



pwwcgis

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Automated Upload of CAMA GIS Data to Pictometry CONNECTExplorer

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Introduction

- 14 years of GIS Experience
- Tennessee Native
- University of Tennessee, Knoxville





The Problem

- Real Estate Assessment Office wants to view sales data in Pictometry
 - Gain perspective on changes in neighborhoods
 - Compare against other assessment layers
- Frequent data changes
- Disconnected Systems



The Solution

- Python
- Nightly database dump of sales data
- Pictometry Desktop GIS Uploader – available from the [CONNECTADMIN](#) page



The Implementation

- Download and install Pictometry Desktop GIS Uploader
- Create an ESRI FGDB Feature Class with the required schema – One time
- ETL from Assessments to GIS
- Export from FGDB Feature Class to Shapefile
- Manually upload into Pictometry – One time
- Upload data to Pictometry
- Email Results
- Schedule the nightly task



The Implementation in detail

- Learn the data
 - Worked with the assessments team to understand the data
 - We created the data schema





The Implementation in detail

- Create a Feature Class in a FGDB in order to have domains

Database Properties

General Domains

Domain Name	Description
Inst_Type	Inst_Type
NeighCode	NeighCode

Domain Properties:

Field Type	Text
Domain Type	Coded Values
Split policy	Default Value
Merge policy	Default Value

Coded Values:

Code	Description
12960	XU-Land use sale
13343	XQ-Quitclaim
13399	X -Other bad sale
13733	XC-Foreclosure
14368	XF-Familv sale

OK Cancel Apply

Feature Class Properties

General Editor Tracking XY Coordinate System Domain, Resolution and Tolerance

Fields Indexes Subtypes Feature Extent Relationships Representations

Field Name	Data Type
OBJECTID	Object ID
SHAPE	Geometry
account	Text
neighborhood	Text
salesdate	Date
num_prop_in_sale	Short Integer
instrumentType	Text
conveyance	Text
GPIN	Text
SHAPE_Length	Double
SHAPE_Area	Double
salePrice	Text

Click any field to see its properties.

Field Properties

Alias	OBJECTID
-------	----------

Import...

To add a new field, type the name into an empty row in the Field Name column, click in the Data Type column to choose the data type, then edit the Field Properties.

OK Cancel Apply



Create Pictometry Placeholder

- Pictometry Connect Uploader needs a shapefile / item to exist
- Grab the extracted shapefile and upload through pictometry connect admin

The screenshot shows the CONNECTADMIN web interface. The top navigation bar includes "Organization", "Users", "Reports", and "GIS". The left sidebar lists various departments, with "Prince William County, VA" selected and "Assessments" highlighted. The main content area is titled "GIS Upload Your GIS Data" and contains an "Online" section with the text: "Upload your GIS data files through the web interface. Both Shapefiles and KML/KMZ files are supported." A blue button labeled "Launch Online GIS Uploader" is highlighted with a red rectangle. Below this section, there is a partially visible "Uploaded GIS Data" section.



Create Pictometry Placeholder cont.

- Add **ALL** associated files
- Name of the file is the name in PAC

Online GIS Uploader

Please do not close your browser during the upload process or the upload will stop.
File names longer than 45 characters will be truncated to 45 characters.
Maximum per-file size limit is **2 Gigabytes**

Click the 'Add Files' button to select the files you would like to upload.

Shapefiles: If you are uploading an ESRI Shapefile, please select all four (4) Shapefile parts: .shp, .shx, .dbf and .prj. See below for more information about selecting multiple files at once.

You can also upload a Shapefile Zip Package containing all four (4) Shapefile parts.

KML/KMZ: If you are uploading a KML or KMZ file, select that file.

Selecting Multiple Files: Press and hold the CTRL (or Command) key and click the individual files you wish to upload.

Advanced Users: Select all the files for all the layers you wish to upload and they will be added to the queue.

Select files

Add files to the upload queue and click the start button.

Filename	Status	Size

0% 0 kb



ETL from CAMA to GIS

- Python
- Data is exported and shared as a CSV
- Data is validated during the process, parcel errors are recorded
- Upload to Pictometry happens here as well
- Email the nightly report



ETL from CAMA to GIS

- Python

```
import arcpy
import sys,os,traceback
from subprocess import call #to spawn the upload to pictomerty application
from datetime import datetime
#mail libraries
from email.MIMEBase import MIMEBase
from email import Encoders
import smtplib
from email.MIMEMultipart import MIMEMultipart
from email.mime.text import MIMEText
```



ETL from CAMA to GIS cont.

