

The background is a stylized map. The upper portion is a solid orange-red color. The lower portion features a topographic map with contour lines in shades of orange and brown. In the bottom right corner, there is a blue-shaded area representing a city or urban grid, with white lines indicating streets and building footprints.

Spatial Analysis in ~~Portal for ArcGIS~~ ArcGIS Enterprise

Ravi Narayanan

Agenda

- **Introduction**
- **Demo - Perform Analysis**
- **Setup and Administration**
- **Demo - Administration**



Spatial Analysis: Find Patterns, Assess Trends and Make Decisions

The screenshot displays the ArcGIS Tornadoes application interface. The top navigation bar includes 'Home', 'Tornadoes', and user options like 'New Map', 'Create Presentation', and 'admin'. Below this is a toolbar with icons for 'Details', 'Add', 'Basemap', 'Analysis', 'Save', 'Share', 'Print', 'Directions', 'Measure', and 'Bookmarks'. A search bar is located on the right side of the toolbar.

On the left, the 'Perform Analysis' sidebar is expanded, showing a list of tools under the 'Find Locations' section: 'Find Existing Locations', 'Derive New Locations', 'Find Similar Locations', 'Geocode Locations from Table', 'Choose Best Facilities', 'Create Viewshed', 'Create Watersheds', and 'Trace Downstream'. There are also sections for 'Data Enrichment' and 'Manage Data'.

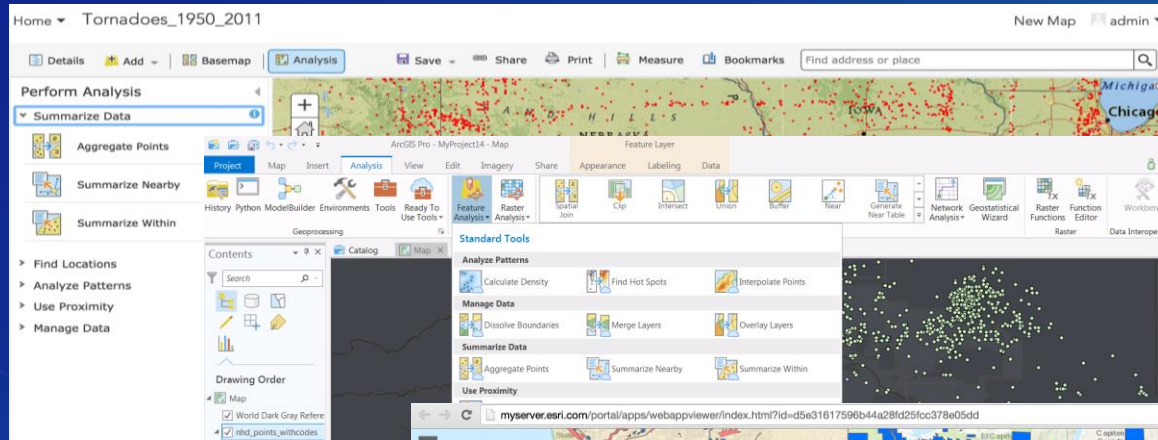
The main map area shows a dark-themed map of the central United States, with numerous red dots representing tornado locations and orange lines representing tornado tracks. Major cities and state boundaries are visible.

Three green callout boxes highlight key features:

- Perform Analysis: Introduced in 10.4** (pointing to the Analysis tab)
- Analyze a variety of layers** (pointing to the map area)
- Supported on Windows and Linux** (pointing to the map area)

The bottom right corner features the Esri logo and text indicating it is 'POWERED BY esri'.

