

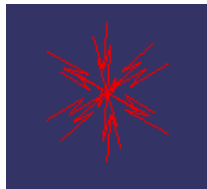
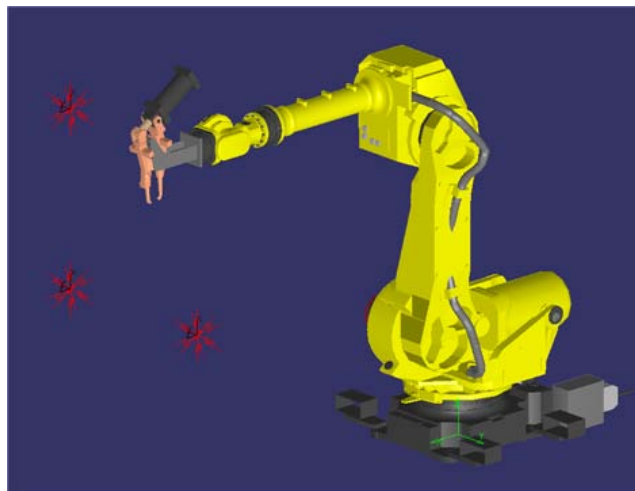
DELMIA V5 Weld Spark

By
Ed Araya

Unfortunately at this time I don't know of an easier process of placing sparks on each of the weld spots needed, this is a manual process for each tag. I will continue to look at different methods and possibly a script to place these sparks on process tags.


I have inserted as a resource the following:

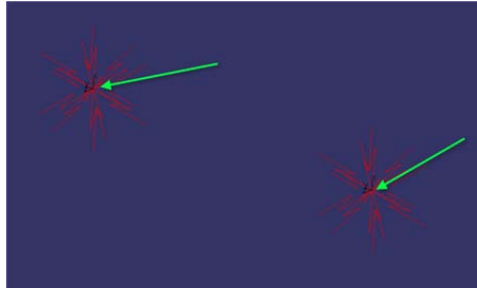
- a. 1 - Fanuc robot (may be any robot)
- b. 1 – Rocker weld gun (may be any gun)
- c. 3 - Welding Sparks. Number depends on how many spots you have.





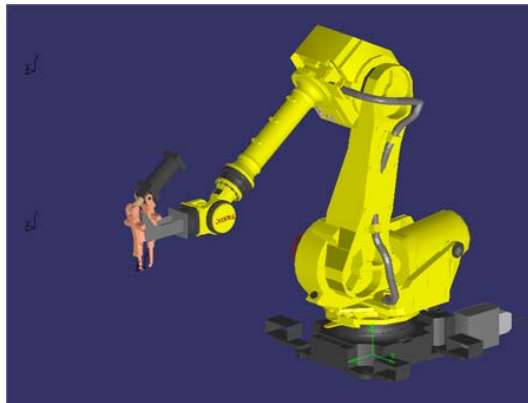
The spark that I have used for this and all projects comes originally from DELMIA's legacy program in D5. I've translated into V5 and now have it as a CATProduct to use in my simulations. You may use the V5 CAD tools to create a basic spark or just download the file that I have uploaded on the delmiaconnect server.

Getting started:

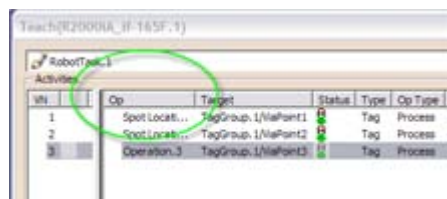
1. Select **Teach a device**  and create three random RobotTask Operations in space
2. Now go ahead and snap the sparks to the three random Operations/Frames.



3. Do a **Hide/Show**  on the three sparks and select **Save Initial State** .
4. In this tutorial I have already gone through the process for the first two Operations and created a visualization of a spark when welding at that spot. You will be able to do the same for the first two spots or you may just go ahead and generate the visualization for the first spot in your RobotTask.



