Tabula DX

The Search Engine for PDF Files

Reference Guide Version 1.20
April 2009

http://www.aquaforest.com/

CONTENTS

1 INTRODUCTION

Designed specifically for search-enabling large collections of PDF files via a browser interface, Tabula DX offers the following benefits and features :

Complete PDF Searchability - Search on PDF bookmarks, annotations, and metadata including XMP with no limit on the number of PDF pages that will be indexed.

Ease of Use - Present users with a familiar search interface and document thumbnails.

Performance and Scalability - Tabula DX is based on the Lucene search API which has been proven to robustly support collections of millions of documents.

Customizable - Simple user interface customization via XSL.

Integration Support - Search results can be returned as pure XML from any web-based method.

Designed for IIS and ASP.Net - Tabula DX is built using C# and ASP.Net for simple integration into a Microsoft-based environment.

License Model - Tabula DX is licensed per server and has no limits on the number of documents that can be indexed with the “Unlimited” license. A limited 50,000 document license is also available. Furthermore, for collections of up to 1,000 documents the product may be used free of charge.

Lucene Compatible - The Tabula DX Lucene indexes are compatible with tools supporting Lucene 1.4 or later.

Simple Web-Based Administration - The administration module allows creation of PDF collections, settings and index scheduling.

2 Installation and Initial Configuration

2.1 System Requirements

- Windows XP, Windows 2003, Vista, Windows 2008 (32 and 64 bit editions)

- Version 2.0 of the .NET Framework

- Note : To run batch indexing jobs via the web interface a suitable user id and password will be required, This can be set using the Settings section of the Tabula DX web interface.

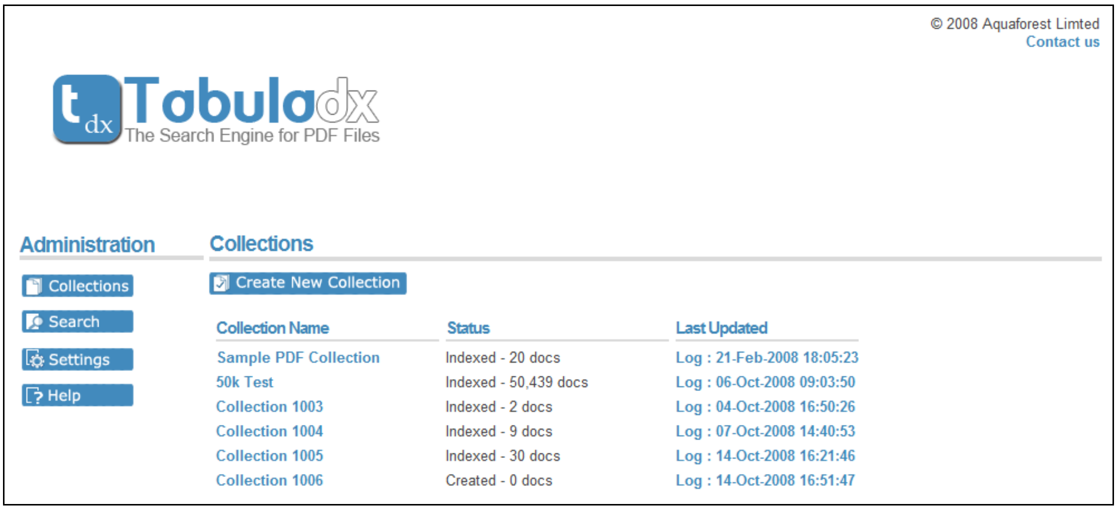
- Web Server : Tabula DX includes the lightweight UltiDev Cassini web server and the product is initially configured to use this. For production use IIS is recommended as a web server. See section 2.7 below for configuration details.

2.2 Installing Tabula DX

The source media zip file contains a setup.exe which will install Tabula DX along with the Cassini lightweight web server. Please contact support@aquaforest.com should you require any assistance.

2.3 Testing The Installation

To get started with Tabula DX, access the Tabula DX Administration shortcut that is installed on the desktop and under the Programs menu. A good initial test is to run the installation test from the Help page and to run a search on the sample PDF collection.



Collection Name	Status	Last Updated
Sample PDF Collection	Indexed - 20 docs	Log : 21-Feb-2008 18:05:23
50k Test	Indexed - 50,439 docs	Log : 06-Oct-2008 09:03:50
Collection 1003	Indexed - 2 docs	Log : 04-Oct-2008 16:50:26
Collection 1004	Indexed - 9 docs	Log : 07-Oct-2008 14:40:53
Collection 1005	Indexed - 30 docs	Log : 14-Oct-2008 16:21:46
Collection 1006	Created - 0 docs	Log : 14-Oct-2008 16:51:47

The main Tabula DX administration page

2.4 Trial License Restrictions

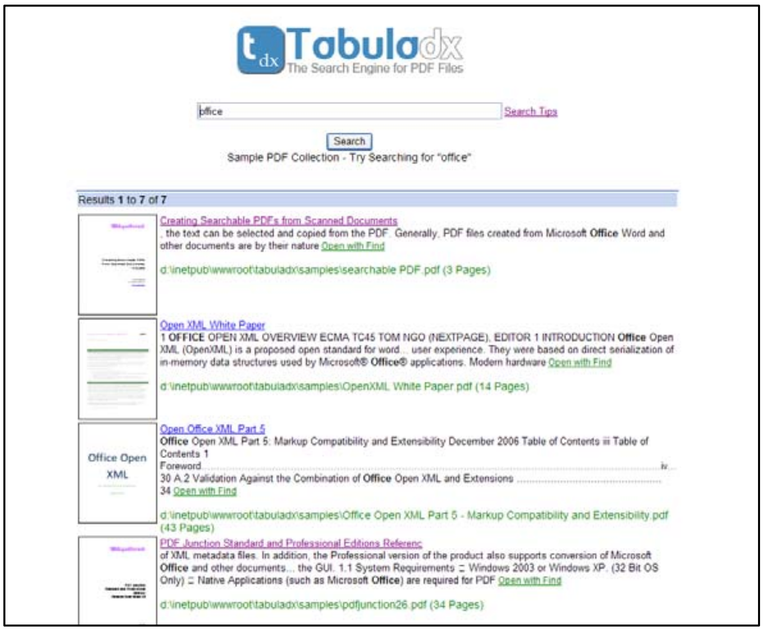
The trial license does not expire but limits the size of document collections to 1,000 documents. Please contact sales@aquaforest.com for additional assistance with trial licensing.

2.5 Uninstalling The Product

Tabula DX can be uninstalled via Windows Add / Remove Programs. UltiDev Cassini Web Server Explorer and UltiDev Cassini Web Server for ASP.Net 2.0 can be removed in the same way.

2.6 The Sample / Demo Collections

The product comes installed with a small demonstration collection of around 20 documents which can be searched as soon as the product has been installed.



Sample PDF Collection - Try Searching for "office"

Results **1** to **7** of **7**

Creating Searchable PDFs from Scanned Documents
, the text can be selected and copied from the PDF. Generally, PDF files created from Microsoft **Office** Word and other documents are by their nature Open with Find

d:\inetpub\wwwroot\tabuladx\samples\searchable PDF.pdf (3 Pages)

Open XML White Paper
1 **OFFICE** OPEN XML OVERVIEW ECMA TC45 TOM NGO (NEXTPAGE), EDITOR 1 INTRODUCTION **Office** Open XML (OpenXML) is a proposed open standard for word... user experience. They were based on direct serialization of in-memory data structures used by Microsoft® **Office**® applications. Modern hardware Open with Find

d:\inetpub\wwwroot\tabuladx\samples\OpenXML White Paper.pdf (14 Pages)

Open Office XML Part 5
Office Open XML Part 5: Markup Compatibility and Extensibility December 2006 Table of Contents iii Table of Contents 1
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34 Open with Find

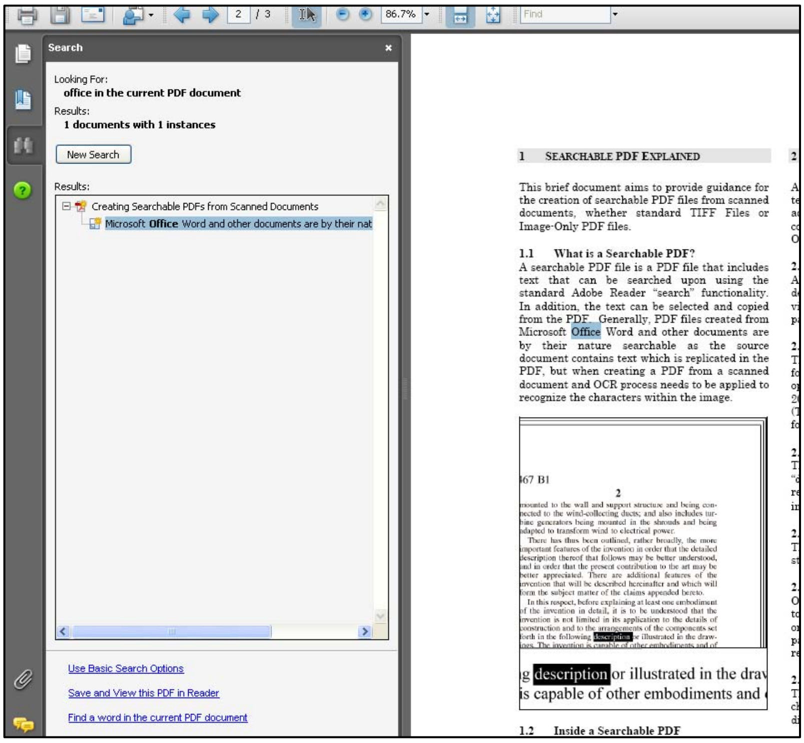
d:\inetpub\wwwroot\tabuladx\samples\Office Open XML Part 5 - Markup Compatibility and Extensibility.pdf (43 Pages)

PDF Junction Standard and Professional Editions Referenc
of XML metadata files. In addition, the Professional version of the product also supports conversion of Microsoft **Office** and other documents... the GUI. 1.1 System Requirements ⌑ Windows 2003 or Windows XP. (32 Bit OS Only) ⌑ Native Applications (such as Microsoft **Office**) are required for PDF Open with Find

d:\inetpub\wwwroot\tabuladx\samples\pdfjunction26.pdf (34 Pages)

Demo Collection – Sample Search Results

The PDF file can be opened in a new browser window by clicking either the document thumbnail or the title link. In addition clicking on "Open with Find" will open the PDF document with the search string passed to Adobe Reader. This will automatically open the find interface within Adobe Reader using the same query parameters. See below for an example.


2 / 3
86.7%
Find
Search
New Search
Use Basic Search Options
Save and View this PDF in Reader
Find a word in the current PDF document

Looking For:
office in the current PDF document

Results:
1 documents with 1 instances

Results:
Creating Searchable PDFs from Scanned Documents
Microsoft **Office** Word and other documents are by their nat

1 SEARCHABLE PDF EXPLAINED

This brief document aims to provide guidance for the creation of searchable PDF files from scanned documents, whether standard TIFF Files or Image-Only PDF files.

1.1 What is a Searchable PDF?

A searchable PDF file is a PDF file that includes text that can be searched upon using the standard Adobe Reader "search" functionality. In addition, the text can be selected and copied from the PDF. Generally, PDF files created from Microsoft Office Word and other documents are by their nature searchable as the source document contains text which is replicated in the PDF, but when creating a PDF from a scanned document and OCR process needs to be applied to recognize the characters within the image.

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mounted to the wall and support structure and being connected to the wind-collecting ducts; and also includes turbine generators being mounted in the shrouds and being adapted to transform wind to electrical power.

There has thus been outlined, rather broadly, the more important features of the invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are additional features of the invention that will be described hereinafter and which will form the subject matter of the claims appended hereto.

In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of

g description or illustrated in the draw
is capable of other embodiments and

1.2 Inside a Searchable PDF

Opening a PDF Document "With Find"

2.7 Using Tabula DX with IIS

Tabula DX is supported under IIS 5 (Windows XP), IIS 6 (Windows 2003) and IIS 7 (Windows Vista, Windows 2008).

