

# ArcGIS Python API:

## Introduction to Scripting your Web GIS

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# ArcGIS API for Python

- What is it?
  - Pythonic representation of your GIS
  - Powerful, modern and easy to use
  - Implemented using REST + local capabilities

# ArcGIS API for Python

- Who is it for?

Platform API  
**Power Users  
Developers**

## Enterprise Integration

Users, Roles & Group management



**Administrators  
DevOps**

**Analysts**

Spatial Analysis

Imagery

Location Analytics

**Big Data**

Raster Analytics

Feature Analytics

**Data Scientists**

**Content Publishers**

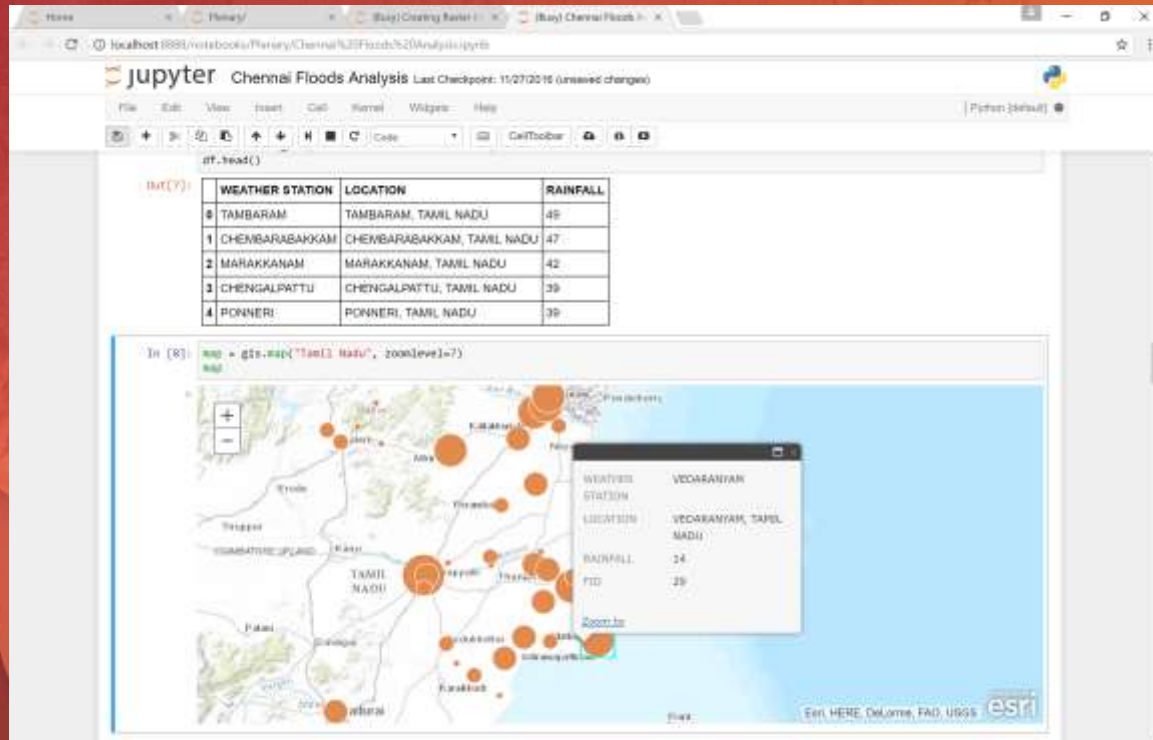
**Your Web GIS**

***Script and automate your Web GIS***

Data Management







# Demo

## Quick start



# Demo

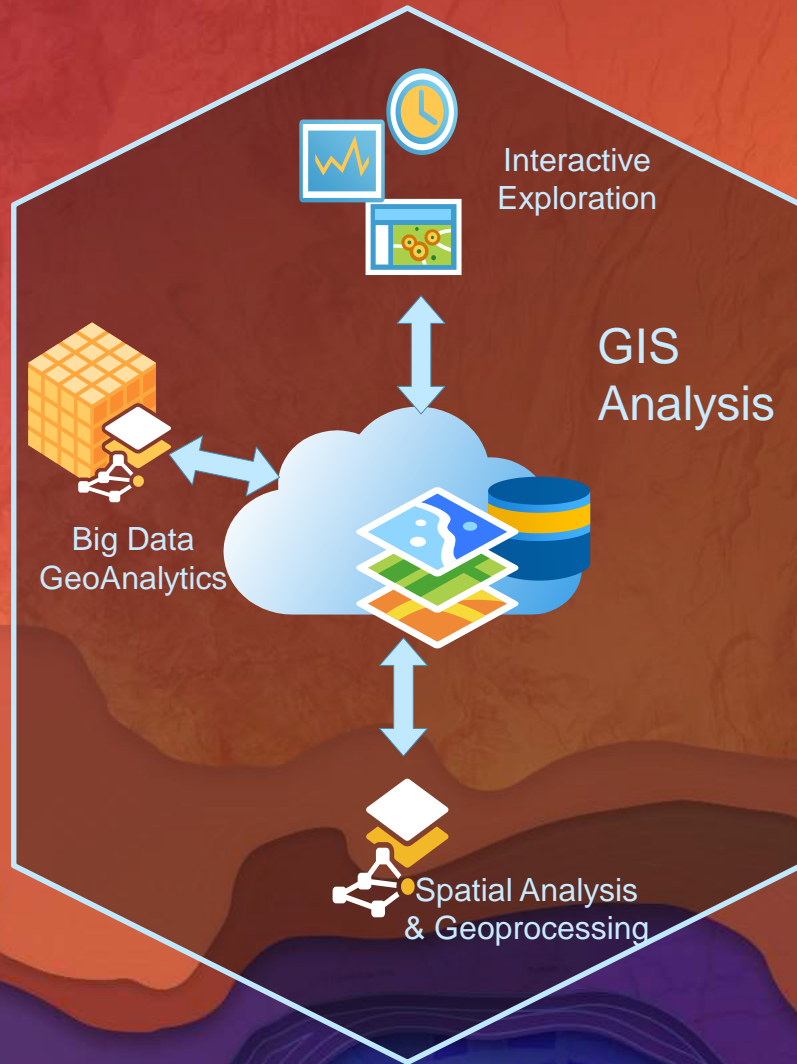
Automating  
administrative  
workflows with  
Python API





