FIELD DATA ACQUISITION AND MANAGEMENT WITH ARCGIS ONLINE AND PYTHON*

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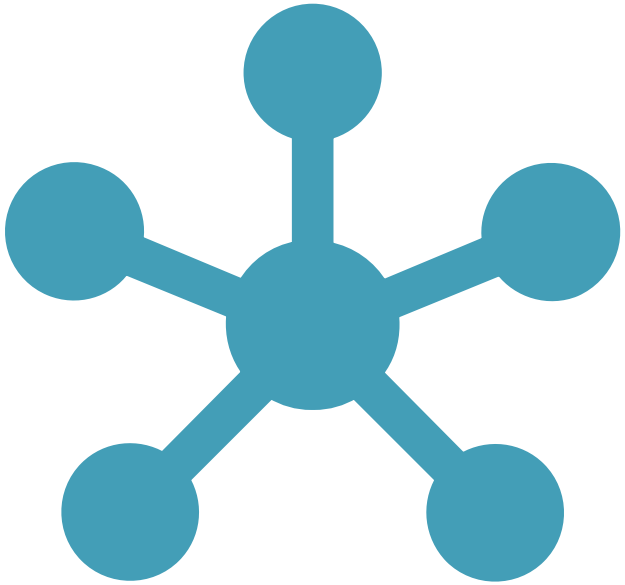
Main Topics

- Hosted Feature View Management
- Custom Data Enrichment
- Extract, Transform, and Load activities