Please note the following important system requirements :

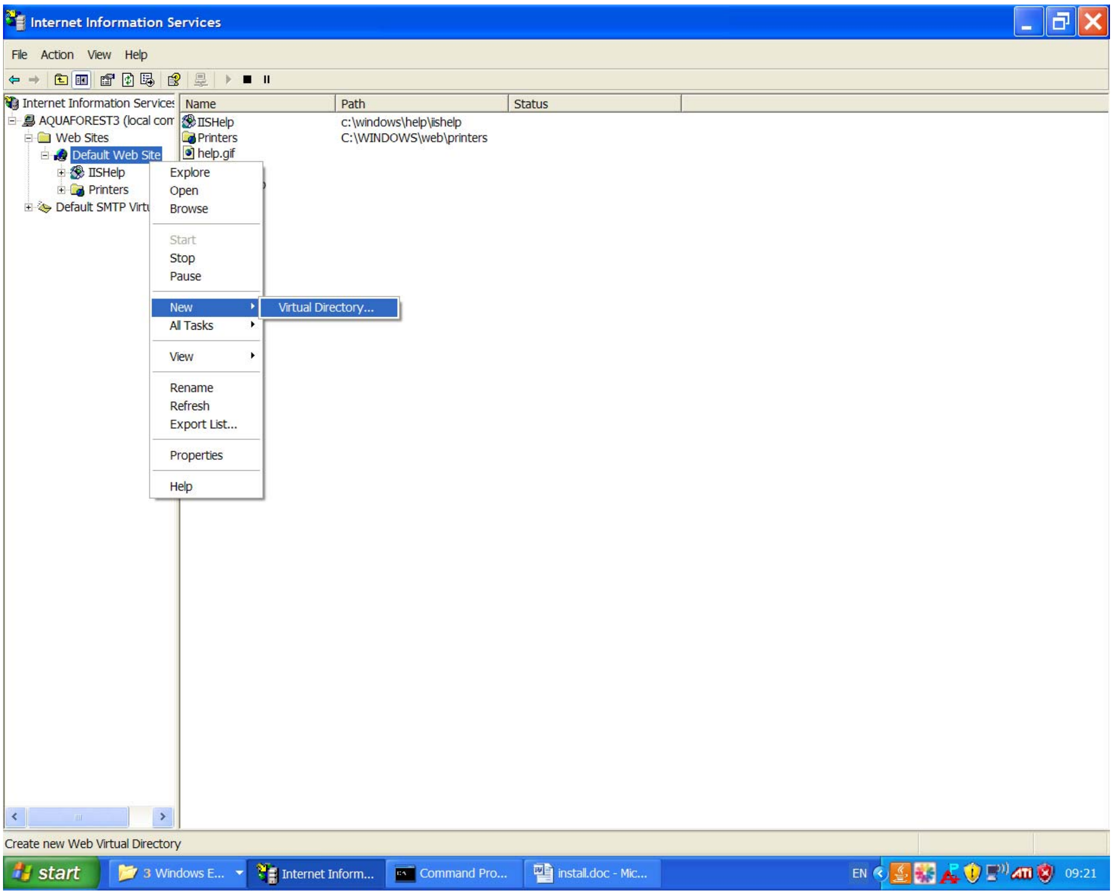
- Tabula DX needs to be running under ASP.Net 2.0

- Tabula DX does require certain file system privileges which are unlikely to be satisfied by using the default IUSR account. Therefore the Tabula DX web application should be run using Integrated Authentication or with an anonymous user configured with sufficient privilege.

- Running under IIS7 / Windows Vista will require use of the Classic ASP.Net application pool.

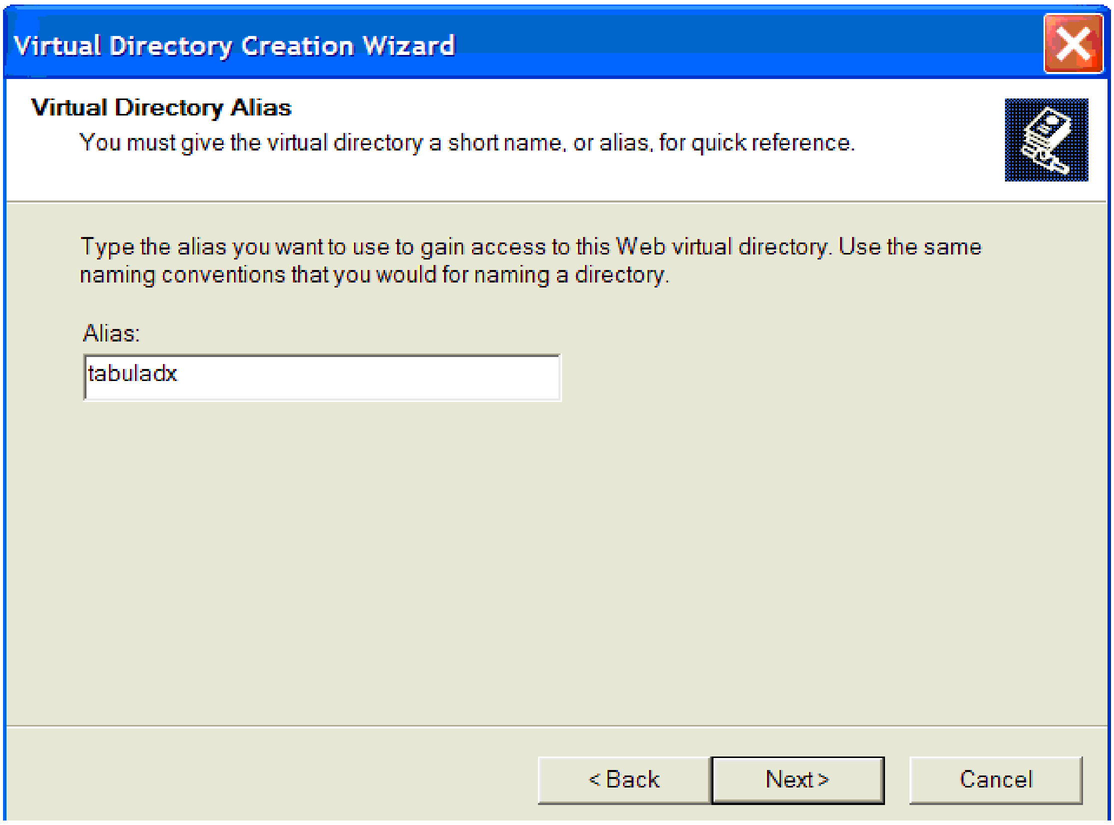
2.7.1 Setting Up Tabula DX with IIS 5 (Windows XP)

Create a new virtual directory called tabuladx that points to the Tabula DX install location (by default C:\Program Files\Aquaforest\Tabula DX) with a default document of main.aspx and either integrated authentication or anonymous authentication with a suitably privileged user. The screen shots below illustrate the process.



Name	Path	Status
IISHelp	c:\windows\help\iishelp	
Printers	C:\WINDOWS\web\printers	
help.gif		

Create new Web Virtual Directory

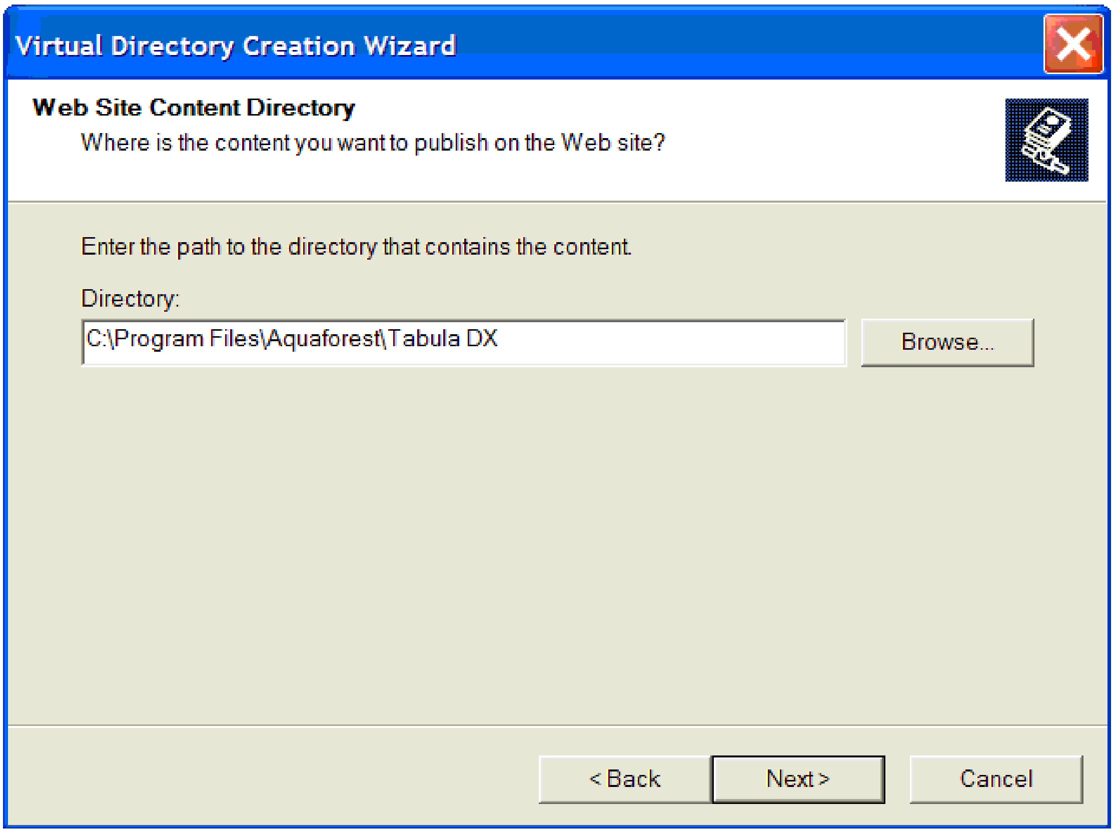


Virtual Directory Alias

You must give the virtual directory a short name, or alias, for quick reference.

Type the alias you want to use to gain access to this Web virtual directory. Use the same naming conventions that you would for naming a directory.

Alias: tabuladx

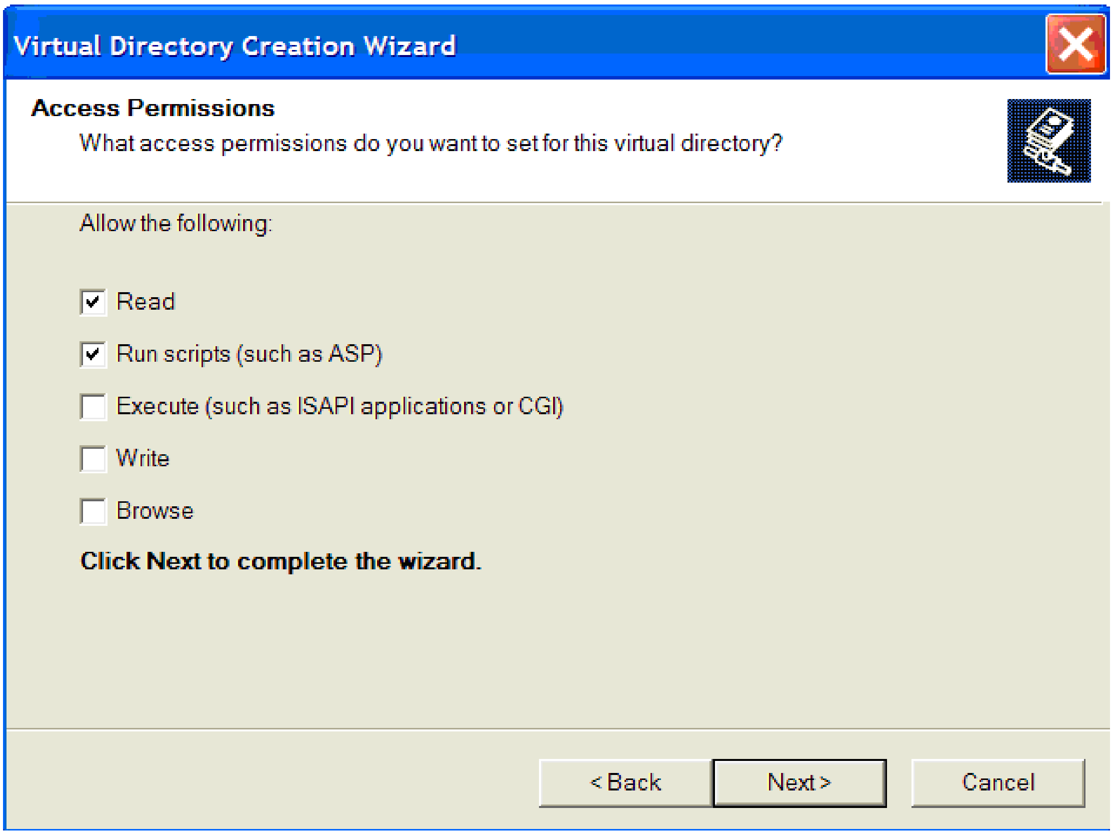


Web Site Content Directory

Where is the content you want to publish on the Web site?

