Metadata Specification, Workflow, and Curation

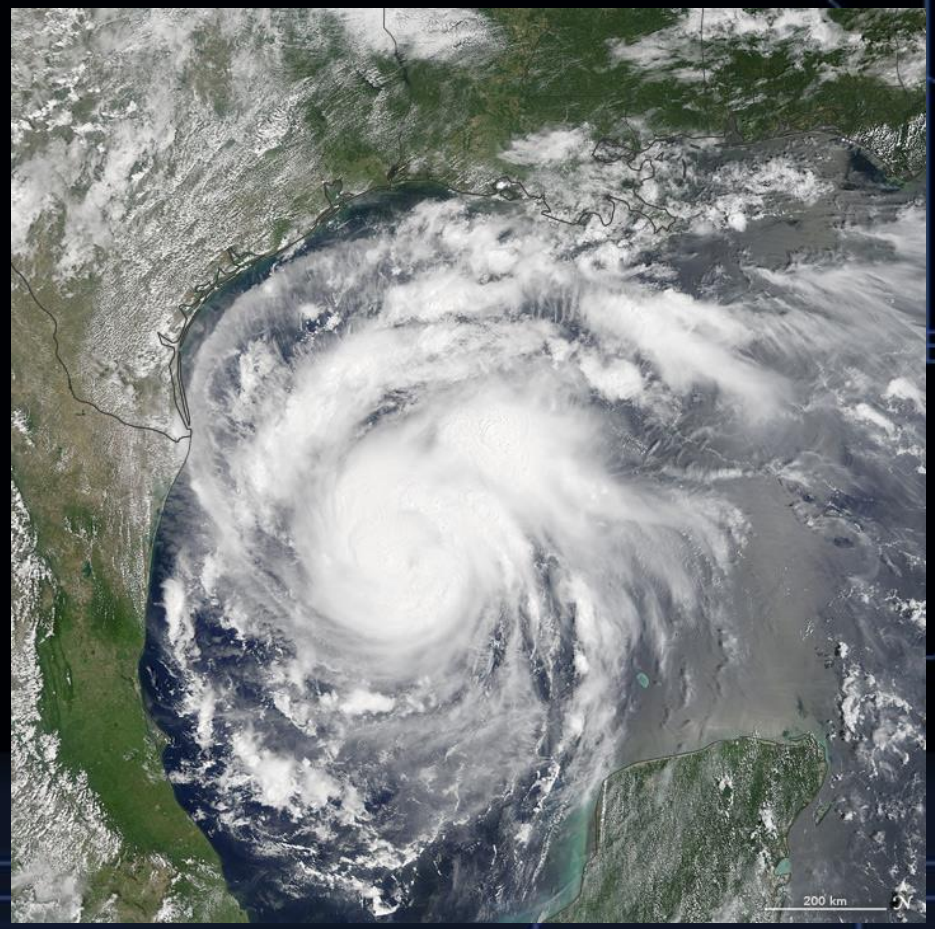
METADATA COLLECTION USING SURVEY123 CONNECT

Paul Buschow
MAGIC Team
Center for Space Research

Metadata Collection Using Survey123 Connect

Topics for Today

- Metadata Specification
- Survey123 Connect
- Workflow
- Curation



Hurricane Harvey, August 24, 2017

Metadata Specification

What is metadata?

"Metadata is a Love Note to the Future"

-Rachel Lovinger, 2015

Metadata Specification

What is metadata?

Data about data?

"Metadata is structured information that describes, explains, locates, or otherwise makes it easier to retrieve, use, or manage an information resource."

-National Information Standards Organization (NISO)

Metadata Specification

- Heavily Influenced by the FGDC Standard
  - Simplified descriptive elements
  - Reduces input time burden
- Controlled Terms
  - Used as pick lists in application user interfaces
  - Standardizes vocabulary, when possible
  - Examples
    - Boundary type (counties, cities, aquifers, MUDs, TxDOT urbanized areas, …)
    - Contact Role (metadata creator, submitter, creator, steward, …)
    - Organization (TxGIO, USGS, TCEQ, TDEM, Texas Senate, Texas Trinity River Authority, +2,000 more…)

Metadata Specification

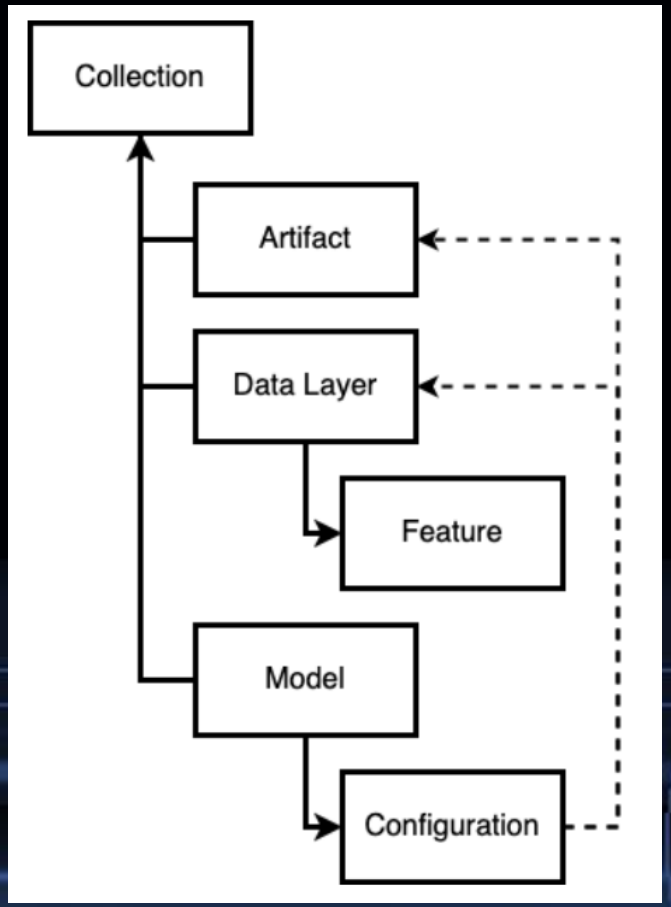
- Metadata Model: Tiered Structure
- Metadata Model: Descriptive field count by level

Collection: 16

Artifact: 45

Data Layer: 54

Model: 42



Metadata Collection Using Survey123 Connect

Topics for Today

- Metadata Specification
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- Curation

Bethel, Alaska Village, 2019

Survey Design, Share & Manage Process

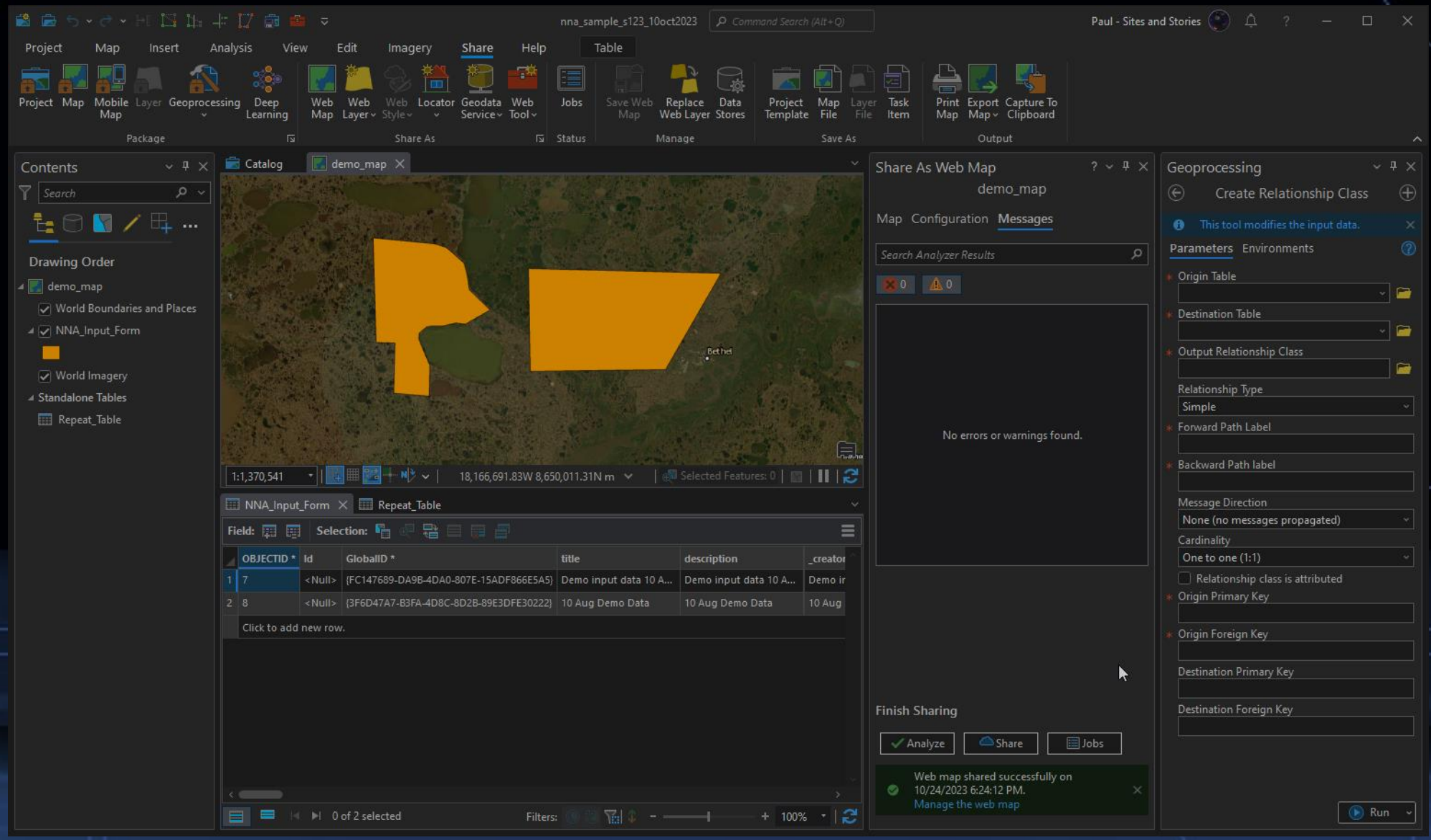
ArcGIS Pro – Create Feature Class & Publish (desktop)

Survey123 Connect – Build Survey & Publish (desktop)

Survey123 Website – Survey Collaboration, Analysis & Curation

ArcGIS Enterprise Portal – Survey Management & Storage

Survey Design Process – ArcGIS Pro



Survey Design, Share & Manage Process

ArcGIS Pro – Create Feature Class & Publish (desktop)

