



Introduction to Web AppBuilder for ArcGIS: JavaScript Apps Made Easy

Jianxia Song & Derek Law

July 21, 2015

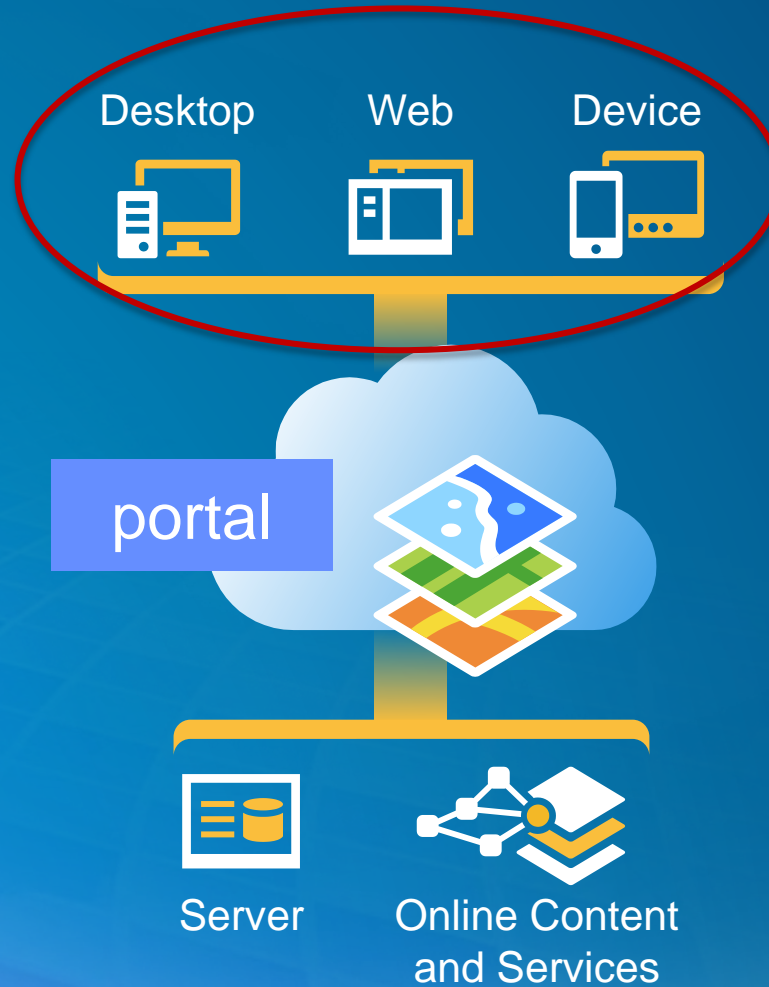
Agenda

- **Product overview**
- **Web AppBuilder for ArcGIS tour**
- **What's New – July 2015 ArcGIS Online update**
- **Customization**
- **Community and Resources**
- **Summary**

The ArcGIS Platform enables Web GIS

Enabling GIS Everywhere

Simple
Integrated
Open



Available in the Cloud . . .
. . . and On-Premises

ArcGIS Web Application Templates

ArcGIS Online and Portal for ArcGIS



Web Map



Make a Web Application

Configurable Apps | Web AppBuilder

Click a template's thumbnail to preview it or click its links to download it to your computer or publish it to the web.

Basic Viewer Publish ▼	Chrome - Twitter Publish ▼	Classic Viewer Publish ▼	Compare Analysis Publish ▼
Directions Publish ▼	Edit Publish ▼	Elevation Profile Publish ▼	Filter Publish ▼

1 2 3 4

Find, Edit, and Filter Publish ▼	Finder Publish ▼	GeoForm Publish ▼	Impact Summary Publish ▼
Information Lookup Publish ▼	Legend Publish ▼	Local Perspective Publish ▼	Map Tools Publish ▼

1 2 3 4

Public Information Publish ▼	Simple Map Viewer Publish ▼	Story Map Basic Publish ▼	Story Map Journal Publish ▼
Story Map Series Publish ▼	Story Map Swipe and Spyglass Publish ▼	Story Map Tour Publish ▼	Summary Viewer Publish ▼

1 2 3 4



3070
Points



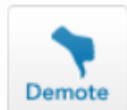
29
Participants

HTML 5 Viewer needed

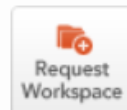
It seems like HTML 5 is going to be one of the leading (if not The leading) GIS web development platforms. Flex and Silverlight APIs, however, have their respective Viewers created. They allow for easy and rapid creation of sophisticated web applications. There is nothing similar for JavaScript API and HTML 5, while there are legions of GIS users who are not very well versed in programming. Can ESRI look into catering to this users too, with respect to HTML 5?

Tags : HTML 5, Viewer, Web, Development

14 Comments | **Posted by :** alexroma **to** ArcGIS Server, Web Apps and APIs **Feb 23, 2012**



770
Points

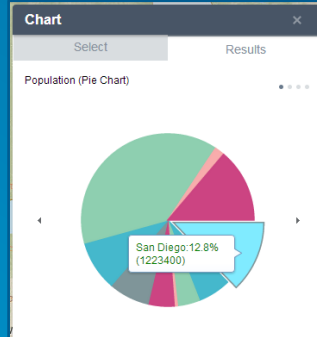
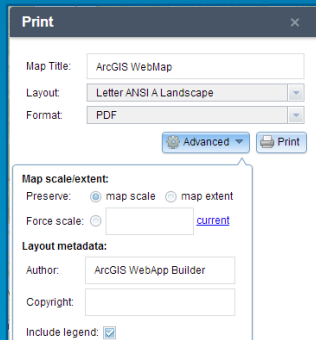


JavaScript API Builder

Create a JavaScript API Application Builder like those created for the Flex and Silverlight APIs.

