Autodesk Mechanical Desktop Q&A: Users, Start Your Drawings

By Bill Fane

Welcome to Doctor Bill's Mechanical Desktop® Clinic, where you e-mail me your Mechanical Desktop questions and I try to answer them.

Because this is my first Q&A for Point A Toplines, and you haven't had a chance to submit a question, allow me to start things off:

"Say, Dr. Bill, when faced with a blank screen in Mechanical Desktop, where do I start?"

Good question. When learning Mechanical Desktop, it is logical to begin with sketching, dimensioning, and constraining because these are at the heart of parametric modeling.

First Things First: Setting Up
You want to make sure that you open the right kind of file because the type of file you start determines the menu structure and toolbars you get. Unlike regular AutoCAD® software, Mechanical Desktop offers two drawing file choices.

- If you start a "New" file, or open an existing AutoCAD file, you actually get a new assembly file. Within it you can create or attach multiple parts and constrain them into a full parametric assembly.
- If you start a "New part file" you get something a little different. It can only contain a single part model. It can be used as a component in another assembly, but can never have any other parts added or attached to it.

If you are creating a single part, then make sure you start a part file. Obviously, if you are creating a single part, then you do not need all of the assembly commands, so you get simpler menus and fewer toolbars.

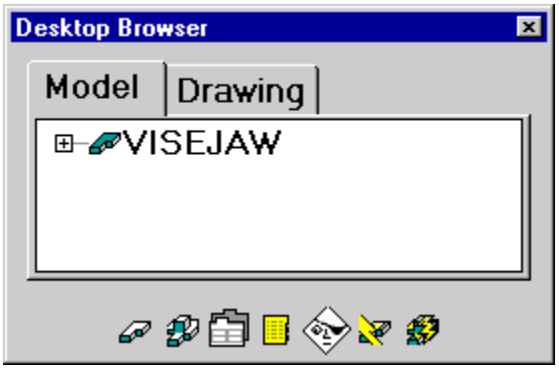

Figure 1: Browser for a single part.

A single-part file is also a little smaller and simpler because it does not need to carry the overhead associated with assemblies. In particular, take a look at the browser.

Figure 1 shows the browser for a single part; Figure 2 shows the same part drawn as an assembly file. The part browser contains two tabs (Model and Drawing) while the assembly browser has three tabs (Model, Scene, and Drawing).

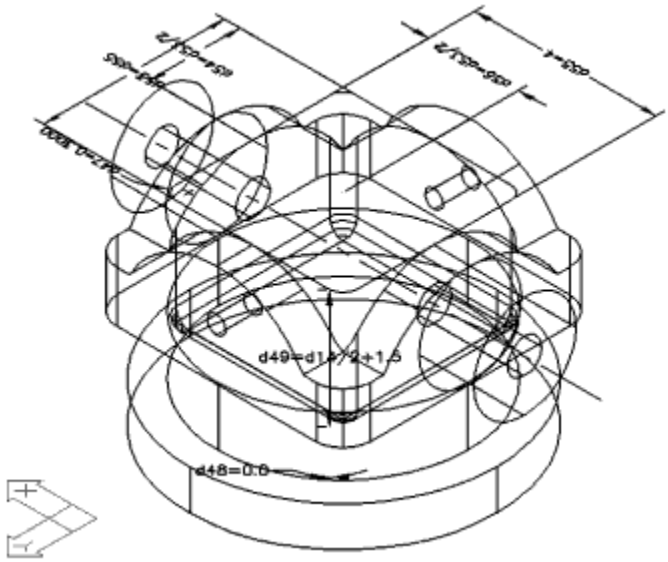

Figure 3: If you had to pick a dimension to edit, would you rather see this...

