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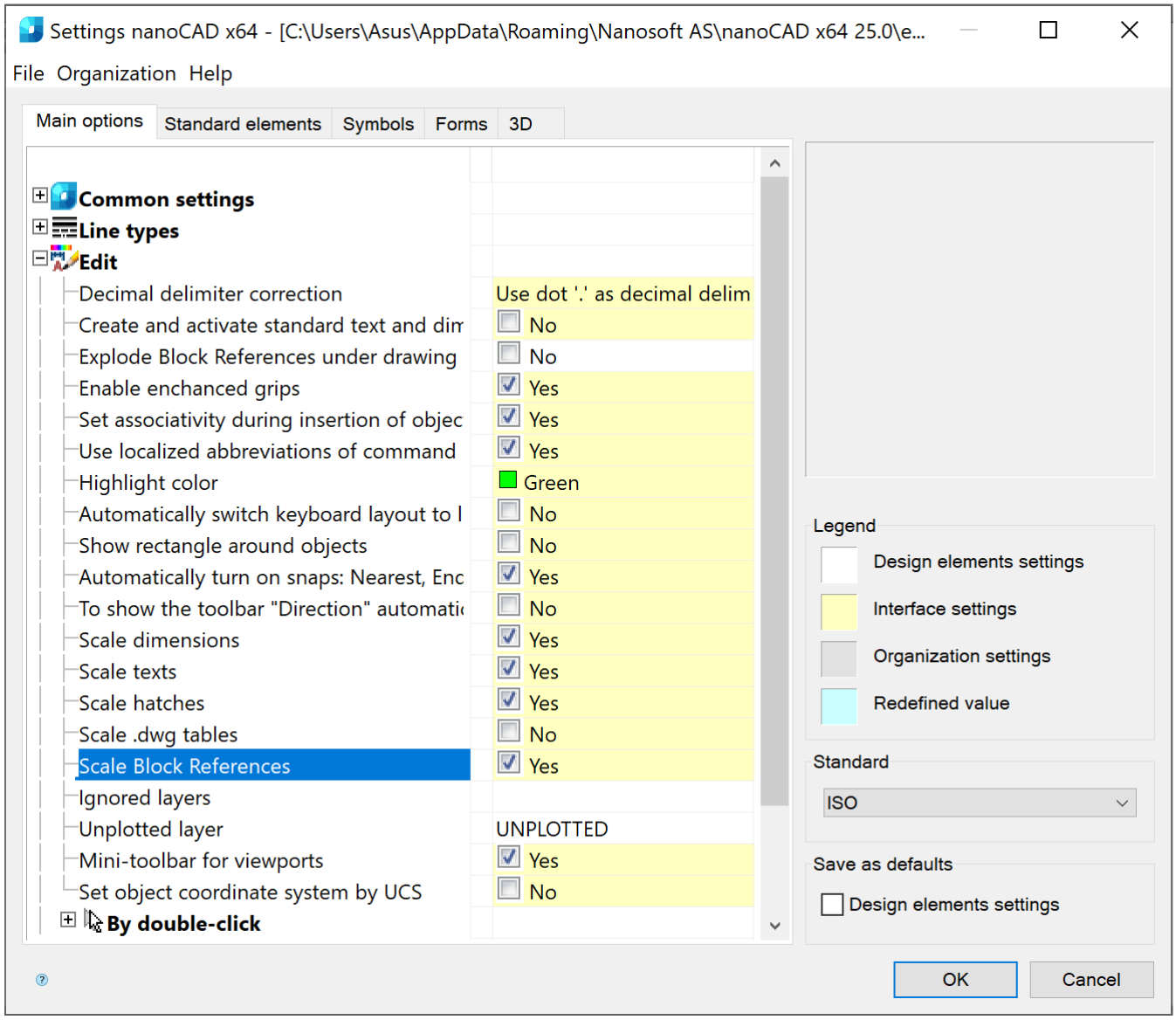
New Features of nanoCAD 25

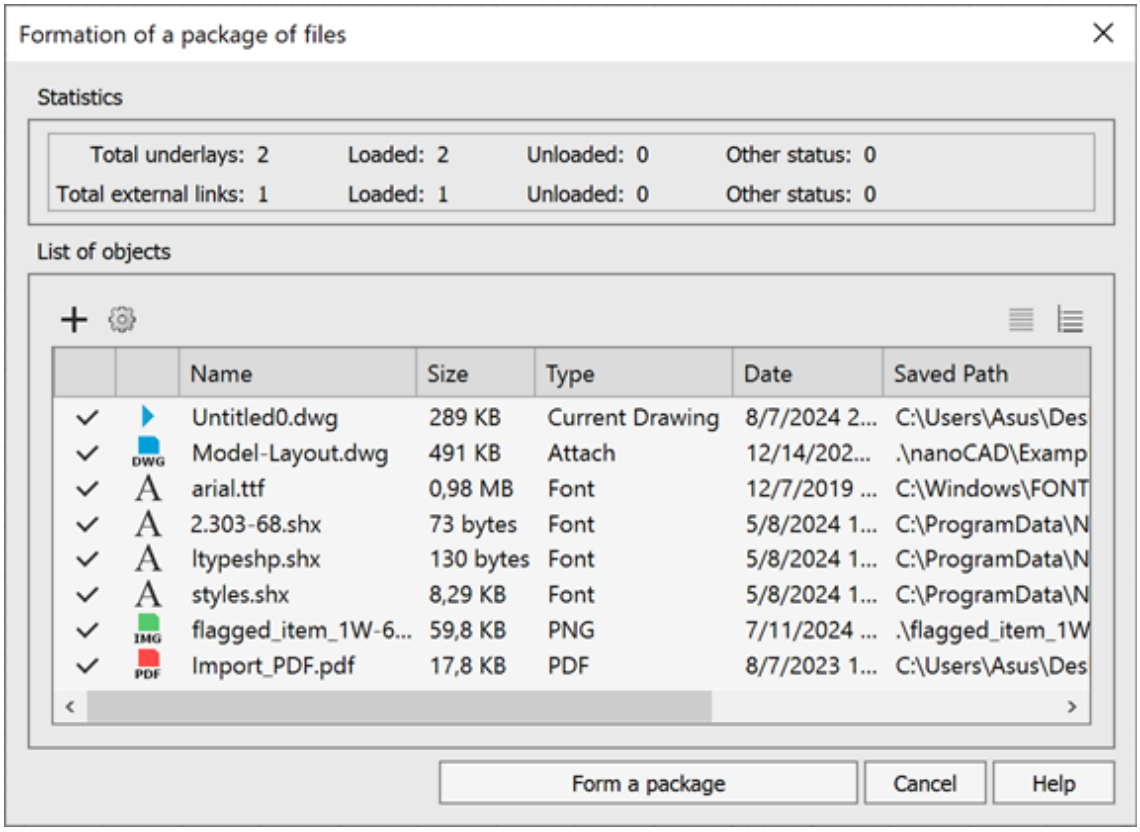
* The most up-to-date and complete description of the new features of **nanoCAD 25** is available online.

New Functionality of nanoCAD

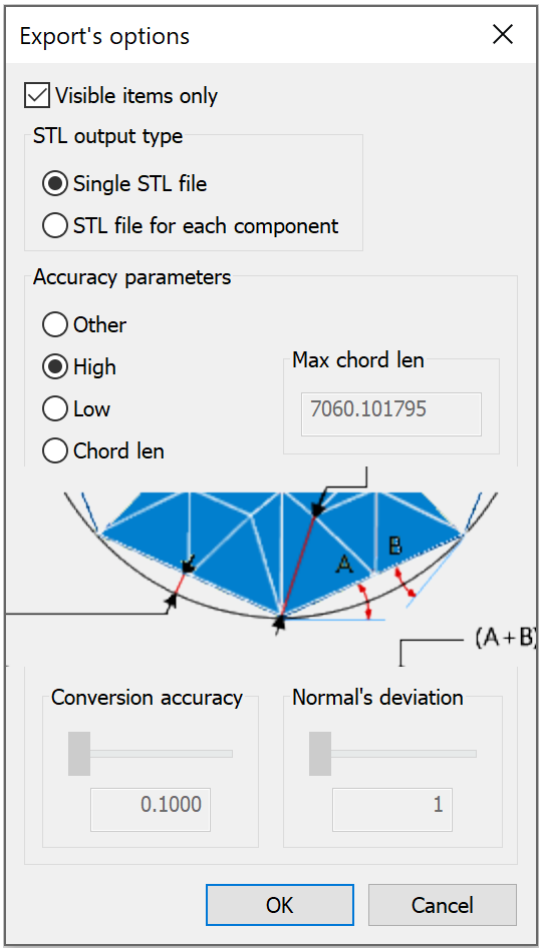
A new setting **Scale Block Reference** (**PARAMS** – **Main options** tab – **Edit** section), which allows you to enable and disable block scaling. By default, the option is enabled, the block is scaled when the symbol scale changes.



The design has been updated for the **Formation of a package of files** (**ETRANSMIT**) dialog and its work has been optimized. The file type icons have been changed, and the ability to select multiple files using the **SHIFT** and **CTRL** keys has been added.