Enter the path to the directory that contains the content.

Directory: C:\Program Files\Aquaforest\Tabula DX



Virtual Directory Creation Wizard

Access Permissions

What access permissions do you want to set for this virtual directory?

Allow the following:

☑ Read

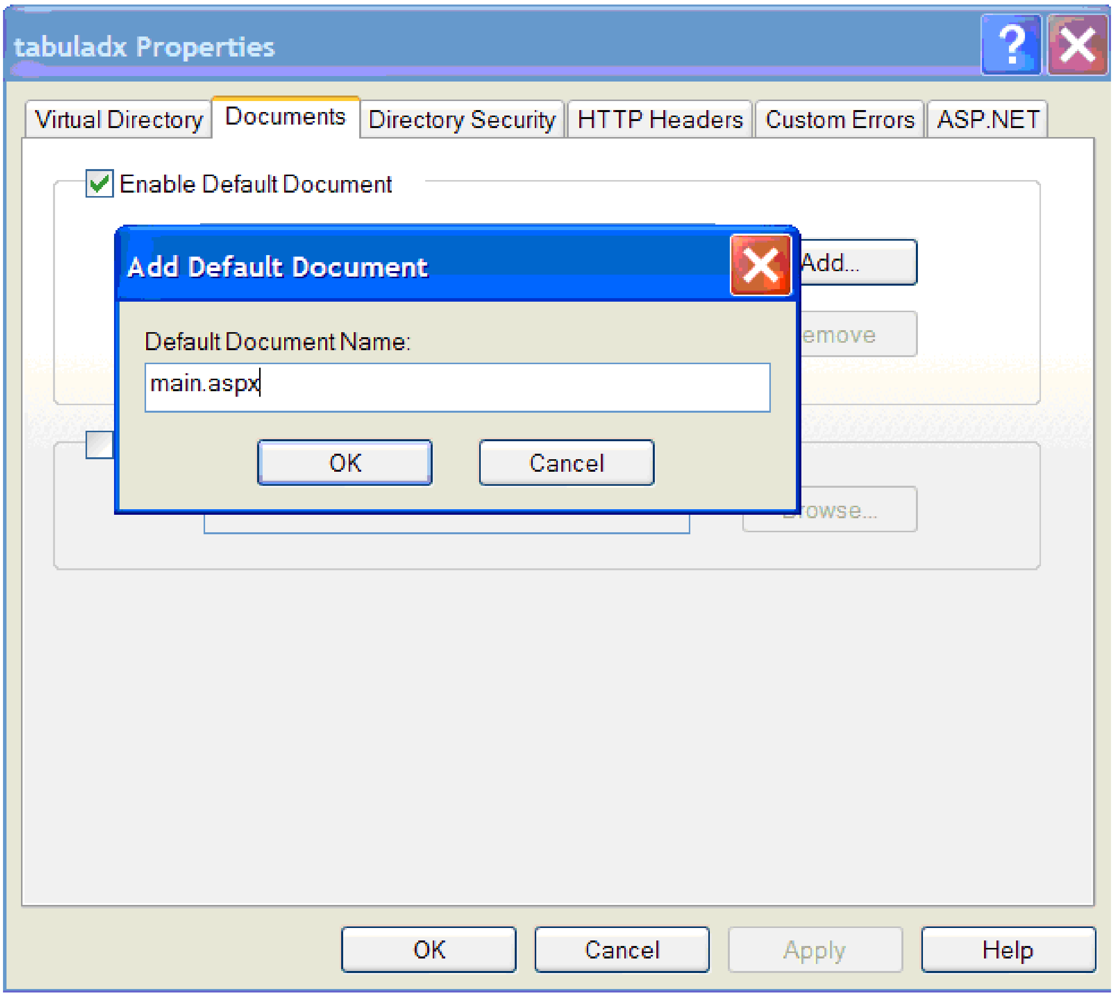
☑ Run scripts (such as ASP)

□ Execute (such as ISAPI applications or CGI)

□ Write

□ Browse

Click Next to complete the wizard.

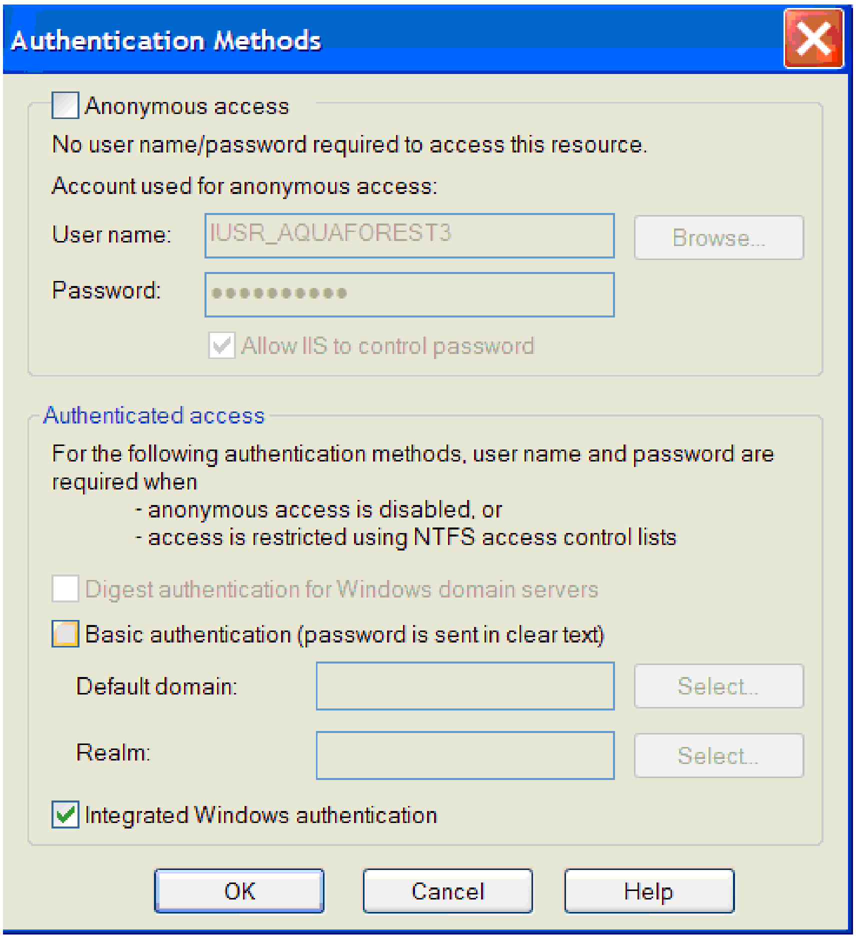


tabuladx Properties

☑ Enable Default Document

Add Default Document

Default Document Name: main.aspx



□ Anonymous access

No user name/password required to access this resource.

Account used for anonymous access:

User name: IUSR_AQUAFOREST3

Password: ●●●●●●●●●●

☑ Allow IIS to control password

Authenticated access

For the following authentication methods, user name and password are required when

- anonymous access is disabled, or
- access is restricted using NTFS access control lists

□ Digest authentication for Windows domain servers

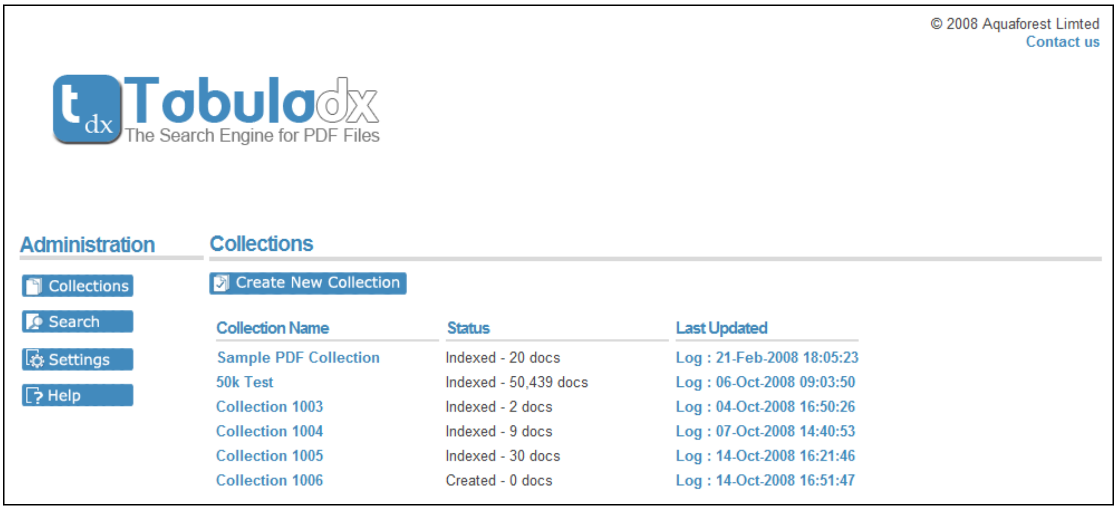
□ Basic authentication (password is sent in clear text)

Default domain:

Realm:

☑ Integrated Windows authentication

Tabula DX administration can then be accessed via http://server/tabuladx :

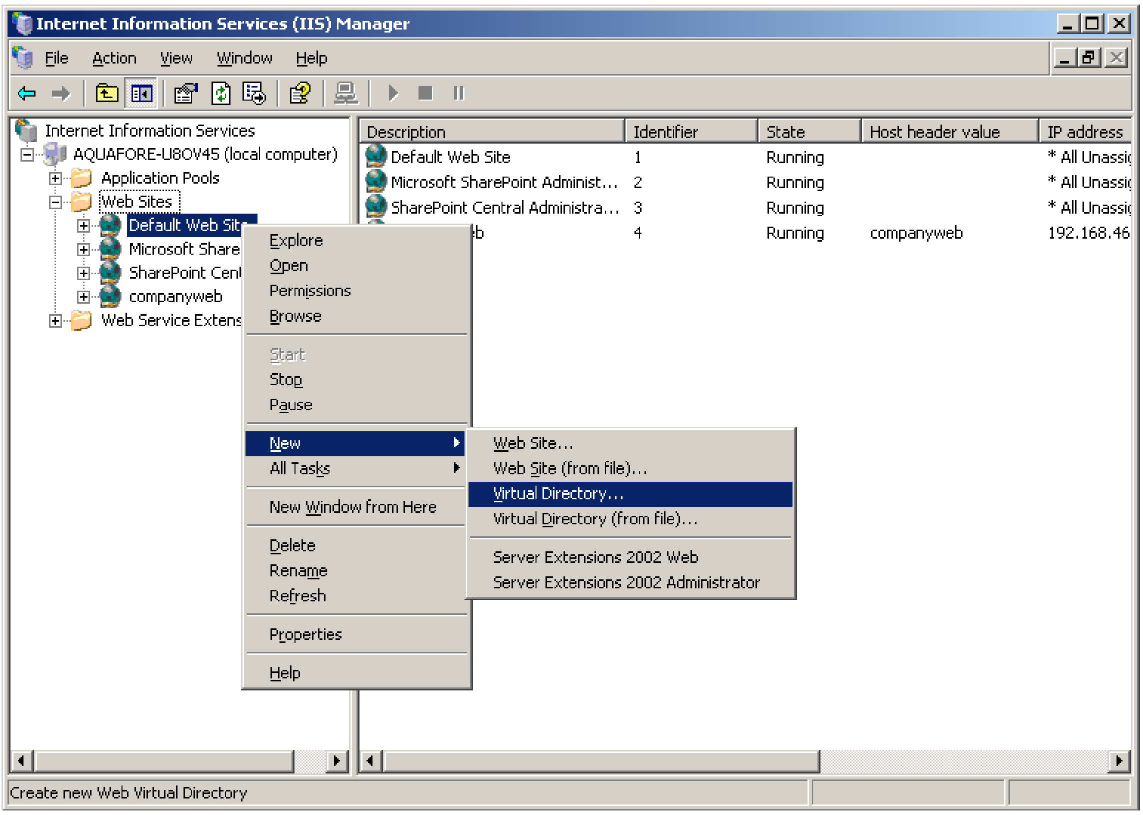


Collections

Collection Name	Status	Last Updated
Sample PDF Collection	Indexed - 20 docs	Log : 21-Feb-2008 18:05:23
50k Test	Indexed - 50,439 docs	Log : 06-Oct-2008 09:03:50
Collection 1003	Indexed - 2 docs	Log : 04-Oct-2008 16:50:26
Collection 1004	Indexed - 9 docs	Log : 07-Oct-2008 14:40:53
Collection 1005	Indexed - 30 docs	Log : 14-Oct-2008 16:21:46
Collection 1006	Created - 0 docs	Log : 14-Oct-2008 16:51:47

