Feature Collection Syncronization

# Details

The scripting process to upload then update a Feature Collection is approximately nine steps and currently it is not possible for and end user to manually repeat the process using the ArcGIS Online user interface. Programmatically, the job was accomplished using Python 2.7, and a new Python module [ArcREST](https://github.com/Esri/ArcREST) developed by Esri Implementation Services. ArcREST is a python package that allows developers to interact with ArcGIS for Server, ArcGIS Online, and Portal for ArcGIS using the ArcGIS REST API.

The script titled SyncFeatureCollection.py is a configurable script that initially carries out nine steps to create and update a Feature Collection. After the initial run, the script begins at step 4 and when finished, repeats at a user defined interval (e.g. five minutes) to ensure the feature collection is refreshed with the latest data. The steps are as follows.

1. Upload File Geodatabase. This step takes a file geodatabase that the end user is responsible for extracting from the enterprise and zipping on a user defined interval via Geoprocessing. At Texas Department of Transportation, that interval is 5 minutes.
2. Publish Feature Service. The Feature Service is published from the File Geodatabase Item uploaded in Step 1.
3. Create Feature Collection. The Feature Collection is exported from the Feature Service published in step 2. This feature collection is considered the production service that is added to a webmap and consumed by a web application. Once complete the Feature content item details are updated and the script rests for a user defined interval (5 minutes) while a new file geodatabase zip file is being provisioned to a folder that the script is watching.
4. Overwrite Geodatabase. This step runs after a user defined break and the updated geodatabase has been output, zipped and placed in a directory that the SyncFeatureCollection.py is watching. The zipped File Geodatabase item in ArcGIS Online is updated with the option to overwrite.
5. Publish Feature Service. The Feature Service is published with the updated File Geodatabase using the option to overwrite. In the current release of ArcGIS Online (December 2014) a bug was identified that prevents layer order parameters from being passed into the Feature Service as a publish parameter. In order to ensure proper layer order, users will be responsible for adding layers in order to the File Geodatabase. The order of operation requires that Polygons have the lowest Object Class ID (1), Polylines in the middle with higher Object Class Ids (2) and Points with the highest Object Class ID (3).
6. Create a temporary Feature Collection from the updated Feature Service in step 5. This Feature Collection will have the newest updates and it is created using the export operation.
7. Once the temporary Feature Collection is created, using a Get request, the item’s JSON representation is collected and saved to disk. The JSON file contains the updated feature collections layer definition and feature set.
8. Update production Feature Collection created in step 3 with the file captured from the temporary Feature Collection in Step 7. Using the Update Item operation the JSON representation of the updated temporary feature collection is captured and passed into the production Feature Collection and updating it with the most current edits. This step is required in order to preserve the Feature Collections Item ID. Otherwise, the webmap and web application will break and lose its pointer to the road closures and conditions data that the webmap and web application consume. The Feature Collection can be updated in this way without any down time.
9. Delete Temporary Feature Collection and perform script cleanup.