Engine

Windows Azure SQL Database Development with the dtSearch

Bruno Terkaly, 6 Nov 2013 In this post will focus on how you can index a database table so that you can perform lightning quick full-text searches **Editorial Note**

This article is in the Product Showcase section for our sponsors at CodeProject. These articles are intended to provide you with information on products and services that we consider useful and of value to developers. Overview

Windows Azure SQL Database does not support the CONTAINS keyword. CONTAINS is important because it supports searches for precise or fuzzy (less precise) matches to single words and phrases, words within a certain distance of one another, or weighted matches. CONTAINS is a predicate used in the WHERE clause http://technet.microsoft.com/en-us/library/ms188047.aspx of a Transact-SQL SELECT statement. But there are ways to get this functionality with the help of third party software. I recently downloaded all the movie information for films

database. Specifically I used SQL database hosted in the Windows Azure platform.

In this hands-on lab, you will learn:

provided by dtSearch

wanted to build one master index that would allow me to perform the search locally against the generated index and then be able to pull up the specific record in the database table once I found what I was looking for. dtSearch is a product that allows you to accomplish this goal. I downloaded it and installed it. Of course, I use it for many of my other searching needs as well. dtSearch has a variety of products. This post will focus on how you can index a database table so that you can perform lightning quick full-text searches.

that took place in San Francisco. The San Francisco government website provided this interesting information that I wanted to search through very quickly. The data wasn't very normalized so there are many columns that are difficult to search. I downloaded this information (https://data.sfgov.org/Arts-Culture-and-Recreation-/Film-Locations-in-San-Francisco/yitu-d5am) and imported it into a

My goal was to be able to find records in the database table, searching in all columns and in all rows quickly and efficiently. Essentially, I

How To Get Full-Text Search Capabilities in a Windows Azure SQL Database Objectives

3. How to identify and build the appropriate connection string (OLEDB) to enable the Visual Studio Sample Project application

To develop this example further, it is possible to extend the sample and retrieve matching records from dtSearch. Prerequisites The following is required to complete this hands-on lab: 5. A Windows Azure subscription 6. An evaluation version of dtSearch (http://www.dtsearch.com)

Setup In order to execute the exercises in this hands-on lab you need to set up your environment. 7. Start by logging into the **Windows Azure Portal** (http://manage.windowsazure.com). and load the data into Windows Azure SQL Database.

1. How dtSearch can be used to create a full index over an Azure-hosted SQL Database table.

2. How to store the index locally on the client for super fast querying with fuzzy logic

4. How to perform full text searches and find the matching record in SQL Azure

8. Download the SF Movie data (https://data.sfgov.org/Arts-Culture-and-Recreation-/Film-Locations-in-San-Francisco/yitu-d5am) Task 1 – Registering the dtSearch Assembly, Viewing the Windows Azure SQL Database at the Portal

This task is about creating a VM where we will store all of our searchable content. 9. Note below that I am registering one of the assemblies that gets installed with **dtSearch**. Regsvr32 is an essential command to get _ 🗆 📗

Administrator: Command Prompt :\Program Files (x86)\dt\$earch Developer\bin64>dir dt* Volume in drive C is OSDisk Volume Serial Number is E230-5508 Directory of C:\Program Files (x86)\dtSearch Developer\bin64

6,950,024 dtengine64.dll

C:\Program Files (x86)\dtSearch Developer\bin64>

Opening the solution

File Edit View Favorites Tools Help

RegSvr32 DIIRegisterServer in dtengine64.dll succeeded. OK 5,240,960 dtWebSetup64.exe 34,876,680 bytes 89,629,995,008 bytes free :\Program Files (x86)\dtSearch Developer\bin64>regsvr32 dtengine64.dll

Registering the assembly 10. This post is using Visual Studio 2013 as the IDE. From the menu choose ** File | Open | Project**. Quick Launch (Ctrl+Q) Object Browser - Microsoft Visual Studio (Administrator) FILE EDIT VIEW PROJECT DEBUG TEAM TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP Bruno Terkaly * Open Project/Solution... Ctrl+Shift+O Close Shift+Alt+O Web Site... Close Solution Open from Source Control Save Selected Items Team Project... Ctrl+O Convert Export Template. Source Control Page Setup. Account Settings. Recent Files Recent Projects and Solutions · 2 2 2 5 70 Show output from: Debug Error List Output Find Results 1 Find Symbol Result Opening the project project as seen below. Quick Launch (Ctrl+Q) Bruno Terkaly * # dtSearch Developer + examples + cs4 + ado_demo

11. Navigate to the installation folder for **dtSearch**. (C:\Program Files (x86)\dtSearch Developer\examples\cs4\ado_demo). Open the

- 4 x P - 0 × 0 Date modified Type SkyDrive 10/28/2013 8:40 A. File folder 10/23/2013 12:16 ... File folder This PC 10/28/2013 8:40 A. File folder 10/28/2013 8:42 A. CSPROJ File ADONETDemo.sin 7/13/2010 2:42 PM SLN File 2.KB la Music **Pictures** Videos Sign OSDisk (C:) File name: ADONETDemo.sin All Project Files (*.sin;*.dsw;* > Open Cancel

represents the movie filmed in San Francisco over the last several decades.

sql databases DATABASES SCHVERS

Viewing the database at the Windows Azure portal

of the connection string that is needed.

