Select * From SharePoint Where db = 'Access'

Nikander and Margriet Bruggeman

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One of the key things SharePoint Portal Server is known for is its enterprise scalable search. SharePoint Portal Server can be used to search through a wide variety different kinds of content sources. Nikander and Margriet Bruggeman explain how to search an Access database from SharePoint.

FIRST of all, this article isn't intended for people with no prior knowledge of SharePoint Portal Server. If you need an introductory article about SharePoint, please read our article, "Meeting SharePoint Portal Server" which was published in last month's issue of *Smart Access*. This article covers a more specific topic—how to index and search an Access database using SharePoint Portal Server.

Available content sources

In order for SharePoint Portal Server to search through various content sources, a protocol handler for the content source must be provided. Out of the box, SharePoint Portal Server ships with a default set of protocol handlers (it's also possible for you to create your own protocol handlers). To find out which protocol handlers are installed on your server, look at the following key in the Windows Registry:

```
HKLM\Software\Microsoft\Search\1.0\ProtocolHandlers.
```

The following content sources are currently available:

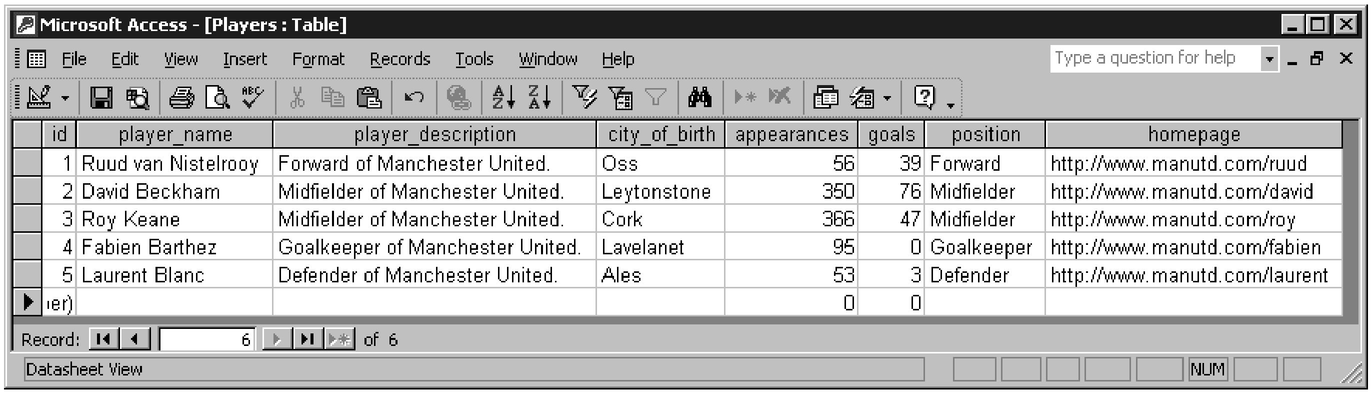
- Lotus Notes
- Exchange 5.5 public folders
- Exchange 2000 public folders
- SharePoint Portal Server workspaces
- SharePoint Team Services Web sites
- file shares
- Web sites
- ftp sites

The ftp sites content source is optional. To get that protocol handler, you'll need to download it from the Microsoft Web site.

As you can see, databases like SQL Server and Access aren't included. Don't despair—this doesn't mean these databases can't be searched. You do have to perform a couple of steps before you'll be able to access their data, however.

Soccer example

To demonstrate how to search an Access database, we've created a table called Players and filled it with information about five players from the English football club Manchester United (see **Table 1** and **Figure 1**). What we want to accomplish in our example is to enable users of a SharePoint Portal Server portal site to search for this player information using the standard SharePoint Portal Server search interface.


Microsoft Access - [Players : Table]
File Edit View Insert Format Records Tools Window Help
Type a question for help
Record: 6 of 6
Datasheet View
NUM

id	player_name	player_description	city_of_birth	appearances	goals	position	homepage
1	Ruud van Nistelrooy	Forward of Manchester United.	Oss	56	39	Forward	http://www.manutd.com/ruud
2	David Beckham	Midfielder of Manchester United.	Leytonstone	350	76	Midfielder	http://www.manutd.com/david
3	Roy Keane	Midfielder of Manchester United.	Cork	366	47	Midfielder	http://www.manutd.com/roy
4	Fabien Barthez	Goalkeeper of Manchester United.	Lavelanet	95	0	Goalkeeper	http://www.manutd.com/fabien
5	Laurent Blanc	Defender of Manchester United.	Ales	53	3	Defender	http://www.manutd.com/laurent
ier)				0	0		

Figure 1. Contents of the Players table.

