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# Legacy Wire EDM Tutorials



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#### WIRE EDM TUTORIALS

The Tutorials section of the manual is designed to introduce you to actually working with the GibbsCAM Wire EDM package. There are three tutorials, one covering 2-axis parts, another covering 4-axis parts and the last covering open profile parts. All of the tutorials start with a part file that came with your Wire EDM package. For more information on topics brought up in the tutorial, refer to the EDM User guide, "Use and Reference" chapter.

- Tutorial #1 Wire EDM 2-Axis
- Tutorial #2 Wire EDM 4-Axis
- Tutorial #3 Wire EDM Open Profile

### **TUTORIAL #1 - WIRE EDM 2-AXIS**

In this tutorial you will become familiar with working with the GibbsCAM Wire EDM interface and creating a simple 2-axis EDM part. You will need to have GibbsCAM and the Wire EDM package installed and licensed.

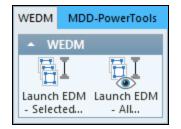
- 1. Launch GibbsCAM.
- 2. Open the file die block.vnc. The file should be located in a folder that was installed along with your Wire EDM package.

| Public Documents     Gibbs     Journal of the Parts | Documents library |                   |                |          |                                       |
|---|-------------------|-------------------|----------------|----------|---------------------------------------|
|   |                   |                   | Arrange by:    | Folder * |                                       |
| Advanced 3D   | Name              | Date modified     | Туре           | Size     | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
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| Machine Sim   | 🖉 four asis.vnc   | 6/21/2012 2:21 PM | GibbsCAM 2012+ | 45 KB    |                                       |
| E 🕌 MTM   | Sopen profile.vnc | 6/21/2012 2:21 PM | GibbsCAM 2012+ | 45 KB    |                                       |
| 🛛 🎥 Plug-Ins  |                   |                   |                |          |                                       |
| PlungeRough   |                   |                   |                |          | +X: 3.0000 +Z: 1.00                   |
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| Tombstone Management Sys                            |                   |                   |                |          |                                       |
| VoluMill  |                   |                   |                |          | Version: 10.3                         |
| 4 🎍 Wire EDM  |                   |                   |                |          |                                       |
| Semple Parts  |                   |                   |                |          |                                       |
| 🕌 Tutorial Parts 🔹                                  | 1                 |                   |                |          |                                       |
| Material STAINLESS<br>ASTM A296                     |                   |                   |                |          |                                       |
| 851M 8290   |                   |                   |                |          |                                       |

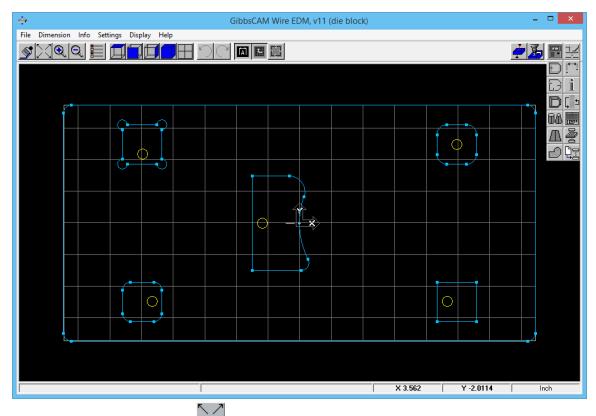
In top view (Ctrl+H), the part looks like the following image.

|   |       | $\odot$ |
|---|-------|---------|
|   |       |         |
| 0 | • • • | •       |

- 3. Select all of the geometry on the screen (Ctrl+A).
- 4. Select Launch EDM Selected Geometry from the Wire EDM menu.



Your Wire EDM screen will look as shown below.



5. Click on the Zoom Full button in the top Toolbar, to fit the geometry to the screen.

The first thing we need to do is to set the wire configuration and strategy.

6. Click on the Wire Configuration button. It is in the Top Level palette going down the right side of the screen.

Clicking on the Wire Configuration button will activate the dialog shown below. This dialog is where you will specify the type of wire machine you have, wire display, the Z top of the part, part thickness, part orientation and the output for Z planes.

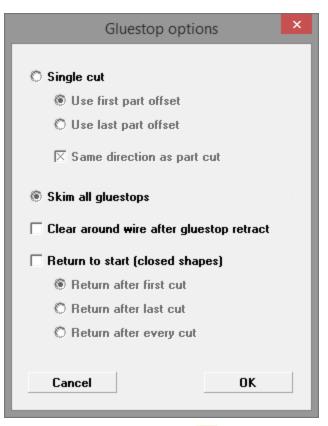
7. Enter the values as shown.

| Machine configu   | ration M             | achine strategy | Y Displa                    | ay settings |
|-------------------|----------------------|-----------------|-----------------------------|-------------|
| Machine           |                      |                 | Wire diameter               |             |
| Configure         | fanuc                | •               | Dia 0                       | 0.010 🔹     |
| Datums            | Technology           | settings        | Hard Brass                  | •           |
| Wire guides       |                      |                 | Material                    |             |
| Z height of upper | wire guide           | 1.0             | Z top of material           | 1.0         |
| Z height of lower | wire guide           | 0.0             | Part thickness              | 1.0         |
| Output Z planes   |                      |                 | Aluminum                    | •           |
| Use actual ge     | ometry sizes         |                 | Part orientation            |             |
| Z height for UV d | lata                 | 1.0             | Standard<br>(Land on top of | ( 1)        |
| Z height for XY d | ata                  | 0.0             | Upside down                 | rpartj      |
| Same as           | top and bottom of m  | aterial         | C (Land on botto            | m)          |
|                   | nits when creating c |                 | Advanced                    |             |

