



## Grid Extract Tool v1.4 – User instructions

The Grid Extract tool is an ArcGIS extension to extract values from raster grids at selected points.

These can either be specified, or can be randomly selected. The purpose of this tool is to enable statistical analysis of values at a subset of points from one or more raster surfaces.

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### System requirements

- ArcGIS version 9.1 (may work with version 9.0)
- Either 3D Analyst or Spatial Analyst extensions are required
- Microsoft .NET Framework version 1.1
- Microsoft .Net Support for ArcGIS (installed with ArcGIS installation program)

### Last update

20 December 2006. Version 1.4 has the added ability to save attributes from point feature class.

### Inputs

- Sample points in a shapefile. This may be an existing point shapefile or a new file of random points can be generated using this tool.
- Raster surfaces: the grids to be sampled should have the same grid size and should overlap each other.

### Outputs

- The values extracted with their x,y coordinates will be written to a comma separated (CSV) text file.

### Installation

Installation of the tool is in two main steps.

#### 1. Install the necessary files

- Locate and run the setup.exe file
- Step through the installation program, accepting the default settings

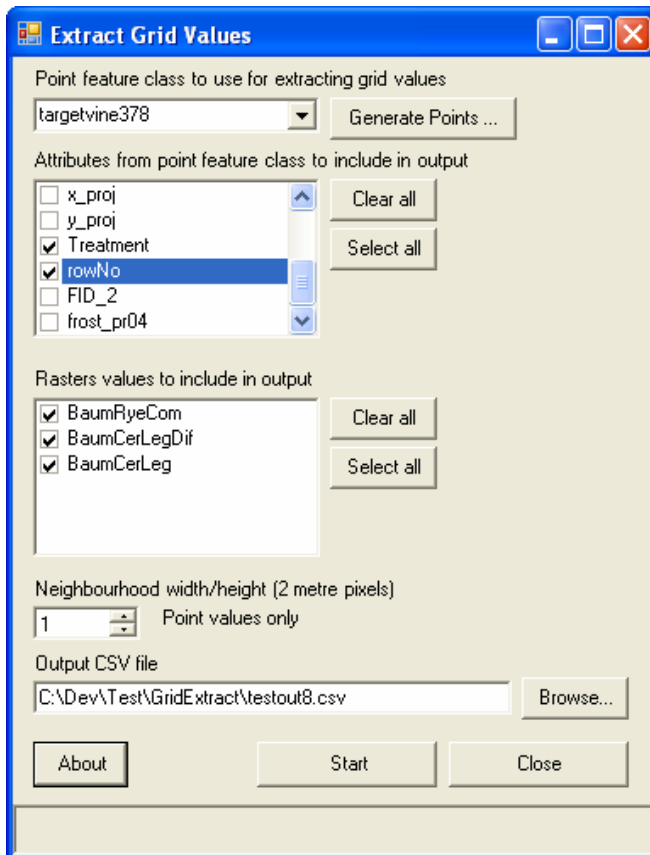
#### 2. Add the tool to the ArcMap user interface.

- Run ArcMap
- From the **Tools** menu, click **Customise**
- Click the **Commands** tab
- In the lower section of the window set **Save in:** to be Normal.MXT
- Locate and highlight **Precision Agriculture** in the **Categories** box
- Click on the **Grid Extract Tool** in the commands box and drag this tool to a blank area on any toolbar.
- Click **Close** on the Customise dialogue window

## Using the Grid Extract tool

Before running this tool you must open (in ArcMap) the raster files to extract values from. These preferably will have the same grid size and should overlap.

ArcMap must be in **Data View** (not Layout View) or the Grid Extract toolbar button (shown to right) will be disabled. When the toolbar button is clicked the window displayed below should appear.



Grid Extract tool - main window

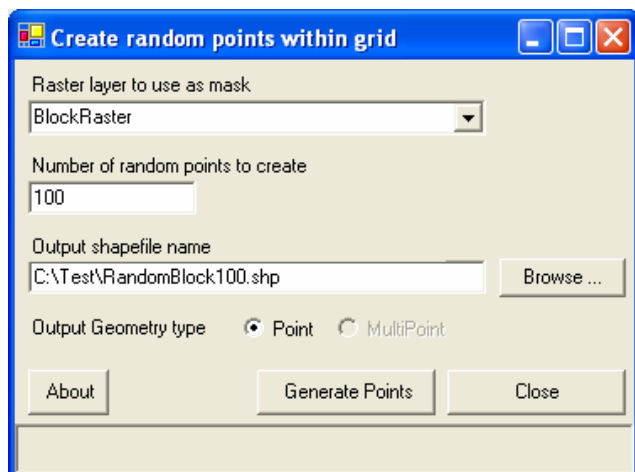
1. Choose the **point shapefile** that contains the points from which data is to be extracted OR  
Click the **Generate Points** button to open the Random Points tool to create a new points shapefile. See the section "Using the Random Points tool" (below) for instructions. When that tool is closed, the new shapefile will be automatically selected.
2. In the list of point feature attributes, select the attributes to be written to the output text file.
3. In the **Rasters values** list, ensure the grids you want to extract values from are ticked. NOTE: The raster you specify must have a Spatial Reference defined.
4. Set the desired **neighbourhood width/height**. This value sets the size of a square centred on each extract point. If the neighbourhood size is greater than 1, the output value will be the mean of the values in a square neighbourhood region.

5. Enter (or browse to) the name of the file to contain the extracted values in CSV format.
6. Click **Start**. The time required for processing will depend on the number of points being extracted, and the size of the neighbourhood region.
7. When processing is complete the text file will have been created in the specified directory.
8. When you close the window, your settings will be saved for the next time you run the form.

## Using the Random Points tool

Clicking the **Generate Points** button in the Grid Extract Tool causes the window shown below to appear.

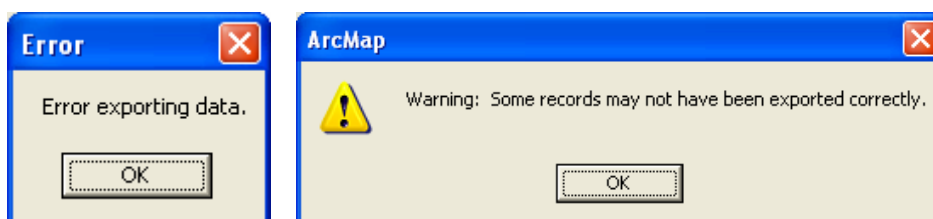
1. Choose the raster layer which defines the region in which points are to be generated.
2. Enter the number of points to generate
3. Enter (or browse to) the name of the shapefile to contain the points.
4. Click **Generate Points**. The time taken for processing will depend the number of points being created. There is an intermittent bug in this tool (see below)
5. When processing is complete the new points file will have been added to the ArcMap table of contents.



Random points generation tool

### Bug affecting Random Points tool: Data export fails

The Random Points tool fails intermittently when exporting the generated points. The following messages are displayed:



This problem occurs most frequently with large numbers of points (1000+) but occasionally occurs with smaller numbers. This appears to be a bug in the ExportFeatureClass of the ArcObjects library. I have posted a query on the ESRI developer forum (<http://forums.esri.com/Thread.asp?c=93&f=993&t=182876>) which has not yet received a satisfactory solution.

### Maintenance

This tool was developed as an extension for ArcMap 9.1 in March 2006, to assist with Precision Viticulture research. For queries, please contact David Gobbett from CSIRO Sustainable Ecosystems.

### Notice

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