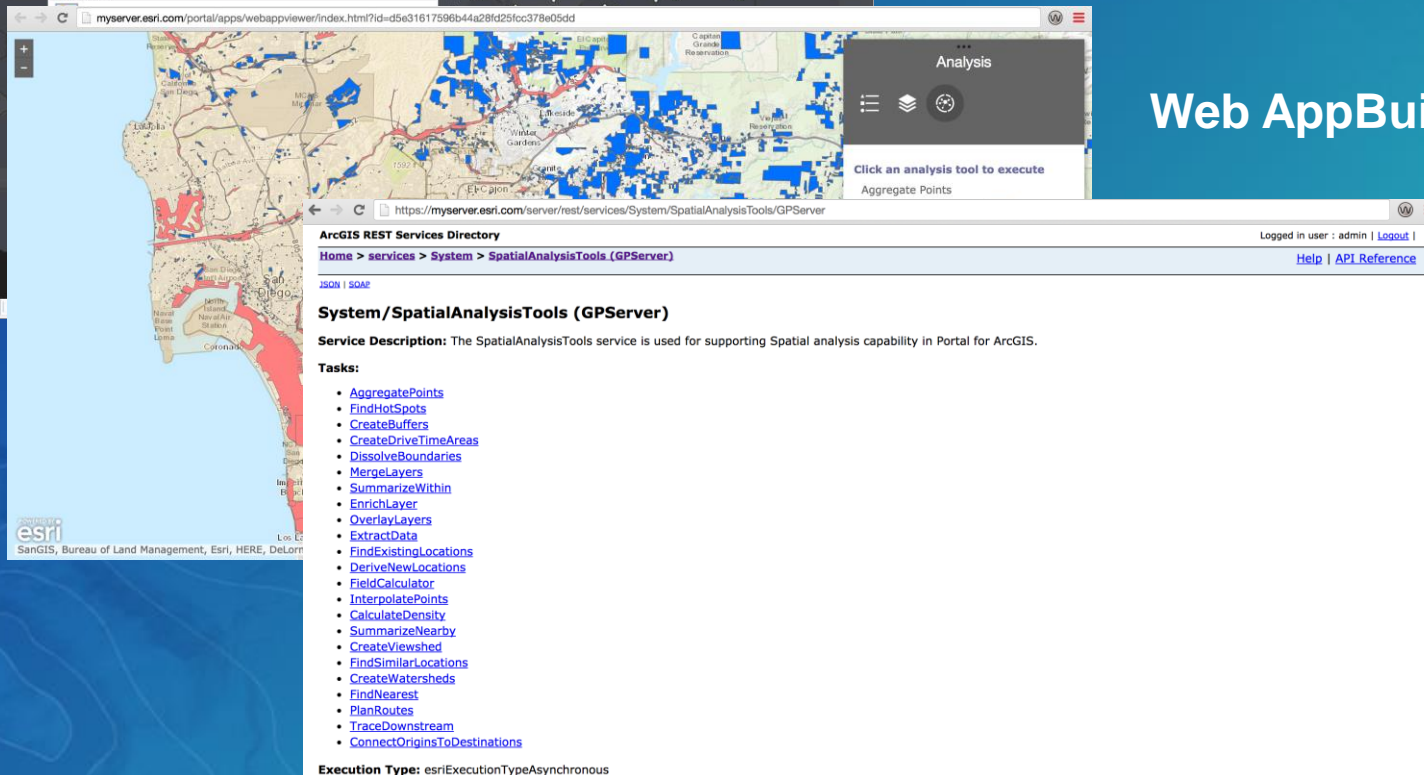
Spatial Analysis: Performing Analysis



Portal for ArcGIS Map Viewer

ArcGIS Pro

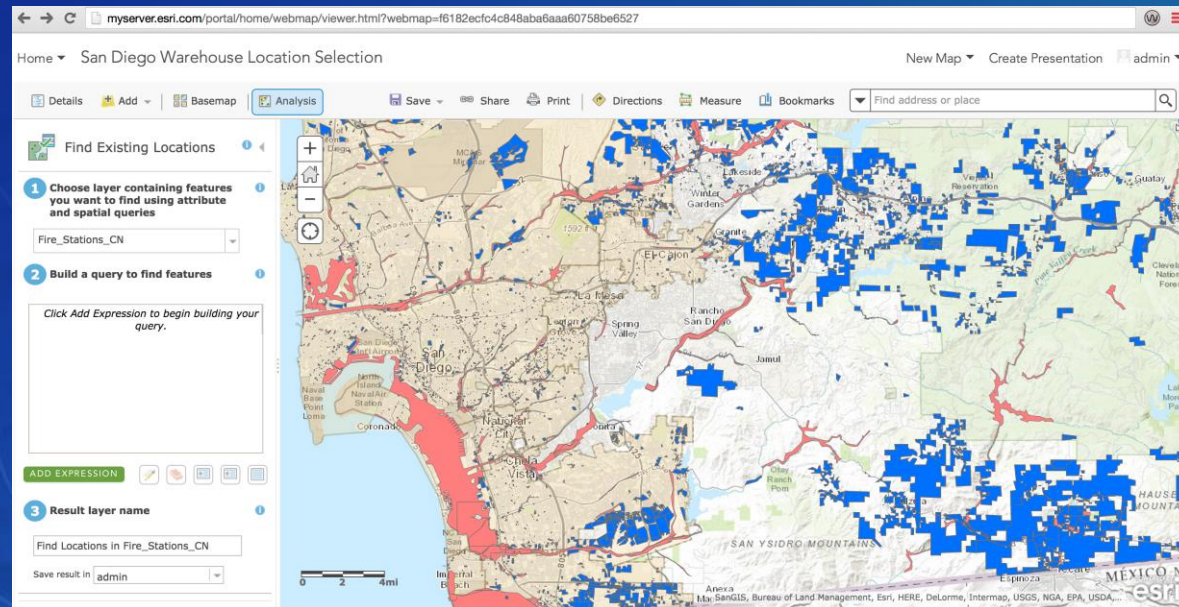
Web AppBuilder Application



ArcGIS API for Python

REST API

Spatial Analysis: Demo



