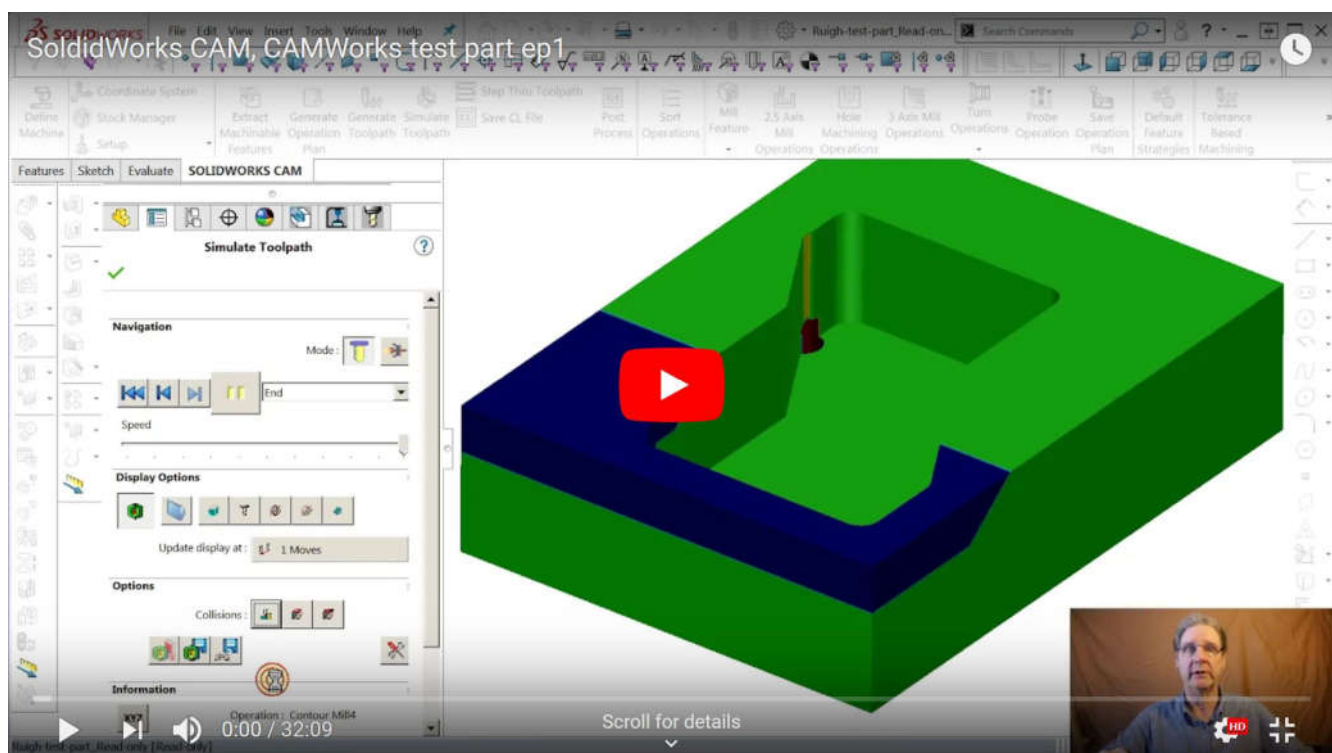




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SolidWorks 2018 and later has a free CAM (computer-aided manufacturing) add-in to make G-code for milling machines.



Test part .SLDPRT, final .SLDPRT.
I made the "first impression, 1, 2, 3" videos about SolidWorks free CAM add-in. It's made by CAMWorks but does not come with a perpetual license. You can upgrade for about \$3k with a years CAM maintenance, and I was told that is a perpetual license.
It's becoming obvious that all the automatic feature recognition stuff is not ready for prime time. But as I learn the program I am beginning to appreciate how good it is. This video looks at doing CAM (computer-aided manufacturing) on a tricky test part.

I looked at several BobCAD CAM videos and it is obvious that program is not quite as capable. But it is also more streamlined, without a Technology Database to decide how features should be recognized and machined.

The BobCAD CAM for Solidworks also puts the machining on a feature tree, but thankfully it is just one tree, with the operations indented under the feature. This is far more "planar" than Solidworks CAM that has a "Features" tab and an "Operations" tab. I was constantly getting confused between them.

What I did not like about BobCAD CAM was that their simulation was just waving a tool over the part. It does not show the stock being removed, or show you the difference between the part and what the G-code cut off.

I do think BobCAD does simulation from the G-code, as does SolidWorks CAM/CAMWorks. Visual Mill sells a separate G-code editor, and like this package, it only works when you are paying maintenance to Visual Mill. That program works inside Solidworks, like BobCAM can, and all three CAMWorks packages.

This video shows how the sophisticated SolidWorks/CAMWorks simulation kept me from doing a few tool crashes. I think it is pretty essential to have this level of tool-path simulation. While BobCAD CAM is cheaper, I think it is well worth paying more money to make up for the fact I am not an experienced machinist or long-time CNC (computer numerical control) programmer.

I am also vacillating about whether I need a CAM package that works inside SolidWorks, or is an external package. SolidWorks CAM brags you can change a feature in your part design, and the toolpath will "automatically" update. Well, it prompts you to change, and if you add a feature, you will have to recognize it like when you started the CAM programming.

My problem with this is that you dare not do an "Auto Feature Recognition" since then the program will add in all the things you took out like needless perimeters. I also have to replace drilled holes with milled pockets, since I have a high-speed spindle that cannot go slow enough to drill bigger than 1/8-inch. So there is not much benefit compared to a separate software package that sees, you have changed the part file date and prompts you to fix things.

The other thing I have noticed using SolidWorks CAM is how clumsy and complex the SolidWorks user interface is. You can enable the Command Manager and splat a giant ribbon toolbar at the top, but it still seems like there is all this excess baggage for non-CAM things you are stuck looking at when the CAM program runs inside SolidWorks.

You can see which programs run inside SolidWorks by looking up SolidWorks "Gold Partner" CAM packages. In June 2020 I see CG CAM Tools (mold & die), BobCAD CAM for Solidworks, VisualMILL, hyperMILL, CAMWorks, SolidCAM, MasterCAM, GeometryWorks3D, CG Press Design (press dies), CG Mold Design (molds), PathFinder3D (store fixtures), and OPTICAM (wire EDM).

I look at a stand-alone package like OneCNC and it seems so clean, and simple, like the old CADKEY interface. I did have to add a sketch to the part in the this video to get the toolpaths to act like I wanted. I don't know how I would do this in a stand-alone package.

The other thing to look at is if the stand-alone programs can handle assembly files, like .SLDASM. That means that you could model the vise and the fixtures and the machine for that matter. OneCNC distinguishes itself twice. Once by allowing you to sell the license to another user, unheard of in the software industry. The other thing is it uses layers in a clever way. You draw the machine on layer 3, the 4th axis on layer 4, and the fifth axis on layer 5 and this will animate the whole machine in a simulation.

For now I intend to keep learning the free Solidworks CAM, and evaluate the other packages against what it can do. MasterCAM, hyperMILL, and GibbsCAM are out of my price range (\$10k++), so I need a mid-range package around \$5k, with good capabilities.