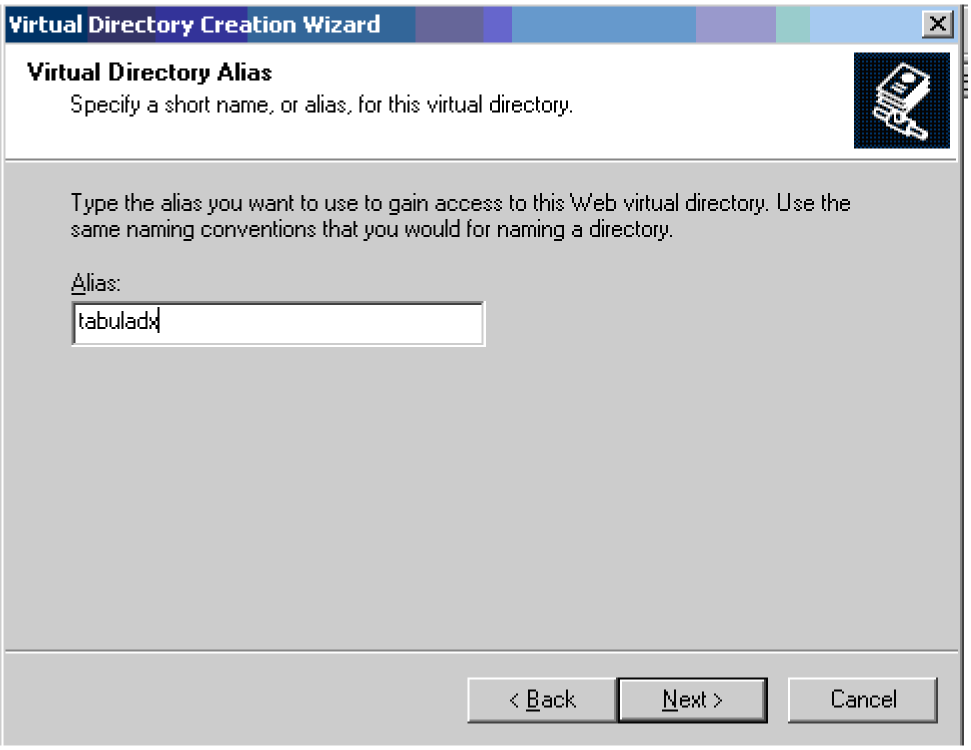
2.7.2 Setting Up Tabula DX with IIS 6 (Windows 2003)

Create a new virtual directory called tabuladx that points to the Tabula DX install location (by default C:\Program Files\Aquaforest\Tabula DX) with a default document of main.aspx and either integrated authentication or anonymous authentication with a suitably privileged user. The screen shots below illustrate the process.



Description	Identifier	State	Host header value	IP address
Default Web Site	1	Running		* All Unassig
Microsoft SharePoint Administ...	2	Running		* All Unassig
SharePoint Central Administra...	3	Running		* All Unassig
b	4	Running	companyweb	192.168.46

Create new Web Virtual Directory

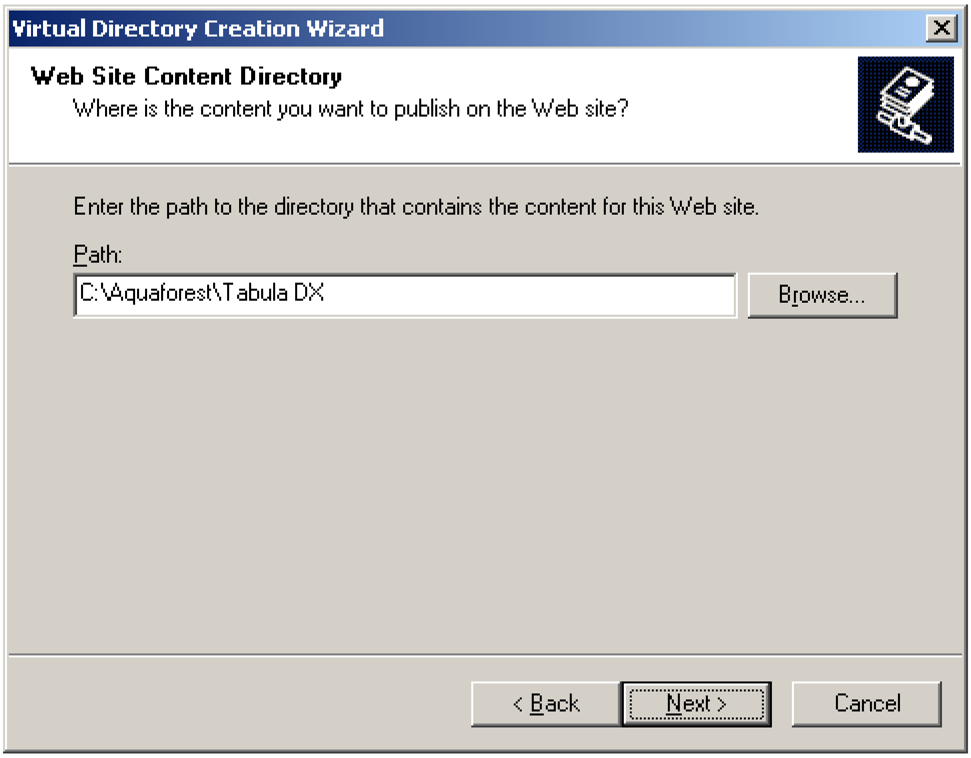


Virtual Directory Alias

Specify a short name, or alias, for this virtual directory.

Type the alias you want to use to gain access to this Web virtual directory. Use the same naming conventions that you would for naming a directory.

Alias: tabuladx



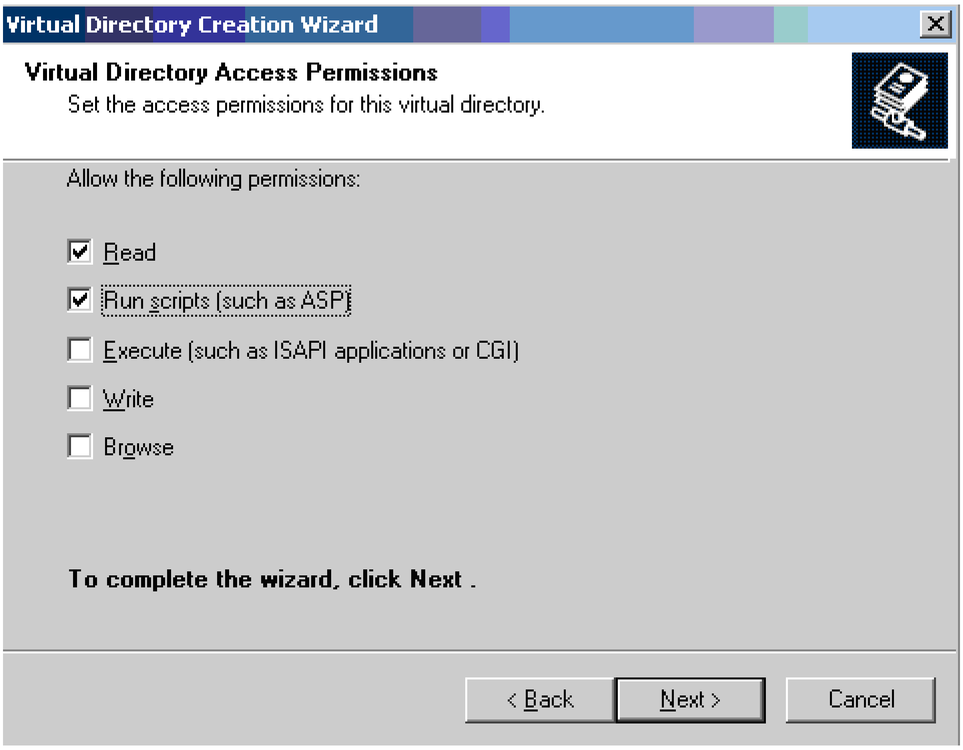
Virtual Directory Creation Wizard

Web Site Content Directory

Where is the content you want to publish on the Web site?

Enter the path to the directory that contains the content for this Web site.

Path: C:\Aquaforest\Tabula DX



Virtual Directory Creation Wizard

Virtual Directory Access Permissions

Set the access permissions for this virtual directory.

Allow the following permissions:

☑ Read

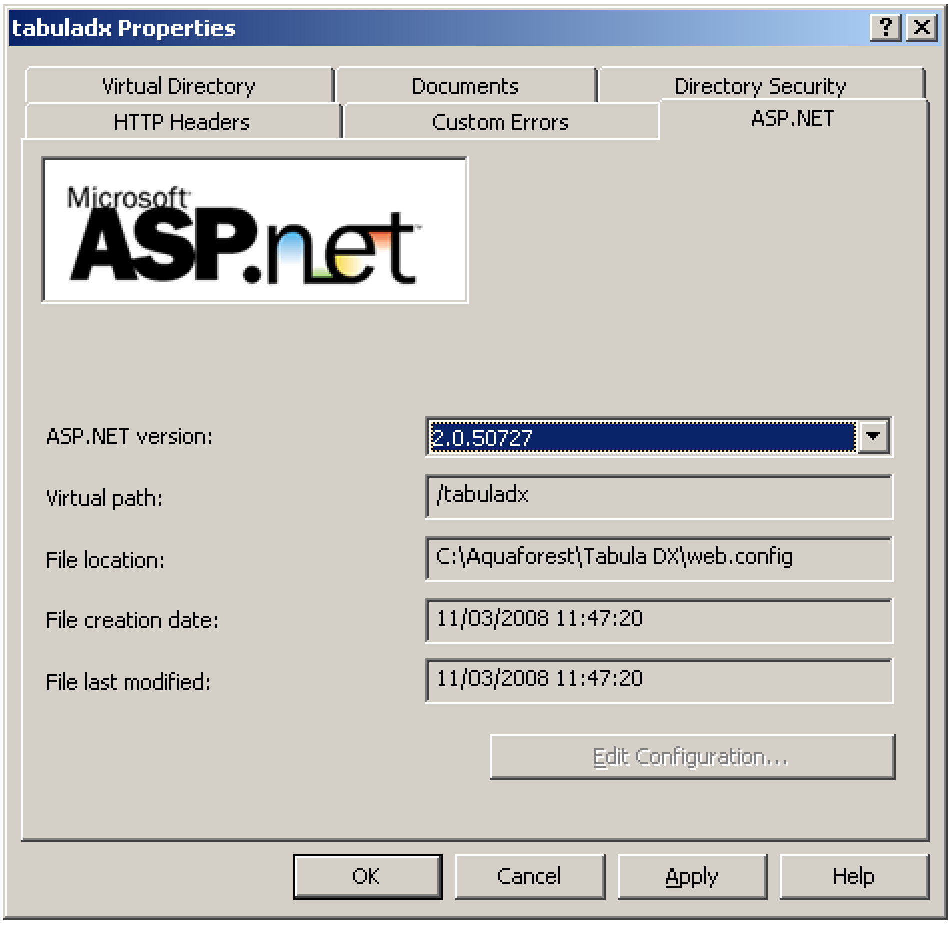
☑ Run scripts (such as ASP)

☐ Execute (such as ISAPI applications or CGI)

☐ Write

☐ Browse

To complete the wizard, click Next .