- When the final shapefile is exported we use the transferDomains environment variable
- Also repair geometry as the input data has some self intersections



Uploading to Pictometry

```
call([workingFolder+r"/DesktopUploader.exe",UPLOADXML_Location.xml"])
```

Pictometry Desktop GIS Uploader

Enter your credentials or load an existing configuration.

Email Address

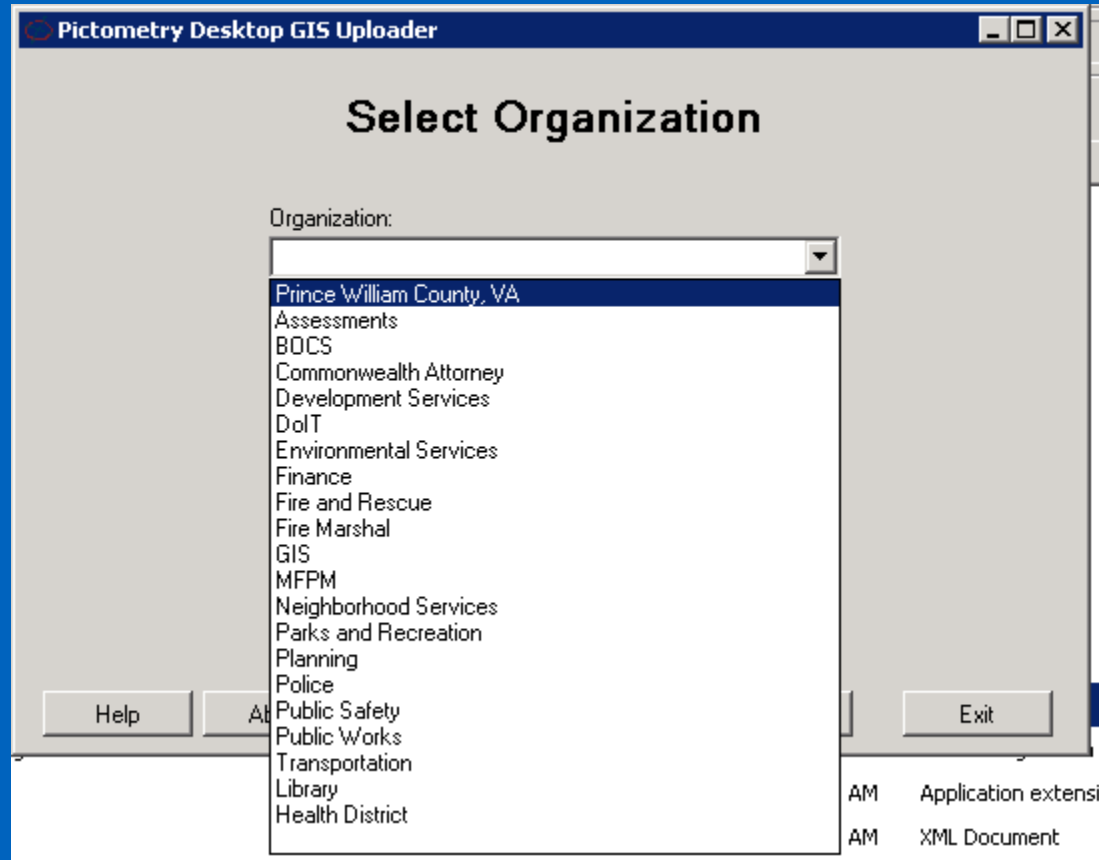
Password

Optionally load an existing configuration:

Help About Back Next Exit



Uploading to Pictometry cont.



The organization is selected because it has a unique ID, it is needed for the upload.



Uploading to Pictometry cont.

Pictometry Desktop GIS Uploader

Select Source File

Select the file that contains the data for your layer.