# Demo

**Automating  
content creation  
with Python API**



# Demo

## Analysis with Python API

### **Automate WebGIS management**

- Populate portal with users, groups
- Clone portals
- Reassign user content
- Perform comprehensive content search
- Determine item relationship
- Create reports of users, their items

## **What can it do for you?**

### **Automate content creation**

- Automate content publishing during off peak hours
- Update tiles and features from a known database
- Replicate development environment content to production
- Inspect and update items with broken service links

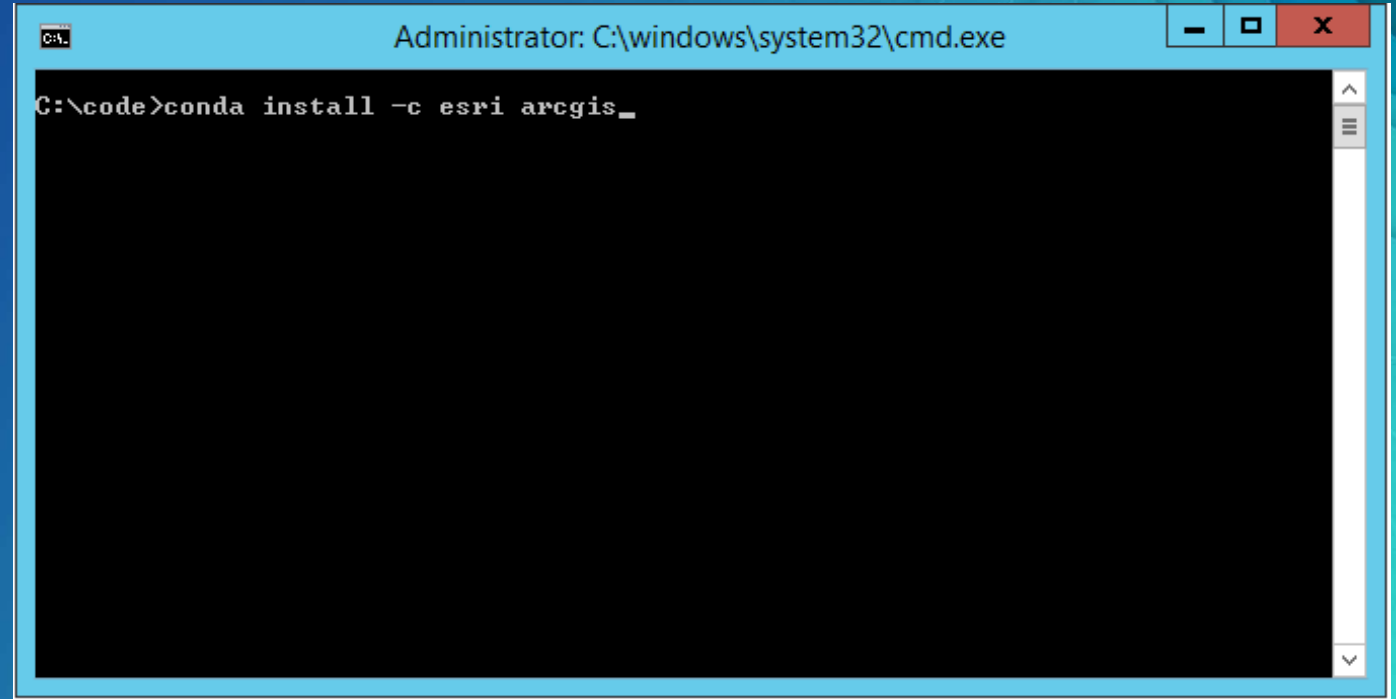
### **Reproducible research**

- Access big data tools programmatically
- Utilize rich 3<sup>rd</sup> party Python packages for data analysis
- Create rich charts, graphs, embed 2D and 3D maps in Jupyter Notebook environment
- Share your research with data and notes with peers



