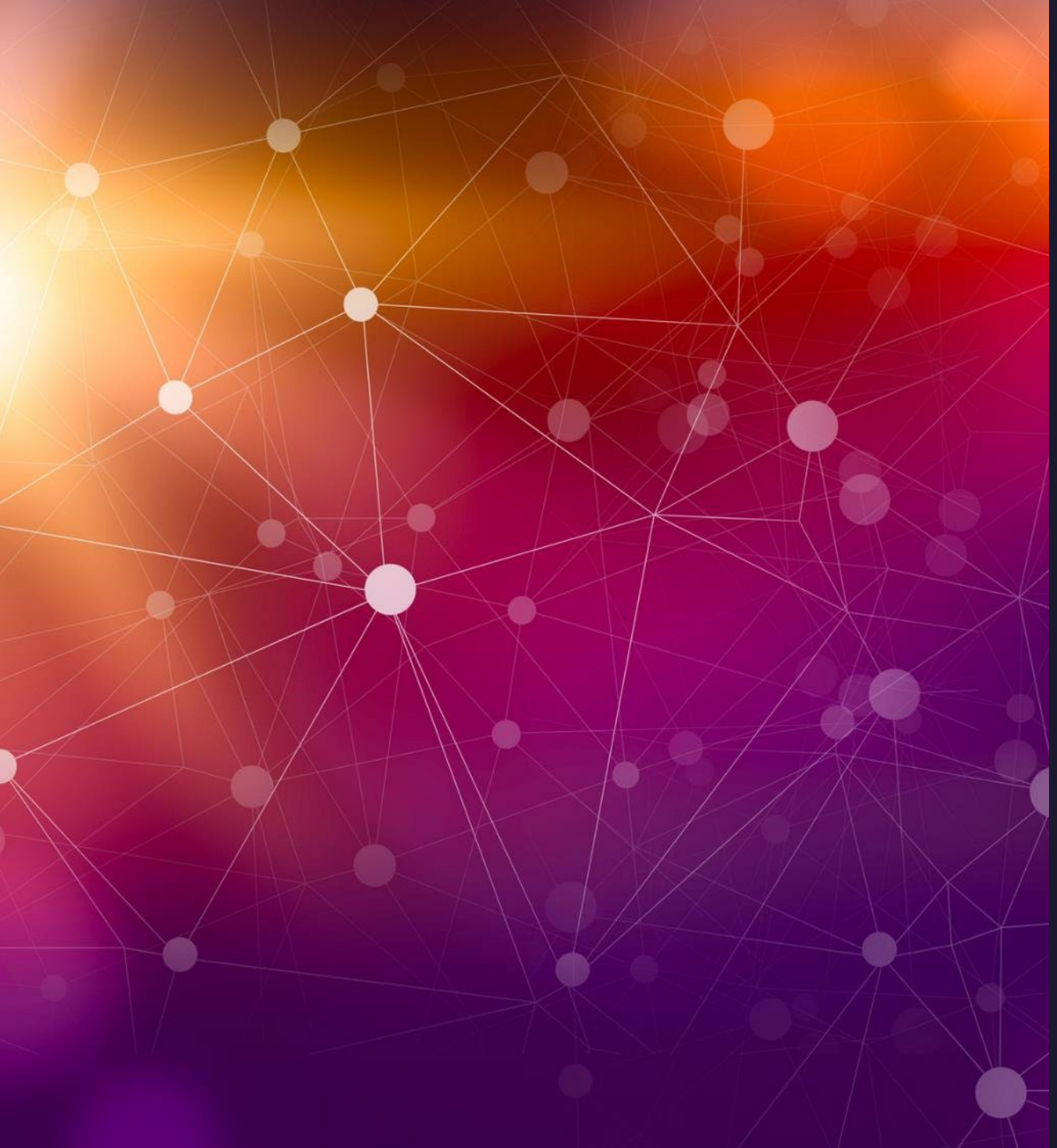

From AGOL to ArcGIS Enterprise: Why CSA Made the Leap

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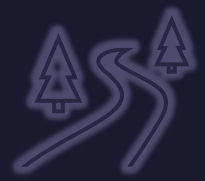
Overview