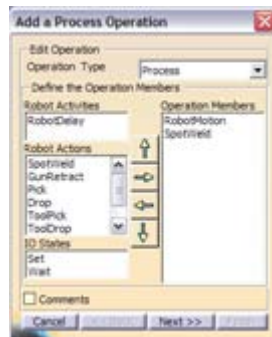
5. Select the Teach command
6. Go to the Operation that you would like to add the spark visualization.
7. In the Teach pendant dialog window go the Format area and using the down arrow select Table.
8. Highlight the Operation you want to work with then select from the tab bar the **“Op”** tab



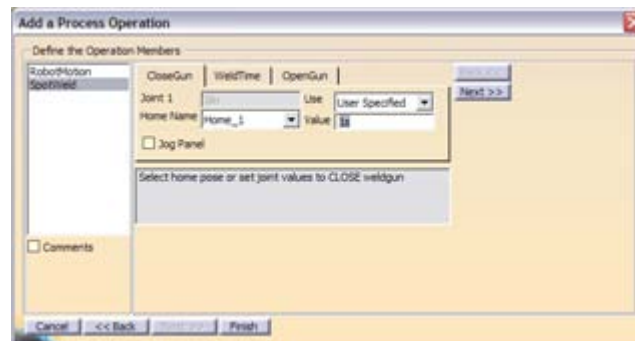
9. Add a Process Operation window pops up.



10. Select SpotWeld and push to the Operation Members area with the right arrow. We will go ahead and generate the properties for the spot weld.



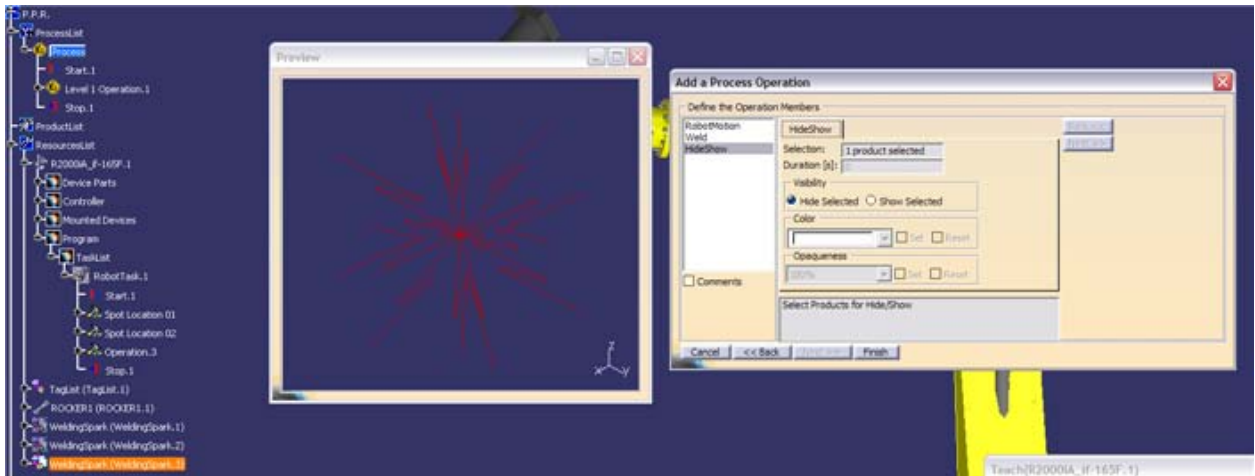
11. Highlight SpotWeld and select Next.
12. Highlight SpotWeld again and select the default parameters or if you are working on your own project go ahead and select your preferences. Select Finish when you are done.



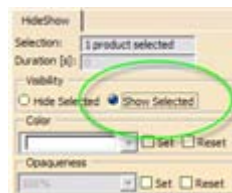
- Now go back to the "Op" tab for the Operation you want to add the spark to and select HideShow and using the right arrow push to the Operation Members again.



- Select HideShow and then Next.
- Select HideShow in selection window, a Preview window will appear, now from the PPR tree go ahead and select the spark that you would like to use for the spot.

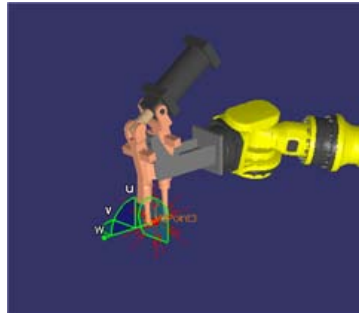


- Under Visibility in the dialog window select Show Selected radio button.

