

## **Advanced Visual Studio (2005 & 2008)**



L. Powers, M. Snell, Microsoft Visual Studio 2008 Unleashed, SAMS, 2008  
J. Avery, Visual Studio Hacks, O'Reilly, 2005

# Projects and Solutions

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- Project dependencies
  - dictate a build order of solution's projects
- Configuration Manager
  - debug, release and custom configurations
- Temporary projects
  - IDE does not save any project files automatically
  - Tools / Options / Projects and Solutions / General → Save new projects when created
- AutoSave and AutoRecover
  - period between autosaving (in minutes) and time of keeping AutoRecovery information (in days)
  - Tools / Options / Environment / AutoRecovery

# Clipboard

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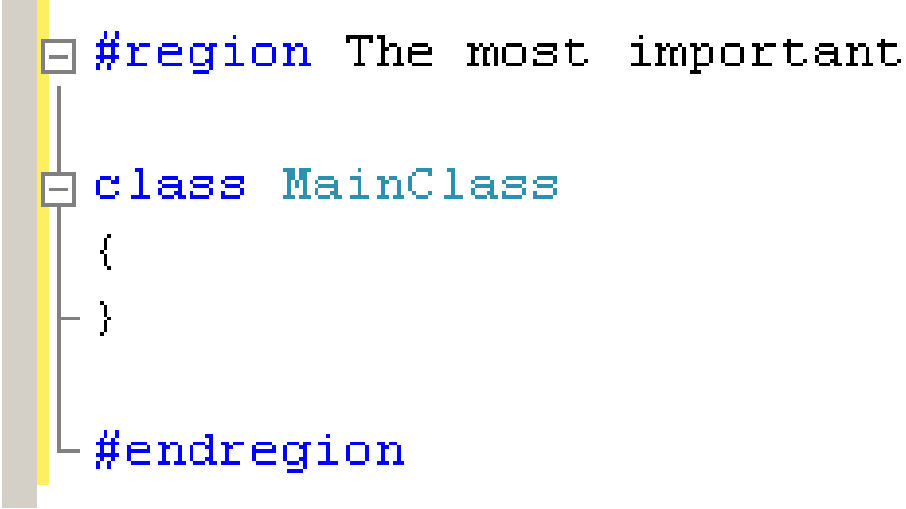
- Clipboard Ring
  - up to 20 selections, LIFO stack
  - Ctrl+Shift+V – select and paste from the clipboard ring
- Line-based cut and paste
  - Ctrl+C, Ctrl+V, Ctrl+X works for the current line when nothing is selected
- Block selection
  - default – line by line selection
  - holding Alt key – block text selection

# IntelliSense

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- Complete Word – Ctrl+Space
- Parameter Info – Ctrl+Shift+Space
- Quick Info – Ctrl+K, Ctrl+I
- Stub Completion
  - tooltip with text 'Press TAB to ...'
  - completion when implementing interfaces, overriding methods, adding event handlers

# Regions



```
- #region The most important  
  - class MainClass  
    {  
    }  
  - #endregion
```



```
+ The most important
```

- Keyboard shortcuts:
  - toggle one region – Ctrl+M, M
  - toggle all outlining – Ctrl+M, L
  - collapse to definitions – Ctrl+M, O
  - stop outlining – Ctrl+M, P

# Refactoring

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- Extract Method - select a block of code and then extract that code into a separate method
- Rename (with Preview Changes dialog box)
- Encapsulate Field - creates a public property that encapsulates a private or protected field
- Extract Interface - looks at the current class and creates an interface based on its public methods and properties
- Remove Parameters
- Reorder Parameters
- Promote Local Variable to Parameter

# Searching

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- Find and Replace – Ctrl+F
  - regular expressions can be used
- Incremental Search
  1. Press Ctrl+I
  2. Start typing the text to be searched
    - the first occurrence will be found
  3. Press Ctrl+I to jump to the next occurrence
  4. Press Esc to stop searching

