

Code Review Notes

I want to thank you for the opportunity to showcase my abilities and I enjoyed the challenge. I wrote some notes to ease the review process in case there is any irregularities. I also commented the code where I felt I needed to provide some context.

New Technologies Used

I selected the most recent technologies for Visual Studio 2010 requirement. I wanted to showcase how you use these technologies in order to satisfy the functional requirements given to me with a modern approach. At the same time I also tried to incorporate various aspects of my skill set in the development process.

NuGet

Download: <http://nuget.codeplex.com>

Motivation: NuGet makes it easy to download extensions and the latest Microsoft packages. You can do so by simply right clicking on a project and selecting 'Manage NuGet Packages'.

SQL Server Data Tools 2012 (Dec 2012 Release)

Download: <http://msdn.microsoft.com/en-us/data/hh297027>

Information: <http://msdn.microsoft.com/en-us/data/tools.aspx>

Motivation: SQL Server Data Tools takes the pain out of database development by adding a new flexible project type called a SQL Server Database Project. I have been using this technology for more than 2 years now and used to be called "Data-Tier Application Projects" and has simplified roll-outs and the development process dramatically.

By simply right clicking on the project you can deploy to a new database or update an existing database. You also can create a DacPac module that makes it easy to upgrade production environments and SQL Azure cloud environments without maintaining update scripts. It also has the ability to generate a "Diff" script for traditional enterprise on site environments.

Entity Framework 5.0

Download: Please Use NuGet. See <http://msdn.microsoft.com/en-us/data/ef.aspx>

Motivation: Entity framework takes the pain out of database driven development and has brilliant extensions like OData WCF Data Services that makes this framework one of the best frameworks to use for LOB applications. I initially used a Model First approach to build my entity model and generate the initial database before importing it into a SSDT project where I can then update the model to reflect changes made to the database.

Guidelines

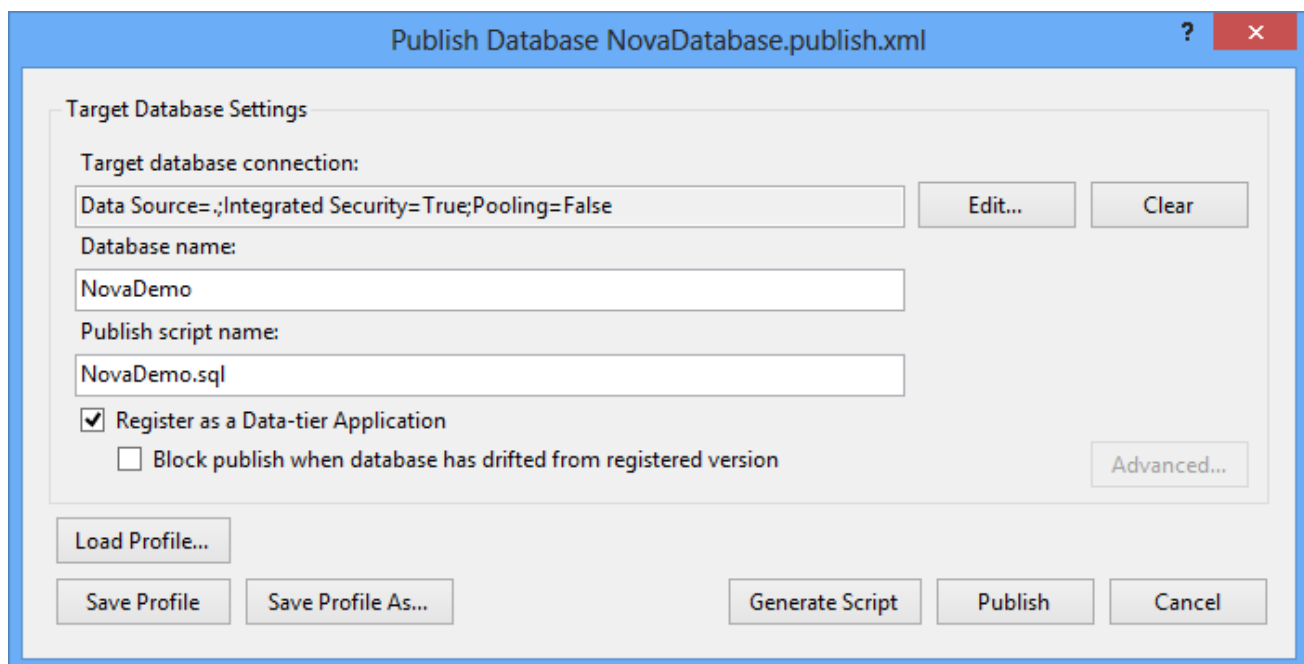
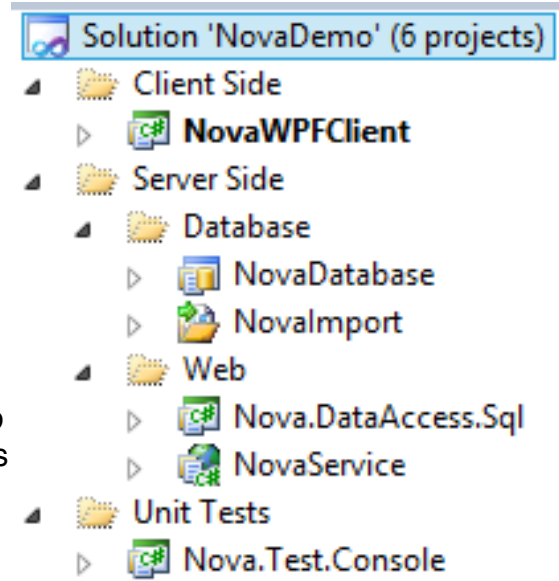
Project Structure

The "NovaDemo.sln" contains the projects split into three sub sections.

