

## **Marxan: Creating the boundary file**

### **Introduction**

The Marxan boundary file contains the costs of the boundaries between adjacent planning units. This page describes methods for creating a Marxan boundary file in which the cost is the length of the boundary (the most common choice). The first method is the simplest and is for planning unit layers that are in the ESRI shapefile format. The second method is for planning unit layers in the ESRI ArcInfo coverage format.

Note that both methods assume that the planning unit layer is topologically correct. That is, there must be no gaps or overlaps between neighbouring planning units and no dangling arcs. It is often possible to create a boundary file from a planning unit layer that has topological errors. However, the boundary data will include the errors and cause MARXAN to produce strange results (e.g. by making neighbouring planning units appear to not be neighbours).

### **Creating a boundary file from a planning unit shapefile**

Andrew Cottam of the [Joint Nature Conservation Committee](#) (UK) created an ArcGIS extension that creates a Marxan boundary file from a planning unit shapefile. The extension is easy to install and use as follows:

- Download the JNCC ArcGIS extensions - [JNCC1](#) and [JNCC2](#)
- Unpack the ZIP files.
- Run the installer (the Setup.exe program). The installer adds a toolbar to ArcMap.
- Start ArcMap.
- Add your planning unit shapefile to the data frame.
- Click on the 'Create Marxan file' button in the JNCC ArcGIS Extensions toolbar and follow the prompts.

Please provide feedback on the extension to Andrew Cottam ([andrew.cottam@jncc.gov.uk](mailto:andrew.cottam@jncc.gov.uk)).

### **Creating a boundary file from a planning unit coverage**

Note that you can use the JNCC extension to create a boundary file from an ArcInfo coverage by first converting the coverage to a shapefile. The following method is mainly for people who are working in the command-line ArcInfo environment.

Creating a Marxan boundary file from an ArcInfo coverage is computationally simple because ArcInfo stores the required topological data in the arc and polygon attribute tables. The data need only be restructured and exported to a text file. We provide here an AML script that illustrates the process and should work for most coverages. Download and use the script as follows:

- Download the [AML script](#).
- Unpack the ZIP file.
- Follow the instructions in the mk\_bnd.aml file.

Please contact [Wayne Rochester](#) with queries about this method.