8. Click on the Machine strategy tab. Enter the values shown below. This sets the preferences for how we are going to machine this part.

| Machine configuration   | Machine stra                 | egy Display setting   | 8          |
|---|------------------------------|---|------------|
| Skim cut direction<br>© All cuts in same direc<br>® Reverse alternate cut<br>Matrice distance                   |                              | Skim cut transition<br>None<br>Line off/on<br>Arc off/on<br>Retract distance 0.01           |            |
| Gluestop removal  |                              | Arc radius 0.01   |            |
| <ul> <li>Manually remove glue</li> <li>Cut gluestops after ro</li> </ul>  | ugh cut                      | Arc angle 90<br>Reverse alternate cuts  |            |
| Cut gluestops after al Extend gluestop Arc off  | Distance 0.01<br>Radius 0.01 | Multiple parts<br>© Complete each part<br>© 2 stage, rough first                            |            |
| Line off<br>Gluestop options  | Angle  90<br>Distance  0.01  | ○ 2 stage, rough-skim first<br>○ 3 stage, rough-skim-gluest<br>□ Custom strategy Sel        | ops<br>ect |
| Parts with land<br>© Rough land before tag<br>© Rough taper before la<br>© Rough taper only<br>□ Skim the taper |                              | Corner loop Corner re<br>Add loops to external corn<br>Minimum angle 0<br>Min overlap - 0.1 |            |

 Click on the Gluestop options tab. Make sure the Skim all gluestops option is checked and click OK.

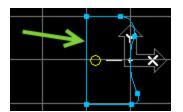


- 10. When you have finished, click OK. Now that we have set up the machine, we can begin to put toolpath on our geometry.
- 11. Click on the Create or edit a wire part button in the Toolbar.

Looking at the bottom of the screen, we can see that we are being asked to pick the profile to be cut.



12. Select the area of the middle profile as shown.



You now get the Create Wire Part dialog.

| Create Wire Part (closed pr  | ofile)     |            |                                      | x                            |
|--|------------|------------|--------------------------------------|------------------------------|
| Cut type<br>Parallel cut<br>Full height taper<br>Taper with land<br>Number of cuts<br>1 3<br>2 4 |            | ☐ 4 axis   | X Modify glue                        | Y estop/lead in lart element |
| Number of cuts   | Sel        | ected cuts | ⊠ Initial cut di<br>  □ Create multi |                              |
| 02 04  | <u>о</u> б | õ 8        | Close                                | OK                           |

This dialog allows you to set Cut type, Start position and the number of skim cuts.

We now need to select a start point for the cut.

13. In the current dialog click on Select start point.



The bottom of the screen is asking us to select a start point.

14. Select the point in the middle profile as shown.

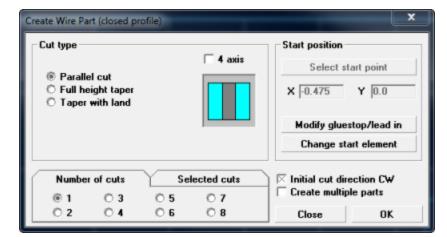


You will now see a dialog, as shown below, displaying the coordinates of the start point. We need to set the width of the gluestop.

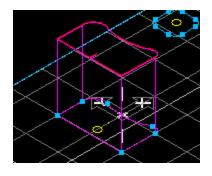
15. Enter the value shown here and click OK.

| Gluestop lead in/out |        | x      |
|----------------------|--------|--------|
| Start point          | -0.475 | 0.0    |
| Start hole diameter  | 0.125  |        |
| Approach distance    | 0.0    |        |
| Gluestop width       | 0.01   | Cancel |
|                      |        | OK     |

You will be sent back to the Create Wire Part dialog.



- 16. Click OK.
- 17. Click the ISO View button in the top Toolbar.
- 18. Click the Zoom Full button in the top Toolbar.



This will put the part into isometric view and fit the geometry and the toolpath to the screen. The results of your toolpath will look like the image on the left.

This is a simple example of how to create a wire path. Now we will go back and modify the toolpath.

19. Right-click anywhere on the profile to open the Right-click menu.

| Wire part: Die   |
|------------------|
| Line: info       |
| Num cuts =1      |
| Cut len =3.7     |
| Rev prof dir     |
| Delete machining |
| Pattern repeat   |
| User data        |
| Properties       |

20. Select Properties.

Clicking on Properties opens the Modify Wire Part dialog. This dialog looks similar to the Create Wire Part dialog that we used to generate the toolpath. We will use this dialog to modify the toolpath in order to set a taper and the number of skim cuts.

| Parallel cut     Full height taper     Taper with land     Modify |  |
|---|--|
|   | on<br>ct start point<br>Y<br>pluestop/lead in<br>e start element |
| Number of cuts         Selected cuts         ⊠ Initial cu         | t direction CW<br>ultiple parts<br>OK                            |

21. Click the Full height taper radio button.

This modifies the dialog to include a Taper angle text box and a different graphic.

