

Creating Geoprocessing Services

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(also offered tomorrow, July 12, **16B, 10:15-11:30**)


Before we start.....

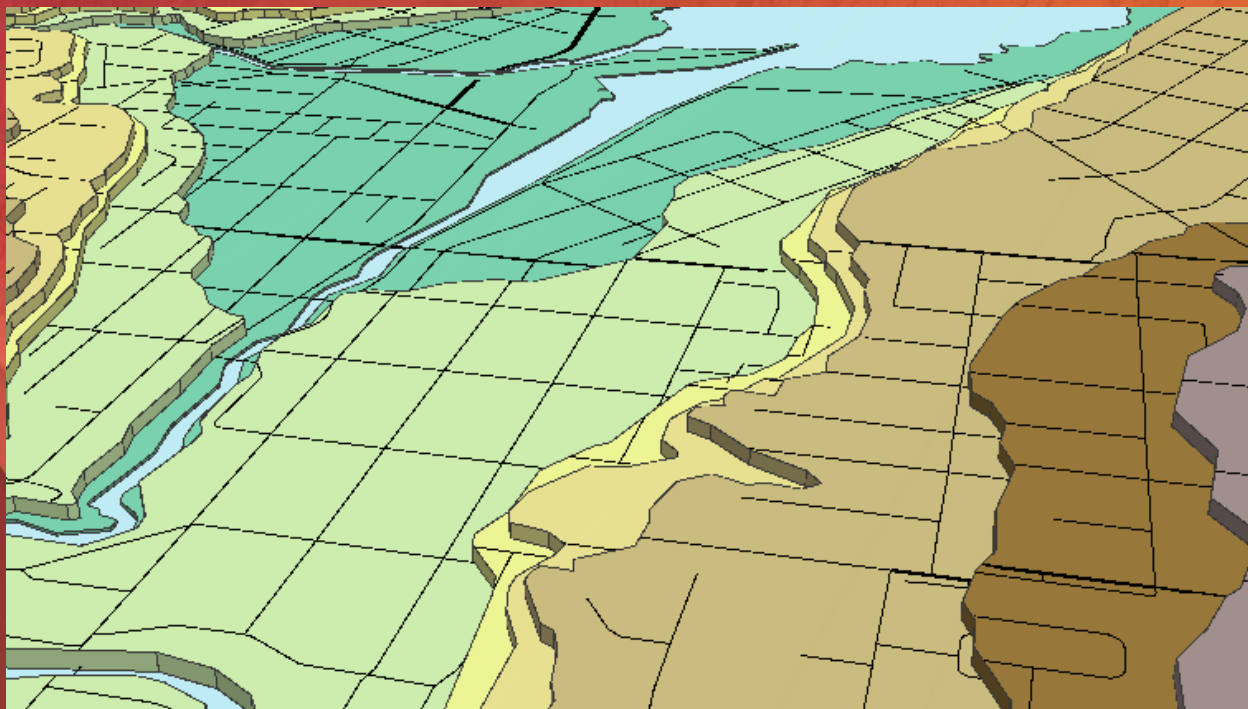
- *Both ArcMap and ArcGIS Pro*
- The terms “geoprocessing services” and “web tools” can be used interchangeably
- **Generally**, the **process** of publishing **is the same** between ArcMap and ArcGIS Pro
- Goals
 - To understand what you need to know when publishing (data, tool, etc)
 - To see the User Interface (UI) differences between ArcMap and Pro
 - Be aware of any “gotchas” or differences between the software versions

Design your service

- **Where does data come from?**
 - Already on the server
 - Upload
 - Feature layer from map/feature service
- **How do you want to view results?**
 - Client downloads and draws features (if needed)
 - Draw features with Map Service

Creating Geoprocessing Service workflow

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- Create tool
 - Document tool
 - Run tool
 - [AM] From Results Window, publish as service
 - [Pro] From the Share tab or Geoprocessing History
 - Set service name, parameters, etc in the Service Editor / Web Tool UI
 - Analyze
 - Publish
 - Consume in a WebApp, ArcMap, ArcGIS Pro etc.