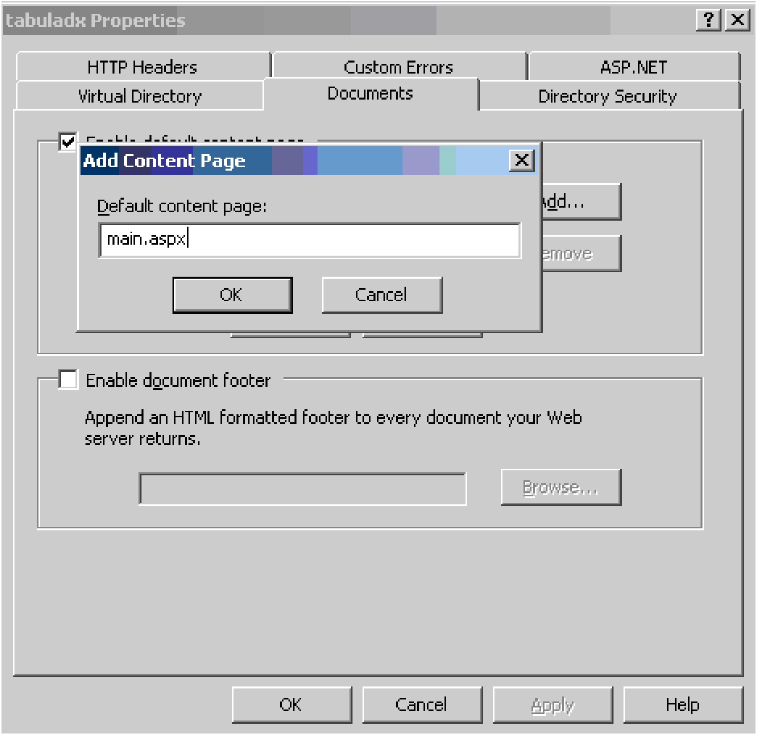
ASP.NET version: 2.0.50727

Virtual path: /tabuladx

File location: C:\Aquaforest\Tabula DX\web.config

File creation date: 11/03/2008 11:47:20

File last modified: 11/03/2008 11:47:20

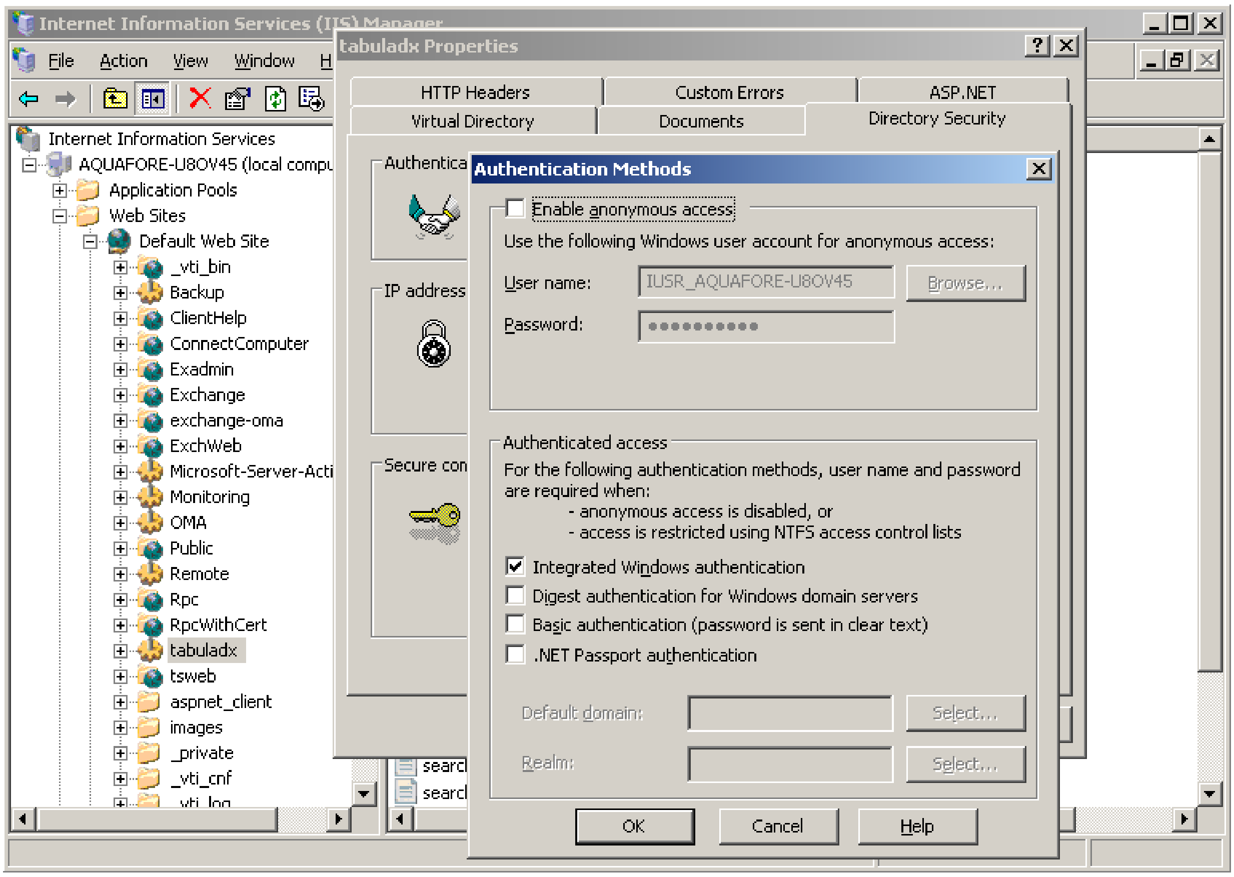


☑ Enable default content page

Default content page: main.aspx

☐ Enable document footer

Append an HTML formatted footer to every document your Web server returns.



Authentication Methods

☐ Enable anonymous access

Use the following Windows user account for anonymous access:

User name: IUSR_AQUAFORE-U8OV45

Password: ••••••••••

Authenticated access

For the following authentication methods, user name and password are required when:

- anonymous access is disabled, or
- access is restricted using NTFS access control lists

☑ Integrated Windows authentication

☐ Digest authentication for Windows domain servers

☐ Basic authentication (password is sent in clear text)

☐ .NET Passport authentication

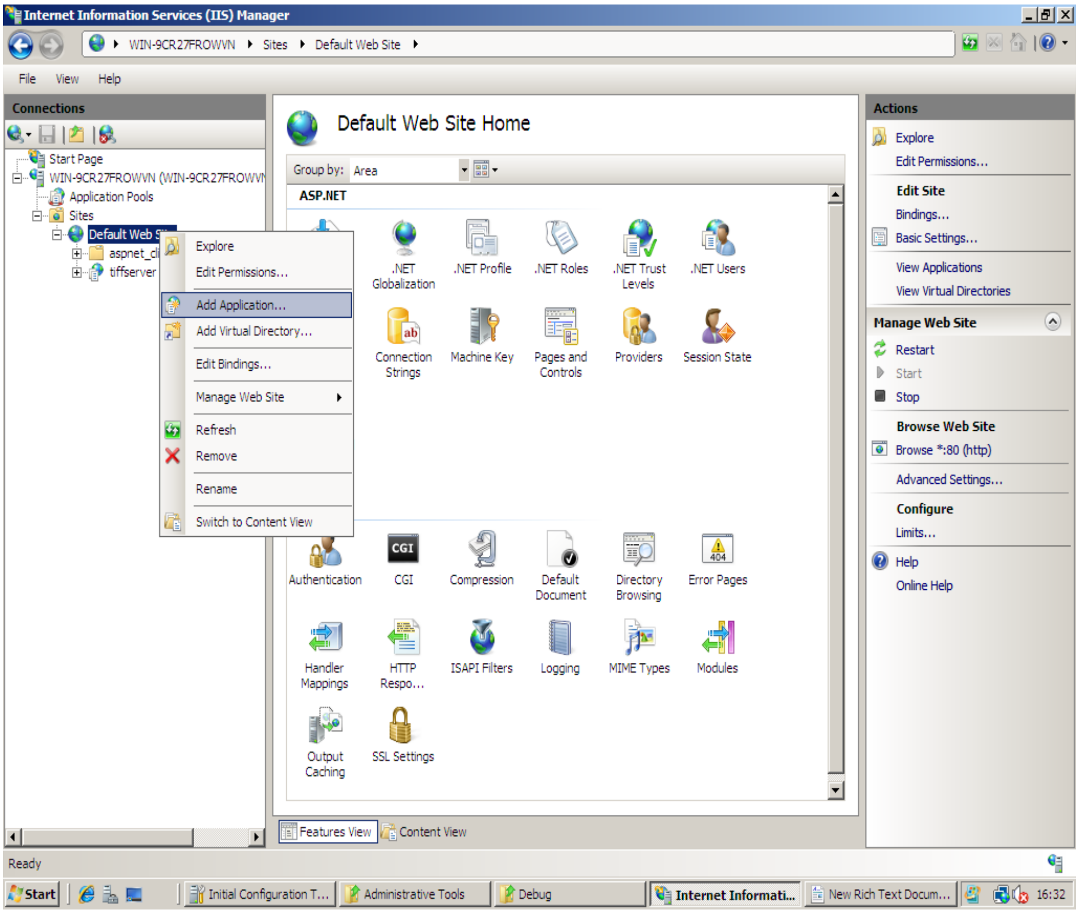
Default domain:

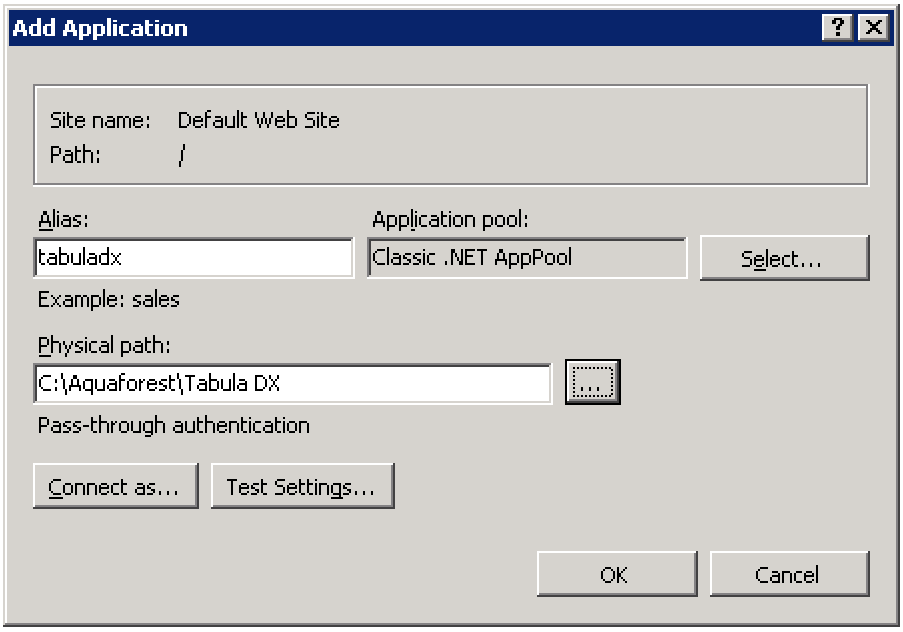
Realm:

Tabula DX administration can then be accessed via http://server/tabuladx :

2.7.3 Using Tabula DX with IIS 7 (Windows Vista, Windows 2008)

Create a new web application directory called tabuladx that points to the Tabula DX install location (by default C:\Program Files\Aquaforest\Tabula DX) and uses the Classic ASP.Net AppPool The screen shots below illustrate the process.





Site name: Default Web Site

Path: /

Alias: tabuladx

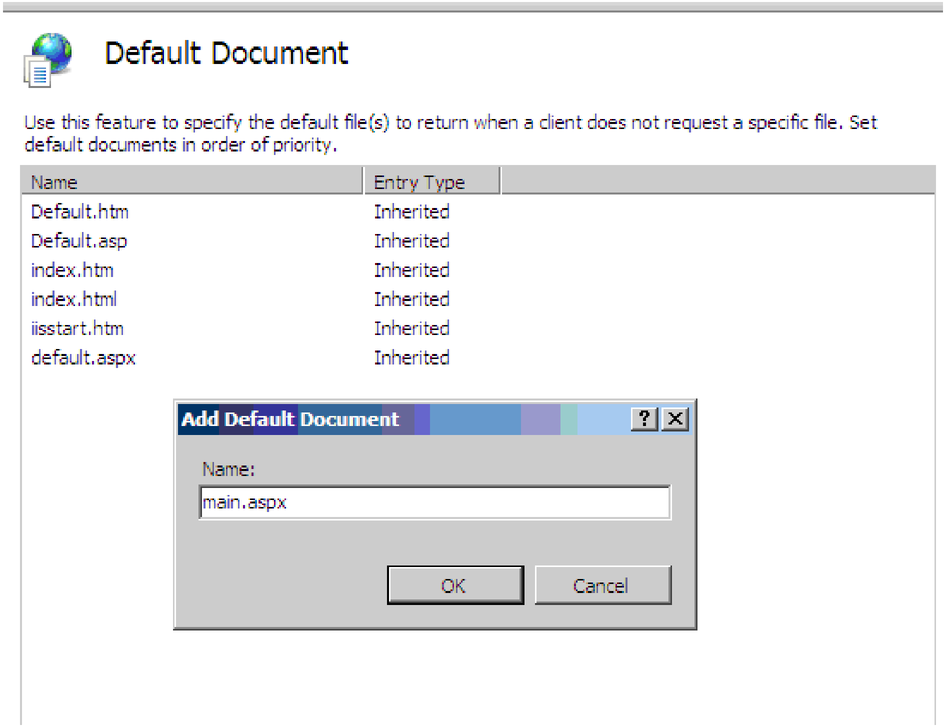
Example: sales

Application pool: Classic .NET AppPool

Physical path: C:\Aquaforest\Tabula DX

Pass-through authentication

Set the default document to be main.aspx :