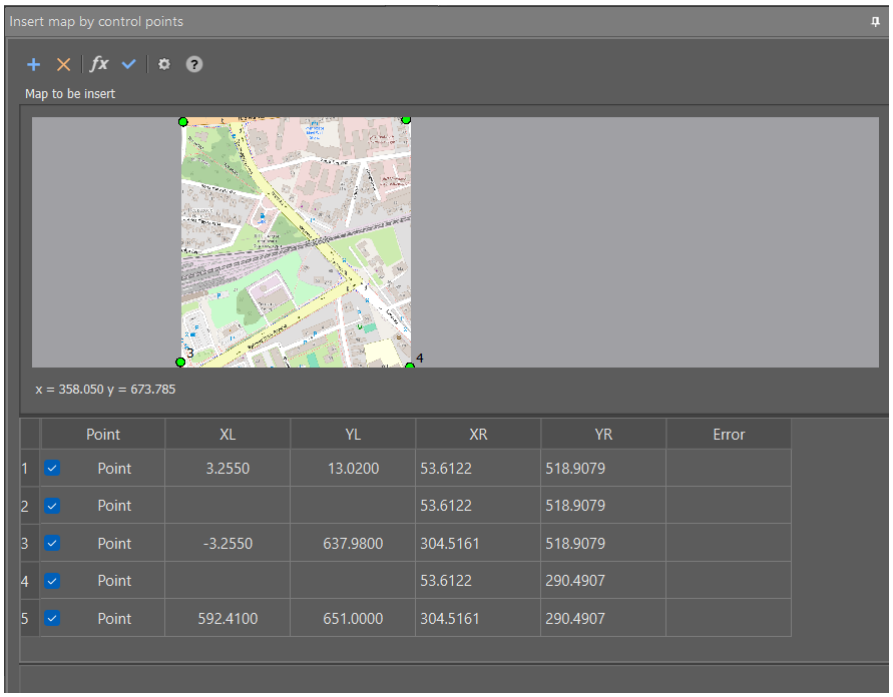
The possibility has been added to set the accuracy of export (**EXPORT**) to STL (*.stl) format by specifying the maximum allowable distance between neighboring points (**Max chord length**).



For more convenient interaction with the interface, the icons of unused files in the **External References** (**EXTERNALREFERENCES**) functional toolbar have been changed

A new **Constrained dimension** (**DCAUTO**) command has been added to insert **Parametric dimensions** by one command (similar to **MDIM**). This command can only work in the sketch edit mode.

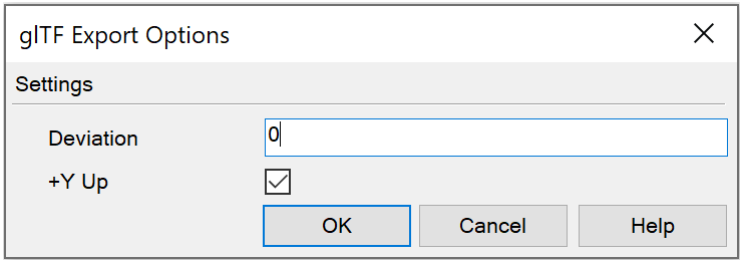
The **Insert map by control points** toolbar has been implemented for inserting a raster map underlay by control points. You can open the toolbar by opening the **Map Underlay** (**MAPVIEW**) dialog: on the **Raster maps** tab, select the required parameters, check the **By control points** box at the bottom of the dialog, and click the **OK** button.



Export

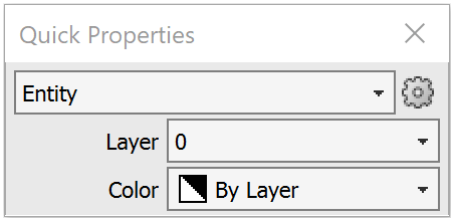
The **GLB** and **GLTF** formats have been added to the export command (**EXPORT**). These formats for 3D scenes and models have the following main advantages: small file sizes, fast loading and processing, full representation of the three-dimensional scene.

The possibility to specify Y axis (up) rotation settings has been added for exporting **GLB** and **GLTF** files:

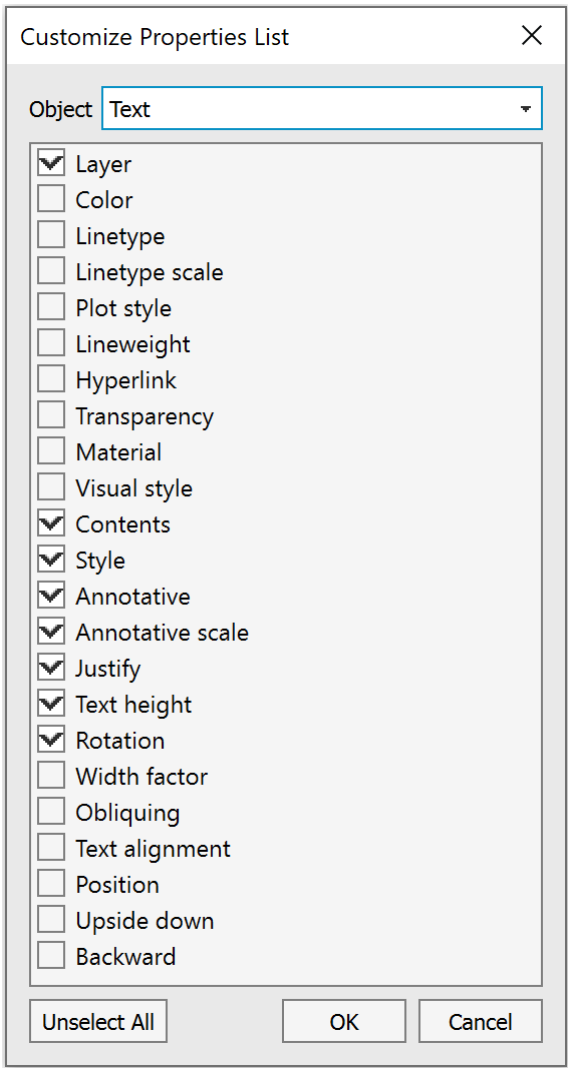


Quick Properties Mini-Bar

A floating **Quick Properties** (**QUICKPROPERTIES**) mini-bar has been implemented for more convenient interaction with the interface.



When you click the **Settings** button, the **Customize Properties List** dialog box appears, where you can specify properties for each object type to display in the floating bar.



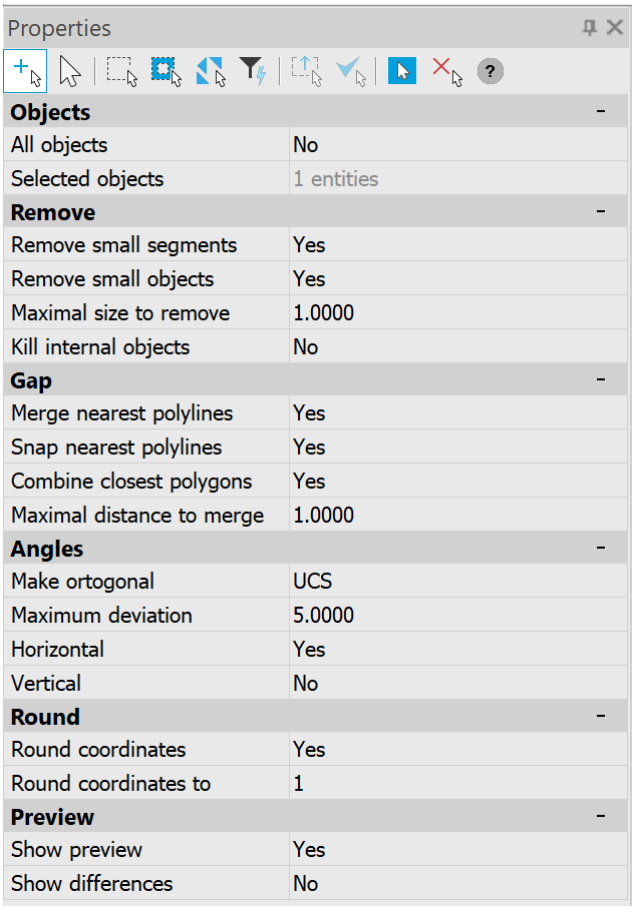
Automatic Vector Correction

A new **Vector Correction** (**AUTOVC**) command has been implemented. The command allows you to correct geometric deviations made during construction or as a result of automatic and semi-automatic vectorization (tracing) for the following objects:

- line;
- polyline;
- arc;
- circle.

Automatic correction allows you to:

- delete objects smaller than the specified size;
- restore contacts between objects;
- “paste” fragments into a single object;
- align lines along standard directions (UCS, Ortho-grid), if their deviations do not exceed the value specified by the user;
- change the order of rounding the coordinates of drawing objects.

