



# What's New In Internationalization In Visual Studio 2005 ?

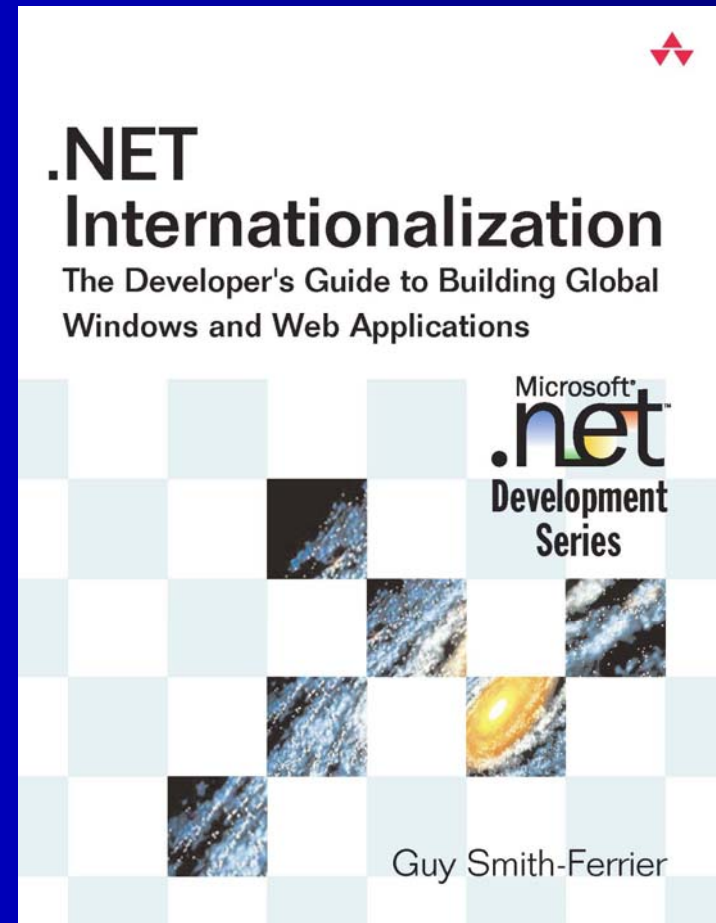


Guy Smith-Ferrier  
guy@guysmithferrier.com

Blog: <http://www.guysmithferrier.com>

# Author of...

- .NET Internationalization, Addison Wesley, ISBN 0321341384
  - Due July 2006
- Visit <http://www.dotneti18n.com> to download the complete source code



# Agenda

- CultureInfo Enhancements
- Visual Studio 2005 Resource Editor
- Resource Handling
- Strongly Typed Resources
- Internationalization support for ASP.NET
- Enhancements to Windows Forms Internationalization
- WinRes Enhancements
- Custom Cultures
- Enhancements to Globalization Classes
- Enhancements to Redistributables

# CultureInfo Enhancements

- CultureInfo now recognizes cultures which are operating system specific
  - Welsh (United Kingdom) on Windows XP SP2
- CultureInfo data for Windows cultures is read from Windows (not from the .NET Framework)
  - Windows Update ensures that culture data is up to date
- Cultures for alternate sort orders can now be specified as strings ("es-ES\_tradnl") instead of integers (0x0000040A)
  - Integers are not recommended for identifying cultures

# Visual Studio 2005 Resource Editor

- Supports maintenance of images, icons, audio and file resources in addition to strings
- Uses file referencing instead of file embedding
  - Better granularity for version control systems
  - (Runtime behaviour is unaffected)
- Is still limited to editing resources from resx files

# Resource Handling

- ResXResourceReader has a BasePath property
  - Specifies the path for relative file references
- ResXResourceReader has a UseResXDataNodes property
  - If UseResXDataNodes is True the Value of each element is a ResXDataNode
  - ResXDataNode has Name, GetValue, FileRef and Comment members
- ResXResourceReader has a GetMetadataEnumerator method
  - Some values (e.g. Form.Localizable) are now treated as metadata instead of data and are no longer returned by GetEnumerator
- ResourceReader has a GetResourceData method
  - Allows resources to be read even if the resource data cannot be de-serialized

# Strongly Typed Resources

- Non-localizable string resource:-

```
MessageBox.Show("Insufficient funds for the transfer");
```

- Localizable string resource:-

```
MessageBox.Show(resourceManager.GetString("InsufficientFunds"));
```

