What's New in DataCAD 16?

New features in DataCAD 16 combine 2D productivity enhancements, 3D modeling tools, changes to the Sun Shader, and a collection of program optimizations which help to make DataCAD 16 faster than previous versions. The DataCAD 16 drawing file format is currently compatible with DataCAD 15, however you must use the "Save As" command in the "File" menu to save files backward to older version formats.

AutoCAD 2013 support

DataCAD 16 supports the ability to import and export AutoCAD 2013/2014 files in DXF and DWG format. This enables you to collaborate and share files with associates who use the latest version of AutoCAD and other CAD software.

➔ To import an AutoCAD 2013 file:

1. Run DataCAD, and then choose "Open" from the "File" pull-down menu.

2. Click the "Files of Type" drop-down menu, and then select "DWG Files (*.DWG)."

Note: If you are importing a DXF file, select "DXF Files (*.DXF)" instead.

3. Use the "Look In" field to browse to the folder which contains the DWG file you wish to import.

4. Pick the DWG file, and then click "Open."

5. Review the settings on the "DWG Import Entity Assignments" dialog, making adjustments as necessary, and then click OK.

DataCAD imports the file, and displays it in the drawing area. For more information on importing DXF and DWG files, see page 30 in the Reference Manual.

➔ To export a file to AutoCAD 2013 format:

1. Open the drawing in DataCAD.

2. Click the "File" pull-down menu, choose "Export," "DXF" or "DWG," and then "All Layers" or "On Layers."

3. Use the "Look In" field to choose the folder on your hard drive in which to save the file.

4. Click the "Save As Type" drop-down menu and then select "R2013-R2014 DWG Files (*.DWG)" or "R2013-R2014 DXF Files (*.DXF)."

Note: If you are unsure as to what version of AutoCAD your associate's software supports, you should choose an older format in which to save the DXF or DWG file. Newer versions of AutoCAD can open files saved in older formats, but older versions cannot open files saved in newer formats.

5. Type a name for the file and then click "Save.

DataCAD creates the DXF or DWG file in the specified folder. For more information on exporting DXF and DWG files, see page 101 of the Reference Manual.

The DXF/DWG Translator has been optimized to reduce the size of exported DXF and DWG files. When exporting to DXF or DWG files using the "On Layers" option, only those symbols which are instanced on the exported layers are included in the file header.

Productivity enhancements

Associative dimension prefix and suffix

Options to display "Prefix," "Dimension," and "Suffix" have been added to the "Dim Style" sub-menu of the Dimensions/Linear menu. Their status and custom data is included with the collection of information saved in the dimension style file (*.dimstyle).

The prefix text will be added in front of the dimension text. If you want a space between your prefix and the dimension text, you must make sure to include it at the end of your prefix text. Similarly, suffix text will be added after the dimension text. If you want a space shown in between, you must add it at the beginning of your suffix text. When "Dimension" (on by default) is toggled off, DataCAD will draw all of the dimension components, but the dimension text will be absent.

➔ To create a dimension with a Prefix or Suffix, or without dimension text:

1. Toggle "Prefix" and/or "Suffix" on, and then type the custom data into the entry field. Press [Enter] to accept the data. New dimensions will be drawn with the specified Prefix and/or Suffix.

2. Toggle "Dimension" off to create dimensions that contain just the custom data with no actual dimension.

3. Toggle any of the settings back to their original state to return to drawing normal associative dimensions.

Options to change the "Prefix String" and "Suffix String" are available in the Entity Properties Editor for associative dimensions, along with access to the status of the "Dimension Text" setting. [Ctrl] + Right-click on an associative dimension and then choose "AssocDim Properties" to access the Properties Editor.

The Geometry/Tangents function now supports the ability to select Associative Dimensions. When you select an Associative Dimension, DataCAD rotates the cursor to match the angle of the dimension line.
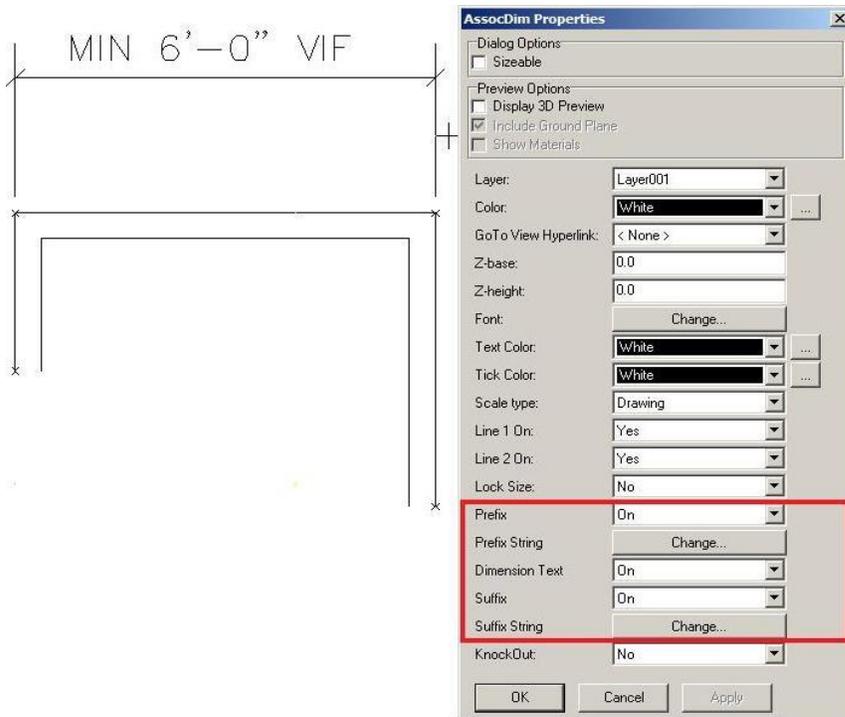
New selection method: Previous

