

Introducing Silverlight 4.0

```
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```

A Brief History of Silverlight



A Brief History of Silverlight

SEP 07

Silverlight 1.0

X-Browser
X-Platform
Designer / Developer Workflow
High Quality Audio/Video
Auto-Updater
Animation & Vector Graphics

A Brief History of Silverlight

OCT 08

Silverlight 2.0

High Performance Runtime
Flexible Data Access
Content Protection
Robust Networking
Role-Based Tools & DLR

A Brief History of Silverlight

JUL 09

Silverlight 3.0

Out of Browser
GPU Acceleration
Navigation & Validation
H.264 / AAC
Perspective Transforms & Pixel Shaders

A Brief History of Silverlight

MAR 10

Silverlight 4.0 RC

Elevated Trust
Printing
Webcam / Mic
Rich Text & HTML Hosting
Input Improvements
Localized to 41 Languages

What do YOU want?



- **Print support**
- Full databinding support
- **Implement right click mouse support (and popup menu customization)**
- **Implement webcam support**
- Implement Silverlight on more platforms
- **Implement mouse wheel support for standard controls**
- **Rich Text Editor & Textblock**
- Get Silverlight on the iPhone
- **Commanding Support**
- 3D support

Silverlight 4 Beta

Out of Browser Applications

- Elevated Privileges Support (including Automation)
- HTML Hosting Support
- Notifications

Media

- WMS Multicast Support
- MP4 Playback Protected by PlayReady DRM
- Offline DRM
- Output Protection
- WebCam/Mic Support (raw stream only)

Text

- RichTextBox
- Arabic and Hebrew Text Support
- IME Improvements for TextBox
- UIElement.TextInput event

Controls, Control Model, Layout

- Theming via Implicit Styles
- ViewBox
- RTL Layout
- DataGrid * Column Support
- ItemsControl support for Blend Fluid Layout
- MouseWheel Support on ScrollViewer, TextBox, ComboBox, Calendar, DatePicker
- VisualStateGroup.CurrentStateGroup property
- Command Property on ButtonBase & Hyperlink
- SelectedValue and SelectedValuePath Properties on Selector

Navigation

- Navigation Loader Extensibility (Hook Frame Navigates)

Databinding Improvements

- DataBinding Support for DependencyObjects
- StringFormat, TargetNullValue & FallBackValue Properties on Binding
- Binding to String Indexers
- IDataErrorInfo Support
- Asynchronous Data Validation (INotifyDataErrorInfo)
- ObservableCollection<T> IList/IEnumerable cstrs

Graphics/Imaging

- Support for more PNG Formats
- Unseal Path
- CompositeTransform

Networking

- UDP Listener
- Automatically Adding Referer Header
- Authentication Support on ClientHttpRequest
- Memory Usage Fix During Progressive Downloads

Tools Support

- Dispatcher Support on the Tools Design Surface

SDK

- ADO.NET Data Services 2.0 Support
- Managed Extensibility Framework (MEF)
- Better Transport for WCF (Socket Support)

Printing

- Printing Support

Silverlight 4 RC

RC

Parser

- New architecture enables future innovation
- Performance and stability improvements
- XmlnsPrefix & XmlnsDefinition attributes
- Support setting order-dependent properties

Input

- Pinned full-screen mode on secondary display
- HTML hosting accessibility
- Arabic, Hebrew and Thai input on Mac

Rich Text

- Text position and selection APIs
- RichTextBox.Xaml property for serializing text content
- XAML clipboard format
- FlowDirection support on Runs
- "Format then type" support
- Thai & Vietnamese input support
- UI Automation Text pattern

Out of Browser / Elevated Trust

- XAP signing
- Silent install and emulation mode
- Custom window chrome
- Better support for Automation
- Cancelable shutdown event
- Updated security dialogs
- Sockets security restrictions removal

Media

- Webcam/Mic configuration preview
- More descriptive MediaSourceStream errors
- Updates to H.264 content protection (ClearNAL)
- Digital Constraint Token
- CGMS-A
- Graphics card driver validation & revocation

Graphics/Imaging

- Hardware-accelerated Perspective Transforms
- Ability to query page size and printable area
- Memory usage and perf improvements

Data

- Entity-level validation support of INotifyDataErrorInfo for DataGrid
- XPath support for XML

SDK

- System.Numerics.dll
- System.Xml.XPath.dll
- Dynamic XAP support (MEF)
- Frame/Navigation refresh support

Networking

- UploadProgress support (client stack)
- Caching support (client stack)
- Sockets policy file retrieval via HTTP
- Accept-Language header

Parser

RC

- New architecture enables future innovation
- Performance and stability improvements
- Support setting order-dependent properties
- XmlnsPrefix & XmlnsDefinition attributes

```
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Common Feature Requests

- Dragging files into silverlight
- Right click support
- Printing support

<demo/>

Scrapbook

Drag & Drop, Right-click & Printing

Printing

- Customizable print layout
 - From live visual tree
 - From dynamic visual tree (Not on screen)
- Bitmap based
- Event model that supports pagination
- Ability to query page size and printable area

Media

- Multicast
 - Playback of multicast files from WMS
- Offline DRM
 - Download to own, Rental, Subscription, License Predelivery, Support for Domains
- MP4 DRM
 - Protect H264 and AAC-LC in the industry standard Mp4 file
- Output protection
- WebCam & Mic support



Open Sourcing the Olympics Player

smf.codeplex.com

<demo/>

Photobooth

WebCam

WebCam

- User prompt to use WebCams
- Access to the raw video & audio streams
- APIs to select between devices

Input

RC

- Mouse wheel support
 - ScrollViewer, TextBox, ComboBox, Calendar, DatePicker
- Pinned full-screen mode on secondary display
- HTML Hosting accessibility
- Arabic, Hebrew, Indic, Thai input and render

<demo/>

Silverlight Notepad

Rich Text

~~RichTextArea~~ RichTextBox

- ReadOnly or Editable
- Content Model
 - Runs, Spans & Paragraphs
- Hyperlinks
- Embedded Elements
- Multi-level Undo
- FlowDirection
- Shaping Support
- New Languages: Arabic & Hebrew

Rich Text

RC

~~RichTextArea~~ RichTextBox

- Text position and selection APIs
- “Xaml” property for serializing text content
- XAML clipboard format
- “Format then type” support
- UI Automation Text pattern
- FlowDirection support on Runs

<demo/>

FeedReader

Out of Browser Enhancements

- Window Positioning/Size APIs
- Support for Automation (native integration)
- HTML Hosting (HtmlBrush is renamed to WebBrowserBrush)
- Notifications
- XAP signing
- Silent install and emulation mode
- Custom window chrome
- Cancelable shutdown event
- Updated security dialogs
- Sockets security restrictions removal

Browsers?

RC

- Google Chrome
- Support for Private mode browsing
 - InPrivate – IE
 - Incognito Mode – Google Chrome
 - Private mode - FireFox

Pivot



Pivot

Resources

- Resources for Developers
msdn.com
- Microsoft Certification & Training Resources
microsoft.com/learning



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<*questions*/>

Questions and Answers

Slides are available on my **blog** @ <http://www.rudigrobler.net/speaking>

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