

# Globalization and Localization

*Presented by*  
Paul Johnson  
Developer Division  
Microsoft Corporation

## Agenda

- Part I – The Basics
  - Background
  - Defining the terms
  - Basic approaches to localization of web sites
- Part II – ASP.NET example
  - ASP.NET 2.0 Globalization features
  - Globalization examples
- Q & A

# Part I

## The Basics

### Some Definitions

## What is Internationalization?

- Internationalization (I18N)
  - I18N - end to end product development process -- adaptable to regional users needs.
  - I18N - two discreet, highly interrelated activities:
    - World Readiness
    - Localization (L10N)

## Where's Globalization?

- World Readiness has two components
  - **Globalization (G11N)**
  - Localizability
- Development & Design's responsibility
  - *The earlier, the better!*

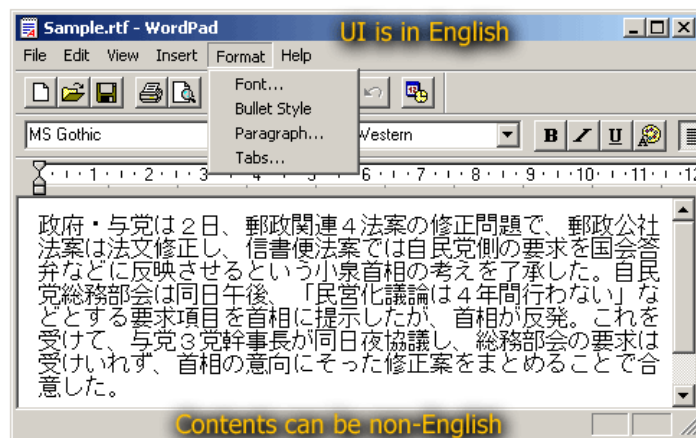
## The High-level View



## What do they mean?

- **Globalization:**  
Developing program core with features and code design not solely based on single language or locale.
- **Localizability:**  
Software code designed -- base code + resources  
Result: Program can be localized into different languages without any changes to base code.
- **Localization:**  
Adapting applications for specific markets, content translation, feature customization, independent of compiled source.

## Globalization Example



## Locale/Culture

- Language and cultural environment
- International Standards Organization (ISO) Conventions
  - Language Code: ISO 639-1 (i.e., en, fr, es)
  - Country Code: ISO 3166 (i.e., CA, EC)
  - Together, they identify culture (i.e., en-US)
  - See *RFC 3066 – Tags for identifying languages*
    - <http://tools.ietf.org/html/rfc3066>
- Custom cultures are sometimes necessary

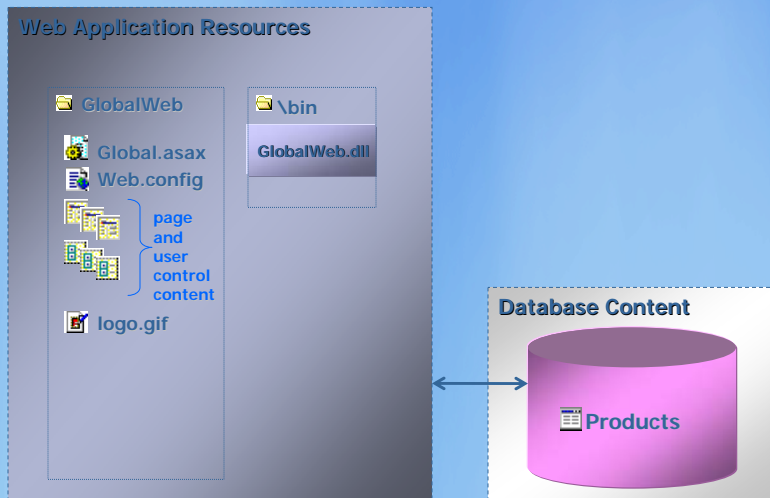
## Storing Localized Content

- Deployment architecture affected by location of localized content
  - Resources, file system, database, external applications
- Choices influenced by application type
  - Microsoft Windows versus Web
- And by business requirements
  - Frequency of culture translations
  - Ease of translation process
  - Frequency of application maintenance

## What to Localize for Web Apps?

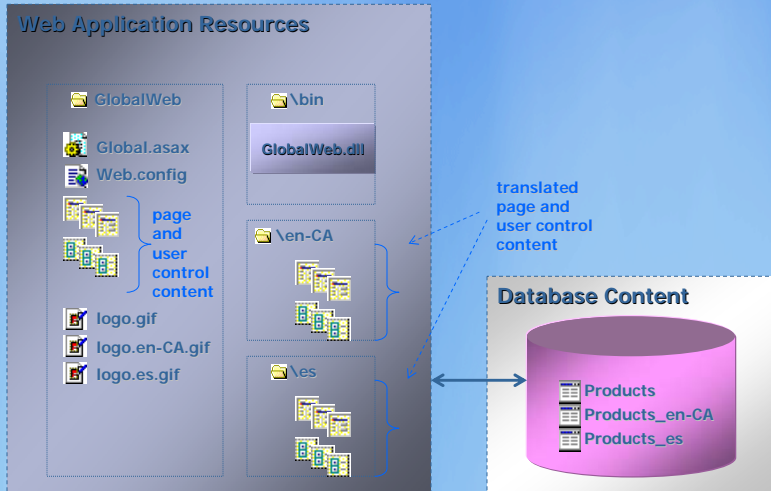
- Static (hard-coded) application content
  - Menu/control captions, Web content, XML
- Dynamic application content
  - Database, XML, other
- Graphical content
- Filenames, connection strings, queries

