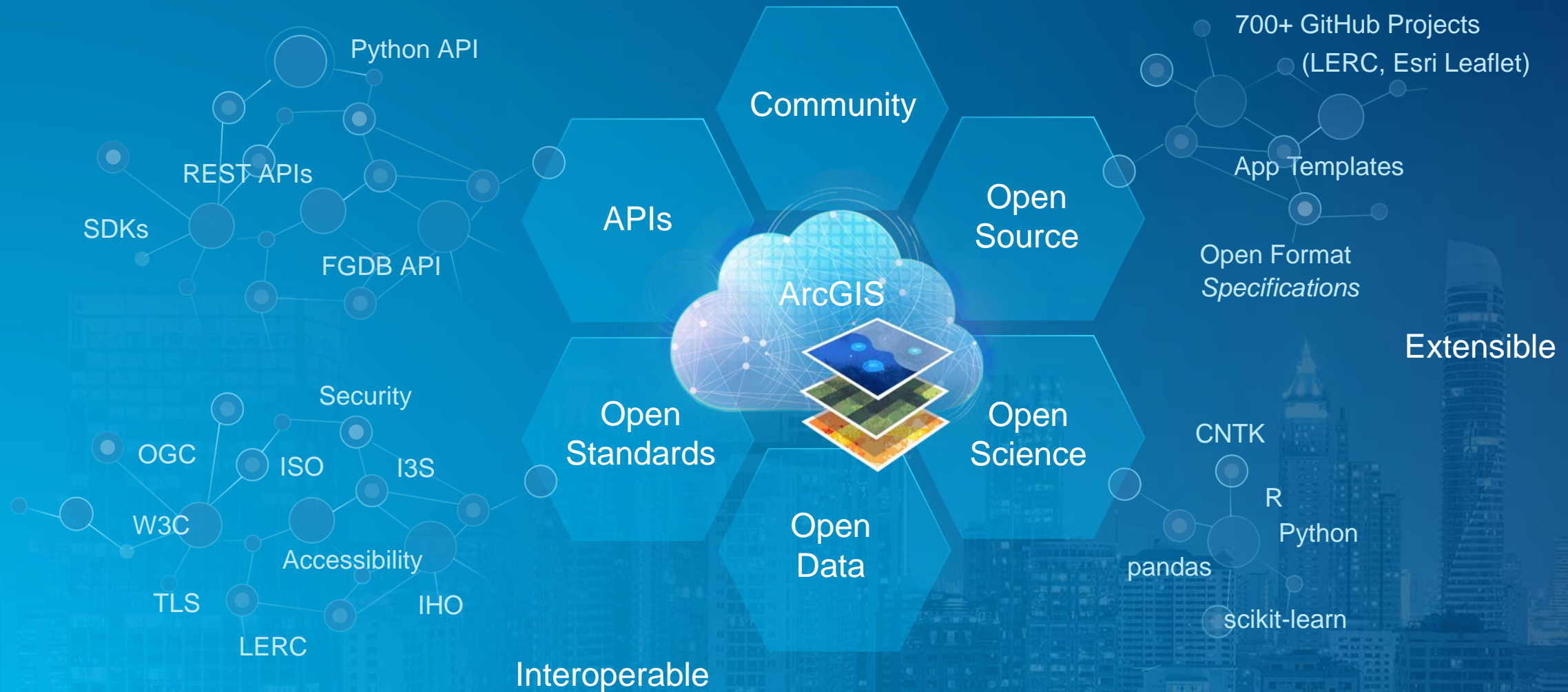


ArcGIS Is An Open Platform



Successfully Integrated Into Thousands of Systems



Working with OGC WFS Services

Jillian Penney

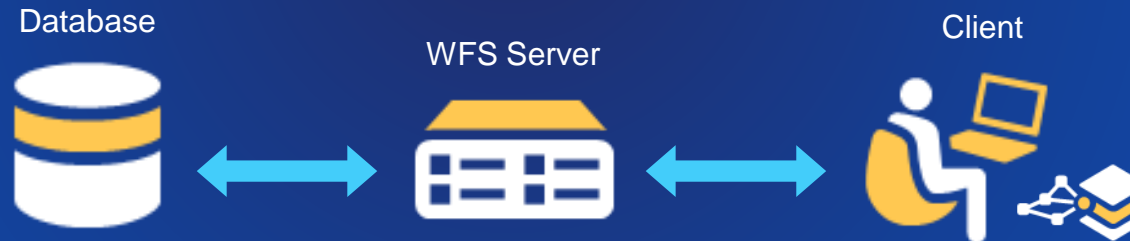
SEE
WHAT
OTHERS
CAN'T

Overview

- What is WFS?
- Why would you use WFS?
- How we support WFS:
 - Publishing a WFS service
 - Consuming a WFS service
- What's new
- Roadmap

Web Feature Services (WFS)

- Serving data as vector features
- Uses GML
- WFS specification



Web Feature Services (WFS)

Two encodings:

- XML (HTTP POST or SOAP)
- Key/value pairs (HTTP GET)

POST

```
<GetCapabilities
  xmlns="http://www.opengis.net/wfs/2.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.opengis.net/wfs/2.0 http://schemas.opengis.net/wfs/2.0/wfs.xsd"
  service="WFS"
  version="2.0.0"
/>
```

GET

<http://sampleserver6.arcgisonline.com/arcgis/services/SampleWorldCities/MapServer/WFSServer?request=GetCapabilities&service=WFS&version=2.0.0>

Web Feature Services (WFS)

- GetCapabilities
- DescribeFeatureType
- GetFeature

Web Feature Services (WFS)

- GetCapabilities
- DescribeFeatureType
- GetFeature
- WFS-T
 - Editing:
 - Insert
 - Delete
 - Update



Web Feature Services (WFS)

