

Simple DXF

Version 2.0.9

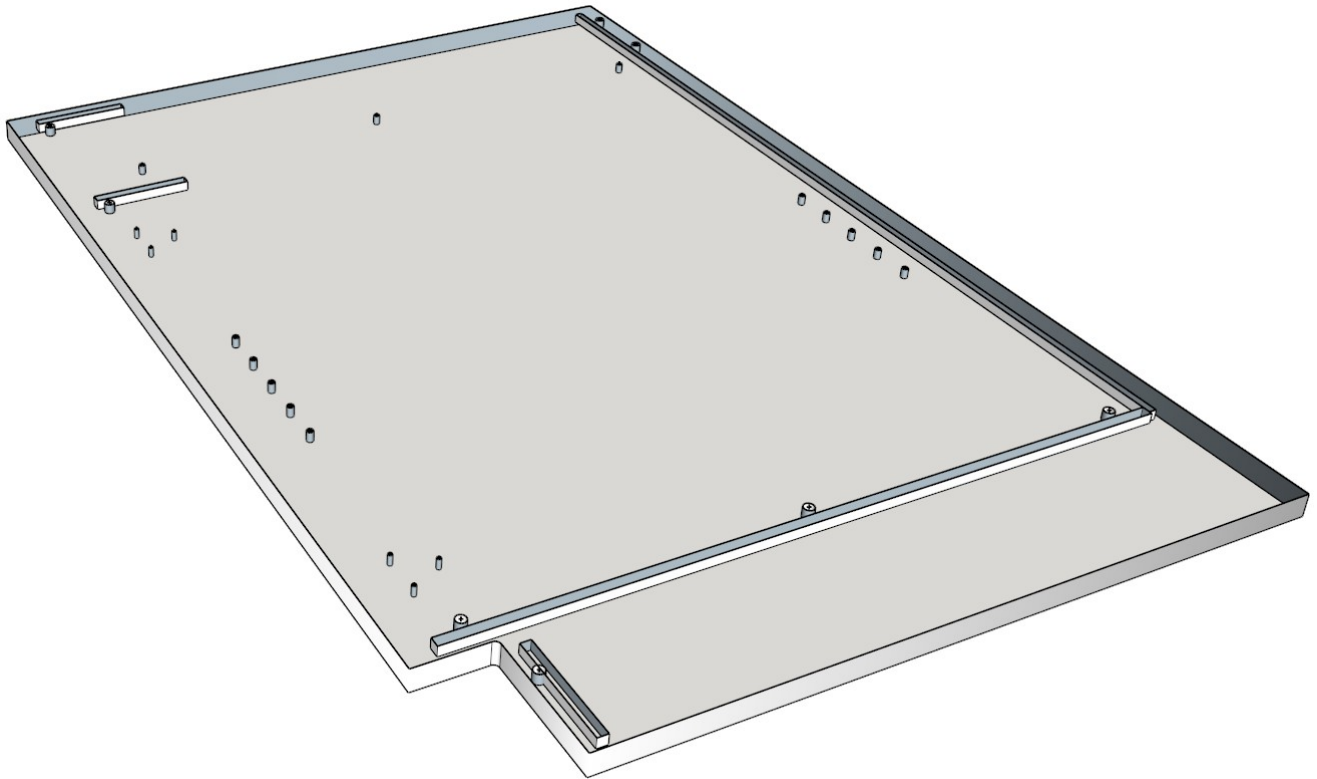


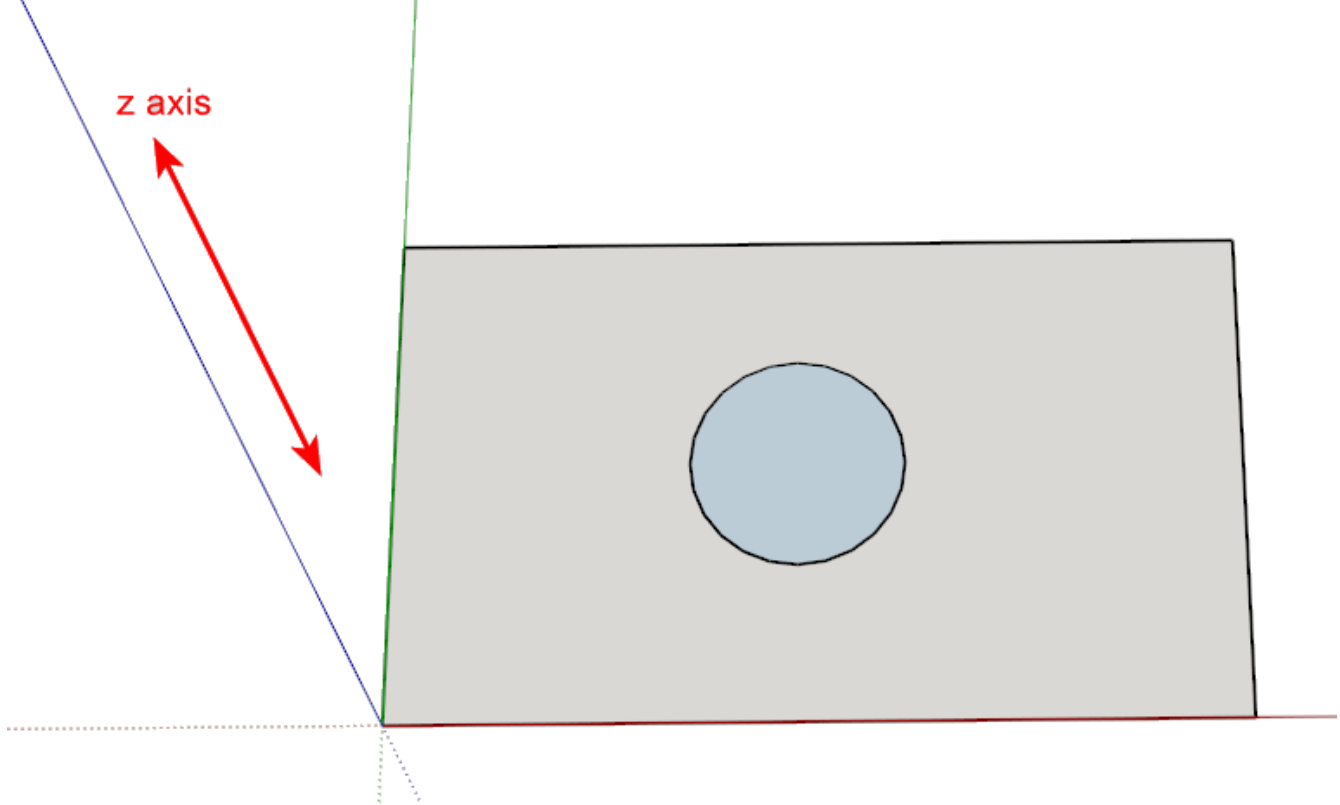
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1 Overview

SimpleDXF is a plugin that reads and writes Simple DXF files and is primarily used to create CNC compatible DXF.

Your geometry needs to be lying down flat where the Z axis is perpendicular to the parts.



Please note the the Simple DXF ONLY imports DXF files that have been created by CabMaker or by Simple DXF.

SimpleDXF creates 2D and or 3D DXF files and preserves true arc information. SimpleDXF supports polylines and circles and allows you to simply manage cutting direction and starting point.

SimpleDXF comes with a flattening routine which rotates a component or group so that its plane is perpendicular to the Z axis and so that it is at $z = 0$.

SimpleDXF also comes with a start pin button and a make unique button.

Optionally adds construction points at the center of circles (holes) and optionally adds text indicating cutting direction and starting point.