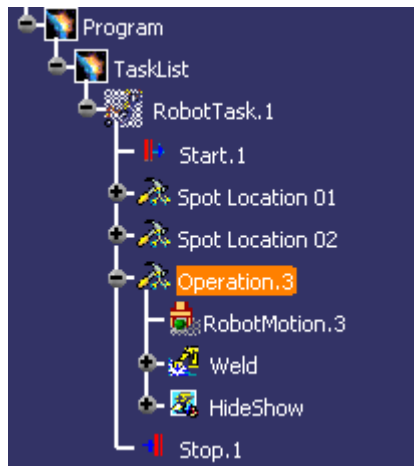


- Select Finish

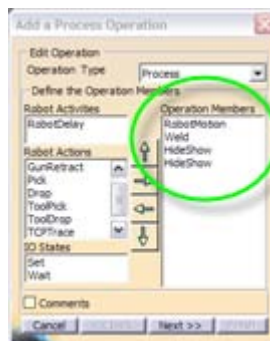
18. Now we have a visualization of a spark at the location of the Operation.



19. Now if we look in the PPR Tree under the Program branch of the robot we have for the RobotTask and Operation a RobotMotion, Weld, and HideShow properties. We still have to make one more property and that is another HideShow. We want the spark to hide after it has made the weld.

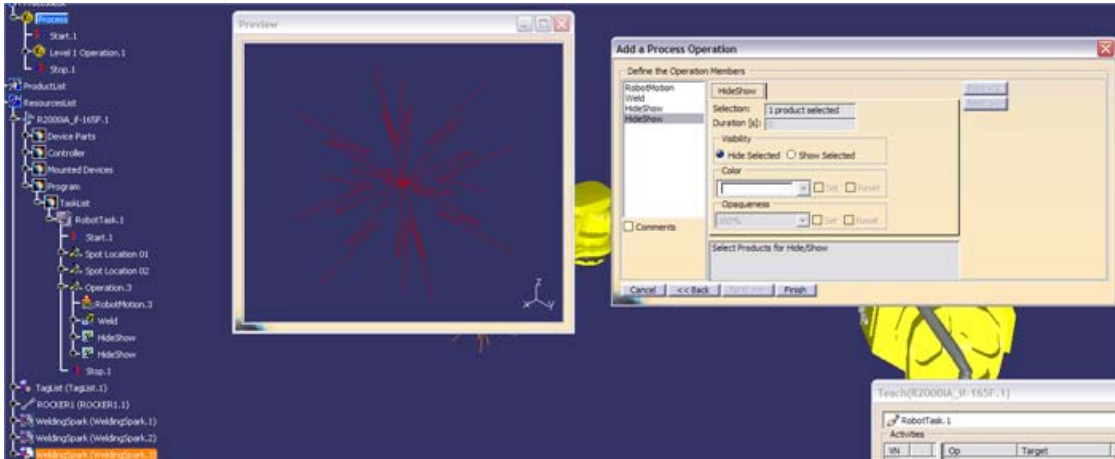


20. Go back to the “Op” tab and create another HideShow and it should look like this below.



21. Select the latest HideShow and pick Next.

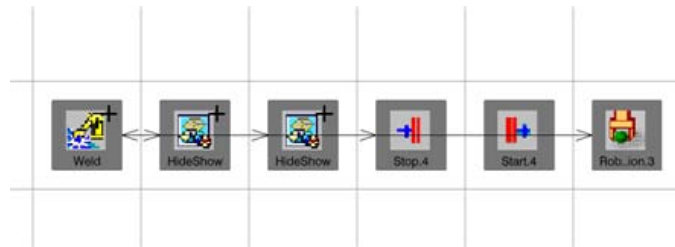
- Select the latest HideShow in Add a Process Operation and from the PPR Tree go ahead and select the same spark that we used for the Show Selected and now select Hide Selected and then Finish.



- At this point we have to open the PERT chart in order to place the properties under our Operation in the PPR Tree to correctly run the sequence in the order we want it to.