In the next section we'll explore how this data would typically be stored if it was accessed in SharePoint Portal Server.

Document profile

All information in SharePoint Portal Server is associated with document profiles. A document profile can loosely be compared to a table definition. The same data in SharePoint Portal Server is captured in a document profile called ManUtdPlayers, as shown in Figure 2.

In order to search an Access database you need to create a mapping between Access tables and a SharePoint Portal Server document profile. For our example, that mapping appears in Table 2.

In the next section we'll show you how to implement this mapping.

Access content source

The next step is generating the Access data in a searchable format. Because you cannot search an Access content source directly from SharePoint, we'll create a content source that *can* be searched by SharePoint Portal Server: a Web site. We've created a set of static HTML pages with player information, which we've exported from Access. You can export data either from the Access user interface or through code in your application. At the end of the article, we'll show you some code that retrieves data dynamically from Access. This code would allow you to generate your SharePoint searchable store at the time that the data is indexed.

The first HTML code that we'll show is the code for a general overview page. This page would allow users to view the Web site from a browser. Detailed information about a player can be retrieved by following the links on this page:

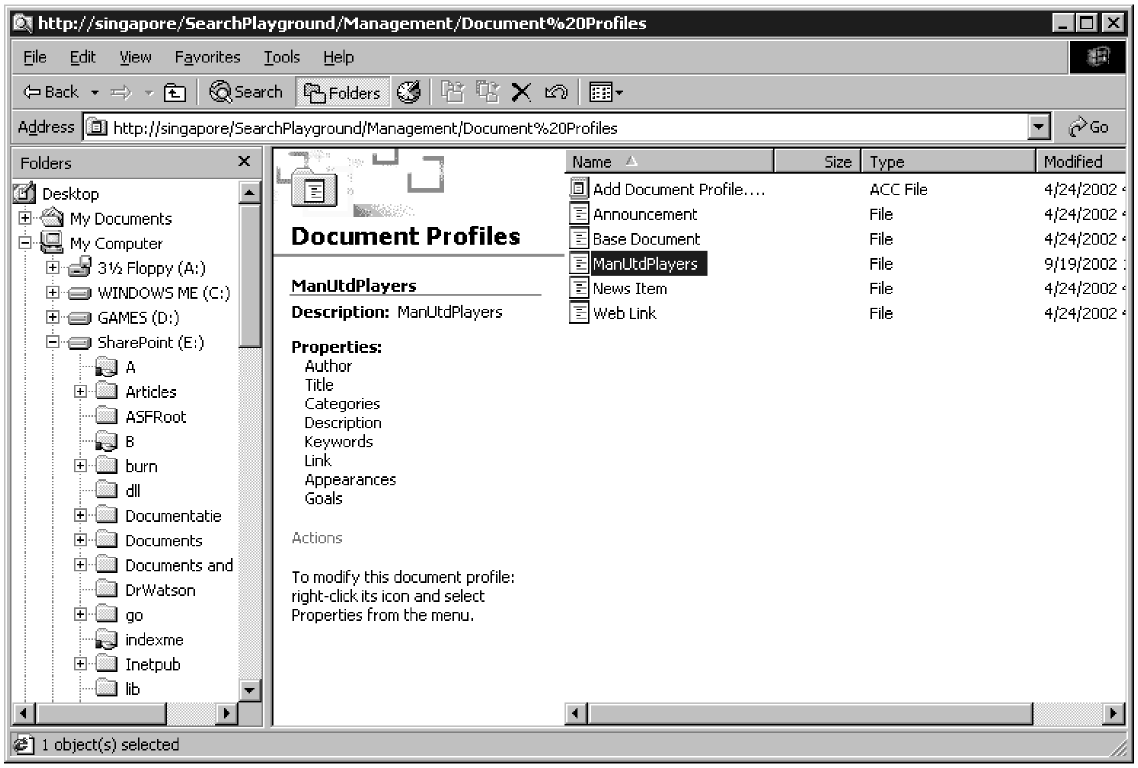
```
<html>
<head>
  <meta name="robots" content="noindex,follow" />
```

Table 1. The table layout for our sample table.

