Survey123 Eureka!

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http://cloudpointgeo.com/survey123

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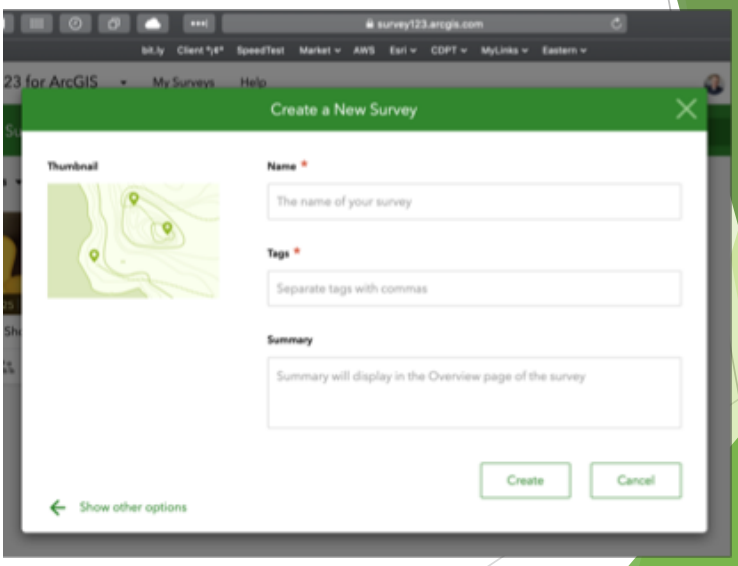
What is Survey123

- Based on XForm standards and functionality
  - XML format specifically for web form inputs
  - Robust yet plain
  - HTML/XHTML "proof"
- Survey123 is form centric
  - Questions take precedent
  - Locations are "secondary"
    - But..Hey this is ESRI so a location is pretty much required
  - Questions are rule based

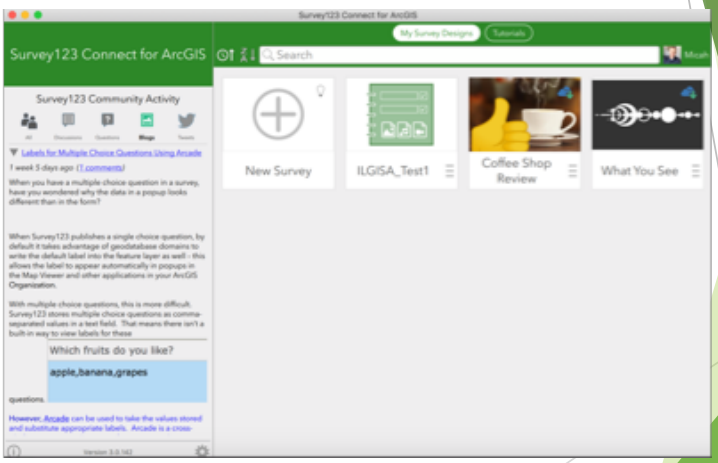
Mobile Data Collection and ESRI

Functionality	Survey123	Collector	GeoForm
Data collection style	Formcentric	Mapcentric	Formcentric
Supports capture of new data	Yes	Yes	Yes
Supports editing existing data	Yes	Yes	No
Smart forms	Yes (XLSForm)	No	No
Works offline	Yes	Yes	No
Supports anonymous access	Yes	No	Yes
Platforms	iOS, Android, Windows, Mac, Linux, Web	iOS, Android, Windows	Web
Technical Support	Esri and the community	Esri and the community	Esri and the community