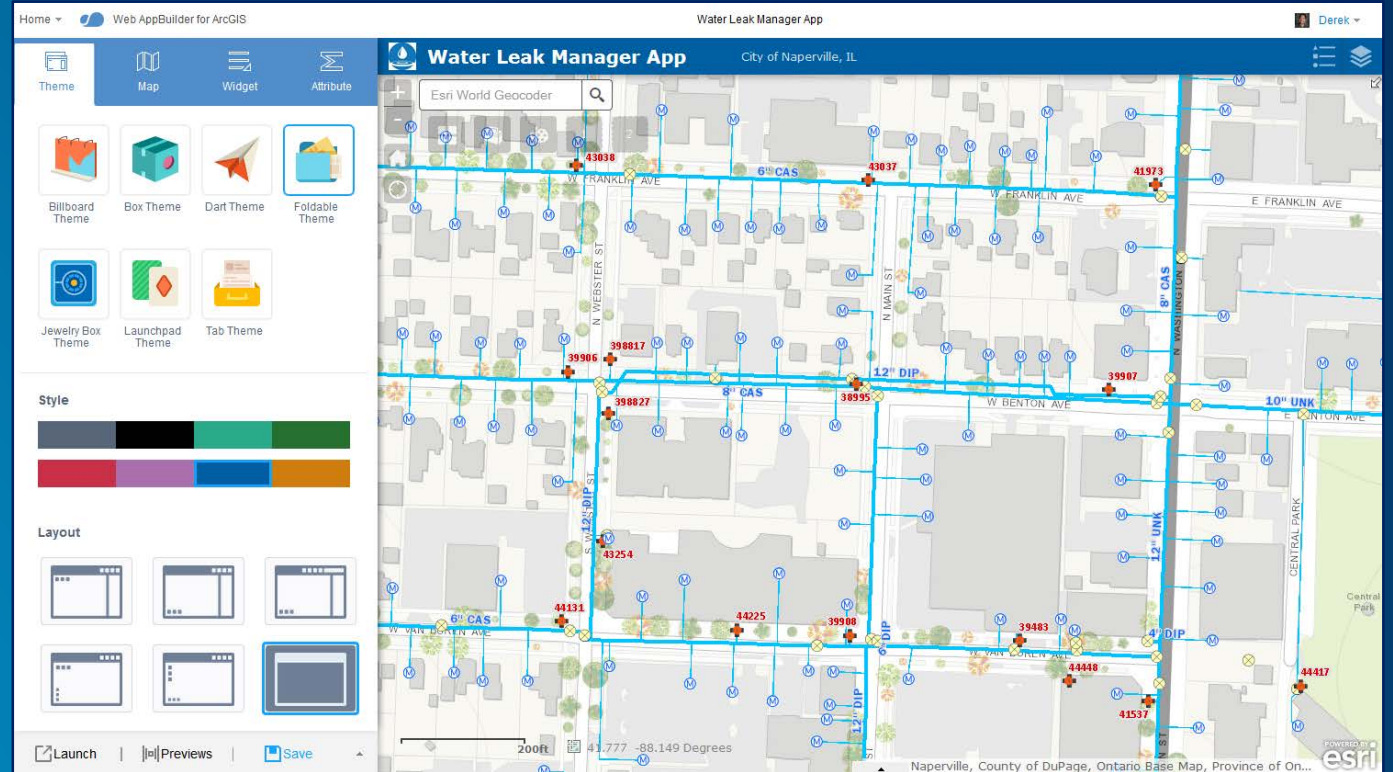
Tags :

2 Comments | **Posted by :** TONIFAIRBANKS **to** ArcGIS Server, Local Government, Web Apps and APIs **May 10, 2012**



Latitude	Longitude	Date	City	State	Country	Event	Tour	Venue	url	FID	CreationDate	Creator	EditDate
29.730278	-95.431	4/5/1992 5:00:00 PM	Houston	TX	USA		Zoo's 1st Leg	The Summit	http://en.wikipedia.org	12	4/18/2013 10:25:48 AM	cmahlin_jl@esri	6/16/2013 10:25:55 AM
41.311488	-72.820511	10/13/1889 4:08:00 PM	New Haven	CT	USA		Boy 2nd Leg	Toads Place	http://www.loading.13	13	4/18/2013 10:25:48 AM	cmahlin_jl@esri	6/16/2013 10:25:55 AM
33.279908	-97.732279	4/6/1992 5:00:00 PM	Austin	TX	USA		Zoo's 1st Leg	Frank Owen Center	http://en.wikipedia.org	14	4/18/2013 10:25:48 AM	cmahlin_jl@esri	6/16/2013 10:25:55 AM
33.851039	-75.933808	12/16/1989 4:08:00 PM	Philadelphia	PA	USA		Boy 2nd Leg	Blou Cafe		15	4/18/2013 10:25:48 AM	cmahlin_jl@esri	6/16/2013 10:25:55 AM
33.424517	111.930543	4/6/1992 5:00:00 PM	Tampa	FL	USA		Zoo's 1st Leg	Archie Center Arizona Date U	http://en.wikipedia.org	16	4/18/2013 10:25:48 AM	cmahlin_jl@esri	6/16/2013 10:25:55 AM

30+ widgets



Web AppBuilder for ArcGIS

Create new web apps without programming

Web AppBuilder for ArcGIS



- **Functionality within ArcGIS Online and Portal for ArcGIS**
 - ArcGIS Online since Dec 2014
 - Portal for ArcGIS in 10.3 and later
- **Enables new apps to be created without coding**
 - Interactive WYSIWYG user experience
 - Runs on any device, in a web browser
- **Fully integrated with the ArcGIS Platform**
- **Built with ArcGIS API for JavaScript and HTML 5 technology**
- **Extensible**

2 Options to Work with Web AppBuilder

1. **Within ArcGIS Online or Portal for ArcGIS**

- Embedded in the web site
- Activate from the map viewer or My Contents

2. **Developer Edition**

- Separate download and installed locally
- Sign into ArcGIS Online or Portal for ArcGIS
- Support for custom widgets and themes

- Both offer the same “builder” user experience, same capabilities





Web AppBuilder for ArcGIS - Live Sites Showcase

This group contains a collection of live web apps that were built using [Web AppBuilder for ArcGIS](#). The intent is to showcase the many different use cases that Web AppBuilder for ArcGIS can address, as well as [More](#)

Tags

- Accessibility
- ACT Parks and Conservation Service
- Address
- Agriculture
- Airport Runways
- Alabama
- Alaska
- Alberta
- Asset
- Australia
- Bellefonte
- Birds
- Directive
- Boone County
- Boone County GIS
- Boone County Planning
- Commission
- Bridges
- broken main
- Buildings
- Cadastral
- Calhoun
- California
- Canada
- Canberra
- Capital Improvement Plan
- capital program
- Carnegie
- Museum of Natural History
- ccpa
- Cities
- City of Kitakyushu
- Climate-Smart Cities
- Closures
- CMOM
- Collector
- Commercial
- Trucking
- Conditions de circulation
- consent
- decree
- conservation
- construction
- Construction County
- Cumberland County
- Custom
- Widget
- DC
- Demographics
- DEP
- Deshe
- developers
- Dojo
- DOT
- drinking water
- Duncan
- Département de la Corse du Sud
- Economic Development
- ecopeace
- Edmonton
- Engineering
- Facilities
- Farmland
- farms
- First Edition



Calhoun County Parcel Vie...
Web Mapping Application



In Your Neighborhood
Web Mapping Application



PlanNet
Web Mapping Application



Lisbon's Roadkill Informati...
Web Mapping Application



The University of the West ...
Web Mapping Application



GIS Viewer for Boone Coun...
Web Mapping Application



Muscatine County Iowa Inf...
Web Mapping Application



Hamilton County Indiana M...
Web Mapping Application



Land Status within the Nati...
Web Mapping Application



IWASD Projects
Web Mapping Application



Unlock Earth's Secrets - De...
Web Mapping Application



Urban Heat Risk Explorer A...
Web Mapping Application



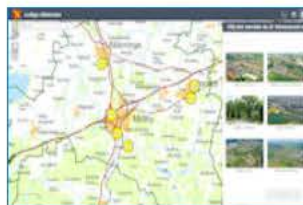
Iowa DOT Snowplows
Web Mapping Application



City of Mountain View Zoni...
Web Mapping Application



Agricultural Resources
Web Mapping Application



Lediga villatomter - Lots fo...