Spatial Analysis: Administration

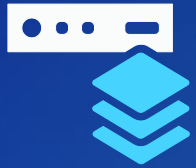
Components Required to Support Standard Spatial Analysis



Portal for ArcGIS



ArcGIS Webadaptor

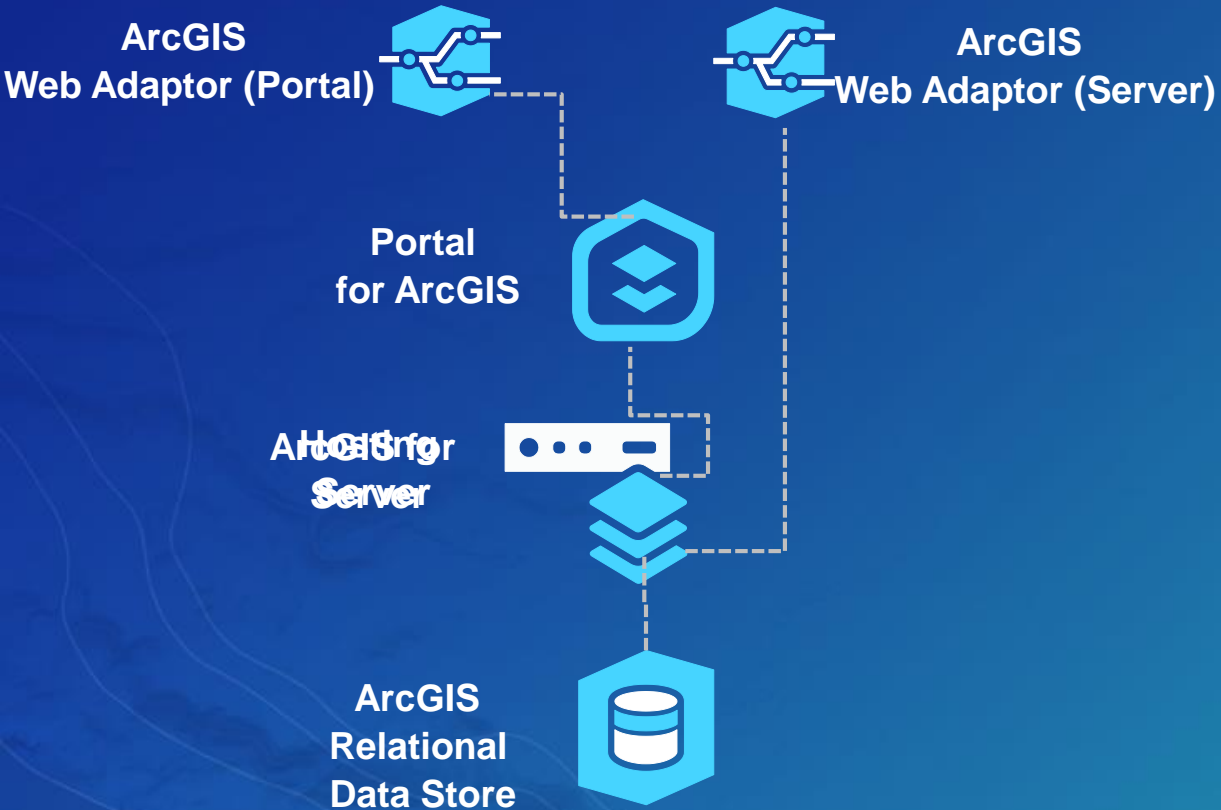


ArcGIS for Server



ArcGIS Data Store (relational)

