

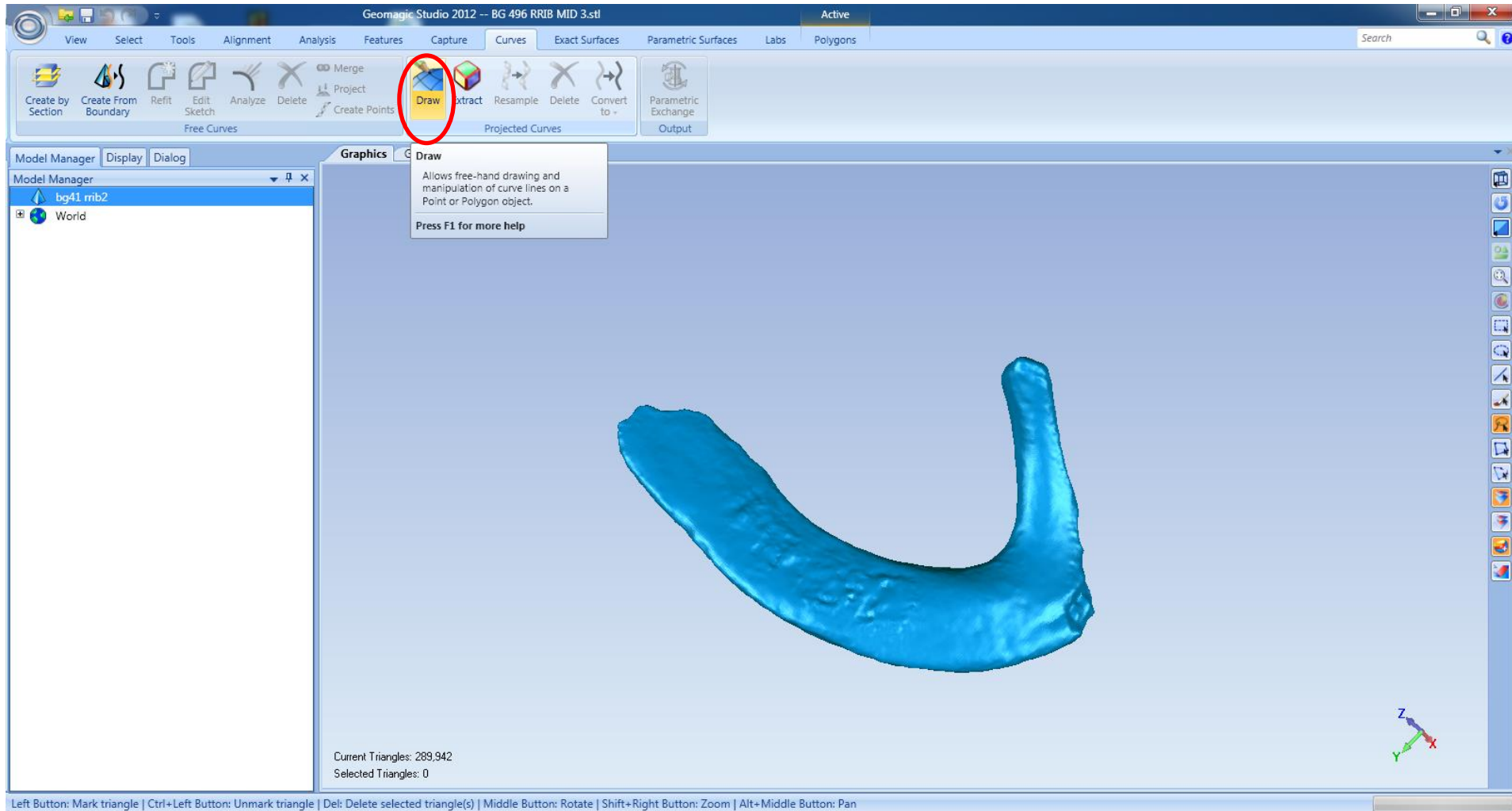
Guide for digitising curves in Geomagic

This is a technical guide which illustrates how to digitise and export a curve as a series of points using Geomagic Studio 2012. Other versions of the software, including Geomagic Wrap, Studio 2013, 2014, have the same interface for this, so this guide should work for these as well.

Each step is illustrated by a screenshot, and the example used here is a scan of a human rib (available as part of the accompanying dataset, along with scans of a neural arch and hyoid). All have a variety of curves which are often difficult to capture effectively using other means (e.g. a microscribe, 2d photographs).

First, open your file in Geomagic.