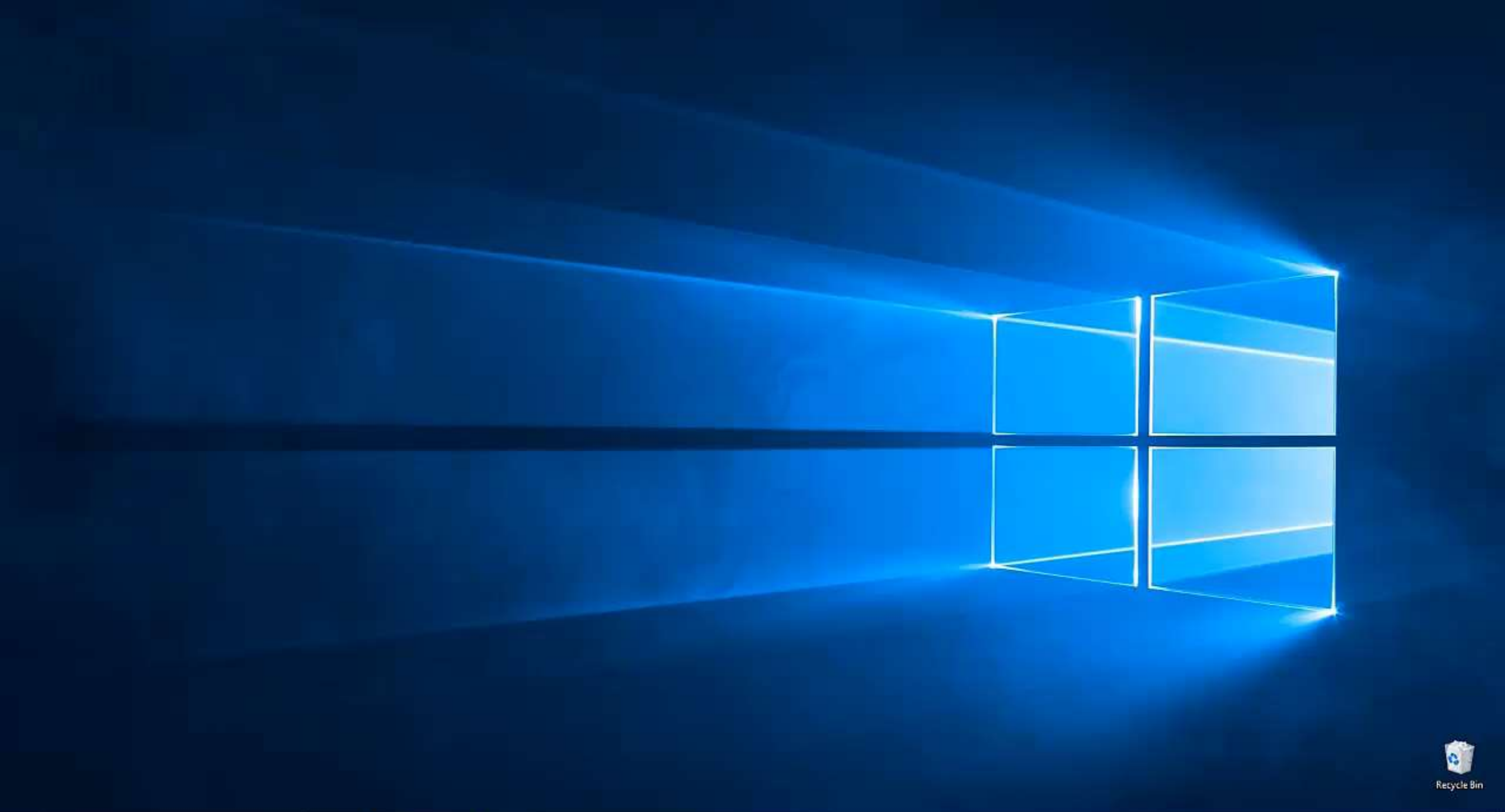
# How do you get this?

- **Distributed via Conda**
  - Simplifies installs & updates
  - Installs dependencies
  - Avoids conflicts
- **Install steps:**
  - Download Anaconda
  - `conda install -c esri arcgis`



