

DataCAD Boston Users Group

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http://world.std.com/~eshu/dbug.htm

A Committee of the Boston Society of Architects

DBUG Meeting Notes
April 20, 2006
Host: Mark Madura, DATACAD & Evan H. Shu, FAIA
at the Boston Society of Architects

Hosts Mark Madura and Evan Shu welcomed 16 DBUGers to the edition of DBUG at the Boston Architectural Center. Not much in the way of announcements, although Mike Smith mentioned that he hopes to have the official opening by the end of the month for his new AEC CAD Exchange <www.aeccadexchange.com> website, which offers exchange of architectural details. (See *Cheap Tricks*, May 2006 for more.) Evan noted that the May DBUG meeting would be hosted by GSD Architects in North Andover [date has now been set for May 25th].

Basic Lesson: Custom Linetypes

As a follow-up lesson to last month’s presentation on custom hatch patterns, it was only logical that Evan now cover custom linetypes. He said it was still valuable to review the “old way” of doing it, even if DataCAD 11 has a much easier, graphic interface way of doing it now.

With custom line types, you design the first “bead” in a chain which repeats itself in one direction only, going forward. Pre-DataCAD 11, all of your custom line types are contained in a single plain text file, DCADWIN.LIN. Post-DataCAD 11, each individual line type is separated into its own DLT file. The four default line types (solid, dotted, dashed, dot-dash) are “hard-coded” and don’t need specifying in any version.

Pre-DataCAD 11, the order of line types in the DCADWIN.LIN file mattered. A consultant’s drawing might come back looking funny, because the 15th line type in their DCADWIN.LIN file was different than your 15th line type. Post-DataCAD 11, it doesn’t matter because DataCAD goes by the name of the DLT file and not the order in a DCADWIN.LIN (unless it is trying to open an old legacy DC5 file.) Also, post-DataCAD 11, all used line types are now embedded in the drawing file, so no other files are needed.

Pre-DataCAD 11, each new custom linetype had to be created manually, using a vector code similar to last month’s discussion on custom hatching. Post-DataCAD 11, you now

have a graphical interface to simply draw what you want as that first bead in the linetype chain.

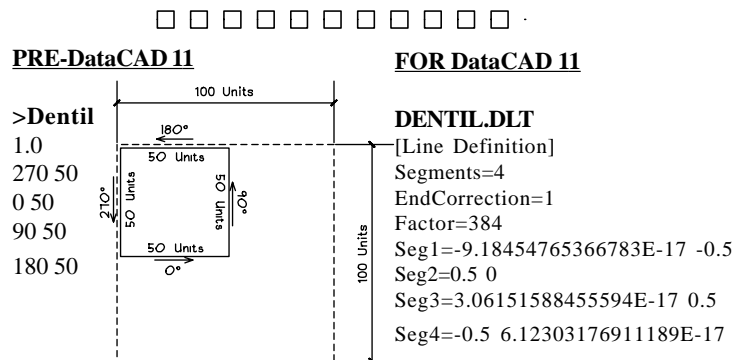


Figure: the first “bead”

Using a sample “dentil” linetype, Evan reviewed the vector text coding required (pre-DataCAD 11) to write a custom linetype. The first repeating bead is 100 units long. The first number after the title is the scaling factor. 1.0 means that your 100 unit box equals 1 foot. Unless you want your custom line type to have a specific size (say, for railing balusters), you don’t have to worry about this factor since you can adjust it also with line spacing later. The “empty” part of the 100 unit bead box indicates the spacing until the next bead in the chain. (See *Cheap Tricks*, May 2006.)

In contrast, with DataCAD 11, you simply draw onscreen what you would like to see as your line type. Draw it left to right and make sure of your alignment of the starting point and the ending point exactly horizontal to make sure your line type repeats cleanly. You are not limited to line segments. You can also use text, arcs, symbols — but, sorry, bitmaps don’t work. Next, go to the *Line Type* menu and select *Manage*. Then click on *Create Line*. You are prompted down on the menu line for a new “Line Name” (long names are okay now). Type in a new name and hit your Enter key. Now, DataCAD will ask to to “Select start point of line definition.” Pick or snap to the exact point where the line is to begin, and a new set of menu options will appear with these options:

a. Correct End: You usually want to turn this setting on, so that your linetypes don’t have those “tails” that early



versions of DataCAD used to have. Only if your linetype must always be an exact size (such as a railing balusters), should you turn this setting off (note, you can also toggle this setting after you create the line type!);

b. Factor: As with the old format, use this to set the default factor (spacing) for the linetype, which scales each bead of your linetype as a factor of 12". So 1.0 means each bead is 12" long, or use 0.8 for 8" or 0.5 for five inches, etc;

c. To Disk: When checked on, it will save your new definition to your *Support Files/Line Types* folder and thereafter be available for use in any drawing. If unchecked, it will be embedded for use only in the current drawing file and not saved externally.