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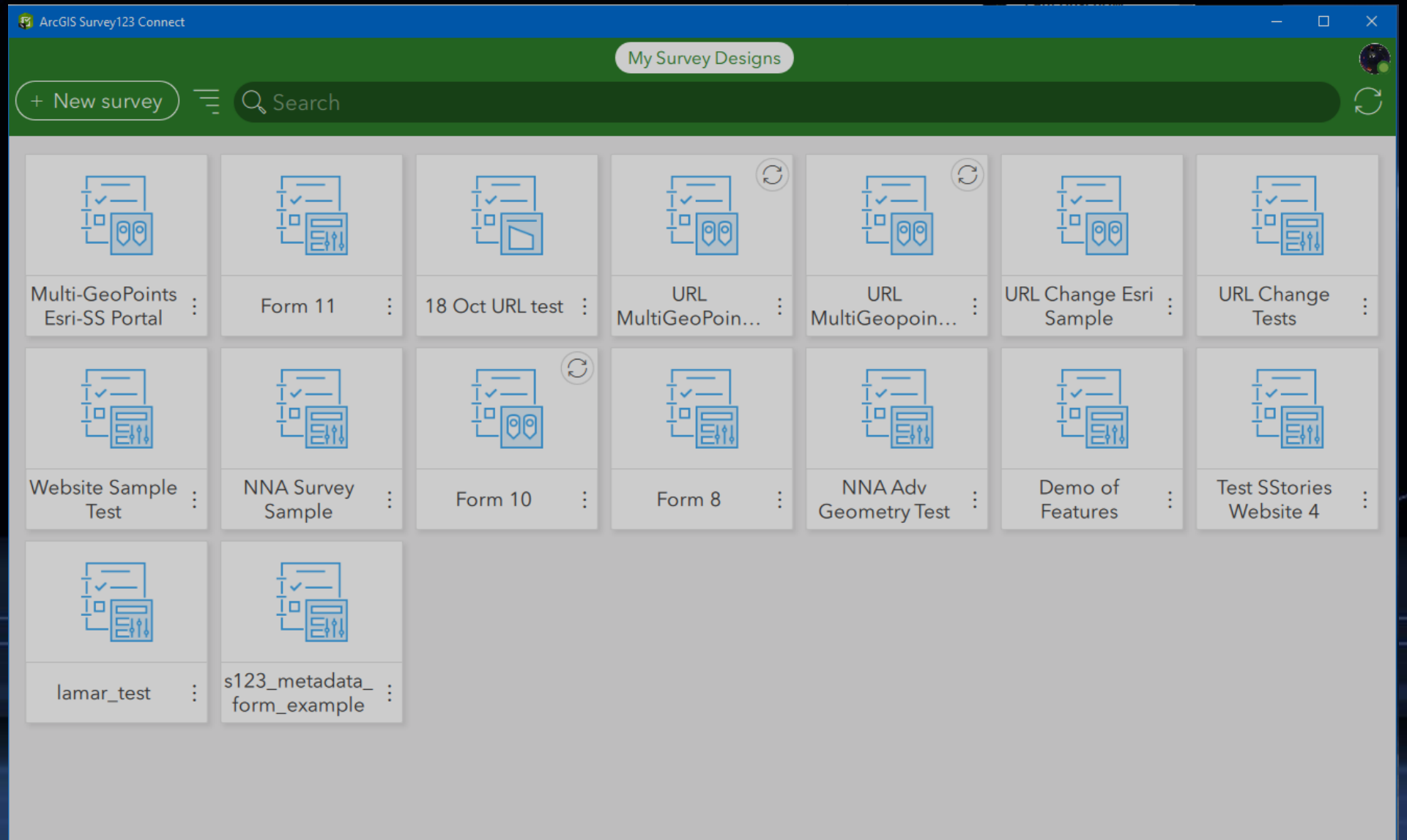
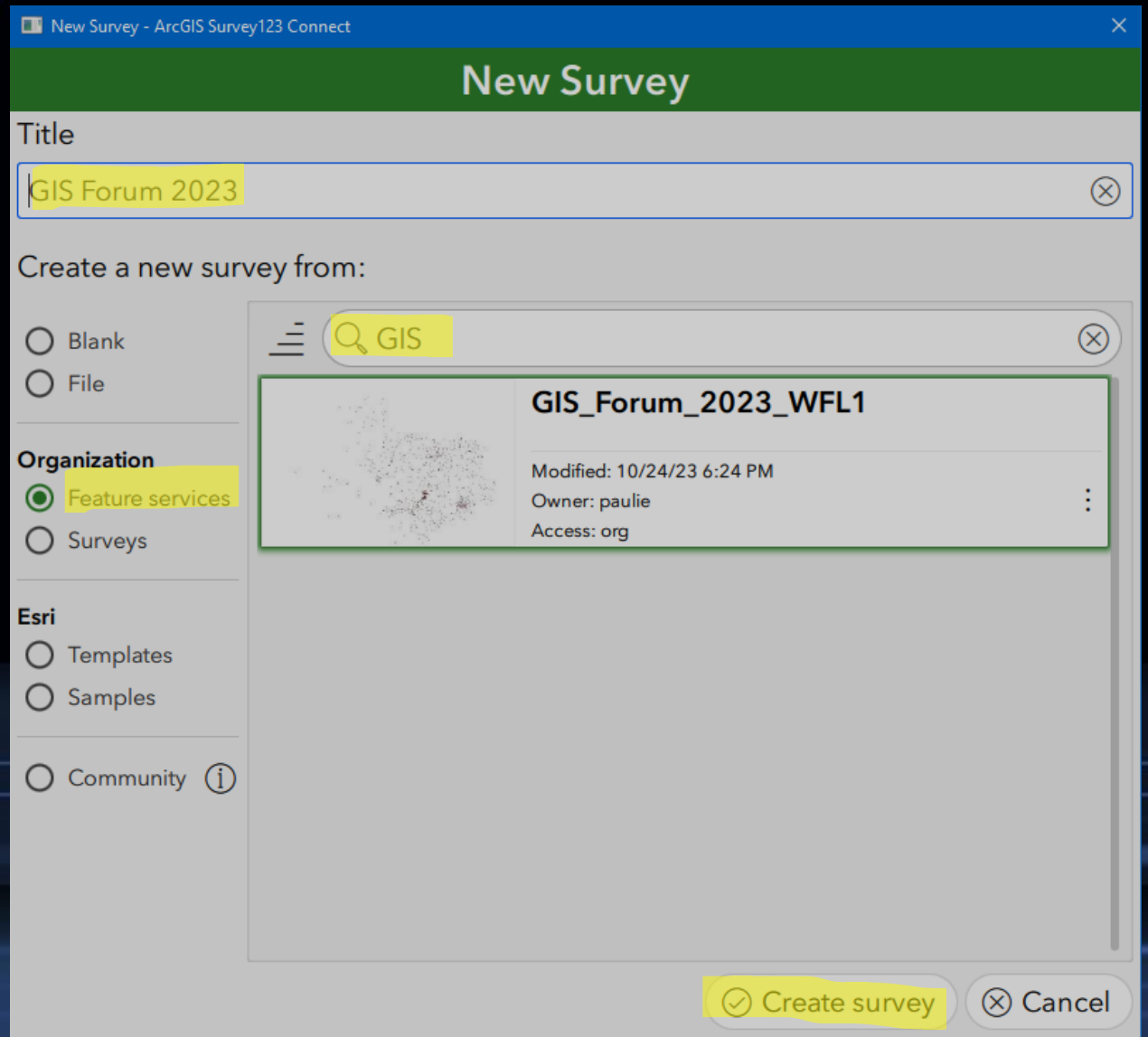
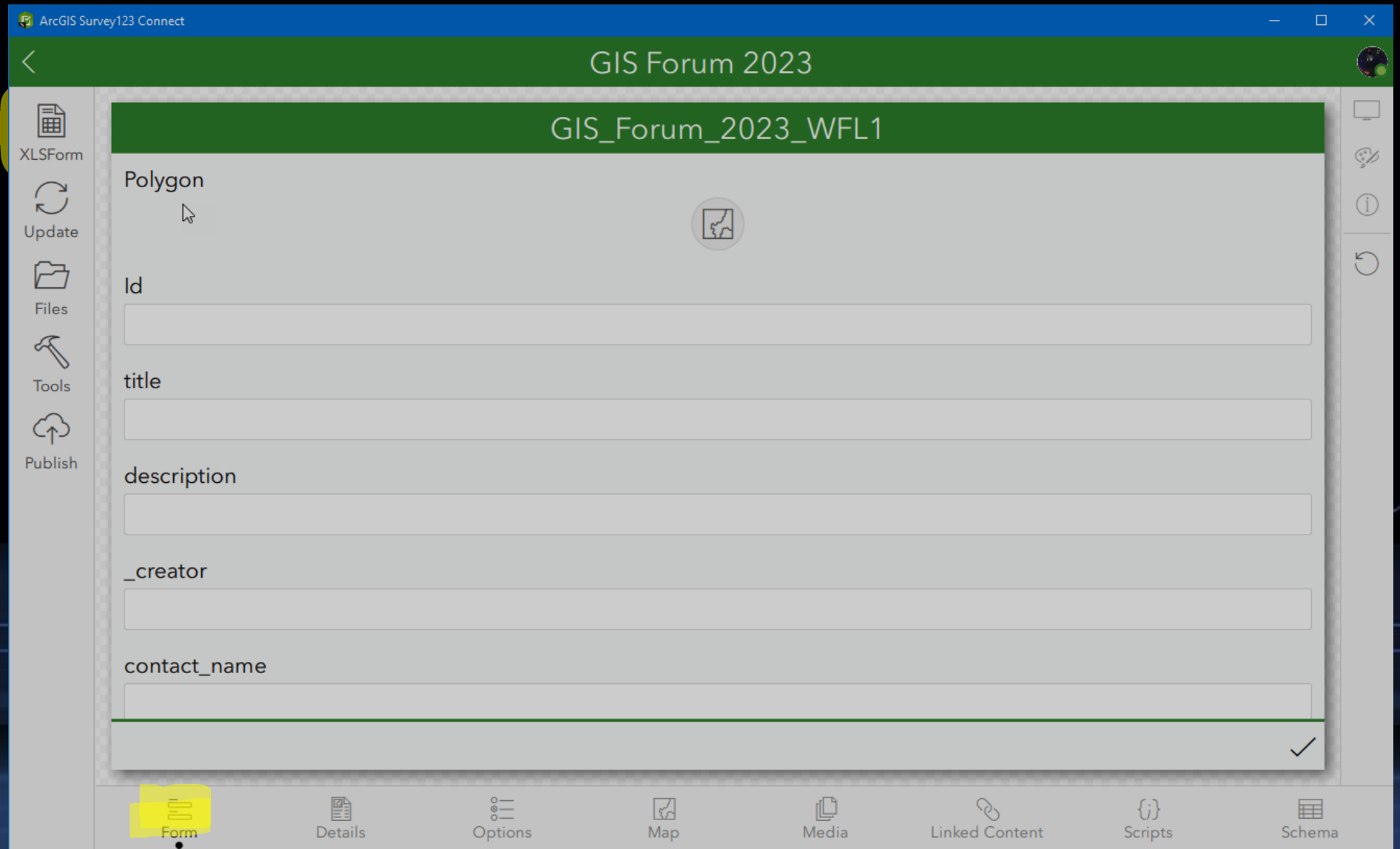
Survey Design Process – Survey123 Connect



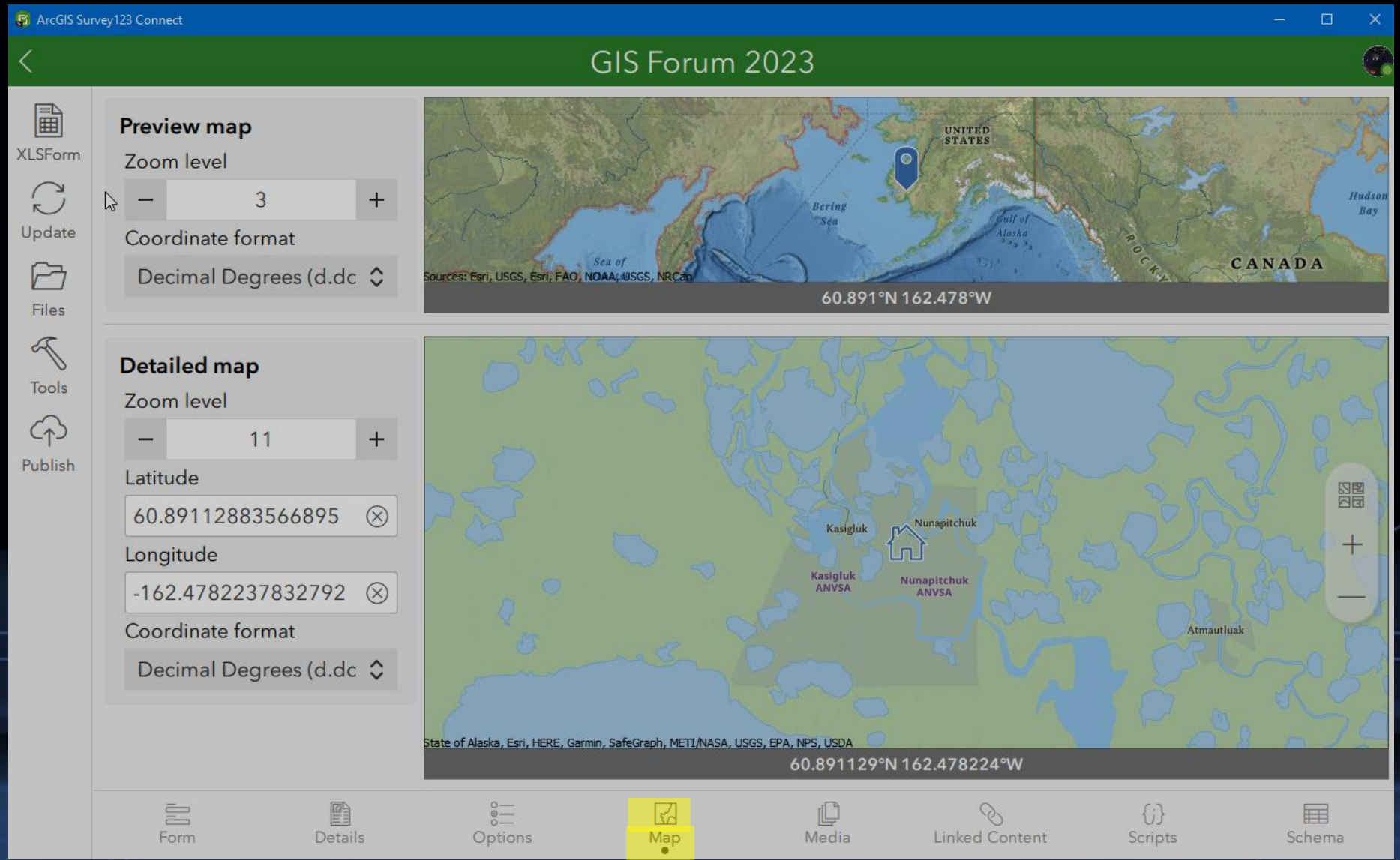
Survey Design Process – Survey123 Connect