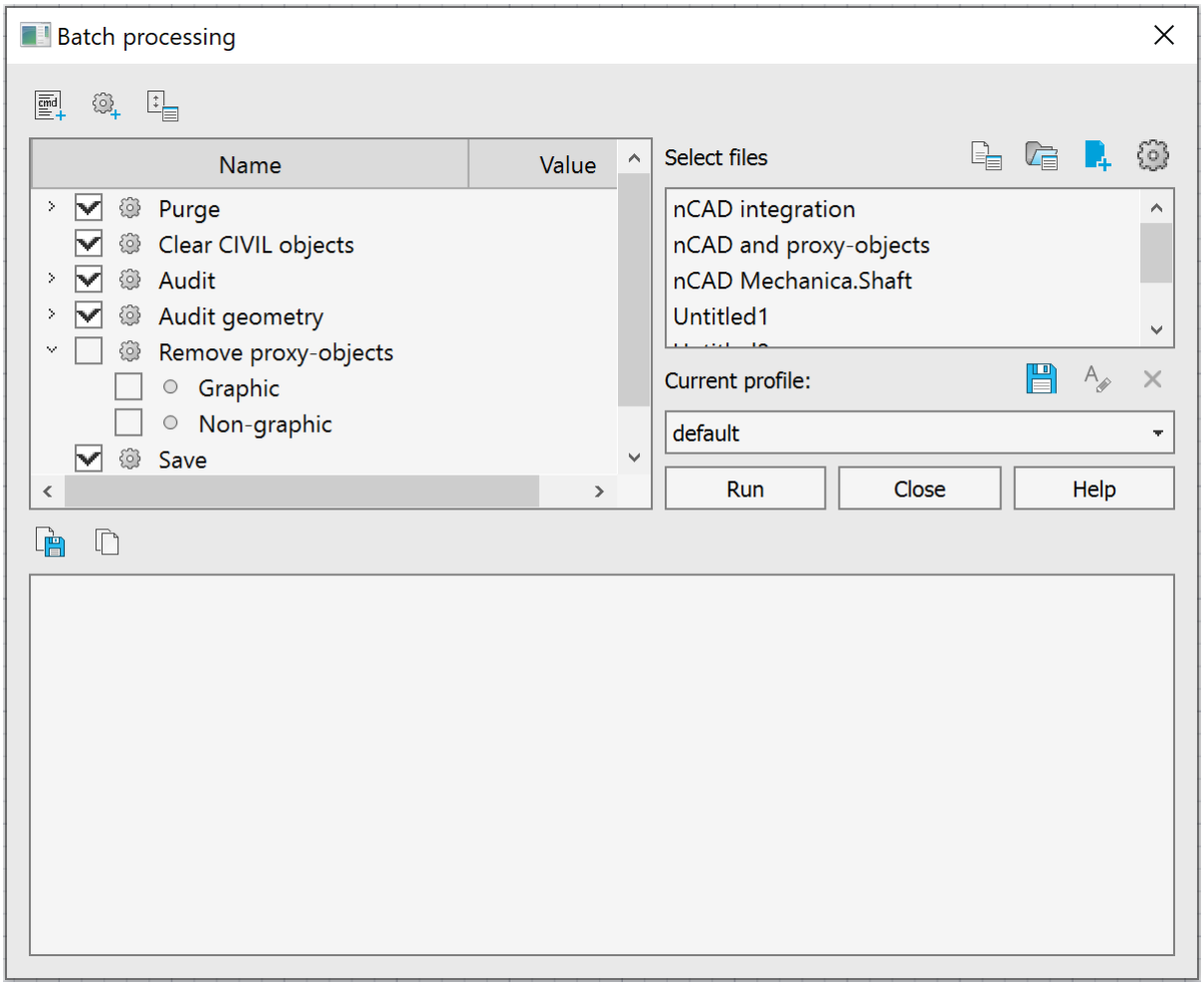


Data Collection in case of Fatal Error

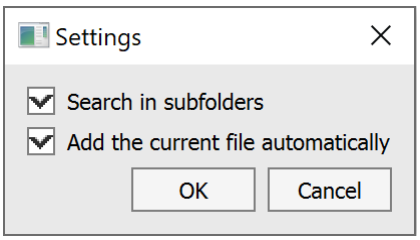
When critical errors occur in the program, the possibility to automatically collect data containing statistics and event chronology has been added using the ReportProblem command.
The command creates a folder specifying the time and forms a file package for transfer in it. After that, the user is prompted in the dialog box to add or remove files for sending. Then there are two options: you can for the report as a **ZIP** archive and save it on computer (**Save report** button) or send it by email in **EML** format (**Send report** button).

Batch File Processing

In the **Batch Files Processing** (**BATCHPROCESS**) utility in the standard default profile, one more processing stage has been added – **Remove proxy-objects** (**RMPROXY**). By default, the option is disabled. The command allows you to select the type of proxy objects to be removed (with graphics and/or without graphics).



The **Add the current file automatically** setting has been added to the list of selected files for batch processing:

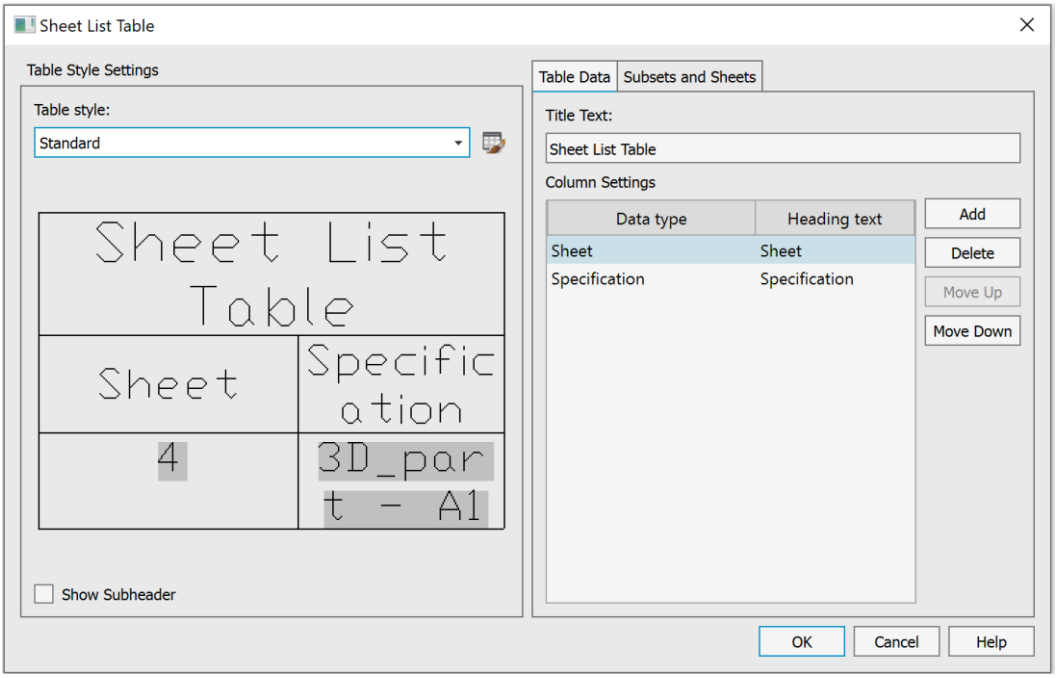


By default, the setting is enabled and when you run the **Batch File Processing** (**BATCHPROCESS**) command, the current drawing is added to the **Selected files** list automatically.

You can now add to the **Selected files** list not only files with the **DWG** extension (drawing format), but also **DWT** (template format).

Sheet Set

The dialog has been added for setting up the **Sheet List Table**, in which you can specify the following parameters: table style, title text, table data (column settings), and also specify a previously saved sheet set or select sheets to include in the list.



Associativity of **DST** format files has been added. Now, documentation set files are automatically opened in **nanoCAD** and the **Sheet Set Manager** (**SHEETSET**) toolbar is launched simultaneously.

The possibility to move sheets inside the document set/group by simply dragging them has been added in the **Sheet Set Manager** (**SHEETSET**) toolbar.

The usability of the **Rename & Renumber Sheet** dialog box in the **Sheet Set Manager** (**SHEETSET**) toolbar by automatically selecting the **Number** field has been improved.

On the **Sheet Lists** tab of the **Sheet Set Manager** toolbar, the menu button has been added for publication of selected sheets or the entire sheet set. The following output options are possible:

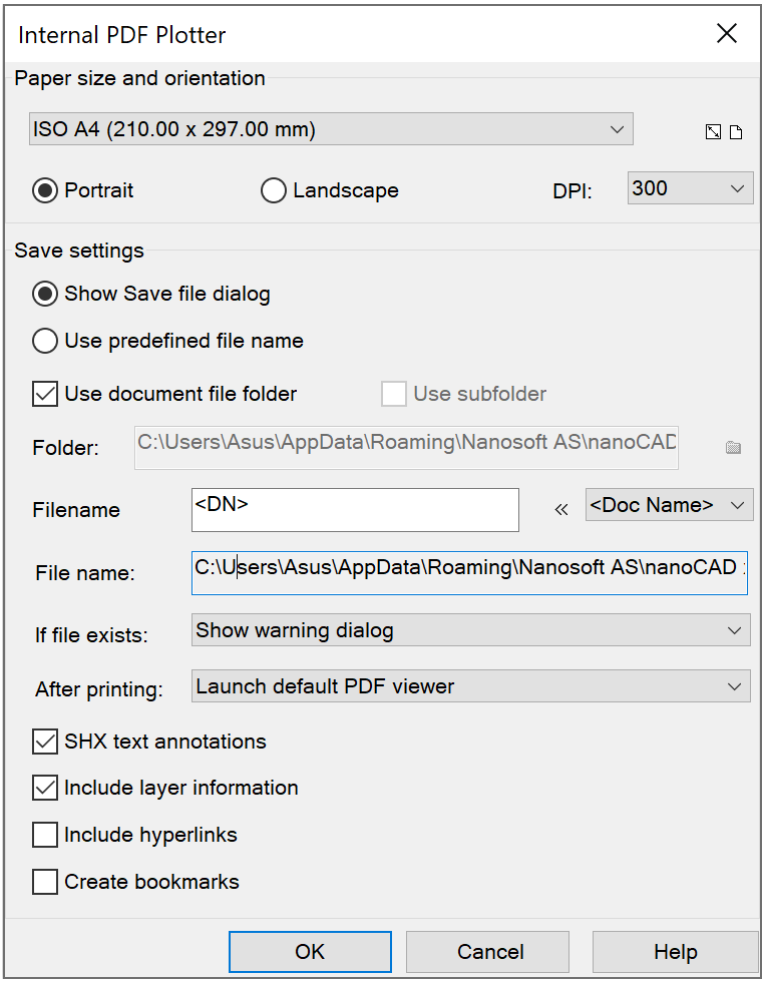
- publish to в PDF;
- publish to Plotter;
- publish to DWF;
- publish to DWFx.

The publish of document set/sheet group/sheet set/sheet is also available in the **Sheet Set** tree context menu.

A file name suggested by default for a multi-sheet document when plotting now matches the name of the documentation set instead of the name of the first sheet.