Added a button labeled "Previous," which selects the previously selected set of entities, to the "Mask" menu of each selection menu.

➔ For example, let's say you wanted to move a set of entities, and then rotate those same entities by 90°:

1. Choose "Move," define a distance, and then select an Area of entities to move. DataCAD moves the entities.

2. Next, select "Rotate," define the center of rotation, and then set the rotation angle.

3. Click "Mask," and then click on "Previous." DataCAD will rotate the same entities that you had moved in the previous step.
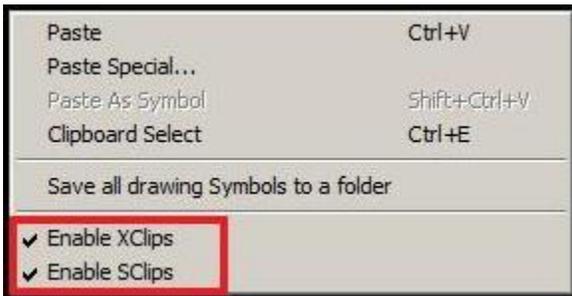
XREF enhancements

Added the "Dynamic Snapping" setting (On or Off), found in the [Ctrl] + Right-click, XREF Tools context menu for XREFs, to the Reference File Manager.

The "Nesting," "GTV Link," "Dyn. Snap," and "Smart Wall Hatch/Fill" sections of the Reference File Manager are grayed out until you select an XREF to modify. This works similar to the way the "Highlighting" section works.
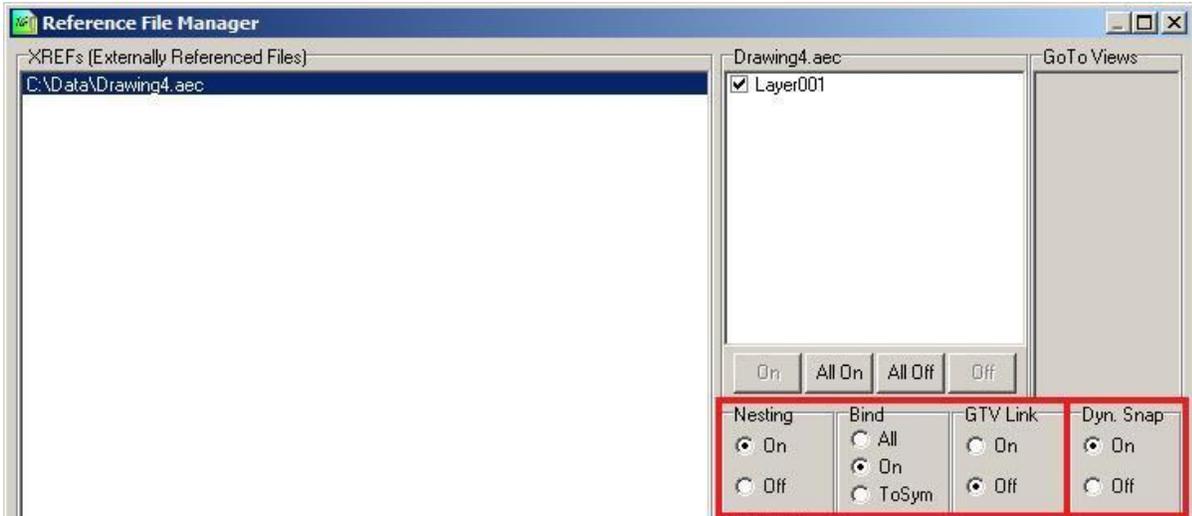
You now have the ability to disable XClips and SClips for the entire drawing. [Ctrl] + Right-click in a blank section of the drawing area to access the Drawing Context Menu. Un-check "XClips On" and/or "SClips On" will disable display of XClips or SClips. DataCAD will display XREFs and Symbols as if no XClips or SClips are assigned. The individual clipping boundaries are retained.