After you set those options, the prompt will ask you to "Select one or more entities to be part of the line definition." You can use Area to include all the elements of your desired linetype bead (or *Entity/Group/Fence/Mask* etc.). When you have selected all the elements, click on *Finish* and the final prompt will read "Select the end point of your line definition." DataCAD will force you to pick or snap to a point that is in horizontal alignment with your initial starting point and the line type will be created and listed as an embedded linetype.

No matter what scale you draw your entities at, DataCAD will interpret the distance between the first point of your line definition and the finish point of your line definition as 100 units. If you use a scale factor of 1.0 that means that 100 units will equal 1 foot, just like with the old format. So, you can draw it extra big, full-scale, or not to scale at all, as long as you still keep in mind the 100 unit "bead" box.

Now, if you go back to your regular linetype menu, you should see your new linetype. (If you don't, go to *Tools/Program Preferences/Misc* and make sure "Display External" is checked for "Line Definitions.") It's fast, easy, and a great productivity boost.

ADVANCED LESSON: Preview of DataCAD 12.

Mark apologized that he wouldn't be able to show much in the way of "smarts" (parametric entities) at this time. He likened it to an experience we have all had, where you are nearing the completion of a project, and the need to change one little thing forces you to rebuild the whole "engine." He said that such a setback has pushed DataCAD 12 (now in Alpha 36) back from a projected springtime delivery to now a projected fall delivery. While he did demonstrate parametric doors (taking a single swing door and changing into a

double door after placement and showing it displayed properly in both 2D and 3D views), that was the extent of the "smarts" in this presentation.

Those who were able to get over that disappointment may have been pleasantly surprised, however, to see other new features not previously announced added to the program build for DataCAD 12:

- * A host of new complex hatch patterns, line types, and seamless textures;
- * A new "symbol scale" feature (similar to text scale) allowing you to "page up/down" to mirror symbol scale size with plotting scale;
- * Full display of symbols when placing (no more extents boundary box);
- * Accessible/displayable construction planes for 3D entities;
- * A second multi-line text tool for CHR fonts in addition to the TTF fonts MText tool previously announced;
- * Select/DeSelect picking (previously, you could not deselect without losing the whole set); and
- * XREFing of Excel spreadsheets into DataCAD.

The above items are additional features to those previously announced for DataCAD 12 that included: smart walls, windows, and doors, dynamic snap indicators, support for SHX fonts, entity proper editor, materials by entity, direct editing of symbols, independent dimension settings, fence clips for XREFs and symbols, Windows "scaleless" line types, MSP to DWG importing, and 3D Boolean operations.

Here are more detailed notes on the presentation from *Neil Blanchard*:

- * There will be about 50 new complex hatch patterns & linetypes — Mark has been using *HatchKit* and the built-in linetype creator.
- * There will be 50-100 new seamless textures included with v12. You will be able to assign materials by layer, color, or by entity basis. *Benjamin Moore* historical colors on clapboards are included in the seamless textures.
- * V12 will bind materials into the drawing file, and many of the current 3D symbols will have textures embedded in them.
- * This one was a surprise: in v12 we will have "symbol scale" — like text scale! So, all the drawing symbols can simply be inserted "at" the current plot scale, so you won't have to have multiple versions of these, or have to figure out the enlargement factor.

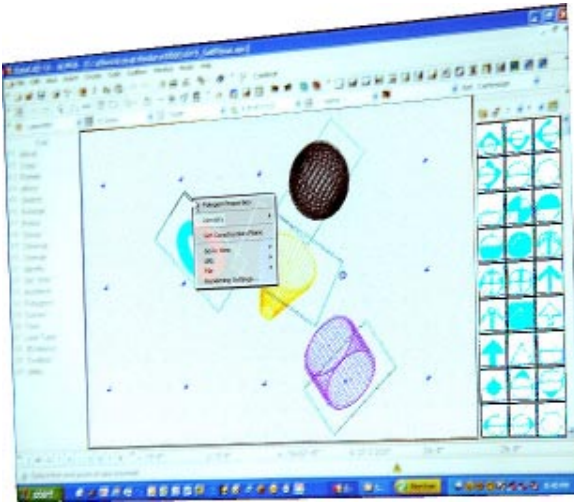
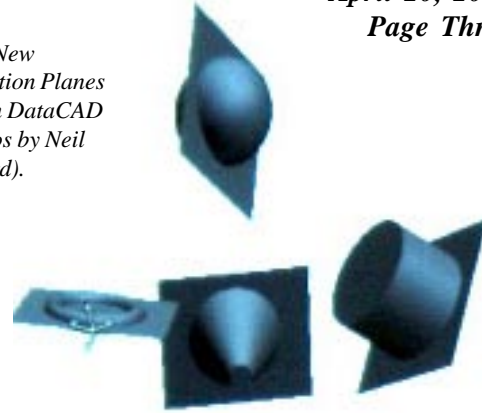


Figure: New Construction Planes feature in DataCAD 12 (photos by Neil Blanchard).



