

DevSummit DC

February 11, 2015 | Washington, DC

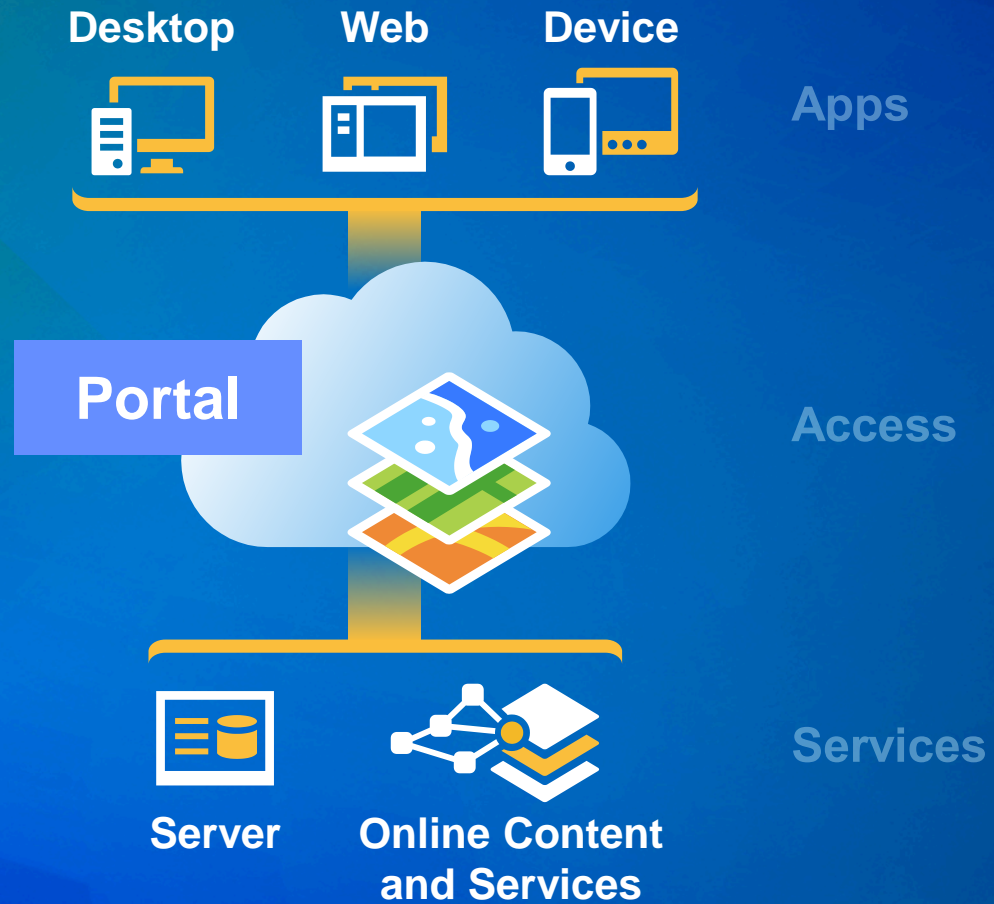


# Administering Portal for ArcGIS

Evan Caldwell

Sam Berg

# ArcGIS

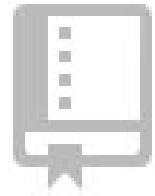


# Getting Started

Sharing API

# ArcGIS Online REST Endpoint

- <https://www.arcgis.com/sharing/rest/>
  - self
  - generateToken **IMPORTANT**
  - search
  - content
    - /users
      - /ecaldwell/content
      - ...
  - community
    - /groups
    - ...



