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## Incremental (Partial) Saving

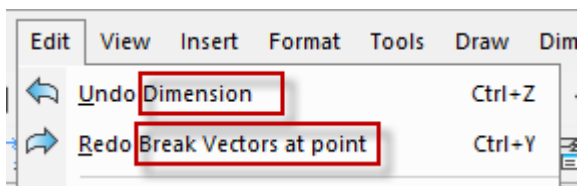
In an earlier release, we implemented incremental (partial) autosaving. In this release, we added incremental saving to significantly accelerate the saving of large documents.

You manage incremental saving mode in the Save Documents section of the Options dialog box.

## Undo-Redo

This new release improves the undo and redo functions in several areas.

### Named Steps



The name of the most recent operation (step) is displayed by the Undo and Redo commands in the Edit menu of the classic interface.

### Multiple Undo/Redo

The Quick Access toolbar adds flyout arrows to undo/redo several actions at once.

Note that you cannot access the action history list when a command is running (command mode). In command mode, the buttons perform internal undo/redo operations, if any exist.

## Performance Optimization

nanoCAD runs faster with this release.

### Selection Sets

Performance is improved over earlier releases when making selection sets. In particular, nanoCAD is now much faster at selecting objects from an existing selection set.

### Text Objects

The graphical representation of text objects is optimized. As a result, the image regeneration speed is increased, while the amounts of memory used is reduced.

## Blocks

Loading and regenerating files with large numbers of blocks is significantly faster.

## Inserting Complex Objects

Inserting complex objects into model space is optimized, and cursor freezing is fixed.

## Optimizing Frozen Layers

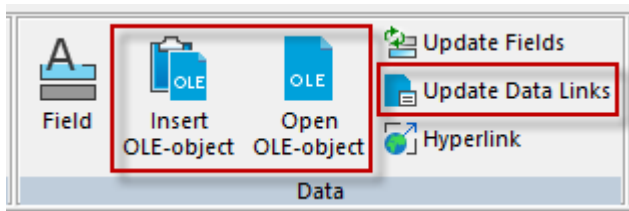
Documents load faster and react more quickly when they hold frozen layers.

## Extremely Remote Objects Optimized

The problem of displaying distorted drawing elements at extremely large distances is gone. You no longer need to regenerate the drawing when zooming or panning to objects located far from the current location.

## New OLE Object Commands

We implemented new commands for working with OLE objects.



- Then new **INSERTOBJ** (insert OLE object) command inserts linked or embedded OLE objects from other documents
- Then new **OLEOPEN** (open OLE object) command opens the specified OLE object for editing with its source application. As a shortcut, you can double-click the OLE object in a drawing.
- Then new **OLELINKS** (update OLE Links) command opens the Links dialog box for updating and modifying links of OLE objects.
- Then new **OLEUPDATEALLLINKS** (update all OLE links) command updates all links for OLE objects in the document at the same time.

## Scripts (.scr)

We added a new programming system called scripts. A script is a text file with the .scr extension containing a set of instructions that run in the nanoCAD command line. Each line of the file contains a nanoCAD command with optional parameters, or a link to another script file.

The following script processing commands are added to nanoCAD:

- **SCRIPT** command loads the script file and then immediately executes the instructions described in the file sequentially.
- **SCRIPTCALL** command runs a nested script.
- **RESUME** command resumes the script, should it be paused.
- **RSCRIPT** command repeats the last script.

## Digital Signatures

Files used by nanoCAD, such as .dwg, .pdf, and .zip, can now be signed with a digital signature. We implemented two ways of signing:

- An internal signature that is created when saving files
- An external signature that can be assigned to any file

These are the commands for creating internal signatures:

- The new **DIGITALSIGN** command chooses a certificate for digitally signing a file and then sets up signing while saving the file.
- The **SAVE** command now creates an internal signature during file saving.
- The new **SIGVALIDATE** command validates digital signatures of files.

Commands for creating external signatures:

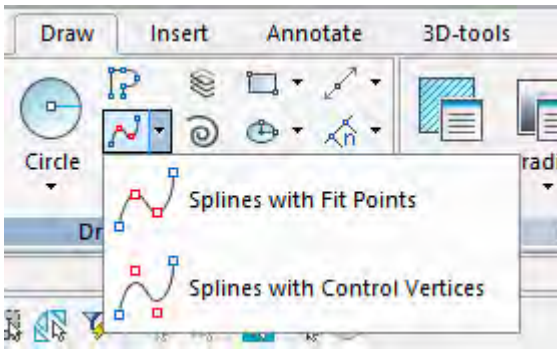
- The new **SIGNCERTIFICATESCONTROL** command chooses a digital certificate for digitally signing a file.
- The new **SIGNFILE** command creates a file with external signature ("FileName.FileExtension.sig") for any file.
- The new **VALIDATESIGN** command validates the external signature of the specified file.

## Splines

Splines have been enhanced in this release of nanoCAD.