22. Enter a taper angle of 5 degrees.

| Modify Wire Part (closed p  | rofile)  |              |   | x      |
|---|----------|--------------|---|--------|
| Cut type<br>Cut type<br>Full height taper<br>Taper with land<br>Taper angle | 5        | - 4 axis     | Start position                          | Y 0.0  |
| Number of cuts  |          | elected cuts | ⊠ Initial cut dire<br>  □ Create multip |        |
| 01 03   | 05<br>06 | 0 7<br>© 8   | Cancel                                  | Update |

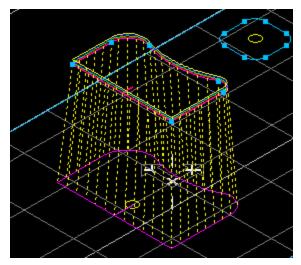
Next we will add some skim cuts.

23. In the Number of cuts section, click the 4 radio button to set four skim cuts.

Your dialog will look like the image above.

24. Click Update.

The dialog will close and the result is an updated toolpath as shown in the image below.



The actual height between each displayed skim cut and the number as well as the color of the dashed 4-axis lines will vary depending on your Display settings found in the Wire strategy/configuration settings dialog.

There is geometry on this part that was not covered in this tutorial. You can use this geometry for continued practice with different machine settings, tapers etc.

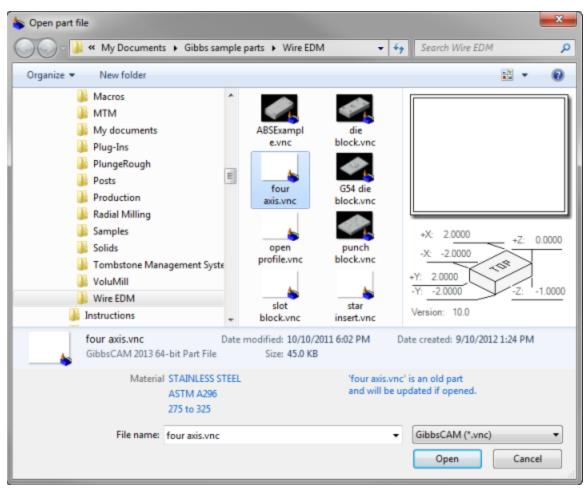
| Save GibbsCAM EDM   |                              | Sample Parts 🕨        | Wire EDM   WEE | OM Parts 👻               | €9 Search WEDM I | Parts P      |
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| Organize 🔻 New  | folder                       |                       |                |                          |                  | )II • 🕡      |
| Advance<br>Machine<br>MTM   | ed CS 🔺                      | Documer<br>WEDM Parts | nts library    |                          | Arrange          | by: Folder 🔻 |
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| <ul> <li>Solids</li> <li>Tombst</li> <li>VoluMil</li> <li>Wire ED</li> <li>Sampi</li> <li>Tutori</li> </ul> | tion<br>Milling ≡<br>tone Ma |                       |                | No items match your sear | rch.             |              |
| File name:  | die block.gw                 | rx                    |                |                          |                  | •            |
| Save as type:   | GibbsCAM E                   | DM Parts (*.gwx)      |                |                          |                  | •            |
| Hide Folders  |                              |                       |                |                          | Save             | Cancel       |

25. Save this file in case you would like to go back and work with it at a later date.

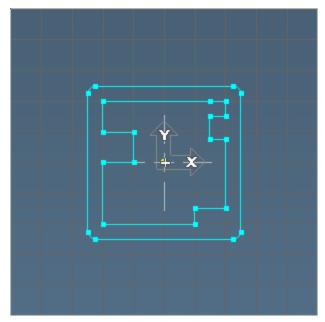
#### **TUTORIAL #2 - WIRE EDM 4-AXIS**

In this tutorial you will learn how to create a 4-axis Wire EDM part. Additionally, the lessons learned in the first tutorial will be reinforced through practice.

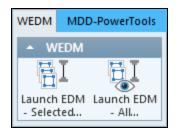
- 1. Launch GibbsCAM.
- 2. Open the file Four Axis.vnc. The file should be located in a folder that was installed along with your Wire EDM package.



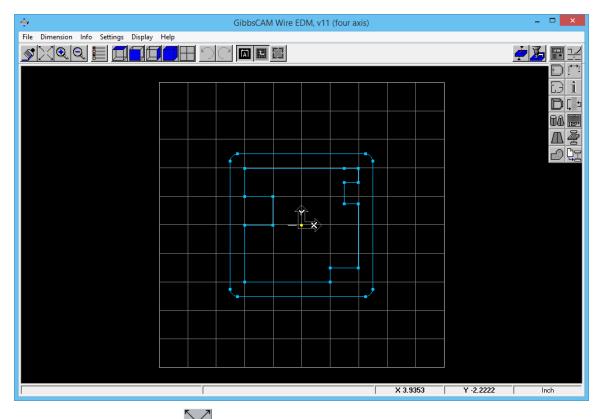
The part will look as shown below.



- 3. Select all of the geometry on the screen (Ctrl-A).
- 4. Select Launch EDM Selected Geometry from the Wire EDM menu.



Your Wire EDM screen will look like following image.