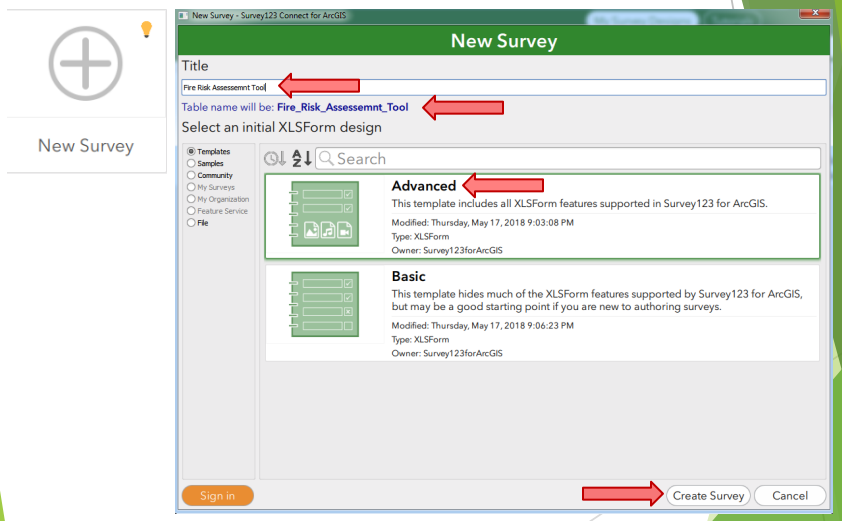
Web Only Creator



Survey123 Connect



Creating Your Survey



Survey123 Connect

User Interface Side

- Name the form
- Preview the form
- Settings for the form
- Connected to the Survey123 Community
- Tutorials
- Most Important – Publish from

Spreadsheet Side

- Build out the form
- Layout fields
- Lists
- Calculations
- Required Fields
- Design of the questions

- You can work on just this side and preview later
- You can even build your own form from scratch so long as it has the required fields.

The Spreadsheet

- Four Tabs
  - Survey
  - Choices
  - Settings
  - Types
- 24 fields in the survey tab
  - Three mostly required fields
    - Type
    - Name
    - Label
  - 21 additional
    - Rules
    - Appearance
- Five fields in the choices tab
- Seven fields in the settings tab
- Some fields have drop downs

Types of Questions – Type Column

Question type	Answer input
integer	Whole number input.
decimal	Decimal input.
text	Free text response.
select_one [options]	Multiple choice question; only one answer can be selected.
select_multiple [options]	Multiple choice question; multiple answers can be selected.
note	Display a note on the screen; takes no input. Can also display hidden calculations.
geopoint	Collect single GPS coordinates.
date	Date input.
time	Time input.
dateTime	Accepts a date and a time input.
image	Take a photo.
begin group	Begin a group of questions.
end group	End a group of questions.

begin repeat	Begin a set of repeating questions.
end repeat	End a set of repeating questions.
calculate	Performs a calculation on values in the form. This question type is hidden and is not displayed on the form.
username	When signed in to ArcGIS Online or ArcGIS Enterprise, this field is automatically populated with the account user name. This question type is hidden and is not displayed on the form.
email	When signed in to ArcGIS Online or ArcGIS Enterprise, this field is automatically populated with the account email address. This question type is hidden and is not displayed on the form.
hidden	A field not displayed on the form. Use **bind::esri:fieldType** and **bind::esri:fieldLength**columns to specify data schema.
barcode	Scan a bar code.
start	Start date and time of the survey.
end	End date and time of the survey.
audio	Record an audio sample.

Name, Label, and Hint Columns

- **Name column**
  - Think database not Excel
- DO NOT use special characters or spaces
- Underscores or all one word
- Capitalization is allowed
  - Be careful because an example is: hat and Hat are two different fields
- Watch out for keywords
  - See the types tab

- **Label column**
  - Think field alias
  - Can customize with HTML/CSS tags
    - Example: will bold the label
  - Think descriptive
- **Hint column - not required, but helpful**
  - Think description, instructions, guidelines, etc.
  - Customized through HTML/CSS tags
    - Example:

<body style="background-color:rgba(255,255,0,0.5);">

address	Enter Address	Example: 123 S Easy St
buildingstories	Number of Stories	Enter a number less than or equal to 10

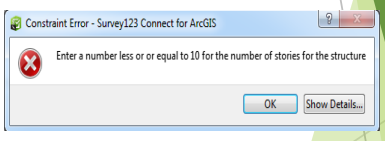
Constraints (Planes and Automobiles) Constraint messages

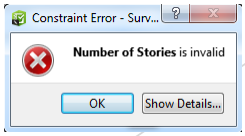
Constraints

- Limits the input
  - A range of numbers
  - Getters and numbers
  - General pattern matching
- Formula driven
- Regular Expressions
  - Drive the pattern matching
  - Starts with regex()

