

Survey123 for ArcGIS: Tips and Tricks



Formulas – use cases

- Relevant – whether a question should be shown or not
- Calculation – deriving the answer to a question based on previous questions

Functions

- **Mathematical (including geometry)**
- **Text manipulation/evaluation**
- **Logical/comparison**
- **Date (NOTE: Survey123 currently uses a milliseconds based date; this will switch to decimal days in an upcoming release)**
- **Evaluate multiple choice questions:
`selected()`, `count-selected()`**

Hiding Questions (Relevant)

- Formula in relevant column: result is **True** or **False**
- Function **selected(<question>, <value>)** should be used to check if an answer in a multiple-choice question is present
- Try to minimize the number of formulas - group together multiple questions with the same relevant formula and set relevancy on the group

Demo - John

Referencing external data

- Create a CSV file to accompany a survey, place in media folder

- Pulldata Function

`pulldata(<table>, <outColumn>, <lookupColumn>, <value>)`

`pulldata('stations', 'name', 'stationid', ${id}) (${id} → 31002)`

name	stationid	lat	long
Eads St & 15th St S	31000	38.858662	-77.053199
18th & Eads St.	31001	38.85725	-77.05332
20th & Crystal Dr	31002	38.856425	-77.049232
15th & Crystal Dr	31003	38.86017	-77.049593
Aurora Hills Community Ctr/18th & Hayes St	31004	38.857866	-77.05949

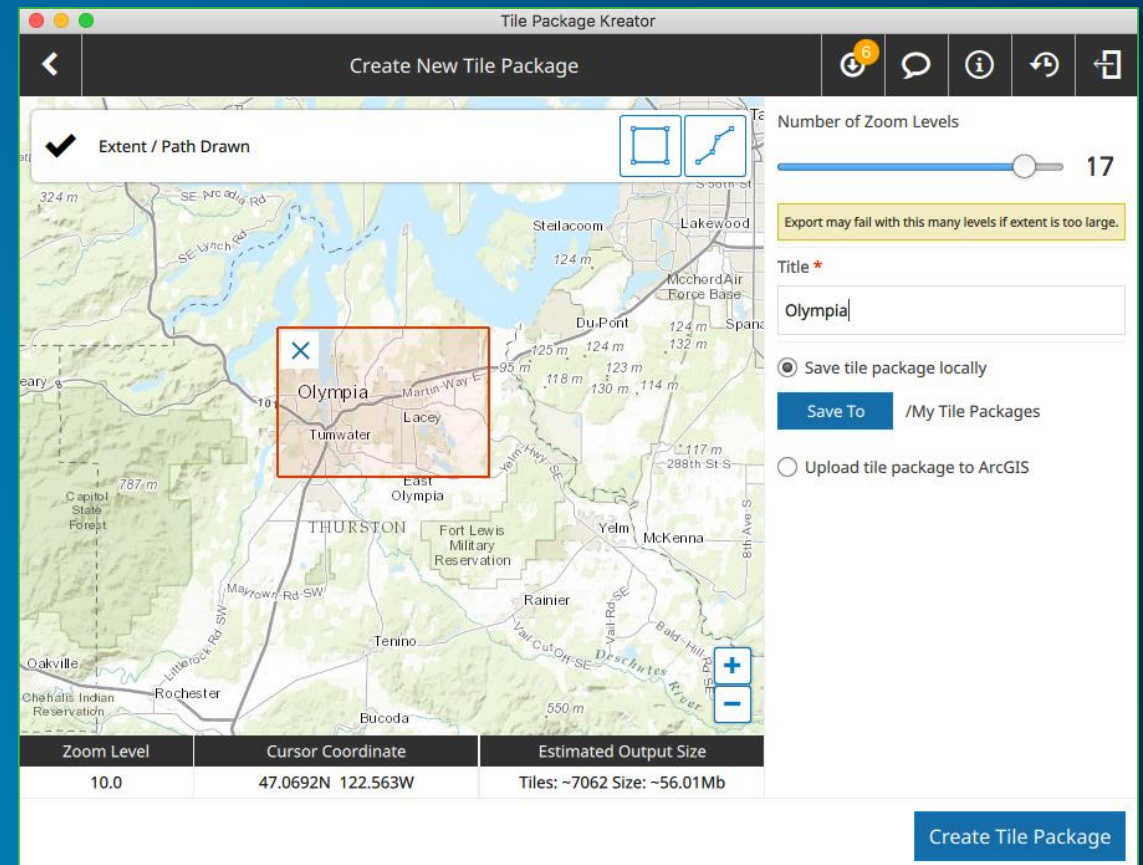
Working with Location data

- Calculating location: Create a string of “<longitude> <latitude> <altitude> <accuracy>” (last 2 optional)
- To extract values use the pulldata function:
`pulldata('@geopoint', <question>, <property>)`
`pulldata('@geopoint', ${location}, 'x')`
- If location is not specified, a point at 0,0 is used