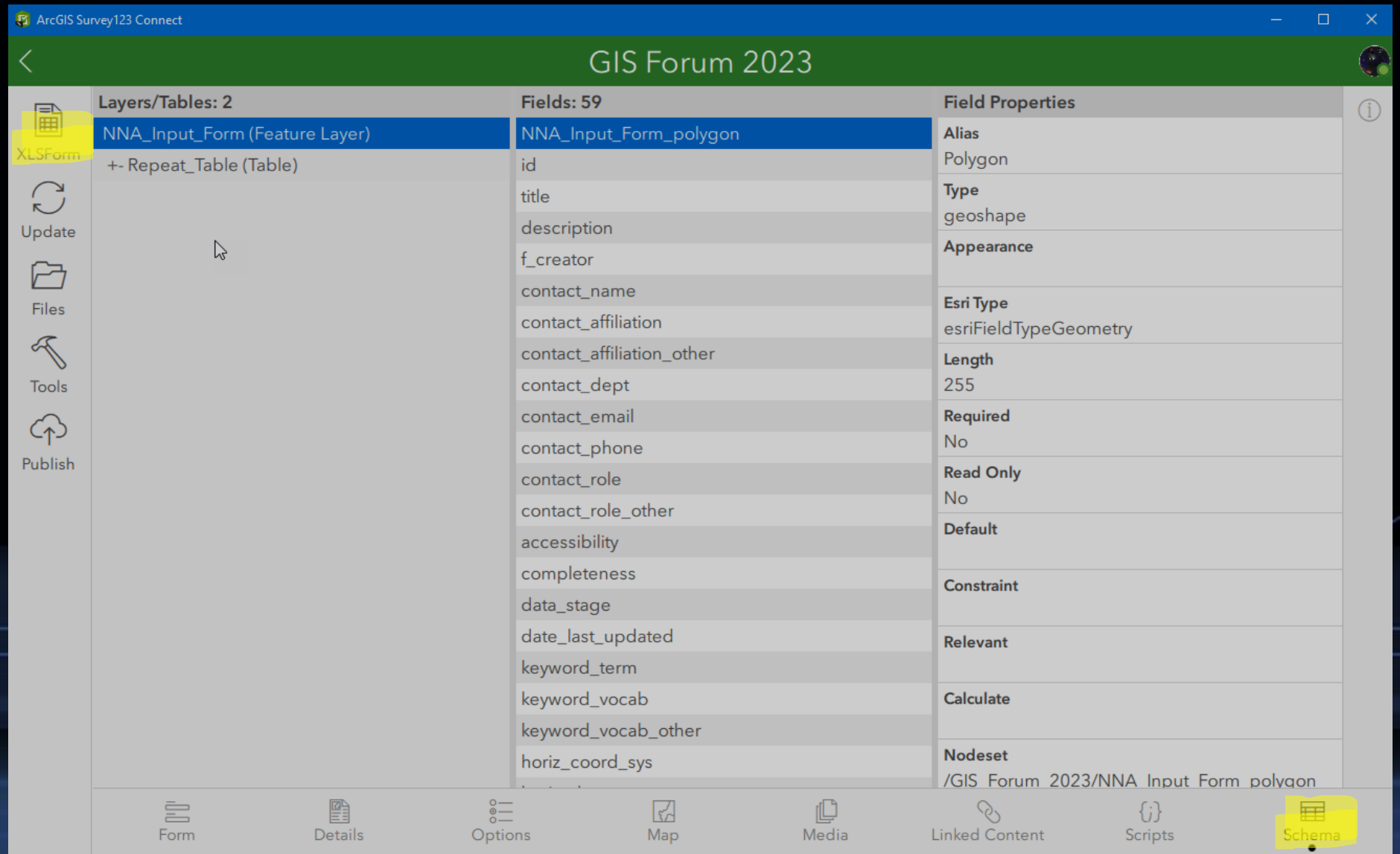
Survey Design Process – Survey123 Connect



Survey Design Process – Survey123 Connect



Survey Design Process – Survey123 Connect



Survey Design Process – Survey123 Connect

A2

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	type	name	label	hint	guidance_hint	appearance	required	required_message	readonly	default	calculation	constraint	constraint_message	relevant	choice_fil
2															
3	geoshape	NNA_Input_Form_polygon	Polygon												
4	integer	id	Id												
5	text	title	title												
6	text	description	description												
7	text	f_creator	_creator												
8	text	contact_name	contact_name												
9	text	contact_affiliation	contact_affiliation												
10	text	contact_affiliation_other	contact_affiliation_other												
11	text	contact_dept	contact_dept												
12	text	contact_email	contact_email												
13	text	contact_phone	contact_phone												
14	text	contact_role	contact_role												
15	text	contact_role_other	contact_role_other												
16	text	accessibility	accessibility												
17	text	completeness	completeness												
18	text	data_stage	data_stage												
19	dateTime	date_last_updated	date_last_updated												
20	text	keyword_term	keyword_term												
21	text	keyword_vocab	keyword_vocab												
22	text	keyword_vocab_other	keyword_vocab_other												
23	text	horiz_coord_sys	horiz_coord_sys												
24	text	horiz_datum	horiz_datum												
25	text	spatial_data_type	spatial_data_type												
26	text	spatial_data_type_other	spatial_data_type_other												
27	text	boundary_type	boundary_type												
28	text	boundary_unit_id	boundary_unit_id												
29	text	spatial_extent	spatial_extent												
30	text	update_frequency	update_frequency												
31	text	update_frequency_other	update_frequency_other												
32	text	use_constraint	use_constraint												
33	text	custody_chain	custody_chain												

survey | choices | settings | Version | Question types | Appearances | Field types | Reference | Reserved

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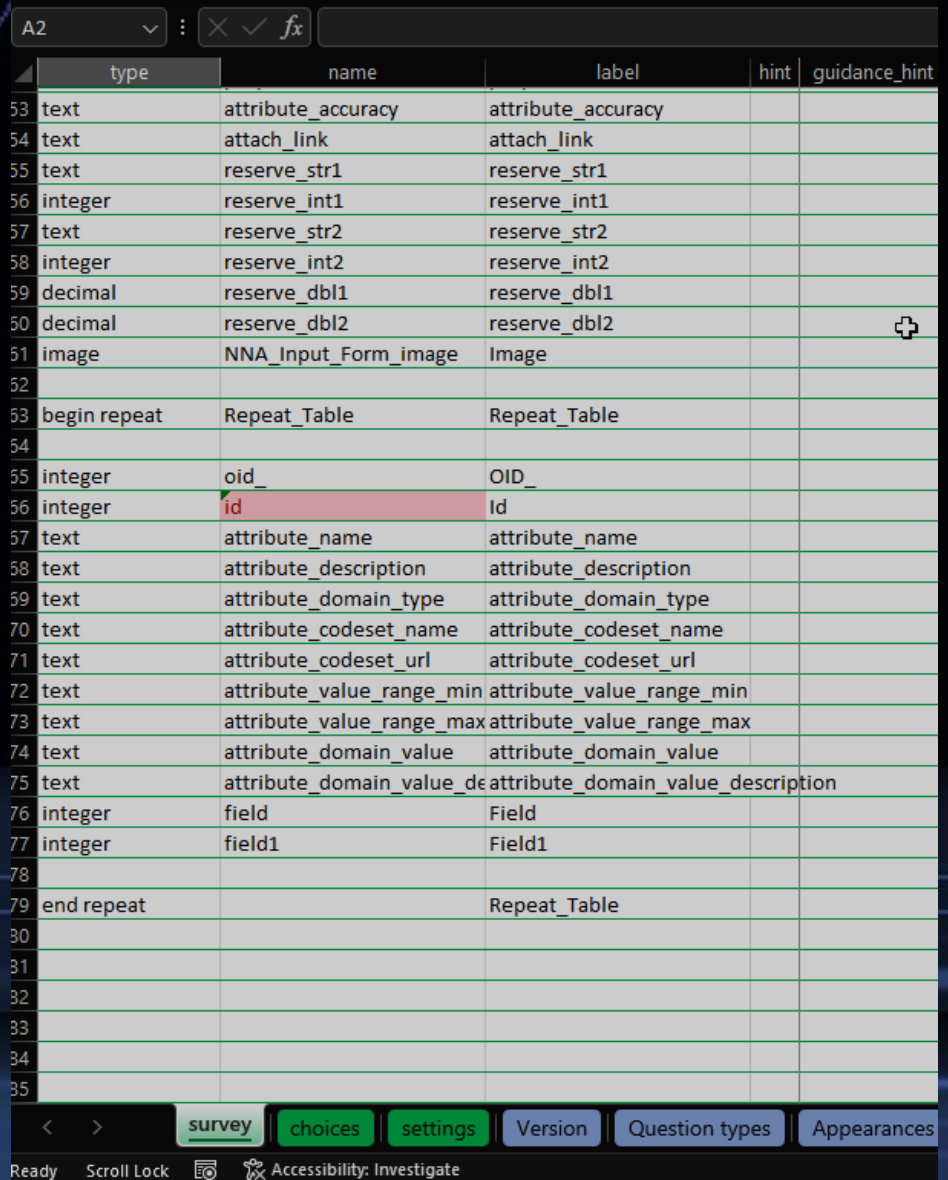
Survey Design Process – Survey123 Connect