5. Click the Zoom Full button in the top Toolbar to fit the geometry to the screen.

The first thing we need to do is to set the wire configuration and strategy.

- 6. Click the Wire Configuration button III. It is the top left button in the Top Level palette.
- 7. Enter the values shown in the dialog below.

| Machine configuration Y Machine strategy | Y Display settings    |
|--|-----------------------|
| Machine                                  | Wire diameter         |
| Configure fanuc -                        | Dia 0.010 -           |
| Datums Technology settings               | Hard Brass 💽          |
| Wire guides                              | Material              |
| Z height of upper wire guide 0.0         | Z top of material 0.0 |
| Z height of lower wire guide -1.0        | Part thickness 1.0    |
| Output Z planes                          | Aluminum              |
| Use actual geometry sizes                | Part orientation      |
| Z height for UV data 1.0                 | Standard              |
| Z height for XY data 0.0                 | (Land on top of part) |
| Same as top and bottom of material       | © (Land on bottom)    |
|  |                       |
|  |                       |
| Check travel limits when creating code   | Advanced settings     |

8. Click the Machine strategy tab and enter the settings shown below.

| Machine configuration   | Machine strat | tegy Display settings                |
|-------------------------|---------------|--------------------------------------|
| Skim cut direction      |               | Skim cut transition                  |
| All cuts in same direct | ion           | O None                               |
| Reverse alternate cut:  |               | C Line off/on                        |
| 🖂 Retract distance      | 0.01          | Arc off/on                           |
|                         |               | Retract distance 0.01                |
| Gluestop removal        |               | Arc radius 0.01                      |
| Manually remove glue:   | stops         | Arc angle 90                         |
| Cut gluestops after rou | ugh cut       | Reverse alternate cuts               |
| Cut gluestops after all | skim cuts     | M. K. L                              |
| Extend gluestop         | Distance 0.01 | Multiple parts     Omplete each part |
| Arc off                 | Radius 0.01   | © 2 stage, rough first               |
|                         | Angle 90      | © 2 stage, rough-skim first          |
| 🖂 Line off              | Distance 0.01 | O 3 stage, rough-skim-gluestops      |
| Gluestop options        |               | Custom strategy Select               |
| Parts with land         |               |                                      |
| O Rough land before tap | er            | Corner loop Corner relief            |
| Rough taper before la   |               | Add loops to external corners        |
| C Rough taper only      |               | Minimum angle 0                      |
| Skim the taper          |               | Min overlap + 0.1                    |
|                         |               |                                      |

9. Click the Gluestop options tab and select the Single cut radio button.

| Gluestop optior                 | าร           | ×   |  |  |
|---------------------------------|--------------|-----|--|--|
| Single cut                      |              |     |  |  |
|                                 |              | - 1 |  |  |
| W Use first part offset         |              |     |  |  |
| 🛇 Use last part offset          |              |     |  |  |
| Same direction as part c        | ut           |     |  |  |
| 🛇 Skim all gluestops            |              |     |  |  |
| 🗌 Clear around wire after glues | stop retract |     |  |  |
| 🗖 Return to start (closed shape | es)          |     |  |  |
| Return after first cut          |              |     |  |  |
| 🛇 Return after last cut         |              |     |  |  |
| 🛇 Return after every cut        |              |     |  |  |
|                                 |              |     |  |  |
| Cancel                          | OK           |     |  |  |

10. When you have finished, click OK.

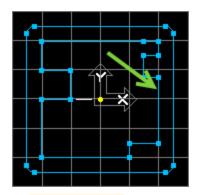
Now that we have set up the machine, we can begin to put a toolpath on our geometry.

11. Click the Machining button in the Top Level palette.

Looking at the bottom of the screen, we can see that we are being asked to pick the profile to be cut.



12. Select the area of the middle profile as shown.

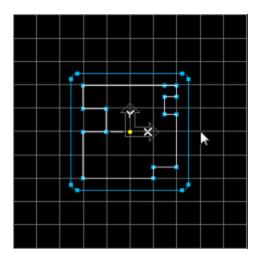


The Create Wire Part dialog opens, ready for us to select the type of cut we want to make.

We now need to select a start point for the cut.

| Create Wire Part (closed profile)  |          | ×  |
|--|----------|--|
| © Cut type<br>© Parallel cut<br>© Full height taper<br>© Taper with land | ☐ 4 axis | Start position Select start point X Y Modify gluestop/lead in Change start element |
| Number of cuts   |          | Close OK   |

- 13. Click the Select start point button.
- 14. The bottom of the screen is asking for a start point. Select the approximate point shown below. It is a point outside of the profiles.



You will now see a dialog displaying the coordinates of the start point. We need to set the width of the gluestop.

15. Enter the values shown below and click OK.

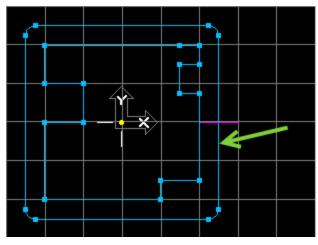
| Gluestop lead in/out |     | ×      |
|----------------------|-----|--------|
| Start point          | 1.2 | 0.0    |
| Start hole diameter  | 0.0 |        |
| Approach distance    | 0.0 |        |
| Gluestop width       | .01 | Cancel |
|                      |     | OK     |

We have been sent back to the Create Wire Part dialog to select the lower profile and the number of cuts to take.