**Esri / ago-admin-wiki**

# Maintenance

Sam

# Insights

Evan

# Automation

Sam

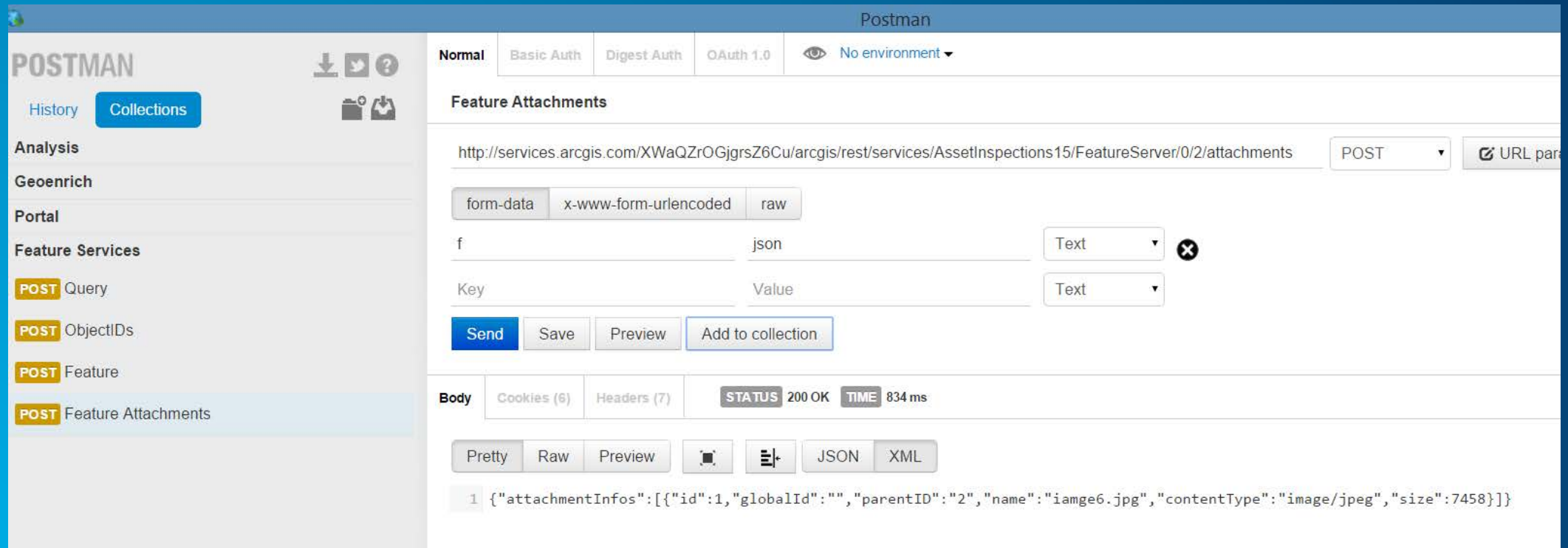


# User Administration

Evan

# Root vs Content Root vs User Content URL

- Anatomy of REST API structure



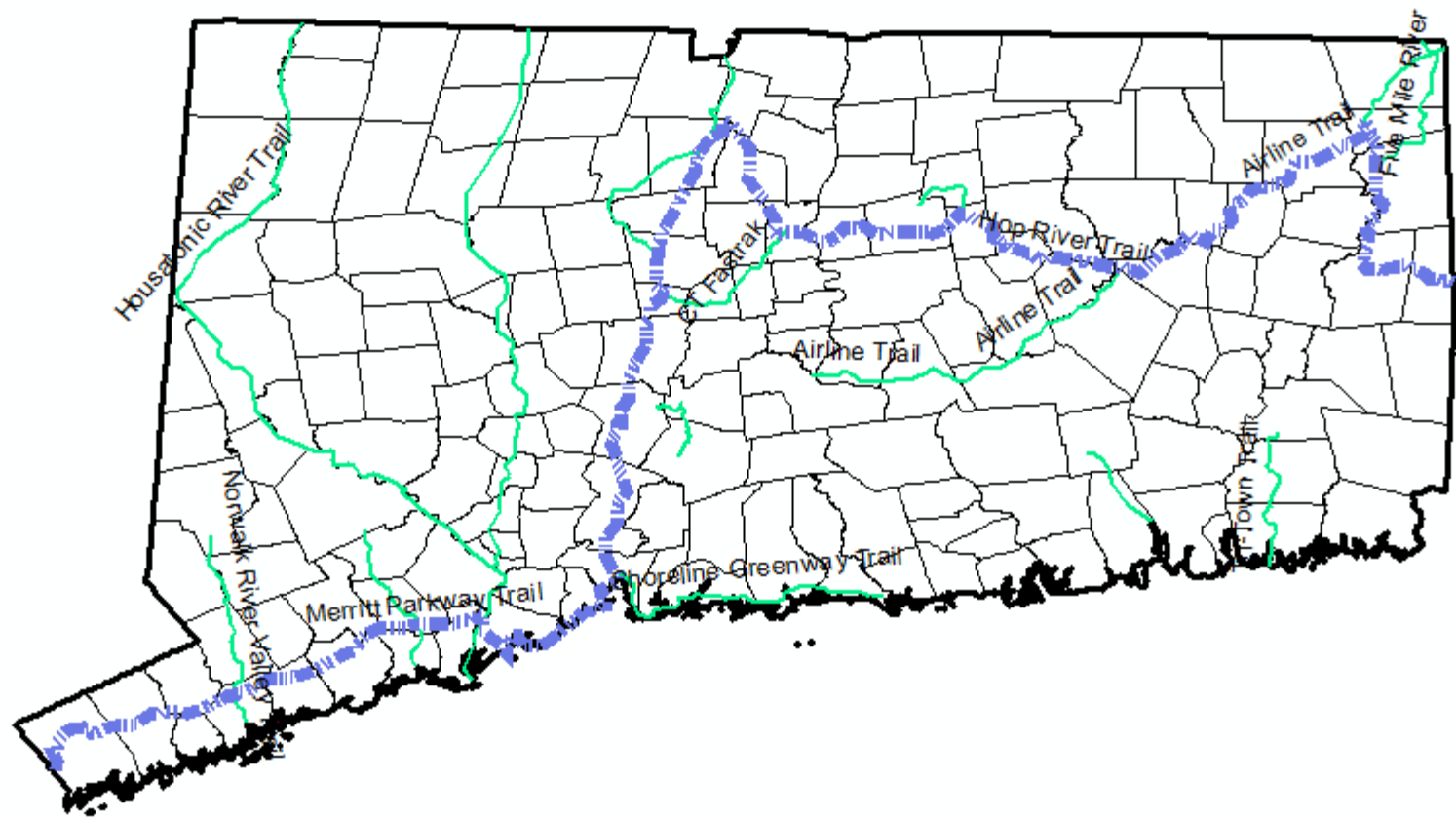
# Updating content via python script

<http://blogs.esri.com/esri/arcgis/2014/01/24/updating-your-hosted-feature-service-for-10-2/>

1:1,381,512

Table Of Contents

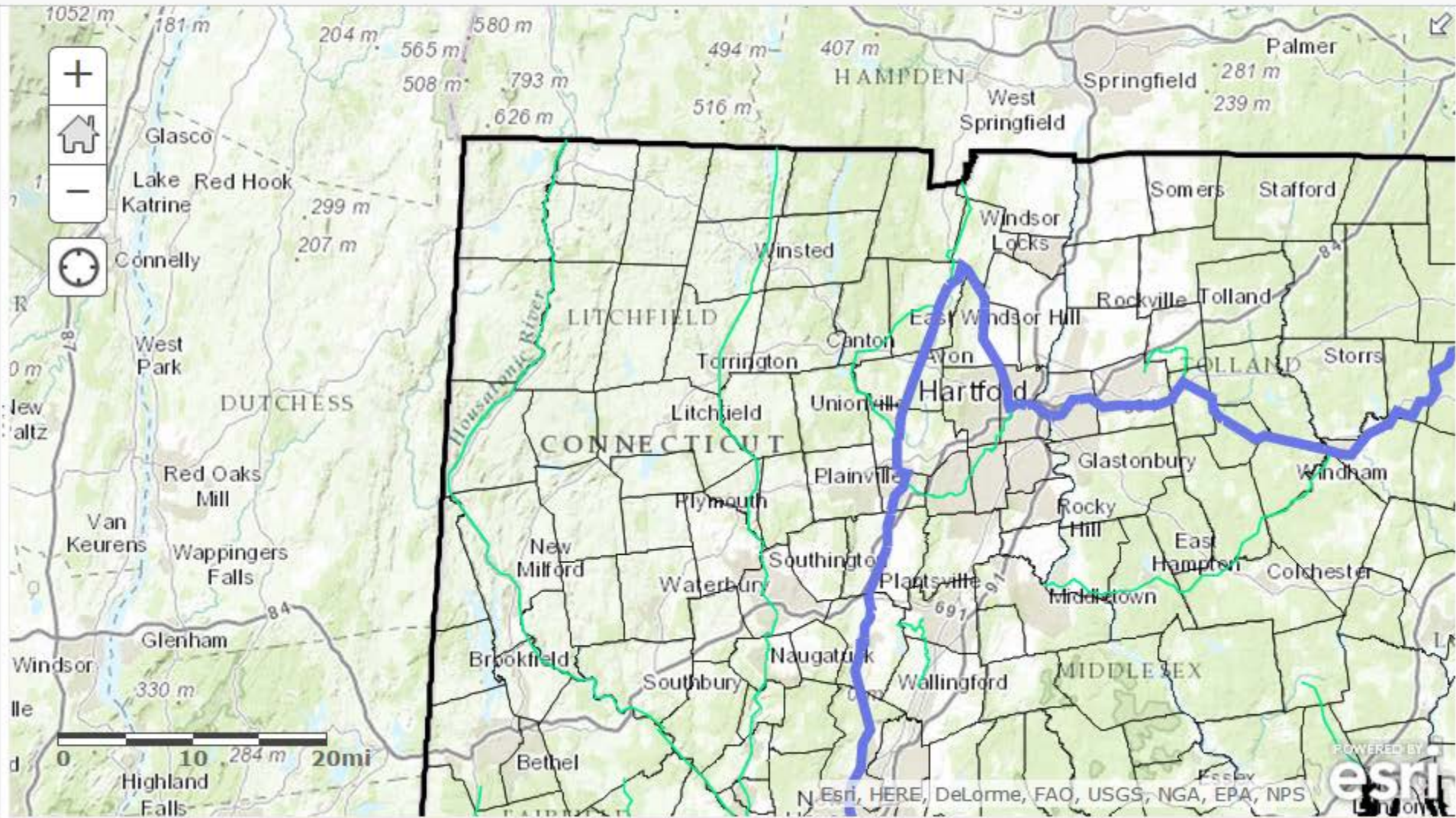
- Layers
  - D:\data\\_demos\CTTOD
    - 2015\_ECGreenwayTr
    - 2015\_TrailsStatus
  - D:\data\\_demos\CTTOD
    - Towns
    - Connecticut



[Details](#)
+ Add
 ✎ Edit
 🗺 Basemap
 💾 Save
 🔗 Share
 📄 Print
 📍 Find address or place

**Contents**

- bikes - 2015  
ECGreenwayTrailsStatus
- bikes - 2015  
TrailsStatus
- bikes - Towns
- bikes - Connecticut
- Topographic



```
settings.ini update.py x
AGOLHandler __init__

class AGOLHandler(object):
    def __init__(self, username, password, serviceName):
        self.username = username
        self.password = password
        self.serviceName = serviceName
        self.token, self.http = self.getToken(username, password)
        self.itemID = self.findItem("Feature Service")
        self.SDitemID = self.findItem("Service Definition")

    def getToken(self, username, password, exp=60):...
```

Solution Explorer

- requests
- pack
- \_\_init
- \_\_init
- adap
- adap
- api.p

Properties

# Read Configuration

```
# AGOL Credentials
inputUsername = config.get('AGOL', 'USER')
inputPswd = config.get('AGOL', 'PASS')

# FS values
MXD = config.get('FS_INFO', 'MXD')
serviceName = config.get('FS_INFO', 'SERVICENAME')
tags = config.get('FS_INFO', 'TAGS')
description = config.get('FS_INFO', 'DESCRIPTION')
maxRecords = config.get('FS_INFO', 'MAXRECORDS')

# Share FS to: everyone, org, groups
shared = config.get('FS_SHARE', 'SHARE')
```



