

Training the GIS Professional

Advanced ArcPy for ArcGIS Pro - 3 days

Overview

This course builds upon the concepts taught in the “Creating Python Scripts for ArcGIS Pro” course. The course uses a combination of lectures, student activities, demonstrations and laboratory-based exercises to work with the ArcGIS Pro project, accessing the geodatabase as well as delving deeper into the ArcPy site package.

The course will contain a number of exercises for you to work using the PyCharm and ArcGIS Notebook developer environments. At the end of the course you will be provided with the course data, demos, tools along with additional Python specific resources which are relevant to the course.

NOTE: This course is an updated version of the “Mastering ArcPy using Python for ArcMap 10x” course which has been redesigned to take into account some of the enhancements offered by the ArcPy version of ArcGIS Pro.

NOTE Attendees should already have attended the “Getting Started with the Python Scripting Language” course or have the same equivalent knowledge.

At the end of the course you will be provided with the course data, demos, tools along with additional Python specific resources which are relevant to the course.

Who should attend

- GIS Analysts
- GIS Technical Leads
- GIS Professionals
- GIS Application Developers
- Application Developers

Goals

- Investigate how the updated mapping (arcpy.mp) module is used to access the components of ArcGIS Pro Projects and to create enhanced map series.
- Examine the data access (arcpy.da) module to process the contents of the geodatabase.
- Learn how to distribute your scripts through Python Toolbox Tools.
- Perform toolbox validation to reduce errors within your scripts.
- Perform dataset and attribute field validation.
- Investigate workflows for advanced error message handling.
- License and extension validation.
- Understand the importance of working with spatial references and how to create them
- Investigate how Esri’s Cartographic Information Model (CIM) is accessed through Python

Topics Covered

- Accessing the contents of the ArcGIS Pro Project: What can the arcpy.mp module do? Mapping module architecture; migrating legacy map documents and fixing broken data sources; symbology and labelling; managing layouts and sharing items to your portal.
- Creating map books using ArcPy: Types of map series; Creating a simple PDF; Working with a PDF in the arcpy.mp module; The MapSeries class; Workflow for creating a map book; Esri resources for creating map books.
- Validating datasets: Understand invalid database names and reserved words; investigate functions to perform dataset and attribute field validation; determine of a dataset or attribute field unique?
- License and extension validation: How is ArcGIS Pro licensed? Checking the ArcGIS Pro product status in your script; check extension availability.

- Advanced error handling and messaging: An overview of error handling in Python; using the Python raise statement; Retrieving messages from the geoprocessor; Writing messages out to the geoprocessor and to the View Details dialog.
- Python Script tool validation: What is Toolbox validation? Working with the ToolValidator class; enable / disable tool parameters; creating a drop-down combo-box through the use of Filters; working with dialog categories; adding help documentation.
- Introducing Python Toolboxes: What is a Python Toolbox? Use a template to create the Python Toolbox and Tool; Using the help system to populate toolbox and tool parameters.
- Working with the Data Access module: Using the da.Walk() function to traverse a directory structure; manage Geodatabase versions, domains and subtypes; Controlling an edit session for data loading.
- Working with spatial references: Why are spatial references important? The SpatialReference class; Accessing an existing Spatial Reference; Environment settings affecting processing.
- Introducing the Cartographic Information Model (CIM): Basic workflow for modifying the CIM; Creating CIM definition objects; CIM Resources.
- Using Python in ArcGIS Pro: Working with the Label Expression dialog box; modify labels through the formatting tags; Using the Calculate Field geoprocessing tool for simple & complex expressions; Investigating the Calculate Value Model-Only geoprocessing tool.

Prerequisites

It is highly recommended that attendees complete the “Creating Python Scripts for ArcGIS Pro” course. It is important that attendees understand how to:

- Load the ArcPy site package into a script.
- Run a geoprocessing tool from within Python.
- Create a Python Script Tool in the Toolbox
- Work with the three types of data access cursor class.
- Attendees should also be a user of ArcGIS Pro.

Contact Us

For GIS training enquiries and bookings visit esriuk.com/learning, email us at learning@esriuk.com or call us on 01296 745504