

Visual Studio 2008 Highlights

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If you work with Microsoft technologies, most likely a portion of your development effort is taking place within Visual Studio, Microsoft's flagship developer environment. Microsoft products such as SharePoint, Commerce Server, Exchange Server, BizTalk Server, Office, SQL Server, CRM, Windows Mobile Devices, and even the Xbox all support .NET development, and most have deep integration with Visual Studio.

With the release of Visual Studio 2008, Microsoft has further enhanced the environment, and added support for new features. We'll take a look at these enhancements, broken down into four groups: Environment, Designers, Language, and Products.

Environment

Multi-Targeting Build System

One of the biggest complaints Microsoft received from customers upgrading from Visual Studio 2003 to Visual Studio 2005 was the lack of backward compatibility. Existing projects had to be upgraded to the new Visual Studio 2005 and .NET 2.0 formats, and could not be opened again in Visual Studio 2003. This made it more difficult for organizations who wanted to incrementally upgrade their environments. Microsoft took notice and made sure that the transition from Visual Studio 2005 to Visual Studio 2008 was less painful by making the build system compatible with the .NET Frameworks 2.0, 3.0 and 3.5. Further, existing solutions can continue to be developed in Visual Studio 2008 while still using the .NET Framework 2.0.

Code Metrics

Until now, developers independently determined their code's complexity and maintainability. This lack of standardized metrics often resulted in unwieldy code and less than ideal productivity. To help address this problem, Visual Studio 2008 Team System Development Edition includes Code Metrics support. You can opt to analyze a single project or an entire solution, and the Code Metrics Results window displays key metrics such as the maintainability index, cyclomatic complexity, depth of inheritance, class coupling and the number of lines of code.

Visual Studio Shell

The Visual Studio Shell allows companies to build their own custom tools using a baseline Visual Studio IDE. The Visual Studio Shell supports two modes: Integrated, for merging with any other edition of Visual Studio; and Isolated, which runs side-by-side with other editions of Visual Studio. The Visual Studio Shell is freely available for development and distribution as part of the Visual Studio 2008 SDK.

Designers

Split-View Editor

The Web page editor in Visual Studio 2005 had two tabs: Code and Design. In Visual Studio 2008, there is a new tab: Split View. For developers who are familiar with SharePoint Designer, Microsoft FrontPage, or other similar designers, this is a welcome addition.

XAML

XAML, which stands for Extensible Application Markup Language, is a declarative XML-based language that defines objects and their properties in XML. XAML is used in Windows Presentation Foundation, Silverlight, XBAP (XAML Browser Application), and Windows Workflow Foundation. To assist with XAML development, Visual Studio 2008 adds a XAML designer, providing a familiar drag-and-drop interface for laying out XAML applications, as well as IntelliSense support for XAML files.