HOSTED FEATURE VIEW MANAGEMENT

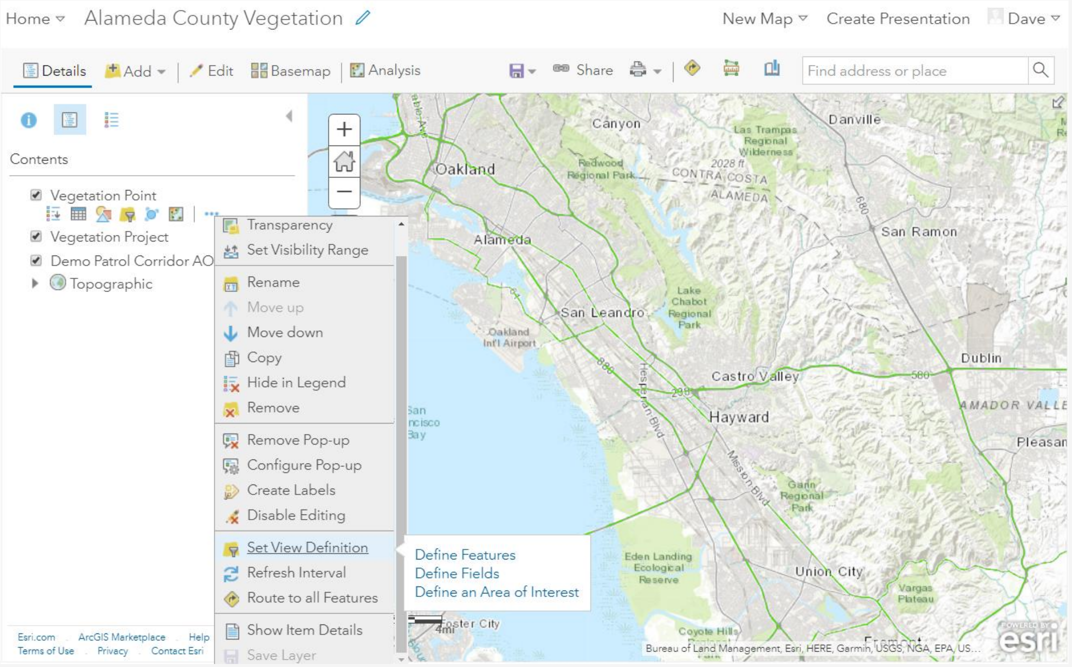


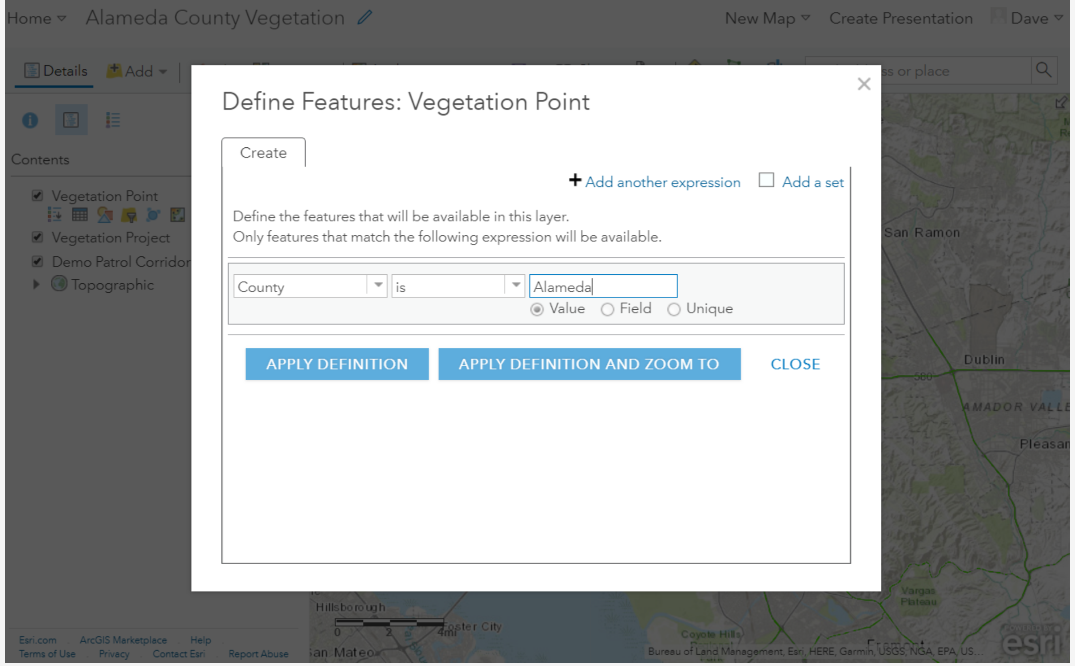
Why Hosted Feature Views (HFVs)?

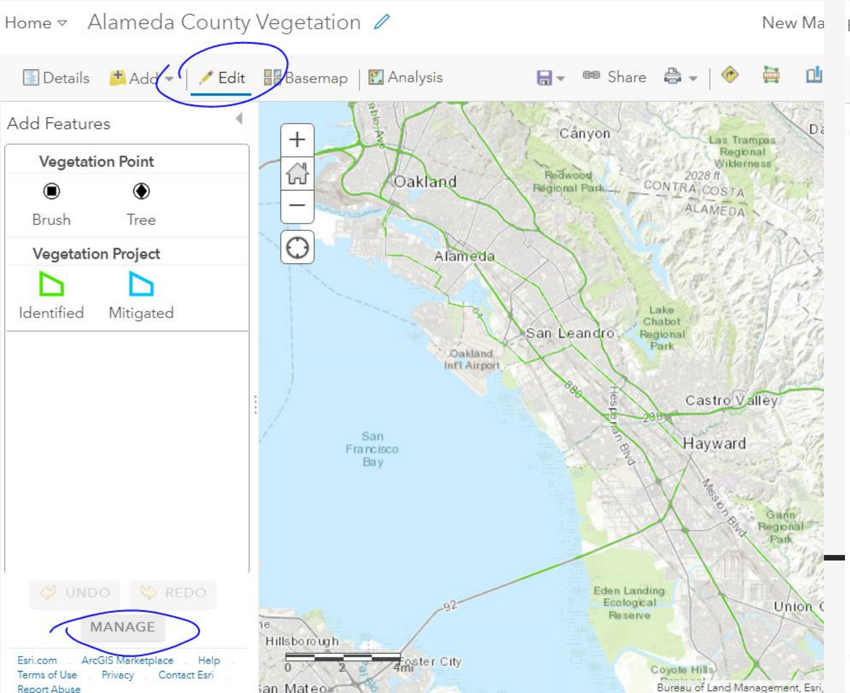
- User-specific configuration and focus
  - Define features
  - Define fields
  - Define geographic area
- Tailored sharing
- Maintain a centralized dataset