Demo -James

Going Offline

- Maps need to be pre-generated as tile packages(tpk)
- Tile Package Kreator (TPK) tool – free app on the ArcGIS Marketplace
- Configure surveys:
 - Per Survey - Include TPK in the survey's media folder
 - Multiple Surveys:
 - Load TPK into your organization
 - After initial publishing of the survey, edit the <form>.info to specify TPK location



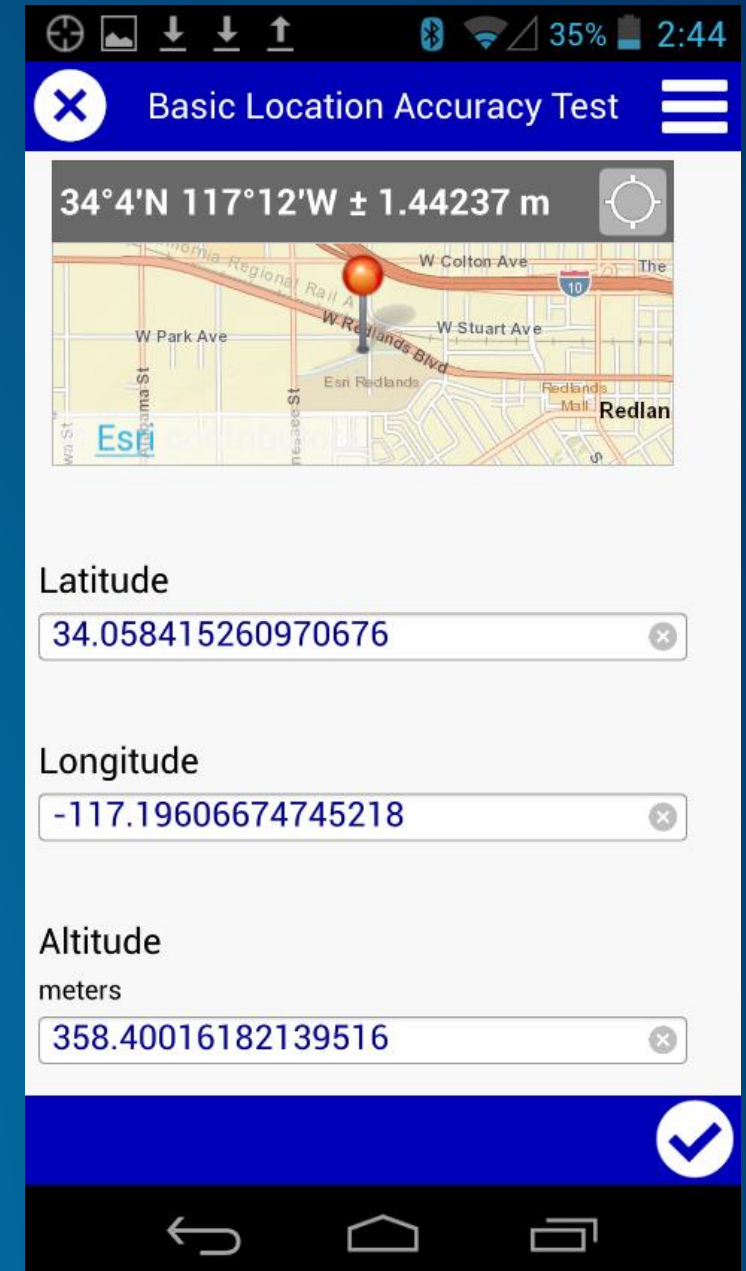
Demo TPK - John

Location

- Location comes from the system location provider – may include Wi-Fi/Bluetooth beacons/Cellular/IP lookup
- Accuracy threshold can be set using **body:accuracyThreshold** column
- By default Survey123 stores a 2D point; to store 3D set the field type to **esriFieldTypePointZ**

