Release Notes for Curve Maker

Version 1.6.4 released on 2018-04-16

1. Compatible with SU 2018

Version 1.6.3 released on 2017-03-27

1. Bug Fixes:
    a. Curve Maker did not always pay attention to a ~ to keep the focus on the current parameter.
    b. Curve Maker did not always reset itself properly when the user ESCaped from drawing a Cornu Spline before entering 3 data points.

Version 1.6.2 released on 2016-04-05

1. Bug Fixes:
    a. When drawing or editing various spirals interactively, some parameters (which were not lengths) were inappropriately rounded based on the Precision setting for Length Units in Model Units. This had the effect of making the curve not match the user specified dimensions. A bad bug.
    b. When drawing or editing various spirals interactively, "Enable length snapping" did not work reliably.

2. Additions:
    a. An existing curve can be edited by entering a new parameter value in the "Measurements" box and hitting Enter (Return). Curve Maker accepts the new value, redraws the curve and advances to the next parameter. Hitting Enter without changing the displayed value simply advances to the next parameter. Repeatedly hitting Enter loops through the parameters and revisit all parameter values multiple times in one edit session. In this version, users can now type a tilde (~) at the end of a value to keep Curve Maker from automatically advancing to the next parameter. The focus will remain on the current parameter as long as a tilde appears at the end of the entered value.

Version 1.6.1 released on 2015-08-31

1. Changes:
    a. A parameter was added to superellipses to provide the option to draw them with or without a face. The default is to draw the face along with the curve. If during a session, the parameter is changed to specify no face, that will be the new default for subsequent superellipses drawn in the session.

Version 1.6.0 released on 2015-05-28

1. Bug Fixes:
    a. When a curve was edited interactively, Curve Maker would lose track of the layer to which it had been assigned.

    b. Curve Maker would issue spurious error messages when some curves were drawn interactively.

    c. A bug in scaling prevented equation options from drawing curves to correct dimensions.

2. Additions:
    a. CurveMaker now draws and edits superellipses. Curves such as squircles, rectellipses, circles, squares, rectangles, ellipses, diamonds and squashed diamonds can be drawn and edited with this tool. You can draw or edit from the center of the figure or from outer corner to outer corner by toggling the Alt key (Option on Mac). The tool will also draw and edit a portion of a curve (e.g. a semisquircle) based on the values specified for From Turn and To Turn. Enter desired dimensions and the value of the exponent to get the desired shape. For example, an exponent of 0 creates squares and rectangles. An exponent of 0.5 creates squircles and rectellipses. A value of 0.8 generates the superellipses used by Piet Hein. A value of 1 creates circles and ellipses. A value of 2 creates diamonds, etc., etc. When drawing or editing, entering dimensions such as 5, x or x, 2 instructs the tool to compute the value for x such that the ratio between x and the other dimension is

proportional to the golden ratio. See https://youtu.be/WwAQMDvTRso

Version 1.5.2 released November 2014

1. Bug Fixes:
    a. Clockwise? parameter was not functioning when some spirals were drawn.

    b. Construction point drawn at the center of a curve was erased when parameter values were edited.

Version 1.5.1 released October 2014

1. Bug Fixes:
    a. Draws center (focus) of Euler spiral in the correct location when the Euler equation option used.

    b. When initialized, the interactive drawing and editing tools check the latest "Enable length snapping: " setting on the Units tab of Model Info.

2. Changes:
    a. Numerous code changes have been made to comply with Trimble requirements. Virtually all of these are behind the scenes and do not directly affect usability.

    b. Undo and Redo work in a meaningful way. Drawing can be undone/redone. Individual edits to curves are undoable/redoable. The name you give to a curve group appears next to Undo (Redo) in the edit menu.

    c. To edit a curve, you no longer have to select Edit Group and then select the curve to get a context menu option to edit the curve. Instead, the context menu that appears when you right click a curve group provides options both to Edit the curve and to Display Curve Data.

    d. The context menu option displays the name you have given to the curve group.

e. When you draw or edit a curve, the lines depicting the dimensions you are setting (e.g. the radii of a spiral) are stippled.

f. Between edits, hitting the ESC key quits the tool. Hitting ESC partway through an edit aborts the change and leaves the tool active.

g. When editing any curve drawn via an equation option, any mouse click quits the tool.