Default Document

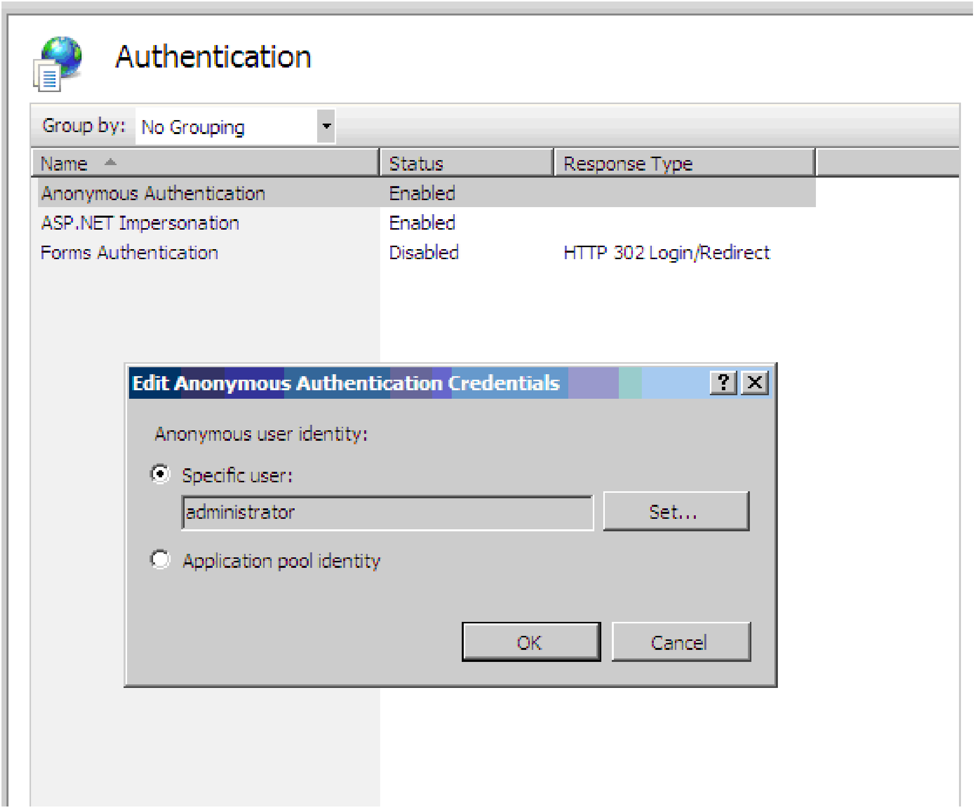
Use this feature to specify the default file(s) to return when a client does not request a specific file. Set default documents in order of priority.

Name	Entry Type
Default.htm	Inherited
Default.asp	Inherited
index.htm	Inherited
index.html	Inherited
iisstart.htm	Inherited
default.aspx	Inherited

Add Default Document

Name: main.aspx

Ensure that the application runs with a suitably privileged identity. Not necessarily as administrator but with enough privilege to write to the Tabula DX collections folder.



Authentication

Group by: No Grouping

Name	Status	Response Type
Anonymous Authentication	Enabled	
ASP.NET Impersonation	Enabled	
Forms Authentication	Disabled	HTTP 302 Login/Redirect

Edit Anonymous Authentication Credentials

Anonymous user identity:

● Specific user:

administrator

○ Application pool identity

Tabula DX administration can then be accessed via http://server/tabuladx :

3 SEARCH QUERY EXPRESSIONS

3.1 Search Fields

When documents are indexed, a number of different search index fields are populated depending upon the collection configuration.

Field	Contains
Contents	The text of the document. This is the default field.
Bookmarks	
Annotations	
PDF Doc Info Fields (or XMP equivalents) Title Author Subject Keywords Producer Creator Creationdate Moddate In addition Custom metadata fields that also form part of the Document Information Dictionary can also be searched.	The value of these fields can be set via the Acrobat Document Properties tab.
xmpfield	The value of the XMP metatdata field configured with the search name *xmpfield* see section 4.3 for details of how this is configured.
Collectionid	The collection ID of the document.
Indextime	Time stamp in YYYYMMDDHHMMSS format
Path	PDF file path
Thumbnailpath	Path of the thumbnail image (or blank if thumbails are not used in the collection)
Pages	The number of pages in the PDF document
Filesize	The size in bytes of the file
Wincreated	Time stamp in YYYYMMDDHHMMSS format
Winmodified	Time stamp in YYYYMMDDHHMMSS format

3.2 Query Expressions

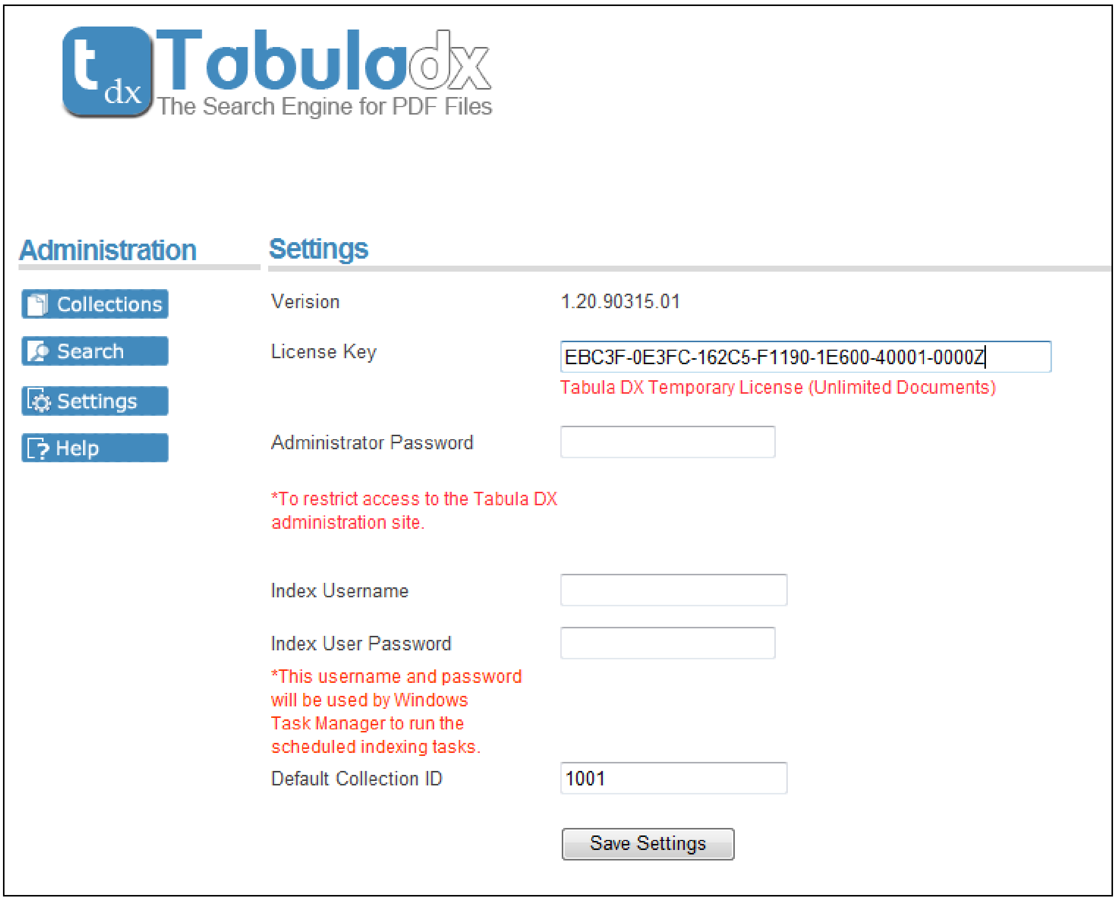
Search Query	Matches documents …
Pdf	Contains the word “pdf” in the contents of the document.
Pdf search Pdf AND search +pdf +search	Each of these expressions will find documents with both of the words “pdf” and “search” in the contents of the document.
Pdf OR search	This will find documents with either (or both) of the words “pdf” and “search” in the contents of the document.
search AND NOT pdf	Documents that contain the term search but do not

	contain the term PDF.
Title:china AND –title:india	The title field contains the word china but not india
(pdf or wordperfect) AND search	Documents contain the word “search” and either “pdf” or “wordperfect”.
Title:”search engines”	The title field contains the phrase search engines
Search*	Contains terms that begin with search, such as searchable, searching and search.
Search~	Contains terms that are close to the word search such as Starch (fuzzy searching)
winmodified:[20070701000000 TO 20070731235959]	Contains winmodified values in the range specified
"jakarta apache"~10	To do a proximity search use the tilde, "~", symbol at the end of a Phrase. For example to search for a "apache" and "jakarta" within 10 words of each other in a document use the search:

4 Configuring Search Collections

4.1 System-Wide Settings

The “Settings” tab allows a number of system-wide settings to be maintained. These settings are shown below.



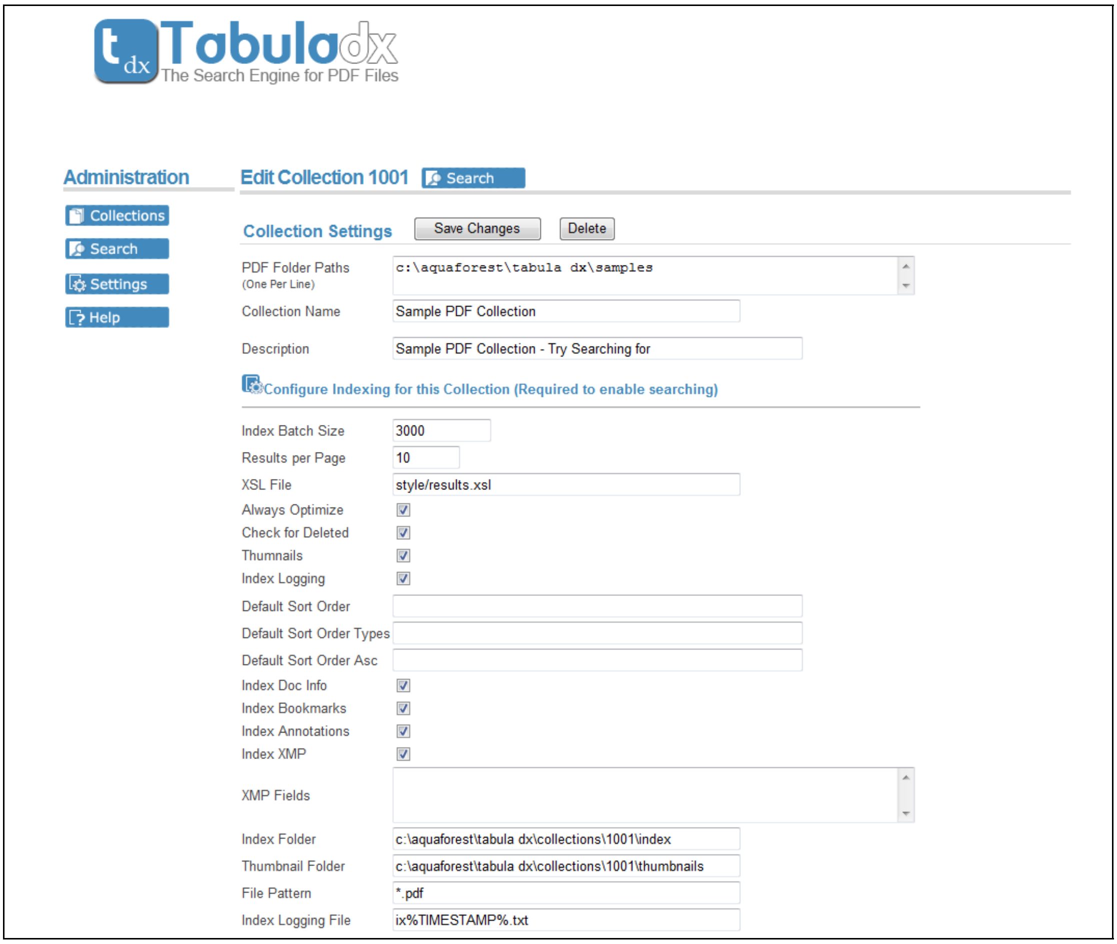
Settings

Verision	1.20.90315.01
License Key	EBC3F-0E3FC-162C5-F1190-1E600-40001-0000Z Tabula DX Temporary License (Unlimited Documents)
Administrator Password	
*To restrict access to the Tabula DX administration site.	
Index Username	
Index User Password *This username and password will be used by Windows Task Manager to run the scheduled indexing tasks.	
Default Collection ID	1001

Attribute	Description
License Key	Once purchased, a permanent license key may be entered here.
Administrator Password	If a password is entered, then access to the Autobahn DX admin pages will require entry of the specified password.
Index Username and Password	To run indexing jobs via the web interface a suitable user id and password will be required which is used to create the job using Windows Scheduled Tasks.
Default Collection ID	The defines which collection is selected by default in the “Search” function.