2 Buttons

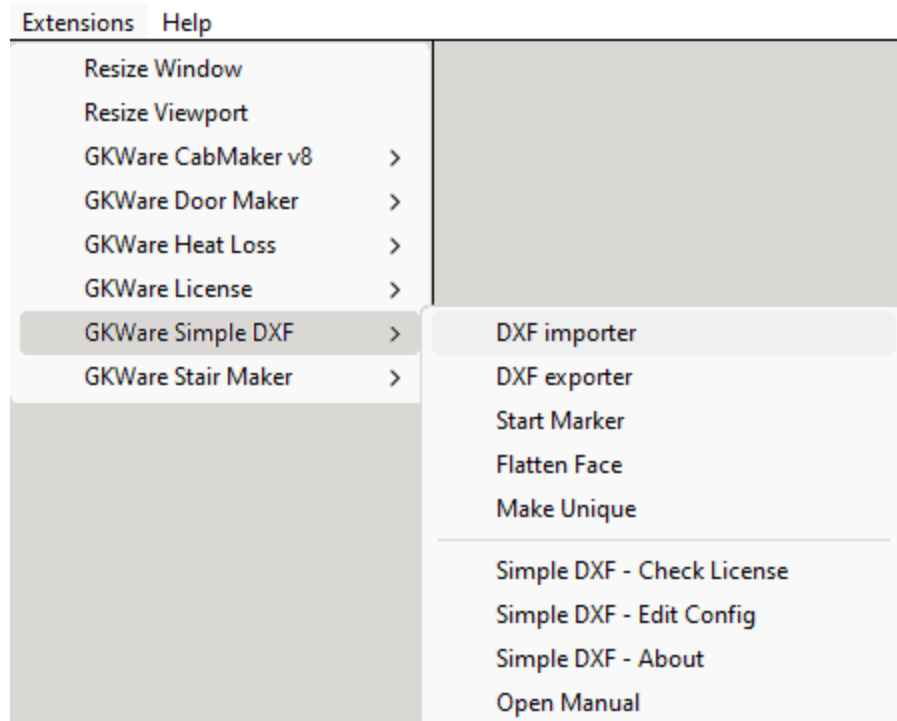
SimpleDXF has 8 buttons which are from left to right - DXF Import, DXF Export, Join, Group, Clean, Start Pin, Flatten and Make Unique



1. DXF Import is used to import a DXF file made by CutMaster or by SimpleDXF.
2. DXF Export creates a simple DXF and supports Circles and Polylines. Polylines can be open or closed and may contain arcs and or line segments.
3. Join is a tool that will Intersect 2 lines or create a fillet at the intersection of 2 lines or create a chamfer at the intersection of 2 lines.
4. Group will group 1 or more entities (circles, lines etc.)
5. Clean will get rid of unnecessary vertices that exist on a straight line.
6. Start Pin is optional and lets you specify the starting point for the machining operation.
7. Flatten tool takes a sloped component or group and rotates it so that its plane is perpendicular to the Z axis and tries to set the z value = 0. In some cases you need to click the button twice.
8. Make Unique traverses parts and forces copied groups and or copied components to have unique definitions.

3 Menu

There are 5 menu items.

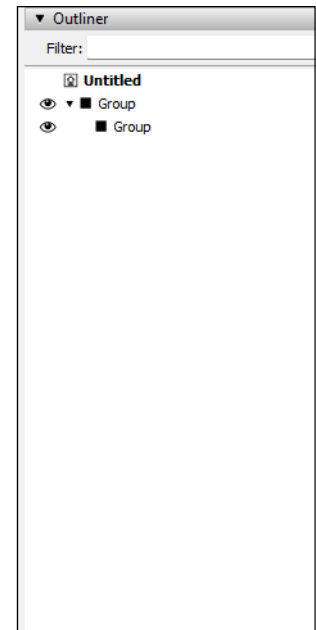
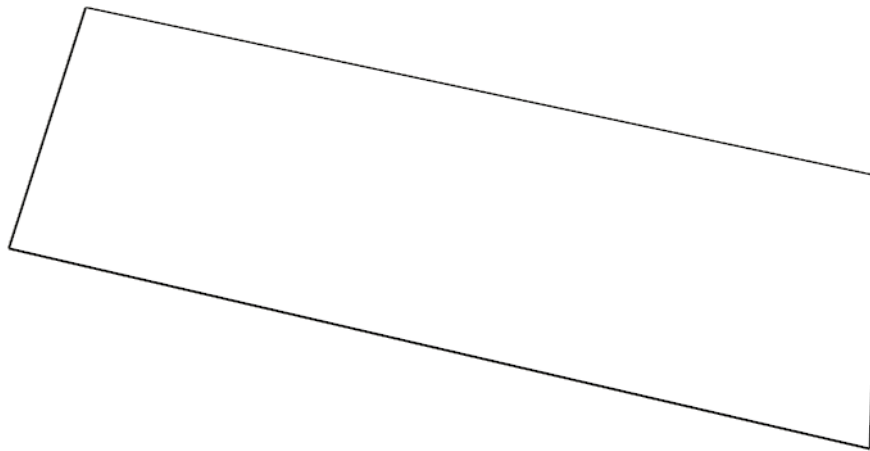