# Navigation

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- History: backward: Ctrl+-, forward: Ctrl+Shift+-
- Mouseless scrolling: Ctrl+Up and Ctrl+Down
- Go to brace: Ctrl+] (works for parenthesis, brace or bracket)
- Moving the cursor
  - beginning of a line: Home, end: End
  - beginning of a document: Ctrl+Home, end: Ctrl+End
- Bookmarks
  - toggle: Ctrl+K, Ctrl+K
  - jump to the next: Ctrl+K, Ctrl+N
  - jump to the previous: Ctrl+K, Ctrl+P
  - clear all bookmarks: Ctrl+K, Ctrl+L
  - Bookmarks Window: Ctrl+K, Ctrl+W



# Visual Studio Windows Management

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- Windows positioning
  - docking, floating, hidden, auto hide, tabbed document
- Current document
  - changing to the next: Ctrl+Tab, Ctrl+F6
  - changing to the previous: Ctrl+Shift+Tab, Ctrl+Shift+F6
  - closing: Ctrl+F4
  - textual documents can be split
- Changing current tab: Ctrl+PgUp, Ctrl+PgDn
- Full screen mode: Shift+Alt+Enter

# Task List

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- Task List Window: Ctrl+\, Ctrl+T
- Comments that will be added by default:
  - // TODO
  - // HACK
  - // UNDONE
- Custom comments can be configured in Tools / Options / Environment / Task List

# Customizing Visual Studio

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- Custom keyboard shortcuts: Tools / Options / Environment / Keyboard
- Custom menus and toolbars: Tools / Customize
- Changing items in the Toolbox: right click and Add / Remove Items
- Import and Export Settings: Tools / Import and Export Settings

# Breakpoints

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- Breakpoints Window: Alt+Ctrl+B
  - create a new breakpoint (F9)
  - remove a breakpoint, remove all breakpoints (Ctrl+Shift+F9)
  - disable all breakpoints
  - go to the source code
  - set a condition for a breakpoint
  - set a hit count for a breakpoint
  - possibility to enable the breakpoint only for specified machine, process or thread
  - customize the message or assign a macro for a breakpoint
- Toggle a breakpoint in a line: F9

# Possibilities for Debugging

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- Scripting code – JavaScript or VBScript
  - in Internet Explorer's options uncheck 'Disable script debugging (Internet Explorer)'
- Transact SQL stored procedures or functions
  - right click on a stored procedure in Server Explorer Window / Step Into Stored Procedure
- Running process
  - Debug / Attach to Process (also works for system services)
  - for ASP.NET: aspnet\_wp.exe or w3wp.exe on Windows 2003
- Failing application (Just-In-Time debugging)
  - for Windows Forms applications, add to app.config or machine.config file the line:  
`<system.windows.forms jitDebugging="true" />`

# XML Documentation

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- Simply type `///` in a line preceding a class, interface, method, field, or property declaration
- Primary tags:
  - `<remarks>`, `<summary>`, `<value>`, `<param>`, `<returns>`, `<exception>`, `<example>`, `<permission>`, `<seealso>`, `<include>`
- Secondary tags:
  - `<code>`, `<para>`, `<pararef>`, `<see>`
  - `<list>`, `<listheader>`, `<item>`
- Custom tags
- To create XML file with documentation: Project Properties / Build / Output / XML Documentation File
- To generate .CHM file use the NDoc or Sandcastle tool

# XML Documentation Example

```
/// <summary>
/// Load data of a customer with
/// specified id and type.
/// </summary>
/// <param name="customerID">
/// ID of a customer.</param>
/// <param name="customerType">
/// Customer type.</param>
/// <returns>Dataset with one table
/// with one row consisting of
/// customer's data.</returns>
public static DataSet GetCustomer(
    decimal customerID,
    string customerType)
```

## CustomerDataSource.GetCustomer Method

[CustomerDataSource Class](#) [See Also](#) [Send Feedback](#)

Load data of a customer with specified id and type.

**Namespace:** [CRMRetail.GUI.Controls.Customers](#)

**Assembly:** CRMRetail.GUI (in CRMRetail.GUI.dll) Version: 0.0.0.0

### Syntax

#### C#

```
public static DataSet GetCustomer(
    decimal customerID,
    string customerType
)
```

### Parameters

*customerID*

Type: [System.Decimal](#)  
ID of a customer.

