ArcGIS Online: Managing Data
Jeremy Bartley (jbartley@esri.com)
Sentha Sivabalan (ssivabalan@esri.com)
Agenda

Creating and managing content like Apps, Maps, Scenes and Layers in ArcGIS

Today’s Topics:
- Exploring Content Types
- Accessing Content
- Sharing Content
- Creating Content
- Working with Data
Exploring Content Types
Apps, Maps and Layers
<table>
<thead>
<tr>
<th>ArcGIS Online Items created in the last 24 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Map</td>
</tr>
<tr>
<td>Web Mapping Application</td>
</tr>
<tr>
<td>Feature Service</td>
</tr>
<tr>
<td>KML</td>
</tr>
<tr>
<td>Tile Package</td>
</tr>
<tr>
<td>Service Definition</td>
</tr>
<tr>
<td>Feature Collection</td>
</tr>
<tr>
<td>Operation View</td>
</tr>
<tr>
<td>Map Service</td>
</tr>
<tr>
<td>Shapefile</td>
</tr>
<tr>
<td>Map Package</td>
</tr>
<tr>
<td>CSV</td>
</tr>
<tr>
<td>CityEngine Web Scene</td>
</tr>
<tr>
<td>Application</td>
</tr>
<tr>
<td>Image Service</td>
</tr>
<tr>
<td>File Geodatabase</td>
</tr>
<tr>
<td>Layer Package</td>
</tr>
<tr>
<td>PDF</td>
</tr>
</tbody>
</table>
Layers

- Layers power Web maps, 3D Scenes!

- Types
  - Feature Layers
    - Represents your data: Field values/attributes + Geometry
    - Supports Editing: Can be used to manage your data
    - Supports Styling, Filtering, Popups
  - Tile Layers: Image, Vector
  - Map Image Layers
  - Image Layers
  - Scene Layers (3D)
Where Layers Come From

- Layers created from your tabular data (e.g. CSV)
- Layers that are the result of Analyses
- Layers from Esri, Partners and the Community
Web Maps

- Can be used anywhere
- Contains layers, popups
- Powers applications, tells stories
Web Scenes

- Visualize and analyze geographic information in a 3D environment
- Global/local
- Basemap, 2D and 3D layers
Apps

- Present your maps/scenes
- Enhance with content like photos, videos, audio files, text
- Choose from many configurable apps or the Web App Builder
Accessing Content
Accessing Content

- My Content: Content that you create/own
- Content that is shared with you
  - My Organization’s Content
  - Community Content
    - Esri
    - Partners
    - Other Users
  - My Groups
Sharing Content
Sharing Options

- **Sharing Access**
  - Access depends on capabilities defined on the item
  - With groups, your organization, public
  - With Open Data

- **Sharing Update Capabilities**
  - Members can update item details and content (e.g. can edit a feature layer that is not editable)
  - With specially created groups: Check “Members can update all items in this group”
Creating Content
Creating Feature Layers

- Publish from files in My Content
  - CSV (geocode or explicit XY)
  - Shapefile (zipped, one or multiple)
  - File Geodatabase
  - GeoJSON
  - Feature Collection

- Publish from ArcMap and Pro: Directly or via Service Definition

- Publish from Maps for Office/Excel

- Create from other layers: Save As Layer
  - Different views of your data: Filters, Styling through Smart Mapping, Popups

- Create from Analysis

- Publish via REST API
  - Scriptable in Python and JavaScript
Where Features Are Stored

- Feature Service powered by a database
  - Hosted in ArcGIS Online
  - On Premises
- Feature Collection stored in the item
Creating Tile Layers: Image Tiles

- Create tiles from feature layers
- Create tiles using a tile package (TPK)
- Publish a tiled layer from Desktop or Pro with a service definition

Where to tile: Desktop or Online?
- Tile package created in Desktop
- Service definition created in Pro/Desktop and tiles cached in Online
- Tiles from feature layers in Online
Creating Tile Layers: Vector Tiles