1. DXF Import is used to import a DXF file made by CutMaster or by SimpleDXF.
2. DXF Export creates a simple DXF and supports Circles and Polylines. Polylines can be open or closed and may contain arcs and or line segments.
3. Start Marker is optional and lets you specify the starting point for the machining operation.
4. Flatten Face tool takes a sloped component or group and rotates it so that its plane is perpendicular to the Z axis and tries to set the z value = 0. In some cases you need to click the button twice.
5. Make Unique traverses parts and forces copied groups and or copied components to have unique definitions.
6. Simple DXF – Check License connects to CabMaker32 web service and checks your license
7. Simple DXF – Edit Config allows you to make a few choices in the operation of SimpleDXF.
8. Simple DXF – About informs you of the next Web Check
9. Open Manual – opens this manual with your PDF reader.

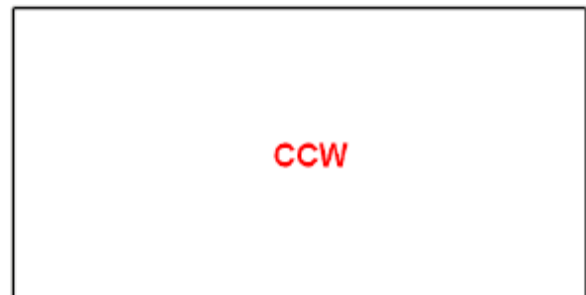
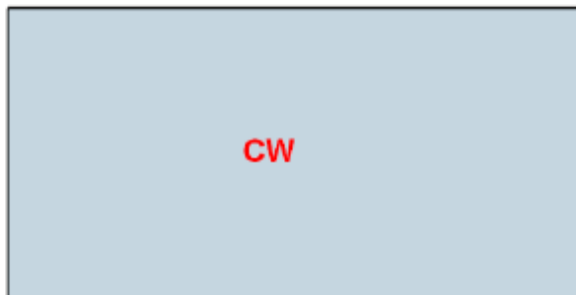
4 Examples

The first thing we need to discuss is how to create a simple part. At the very simplest you need a group or component that contains nothing but groups or components. Geometry such as a circle or a polyline must exist within their own group or component. This is because each group or component is associated with a layer name. Historically this is how CAM software works. CAM software is given a path and additional behaviour is controlled via layer name.

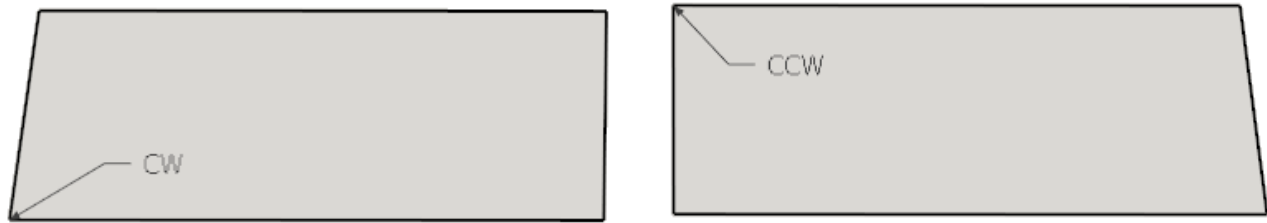
Here we have a group within a group with a single geometry which is a closed polyline. By default Sketchup doesn't like to create the outermost group. So you can create a temporary line and choose it along with the inner most group. Then Sketchup will allow you to create the outermost group. Then edit it and delete the line.



Here are 2 simple parts. The face determines cutting direction. CW (Clock Wise) and CCW (Counter Clock Wise).

