

Esri Developer Summit

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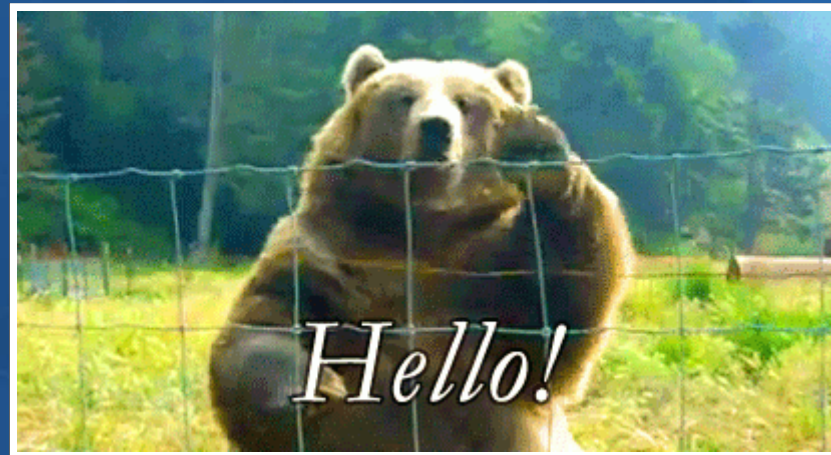
Extending the ArcGIS API for JavaScript Widgets

Learn how to take an out-of-the-box widget and customize it to your heart's content

Matt Driscoll – [@driskull](#)

JC Franco – [@arfnocode](#)

Hello World



Why are we here?

Learn how to extend and customize widgets

Focus on 4.x API

Make them unique!

Extend

- *Verb*
- *to enlarge the scope of, or make more comprehensive, as operations, influence, or meaning:*

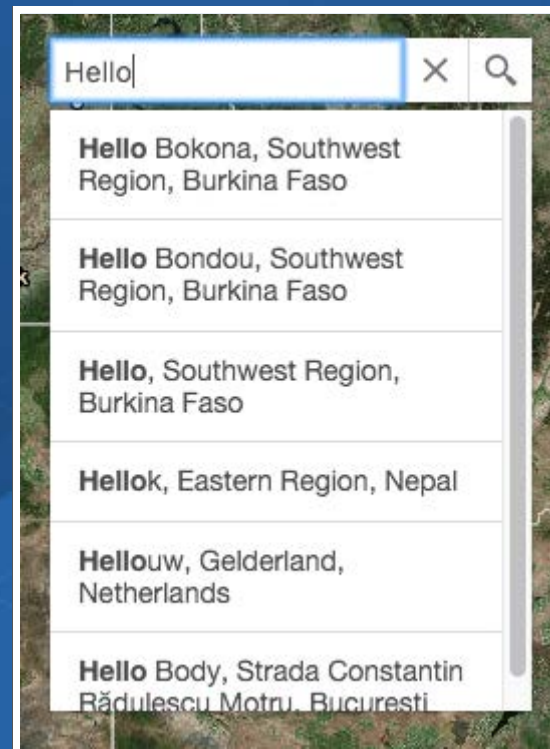
<http://dictionary.reference.com/browse/extend>

Agenda

- Take Widgets
 - Customize
 - Restyle
 - Theme
 - Extend
 - Custom view
 - Different CSS Library
 - Different Framework
 - Modify existing functionality

The Search Widget in 4.x

Hi there!



Demo

It's cool, but...



- Doesn't match my
 - Framework
 - CSS Library
 - Brand
 - Etc.

We're SASSy

Sass is a scripting language that is interpreted into Cascading Style Sheets (CSS)



Why SASS?

SASS gives us...

- Variables
- Mixins (group statements)
- @include - (getting mixins)
- @import
- @extend - (inheritance)
- More power!

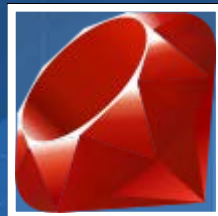
SASS makes it easier to...

- Restyle
- Theme
- Modular / DRY
- Be organized
- Write less code :)



Working with SASS

- Node
- Ruby
- Grunt



Lets use the power of SASS and...

- Restyle the search widget
- Theme stuff!



Next up, Extending

Lets do more!