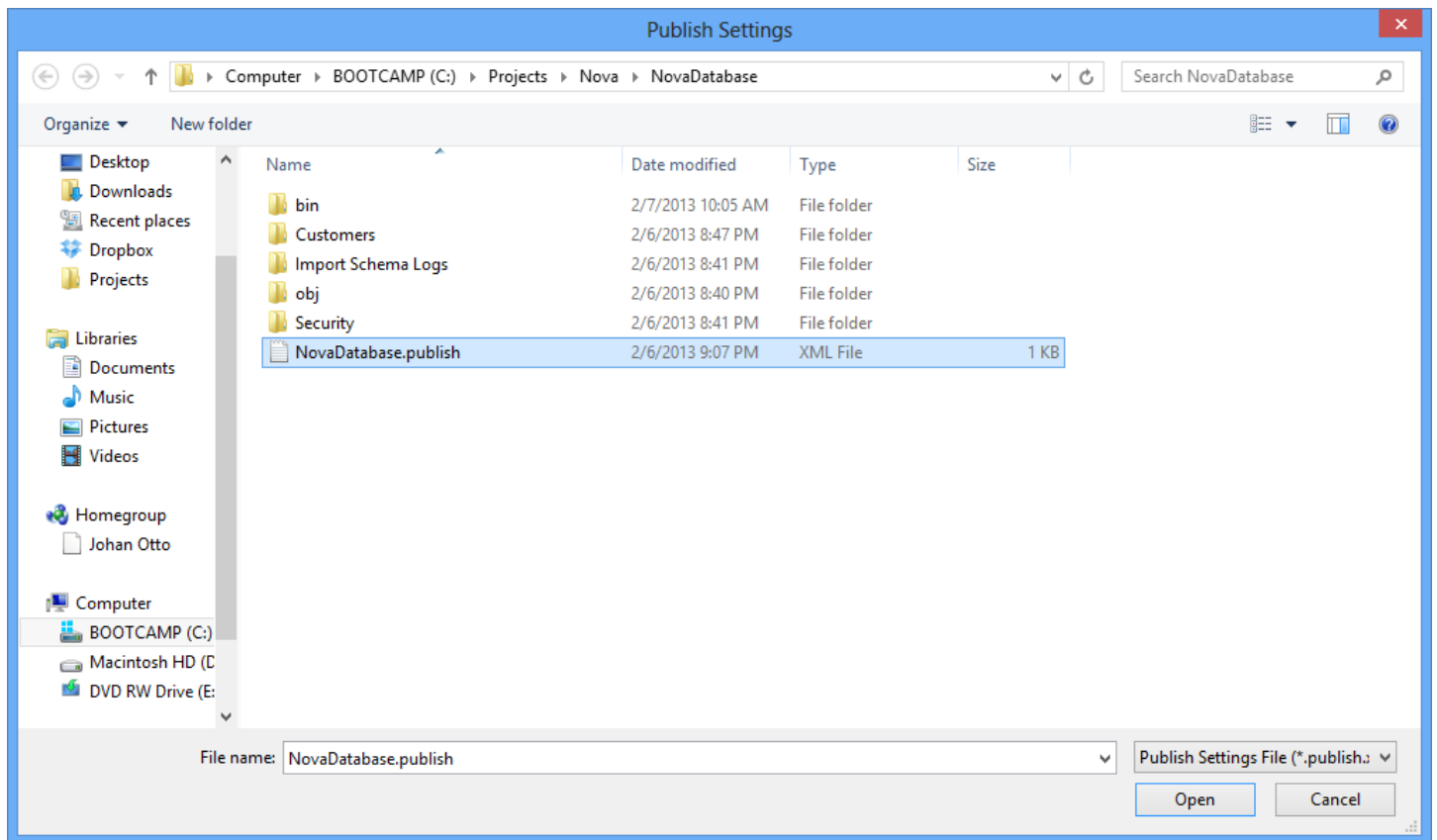
- Server Side: The Database, SSIS Import Package, Data Access and WebServices
- Client Side: A WPF based Application
- Unit Tests: A console application the can be used to confirm that LINQ to SQL and LINQ to OData works properly.

1. The Database

The database can easily be deployed to SQL 2008 (R2) or SQL 2012. I recommend using 2012 because I used the Integration Services package module for 2012. Simply right click and Publish.



Click on “Load Profile...”, and select “NovaDatabase.publish” settings file like in the screenshot below.