File Edit View Favorites Tools Help

Task 2— Getting the connection string information

sfmovies

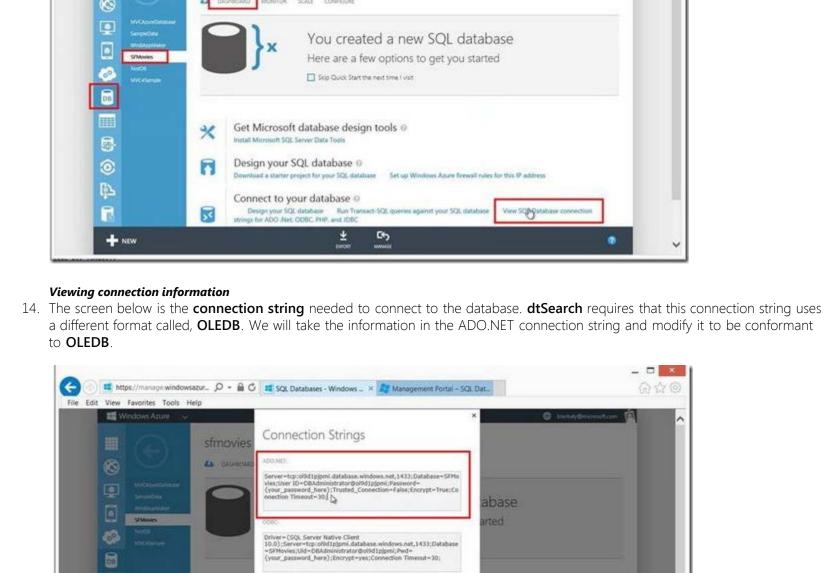
In this next section we will get the connection string information. Unfortunately, Windows Azure portal does not provide the exact format

information is necessary so that the Visual Studio project can connect to the database and index the information inside of it.

13. Notice that in the lower right corner of the figure below you can view the connection information for your database. This

📫 https://manage.windowsazur... 🔎 + 🔒 🖒 💶 SQL Databases - Windows ... × 🎉 Management Portal – SQL Dat...

12. Notice in the screen below that the database already exists. The database is called **SFmovies**. As mentioned previously, the data



Allow the connection in tirreal rules.

Viewing the ADO.NET connection string

File Edit Tools Syntax Buffers Window Help

User ID=DBAdministrator@ol9d1pjpmi;

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Data Source=tcp:ol9d1pjpmi.database.windows.net,1433;

format required by OLEDB.

Provider=SQLNCLI11; Password=P@ssw0rd;

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Connecting to the database

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Viewing the movies data

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Running the dtSearch project

The indexing the database

Indexing the database

Entering the connection string

during the indexing process.

command button below.

ADONETDemo (Running) - Microsoft Visual Studio (Administrator)

Process: [7520] ADONETDemo.vshostexe . [1] Suspend - Thread [1512] Main

Searching for embedded strings in the database

to actually dig deeper into the search results.

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SFMovie golfgn (124 docs, 124 hts)

SFMovies

Databases

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Entering a search string

SFMovies

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Viewing the details of the search

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SFMovie

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do://Movies#MovieRowld+768

db://Movies#MovieRowld+752

Management Studio results screen. This post has now come full circle.

SQLQuery1.sql - oi9...dministrator (795)) ×

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,[Title] ,[Release_Year]

[Locations] [Fun_Facts]

[Production

Bruno Terkaly

Canada 🖭

[Distributor]

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▼ # × SQLQuery1.sql - oi9...dministrator (795)) >>

Search Request

Index to Search

1985

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Note: In a real app you could extract the **row id** and perform another lookup.

Golden Gate

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FILE EDIT VIEW PROJECT BUILD DEBUG TEAM TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP

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ADO.NET Demo (C#)

ADO NET indexing and Searching Demo (NET 4.0) pyright 2004-2010 dtSearch Corp.

dtSearch Engine

ADONETDemo - Microsoft Visual Studio (Administrator)

Build Solution.