16. Click the 4 axis checkbox. Also set the dialog to take four cuts, as shown below.

| Create Wire Part (closed profile)  |                             |  | ×                                     |
|--|-----------------------------|--|---------------------------------------|
| Cut type<br>Full 4 axis<br>4 axis with land<br>Select lower profile                                  | ∝ 4 axis                    | Start position<br>Select st<br>X 1.2<br>Modify glues<br>Change upper<br>Change lower | Y 0.0<br>top/lead in<br>start element |
| Number of cuts         S           © 1         © 3         © 5           © 2         © 4         © 6 | ielected cuts<br>© 7<br>© 8 | ⊠ Initial cut dire<br>□ Create multipl<br>Close                                      |                                       |

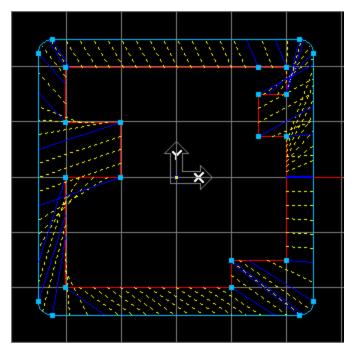
- 17. Click the Select lower profile button.
- 18. Select the profile as shown to designate the lower profile.



When you select the lower profile, we are sent back to the Create Wire Part dialog to finish setting up the toolpath.

19. Click OK.

The results of our work will look like the image below.



Looking at the toolpath, we probably have some more work to do, as is often the case with 4axis parts. We need to synchronize the wire path.

In order to sync this toolpath, we need to break some of the elements. To make this easier, we are first going to turn on the Command repeat option.

- 20. Click the Configuration button in the top Toolbar to open the Configuration dialog.
- 21. Activate the Command repeat function and close the dialog



The Command repeat function allows us to perform the same action multiple times without having to repeatedly open a dialog and select a command.

- 22. Click the Edit /Modify geometry button \_\_\_\_ in the Top Level palette.
- 23. Click the Split Element button in the Edit Geometry palette.

The Split element dialog provides several ways to break geometry.

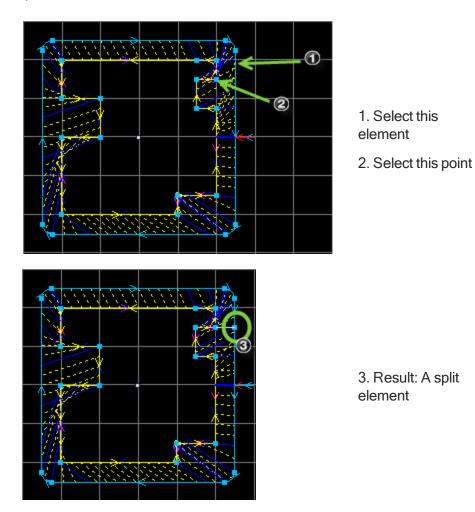
24. Select the first method–Normal to element, through a point.

| Split method   |       |
|--|-------|
| Normal to element, through a provide the second | point |
| O Parallel to line   |       |
| Tangent to arc end   |       |
| O Actual distance along element  | t     |
| Percentage distance along ele  | ement |

25. Click Select line/arc.

To use the Normal to element, through a point function, we must first select the element we want to split, then we select the point normal to the element. The element will then be split at this point.

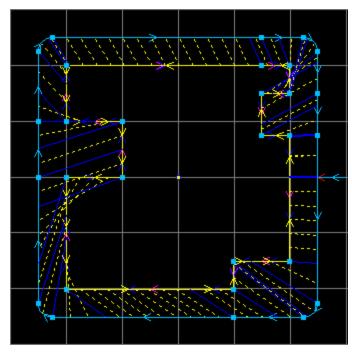
26. Split the element as shown here.



Go through the part and split the elements in the places shown below.

| 6        |     |  |
|----------|-----|--|
| 0        |     |  |
|          | ->< |  |
| <u> </u> |     |  |

After splitting the elements, your screen will look like the following image.



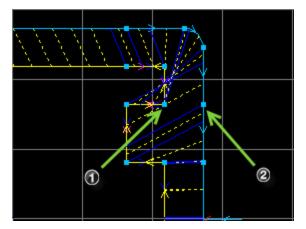
While the results do look better, the part still needs some work. We need to manually sync some points.

27. Click the Sync button in the Top Level palette.

Notice the bottom of the screen is prompting us to pick an element in the top profile that needs a sync point.

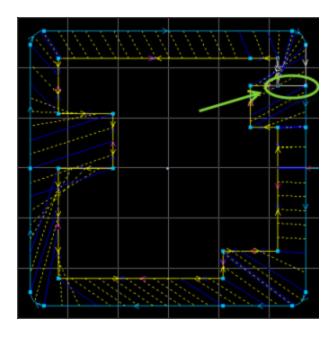


28. Select the points as shown in the following image.

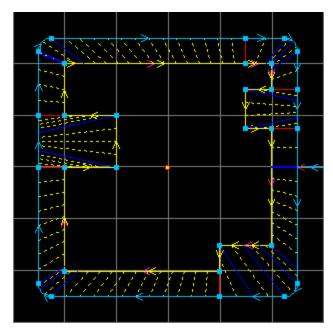


After the point on the top profile is selected, the bottom of the screen prompts you to pick the sync point on the bottom profile. A line attaches your cursor to the top profile and will remain that way until the bottom sync is selected or a right-click is performed.