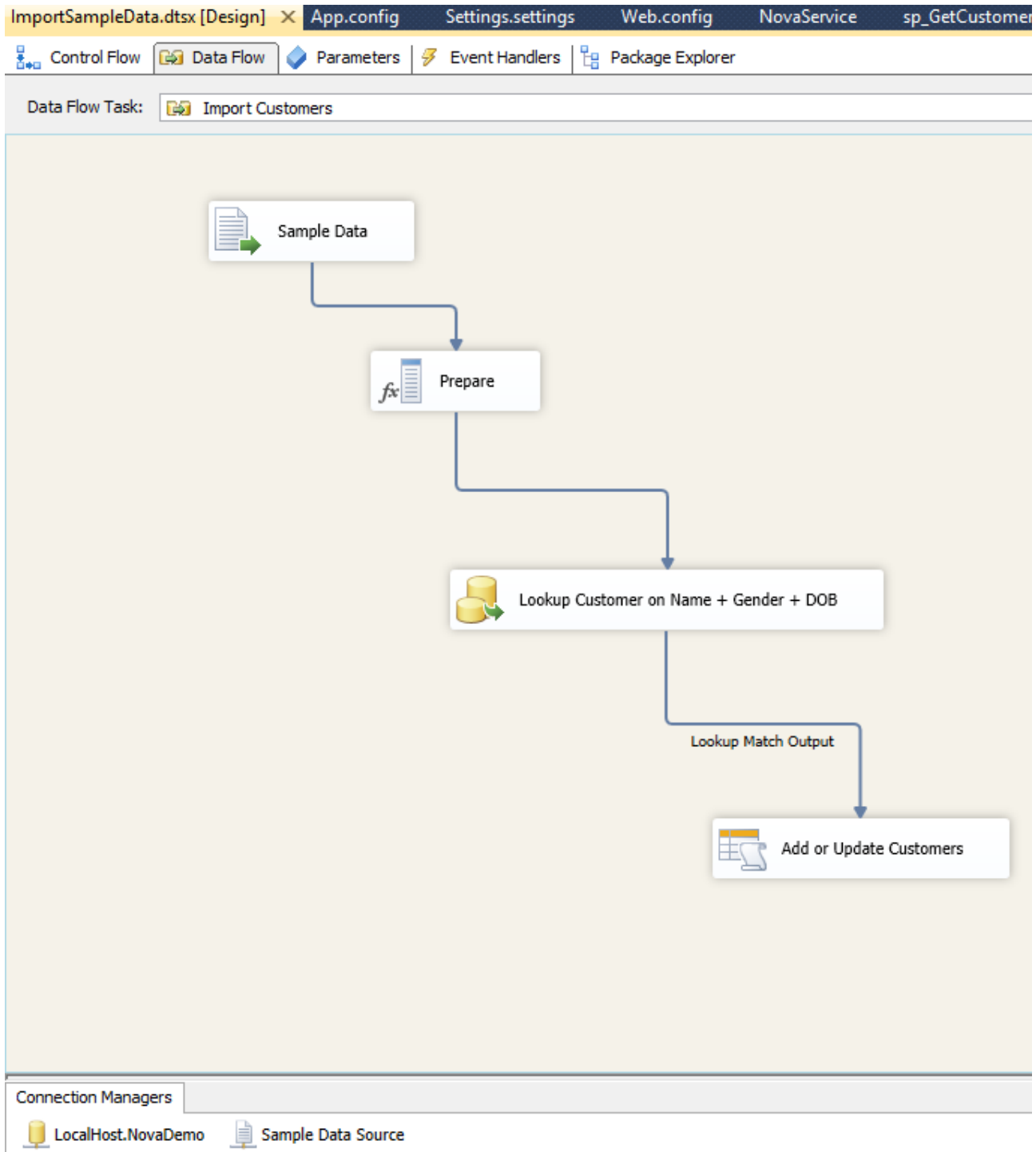


Even though you call the database whatever you want the current solution connection strings point to server "." and a database called "NovaDemo" using Windows authentication so I recommend using this name to get the code going. If you need to change the connection string here you probably want to look at the Web.config and App.config files in the solution and make sure they point to the right location.