Security

Management

File Edit View Debug Tools Window Help

The reformatted connection string

Initial Catalog=SFMovies;

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OpenDatabaseform.cs ☐ README.txt C* RegistryHelper.cs ResultsForm.cs

▶ ■ SearchForm.cs

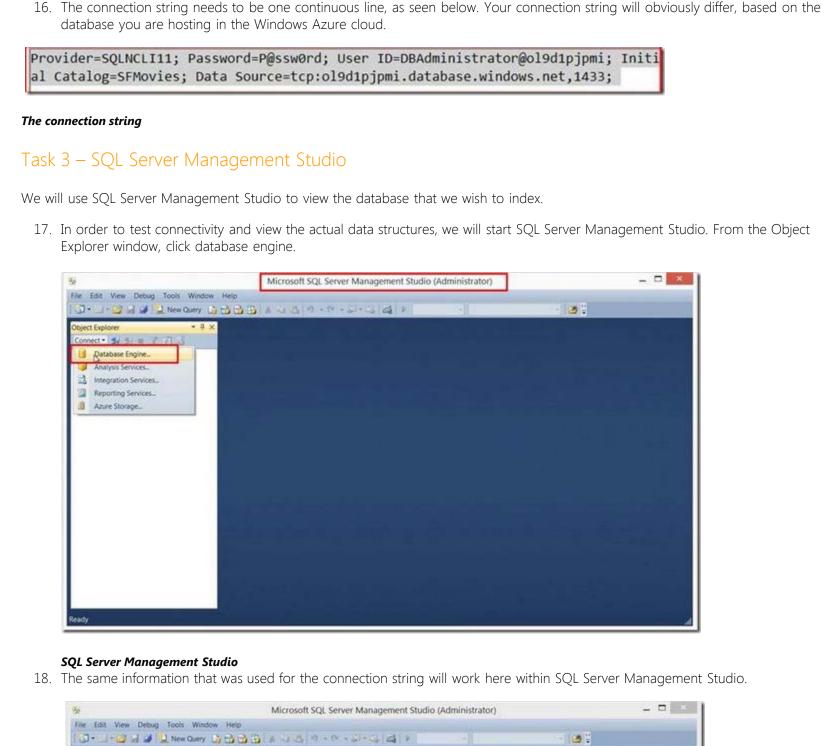
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elliTrace data, you must break execution of your

15. Notice in the figure below the connection string has been altered to conform to the format required by **dtSearch**. This is the

[No Name] + - GVIM



Connect Cancel Help Options >>

Microsoft SQL Server Management Studio (Administrator)

Connect to Server

SQL Server 2012

19. As seen below, choose to create a query that will display the records from the movies table.

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      Viewing the movies table in the SFmovies database
20. Notice in the figure below all the information for the movies is displayed within SQL Server Management Studio.
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FILE EDIT VIEW PROJECT BUILD DEBUG TEAM TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP

- Debug - III -

Show output from: Debug

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The thread 8x33c has exited with code 259 (8x183).

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP

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ADO.NET Demo (C#)

ADO NET Indexing and Searching Demo (NET 4.0) Copyright 2004-2010 dtSearch Corp.

dtSearch Engine

22. Once the project is running, you will see a form pop-up. Click the button that reads **Index a Database**.

The program '[7208] ADONETDemo.vshost.exe' has exited with code 0 (0x0).
The program '[7208] ADONETDemo.vshost.exe' has exited with code 0 (0x0).

ADONETDemo (Running) - Microsoft Visual Studio (Administrator)

Index a database

the folder below. Click on the **Index** button below. ADONETDemo (Running) - Microsoft Visual Studio (Administrator)

Process: [3256] ADONETDemo.vshost.exe • [7] Suspend + Thread.

Fields to store in inde

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP

Enter a location for the index to be built.

When you click index, you will be prompted for the database to index.

[No Name] + - GVIM

Provider+SQLNCU11, Password+P@ssw0rd, User ID+DBAdministrator@of3d1ppmi Initial Catalog+SFMovies, Data Source+top of3d1ppmi database windows net, 1433.

Ender a location for the index to be built.
When you click index, you will be prompted for the database to index

C:\Program Files (x86)\dtSearch Developer\examples\cs4\ado_demo\bin\x64\Debug\index

al Catalog=SFMovies; Data Source=tcp:ol9d1pjpmi.database.windows.net,1433;

Provider-SQLNCLIII; Password-P@ssw@rd; User ID-DBAdministrator@ol9dipjpmi; Initi 🛆 carname

OpenDatabase

Path to Microsoft Access (MDB) database to index

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ADO.NET Demo (C#)

Index ADO.NET Data Source

24. At this point the application will request your **OLEDB** connection string. Paste into the box below. Then click **OK**.