Field name	Data type
Id	AutoNumber
player_name	Text
player_description	Text
city_of_birth	Text
Position	Text
Homepage	Text
Appearances	Number
Goals	Number

Table 2. Mapping a SharePoint document profile to an Access table.

Document profile property	Access column
Title	player_name
Description	player_description
Categories	Position
Keywords	city_of_birth
Link	Homepage
Appearances	Appearances
Goals	Goals



Document Profiles

ManUtdPlayers

Description: ManUtdPlayers

Properties:
Author
Title
Categories
Description
Keywords
Link
Appearances
Goals

Actions

To modify this document profile: right-click its icon and select Properties from the menu.

Name	Size	Type	Modified
Add Document Profile....		ACC File	4/24/2002
Announcement		File	4/24/2002
Base Document		File	4/24/2002
ManUtdPlayers		File	9/19/2002
News Item		File	4/24/2002
Web Link		File	4/24/2002

Figure 2. A SharePoint document profile to match the Players table.

```
</head>
<body>
<a href="Ruud.asp">Ruud</a><br />
<a href="David.asp">David</a><br />
<a href="Fabien.asp">Fabien</a><br />
<a href="Roy.asp">Roy</a><br />
<a href="Laurent.asp">Laurent</a>
</body>
</html>
```

A more generalized solution uses a single page for all users with a query string value that specifies which player's information to use:

```
<html>
<head>
  <meta name="robots" content="noindex,follow" />
</head>
<body>
<a href="Player.asp?id=1">Ruud</a><br />
<a href="Player.asp?id=2">David</a><br />
<a href="Player.asp?id=3">Fabien</a><br />
<a href="Player.asp?id=4">Roy</a><br />
<a href="Player.asp?id=5”>Laurent</a>
</body>
</html>
```

We'll return to this design when we create a dynamic data solution near the end of this article.

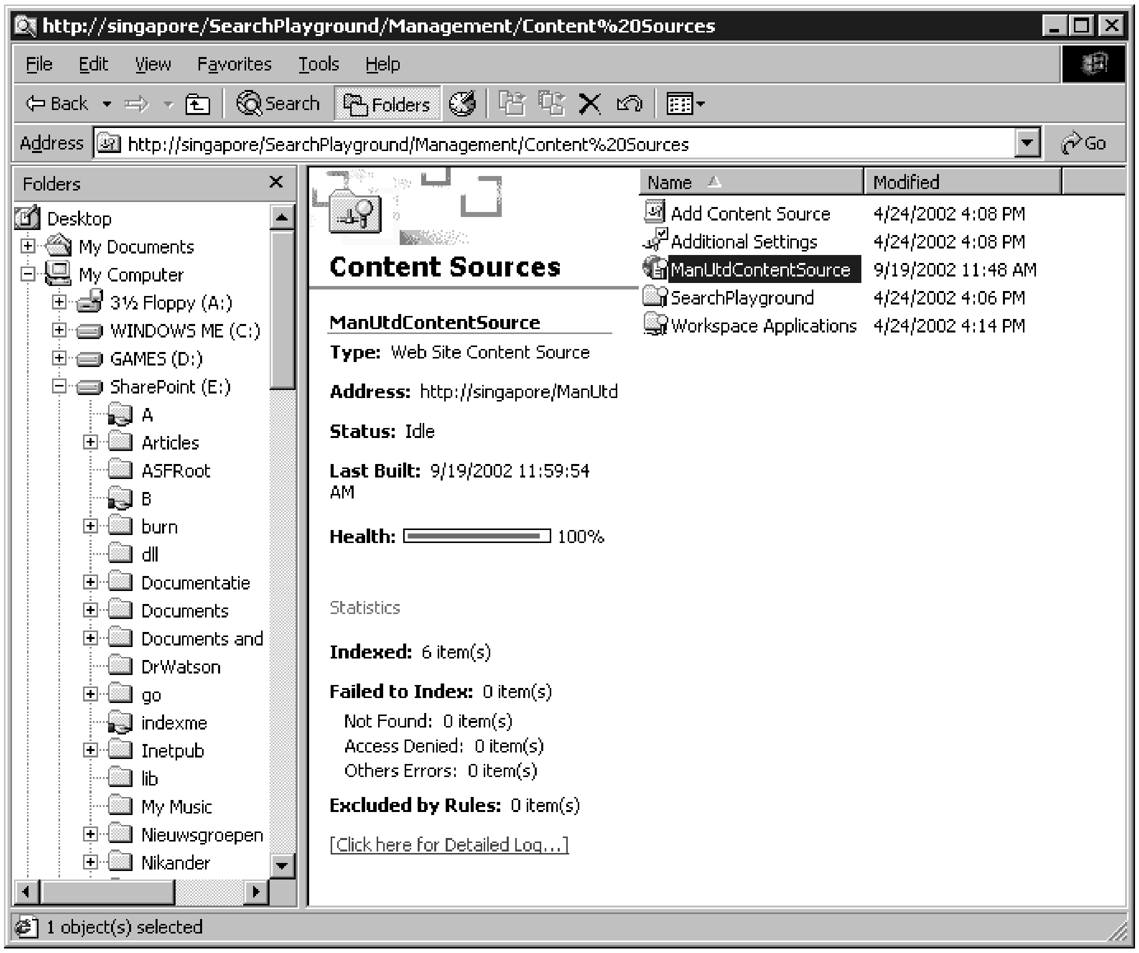
The robots <meta> prevents the general overview page from being indexed by SharePoint Portal Server (the noindex entry in the content attribute). The follow entry causes SharePoint to follow the links to the detail pages so that they can be indexed.