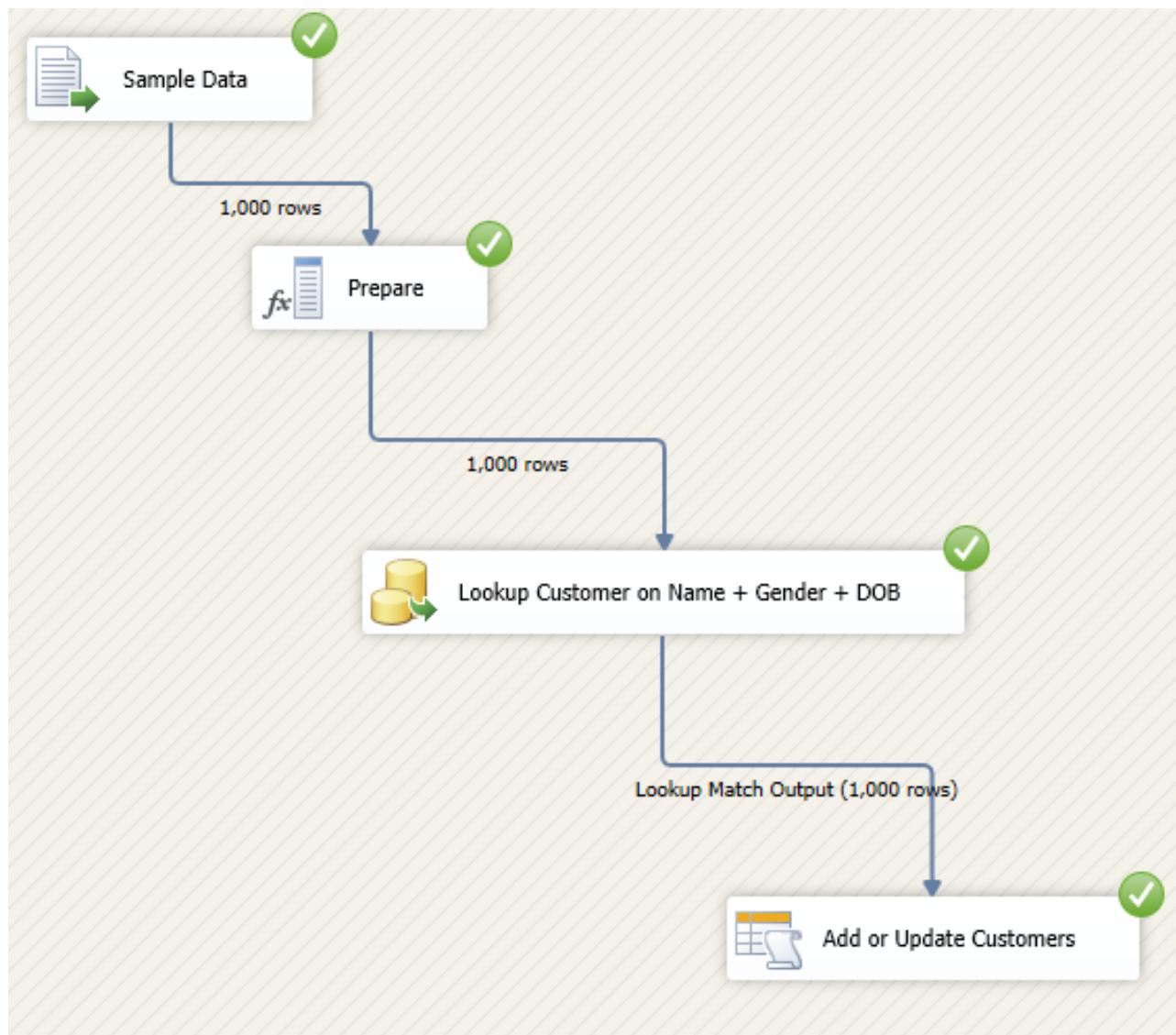
You have to deploy the database solution successfully. Please let me know if you have a problem in doing so.

2. The Import Package

I used a SSIS import package to import the initial data because I found some dirty data like partial quotes etc which SSIS handled easily. You can run this as many times as you want. If you have problems opening it up or running it, try changing the connection component in the bottom of the window. There is also a File Connection to the sample data which should be in the solution folder.