Plot

The **Create bookmarks** option has been added to the **Print as PDF** and **Internal PDF Plotter** settings dialog to create bookmarks for sheets and named views in a PDF file.



The **Include hyperlinks** option has been added to the settings dialogs for **Internal DWFx Plotter**, **Internal DWF Plotter**, **Internal PDF Plotter**, **Print as PDF**. This option converts document hyperlinks into hyperlinks in a PDF file.

For all internal printers, the possibility to save plotting device settings as a separate file with the **PC3** extension has been added for easy use on multiple computers.

The **Use subfolder** option has been added to the settings dialogs for all internal printers to create an additional directory with the format name (DWFx, DWF, EMF, PDF, or Raster) and save files to the created subfolder. The option is available when the **Use predefined file name** and **Use document file folder** modes are enabled.

The **PC3** plotter settings file can now be located not only in the standard plot configuration file folder C:\Users\User_name\AppData\Roaming\Nanosoft AS\nanoCAD x64 25\PlotConfigs, but also in the directory where the DWG file itself is located.

Search for network plotters has been optimized. The time to connect to disconnected or “non-existent” network plotters has been reduced to several seconds.

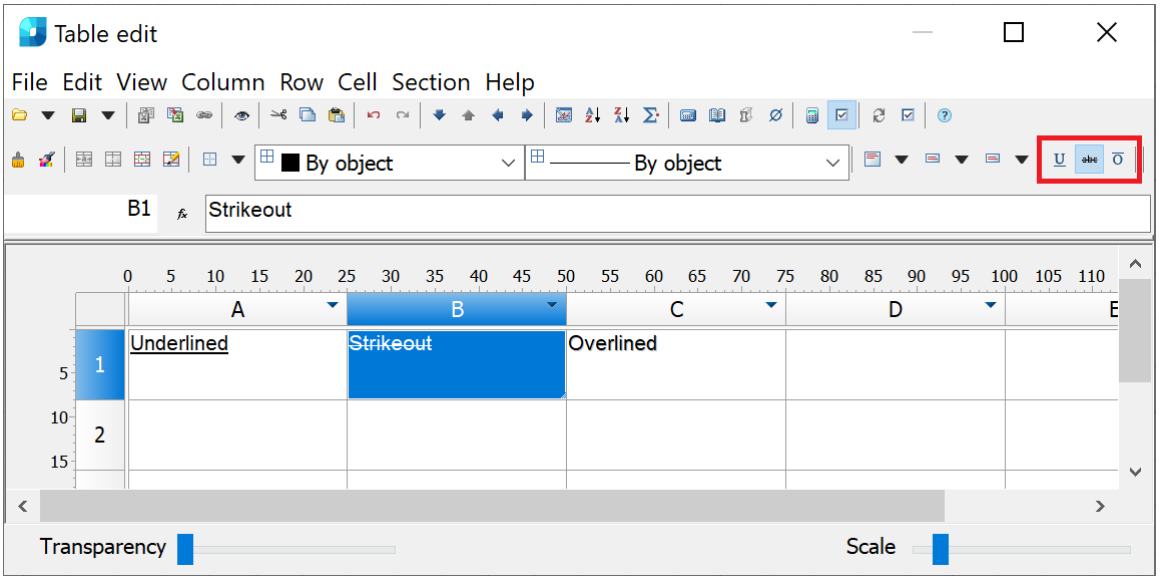
A new **PARAMETERSCURLAYOUT** command, which opens the **Page setup** dialog for setting up the plot settings for the selected sheet.

Tables

A new command **Recalculate all tables in the drawing** (**RECALCTABLES**) has been added. The command recalculates data in all tables in the drawing. When recalculating, auto-recalculation locks and report freezes are ignored. During recalculation, the **Refresh reports** and **Recalculate** options are applied.

The possibility to load tables (**TABLE**) from **XLSX** files without a pre-installed office suite has been implemented.

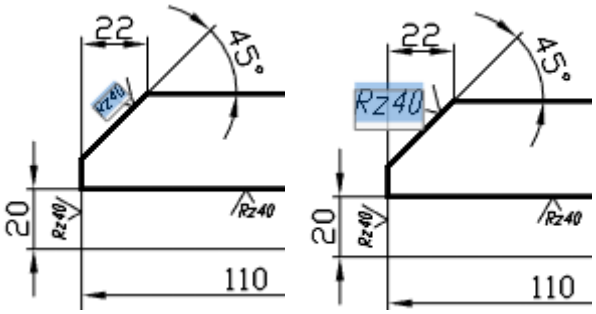
In **nanoCAD Tables** (**TABLE**), the following buttons for formatting text in cells have been added to the full editor interface: **Underline**, **Strikeout**, **Overline**, which allows you to edit the wording in several table cells at once.



Text

A new system variable **MTEXTFIXED** has been added, which determines the display of hard-to-read text objects during editing (small, large, or rotated text is considered hard to read):

- MTEXTFIXED = 0 (or 1) – the text is displayed in accordance with the size and rotation in the drawing;
- MTEXTFIXED = 2 (default value) – the text is displayed in a convenient size and in the horizontal direction.



The following combinations are now available for entering superscript and subscript characters in **Multiline text** (**MTEXT**):

- superscript – **CTRL** + **UP ARROW**;
- subscript – **CTRL** + **DOWN ARROW**.

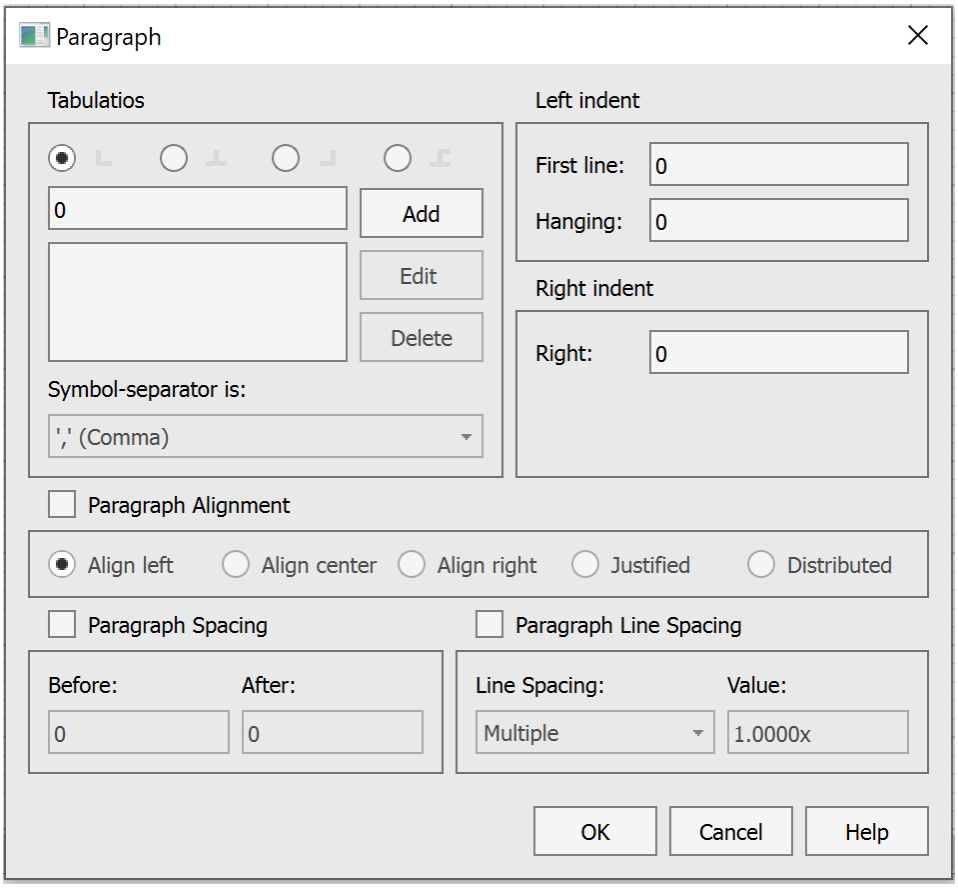
The combinations also work in **nanoCAD Tables** (**TABLE**).

The following combinations are now available for formatting **Single-line text** (**TEXT**):

- strikeout text – %%K or **CTRL** + **K**;
- underlined text – %%U or **CTRL** + **U**;
- overlined text – %%O or **CTRL** + **O**.

For all tools to create and edit **Multiline text** (**MTEXT**) and **Single-line text** (**TEXT**), the sequence and name of paragraph alignments have been brought to a unified form: **Align left**, **Align center**, **Align right**, **Justified**, **Distributed**.

The functionality of the **Paragraph** dialog, called from the **Text Format** (**MTEXT**) bar, has been expanded.