Grey County Economic Dev...



King County iMap



Springs of Judean Hills



City of Kitakyushu - Post yo...

Web AppBuilder for ArcGIS Live Sites Showcase

ArcGIS Online Public Group

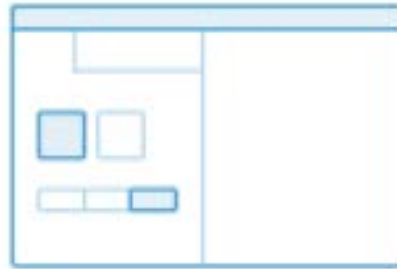
By the Numbers ...

- # of apps made in ArcGIS Online: **10,000+**
- # of Developer Edition downloads: **v1.0 → 9700+, v1.1 → 7400+** (early June 2015)
- Pre-UC Survey: **70% are using it now**
- Very active user community on GeoNet
 - **Web AppBuilder for ArcGIS**
 - 8th most active
 - **Web AppBuilder Custom Widgets**
 - 6th most active
 - Custom widgets by the community: **over 2000+ downloads**

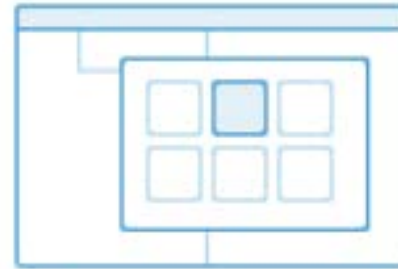
Workflow for Creating a new App



1 Create new app



2 Pick style



3 Select map



4 Add widgets



5 Configure attributes



6 Preview and publish

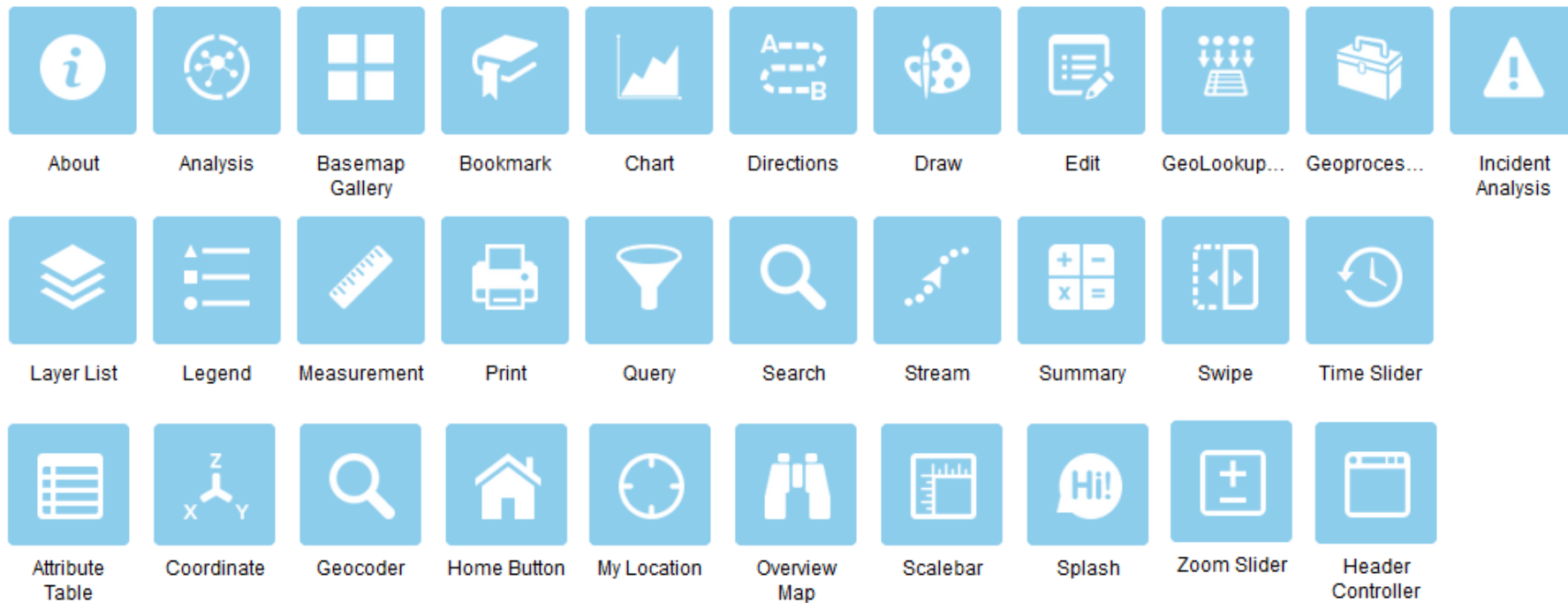
Demo

Web AppBuilder Tour



Available Widgets

- **Widget:** a chunk of code that can be added in a modular fashion; provides functionality
- **30+ available;** enable core web mapping application capabilities



Some Notable Widgets

- **Navigation**
- **Query**
- **Search**
- **Geocoding**
- **Editing**
- **Geoprocessing**
- **Printing**
- **Legend**
- **Layer List**
- **Overview Map**
- **Attribute**
- **HeaderController**



Deploy Apps on Any Device

Home Web AppBuilder for ArcGIS Water Leak Manager App Derek

Width 1024 Px Height 768 Px

iPhone6	iPhone6 plus	iPhone5/5C/5S	iPhone4/4S
iPad Air	iPad with Retina Display	The New iPad	iPad Mini
Samsung Galaxy S4	Samsung Note 3	Nexus 5	Nexus 4
Nexus 7	HTC One	Xiaomi 3	LG G2