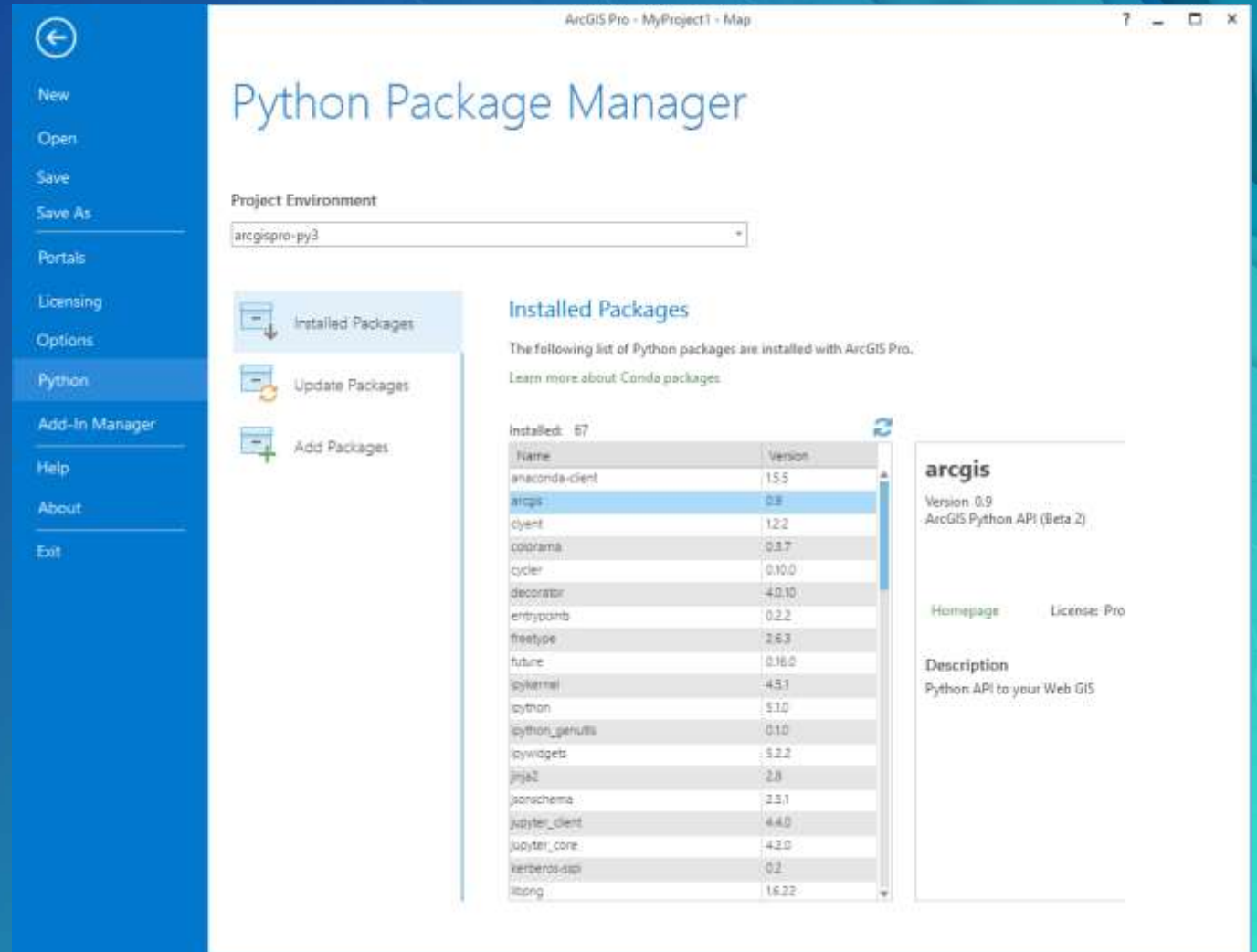
A screenshot of a Windows command prompt window titled "Administrator: C:\windows\system32\cmd.exe". The window shows a black background with white text. The prompt is "C:\code>" and the command "conda install -c esri arcgis\_" is being entered. The cursor is at the end of the command. The window has standard Windows window controls (minimize, maximize, close) in the top right corner.

```
Administrator: C:\windows\system32\cmd.exe
C:\code>conda install -c esri arcgis_
```



# Have ArcGIS Pro?

- ArcGIS Pro includes conda
- Follow steps from [install guide](#) to install arcgis package...



The screenshot shows the ArcGIS Pro Python Package Manager window. The left sidebar contains navigation options: New, Open, Save, Save As, Portals, Licensing, Options, Python (selected), Add-In Manager, Help, About, and Exit. The main area is titled 'Python Package Manager' and shows the 'Project Environment' set to 'arcgispro-py3'. Below this are buttons for 'Installed Packages', 'Update Packages', and 'Add Packages'. The 'Installed Packages' section displays a list of 67 installed packages. The 'arcgis' package is highlighted in blue. To the right of the list, a detailed view of the 'arcgis' package is shown, including its version (0.9), description (ArcGIS Python API (Beta 2)), homepage, and license (Pro).

Project Environment: arcgispro-py3

**Installed Packages**

The following list of Python packages are installed with ArcGIS Pro.  
Learn more about Conda packages.

Installed: 67

Name	Version
anaconda-client	1.5.5
<b>arcgis</b>	<b>0.9</b>
client	1.2.2
colorama	0.3.7
cycler	0.10.0
decorator	4.0.10
entrypointb	0.2.2
freetype	2.6.3
future	0.16.0
ipykernel	4.5.1
ipython	5.1.0
python_genutils	0.1.0
pywidgets	5.2.2
pyj2	2.0
jsonschema	2.3.1
jupyter_client	4.4.0
jupyter_core	4.2.0
kerberos-dist	0.2
libpng	1.6.22

**arcgis**

Version: 0.9  
ArcGIS Python API (Beta 2)