The following settings have been added:

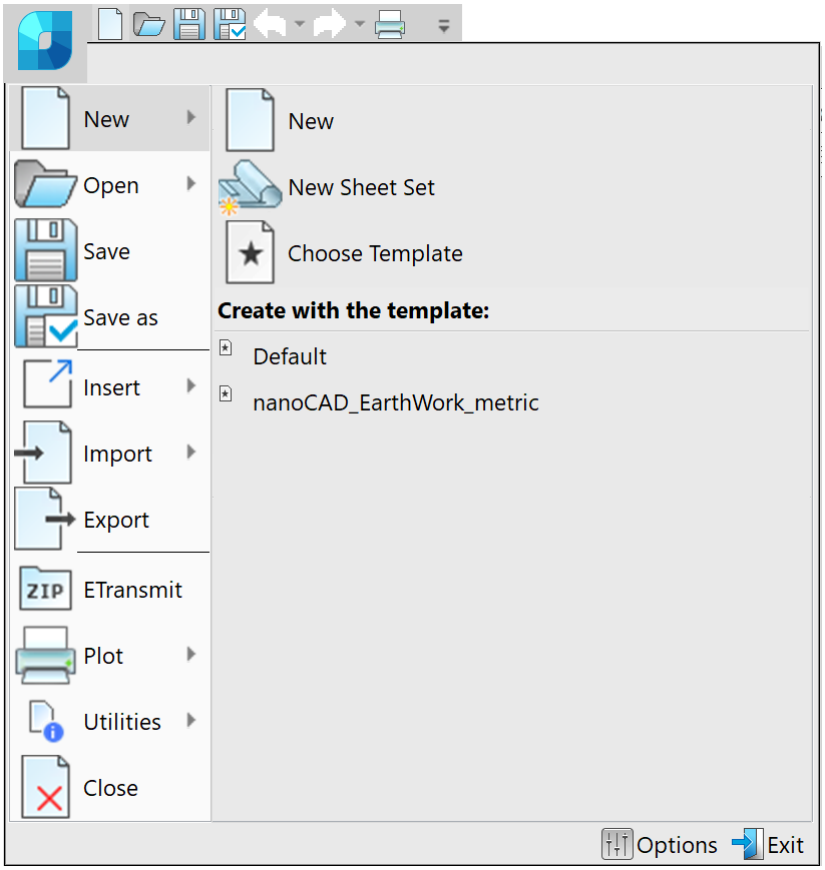
- selection of tab type, as well as the number and positions of tabs,
- indent options and values ,
- paragraph alignment.

The settings for intervals before and after a paragraph and setting line spacing within a paragraph have been expanded.

A warning message has been added when entering invalid values of the overlap coefficient in the **Hiding the Background** (**BACKGROUNDMASK**) dialog.

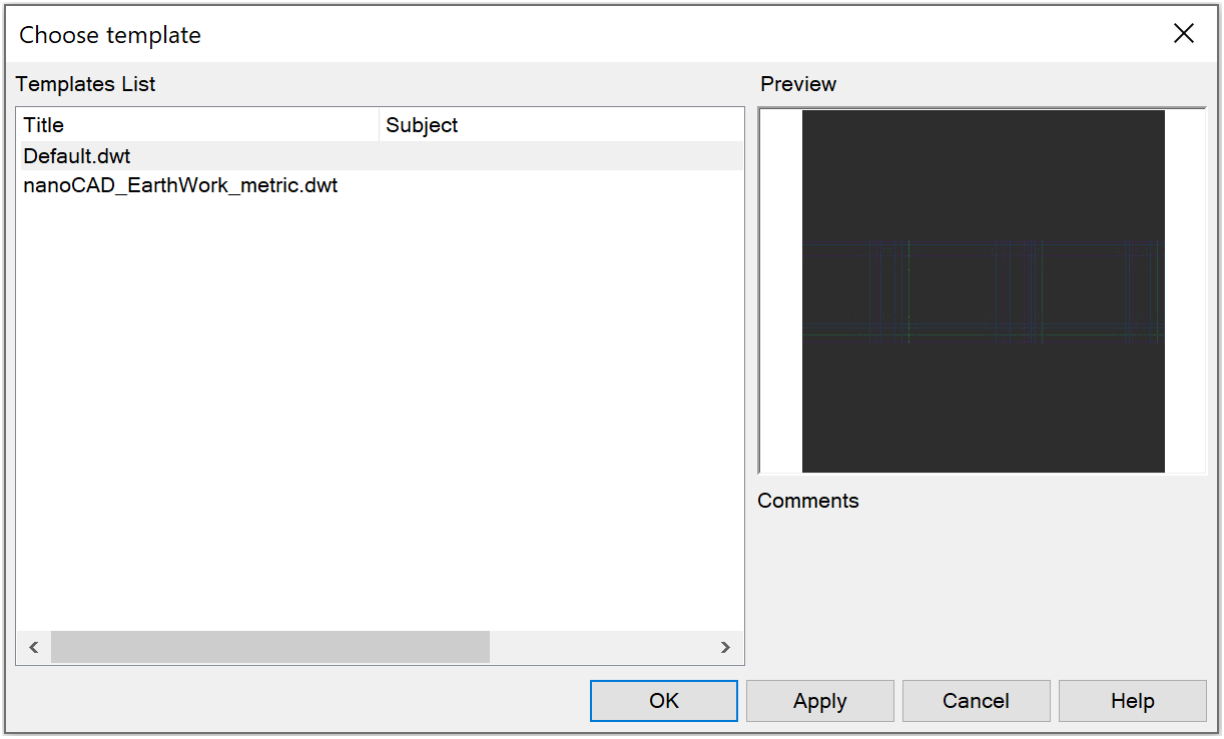
Templates

The possibility to create a new document based on a specified **DWT** template file has been added to the **nanoCAD button** .



The list of templates offered for selection in the menu is limited. To select another template not presented in the list, open the **Choose template** dialog or configure the **Template Names List** in the **Template Usage** section of the **Options** (**OPTIONS**) dialog.

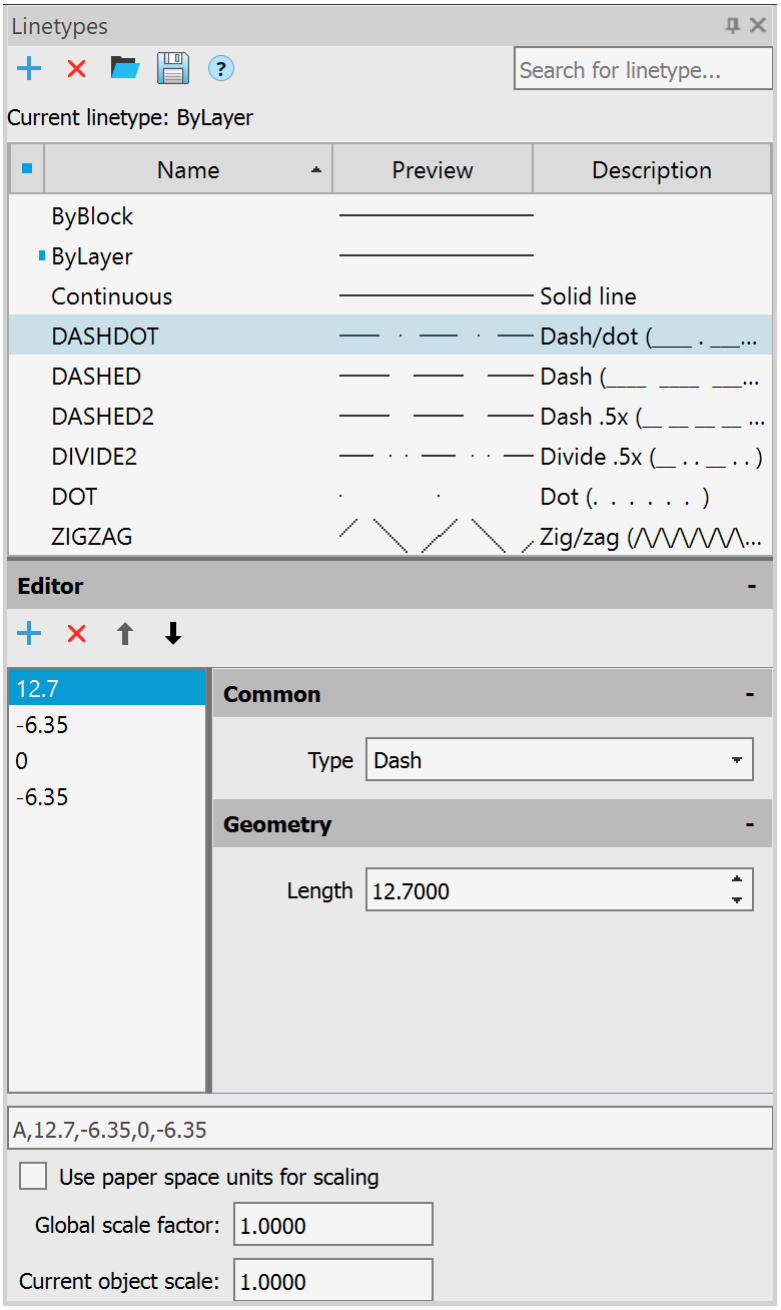
The **Choose template** (**TEMPLATESDIA**) command opens the **Choose template** dialog box with a list of file templates.



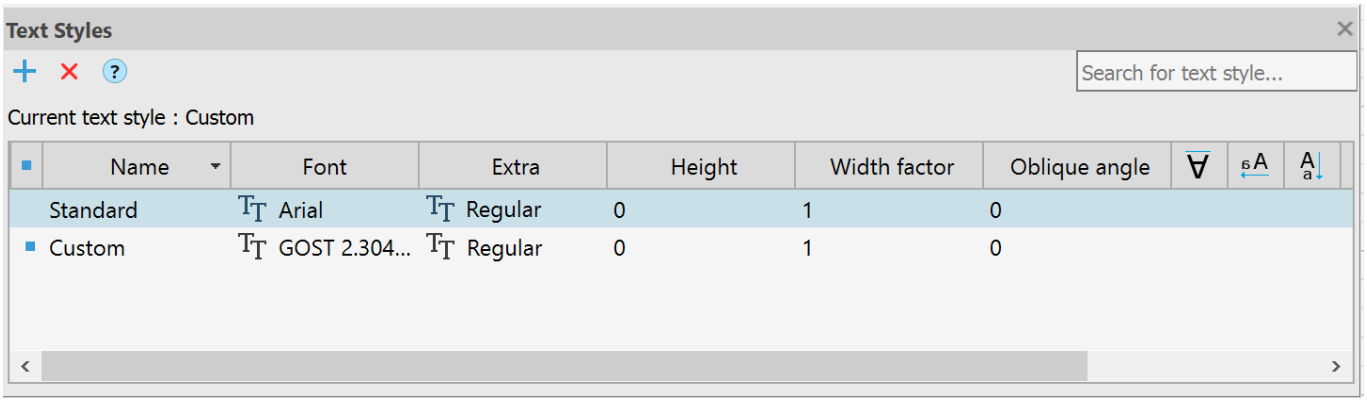
You can add or remove a template by selecting the appropriate command in the context menu. The order of templates can be changed by simply dragging and dropping.