A2

	type	name	label	hint	guidance_hint
53	text	attribute_accuracy	attribute_accuracy		
54	text	attach_link	attach_link		
55	text	reserve_str1	reserve_str1		
56	integer	reserve_int1	reserve_int1		
57	text	reserve_str2	reserve_str2		
58	integer	reserve_int2	reserve_int2		
59	decimal	reserve_dbl1	reserve_dbl1		
60	decimal	reserve_dbl2	reserve_dbl2		
61	image	NNA_Input_Form_image	Image		
62					
63	begin repeat	Repeat_Table	Repeat_Table		
64					
65	integer	oid_	OID_		
66	integer	id	Id		
67	text	attribute_name	attribute_name		
68	text	attribute_description	attribute_description		
69	text	attribute_domain_type	attribute_domain_type		
70	text	attribute_codeset_name	attribute_codeset_name		
71	text	attribute_codeset_url	attribute_codeset_url		
72	text	attribute_value_range_min	attribute_value_range_min		
73	text	attribute_value_range_max	attribute_value_range_max		
74	text	attribute_domain_value	attribute_domain_value		
75	text	attribute_domain_value_de	attribute_domain_value_description		
76	integer	field	Field		
77	integer	field1	Field1		
78					
79	end repeat		Repeat_Table		
80					
81					
82					
83					
84					
85					

survey | choices | settings | Version | Question types | Appearances

Ready Scroll Lock Accessibility: Investigate

Survey Design Process – Survey123 Connect

A few hours later…

Survey Design Process – Survey123 Connect

	A	B	C	D		N	O
1	type	name	label	hint	message	relevant	choice_filter
2	begin group	page_0	Map and Attachments	<p>Testing Note: Limit			
3	note		Testing Note	<p>Limit your uploads t			
4	note		.				
5	geoshape	NNA_Input_Form_polygon	Map: Study Area of Interest (Draw a pc	<p>Locations: Ex. Nuna			
6	file	NNA_Input_Form_file	File Attachment (generic)	<p>Find and attach from			
7	image	NNA_Input_Form_image	Image Attachment	<p>Find and attach from			
8	audio	NNA_Input_Form_audio	Audio Attachment	<p>Find and attach from			
9							
10	end group						
11							
12	begin group	page_1	Survey Questions (Controlled Lists, Conditional Visibility)				
13							
14	text	title	Title	<p>A name given to the			
15	text	description	Description	<p>An account of the da			
16	text	contact_name	Contact Name	<p>Name of a person w			
17	select_one list_data_layer_contact_affiliation_or_other	contact_affiliation	Contact Affiliation	<p>Organizational affili			
18	text	contact_affiliation_other	Other Contact Affiliation			selected(${contact_affiliation}, 'other')	
19	select_multiple list_data_layer_contact_role_or_other	contact_role	Contact Role	<p>(Recommended) Sel		string-length(${contact_name}) > 0	
20	text	contact_role_other	Other Contact Role			selected(${contact_role}, 'other')	
21	select_one list_data_layer_accessibility	accessibility	Accessibility	<p>How accessible is th			
22	select_one list_data_layer_completeness	completeness	Completeness	<p>A assessment of the			
23	select_one list_data_layer_data_stage	data_stage	Data Stage	<p>Is the data in a stage			
24	dateTime	date_last_updated	Date Last Updated	<p>The date the digital			
25	select_one list_data_layer_keyword_vocab_or_other	keyword_vocab	Keyword Vocabulary	<p>(Recommended) Vo			
26	text	keyword_vocab_other	Other Keyword Vocabulary	<p>Internet address to			

survey | choices | settings | Version | Question types | Appearances | Field types | Reference | Reserved

Survey Design Process – Survey123 Connect

	type	name	label	hint	message	relevant	choice_filter
25	select_one list_data_layer_keyword_vocab_or_other	keyword_vocab	Keyword Vocabulary	<p>(Recommended) Vo			
26	text	keyword_vocab_other	Other Keyword Vocabulary	<p>Internet address to y			
27	select_one list_data_layer_update_freq_or_other	update_frequency	Update Frequency	<p>How often the conte			
28	text	update_frequency_other	Other Update Frequency			selected(${update_frequency}, 'other')	
29	select_multiple list_data_layer_use_constraint	use_constraint	Use Constraint (all that apply)	<p>Constraints or restri			
30							
31	end group						
32							
33	begin group	page_2	Repeatable Entries (Ex. Multiple House	<p>Metadata elements			
34	begin repeat	Repeat_Table	and Conditional Field Wizard (Question	visibility is predicated			
35							
36	text	attribute_name	Item Name	<p>Name of the attribut			
37	text	attribute_description	Item Description	<p>Description of the it		string-length(${attribute_name}) > 0	
38	select_one list_page_2_attribute_domain_type	attribute_domain_type	Item Domain Type	<p>Type of domain for v		string-length(${attribute_name}) > 0	
39	text	attribute_codeset_name	Item Code Set Name	<p>Name of coded valu		selected(${attribute_domain_type}, 'code set')	
40	text	attribute_codeset_url	Item Code Set URL	<p>URL reference or ser		selected(${attribute_domain_type}, 'code set')	
41	text	attribute_value_range_min	Attribute Value Range Maximum	<p>Max Value. A range (		selected(${attribute_domain_type}, 'range')	
42	text	attribute_value_range_max	Attribute Value Range Minimum	<p>Min Value. A range c		selected(${attribute_domain_type}, 'range')	
43	text	attribute_domain_value_descri	Attribute Domain Value Description	<p>Description of the va		string-length(${attribute_name}) > 0	
44	text	attribute_domain_value	Attribute Domain Value	<p>Valid value for the it		string-length(${attribute_name}) > 0	
45							
46	end repeat		Repeat_Table				
47	end group						
48							
49							
50							

survey | choices | settings | Version | Question types | Appearances | Field types | Reference | Reserved

Survey Design Process – Survey123 Connect

A2 | list_data_layer_contact_affiliation_or_other

	A	B	
2278	list_data_layer_update_freq_or_other	Realtime	Realtime
2279	list_data_layer_update_freq_or_other	Near-Realtime	Near-Realtime
2280	list_data_layer_update_freq_or_other	Hourly	Hourly
2281	list_data_layer_update_freq_or_other	Daily	Daily
2282	list_data_layer_update_freq_or_other	Weekly	Weekly
2283	list_data_layer_update_freq_or_other	Monthly	Monthly
2284	list_data_layer_update_freq_or_other	Quarterly	Quarterly
2285	list_data_layer_update_freq_or_other	Biannually	Biannually
2286	list_data_layer_update_freq_or_other	Annually	Annually
2287	list_data_layer_update_freq_or_other	2 or More Years	2 or More Years
2288	list_data_layer_update_freq_or_other	Rarely Needed	Rarely Needed
2289	list_data_layer_update_freq_or_other	None	None
2290	list_data_layer_update_freq_or_other	Unknown	Unknown
2291	list_data_layer_update_freq_or_other	other	Other
2292	list_page_2_service_endpoint_type	REST	REST
2293	list_page_2_service_endpoint_type	SOAP	SOAP
2294	list_data_layer_spatial_data_type_or_other	vector - point	vector - point
2295	list_data_layer_spatial_data_type_or_other	vector - line	vector - line
2296	list_data_layer_spatial_data_type_or_other	vector - polygon	vector - polygon
2297	list_data_layer_spatial_data_type_or_other	vector - multipoint	vector - multipoint
2298	list_data_layer_spatial_data_type_or_other	vector - multipatch	vector - multipatch
2299	list_data_layer_spatial_data_type_or_other	raster - imagery	raster - imagery
2300	list_data_layer_spatial_data_type_or_other	raster - elevation	raster - elevation
2301	list_data_layer_spatial_data_type_or_other	raster - discreet	raster - discreet
2302	list_data_layer_spatial_data_type_or_other	raster - continuous	raster - continuous
2303	list_data_layer_spatial_data_type_or_other	raster - other	raster - other

survey | choices | settings | Version | Question types | Appearances | Field types

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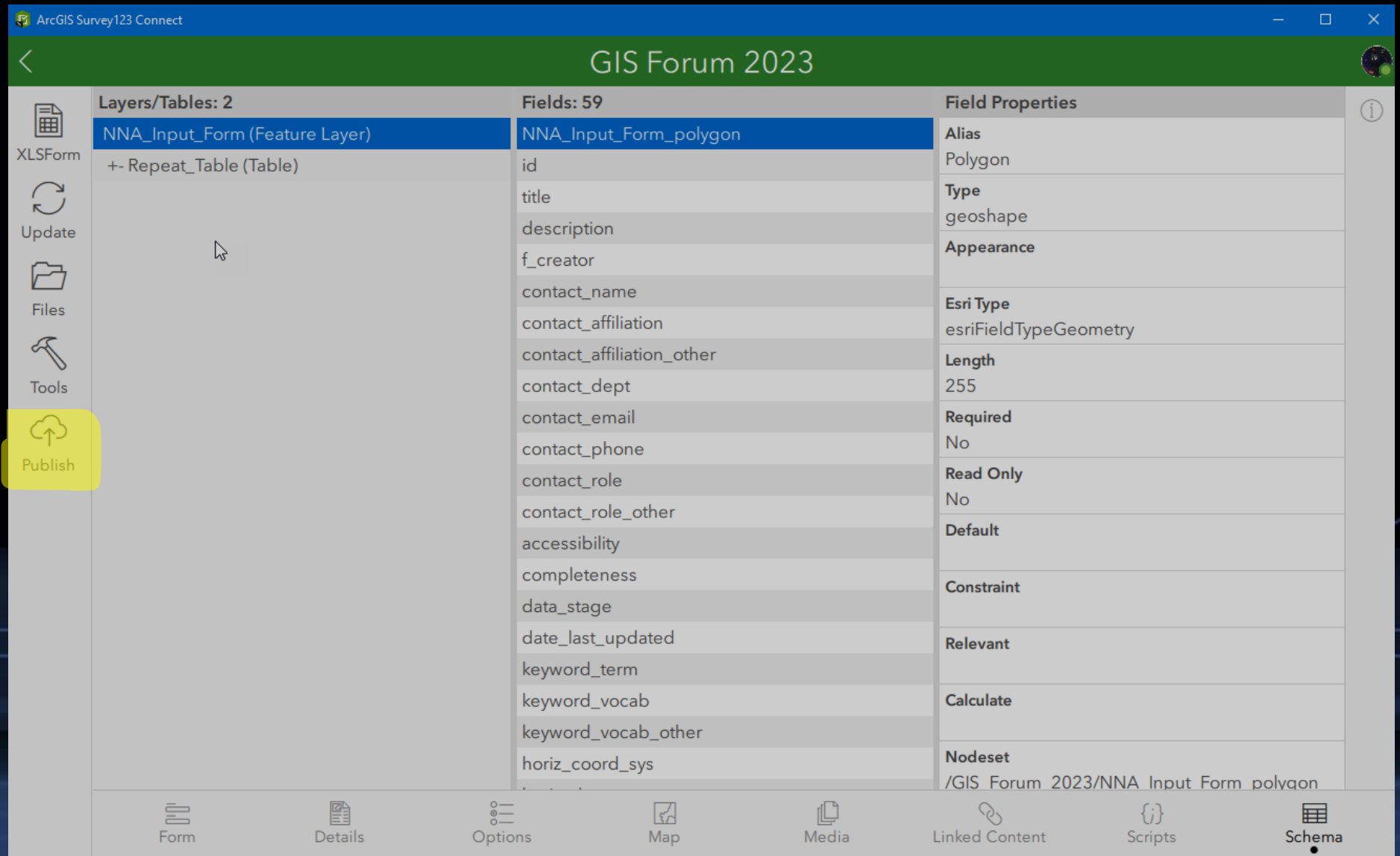
Survey Design Process – Survey123 Connect



