Esri Developer Summit

March 26–29, 2012 | Palm Springs, California

esri.com/events/devsummit

Developing Desktop Add-ins with Python

Jason Pardy

Jason Scheirer

Topics to cover

- Tour of the documentation
- Supported add-in types
- The Python Add-In Wizard
- Building an add-in tool (demo)
- Building an add-in extension (demo)

ArcGIS Desktop Add-Ins

At 10.0, a new add-in model to customize and extend ArcGIS Desktop applications.

- **Easier to build**
- **Easy to share**
- **More secure**
- **Pluggable Architecture**

Python makes add-ins easier!

- No dll's!
- No compiling!
- No ArcObjects!
- Less code!

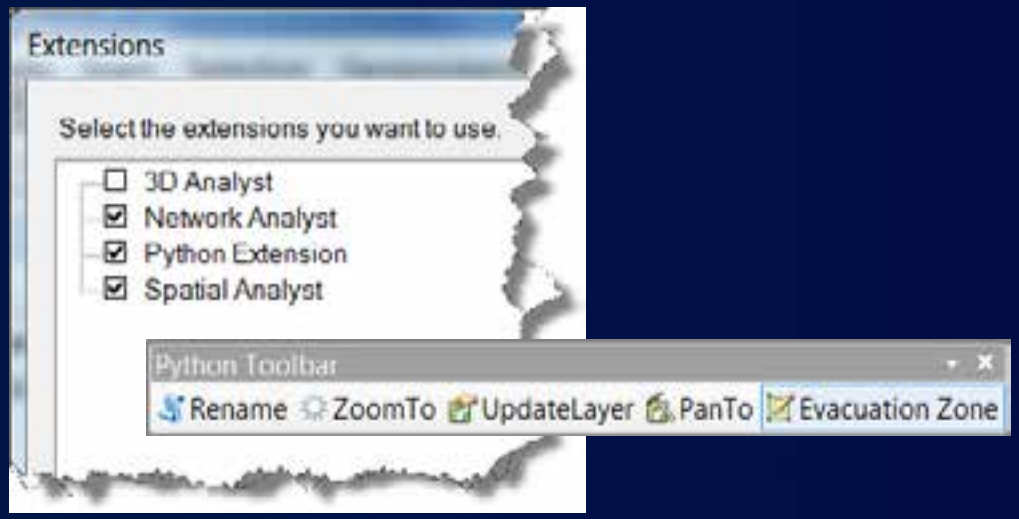
Documentation: Python Add-in Guide book

- **ArcGIS Desktop Help guide book**
  - **“Customizing ArcGIS Desktop with Python Add-Ins”**
  -
- **Python Resource Center**
- **arcgis.com for sample add-ins**

Let’s take a tour

Supported Add-in Types

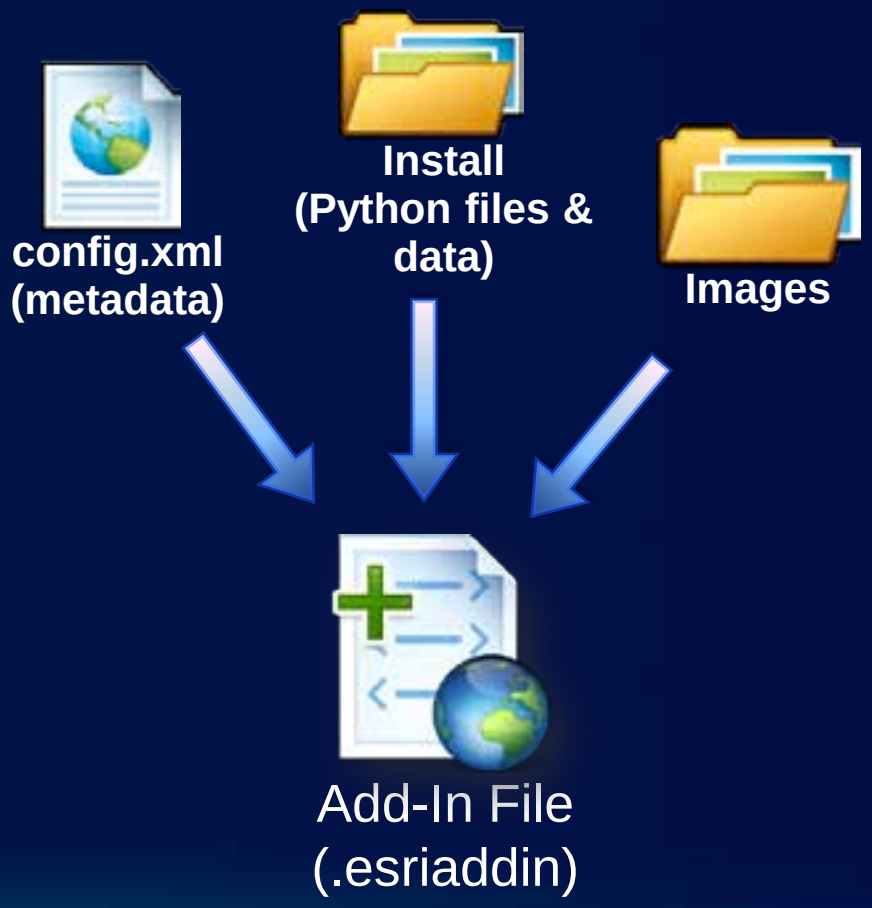
- Buttons & Tools
- Toolbars
- Tool Pallets
- Combo Boxes
- Menus
- Extensions



- Dockable windows are not supported.
- No custom UI support.