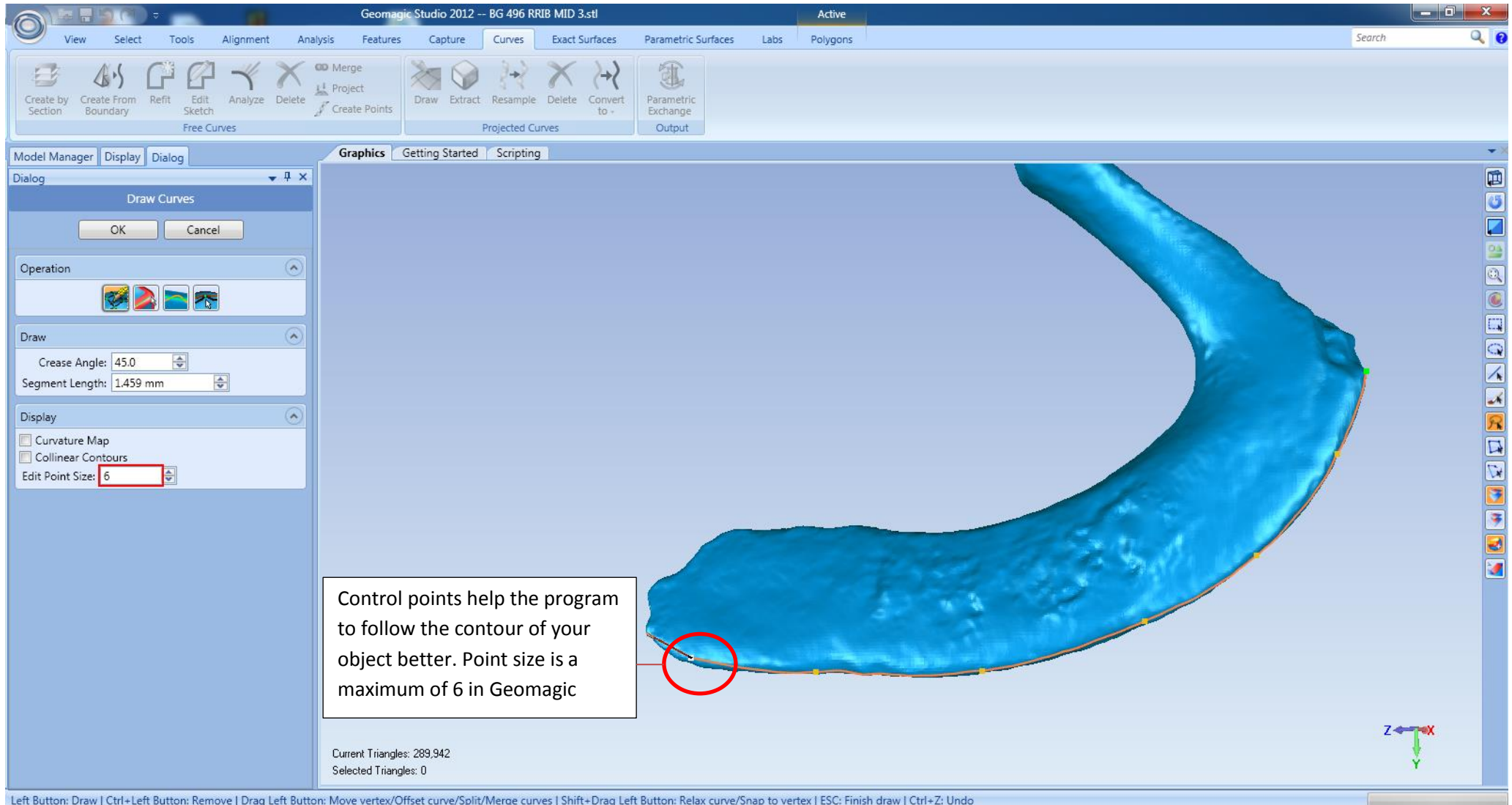
Open the Curves editor



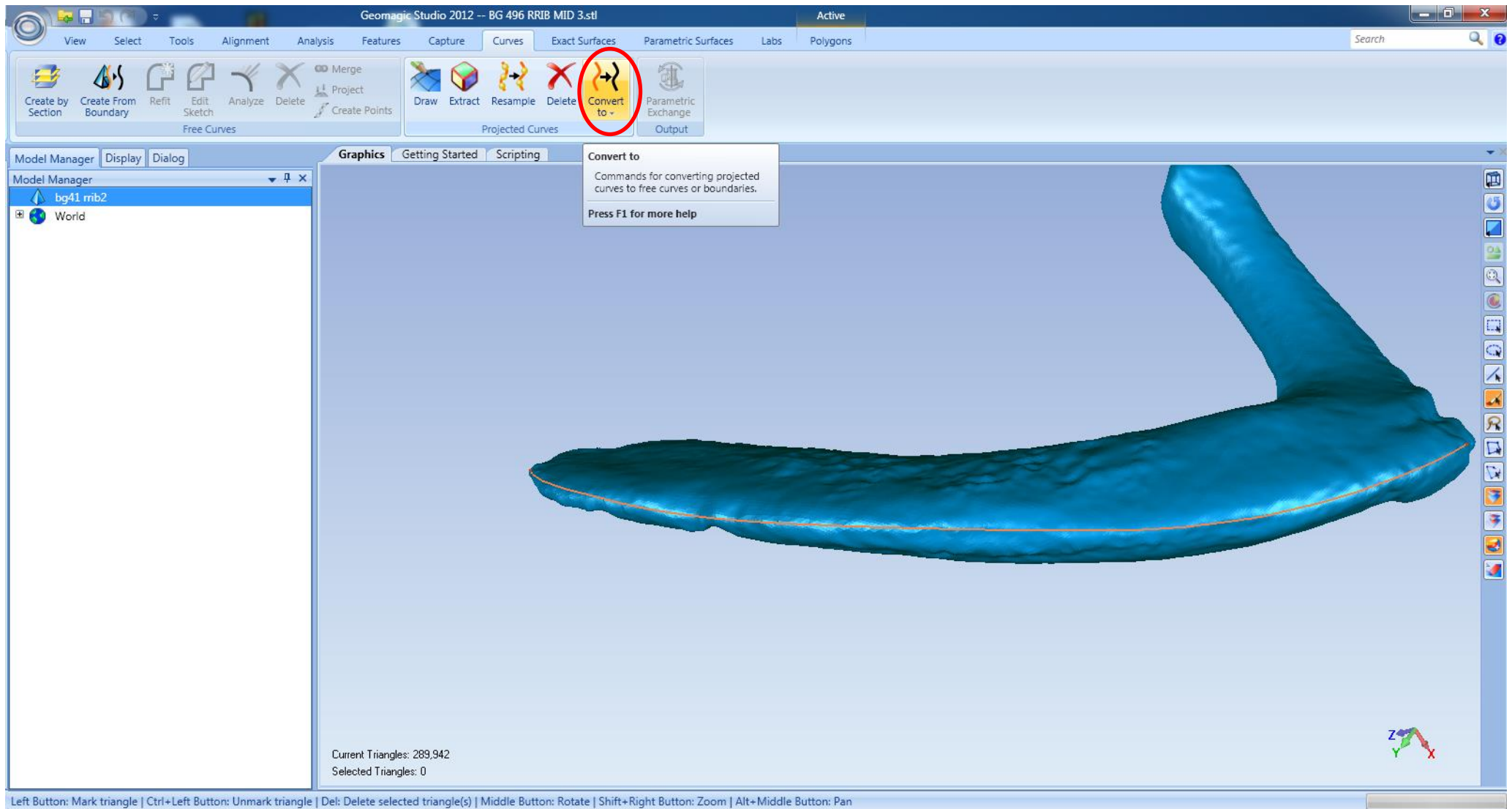
Click 'Draw'

Draw your curve by clicking at regular intervals onto your surface.

