



Esri International User Conference | San Diego, CA
Technical Workshops | July 12, 2011

ArcGIS Viewer for Microsoft Silverlight

An Introduction

Art Haddad, Rich Zwaap, and Derek Law

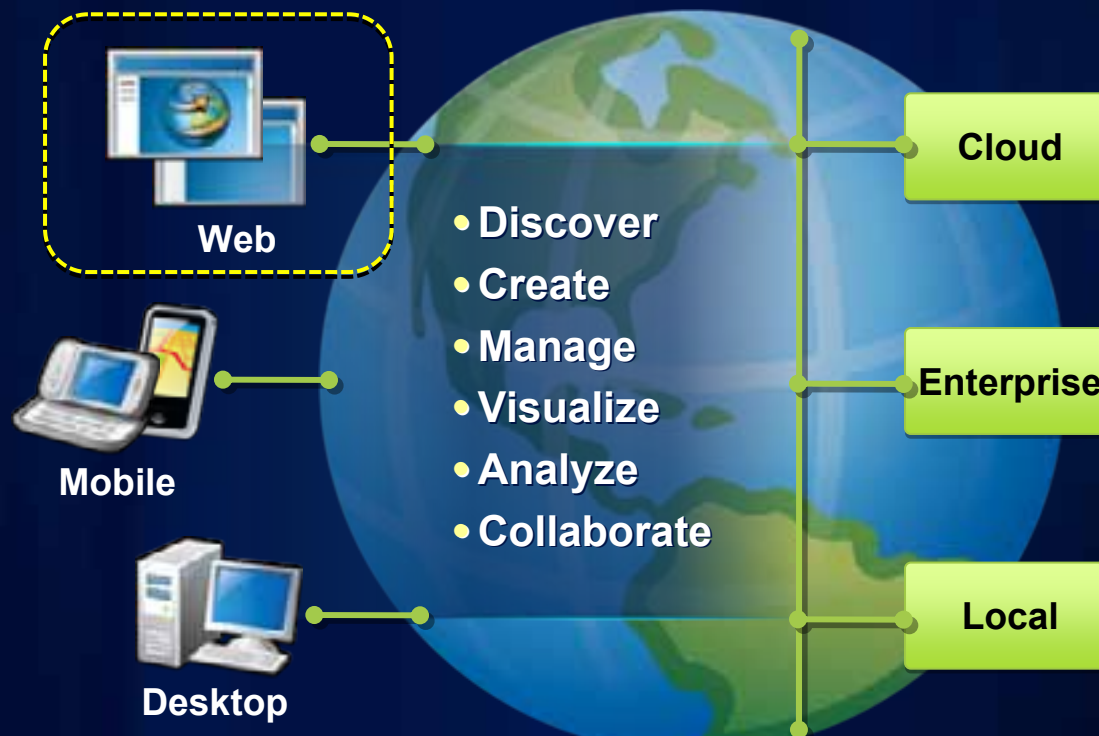


Agenda

- **Background**
- **Product overview**
- **Getting started and installation**
- **Viewer application builder**
- **Extensibility kit**
- **Summary**

ArcGIS 10 — A Complete System

**Easier
More Powerful
and Everywhere**



Review: Data Content in a Web Map

Common design pattern

- **Base Maps**
 - Geographic frame of reference
 - Contain static data
- **Operational layers**
 - Information overlays that end users interact with
 - Contain dynamic data
- Operational layers display on top of Base Maps



Review: ArcGIS Server – Web protocols

Support industry standards

- Its GIS services can be accessed via
 - Representational State Transfer (**REST**)
 - Simple Object Access Protocol (**SOAP**)
 - Keyhole Markup Language (**KML**)
 - Open Geospatial Consortium (**OGC**)



Review: ArcGIS Server – Services Directory

View of ArcGIS Server REST endpoint

- ArcGIS Services Directory exposes REST API
 - <http://localhost/ArcGIS/rest>

The diagram illustrates the process of accessing the ArcGIS Services Directory via the REST API. On the left, a server icon is shown next to a blue box labeled "REST". A green arrow points from this box to the "ArcGIS Services Directory" web interface. The interface shows a list of services, with "ESRI_Imagery_World_2D (MapServer)" highlighted by a red circle. A second green arrow points from this service to a detailed view of the service, which is also highlighted by a green rounded rectangle. The detailed view includes the service name, description, and other metadata. A small gear icon is visible in the bottom right corner of the detailed view.

