

# Using Python to Glue it all Together

Jason Scheirer  
2011 Developer Summit



## Source and Slides

- <http://esriurl.com/devsummit2011hg>
- **Mercurial**

# Agenda

- **Geoprocessing tools from 30000 feet (validators, model builder, etc)**
- **Designing a tool to wrap something that's already there (subprocess use cases)**
- **Writing a tool in ArcObjects**
  - **C++**
  - **C#**

# Assumptions

- **Designing and Building Geoprocessing Tools from the Ground Up**
  - **Tuesday, March 8, 2011, 4:30pm-5:45pm, Primrose A (Palm Springs Convention Center)**
- **Python for Working with ArcGIS**
  - **Wednesday, March 9, 2011, 10:30am-11:45am, Primrose A (Palm Springs Convention Center)**
  - **Thursday, March 10, 2011, 1:30pm-2:45pm, Smoketree A - E (Palm Springs Convention Center)**

# Why Write a Geoprocessing Tool?

- **Integration with ArcGIS**
- **Validation**
- **Layer of sanity checks/conversions**

# Script Tool Framework to the Rescue

- Easy design and organization of tools
- Can execute arbitrary .exe and script files
- Python

# Subprocess

- Communicate via `stdin/stdout/stderr`

# Using Python Script Tools as Interop for ArcObjects



## Why Write a Tool in ArcObjects?

- **Familiarity**
- **Performance**
- **Customization (something you can't do)**

## Why Not Just Do the Whole Tool in C++/C#?

- **Development time**
  - Script tool wizard
  - DLL/Typelib/Assembly registration
- **Rapid prototyping**
  - Get it "good enough" in Python
  - Instrument and optimize away the bottlenecks

# Calculate Area Field

- **Two params:**
  - **FeatureClass in**
  - **New field name**
- **Behavior:**
  - **Add field of type double to Feature Class**
  - **Populate with area of shape for that record**

# C++

- **Actually not too hard (Smart Pointers are awesome)**
  - **Easiest integration path, best bang for buck**

## C# (or any .Net language)

- Python for .Net
  - <http://pythonnet.sourceforge.net/>
- Or build on the C++ example



esri