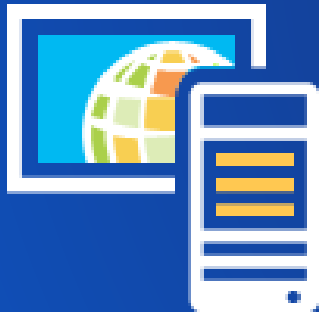
- GetCapabilities
- DescribeFeatureType
- GetFeature
- WFS-T
 - Editing:
 - Insert
 - Delete
 - Update
- Versions supported:
 - 1.0.0
 - 1.1.0
 - 2.0.0



WFS vs. other service types

WMS

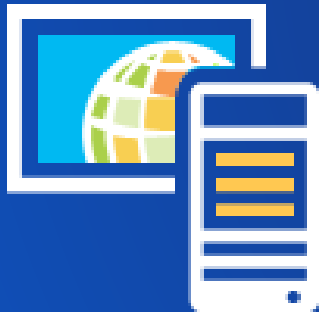
- Images
- OGC standard



WFS vs. other service types

WMS

- Images
- OGC standard



Esri Feature Service

- REST based
- Complex capabilities
- Not open standard



Why use a WFS service?

- Open standard
- Interoperability
- Geospatial analysis
- Transactions



Creating a WFS Service

Section Subhead

Create a WFS service

- Create from a map in ArcMap
 - ArcGIS Server
- Create from a hosted feature layer
 - ArcGIS Enterprise & ArcGIS Online
- Create from a map in ArcGIS Pro (Pro 2.3, Pro 2.4)



ArcGIS Server

- Enable on a new or existing map service

Capabilities

Choose the capabilities you would like enabled for this service:

- ☒ Mapping (always enabled)
- ☐ Schematics
- ☐ WCS
- ☒ WFS
- ☐ Network Analysis
- ☐ KML
- ☐ WMS
- ☐ Feature Access

ArcGIS Server Manager

Services Site Security

Manage Services OGC Services KML Network Links Sharing

Editing: [Site \(root\)](#) > MyWFSService [Help](#) [Save and Restart](#)

General
Parameters
Capabilities
Pooling
Processes
Caching
Item Description

Select and configure capabilities

<input checked="" type="checkbox"/> Mapping (always enabled)	<input type="checkbox"/> Schematics
<input type="checkbox"/> WCS	<input checked="" type="checkbox"/> WFS
<input type="checkbox"/> Network Analysis	<input type="checkbox"/> KML
<input type="checkbox"/> WMS	<input type="checkbox"/> Feature Access

WFS Configuration

URLs

URL: <http://whatodds:6080/arcgis/services/MyWFSService/MapServer/WFSServer>

Properties

☒ Enter service properties below ☐ Use external capabilities files

ArcGIS Server

Service Editor

Connection: arcgis on whatodds_6080 (admin) Service Name: CaliforniaPolygons

Import Analyze Preview Publish

General
Parameters
Capabilities
Mapping
WFS
Pooling
Processes
Caching
Item Description
Sharing

WFS

REST URL:

SOAP URL:

Properties

☒ Enter service properties below ☐ Use external capabilities files

Property	Value
Name	CaliforniaPolygons
Title	
Abstract	
Keyword	
ServiceType	
ServiceTypeVersion	
Fees	
AccessConstraints	
ProviderName	
ProviderSite	

Namespace:

Prefix:

Service Editor

Connection: arcgis on whatodds_6080 (admin) Service Name: CaliforniaPolygons

Import Analyze Preview Publish

General
Parameters
Capabilities
Mapping
WFS
Pooling
Processes
Caching
Item Description
Sharing

WFS

REST URL:

SOAP URL:

Properties

Path or URL to stored query file (WFS 2.0):

☐ Enable transactions

☐ Enable feature locking

☒ Enable maximum number of features returned by service

Max. number of features returned

Force axis order for WFS 1.0.0: ☒ Longitude, Latitude ☐ Latitude, Longitude

Force axis order for WFS 1.1.0: ☐ Longitude, Latitude ☒ Latitude, Longitude

Force axis order for WFS 2.0.0: ☐ Longitude, Latitude ☒ Latitude, Longitude

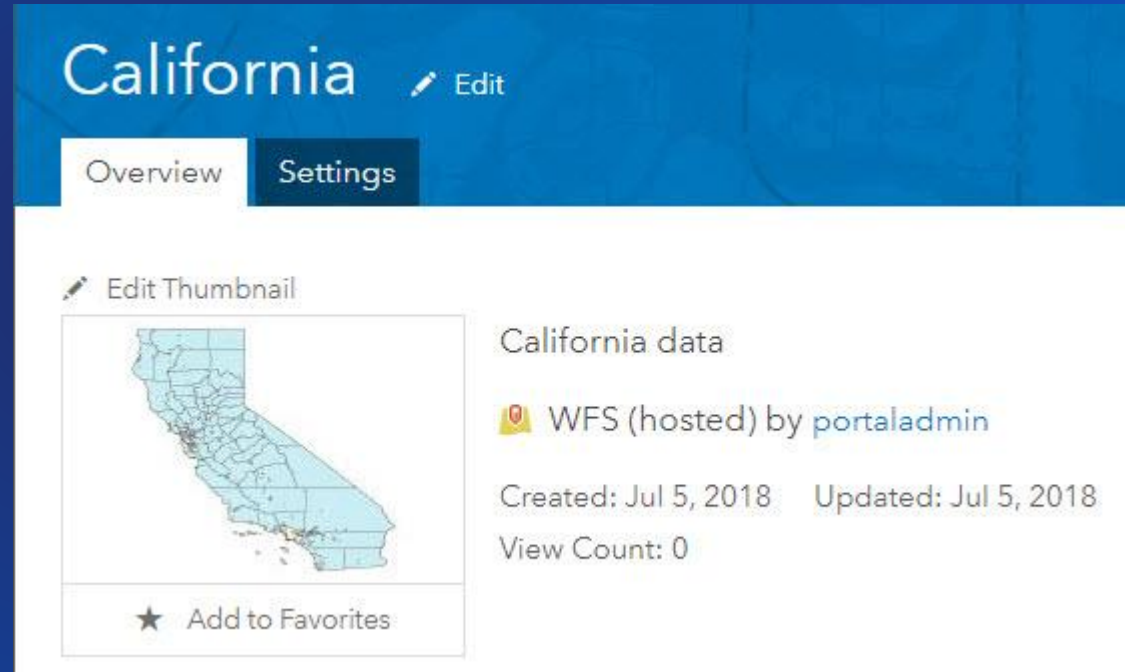
ArcGIS Enterprise or ArcGIS Online (Hosted)

