

What They Don't Tell You About WAB-to-ExB Migration

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King County

Department of Information Technology

Migration



**ArcGIS
Web
AppBuilder
Developer
Edition**

Retired Q4 2025
(ArcGIS Online)
ArcGIS API for JavaScript
version 3.x July 2024



**ArcGIS
Experience
Builder
Developer
Edition**

Esri's migration path

- Assess and audit existing apps
- Choose a migration path (ExB)
- Create a new app
- Use Express mode
- Reconfigure widgets
- Resources available from Esri



Real-world experience

- No direct migration
- ExB is an “experience” to learn
- Functional parity with widgets – not always
- Out of the box widgets are built for GISers not average user
- Fill the gaps with...
 - Custom widgets using React and TypeScript



Migration considerations

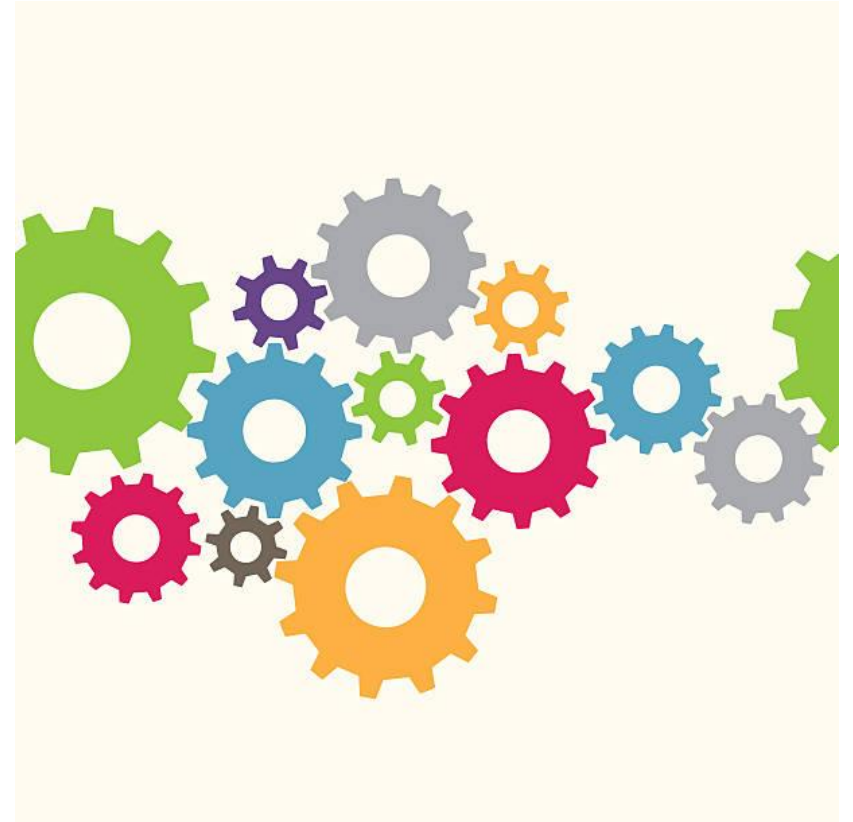
- Viewership
- Metrics of current application – Clarity
- Complexity of current application
- Replication of functionality
- Swapping frameworks is “real-work”