Constraint Messages

- Details why something happens due to a constraint being input incorrectly
- Use this in conjunction with a detailed hint





Constraints

- INTEGER CONSTRAINT
  - For example, the following formula can be used to restrict the input of an integer field to positive numbers only:

```
.>= 0
.>3.14 and .<6.67
.<10
```

- DATE CONSTRAINT
  - This formula, when applied to a date field, will prevent the user from entering a value earlier than today:

```
.<= today()
. >= today()
```

Constraints

- CALCULATION CONSTRAINT
  - Calculations can also be used in constraints. This formula will perform a calculation to prevent the user from selecting any dates between today and 14 days from today:

```
(.>= today()) and (.- (1000 * 24 * 60 * 60 * 14) <= today())
```

Relevant Expressions

A question, or a set of questions, can be hidden and revealed based on previous answers using relevant expressions. These expressions are entered into the relevant column, and the answers to previous questions are always referred to as ${field_name}. You can apply a relevant expression to a single question, or you can group questions together and set the relevant expression for the entire group.

Simple Relevant Expressions

- Simple Relevant expressions
  - The simplest way to use the relevant column is to conceal a question unless a particular answer was given previously. For example, this expression will reveal a question if the answer to the previous question is true:

${previous_question} = 'true'

Simple Relevant Expressions

- Simple Relevant expressions
  - This example will hide questions if the answer to the previous question was greater than or equal to 100:

${previous_question} < 100

Simple Relevant Expressions

- **select_multiple** questions hold their values differently than other question types, with each checked answer entered in the order it was selected, separated by commas. For example, selecting answers A and B, in that order, will present the response as A,B. To use a **select_multiple** question as part of a relevant expression, you'll need to use the **selected** command. This example would display a question if the answer to the previous question was A:

selected(${previous_question}, 'A')

Simple Relevant Expressions

- The **count-selected** command counts the amount of options that have been selected in a **select_multiple** question, providing a number to use as an operator. This example would show a question only if the previous question had more than two choices selected:

```
count-selected(${previous_question})>2
```

Mathmatical Relevant Expressions

- This example combines multiple operators and questions:

```
${previous_question} + ${other_previous_question} <= 100
```

- When using mathematical operators, be aware that sometimes you may need to cast values into numbers. In the previous example, it was assumed that previous_question and other_previous_question were integers or decimals, but what if the question types were strings? Then you cast them as follows:

```
int(${previous_question}) + int(${other_previous_question}) <= 100
```

- You can also perform mathematical expressions on **date** questions, which are saved as Epoch time, the amount of milliseconds passed since January 1, 1970. This expression reveals a question only if the answer to the previous question is more than two weeks before today:

```
if( ${previous_question}='',false,today() - ${previous_question} >
        1000*60*60*24*15)
```

Relevant Expressions

- Regular expressions can be used in relevant columns to restrict access to a question unless the string provided by another question is in a given format. This example will only display a question if another question has been answered with only letters:

  regex(${question},'[A-Za-z]')

  For more information on regular expressions, see Formulas.

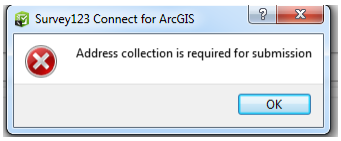
Required & Required Messages

Required

- Simple yes/no
- Little red asterisk will be placed by the question label
- It will not let you submit

Required Message

- It is like a constraint message
- Tells you what needs to be filled in



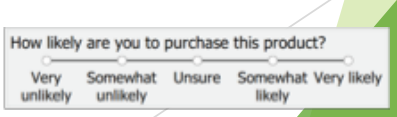
Appearance and Defaults

Appearance

- Formats how the questions looks beyond the HTML of the labels and hints
- Drop down list
- Gives certain functionality like a calculator or a signature box

Default

- Uses the same types of formulas as constraints
- Start with the most common, speed up collection
- Lessen the burden of clicks
  - Example: today()



Calculations

- Bread and butter of Survey123
  - Poor man's GeoEvent Processor (sort of)
- Typically are hidden fields
- Needs a note field for user to see
- Simple to super complex
- Can control formatting
- Can be used to pulldata() from a csv or other external data sources

