

NET237: Deploying Smart Client Apps with ClickOnce

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About Brian

- Principal Software Architect, IDesign Inc. (www.idesign.net)
- Microsoft MVP in ASP.NET
- Writing
 - MSDN Magazine, CoDe Magazine, The Server Side .NET, asp.netPRO, Visual Studio Magazine, .NET Developers Journal
 - Data Binding in Windows Forms 2.0, Addison-Wesley, expected release Fall 2005
- Speaking
 - Microsoft TechEd US, Europe, and Malaysia, Visual Studio Connections, VSLive!, DevEssentials, INETA Speakers Bureau, MSDN Webcasts
- Participates in Microsoft Design Reviews
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Agenda

- **ClickOnce Overview**
- Initial Deployment with ClickOnce
- Automatically Updating Applications with ClickOnce
- On-Demand Updates with ClickOnce
- ClickOnce Security
- Managing Application Files with ClickOnce

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ClickOnce Overview

- Smart client deployment technology
- Goals:
 - Rich user experience through Windows Forms / VSTO
 - Ease of deployment and maintenance of web applications
- Part of .NET Framework 2.0

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ClickOnce By The Numbers

1. Design and Build Windows Forms Application
2. Publish to Deployment Server
3. Provide Link/Shortcut to users
4. User clicks on link
5. App is deployed to users machine and executed
6. Updates published to deployment server
7. Client gets updates automatically/on-demand through ClickOnce



ClickOnce Target Applications

- **Line-Of-Business Applications**
 - Customer Resource Management (CRM)
 - Business analysis tools
 - Data input and visualization
 - Offline applications
- **Consumer Applications**
 - Games
 - Multimedia applications
- **Microsoft® Office**
 - Visual Studio® Tools For Office System 2003



ClickOnce System Requirements

- **Client**
 - .NET Framework 2.0 *
 - Application Pre-Requisites (DirectX, MDAC, Custom, etc.) *
 - **Server**
 - Must be able to deliver files through HTTP or Microsoft® Windows network file share
- * Can be deployed through the Bootstrapper with Admin privilege on client machine

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ClickOnce Deployment Modes

- **Launched**
 - Available online only
 - Must use URL to launch every time
 - Must be able to communicate with deployment server at start up
 - Updates are downloaded automatically before launch
- **Installed**
 - Available offline and online
 - Shortcut added to Start menu
 - Can launch through original URL or Start menu shortcut
 - Add/Remove Programs item added
 - Complex automatic update options available

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Initial Deployment

- Publish application files to deployment server
 - Include signed deployment and application manifests
- Client machine must have pre-requisites installed
 - Can be installed with Bootstrapper link if admin on machine
- User clicks on link provided
 - Email, Web link, shortcut
- Files are downloaded and cached on client machine
 - Isolated per user, per app, per version
- App is executed in secure sandbox
 - Based on the zone from which the app was deployed

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Initial Deployment with ClickOnce

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Automatic Updates with ClickOnce

- Online only apps
 - Always updated on launch
- Offline/Online apps configurable
 - Check for updates / not
 - Optional/Required
 - Update before launch / in background while running
 - Time interval
 - Different update / initial deployment locations
- Updates only pull new files
 - Detect changes through publish version

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Automatic Updates with ClickOnce

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On Demand Updates

- If auto-updates don't meet your needs
- System.Deployment assembly / namespace
- ApplicationDeployment class
 - CheckForUpdates / Update methods
 - Async method versions
- Application class
 - Restart method

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On-Demand Updates with ClickOnce

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ClickOnce Security

- Trustworthy deployment
 - Files isolated under user profile
- Trustworthy execution
 - App runs in Code Access Security sandbox
 - Default policy for local network and internet very restrictive
 - App can request additional permissions necessary through manifest
 - Granted through user prompting or trusted publisher configuration

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ClickOnce Security

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- **Managing Application Files with ClickOnce**

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Presentation title

ClickOnce Application Files

- Application consists of:
 - Windows executable
 - Supporting DLLs
 - Config files
 - Data Files
 - Resource Files
- Configurable through
 - Publish status
 - Download groups
- Access data files programmatically:
 - `ApplicationDeployment.DownloadFileGroup()`

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ClickOnce Application Files

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Summary

- ClickOnce is best choice for loosely coupled, smart client application deployment and update
- Need to design with ClickOnce in mind
- Design for least privilege
- Minimize client impact on the target machine

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Resources

- Automated Smart Client Deployment with ClickOnce, Brian Noyes, Addison-Wesley, expect release winter 2006
- Configuring ClickOnce Trusted Publishers, Brian Noyes, MSDN Online, April 2005
<http://msdn.microsoft.com/library/default.asp?url=/library/en-us/dnwinforms/html/clickonctrustpub.asp>
- Deploy and Update Your Smart Client Projects from a Single Server, Brian Noyes, MSDN Magazine, May 2004
<http://www.msdn.microsoft.com/msdnmag/issues/04/05/ClickOnce/default.aspx>
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<http://www.theserverside.net/articles/showarticle.tss?id=AutomatedSmartClient>

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