




Understanding the ArcGIS Survey123 REST API

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Agenda

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Survey123 APIs

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- **ArcGIS API for Python: Survey module**
 - SurveyManager
 - Survey

ArcGIS Survey123

Take your surveys to new places.

Get Started

<https://developers.arcgis.com/survey123/>



Get started

Learn of the different ways you can extend Survey 123 to suit your needs.

REST API Reference

Documentation for selected Survey123 operations using a REST API.

Web app API Reference

Documentation for all Survey123 web app JavaScript properties and methods.

Python API Reference

Documentation for building a url to open a Survey123 form with Python.

Version 3.11 · December 2020



Release notes



Download AppStudio



Survey123 REST API

Survey Management

Survey123 REST API: survey management

- Host URL: <https://survey123beta.arcgis.com/api>
- /survey/search
- /survey/create
- /survey/<itemId>/form
- /survey/<itemId>/share
- /survey/<itemId>/delete
- /encodeUrlParams

/survey/search

- Method: GET / POST
- workflow
 - Search surveys in ArcGIS online / Enterprise

- Parameter

Name	Type	Details
token	string	token
portalUrl	string	
searchString	string	for example: <code>title:test</code>
searchSurveyType	string	<ul style="list-style-type: none">- <code>owned</code> : search owned surveys- <code>shared</code> : search shared surveys- <code>coauthored</code> : search coauthored surveys
isPublished	boolean	only search the published surveys
num	number	max number of search results per page
start	number	start page number

/survey/create

- **Method: POST**

- workflow

- create a folder
- create an item
- create a source feature service
- create a fieldworker view feature service
- add relationship among item / source feature service / view feature service

- **Parameter**

Name	Required	Description
title	true	survey title
tags	true	survey tags, use comma to separate
token	true	token
description	false	survey description
thumbnailUrl	false	survey thumbnail url
typeKeywords	false	please use comma to separate type keywords
form	false	<u>survey form json</u> . Please encodeURIComponent if it contains HTML tag
portalUrl	false	portal url, default is https://www.arcgis.com

/survey/<itemId>/share

- **Method: POST**
- share a survey to fieldworker / stakeholder / co-author
 - Form item
 - Feature service views
 - Related items
 - Report template
 - Web map

- **Parameter**

Name	Required	Data Type	Description
itemId	true	string	survey item id
token	true	string	token
sharingType	true	string	fieldworker / stakeholder / coauthor
sharingParams	true	object	{everyone: boolean, org: boolean, groups: string[]} } similiar to the request parameters of shareItems
portalUrl	false	boolean	portal URL, default is https://www.arcgis.com

/survey/<itemId>delete

- **Method: POST / DELETE**
- **Delete a survey, including**
 - Form item
 - Feature service source / views
 - Related items
 - report templates
 - Web map
 - Folder (if not empty, rename it)

- **Parameter**

Name	Required	Description
token	true	token
portalUrl	false	portal url, default is https://www.arcgis.com

Survey123 Management REST API

This sample notebook will demonstrate ways you can use the Survey123 Management REST API. This sample will cover the following workflows:

- Search survey
- Get survey form JSON
- Create new survey
- Share survey
- Delete survey

```
In [ ]: # These imports are needed to process the Survey123 Report requests
import requests
import webbrowser
import json
from arcgis.gis import GIS
from getpass import getpass

pwd = getpass()
gis = GIS(username="NinjaGreen", password=pwd)
token = gis._con.token

survey_api_url = "https://survey123beta.arcgis.com/api/survey/"
portalUrl = "https://www.arcgis.com"

print ("...Connected to GIS")
```

Search survey

```
In [ ]: search = "search"
```

Demo

Zheng Liu



Survey Report REST API

Yue Zhao

What is the REST API for Survey Report?

The screenshot shows the ArcGIS Survey123 interface for a survey titled 'Daily Fish Log'. The left sidebar contains configuration options for the report, including 'Choose records to include', 'Select a template', and 'Output settings'. The main area displays a map of the Atlantic Ocean and a table of survey records.