Example:

```
number(${locationlikert})+number(${atmosphere})+number(${coffee})
+number(${food})+number(${additional})
```

Grouping

- Groups questions
- Good for long surveys with different sections
- Setting good appearances can maximize screen real estate

type	name	label	required_messag	appearance
begin group	Group_StructureInfo	Informational Questions Portion		compact
end group				
begin group	Group_RiskAssessment	Risk Assessment Portion		compact
end group				

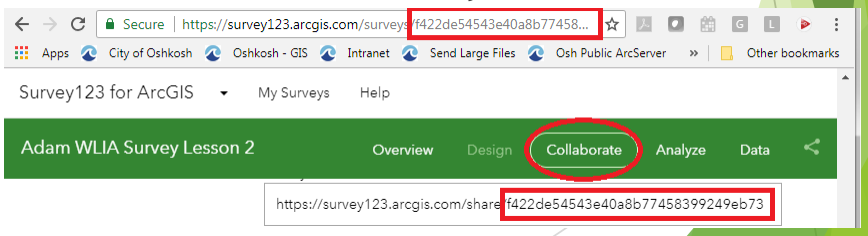
Why do I want to link to Survey123

- Simulate a 1 to many relationship
- Populate data in a survey record without re-entry
- Reduce data entry issues
- Better performance than using pulldata() from a large csv
- Pull location data from other features
- Survey123 is part of a larger workflow

  Example
  - Collect feature in Collector for ArcGIS
  - Complete inspection of feature with Survey123

How to link to Survey123

- A url starting with ***arcgis-survey123://*** will automatically prompt Survey123 to open
- Next the form's item ID is needed to identify which form needs to be opened.
  - The form item ID can be found in the url of the published survey or in the survey link in the collaborate tab on the Survey123 website.



Passing Data to Survey123

- Additional information can be added to the end of the url to pass information into the survey. To do this, the URL needs to include a reference to the field using the name assigned to it in the XLSForm (not it's label).

Syntax: &field: *QUESTIONNAME* = Value

```
arcgis-survey123://?itemID=36ff9e8c13e042a58cfce4ad87f55d19&field:PARCELID=T1234
```

parameter separator

question name to be populated

Value

Passing Data to Survey123

- You can add coordinates to the URL, defining a location for a geopoint question in the survey. To do this, type &center=, and then type the coordinates. Type the latitude and then longitude coordinates in decimal degrees, separated by a single comma.

Syntax: &center=Latitude,longitude

```
arcgis-survey123://?itemID=36ff9e8c13e042a58cfce4ad87f55d19&center=42.62,-88.63
```

parameter separator

Center on this point in geopoint

Value

Passing Data to Survey123

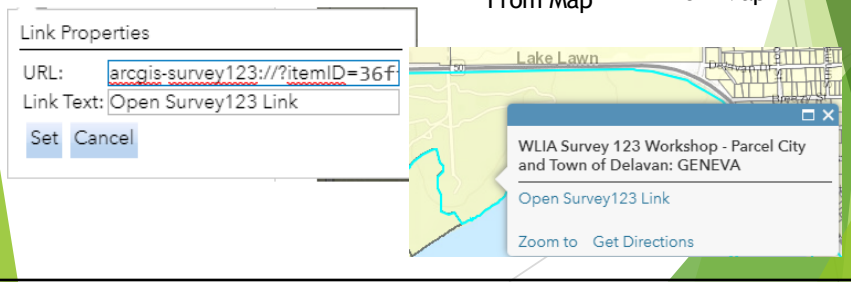
- When these urls are configured as part of a popup dialog box (in a web map, or Collector for ArcGIS, etc) the value can be replaced with the feature service field.

```
arcgis-survey123://?itemID=36ff9e8c13e042a58cfce4ad87f55d19&field:
PARCELID={PARCELID}&center={LATITUDE},{LONGITUDE}
```

Parcel Number Field From Map

Latitude Field From Map

Longitude Field From Map

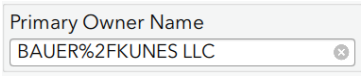


Known Issues

- When fields are passed from a feature service to Survey123 for ArcGIS survey through custom a URL scheme, URL encoding is not decoded in the final survey result.