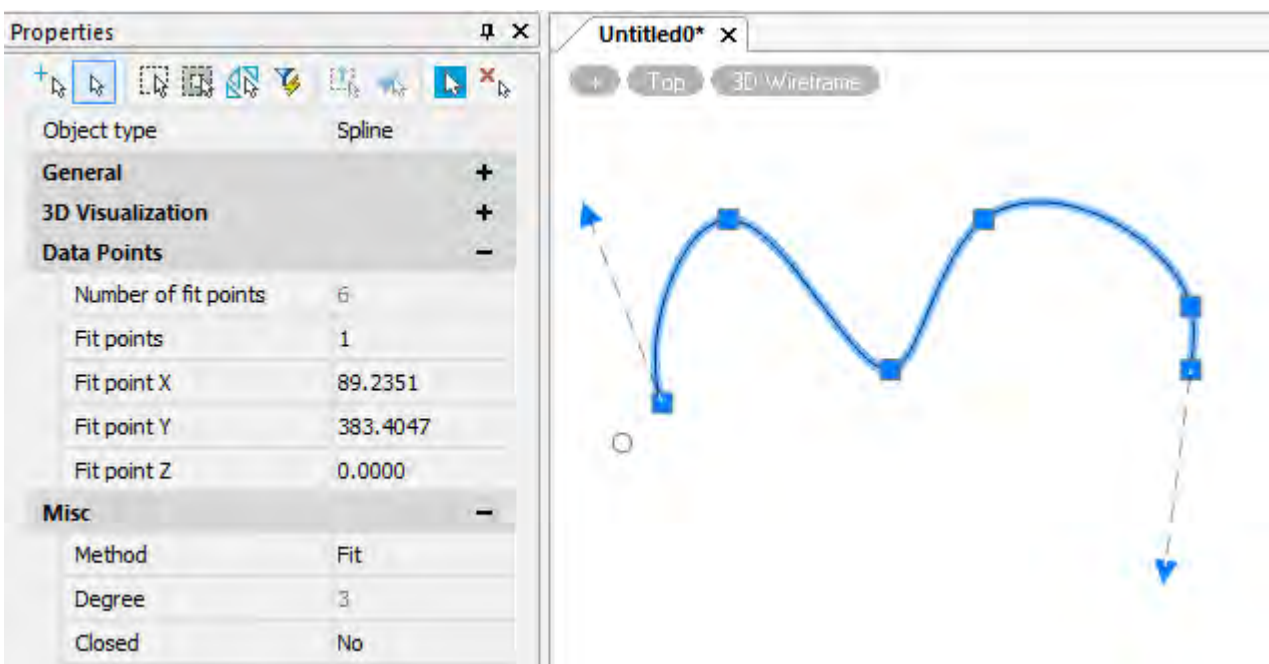
### [New Spline Creation Method](#)

The new release implements a second way of creating splines: by specifying control points.



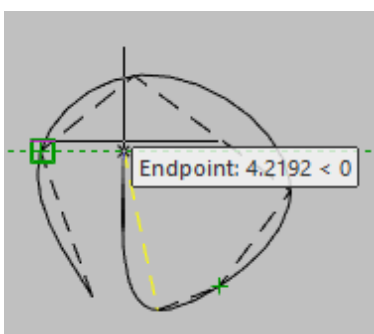
## New Grips

To edit splines made with fit-point mode, a new type of grip (arrow-shaped) is implemented that changes the direction of tangent vectors.



## Rubberband Line

During spline creation, a temporary rubberband line is displayed on the screen from one fit point (or control point) to another. You can snap to this temporary dotted line.



## [Snap to First Point of a Spline](#)

You can now snap to the spline's start point.

## [Simplifying Splines](#)

The new **SIMPLIFYSPLINE** command optimizes splines by changing their accuracy and the maximum number of control points.

## [Exporting Layouts](#)

The new **EXPORTLAYOUT** command exports all visible objects from the current layout to the model space of the new drawing.

## [Changing Spaces](#)

The new **CHSPACE** command moves selected objects from model space in a layout viewport to paper space, as well as from paper space to a layout viewport.

## [Dimensioning](#)

### [Obliquing Dimensions](#)

The new **DIMOBLIQUE** (oblique dimension) command changes the obliquing angle of one or more dimensions.

### [Angular Ordinate Dimensions](#)

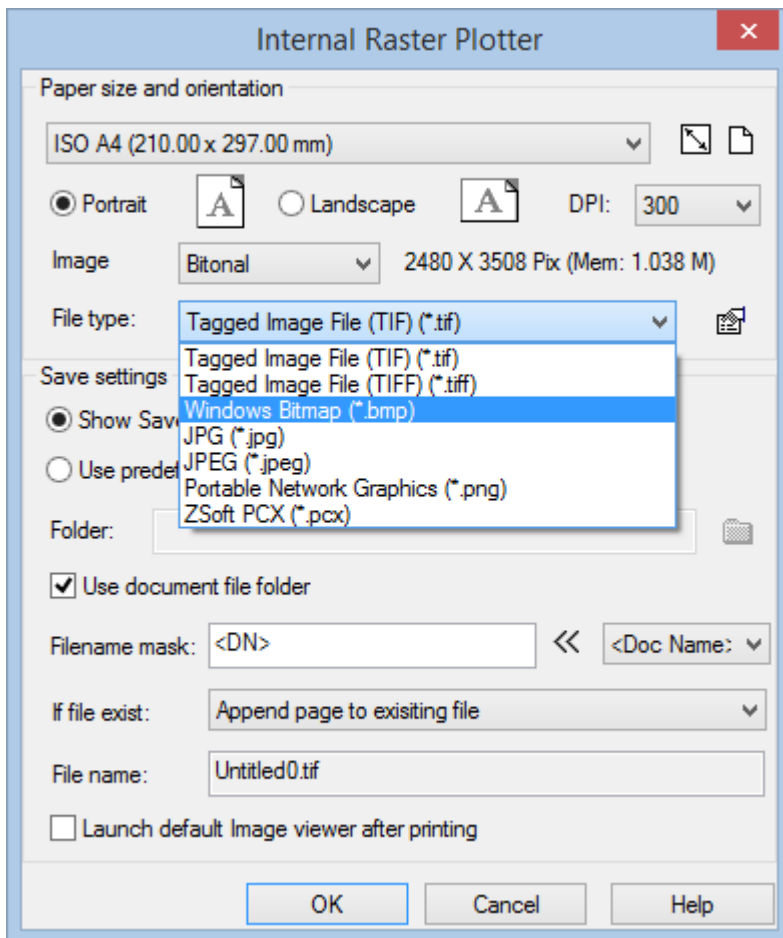
The new **DIMAORD** (angle ordinate dimension) command creates angular ordinate dimensions.