Scan QR code to view application on your mobile device

Launch | < Configure | Save

Water Leak Manager App City of Naperville, IL

Esri World Geocoder

43037 41973 398817 39906 398827 38995 39907 43254 44131 44225 39908 39483 44448

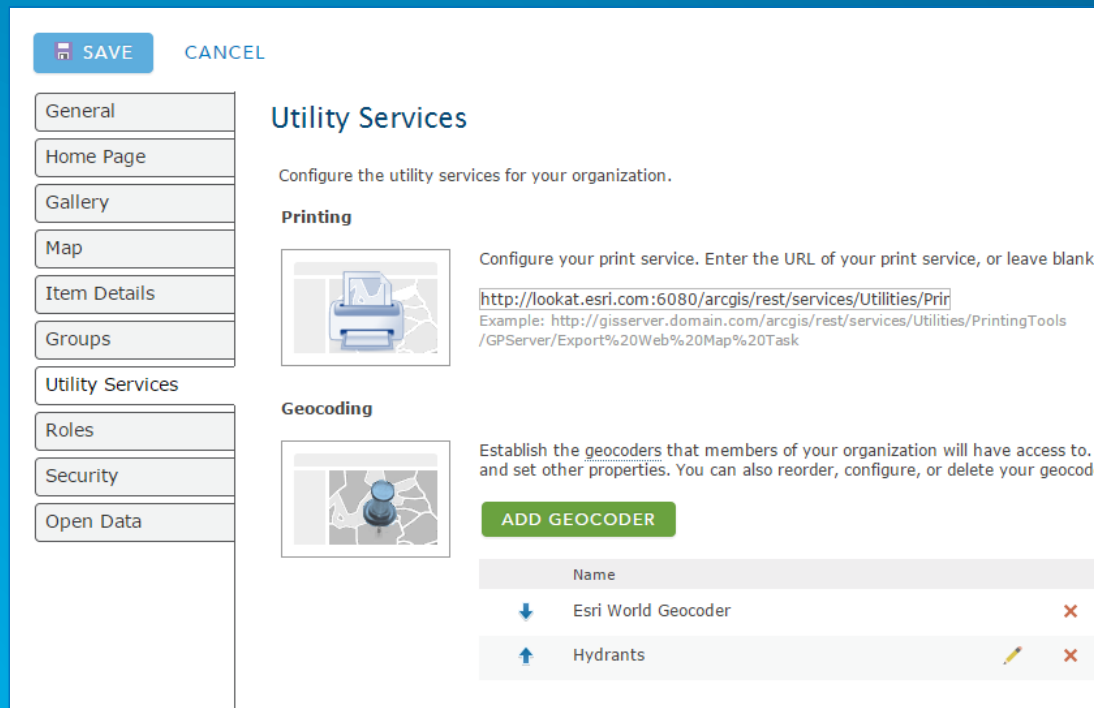
6" CAS 8" CAS 12" DIP 10" UNK 12" UNK 4" DIP

200ft 41.776 -88.147 degrees

aperville, County of DuPage, Ontario Base M... esri

Leverage your organization's Utility Services

- ArcGIS Online or Portal for ArcGIS
- Organization settings panel



The screenshot shows the 'Utility Services' configuration page in ArcGIS. On the left is a navigation menu with options: General, Home Page, Gallery, Map, Item Details, Groups, Utility Services (selected), Roles, Security, and Open Data. At the top of the main panel are 'SAVE' and 'CANCEL' buttons. The 'Utility Services' section is titled 'Configure the utility services for your organization.' It contains two main sections: 'Printing' and 'Geocoding'. The 'Printing' section includes a printer icon, a text field for a URL, and an example: 'http://lookat.esri.com:6080/arcgis/rest/services/Utilities/PrintingTools/GPServer/Export%20Web%20Map%20Task'. The 'Geocoding' section includes a map icon with a pin, a description: 'Establish the geocoders that members of your organization will have access to, and set other properties. You can also reorder, configure, or delete your geocoders.', and a green 'ADD GEOCODER' button. Below this is a table of geocoders:

Name
↓ Esri World Geocoder ×
↑ Hydrants ✎ ×



Locators



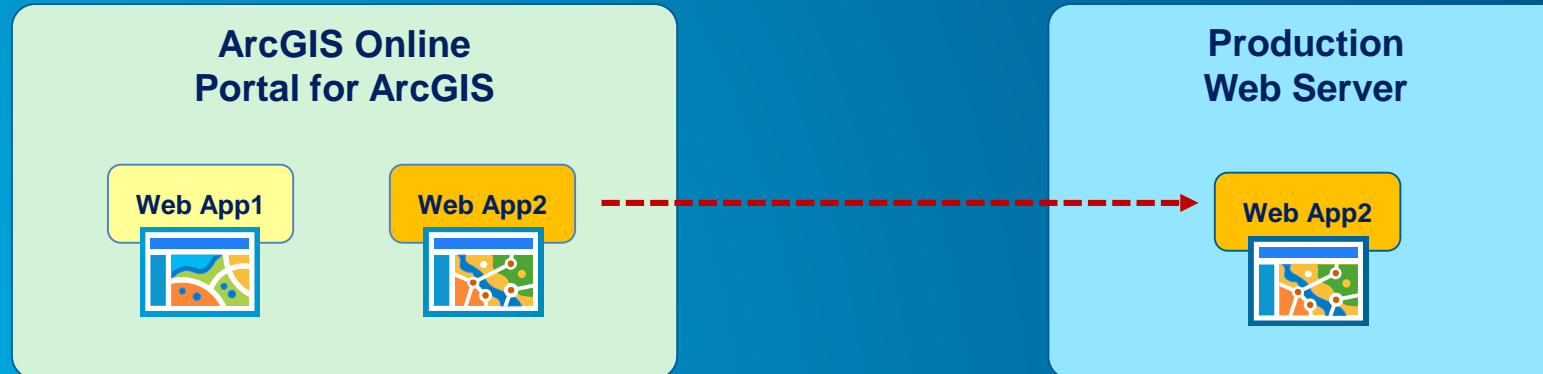
Basemaps



Print services

Web Apps from Web AppBuilder

- Apps are hosted in ArcGIS Online or Portal for ArcGIS
- Become items in App author's *My Contents*
- Option to download source code for the app from Item Details page
 - Customize web app
 - Host in your own web server