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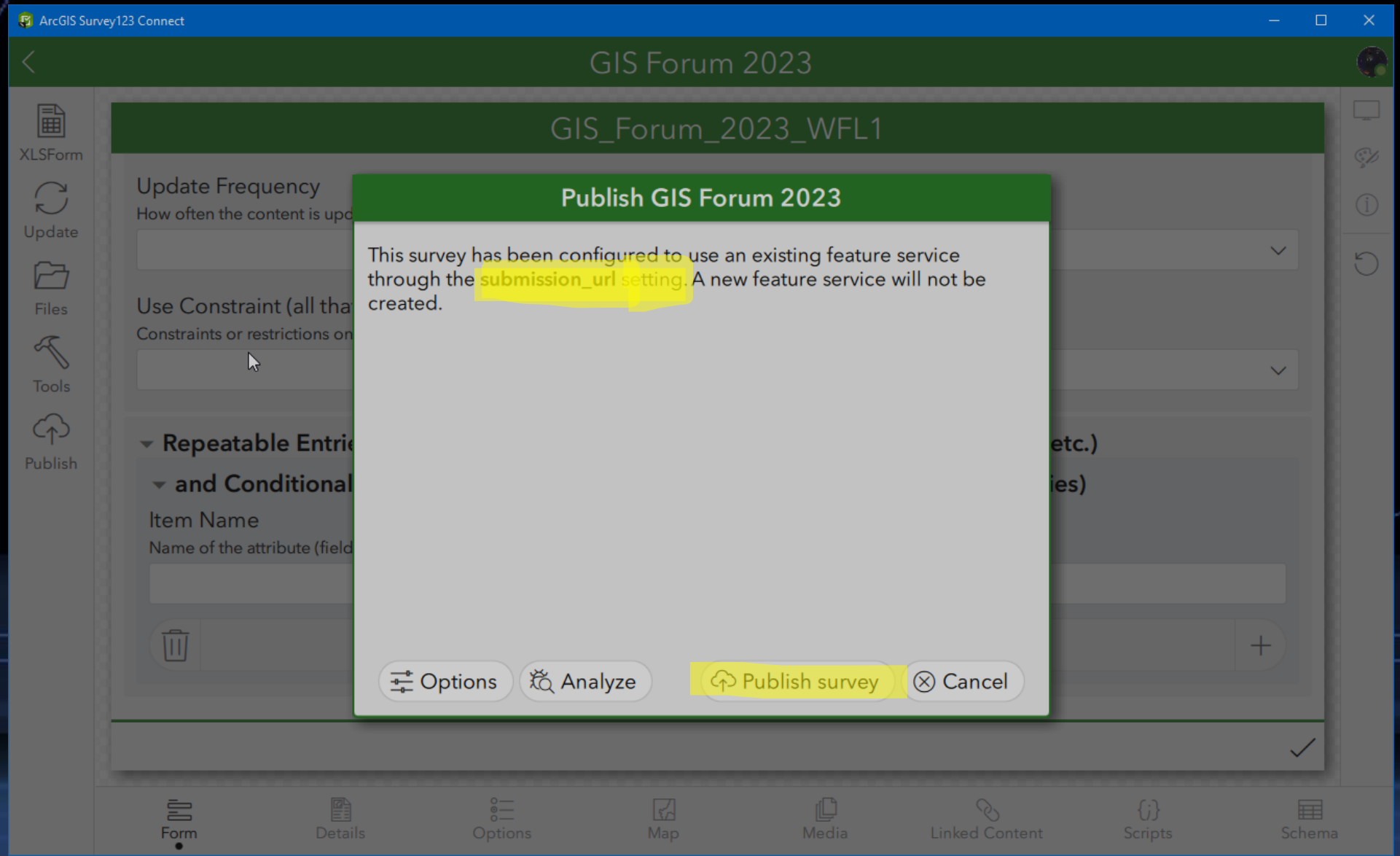
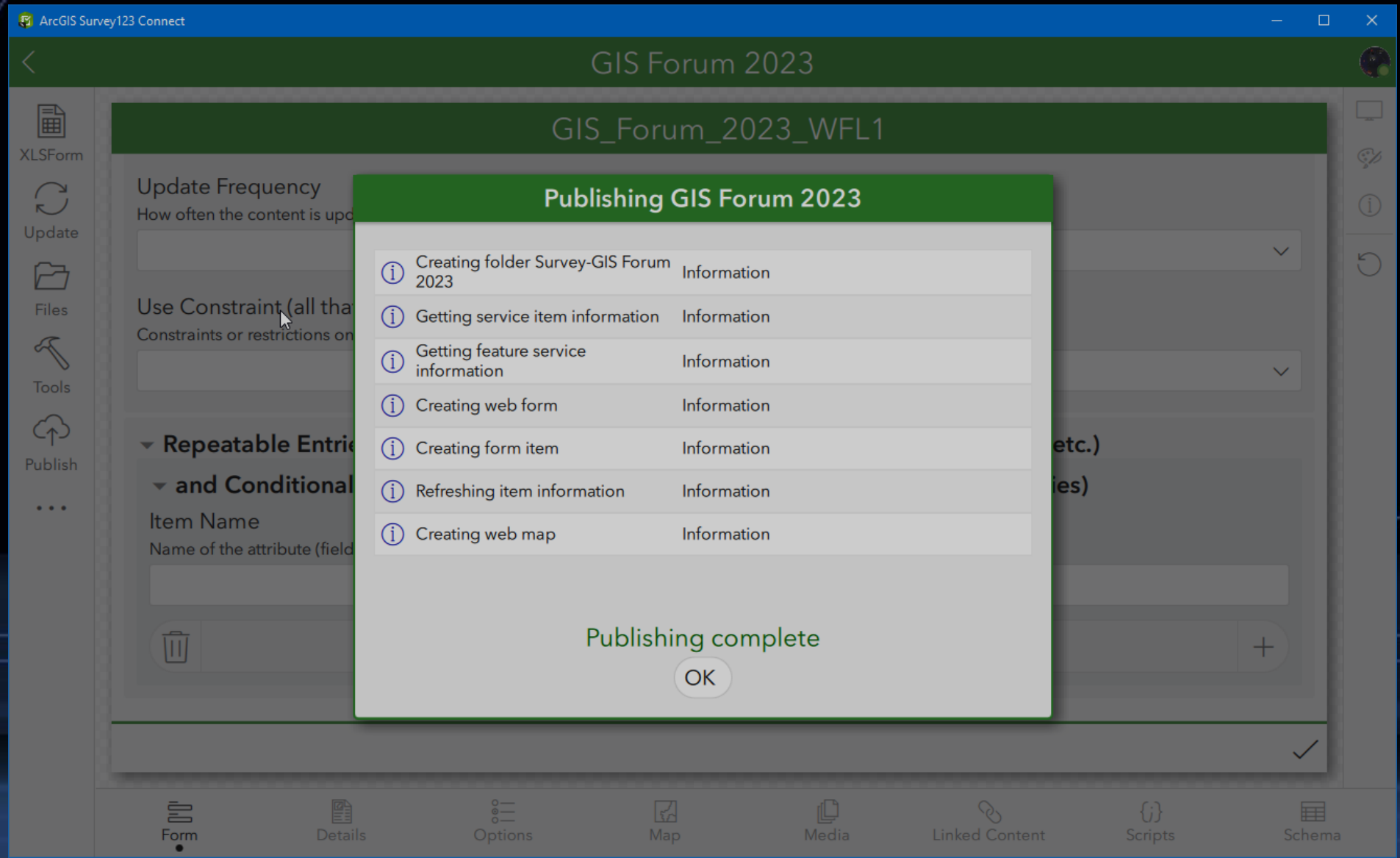


Survey Design Process – Survey123 Connect



Survey Design, Share & Manage Process

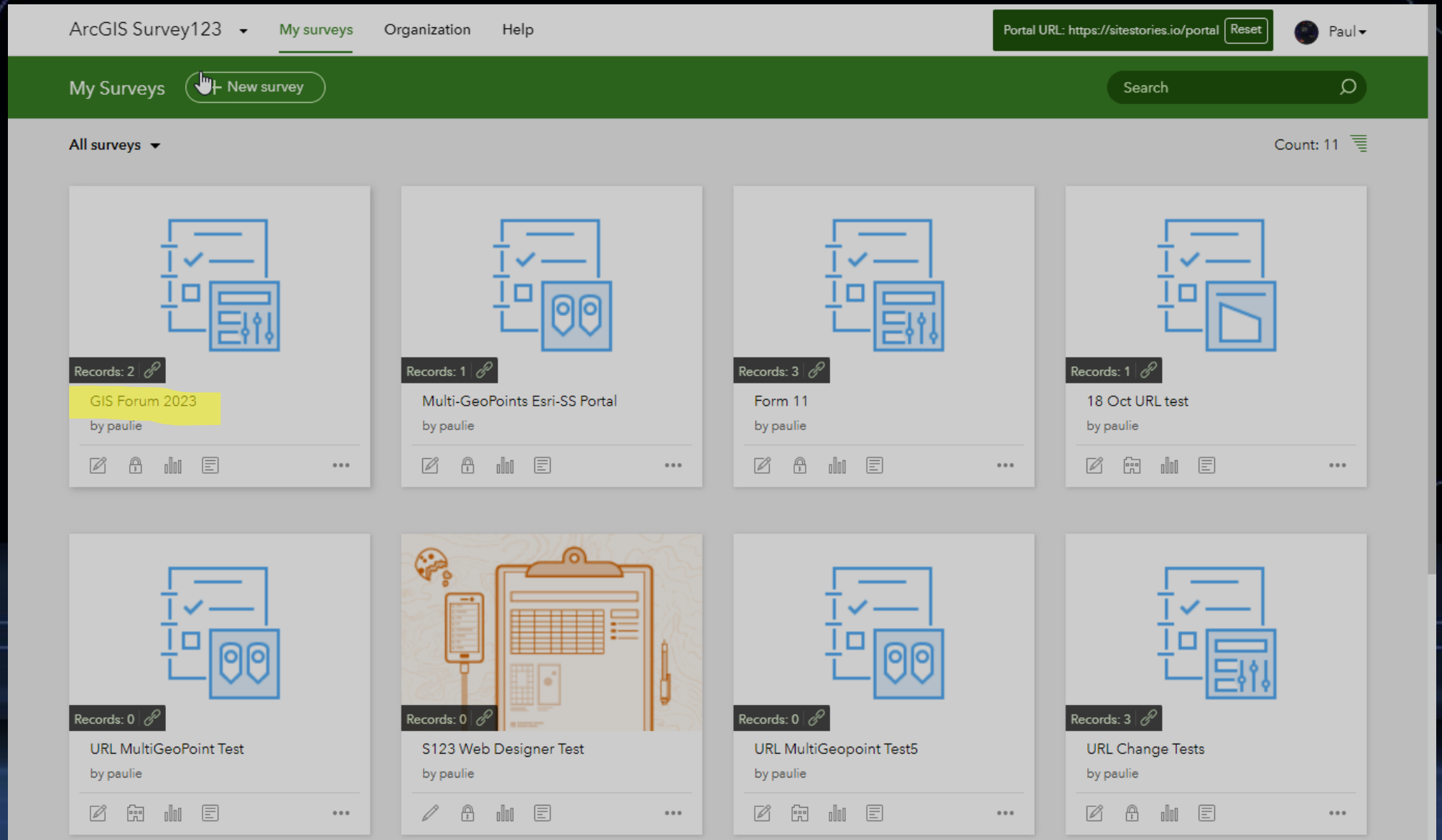
ArcGIS Pro – Create Feature Class & Publish (desktop)

Survey123 Connect – Build Survey & Publish (desktop)