1. Data on server

Supporting Text

Parameter transformation

- Parameter types converted to supported types when publishing
- You can update the Input Mode depending on the parameter type
 - User Defined Value: allows the end user to interactively add features or enter text and number values, files, etc
 - Choice list: allows the end user to select from a list of layers already on the server
 - Constant value: hard codes the parameter; the end user will not be able to provide input

Type: ☒ Required ☐ Optional

Input mode: User defined value ▼

Geometry Type:

- User defined value
- Choice list
- Constant value

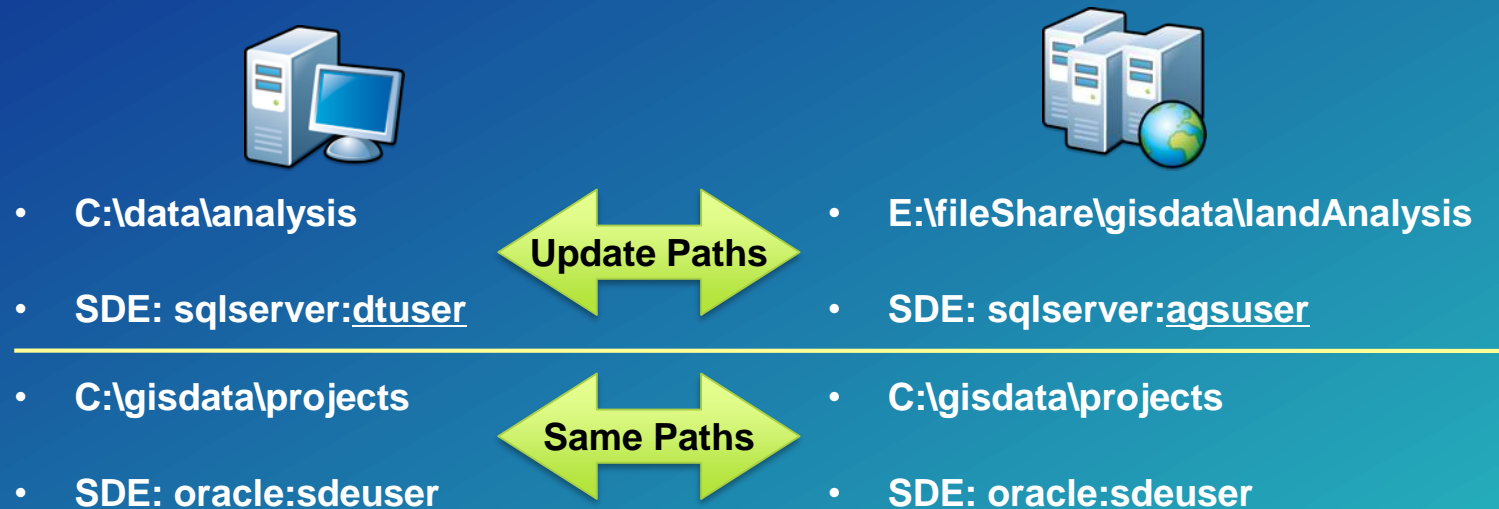
Type: ☒ Required ☐ Optional

Input mode: Choice list ▼

- User defined value
- Choice list
- Constant value

Data Store

- Data Store tells ArcGIS Server about your data
- Data Store acts as a lookup table
- Without a Data Store entry, all required data is copied to the server

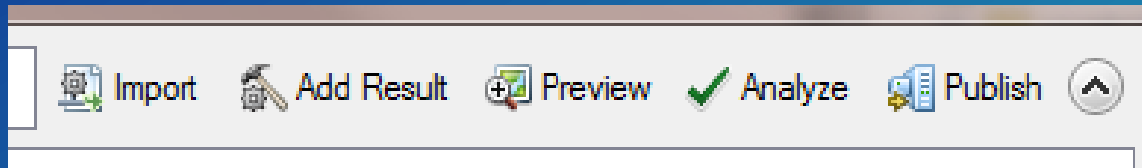


Data Store: <http://esriurl.com/datastore>

Note: Set the federated server of your Portal when publishing with ArcGIS Pro

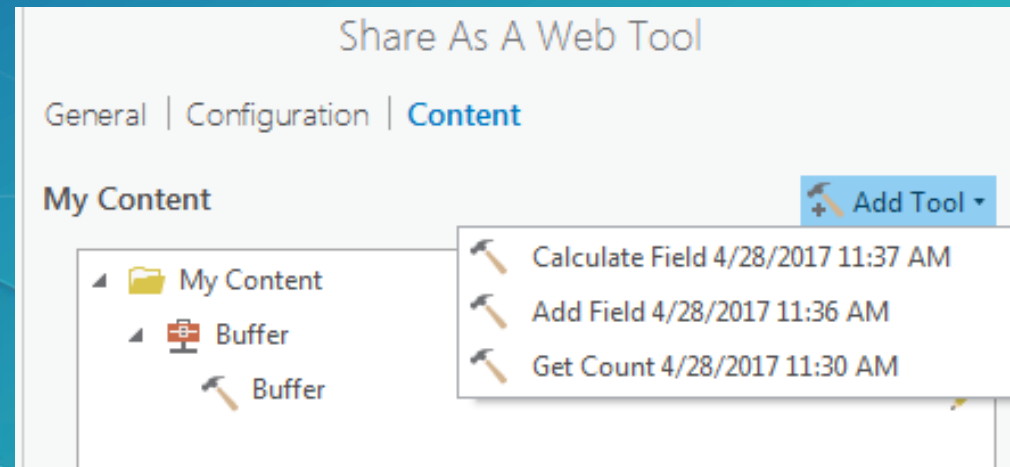
Service Editor (ArcMap)