Next, we have an example of a detail page:

```
<html>
<head>
  <title>Ruud van Nistelrooy</title>
  <meta name="MetaAuthor" content="Bruggeman" />
  <meta name="MetaDescription"
       content="Forward of Manchester United." />
  <meta name="MetaCategories" content=":Forward" />
  <meta name="MetaKeywords" content="Oss" />
  <meta name="MetaContentClass"
      content="urn:content-classes:ManUtdPlayers" />
  <meta name="MetaLink"
      content="http://www.manutd.com/ruud" />
  <meta name="MetaAppearances" content="56" />
  <meta name="MetaGoals" content="39" />
</head>
<body>
</body>
</html>
```

As you can see, the HTML page contains <meta> tags that are mapped either to the columns in the Access table or to properties in the SharePoint Portal Server document profile.

The MetaCategories <meta> tag is especially important. In SharePoint Portal Server the Categories document property is an existing system property that can have multiple values. In a Web page the meta tag can only have one value if it's to be mapped to the Categories document property. The colon (:) before a category name


http://singapore/SearchPlayground/Management/Content%20Sources

Content Sources

ManUtdContentSource
Type: Web Site Content Source
Address: http://singapore/ManUtd
Status: Idle
Last Built: 9/19/2002 11:59:54 AM
Health: 100%

Statistics
Indexed: 6 item(s)
Failed to Index: 0 item(s)
Not Found: 0 item(s)
Access Denied: 0 item(s)
Others Errors: 0 item(s)
Excluded by Rules: 0 item(s)
[Click here for Detailed Log...]

Name	Modified
Add Content Source	4/24/2002 4:08 PM
Additional Settings	4/24/2002 4:08 PM
ManUtdContentSource	9/19/2002 11:48 AM
SearchPlayground	4/24/2002 4:06 PM
Workspace Applications	4/24/2002 4:14 PM

1 object(s) selected

Figure 3. The sample content source.

is mandatory, because all category names in SharePoint Portal Server start with a colon.

The next step is to create a Web site content source. Here are the steps you need to take:

1. In Windows Explorer, go to your SharePoint Portal Server workspace.
2. Go to management/content sources and double-click "Add content source," which will start the content source wizard.
3. On the welcome screen, click Next.
4. On the content source type screen, choose "Web site" and click Next.
5. On the content source screen, type the URL where you stored your HTML pages: http://myservername/myvirtualdir. In our case this is http://singapore/ManUtd (see **Figure 3**).
6. On the content source screen under "Create an index of:" choose "This site—follow links to all pages on this site" and click Next.
7. On the name screen, type "ManUtdContentSource" and click Next.
8. On the last screen of the content source wizard, make sure the check box "Start creating an index" is *not* checked. You shouldn't index the Web site yet because you haven't mapped the HTML meta tags to the document profile.
9. Click Finish.