Toolbars

The functions of the classic dialog **Linetype Manager** (**STYLEEDITCMDCLASSIC**) have been improved and implemented in the new  **Linetypes** (**STYLEEDITCMD**) toolbar. The linetype editor is located directly on the toolbar and allows you to quickly edit the selected linetype or create a new one.



The functions of the classic **Text Style** (**TEXTPROPSCMDCLASSIC**) have been improved and implemented in the new **Text Styles** (**TEXTPROPSCMD**) toolbar.

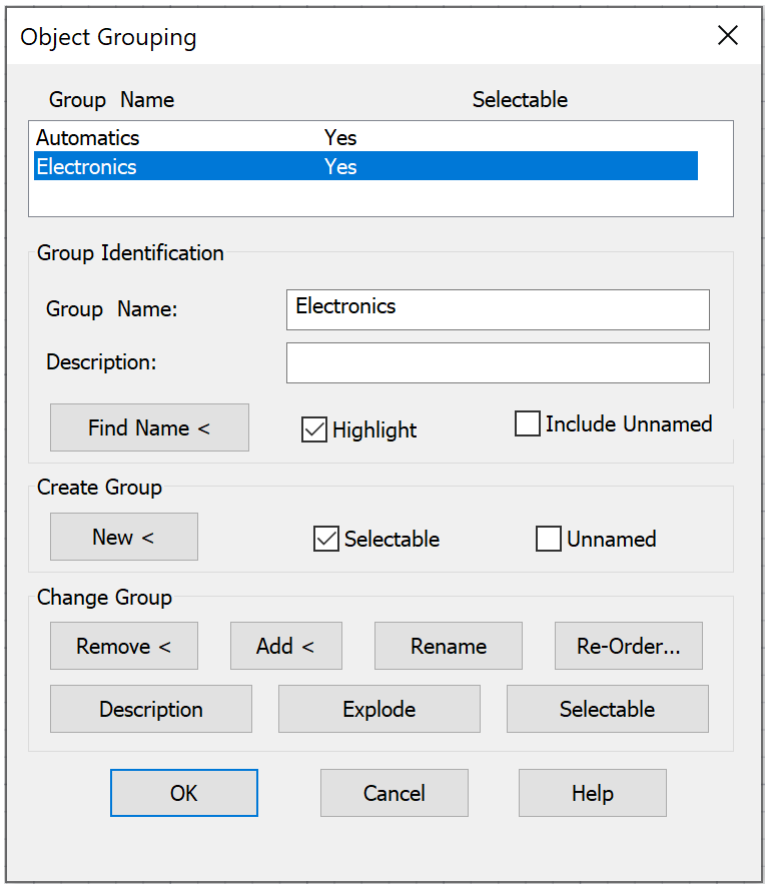


Groups

When creating a duplicate group (a group containing the same set of objects as an existing group in the drawing) using the **GROUP** and **-GROUP** commands, an additional prompt has been added to the command line: “Group with the same objects already exists. Create a new group anyway?”.

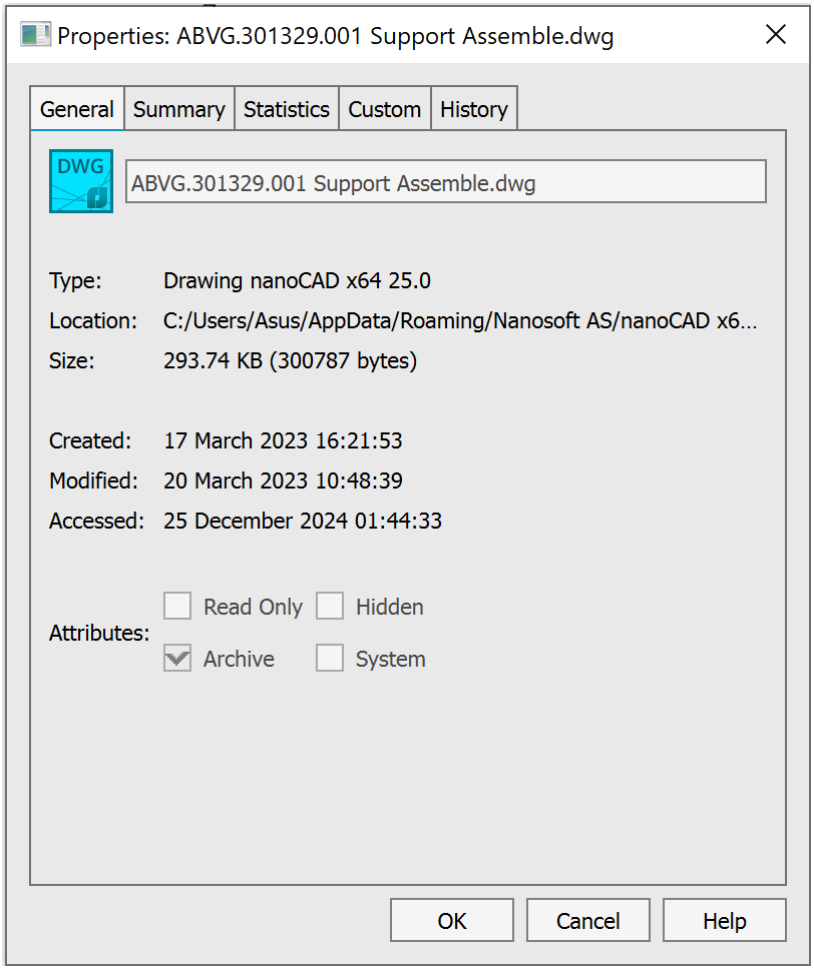
The context menu for creating a group (**GROUP**) has been optimized. The **Exploding a Group**, **Add to Group** and **Removing from the Group** context menu commands are blocked when pre-selecting existing groups and individual objects.

In the **Object Grouping** (**GROUPCMD**) dialog, the mechanism for highlighting objects in the selected group on the screen has been changed. Now the **Object Grouping** dialog box does not close. When the **Highlight** option is enabled, the group whose line is selected in the dialog list is highlighted on the screen.

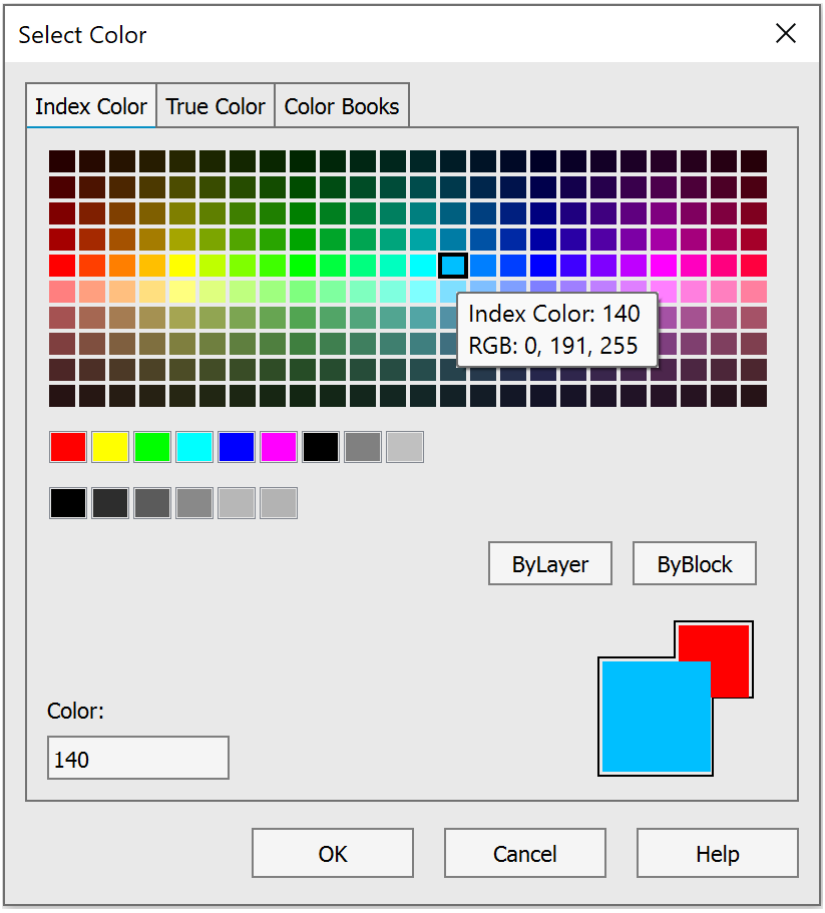


Dialog Updates

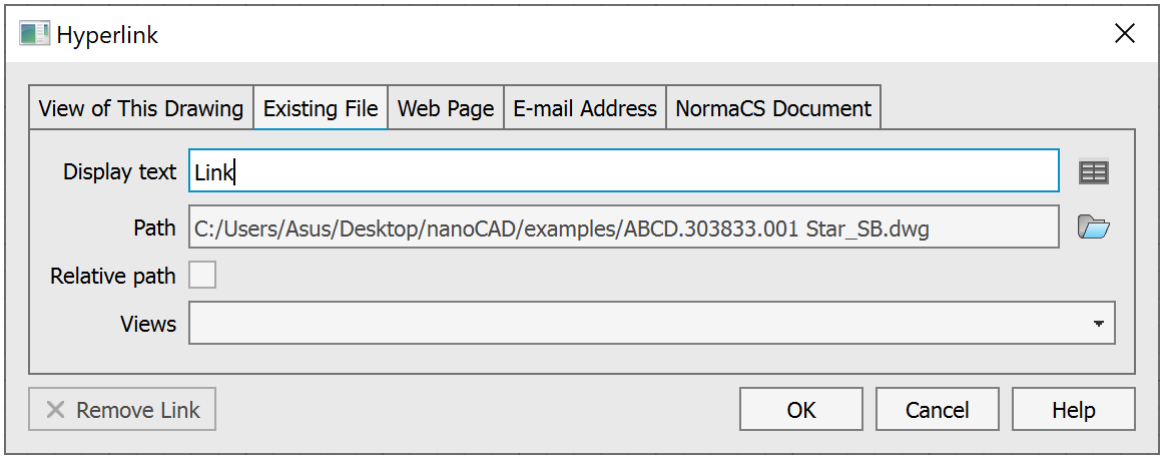
The **Drawing Properties** (**DWGPROPS**) dialog has been updated. The possibility to change the size of the dialog box, save the width of columns of the user properties table have been added, and the visual component has been improved.