Step 1: Set up a Base Enterprise Deployment



Base ArcGIS Enterprise


1. Install Portal for ArcGIS
2. Install ArcGIS Server (license as Std or Adv GIS Server)
3. Install ArcGIS Data store
4. Install and configure web adaptors for Server and Portal
5. Register Relational ArcGIS Data store with Server
6. Federate Server with Portal and configure as Hosting Server

Use ArcGIS Enterprise Builder

* Spatial Analysis not supported if Portal is configured with a Hosting Server that uses an Enterprise GDB

Step 2: Manually Enable Spatial Analysis (only for upgrade from pre 10.4)

[Home](#) [Gallery](#) [Map](#) [Scene](#) [Groups](#) [My Content](#) [My Organization](#) admin

 **ArcGIS Enterprise**

SAVE

CANCEL

General

Home Page

Gallery

Map

Item Details

Groups

Utility Services

ArcGIS Online

Servers

Roles

Collaborations


Security

Servers

You can add ArcGIS Server sites to your portal to achieve a single-sign-on experience, share items, and optionally host services. A server that has been added to a portal is called a federated server.

Federated Servers

Add one or more servers to your portal.



VALIDATE SERVERS

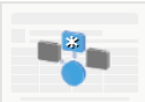
ADD SERVER

Servers

✓ <https://dev003633.esri.com/server>

Hosting Server


Optionally choose one of your servers to act as your portal's hosting server. Your portal members will be able to publish services to this server. ArcGIS Server's Managed Database must be configured on the site before it can be designated as the portal's hosting server.



dev003633.esri.com/server

Feature Analysis - Standard Tools

The analysis service in your portal is disabled by default. Enable it in your portal configuration.