- Publish from an existing hosted feature layer

The screenshot displays the ArcGIS Online interface for an item named 'California'. The top navigation bar includes links for Home, Gallery, Map, Scene, Groups, Content, and Organization. The main header shows the item name 'California' with an 'Edit' link. Below the header, there are tabs for Overview, Data, Visualization, and Settings. The 'Overview' tab is active, showing a thumbnail of a map of California, the title 'California data', and metadata: 'Feature Layer (hosted) by portaladmin', 'Created: Jul 5, 2018', 'Updated: Jul 5, 2018', and 'View Count: 0'. A description field is present with the text 'Add an in-depth description of the item.' Below the description, there are sections for 'Layers' listing 'UrbanAreas' and 'Counties'. On the right side, a vertical menu contains buttons for 'Open in Map Viewer', 'Open in Scene Viewer', 'Open in ArcGIS Des...', 'Publish', 'Tile layer', 'WFS', 'Share', and 'Metadata'. A blue arrow points to the 'WFS' option in this menu. At the bottom right, there is an 'Item Information' section with a progress bar and a 'Learn more' link.

ArcGIS Enterprise or ArcGIS Online

- A new WFS (hosted) item is created
- Notes:
 - These must be shared with everyone
 - Lifetime is dependent on the hosted feature layer



ArcGIS Pro

- Hosted services (ArcGIS Online or ArcGIS Enterprise)
- Publish to ArcGIS Enterprise by reference
- Publish to ArcGIS Enterprise by copying the data to the server

Share As Web Layer

Sharing Redlands As A Web Layer

General Configuration Content

WFS Properties

Namespace

Prefix

☒ Enter service properties

☐ Use external capabilities files ⓘ

Property	Value
name	
title	
abstract	
keyword	
serviceType	
serviceTypeVersion	
fees	
accessConstraints	
providerName	

Path or URL to stored query file (WFS 2.0)