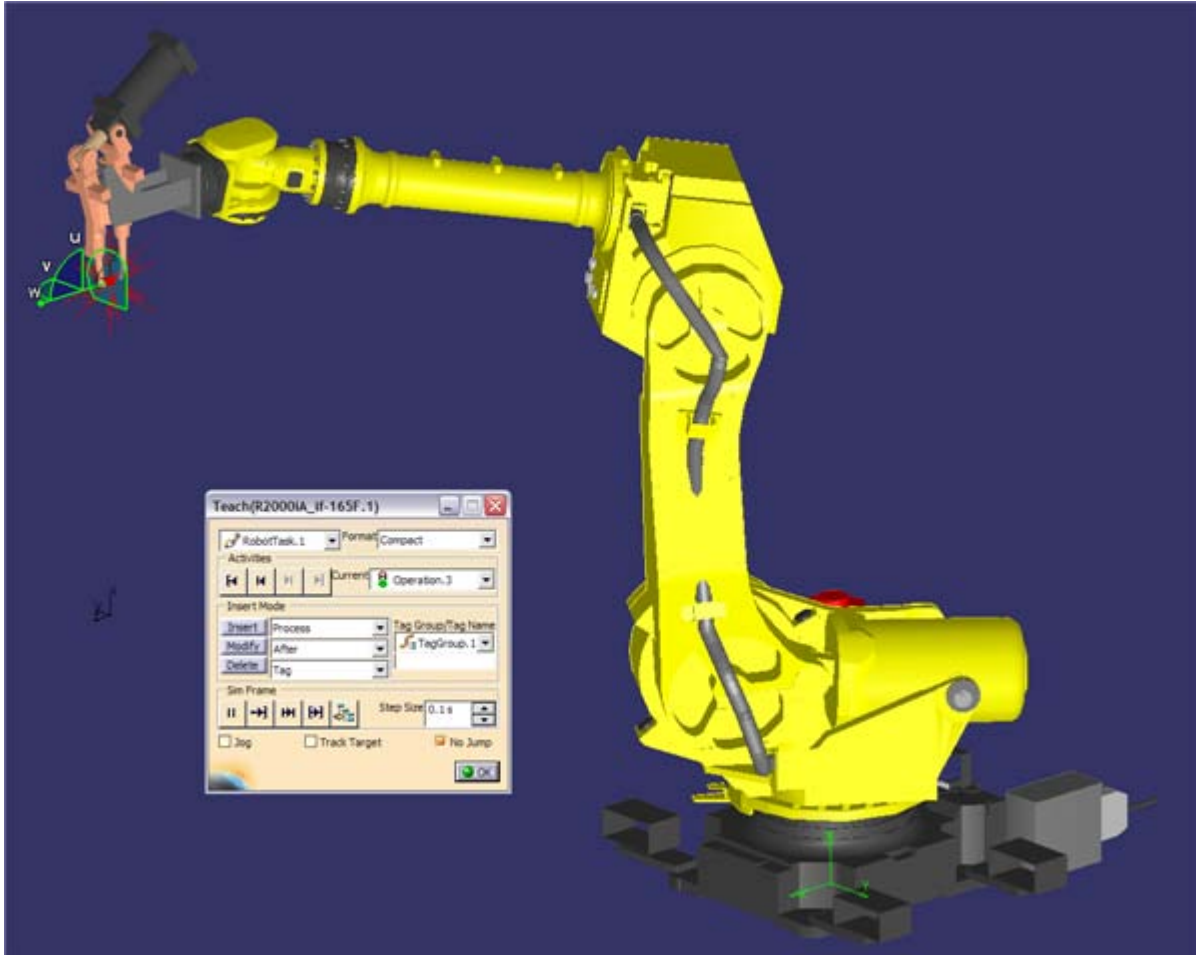
- Select Open PERT Chart and select the Operation you have been populating.
- If the PERT chart looks something like the example I have below then we are in the right area. The sequential arrows are running through the icons. We need to place some of the icons in parallel instead of a sequence.




- Remove the arrows between the first HideShow and the second HideShow then make the Weld and both HideShow's in parallel. See below.



27. Now go back to Teach pendant and run your simulation and you should have a working spark for the Operation that you have just authored.



28. Open the **Open Gantt Chart**  on the specific operation or the RobotTask in order to go into more detail as to when the spark should visual Hide/Show. Here is where you can show the spark as the tips of the gun(s) close.

Activity/Resource	SCT Duration [s]	Begin Time [s]	End Tim	Resourc	Descripti	0s	10s	20s
Spot Location 03	3.500	12.000	15.500		No Desc		▼	
RobotMotion.3	0.000	12.000	12.000			◆		
Weld	3.500	12.000	15.500	ROCKE	No Desc		▼	
CloseGun	1.000	12.000	13.000				▼	
WeldTime	1.500	13.000	14.500		No Desc		▬	
OpenGun	1.000	14.500	15.500				▬	
Show Spark	1.650	12.000	13.650	ROCKE	No Desc		▼	
Show WeldingSpark.3	1.650	12.000	13.650	Welding	No Desc		▬	
Hide Spark	0.000	[12.990]	12.990	ROCKE	No Desc		◆	
Hide WeldingSpark.3	0.000	12.990	12.990	Welding	No Desc		◆	

Hope this helps.