Making the mapping

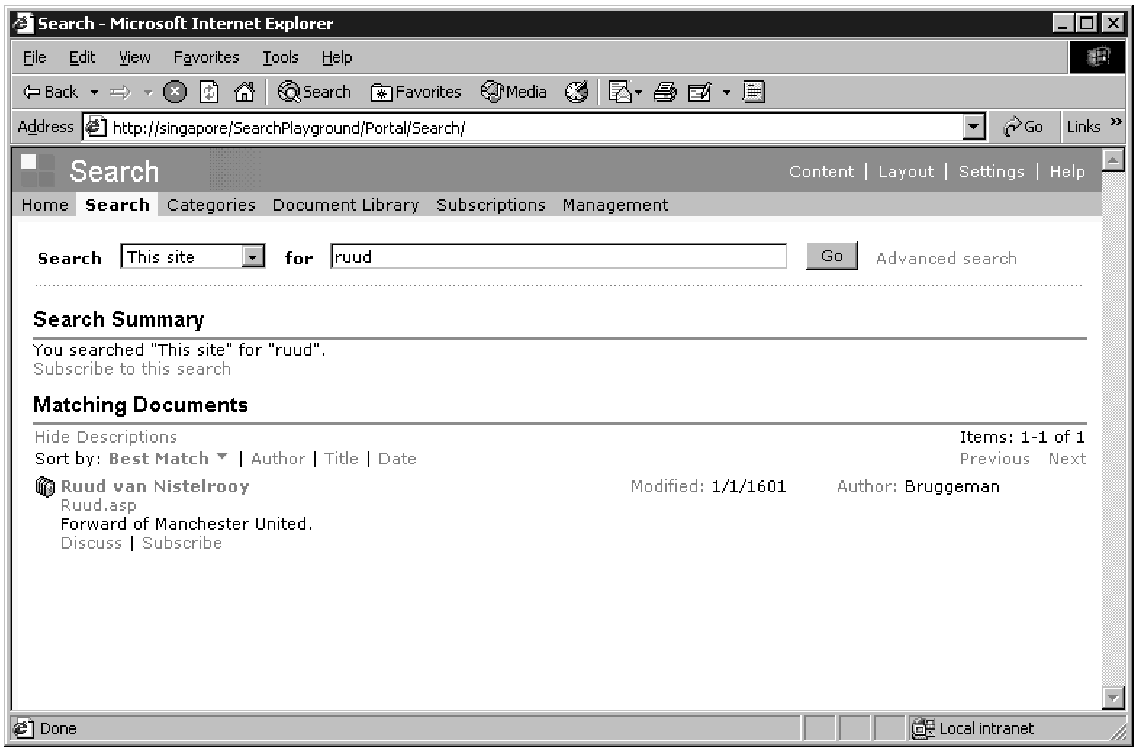
We've included a file available for Download (with the monthly source code at www.smartaccessnewsletter.com) called propmap.xml, that contains a mapping between HTML meta tags and SharePoint Portal Server document properties. This listing shows a small section of the file:

```
<?xml version="1.0"?>
<propertyMap>
  <server>
    <name>singapore</name>
    <workspace>
      <name>searchplayground</name>
      <contentSource>
        <name>ManUtdContentSource</name>
        <targetContentClass>
          ManUtdPlayers
        </targetContentClass>
        <property>
          <sourceName>MetaDescription</sourceName>
          <sourceType>string</sourceType>
          <targetName>Description</targetName>
        </property>
          ...
      </contentSource>
    </workspace>
  </server>
</propertyMap>
```

We've also included a script called propmap.wsf. This script can be called from the command line using cscript propmap.wsf. This script looks for propmap.xml in the same directory and adjusts the created content source so that the mapping between the meta data in HTML and SharePoint Portal Server is made.