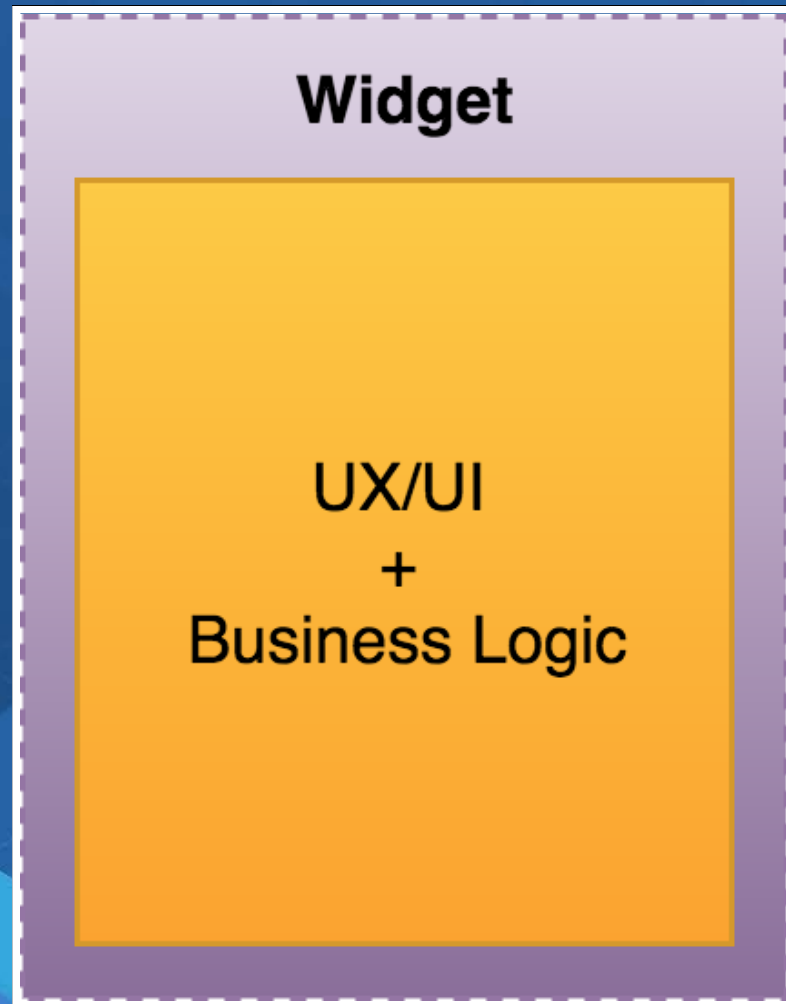
but how?

4.x Widget Architecture

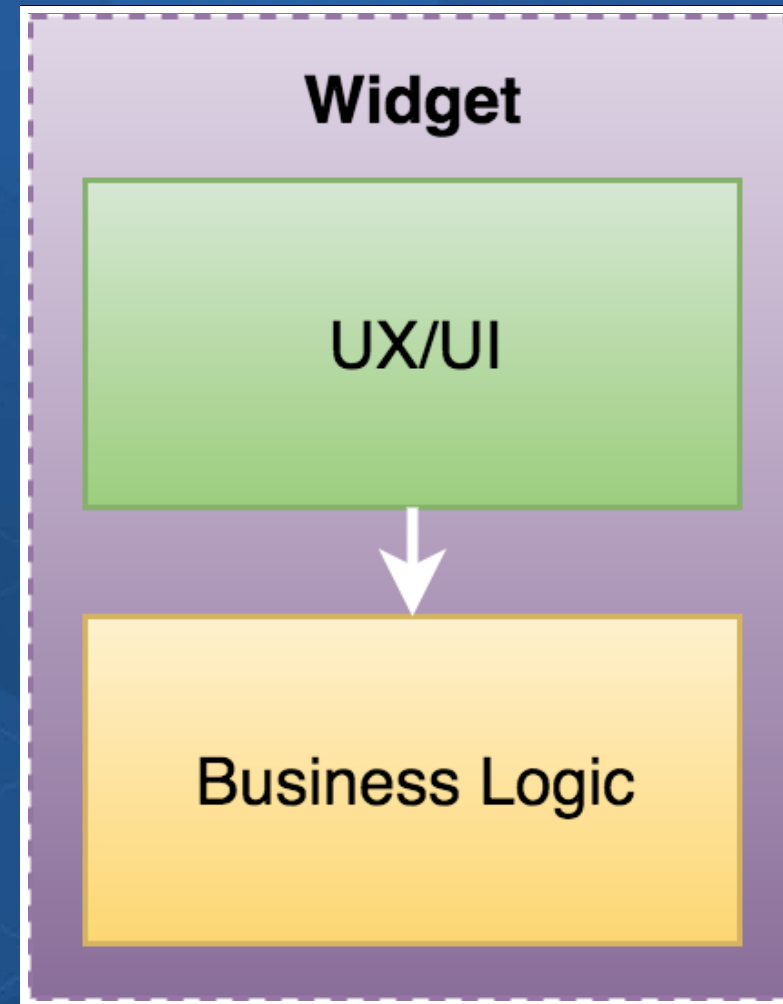
- Widget Architecture
 - View – the face
 - ViewModel – the brain
- Reusable/Testable core widget logic sans UI concerns
- Framework compatibility
- Separates concerns