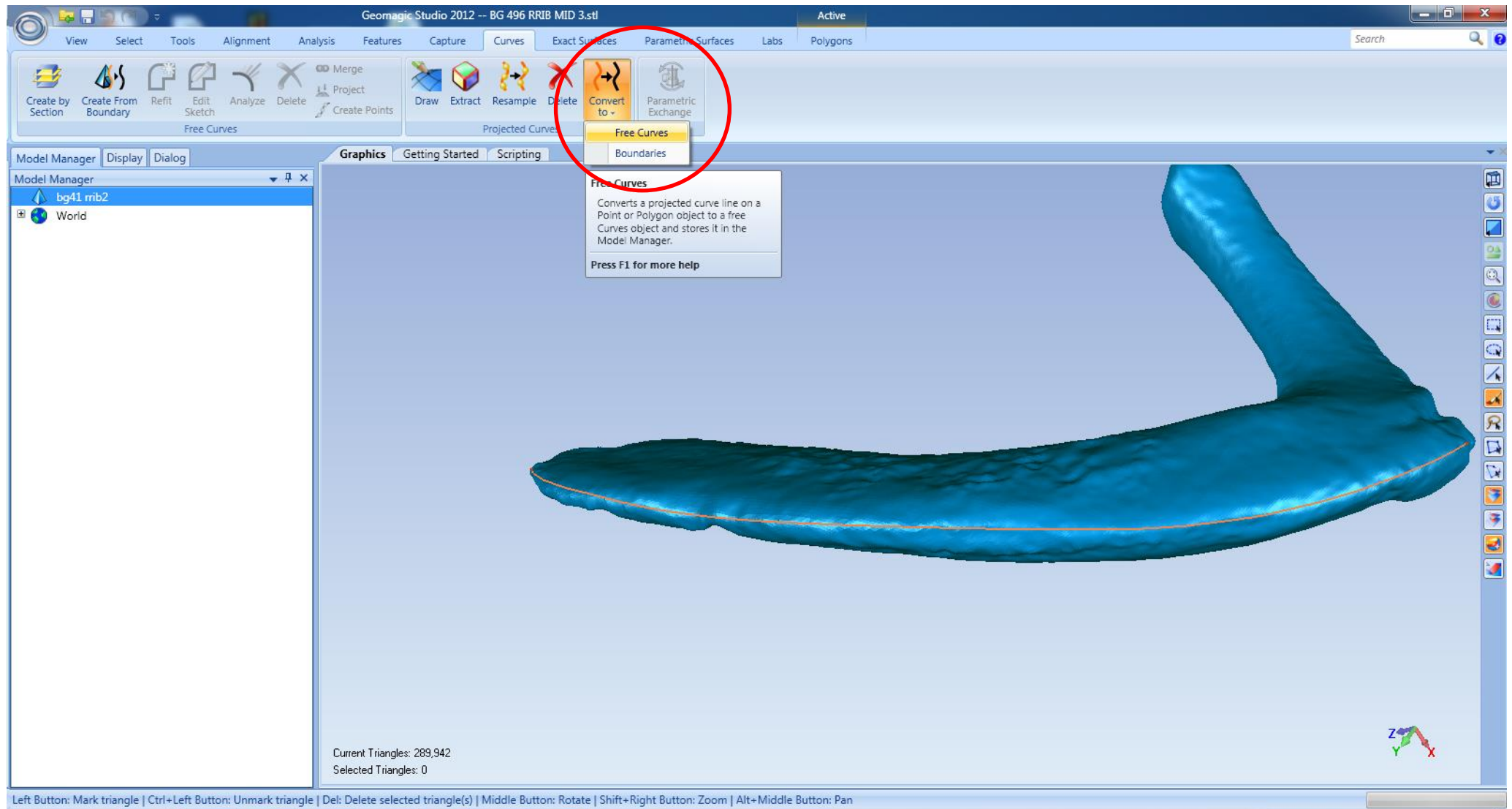
At this stage it doesn't matter how many times you click, so the more times you click the surface, the more closely your curve will follow the surface of the object.