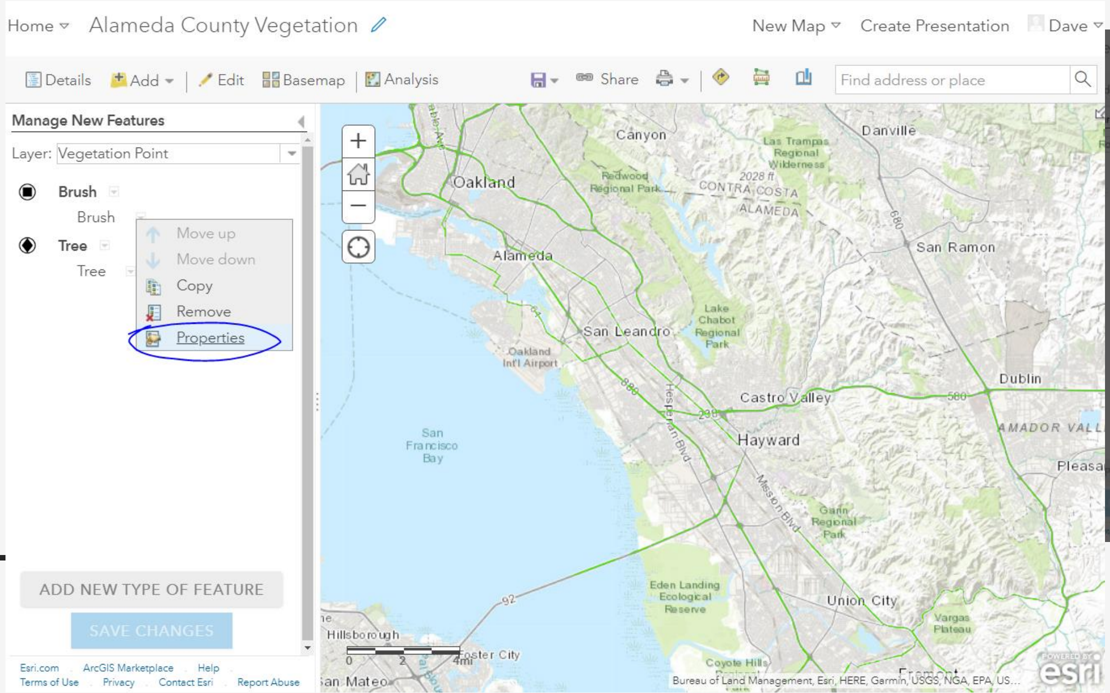
Setting up HFVs

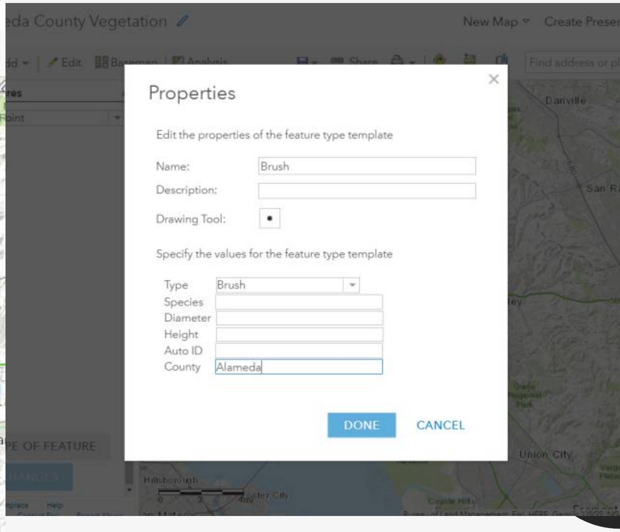
Create	• Create a view
Set	• Set editing permissions
Set	• Set feature definitions
Set	• Set visible fields
Set	• Set feature templates