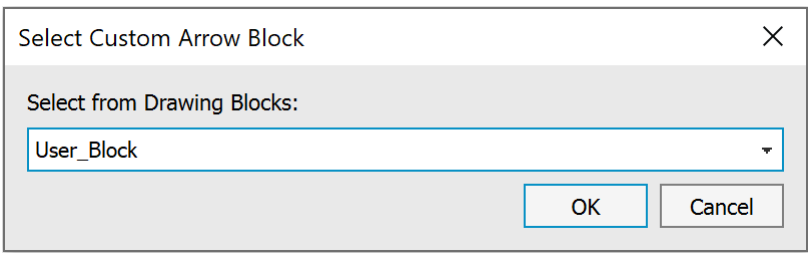
The **Select Color** (**COLOR**) has been updated. The function of saving the dialog's position on the screen has been configured. Options for specifying a color by a sample of any point on the screen (with an eyedropper) and in the **HSV** color model have been added. The possibility to change the color number on the **True Color** tab using the arrows on the keyboard has been implemented.



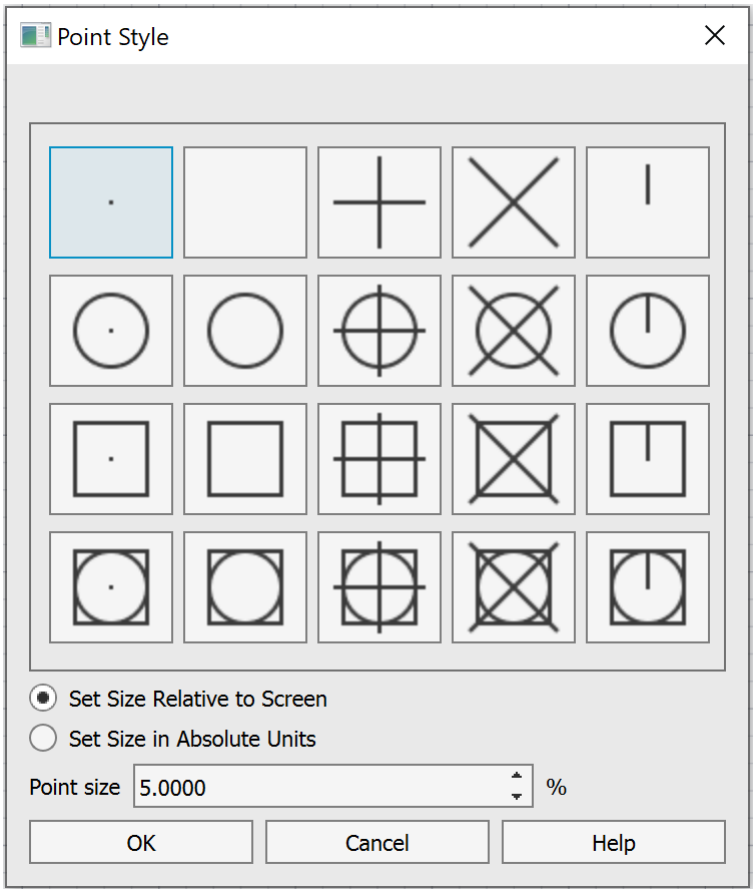
The **Hyperlink** (**HYPERLINK**) dialog has been revised.



The **Select Custom Arrow Block** dialog has been updated



The **Point Style** dialog has been updated.

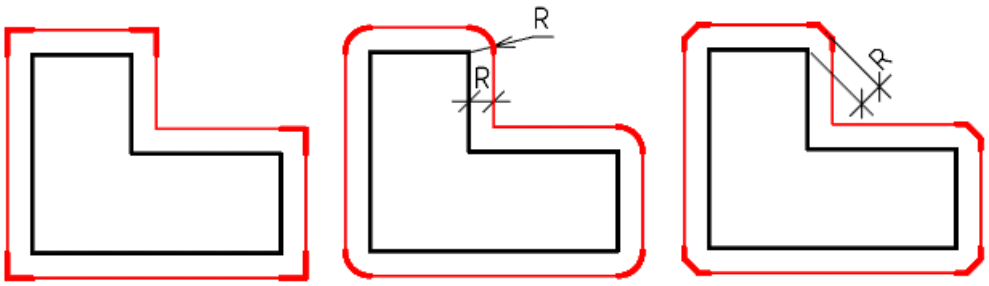


Other Novelties

A new command **Replace Block with Another Block** (**BLOCKREPLACE**) has been added, which allows replacing all selected blocks with one specified block. The objects to be replaced can be pre-selected or specified in response to a command line prompt.

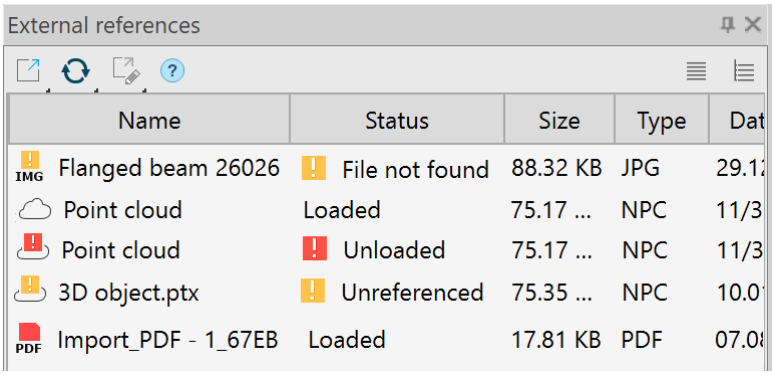
A new system variable **OFFSETGAPTYPE** has been added, which determines the type of external corners when constructing a polyline offset (**OFFSET**):

- OFFSETGAPTYPE = 0 (default value) – the offset lines are extended to form a corner;
- OFFSETGAPTYPE = 1 – at the intersections of the offset lines, a fillet is constructed with a radius equal to the offset distance;
- OFFSETGAPTYPE = 2 – at the intersections of the offset lines, a chamfer is constructed, the perpendicular distance from each chamfer to the corresponding vertex on the original object is equal to the offset distance.



The **Intersection** snap for spline self-intersection points has been added (**SPLINE**).

In the **External references** (**EXTERNALREFERENCES**) toolbar, for more convenient interaction with the interface, the following icons of external reference statuses have been added: **File not found**, **Unloaded**, **Unreferenced**.



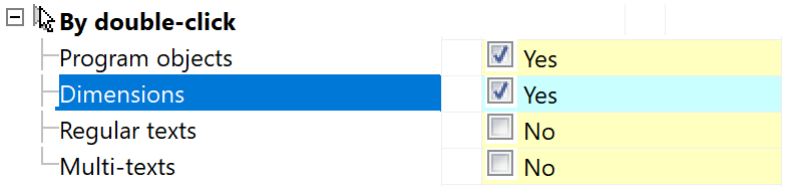
The possibility to change the **Transparency** (**TRANSPARENCY**) of the background of raster images in **TIF** (**TIFF**)format has been added.

The new command **Sending by Email** (**ETRANSMITDWG**) has been added to the **nanoCAD** button. The command generates an **EML** file to send the current drawing via email.

The informational tips have been added for buttons in the **Formation of a package of files** (**ETRANSMIT**) dialog, for layer parameter icons in the **Layers** (**LAYERSQUICK**) toolbar.

The possibility to simultaneously open/hide all property groups has been added in the **Properties** (**INSPECTOR**) toolbar. To do this, click the + or − button in the name line of any group while holding down the **SHIFT** key.

The method of editing dimensions by double-clicking has been changed. Now, when the Dimensions option is disabled (in the **Settings nanoCAD** (**PARAMS**) dialog, **Main Options** tab, **Edit** section – **By double-click**), the command for editing multi-line text (**MTEDIT**) is called.



