ArcGIS Model builder - Streamlining data processing

COURSE OUTLINE

This practical, one-day hands-on course provides an introduction to the ArcGIS model builder and how you can use it to streamline data processing tasks. You will be introduced to ArcToolbox and gain a deeper understanding of ArcMap geoprocessing tools. You will learn how to construct a model, make it loop, expose parameters to turn it into a Model tool for embedding and integrating Python scripts into the model builder environment. The course comprises hands-on exercises each introduced with a short presentation.

This course is intended for regular users of ESRI’s ArcMap software who wish to improve their technical knowledge to automate data processing.

ANTICIPATED COURSE OUTCOMES / ACHIEVEMENTS

Aims and objectives

• To widen delegate’s experience beyond the core functionality of ESRI’s ArcGIS software package by introducing the concept of data processing automation.

• Learn about the geoprocessing environment and its integration with model builder.

• Develop the skills required to build and run geoprocessing models.

• Understand the anatomy of the geoprocessing tool

Learning outcomes - by the end of the course, delegates will understand how to:

• Create a Toolbox in ArcToolbox.

• Change application level Geoprocessing options.

• Construct a model.

• Loop a model using an iterator and control the order of operations.

• Convert a model to a Model Tool and embed within another model.

• Embed existing Python scripts and expose as a Script Tool to the geoprocessing environment.
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Presentations and exercises

1 - Introduction to the ArcToolbox
What is model builder and why use it?
ArcToolbox
Find existing tools

Exercise 1 – Creating a Toolbox in ArcToolbox

6 – Controlling the order of processing
Use preconditions to set processing order

Exercise 6 – Controlling the order of processing

2 – The Geoprocessing tool
The anatomy of a Geoprocessing tool
Using Help
Environment settings
IN_MEMORY workspace

Exercise 2 – Exploring a geo-processing tool

7 – Convert a model to a Model Tool
Convert a hardwired model into a generic Model Tool.
Rename and reorder parameters
Set a filter
Enhance the model with documentation

Exercise 7 – Expose parameters, make the model generic

3 – Results and Geoprocessing options
Control tool behaviour:
Overwrite
Add to display
Background processing
Results Window
Re-Run
Open
Copy as python snippet

Exercise 3 – Results and geoprocessing options

8 – Embedding models
Learn why and how to embed a model within another

Exercise 8 – Embedding models within models!

4 – Model builder application
Model builder
Elements of a model
Run a model
Changing the properties on an element

Exercise 4 – Create a model

9 – Create a Python Script Tool
Learn why and how to expose an existing Python script to the model builder environment

Exercise 9 – Wiring up python scripts to be used in model builder

5 – Run a model multiple times (looping)
Loop a model
The iterator
In-line substitution

Exercise 5a – create a model that uses an Iterator
Exercise 5b – Use an Iterator to split data into separate datasets

10 – Trouble shooting and advanced topics
A short end of day presentation demonstrating a few examples of advanced topics and when things go wrong...