

## Mastering the ASP.NET 2.0 Data Controls

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### Paul Litwin

- **Developer**
  - ? Focus: ASP.NET, ASP, VB, C#, SQL Server, ...
  - ? MCSD
  - ? Microsoft MVP
  - ? Lead Programmer with Fred Hutchinson Cancer Research Center
- **Co-Founder and Senior Trainer**
  - ? Deep Training
    - [www.deeptesting.com](http://www.deeptesting.com)
- **Conference Chair/Speaker**
  - ? Chair, Microsoft ASP.NET Connections
  - ? Member INETA Speakers Bureau
- **Author**
  - ? Author/co-author of a dozen books, including...
    - *ASP.NET for Developers*
    - *Access Cookbook, 2<sup>nd</sup> edition*
    - *Access 2002 Desktop/Enterprise Dev Handbook*

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### Binding Data to Controls

- ASP.NET 1.x supported rich 1-way binding syntax but you still had to write quite a bit of code to get data in and out of controls
- ASP.NET 2.0 supports two-way (read/write) binding with no code in many situations

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## Data Source Control

- A family of controls that assist in data binding
  - ? Middleman between data bound controls and data sources
- Types of Data Source Controls
  - ? Tabular
    - SqlDataSource
    - AccessDataSource
    - ObjectDataSource
  - ? Hierarchical
    - XmlDataSource
    - SiteMapDataSource

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## SqlDataSource

- Supports reading and writing to ADO.NET data provider
  - ? Supports SqlClient, OracleClient, OleDb, and Odbc providers

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## AccessDataSource

- Supports reading and writing of Jet 4.0 OLE DB provider
- Simpler to use than SqlDataSource for Access data

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### ObjectDataSource

- Allows you to take advantage of data binding even if you are using an n-tier architecture
- In order to use with a class, the class must...
  - ? have a default, parameterless constructor
  - ? be stateless
  - ? have select, update, insert, and delete methods with certain signature

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### Hierarchical Data Sources

- SiteMapDataSource
  - ? Pumps site map info from web.sitemap file to TreeView
- XmlDataSource
  - ? Used to map XML data to controls, such as TreeView, GridView
  - ? Support both tabular and hierarchical views of XML data
  - ? Can be linked to XSLT file

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### New 2.0 Data-Bound Controls

- List Controls
  - ? BulletedList
- Composite Controls
  - ? GridView
  - ? DetailsView
  - ? FormView
- Hierarchical Controls
  - ? TreeView
  - ? Menu

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## BulletedList Control

- Can be used to produce a bulleted or enumerated list using `BulletStyle` property
- `DisplayMode` can be
  - ? Text
  - ? Hyperlink
  - ? Linkbutton
- `DataBinding` properties
  - ? `DataSourceID` – point to Data Source Control
  - ? `DataTextField`
  - ? `DataValueField`
  - ? `DataTextFormatString` – useful for Hyperlink style

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## Choosing a Data Source



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## BulletedList Control Example: BulletedList.aspx



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## GridView Control

Example: GridView.aspx

- A “code-less” DataGrid
- Walk-through of grid with automatic sorting (ascending & descending), pagination
  1. Add GridView to page
  2. Using GridView Tasks pane, choose DataSource
  3. Check EnablePaging & EnableSorting

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## Sometimes You Do Have to Write Code, Even in ASP.NET 2.0

- What if we want to add an image to show which column is the sorted column and which direction is it sorted by?
- Write code for RowCreated event of GridView

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## Sometimes You Do Have to Write Code

Example: GridView.aspx

title	price	publisher
The C++ Cookbook	2,999.00	no. 3071
The Psychology of Computer Cooking	19.99	1912.04
The C++ Cookbook	2,999.00	no. 3071
The C++ Cookbook	2,999.00	no. 3071
The C++ Cookbook	2,999.00	no. 3071
The C++ Cookbook	2,999.00	no. 3071
The C++ Cookbook	2,999.00	no. 3071
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The C++ Cookbook	2,999.00	no. 3071
The C++ Cookbook	2,999.00	no. 3071

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## Sometimes You *Do* Have to Write Code