The script creates a site path rule that needs to be edited manually before the content source can be indexed. These steps take care of that:

1. Return to your SharePoint Portal Server workspace.
2. Go to the management/content sources folder and


Search - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://singapore/SearchPlayground/Portal/Search/
Go Links
Search
Content | Layout | Settings | Help
Home Search Categories Document Library Subscriptions Management

Search This site for ruud Go Advanced search

Search Summary

You searched "This site" for "ruud".
Subscribe to this search

Matching Documents

Hide Descriptions
Sort by: Best Match | Author | Title | Date
Items: 1-1 of 1
Previous Next

Ruud van Nistelrooy
Ruud.asp
Forward of Manchester United.
Discuss | Subscribe
Modified: 1/1/1601 Author: Bruggeman

Figure 4. A simple SharePoint search.

double-click "Additional settings."
3. Click the "Site paths…" button.
4. Choose the ManUtd site path rule and click Edit.
5. Click Options.
6. Click the "Enable complex links" check box. This ensures that query string parameters are taken into account when searching. This is necessary when indexing dynamic pages. Strictly speaking, it isn't necessary at this point because initially we're generating static HTML pages from our Access database. However, we're already looking ahead to the query strings we use in our dynamic solution.
7. Press the successive OK buttons to exit the dialogs but, again, don't start an index yet.

Indexing

After all these changes, the following services need to be restarted to flush any cached schema:

- Microsoft Exchange Information Store
- Microsoft Search
- SharePoint Portal Server

Finally, you can start indexing the content source by right-clicking the content source in your Web Folders and choosing "Start full update." **Figure 4** shows a screenshot taken from a test portal site. We've used the SharePoint Portal Server search Web part to look for our favorite player "Ruud van Nistelrooy."

Since we made a mapping to the SharePoint Portal Server Categories document property, we can also use the Categories dashboard to search for midfielders, as shown in **Figure 5**.

Dynamic pages

We wrote some code for dynamic pages that query our Access database. What will happen is that, as the indexing engine follows the links, the pages will execute this code. The code will extract the data from the Access database and return it to the requesting user—in this case, the SharePoint indexing function. From the indexer's point of view, it followed a link and got something to index. The fact that the page was generated dynamically isn't relevant.

You can use this code as a building block for implementing your own solutions. Our example is written in .NET and C#. We won't list the entire code but just the part that retrieves data from Access.

This is the code snippet to extract the data to generate the overview page. The page itself would has a DataList control called ManUtdDataList that is filled with the data on the last line:

```
string ConnectionString = "[MyConnectionString]";
string Query = "select * from players";
OleDbConnection Conn =
      new OleDbConnection(ConnectionString);
Conn.Open();
OleDbDataAdapter Adapter =
      new OleDbDataAdapter(Query, Conn);
DataSet Ds = new DataSet();
Adapter.Fill(Ds);
ManUtdDataList.DataSource = Ds;
ManUtdDataList.DataBind();
```

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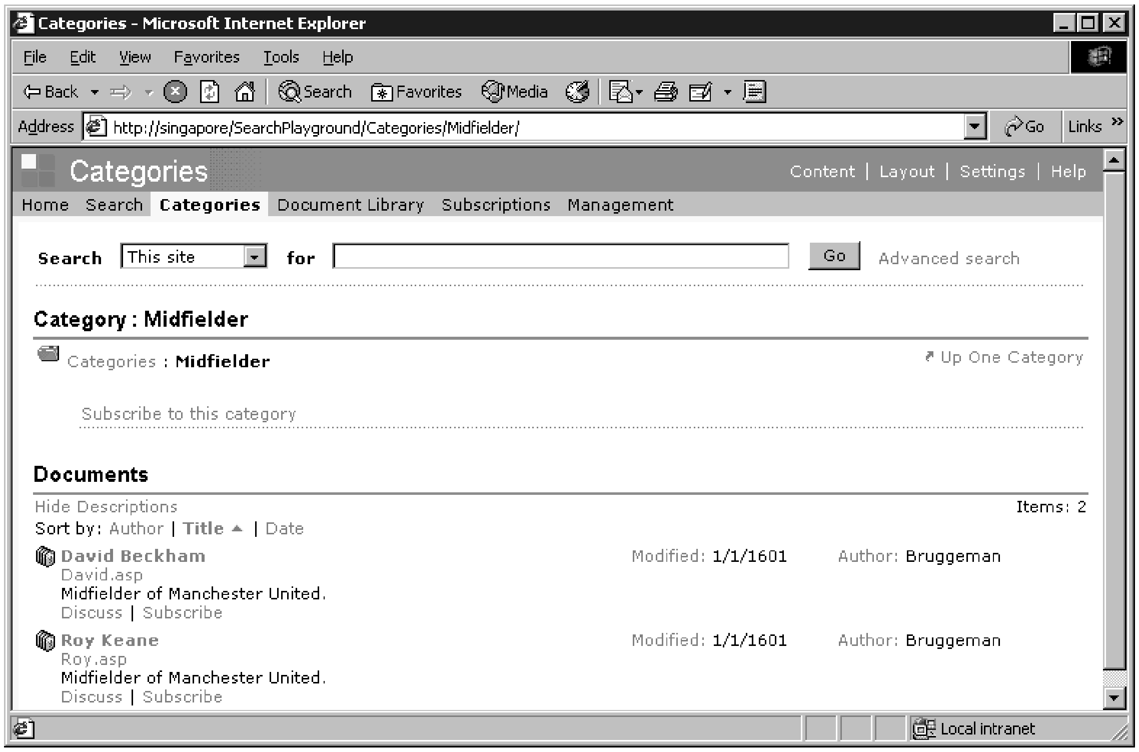
Categories - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://singapore/SearchPlayground/Categories/Midfielder/
Go Links
Categories
Content | Layout | Settings | Help
Home Search Categories Document Library Subscriptions Management
Search This site for Go Advanced search
Local intranet