Date	Fishing License	Hours Fished	Waterbody Name	Weather	Total Fish Count	Maximum Fish Size (in inches)
Aug 22, 2019	testFieldApp	2	test	☁	3	5
Aug 14, 2019	[p	13	gfds	☁	3	
Feb 8, 2019	1112-updated by survey123_release (non-owner)	1			1	12
Mar 28, 2019	Test123	1		☁	0	
Feb 8, 2019	sdfsdf	1			1	11
Feb 8, 2019	sef	1			1	22
Feb 8, 2019	aa	1			0	
Feb 8, 2019	qq	1			1	22

This thumbnail shows a report form titled 'My Daily Fishing Log' from the Australian Fisheries Management Authority. It includes fields for date, fishing license, hours fished, location, and waterbody name. A table for fish catch is also present with columns for species, size, weight, condition, and photo.

Species	Size	Weight	Condition	Photo
\$!{ConditionSelected: 'poor'} Aggressive	\$!{ConditionSelected: 'normal'} Good	\$!{ConditionSelected: 'poor'} Unhealthy	\$!{ConditionSelected: 'dead'} Dead	\$!{Image} (size: 0.150) \$!{Caption} (Fish)

This thumbnail shows the same report form with actual data. The date is 09/19/2017, the fishing license is 'Standard Licence', and the number of hours fished is 10. The location is a map of a waterbody, and the waterbody name is 'Myud, Lake'. The weather is 'Partly Cloudy'.

Species	Size	Weight	Condition	Photo
Gar, not a fish	5	4	<input type="checkbox"/> Aggressive <input checked="" type="checkbox"/> Good <input type="checkbox"/> Unhealthy <input type="checkbox"/> Dead	



What can be done with the REST API for Survey Report?

The REST API for Survey Report consists of the following operations and resources, available at <https://survey123.arcgis.com/api/featureReport>

- `quickReference` (GET)
- `createSampleTemplate` (POST only)
- `checkTemplateSyntax` (POST only)
- `estimateCredits` (GET)
- `createSampleReport` (POST only, asynchronous)
- `createReport` (POST only, asynchronous)
- `jobs/<jobId>` (GET)
- `queryJobs` (GET)

Referenc: <https://developers.arcgis.com/survey123/api-reference/rest/report/>

Important Parameters for Survey Report Rest API

Name	Required	Description
featureLayerUrl	true	Feature layer or table URL.
surveyItemId	false	Survey itemId, to make the operation survey awareness. For instance, required for Multiple Choice question type in Survey123.
queryParameters	true	A JSON object whose value will be passed to the <u>query operation</u> which filters features/records to be printed.
templateItemId	true	The print template itemId in ArcGIS Online, item type should be Microsoft Word.
token	true	The token to access all resources in the request.
portalUrl	false	Default is <u>www.arcgis.com</u> . The portal which includes the print template item, survey item, webmap item etc.

** The API is also support for generating report from **feature service perspective**.

General workflow of using Survey Report REST API

1

Prepare report template

`/createSampleTemplate`



`/quickReference`

- Create on the report template as a sample page
- Return the syntax

MultipleChoice

The following syntax outputs the labels of selected choice items as a comma-separated string.

`$(multiplechoice)`

Additional syntax	Description
<code>\$(multiplechoice getValue:"")</code>	Outputs the values of selected choice items as a comma-separated string.
<code>\$(if {multiplechoice selected:"Choice_1"}... "{}")</code>	Returns true if "Choice_1" (choice value) is selected. Otherwise, returns false.
<code>\$(multiplechoice countSelected)</code>	Outputs the count of selected choices.
<code>\$(multiplechoice selectedAt:2)</code>	Returns the value of the second choice item (indexed from zero). If the given index does not exist, returns an empty string.
<code>\$(multiplechoice checked:"Choice_1")</code>	Outputs a checked checkbox if "Choice_1" (choice value) is selected. Otherwise, outputs an unchecked checkbox. Input <code>\$(multiplechoice checked:"Choice_1") Choice 1</code> <code>\$(multiplechoice checked:"Choice_2") Choice 2</code> <code>\$(multiplechoice checked:"Choice_3") Choice 3</code> Output <input type="checkbox"/> Choice 1 <input checked="" type="checkbox"/> Choice 2 <input type="checkbox"/> Choice 3
<code>\$(multiplechoice appearance:"bullets")</code>	Outputs the labels of selected choice items as a bulleted list.

depending on the report template.
This template.
template

General workflow of using Survey Report REST API

1

Prepare report template

/createSampleTemplate



/quickReference



/checkTemplateSyntax

- Check template's syntax which may lead to failure to generate report.
- Returns a JSON object which contains an array of syntax errors.