Process: [3256] ADONETDemo.vshostexe • [7] Suspend • Thread

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Justin Herman Plaza

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Now that we have the connection string, we are able to start executing the demo (ADONETDemo). You can download this project here: (C:\Program Files (x86)\dtSearch Developer\examples\cs4\ado_demo\ADONETDemo.sln).From the Build menu you can

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□ ₹1 Quick Launch (Ctrl+Q)

Quick Launch (Ctrl+Q)

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To view IntelliTrace data, you must break execution of your

23. Notice the **index directory** in the figure below. Once the database is indexed, the files that represent the index will be stored in

W W GOC Stack fram - D

Index

Stop indexing

— □ ▼1 Quick Launch (Ctrl+Q)

OK

All

25. At this point, it might take a few moments for the indexing to complete. The lower red box represents the progress being made

Index ADO.NET Data Source

C C Code Map 76 -

ire about IntelliTrace

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Index

Close

Bruno Terkaly * 📴

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Trace settings

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Version 7,72 (8106) 64-66

28. As you type in the **search string**, you will see the successfully found strings on the list box on the left. Click on the **search button**

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C:Program Files (x86)/dtSearch Developerlexamples/cs4/ado,

Lefty O' Doul Drawbridge/ 3rd Stre.

29. Notice that all the results are presented in the search results screen. Notice in the lower left that we have the movie row ID, which uniquely identifies the record in the database. We cannot return to SQL Server Management Studio to view this record.

Golden Gate Bridge

City Half

🖟 SQLQuery1.sql - ol9d1pjpmi.database.windows.net,1433.SFMovies (DBAdministrator (795)) - Microsoft SQL Server Management Studio (Admi... - 🗖 🗔

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SearchForm

To view IntelliTrace data, you must break execution of your

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Version 7.72 (8100) 64-bit

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          ADO Database Indexing Demo

    Enter a location for the index to be built.

          - When you click Index, you will be prompted for the database to index.
     Indexing the database
26. In the folder indicated previously, you can see a list of index files that were generated during this process.
                                                       dtSearch Index Manager

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     Viewing the generated indexes
27. Now that the indexing process is complete, we are ready to run the application and perform a search. Click on the search
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Theatrical Films

30. Notice that if we do navigate to movie row ID of 301, we can see that the Golden Gate Bridge is visible in the SQL Server

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        Viewing the search results
Summary
Being able to find content quickly in a SQL Database is key to being productive. Building upon the example in this post, you should be
able to create applications that are capable of lightning quick full-text searches.
Beyond what is described here, the dtSearch Engine can also support many other advanced options, including: faceted search, fields-
based positive and negative term weighting, and searching the full-text of BLOB data in an SQL database with highlighted hits.
Please see Databases and Field Searching at http://support.dtsearch.com/faq/bysubject.htm for more information on these advanced
search options. Please also see http://www.dtsearch.com/PLF_Features_2.html for a general overview of dtSearch full-text search options.
For an overview of what you can do generally programming with the dtSearch Engine, including supported data types for BLOB data, etc.,
please see http://www.dtsearch.com/PLF_engine_2.html and http://www.dtsearch.com/PLF_DocFilters.html
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porting / migration assistance, configuration management, pre-rollout testing and general development consulting. As an evangelist, Bruno spends time writing code and giving live presentations on building cloud based applications, specifically using the Windows Azure Platform. He also takes a strong interest in Mobile Computing and is convinced that both mobile and cloud platforms, separately and together,

About the Author

Image Unavailable

are poised for huge growth over the next 10 years. Bruno is very optimistic about the potential for new interactions with software using Kinect. The software industry has been languishing in aging approaches to human interactions and software. Kinect opens up an brave new world of possibilities to next generation software engineering. You may also be interested in...

Starting with Turbo C and 8086 Assembler in the late 80s, Bruno has kept busy teaching and writing

Bruno's depth of knowledge comes from years of experience in the field, where he can bring realworld knowledge and combine it with forward thinking that is required for his current role as a Developer Evangelist at Microsoft. Prior to evangelism, Bruno was a Microsoft Premier Field Engineer, helping customers in remote locations on a moment's notice to help with extreme troubleshooting scenarios, including problem isolation and correction, live and post-mortem debugging, on-the-fly application design and code reviews, performance tuning (IIS, SQL Server, .NET), application stability,

The Hybrid Cloud

SAPrefs - Netscape-like Preferences Dialog

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code in a multitude of platforms, languages, frameworks, SDKs, libraries, and APIs.

Indexing SharePoint Site Collections Using the Generate and add keyword variations using dtSearch Engine DataSource API AdWords API

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