## [Printing](#)

nanoCAD now offers additional ways of producing output from drawings.

### [Internal Raster Plotter](#)

We implemented a built-in raster plotter to export drawings in the following raster formats:



## Internal DWF and DWFx Plotters

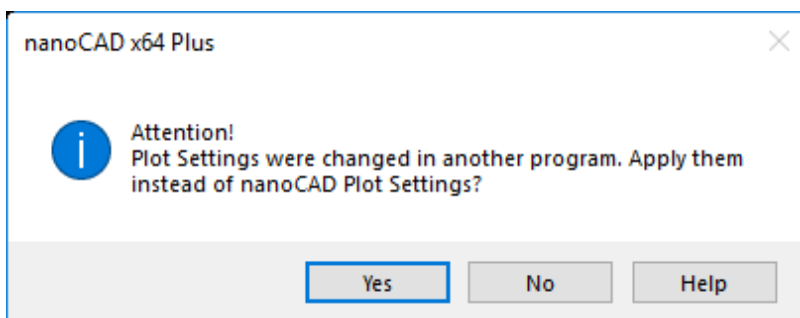
Built-in DWF (design Web format) and DWFx (compressed) plotters are now available.

## Isometric View Printing

We improved the printing of isometric views when you specifying a plot area with a rectangular frame.

## Verification of third-party print settings

nanoCAD now verifies print settings made by third-party programs. When such settings are detected, the **Print** command displays a message:





## Improved Print Preview

You can now specify the number of copies to print in the Print Preview dialog box. (The option is not available when printing drawings to files.)

In addition, we made the following improvements to the print preview window:

- Increased the display speed
- Improved the image quality
- Eliminated artifacts created when zooming, panning, and resizing the preview window and the Print dialog box.

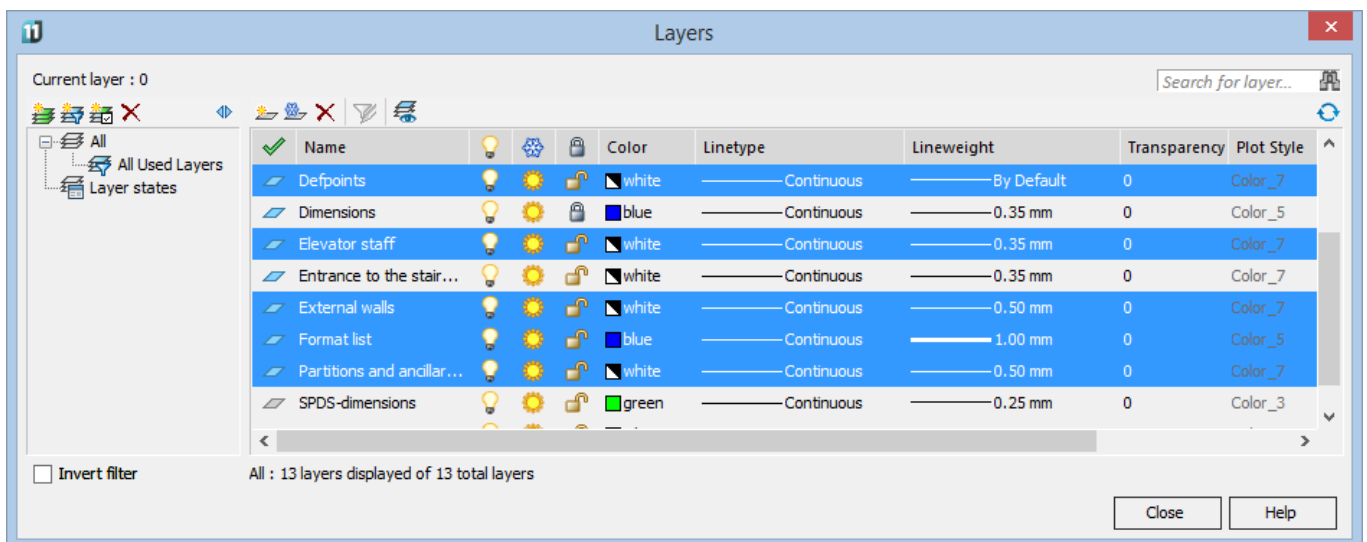
## Layers

The new **LayerP** (previous state of layers) command return the drawing to the previous state of layer settings.

## SHIFT and CTRL Selection

The logic of selecting a group of layers with the SHIFT and CTRL keys in the Layers dialog box is changed to match the method implemented by Windows:

- CTRL+click adds individual layers to the selection set.
- SHIFT+click adds contiguous layers to the selection set.