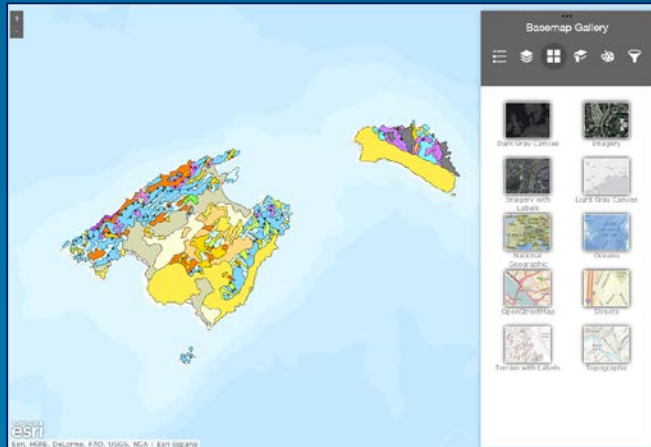
Web AppBuilder for ArcGIS

July 2015 Update





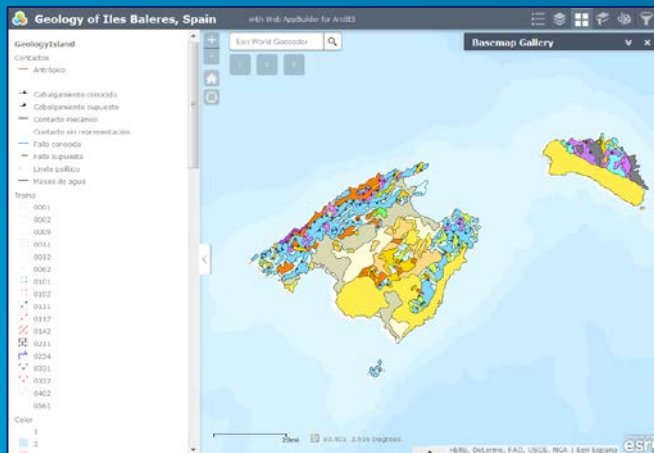
Billboard



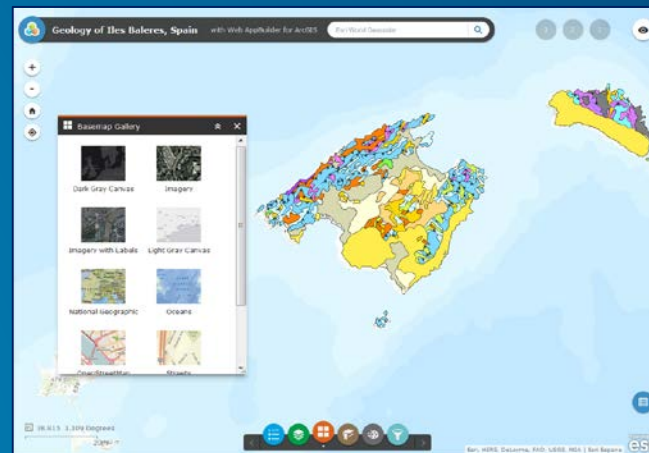
Box



Dart



Jewelry Box



Launchpad

5 New Themes

Custom look and feel



Search widget



Stream widget



Summary widget



Incident
Analysis widget



GeoLookup widget

5 New Widgets

More functionality

Other enhancements

- **Option to have widgets already “opened” when the web app starts up**
- **Support for uploading data for use in a GP service which has upload capability in the Geoprocessing widget**
- **Configurable context menus in the Layer List widget**
- **Interactive +/- zoom control in the map display with Zoom Slider widget**
- **Better responsive support in the Foldable and Tab themes**
- **Configure the sorting rules for query results in the Query widget**
- **Support Image Service Vector Layer and Image Service Layer**

Export Web Apps as New Templates

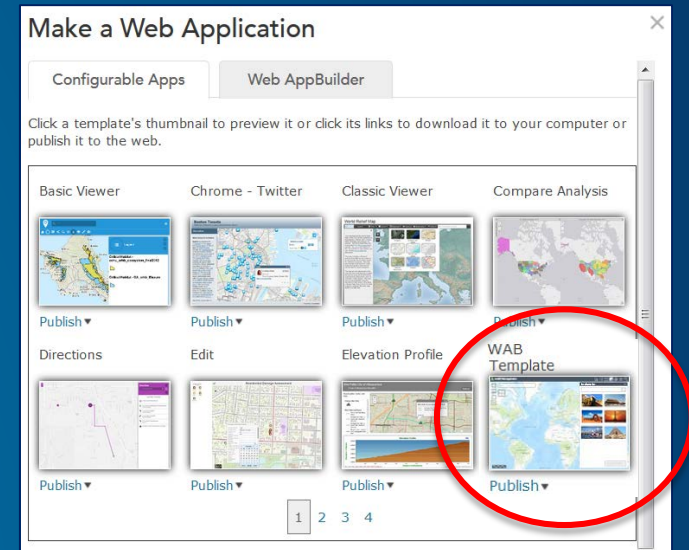
- Leverage Web AppBuilder to **create new templates** which can be used in the ArcGIS Online/Portal for ArcGIS map viewer

- **Workflow**

- Select *Export As Template* option
 - Set configurable parameters
- Generates a new template item
- Add to a group
- Select group for the Map > Web App Templates option

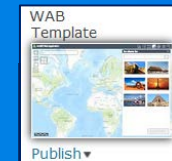
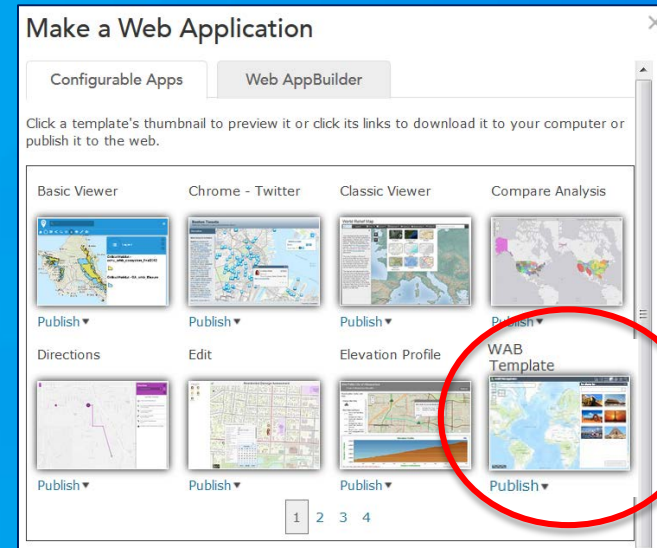


Web Map



Demo

Create New Templates



Web AppBuilder for ArcGIS

Customization



2 Tiers of Customization

- **Enabling custom functionality – Configurator**
 - Add custom widgets to your apps
 - Non-developer
- **Extending custom functionality – Developer**
 - Create new widgets from scratch
 - Programmer



Using Custom Widgets/Themes in Your Apps



- **Workflow**

- Download the source code for the app
- Apply customizations as desired
- **Host in your own web server**



- <http://doc.arcgis.com/en/web-appbuilder/manage-apps/deploy-app-online.htm>

Demo

Adding Custom Widgets



GeoNet: Custom Widgets shared by Community

<https://geonet.esri.com/groups/web-app-builder-custom-widgets>

- Mixture of enhanced and brand new widgets
- Approx. 20+ widgets
- Some supporting docs

The screenshot shows the GeoNet community interface. At the top, the 'GeoNet The Esri Community' logo is visible. Below the logo is a navigation bar with links for 'Home', 'Content', 'People', 'Places', and 'Map'. A search icon is on the right. The main header features a banner for 'Web AppBuilder Custom Widgets' with a gear-themed background and a 'Content' tab selected. Below the banner is a 'Log in to follow, share, and participate in this social group.' button. The content area shows 'All Content (262)' with various filters and a table of documents.