3. Additions:
    a. When drawing or editing a curve, the up/down (left/right) arrow keys toggle on and off a vertical (horizontal) directional inference lock. The Shift key toggles on and off a diagonal directional inference lock. A heavy solid line will indicate that a lock is on.

4. Deletions:
    a. The plugin no longer displays a plugin-specific cursor when the interactive tools are used.

Version 1.4.1 released on 2014-04-28

1. Bug Fixes:
    a. Some curves drawn via the equation option could not be edited.

    b. "Hide Equation Options" and "Show Equation Options" did not work.

2. Changes:
    a. If, before drawing a new curve, a curve of any type drawn previously by Curve Maker is selected, then the selected curve's origin will be the default origin for new curve. Does not apply to curves drawn interactively.

    b. Improved the consistency with which 3d spirals are drawn. The "From" and "To" parameters together with "Height" dictate the final shape. When "Height" is positive, the spiral will be shortest at "From" and tallest at "To" and

vice-versa when "Height" is negative. Also for example, "From" = 0, "To" = 3 will result in a different spiral than "From" = 3, "To" = 0 for the same value of "Height".

Version 1.4 released on 2014-03-20

1. Bug Fixes:
   a. When editing a curve interactively, the center of the curve would be redrawn in the wrong location in certain cases.

   b. Interactively editing a Fermat or Golden spiral could result in too many turns being drawn.

   c. The default settings for a Hyperbolic spiral drawn using the equation option were invalid.

2. Changes:
   a. Curves are drawn appropriate for the direction in which the view camera is facing.

   b. The plugins are distributed independently of each other and are installed separately. This makes them conform to the new guidelines Trimble has established.

   c. The updated plugins are compatible with SketchUp 2014 and also compatible with SketchUp 8.

   d. The following files in the SketchUp plugins folder for any earlier version of the plugins MUST be deleted before installing the new version:
      i. ctsMaker (a folder - delete the folder including all of its contents)
      ii. curve_maker.rb
      iii. taper_maker.rb
      iv. stock_maker.rb

Version 1.3.6 released on 2012-07-03

1. Bug Fixes:

a. The drawing plane was not determined correctly in all cases leading the tools to draw the mirror image of what was desired.

2. Additions:
   a. Curve Maker now draws the Ionic Volute using the formula proposed by Andrey and Galli (see: http://www.springerlink.com/content/r61qh2354m56qt31/). A demonstration video is available at: http://www.youtube.com/watch?v=mES14SnIAP8

3. Changes:
   a. Edited curves are redrawn faster.

Version 1.3.4 released on 2011-11-15

1. Additions:
   a. The number of Sides can be fractional.

   b. A 'Height' parameter (for an Archimedes, Bernoulli, Fermat, Golden, Hyperbolic or Lituus spiral) may be followed by an 's' (e.g. 10's or 5cms). In this case, the parameter value (e.g. 10' or 5cm) is interpreted as the total height to be achieved uniformly along the arc length of the curve. This will result in a constant slope along the length of the spiral.

Version 1.3.3 released on 2011-09-19

1. Bug Fixes:
   a. The equation options assumed parameter values to be in inches leading to misdrawn curves when the default units on the Units tab of Model Info were something other than inches.

Version 1.3.2 released on 2011-07-04

1. Bug Fix:

a. When drawing a catenary or parabola and when the default units on the Units tab of Model Info were something other than inches, a dimension entered without an explicit units designator was misinterpreted to be inches.