Homepage: License: Pro

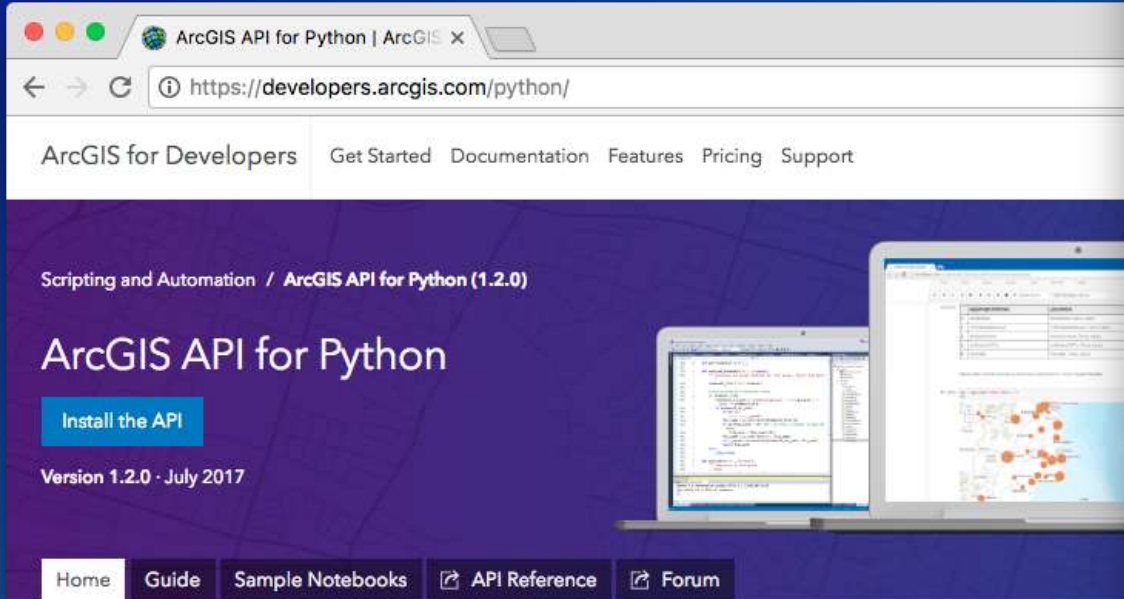
**Description**  
Python API to your Web GIS