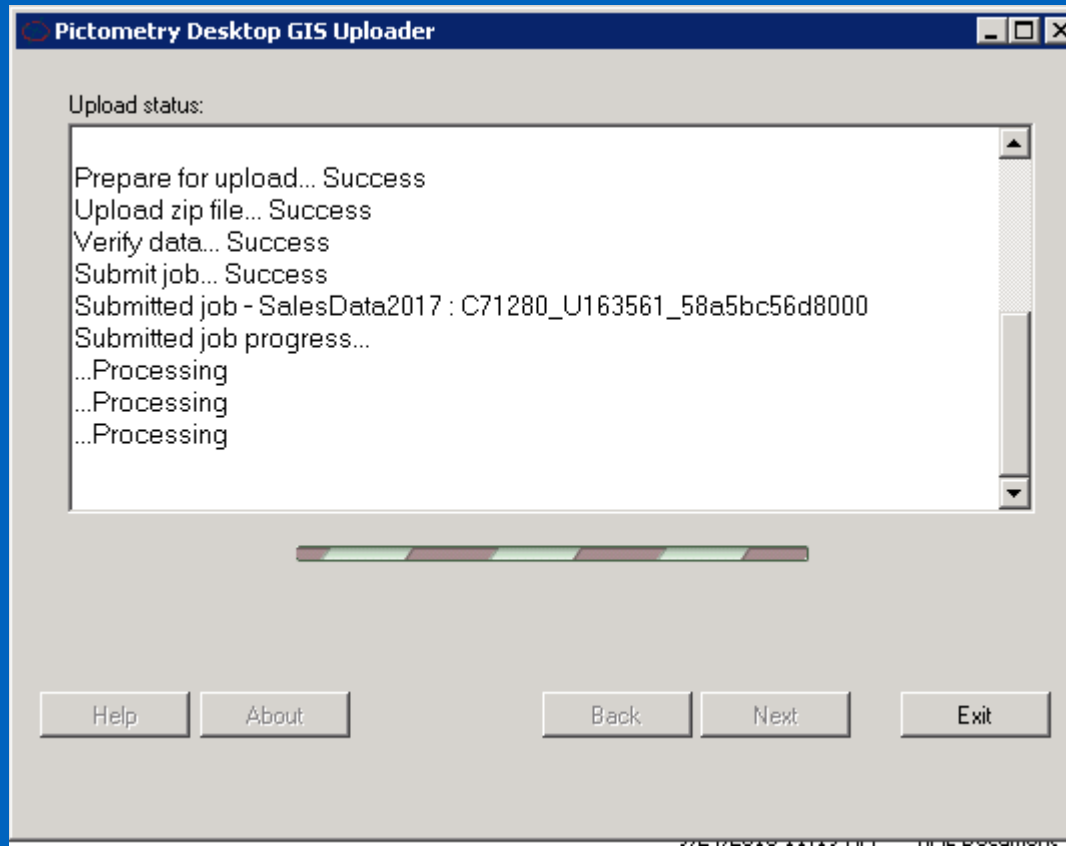
Filename

Note:
To replace a layer previously uploaded be sure to use the same filename (as originally uploaded) for your new layer data. Using the same filename will replace an existing layer.

Select the file name.



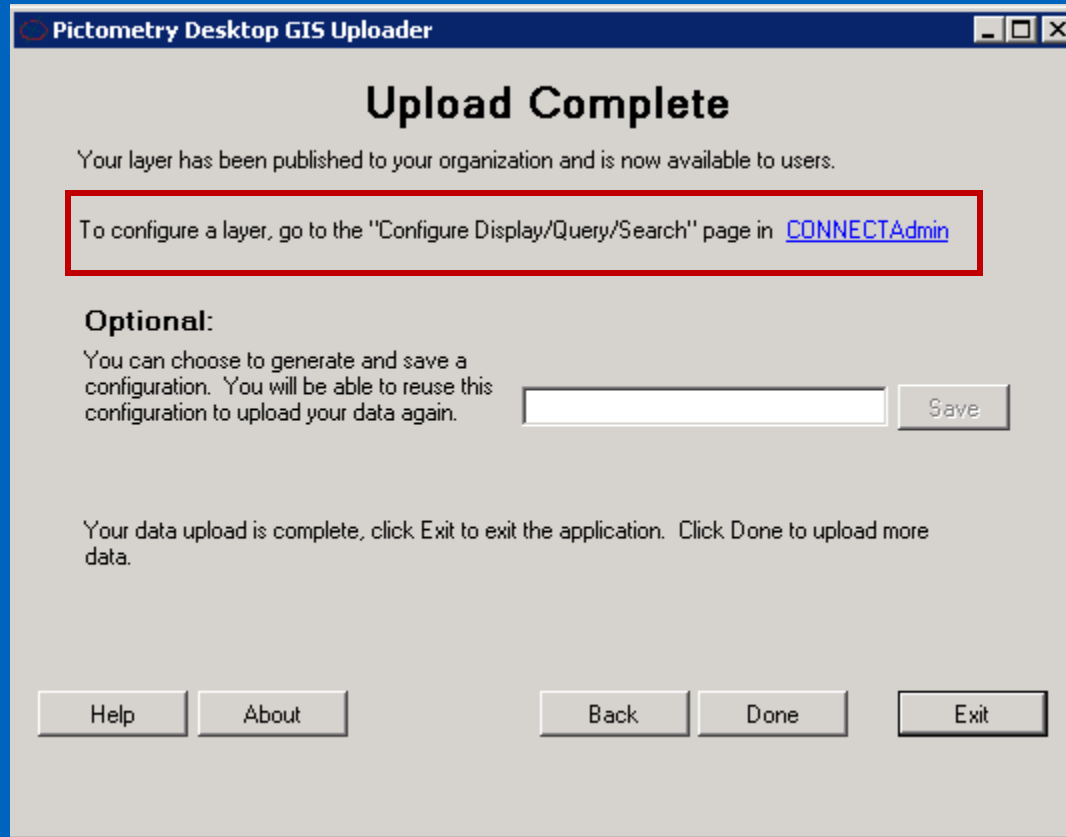
Uploading to Pictometry cont.