Symbol enhancements

When replacing or redefining a symbol, the name of the symbol is now displayed on the "Message" toolbar at the bottom of the program interface.
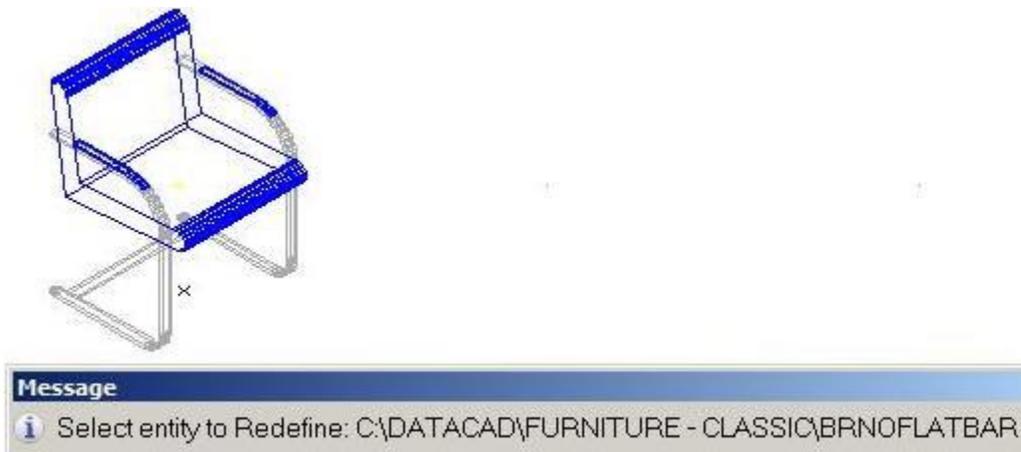
DataCAD has a new "Auto Reload" option, located in the Ctrl + Right-click, Symbol Tools context menu for symbols. When this option is checked, DataCAD will automatically reload the symbol definition on the hard drive for each instance of the selected symbol every time you open the drawing. This setting is assigned and remembered on a per-symbol (but not per-instance) basis.

If a symbol marked for Auto Reload is not found in the original location, DataCAD will display a warning message when you open the drawing which notes the name and path of the missing symbol. DataCAD will then display any instances of that symbol in the drawing using the symbol definition from the drawing file header.

Note: A separate warning message is displayed for each symbol that is not found in its original location on the hard drive

A new "Save As" command has been added to the context menu that appears when you right-click on a symbol in the Symbol Browser. This enables you to save a copy of the symbol to a different folder, or with a different name.

There is also a new option labeled "Loaded Indicators" to the "Options" pull-down menu at the top of the Symbol Browser. When enabled, a small check mark is displayed in the upper right corner of cells on the Symbol Browser displaying symbols that have been loaded in the header of the current drawing.

Drag-N-Drop

DataCAD supports the ability to drag and drop any of the following file types:

AEC/DC5

These files may be dropped onto the DataCAD start screen or an open drawing to open them in new windows. Holding the [Ctrl] key when dropping the file will import it into the active drawing. Holding the [Alt] key when dropping the file will insert it as an XREF in the active drawing.

DXF/DWG

These files may be dropped onto the DataCAD start screen or an open drawing to open them in new windows.

Holding the [Ctrl] key when dropping the file will import it into the active drawing.

SKP

These files may be dropped onto an open drawing to insert them as a Symbol. Holding the [Alt] key when dropping the file will insert it as an XREF in the active drawing.

TXT

These files may be dropped onto an open drawing to insert them as a PText. The drop point is used the first point of the PText boundary. If you hold the [Ctrl] and [Alt] keys when dropping the file, DataCAD will prompt you to select the first point of the PText boundary.

Bitmaps (BMP/JPG/JPEG/GIF/TIF/TGA/PNG/PCX/PCD)

These files may be dropped onto an open drawing. DataCAD will use the drop point as the first point of the boundary rectangle. If you hold the [Ctrl] and [Alt] keys when dropping the file, DataCAD will prompt you for the first point of the boundary.

XLS

These files may be dropped onto an open drawing to insert them as an XREF.

o2c, ACO, 3DS, STL, DSF/SM3

These files may be dropped onto an open drawing to insert them as a Symbol.

Metafiles (EMF/WMF)

These files may be dropped onto an open drawing to add vectors to the drawing file.

Editing tools

There is a new "Fit" sub-option to the "Copy" menu when "Array" is toggled on. Use this command to copy selected entities in an array, but have them fit within a specified area.

➜ To create an array that fits into a specified area:

1. Choose "Copy" and then select a start point and end point that define the overall distance of the array.

2. Toggle "Array" on and then define the number of copies for the array.

3. Toggle "Fit" on, and then select the entity to copy. DataCAD creates an array and fits the number of copies you defined within the two points that defined the distance.

We have added a "Dynamic" option to the 2D and 3D Stretch commands. 2D lines, 3D lines, and (open) polylines are supported. After selecting "Dynamic," click near the end point of the line or polyline you wish to stretch. You may then reposition it dynamically using the rubber-band method.