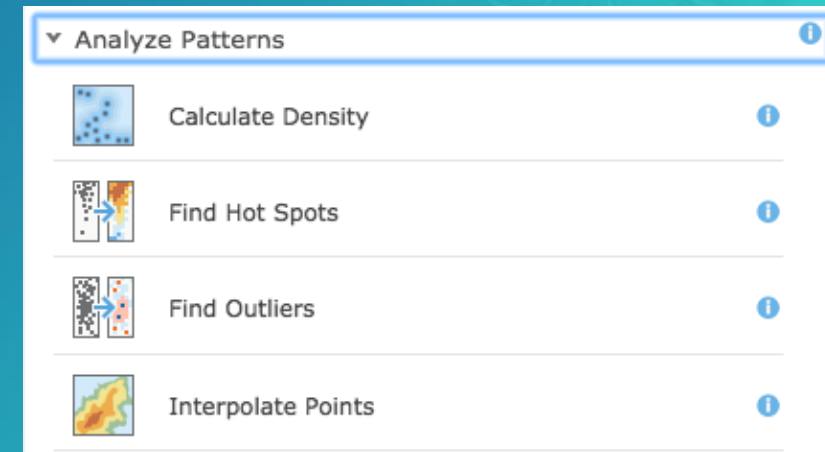
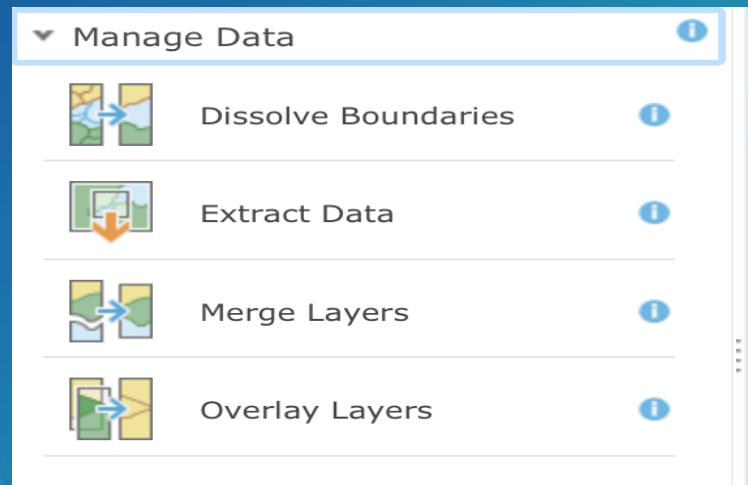
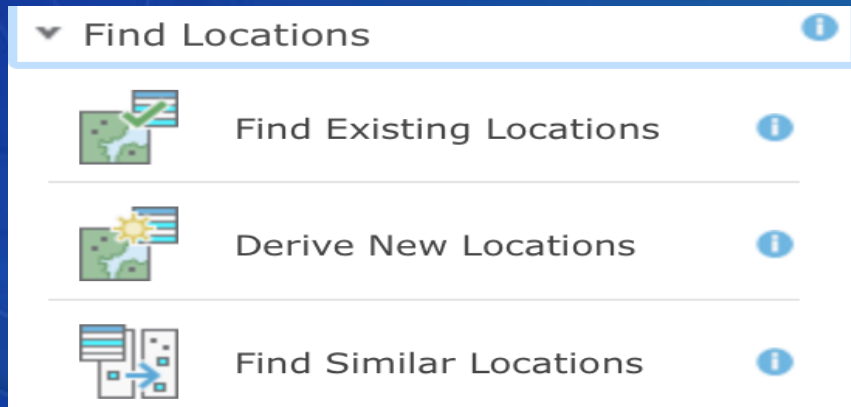
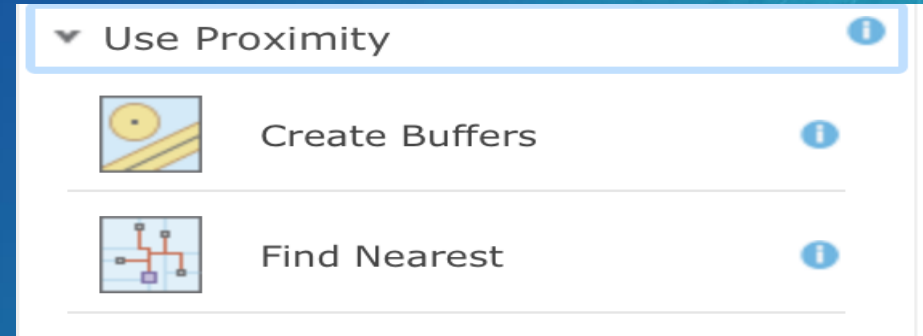
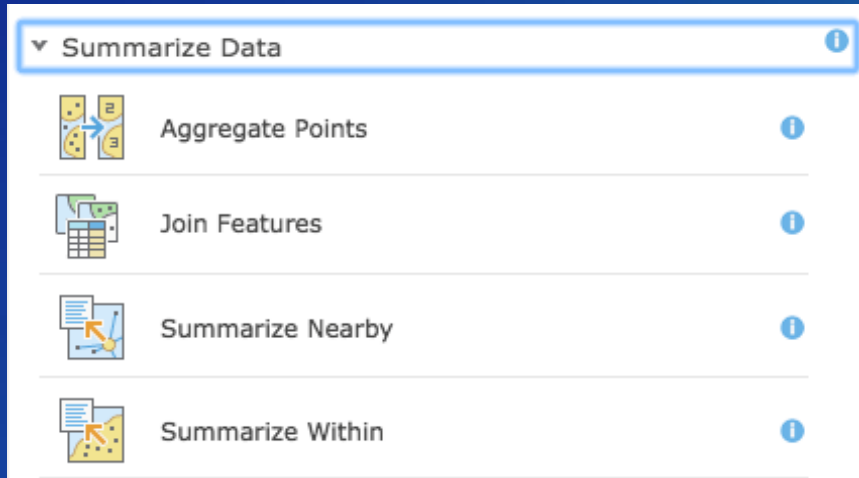
ENABLE

