3D Modeling Module

nanoCAD's 3D Solid Modeling module extends the nanoCAD platform with direct and parametric modeling. It is designed to construct 3D assemblies with 3D constraints and xrefs, and to handle sheet metal modeling.

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nanoCAD
ENGINEERING ECOSYSTEM

New in 3D Modeling Module

- ✓ New Standards of 3D Tread
- ✓ Assembly 3D constraints for torus-torus and torus-sphere contact

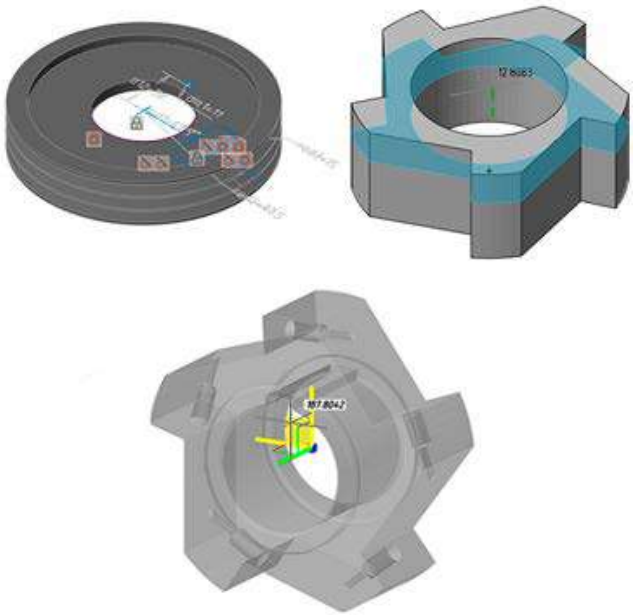
Features

3D Constraints

nanoCAD's 3D constraints impose dependencies on geometry, mostly commonly to assemble parts into a single model. Using these tools, engineers create complex 3D assemblies by linking 3D objects. There are five 3D constraints available: Mate, Insert, Angle, Tangent, and Symmetry. Constraints for every part are displayed by the 3D History Tree.

Parametric 3D Solid Modeling

nanoCAD's operating principles are designed to look and feel just like other well-known CAD systems. This means that any experienced designer can master nanoCAD instantly. Drawing spaces, command lines, positions of menu items, and icons are recognizable, so there is nearly no need for retraining. You can switch back and forth between the modern ribbon and classic CAD user interfaces instantly. nanoCAD's visual interface editor customizes almost every aspect of nanoCAD.

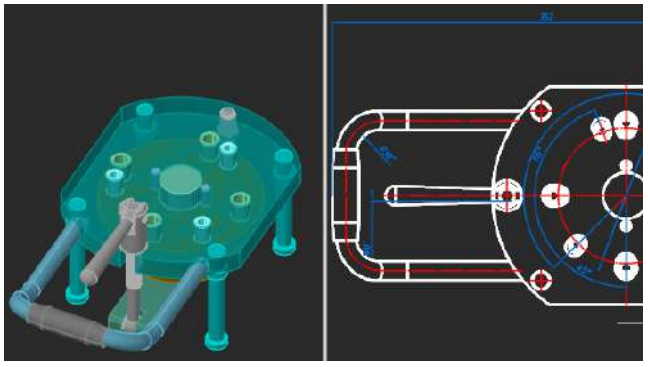


Direct 3D Modeling

nanoCAD's direct modeling offers a what-you-see-is-what-you-get approach, in which designers edit 3D models by pushing and pulling faces and edges. The primary benefit to direct modeling is the ease with which designs are altered, allowing rapid iteration and prototyping.

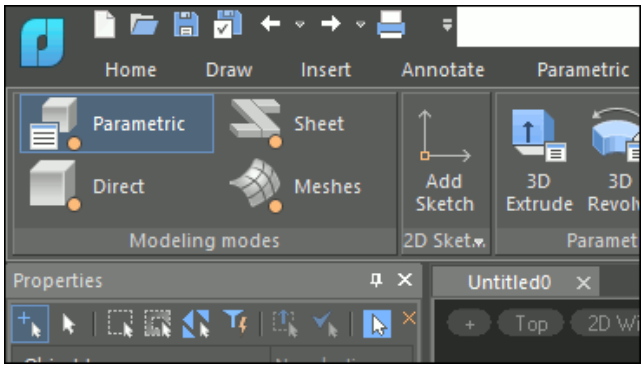
Associativity of 3D Models and Drawings

The associative relationship of models and their projections allows users to concentrate on designing in a 3D environment, paying attention to 2D graphics mainly for drawing design. All changes to the 3D model at any time will be displayed in the drawings, and the design elements made in 2D graphics will also correspond to these changes.