When using the "Point" selection method in the "Stretch" command and then using the left mouse button to click on a point, DataCAD will select all points that are within one pixel of the cursor position. This has been enhanced such that if no point is found within one pixel, DataCAD will now choose the closest available end point.

The "Stretch" command now supports the ability to select the quadrant points of ellipses.

Two new fields for "X Radius" and "Y Radius" have been added to the Entity Properties Editor for ellipses. Ctrl + Right-click on an ellipse and then choose "Ellipse Properties" to access these fields.

Text enhancements

Access to the "Underline" and "Overline" properties for single-line text entities has been added to the Text/Font dialog. Checking either (or both) turns this property on for subsequent text.   In addition, access to the "Horizontal Alignment" and "Vertical Alignment" settings is now available via drop-down menus in the Text/Font dialog.

Drop-down menus for "Horizontal Alignment" and "Vertical Alignment" have been added to the Entity Properties Editor for text entities. In the Horizontal Alignment section, you may select from the options "Left," "Center," and "Right." In the Vertical Alignment section, you may select from the options "Bottom," "Middle," and "Top."
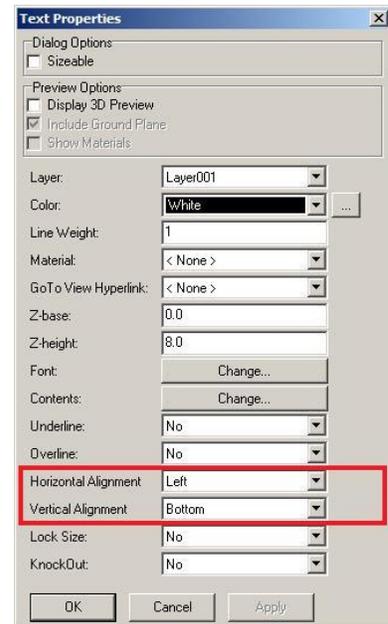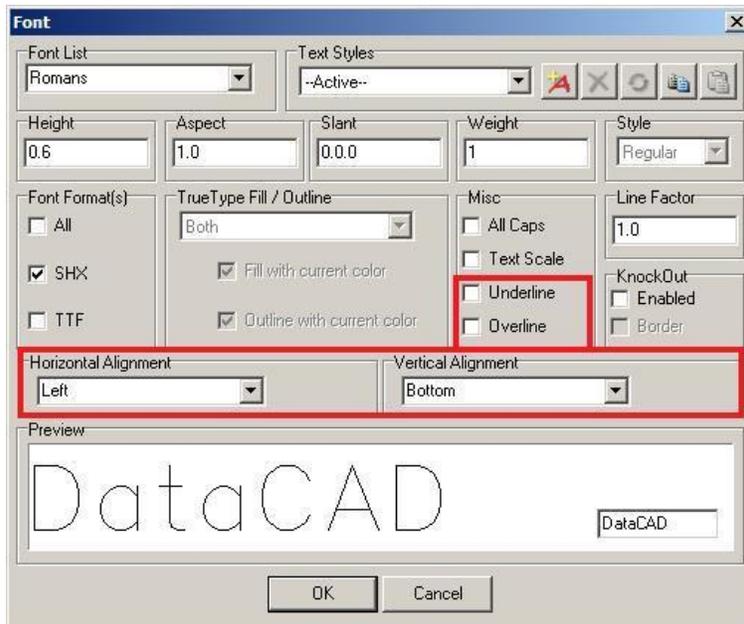

File management changes

When selecting "Save As" from the "File" menu, the "File Name" field is automatically populated with the name of the current drawing file.

The status of the "Preview" check-box on the File/Open dialog has been separated from the "Preview" check-box on other dialogs, such as Insert/SketchUp or Insert/o2c. Un-checking "Preview" on the File/Open dialog turns off the creation of the drawing file preview images, which are saved in the same folder as the drawing file and display a preview when you select a file. You may now turn this off while leaving the preview of other files types on.