**Manually enable spatial analysis
when upgrading from pre-10.4**

from

Spatial Analysis: 17 Tools available out of the box

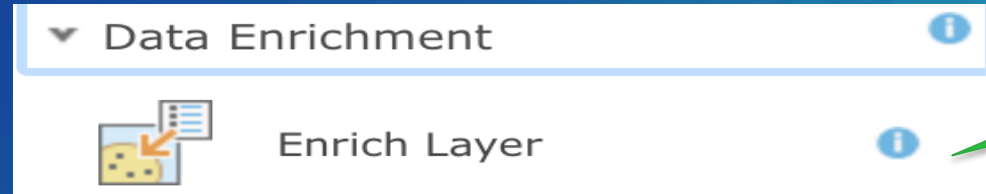
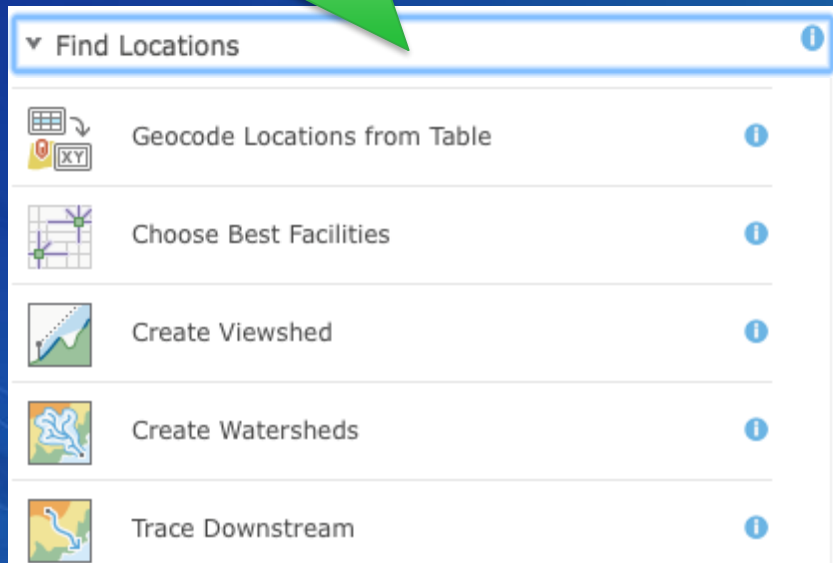
Tools that do not depend upon helper/utility services



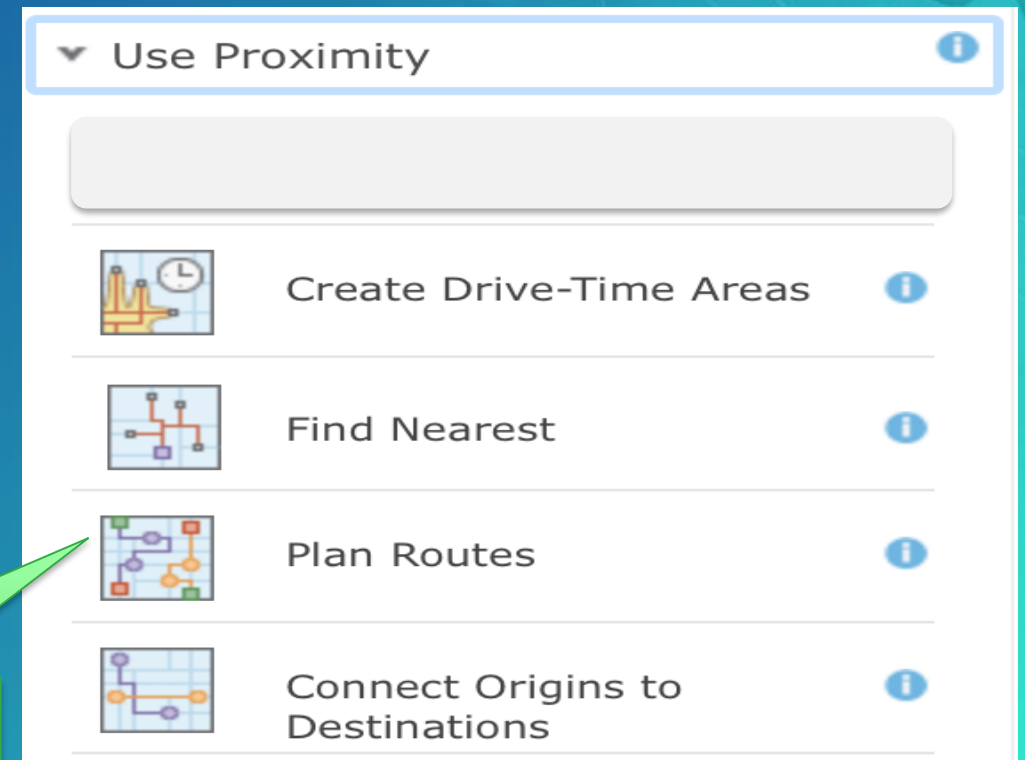
Additional 10 Tools – available after configuring utility services

Utility service = Helper service that power specific analysis tools

Powered by
Elevation/Hydrology/Geocode
and Network Utility Services



Powered by
Geoenrichment Utility Service



Powered by
Network Utility Services

Step 3: Choice of Utility Services

- **Choice 1: Utility Services from ArcGIS Online**
- **Choice 2: Utility services from your own server**
- **Choice 3: Utility services from ArcGIS Online + your own server.**