## Layer Display Speed

The display speed of long lists of layers in the Layers dialog box is significantly increased, especially when the drawing holds hundreds of layers.


## Check Standards

A new feature in nanoCAD is the ability to check that drawings match preset standards.

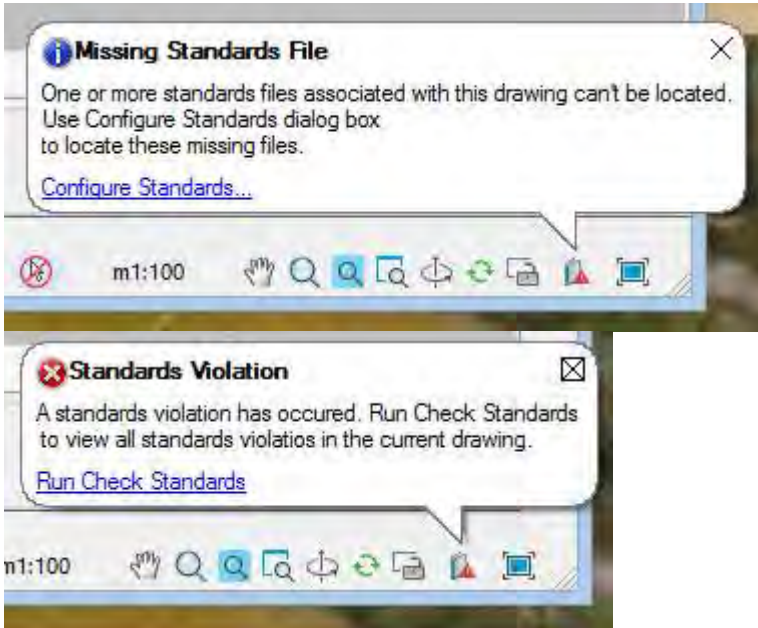
## Setting Standards

The new **STANDARDSSETTINGS** command opens the Standards Settings dialog box.

## Status Bar

A new button for checking CAD standards  is displayed in the status bar when a standards file is connected to the document.

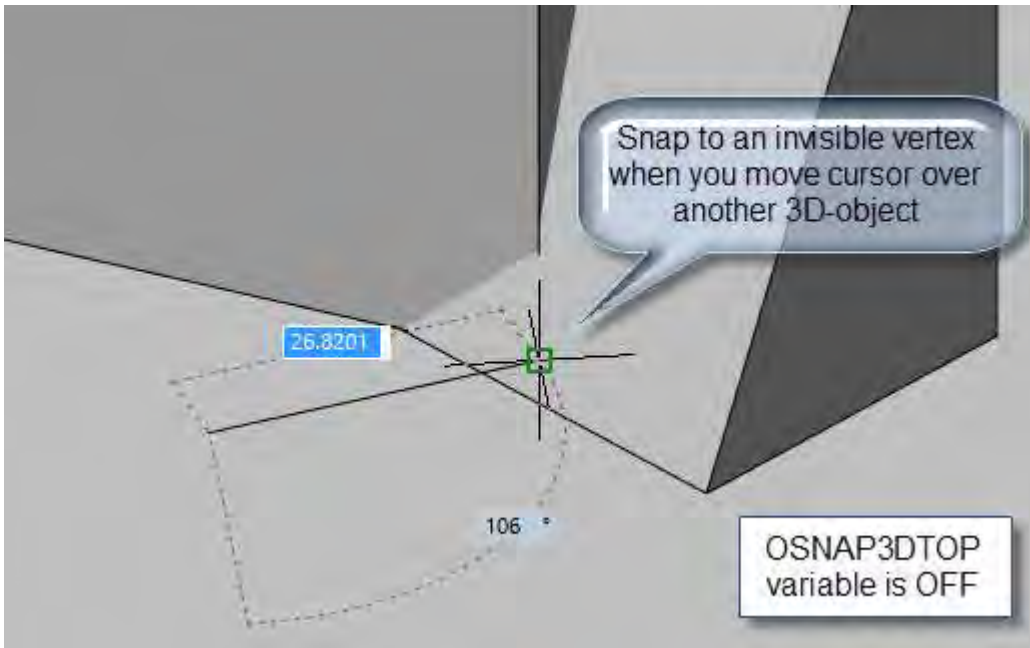
A hyperlink in the standards balloons opens the appropriate dialog box.



## Improved Snaps in 3D Space

The snap behavior in the three-dimensional space is improved for the following cases:

- When the visual style is set to shaded faces and the new **OSNAP3DTOP** system variable is turned on, then nanoCAD is limited to snapping only to the vertices of 3D objects under the cursor.
- When the visual style is set to wireframe or the OSNAP3DTOP variable is disabled (turned off), then you can snap to the vertices of all objects in the drawing.



### Adding to Selections Improved

The new **ADDSELECTED** command now adds multileaders and dwg-style tables to selection sets.

### Ellipse Object Creation

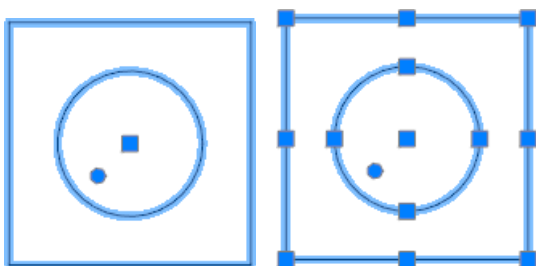
The new **PELLIPSE** variable determines the entity from which ellipses are created:

- When the value is 0, an ellipse object is created.
- When the value is 1, the ellipse is made of a 2D polyline.