Add-in Anatomy

- Same file anatomy as .NET & Java
  - XML file describes the type of customization(s)
  - Python script contains the business logic



Python Add-In Wizard

- Add-ins are built using the Python Add-in wizard
- The wizard generates fully stubbed out add-in projects including the config.xml, folders, and the Python script
  - Download the Python Wizard from arcgis.com
  - Extract the contents of the .zip
  - Launch the addin_assistant.exe from the bin folder

Demo: Building an Add-In (Tool)

Jason Pardy

Demo: Building an add-in extension

Jason Scheirer

The *pythonaddins* module

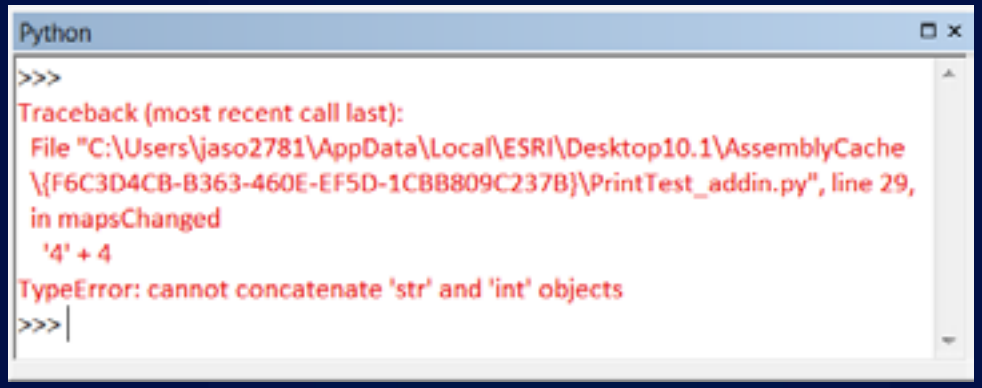
- Includes functions for supporting Python add-ins
  - OpenDialog()
  - SaveDialog()
  - GPToolDialog()
  - MessageBox()
  - GetSelectedTOCLayerOrDataFrame()

Python add-in classes

- Guide book includes list of properties and functions for each add-in class
  - Button
  - Combo Box
  - Tool
  - Application Extension

Debugging Add-Ins

- Use print statements
- “missing” on a toolbar likely means a syntax error



Updating & Editing Add-Ins

- Use the wizard to change add-in properties such as description, image, help, etc.
- After saving the changes, a new script is created.
- If you only need to update and add functionality to the existing script, there is no need to open the Python Add-In Wizard; just edit the Python script
- After updates, re-run makeaddin.py, install and test.

- Read the help topic “Editing an add-in”.

Demo: Updating & Editing an add-in

Sharing

- A packaged compressed file (.esriaddin) containing the xml, Python script, images, & any necessary data makes add-ins easy to share
- Can be shared between users within an organization using a centralized network share or through email
- Can be easily uploaded to ArcGIS online or the resource centers
- Added to a system by simply copying them to a well-known folder and removed by deleting them from this folder

Localization

- The translated config.xml files must reside at the root level in your add-in archive (.esriAddIn), and the files must adhere to one of the following naming conventions:

Config.xml	Default
Config.fr.xml	French
Config.fr-FR.xml	French-France
Config.fr-CA.xml	French-Canadian

Digitally Signing Add-Ins

- Improve security
- The ESRISignAddIn.exe utility, supplied with the download of Python Add-In Wizard, can be used to sign ArcGIS for Desktop add-ins
  - Located in the bin folder
  - Must be copied to your ArcGIS install bin folder

Most FAQ's

- **Can I create and open custom dialog boxes within my add-in (using Tk, wxPython, etc.)?**
  - **No. The low-levels of integrating any Python UI framework with the event loop of the desktop apps is very difficult and currently doesn't work.**
- **Is Python add-ins a replacement for VBA?**
  - **Yes & No. Although we continue adding more Python support where you can create scripts to automate mapping workflows and create add-ins to interact with the display and listen to events, full access to the ArcGIS system is not available within Python.**
- **Can I open GP tools from an add-in?**
  - **Yes. Using the pythonaddins module you can call the function *GPToolDialog*. This will open a GP tool.**
- **Can I use the pythonaddins module outside an add-in such as in script tool?**
  - **No. This module is only for use within an add-in. However, it can be imported and used in the Python window. Using it inside a script tool will fail.**

Thank-you!

- Please complete a survey.
- Questions?