## Find IDs of Items to Update

```
def findItem(self, findType):  
    #  
    # Find the itemID of whats being updated  
    #  
    searchURL = self.http + "/search"  
  
    query_dict = {'f': 'json',  
                  'token': self.token,  
                  'q': "title:\""+ self.serviceName +  
    jsonResponse = sendAGOLReq(searchURL, query_dict)
```

# Create Service Definition

```
def makeSD(MXD, serviceName, tempDir, outputSD, maxRecords):  
    #  
    # create a draft SD and modify the properties to overwrite an existing FS  
    #  
  
    arcpy.env.overwriteOutput = True  
    # All paths are built by joining names to the tempPath  
    SDdraft = os.path.join(tempDir, "tempdraft.sddraft")  
    newSDdraft = os.path.join(tempDir, "updatedDraft.sddraft")  
  
    arcpy.mapping.CreateMapSDDraft(MXD, SDdraft, serviceName, "MY_HOSTED_SERVICES")  
  
    # Read the contents of the original SDDraft into an xml parser  
    doc = ET.parse(SDdraft)
```

## Do Some Processing

```
def makeSD(MXD, serviceName, tempDir, outputSD, maxRecords):  
    #  
    # create a draft SD and modify the properties to overwrite an existing FS  
    #  
  
    arcpy.env.overwriteOutput = True  
    # All paths are built by joining names to the tempPath  
    SDdraft = os.path.join(tempDir, "tempdraft.sddraft")  
    newSDdraft = os.path.join(tempDir, "updatedDraft.sddraft")  
  
    arcpy.mapping.CreateMapSDDraft(MXD, SDdraft, serviceName, "MY_HOSTED_SERVICES")  
  
    # Read the contents of the original SDDraft into an xml parser  
    doc = ET.parse(SDdraft)
```

# Upload Service Definition

```
# Overwrite the SD on AGOL with the new SD.
# This method uses 3rd party module: requests
#

updateURL = agol.http+' /content/users/{}/items/{}/update'.format(agol.username, agol.SDitemID)

filesUp = {"file": open(fileName, 'rb')}

url = updateURL + "?f=json&token="+agol.token+ \
    "&filename="+fileName+ \
    "&type=Service Definition"\
    "&title="+agol.serviceName+ \
    "&tags="+tags+ \
    "&description="+description

response = requests.post(url, files=filesUp);
itemPartJSON = json.loads(response.text)
```

# Publish

```
#  
# Publish the existing SD on AGOL (it will be turned into a Feature Service)  
#  
publishURL = agol.http+ '/content/users/{}/publish'.format(agol.username)  
  
query_dict = {'itemID': agol.SDitemID,  
             'filetype': 'serviceDefinition',  
             'overwrite': 'true',  
             'f': 'json',  
             'token': agol.token}  
  
jsonResponse = sendAGOLReq(publishURL, query_dict)  
  
print("successfully updated...{}...").format(jsonResponse['services'])  
  
return jsonResponse['services'][0]['serviceItemId']
```

[http://resources.arcgis.com/en/help/arcgis-rest-api/index.html#/Publish\\_Item/02r3000000800000000/](http://resources.arcgis.com/en/help/arcgis-rest-api/index.html#/Publish_Item/02r300000080000000/)

# Cataloging Content

<https://github.com/Esri/ago-tools/blob/master/samples/AGOLCat.py>

```
87 agoAdmin = Admin(args.user, args.portal, args.password)
88
89 catalog= agoAdmin.AGOLCatalog(args.query, bIncludeSize)
90
91 with open(args.file, 'wb') as output:
92     # Write header row.
93     output.write("id,owner,created,modified,name,title,type,typeKeywords,description,tags,snippet,thumbnail,externalLink")
94     # Write item data.
95     for r in catalog:
96         s=''
97         s += getResultValue(r.id) + ","
98         s += getResultValue(r.owner) + ","
99         s += getResultValue(r.created) + ","
100        s += getResultValue(r.modified) + ","
101        s += getResultValueWithQuotes(r.name) + ","
102        s += getResultValueWithQuotes(r.title) + ","
103        s += getResultValue(r.type) + ","
104
105        sKeywords = ""
106        for sKW in r.typeKeywords:
107            sKeywords += sKW + ","
108
109        if (len(sKeywords)> 0 and sKeywords.endswith(",")):
```



```
C:\windows\system32\cmd.exe
.py
CSU path: d:/atemp/test.csv
Username: samuelberg
Portal: http://esrinortheast.maps.arcgis.com
Password:
fetching records 1-100...
fetching records 101-201...
fetching records 201-301...
fetching records 301-401...
fetching records 401-501...
fetching records 501-601...
fetching records 601-701...
fetching records 701-801...
fetching records 801-901...
fetching records 901-1001...
fetching records 1001-1101...
fetching records 1101-1201...
fetching records 1201-1301...
fetching records 1301-1401...
fetching records 1401-1501...
fetching records 1501-1601...
fetching records 1601-1701...
d:/atemp/test.csv written.

d:\data\_code\_active\agoTools\samples>
```

Table Name:  Summarize with PivotTable Properties  Header Row  First Column  Filter Button  
 Remove Duplicates Insert Slicer Open in Browser  Total Row  Last Column  
 Resize Table Convert to Range External Table Data  Banded Rows  Banded Columns  
 Properties Tools External Table Data Table Style Options Table Styles

B9

	A	B	C	D	E
1	id	owner	created	modified	name
2	7bcc77cb7671496193		11/28/2012	11/28/2012	Meet Your County Representatives_1354124484693
3	970d7de17994477fb1		5/3/2011	4/3/2013	AGS2RSSOE_v10b.zip
4	0b899ce2a28846968		11/13/2012	11/13/2012	rhode_island_surface_water_resources_1352840669566
5	1def14961a104c52a9		9/19/2012	11/15/2012	
6	214585d055834e2d8		5/1/2012	12/26/2012	connecticut_online_emergency_dashboard_(prototype)_1335881559623
7	328a8c491c624e02a1		8/18/2014	8/18/2014	
8	38dd9ee318a54feaf0		8/15/2014	8/21/2014	
9	093d98bba3144827a		8/14/2014	8/21/2014	
10	4f432d7d5e0e40f29c		4/30/2012	8/15/2014	ConnecticutMask
11	67f45715462244458		6/28/2013	6/10/2014	RI_Building_Inspection_Points
12	5d9620496ba646a19		11/19/2014	11/20/2014	
13	f1044dc10c1e45c494		4/30/2012	4/30/2012	Connecticut State Map_1335812997427
14	2606218355294773b		8/14/2014	8/21/2014	
15	e6785b33c1294b538		8/18/2014	8/21/2014	
16	24eac36c6ef0485db5		11/15/2012	11/15/2012	
17	7bd9c8836dc84fa5a1		11/15/2012	11/15/2012	
18	3b77effd098d446db7		12/12/2013	1/3/2014	NYCGeoClientGeoREST.zip
19	e4af83b9bc61420b98		1/13/2014	1/15/2014	
20	c58e087cf5064b7e9b		9/4/2012	9/5/2012	
21	0fa943003763492d8703e9774d83d3d9	samuelberg	11/18/2014	11/19/2014	LawEnforcementData
22	fb74d0905cf340d18f2d343ad2617bf2	samuelberg	4/15/2011	9/13/2011	ESRI_Resource_Deployment_Tracker_v10.zip

Sort A to Z  
 Sort Z to A  
 Sort by Color  
 Clear Filter From "owner"  
 Filter by Color  
 Text Filters

Search

- (Select All)
- alisonmoore
- bschmitz\_EsriNortheast
- cfrenchb
- chuckg40
- cnylen\_BosRO
- esri.demo
- Friar\_peets

OK Cancel

# Maintaining Content

<https://github.com/sam-berg/ago-tools/blob/master/samples/findItemsContainingUrl.py>