- Tiles with vector representation of data
- Performant like raster tiles
- Customizable vector drawing drives dynamic, interactive cartography
- Create in ArcGIS Pro
  - Share a vector tile package to ArcGIS Online
  - Publish uploaded vector tile package as hosted tile layer
  - Can be used as operational or basemap layers
Creating Multi-Layer Basemaps

• Create basemaps with combination of Esri basemaps and your own layers
• Can include layers of type:
  - Imagery
  - Map image
  - Tile: Image and Vector
  - WMS, WMTS OGC
  - Bing
  - OpenStreetMap
Working With Data
In Feature Layers
Capabilities of Hosted Feature Layers

- Use attribute data to
  - Create Filters using SQL queries
  - Style using Smart Mapping
  - Search for Features
  - Animate data through time
- Supports attachments stored with the features in the cloud
- Can be published with relates to other tables/layers
Working with Feature Layers

• Supported across the platform
  - Configurable Apps, Collector, Dashboard, Explorer, Maps for Office, Open Data, ArcGIS for Desktop… and more.

• Supports REST specification
  - Custom applications can communicate directly with the layer via REST.

• Supports feature editing

• Supports analysis
Exporting Hosted Feature Layers

• Can export as Shapefile, CSV, file geodatabase, GeoJSON
  - Individual layers or all layers
  - Exporting as FGDB preserves attachments and relationships
  - Owner & Admin only

• Analysis tool – Extract Data
  - CSV, SHP, FGDB, KML
  - Can clip based on current map extent, area you draw, extent of another service, filtered features
  - Can extract multiple layers into one exported file
  - Any user with publishing / spatial analysis privileges can extract.
  - Export Data must be enabled on the hosted features.
Perform Analysis

- Find relationships between your layers/data
- Create new layers to understand patterns/communicate the results of your analysis
Managing Hosted Feature Layers

- Overwrite data in Feature Layer
- Add fields
- Calculate values
- Deleting fields
- Change domain values
- Manage Feature Templates
Editing Hosted Feature Layers

- Enable Editing
  - Anyone with access to item can edit features
  - Owner and org admin can edit even if editing is disabled

- Extract changes: Enable change tracking

- Track Edits: Track who edited your data when
  - Restrict editors to only modify features they add

- Sync: Use hosted features in Desktop/Collector, edit disconnected, and then sync back to Online.

- Editing options

- Export Data: Export, Extract Data
Setting Layers Up for Crowdsourcing

• Use cases
  - Anonymous Contributions On Public Service
  - Authenticated Contributors on Public Service
  - Authenticated Contributors on Private Service

• Views
  - Subset of Fields and Features

• Share Access:
  - Public
  - Crowdsourcing Group

• Share Update Capabilities
  - QA/QC Group

• Editing Options

- What kind of editing is allowed?
  - Add, update, and delete features
  - Only update feature attributes
  - Only add new features

- What features can editors see?
  - Editors can see all features
  - Editors can only see their own features (requires tracking)
  - Editors can't see any features, even those they add
Feature Editing Settings

Demo
View and Visualization Layers

- **Preparing a feature layer for use:**
  - Visualization Layers
    - Same data, optimized for different visualizations
      - Publish as Tile Layer
      - Publish as 3D Scene Layers
  - Create View Layers
    - For different sets of people to use different subsets of data differently
      - Share Differently
      - Subset of Fields
      - Subset of Features
      - Different Feature Layer Options
Visualization Layers

- **Image Tile Layers**
  - For faster drawing

- **Scene Layers**
  - For drawing in 3D:
    - 3D points
    - 3D objects from multi-patch
View Layers

- Subset of Features
  - Create view layers that are about a specific region/topic using attribute filters

- Subset of Fields
  - Hide fields used for data collection, quality control
  - Hide confidential fields

- Different Feature Layer Options
  - Edit options, Export options, Visualization, Time settings

- Share Differently
  - Share with a different audience, especially after changing other settings
View Layers

Demo
Road Ahead
A Look at Upcoming Work
Group Pages

Tiles on Demand

Demos