REST

ArcGIS Services Directory

Folder: /

Current Versions: 10.01

View Footprints In: Google Earth

Folders:

- Demographics
- Elevation
- Reference
- Specialty

Services:

- CSP_Imagery_World (GlobeServer)
- CSP_Imagery_World_1D (MapServer)
- **ESRI_Imagery_World_2D (MapServer)**
- ESRI_Imagery_World_2D (MapServer)
- ESRI_ShadedRelief_World_2D (MapServer)
- ESRI_StreetMap_World (GlobeServer)
- ESRI_StreetMap_World_2D (MapServer)
- II_Imagery_Front_World (GlobeServer)
- II_Imagery_Front_World_2D (MapServer)
- NASA_CloudCover_World (GlobeServer)
- NOAA_Thrust_US (GlobeServer)

ESRI_Imagery_World_2D (MapServer)

View In: ArcMap, ArcGIS Explorer, ArcGIS Desktop, ArcWeb, ArcGIS, ArcGIS.com Map

View Footprint In: Google Earth

Service Description: This map is in **Esri's ArcGIS** and is no longer updated. Esri recommends that you use **World Imagery** instead (available in 10.0 or higher is required).

Map Name: Local

Layers:

All layers are visible

Layers:

- World Imagery (2D)

Thumbnail:

Description: This map presents low-resolution imagery for the world and high-resolution imagery for the United States and other countries. The map includes 2008 Blue Marble Next Generation 500m resolution imagery at small scales (above 1:1,000,000), tiled 250m and 125m imagery at medium-to-large scales (down to 1:75,000) for the world and 2008 10m aerial imagery for the United States. It also includes 10m resolution imagery for the world, and 2008 10m resolution imagery for the world, and 2008 10m resolution imagery for the world. For more information on this map, visit us online at http://www.esri.com/arcgisonline/arcgis/rest/services/ESRI_Imagery_World_2D.

Copyright Text: Copyright © 2008 ESRI, Inc. All rights reserved.

Spatial Reference: 4326

Single Fused Map Cache-URL

Building Web clients

- **Web Mapping APIs**

- ArcGIS API for JavaScript
- ArcGIS API for Flex
- ArcGIS API for Silverlight



- Provide a comprehensive framework for creating GIS enabled Web mapping applications
- Primarily geared towards developers
- **ArcGIS Server Manager - Application Builder**
 - Depreciated post ArcGIS 10

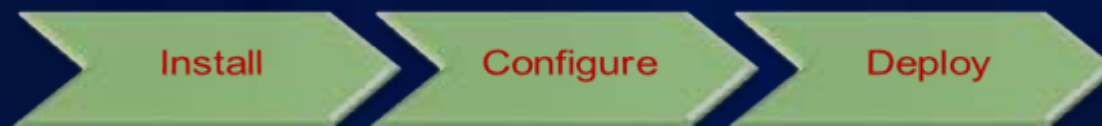


ArcGIS Viewer for Microsoft Silverlight

Currently Beta 2 release



- Configurable *ready-to-deploy* Web client
 - Built with ArcGIS API for Silverlight
- **Easily and quickly** create and implement GIS Web mapping applications



- Complete set of core GIS tools and functionality
- **No programming or editing configuration files**
 - Ideal for novice Web application creators

ArcGIS Viewer for Silverlight overview

- **Web browser-based application**
 - Hosted on-premise
- **Consists of 3 components:**
 1. **Configurable Viewer**
 2. **Application Builder**
 3. **Extensibility Kit**
- **32-bit and 64-bit OS versions available**
- **Localized versions available:**
 - Chinese, French, German, Japanese, and Spanish