Click 'Convert-to'

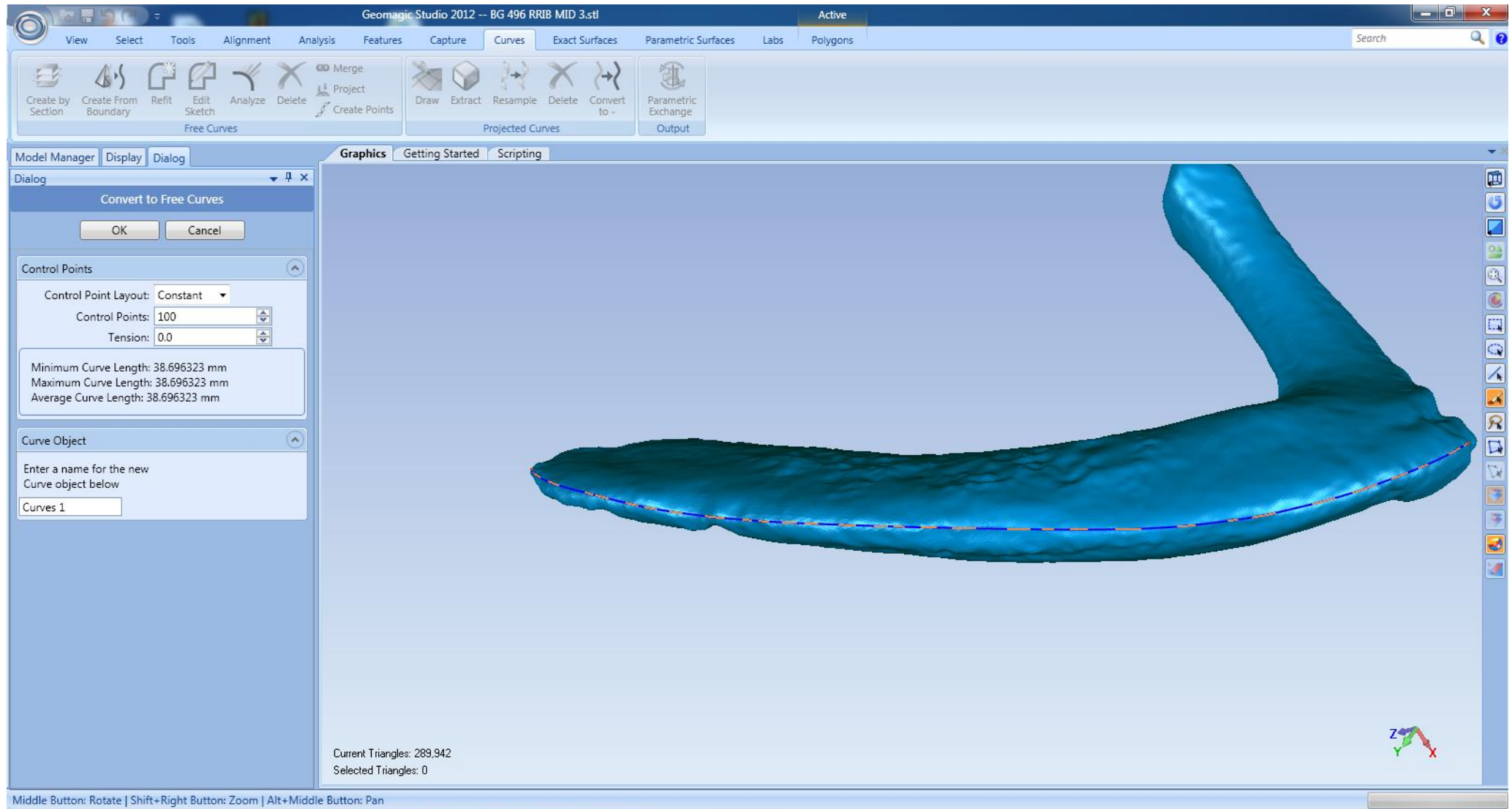


Click 'Free Curves'