The "Batch Plot" dialog now shows the current path when "Plot to File" is checked.
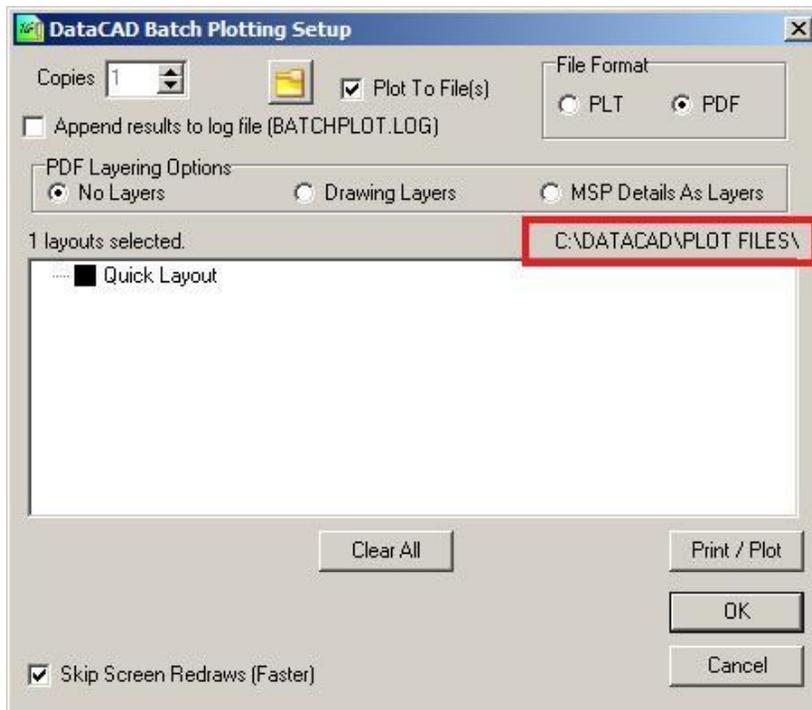
GoTo View enhancements

There is a new button labeled "Extents" in the "Add View" and "Update View" sub-menus of the "GoTo View" menu. Toggling this option on when adding a GoTo View or updating the parameters of an existing GoTo View will result in DataCAD automatically recalculating the extents of the view any time the view is recalled.

GoTo View parameters now include the status and angle of "Tangents" in the "Geometry" menu, and the number of Tangent Divisions.

Miscellaneous

Menus which have [Scroll Fwd] and [Scroll Back] buttons, such as the Hatch/Patterns, Line Type, or Layers/OnOff menus, now support the ability to use the scroll wheel on your mouse to scroll forward and backward. Your cursor must be positioned over the menu for DataCAD to execute this function.

We have added the ability to change the "At Head" or "At Tail" placement property for Smart Arrows via the Entity Properties Editor. This enables you to swap the head and tail of a Smart Arrow after it has been drawn.

The on/off state of the "Multiple" toggle in the "Move/Drag" or "Copy/Drag" menu has been separated from the "Multiple" toggle in the "Save Symbol" menu.

When working in the Door Type Manager, making changes to a door type and then clicking the "Apply" button now updates the display of all instances of the door immediately. Previously, you would need to close the Door Type Manager to see the drawing update. This change also affects the Window Type Manager and Wall Type Manager.

The Measure/InclAngle and Measure/ExclAngle now support Smart walls. Previously, only 2D lines were supported.

The "Intersection" command in the "Geometry" menu now supports Smart walls. Previously, only 2D lines were supported.

Support for negative distances has been added to the Overshoot property, enabling lines to fall short of their actual endpoints.

Pressing the [Enter] key on the keyboard after making a change in the Entity Properties Editor now results in DataCAD applying the change immediately. Previously, you would need to press the [Tab] key first to change the focus to a different field, or click the [OK] button.

We have updated the sample macros in the DCAL for Delphi\Samples folder (Complete or Custom installation only) for compatibility with DataCAD 15. There is also a corresponding "Compiled Macros" folder that contains a compiled DMX file for each sample macro.

3D modeling and viewing enhancements

Inserting a symbol in a non-plan view with "Current View" toggled on now supports using the "Nearest" Object Snapping option.

The ability to access the "Primary Divisions" and "Secondary Divisions" on a 3D Mesh entity has been added to the Entity Properties Editor.

"Show Edge" and "Hide Edge" options are now available in the 3D Polygons/Edit menu, enabling you to select individual polygon edges to show or hide.

There are new fields labeled "X Rotation," "Y Rotation," and "Z Rotation" in the Entity Properties Editor for Polylines. Use these fields to check or adjust the X, Y, and Z rotation angles of the selected polyline entity.

Note: When all of these values are not zero, you must use the 'Get Construction Plane' menu before you can edit the Polyline. Otherwise, the error message "You must be in this Polyline's construction plane to perform this function" will be displayed when you try to use the Polyline editing tools.

The "Viewer" toolbar buttons have changed. Rotate +/- Y has been removed. Rotate +/- Z previously rotated relative to the screen, but now rotates using "world" Z. The default rotation angle, previously 30°, has been changed to 5°. This is now consistent with the same toolbars in the Object Viewer and the Sun Shader.

The appearance of the 3D cursor has been updated to display the X, Y, and Z axes in red, blue, and green respectively. These colors remain independent of the current color.

The "Add Vertex" and "Move Vertex" commands in the Polyline/Edit, 3D Polygon/Edit and 3D Slab/Edit menus have been enhanced. DataCAD will highlight the selected polyline, polygon or slab with a dashed gray line type. If multiple edges or nodes are found within the miss distance, you may right-click and then select again to cycle through the coincident entities.

If you convert a polygon to a polyline, edit it, and then explode it back to polygons, faces that have four or more sides will no longer be triangulated.