After clicking the two points you will see that the points are now synced. We have some more syncs to add to complete the part.

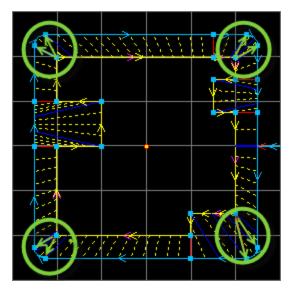


29. Add syncs at each of the elements that we split. Click Redraw . The toolpath will look like the following image.

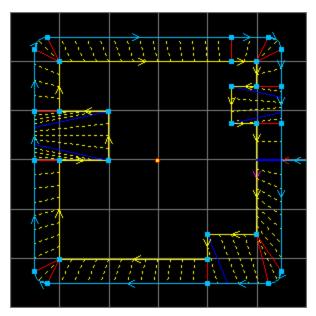


This is better, but the toolpath at the corners is still not optimal. We will not get clean, sharp corners with this toolpath. We will need to add syncs from some of the corners of the top profile to the rounded corners of the bottom profile. Remember each element may have two syncs.

30. Add a sync from the corners to the ends of the rounded corners as shown here.

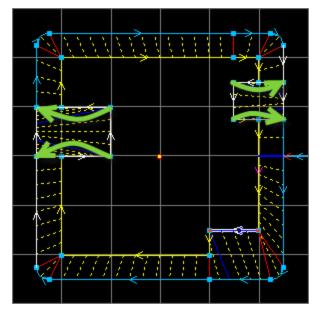


This is better.

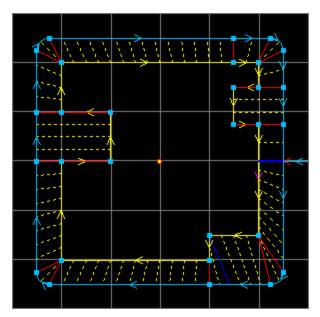


The exterior corners are controlled but the toolpath is still not optimal in the interior corners. The way to fix this is to have overlapping syncs from the interior corners.

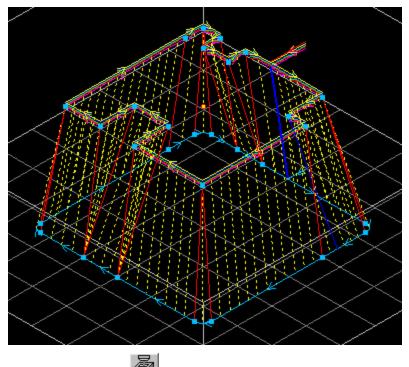
31. Create a sync from the interior corners to the split elements as shown below.



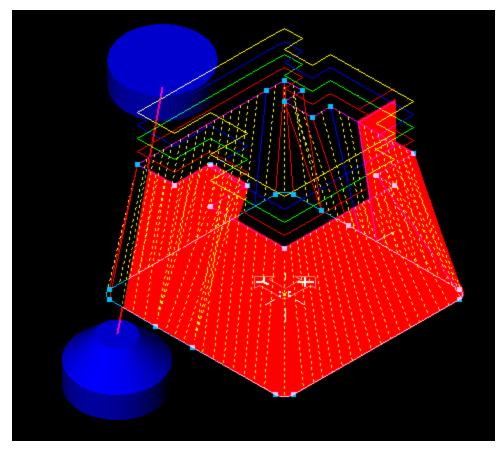
This results in good toolpath.



32. Switch to isometric view to see the part complete with all of the skim cuts.



33. Click the Simulation Button. Use the default settings, click Go to see the rendered part.

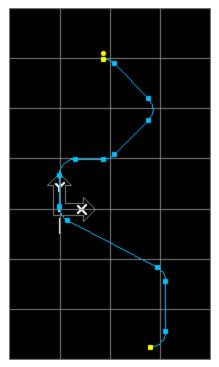


34. Be sure to save the part.

### **TUTORIAL #3 - WIRE EDM OPEN PROFILE**

In this tutorial you will learn how to create a Wire EDM part from open profile geometry. An open profile part is really not that different than a closed profile part, but there are certain things to keep in mind.

1. Launch GibbsCAM and open the part Open Profile.vnc.



2. Select all the geometry (Ctrl-A) and transfer the data to the Wire EDM package.

The first thing we need to do is to set the wire configuration and strategy.