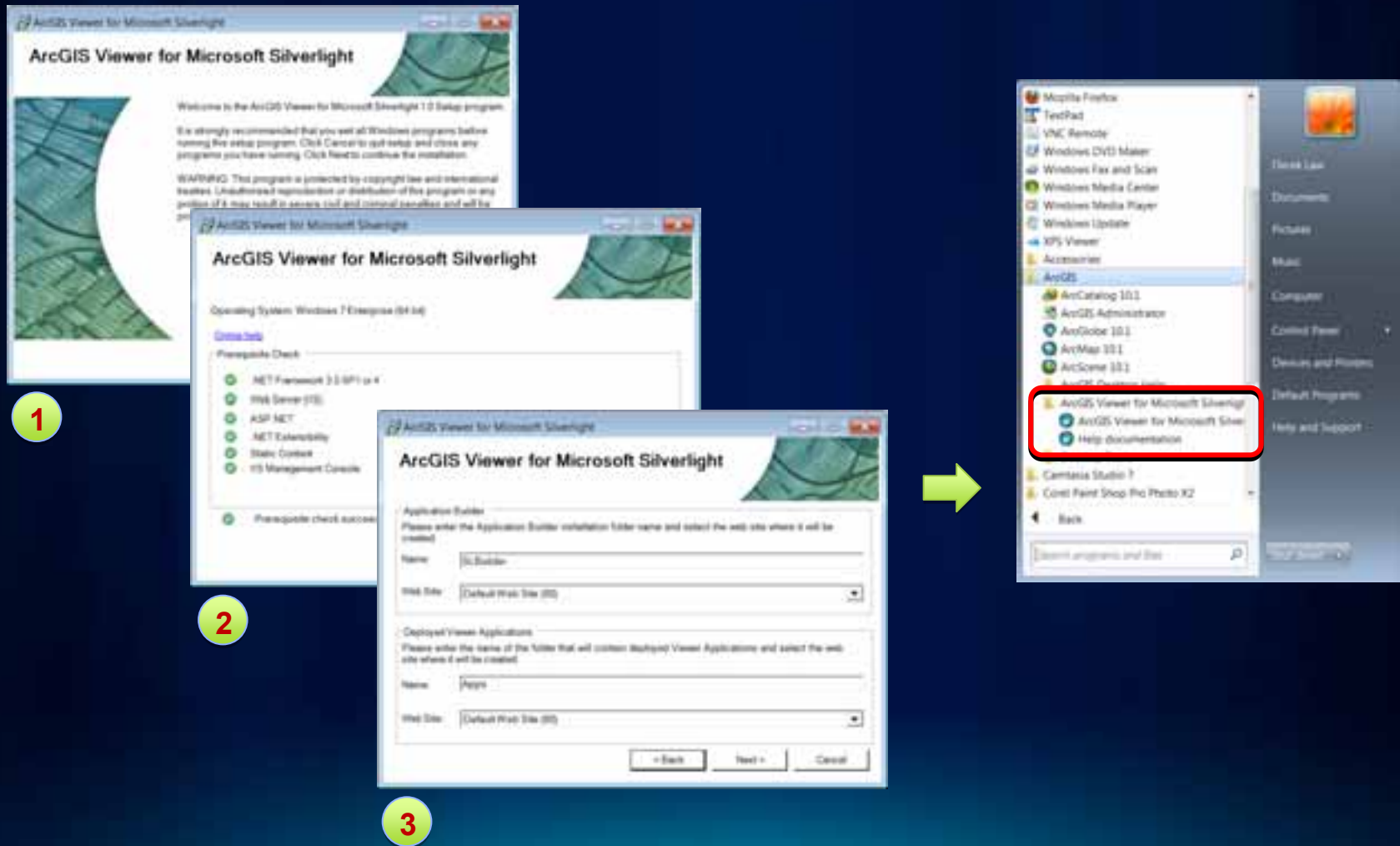
Esri Beta Community site

<http://betacommunity.esri.com>

- Download package, documentation, user forums

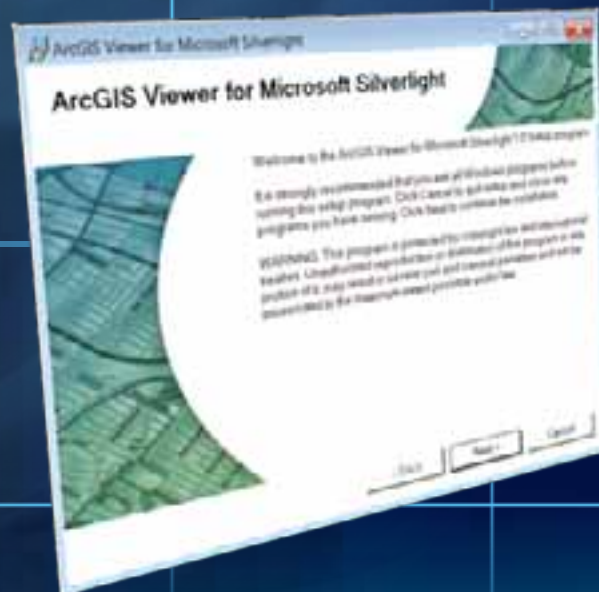


Easy installation and setup



Demo

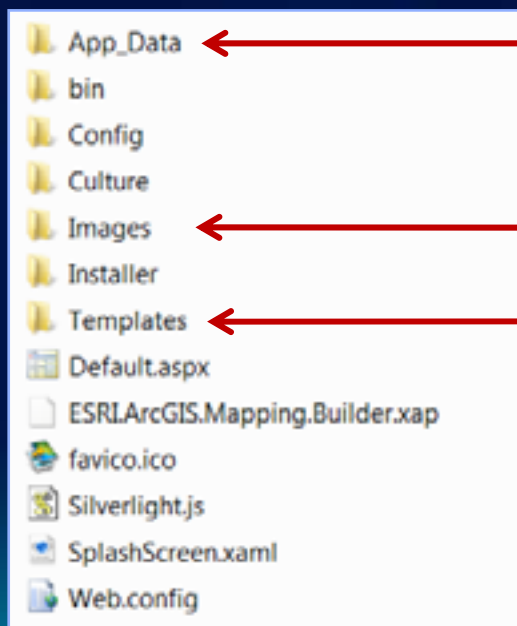
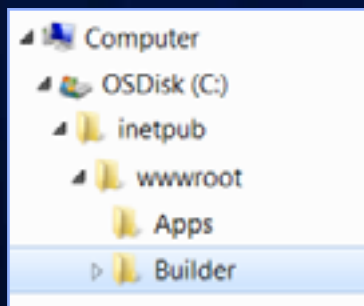
Installation and set-up



Viewer installation files

Located in IIS Web resources directory

- 2 folders created
 - **Builder** → contains software
 - **Apps** → contains deployed Web applications



← Contains configs for “add-ins”, base maps, and list of deployed sites

← Contains images used by Builder

← Contains default Viewer

Working with Application Builder

- Create new Web mapping application based on:
 1. **New map** (from scratch)
 2. **Existing Web Map** (from ArcGIS.com)
 - ArcGIS.com login supported