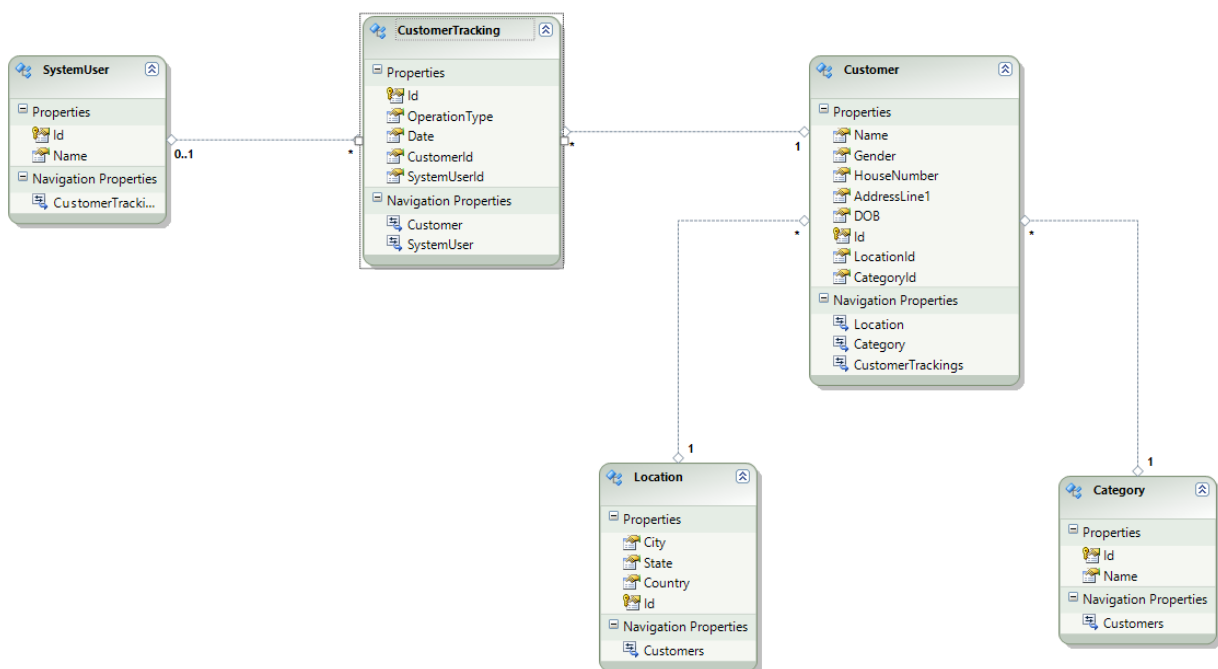
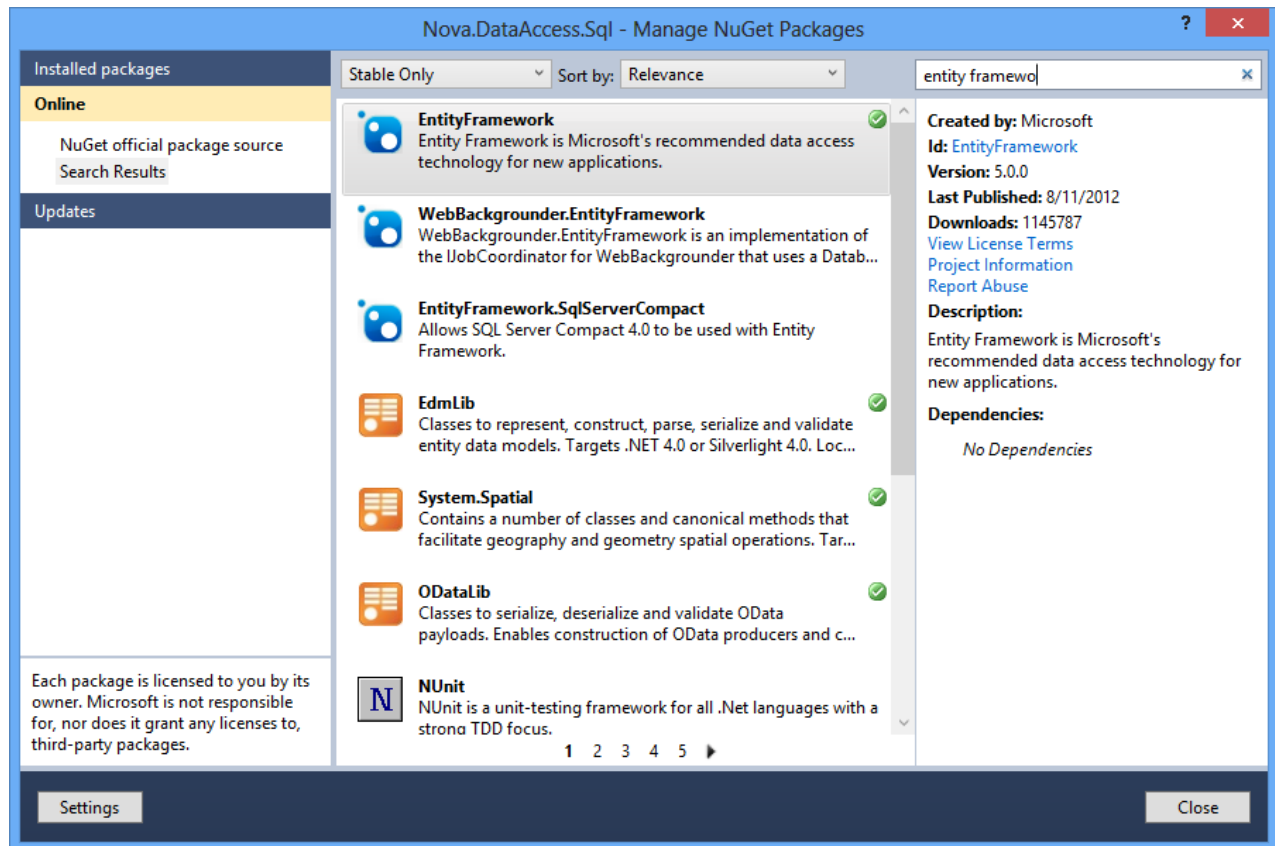


After you have run package you should get a view that look like below which means you are ready for the next step.



3. Data Access Library

The "Nova.DataAccess.Sql" is where you need to right click "Manage NuGet packages..." and search for the latest Entity Framework 5 from Microsoft.



You can have a look at the entity data model which generates most of the POCO (Plain Old CLR Object) objects for creating the solution.