Home
Alameda County Vegetation
New Map
Create Presentation
Dave
Details
Add
Edit
Basemap
Analysis
Share
Find address or place
Contents
Vegetation Point
Vegetation Project
Demo Patrol Corridor AO
Topographic
Transparency
Set Visibility Range
Rename
Move up
Move down
Copy
Hide in Legend
Remove
Remove Pop-up
Configure Pop-up
Create Labels
Disable Editing
Set View Definition
Refresh Interval
Route to all Features
Show Item Details
Save Layer
Define Features
Define Fields
Define an Area of Interest


Define Features: Vegetation Point
Create
Add another expression
Add a set
Define the features that will be available in this layer.
Only features that match the following expression will be available.
County
is
Alameda
Value
Field
Unique
APPLY DEFINITION
APPLY DEFINITION AND ZOOM TO
CLOSE

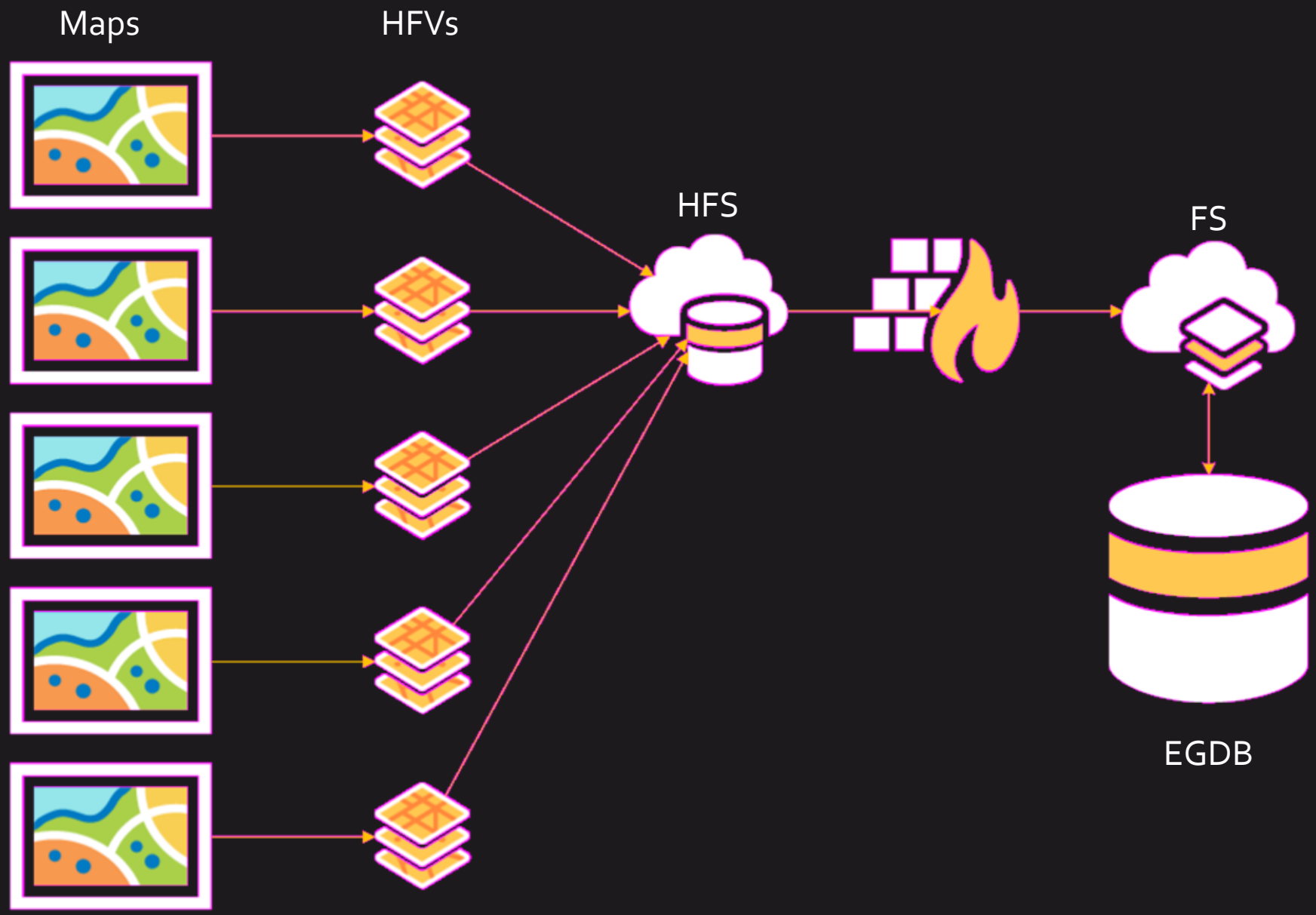

Home
Alameda County Vegetation
Details
Add
Edit
Basemap
Analysis
Share
Add Features
Vegetation Point
Brush
Tree
Vegetation Project
Identified
Mitigated
UNDO
REDO
MANAGE


Home
Alameda County Vegetation
New Map
Create Presentation
Dave
Details
Add
Edit
Basemap
Analysis
Share
Find address or place
Manage New Features
Layer: Vegetation Point
Brush
Brush
Tree
Tree
Move up
Move down
Copy
Remove
Properties
ADD NEW TYPE OF FEATURE
SAVE CHANGES


Properties
Edit the properties of the feature type template
Name:
Brush
Description:
Drawing Tool:
Specify the values for the feature type template
Type
Brush
Species
Diameter
Height
Auto ID
County
Alameda
DONE
CANCEL

Using Python API

- Get comfortable with REST API
- Manipulate JSON view definitions as Python dictionaries


Maps
HFVs
HFS
FS
EGDB

DATA ENRICHMENT

What's Enrichment?

- Enhancing or improving raw data
- Out of the box
- Custom
  - Auto-correct Incrementing IDs
  - GlobalID to text
  - Spatial attribution