### Editing Regions with Grips

You can now edit regions with grips. Click the round grip to switch grip-editing modes:

- Center grip moves the region
- Grips edit the contour of the region



## Clearing Invisible Proxies

The new **RMPROXY** (remove proxy) command deletes proxy objects that do not have a graphical representation in the current drawing.

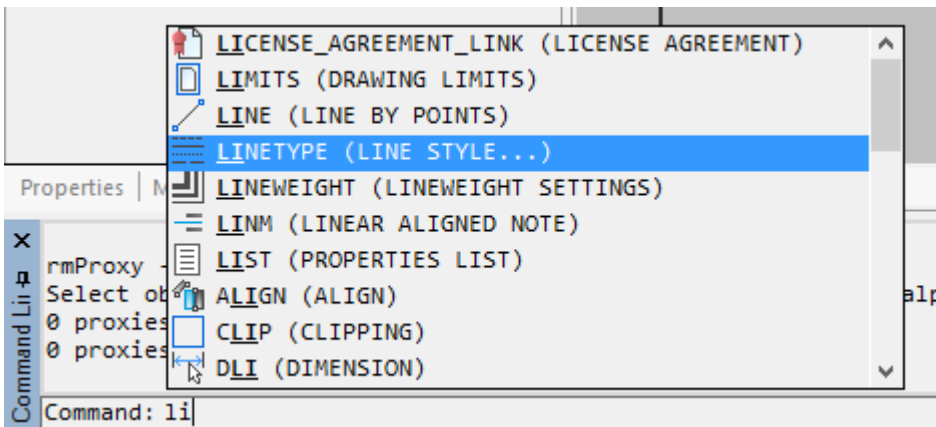
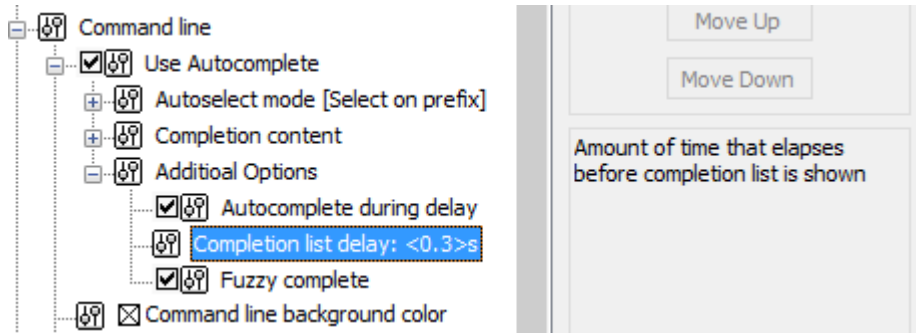
```
Command: RMPROXY
rmProxy - rmProxy
Select objects or [?/Drawing/Nongraphicalproxies]:
```

## Options

nanoCAD adds several options to the Options dialog box.

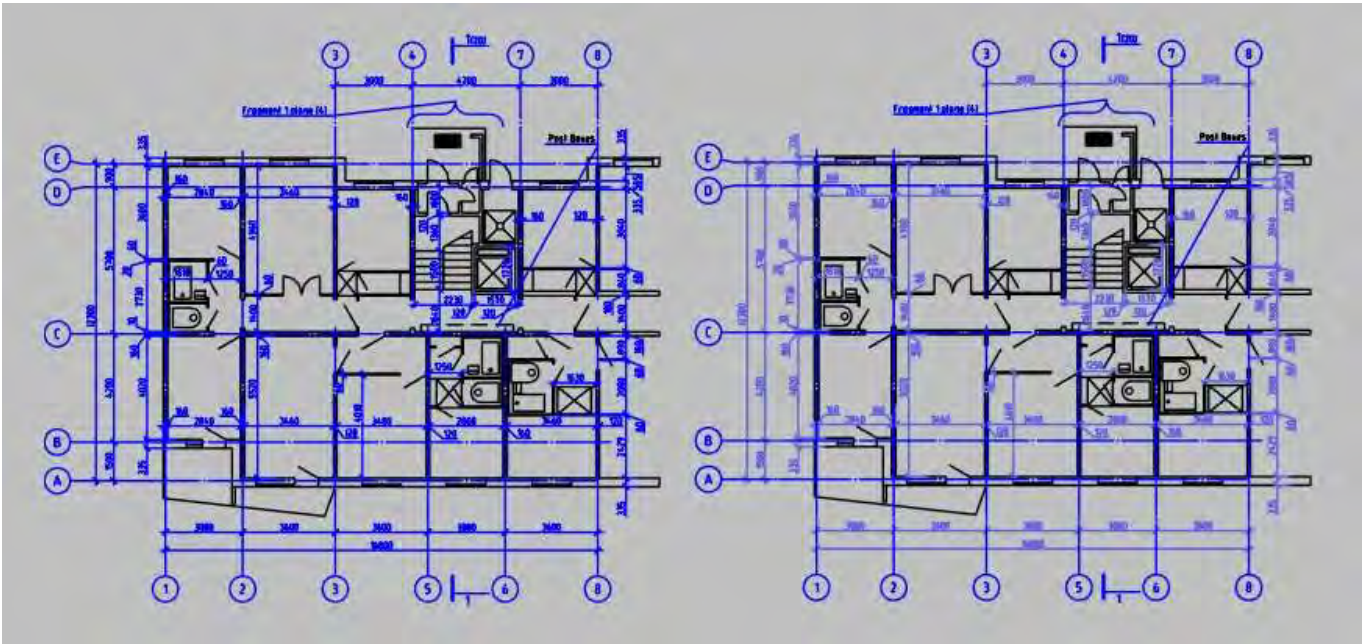
### Command List Display Delay

The amount of time that elapses before the command completion list is shown can now be specified through the Options dialog: **Command line > Use Autocomplete Additional Options > Completion list delay**.