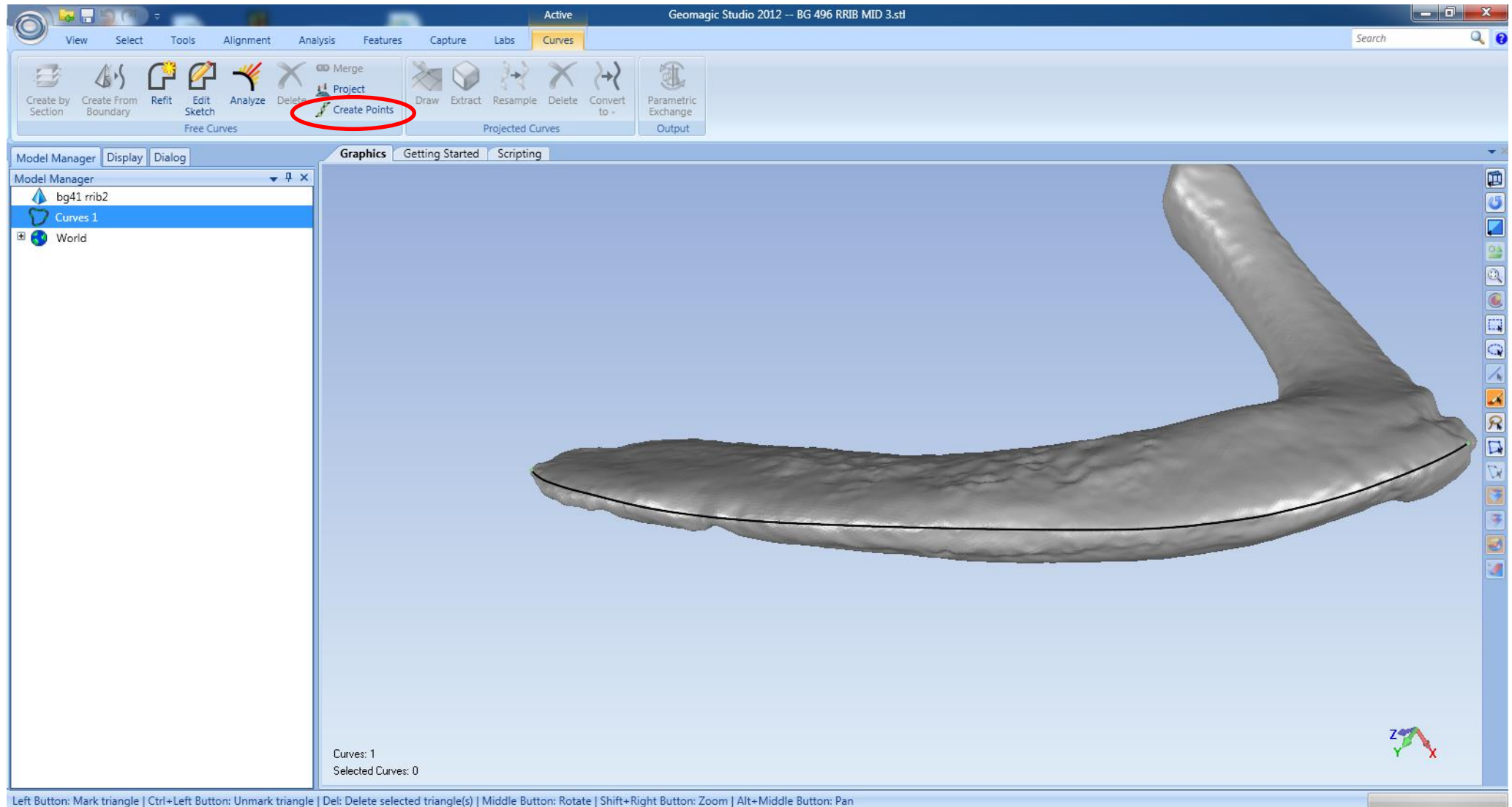


Select type of points layout, either constant, adaptive or tolerance-based.