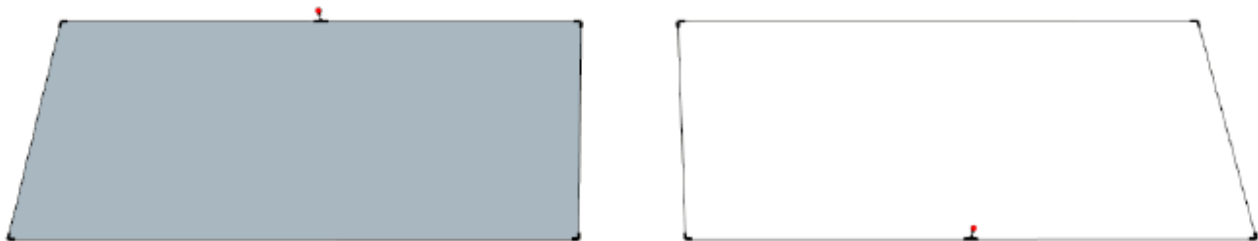


Exporting the DXF and then re importing verifies the cutting direction. The optional and temporary text shows cutting direction and shows the starting point for the cutting operation.

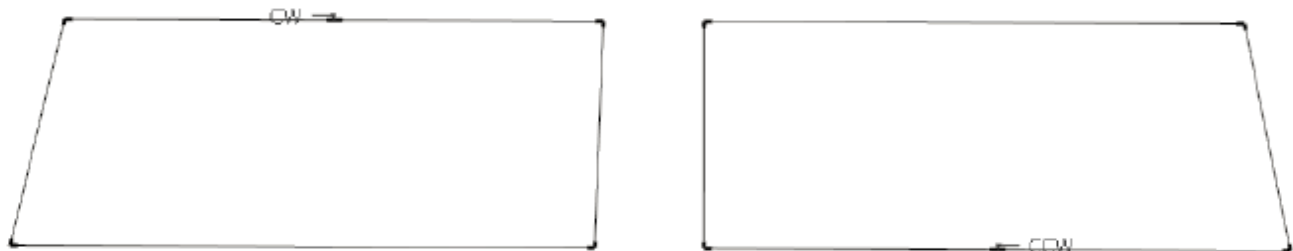


If we want to adjust the starting point then it is advisable to adjust the Style settings. Here I've turned on end points and I have divided a line in each part thus creating a new endpoint that can be used as a start point.

I then used the start point indicator to tell SimpleDXF to adjust the geometry so that the start point is as indicated.

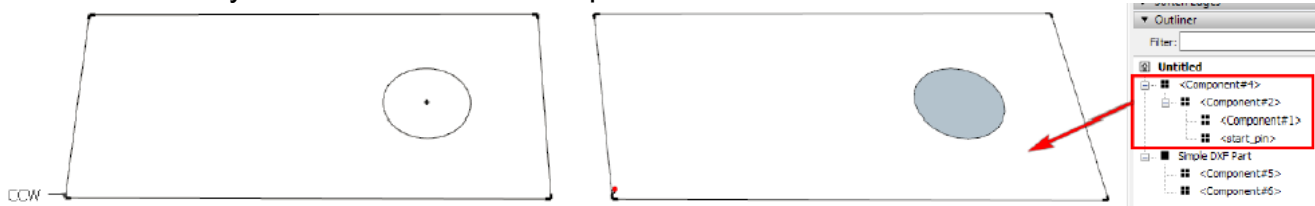


Again exporting and then importing shows that the start point is now adjusted.

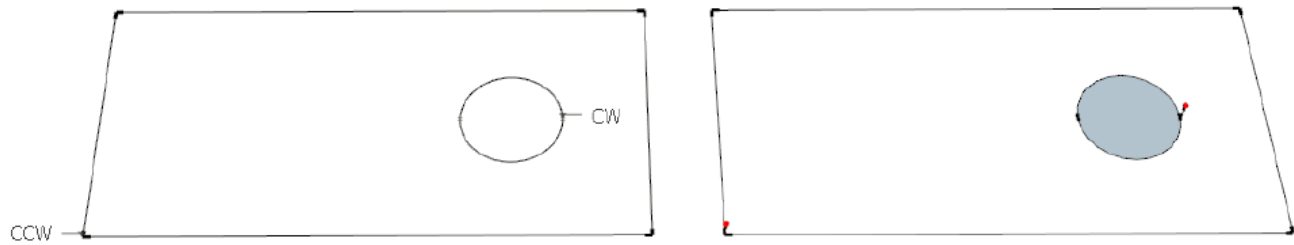


Here we have a nested circle and we are using components. Notice the construction point at center of the circle. Circles do not have a cutting direction therefore the the circle's face is ignored. This is fine for CAM software that is using a drill.

