Best Practices for Geoprocessing Services

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Overview

- What is a Geoprocessing Service
- Input
- Process
- Demo: Common Geoprocessing Troubleshooting
- Output
- Question Time
Geoprocessing Service

- What is a Geoprocessing Service?
Input
BEST PRACTICE
Input data type

Data types for geoprocessing tool parameters

ArcMap 10.4 | Other versions

- Where data types are needed
- Determining a parameter’s data type
- String syntax
- Data types and scripting objects

Geoprocessing is built around the concept of data types. Every tool parameter has an associated data type that defines the contents of the variable. Some simple data types are string (any set of alphanumeric characters), Boolean (a true/false value), and long (an integer value between -2,147,483,648 and 2,147,483,647). In addition to these simple data types, there are dozens of other data types built specifically for data found in ArcGIS, such as field, coordinate system, and extent.

Documentation for each data type is found in [Geoprocessing_data_types.pdf](http://www.adobe.com/products/acrobat/readstep.html). If this link doesn't work, you can open the document (Geoprocessing_data_types.pdf) from the \arcgis\Documentation folder in your ArcGIS for Desktop installation location.

To view this document, you need a copy of Adobe Reader, which you can download free from [http://www.adobe.com/products/acrobat/readstep.html](http://www.adobe.com/products/acrobat/readstep.html).
Input

- Input mode
  - User defined value
  - Choice list
  - Constant value
Input mode
Input mode
Constant value
Input mode

Choice list
Input mode
User defined value
Share Web Tool from ArcGIS Pro

• Web tools allow you to share your analysis with others in your organization's portal. Data is stored and processing occurs on a server that is federated with your portal, which makes it possible for a number of client apps in the ArcGIS platform to run the analysis, even at the same time.
Submit Job (Buffer)

Distance [value or field]: (GPLinearUnit)

```
{"distance": 10,
 "units": "esriMiles"
}
```

Method: (GPString)

PLANAR

Options:

Output Spatial Reference:

Process Spatial Reference:

ReturnZ:

- True
- False

ReturnM:

- True
- False

Format:

HTML

Submit Job (GET)  Submit Job (POST)
Process
BEST PRACTICES
Process
Publishing – Essential Vocabulary

• **Project data** - Term used by geoprocessing to describe input data that is not a parameter.
Process
Publishing – Essential Vocabulary

• data store – A catalog of data that can be found & accessed by ArcGIS Server. (Not to be confused with ArcGIS Data Store)
Process
The Publishing Process

- Script or model is scanned
- Project data identified

• If in the datastore, data store will be used
• If NOT in the datastore
  Package Workspace is created (data is copied to this location)

![Image of ArcGIS Server Properties]

/home/arcgis1031/arcgis/server/usr/directories/arcgisystem/arcgisinput/DataCopiedToServer.GIServer/extracted/v101

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Process

- ArcMap and ArcGIS Server have to be the same version.
Process

- Message Level of GP service
  - None
  - Error
  - Warning
  - Info
Process

- Message Level
  - None

ArcGIS REST Services Directory

Job Details: j1f7d7240077243d7b4f1ac0d9c14ab19 (Buffer)

Job ID: j1f7d7240077243d7b4f1ac0d9c14ab19

Job Status: esriJobSucceeded

Results:
- Output

Inputs:
- Distance_value_or_field
- Method
Process

- Message Level
  - Info
Process

- Execution mode
  - Synchronous
  - Asynchronous (long-running services)
Process
Execution mode

- Synchronous
Process

Execution mode

• Asynchronous
Process

- Search error code in resource center
000732: <value>: Dataset <value> does not exist or is not supported.

Description

The tool was unable to open your dataset.

There are several reasons that could prevent a tool from opening a particular dataset. Most fall into one of these categories:

- The tool could not find the data because the input data path was typed incorrectly or does not exist.
- The data is in an unsupported data format.
- The data is not supported by this particular tool.

Solution

Check the data path used to make sure it exists and can be accessed by ArcGIS. Correct as required and run the tool again.

If the data does exist, one of the following situations may have occurred:

- 64-bit processing does not support some data formats. Use another format. Learn more about supported data types and items

- An invalid subtype on the dataset. To fix this, go to the feature class properties, click the Subtypes tab, and reenter the default subtype code. If the default is 0, click the cell with 0 and reenter that same value. Apply the change by clicking OK. You will now be able to use the dataset.

- In ArcGIS Engine for Linux, a text file cannot be used as an input to a tool with an input table parameter, such as Copy Rows or Make XY Event Layer. On Windows you can convert the file to another format using the Table To Table tool.

- The Register_As_Versioned and Unregister_As_Versioned tools cannot run against a controller dataset, such as a Geometric Network, Topology, Network Dataset, or Terrain. To fix this, run these tools against the feature dataset that
Demo

BEST PRACTICE - TROUBLESHOOTING
Output

- Like input, there are different data types for output parameters
Output

- Output **MUST** be a model parameter
Output

- Select Layer By Attribute, Select Layer By Location
- The feature selection won't show up in application
Output

- Exceeded transfer limit
Output

• Set your output to be in scratchGDB or in_memory
• In a python script, use `os.path.join(arcpy.env.scratchGDB, "points")`
• scratchGDB is created in
  ...\arcgisserver\directories\arcgisjobs\<name>_gpserver\<jobid>\scratch
Questions?