Background on CSA and SWODA

Roadmap to ArcGIS Enterprise



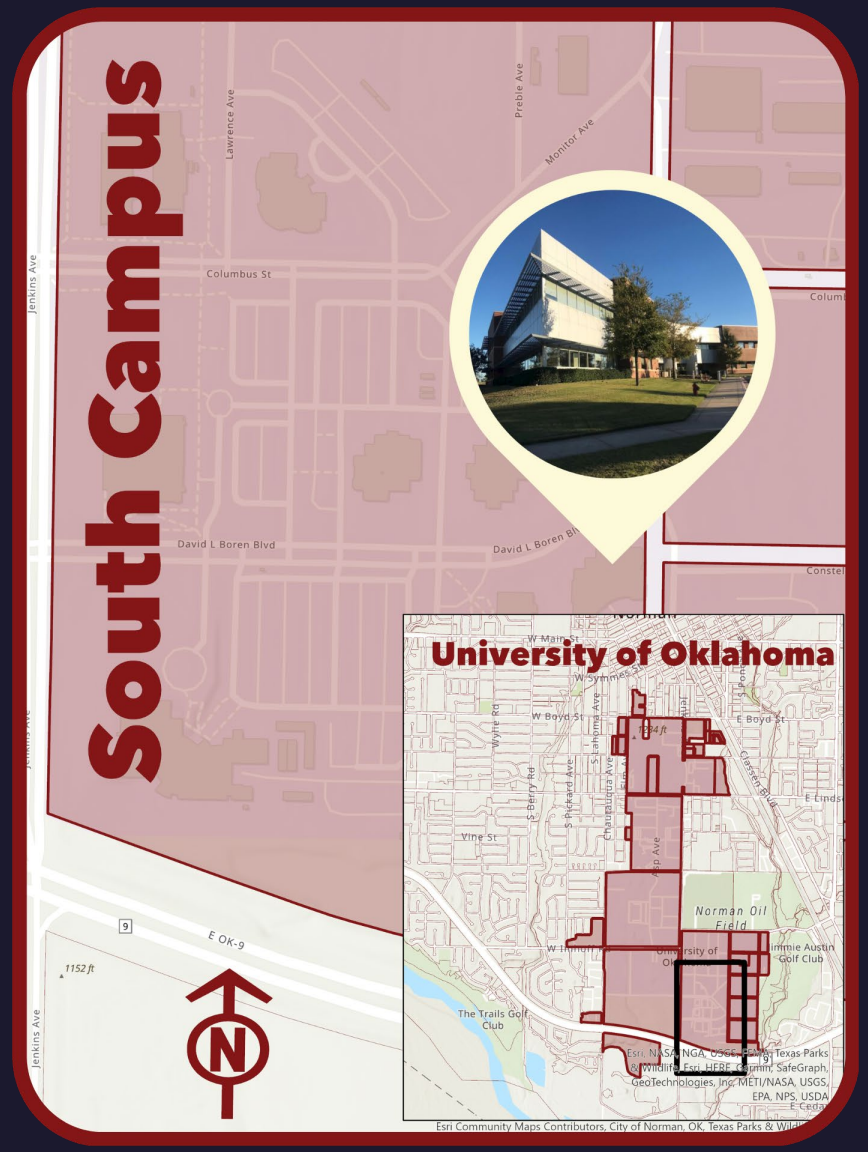
Data migration workflow

Helpful documentation

Background on CSA & SWODA

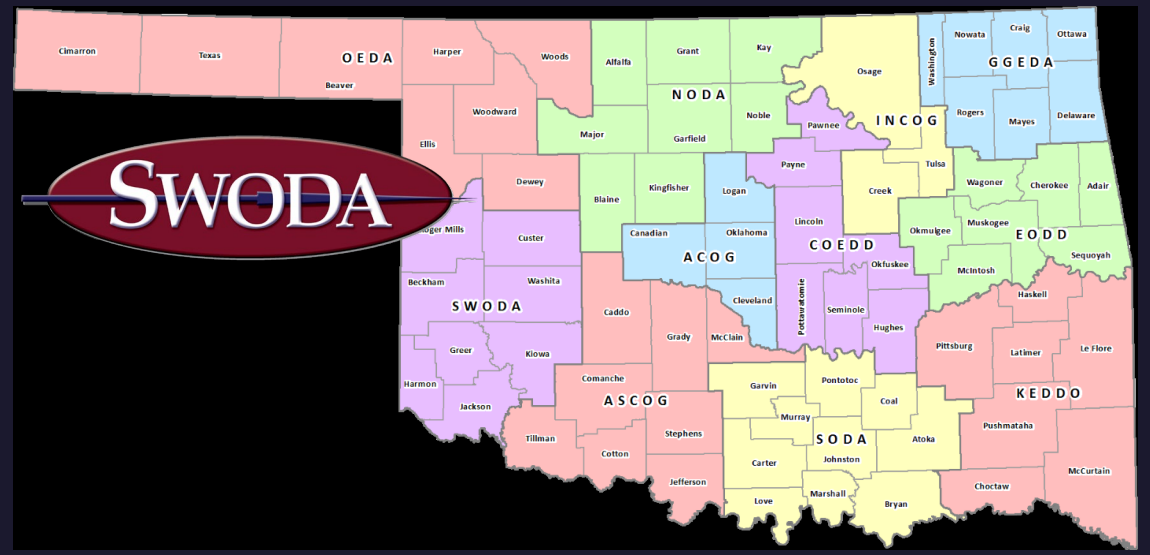
Background on CSA

- Staff of 10 located on OU's research campus
- Specialize in applied geospatial services and data warehousing
  - State of Oklahoma Data warehouse
  - Web and mobile applications
- CSA's GIS System Administrator maintains 9 ArcGIS Enterprise stacks
  - Also have dedicated AGOL account for serving data



Background on SWODA

- South West Oklahoma Development Authority housed in Burns Flat, OK