- Strongly typed localizable string resource:-

```
MessageBox.Show(Form1Resources.InsufficientFunds);
```

# ResGen and StronglyTypedResourceBuilder

- You can create strongly typed resource classes using ResGen:-

```
resgen Form1Resources.resx /str:C#,WindowsApplication1,  
Form1Resources,Form1Resources.Designer.cs
```

- ResGen uses the `System.Resources.Tools.StronglyTypedResourceBuilder` class to create a CodeDOM graph for the source code
  - You can use this class to write your own utilities or customize the output



# Strongly Typed Resources

## Pros And Cons

- Pros:-

- Property names are verified at compile time
  - String names are verified at runtime
- The management of the resource manager is handled by the strongly typed resource class and not by the developer

- Cons:-

- Visual Studio 2005 and ResGen only generate classes from .resx files
- The generated code always uses ResourceManager
  - The generated code only works with resources in assemblies
- The generated classes are internal (when generated by the IDE)

# Internationalization Support For ASP.NET 2

- Built in support for localizing forms using Implicit Expressions and Explicit Expressions
- Automatic culture recognition
- Automatic detection of changes to resx files
- New Resource Provider model allows different resource managers to be plugged in
- The Website Administration Tool can be localized in the same way as any ASP.NET 2 application

# Automatic Culture Recognition In ASP.NET 2

- After Generate Local Resources is run the page header includes culture and uiCulture attributes:-  
`Culture="auto" UICulture="auto"`
- You can customize the culture assignment process by overriding the Page.Initialize method:-
  - To handle bad culture name exceptions
  - To iterate through the supported culture names
  - To accept LCID culture specifiers

# Enhancements to Windows Forms Internationalization

- Property Reflection model for Windows Forms serialization
- The `AutoSize` property has been moved to the `Control` class
  - Visual Studio 2005 changes the default for `AutoSize` to `true`
- New `TableLayoutPanel` and `FlowLayoutPanel` controls
- Forms and a few other controls have a new `RightToLeftLayout` property which relocates controls
- The `BackgroundWorker` control does not have properties for `CurrentCulture` and `CurrentUICulture`
  - Set these in the `DoWork` event

# WinRes Enhancements

- WinRes supports two file modes
  - Single File Mode (like WinRes 1.1)
  - Visual Studio File Mode (like Visual Studio)
- More descriptive and varied error messages
- More resilient
  - WinRes 2.0 is able to open forms even if some components cannot be rendered
- Has the same enhancements to the designer that the Windows Forms Designer does in Visual Studio 2005 (e.g. snap lines)

# Custom Cultures

- Custom cultures are cultures which are defined by the developer
- They can be:-
  - Replacement cultures (e.g. to change inappropriate culture information)
  - Supplementary cultures (e.g. Bengali (Bangladesh))
  - Pseudo translation cultures
  - Commercial dialects (e.g. English (United Kingdom) (Megadodo Publications))
  - New combinations of existing languages and regions (e.g. Spanish (United States))
  - Cultures which are exported from newer operating systems (e.g. Welsh (United Kingdom))
- Beware custom culture hell

# Using CultureAndRegionInfoBuilder

```
CultureAndRegionInfoBuilder builder =  
    new CultureAndRegionInfoBuilder("en-GB",  
        CultureAndRegionModifiers.Replacement);  
  
builder.GregorianCalendar.ShortTimePattern  
    = "HH:mm tt";  
  
builder.Register();
```

# Enhancements to Globalization Classes

- New IdnMapping class
- New CharUnicodeInfo class
- New Calendar classes
  - EastAsianLunisolarCalendar, ChineseLunisolarCalendar, JapaneseLunisolarCalendar, KoreanLunisolarCalendar, TaiwanLunisolarCalendar, JalaaliCalendar, PersianCalendar and UmAlQuraCalendar
- DateTimeFormatInfo exposes genitive month name support
- RegionInfo has a GeoId property (Geographic ID)
- TextInfo has an IsRightToLeft property
- NumberFormatInfo has DigitSubstitution and NativeDigits properties
- New NeutralResourcesLanguageAttribute class allows the location of fallback resources to be set to a satellite assembly



# Enhancements To Redistributables

- The .NET Framework redistributable is now a single package which supports all languages
  - The language used is determined by the language of the operating system
  - The framework installed is always English
- The list of available .NET Framework Language Packs now includes Arabic and Hebrew

# Summary

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