Category : Midfielder

Categories : Midfielder — Up One Category

Subscribe to this category

Documents

Hide Descriptions — Items: 2

Sort by: Author | Title | Date

David Beckham — Modified: 1/1/1601 — Author: Bruggeman
David.asp
Midfielder of Manchester United.
Discuss | Subscribe

Roy Keane — Modified: 1/1/1601 — Author: Bruggeman
Roy.asp
Midfielder of Manchester United.
Discuss | Subscribe

Figure 5. The Categories dashboard.

statement, substituting question marks for the value to be used in the comparison. On this form, the WHERE clause works out to:

```
WHERE (dbo.tblTask.TaskID= ?)
```

If you try to enter data on this form, you should notice that the Calculated field is now updated when you modify a record. ▲

DOWNLOAD ADPCHG.ZIP at www.smartaccessnewsletter.com

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Passwords, Workgroups...

Continued from page 6

shortcut properties to find the password. Anyway, it's likely that your users will just write the password on a post-it note on the front of their computer screen for all to find out!

To my mind, Access security is a process of reducing the business risks for our clients. With every additional security option that you add to your database, there's generally a security penalty (such as remembering a password or 20 more hours of programming). The examples that I've shown for ADO connections have a lot of appeal in that they allow the software to interact with your database without giving away the vital passwords. If you're like me, any article or example that shows you how to use ADO in your software is just one step closer to the day when ADO becomes your second language. ▲

DOWNLOAD ADOPSWD.ZIP at www.smartaccessnewsletter.com

Garry Robinson runs GR-FX Pty Limited, a company based in Sydney, Australia. If you want to keep up to date with the his latest postings on Access issues, visit his company's Web site at www.vb123.com or sign up for his Access e-mail newsletter by sending a blank e-mail to tips@gr-fx.com. The site features Access Source Code tools and resources. Garry discovered a lot of this code when writing an Access security product called The Workbench which is available for download at his site. access@gr-fx.com.

Select * From SharePoint...

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This code generates a detail page. The Request .QueryString extracts the player number passed in the URL from the overview page:

```
string Query = "select * from players
       where id = " + Request.QueryString["id"];
OleDbConnection Conn =
     new OleDbConnection(ConnectionString);
Conn.Open();
OleDbCommand Command =
       new OleDbCommand(Query, Conn);
Reader = Command.ExecuteReader();
Reader.Read();
```

The entire code sample can be downloaded from the *Smart Access* Download site.

Don't let the limited set of default content sources in SharePoint Portal Server fool you. It's possible to use a workaround to search in every imaginable content source. This article showed you how to search in Access. ▲

DOWNLOAD SHPSLCT.ZIP at www.smartaccessnewsletter.com

Nikander and Margriet Bruggeman both work for a Dutch software company called Macaw (www.macaw.nl), which specializes in building Internet applications using the latest Microsoft technology. brugg042@wxs.nl.