*customerType*

Type: [System.String](#)  
Customer type.

### Return Value

Dataset with one table with one row consisting of customer's data.

# Visual Studio Add-ins

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- To create an add-in: New Project / Other Project Types / Extensibility / Visual Studio Add-in
  - using Visual C#, Visual Basic, or Visual C++ / ATL
- Add-in Manager: Tools / Add-in Manager



# Internal Tools

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- Visual Studio Command Prompt – a command line where all Visual Studio's variables are set
- Dotfuscator Community Edition – obfuscates generated MSIL code
- Unit tests support
  - included in Visual Studio 2008 Professional
  - alternatives:
    - TestDriven.NET  
<http://www.testdriven.net>
    - NUnit  
<http://www.nunit.org>

# Useful Free Add-ins

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- SonicFileFinder – searching for any file within every project in the loaded solution  
<http://jens-schaller.de/sonictools/sonicfilefinder/index.htm>
- Source Code Outliner Power Toy – outlining classes (with methods and properties) from the current file  
<http://www.codeplex.com/SourceCodeOutliner>
- PowerCommands – many very useful context commands  
<http://www.visualstudiogallery.com/ExtensionDetails.aspx?ExtensionID=df3f0c30-3d37-4e06-9ef8-3bff3508be31>
- Smart Paster – pasting texts in various formats  
[http://weblogs.asp.net/alex\\_papadimoulis/archive/2004/05/25/Smart-Paster-1.1-Add-In---StringBuilder-and-Better-C-2300-Handling.aspx](http://weblogs.asp.net/alex_papadimoulis/archive/2004/05/25/Smart-Paster-1.1-Add-In---StringBuilder-and-Better-C-2300-Handling.aspx)

# Useful Free Add-ins cont.

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- Export code as Code Snippet  
<http://www.codeplex.com/ExportAsCodeSnippet>
- CodeKeep – managing custom Code Snippets and searching for Code Snippets  
<http://www.codekeep.net/addins.aspx>
- GhostDoc – automatic creating XML documentation for code  
<http://www.roland-weigelt.de/ghostdoc/>
- Regionerate – automatic layout enforcement tool  
<http://www.rauchy.net/regionerate/>
- RegExinator – testing regular expressions  
<http://www.visualstudiohacks.com/regexinator>

# Free External Tools

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- LINQPad – tool for learning LINQ  
<http://www.linqpad.net/>
- Nregex – online tool for testing regular expressions  
<http://www.nregex.com/nregex/default.aspx>
- Espresso – Windows application for testing regular expressions  
<http://ultrapico.com/Espresso.htm>
- OxyProject Metrics – provides quantitative information for software projects  
<http://www.techinceptions.com/CodeMetrics.html>

# Free External Tools

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- NDoc – generates help files from XML documentation  
<http://ndoc.sourceforge.net>
- Sandcastle – another tool for documentation files (Microsoft)  
<http://www.codeplex.com/SHFB>
- CLR Profiler – analyzes allocations in the garbage collection heap  
<http://www.microsoft.com/downloads/details.aspx?familyid=A362781C-3870-43BE-8926-862B40AA0CD0&displaylang=en>
- FxCop – checks conformance to the Microsoft .NET Framework Design Guidelines  
<http://msdn.microsoft.com/en-us/library/bb429476.aspx>

# Visual Studio 2008 Versions

<http://msdn.microsoft.com/en-us/vstudio/products/cc149003.aspx>

- Express [free]
  - only one programming language (except for Web Developer)
  - either Windows or web applications
  - not all tools included
  - x64 compilation
  - MSDN Express Library
  - versions:
    - Web Developer
    - Visual Basic
    - C#
    - C++

# Visual Studio 2008 Versions cont.

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- Standard Edition [\$299]
  - all programming languages
  - most of external tools (e.g. Create GUID, Dotfuscator, Spy++, Error Lookup)
  - Class Designer
  - all refactoring tools
  - dumping debugging information
  - multithreaded/multiprocess debugging
  - attaching to Web Services
  - Just In Time debugging
  - support for macros and Add-Ins
  - MSDN Express Library
  - creating XSD schema from XML document
  - Report Designer and Report Wizard
  - ASP.NET AJAX
  - Hosting WCF services
- supported projects:
  - MFC
  - WCF Service Library
  - installers
  - workflows
  - Windows Service
  - WPF controls