In SimpleDXF components will become Block Inserts. Some CAM software does not support block inserts so you will need to use Groups instead.

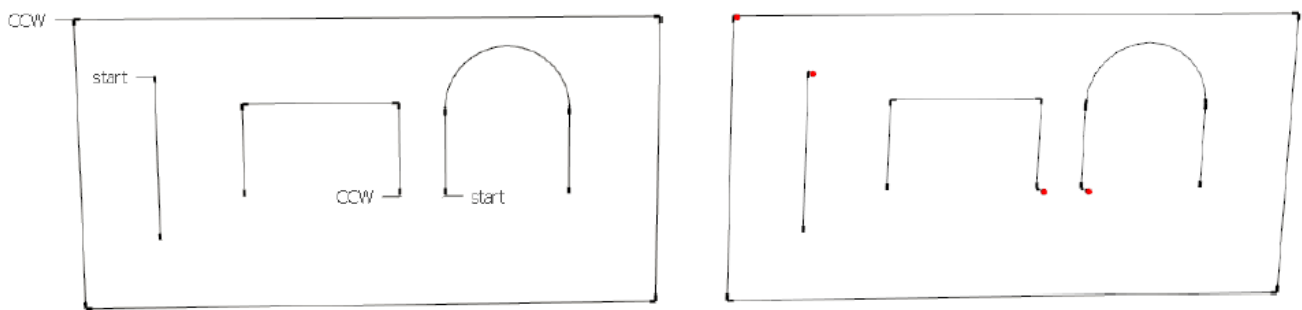


If you have a large circle and want cut direction then you can add a start pin and convert the circle into 2 arcs.



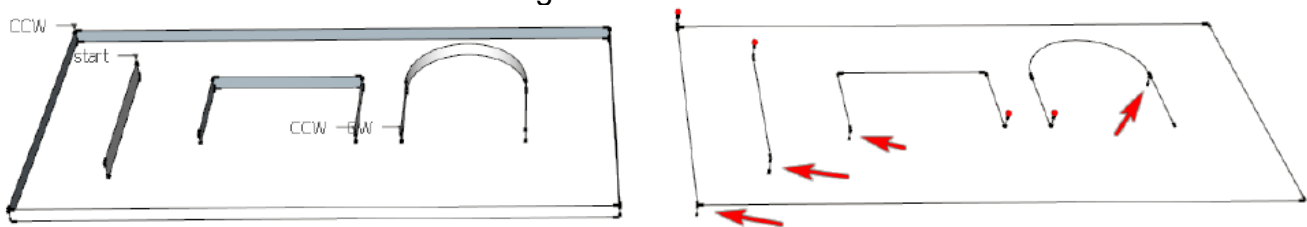
Open polylines can have a starting point at the beginning or at the end of the polyline. This will control the cutting direction of the open polyline.

Polylines can be a combination of arcs and or line segments and each end point must be connected to the next start point. A single line segment can have a start pin.



If your CAM supports 3D you can indicate the depth with a single vertical line. Here I have hidden the face of the main rectangle just for clarity. The hidden face still controls the cutting direction.

Each machining operation is inside its own group or component. The red arrows are pointing at the vertical line segments. The vertical lines may be at a start point but do not have to be. Each vertical line can be a different length.



5 Version History

Version 2.0.9 Jul 9, 2023

1. New buttons along with new functionality – Join, Group and Clean.

Version 1.0.8 Jan 6, 2022

1. Changed security system. Now easier.

Version 1.0.7 Oct 6, 2019

1. Fixed bug in DXF

Version 1.0.6 Mar 16, 2019

1. Now supporting nested groups and or nested components.
2. Added button to make groups unique.

Version 1.0.5 Mar 12, 2019

1. Added routine to convert a circle into 2 arcs.
2. Added flatten button.

Version 1.0.4 Mar 5, 2019

1. Added a start pin to indicate the starting point of the cutting path.

Version 1.0.3 Dec 6, 2018

1. First Version.