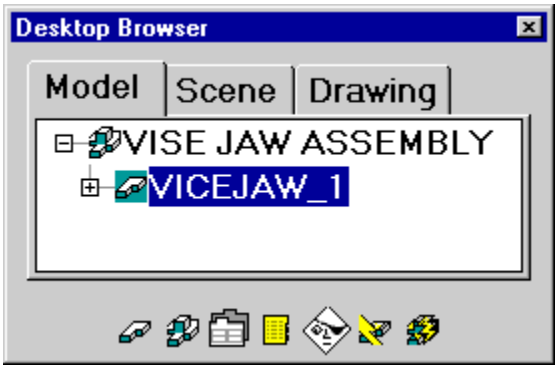

Figure 2: Browser for the same part drawn as an assembly file.

The assembly browser also shows an extra level to the structure. Even though there is only one part, it shows as a component of a higher-level assembly.

Now you are ready to set up your Mechanical Desktop part drawing. There are three major areas to be considered: layers, dimension styles, and text styles.

Interestingly, these are also the three major setup areas in AutoCAD, but the actual details differ slightly. Unlike regular AutoCAD, however, Mechanical Desktop does quite a bit of the layer

management for you.

Layers
Parametric dimensions in model mode automatically land on their own layer (starting with Mechanical Desktop 4). The layer in question is called AM_5. Initially, it does not exist in a new drawing file, but is automatically created when you apply the first parametric dimension to the sketch profile. By default, its color is green and its linetype is continuous.

- Mechanical Desktop only creates the AM_5 layer if it does not already exist.
- If you create it manually first, Mechanical Desktop will use your definition. It does not care what color or linetype or line weighting you use, as long as the correct layer name exists.

Tip: If you want your parametric model dimensions in a color other than green, simply create a template file and start all new parts from this template.

While we are on the topic of template drawings, here are two more layers you should create:

- Sketch. It does not matter exactly what you call it; the significant point is that its color should contrast nicely with the dimension color. Red might be a good choice.
- Part. Once again, it does not matter exactly what you call it as long as its color contrasts nicely with the dimension and sketch colors. Color number 42 gives a nice brass appearance.

The reason for creating these layers is shown in Figures 3 and 4. At any time, you may well have a sketch, dimensions, and the part visible on screen.

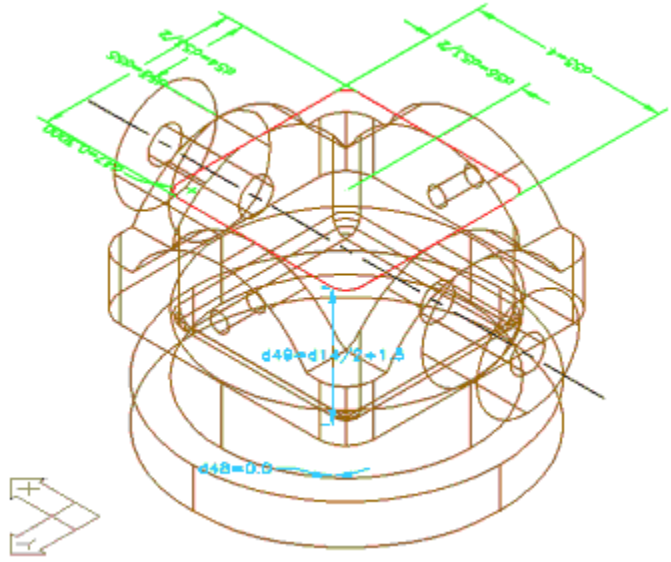

Figure 4: or this? You need to create proper layers.

Dimension Styles
So now you have your first sketch drawn and are ready to apply the parametric dimensions. I am often asked how to change the appearance of these dimensions. It's easy.

Mechanical Desktop simply uses the current dimension style, whatever it may be. The name and specifications do not matter, so you can use anything you want. Please note that the dimension style used in the 2D drafting views does not have to be the same as that used in the 3D model.

Text Styles
Text setup is even easier. Mechanical Desktop doesn't use any text in model mode, so text can be ignored.

Conclusion
That's enough for now. Send your questions to bill_fane@bcit.ca. I'll pick one or two hot issues and respond. See you next month.