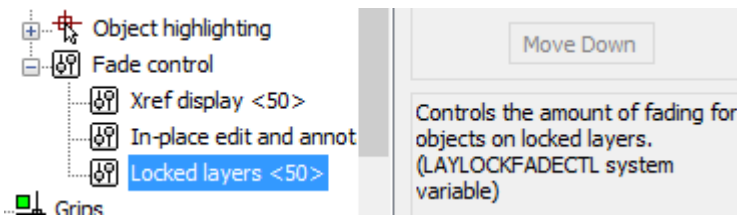


### Object Fading on Locked Layers

To fade objects on locked layers, specify a fade value with the new **LAYLOCKFADECTL** system variable.

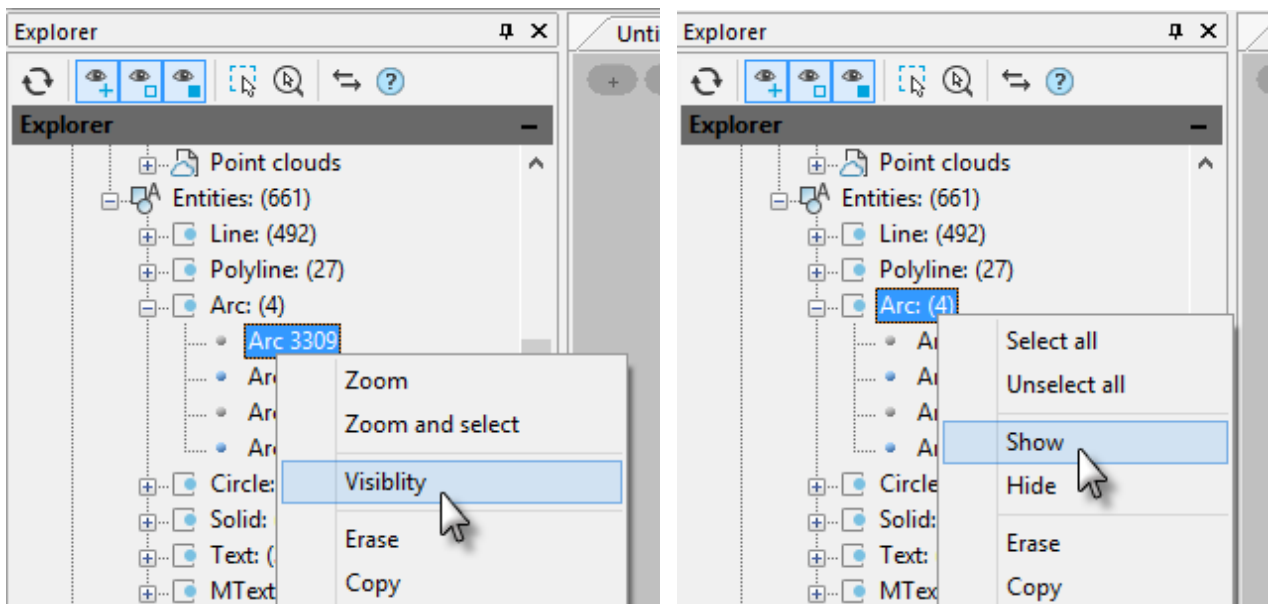


This value can also be changed through the Options dialog box by choosing **Select > Shading objects > Locked layers**.



## Display Invisible Objects

The new version of nanoCAD makes invisible objects (objects with the invisible property) visible. By selecting the new **Visibility** option in the context menu of the Drawing Manager, you can make visible a single invisible object or a group of them.




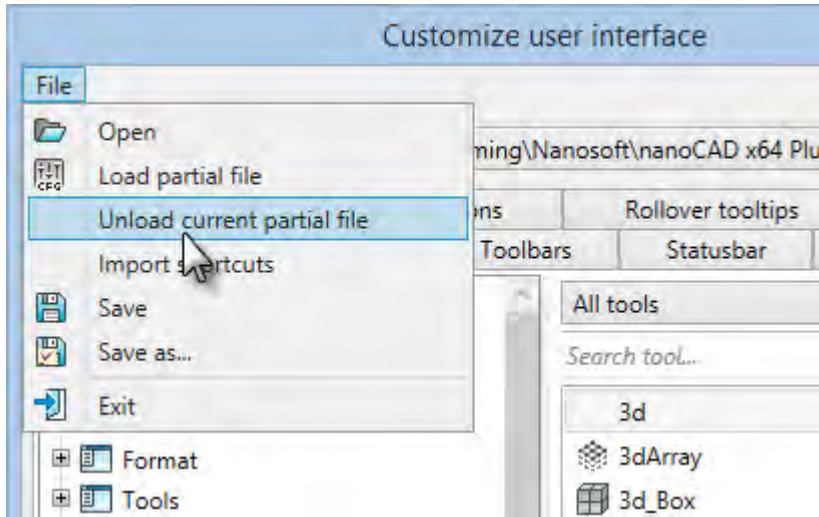
## User Interface Customization

Customization of the user interface receives improvements in a number of areas.