  - One of the state's 11 COGs consisting of 8 counties
  - Provide Capital Improvement Planning (CIP) services to municipalities in the region through local contracts funded by OK Department of Commerce
    - CIP – an inventory of municipality's capital assets, summary of characteristics, and a plan for improvement or replacement
    - Acts as guide to ensure community's assets continually deliver satisfactory level of service



Assets grouped into 5 community categories

1. Administration
2. Parks
3. Public safety
4. Streets
5. Utilities

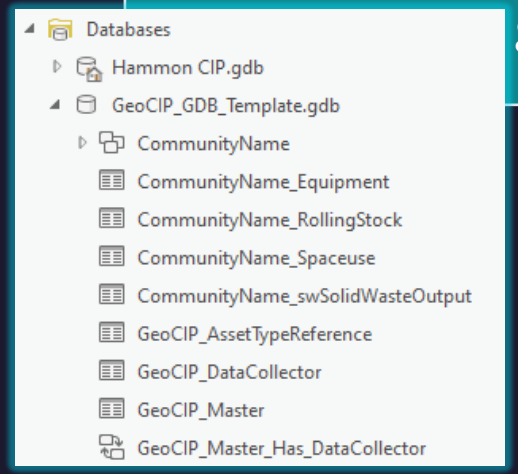
Mapping performed of geographically distributed assets