☐ Enable transactions

☐ Enable maximum number of features

Maximum features returned by service

Swap axis order ⓘ

WFS 1.0.0

WFS 1.1.0

WFS 2.0.0

Finish Sharing

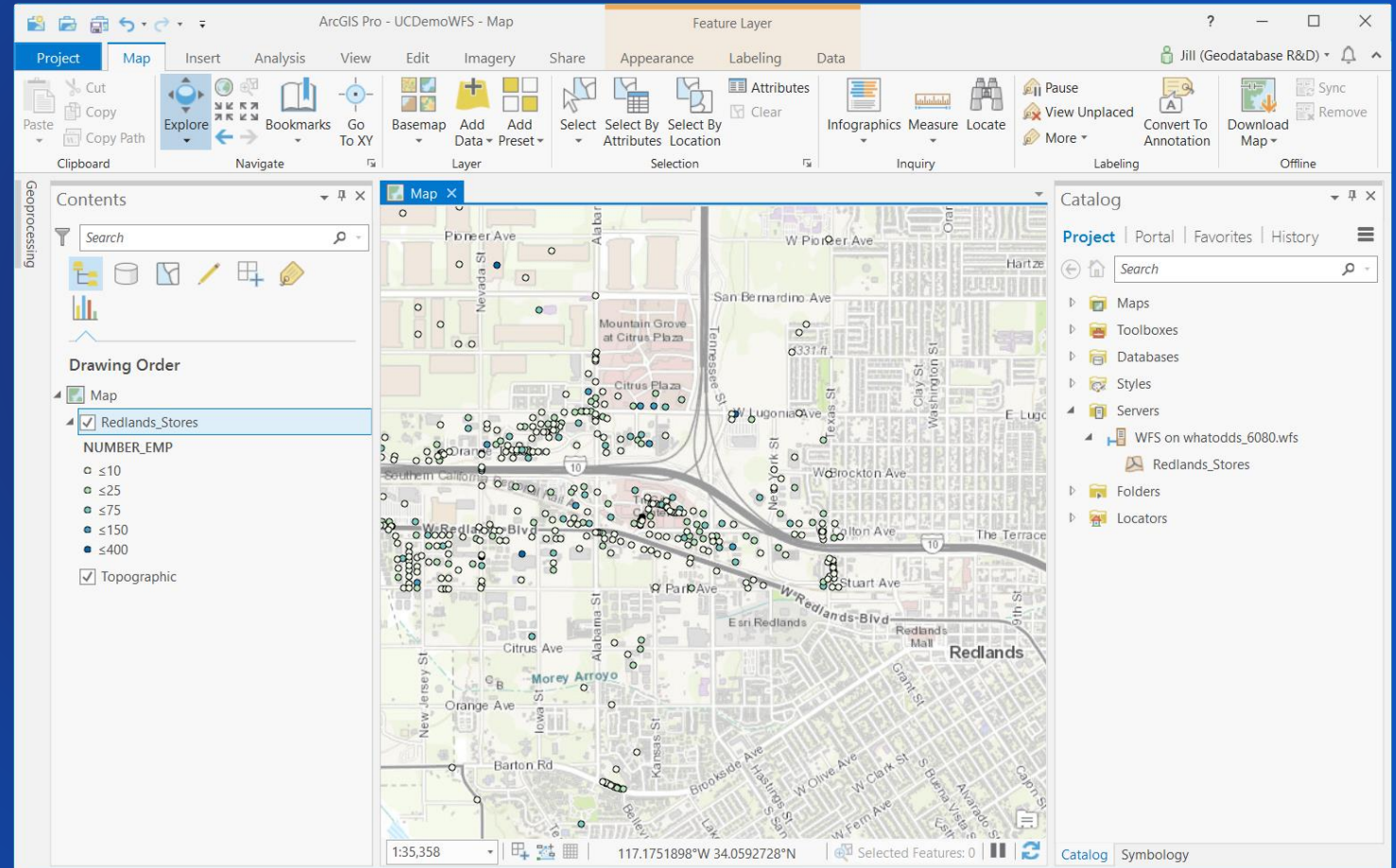
WFS Clients

Section Subhead

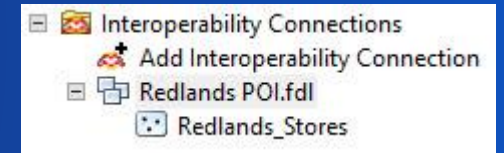
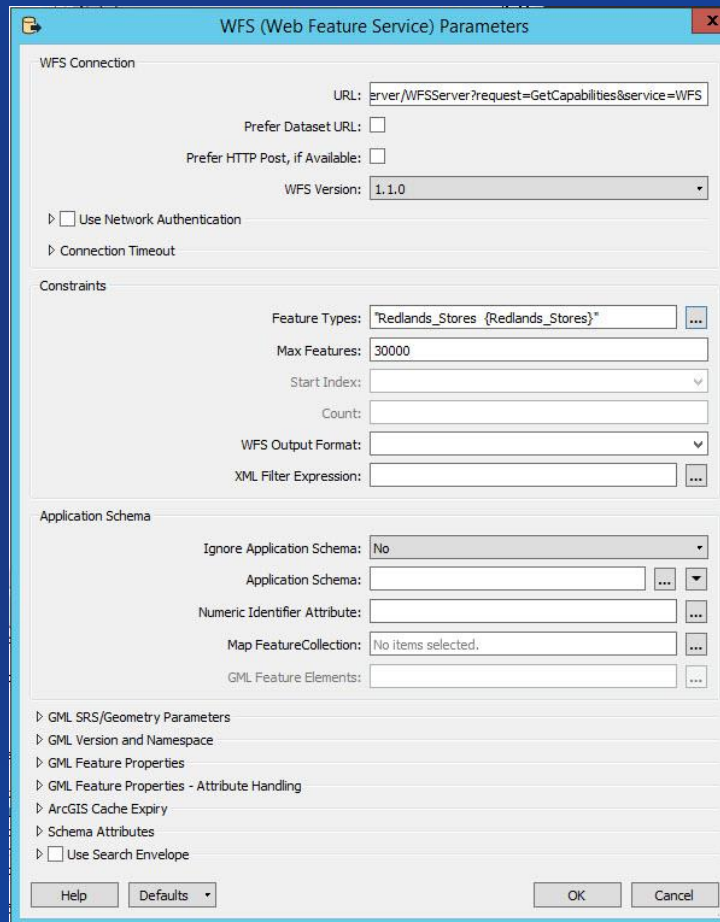
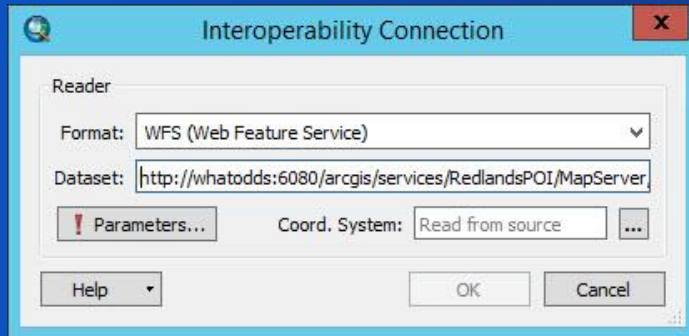