Here, I have chosen 100 constantly spaced points with zero tension.

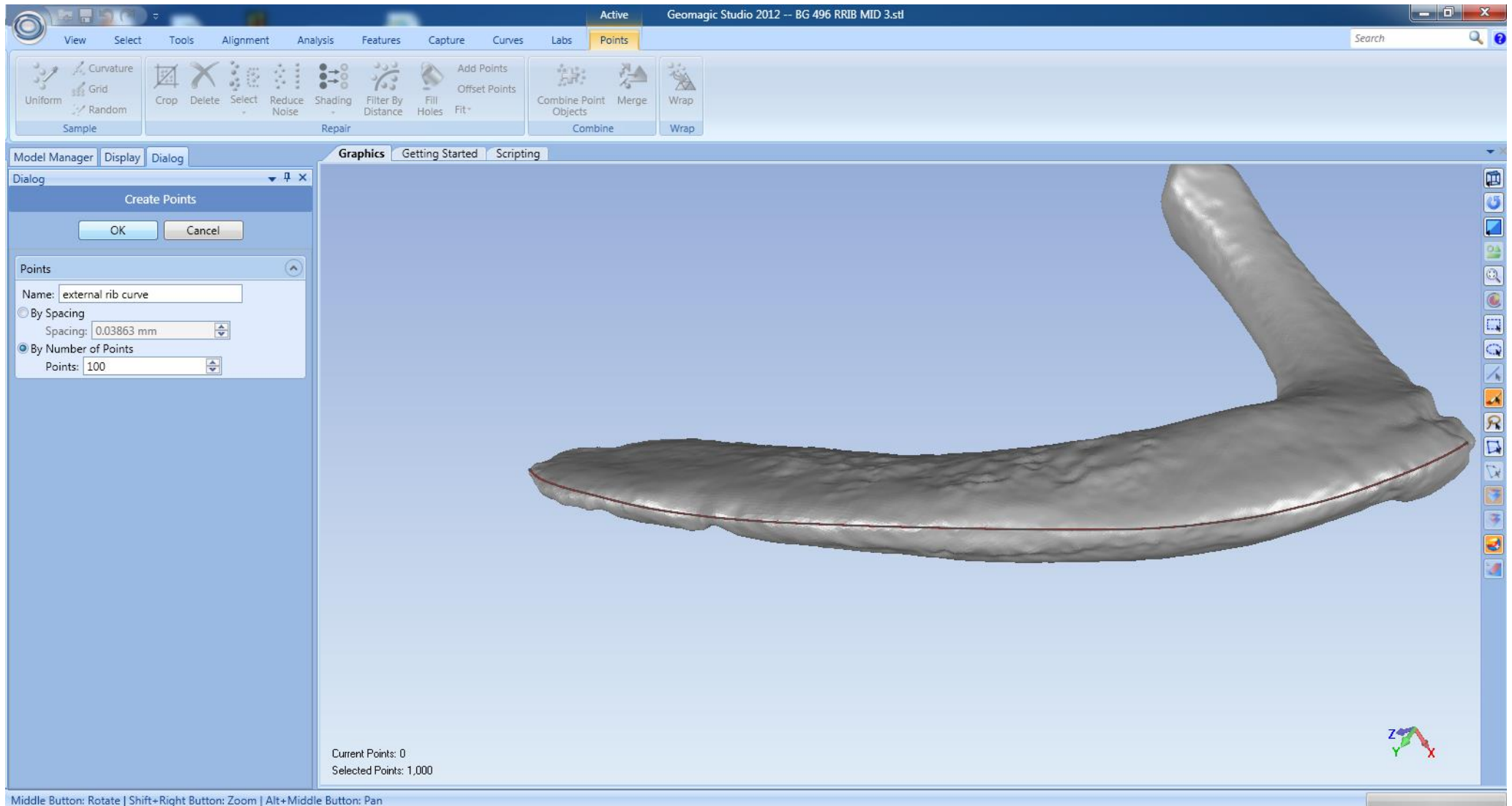


You now have a curve object, in this case named 'Curves 1' which you need to select, and then click 'Create Points'