Version 1.3.1 released on 2011-06-14

1. Bug Fix:
    a. The correct number of sides was not drawn for the catenary and parabola.

2. Changes
    a. For the catenary and parabola, the sides parameter is the total number of sides to draw, and the number of sides can be fractional.
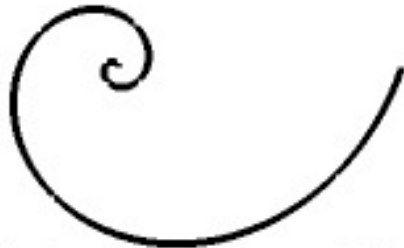
Version 1.3 released on 2011-04-30

1. Changes:
    a. The number of Sides can be fractional.

2. Additions:
    a. The interactive curve drawing tools pay attention to "Enable length snapping:" option on the Units tab of the Model Info dialog. You can override this by entering any length in the Measurements box.

    b. For Archimedes, Bernoulli, Fermat, Golden, Hyperbolic, and Lituus spirals, a maximum side length can be specified. For example, entering 16 < 0.125" as the value for Sides/Turn will cause the tool to draw more than 16 sides when the length of a side would otherwise be longer than 0.125". The maximum is not a hard limit - it uses an approximation of the true side length. See image below

for an example:

Sides/Turn: 16

Sides/Turn: 16 < 0.125"

Version 1.2.4 released on 2011-04-08

1. Changes:
    a. Curve origin coordinates previously could have been
       displayed in input dialogs as approximate values (i.e.
       values that included a ~ in the display) in certain
       circumstances. Now, those values are displayed as
       decimal numbers with precision equal to the Length Unit
       Precision field on the Units tab of Model Info. Previously, if
       a user had tried to enter approximate values as inputs, the
       dialog would reject them as incorrect without describing
       the problem to the user.

Version 1.2.3 released on 2011-04-01

1. Bug fixes:
    a. Catenary and parabola drawing did not work properly when
       the model units were something other than inches.

2. Additions:
    a. Toolbars will restore themselves to their prior location.

Version 1.2.2 released on 2011-03-06

1. Bug fixes:
    a. Some error messages and status text did not display translated text.

2. Additions:
    a. Catenary may be drawn and edited interactively.

    b. Sine and cosine may be drawn and edited interactively.

    c. Parabola may be drawn to dimension or interactively.

Version 1.2.1 released on 2011-01-11

1. Bug fixes:
    a. Deleting an endpoint in a Cornu spline did not work correctly.

    b. Display Curve Data did not work correctly for all translations.

2. Changes:
    a. Sine and Cosine curves drawn to dimension may depict any number of cycles.

3. Additions:
    a. Simplified Chinese translation is included.

Version 1.2 released on 2010-12-14
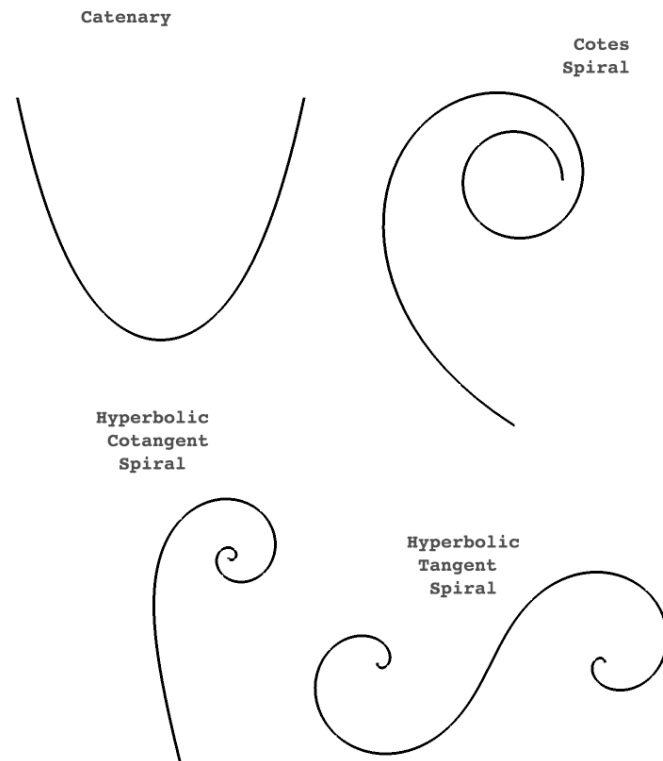
1. Bug fixes:
    a. When drawing a Cornu spline, one too many points could be captured.

    b. Height per turn was incorrectly applied on 3D spirals.