©DESIGNALIKIE

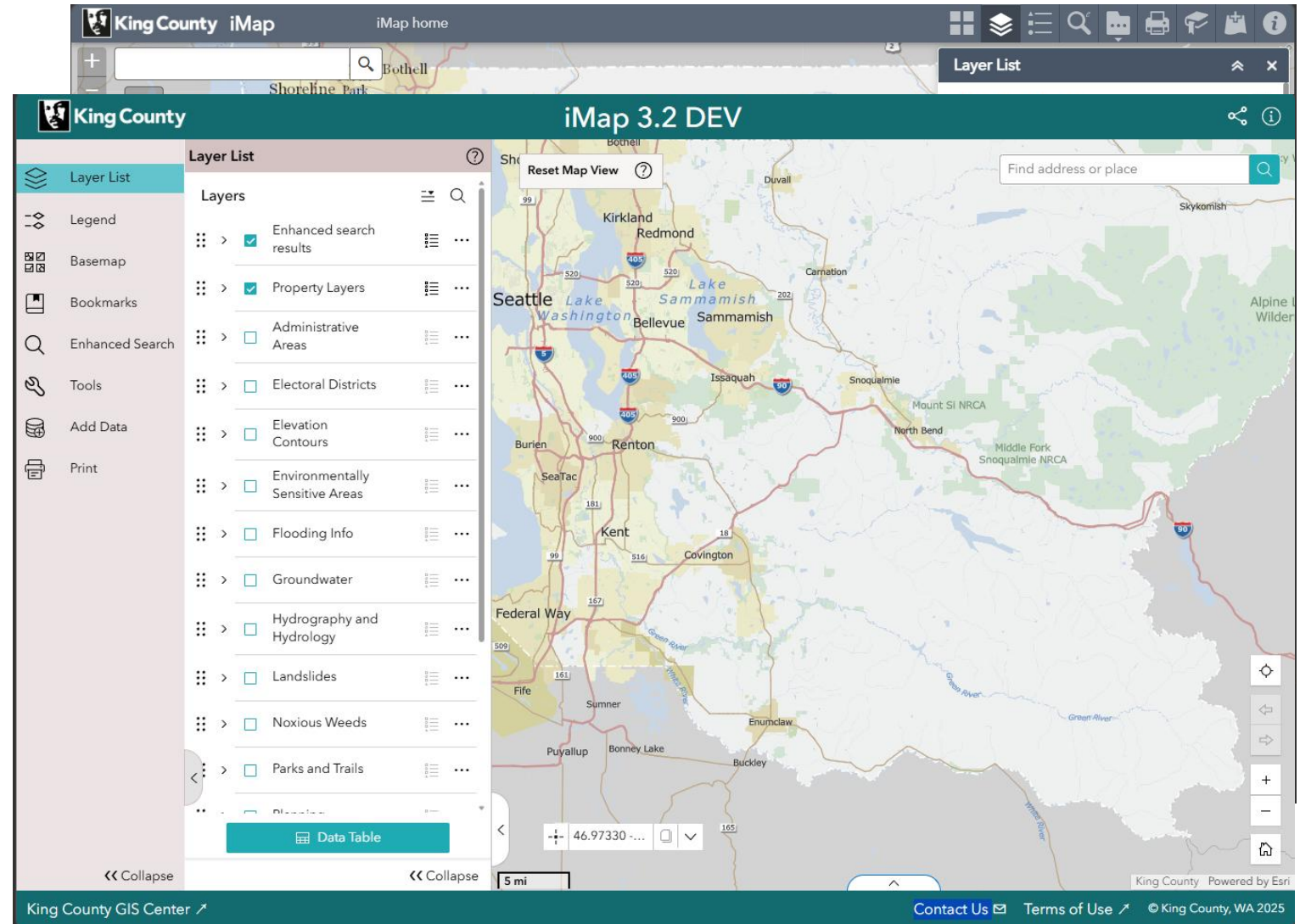
Planning

- Evaluate architecture design change
- UX of Experience Builder (Desktop and mobile)
- Accessibility and ADA compliance
- Custom widget building
- Hosting of your app (Developer Edition)



Use case: King County iMap

- Widely used app (WAB)
- Two phase approach



Building new experience - Reality

- Architectural shift from AGS map services to AGO HFL views
- Enormity of task – 180+ layers
- Group Layers
- Building intricacies of layers
 - Labeling, scale dependencies
 - Symbology - ArcGIS Pro complex vs. optimized symbology
 - Popups – out-of-box options
- UX of ExB - your expectation vs. what you find (templates)
- Needed custom widget
- ADA compliant

Tips and Tricks

- Build symbology and popups in ArcGIS Pro
- Publish it in AGO
- Extensively use ArcGIS Assistant to copy JSON
- Make use of vector tile cache
- Make use of Arcade



Enhanced Search – What users currently know

Shape

Enhanced Search

By Shape By Value By Spatial Results

Search layer

King County Parcels

Select features by

Enable multi-part graphics

Add search tolerance to point selection

Include text query in selection criteria

Buffer Graphic 5 Feet

Value

Enhanced Search

By Shape By Value By Spatial Results

Search layer [Clear Fields](#)

King County Parcels

Search alias

Parcel number

Search by parcel number

Example: 5247800795

Parcel number is 2223059013

Search

Limit search to map extent

Spatial

Enhanced Search

By Shape By Value By Spatial Results

Optionally apply a search distance:

5 Feet

Search features of:

King County Parcels

Using one of these spatial relationships:

What ExB gives you

1

Query

Parcel query >

Major query >

2

Query

← Parcel query

Attribute filter

Parcel number is

2223059013

2223059013

Apply Reset

3

Query

← Results

Features displayed: 1 / 1

▸ Parcels

4

Query

← Results

Features displayed: 1 / 1

▾ Parcels

Parcel number	2223059013
Address	15205 140TH WAY SE
City	Renton
ZIP	98058

Assessor's Report

5

6

Query

← Results

Features displayed: 1 / 1

▾ Parcels

Parcel number

Address

City

ZIP

Assessor's Report

Loaded (1)

- Zoom to
- Pan to
- Show on map
- Add marker
- View in table >
- Export >

Where we landed – QuerySimple (Query)

QuerySimple

QuerySimple

Query Spatial Results

King County Parcels

Search layer

King County Parcels

Search alias

Pin

Results Mode

*** New** + Add - Remove

Each query replaces previous results.

Attribute filter

Parcel number is

2223059013

2223059013

Zoom to selected **Apply** Reset

QuerySimple

Query Spatial Results (1)

← Results

Features displayed: 1 / 1

Parcels	
Parcel number	2223059013
Address	15205 140TH WAY SE
City	Renton
ZIP	98058

Assessor's Report
Districts & Development Report

Lot lines are approximate. Not for legal use. See our terms of use.

Options:

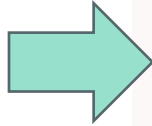
- Type ahead
- Expand/collapse results when added
- Queries as URL params
- Common results for query and spatial operations
- Zoom or pan to result on click
- Accumulated results across multiple queries
- Configurable selection color
- Other configurable settings

3

?pin=2223059013 or #pin=2223059013

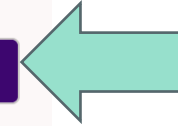
Where we landed – QuerySimple (Spatial)

Operations



The screenshot shows the 'QuerySimple' interface with the 'Spatial' tab selected. The 'Operations' sub-tab is active, highlighted in purple. Below the sub-tabs, there is a description: 'Select features using spatial geometry operations, e.g., intersects, overlaps.' A status bar indicates '1 feature(s) from Results'. The 'Buffer distance' section has a text input with '1500' and a dropdown menu set to 'Feet'. Below this is a note: 'Live preview will render on map as distance changes'. The 'Results mode' section has buttons for '★ New', '+ Add', and '- Remove', with a note: 'Each query replaces previous results.' The 'Spatial relationship' dropdown is set to 'Intersects'. The 'Target layers' dropdown is set to '1 Selected'. At the bottom are 'Apply' and 'Reset' buttons. The footer text is '<> QuerySimple by MapSimple v1.20.0-r028.048'.

Draw



The screenshot shows the 'QuerySimple' interface with the 'Spatial' tab selected. The 'Draw' sub-tab is active, highlighted in purple. Below the sub-tabs, there is a description: 'Select features using graphics drawn on the map.' A status bar indicates '1 drawn shape (polygon)'. The 'Buffer distance' section has a text input with '2500' and a dropdown menu set to 'Feet'. Below this is a note: 'Live preview will render on map as distance changes'. The 'Results mode' section has buttons for '★ New', '+ Add', and '- Remove', with a note: 'Each query replaces previous results.' The 'Spatial relationship' dropdown is set to 'Intersects'. The 'Target layers' dropdown is set to '1 Selected'. At the bottom are 'Apply' and 'Reset' buttons. The footer text is '<> QuerySimple by MapSimple v1.20.0-r028.048'.

1

The gap between

ExB going away.
ExB Query won't
cut it.

How we got here

1

The gap

ExB going away.
ExB Query won't
cut it.

2

The question

35-years GIS
experience, Zero
TypeScript or ExB
Dev.

Can AI bridge the
gap?

3

HelperSimple

Smallest possible
test. Proof of
concept (URL
parser).

4

QuerySimple

Full eSearch
replacement.
Same AI
approach.

5

Production

Both in iMap.
Open Source.

Challenges with ExB and Data sources

- Everything in ExB has a memory cost
 - Heap dumps show exactly what each widget and configuration change costs you
- Map services vs. hosted Feature Layers performance
 - Performance tradeoffs aren't obvious until production scale
- Custom widgets persist in memory
 - ExB doesn't destroy them, every addition compounds
- Layer List – word wrapping

Lessons learned

- The task is daunting – work through your goals methodically
- Work with power users – they'll find what you missed
- Fail early and get continuous feedback
- Measure what you have before you estimate the effort (Clarity)
- Tools you didn't plan on become essential (ArcGIS Assistant)
- Domain expertise plus AI can fill development gaps you can't staff for

Thank you!



MapSimple iMap app

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