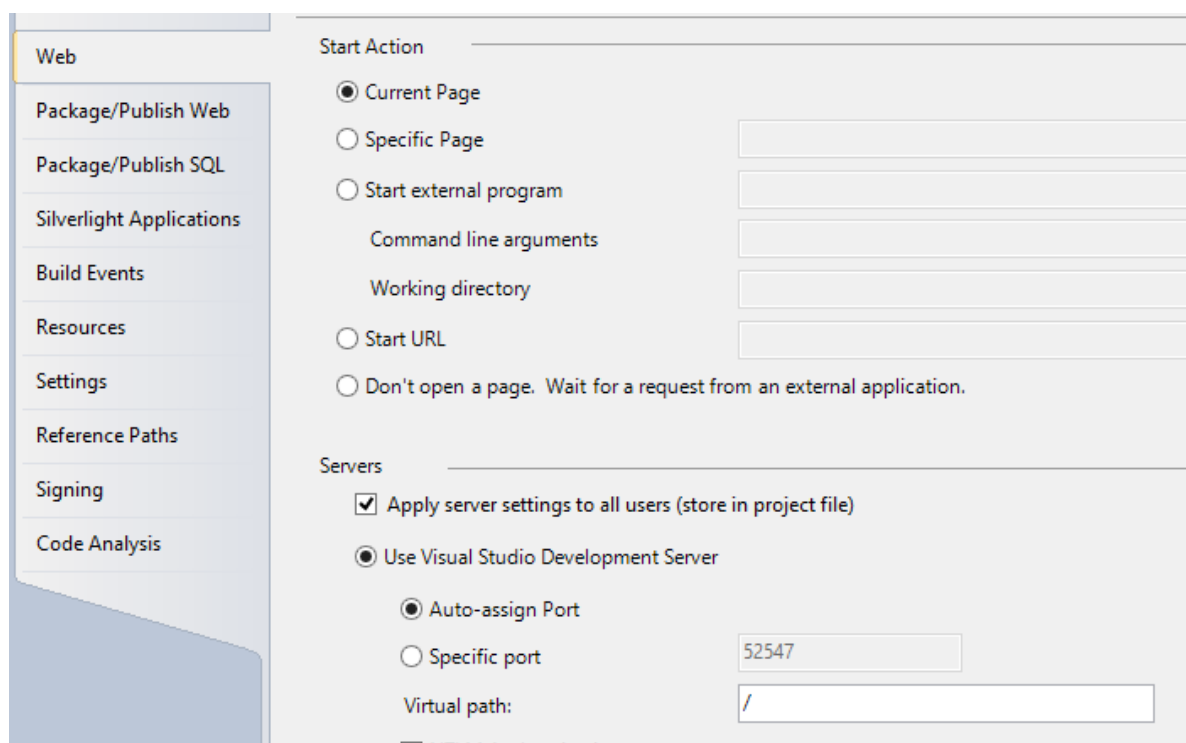
The approach I used for the model was to design it in an optimum way to satisfy the requirements. I also used a transient vs static data reasoning approach and decided to split the locations from the customer table which substantially reduces the size of the data and also makes it easier for the user to input data as well as aggregation analytics. I added a tracking entity. It is important to note that the SystemUser entity is not currently used but I left it in there to illustrate how one could easily intercept a query and add user security requirements to the outgoing query and also track changes made by specific users. Since the requirements did not mention this I didn't end up perusing it.

4. WCF Data Services

The data services exposes the entity model over OData. I used this approach because it is much lighter than Soap and can easily be converted to use JSON extensions etc. The real benefit is what happens on the client side, where you can query the service with LINQ like it's just another DataContext. This saves significant time especially for traditionally tedious tasks and a perfect fit for the functional requirements.

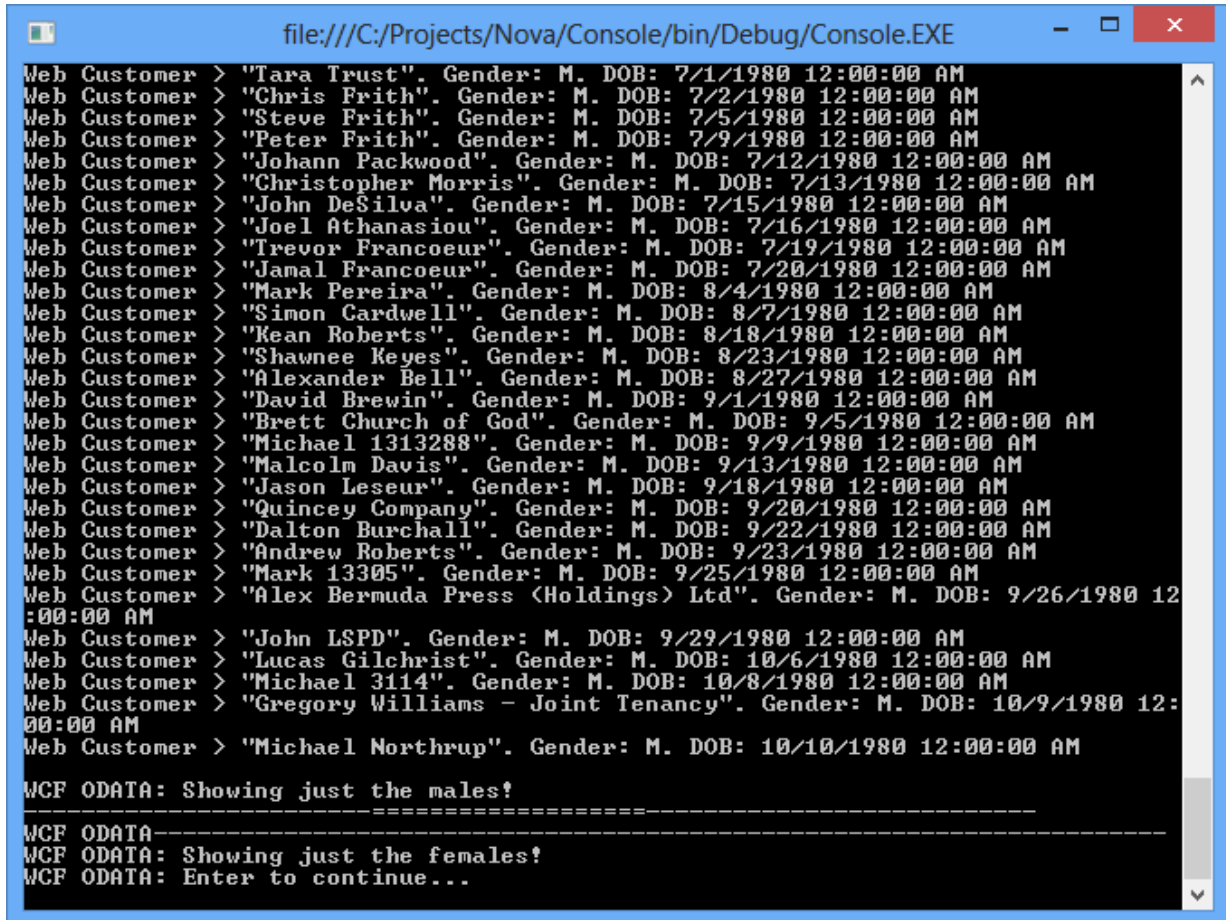
The service project also has two ASPX pages with charts on them. This is because it was an easy way to display a chart in the WPF client without installing 3rd party controls etc.