External GPS Receivers

- External GPS receivers for made for iOS & Android connect and override the internal location provider
- Windows still uses legacy serial (COM ports) systems – need a bridging software to connect to location provider

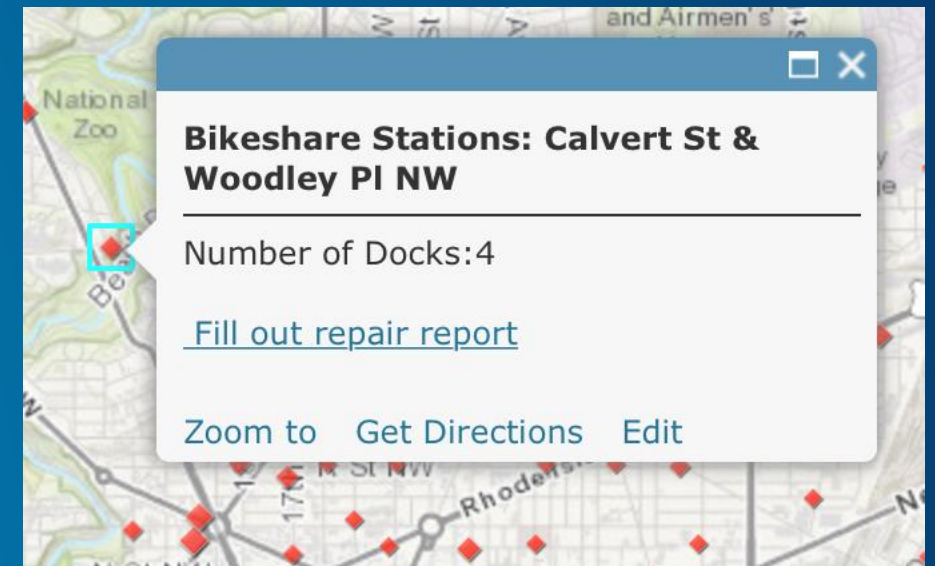


Survey123 vs.(?) Collector

- Different audiences:
 - Authoring: GIS (Collector), Survey Designer (S123 - may not need geo knowledge)
 - Collection –
 - Field crews with some mapping experience (Collector)
 - Survey takers with some training (Survey provides a level of intelligence to reduce training needs)
 - More guidance in [Survey123 help](#)

Survey123 & Collector

- Collector can launch Survey123 to collect a form about/related to an existing feature
- Created using a special URL:
`arcgis-survey123://?itemID=<form ID>&field:[fieldname]=[value]`
- Place the URL in a popup, viewable in web map, Collector, Explorer
- More information in [Survey123 help](#)



Switching data types

- Selects & calculate questions normally store values as text
- Set the output field type with the `bind::esri:FieldType` column
- Automatic variable conversion works in most but not all cases (dates can be problematic)
- Explicit casting the value in functions (i.e., `int()`) or create a `bind:type` column and set the type

Creating surveys connecting to existing FS

- Feature Service must be either a hosted feature service or accessed via a proxy created in the ArcGIS organization
- New Survey from Feature Service option – Automatically scans the service and generates the form
- Edit the form to provide additional logic, create a form for just a repeat layer, remove questions

Demo? - John

Behind the Scenes

- **Survey item – ZIP file containing survey, associated content**
- **Feature Service – survey data storage location**
 - Default: hosted feature services in ArcGIS organization
 - Can be configured to existing services
- **Feature Service Views – new capability of ArcGIS Online**
 - Limits data access capabilities – add only for contributors, view only for analyzers

Migrating data to other databases

- **Basic Process:**
 - Extract data from feature service
 - Transform into destination table structure
 - Insert into destination
- **Export formats: GDB (best), SHP, CSV**
- **Example: synchronize with enterprise GDB:**
<https://geonet.esri.com/groups/survey123/blog/2016/12/14/migrating-data-from-the-survey-feature-service-to-an-enterprise-geodatabase>

When things go wrong

- **Common issues**
 - **Republishing a survey changes schema (and feature service endpoint)**
 - **Deletion of feature service**
 - **User deletion of data on device**
- **Recovering data from mobile devices**
 - **Copy the database from the device to a desktop, attempt submission from the desktop**
 - **Survey123 stores surveys in a Sqlite database; can manually (or via script) extract & reprocess**

Demo - James



esri

THE
SCIENCE
OF
WHERE

Did you know?