ArcGIS WFS clients

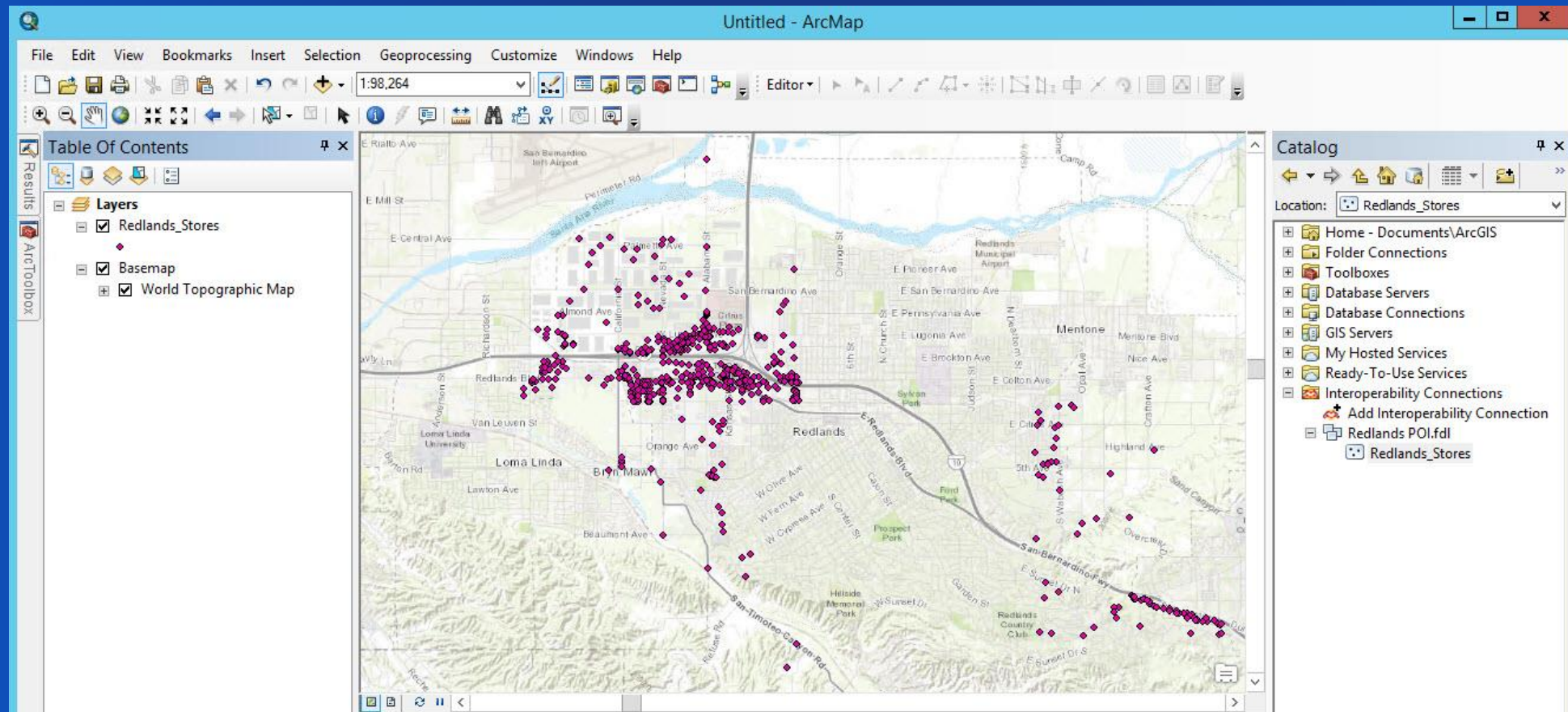
- Data Interoperability Extension in ArcMap
- ArcGIS Online/Enterprise Map Viewer
- ArcGIS Pro



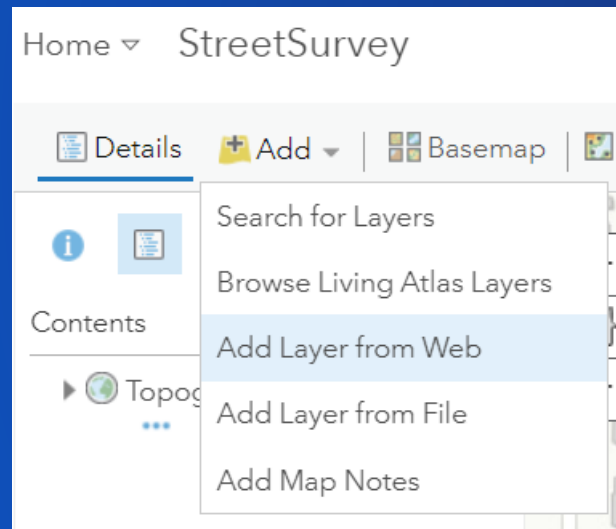
Data Interoperability Extension



Data Interoperability Extension



ArcGIS Online & ArcGIS Enterprise



×

Add Layer from Web

What type of data are you referencing?

A WFS OGC Web Service

URL:

Add Custom Parameters

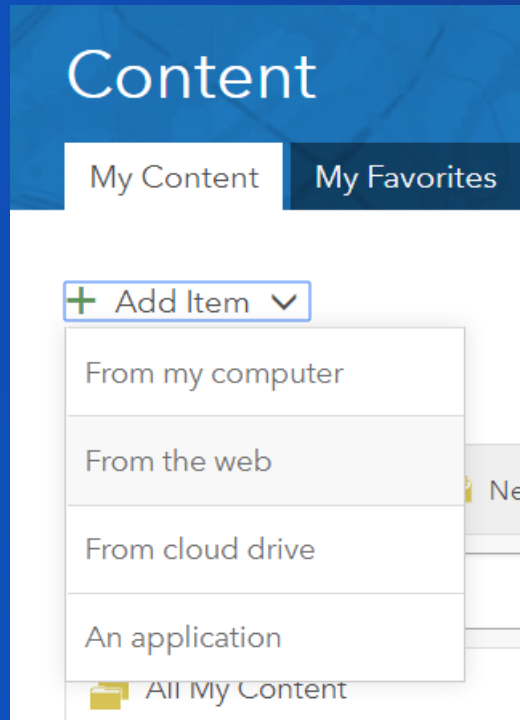
GET LAYERS

Having trouble displaying your OGC Web service? Help us improve this site by sending us the URL via the Contact Esri link.