Natural 3D modeling UI

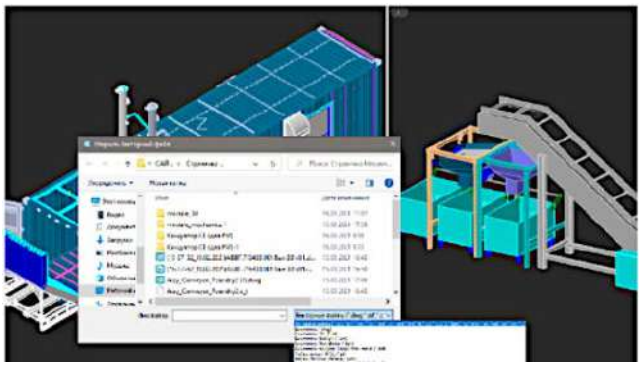
nanoCAD displays commands in groups for each type of modeling it offers: parametric, direct, sheet metal, and meshing. For example, while in parametric modeling mode, commands for creating 3D geometry based on parametric sketches are displayed; upon switching to mesh modeling, commands for creating 3D surfaces become available. Commands that apply to all forms of modeling are always displayed on the ribbon, such as chamfers and rounds, Boolean operations, and construction geometry.



Model Exchange Via Import/Export

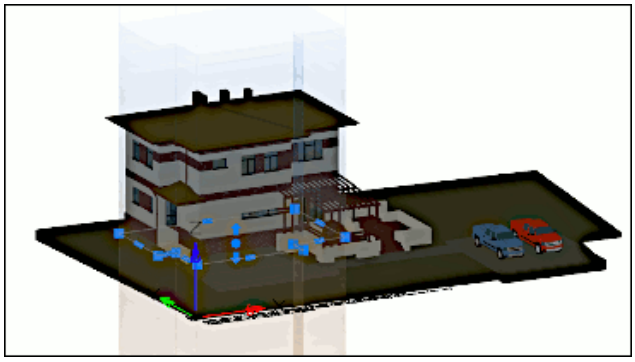
Models created using 3D Module can be exchanged with most CAD systems, exported to 3D printers, CNC machines and web-based viewers. Supported formats are:

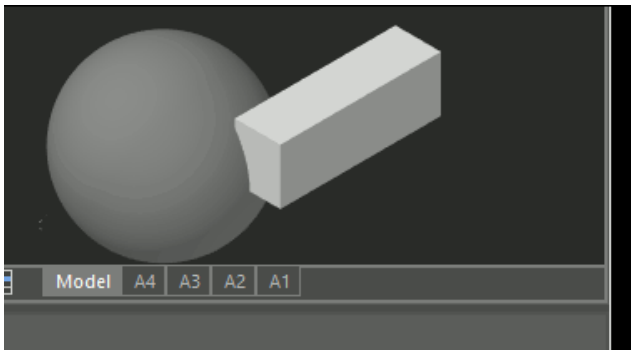
- ✓ STL for stereo lithography;
- ✓ Para solid X_T, X_B for NX, Solid Edge, SolidWorks;
- ✓ JT, IGES, STEP - standard engineering data exchange formats;
- ✓ SAT, C3D - ACIS and C3D modellers' formats;
- ✓ VRML for 3D graphics on the web;
- ✓ COLLADA for interactive 3D applications.



Bounding Prisms

nanoCAD uses 3D clipping to show the insides of models and to isolate parts. Each model space viewport can hold a bounding prism, a volume in 3D space outside of which drawing elements are not displayed. Prisms can be edited, deleted, and disabled. When disabled, elements outside the prism again become visible; disabled prisms are stored in the drawing so that they can be switched on again later.



External References

nanoCAD links external references inside assembly drawings to parts stored in external drawing files. Changes made by other design programs to external references are tracked and reported by bubble notifications.