Choice 1: Utility services from ArcGIS Online

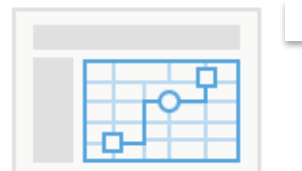
Elevation



Hydrology



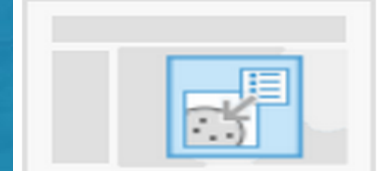
Directions and Routing



Geocoding

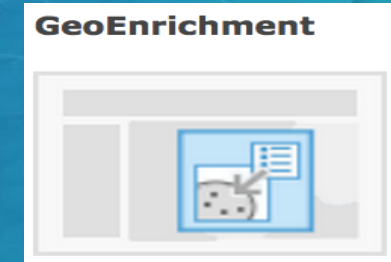
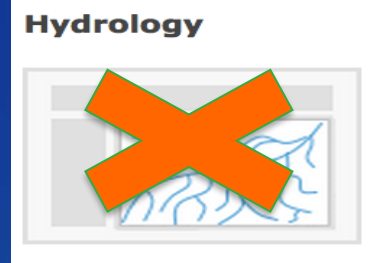


GeoEnrichment



- **Suitable for connected Portals (internet connection available)**
- **Requires ArcGIS Online Organization Credentials**
- **Consumes ArcGIS Online Credits when related tools are used.**

Choice 2: Utility Services from your own server



- For disconnected portals

Elevation Service:

<https://github.com/Esri/elevation-gp-python>

Directions & Routing:

<https://github.com/Esri/network-analysis-services/wiki>

- <http://doc.arcgis.com/en/business-analyst/server/configuring-a-geoenrichment-service.htm>
- Recently support added for multiple data sources.
- **GeoEnrichment**
 - 10.5/10.5.1 - US Data included with Business Analyst Server. Outside US supported via Professional Service engagement

Step 4: Configure Utility services from ArcGIS Online

The screenshot shows the 'Configure Utility Services' page in ArcGIS Enterprise. The top navigation bar includes links for Home, Gallery, Map, Scene, Groups, My Content, and My Organization, along with a user profile for 'admin' and a search bar. The left sidebar contains a menu with options: General, Home Page, Gallery, Map, Item Details, Groups, Utility Services (selected), ArcGIS Online, Servers, Roles, Collaborations, and Security. The main content area is titled 'ArcGIS Online' and includes a 'SAVE' button and a 'CANCEL' button. Below the title, there is a description: 'Configure your portal to use utility services and content from ArcGIS Online.' The 'Configure Utility Services' section includes a list of services to be configured: Elevation, GeoEnrichment, Network, Geocode, and Hydrology. Each service has a checkbox, and all are currently checked. A note states: 'Clicking configure will update your portal utility service settings and save the configuration changes. Items corresponding to the selected ArcGIS Online utility services will be created in your My Content page and shared with all users in your organization. Using these services in the portal will consume credits from the specified ArcGIS Online account.' Below the note, there is a section for entering credentials: 'Enter the ArcGIS Online credentials your portal will use to access the new ArcGIS Online utility services which you have selected above.' The 'Services selected for configuration: Network.' is displayed. The 'Username:' field is empty, the 'Password:' field is empty, and the 'Folder:' dropdown menu is set to 'admin'. A 'CONFIGURE' button is located at the bottom right of the page.

Home Gallery Map Scene Groups My Content My Organization admin

ArcGIS Enterprise

SAVE CANCEL

General
Home Page
Gallery
Map
Item Details
Groups
Utility Services
ArcGIS Online
Servers
Roles
Collaborations
Security

ArcGIS Online

Configure your portal to use utility services and content from ArcGIS Online.

Configure Utility Services

To configure your portal to use utility services from ArcGIS Online:

1. Check the box corresponding to the ArcGIS Online utility services you wish to configure with your portal.
2. Enter the credentials for an ArcGIS Online organizational account that your portal will use to access those services.
3. Click Configure.

Note: Clicking configure will update your portal utility service settings and save the configuration changes. Items corresponding to the selected ArcGIS Online utility services will be created in your My Content page and shared with all users in your organization. Using these services in the portal will consume credits from the specified ArcGIS Online account.

To remove an existing utility service and its corresponding items, uncheck the utility service checkbox and click Configure.

☒ Elevation ☒ Geocode
☒ GeoEnrichment ☒ Hydrology
☒ Network

Enter the ArcGIS Online credentials your portal will use to access the new ArcGIS Online utility services which you have selected above.

Services selected for configuration: Network.