SWODA's GIS Needs

- Maintain digital municipal mapping inventory and ensure data and maps are accessible to communities participating in CIP; Assist in configuring maps for printing & editing; incorporate historic CIP data with updated CIP mapping
  - Historically, municipalities had no consistent method of formatting maps or map data
  - OK Dept of Commerce has since initiated a statewide inventory of municipal infrastructure in effort to develop consistently formatted digital, statewide dataset
    - GeoCIP Program – statewide, standardized process that provides a template for local governments to perform mapping and inventories of locally owned assets
    - Helps municipalities assess asset conditions, identify infrastructure needs, set need priorities, develop 5-year plan that includes identifying potential funding sources
  - Necessitates Field Maps for data collection to ensure standard format

GeoCIP geodatabase model

Provides schema with features, attributes & domains
Deliverable at the end of each community CIP is a geodatabase.



Roadmap to ArcGIS Enterprise

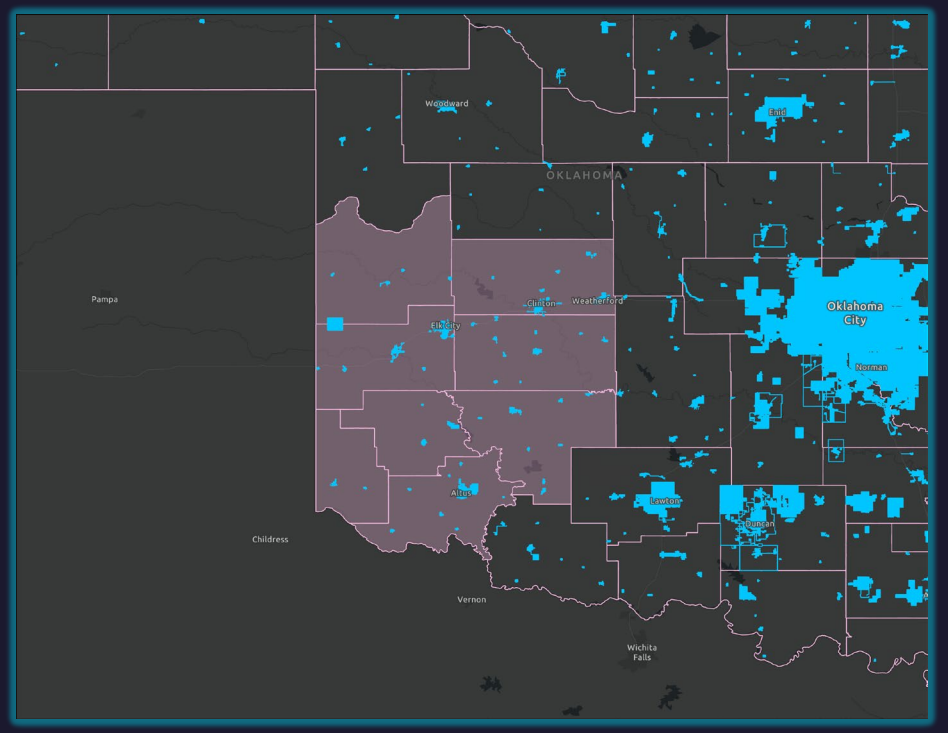
Initial State of the GIS Infrastructure

- Much of the existing data scattered on different hard drives and/or stored locally in ArcMap file geodatabases → Initial step is data gathering, publishing to SWODA AGOL account for accessibility
- Existing data non-conforming to GeoCIP geodatabase model → Data schema and domain updates to ensure conformity for future inventory work in Field Maps
- Other data published to SWODA's AGOL account from ArcMap → Import and republish data from ArcGIS Pro

SWODA AGOL account limited to 5 users, presenting challenge with making data accessible while remaining secure; presents challenge with Field Maps

Roadmap to ArcGIS Enterprise

- Initial work for updating CIP inventory for Town of Carter and City of New Cordell
  - These smaller cities and towns could be inventoried in Field Maps with single SWODA worker
- As larger communities began participating in CIP data updates, need quickly arose for more field staff to perform inventories in Field Maps
  - Elk City, Weatherford, Sayre
- Further, smaller communities such as Thomas and Foss require data editing privilages to correct misplaced features