ADD LAYER

CANCEL

ArcGIS Online & ArcGIS Enterprise



Add an item from the web

Type:

☐ ArcGIS Server web service

☐ WMS (OGC)

☐ WMTS (OGC)

☐ KML

☒ WFS (OGC)

☐ Document

URL:

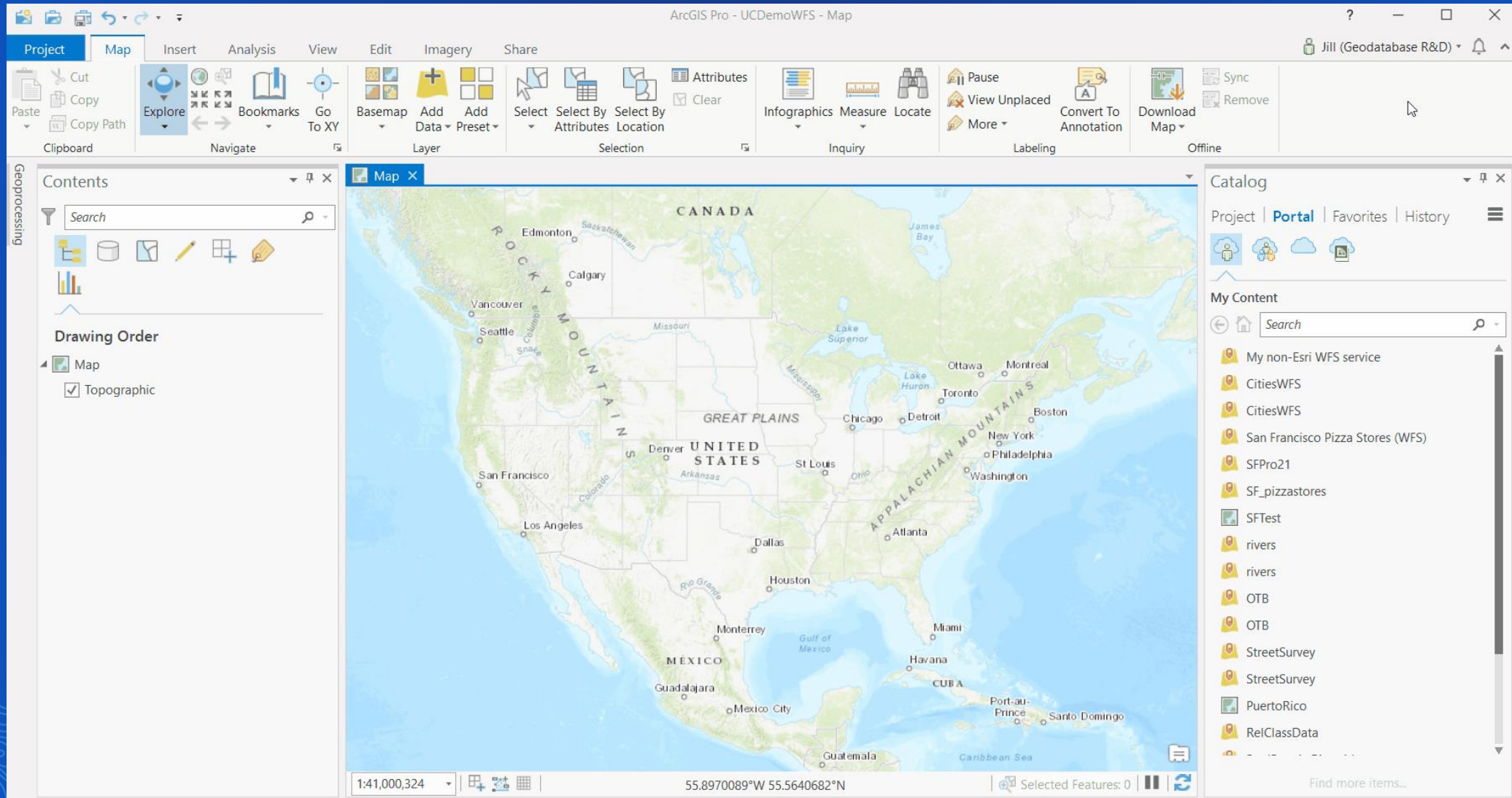
Title:

Tags:

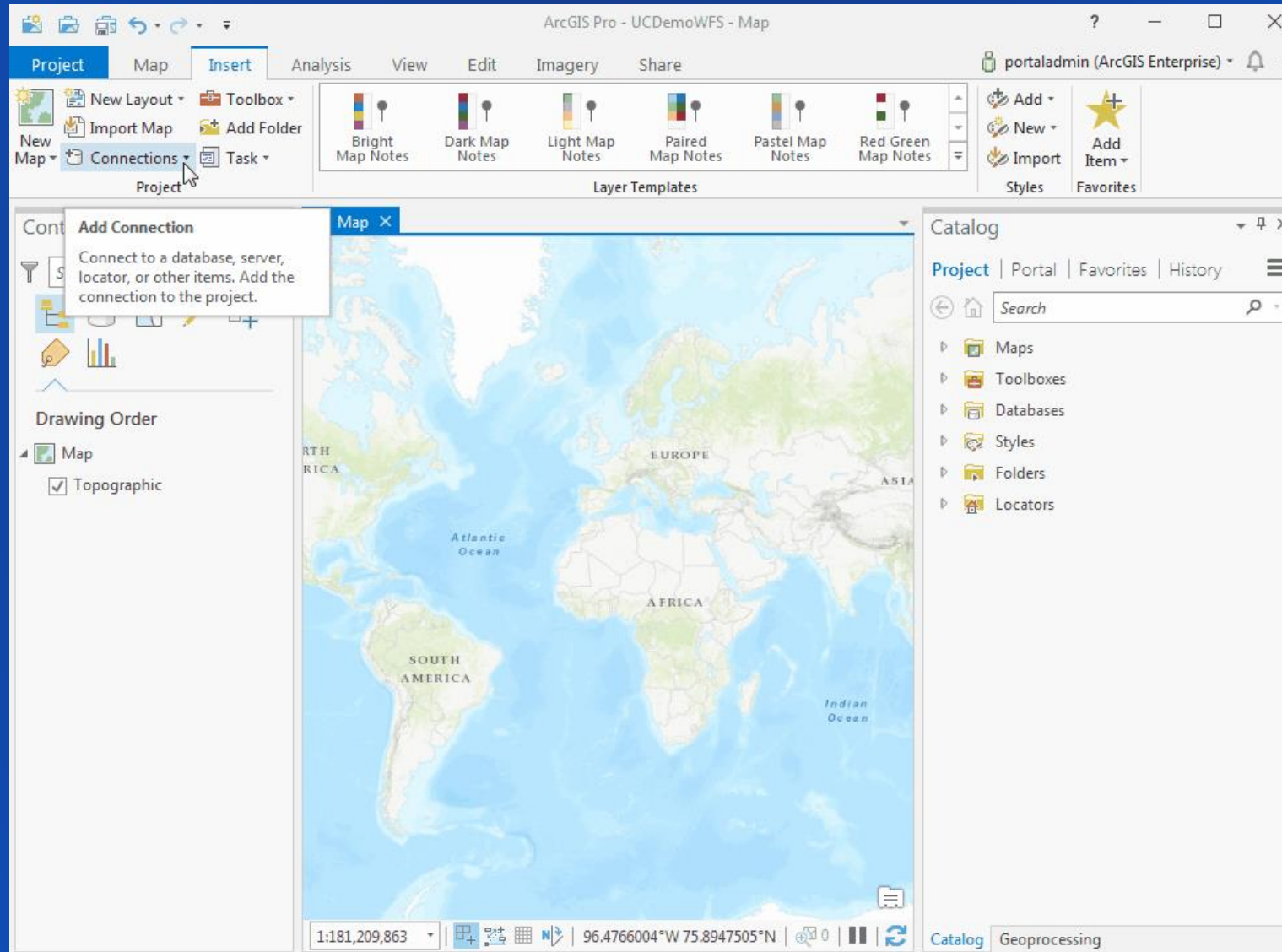
Layer:

▼

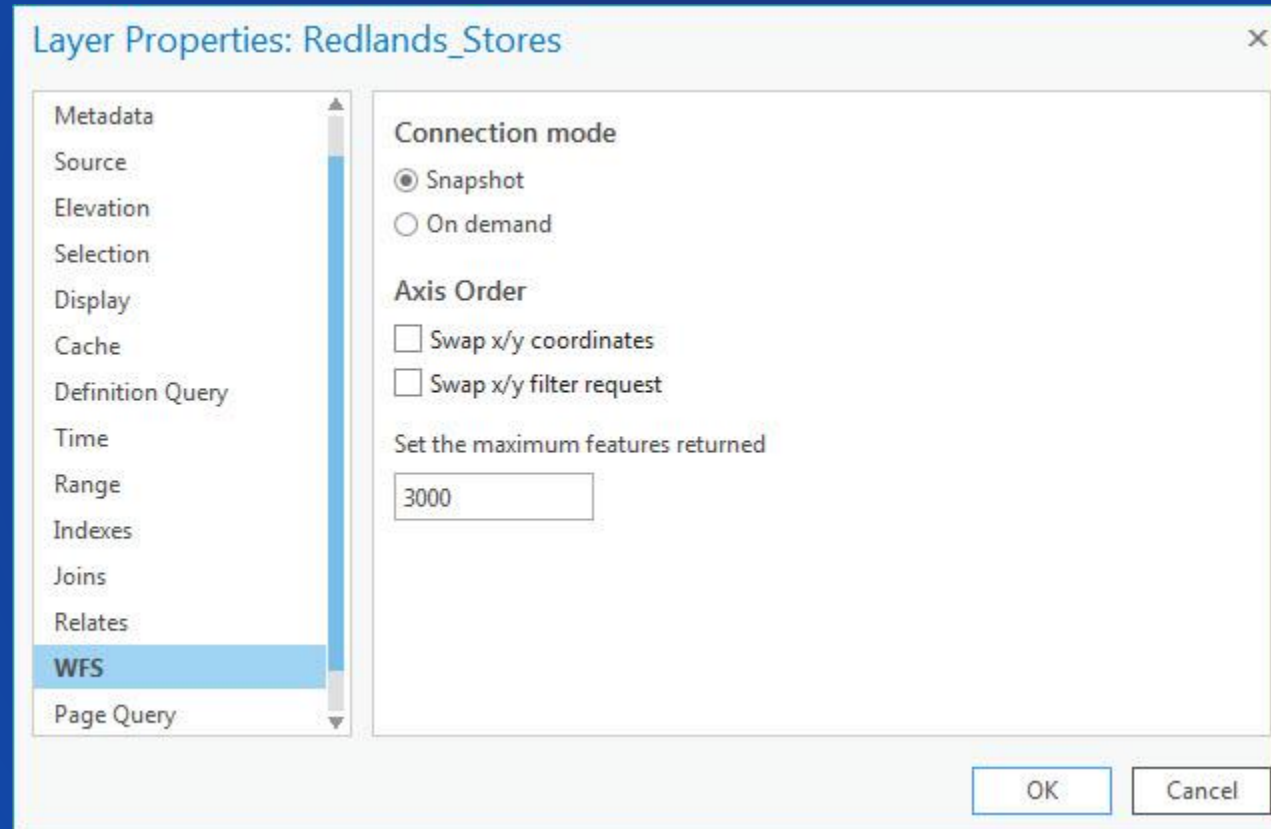
ArcGIS Pro (portal item)



ArcGIS Pro (WFS Server connection)



ArcGIS Pro (WFS Server connection)



ArcGIS Pro (WFS Server connection)

Layer Properties: Redlands_Stores

General
Metadata
Source
Elevation
Selection
Display
Cache
Definition Query
Time
Range
Indexes
Joins
Relates
WFS
Page Query

▼ Data Source Set Data Source...