Title	Author	Latest activity	Views	Like	Bookmark	Comment
Enhanced Search Widget Version 1.1.9 - 7/2/15	rscheitlin	July 14, 2015 8:40:18 AM	12283	25	33	492
Enhanced Draw Widget	timw1984	July 14, 2015 5:16:31 AM	1642	1	3	23
Print Plus Widget Version 1.1.6 July 12, 2015	Larry_Stout	July 12, 2015 5:43:59 PM	2685	4	7	85

GitHub: Esri Solutions Team – Custom Widgets

<https://github.com/Esri/solutions-webappbuilder-widgets>

- Widgets for specific workflows
- Samples

The screenshot shows the GitHub repository page for `Esri / solutions-webappbuilder-widgets`. The repository is described as "Web App Builder created and managed by the Esri Solutions teams." It has 280 commits, 6 branches, 2 releases, and 11 contributors. The current branch is `master`. The commit history shows a recent commit by `MikeMillerGIS` titled "new icons and again a manifest.json fix" 25 minutes ago. Below the commit history, there is a table of files and their commit messages:

File	Commit Message	Time Ago
<code>BatchAttributeEditor</code>	Batcheditor renamed to BatchAttributeEditor	a month ago
<code>BombThreat</code>	fixes #170 and #172	22 days ago
<code>CI_KR_Chart</code>	Updating Description in manifest.json	4 months ago
<code>CostAnalysis</code>	new icons and again a manifest.json fix	25 minutes ago
<code>DirectionsWithBarriers</code>	update README.md	5 months ago
<code>ERG</code>	Updating Description in manifest.json	4 months ago
<code>ElevationProfileTable</code>	added busy cursor for LOS operation	a month ago
<code>GeoLookup</code>	Latest GeoLookup to match Devtopia	16 days ago

On the right side of the page, there are options to watch (100), star (44), and fork (65) the repository. There are also links for Code, Issues (17), Pull requests (0), Pulse, and Graphs. The HTTPS clone URL is `https://github.com/Esri/`. There are buttons for "Clone in Desktop" and "Download ZIP".

Web AppBuilder Developer Edition

Developers.ArcGIS.com/web-appbuilder



- **Download and install locally**
 - Sign into ArcGIS Online or Portal for ArcGIS
 - Same “builder” user experience as embedded Web AppBuilder
 - Work with custom widgets and themes
- Provides extensibility framework for apps
- Leverages ArcGIS API for JavaScript
- Create web apps on your own computer



ArcGIS for Developers ▾ FEATURES PLANS DOCUMENTATION COMMUNITY

Web AppBuilder for ArcGIS (Developer Edition)

Home Guide API Reference Sample Code Forum

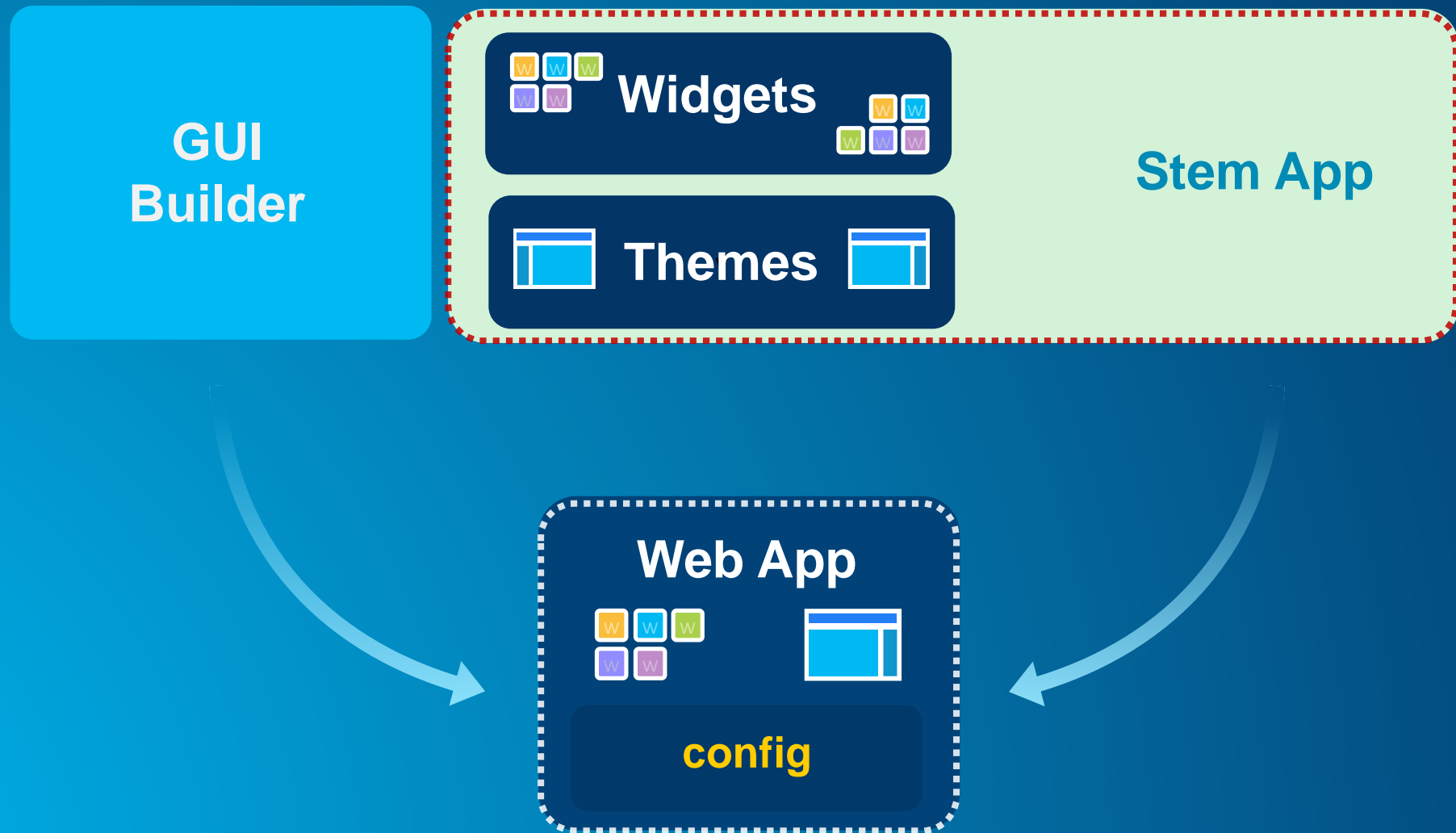
Download Current version 1.0 (December 2014)

Get the Developer Edition to create custom widgets and themes. Boost your productivity by extending the framework. Build powerful GIS apps that run on desktops, tablets and smartphones.