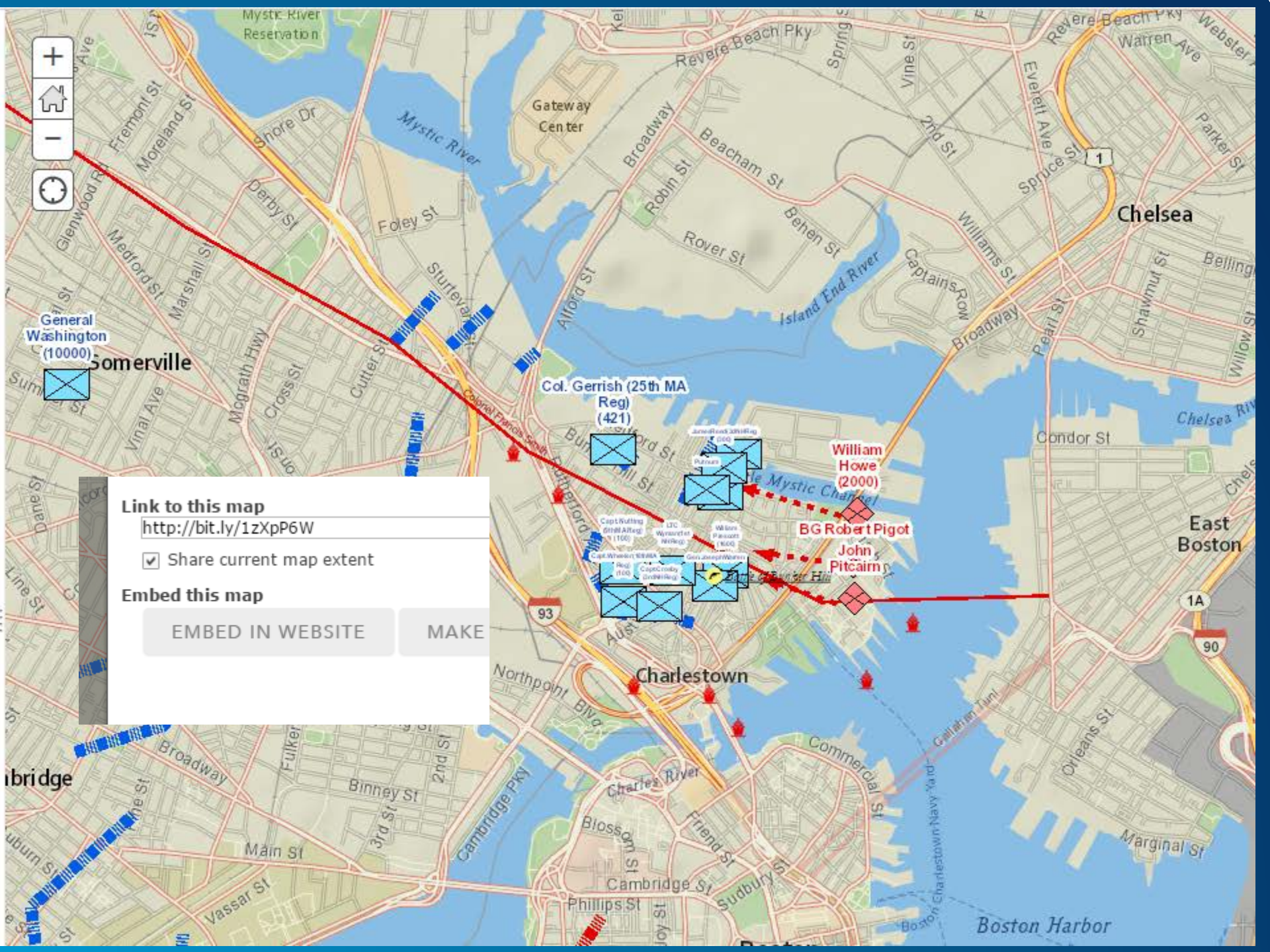
```
75
76 agoAdmin = Admin(args.user, args.portal, args.password)
77
78 if args.url == None:
79     args.url = _raw_input("Query URL: ")
80
81 if args.file == None:
82     args.file = _raw_input("Output CSV: ")
83
84 catalog = agoAdmin.findItemsWithURLs(args.url)
85
86 with open(args.file, 'wb') as output:
87     # Write header row.
88     output.write("id,owner,created,modified,name,title,type,typeKeywords,description,tags,snippet,thumbnail,exten
89     # Write item data.
90     for r in catalog:
91         s = ''
92         s += getResultValue(r.id) + ","
93         s += getResultValue(r.owner) + ","
94         s += getResultValue(r.created) + ","
95         s += getResultValue(r.modified) + ","
96         s += getResultValueWithQuotes(r.name) + ","
97         s += getResultValueWithQuotes(r.title) + ","
98         s += getResultValue(r.type) + "."
```

```
888     i=0
889     iLength=len(catalog)
890     for item in catalog:
891         i=i+1
892         print str(i) + '/' + str(iLength)
893         if item.type == 'Web Map':
894             v=self.findWebmapService(item.id, oldUrl)
895             if v==True:
896                 dosomething=True
897                 countWebMaps=countWebMaps+1
898                 allResults.append(item)
899         else:
900             if not item.url == None:
901                 v=self.findItemUrl(item, oldUrl)
902                 if v==True:
903                     dosomething=True
904                     countServicesOrApps=countServicesOrApps+1
905                     allResults.append(item)
906
907     count=countServicesOrApps + countWebMaps
908     return allResults
909
910
```

# Embedding Maps

Contents

- RevolutionaryWarBattlesP1 - Battlesites
- RevolutionaryWarBattlesP1
- National Geographic



**Link to this map**  
<http://bit.ly/1zXpP6W>

Share current map extent

**Embed this map**

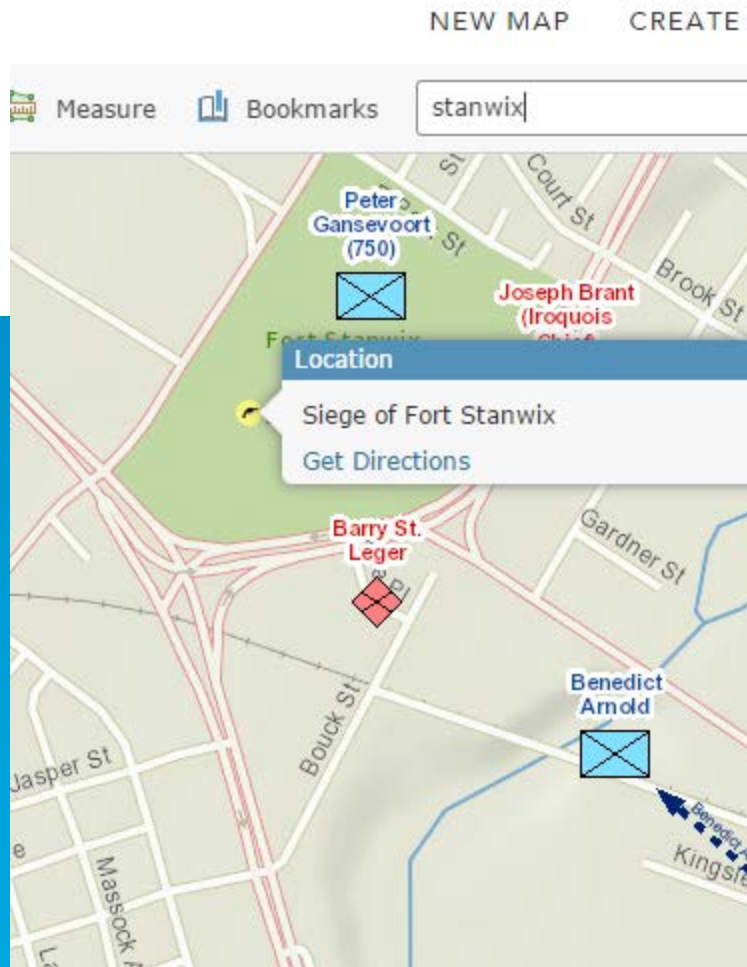
EMBED IN WEBSITE MAKE



Application Settings Select the tools and capabilities to enable in applications that access this web map

