QCAD3 DrawFromCSV script tool specifications.

DrawFromCSV.js © 2021 by CVH

Drawing entities

Point at specified coordinate.

Point	x	y

Line segment from specified startpoint to the specified endpoint.

Line	StartX	StartY	EndX	EndY

New relative position:

Line segment from specified startpoint with specified length and angle.

Vector	StartX	StartY	Radius	Angle

- -> endpoint

Line segment from the relative position to the specified endpoint.

LineTo	EndX	EndY

Line segment from the relative position with specified length and angle.

VectorTo	Radius	Angle

- -> endpoint

Ray or Xline through the specified base point and the direction point.

Ray	BaseX	BaseY	DirectionX	DirectionY
XLine	BaseX	BaseY	DirectionX	DirectionY

Arc segment with specified center, radius, start-/end angle and orientation.

Arc	CenterX	CenterY	Radius	StartAngle	EndAngle	Reversed/Forward

- - - - -> endpoint

Arc through 3 specified points.

Arc3P	x1	y1	x2	y2	x3	y3

Arc segment from the relative position to the specified endpoint.

ArcTo+A	EndX	EndY	Sweep Angle	Reversed/Forward
ArcTo+R	EndX	EndY	Radius	Reversed/Forward

Circle with specified center and radius.

Circle	CenterX	CenterY	Radius

Circle with specified center going through a specified point.

Circle+P	CenterX	CenterY	x	y

Circle through specified points.

Circle3P	x1	y1	x2	y2	x3	y3

Closed polyline, triangle shape.

Triangle	x1	y1	x2	y2	x3	y3

Closed polyline, square shape.

Square	BaseX	BaseY	Size	Angle

Closed polyline, rectangle shape.

Rectangle	BaseX	BaseY	SizeX	SizeY	Angle

! **Square** and **Rectangle** base reference = lower left.
These shapes are drawn upright CCW and rotated around the base point.

Closed polyline, quadrilateral shape.

Quad	x1	y1	x2	y2	x3	y3	x4	y4

Filled Solid, triangle shape.

RSolid3	x1	y1	x2	y2	x3	y3

Filled Solid, quadrilateral shape.

RSolid4	x1	y1	x2	y2	x3	y3	x4	y4

Closed polyline, no bulging, more than 4 references.

Polygon	x1	y1	x2	y2	x3...

Closed/open polyline, straight and bulging segments. At least 2 vertices, one-liner.

Polyline	Closed/Open	x1	y1	Bulge1	x2	y2	Bulge2	x3...

! The new relative position is the startpoint when closed or the endpoint when open.

Closed/open fit point spline, cubic, at least 3 fit points, one-liner.

FitSpline	Closed/Open	x1	y1	x2	y2	x3...

- - - - -> last point

Closed/open control point spline, cubic, at least 4 control points, one-liner.

ControlSpline	Closed/Open	x1	y1	x2	y2	x3...

- - - - -> last point

Text entity, all 16 properties are required, all on one row!

Text	x	y	Height	Width *(3.26.0)*	Valign*	Halign*	Direction*	Line Spacing Style*	...
	...		Line Spacing Factor	Text	Font	Bold	Italic	Angle	Simple

- The text 'DateStamp' inserts the date as text, 'FileStamp' inserts the full path of the CSV file as text.
- Since release 3.26.0 text may be wrapped in a column with a fixed width, zero is no text wrapping.

Optional properties / attributes

To any of the drawing entity declarations up to two optional lists can be added in either order.

These have the general form **&[...]** , one full list per additional cell.

All but one key/value pair are optional. All in any order.

A) A list of individual general properties.

&[Attrib; Layer:Name; Color:value; Lineweight:value; Linetype:value; LineTypeScale:value]	*semicolon*
&[Attrib, Layer:Name, Color:value, Lineweight:value, Linetype:value, LineTypeScale:value]	*comma*

- Name: A valid name, sublayers separated by a slash (**/**).
- Color: **ByLayer**, **ByBlock**, limited QCAD SVG names* or a HTML color in Hex RGB starting with a hash (**#**).
- Lineweight: **ByLayer**, **ByBlock**, **Default** or a valid value **0-211**.
- LineType: **ByLayer**, **ByBlock** or a valid line type designator*.
- LineTypeScale: A valid scale value.

! ! Faulty and unlisted attributes default to the actual current layer, 1, and/or to **ByLayer**.

B) A list of individual custom properties.

&[Custom; key1:value1; key2:value2; key3 ...]	*semicolon*
&[Custom, key1:value1, key2:value2, key3 ...]	*comma*

Special entries / Switches

Switches are active from where they occur in the CSV, ignored when faulty.

Switch: New CSV style switch, with list separator/decimal point.

CSVcomma/dot or **CSVsemicolon/dot** or **CSVsemicolon/comma**

Switch: Set new relative origin and reset relative position. (Logical UCS)

NewOrigin	OffsetX	OffsetY

Switch: Add new/update an existing layer. All 7 properties are required in this order.