[↓ DOWNLOAD](#)

[Supported Browsers](#) | [License](#) | [Key Features](#)

Web AppBuilder for ArcGIS Components



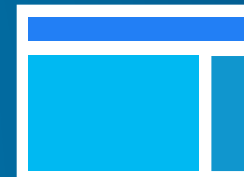
Widget

- HTML/JavaScript/CSS (appearance)
- Specific task (functionality)
- Configuration in JSON
- Localization support
- Builder configuration UI



Theme

- HTML/JavaScript/CSS
- Layout
- Branding
- Widget panel and behavior
- Style (color, etc.)
- Default widgets



Demo

Using WAB Developer Edition

Import an App into Developer Edition

Enable a custom widget in “builder”

Web AppBuilder for ArcGIS

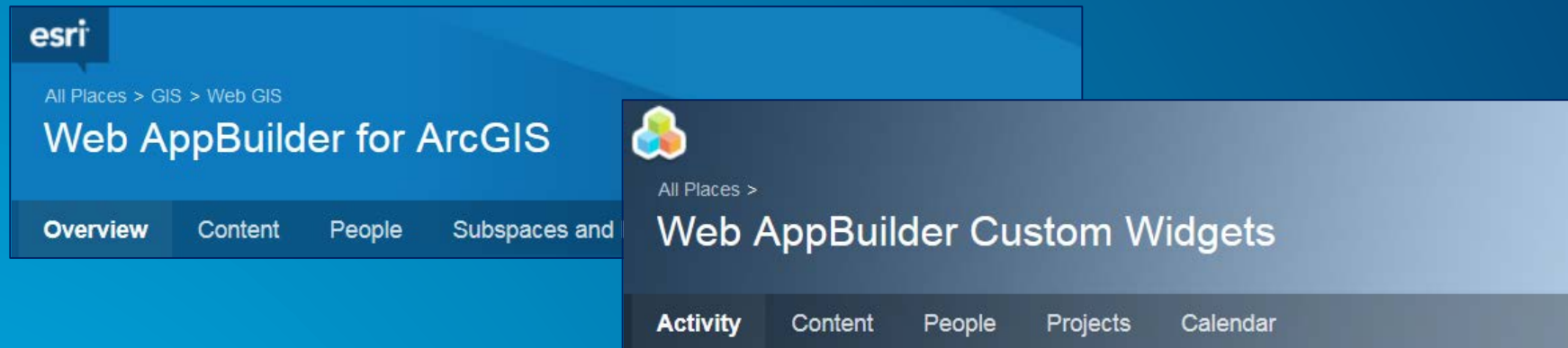
Community and Resources



GeoNet – Esri Community



- 2 places for Web AppBuilder user community

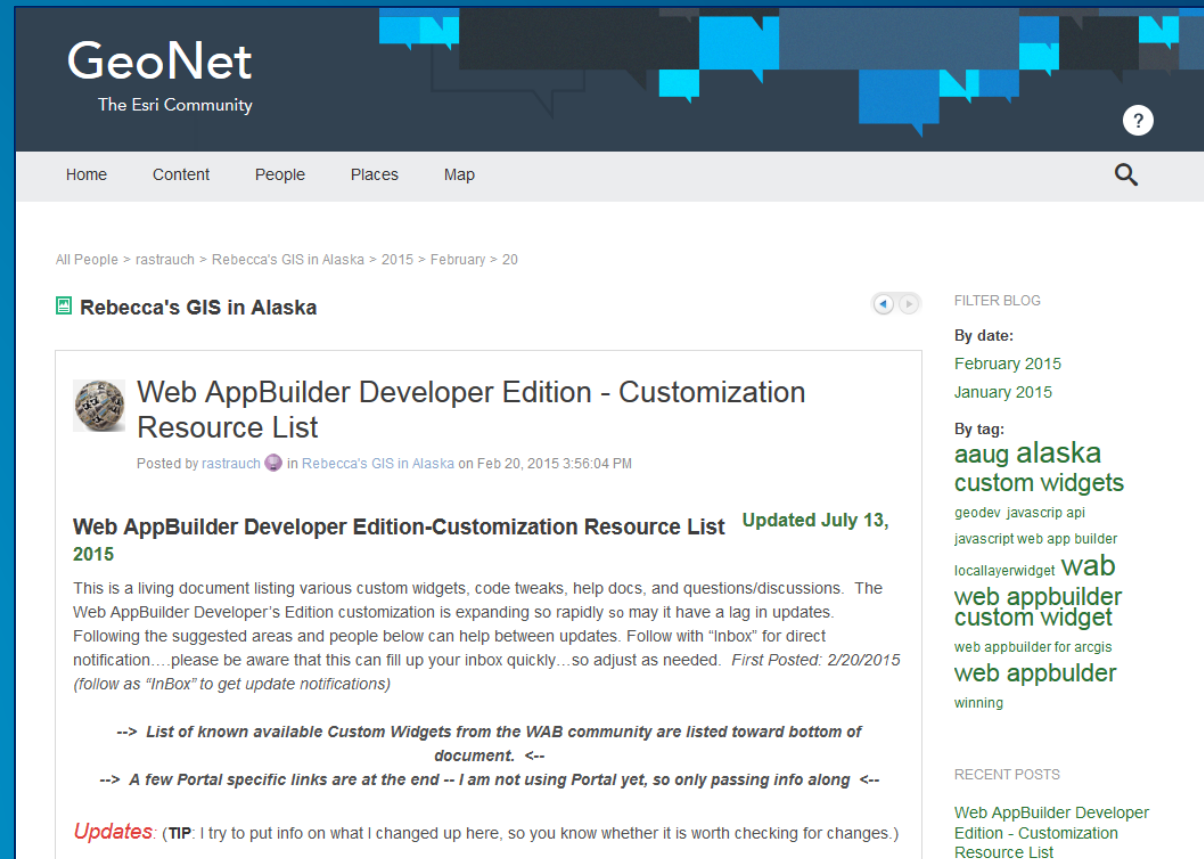


- Both are very active
- Top GeoNet contributors post in these forums/places

GeoNet: Web AppBuilder Developer Edition – Customization Resource List

<https://geonet.esri.com/blogs/myAlaskaGIS/2015/02/20/web-appbuilder-developer-edition-customization-resource-list>

- Created, owned, and maintained by the community
- Rebecca Strauch



The screenshot shows a GeoNet blog post. The header includes the GeoNet logo and navigation links: Home, Content, People, Places, Map, and a search icon. The breadcrumb trail reads: All People > rastrach > Rebecca's GIS in Alaska > 2015 > February > 20. The post title is "Web AppBuilder Developer Edition - Customization Resource List" with a globe icon. It is posted by rastrach in Rebecca's GIS in Alaska on Feb 20, 2015 3:56:04 PM. The main text describes a living document of custom widgets and code tweaks, updated July 13, 2015. It includes instructions on how to follow for updates and a tip about the document's structure. A right-hand sidebar contains a "FILTER BLOG" section with filters by date (February 2015, January 2015) and by tag (aaug, alaska, custom widgets, geodev, javascript api, javascript web app builder, locallayerwidget, web, web appbuilder custom widget, web appbuilder for arcgis, web appbuilder, winning). Below this is a "RECENT POSTS" section listing the current post.