github.com/Esri/arcgis-python-api

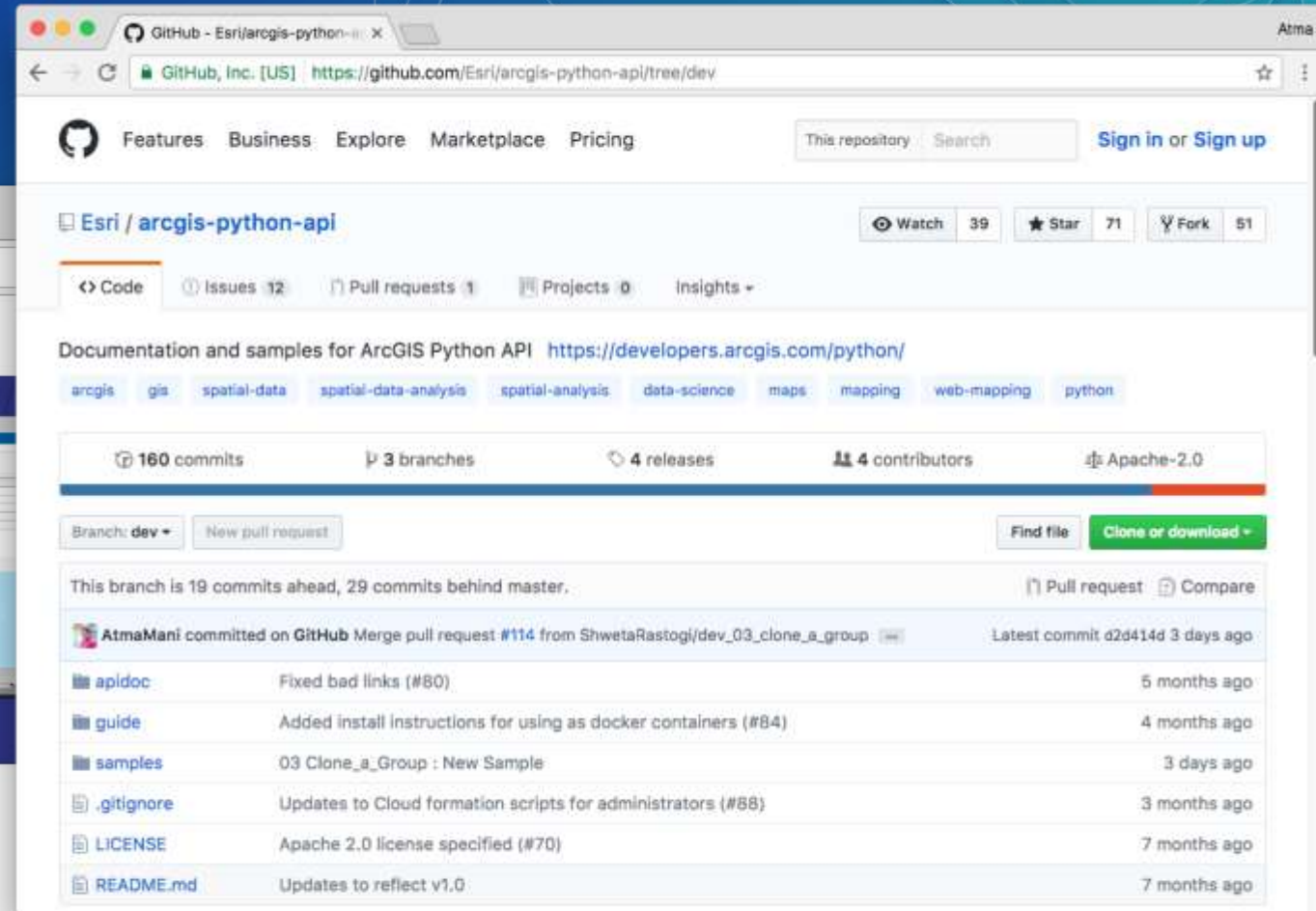
# Resources

developers.arcgis.com/python



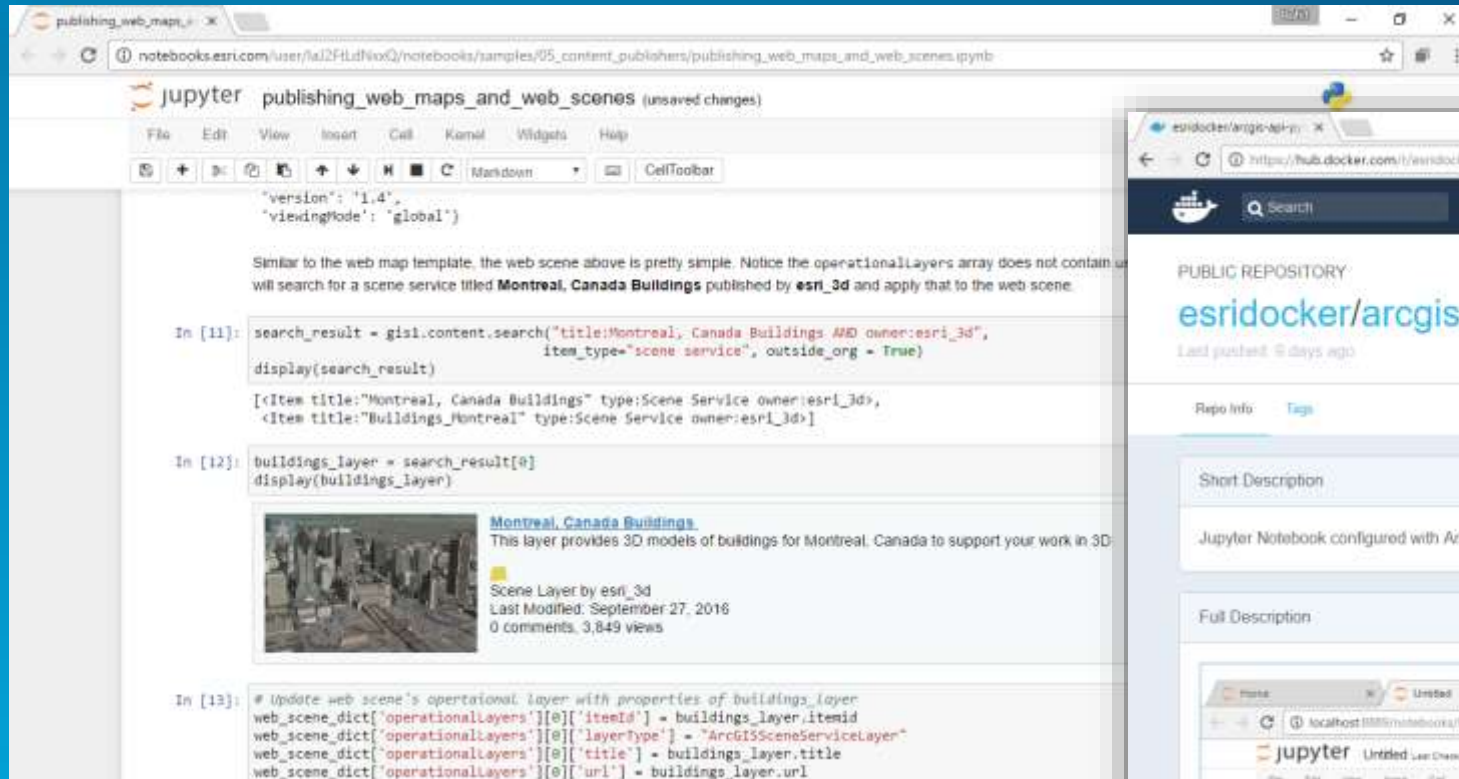
## Script and automate your Web GIS

The ArcGIS API for Python lets ArcGIS Online and ArcGIS Enterprise users, analysts, developers and administrators script and automate tasks ranging from performing big data analysis to content management and administration of their web GIS. The API integrates well with the [Jupyter Notebook](#) and the [SciPy](#) stack and enables academics, data scientists, and GIS analysts to share programs and reproducible research with others.