- 3. Click the Wire Configuration button III. It is the top left button in the Top Level palette.
- 4. Enter the values shown here.

| Machine configuration Machine strategy | Display settings  |
|--|---|
| Machine                                | Wire diameter   |
| Configure fanuc 🔹                      | Dia 0.010 -   |
| Datums Technology settings             | Hard Brass 🔹  |
| Wire guides                            | Material  |
| Z height of upper wire guide 0.0       | Z top of material 0.0                                       |
| Z height of lower wire guide -1.0      | Part thickness 1.0  |
| Output Z planes                        | Aluminum  |
| Use actual geometry sizes              | Part orientation  |
| Z height for UV data 1.0               | <ul> <li>Standard</li> <li>(Land on top of part)</li> </ul> |
| Z height for XY data 0.0               | <ul> <li>Upside down</li> </ul>                             |
| Same as top and bottom of material     | C (Land on bottom)  |
| Check travel limits when creating code | Advanced settings   |

5. Click the Machine strategy tab and enter the settings shown.

| Machine configuration   | Machine stra                             | itegy 🍸 Displa  | y settings                                 |
|---|--|---|--|
| Skim cut direction<br>O All cuts in same direct<br>® Reverse alternate cuts<br>T Retract distance           |  | Skim cut transition<br>None<br>Line off/on<br>Arc off/on<br>Betract distance          | 0.01                                       |
| Gluestop removal  |  | Arc radius  | 0.01                                       |
| O Manually remove glue:   | stops                                    | Arc angle   | 90   |
| <ul> <li>Cut gluestops after rou</li> <li>Cut gluestops after all</li> </ul>                                | ugh cut                                  | Reverse alternate   | cuts                                       |
| Extend gluestops arter an<br>Extend gluestop<br>Arc off   | Distance 0.01<br>Radius 0.01<br>Angle 90 | Multiple parts<br>© Complete each pa<br>© 2 stage, rough firs<br>© 2 stage, rough-ski | ŧ  |
| 🖂 Line off  | Distance 0.01                            | <ul> <li>O 2 stage, rough-ski</li> <li>O 3 stage, rough-ski</li> </ul>                |  |
| <b>Gluestop options</b>   | ,  | Custom strategy   | Select                                     |
| Parts with land<br>C Rough land before tap<br>Rough taper before la<br>C Rough taper only<br>Skim the taper |  | Add loops to exter<br>Minimum angle   | Corner relief<br>nal corners<br>0<br>• 0.1 |

6. Click Gluestop options tab and enter the settings shown.

| Gluestop options  | × |  |  |
|---|---|--|--|
| <ul> <li>Single cut</li> <li>Use first part offset</li> <li>Use last part offset</li> <li>Same direction as part cut</li> </ul> |   |  |  |
| Skim all gluestops Clear around wire after gluestop retract   |   |  |  |
| Return to start (closed shapes) ® Beturn after first cut  |   |  |  |
| © Return after last cut   |   |  |  |
| 🛇 Return after every cut  |   |  |  |
| Cancel OK   |   |  |  |

7. When you have finished, click OK. (Click OK again to dismiss any warning message (which might occur if the Cutter Radius Compensation settings are not as the system desires). We have set up the machine. We can now put a toolpath on our geometry.

Check to ensure that the direction indicators are pointing from the top of the part to the bottom.

If arrows are not being drawn on your geometry, change this in the Configuration dialog from the top Toolbar.

| Show-Hide        | 🖂 Command repeat | Redraw |  |
|------------------|------------------|--------|--|
| ☑ Dimensions     | 🖂 Display Grid   | L      |  |
| Axes             |                  | Colors |  |
| Profile start    | Units            | Bashun |  |
| 🖂 Dir indicators | Metric     Inch  | Backup |  |
| ☐ Rapid moves    |                  | Undo   |  |

- 8. Now click the Machining button in the Top Level Palette.
- 9. Click anywhere on the part.
- If the indicators are pointing in the wrong direction ie. not downwards, close the Create wire part dialog by clicking OK. The part will turn red in color. Right-click on any line. A dropdown menu will appear.

| Open profile     |
|------------------|
| Line: info       |
| Num cuts =1      |
| Cut len =7.0     |
| Rev prof dir     |
| Delete machining |
| Pattern repeat   |
| User data        |
| Properties       |

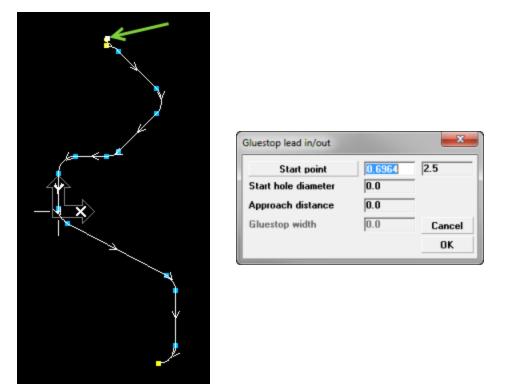
11. Choose Rev Prof Dir. Click the Machining button and then anywhere on the part again.

Open profile parts travel in one direction and have a definite starting place, so the element you click on to select a profile to cut does not matter

12. Enter information in the Create Wire Part dialog as shown here.

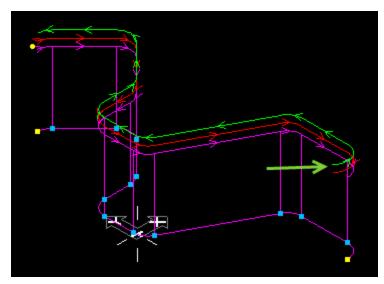
| Create Wire Pa      | art (open pro                      | ofile)   |         | <b>X</b>  |
|---------------------|------------------------------------|----------|---------|---|
|                     | el cut<br>eight taper<br>with land |          | 4 axis  | Start away from profile         Start position         Select start point         X         1.45       Y         Select exit point         X         0.696447         Y         2.4 |
| 01                  | r of cuts<br>© 3<br>© 4            | 05<br>06 |         | Adjust start/end of profile<br>Extend start<br>Extend end<br>Gluestop<br>0  |
| Offset dire<br>None |                                    | Left     | Ô Right | Create multiple parts<br>Close OK   |

- 13. When you are ready, click Select start point.
- 14. Select the point that lies above the open profile and click OK in the Gluestop lead in/out dialog.