New configuration settings

DataCAD 16 contains new configuration settings designed to improve program speed and functionality, while simultaneously improving productivity. After closing all drawings and then exiting DataCAD, open the "dcadwin.ini" file, located in the DataCAD 16\ installation folder on your C drive, to make changes.

Note: You should make a backup copy of dcadwin.ini prior to editing, in case you need to return the program to its previous state.

Show hatch

The following key will disable the display of hatching during any dynamic drag operation:

[General]

Show Hatch During Drag=FALSE
 When FALSE (default) or absent, display of hatch is suppressed while performing a dynamic operation, such as Move/Drag, Copy/Drag or when inserting a symbol. When TRUE, all hatch is displayed during dynamic operations.

Line weight hot key

The following key disables the [w] key on the keyboard:

[General]

Disable Line Weight Hot Key=FALSE
 When TRUE, the [w] key on the keyboard is disabled. When FALSE (default), pressing the [w] key increases the value of the current line weight by 1.

Drawing timer

The following key will keep the drawing timer running even if DataCAD is not the active application.

[General]

No Timer Pause=FALSE
 When TRUE, DataCAD will continue to increment its drawing timers even if it is not the active application. When FALSE (default), the drawing timers are paused if DataCAD is not the active application.

Printing

The following key will disable the Spacebar while the Plot Preview window is displayed:

[Plot Preview]

No Spacebar=TRUE
 When FALSE or absent, pressing the Spacebar while the Plot Preview window is displayed will result in DataCAD selecting the current active button, which is the "Plot" button.

The following set of keys can be used to define whether display menu settings affect the ability to print different drawing elements:

[Printer]

Print Text=DEFAULT
Print Hatch=DEFAULT
Print Line Weight=DEFAULT
Print Line Types=DEFAULT
Print Associative Dimensions=DEFAULT
Print Fills= DEFAULT
Print Bitmaps=DEFAULT
Print KnockOuts=DEFAULT
Print Smart Wall Hatch=DEFAULT
Print Smart Wall Fill=DEFAULT
  Set any of the above to TRUE to force them to print, even if the attribute setting in the Utility/Display menu is turned off. If set to DEFAULT or missing, the drawing's display toggles T, H, L, U, D, F, B, and K in SWOTHLUDFBK will be used to determine whether or not the element is included in the printed output.

Display speed

Speed of display has been improved by up to 100%. The improvement is most noticeable when switching between GoTo Views or forcing a screen regeneration by pressing the [u] key on the keyboard. In the event that these changes cause unintended effects, they can be disabled using the following key:

[General]

New Smart Object Generation=FALSE
  When absent or TRUE (default), DataCAD uses the new faster method of screen regeneration. When FALSE, the older method is used.
We recommend using this key to disable the speed enhancement only after consulting with a DataCAD support technician.

Fence selection

Fence selection now supports the same automatic crossing option used in Area selection. Creating a Fence by clicking points in a counter-clockwise order results in DataCAD automatically enabling "Crossing." Selecting the points in a clockwise order leaves "Crossing" off. The order and position of the first three selected points determines whether it is clockwise or counter-clockwise.

This feature requires the following key be enabled in dcadwin.ini

[General]

Automatic Crossing Selection=TRUE
  When FALSE, the direction in which you choose Area or Fence points has no effect on whether Crossing is enabled; you must manually toggle Crossing on if you wish to use it.

The manner in which symbols are selected when using "Fence" with "Crossing" enabled has been adjusted. Previously, the symbol would only be selected if the insertion point was within the Fence boundary, even with "Crossing" turned on. Now, the symbol will be selected if the Fence boundary crosses any part of the symbol, similar to the way Area/Crossing selection works.

There is a dcadwin.ini key that can restore the command to its previous state:

[General]

New Crossing Fence=FALSE
When absent or TRUE (default), DataCAD uses the new Fence/Crossing selection method on symbols. When FALSE, DataCAD uses the previous Fence/Crossing selection method on symbols.

Busy cursor

Use the following key to specify DataCAD's busy animated cursor. Windows cursors, .CUR, and animated cursors, .ANI, are located in C:\Windows\Cursors\ by default.

[General]

Busy Cursor=GoldenMean
Type the name of the cursor you wish to use for DataCAD's busy cursor after the equal sign.

o2c Object Viewer

You can add the following entries to the [o2cViewer] section of DCADWIN.INI to customize the rotation of the model and/or the texture about the o2c world Z-axis.

Set Model_Z_Angle to 180 to orient the model consistent with o2c's coordinate system.

Set Texture_Z_Angle to 90 to orient bitmap textures on horizontal surfaces to match the orientation of the source image that is read from the hard drive.

Note: The texture angle should be added to the model angle so they rotate 'together'.

The default values; no rotation. Range: 0 - 360.

[o2cViewer]

Model_Z_Angle=0
Texture_Z_Angle=0

Recommended values for 'correct' orientation.

[o2cViewer]

Model_Z_Angle=180
Texture_Z_Angle=270

The ability to load the current DataCAD perspective view when launching the Object Viewer has been added.