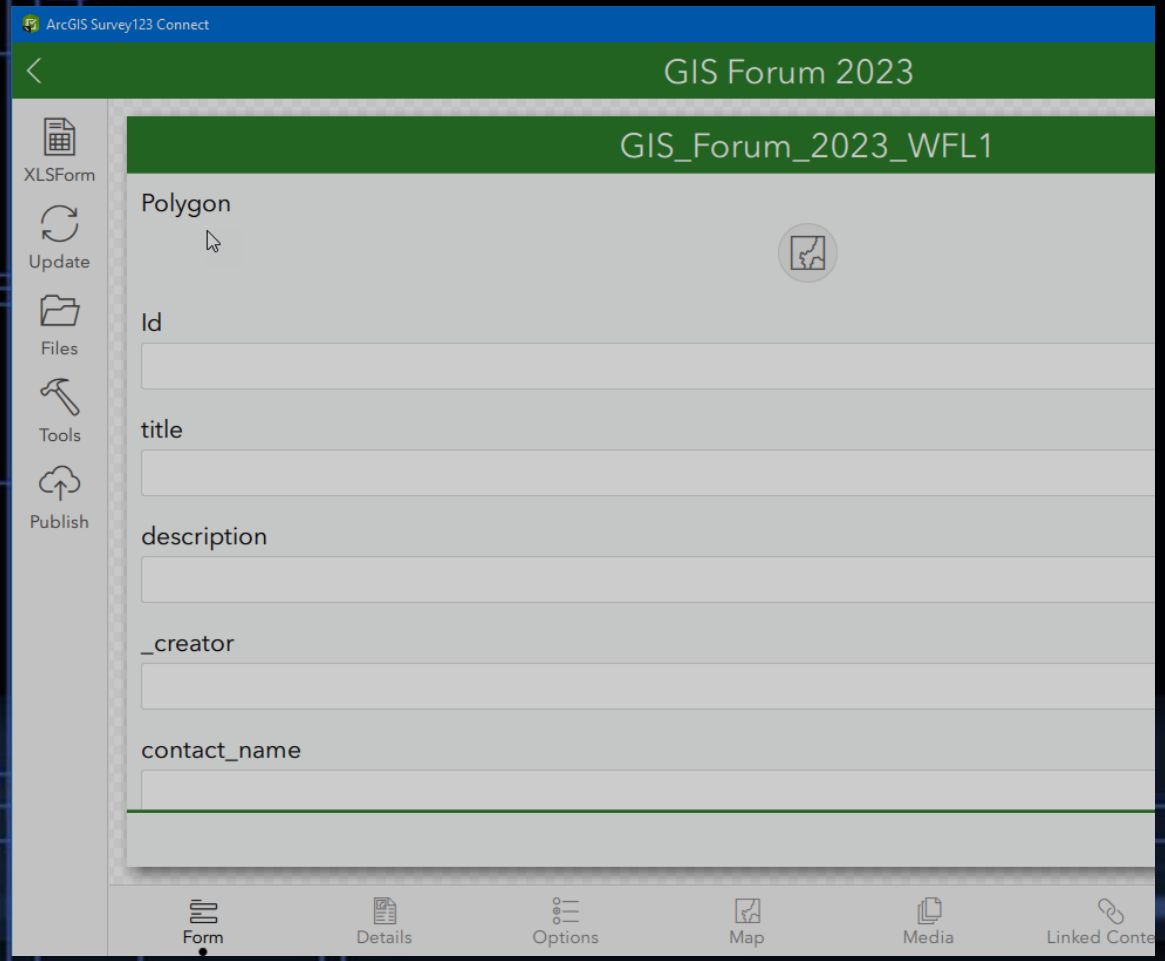
Survey123 Website – Survey Collaboration, Analysis & Curation

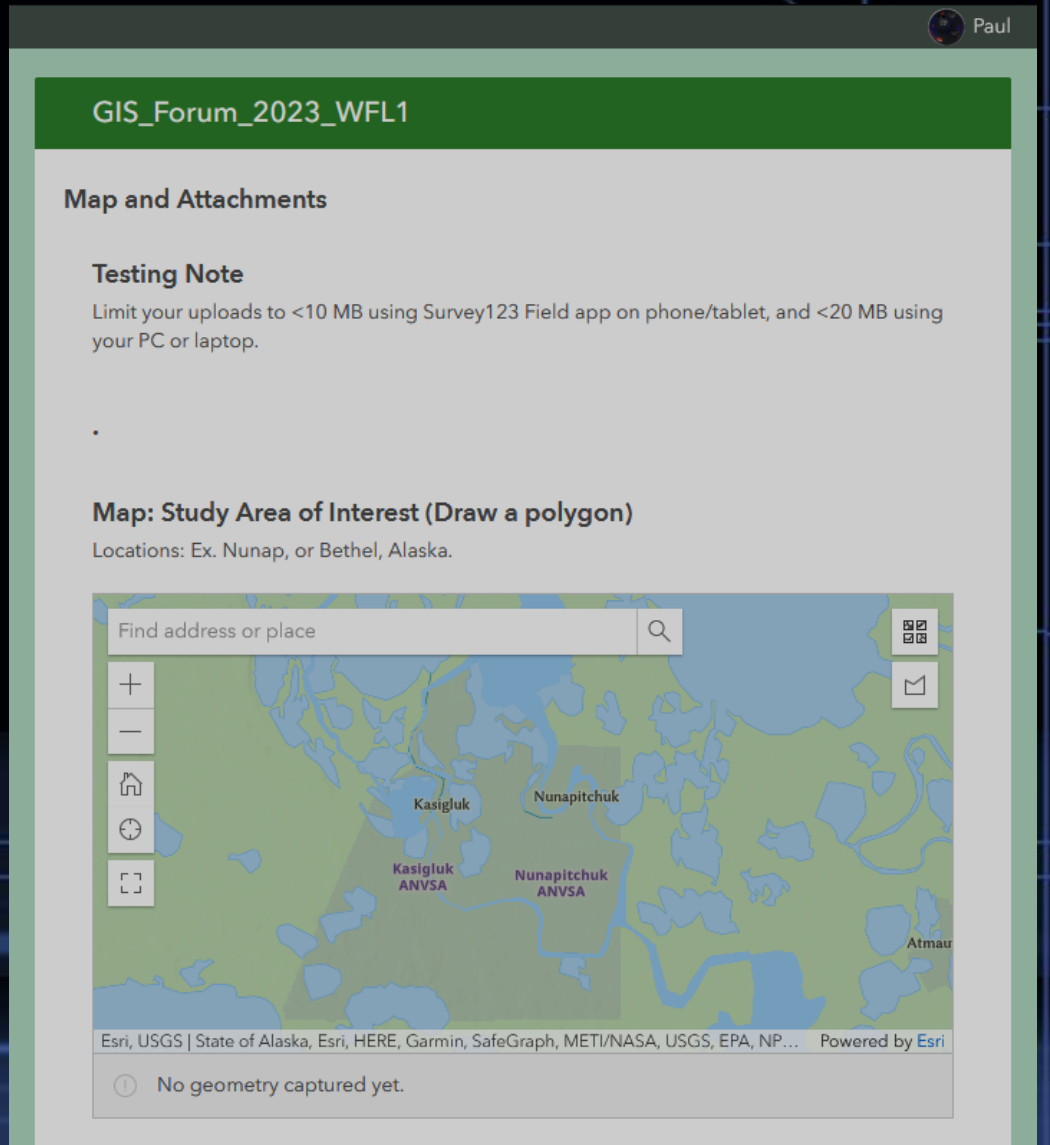
ArcGIS Enterprise Portal – Survey Management & Storage