### Partial CFG File Unloading

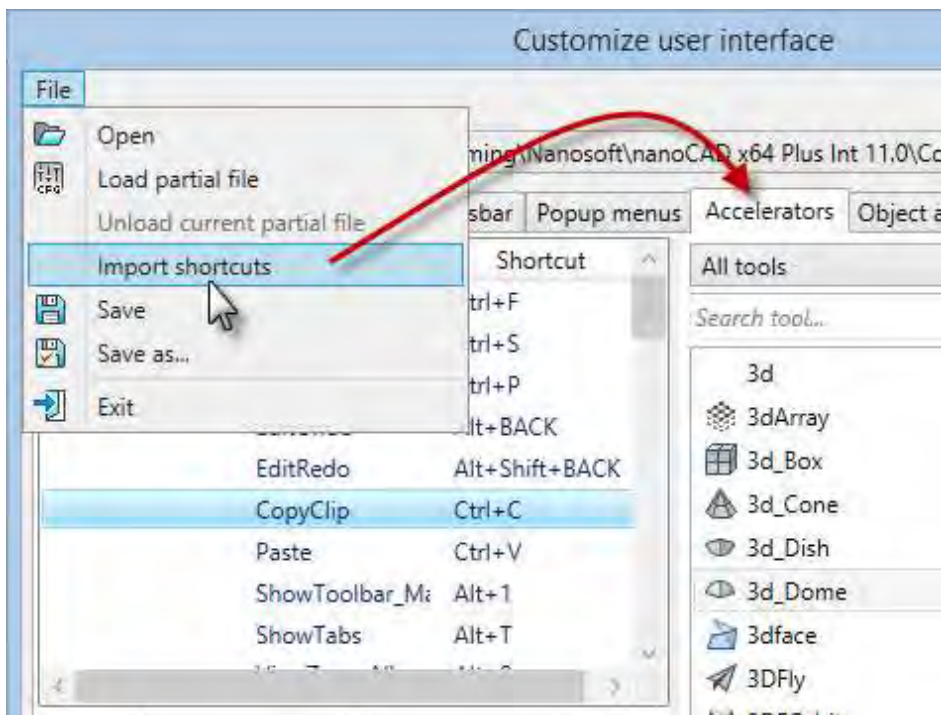


In the  Customize User Interface dialog box, you can now unload the current partial configuration file.



### Import Shortcuts

In the Customize User Interface dialog box, you can now import just the keyboard shortcuts from .cuix and .cfg files.



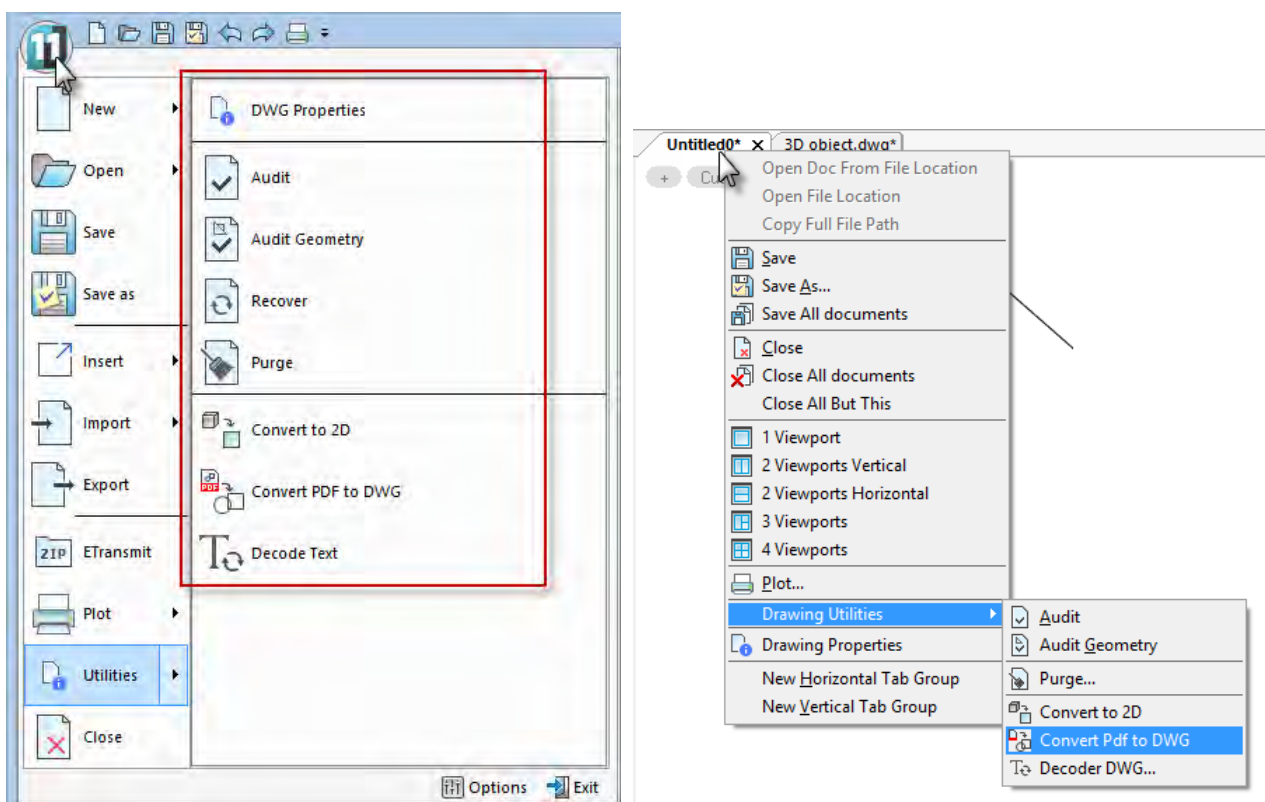
## User Interface Changes

The new release of nanoCAD makes some changes to the user interface. In particular, in the continuing overhaul of the UI, we reworked another package of icons. As well, a number of improvements were made to nanoCAD's Graphite and Light visual themes.