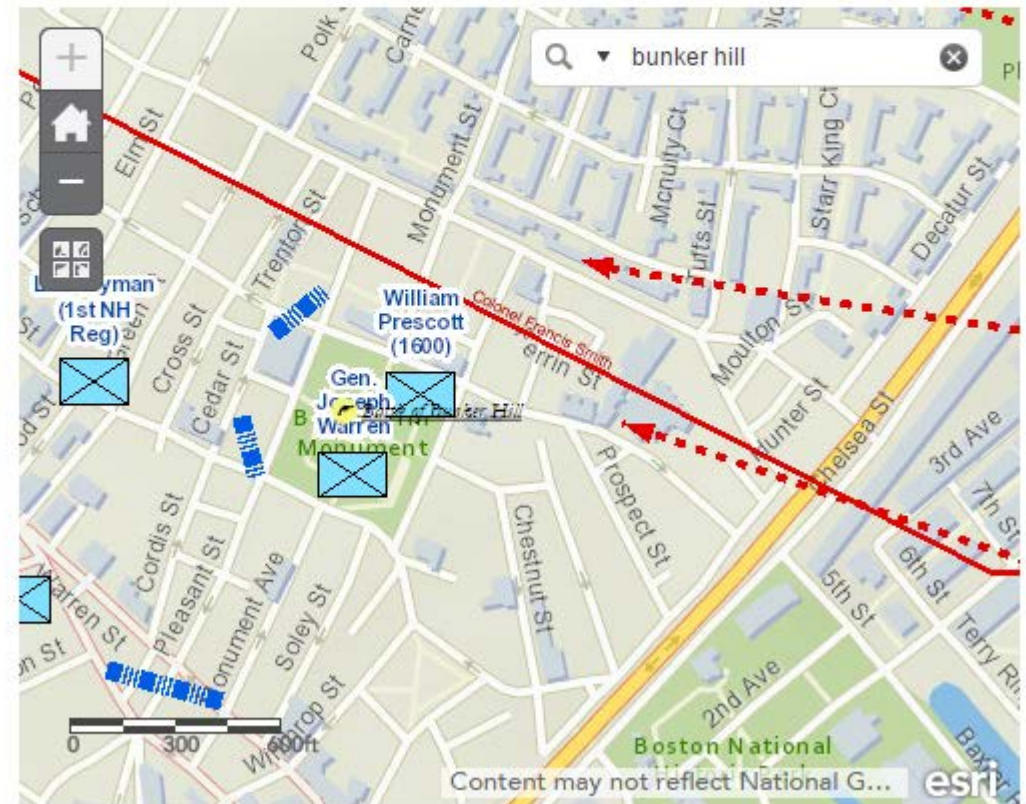
- Routing
- Measure Tool
- Basemap Selector
- Find Locations [ - ]

Hint text



## Map Notes

FRIDAY, FEBRUARY 6, 2015



[View larger map](#)

No summary was provided for this group. ▾

### Group Content

#### All Results

- Maps
- Layers
- Scenes
- Apps
- Tools
- Files

Show ArcGIS Desktop Content



Open ▾ De



Open ▾ De



Open ▾ De



Open ▾ De



Boston Regional Demo Map

## Share



Link to, embed, or create a gallery application that shows the content of this group.

### Link to this group



Facebook



Twitter

### Embed this group

EMBED IN WEBSITE

MAKE A GALLERY APPLICATION

CLOSE

Facebook

### Group D

Views Date

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# using agoTools to update WebMap content

[https://github.com/sam-berg/ago-  
tools/blob/master/samples/populateBookmarks.py](https://github.com/sam-berg/ago-tools/blob/master/samples/populateBookmarks.py)

Guided tours to quickly get you started

Pick a tour to learn more about using the map viewer.



Learn to make a map

[START TOUR >](#)



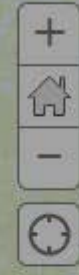
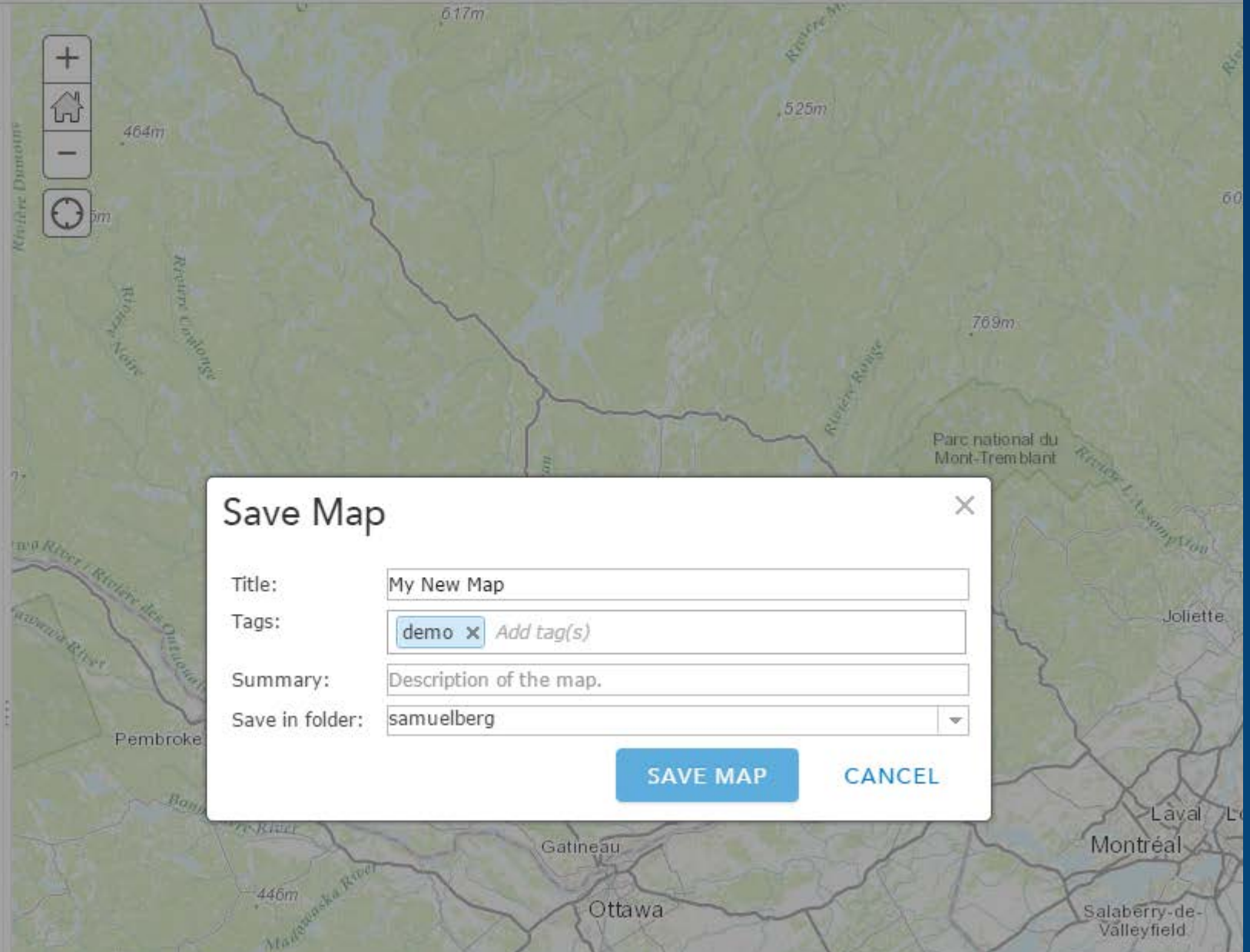
Learn to style a map

[START TOUR >](#)



Learn to explore Esri Map Layers

[START TOUR >](#)



### Save Map ✕

Title:

Tags:

Summary:

Save in folder:  ▾

```
1 {
2   "operationalLayers": [],
3   "baseMap": {
4     "baseMapLayers": [
5       {
6         "id": "defaultBasemap",
7         "layerType": "ArcGISTiledMapServiceLayer",
8         "opacity": 1,
9         "visibility": true,
10        "url": "http://services.arcgisonline.com/ArcGIS/rest/services/World
11      }
12    ],
13    "title": "Topographic"
14  },
15  "spatialReference": {
16    "wkid": 102100
17  },
18  "version": "2.0",
19  "bookmarks": [
20    {
21      "extent": {
22        "spatialReference": {
23          "wkid": 102100
24        },
25        "xmax": -8000495.6570909405,
26        "xmin": -8662746.070153676,
27        "ymax": 6032434.571059247,
28        "ymin": 5467412.057975252
29      },
30      "name": "First"
31    }
32  ]
33 }
```

```
args.layerURL=agoAdmin.getLayerURL(args.layerID)
```

```
if args.layerURL!= None:  
    pBookmarks =agoAdmin.createBookmarksFromLayer(args.layerURL,args.labelfield)  
elif args.fc !=None:  
    pBookmarks = agoAdmin.readBookmarksFromFeatureClass(args.fc,args.labelfield)  
elif args.jsonfile != None:  
    pBookmarks= agoAdmin.readBookmarksFromFile(args.jsonfile)  
elif args.fcID !=None:  
    pBookmarks = agoAdmin.readBookmarksFromFeatureClass(args.fcID,args.labelfield)  
else:  
    args.jsonfile = args.fcID+'.json'  
    pBookmarks= agoAdmin.readBookmarksFromFile(args.jsonfile)
```

```
#sBookmarks=json.JSONEncoder.encode(pBookmarks)  
if pBookmarks!=None:  
    agoAdmin.addBookmarks(sBookmarks)  
else:  
    print "No Bookmarks added"
```

```
print 'Getting Info for: ' + webmapId  
#Get the item data  
reqUrl = self.user.portalUrl + '/sharing/content/items/' + webmapId  
itemDataReq = urllib.urlopen(reqUrl).read()  
itemData = json.loads(itemDataReq, object_hook=self.__decode_dict__)  
  
#add bookmarks into object list  
itemData['bookmarks']=pBookmarks  
  
#convert the updated json object back to string  
sItemDataText=json.dumps(itemData, separators=(',', ':'))  
  
#get original item definition for update  
itemInfoReq = urllib.urlopen(self.user.portalUrl + '/sharing/content/items/' + webmapId).read()  
itemInfo = json.loads(itemInfoReq, object_hook=self.__decode_dict__)
```

```
return original back as test
```

```
outParamObj = {  
    'extent' : ', '.join([str(itemInfo['extent'])  
    'type' : itemInfo['type'],  
    'item' : itemInfo['item'],  
    'title' : itemInfo['title'],  
    'overwrite' : 'true',  
    'tags' : ', '.join(itemInfo['tags']),  
    'text' : sItemDataText  
}
```



```
C:\windows\system32\cmd.exe

D:\data\_code\_active\agoTools\samples>populateBookmarks.py -layerURL http://bos
demo2.esri.com/arcgis/rest/services/RevolutionaryWar/RevolutionaryWarBattlesP1/M
apServer/0 -labelfield POINAME -portal http://esrinortheast.maps.arcgis.com
Username:samuelberg
Password:
WebMap Id: 74f5d4e0c00340ebb5a911a74c952ec5_
```

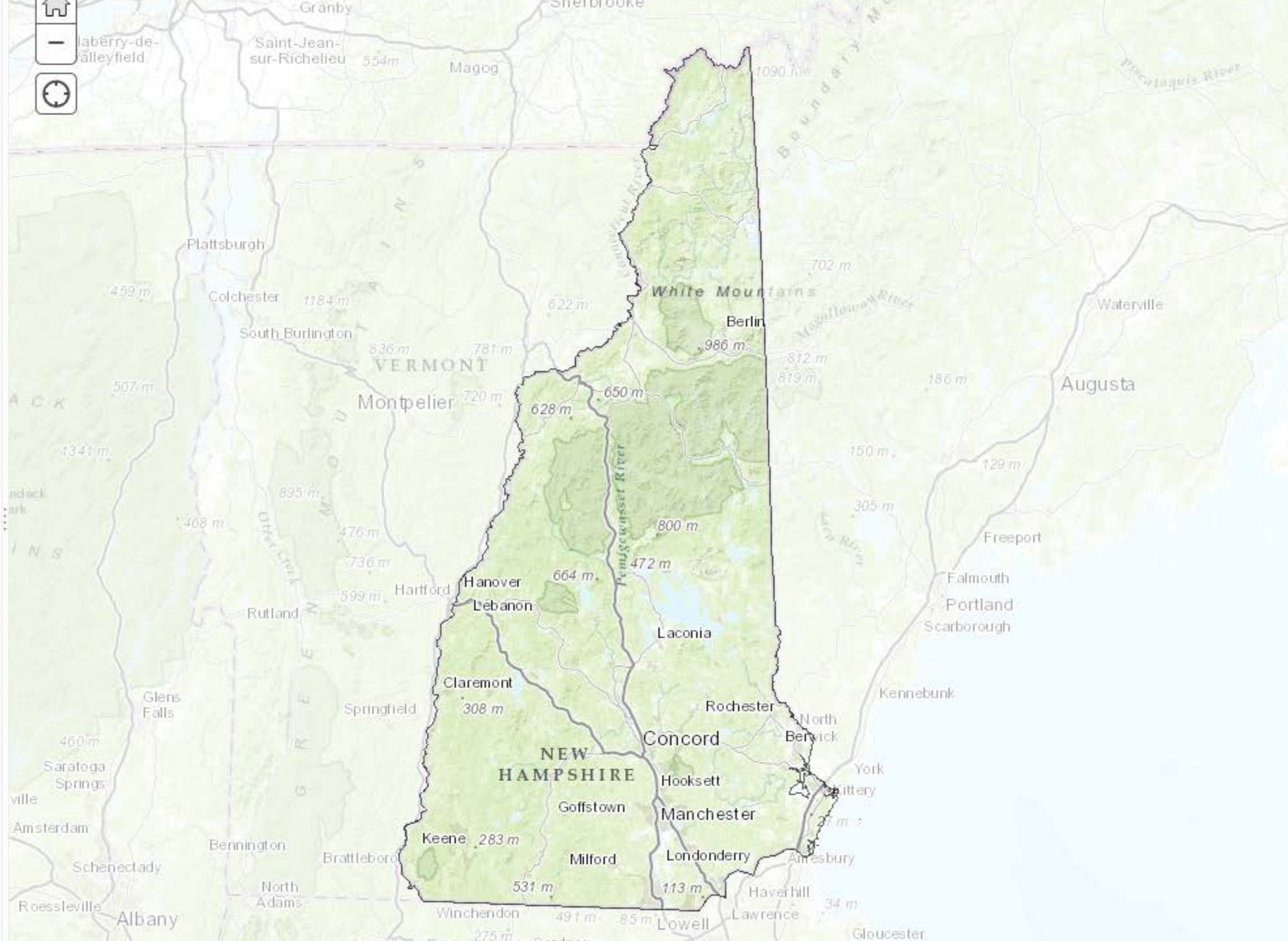
The screenshot shows an ArcGIS web map viewer interface. The browser address bar displays the URL: `esrinortheast.maps.arcgis.com/home/webmap/viewer.html?webmap=74f5d4e0c00340ebb5a911a74c952ec5`. The map title is "My New Map". The interface includes a toolbar with options like "Details", "Add", "Basemap", "Save", "Share", "Print", "Directions", "Measure", and "Bookmarks". A "Bookmarked places" popup window is open, listing five historical battles with edit and delete icons:

Bookmarked places	Edit	Delete
Battle Of Fort Montgor		
Battle Of Stony Point		
Battle Of Germantown		
Battle Of Monmouth C		
Second Battle Of Trent		
Add Bookmark		

The map shows a topographic view of the Philadelphia area, including locations like Flourtown, Springfield Twp, and Germantown. A "Contents" panel on the left shows the "Topographic" layer selected.