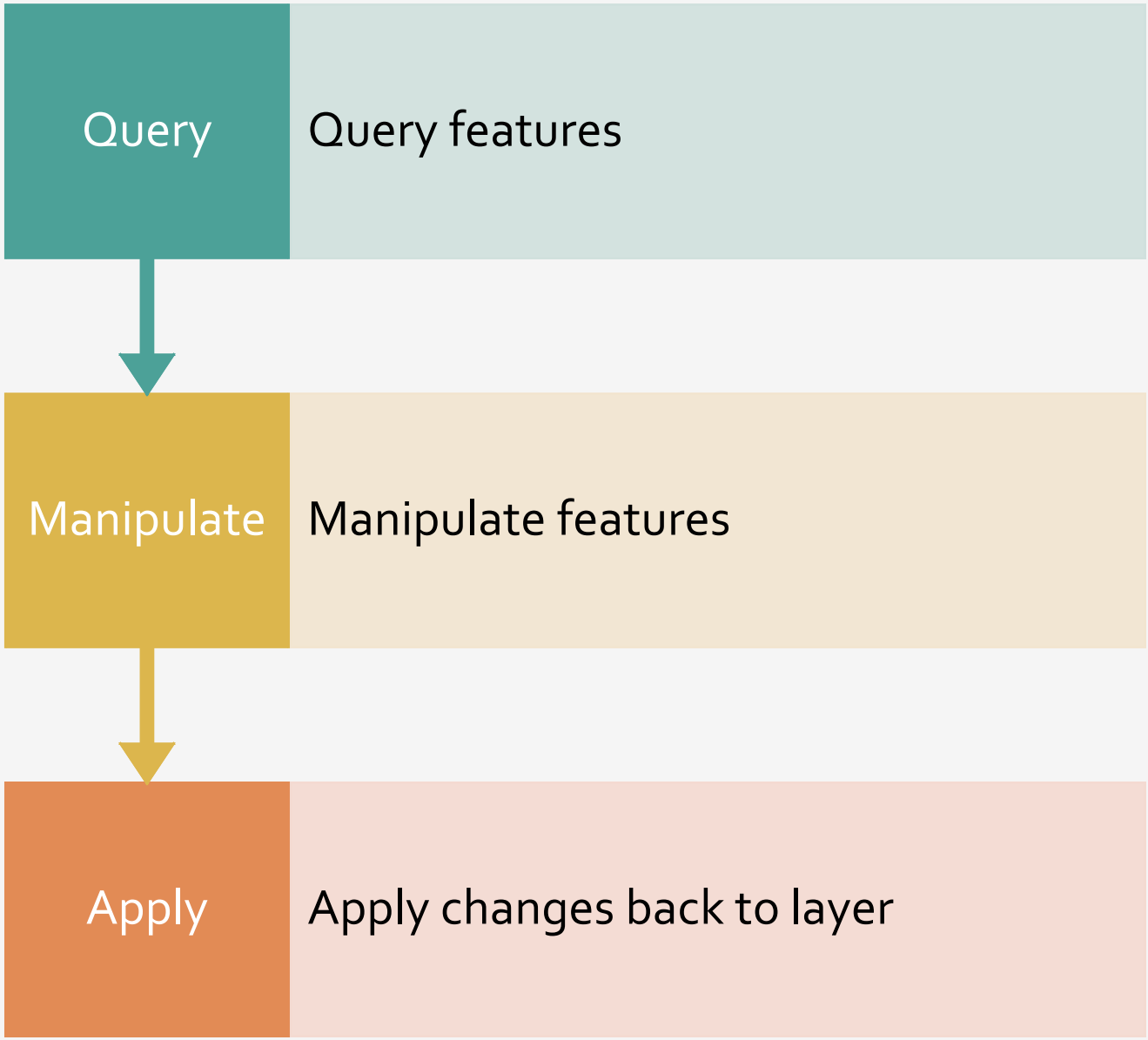
Why Custom Enrichment?

Auto-Incrementing IDs for field users

GlobalID to text for desktop analysis

- Track duplicates
- Facilitate applying desktop edits to AGOL

Additional Information for Desktop Analysts



Using Python API

Using Python API

```
import arcgis
my_gis = arcgis.GIS(org_url,username,password)

url = ''
lyr_update = arcgis.features.FeatureLayer(url,my_gis)

fset = lyr_update.query()
```

```
counter = 1
for feature in fset.features:
    new_id = 'ID_'+str(counter).zfill(5)
    feature.set_value('AUTO_ID',new_id)
    counter += 1
```

```
lyr_update.edit_features(updates=fset.features)
```

EXTRACT, TRANSFORM, AND LOAD

Extract-Transform-Load (ETL)

- Database terminology for pulling data from one source and pushing it to another
- Useful ETL Workflows
  - Data migration
  - Data replication

Tools in Python API

Extract	Transform	Load
• Query function • Replica functionality	• get_value • set_value • Many others	• edit_features • Append

ETL Workflows - Data Migration

- Take a snapshot of a layer and move it to a new feature service
- Use query and edit_features
- Can account for schema changes between sources
  - Populate new fields for the target dataset
  - Modify existing data to account for field and domain changes

ETL Workflows - Data Replication

- Frequent synchronization of a child data source
- Child can be sde-backed enterprise feature service
  - Currently not supported in Distributed Collaboration workflows
- Useful for dynamic data
- Use create_replica, synchronize, edit_features

ETL Workflows - Data Replication

- Replicas return JSON response
  - Not true features but very close
  - JSON objects behave like lists and dictionaries in Python
- Lightweight format
  - Allows for modification of data during the process
- Query vs sync
  - Query allows configurable one time extraction
  - Replica creation provides one time extraction then tracks changes
  - Sync returns adds, updates, deletes

Thanks

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