

Workshop Notebook 2: Open and Display an Image with Pillow and Matplotlib

Mandatory Disclosures

1. This is a whirlwind introduction, not exhaustive instruction
2. All images are by courtesy of the University Archives at Texas State University: <http://www.univarchives.txstate.edu> (<http://www.univarchives.txstate.edu>)
3. `img_qc_workshop` is licensed under the GNU General Public License v3.0, https://github.com/photosbyjeremy/img_qc_workshop/blob/master/LICENSE (https://github.com/photosbyjeremy/img_qc_workshop/blob/master/LICENSE)
4. *Any and all code provided is done so without any warranty or expectation of support by Jeremy Moore, Todd Peters, or Texas State University*

Importing Python Modules

```
In [ ]: # we can use pathlib to access the file directory system
# https://docs.python.org/3/Library/pathlib.html
from pathlib import Path

# function dir() Lets us inspect the namespaces available in a Python module
dir(Path)
```

Set Working Directories

```
In [ ]: # set current_directory with Path function cwd() [Current Working Directory]
current_directory = Path.cwd()

# path to access our image
image_path = current_directory.joinpath('data/workshop-2/AS-36-T4-C36-1978_0106.tif')

print(f'current_directory: {current_directory}')
print(f'image_path: {image_path}')

In [ ]: # import Image class from the new Python Imaging Library, Pillow
# http://pillow.readthedocs.io/en/stable/
from PIL import Image

# the dir(<module>) function returns the namespaces available for a particular module
dir(Image)
```

Open Image

```
In [ ]: # open image
image = Image.open(image_path)
print(image)
print('')

print(f'image.format: {image.format}')
print(f'image.size: {image.size}') # (width, height)
print(f'image.mode: {image.mode}')
print('')

for index, data in enumerate(image.info):
    print(f'{index} key: {data}')
    print('')
    print(f'{index} value: {image.info[data]}')
    print('')
```

Plot Image

```
In [ ]: # Matplotlib will let us plot images (and other types of graphs)
# https://matplotlib.org/2.2.2/index.html
```

```
import matplotlib.pyplot as plt

# magic that lets us plot directly in the notebook
%matplotlib inline

# parameters for matplotlib to increase our figure size -- NOTE: figure sizes are in INCHES
plt.rcParams["figure.figsize"] = (10,10)

# on a high-dpi monitor this will increase the quality of plots on-screen
%config InlineBackend.figure_format = 'retina'
```