Please take note of your environment settings, as you will need to use this for the rest of the solution.



5. Console App (Optional)

The console app can be used to make sure that the DataAccess and WCF services works correctly. Be sure to check that the settings in the App.Config file points to the right location. The app basically runs a few LINQ queries on either the database and/or the WCF service and I used it to confirm that this part of the app works correctly before I started the WPF client.



```
file:///C:/Projects/Nova/Console/bin/Debug/Console.EXE
Web Customer > "Tara Trust". Gender: M. DOB: 7/1/1980 12:00:00 AM
Web Customer > "Chris Frith". Gender: M. DOB: 7/2/1980 12:00:00 AM
Web Customer > "Steve Frith". Gender: M. DOB: 7/5/1980 12:00:00 AM
Web Customer > "Peter Frith". Gender: M. DOB: 7/9/1980 12:00:00 AM
Web Customer > "Johann Packwood". Gender: M. DOB: 7/12/1980 12:00:00 AM
Web Customer > "Christopher Morris". Gender: M. DOB: 7/13/1980 12:00:00 AM
Web Customer > "John DeSilva". Gender: M. DOB: 7/15/1980 12:00:00 AM
Web Customer > "Joel Athanasios". Gender: M. DOB: 7/16/1980 12:00:00 AM
Web Customer > "Trevor Francoeur". Gender: M. DOB: 7/19/1980 12:00:00 AM
Web Customer > "Jamal Francoeur". Gender: M. DOB: 7/20/1980 12:00:00 AM
Web Customer > "Mark Pereira". Gender: M. DOB: 8/4/1980 12:00:00 AM
Web Customer > "Simon Cardwell". Gender: M. DOB: 8/7/1980 12:00:00 AM
Web Customer > "Kean Roberts". Gender: M. DOB: 8/18/1980 12:00:00 AM
Web Customer > "Shawnee Keyes". Gender: M. DOB: 8/23/1980 12:00:00 AM
Web Customer > "Alexander Bell". Gender: M. DOB: 8/27/1980 12:00:00 AM
Web Customer > "David Brewin". Gender: M. DOB: 9/1/1980 12:00:00 AM
Web Customer > "Brett Church of God". Gender: M. DOB: 9/5/1980 12:00:00 AM
Web Customer > "Michael 1313288". Gender: M. DOB: 9/9/1980 12:00:00 AM
Web Customer > "Malcolm Davis". Gender: M. DOB: 9/13/1980 12:00:00 AM
Web Customer > "Jason Leseur". Gender: M. DOB: 9/18/1980 12:00:00 AM
Web Customer > "Quincey Company". Gender: M. DOB: 9/20/1980 12:00:00 AM
Web Customer > "Dalton Burchall". Gender: M. DOB: 9/22/1980 12:00:00 AM
Web Customer > "Andrew Roberts". Gender: M. DOB: 9/23/1980 12:00:00 AM
Web Customer > "Mark 13305". Gender: M. DOB: 9/25/1980 12:00:00 AM
Web Customer > "Alex Bermuda Press <Holdings> Ltd". Gender: M. DOB: 9/26/1980 12:00:00 AM
Web Customer > "John LSPD". Gender: M. DOB: 9/29/1980 12:00:00 AM
Web Customer > "Lucas Gilchrist". Gender: M. DOB: 10/6/1980 12:00:00 AM
Web Customer > "Michael 3114". Gender: M. DOB: 10/8/1980 12:00:00 AM
Web Customer > "Gregory Williams - Joint Tenancy". Gender: M. DOB: 10/9/1980 12:00:00 AM
Web Customer > "Michael Northrup". Gender: M. DOB: 10/10/1980 12:00:00 AM

WCF ODATA: Showing just the males?
-----
WCF ODATA: Showing just the females?
WCF ODATA: Enter to continue...
```


6. WPF RIA Client

Before starting this up be sure to check the settings and confirm that the client is connected to the right location.