GeoNet
The Esri Community

Home Content People Places Map

All People > rastrach > Rebecca's GIS in Alaska > 2015 > February > 20

Rebecca's GIS in Alaska

Web AppBuilder Developer Edition - Customization Resource List

Posted by rastrach in Rebecca's GIS in Alaska on Feb 20, 2015 3:56:04 PM

Web AppBuilder Developer Edition-Customization Resource List Updated July 13, 2015

This is a living document listing various custom widgets, code tweaks, help docs, and questions/discussions. The Web AppBuilder Developer's Edition customization is expanding so rapidly so may it have a lag in updates. Following the suggested areas and people below can help between updates. Follow with "Inbox" for direct notification...please be aware that this can fill up your inbox quickly...so adjust as needed. *First Posted: 2/20/2015 (follow as "InBox" to get update notifications)*

--> List of known available Custom Widgets from the WAB community are listed toward bottom of document. <--

--> A few Portal specific links are at the end -- I am not using Portal yet, so only passing info along <--

Updates: (TIP: I try to put info on what I changed up here, so you know whether it is worth checking for changes.)

FILTER BLOG

By date:
February 2015
January 2015

By tag:
aaug alaska custom widgets geodev javascript api javascript web app builder locallayerwidget web web appbuilder custom widget web appbuilder for arcgis web appbuilder winning

RECENT POSTS
Web AppBuilder Developer Edition - Customization Resource List

Road Ahead

- **Web AppBuilder Developer Edition v1.2 – Aug 2015**
 - Will have the July update functionality
- Support for 3D web scenes
- Support saving app state
- Enable client-side workflows
 - E.g., result from one widget can be input into another widget

***Not final – Content subject to change**



Web AppBuilder for ArcGIS Resources

- **Online help documentation**
<http://doc.arcgis.com/en/web-appbuilder/>
- **Developer Edition help documentation**
<https://developers.arcgis.com/web-appbuilder/guide/xt-welcome.htm>
- **Esri Live Training Seminar: *Get Started with Web AppBuilder for ArcGIS (60 mins)***
- **Esri Web course: *Creating Web Applications Using Templates and Web AppBuilder for ArcGIS (2-4 hours)***

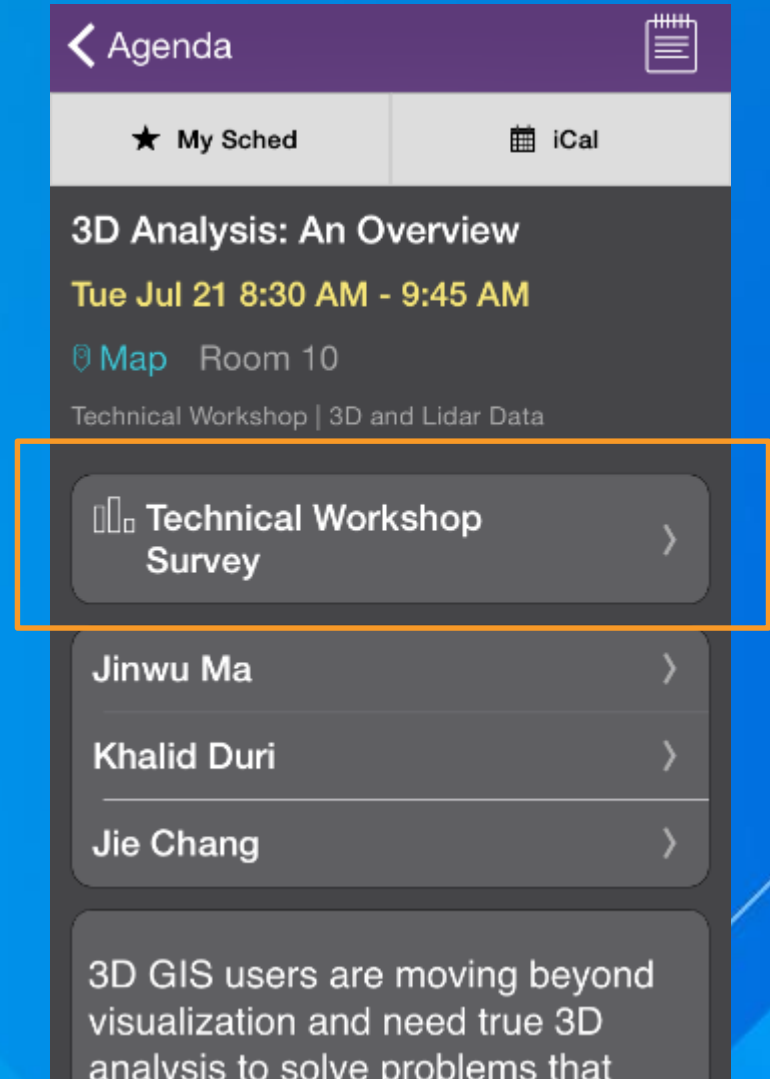
Summary

- **Product overview**
- **Web AppBuilder for ArcGIS tour**
- **What's New – July 2015 ArcGIS Online update**
- **Customization**
- **Community and Resources**
- **Summary**



Thank you...

- Please fill out the session survey in your mobile app
- Select **Introduction to Web AppBuilder** in the Mobile App
 - Use the Search Feature to quickly find this title
- Click “Technical Workshop Survey”
- Answer a few short questions and enter any comments



Other Web AppBuilder Sessions at UC



- **Web AppBuilder for ArcGIS: Build your first widget in 15 minutes**
 - Tues 3:30pm – 4:15pm Demo Theater 11 – Developer
- **Web AppBuilder for ArcGIS: designing apps using custom themes**
 - Tues 5:30pm – 6:15pm Demo Theater 11 – Developer
- **Web AppBuilder deployment patterns**
 - Wed 5:30pm – 6:15pm Demo Theater 8 – Online GIS
 - Thurs 12:30pm – 1:15pm Demo Theater 8 – Online GIS

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Understanding our world.