Select the file name.



Uploading to Pictometry cont.



Save the configuration file.



Configure the Display

Properties, Display, Query, and Search

Configure Layer

Properties **Display** Query Search

Visual Attributes

Line Color <input type="color" value="#0000FF"/>	Fill Color <input type="color" value="#FFFFFF"/>	Data Density ? <input type="text" value="Low"/>
Line Width <input type="text" value="3"/>		Auto Label <input type="text" value="- No Label -"/>
Line Opacity <input type="text" value="100%"/>		
Fill Opacity <input type="text" value="0%"/>		

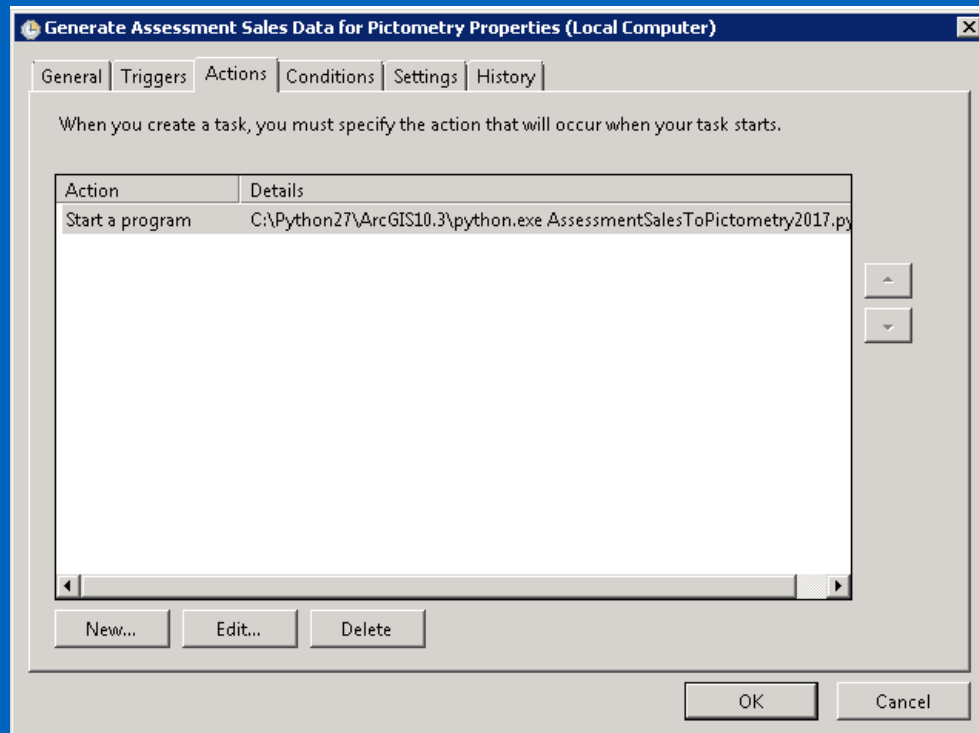
Special Properties

- Display in POL workspace
- Select how client renders layer
 - Vector (WFS)
 - Raster (WMS)
- WFS Uppercase



Schedule the task

- Windows Task Scheduler
- Runs every night at 2:00 AM





Schedule the task cont.

Edit Action [X]

You must specify what action this task will perform.

Action: Start a program

Settings

Program/script:
C:\Python27\ArcGIS10.3\python.exe [Browse...]

Add arguments (optional): alepToPictometry2017.py

Start in (optional): Tasks\PictometryUpload

[OK] [Cancel]



Extras

- Manually change the code for a new year.
- When upgrading ArcGIS and you hardcode the python.exe you will have to change your scheduled tasks.



Demonstration





Questions

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<http://pwcgov.maps.arcgis.com/home/index.html>