Application settings allow you to store and retrieve property settings and other information for your application dynamically. For example, the application can save [Learn more about application settings...](#)

	Name	Type	Scope	Value
	CustomerDataServiceUri	string	Application	http://localhost:52547/Customers.svc
	SearchMiliseconds	int	Application	2000
	MaxLocations	int	Application	1000
	CustomerLocationStatsUri	string	Application	http://localhost:52547/LocationStatistics.aspx
	MaxViewCustomers	int	Application	200
	CustomerCategoryStatsUri	string	Application	http://localhost:52547/CategoryStatistics.aspx
*				

The application has 3 content views (pages). You can toggle the views by clicking the buttons (navigational) next to the company logo on the left side of the top header bar. The right side of the header bar are functional elements like Save, New Customer and Search.

If the solution loaded correctly the views will look like the following screen shots...

nova

Customer List

Search

Name	Gender	Date of Birth	House #	Address Line 1	Location	Category
A. Lisa Athanasiou	F	7/3/1978	170	Billings Place	Alaska, United States	Category A
Aaliyah MPP Trust	F	1/16/1980	87	Essex Street	Alaska, United States	Category C
Abigail Brewer	F	7/7/1978	174	Bleecker Street	Colorado, United States	Category A
Abigail Butt	F	8/2/1978	200	Brighton 10th Court	Hawaii, United States	Category B
Abigail Ming	F	2/6/1980	5	Fillmore Place	Georgia, United States	Category B
Adam Saunders-Fox	M	10/30/1979	91	Independence Avenue	New York, United States	Category B
Aidan a/c 1101892	M	3/28/1980	92	Gates Avenue	Arkansas, United States	Category C
Aisha 3094	F	8/20/1980	2	Jamaica Avenue	Virginia, United States	Category A
Ajene Rothwell	F	11/13/1978	21	Christopher Avenue	Michigan, United States	Category B
Alan Davidson	M	5/4/1979	10	Fillmore Avenue	Illinois, United States	Category C
Alan Evans	M	3/9/1979	46	Drew Street	Utah, United States	Category C
alejandro Fisher	M	1/6/1980	14	Knickerbocker Avenue	Colorado, United States	Category C
Alex Bermuda Press (Holdings) Ltd	M	9/26/1980	84	Kiely Place	Wisconsin, United States	Category A
Alex Stewart	F	5/18/1978	124	Bay View Court	New Jersey, United States	Category A
Alexander Bell	M	8/27/1980	9	Jerome Street	Alaska, United States	Category A
Alexander Cooper	M	2/14/1978	31	Arlington Place	New Mexico, United States	Category A
Alexandra Harris	F	1/10/1980	81	Krier Place	Hawaii, United States	Category C
Alexandra Robinson	F	11/17/1978	25	Clarendon Road	Montana, United States	Category B
Alexia Osborne	F	5/17/1978	123	Bay Ridge Avenue	New Hampshire, United States	Category A
Alice Jones	F	7/22/1980	92	Hubbard Street	Delaware, United States	Category A
ALIKEH Bainbridge	F	9/3/1978	232	Brighton 4th Court	Delaware, United States	Category B
Alikeh Jones	F	2/12/1978	21	Denton Place	Alaska, United States	Category B

Update History

Date	Operation Performed
2/7/2013	Created

nova

Category Analysis

Search

Summary | Browse

410

Categories

Category A
Category B
Category C

nova

Category Analysis

Search

Summary | Browse

Customers

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A. Lisa Athanasiou	F	7/3/1978	170	Billings Place	Alaska, U
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Alexia Osborne	F	5/17/1978	123	Bay Ridge Avenue	New Han
Alice Jones	F	7/22/1980	92	Hubbard Street	Delaware
Aline Madeiros	F	6/28/1978	165	Bethel Loop	Idaho, Ur
Alison Woodhouse	F	6/6/1978	143	Beacon Court	Wisconsi
amanda Frith	F	7/8/1980	14	Holt Court	Arizona, I
Amanda Young	F	4/15/1980	6	Goodwin Place	Californi
Amber Simmons	F	5/7/1978	113	Bay 48th Street	Alaska, U
Amy Roberts	F	5/1/1980	86	Greenwood Avenue	Arkansas
Amy Weeks	F	7/18/1980	88	Howard Alley	Arkansas
Andrea Smith	F	7/2/1978	169	Bijou Avenue	Alabama,
andrew Browne	M	2/4/1978	21	Amity Street	Massachi
Andrew Roberts	M	9/23/1980	81	Kent Avenue	Virginia,
Angela G D W	F	5/15/1980	9	Hamilton Manor	Delaware