- Import configuration settings
- Multiple results = multiple tasks
- See how the task will look to someone consuming from Desktop
- Analyzer errors and warnings



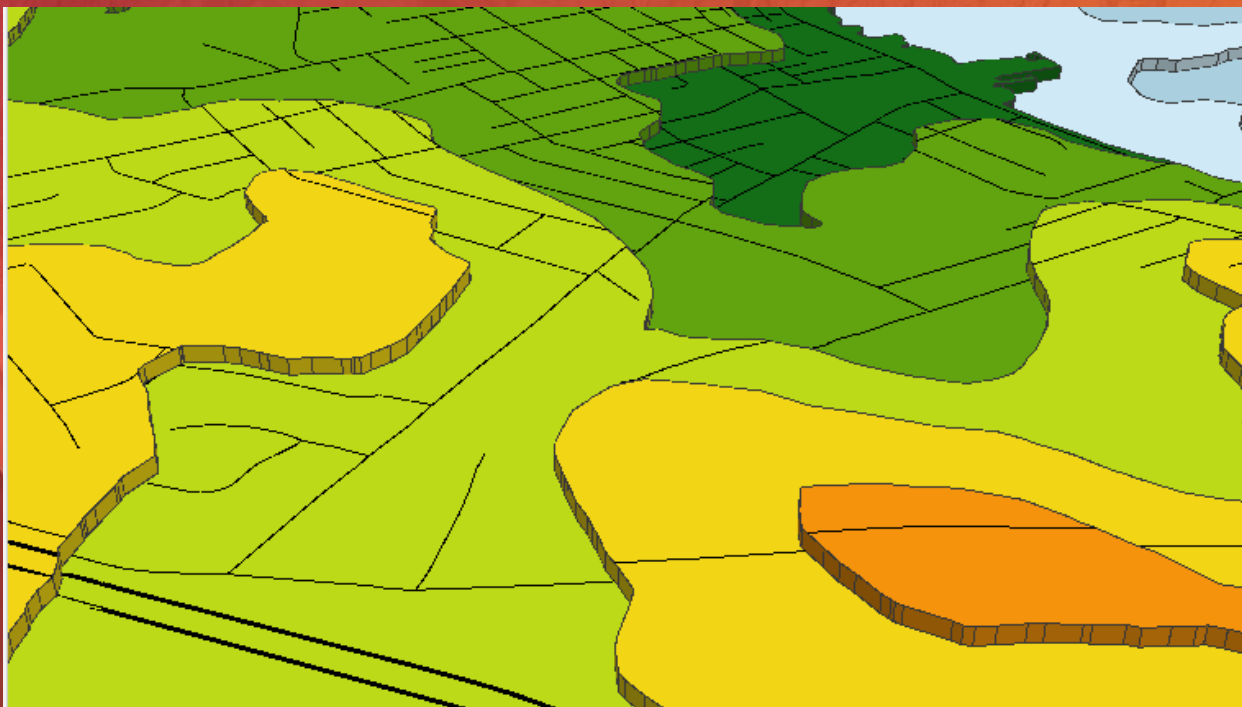
Share as a Web Tool (ArcGIS Pro)

- Multiple history items = multiple tools
- Analyzer errors and warnings



Execution Mode

- **Execution mode defines how the client interacts with service while it executes**
 - **Synchronously:** the client waits for the server to finish executing and then gets the result.
 - **Asynchronously:** client must ask the server if its finished then get the result. The client is free to do other work during this time.
 - **Can only use a Result Map Service with Async.**
 - **Synchronous services are typically fast services**