[o2cViewer]

LoadDataCADView=True
When TRUE, the o2c Object Viewer will open using DataCAD's current perspective view. When FALSE, the o2c Object Viewer opens using its standard default view.

New extended character codes

Extended character codes are used when programming icon toolbars and keyboard macros. When using any of the following new extended character codes, you will use the syntax V= for a toolbar button which executes just the one single command, A=10XX# or A=30XX# in a toolbar button sequence that contains more than one command, or 10XX# or 30XX# in a keyboard macro.

Text underline and overline

The following extended character codes can be used to define the status of the Underline and Overline properties in the Text/Font dialog:

```
1089: Underline On
1090: Underline Off
1091: Overline On
1092: Overline Off
```

DWG Export

The following extended character codes can be used to export a DWG which contains all layers or on layers:

```
3017: DWG Export, All Layers
3018: DWG Export, On Layers
```

Polyline display

The following extended character codes can be used to set the state of the "Draw Marks" toggle which displays (or suppresses display of) polyline vertices:

```
1094: 3D Settings/DrawMarks On
1095: 3D Settings/DrawMarks Off
```

Sun Shader 2.0.4.1

Entity Filters

The "Rendering Settings" dialog for the Sun Shader contains new "Entity Type" and "Entity Size" filters, which can selectively omit information from the model to improve display speed. You can filter certain types of entities, such as Revolved Surfaces or Cones, or you can filter entities by size, whether absolute or relative to the rest of the model.
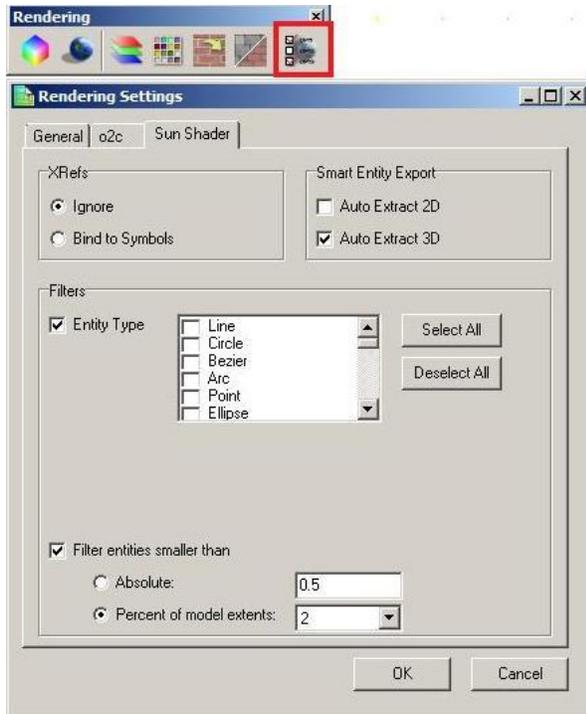
➔ To filter entities from the Sun Shader:

1. Click the "Rendering Settings" button on the "Rendering" toolbar, highlighted in the image above, to launch the Rendering Settings dialog.

2. On the "Sun Shader" tab, check "Entity Type" if you wish to omit specific types of entities from the model. Check the entity types in the list.

3. Check "Filter entities smaller than…" if you wish to omit entities that are smaller than a certain size.

   a. If you wish to filter by absolute size, click the "Absolute" radio button, and then enter a size.

   b. If you wish to filter by a size that is relative to the rest of the model, click the "Percent of model extents" radio button, and then click the drop-down menu to select a percentage.

4. Click OK when you have finished configuring the options.

5. Launch the Sun Shader. DataCAD will omit entities which meet the defined criteria.

Render selected entities

The Sun Shader has two new methods of rendering selected information, instead of your entire model: using the Clipboard, and rendering symbols.

➔ To render information from the Clipboard in the Sun Shader:

1. Press [Ctrl]+[e] on the keyboard, or choose "Clipboard Select" from the "View" pull-down menu.

2. Select the information you wish to launch into the Sun Shader, by Entity, Group, Area or Fence.

3. Click the "Display Model in Sun Shader" button on the "Rendering" toolbar to launch the Sun Shader. DataCAD displays only the selected information in the Sun Shader.

➜ To render a specific symbol in the Sun Shader:

1. Display the Symbol Browser by pressing [Ctrl]+[t] or by selecting "Symbol Browser" in the "View" pull-down menu.

2. Right-click on the symbol you wish to display in the Sun Shader, and then choose "Sun Shader" from the context menu. DataCAD opens the selected symbol in the Sun Shader.

New settings
The Sun Shader has some new settings designed to improve the shadow study results.