Data Type	WFS Service Feature Class
Url	http://whatodds:6080/arcgis/services/RedlandsPOI/MapServer/WFSServer
Feature Class	Redlands_Stores
Alias	Redlands_Stores
Feature Type	Simple
Geometry Type	Point
Coordinates have Z value	No
Coordinates have M value	No
WFS Version	2.0.0
WFS Mode	SNAPSHOT
Vertical Units	Meter

► Extent
► Spatial Reference
► Domain, Resolution, and Tolerance

OK Cancel

What's New

- ArcGIS Server/ArcGIS Enterprise
 - Maintenance and bug fixes
 - New WFS portal item
- ArcGIS Runtime
 - Support for WFS layers (100.5)
- ArcGIS Pro
 - Publishing (2.3)
 - Hosted and non-hosted WFS services
 - Ability to modify WFS Server connections
 - Improvements to WFS to Feature Class GP tool (2.4)
 - Support for complex services
 - Support for BBOX and filter custom parameters



What's New

Geoprocessing

WFS To Feature Class

Parameters Environments

* WFS Server

* Select Feature Type to Extract

* Output Location

* Name

☒ Complex WFS service

Max Features 1000

☐ Expose Metadata

Run

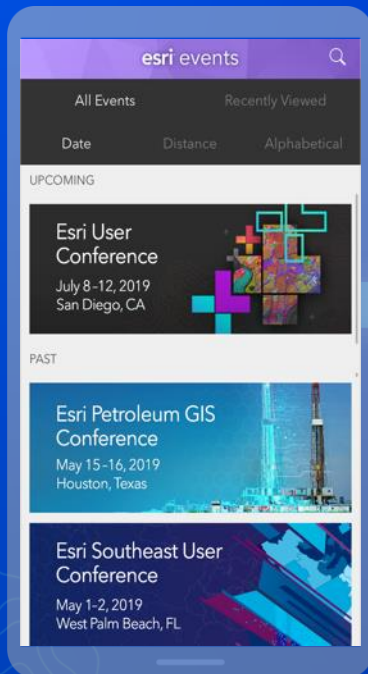
- geodatenportal.gdb
 - administrativeunit
 - administrativeunit_au_name
 - administrativeunit_boundary
 - administrativeunit_lowerlevelunit
 - administrativeunit_residenceofauthority
 - geographicalname
 - geographicalname_spelling

Roadmap

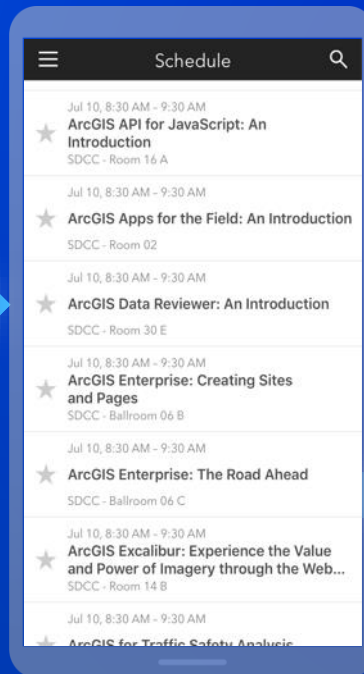
- Continued improvement in our clients and services
 - Your feedback helps us improve!
- R&D:
 - WFS 3.0.0
 - Output formats

Please Share Your Feedback in the App

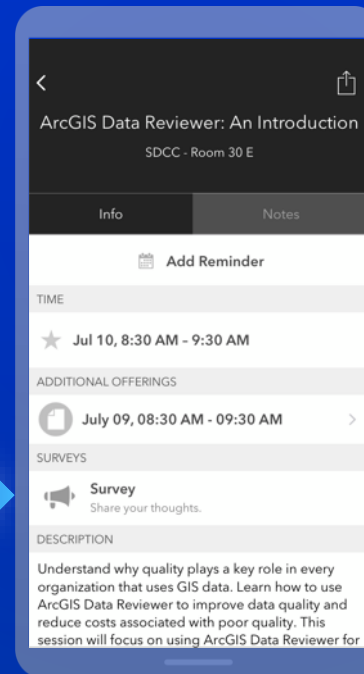
Download the Esri Events app and find your event



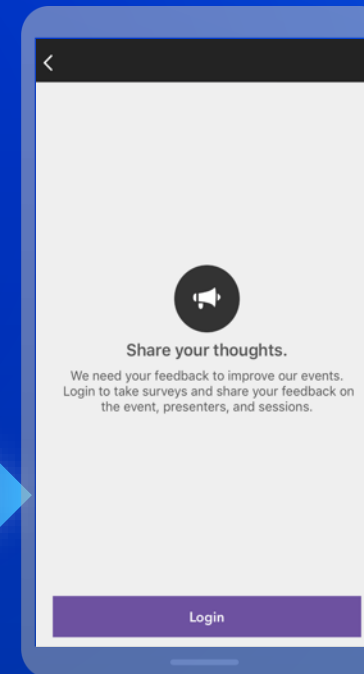
Select the session you attended



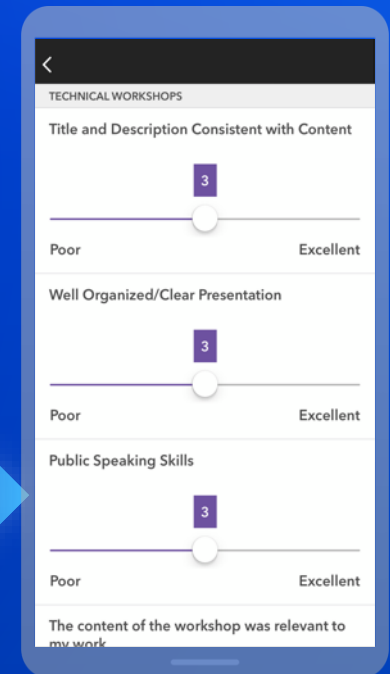
Scroll down to "Survey"



Log in to access the survey



Complete the survey and select "Submit"





esri

THE
SCIENCE
OF
WHERE