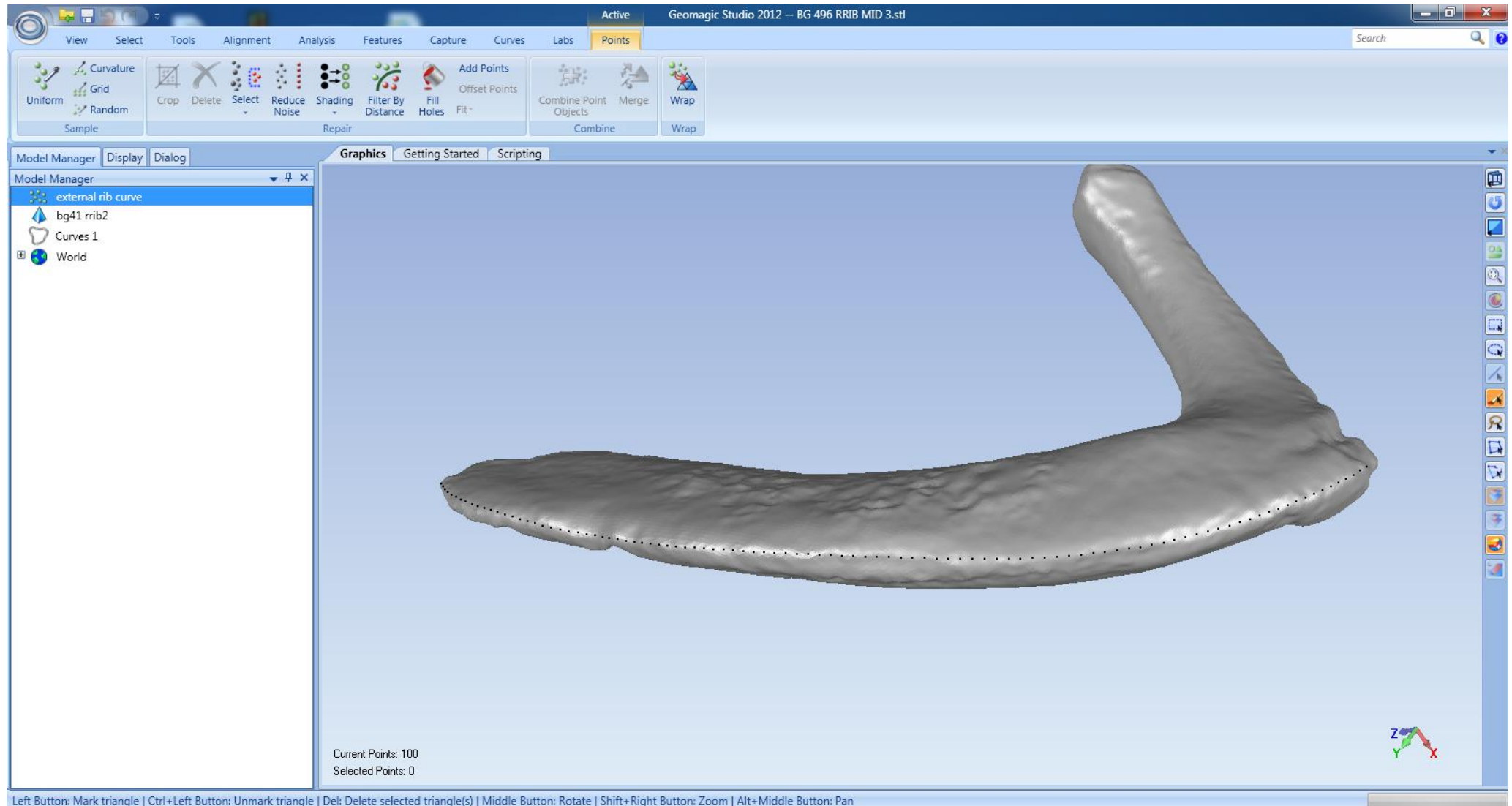


Name your curve in the dialog box, and choose how you want to space out your curves