# Basemap as custom webmap

<http://phollaran.github.io/agoAdminTools/index.html>



# AGO Admin Tools (BETA):

Tasks ▾ Portal:

Is Reference:

Item

Title:

Welcome


## About

Welcome to the ArcGIS Online Administrative Tools app which allows administrators to perform key administrative tasks on their ArcGIS Online Org.

This application is in Beta. While all features should be inferred.

For more information on this application

+ Add Item ▾ 📄 Create ▾ 🗺️ Share ✕ Delete 📁 Move ▾ 👤 Change Owner

<input type="checkbox"/>	▲ Title	Type
<input type="checkbox"/>	 NH Mask Basemap	Web Map

1 - 1 of 1 results

## Recent Updates

October 30, 2014

- **Updated:** Create Custom Basemap. Updated to support most recent ArcGIS Online Release.

```

1 {
2   "operationalLayers": [],
3   "baseMap": {
4     "baseMapLayers": [
5       {
6         "id": "baseLayer_001",
7         "opacity": 1,
8         "visibility": true,
9         "url": "http://services.arcgisonline.com/ArcGIS/rest/services/World_Topo_Map/MapServer",
10      },
11      {
12        "isReference": false,
13        "id": "overlayLayer_001",
14        "opacity": 0.5,
15        "visibility": true,
16        "url": "http://bosdemo1.esri.com/arcgis/rest/services/NH/MapServer"
17      }
18    ],
19    "title": "NH Mask Basemap"
20  },
21  "spatialReference": {
22    "wkid": 102100,
23    "latestWkid": 3857
24  },
25  "version": "2.0"
26 }

```

## Map

Configure the components people in your organization will use to author maps.

### Basemap Gallery

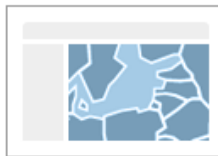


Select the group whose webmaps will be shown in the Basemap Gallery.

Custom Basemaps  Sorted by: Title   Ascending

Share the Esri default basemaps to this group when you click Save.

### Default Basemap



The Default Basemap opens when users click New Map. Set the group in the Basemap Gallery above as the default extent you set. To set the default extent to the extent of your currently selected default basemap, click Choose Extent and set the extent you want to use as your default extent.

Esri Default

USE MAP EXTENT AS DEFAULT

AGOLCat.zip

BasicViewerEx.zip

Boston Regional Demo App #1

bv\_projectmap\_demo.zip

Demo

NH Mask Basemap

NH Test

NHHistoricalMarkerTour.zip

West Virginia DOT WAB (demo)

WV Hydro WAB Viewer (demo)

## Data

```
{
  "operationalLayers": [],
  "baseMap": {
    "baseMapLayers": [
      {
        "id": "baseLayer_001",
        "opacity": 1,
        "visibility": true,
        "url": "http://bosdemo1.esri.com/arcgis/rest/services/NH/MapServer"
      },
      {
        "isReference": true,
        "id": "overlayLayer_001",
        "opacity": 0.5,
        "visibility": true,
        "url": "http://services.arcgisonline.com/ArcGIS/rest/services/Wor
Topo_Map/MapServer"
      }
    ],
    "title": "NH Test"
  },
  "spatialReference": {
    "wkid": 102100,
    "latestWkid": 31466
```

# Flag Features with Attachments



[https://github.com/sam-berg/ago-  
tools/blob/master/samples/flagAttachments.py](https://github.com/sam-berg/ago-tools/blob/master/samples/flagAttachments.py)

HOME ▾ AssetInspections15

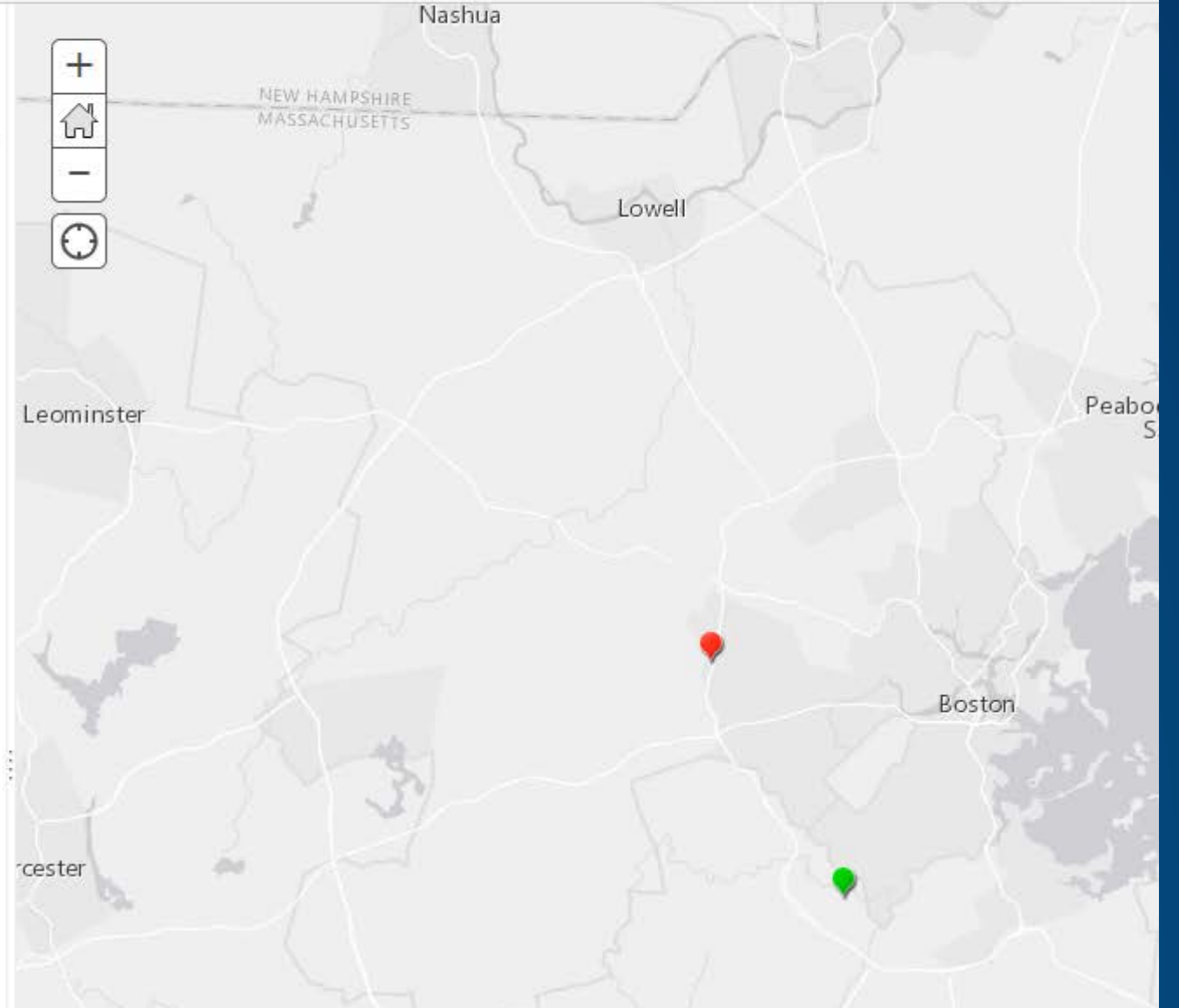
Details | Add ▾ | Edit | Basemap |

Save ▾ | Share | Print

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Contents

- AssetInspections15 ▾
- Light Gray Canvas ▾



Normal

Basic Auth

Digest Auth

OAuth 1.0

 No environment ▼

## Feature Attachments

<http://services.arcgis.com/XWaQZrOGjgrsZ6Cu/arcgis/rest/services/AssetInspections15/FeatureServer/0/2/attachments>