2. Upload data

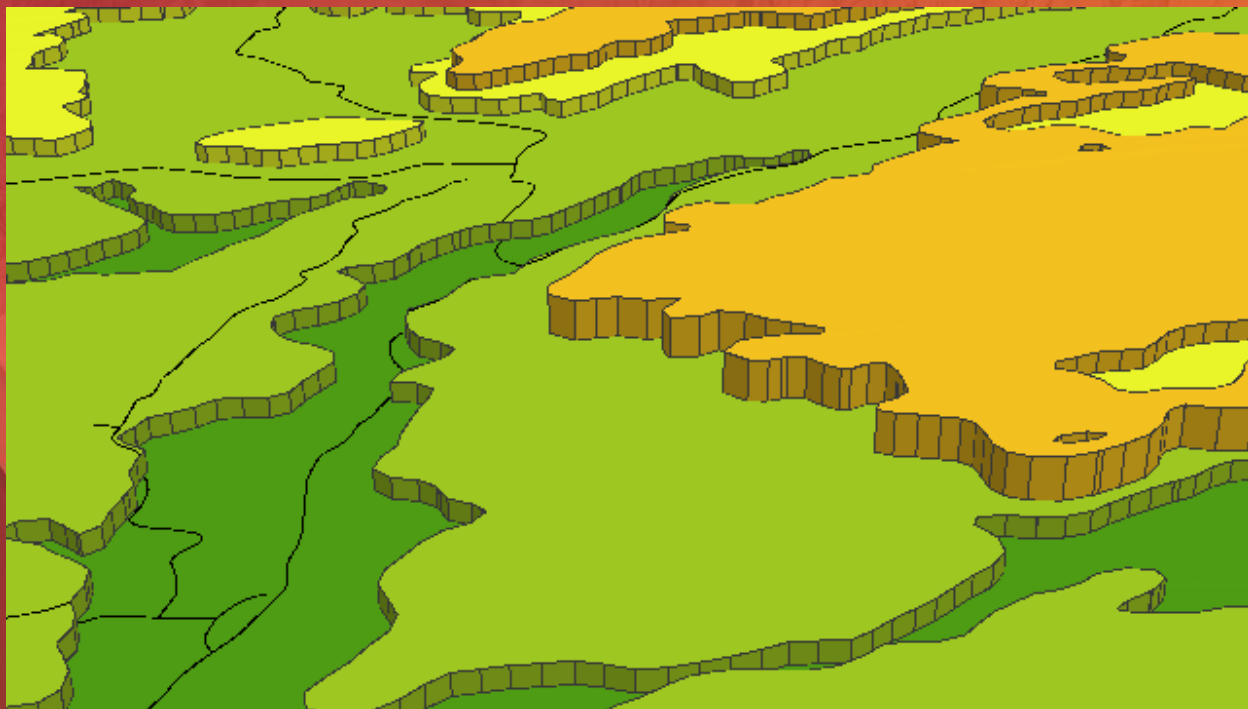
Supporting Text

Script Tools

- **Paths and data handled the same as models**
- **Output and Intermediate paths**
 - `os.path.join(arcpy.env.scratchFolder, "out.shp")`
 - `os.path.join(arcpy.env.scratchGDB, "out")`
 - `in_memory/out`
- **Create GP Service with Python (DevSummit 2016) - <http://esriurl.com/gpServicePy>**

Result Map Service

- A result map service (RMS) provides an additional way to get results from the Geoprocessing Service.
- An image is returned to the client.
 - The data can still be downloaded.
- Use a RMS when:
 - Want better cartography than the client can support
 - It is impractical to render a large dataset in a client.
- Execution must be Asynchronous when using a RMS



3. Steam data to server

Supporting Text

Web App

- The service layer is passed to the geoprocessing service as input. Web App code is the 'glue' between the two services

▼ Input

Name: Input_features
Type: GPFeatureRecordSetLayer
Required: true

► Output

Layer order

Options

Label: Input features

Tooltip: Input features

☒ Visible

Input Feature by

☐ Interactively drawing on the map

☐ Use shapefile in local file system

☒ Selecting a layer from the map

☐ URL

Useful links

- Quick tour of Authoring and Sharing GP Services - <http://esriurl.com/gpSrvQuick> or <http://esriurl.com/gpSrvQuickPro>
- Javascript Help - <http://developers.arcgis.com/en/javascript/>
- Web App Builder - <http://doc.arcgis.com/en/web-appbuilder/>
 - GP Widget - <http://doc.arcgis.com/en/web-appbuilder/create-apps/widget-geoprocessing.htm>
- Data, Slides, apps: <http://arcgis.com>
 - Search: “UC2017”, “GP” (check show desktop content on the left)

More presentations

- ****Python: Building Geoprocessing Tools**
 - Tuesday 1:30-2:45 06E
 - Friday 9:00-10:15 01A
- **ModelBuilder: Introduction**
 - Tuesday 10:00-10:30 Tech Theater 19
 - Wednesday 11:00-11:30 Tech Theater 19
- ****ModelBuilder: Advanced Topics**
 - Wednesday 1:30-2:45 06D
 - Thursday 10:15-11:30 06D
- **ModelBuilder: Tips and Tricks**
 - Tuesday 3:15-4:30 31A
 - Wednesday 3:15-4:30 30E



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