## Duplicate Site Content

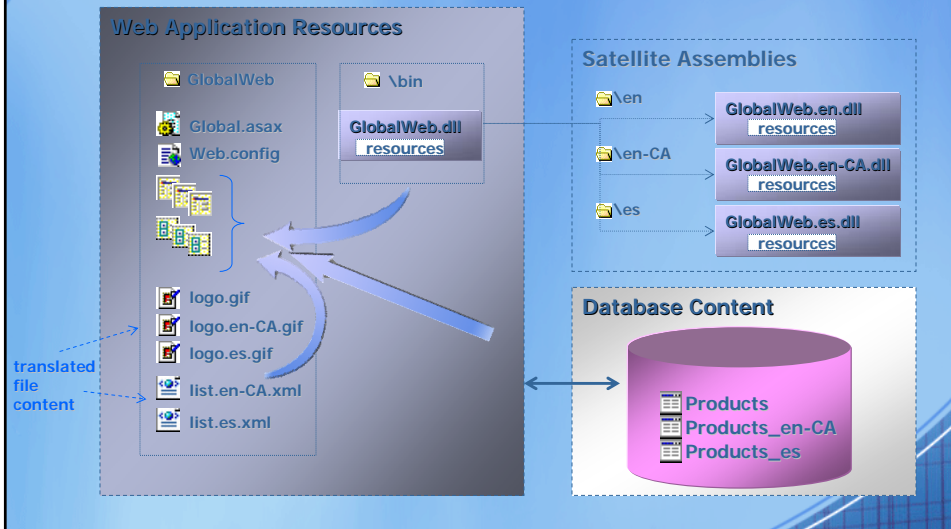




# Duplicate Site Content



# Single Content Base



# Part II

## ASP.NET 2.0 Globalization Features

A tools example

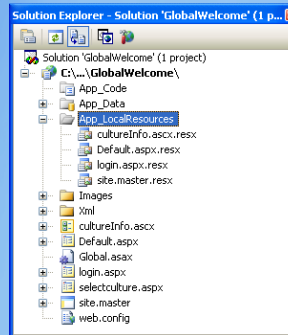
### Localization Features in 2.0

- Web Forms resource generator
- Improved Resource Editor
- Declarative Localization
- Localization expressions
- Strongly-typed resources – Global resources
- UI Controls & Runtime Support



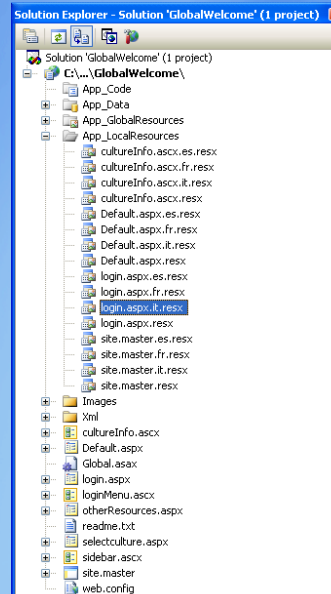
## ASP.NET 2.0 and Resources

- XML Resources (\*.resx)
- Generated for master pages, content pages, and user controls
- Accessible through page or control properties, declarative expressions, or other APIs
- Type-safe global resources
- Set multiple localized control properties in a single command



## ASP.NET 2.0 and Resources (cont'd)

- App\_LocalResources
  - Generated automatically or by hand
  - Per page, control
- App\_GlobalResources
  - Manual generation
  - Shared, strongly-typed
- Pre-compile or deploy source files and let the resource build provider handle the rest



## CultureInfo

- System.Globalization.CultureInfo
  - Encapsulates language and region

Culture Name	Culture Identifier	Language-Country/Region
"" (empty string)	0x007F	invariant culture
en	0x0009	English
en-CA	0x1009	English - Canada
en-US	0x0409	English - United States
fr	0x000C	French
fr-CA	0x0C0C	French - Canada
de	0x0007	German
de-DE	0x0407	German - Germany
es	0x000A	Spanish
es-EC	0x300A	Spanish - Ecuador
es-ES	0x0C0A	Spanish - Spain
es-MX	0x080A	Spanish - Mexico

ASP.NET Globalization /  
Localization feature

## Resources

- RFC 3066 – Tags for identifying language  
<http://tools.ietf.org/html/rfc3066>
- Standard Locale Identifiers and Strings  
<http://msdn2.microsoft.com/en-us/library/ms776260.aspx#locale%20ids>
- Lots of good information here (*training, presentations, reference, samples*)  
<http://www.microsoft.com/globaldev/default.aspx>
- Best Practices for Developing World-Ready Applications  
<http://msdn2.microsoft.com/en-us/library/w7x1y988.aspx>
- ***Don't Forget Security!***  
Securing ASP.NET Web Sites  
<http://msdn2.microsoft.com/en-us/library/91f66yxt.aspx>
- Developing International Software  
*Good book on overall international issue solutions*



## Resources (cont.)

- Translation Websites  
<http://www.windowslivetranslator.com/Default.aspx>  
<http://www.freetranslation.com>  
<http://world.altavista.com/tr>
- Arabic and ASP.NET  
<http://www.microsoft.com/middleeast/msdn/arabicsupp.aspx>
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**Thanks!**

***Microsoft***