A JSON object which contains an array of syntax errors.

```
{
  "success": true,
  "individualSectionCount": 1,
  "summarySectionCount": 2,
  "details": [
    {
      "type": "(if feasible) pre-defined error type",
      "description": "error description 1"
    },
    {
      "type": "pre-defined error type",
      "description": "error description 2"
    }
  ]
}
```

General workflow of using Survey Report REST API

2

Generate report

`/estimateCredits`

- Estimate how many credits are required for a task

with a JSON object which contains the estimation result or error message.

- Return a message: Succeeded or error

```
{  
  "success": true,  
  "resultInfo": {  
    "totalRecords": 3,  
    "cost": 1.5  
  }  
}
```

General workflow of using Survey Report REST API

2

Generate report

/estimateCredits

/createSampleReport

- A task resource that can be used to refine and generate any formal report
- Returns: a JSON object containing

ItemDetails

ItemReference

ItemReference

ChainOfCustodyType

Standard

QAStatus

Awaiting Review

CHRecordCount

QASubmitCheck

ItemGeopoint



General workflow of using Survey Report REST API

2

Generate report

/estimateCredits

/createSampleReport



/createReport/submitJob

- A task resource that represents a report printing tool based on a Word document template that can be leveraged by any feature layer. **/queryJobs**

- Returns: a JSON object contains jobId and jobStatus submitted jobs. Only the latest 10 jobs of the user will be returned.

- The job resource represents a job submitted using the submitJob operation. **jobStatus**
- The response provides basic information about the job such as the job ID, status, and messages. Additionally, if the job has **esriJobSucceeded**, **esriJobPartialSucceeded**, or **esriJobFailed** successfully completed, it provides information about the results as well as the input parameters.

URL / ArcGIS Online itemID

ArcGIS Survey123 BETA - My Surveys Help

NinjaGreen (Lloyd)

Water Quality Inspection Overview Design Collaborate Analyze Data Settings

7/12/18 - 2/9/21 Filter Report Export Open in Map Viewer Form view

Selected records to include
Selected records only (0)
Records in the table (186)
Records selected in the table or map

Report template
You does not have a report template yet. Use Manage templates to create your first template.

Report settings

Water Quality Inspection x Water Samples History x

Waterbody Name	Waterbody Type	County	Access Type	Water Station Advisory	Water Station Advisory Description	Water Station Advisory Start Date	Water Station Advisory End Date	Station ID
Lake Walker Pond Number Two	Pond	Montgomery	Private Access	No	Algal Bloom	Oct 9, 2018, 6:57 AM	Oct 11, 2018, 6:57 AM	3,991
Big Pool	Pond	Washington	Public Access	No				5,511
Atkisson Reservoir	Reservoir	Harford	Public Access	Yes		Jun 9, 2020, 2:23 AM	Jun 13, 2020, 2:23 AM	
Commencement Bay	Lake	Pierce	Public Access	No				
Pine Lake	Lake	Montgomery	Public Access	Yes	algal bloom	Apr 2, 2020, 1:14 AM	Apr 4, 2020, 1:14 AM	3,096
Saint Clair Farm Pond	Pond	Frederick	Private Access	No				4,842
Beaverdam Pond	Pond	Baltimore	Public Access	No				4,555
Lake Bernard Frank 2	Lake	Montgomery	Private Access	No				
Fishing Creek	Reservoir	Frederick	Public Access	No				3,869

Demo

Zheng Liu

Summary

The background features a complex, abstract graphic design. It includes a globe in the lower right, a molecular structure in the lower left, and various flowing, ribbon-like shapes in shades of blue, red, and yellow. The overall aesthetic is scientific and modern.

Summary

- Survey management REST API endpoint
 - /create, /share, /form, /delete, /encodeUrlParams
 - Host URL: <https://survey123beta.arcgis.com/api>
 - /publish (will release in the near future)
- Survey Report REST API endpoint
 - A maximum of 1,000 reports can be printed in a single report request.
 - Your map will not appear in your report if the map is using a web map version earlier than 2.0, which was released in July 2014.
- For ArcGIS Enterprise
 - Report templates are only supported with ArcGIS Enterprise 10.5 and later.
 - Printing using report templates does not work with ArcGIS Enterprise deployments that aren't public facing. Attempting to do so will present a **getaddrinfo ENOTFOUND** error.
 - Printing using report templates does not work with ArcGIS Enterprise deployments that use Integrated Windows Authentication (IWA).



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