- Configure
 - Data content
 - Functionality
 - Look and feel

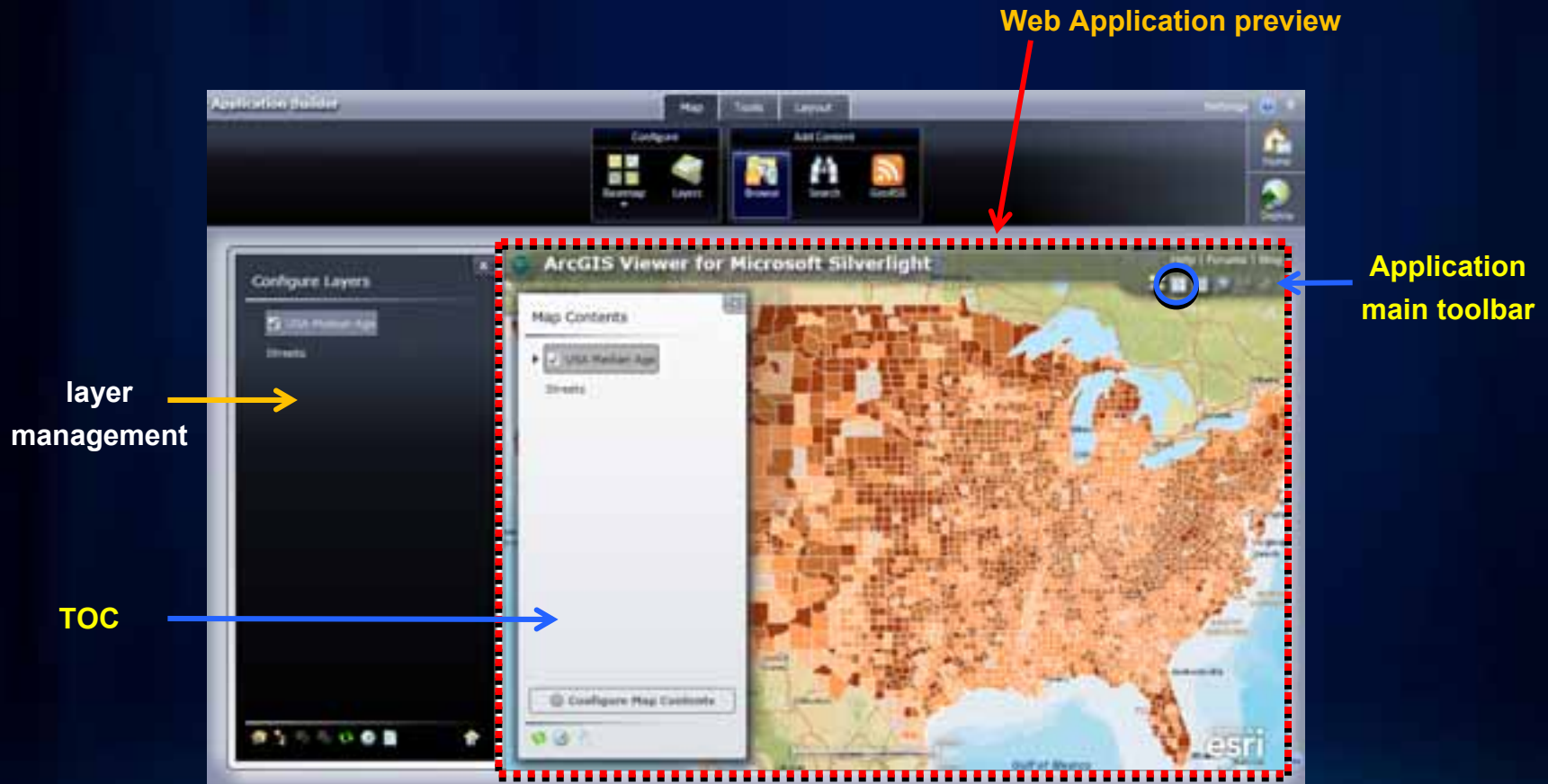


Application Builder User Interface

WYSIWYG user experience



Application Builder contains Web App



Application Builder workflow

- Interactively create Web apps → **WYSIWYG** experience
 - Map content
 - Tools
 - Look and feel



- Deploy configured Viewer applications

Map tab

- Specify the data content in the Web application



Map tab functionality

- **Browse for data (base maps and operational layers)**
- **Add GeoRSS feeds**
- **Layer configuration properties**
 - **Symbology, transparency**
 - **Pop-ups with identify**
 - **Generate heat maps**
 - **Cluster data**
- **Map contents with legend**