2. Changes:
   a. Some changes for compatibility with SketchUp 8.

3. Additions:
   a. Spanish and French translations are now included.

   b. For more precision in specifying curves, the option to enter parameter values for mathematical equations was added to Curve Maker.

   c. The equation options include all of the previously available curves plus four new ones: 1) catenary, 2) Cotes spiral, 3) hyperbolic cotangent spiral, and 4) hyperbolic tangent spiral. See figure below for examples.

   Catenary

   Cotes
   Spiral

   Hyperbolic
   Cotangent
   Spiral

   Hyperbolic
   Tangent
   Spiral

   d. The equation options for Archimedean, Bernoulli, Sine and Cosine include exponentiation parameters to enable generalizations of these curves to be drawn.

   e. With the equation options, values for Rotate, Flip and Scale parameters can be entered. The Rotate value specifies a rotation angle in degrees. The Flip value can be one of x, y, z, xy, xz, yz, xyz to specify the curve group's axis (or

combination of axes) to flip along. The Scale parameter uniformly scales the curve by the specified amount.

f. The parameter values used to specify a curve via an equation option can be edited and the curve will be redrawn. Right click on a curve group to edit the group and right click again on a curve to edit a curve.

g. Display Curve Data now displays the values of the mathematical parameters for spirals drawn interactively or by dimension.

h. The equation options can be accessed by choosing "Add equation options" as the curve Type in the Draw a Curve dialog (and clicking OK). Similarly, once displayed, the equation options can be hidden by choosing "Hide equation options" as the curve Type in the Draw a Curve dialog.

i. By default, the new equation options do not appear in the list of available curves in the Draw a Curve dialog. This default can be reversed by editing curve_menu.rb according to the instructions provided there.

Version 1.1 released on 2009-06-19

1. Bug fixes:
    a. Certain Archimedes spirals were not correctly computed.

2. Changes:
    a. When partial cycle is to be drawn, first point on sine (cosine) curve is drawn at the "origin" (e.g. a selected construction point).

    b. Origin is a optional field for each curve in Curve Maker.

    c. 3D versions of spirals were by an optional "height" parameter.

    d. Generic Archimedean spiral replaced by special cases: Archimedes, Fermat, Hyperbolic and Lituus.

    e. Bernoulli spirals no longer draw more of the spiral than specified by the user in the To Turns parameter.

    f. Curve groups are assigned a default name of "(curve type)".

3. Additions:
    a. Draw Euler spirals (aka Cornu or Clothoid spirals).

    b. Draw Cornu splines. This is a ruby adaptation of path.py created by Raph Levien (www.levien.com) aided by insights from Cornu for Nodebox (nodebox.net/code/index.php/Cornu).

    c. Draw spirals and Cornu splines interactively via tools added to Draw menu.

4. Other:
    a. Documentation is now officially out of date and will not be updated.

    b. For an overview of the interactive drawing tools, see this video: http://www.youtube.com/watch?v=UX1HptFLObM

    c. For more details on drawing spirals using the interactive tools see this video: http://www.youtube.com/watch?v=JW7VyVvSiwY

Version 1.03 released on 2008-08-17

1. Changes:
    a. Refinements to the logic for Archimedean spirals to draw the hyperbolic spiral and the Lituus spiral.

Version 1.02 released on 2008-07-07

1. Bug fixes:
    a. Further refinements to handle floating-point values correctly for international locales on both input and output. This problem appeared to be Windows specific, but the fix should be a more robust solution for both Windows and Mac.

2. Changes:
   a. Example data input values are consistent with units settings.

Version 1.01 released on 2008-07-03

1. Bug fixes:
   a. Handle floating-point values correctly for "fr", "es", "de" and "it" locales on both input and output.

   b. Users were prompted to save data files when no values had changed.

   c. Sine and cosine curves were drawn with half the user specified sides / cycle.

Version 1.0 released on 2008-06-12

1. Bug fixes:
   a. Construction point was not used as the origin for a curve in some cases.

   b. Spiral of Archimedes would not be drawn in certain cases.

   c. Curves would not be drawn at a construction point when data was read from a file.

2. Changes:
   a. Improved the clarity and consistency of status line text.

   b. Example dimensions are consistent with model units settings.

   c. Construction point added to curve groups.