### Utilities in nanoCAD Menu

The application menu has a new command for displaying the properties of the current drawing, as well as gets several utilities for auditing, checking, and working with documents.

These new commands are also added to the context menu of all document tabs:



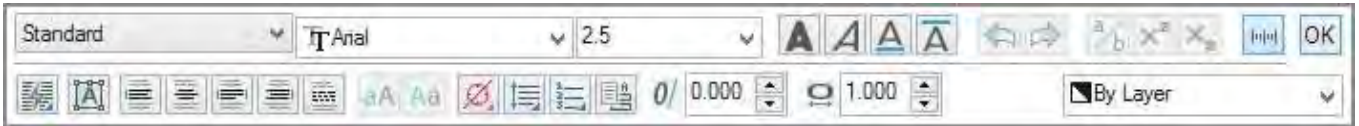
### Multiline Attribute Editing Panel

The new **ATTIPE** (in-place attribute editor) system variable changes the style of the Text Format panel that creates and edits multiline attributes.

When **ATTIPE = 0**, the short version of the formatting panel is displayed:



When **ATTIPE = 1**, the complete panel is shown:



### Other UI Changes

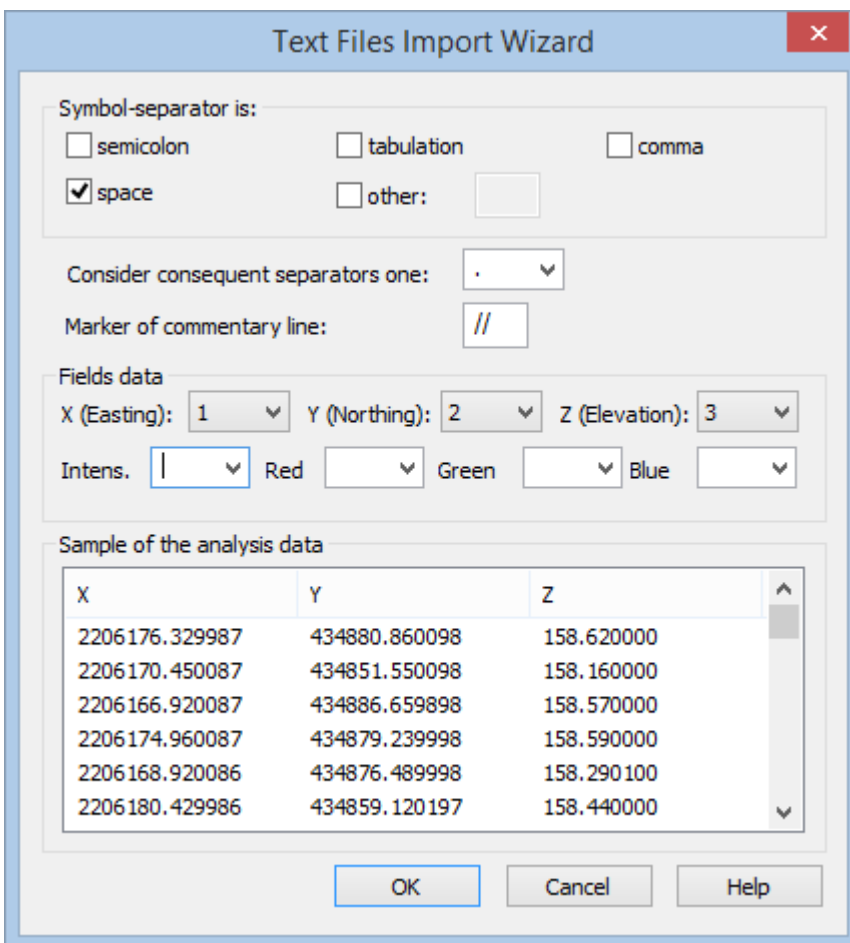
- The new CTRL+W key combination displays and hides the Select Objects dialog.
- Dynamic input is now available when creating rectangles with 2 points.
- A new Tools toolbar is added:



- Point Cloud

### Import Wizard for Text Files


We wrote a new import wizard dialog box for importing point clouds from text files. It allows you to correctly interpret the point clouds data.





## Export Formats

nanoCAD now exports drawings to DWF, DWFx, STL and 3D PDF file formats.

The new  NPC\_EXPORT (export point cloud) command exports point clouds in the PLY (Polygon File Format) format. This format stores 3D scanner data with many properties, such as color, transparency, normals, and texture coordinates.

## Material Editor

You now have greater possibilities for editing materials used by renderings:

- The functions are separated into three panels: Material Browser, Material Editor, and Texture Editor.
- You can now edit the texture parameters of materials.

