

Utility Network on Web GIS and news on ArcGIS Pro

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Agenda

Utility Network service architecture

Overview of the REST API

• Demo

• ArcGIS Pro 3.5 – What's New?

ArcGIS service architecture

Utility Network - The Basis

- Comprehensive framework
 - Mapping of utlitity systems
- Digital twin
 - Connecting the real and digital worlds
- Service-based architecture
 - Platform-independent
 - Always the same function
- Any device, anywhere, anytime



Architecture

- Extensions to existing services:
 - Feature Service
- Newer services with the UN:
 - Utility Network Service
 - Network Diagram Service
 - Version Management Service
 - Validation Service



Architecture - Desktop



Architecture – Web Apps



Architecture – Runtime/Native Maps SDKs



Overview of the REST API

REST API of Utility Network Service



/disableSubnetworkController /queryNetworkMoments /synthesizeAssociationGeometries /validateNetworkTopology

Utility Network Service – Sample: traceConfiguration/create

- A named trace configuration stores the following:
 - Name
 - Description (optional)
 - Type of trace
 - Trace configuration
 - Result types
 - Tags (optional)

create(traceConfigurations)							
name							
description							
traceType							
traceConfiguration							
resultTypes							
tags							
Format (f) create (GET) create	html (POST)						

REST API of Network Diagram Service



REST API of Version Management Service



Version Management Service – root/versions response

JSON Response Syntax

L				
	"vei	rsions" : [
	{			
		"versionName":	"≺versionName≻",	
		"versionGuid":	<guid></guid>	
	}			
]			
L.				

JSON Response Example

```
{
    "versions": [
    {
        "versionName": "SDE.DEFAULT",
        "versionGuid": "{BD3F4817-9A00-41AC-B0CC-58F78DBAE0A1}"
    },
    {
        "versionGuid": "{BD3F4817-9A00-41AC-B0CC-58F78DBAE0A1}"
    },
        "versionName": "UNADMIN.ProjectA",
        "versionGuid": "{F93DB9FD-6F39-45D9-A6C7-D43E69EB3076}"
    }
],
    "success": true
```

REST API of Validation Service



<serviceName>/ValidationServer

/updateErrors /evaluate /writeErrors

Demo

Conclusions

ArcGIS is a service-based architecture

 The ArcGIS REST API is very rich and allows users to build client applications which follow the same patterns as Esri software (e.g. ArcGIS Pro)

Complex workflows can be completed using service

- Feature Service
- Version Management Service
- Utility Network Service
- Network Diagram Service
- Validation Service

ArcGIS Pro 3.5 – What's New?

Our personal TOP 10

Portal Projects

- A portal project is an ArcGIS Pro project that is created, stored, and managed in an ArcGIS Enterprise portal.
- Requirements: ArcGIS Pro 3.5 and an ArcGIS Enterprise 11.4 or later version portal.
- Not supported: Portal projects cannot be used in ArcGIS Online.
- Usage scenarios:
 - Can be used by one user on multiple computers.
 - Can be used by multiple users working together.

• How it works:

- When opened from the portal, the project is downloaded as a local copy.
- Changes saved to the local copy are uploaded back to the portal.
- Other users' changes are also synchronized.
- Conflict resolution: If two users make changes to the same map, a conflict resolution process handles discrepancies.



Symbolize Vertices and Nodes

- Customization options: Enhance the editing experience by adjusting the appearance of editing elements.
- Vertices and Nodes button: Located on the status bar of an active map.
 - Displays vertices, nodes, dangles, pseudonodes, and other elements.

•Hover function:

- Reveals the Vertices and Nodes dialog box.
- Allows adjustments to size and transparency of editing elements.

•Further customization:

- Click Vertices and Nodes Settings to open the Editor Settings dialog box.
- Modify the symbols for each element to suit your preferences.



GP Tool "Migrate to Utility Network"

- Helps migrate existing data into a utility network.
- Uses the Migrate to Utility Network geoprocessing tool.
- Supports geometric network users, by giving access to utility network management capabilities.

• Key functions:

- Create domain networks.
- Perform schema mapping while preserving fields from each source class.
- Assign domains for asset type creation.
- Specify which asset types can serve as subnetwork controllers to define the source or sink of a network.

Utility Network Migration Wizard Step One: Define the domain networks Specify the domain networks that will form the foundation of your utility network. Step Two: Configure geodatabase properties and options Specify essential information such as the service territory, output folder, utility network name, and options to control the output.



4

(5)

(1)

2

Step Three: Map data to the utility network classes

Assign target classes, asset groups, and asset types for all the source feature classes in your geodatabase.

Step 4: Map standalone classes

Map any additional standalone feature classes or tables which do not participate in the network to the output geodatabase.

Step 5: Review the migration summary

Review the migration summary to create the utility network.

Learn more about migrating existing data into a utility network

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Branch Version Housekeeping

• Branch Versioning History:

- Comprehensive record of all changes made to the business table for the default version.
- Begins when a dataset is registered as branch versioned.
- Branch versioning model:
 - Tracks all changes by inserting new records for each edit.
 - Causes data growth in the business table over time.
- Optimization:
 - Use the "Prune Branch History" geoprocessing tool.
 - Removes historical records that are no longer needed.

Geoprocessin	g				~	$\square \times$					
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Parameters Environments (?)											
* Input Dataset	* Input Dataset										
✓											
* Output Log File											
Report Only											
Only Prune System Tables											
Prune Before Date											
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27 28	29	30	1	2	3						
4 5	6	7	8	9	10						
Today: 4/4/2025							8 PM 🗘				

Spatial Clauses in Definition Queries

- Definition queries can now include a spatial clause.
- Difference from attribute-based clauses:
 - Spatial clauses use the geometry of a layer or a specified spatial extent.
 - Attribute-based clauses filter features using attribute values or table fields.
- Limitation: Only one spatial clause can be added to a definition query



Other

- Support for Apache Parquet files
 COGO Reader from Deeds file
- COMMENCING at the West Right-of-Way line of Reddleshire Lane 50' wide, said point being the most Southerly utback point of Lot 1, Block 5 as originally platted in Westwick Section 1 as recorded in Volume 258, Page 143 if the Harris County Map Records; HENCE § 87' 30' 01' W, a distance of 14.60 feet to the POINT OF BEGINNING of the herein described tract; HENCE, S 03' 25' 14'' E, a distance of 14.60 feet to a point for corner; HENCE, N 86' 35' 46'' E, a distance of 6.00 feet to a point for corner; HENCE, S 03' 25' 14'' E, a distance of 4.00 feet to a point for corner; HENCE, S 86' 34' 46' W, a distance of 4.00 feet to a point for corner; HENCE, S 86' 34' 46' W, a distance of 18.42 feet to a point for corner; HENCE, S 86' 34' 46' W, a distance of 57.73 feet to a point for corner; HENCE, N 01' 21' 30' W, a distance of 27.60 feet to a point for corner; HENCE, N 86' 34' 46' E, a distance of 56.74 feet to a point OF corner; HENCE, N 86' 34' 46' E, a distance of 56.74 feet to the POINT OF BEGINNING and containing 1602 square set of land, more or less.



- ArcGIS Metadata Editor
- Pane Sets
 - e.g. Editing: Opens the Contents, Catalog, Create Features, Attributes, and Modify Features panes
 - e.g. Geoprocessing: Opens the Contents, Catalog, and Geoprocessing panes.

Questions



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