WISKI ArcExtension
Migrating an Esri add-in from ArcMap to ArcGIS Pro

Capstone Project Report

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Context

WISKI (Water Information Systems Kisters) is a software application used to store and time series data. This includes raw and calculated time series data. The WISKI ArcExtension is an Esri add-in that allows users the ability to access data they have stored in a WISKI database. Customers working in areas such as ground and surface water monitoring, climate monitoring, dam operation, water quality, and ecological sampling. This data is valuable to users wanting performing geospatial analysis or create map layouts.

For many years now, Esri customers have been working to migrate their GIS data from ArcMap to ArcGIS Pro. The new software features an improved project structure, increased stability, contextual tool ribbons, new layout options, and is better integrated with online resources including ArcGIS Online and ArcGIS Living Atlas of the World. These features provide clear benefits to users and it is easy to understand the desire to migrate to ArcGIS Pro.

Need for Add-in Update

While they serve a similar purpose, ArcMap and ArcGIS Pro are separate applications. As such, datasets and tools used in ArcMap have to be migrated or rebuilt to work with ArcGIS Pro. The original WISKI ArcExtension was built using Esri's ArcObjects SDK, which was replaced by Esri's ArcGIS Pro SDK in the new application.

Past Work

The WISKI ArcExtension was originally designed as an add-in for ArcMap. It provided users access to site/station metadata, time series data, and offered limited support for viewing water quality sample data. Customers have used the add-in to perform geospatial analysis such as interpolating point data and calculating differences between datasets. One example would be calculating the change in snow depth for a region between two years.

Initially, the extension connected directly to the WISKI database and was only accessible to internal users. Over time, the add-in was updated to support new data sources, including Kisters web API, KiWIS (Kisters Web Interoperability Solution). This added functionality gave users the ability to access and share their data using a simple end-point URL. This was especially useful for organizations that serve as a data hub or have employees that work offsite.

Knowledge and Skills Applied

As the product owner for the WISKI ArcExtension add-in, it is my responsibility to guide development efforts. This requires experience in project management and working knowledge of ArcMap and ArcGIS Pro. I have previous experience managing business operations and have worked with Esri software in both professional and educational settings for more than 10 years. The combination of first-hand experience and continued education have been beneficial in fulfilling this role.

At the beginning of this project, and inventory of features available in the old version of the add-in was created. This was used to determine which features need to be migrated to the new version. The choice was made to focus on using the WISKI ArcExtension as a data source. The add-in previously graphing and temporal symbology tools built-in, but this functionality can be achieved using tools available in ArcGIS Pro. Furthermore, we can work with customers to provide custom solutions for their organizations where needed. This increases efficiency and limits the number of components that must be maintained over time.

Customers who currently use the WISKI ArcExtension in ArcMap were given the opportunity to share their thoughts and comment on any changes they would like to see in the add-in. This feedback was considered when designing the newest version of the add in; however, some feature requests require project funding to support development efforts and will need to be incorporated in future releases. This includes support for WISKI water quality and ecological sampling modules that have become increasingly popular in recent years.

In addition to guiding development efforts, I am responsible for testing the add-in to ensure it continues to fulfil existing customer needs and works with Esri's geoprocessing tools. This includes testing data using time-enabled layers, data models, and layouts. I am able to use knowledge gained through undergraduate and graduate courses, Esri trainings, conferences, and my professional work experience in this work. Bugs, performance issues, and general feedback is provided to the development team. I then engage customers in product testing before approving the product release. This iterative work flow will continue to be used for future iterations of the WISKI ArcExtension add-in.

Project Outcome

The initial migration of the WISKI ArcExtension add-in from ArcMap to ArcGIS Pro has been successful. We currently have a working add-in that provides the same functionality seen in the the previous version. We have finished internal testing and will be engaging customers to participate in beta testing next. I anticipate a full release of the add-in early this summer.

Business developments, including the adoption of new modules and other Kisters applications opens up future opportunities for add-in development. This includes providing support for water quality and ecology sample modules as well as new web applications used to monitor sensor networks.

Project Resources

Esri. “ArcGIS Pro SDK Documentation.” arcgis-pro-sdk/wiki. Accessed February 6, 2022. https://github.com/esri/arcgis-pro-sdk/wiki.

“Migration Strategies.” ArcGIS Enterprise SDK. Accessed February 3, 2022. https://developers.arcgis.com/enterprise-sdk/guide/net/migration-strategies-net/.

Sakowicz, Andrew, and Frank Pizzi. “Esri Best Practices: Tuning, Testing, and Monitoring.” Esri.com. Esri. Accessed January 4, 2022. https://www.esri.com/content/dam/esrisites/en-us/about/events/media/UC-2019/technical-workshops/tw-6389-1027.pdf.

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