jis
	ShiftJis
	x-sjis
	x-shift-jis
	windows-31j
	csWindows31J
	ms932
	cp932
	win932
	windows-932
	MS_Kanji
	csShiftJIS
	pck
	\u30b7\u30d5\u30c8\u7b26\u53f7\u5316\u8868\u73fe
EUC-JP (MIBenum: 18)	Extended_UNIX_Code_Packed_Format_for_Japanese
	eucjp
	x-euc-jp
	euc_jpnew 10/18/99
	x-eucjp
	eucjis
	csEUCPkdFmtJapanese

Korean

Table 21   Korean

Preferred MIME Name or Primary Registered Name	Encoding Aliases
euc-kr (MIBenum: 38)	euc_kr
	euckr
	csEUCKR
ks_c_5601-1987 (MIBenum: 36)	ks_c_5601-1989
	ksc5601-1987
	ksc5601_1987
	ksc_5601
	ksc5601
	5601
	korean
	csKSC56011987
IBM949 (MIBenum: ????)	ibm-949
	cp949
	cp-949
	949
windows-949 (MIDenum: ????)	win949
	ms949

Chinese (Simplified)

Table 22   Chinese (Simplified)

Preferred MIME Name or Primary Registered Name	Encoding Aliases
gb2312 (MIBenum: 2025)	csGB2312

Preferred MIME Name or Primary Registered Name	Encoding Aliases
gb_2312-80 (MIBenum: 57)	iso-ir-58
	chinese
	csISO58GB231280
	gb2312-80
	gb2312-1980
	gb-2312-80
gbk	GBK
	windows-936
	ms936
	cp936
	cp-936
euc-cn	EUC_CN
	euccn
	euc-gb

Chinese (Traditional)

Table 23   **Chinese (Traditional)**

Preferred MIME Name or Primary Registered Name	Encoding Aliases
big5 (MIBenum: 2026)	Big5
	windows-950
	win950
	ms950
	csBig5

Preferred MIME Name or Primary Registered Name	Encoding Aliases
IBM950 (MIBenum: ????)	ibm-950
	cp950
	cp-950
	950

Thai

Table 24   **Thai**

Preferred MIME Name or Primary Registered Name	Ecoding Aliases
IBM874 (MIBEnum: ????)	ibm-874
	cp874
	874
windows-874	win874
	ms874

Vietnamese

Table 25   **Vietnamese**

Preferred MIME Name or Primary Registered Name	Ecoding Aliases
windows-1258 (MIBenum: 2258)	win1258
	ms1258
	cp1258
	cp-1258

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