Survey Share Process – Survey123 Website

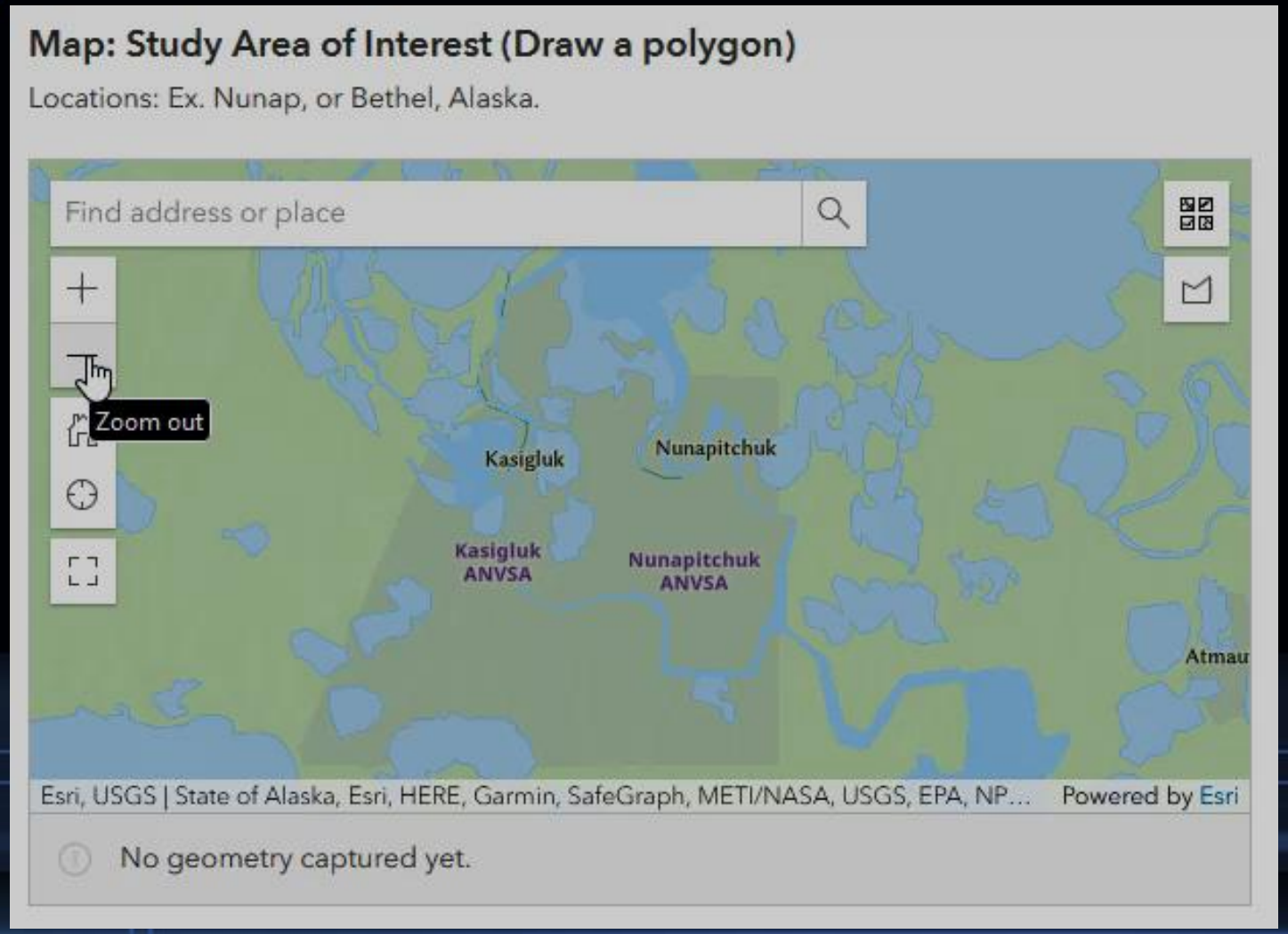


Survey Share Process – Survey123 Website



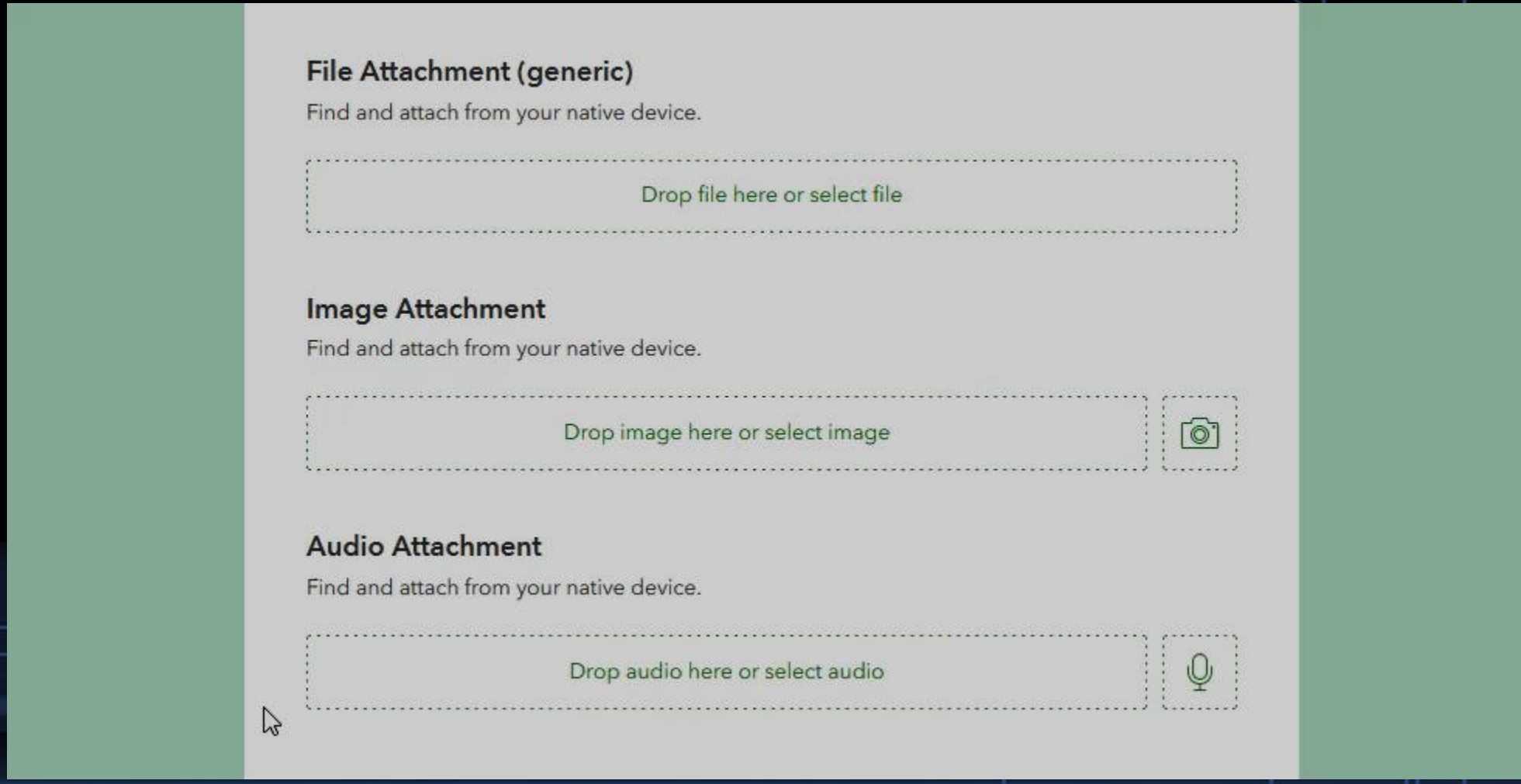


Survey Share Process – Survey in Action



Survey Share Process – Survey in Action

Attachments



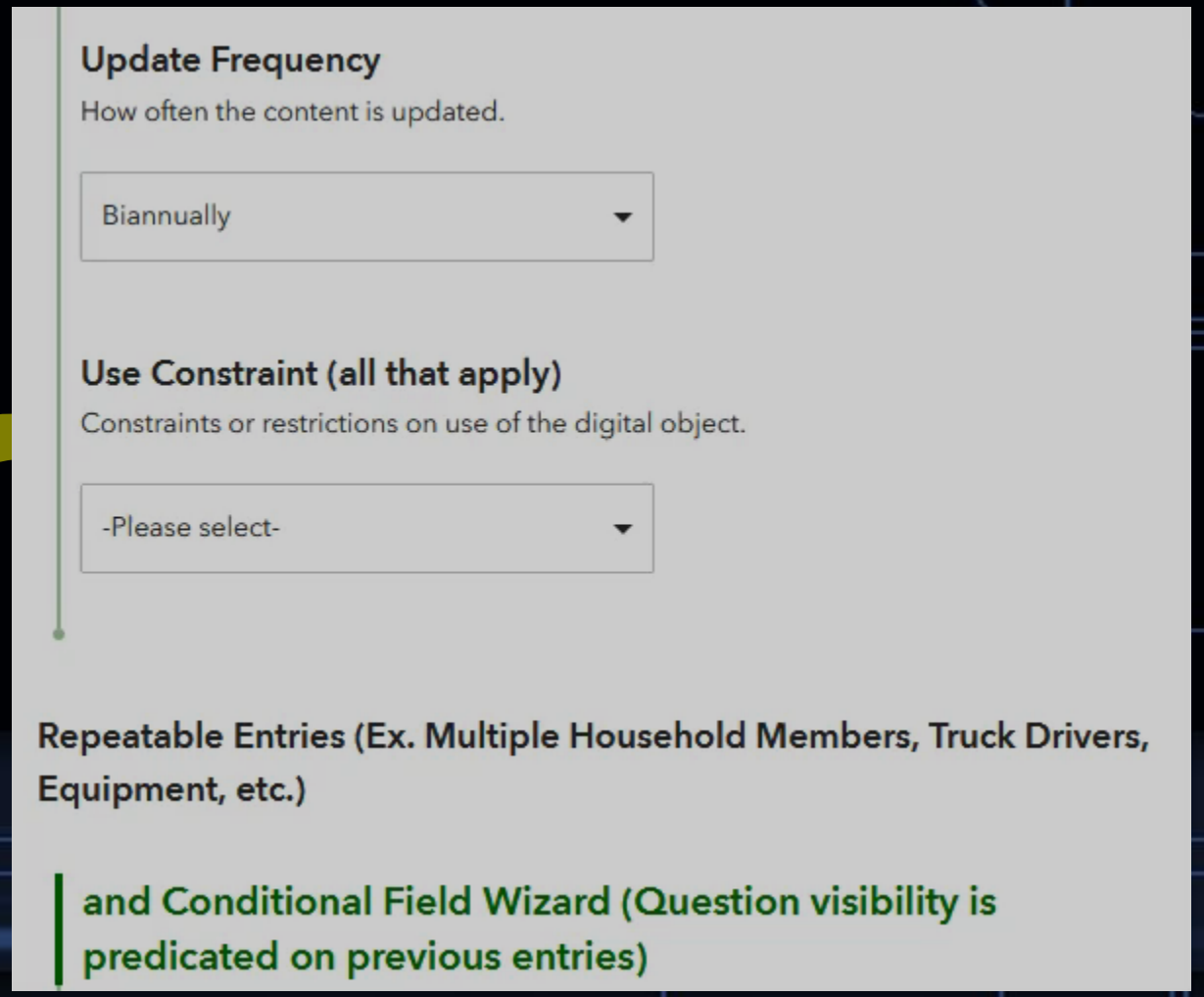
Survey Share Process – Survey in Action

Map Geoshape & Attachments – Excel Form

	A	B	C	D
1	type	name	label	hint
2	begin group	page_0	Map and Attachments	Testing Note: Limit your uploads to <10 MB usi
3	note		Testing Note	Limit your uploads to <10 MB using Survey123 F
4	note		.	
5	geoshape	NNA_Input_Form_polygon	Map: Study Area of Interest (Draw a pc	Locations: Ex. Nunap, or Bethel, Alaska.
6	file	NNA_Input_Form_file	File Attachment (generic)	Find and attach from your native device.
7	image	NA_Input_Form_image	Image Attachment	Find and attach from your native device.
8	audio	NNA_Input_Form_audio	Audio Attachment	Find and attach from your native device.
9				
10	end group			
11				
12	begin group	page_1	Survey Questions (Controlled Lists, Conditional Visibility)	
13				
14	text	title	Title	A name given to the data layer.
15	text	description	Description	An account of the data layer. The description m
16	text	contact_name	Contact Name	Name of a person who is a responsible point o
17	select_one list_data_layer_contact_affiliation_or_other	contact_affiliation	Contact Affiliation	Organizational affiliation for the responsible p
18	text	contact_affiliation_other	Other Contact Affiliation	

Survey Share Process – Survey in Action

Single & Multiple Lists



Survey Share Process – Survey in Action

Single & Multiple Lists – Excel Form

18	text	contact_affiliation_other	Other Contact Affiliation	
19	select_multiple list_data_layer_contact_role_or_other	contact_role	Contact Role	(Recommended) Select one or more roles of th
20	text	contact_role_other	Other Contact Role	
21	select_one list_data_layer_accessibility	accessibility	Accessibility	How accessible is the data? Is the data readily a
22	select_one list_data_layer_completeness	completeness	Completeness	A assessment of the level of completeness of t
23	select_one list_data_layer_data_stage	data_stage	Data Stage	Is the data in a stage that can easily be used for
24	dateTime	date_last_updated	Date Last Updated	The date the digital object was last updated.</
25	select_one list_data_layer_keyword_vocab_or_other	keyword_vocab	Keyword Vocabulary	(Recommended) Vocabulary for subject matter
26	text	keyword_vocab_other	Other Keyword Vocabulary	Internet address to your preferred vocabulary o
27	select_one list_data_layer_update_freq_or_other	update_frequency	Update Frequency	How often the content is updated.
28	text	update_frequency_other	Other Update Frequency	
29	select_multiple list_data_layer_use_constraint	use_constraint	Use Constraint (all that apply)	Constraints or restrictions on use of the digital
30				
31	end group			
32				
33	begin group	page_2	Repeatable Entries (Ex. Multiple House	Metadata elements that are strongly recommer
34	begin repeat	Repeat_Table	and Conditional Field Wizard (Question visibility is predicated on previous entries)	
35				
36	text	attribute_name	Item Name	Name of the attribute (field, variable) within th

survey | choices | settings | Version | Question types | Appearances | Field types | Reference | Reserved

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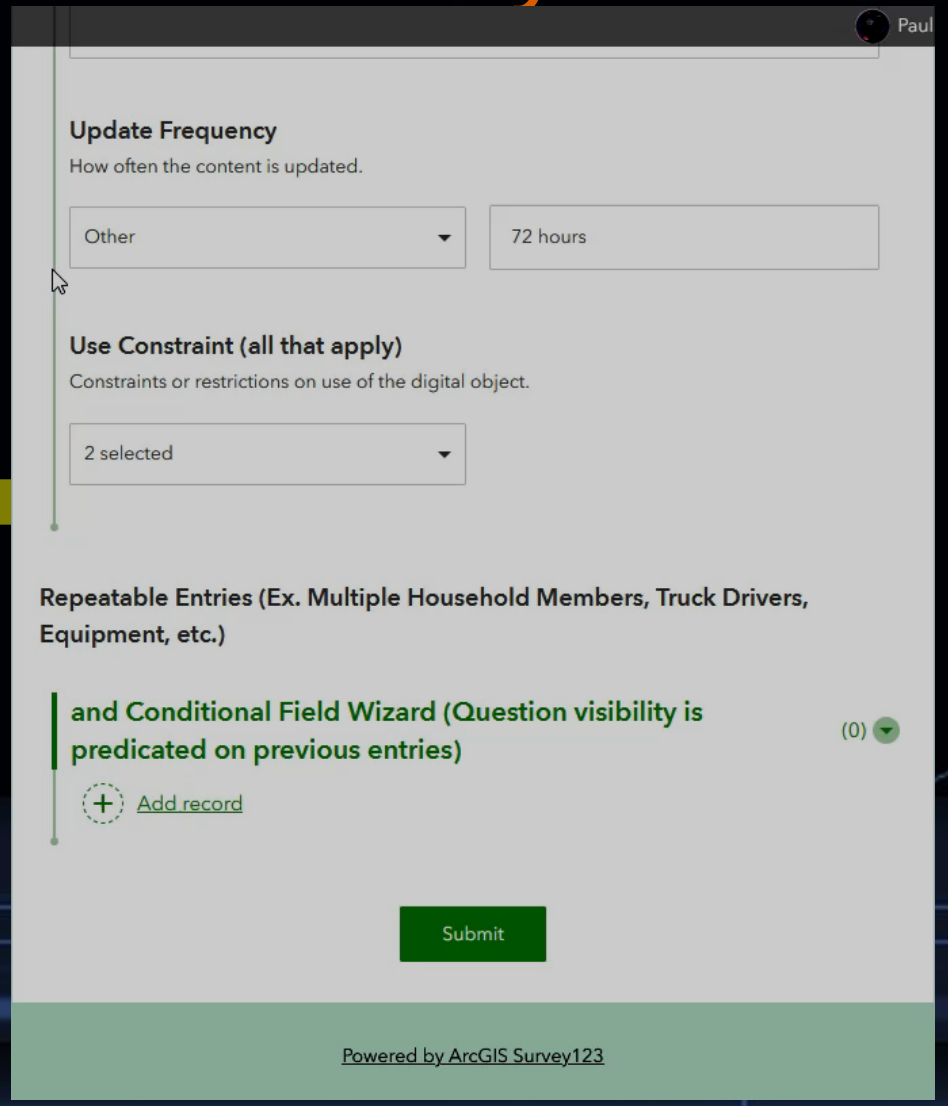
Survey Share Process – Survey in Action