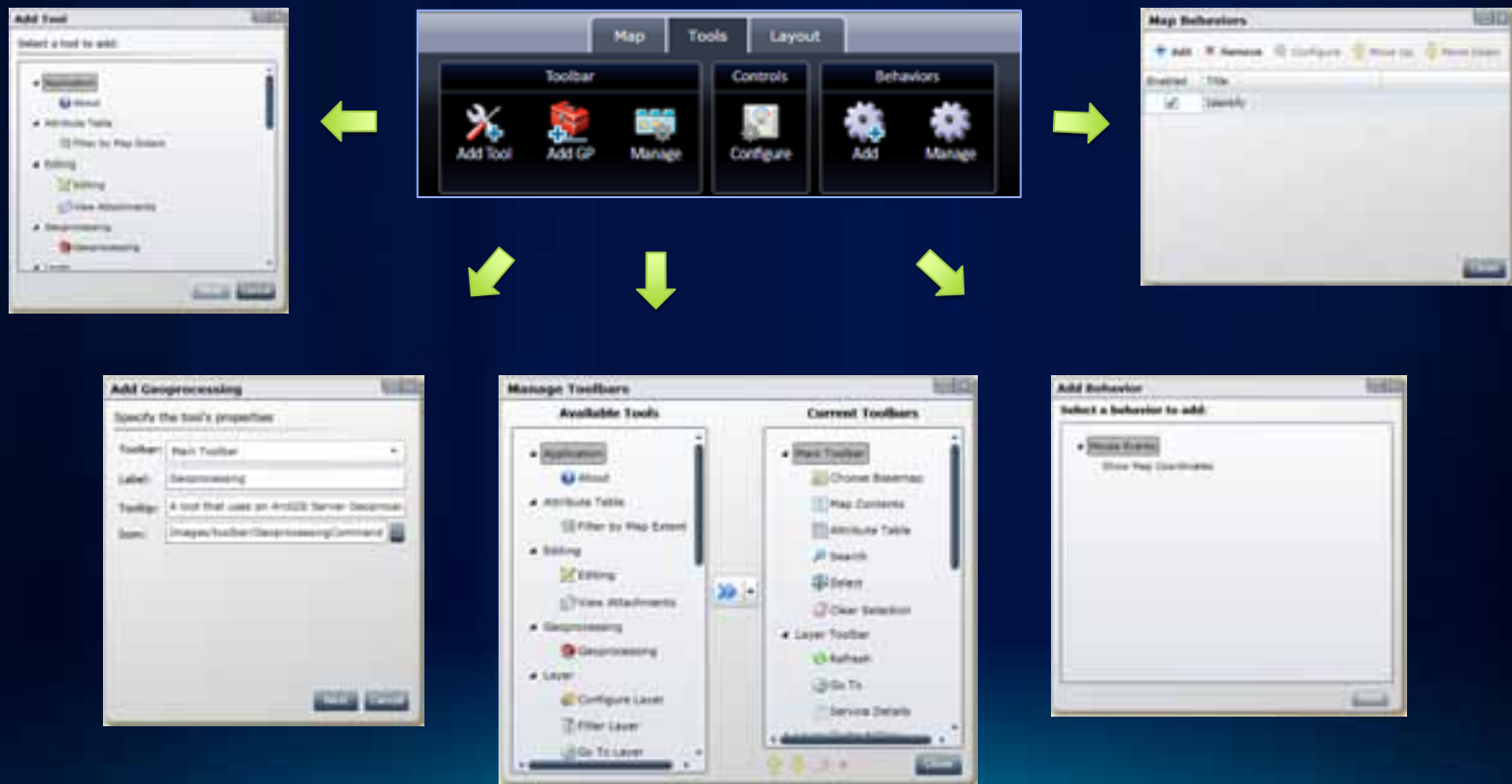
Demo

Add and configure map content



Tools tab

- Specify the functionality of the application



Tools functionality list

- **Interactive feature selection options**
- **Feature editing and attachments**
- **Geoprocessing**
- **Print**
- **Filter layers**
- **View service properties**

