**Developing a WMB Replacement Using ESRI API**

Introduction:

The redevelopment of the old CLSS Web Map Browser with an updated version is currently underway. Thus far, the development has taken place using the Reusable Accessible Mapping Platform (RAMP). However, a different approach is being explored that would simply involve using modules and building custom tasks using ArcGIS API for JavaScript 4. This would allow the tool to be more up to date and make LSR less dependent on outside organizations for maintenance. The following will highlight the workflow and potential issues of going this route.

**Items:**

The following is a list of objectives that need to be meet to create a useful tool.

* Create attribute query
* Create spatial query
* Integrate spatial/attribute selection tools and results panel
* add highlight and zoom to features
  + This allows the user to click on results of a query
  + The users screen will then move to the result that they have selected and highlight the polygon
* Navigation
  + navigation tools present in the original CLSS must be continued in the new RAMP
    - zoom to extent
    - zoom in/out
    - pan
* Query scale warning
  + This lets the user know that they are selecting to many features across a large area
* Measurement tools
* Basemap toggle
* WCAG (Web Content Accessibility Guidelines)
* Sketch functionality
* Location information
* Testing
* Potential user experience improvements:
  + Print
  + Search by GPS location
  + Digitize projects
  + Oil and Gas integration

**Potential Issues:**

* The WCAG compliance will have to be assured by our development group. This is already assured within the RAMP files.
* The seamless integration of English/French will need to be developed. This is already integrated into RAMP.
* Develop functionality that is already present in the base RAMP:
  + Side bar
    - Geo search
    - Layers control
    - Full screen toggle
    - Location info
    - Canada extent (home extend)
    - Help button
  + Index map
  + North arrow
  + Search bar (same as geo search)
  + Mouse coordinate
  + Map creation tool
  + Table of contents (TOC)
    - Layer/service adding capabilities.
    - Symbology editing
    - Layer functionality
  + Share button
  + About button
  + Enhanced tables

Note that not all these built-in functions will be necessary for the end user.

**Comments:**

* Architecture carried over: all the search services that have been developed will be carried over. This will reduce development time.
* Help Documentation will need to be rewritten but the site structure will be kept.
* Parts of the RAMP development are modifications of ArcGIS API modules.
  + For example, the spatial query is the ArcGIS API for JavaScript 4 draw toolbar.
* Due to the RAMP implementation being written in TypeScript many of the solutions can be transferred with modification into a JavaScript environment.

**Time Frame:**

Span = February - March

|  |  |  |
| --- | --- | --- |
| Date | Item | Feasibility |
| February 2021 | Geo Search | esri/widgets/Search |
| February 2021 | Full Screen Toggle | esri/widgets/Fullscreen |
| February 2021 | Location Info | esri/widgets/Locate |
| February 2021 | Canada Extent (Home Extend) | esri/support/actions/ActionButton |
| February 2021 | Index Map | esri/views/MapView |
| February 2021 | North Arrow | esri/widgets/Compass |
| February 2021 | Map Creation Tool | esri/widgets/Print |
| February 2021 | Table of contents | esri/widgets/Legend |
| February 2021 | About Button | esri/support/actions/ActionButton |
| February 2021 | Tables | esri/widgets/FeatureTable |
| February 2021 | Create attribute query | esri/layers/FeatureLayer  esri/tasks/support/Query |
| February 2021 | Create spatial query | esri/toolbars/draw  esri/tasks/support/Query |
| February 2021 | Merge both tools output into results panel | esri/widgets/FeatureTable |
| February 2021 | Add highlight and zoom features. | Same implementation as RAMP |
| March 2021 | Navigation | esri/views/navigation/Navigation |
| March 2021 | Interactive selection - by province warning scale | popup |
| March 2021 | Measurement tools | esri/widgets/Measurement |
| March 2021 | Basemap toggle | esri/widgets/BasemapToggle  esri/widgets/BasemapGallery |
| March 2021 | English/French | Wrap script in PHP like original WMB |
| March 2021 | - Sketch functionality | esri/toolbars/draw |
| March 2021 | - Print results of query | esri/tasks/PrintTask |
| March 2021 | - Relationships between features implemented in architecture (Many to Many) | Architecture  N/A |
| March 2021 | - All minor bugs fixed | N/A |
| March 2021 | - Help site | N/A |
| March 2021 | - WCAG - Web Content Accessibility Guidelines - RAMP AA+ | More time needed to become familiar with standard and ensure that the final product is compliant |
| March 2021 | - Final user Feedback/Implementation | N/A |
| March 2021 | - Completed comprehensive testing (Continues Throughout Project) | N/A |
| Long Term | - Oil & Gas app | Architecture  N/A |
| Long Term | - Search by GPS location | getCurrentPosition()  esri/tasks/support/Query |
| Long Term | - Digitize projects | esri/toolbars/draw  esri/tasks/PrintTask |

**Conclusion:**

There are many features that need to be added to make the ArcGIS API for JavaScript 4 version of the WMB as functional as the RAMP implementation. Fortunately, most of the features can be added by using pre-existing modules or creating tasks (See Time Frame table above). Moving away from RAMP will allow us to control the GUI of the tool and make us more up to date in our development (using JavaScript 4). It is difficult to determine the length of the development as we have yet to see the results of the user surveys completed for the RAMP implementation. However, it is likely that by the end of the two-month development cycle we will have a functioning tool that can replicate the current WMB.