4.2 Collection Settings

Individual collections can be configured by clicking on the collection name link in the main collections page :



PDF Folder Paths (One Per Line): c:\aquaforest\tabula dx\samples

Collection Name: Sample PDF Collection

Description: Sample PDF Collection - Try Searching for

Index Batch Size: 3000

Results per Page: 10

XSL File: style/results.xsl

Always Optimize: ☑

Check for Deleted: ☑

Thumnails: ☑

Index Logging: ☑

Default Sort Order:

Default Sort Order Types:

Default Sort Order Asc:

Index Doc Info: ☑

Index Bookmarks: ☑

Index Annotations: ☑

Index XMP: ☑

XMP Fields:

Index Folder: c:\aquaforest\tabula dx\collections\1001\index

Thumbnail Folder: c:\aquaforest\tabula dx\collections\1001\thumbnails

File Pattern: *.pdf

Index Logging File: ix%TIMESTAMP%.txt

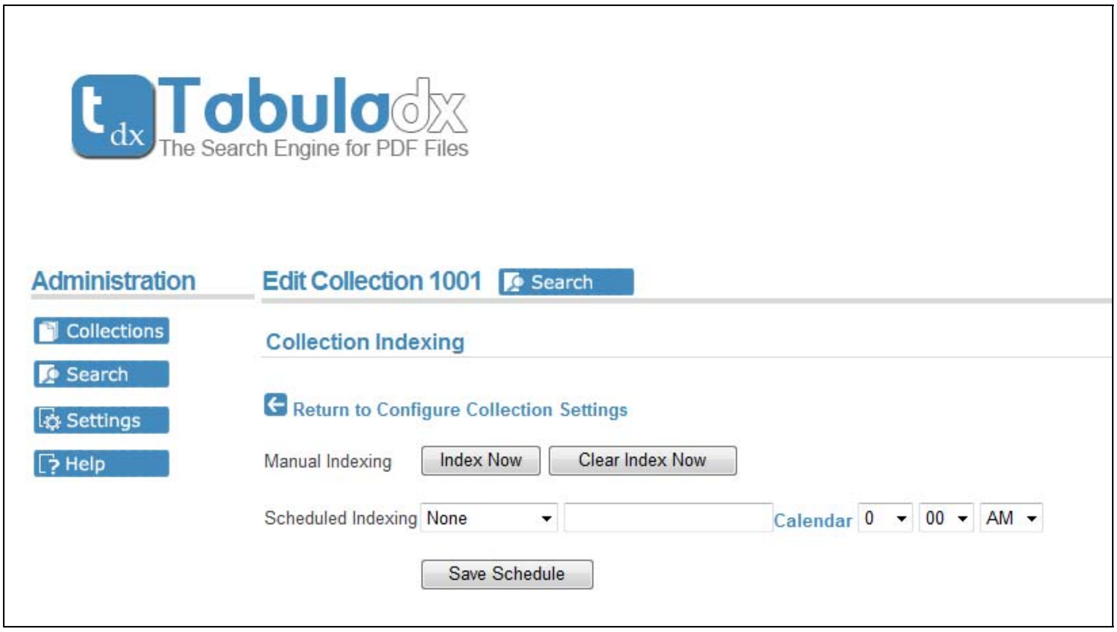
4.3 Collection Attributes

Attribute	Description
Folder Paths	One or more folders containing documents to be indexed. Multiple folders should be specified one per line.
Collection Name	The descriptive name of the document collection
Description	The description is shown on the search page for the collection under the search box
Index Batch Size	The maximum number of documents that will be indexed in a single run of the indexer.
Results per Page	Default number of results per search results page.
XSL File	Default XSL file.
Always Optimize	If checked, the indexes will be optimized at the end of each run of the indexer.

Check for Deleted	If checked, the index process will check each file in the index. If the related PDF file has been deleted, the index entry will be removed.
Thumbnails	If checked a thumbnail image of the first page of each PDF document indexed will be produced.
Thumbnail Folder	Thumbnail images will be stored in this folder. Subfolders will be automatically created to mirror the structure of the source PDF folders.
Index Logging	If checked, a log file will be created (or appended to) detailing indexing activity each time the indexer is run on this collection.
Default Sort Order	Comma separated list of sort fields eg field1,field2. If left blank results will be returned in descending relevance order. Can be overridden by URL parameters when using search.aspx directly (see section 6).
Default Sort Type	Comma separated list of sort field datatypes (string, int or float) corresponding to each sortfield eg string,int. If left blank all types will be assumed to be strings. Can be overridden by URL parameters when using search.aspx directly (see section 6).
Default Sort Order Asc	Comma separated of true / false values corresponding to each sortfield used to indicate ascending or descending sort order. If left blank ascending order will be used. Can be overridden by URL parameters when using search.aspx directly (see section 6).
Index Doc Info	If checked, PDF Doc Info metadata (title, author etc) will be indexed and can be searched using query expressions such as author:Shakespeare In addition Custom metadata fields that also form part of the Document Information Dictionary can also be will also be indexed.
Index Bookmarks	If checked, the text of bookmarks will be indexed and can be searched using query expressions such as bookmarks:shakespeare
Index Annotations	If checked, PDF annotations will be indexed and can be searched using query expressions such as annotations:shakespeare
Index XMP	If checked, XMP metadata will be indexed in accordance with the "XMP Fields" instructions.
XMP Fields	This defines which XMP fields should be indexed, and each line defines a property of the form : **namespace**:*propertyname*,indexname For example : http://www.aiim.org/pdfa/ns/id/:conformance,pdfaconformance The above instructs Tabula DX to index the property "conformance" in the PDF/A namespace (http://www.aiim.org/pdfa/ns/id/) and index it under the name pdfaconformance. The field may be searched to find pdf/a conformant files with a query such as pdfaconformance:B

	For further information about XMP refer to the Adobe resources here : http://www.adobe.com/devnet/xmp/pdfs/xmp_specification.pdf NOTE: Standard PDF custom metadata items are automatically indexed. The XMP fields only need to be specified for custom schema.
Index Folder	The folder to contain the index files.
File pattern	A pattern to be used to match the files to be indexed. Default *.pdf
Index Logging File	The index log file name. The file will be placed in AUTOBAHN/collections/*collectionid*/indexlog. The string %TIMESTAMP% can be included in the file name to create a unique file for each indexer run; the timestamp is of the format YYYYMMDDHHMMSS.

4.4 Configuring Collection Indexing



Scheduled Indexing None 0 00 AM

The configuring collection indexing page allows a collection to be indexed according to a set schedule or immediately. The indexing process analyzes the current collection index and the set of file system files, determining which files need to be indexed or re-indexed.

5 COMMAND LINE INDEXING

Tabula DX collections can be indexed by using the command line interface. The tabuladx.exe executable can be found in the product bin folder.

```
tabuladx.exe /id=collectionid /op=operation [/debug]
```

Parameter	Description
Id	The collection ID, eg 1002
Op	The operation : index – Index the collection. The indexing process analyzes the current collection index and the set of file system files, determining which files need to be indexed or reindexed. clear – Clear the index collection The executable can is also used to set up the demo collection, this should be performed automatically by the setup process. Setupdemo – Sets up the demo collection from the template. Adjustdemo – Adjust the collection for the local location
Debug	Optional. If specified verbose output is produced.

5.1 Indexing Configuration

The tabuladx.exe configuration file is *tabuladx.exe.config* located in the product bin folder. The parameters described below can be set in this file.

```
<setting name="ExtractEngineA" serializeAs="String">
      <value>1</value>
</setting>
<setting name="ExtractEngineB" serializeAs="String">
      <value>2</value>
</setting>
<setting name="ThumbnailWidth" serializeAs="String">
      <value>100</value>
</setting>
<setting name="Debug" serializeAs="String">
      <value>False</value>
</setting>
```

ExtractEngineA/B
This controls the order in which Text Extraction engines are called by the product to extract text from PDF files. There are two engines used – engine “1” and engine “2”. In general there should be no need to edit this file unless asked to by technical support, or you wish to compare the text results from the different extraction engines.

“ExtractEngineA” is run first (by default this is engine “1”) and if this doesn’t return any text then “ExtractEngineB” is run (by default this is engine “2”). These settings can be changed by changing the values.

Thumbnail Width
This defines the image width of the thumbnail generated from the first page of the PDF file.

Debug
If set to true then the indexing log will contain very detailed indexing information which may be useful to technical support.

6 CUSTOMIZATION AND INTEGRATION

Tabula DX is designed to be customized and can be easily integrated within larger solutions. The sample URLs below assume that Tabula DX has been installed against IIS.

It is possible to give end users a direct URL to enable search, even using the default Cassini web server using the URL below, with *servername* replaced accordingly.

http://servername:7756/GoToApplication.aspx?AppID=39af5d01-8bdf-4595-be25-0d9388af1da8

6.1 Examples of Calling Search Pages

The search page offering a choice of collections can be called directly via the search.aspx page :
http://localhost/tabuladx/search.aspx?collectionlist=1

An individual collection search page can be called as shown in the following example :
http://localhost/tabuladx/search.aspx?collectionid=1003

A search can be directly issued via a URL such as :
http://localhost/tabuladx/search.aspx?collectionid=1001&query=office&xslfile=xml

6.2 Search.aspx Parameters

The full list of search.aspx parameters is detailed below.

Parameter	Description	Default Value if Unspecified
Collectionlist	If set to 1, a drop down is shown allowing the user to select the collection that they wish to search.	0
Logo	If set to 0, the Tabula DX logo is not shown.	1
Collectionid	The numeric collection id to be searched.	N/A
Query	The query string	N/A
Resultfields	The list of fields to be returned	highlight,path,title, thumbnailpath,pages
Resultstart	The result set document number of the first document to be returned.	1
Resultsperpage	The maximum number of results to be returned.	From collection configuration.
Xslfile	Set to XML to have pure XML returned (see 6.4 below) or alternatively specify an alternate XSL file.	From collection configuration.
Thumbnails	True or false. If set to false thumbnails are not to be displayed.	From collection configuration.
Indexdirectory	Index files directory	From collection configuration.
Sortorder	Comma separated list of sort fields eg field1,field2	Results will be returned in descending relevance order.
Sorttype	Comma separated list of sort field datatypes (string, int or float) corresponding to each sortfield eg string,int	All types will be assumed to be strings.
Sortasc	Comma separated of true / false values corresponding to each sortfield used to indicate ascending or descending sort order.	Ascending order will be used.

6.3 Customizing the search interface

When running a search, Tabula DX generates an XML file with details of the search results. This is passed to the browser with default of the XSL file to be used to transform the output into the search results page.

By default the style/results.xsl file is used. This can be customized to suit specific needs. Alternative stylesheets can be used by specifying the XSL stylesheet path in the Collection Settings page.