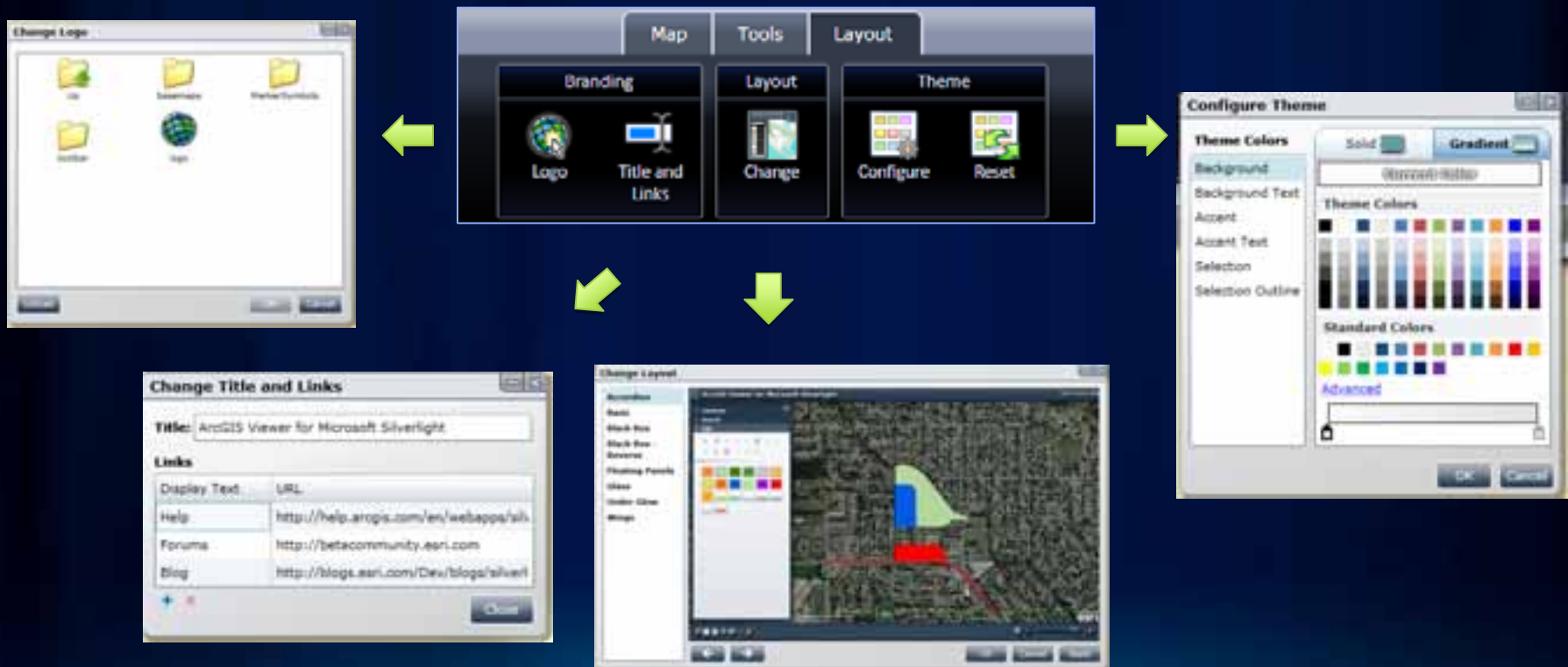
Demo

Define functionality in application



Layout tab

- Specify the “look and feel” of the Web application



Demo

Define look and feel, deploy site



Application Builder workflow review



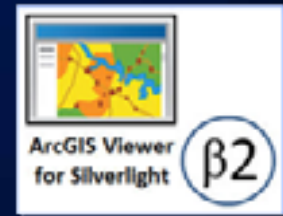
1 New map or Web Map



2 Configure:
•Data content
•Functionality
•Look & feel



Non-linear
workflow

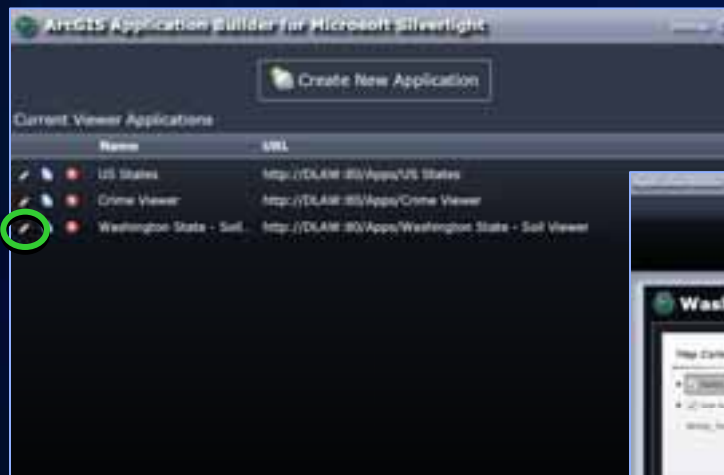


3 Deploy
Application

Application Builder supports dynamic workflows

- Deployed Web applications can be easily modified
- All properties can be changed
- **Save As** and **copy site** functionality