15. Click OK in the Create Wire Part dialog to generate the wire toolpath.

There is a problem with the toolpath. We selected the Extend End option, which causes the wire to cut into the part.



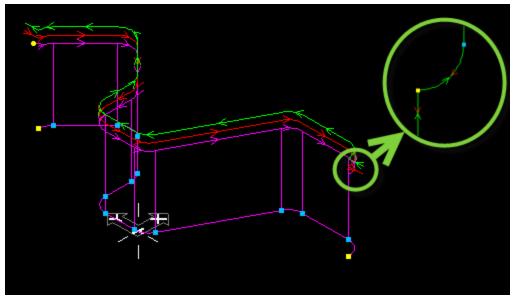
Instead of tangentially coming off the part we actually want to exit at 90 degrees when we cancel compensation.

16. Right-click anywhere on the EDM part and select Properties from the menu to modify the operation.

17. Turn off Start away from profile and Extend end. Enter a Normal Entry/Exit move of 0.25 as shown here and click on Update to change the operation.

| Modify Wire Pa  | art (open pro | ofile)       |   |            | x |  |
|---|---------------|--------------|---|------------|---|--|
| © Cut type<br>© Parallel cut<br>© Full height taper<br>© Taper with land  |               | ☐ 4 axis     | Start away from profile         Entry/exit moves         None         Tangential         Normal (90 deg)         Line length         0.25 |            |   |  |
| Number of cuts Se   |               | elected cuts | Adjust start/end  | 0          |   |  |
|   |               |              |   | Extend end | 0 |  |
| 01  | 03            | © 5<br>© 6   | 07<br>08  | Gluestop   | 0 |  |
| Offset direction            ® None             © Left             © Right |               |              |   |            |   |  |

The results of the modified operation look much better with a sufficient lead-in and lead-out.

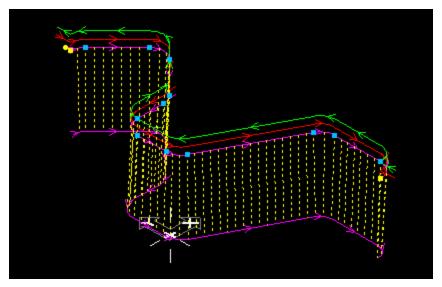


We are now going to make one last modification to this part, which is to add a taper.

18. Right-click on the profile to open the dialog and make the changes shown.

| Modify Wire Part (open profile  | e)            |  | ×          |  |  |
|---|---------------|--|------------|--|--|
| Cut type<br>Parallel cut<br>Full height taper<br>Taper with land<br>Taper angle | -3            | Start away from profile<br>Entry/exit moves<br>None<br>Tangential<br>Normal (90 deg)<br>Line length 0.25 |            |  |  |
|   |               | Adjust start/end   | of profile |  |  |
| Number of cuts  | Selected cuts | Extend start   | 0          |  |  |
| 01 03   | 05 07         | Extend end   | 0          |  |  |
|   | ° 6 ° 8       | Gluestop   | 0          |  |  |
| Offset direction  |               |  |            |  |  |
|   | , C night     | Cancel   | Update     |  |  |

19. Click Update to generate the following path.



We will now post process this part.

- 20. Click the Create CNC Code button.
- 21. Enter a name in the Tape filename box and click GO.

| Simulation | 0                               |           | ×     |
|------------|---------------------------------|-----------|-------|
| Cut        |                                 | •         |       |
|            | X Y                             | 🖂 Create  |       |
|            | U V                             | Solid di  | splay |
|            | 🖂 Display toolpath              | Step      | Stop  |
| Post       | fanuc •                         | 60        | Close |
| Tape       | filename C:\DOCUMENTS AND SETTI | View code |       |

The rendering will run and code will be generated simultaneously.

| Simulation    | on  |  | ×     |  |  |
|---------------|---|--|-------|--|--|
| Cut           | Rough cut           X         -0.0524         Y         0.2916           U         0.0         Y         0.2916   | <ul> <li>✓ Create code</li> <li>✓ Solid display</li> <li>✓ Step</li> </ul> |       |  |  |
|               | 🖂 Display toolpath  | Step   | Stop  |  |  |
| Post          | fanuc   | G0   | Close |  |  |
| Тар           | e filename D:\Users\open  | View   | code  |  |  |
| D:\Users\open |   |  |       |  |  |
|               | N15 G02 X0.873 Y2.327 I0.0 J-0.25<br>N16 G01 X1.423 Y1.777<br>N17 G02 Y1.423 I-0.177 J-0.177<br>N18 G01 X0.873 Y0.873<br>N19 G02 X0.696 Y0.8 J0.177<br>N20 G01 X0.25<br>N21 G03 X0.0 Y0.55 I0.0 J-0.25<br>Close |  |       |  |  |

22. Save the part when you are done.