Comparison

3.x



4.x



View

- Uses ViewModel APIs to render the UI
- View-specific logic resides here

ViewModel

- Core logic of widget resides here
- Provides necessary APIs for the view to do its thing
- No DOM/UI concerns (think data)
- Requires thinking, no silver-bullet

Custom Views!

- View customization via extension
- View for Bootstrap (custom CSS classes)
- View for a framework (custom HTML/data binding or whatevs)

Extending Views!

- [ViewToggle](#)

Widget SDK

BasemapToggle

Custom View For Bootstrap



Search Widget

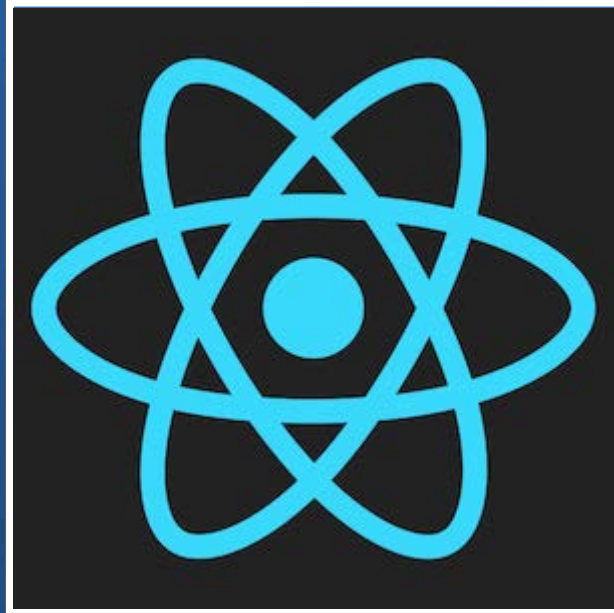
Here's a custom view for the Search widget using Bootstrap CSS classes.



Search ViewModel!

- [Search.js \(view\)](#)
- [SearchViewModel](#)
- [Demo](#)
- [View Code!](#)

React view



- [View Models in ArcGIS JS API](#)
- [React View Model repo – demo](#)
- [Custom widget in React](#)
- [View Code!](#)

Let's Summarize

- Learned how we can modify a widget's
 - Style
 - Theme
 - View

Recommended sessions

- ArcGIS API for JavaScript: Discover 4.0 the Next Generation
- The Road Ahead: ArcGIS API for JavaScript
- Building Your own Widget with ArcGIS API for JavaScript
- Using and Customizing the ArcGIS API for JavaScript Widgets
- CSS: Rules to Style By
- Accessible Web Mapping Apps: ARIA, WCAG and 508 Compliance
- Modern Tools for the Modern Web Developer
- Optimizing Your JavaScript App for Performance
- Full Stack End to End JavaScript Testing with Intern
- Using TypeScript with ArcGIS JS API Development
- Write Better Code
- Ask a UX & UI Expert

Additional Resources

- [Source Code & Presentation](#)
- [JavaScript Sessions at DevSummit](#)
- [Documentation - 4.0 beta](#)

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Search for *"Extending the ArcGIS API for JavaScript Widgets"*.

Q & A

Questions?