- Repeatable Entries
  - Define x number
  - Unlimited



Survey Share Process – Survey in Action

Repeatable Entries – Excel Form

33	begin group	page_2	Repeatable Entries (Ex. Multiple House	Metadata elements that are s		
34	begin repeat	Repeat_Table	and Conditional Field Wizard (Question visibility is predicated on previ			
35						
36	text	attribute_name	Item Name	Name of the attribute (field,		
37	text	attribute_description	Item Description	Description of the item (field		string-length(${attribute_name}) > 0
38	select_one list_page_2_attribute_domain_type	attribute_domain_type	Item Domain Type	Type of domain for values in		string-length(${attribute_name}) > 0
39	text	attribute_codeset_name	Item Code Set Name	Name of coded value domain		selected(${attribute_domain_type}, 'code set')
40	text	attribute_codeset_url	Item Code Set URL	URL reference or service link		selected(${attribute_domain_type}, 'code set')
41	text	attribute_value_range_min	Attribute Value Range Maximum	Max Value. A range domain s		selected(${attribute_domain_type}, 'range')
42	text	attribute_value_range_max	Attribute Value Range Minimum	Min Value. A range domain sp		selected(${attribute_domain_type}, 'range')
43	text	attribute_domain_value_descri	Attribute Domain Value Description	Description of the valid value		string-length(${attribute_name}) > 0
44	text	attribute_domain_value	Attribute Domain Value	Valid value for the item.		string-length(${attribute_name}) > 0
45						
46	end repeat		Repeat_Table			
47	end group					

2341	list_data_layer_boundary_type	Drainage District	Drainage District
2342	list_data_layer_boundary_type	Municipal Utility District (MUD	Municipal Utility District (MUD)
2343	list_page_2_attribute_domain_type	code set	Code Set
2344	list_page_2_attribute_domain_type	enumerated list	Enumerated List
2345	list_page_2_attribute_domain_type	range	Range
2346	list_page_2_attribute_domain_type	table join	Table Join
2347	list_page_2_attribute_domain_type	text	Text
2348	list_page_2_file_format_or_other	SHP	SHP
2349	list_page_2_file_format_or_other	LAS	LAS
2350	list_page_2_file_format_or_other	LAZ	LAZ

survey | choices | settings | Version | Question types | Appearances | Field types | Reference | Reserved

Ready Scroll Lock Accessibility: Investigate

Survey Design, Share & Manage Process

ArcGIS Pro – Create Feature Class & Publish (desktop)

Survey123 Connect – Build Survey & Publish (desktop)

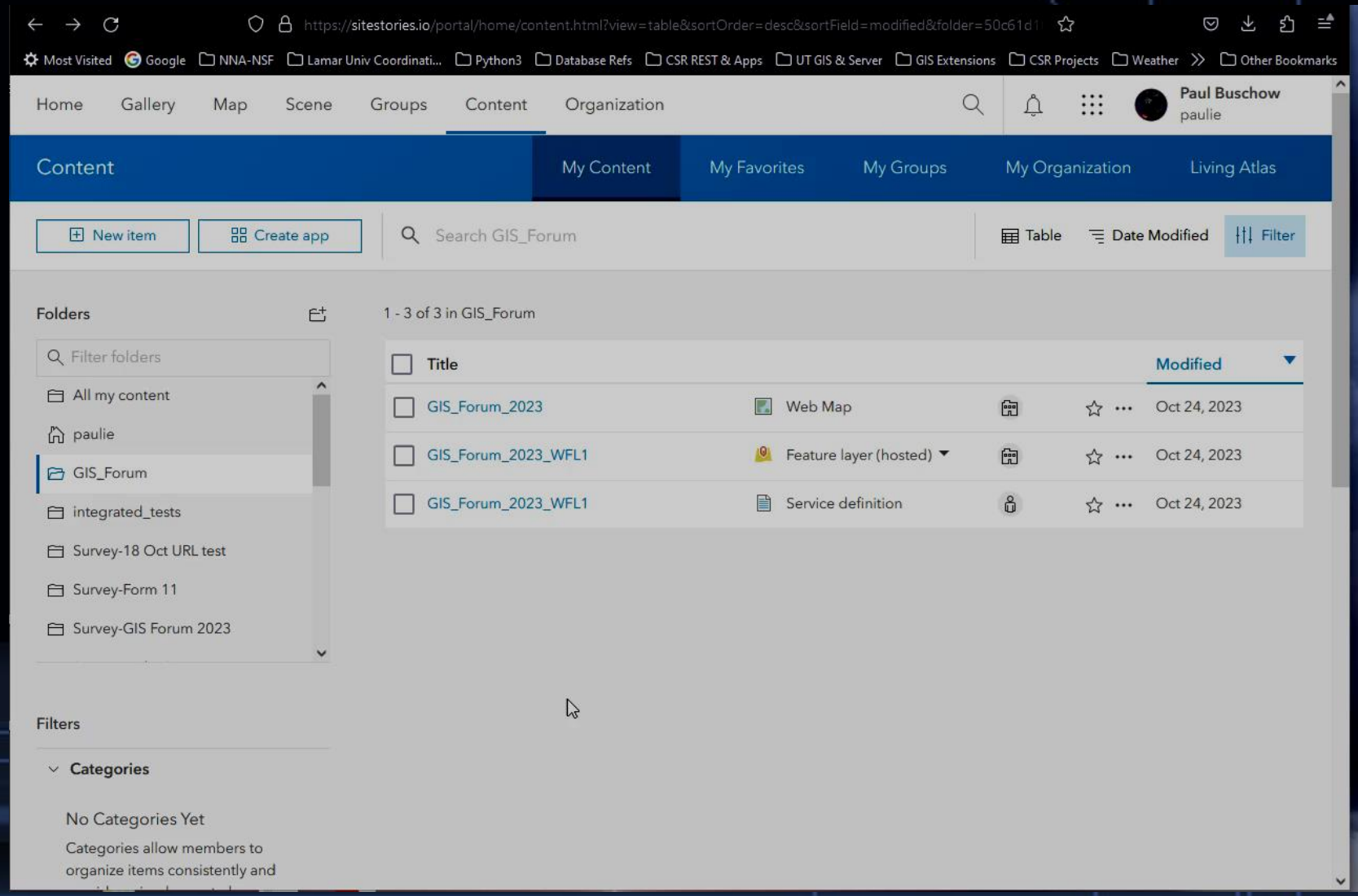
Survey123 Website – Survey Collaboration, Analysis & Curation

ArcGIS Enterprise Portal – Survey Management & Storage

Survey Design Process – ArcGIS Portal

Survey Management & Storage

- Manage Members
- Create Groups
- Control Permissions and User Types
- Manage Content & Create Derivative Products



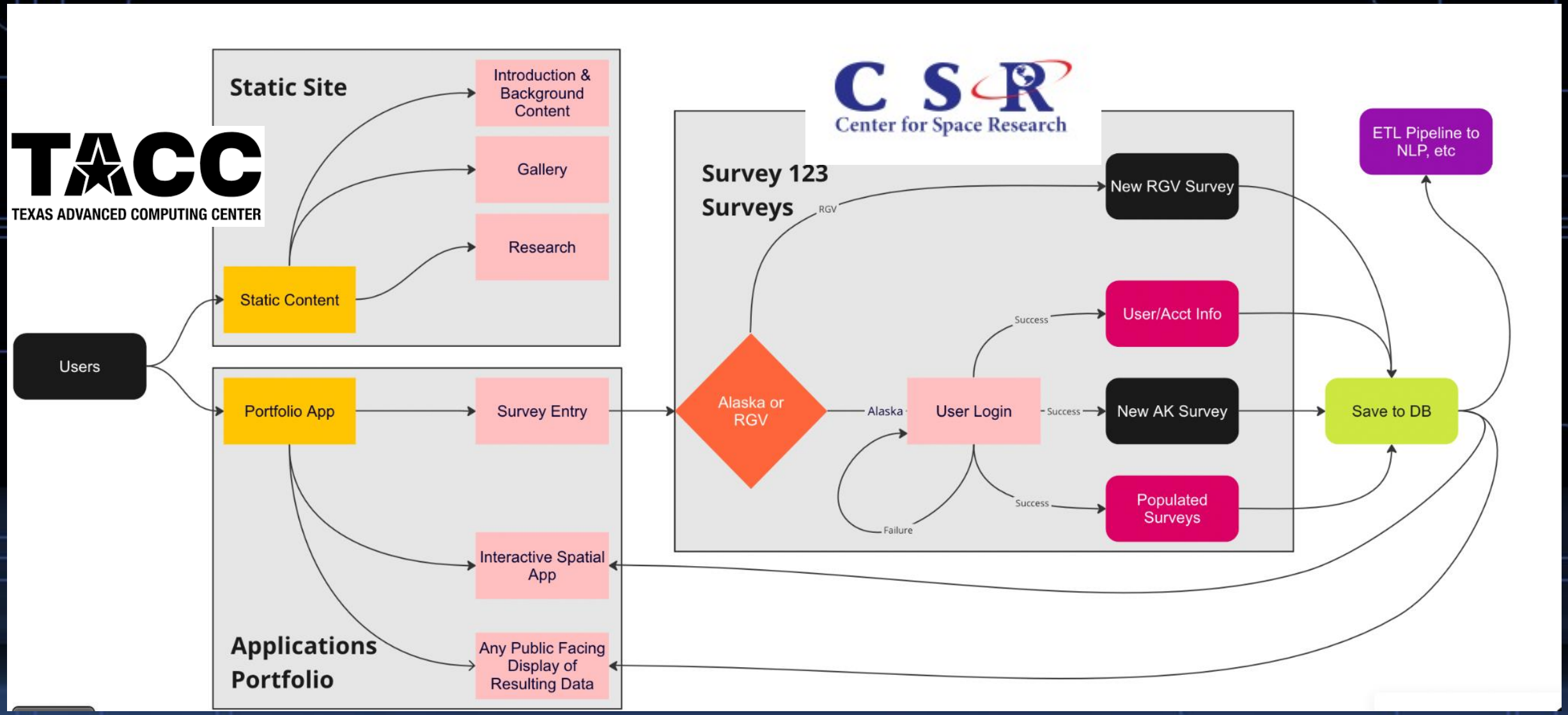
Metadata Collection Using Survey123 Connect

Topics for Today

- Metadata Specification
- Survey123 Connect
- Workflow
- Curation

Bethel, Alaska Home, May 22, 2013

Workflow & Architecture



Metadata Collection Using Survey123 Connect

Topics for Today

- Metadata Specification
- Survey123 Connect
- Workflow
- Curation

Widespread Water Contamination in Alaska
KTVF, Sep. 25, 2019

Metadata Curation

- Data Usability Rubric
  - Data evaluation criteria largely based on provided metadata
    - Accessibility
    - Use Constraints
    - Currentness
    - Attribution
    - Completeness
    - Spatial Accuracy
    - Data Stage
    - Metadata

Use Constraints	To what degree is the data restricted vs freely available to the public? Does the data require a data use agreement and if so, can some less restricted data be shared? Can the data be shared with researchers and/or partners for vetted research purposes? Can the data be made available to the public under certain terms of use or can it be fully available to the public without terms?	1 - Restricted - Restricted information is highly sensitive and its use should be limited on a need-to-know basis. Data usable only with Data Use Agreement. If disclosed, there would be a significant legal impact to the business. 2 - Confidential - Complete data usable only at the team level. If disclosed, the confidential information could negatively affect your organization. 3 - Internal – Complete data usable by researchers and/or partners for vetted research purposes with limited controls. If disclosed, internal information has a minimal impact to the organization 4 - Limited – Data usable by public under designated License or Terms of Use. 5 - Public - Data are public domain.
Currentness	How current is the data? How often is it updated? This mainly applies to the non-static data sets that are expected to change through time. For instance, a data set that should be updated monthly, but has not been updated in five years should receive a lower score.	1 – unknown or never updated 3 – infrequently updated 5 – frequently updated (or updates rarely needed)

Summary

- Data is largely unusable and difficult to find without effective metadata
- Continue testing novel ways that encourage participation in metadata creation – keep it simple!

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