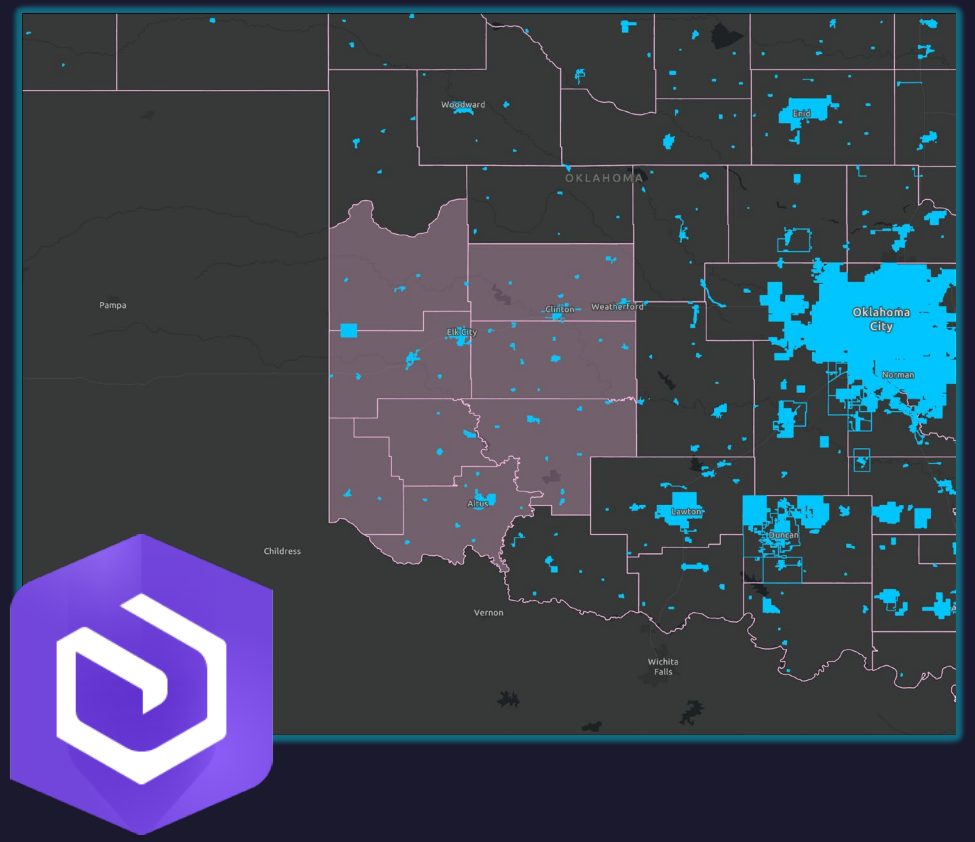


Decision to migrate to ArcGIS Enterprise stemmed first and foremost from the need to support greater user access under a limited budget

Data Migration Workflow

Migrating to ArcGIS Enterprise

- Migration – moving all or part of organization's existing deployment to alternate deployment
  - Migrate content from one ArcGIS organization (AGOL) to another (ArcGIS Enterprise version 11.2)
- Attempted the following workflows
  1. Import hosted features from AGOL to local geodatabase and publish to Enterprise
  2. Create distributed collaboration
  3. ArcGIS API for Python



Migrating to ArcGIS Enterprise

1. Import hosted features from AGOL to local geodatabase and publish to Enterprise

Functional, more of a quick fix
Tedious – symbology & domains do not transfer
Limited – cannot migrate web apps this way

