

## Quick start: A typical AZTool run

AZTool and its associated AZTImporter (both available from the [Download](#) page on the AZTool website) are flexible and can be run in various combinations to address different problems. For the guidance of novice users, the steps involved in a typical run are described below:

- 1) **Read the academic papers on automated zone design** (see the references section on the [Supporting Materials](#) page) to be sure that you understand the basic principles.
- 2) **Create a shapefile of your building blocks.** This should contain the zones that you want to use as building blocks in the zone design process and the attributes to be used as constraints. Examples might include population (e.g. to be used as a target and/or minimum threshold), region (e.g. a higher-level geography code within which you wish zones to be constrained), homogeneity variables (such as tenure or accommodation type, for designing zones which are as internally homogenous as possible with respect to these variables) and the area of the polygon (to be used to control the shape or compactness of the output zones).
- 3) **Use the AZTImporter to convert your shapefile into the .pat and .aat files required by AZTool.** Check the output and ensure that it makes sense! Make a note of the columns and their positions: you will need to define these in the .xml parameter file. Also check that the number of records matches the number of zones you expected. Note that if you have any genuine islands (zones with no neighbours except for the external polygon), you can manually alter the contiguity matrix (.aat file) at this stage to artificially enable them to become neighbours of mainland zones. If you do this, you should set the shared boundary length for any of these zones to -1 so that their perimeter length is ignored in subsequent calculations.
- 4) **Set up the .xml parameter file.** Specify the location of your input (.pat and .aat) files and specify and define the various parameters, constraints and column positions of the variables to be used in the run. Further details on the AZTool algorithm, and the various parameters and metrics that can be employed, can be found in the User Guide for the relevant version (available either from the [Supporting Materials](#) page of the AZTool website or contained within the Zip file which you downloaded to obtain the software from the [Download](#) page).
- 5) **Run the AZTool executable (\*.exe).** In the simple GUI, specify the locations of the .xml parameter file and the directory to which you want outputs to be written.
- 6) **Inspect the log file.** A log file (.log) is written to the output directory that you specified. Inspect this to see whether all zones were resolved, whether there were any problems and which iteration produced the optimal combination of tracts.
- 7) **Examine the output tracts.** The results of the run are written to a tract composition file (.csv). This contains the ID of each input building block and the tract to which it has been assigned. If you want to visualise the results of this aggregation or to carry out further analysis using the newly created tracts, you will need to import this tract composition file into another program e.g. a GIS, and DISSOLVE the building block boundaries based on the TRACT\_ID. You may also wish to produce summary statistics (grouping or totalling by TRACT\_ID) for the new tracts.

### **Running AZTool in batch mode**

To run AZTool in batch mode (which is very useful for executing multiple runs and scaling up its implementation across larger regions or entire countries) you will need to set up a .bat batch file. Specify the full path locations of the .exe, the .xml parameter file, the .aat input file and the file to which you want the output tract composition to be written. You can then run AZTool using this batch file instead of the .exe file.

### **Getting help with AZTool**

We are not able to offer a formal support service, but you should consult our [FAQ](#) page and are always welcome to [Contact Us](#).