For More Templates, Sample Files, and Icons See

<https://compass.esri.com/resources/presentations/Pages/Main.aspx>

New Feature

Footers have been added to this template. To learn about using footers for PowerPoint 2010:

<https://support.office.com/en-US/article/Add-a-header-or-footer-882EFCEA-35CD-4B68-AC0B-041AE1BA7099>

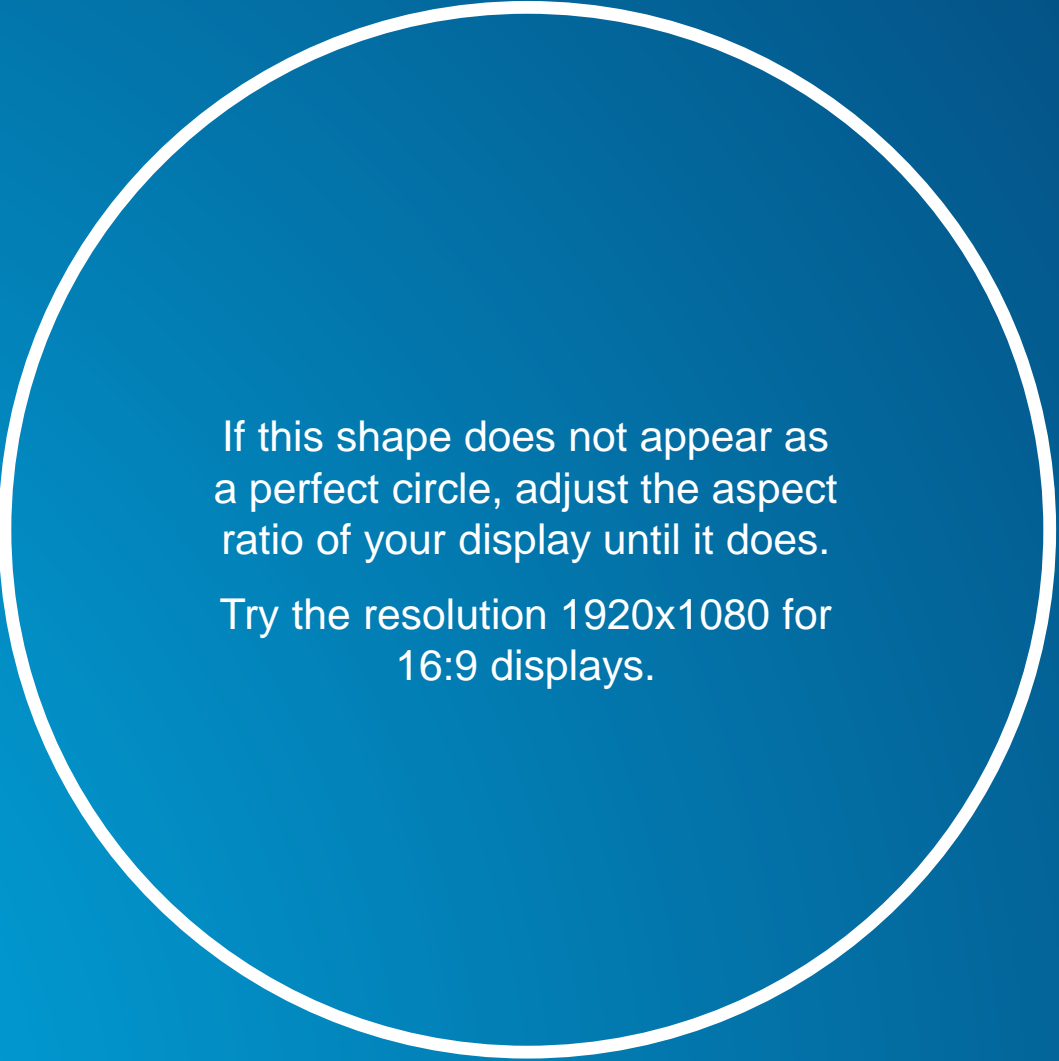
For PowerPoint 2013:

<https://support.office.com/en-US/article/Video-Add-headers-and-footers-to-a-presentation-C76A96AA-6622-442E-8B0A-ED75BBAE22B3>

Videos not working?

For video in PowerPoint, animated GIF is recommended. AVI and WMV (native PC files) will work best on a PC platform. H.264 MP4 will work only on PowerPoint 2013 and later.

Aspect Ratio Test



If this shape does not appear as a perfect circle, adjust the aspect ratio of your display until it does.

Try the resolution 1920x1080 for 16:9 displays.