ArcGIS Enterprise: Publish Your Own Network Analysis Services

Deelesh Mandloi
Slides from this demo theater

http://esriurl.com/uc18nas
Agenda

• Network Analyst concepts

• ArcGIS Enterprise publishing workflow
  - Geoprocessing services
  - Network Analysis services

• Using network analysis services
Network Analyst Concepts
ArcGIS Network Analyst
Solve Transportation Problems

- Route
- Closest Facility
- Service Area
- Vehicle Routing Problem
- Location-Allocation
- Origin-Destination Cost Matrix
Analysis is performed on a network dataset
Where do I get a network dataset?

• Purchase **StreetMap Premium for ArcGIS**
  - High quality ready-to-use network dataset
  - Can add your own street data as well

OR

• Build your own network dataset from:
  - Your organization’s data
  - TIGER
  - OpenStreetMap (try [ArcGIS Editor for OpenStreetMap](https://www.arcgis.com/applications/arcgis-editor/for-openstreetmap))
ArcGIS Enterprise
What is ArcGIS Enterprise?

- Enables “Web GIS” in your infrastructure
  - On-premises or in your own cloud
- Formerly known as ArcGIS for Server
What are GIS services?

• **GIS service** → GIS resource running on a server
  - vs. GIS application on your local computer

• Share GIS resources to the web

- Map
- Feature
- Network
- Geodata
- Geoprocessing
- Image
- Locator
- Schematics
Publishing workflow for GIS services

1. Author
2. Publish
3. Share/Use
Publishing network analysis services
Can be published as two different service types

Geoprocessing Service
1. Author using geoprocessing tools from the Server toolset
2. Run the tools and publish the result as a service
3. Use from Map Viewer, ArcGIS Pro and ArcMap

Network Analysis Service
1. Author using a map document with network analysis layers
2. Publish the map document as a service
3. Use from Map Viewer and ArcMap (Route solver only)
Publishing Services
Publishing network analysis services should be easy …

I have a network dataset and want to publish all network analysis services. Is there a single tool that can perform the authoring and publishing of these services?

YES
Publish Routing Services tool

- ArcGIS Server **command line utility** included with ArcGIS Enterprise 10.6 or later
- If publishing to a federated GIS Server, the tool registers the network analysis services as portal utility services
- Requires Network Analyst extension for ArcGIS Server
- For previous versions of ArcGIS Enterprise, download a similar tool from [GitHub](https://github.com/)

---

**Publish Routing Services utility**

The Publish Routing Services utility allows you to publish directions, routing, and logistics services based on a network dataset to your ArcGIS Server. These services can be used to perform route, closest facility, service area, location-allocation, origin destination cost matrix, or vehicle routing problem analyses on transportation networks. If your ArcGIS Server is federated with a portal, the services are configured as utility services with your portal. Once published, the services can be used with ArcGIS Desktop applications such as ArcGIS Pro and ArcMap, or in the Map Viewer application available with ArcGIS Enterprise portal to get directions and perform analysis. The services are similar to directions and routing services available with ArcGIS Online, but are based on your own network dataset and running in your ArcGIS Enterprise.

License:
To use this utility, your ArcGIS Server site needs to have an ArcGIS Network Analyst extension license.

Data requirements
You can use this utility with a network dataset that is available as part of StreetMap Premium for ArcGIS or with your own network dataset. Before running the utility, the network dataset should be copied (in the same directory path) to all the machines participating in your GIS Server site.
Asynchronous geoprocessing service

Network analysis service

Synchronous geoprocessing service

Service to get travel modes

Services created by Publish Routing Services tool
Registering services with your portal

- Configure as Directions and Routing utility services in your portal
- Allows all apps to discover the network analysis services
- Required by many apps in order to use the services
- Configured by Publish Routing Services tool if publishing services to a federated GIS Server
Demo: Publish Routing Services tool
Publishing tips and tricks

• Do not try to publish network analysis services using standard publishing workflows
  - It is difficult to get all the services published correctly
  - Some apps might not work if some services are missing or not configured correctly

• Delete existing network analysis services and recreate new ones using the publish routing services tool when
  - Upgrading to newer versions of ArcGIS Enterprise
  - Upgrading street data (for example, using newer version of StreetMap Premium)
Using Services
Map Viewer and ArcGIS Pro
Using services in Map Viewer

- Directions button
- Analysis tools
  - Most tools in the Use Proximity toolset
  - Choose Best Facilities tool in Find Locations toolset
  - Summarize Nearby tool in Summarize Data toolset
Using services in ArcGIS Desktop

- Use from Network Analysis gallery in the Analysis tab within ArcGIS Pro
- Use from an ArcGIS Server connection in ArcMap
Demo: Use Network Analysis Services
Please Take Our Survey on the App

Download the Esri Events app and find your event

Select the session you attended

Select the Feedback tab

Complete answers and select “Submit”
Questions?

Slides from this demo theater

http://esriurl.com/uc18nas