### Example: GridViewSortImage.aspx (1 of 2)

```
protected void gvCustomers_RowCreated(...)
{
    if (e.Row.RowType == DataControlRowType.Header)
    {
        Label lblArrow = new Label();
        lblArrow.EnableTheming = false;
        lblArrow.Font.Name = "Webdings";
        lblArrow.Font.Size = FontUnit.XSmall;
        if (gvCustomers.SortDirection == SortDirection.Ascending)
            lblArrow.Text = "5";
        else
            lblArrow.Text = "6";
    }
    ... continued on next slide..
}
```

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## Sometimes You *Do* Have to Write Code

### Example: GridViewSortImage.aspx (2 of 2)

```
...continued from last slide..
foreach (TableCell tc in e.Row.Cells)
{
    try
    {
        if (((LinkButton)tc.Controls[0]).Text ==
            gvCustomers.SortExpression)
            tc.Controls.Add(lblArrow);
    }
    catch
    {
        // Skip over the cell if an exception is triggered.
        // This should handle any fields which are not sortable.
    }
}
}
```

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## GridView with Updating

### Example: GridViewUpdate1.aspx

- Can also be done without code
  1. Add GridView to page
  2. Choose Data Source
    - On "Configure the select statement" page
    - Click Advanced Options
    - Check "Generate Insert, Update, and Delete statements"
  3. Configure GridView
    - Check "Enable Editing" and/or Enable Deleting

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## GridView with SP Updating

### Example: GridViewUpdate2.aspx

1. Add GridView to page
2. Configure Data Source
  - ? "Specify a custom SQL statement or stored proc"
  - ? Select stored procs for each data source operation
3. Configure GridView
  - ? Check "Enable Editing"
4. Set SqlDataSource's OldValuesParameterFormatString property to "{0}"

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## The Single-Record Form Problem

- ASP.NET 1.x provided no help to the developer having to create a single-record "form" view of data
- ASP.NET 2.0 gives us two solutions
  - ? DetailsView – fixed look (supports styles but no field templates)
  - ? FormView – fully templated (VS will generate basic template for you)
- Both support editing, pagination

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## FormView vs. DetailsView Controls



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## Master-Detail Page

### Example: DrillDown.aspx

- Uses GridView, DetailsView, MultiView controls



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## Master-Detail Page

### Example: DrillDown.aspx, HTML

```
<asp:SqlDataSource ID="sdsCustomersGrid" Runat="server"
SelectCommand="SELECT [CustomerID], [CompanyName],
[ContactName], [ContactTitle], [City], [Country] FROM
[Customers] ORDER BY [ContactName]"
ConnectionString="<%= $ ConnectionStrings:NwindCnx %>">
</asp:SqlDataSource>

<asp:SqlDataSource ID="sdsCustomersDetail"
Runat="server" ConnectionString="<%= $
ConnectionStrings:NwindCnx %>"
SelectCommand="SELECT [CustomerID], [CompanyName],
[ContactName], [ContactTitle], [Address], [City],
[Region], [PostalCode], [Country], [Phone], [Fax] FROM
[Customers]"
FilterExpression="CustomerID='@customerid'">

<FilterParameters>
<asp:ControlParameter Name="customerid"
ControlID="gvCustomers" PropertyName="SelectedValue">
</asp:ControlParameter>
</FilterParameters>
```

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## Master-Detail Page

### Example: DrillDown.aspx, Code

```
public partial class DrillDown : System.Web.UI.Page {
    protected void gvCustomers_SelectedIndexChanged () {
        mvCustomers.SetActiveView(vwDetail);
    }
    protected void dvCustomers_ItemDeleted () {
        gvCustomers.DataBind();
        gvCustomers.SelectedIndex = -1;
        mvCustomers.SetActiveView(vwMaster);
    }
    protected void dvCustomers_ItemUpdated () {
        gvCustomers.DataBind();
    }
    protected void lbReturn_Click () {
        gvCustomers.SelectedIndex = -1;
        mvCustomers.SetActiveView(vwMaster);
    }
    protected void dvCustomers_ItemInserted () {
        gvCustomers.DataBind();
        gvCustomers.SelectedIndex = -1;
        mvCustomers.SetActiveView(vwMaster);
    }
}
```

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### Summary

- ASP.NET 2.0 supports two-way code-less data binding
- Data Source Controls are a family of controls that assist in data binding
- GridView control is like a DataGrid on steroids
- Single-record form problem solved with DetailsView and FormView controls

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### Thank You!

- Materials can be downloaded from [www.deeptraining.com/litwin](http://www.deeptraining.com/litwin)

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