* Also a new feature that we saw for the first time: you can see the symbol *not* the extents box when you are inserting a symbol! This will aid in getting the right orientation, and you can set the maximum number of lines that can be shown, depending on the complexity of the symbol and on your hardware.

* There will be dynamic snapping indicators — when you toggle it on, you will get pop-out text for each snap point that is near to the cursor.

* The same type of pop out text indicators will show any hyperlinks, etc. in the drawing.

* All entities will have accessible construction planes (*see photos above*).

* There will be TWO multi-line text tools: the first is *MText*, which is equivalent to ACAD's tool of the same name, and will export and import in DWG's. MText will only support TTF fonts – just like ACAD's version. The second one is called simply “paragraph text”, and it essentially the same, except that it only supports one font in each instance – and does support CHR, SHX and TTF's, but it won't have the formatting options (unless the font supports it?); like underlining, bold text, etc. If you export this simpler paragraph text to DWG, it will be converted to MText.

* You will be able to *Control-Right Click* on any entity to pull up a property editor dialog, to change many/all of it's attributes – like what layer it is on, color, etc.

* V12 will have “Implied auto-selection” (or it could be called auto-*DE*selection!) – if you mistakenly select something, just click it again to deselect it.

* There will be a symbol editor – just *Control-Right Click* on a symbol, and select Edit, and you can work on a symbol,

and then you have the option of Redefining that symbol in just that drawing, or save it to disk, or save it as a new symbol. A very handy tool, indeed.

* We will be able to export MSP sheets to DWG – each detail will be saved as a symbol.

* There is improved error handling — none of the 2-3 crashes that the alpha program had during the demonstration even crashed the program; only the drawing closed. Mark also mentioned that v12 will be able to ignore corrupt entities, but still open the rest of the file.

* V12 supports SHX fonts natively.

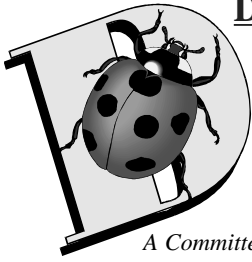
* We will be able to have multiple dimension types: different scales, different styles, and different tolerances in the same drawing.

* V12 has “Power Clip” i.e. a clip FENCE that can be used on XRef's and with symbols. This is in part, how the MSP to DWG feature works.

* The new “Windows Linetypes” will be in v12: these are essentially linetypes that are used in other Windows programs, that hold their spacing; no matter what scale you view/plot them at. These are will allow SMOOTH property lines around arcs, etc.

* There will be full Boolean operations with any/all 3D entities.

* We will be able to XRef Excel spreadsheets. This means that the table gets imported into DataCAD 12, and can be refreshed from the Excel file.



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BASIC LESSON:

Custom Linetypes, the Old Way & the New

by Evan H. Shu, FAIA April 20, 2006

Custom Linetypes in DataCAD

OLD WAY:

- 1) Repeating Bead on a String.
- 2) Define Segments by Angle/Length
- 3) All contained in DCADWIN.LIN

NEW WAY:

- 1) Draw it (any scale) (lines, text, okay, not bitmaps)
- 2) LineTypes/CreateLn
- 3) Name It; pick Start point
- 4) Select all entities (EGAF), Pick Finish
- 5) Pick Linetype end point.

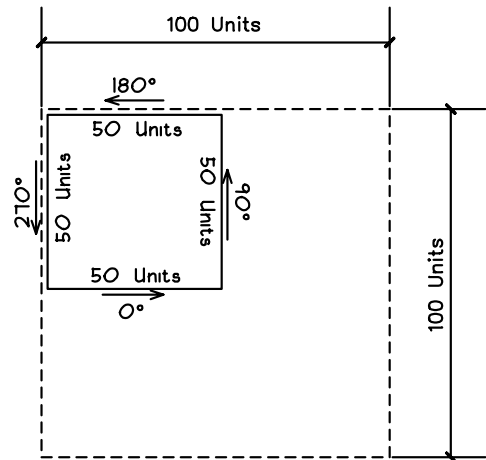


Figure 1: the first "bead"

FROM DCADWIN.LIN

>Dentil

1.0

270 50

0 50

90 50

180 50



>Box

4.0

0 32.929

0 -10

45 10

-45 10

225 10

135 10

0 -24.142

0 32.929



FORMAT FOR DATACAD 11 and UP

DENTIL.DLT

[Line Definition]

Segments=4

EndCorrection=1

Factor=384

Seg1=-9.18454765366783E-17 -0.5

Seg2=0.5 0

Seg3=3.06151588455594E-17 0.5

Seg4=-0.5 6.12303176911189E-17

BOX.DLT

[Line Definition]

Segments=8

EndCorrection=1

Factor=1536

Seg1=0.32929 0

Seg2=100.1 0

Seg3=0.0707106781186547 0.0707106781186547

Seg4=0.0707106781186547 -0.0707106781186547

Seg5=-0.0707106781186548 -0.0707106781186547

Seg6=-0.0707106781186547 0.0707106781186548

Seg7=100.24142 0

Seg8=0.32929 0