  (ESRI BUG-000107010)

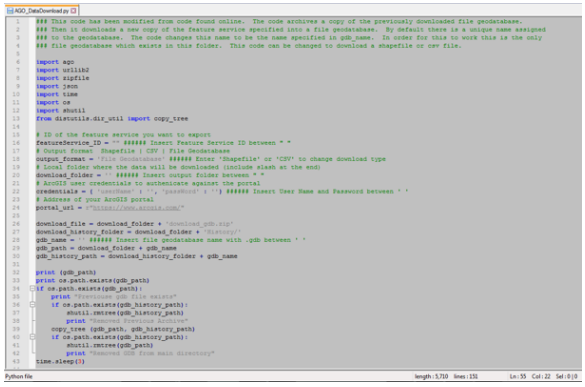
- For example an owner name of BAUER/FKUNES LLC transfers to Survey123 as BAUER%2FKUNES LLC



Workarounds

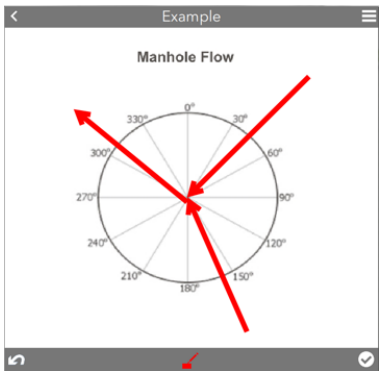
- Download the data and perform a find and replace to remove the encoding characters. Alternatively, use Collector for ArcGIS.
- Create a hidden field and then use an IF calculation to restructure the field content so it displays as intended.

Downloading data captured with Survey123 for ArcGIS

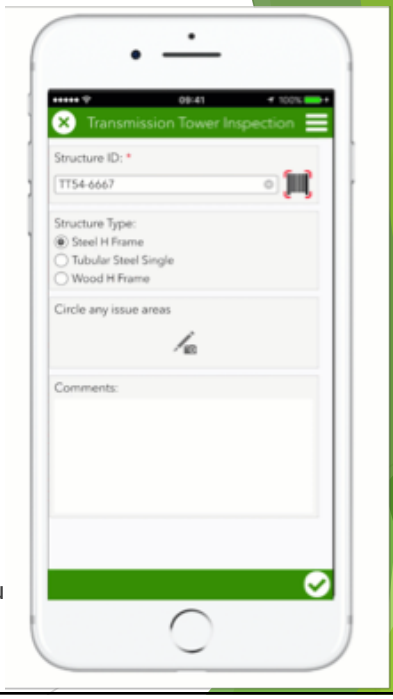


ESRI Blog Post
https://community.esri.com/groups/survey123/blog/2015/11/10/downloading-data-captured-with-survey123-for-arcgis

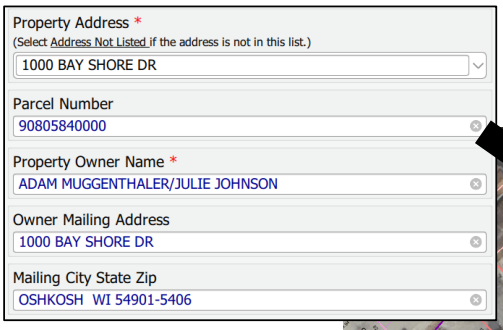
Diagram Drawing Capabilities

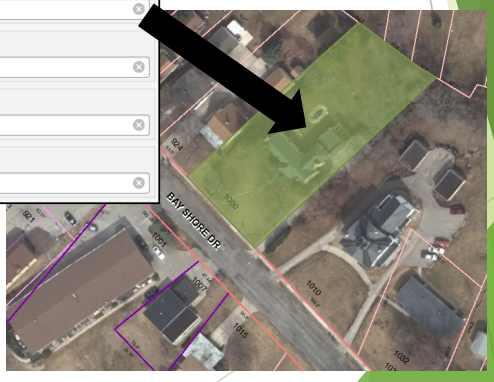


ESRI Blog Post
https://community.esri.com/groups/survey123/blog/2017/10/09/smart-skething-in-survey123-stroke-by-stroke



Use Survey123 record to join or relate to other records





Form Templates Examples

- Uploaded in workshop folder