List of
deployed
Web apps

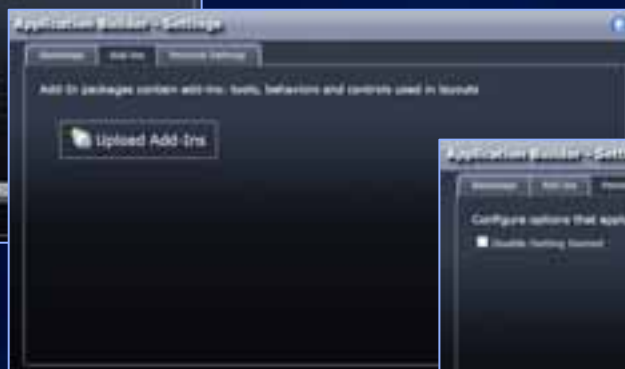


Edit button



Application Builder settings

- Set custom basemaps
- Add “add-ins” to enable new functionality
- Deactivate *Getting Started* window



Viewer Application Builder summary

- **Configure custom Web applications**
 - Set properties to meet business requirements
 - WYSIWYG UI
 - Flexible workflow
 - Multiple layouts
- **Easy to deploy new sites**
- **Modify an existing published site**
 - Make configuration changes with Builder
- **Optional “*Getting started*” help**



Extending the Silverlight Viewer



- **“Add-ins”** → modular code enables new functionality
 - Delivered as Silverlight packages (.xap files)
- **Developers can create custom add-ins**
 - Requires ArcGIS API for Silverlight
 - Viewer extensibility API (beta 2)
 - Visual Studio 2010 template provided
- **Same add-in will work in both the Silverlight Viewer and ArcGIS for SharePoint**

Viewer extensibility kit

- **Develop custom add-ins using the Extensibility API**
- **ESRI.ArcGIS.Client.Extensibility assembly**
 - **Lightweight API for Viewer**
 - **Provides access to Map & Selected Layer**
 - **Methods to show UI in dialogs**
 - **Ability to store and load configuration data**
- **Leverage any Silverlight library within the add-in**

Viewer extensibility points

- Pieces of extra functionality that you plug in:
 1. **Tools** → custom functions
 2. **Behaviors** → custom non-UI logic
 3. **Layouts** → custom application “look and feel”
 4. **Layers** → custom data layer types

Requirements for development

- Microsoft Visual Studio 2010 or Microsoft Visual Web Developer 2010 Express
- **Microsoft Silverlight 4 Tools for Visual Studio 2010**
 - **Included in VS2010 SP1**
- Microsoft Silverlight 4 Toolkit
 - To customize the layout template
- **Microsoft Expression Blend 4**
- ArcGIS API for Microsoft Silverlight

Demo

Extending the Viewer with an Add-in



Summary



- Configurable *ready-to-deploy* Web client
 - Complete set of core GIS tools and functionality
- Interactively create Web apps → **WYSIWYG experience**, easy to deploy
- **No programming or editing configuration files**
- Can be extended with ArcGIS API for Silverlight development
- Online evaluations

www.esri.com/sessionevals

Related Demo Theater presentations

- **Introduction to Add-ins for the ArcGIS Viewer for Silverlight**
 - Wed 11:00 AM Exhibit Hall C
- **Creating Custom Tools for the ArcGIS Viewer for Silverlight**
 - Wed 11:30 AM Exhibit Hall C
- **Creating Custom Layouts for the ArcGIS Viewer for Silverlight**
 - Wed 12:00 noon Exhibit Hall C
- **Building Extensions for the ArcGIS Viewer for Silverlight and SharePoint**
 - Wed 4:00 PM Exhibit Hall C

Related UC sessions

- **ArcGIS API for Silverlight/WPF – An Introduction**
 - Wed 10:15 AM Room 6E
 - Thurs 10:15 AM Room 8
- **ArcGIS API for Silverlight/WPF – Advanced Topics**
 - Wed 1:30 PM Room 8
 - Thurs 3:15 PM Room 32B
- **Road Ahead – Silverlight**
 - Wed 3:15 PM Room 6A



esri