

# Package ‘RiverBuilder’

January 20, 2025

**Type** Package

**Title** River Generation for Given Data Sets

**Version** 0.1.1

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**Description** Generates graphs, CSV files, and coordinates related to river valleys when calling the riverbuilder() function.

**License** GPL-3

**Encoding** UTF-8

**LazyData** true

**RoxygenNote** 6.0.1

**NeedsCompilation** no

**Repository** CRAN

**Date/Publication** 2018-04-09 09:39:19 UTC

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riverbuilder	<i>Generates graphs, text files, and coordinates related to a given set of river data.</i>
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## Description

Generates graphs, text files, and coordinates related to a given set of river data.

## Usage

```
riverbuilder(filename, directory, overwrite)
```

**Arguments**

filename	Name of the file to be processed.
directory	Path in which outputs will be generated. If non-empty, it must contain "\\" or "/" between directories/files, and never "\". An empty or invalid argument will result in files being generated in a temporary location.
overwrite	Flag that determines whether existing files will be overwritten. If the files already exist and this value is FALSE, the program will stop and produce an error.

**Value**

None. Output files are generated in the specified (or temporary) directory:

BoundaryPoints.csv - Contains keys that map to specific points in CartesianCoordinates.csv that comprise the boundary around a river's floodplain.

CartesianCoordinates.csv - Contains comma-separated XYZ coordinates for the synthetic river valley. A separate program such as ArcGIS can use these points to generate a 3D model.

Data.csv - Contains coefficients of variation, averages, standard deviations, channel slope, and other important information.

CenterlineCurvature.png - Displays the curvature of the channel's centerline.

CenterlineCurvature.csv - Contains coordinate data that was visualized in CenterlineCurvature.png.

ValleySection.png - Displays the cross section of the channel and floodplain at their midway point.

ValleySection.csv - Contains coordinate data that was visualized in ValleySection.png.

GCS.png - Displays the geometric covariance structures of: bankfull width and thalweg elevation; thalweg elevation and the channel meander.

GCS.csv - Contains coordinate data that was visualized in GCS.png.

LongitudinalProfile.png - Displays the side view of the river which consists of valley top, valley floor, bank top, and thalweg elevation.

LongitudinalProfile.csv - Contains coordinate data that was visualized in LongitudinalProfile.png.

Planform.png - Displays the bird's eye view of the river which consists of the channel meander, channel bank, valley floor, and valley top.

Planform.csv - Contains coordinate data that was visualized in Planform.png.

**Source**

<http://pasternack.ucdavis.edu/research/projects/synthetic-river-valleys/>

**Examples**

```
file <- system.file("extdata", "Input.txt", package="RiverBuilder")
riverbuilder(file, '', TRUE)
```

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