



Visual Studio Tools for Applications: Next Generation Tools for Application Extensibility

Over the last ten years, Visual Basic for Applications (VBA) Licensees around the world have established competitive advantage by enabling user-driven customization of their software. Building on our deep experience with VBA, Microsoft has developed the next generation toolset for application extensibility, Visual Studio Tools for Applications (VSTA).

As Microsoft's future direction in application extensibility, VSTA provides a powerful toolset for secure, reliable customizations. Leveraging Microsoft Visual Studio and the Microsoft .NET Framework to support ISVs, their customers, and their partners, VSTA offers extensibility with control, enables new customization scenarios, and accelerates the development of solutions for specific customers and verticals.

Extensibility with Control

By integrating VSTA into their applications, ISVs give their customers a managed environment for tailoring applications to specific business needs. Within VSTA, multiple configuration options offer ISVs deep control over the customization experience, and new technologies make it possible to develop more reliable, version-resilient extensions.

VSTA's configuration options serve two purposes: streamlining implementation and providing ISVs with multiple layers of control. These options help ISVs make strategic decisions around: a) which components of the application are open to customization, b) how these components are opened, and c) to whom levels of access are granted. By enabling such granular control over the customization experience, VSTA enables ISVs to create new end-user, developer, and partner opportunities while retaining the stability and security of the .NET Framework infrastructure.

VSTA's framework for add-in management and application domain management brings new levels of reliability to customizations. Independent add-ins, isolated from the host application, further promote stability and security. VSTA's infrastructure also makes it possible for multiple add-in versions to work with multiple versions of the host application, helping preserve technology investments and extend the lifespan of customizations.

New Customization Scenarios

VSTA supports familiar VBA customization scenarios with the strengths of the .NET Framework and provides many new opportunities to leverage emerging technologies. VSTA enables users to pull in functionality from web services, create instances of business-specific logic within applications, and automate common tasks — all within a modern, managed environment.

In contrast to VBA, which gives access to only a subset of possible web service technologies, VSTA enables customizations which fully leverage a company's service-oriented architecture. VSTA provides .NET Framework data access capabilities, where VBA is limited to COM-based data access.

The inclusion of Windows Forms in VSTA creates new opportunities for developing sophisticated user interfaces. Windows Forms offers enhanced functionality for extensions, a designer for user interfaces, and a standardized set of extensible, reusable components for user interface controls. Windows Forms also facilitates consumption of Web services, making it easier to build customizations for connected systems.

Accelerated Solution Development

With a streamlined Visual Studio IDE and the security of the .NET Framework, VSTA accelerates solution development and provides the strengths of a managed customization environment for both COM and .NET applications.

Capturing the productivity of Visual Studio, VSTA provides a wealth of design-time features and a robust programming model. Features such as enhanced Intellisense, a new Code Editor, and an extensible library of Code Snippets facilitate faster, easier development of customizations. The Class Designer helps users build well-architected solutions, and robust debugging features help users build reliable extensions more easily than with VBA.

Support for both Visual Basic and Visual C# means organizations benefit from the large existing community of Visual Basic and Visual C# developers, and companies can easily extend their support infrastructure to include VSTA. In addition, ISVs can better serve a wide range of customers with one integrated solution.

Historically, using VBA to access Windows functionality through the Windows APIs was a difficult and labor intensive process. In contrast, VSTA provides full access to both Windows and .NET APIs, offering an entirely new generation of customization opportunities. For example, VSTA provides extensive support for XML and tools for handling XML data.

The .NET Framework reduces the risks traditionally associated with extensibility, as the .NET security model requires evidence of permissions before code is allowed to run. Building on this security model, VSTA presents additional barriers to unauthorized code. Applications are protected from malicious or unstable add-ins, allowing ISVs to provide their customers with significant flexibility at lower risk.

Future Directions for Application Extensibility

In the past decade, companies licensing VBA have differentiated themselves by offering extensible applications — now VSTA extends this capability with support for current and future technologies.

With VSTA, ISVs benefit from add-in and application domain management technologies, greatly simplifying integration over VBA. In addition, new tools included with VSTA significantly reduce implementation costs. VBA Licensees can integrate VSTA side by side with VBA, accruing the benefits of VSTA for their applications while supporting legacy VBA code.

As the next-generation toolset for application extensibility, VSTA will inherit Microsoft's continual innovations in Visual Studio and the .NET Framework, gaining feature richness and business functionality with each release. For example, VSTA will soon enable customizations which leverage the .NET Framework 3.0, using Windows Presentation Foundation for rich user experiences or Windows Communication Foundation for connected systems development.

Microsoft's investment in VSTA highlights a recognition of the many ways people today customize their personal technology lives, and an understanding of how this trend will influence future demand for customization in the workplace. With VSTA, ISVs will continue to win market share by providing innovative customization capabilities. A standardized toolset and a managed extensibility environment — essentially a "sandbox" for innovation — VSTA gives ISVs a strategic advantage in creating the people-ready applications of the future.