Custom time window
You now have the ability to define a custom time window for shadow studies. Previously, only Sunrise to Sunset was supported. This option is on the "Date and Time" tab under "Shadow Study Settings."
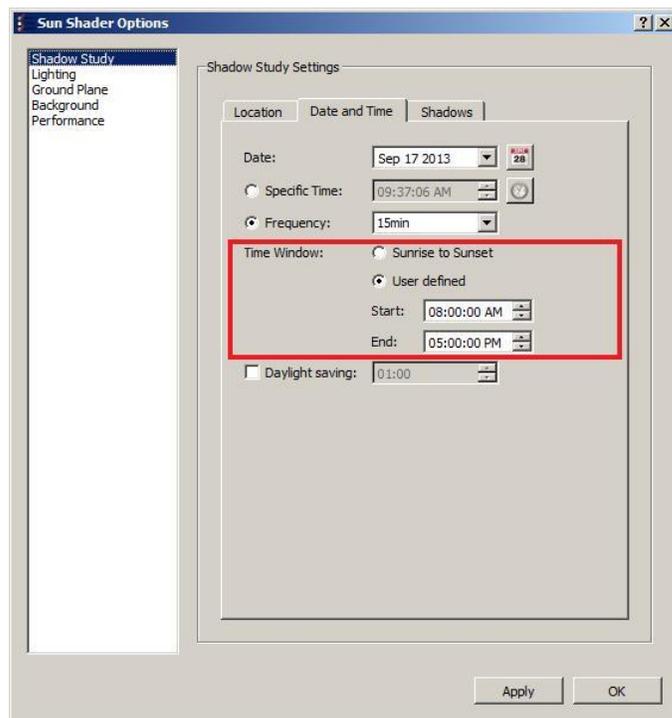
Frequency
The smallest time interval for "Frequency" on the "Date and Time" tab of Shadow Study Settings is now 5 minutes. The 6 hour interval has been removed.

Customizable font size
The size of the text which displays the Shadow Study Results can now be customized.

Location: Avon (CT), USA
Longitude: 072°49'49(W)
Latitude: 41°48'35(N)
Time Zone: UTC-5

Date: Sep 17 2013
Daylight saving: 01:00 hr(Off)

Sunrise: 05:31 AM
Sunset: 05:51 PM
Solar Noon: 11:41 AM

Instance: 10:00:00 AM
Altitude: 044°44'40"
Azimuth: 142°41'45"

Shadow Study Results

Results

☑ Display results on the screen   ⊟

Text Size

○ Small   ⦿ Normal   ○ Large   ○ Huge

Instance: 10:00:00 AM ▼
Altitude: 044° 44' 40"
Azimuth: 142° 41' 45"
(Measured eastward from North)

⦿ Apparent   ○ True
Sunrise: 05:31 AM
Sunset: 05:51 PM
Solar Noon: 11:41 AM
Daylight saving: 01:00   (Off)

Close
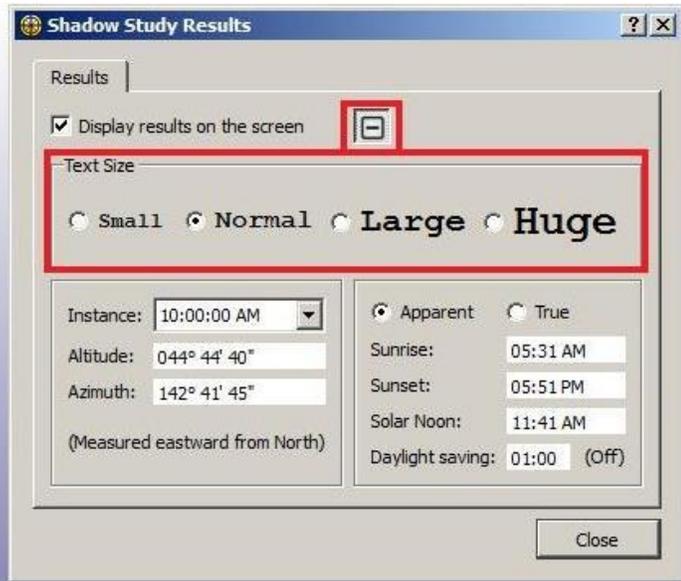
Miscellaneous

Support for alpha channel in transparent bitmaps has been restored.

Note: Transparent bitmaps cannot be supported while shadows are being cast.

Pressing [Alt]+[x] locks rotation about the X-axis. Pressing [Alt]+[z] locks rotation about the Z-axis.

New configuration settings

There are two new configuration settings related to the Sun Shader. After closing all drawings and then exiting DataCAD, open the "dcadwin.ini" file, located in the DataCAD 16\ installation folder on your C drive, to make changes.

Note: You should make a backup copy of dcadwin.ini prior to editing, in case you need to return the program to its previous state.

[Sun Shader]

Force Solid Background=TRUE
  When FALSE (or absent) the Sun Shader background uses a gradient. When TRUE, the background uses a solid color.

[Sun Shader]

Force Ground Plane display for Shadow Study=FALSE
  When TRUE (or absent) the Sun Shader includes a ground plane when Shadow Study mode is activated. When FALSE, no ground plane is used.