NewLayer	Name	CAD/ #RGBColor	Line Weight	Line Type	Plottable	Snappable

- Name: A valid name, sublayers separated by a slash (**/**).
- Color: limited QCAD SVG names* or HTML color in Hex RGB starting with a hash (**#**).
- Lineweight: **Default** or a valid value **0-211**.
- LineType: A valid line type designator*.
- Plottable & Snappable are textual boolean **true** or **false** .

! Creating a locked, frozen or hidden layer to cast entities on isn't feasible.

! Layers are NOT added/updated on any flaw.

! ! One can't use, change nor switch to a non-existing layer.

Switch: Set an existing layer as active.

Layer	Name

Switch: Set an existing layer as hidden.

HideLayer	Name

Switch: Set an existing layer as frozen.

FreezeLayer	Name

Switch: Set an existing layer as locked.

LockLayer	Name

Switch: Set an existing layer as showing, thawed & unlocked.

AllowLayer	Name

Flag: Select all output whenever occurring in the CSV.

SelectAll

Flag: Zoom to all output whenever occurring in the CSV.

ZoomToAll

General

- None of the fields above are optional. Entries are ignored and reported when faulty.
- Empty lines or all empty cells are allowed. Empty fields from empty spreadsheet cells are ignored.
- Commenting lines start with a semicolon (**;**)
- Initially the list separator (**, or ;**) and the decimal point (**. or ,**) depends on the QCAD preferences.
- Angles are in <u>degrees</u> or in radians when ending in a '**r**' or '**rad**'. (ie '**45**' in degrees or '**1.234r**'/'**1.234rad**')
- Values are in full floating point notation, in drawing units.
    'Radius' are absolute values and all radii are limited to 1.00e6units and larger as 1.00e-9units.
        Booleans are textual **true** or **false**:
                Reversed/Forward , Closed/Open , Bold/not , Italic/not , Simple/not
    'Valign', 'Halign', 'Direction', 'SpacingStyle' are zero based numbers. (*)
- Every coordinate pair in X & Y can be expressed as:
    - Absolute in regard with the current origin (**xxx|yyy**).
    - Relative to the former valid coordinate as (**@xxx|yyy**) or relative/polar as (**@**'length'**|<**'angle').
        The methods final relative position conform QCAD are marked in light blue.
- All textual entries are without quotation marks.
    Layer names & custom properties are literal, all other textual entries are case-insensitive.
- **Vector** & **VectorTo** are line methods in relative/polar notation, provided for convenience.
                Vector is equivalent to **Line** from (startX|startY) to (@length|<angle)
                VectorTo is equivalent to **Line** from (@0|0) to (@length|<angle)
- ArcTo methods cast the normal solution.
- ! Absolute positioning that rely on polar notations is only as good as the numbers suplied.

CSV Reserved

- The CVS list separator '**,**' or '**;**' and the CSV decimal point '**.**' or '**,**'.
- Text lines starting with '**;** ...' or '**CSV** ...'
- Relative and polar prefixes '**@**' and '**<**' in coordinate pairs.
- Optional list separators '**,&[**' or '**;&[**' and '**]**' for drawing entities .
- Key/Value separator '**:**' in Attributes & Custom Properties.
- Sub folder separator '**/**' in layer name.
- Colors starting with a number marker '**#**'.

*) Extra details:

- **Line weights:** See DrawCSV_Lweight_test.csv (or *.dxf)
- **Line Types** designators: See QCAD-Linetypes.dxf. (or *.pdf) & test file DrawCSV_Ltype_test.csv
- **Colors:** See QCAD-Colors.dxf (or *.pdf) & test file DrawCSV_Color_test.csv
- **Text attributes:** See QCAD-TextAttributes.dxf (or *.pdf)

Additional included files

- This document in pdf.
    Test files in auto CSV style:
    - Not yet: DrawCSV_Global_test.csv (+ *.dxf)   *Exploiting different CSV flavors encountered.*
    - DrawCSV_Layer_test.csv (+ *.dxf)
    - DrawCSV_Color_test.csv (+ *.dxf)
    - DrawCSV_Lweight_test.csv (+ *.dxf)
    - DrawCSV_Ltype_test.csv (+ *.dxf)
    Test file with all methods exploited: *One per QCAD native settings!*
    - DrawCSV_test.csv (comma | dot)
    - DrawCSV_testEU.csv (semicolon | comma/dot)

Not implemented

Polyline, FitSpline & ControlSpline multi row list types.
Filled shapes, Hatches.
Rounded shapes
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Known minor BUG

!!   The current active layer isn't updated in the Layer List on the fly but it is actually set!
        See: https://www.qcad.org/rsforum/viewtopic.php?t=8287
    Work around >> Swap documents || Add new document and destroy || Undo/Redo ...