# Visual Studio 2008 Versions cont.

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- Professional Edition [\$799]
  - remote debugging
  - SQL-CLR debugging
  - T-SQL debugging
  - XSLT debugger
  - XSLT edition
  - Server Explorer
  - SQL Server and Database projects
  - Crystal Reports
  - Office Add-in projects
  - Smart Device projects
  - Windows CE tools



# Visual Studio 2008 Versions cont.

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- Team System [\$5,469 with MSDN Premium Subscription]
  - Visual Source Safe
  - Team Foundation Server
  - analytical functions depending on the edition:
    - distributed system design
    - database development
    - code analysis
    - code profiling
    - code quality
  - available editions: Architecture, Database, Development, Test
- Team Suite [\$10,939 with MSDN Premium Subscription]
  - contains all tools available in team editions

## Most Popular Tips & Tricks



<http://www.cjcraft.com/blog/CategoryView,category,31%2BDays%2BVSTT.aspx>

<http://blogs.msdn.com/karenliu/archive/2006/11/21/more-and-more-keybindings.aspx>

# Tips & Tricks - General

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- Use keyboard shortcuts.  
<http://blogs.msdn.com/karenliu/archive/2006/11/21/more-and-more-keybindings.aspx>
- Turn on showing keyboard shortcuts in tooltips
  - menu: Tools / Customize / 'Show shortcut keys in Screen Tips' and 'Show Screen Tips on toolbars' checkboxes
- Ctrl+Tab - Navigator Window
- Ctrl+F4 - closes the current document.
- Content of the Output Window can be saved to a file (Ctrl+S).

# Tips & Tricks - Editor

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- `Ctrl+.` - opens a small window to add the namespace or "using" declaration.
- `Ctrl+Shift+V` - the Clipboard Ring.
- `Alt+Mouse` - vertical block selection.
- `Ctrl+K, Ctrl+C` - comments selected block.
- `Ctrl+K, Ctrl+U` - uncomments commented block.
- `Ctrl+I` - incremental search.
- `Ctrl+]` - find a matching brace.

# Tips & Tricks - Navigation

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- F12 - goes to the definition.
- Shift+F12 - finds all references.
- Ctrl+- navigates backward.
- Ctrl+Shift+- navigates forward.
  
- F8 - goes to the next location (from the Find Results, Task List or Error List windows).
- Shift+F8 - goes to the previous location
  
- Ctrl+K, Ctrl+K - creates/removes a bookmark
- Ctrl+K, Ctrl+N - moves to next bookmark
- Ctrl+K, Ctrl+P - moves to previous bookmark
- Ctrl+K, Ctrl+L - clears all bookmarks

# Tips & Tricks - Debugging

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- F9 - sets a breakpoint.
- Ctrl+F9 - enables/disables a breakpoint.
- For each breakpoint, a condition can be defined.
  
- F10 - 'step over'
- F11 - 'step into'
- Shift+F11 - 'step out'
- Shift+Ctrl+F10 - 'jump'
  
- Ctrl+Alt+E - Exceptions Window (allows to break on an exception)
  
- Use the Immediate Window (for executing single statements)

# Tips & Tricks - Designer

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- F7 - toggles Code / Design View.
- The Document Outline window shows the structure and all containing controls of a Windows Form or User Control

# Tips & Tricks - Other

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- In the Solution Explorer window special 'Solution Folders' containing projects can be used to hide projects.
  
- Code snippets
  - right click in the editor
  - menu: Tools / Code Snippets Manager
  
- Visual Studio can be configured to enable debugging .NET Framework  
[http://dotnetslackers.com/Visual\\_Studio/re-78109\\_Configuring\\_Visual\\_Studio\\_to\\_Debug\\_NET\\_Framework\\_Source\\_Code.aspx](http://dotnetslackers.com/Visual_Studio/re-78109_Configuring_Visual_Studio_to_Debug_NET_Framework_Source_Code.aspx)