POST ▼

 URL param

form-data

x-www-form-urlencoded

raw

f

json

Text ▼



Key

Value

Text ▼

Send

Save

Preview

Add to collection

Body

Cookies (6)

Headers (7)

STATUS 200 OK

TIME 834 ms

Pretty

Raw

Preview



JSON

XML

```
1 {"attachmentInfos":[{"id":1,"globalId":"","parentID":"2","name":"iamge6.jpg","contentType":"image/jpeg","size":7458}]}
```

```
C:\Python27\ArcGIS10.3\python.exe
Username:samuelberg
Portal: http://esrinortheast.maps.arcgis.com
Password:
layerID: 059d20a796464d349b3e554c9405c604
retrieving OBJECTIDs...
reading attachments for feature 2
writing 1 attachment count for feature 2
reading attachments for feature 3
writing 0 attachment count for feature 3
```

# ArcGIS Rest Admin

<https://github.com/sam-berg/agssom>

← → ↻ 🏠 📄 bosdemo1.esri.com:6080/arcgis/admin/

## ArcGIS Server Administrator Directory

[Home](#)

You should use [ArcGIS Server Manager](#) for managing services and GIS servers.  
The Administrator Directory is intended for advanced, programmatic access to the server, likely through the use of scripts.

### Site Root - /

Current Version: 10.3.0

Resources: [machines](#) [clusters](#) [services](#) [security](#) [system](#) [data](#) [uploads](#) [logs](#) [kml](#) [info](#) [usagereports](#) [publicKey](#)

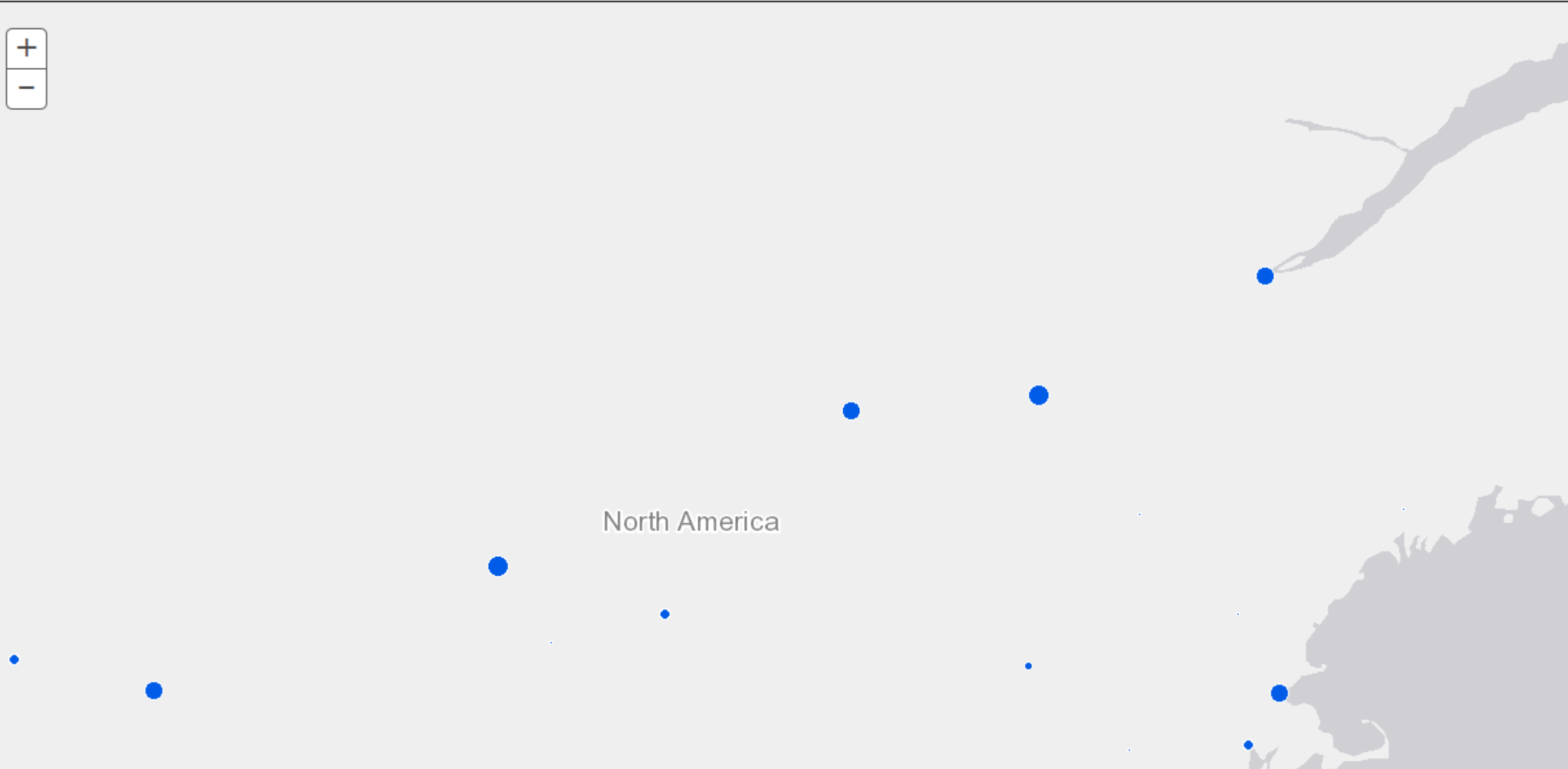
Supported Operations: [generateToken](#) [exportSite](#) [importSite](#) [deleteSite](#)

Supported Interfaces: [REST](#)

### ArcGIS JavaScript API: SampleWorldCities



North America







sam-berg / **AGSSOM**

Unwatch ▾

### Description

Short description of this repository

### Website

Website for this repository (optional)

Save

or Cancel

3 commits

1 branch

0 releases

1 contributor



branch: master ▾

**AGSSOM** / +

Create README.md



sam-berg authored on Mar 18, 2014

latest commit 4f1726f149



Program.cs

Initial Commit

11 months ago



README.md

Create README.md

11 months ago



**README.md**

```
    {
        Console.WriteLine(ErrorBell + "Input error: Missing or invalid 'servicetype'");
        usage();
        return;
    }
    else
        DeleteService2(_conn,service, sDataParam != "N");
}

break;

case "-list"://list configurations
    Console.WriteLine("\nService Status:\n");

    #region get configurations
    List<AGSServiceConfig> _AGSConfigs = getAllConfigurations2(_conn);
    if(_AGSConfigs==null)
        Console.WriteLine("No services could be listed.");
    #endregion

    int iCount = 0;

    //do
    foreach (AGSServiceConfig config in _AGSConfigs)
    {
        if ((sService == "") || (sService == config.type) || (config.serviceName.ToUpper().Contains(sService
            {
                if ((sService == "") || (sService == config.type) || (config.serviceName.ToUpper().Contains(sService
```

```
C:\windows\system32\cmd.exe

Service Status:

MapServer 'MaineSchools': STARTED
MapServer 'NH': STARTED
MapServer 'SampleWorldCities': STARTED
MapServer 'Masks/Maine': STARTED
GPServer 'System/CachingControllers': STARTED
GPServer 'System/CachingTools': STARTED
GPServer 'System/PublishingTools': STARTED
GPServer 'System/ReportingTools': STARTED
GPServer 'System/SyncTools': STARTED
MapServer 'tom/WU_TR': STARTED
GeometryServer 'Utilities/Geometry': STARTED
GPServer 'Utilities/PrintingTools': STARTED
IndexGenerator 'Utilities/Search': STARTED
IndexingLauncher 'Utilities/Search': STARTED
SearchServer 'Utilities/Search': STARTED
GPServer 'Utilities/Search_indexer': STARTED

Services found: 16
Press any key to continue . . .
```



# Links

- [The ArcGIS REST API](#)
- [Developers Site](#)
- <https://github.com/ecaldwell>
- <https://github.com/sam-berg>
- [Postman Chrome Extension](#)



Understanding our world.