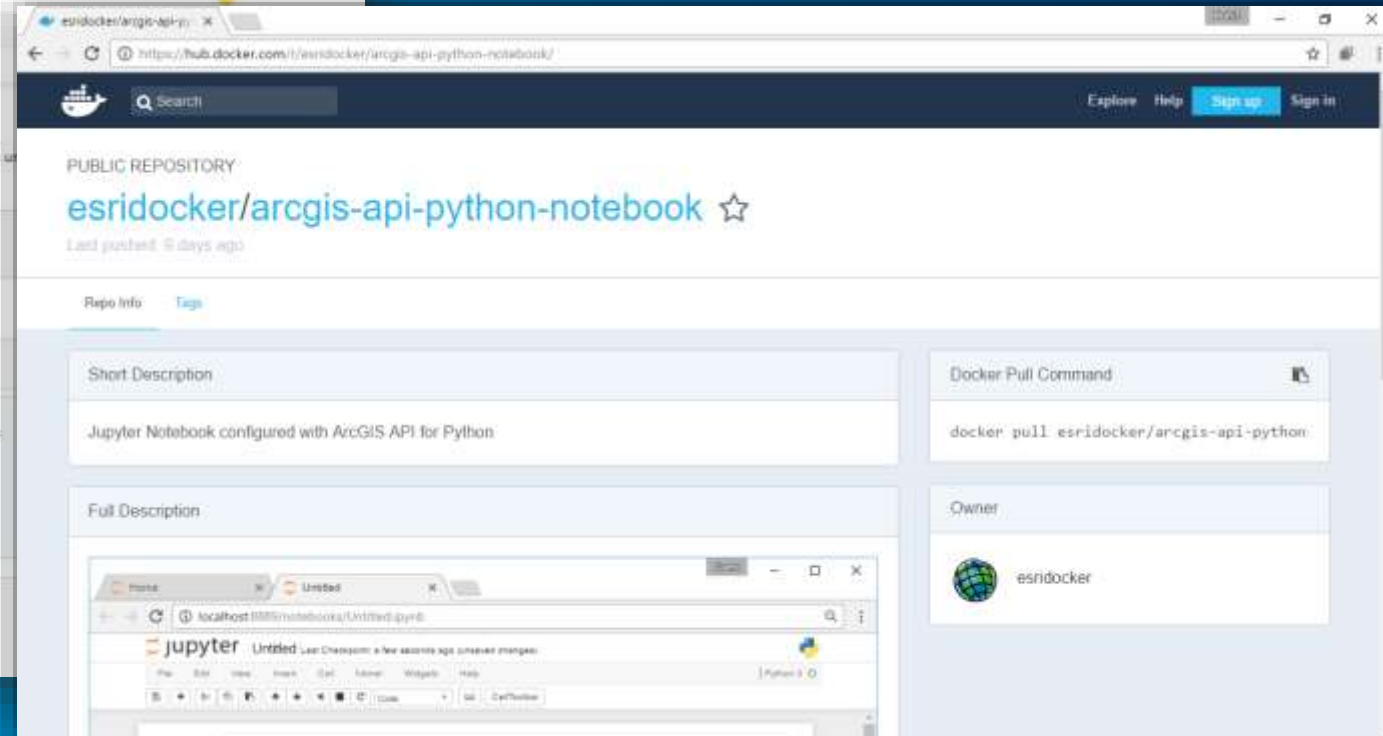


# Resources

## Notebooks.esri.com



## hub.docker.com/r/esridocker





# Resources

[www.esri.com/training](http://www.esri.com/training)

[youtube.com playlist](https://www.youtube.com/watch?v=SyFebn8ZgbU&list=PLGZUzt4E4O2JaOMx_XZc85VdMirqLGaVf)

The screenshot shows the Esri Training Catalog search results for 'arcgis api for python'. The search bar contains the text 'arcgis api for python'. Below the search bar, there are filters for 'All GIS Capabilities', 'Developer', and 'All Learning Formats'. There are also checkboxes for 'Available with maintenance' and 'Free training'. The results are sorted by 'Relevance'. The first three results are videos:

- Video** (59 Minutes): Introduction to Scripting Your WebGIS with ArcGIS API for Python. Created March 23, 2017. ArcGIS Python API lets ArcGIS users, developers, and anyone with an ArcGIS Online subscription or a portal use the Python...
- Video** (5 Minutes): ArcGIS API for Python in 5 Minutes. Created December 16, 2016. The ArcGIS API for Python is powerful, modern, and easy to use. This video gives you a quick overview the API. See how you can use the API to automate your workflows and...
- Video** (64 Minutes): ArcGIS API for Scripting. Created March 23, 2017. In addition to deve... API empowers ad... publishers, analyst...

Each video result has a 'Wish List' button and a 'View Details' button. The 'View Details' button for the second video is labeled 'FREE'.

The screenshot shows a YouTube video player for the video 'ArcGIS Python API in 5 minutes' by ArcGIS. The video has 3,650 views and was published on Dec 16, 2016. The video description states: 'The ArcGIS Python API is a powerful, modern and easy to use Pythonic API for GIS professionals, developers, org administrators, content publishers and anyone with access to a Web GIS (which could be an ArcGIS Online organization or an ArcGIS Portal) to leverage the Python ecosystem and automate their...'. The video player shows the video progress at 0:57 / 5:05. The video title is 'API Overview' and the description is 'Pythonic GIS API'. The video player also shows a list of related videos on the right side:

- ArcGIS Python API (ArcGIS - 1/5 videos)
- ArcGIS Python API in 5 minutes (ArcGIS)
- Introduction to Scripting Your WebGIS with ArcGIS API for Python (Esri Events)
- ArcGIS API for Python: Advanced Scripting (Esri Events)
- ArcGIS Python API for Administrators and Content Publishers (Esri Events)
- ArcGIS Python API for GIS Analysts and...
- Automating and Scripting ArcGIS (Esri Events - 1,787 views)
- Arcpy Getting Started (Python in ArcGIS) (Jido Heroux - 2,485 views)
- Introduction to Scripting