2. Create distributed collaboration

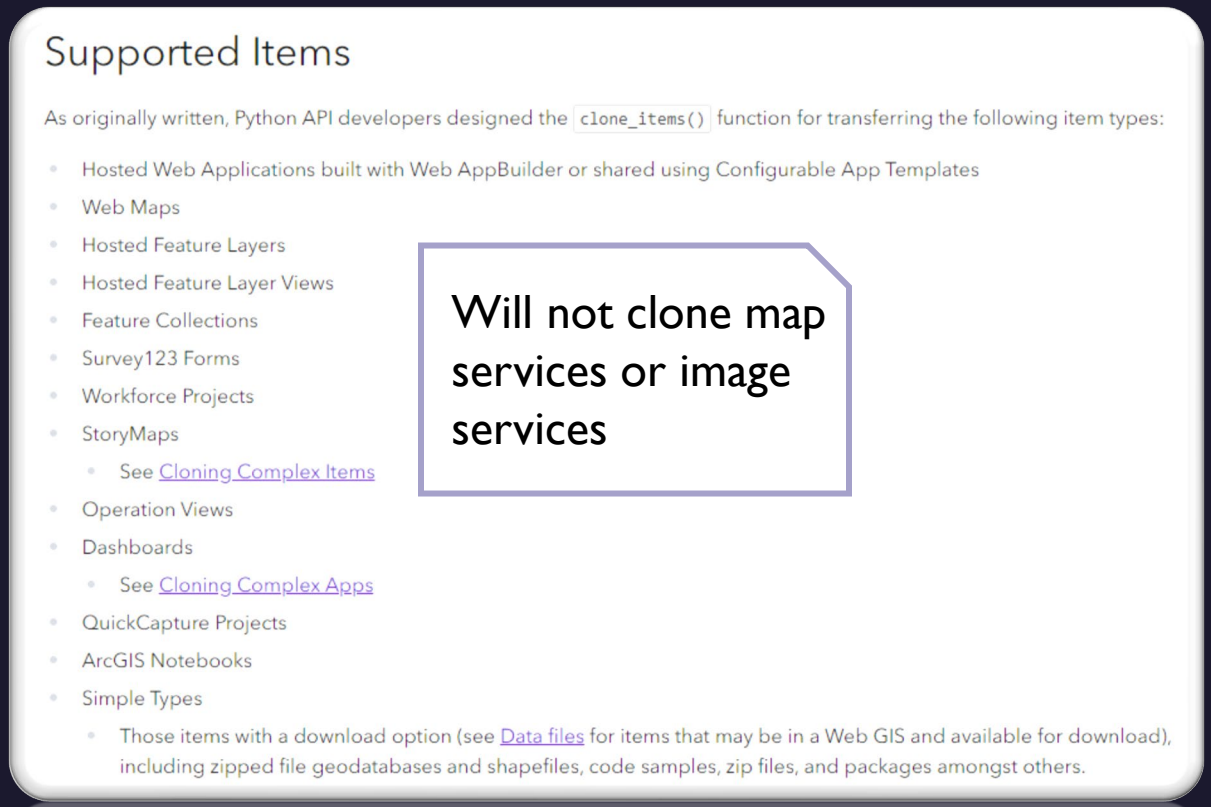
Comprehensive
Remain dependent on AGOL organization, not a solution if the goal is to consolidate to single organization
*If AGOL is a participant, it must serve as distributed collaboration host

3. Cloning content via ArcGIS API for Python

Quick, easy, comprehensive
Certain limitations on what can be cloned

Cloning Content

- **Clone_items()** function using *Notebooks* in ArcGIS Pro (version 3.2.0)
  - Creates exact duplicate of one item with all its uses and functionality from *source* organization (AGOL) to *target* organization (Enterprise)
- Used to clone hosted feature layers, web maps, and **complex items**
  - Items that contain other items within them (ex Experience Builder Experiences)
  - Must ensure underlying structure of the cloned item is referencing items that can be used in the target GIS



Cloning Content – Administrator Workflow

Gather source items using source *administrator account*

Import libraries & connect to *source* & *target* portals

Clone items into a target administrator account

get() hosted feature layer item owned in *source*

Clone item into *target* using owner parameter to specify target User to own cloned content