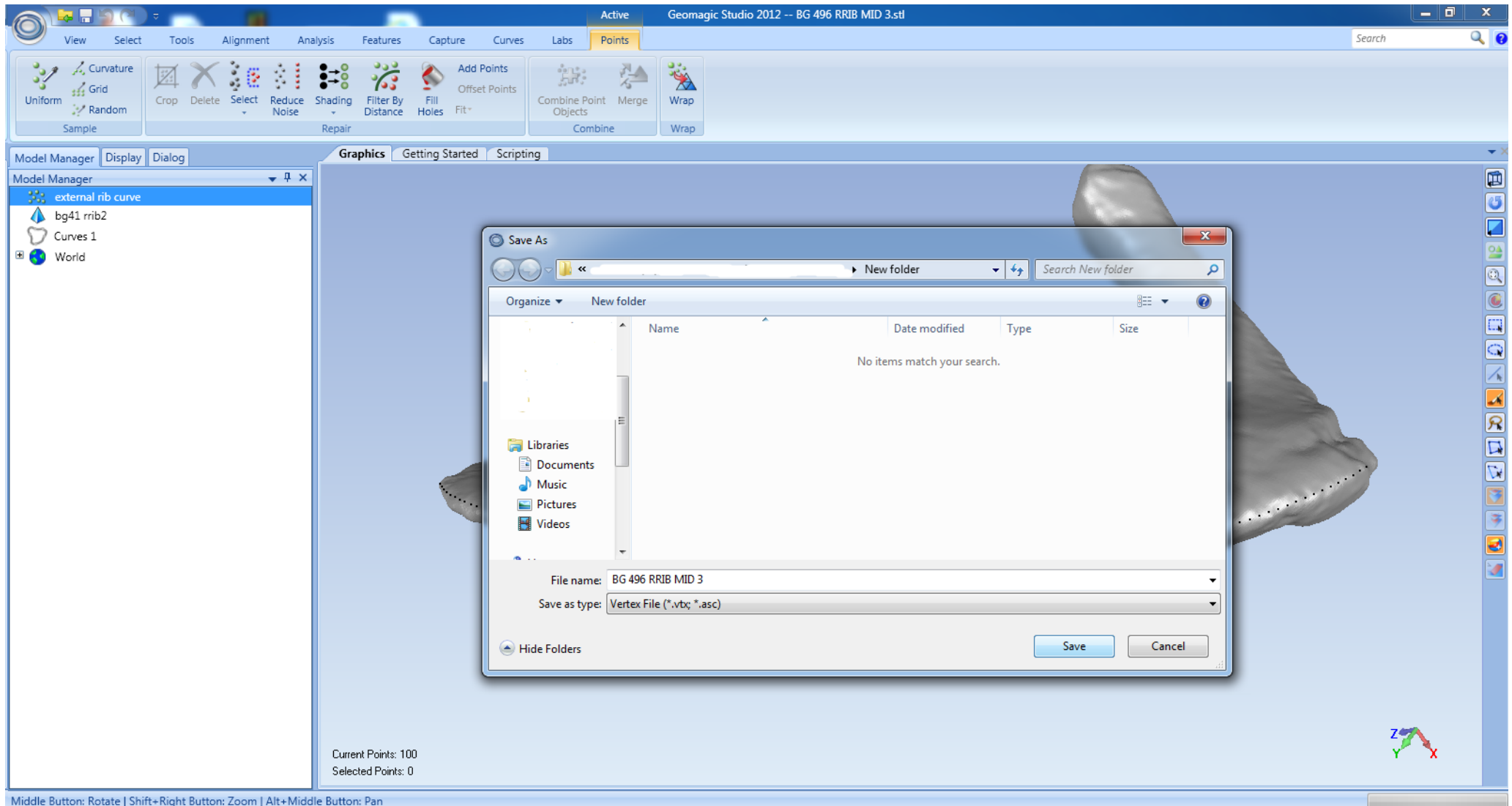
- By regular spacing
- By number of points



View of points on the surface. These are now ready to be exported and read by another program.



Save as a vertex file (".vtx"). This can be done by either clicking the geomagic symbol-save as, or right clicking on the active object and choosing the file format to be saved. This file format can be read by text editors or excel and converted with ease to .csv, .pts or similar.



The data open in Microsoft Excel.

FileHomeInsertPage LayoutFormulasDataReviewView

CutCopyFormat Painter

Clipboard

Calibri11

B*I*U

Font Color

Background Color

Wrap Text

Merge & Center

General

Number

Percentage

Decimal

Conditional Formatting

Format as Table

Normal

Bad

Good

Neutral

Calculation

Check Cell

Insert

Delete

Format

AutoSum

Fill

Clear

Sort & Filter

Find & Select

Editing

A1

Geomagic Studio

| | A | B | C | D | E | F | G | H | I | J | K | L | M |
|----|-------------------|------------|-------------|---|---|---|---|---|---|---|---|---|---|
| 1 | # Geomagic Studio | | | | | | | | | | | | |
| 2 | # New Model | | | | | | | | | | | | |
| 3 | 145.1694518 | 50.6805331 | 625.2065301 | | | | | | | | | | |
| 4 | 145.3022659 | 50.3156707 | 625.1670718 | | | | | | | | | | |
| 5 | 145.4326957 | 49.9486849 | 625.1413226 | | | | | | | | | | |
| 6 | 144.7509527 | 51.7482534 | 625.4402399 | | | | | | | | | | |
| 7 | 144.8946148 | 51.3964184 | 625.3511906 | | | | | | | | | | |
| 8 | 145.0338513 | 51.0409474 | 625.2699494 | | | | | | | | | | |
| 9 | 144.1467553 | 53.1257913 | 625.8573532 | | | | | | | | | | |
| 10 | 144.3005651 | 52.7850799 | 625.7449985 | | | | | | | | | | |
| 11 | 144.4528699 | 52.4424165 | 625.6366372 | | | | | | | | | | |
| 12 | 144.6033120 | 52.0971976 | 625.5339980 | | | | | | | | | | |
| 13 | 143.8354999 | 53.7940748 | 626.1138916 | | | | | | | | | | |
| 14 | 143.9915895 | 53.4615368 | 625.9819865 | | | | | | | | | | |
| 15 | 143.6789036 | 54.1276596 | 626.2425780 | | | | | | | | | | |
| 16 | 143.2039887 | 55.0945103 | 626.6986132 | | | | | | | | | | |
| 17 | 143.3633268 | 54.7818504 | 626.5277863 | | | | | | | | | | |

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Ready

178%