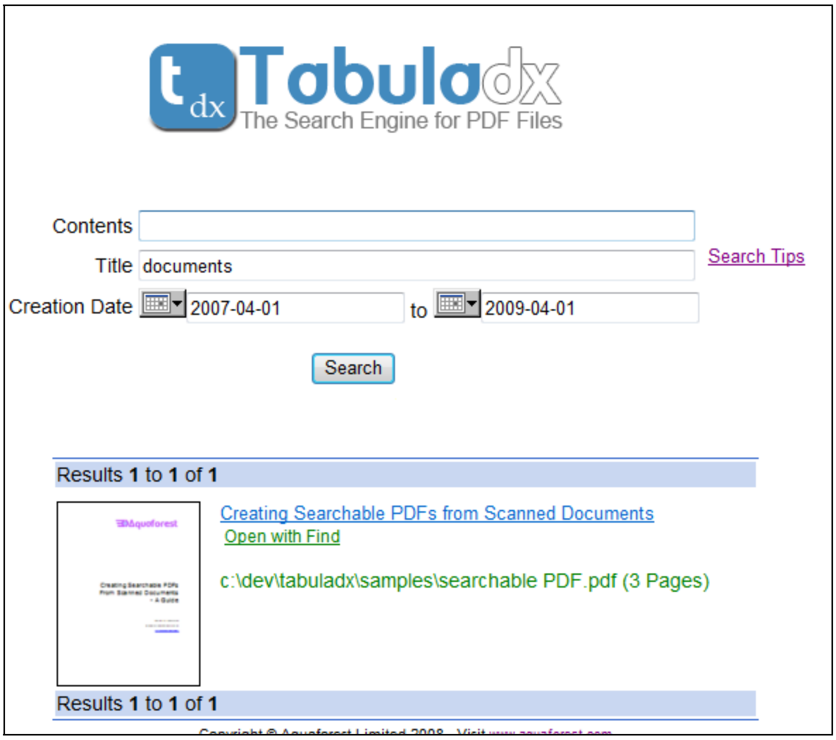
Two example alternative files are provided

6.3.1 resultslinklocal.xsl

To support easily editing PDF files, this can be used to launch Adobe Acrobat directly on the PDF file in question by using the green file path link. This can only be used locally (ie on the same machine that file files are located) and users need to have permission to run Active X controls on the web page. To ensure that the application has the correct path to Adobe Acrobat you can either edit the xsl file so that instead of acrobat.exe it has the full path (you'll need to use \\ instead of \ as \ is a special character) or perhaps better, add the folder that contains acrobat.exe to the system path (Control Panel | System | Advanced Settings | Environment Variables | System Variables | PATH.

6.3.2 resultscustom.xsl

This demonstrates the use of custom search fields and manipulation of the search string. In this example, the title field allows search of the title without having to specify title:…. in the query. Similarly the creation date fields allow for a convenient date input.



Contents
Title documents
Creation Date 2007-04-01 to 2009-04-01

Results **1** to **1** of **1**

Creating Searchable PDFs from Scanned Documents
Open with Find

c:\dev\tabuladx\samples\searchable PDF.pdf (3 Pages)

Results **1** to **1** of **1**

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To review how this is accomplished, analyze the xsl file and in particular the field definitions near the top of the file. The field name must be of the form ***add_name*** .

```
<xsl:comment>  Search Fields </xsl:comment>
                  <table>
                    <tr>
                      <td  align="right">Contents</td>
                      <td>
                        <input name="add_contents" size="60" >
                          <xsl:attribute name="value">
                            <xsl:value-of 
select="searchresults/search/add_contents"/>
                          </xsl:attribute>
                        </input>
                      </td>
                    </tr>
                    <tr>
…

<xsl:comment> End Search Fields </xsl:comment>
```

The JavaScript function *adjustQuery*() which appears near the end of the XSL file. This constructs the query as it would have been if the end user had typed in the full syntax for the query by placing the full query in the query field of the query form.

```
 <xsl:comment> The adjustQuery function constructs the necessary
query from the individual fields </xsl:comment>

          function adjustQuery()
          {
          var q="";
          var contents=document.query.add_contents.value;
          var title=document.query.add_title.value;
          var modstartdate=document.query.add_modstartdate.value;
          var modenddate=document.query.add_modenddate.value;

          if(contents!="")
          q+=contents;

          if(title!="")
          q+=" title:"+title;

          if(modstartdate!="")
          {
          modstartdate=""+modstartdate.replace(/-/g,"")+"000000";
          modenddate=""+modenddate.replace(/-/g,"")+"235959";
          q+=" winmodified:["+modstartdate+" TO "+modenddate+"]";
          }

          document.query.query.value=q;
          }
```

6.4 XML Output

Some applications may wish to directly consume the XML output from search.aspx. An example file segment and definition of each of the XML attributes is provided below.

```
<?xml version="1.0" encoding="utf-8"?>
<searchresults>
  <search>
    <collectionid>1001</collectionid>
    <query>document guidelines</query>
    <resultfields>highlight,path,title,thumbnailpath,pages</resultfields>
    <resultstart>1</resultstart>
    <resultend>9</resultend>
    <resultsperpage>10</resultsperpage>
    <sortorder />
    <thumbnails>true</thumbnails>
    <indexdirectory>c:\dev\scrii\index\</indexdirectory>
    <xslfile />
  </search>
  <hits>9</hits>
  <searchstatus>success</searchstatus>
  <results>
    <result>
      <row>1</row>
      <highlight>
        <B>Guidelines</B>for Creating Archival ……
      </highlight>
      <path>c:\docs2\PDFGuideline.pdf</path>
      <title>PDF Guideline for FDA</title>
      <thumbnailpath>c:\thumbnails\PDFG.pdf.1.gif</thumbnailpath>
      <pages>6</pages>
    </result>
    <result>
      <row>2</row>
…………. .
    </result>
  </results>
</searchresults>
```

Attribute	Description
<search>	This contains the search attributes
<collectionid>	The collection ID
<query>	The search query
<resultfields>	The fields that will be included in <results>
<resultstart>	The result number of the first document in <results>
<resultend>	The result number of the last document in <results>
<resultsperpage>	The maximum number of results
<thumbnails>	True or False (see <thumbnailpath> if true).
<indexdirectory>	The location of the collection index directory
<hits>	The total number of results from the search
<searchstatus>	Can be : success, blank (if query is blank), nomoreresults , error
<results>	The result document set
<result>	An individual result
<row>	The sequence in the result set
<*field*>	The contents of *field* for the document
<highlight>	Document fragment, highlighted with search terms
<path>	The path of the document
<title>	Document title. If the PDF document does not have a title, the first 60 characters of the document content is used.
<thumbnailpath>	The path of the thumbnail image
<pages>	The number of pages in the PDF document.

6.5 Web.config Parameters

The web.config file contains a number of appSettings that can be adjusted. These parameters are defined below.

Setting	**Description**
generatedTitleLength	For PDF documents with no title, Tabula DX generates a title for search results purposes using the first *generatedTitleLength* characters in the file. Initial value : 60.
highlighMaxDocBytesToAnaylze	When constructing the "highlight" text fragment for results display, this parameter determines how many characters of text will be examined. Initial value : 100000.
highlightNumFragments	Determines how many text fragments will be used in the highlight text. Initial value : 2.
highlightDelimiter	Specifies a character string to be used to separate the highlight text fragments. Initial value : "…"
highlightLength	Defines the length of highlight text. Initial value 150.
defaultOperator	Defines whether "AND" or "OR" is the default search operator. Initial value : "AND".
resizeThumbnails	By default thumbnails are a width of 100 pixels. They can be ***resized*** on the fly if this parameters is set to true. Initial value false. Note that if a different original thumbnail size is required this can be achieved by modifying the parameters in tabuladx.exe.config – see section 5.1.
resizeThumbnailWidth	Defines the image width if resizeThumbnails is set to true.

7 TABULA DX DIRECTORIES

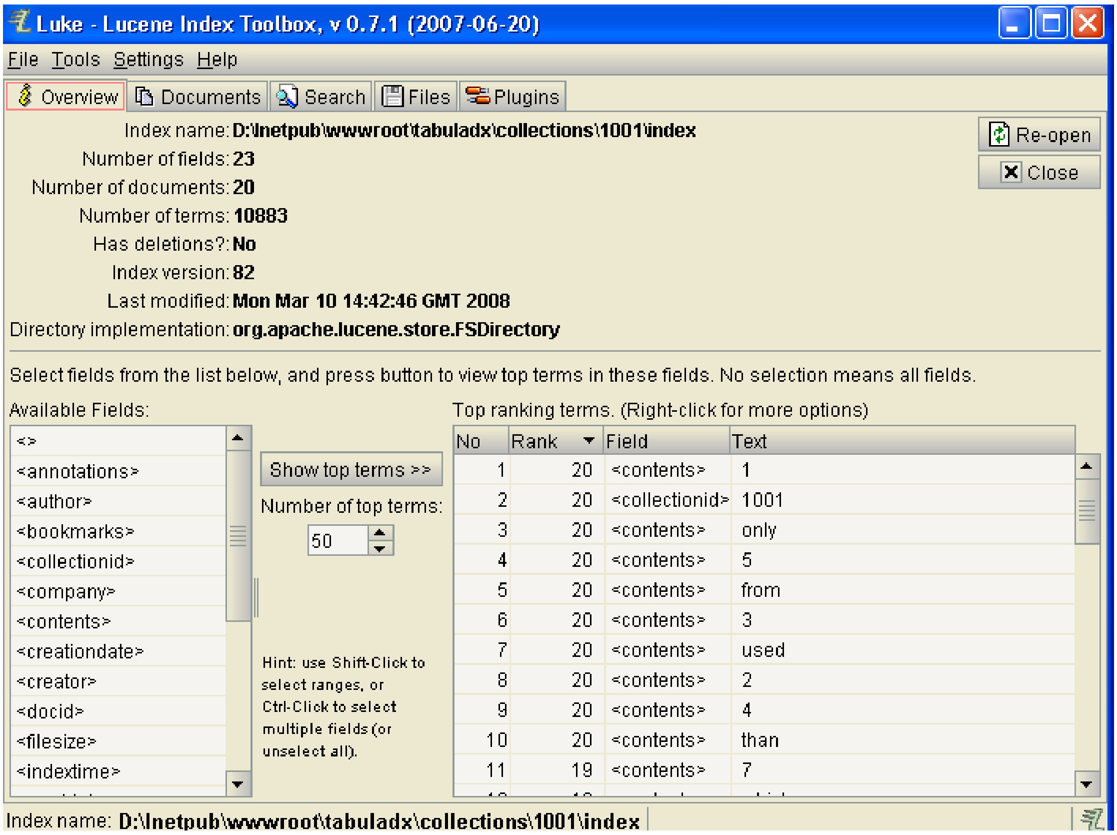
The Tabula DX folder structure is explained below. The root folder is typically c:\inetpub\wwwroot\tabuladx

Folder	Description
Bin	Contains the DLLs and executables, including tabuladx.exe
Collections	The root folder for the search collections.
Collections/9999	The root folder for the search collections 9999. Includes the config_9999.xml file which holds the collection configuration.
Collections/9999/index	The default location for the collection index files.
Collections/9999/indexlog	The default location for the collection index log files.
Collections/9999/temp	The location for the collection index log files.
Collections/9999/thumbnails	The default location for the collection thumbnail files.
Config	Contains the Tabula DX config file and the template collection template file.
Docs	Contains the reference guide and license file.
Img	Contains the images used in the web interface.
Samples	Contains the sample collection documents.
Style	Default location for XSL documents. Includes results.xsl.
Template	The template for the sample collection.

8 TABULA DX AND LUCENE

The indexes created by Tabula DX are compatible with Lucene 1.4 or later. More information regarding Lucene can be found here : http://lucene.apache.org/java/docs/

Included with the product is Luke – the Lucene Index Toolbox. This can be a useful tool for analyzing the contents of indexes and running queries. Luke can be launched by running lukeall-0.7.1.jar in the product bin folder. Luke is Licensed under the Apache License, Version 2.0 (the "License"); you may You may obtain a copy of the License at http://www.apache.org/licenses/LICENSE-2.0



Index name: D:\Inetpub\wwwroot\tabuladx\collections\1001\index
Number of fields: 23
Number of documents: 20
Number of terms: 10883
Has deletions?: No
Index version: 82
Last modified: Mon Mar 10 14:42:46 GMT 2008
Directory implementation: org.apache.lucene.store.FSDirectory

Select fields from the list below, and press button to view top terms in these fields. No selection means all fields.

Available Fields:

<>
<annotations>
<author>
<bookmarks>
<collectionid>
<company>
<contents>
<creationdate>
<creator>
<docid>
<filesize>
<indextime>

Hint: use Shift-Click to select ranges, or Ctrl-Click to select multiple fields (or unselect all).

Top ranking terms. (Right-click for more options)

No	Rank	Field	Text
1	20	<contents>	1
2	20	<collectionid>	1001
3	20	<contents>	only
4	20	<contents>	5
5	20	<contents>	from
6	20	<contents>	3
7	20	<contents>	used
8	20	<contents>	2
9	20	<contents>	4
10	20	<contents>	than
11	19	<contents>	7

Index name: D:\Inetpub\wwwroot\tabuladx\collections\1001\index

9 ACKNOWLEDGEMENTS

This product includes Luke - Lucene Index Toolbox (http://www.getopt.org/luke), Copyright 2008 Andrzej Bialecki.

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