Edit View Insert Cell Help

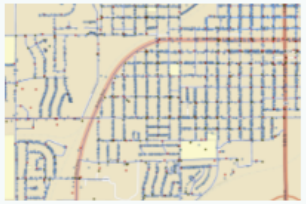
Run Code

```
In [18]: from pathlib import Path
         import sys
         import pandas as pd
         from arcgis.gis import GIS, Item
         from arcgis.env import active_gis
         from arcgis.features import FeatureLayerCollection
         from arcgis.mapping import WebMap

In [19]: source = GIS("https://swoda.maps.arcgis.com/home/user.html", "OUCSA_SWODA", "[redacted]")
         target = GIS("https://swoda-gis.csa.ou.edu/portal/home/user.html", "spad5340", "[redacted]")
```

```
In [16]: clinton_wwValve = source.content.get("c1e4a063100547fb90ff6baa6b23cd4c")
         clinton_wwValve
```

Out[16]:



Clinton_wwValve1

Feature Layer Collection by OUCSA_SWODA
Last Modified: January 19, 2024
0 comments, 139 views

```
In [20]: clinton_wwValve_c = target.content.clone_items(items=[clinton_wwValve], owner="spad5340", folder = "Clinton")
In [21]: clinton_wwValve_c[0]
```

Out[21]:

Clinton_wwValve1

Feature Layer Collection by spad5340
Last Modified: June 18, 2024
0 comments, 0 views

```
In [23]: clinton_wwValve_c[0].url
Out[23]: 'https://swoda-gis.csa.ou.edu/server/rest/services/Hosted/Clinton_wwValve1/FeatureServer'
```

Cloning Multiple Items

- clone_items() function can also clone every item in the list
  - Use **search()** function to search source for tagged items owned by OUCSA_SWODA user while simultaneously cloning the list items into target

Tip: use **search_existing_items = TRUE** parameter in clone_items function to avoid cloning data that already exists in target

If argument set to FALSE, specified item(s) cloned into target regardless of whether or not they already exist

```
In [20]: waterline_content = source.content.search(f"tags:waterlines AND owner:OUCSA_SWODA")
         waterline_content

Out[20]: [<Item title:"Erick_WaterlinesMerged" type:Service Definition owner:OUCSA_SWODA>, <Item title:"GeoCIP_Waterlines" type:Service
         Definition owner:OUCSA_SWODA>, <Item title:"Canute_WaterLines" type:Service Definition owner:OUCSA_SWODA>, <Item title:"Erick_
         WaterlinesMerged" type:Feature Layer Collection owner:OUCSA_SWODA>, <Item title:"Erick_Waterlines" type:Service Definition own
         er:OUCSA_SWODA>, <Item title:"Erick_Waterlines" type:Feature Layer Collection owner:OUCSA_SWODA>, <Item title:"GeoCIP_Waterlin
         es" type:Feature Layer Collection owner:OUCSA_SWODA>, <Item title:"Blair_Waterlines" type:Service Definition owner:OUCSA_SWODA
         >, <Item title:"Blair_Waterlines" type:Feature Layer Collection owner:OUCSA_SWODA>, <Item title:"Canute_WaterLines" type:Featu
         re Layer Collection owner:OUCSA_SWODA>]
```

```
In [ ]: cloned_items = target.content.clone_items(items=waterline_content,
                                                  folder="Clinton")
        cloned_items
```

Documentation

Helpful Documentation

- Migration strategies
  - https://enterprise.arcgis.com/en/portal/latest/administer/linux/migration-strategies.htm
- Cloning content
  - https://developers.arcgis.com/python/guide/cloning-content/
- Cloning complex items
  - https://developers.arcgis.com/python/guide/cloning-complex-apps/
- Building a distributed GIS
  - https://developers.arcgis.com/python/guide/building-distributed-gis-through-collaborations/

Questions / Recommendations

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