Username:

Password:

Folder:


CONFIGURE

Simple workflow to configure utility services from ArcGIS Online.

Step 5: Configure Utility Services from your own server

- Configure in Portal -> My Organization -> Utility services

Directions and Routing




Configure your routing services. Choose the routing service type, and enter the URL of your service.

Route


Example: <https://webadaptor.domain.com/arcgis/rest/services/folder/serviceName/NA Server/layerName>

Geocoding



Establish the geocoders that members of your portal will have access to. Click Add Geocoder to reference a URL, specify a user friendly name, and set other properties. You can also reorder, configure, or delete your geocoders below.

ADD GEOCODER

Name		
↓	Esri World Geocoder	×
↑	Esri World Batch Geocoder	 ×

Step 6: Grant Member Privilege for Performing Analysis



Administrators



Publishers



Custom Role with Analyst Template

ArcGIS Enterprise

EDIT SETTINGS ADD MEMBERS VIEW STATUS

Members

Viewing: Current Members Search for Name...

Name	Username	Last Login	Level	Role	Action
Jane Admin	admin	Jul 3, 2017	2	Administrator	
Joe Publisher	sharing1	Jul 3, 2017	2	Publisher	
Roger Analyst	sharing3	Jul 3, 2017	2	analyst	
Sam User	sharing4	Jul 3, 2017	2	User	
Smokey User	sharing2	Jul 3, 2017	2	User	

ArcGIS Enterprise

SAVE CANCEL

General Home Page Gallery Map Item Details Groups Utility Services ArcGIS Online Servers Roles Collaborations Security

Roles ?

Create, edit, and manage roles in your portal. You may create a role based on an existing role or role template, allowing or denying privileges associated with the role as you deem necessary.

Note that when creating or editing a role, changes aren't saved until you click Save Role.

Default level for new members: 1 @ 2

Default role for new members: User

CREATE ROLE ASSIGN ROLES

Role Name	Minimum Level	Members
Administrator	2	1
Publisher	2	2
User	2	2
Viewer	1	0

Step 7: (Optional) Increase Min/Max instance of Spatial Analysis Tools GP Service

esri.com | [Web GIS](#) | [Sign Out](#) | [Help](#)

ArcGIS Server Manager

Services Site Security Logs

Manage Services OGC Services KML Network Links Sharing

Editing: [Site \(root\)](#) > [System](#) > SpatialAnalysisTools [Help](#) [Save and Restart](#) [Cancel](#)

General

Parameters

Capabilities

Pooling

Processes

Item Description

Specify Number of Instances

Minimum number of instances per machine:

Maximum number of instances per machine:

Specify Service Timeouts

The maximum time a client can use a service: seconds


The maximum time a client will wait to get a service: seconds

The maximum time an idle instance can be kept running: seconds

Step 8: (Optional) Configure Living Atlas Content from ArcGIS Online

[Home](#) [Gallery](#) [Map](#) [Scene](#) [Groups](#) [My Content](#) [My Organization](#)

admin

 ArcGIS Enterprise

SAVE

CANCEL

General

Home Page

Gallery

Map

Item Details

Groups

Utility Services

ArcGIS Online

Servers

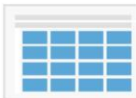
Roles

Collaborations

Security

ArcGIS Online


Configure Living Atlas Content ?



☒ Access Living Atlas content in your portal.

Check the box for the additional types of Living Atlas content you would like to enable in your portal and provide ArcGIS Online credentials for accessing them.

To disable an existing type of content, uncheck the account checkbox and click Configure.

☒ Subscriber ☒ Premium (requires credits )

Accounts selected for configuration: Subscriber, Premium.

Username:

Password:

CONFIGURE

Performing Analysis – Input/Output Considerations

- **Input: Feature layers, CSV, SHP, Map Notes, Route, GeoRSS and KML**
 - If Input is a Hosted Feature – No limit on number of features
 - If Input is an external feature layer - 100,000 Features limit.
 - Supports spatial, attribute and time filter.
- **Output: Hosted Feature Service**
 - Result data stored in ArcGIS Data Store
 - Server is scalable to support 1000's of feature services.

Documentation

Administrator Help

- [What's new in Portal for ArcGIS](#)
- [Configure the Portal to Perform Analysis](#)
- [About Utility Services](#)
- [Configuring Utility services](#)

User Help

- [What's new in Portal for ArcGIS 10.5 and 10.5.1](#)
- [Perform Analysis](#)

Thank you! Please submit your feedback survey