

# vbug

## .NET Developer Conference 2007

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17<sup>th</sup> and 18<sup>th</sup> October 2007  
Microsoft Campus, Reading, UK

Data Access using ADO.NET 3.x, Entity Framework and LINQ  
Steve Abraham



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# Agenda

- Entity Framework
  - Background
    - ADO.NET vNext (v.3.5)
- Language Integrated Query (LINQ)
  - General Concepts
  - Operators
    - Restriction
      - Projection
      - Partitioning
      - Ordering
      - Grouping
      - Set
      - Conversion
      - Element
      - Generation
      - Quantifiers
      - Aggregate
      - Miscellaneous
- LINQ to DataSet
  - System.Data.DataSetExtensions
  - DataTable
    - AsEnumerable()
    - AsDataView()
  - DataRow
    - Field<T>
- Visual Studio 2008 ORM Tools
  - LINQ to SQL Classes
  - LinqDataSource
  - ADO.NET Entity Data Model
  - Behind the Scenes



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# Entity Framework

- Background
  - 3 Layers to data based applications
  - Multiple Languages (i.e. VB, T-SQL)
- ADO.NET vNext (v.3.5)
  - Visual Studio 2008 Release
    - ❖ LINQ to SQL
    - ❖ LINQ to DataSet
  - Early 2008 Release
    - ❖ Entity Data Model
    - ❖ LINQ to Entities




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# Language Integrated Query

- General Concepts
  - Gives VB & C# developers T-SQL like data manipulation power.
- Operators
  - Restriction
  - Projection
  - Partitioning
  - Ordering
  - Grouping
  - Set
  - Conversion
  - Element
  - Generation
  - Quantifiers
  - Aggregate
  - Miscellaneous
- Implementation Examples

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# Demonstration

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## Language Integrated Query Demo




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# LINQ to DataSet

- Extended functionality via System.Data.DataSetExtensions
  - DataTable
    - ❖ AsEnumerable()
    - ❖ AsDataView()
  - DataRow
    - ❖ Field<T>
- Implementation Examples

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## Demonstration

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LINQ to DataSet Demo


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## Visual Studio 2008 ORM Tools

- LINQ to SQL Classes
  - Ships with Visual Studio 2008 Beta 2
  - Implementation Example
- LinqDataSource
  - Ships with Visual Studio 2008 Beta 2
  - Implementation Example
- ADO.NET Entity Data Model
  - Download the ADO.NET Entity Framework Tools (August 2007 CTP)
  - Implementation Example
- Behind the Scenes
  - Generated Code
  - SQL Server Profiler Trace

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## Demonstration

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Visual Studio 2008 ORM Tools Demo

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## Links

- LINQ to SQL Whitepaper
  - <http://msdn2.microsoft.com/en-us/library/bb425822.aspx>
- ADO.NET v.3.5
  - <http://msdn2.microsoft.com/en-us/data/aa937723.aspx>
- ADO.NET Entity Framework Beta 2
  - <http://www.microsoft.com/downloads/details.aspx?amlvId=f1adc511-a42e-40a6-a68c-a42ee1118f7&displayLang=en>
- ADO.NET Entity Framework Tools Aug 07 Community Technology Preview
  - <http://www.microsoft.com/downloads/details.aspx?amlvId=09a36081-5ed1-4648-b995-6238d0b77cb5&displayLang=en>

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