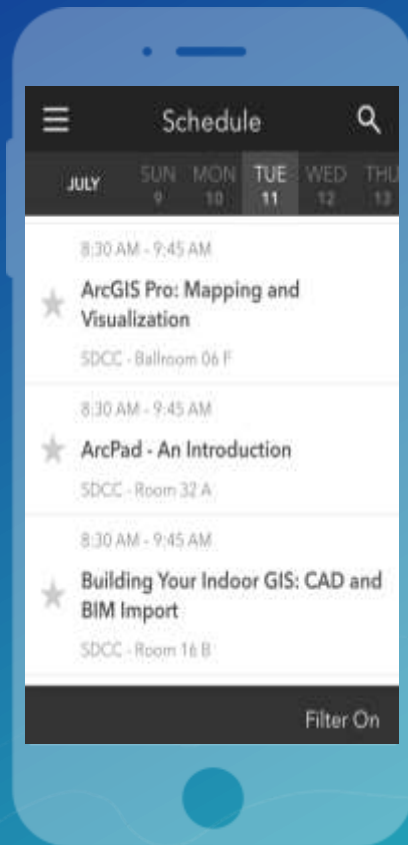
Title	Date & time	Room	Repeat Date & time	Repeat Room
Administering ArcGIS Enterprise and ArcGIS Online with Python	Tuesday (July 11) 8:30 – 9:45 AM	SDCC – Ballroom 06 D		
Mapping, Visualization and Analysis using ArcGIS API for Python	Tuesday (July 11) 8:30 – 9:45	SDCC – Room 01 A		
ArcGIS Python API: Introduction to scripting your Web GIS	Tuesday (July 11) 10:15 – 11:30 am	SDCC – Room 09	Wed (July 12) 10:15 – 11:30	Hilton – Sapphire Ballroom M
Cloning your Portal users, groups and content using ArcGIS API for Python	Tuesday (July 11) 12:30 - 1:15 pm	SDCC – Demo Theater 11	Wed (July 12) 2:30 – 3:15 pm	SDCC – Demo Theater 11
ArcGIS API for Python for GIS Analysts and Data Scientists	Tuesday (July 11) 2:30 - 3:15 pm	SDCC – Demo Theater 11		
Automating Enterprise GIS Administration using Python	Tuesday (July 11) 4:30 pm – 5:15 pm	SDCC – Demo Theater 11		
Scripting and Automation for the Web GIS power user	Tuesday (July 11) 5:30 pm – 6:15 pm	SDCC – Demo Theater 11	Wed (July 12) 4:30 – 5:15 pm	SDCC – Demo Theater 11
Administering ArcGIS Enterprise and Online with Python	Thu (July 13) 8:30 – 9:45 am	SDCC – Ballroom 06 C		
ArcGIS Python API – Advanced Scripting	Thu (July 13) 10:15 – 11:30 am	SDCC - Room 02	Friday (July 14) 9:00 – 10:15	SDCC Ballroom 06 B
ArcGIS Python API for Administrators and Content Publishers	Thu (July 13) 12:20 – 1:15 pm	SDCC – Demo Theater 08		

# Please Take Our Survey on the Esri Events App!

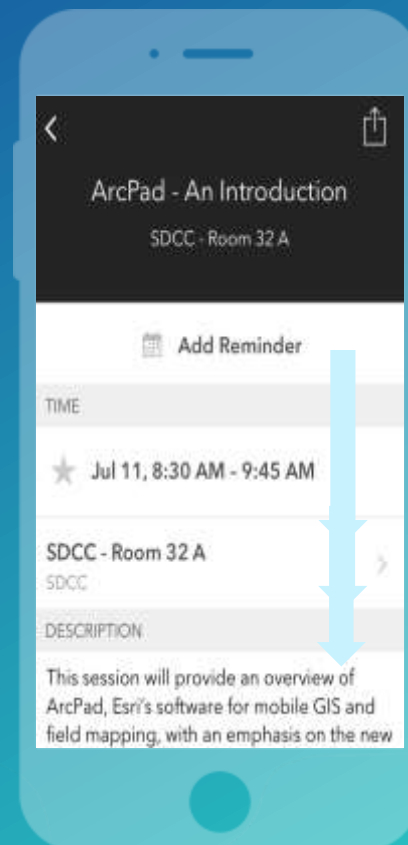
**Download the Esri Events app and find your event**



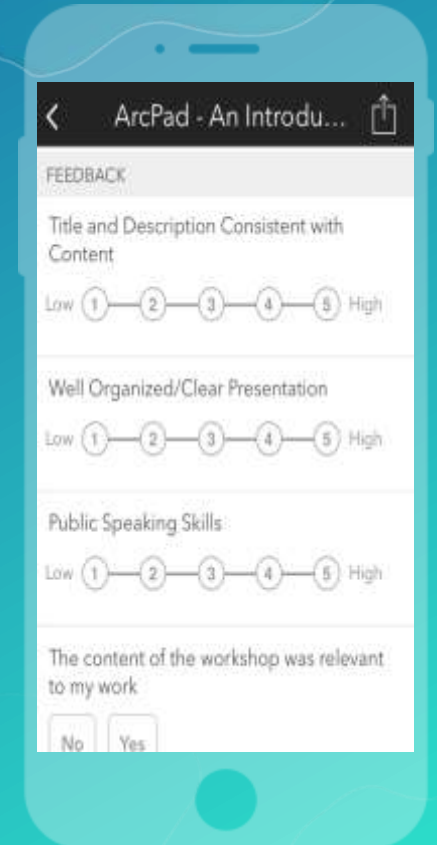
**Select the session you attended**



**Scroll down to find the survey**



**Complete Answers and Select "Submit"**



**Questions?**



# Thank you



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THE  
SCIENCE  
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