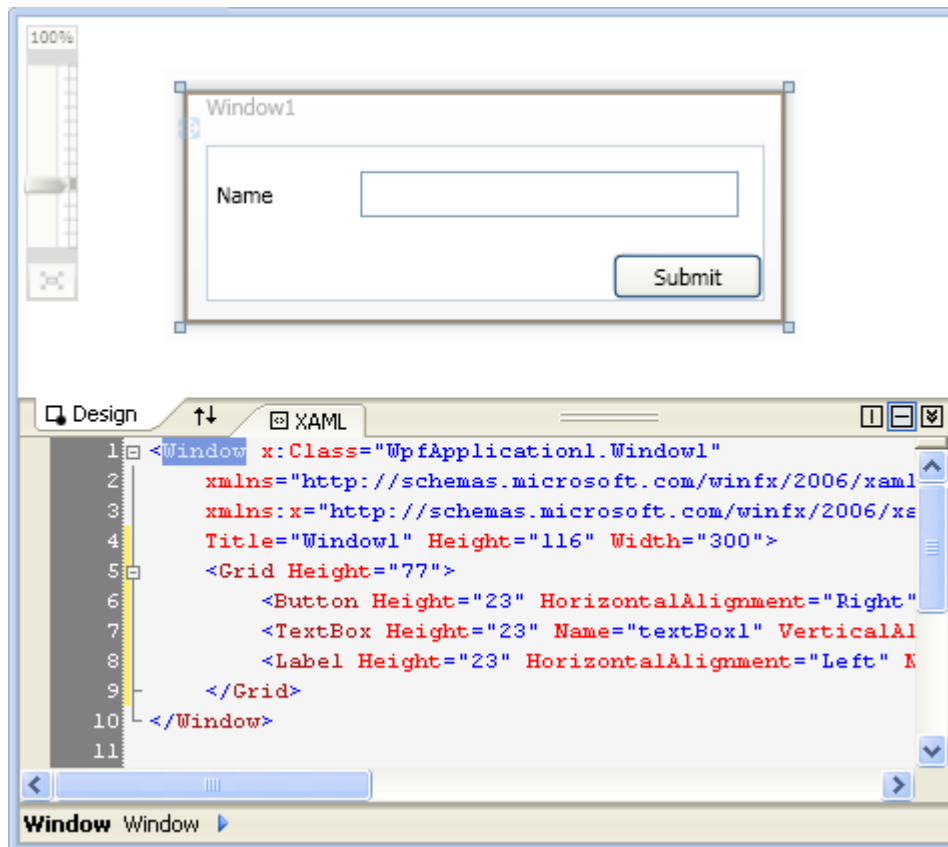


Figure 1: XAML Split-View Editor

Language

Released at the same time as Visual Studio 2008, the .NET Framework 3.5 introduces several new language constructs for both C# and VB.NET. These consist of automatic property setters and getters, object and collection initializers, extension methods, implicitly typed variables and anonymous types and VB.NET XML. Full IntelliSense support has been added for these

language features in the code editor. While discussing these language enhancements in detail is beyond the scope of this article, it is important to note that Visual Studio 2008 provides full IntelliSense support for all of them. LINQ and extension methods, however, are worth a brief overview.

LINQ

Almost all applications interact with data in some form – whether from relational databases, XML, or objects at runtime. Typical applications use non-Object Oriented methods, which contain vital business and logic information, such as stored procedures, to access and manipulate this data. This can make code more difficult to maintain, and makes it impossible for Visual Studio to check for errors, such as a misspelled store procedure name.

LINQ adds in-line query syntax to both C# and VB, allowing a developer to use the full power of Object Oriented languages to work with data using these built-in language features.

```
var employeeNames =
    from e in employees
    where e.Birthday <= DateTime.Now.AddYears(-18)
    select new
    {
        e.Name,
        e.Birthday
    };
```

A subset of LINQ, called LINQ to SQL, provides object generation for SQL Server objects such as stored procedures, tables and views. SQL Server objects can be added to a designer pane, which creates a LINQ DataContext and strongly-typed classes behind the scenes to interact with the data source.

Extension Methods

With extension methods, you can define a method for a specific type of a generic operation and have it apply to all members of that type, for example:

```
public static bool IsWeekend(this DateTime date)
{
    return date.DayOfWeek == DayOfWeek.Saturday
        || date.DayOfWeek == DayOfWeek.Sunday;
}

public static void CheckDate()
{
    DateTime dt = new DateTime(2007, 6, 1);
    bool weekend = dt.IsWeekend();
}
```

CSS Enhancements

The ASP.NET Designer has been enhanced with a rich CSS editing experience including CSS IntelliSense, a feature which was sorely missing from Visual Studio 2005. In addition, styling and layout can be performed from the Designer and the CSS Style tool windows.

JavaScript and ASP.NET AJAX IntelliSense

The ASP.NET designer has also been enhanced to provide JavaScript and ASP.NET AJAX IntelliSense for both inline and included script files. This is a much welcomed enhancement for ASP.NET developers. JavaScript IntelliSense also displays XML code comments in the editor tooltips for summary, parameter and return details of the client script.

Client Data Caching

Synchronizing partially-connected systems has always been a bane of software developers. Visual Studio 2008 adds client data caching, which creates a SQL Server CE database to cache frequently looked up items with support for bi-directional synchronization of database entities.

Products

Windows Workflow

Windows Workflow Foundation (WF) is the programming model, engine and tools for quickly building workflow enabled applications. WF radically enhances a developer's ability to model and support business processes. Visual Studio 2008 includes several new project and item templates for creating sequential and state-machine workflows. Visual designers are also provided to assist in the graphical creation of workflows.

Windows Communication Foundation

Windows Communication Foundation (WCF) is a framework for creating connected systems, built around web services. WCF provides secure, reliable, and transactional messaging along with interoperability.

Visual Studio 2008 provides project and item templates for creating Windows Communication Foundation projects. As well, Visual Studio provides a WCF Test Client application to enable testability of WCF solutions.

Microsoft Office

The Visual Studio Tools for Office (VSTO) Second Edition is now packaged with Visual Studio, and provides several new enhancements. Among the enhancements is a new visual Ribbon designer for Microsoft Office 2007. The ribbon designer allows a developer to visually design an Office ribbon using the familiar drag and drop interface, and interact with the Ribbon using standard .NET code.

In Visual Studio 2005, a Visual Studio Team Edition was required to install and use the VSTO tools. With Visual Studio 2008, VSTO ships with Visual Studio 2008 Professional and higher editions.

Team Foundation Server

Visual Studio 2008 offers only modest updates to Team Foundation Server. These changes include the ability for administrators to now entirely delete projects from both the disk and SQL Server, and a new annotation feature which identifies which developer changed specific lines of code in a module. The latter is noteworthy for companies in highly regulated industries who must closely track their development process.

Conclusion

Visual Studio 2008 includes more than 250 new features and it is more than ever a world-class platform for developing Web, Windows, server applications, and more. Visual Studio 2008 improves the process of development by providing a single, fully integrated development environment to increase productivity and quality.



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