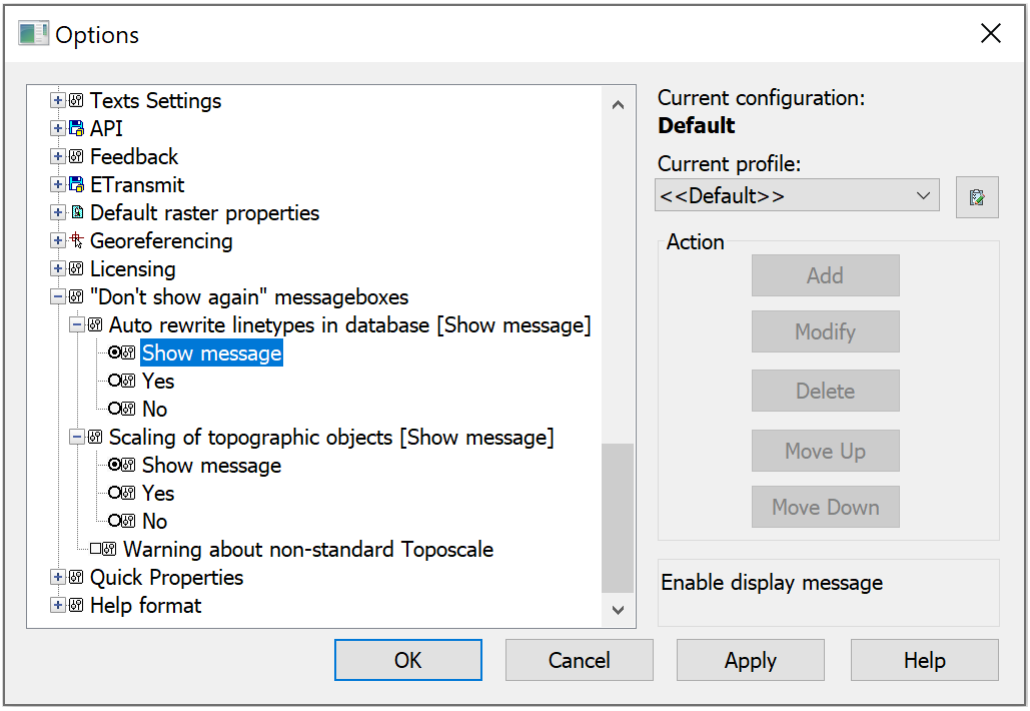
Wordings for warning messages about large number of external references (**XREF**) have been corrected.

The descriptions of subsections of the **System settings** section of the **Options** (**OPTIONS**) dialog, clarifying the possibilities for changes to take effect.

The **Save Layout as...** (**LAYOUTTOTEMPLATE**) item has been added to the context menu of the **Model** and **Layout** tabs.

Changing the **Multiple lines** mode has been blocked when editing a multi-line attribute in the **Block Attribute Manager** (**BATTMAN**).

The “**Don’t show again” messageboxes** section has been added in the **Options** (**OPTIONS**) dialog box, where you can manage the display of some warnings.



Visual presentation of information, warning and error messages has been optimized.

The program behavior when assigning color and covering (**COVERINGBROWSER**) has been optimized. Now you can assign color or covering only to the entire solid or its face, but not to a vertex or edge, about which a warning message has been added.

nanoCAD Fixes

Bugs that Cause the Program Closedown

The program crash when selecting **WIPEOUT** object while running the **LIST** command has been fixed.

The bug that caused the program to crash when opening a file containing a block with a z-coordinate spread has been fixed.

The bug that caused the program to freeze and crash when copying the numbered list format in multiline text (**MTEXT**) has been fixed.

The crash that occurred when adding custom color albums (*.acb) containing more than 10 colors in a section has been fixed.

The program crash when switching the workspace (model/layout) while executing commands has been fixed.

The program crash when updating the **Layers** (**LAYERSQUICK**) toolbar while adding a new layer has been fixed.

The bug that caused the program to hang when switching between layouts in a user file has been fixed.

The bugs that caused the program to hang in user files when switching between model space and paper space have been fixed.

The bug that caused the program to freeze and crash when autosaving a custom drawing has been fixed.

The program freeze when copying elements to the clipboard of objects in custom files has been eliminated.

The program crash when setting up the **Status bar** in the **Customize user interface** (**INTERFACE**) has been eliminated.

The program crash when starting text editing (**MTEXT**) on a locked layer through the **Properties** (**INSPECTOR**) toolbar has been fixed.

The bug that caused the program hang-up when working with the **Intersection** snap on splines and ellipses in user files has been fixed.

The program hang-up when adding hatching (**HATCH**) on user objects (ellipses, arcs, splines) using the **Add: Pick points** method has been fixed.

The program crash that occurred when copying multileaders (**MLEADER**) with blocks and changing their location **Insertion point**.

Plot Fixes

The bug has been fixed due to which the displacement and change of scale of drawing objects was observed when printing (**PLOT**) using the internal DWF/DWFx plotters.

The bug has been fixed due to which only the last sheet was printed when batch plotting (**PUBLISH**) to a multi-sheet file using the internal DWF/DWFx plotters.

The bug has been fixed due to which the **Plot** window did not close after plotting from the **Preview** window.

The bug has been fixed due to which bitonal rasters were not printed (**PLOT**) on the internal raster plotter when the **Indexed** raster type is selected.

The bug due to which rasters of the *.ecw format created by the internal raster plotter were not printed (**PLOT**) has been fixed.

The work of the button for switching workspace during plotting (**PLOT**) has been corrected.

The bug, where plot (**PLOT**) centering was not detected for documents created in third-party applications, has been fixed.

The bug, where the contents of viewports (**VIEWPORTS**) was not displayed when printing (**PLOT**) through the **Internal PDF Plotter** if there were a large number of viewports, has been fixed.

The printing (**PLOT**) of multiple areas using the **Internal DWF Plotter** has been improved. Now, when inserting multi-page DWF files, all sheets are inserted.

The bug, where the number 5 was crossed out when printing (**PLOT**), has been fixed.

The bug, where the lights and shadows configured in the model were not plotted, has been fixed.

Fixes in Work with Documents

The bug due to which a new document (**NEW**) was not created due to a missing template has been fixed. Now, if a template is missing or the path to the template is incorrectly specified in the **Options** (**OPTIONS**), a warning message is displayed and a document is created without a template.

The bug due to which, when selecting a template, the **Subject** and **Comments** fields were not displayed in the **Select Template** dialog, has been fixed.

The bug has been fixed due to which a new document was created when clicking the **Cancel** button in the **Select template** dialog.

The bug has been fixed due to which only a white background color was used when saving a drawing area to raster (**RASTEROUT**).

The bug that prevented export to *.dae format has been fixed.

The bugs that occurred when importing custom files in *.dgn format have been fixed.

The bug of exporting a layout to a model (**EXPORTLAYOUT**) for files created in Plant 3D has been fixed.

Fixes in Work with Layers

The bug due to which a warning message about renaming when selecting layer 0 appeared in the **Layers** (**LAYERSQUICK**) toolbar.

The work of the **Layer Settings** in the **Layers** (**LAYERSQUICK**) toolbar has been optimized. Now, when setting the **Indicate layers in use** option, it is not required to refresh the toolbar.

The bug due to which an unselected layer was deleted in a tree view in the **Layers** (**LAYERSQUICK**) toolbar has been fixed.

The bug due to which a color from color book files was replaced with an RGB value in the **Layer manager** (**LAYERSQUICK**) has been fixed.

The bug due to which the visibility of layers in a drawing was turned off when working with the **Layer Translator** (**LAYTRANS**) has been fixed.

The bug has been fixed due to which the first rows in the **Translate from** and in the **Layer Translation Mappings** table were selected by default in the **Layer Translator** (**LAYTRANS**).

The bug has been fixed due to which the visibility of layers was not turned on after conversion in the **Layer Translator** (**LAYTRANS**).

Fixes in Work with Tables

The bug has been fixed due to which there were errors in the display of text in a table (TABLE) inserted into a drawing as an external reference (**ATTACH**).

The bug has been fixed due to which actions with objects in a drawing containing empty tables (without rows and columns) were blocked.

The bug of saving drawings containing .dwg tables (**DTABLE**) with a break has been fixed.

Fixes of Scaling Bugs

The bug due to which scaling multiline text (MTEXT) would not change the custom height.

A warning message has been added when specifying a scale name (**SCALELISTEDIT**) that consists of spaces.

The bug has been fixed, due to which a field (**FIELD**) of a block attribute (**ATT, BLOCK**) would turn to text after changing the character scale.

The bug has been fixed, due to which resetting scales while opening a file, the metric scale list was replaced with an inch scale list.

The bug that caused a message about incorrect input to appear in the command line when setting the scale of the selected viewport in a paper space has been fixed.

Other Fixes

The problems that caused slowdowns in the graphics area of a drawing have been fixed.

The work of the **Break Vectors** (**BREAK**) command for a rectangle when specifying the same point has been improved. Now, when the points coincide, the command works similarly to the **Break Vectors at Point** (**VCBREAKATPOINTCMD**) command.

The error has been fixed in warning messages when specifying a maximum gap in the contour greater than the acceptable one in the non-dialog mode of the **Hatch** (**-HATCH**) command and when changing the value of the **HPGAPTOL** system variable through the command line.

A warning message has been added when specifying an attribute name with a space through the **Block Attribute Manager** (**BATTMAN**).

Warning messages on the impossibility to delete and rename certain line types in the **Linetype Manager** (**LINETYPE**) dialog have been added.

The bugs due to which “extra” copies of arrays were displayed on the screen when copying/editing a polar array (**ARRAYPOLAR**) or a path array (**ARRAYPATH**) have been fixed.

The bug due to which an extra constraint was imposed on a circle when forming an array (**ARRAYRECT, ARRAYPOLAR**) in a sketch (**PSADD**) has been fixed.

Warning messages have been added when renaming a viewport to an empty name or when the names coincide in the **Viewports** (**VIEWPORTS**) dialog. Also, an automatic check of the viewport name for spaces in the beginning or end of the name has been added, now “extra” spaces are cut.

The bug due to which a disabled clip (**UNDERLAYCLIP**) of the underlay (**UATTACH**) was not removed, has been fixed.

The bug has been fixed due to which object grips were displayed after locking its layer through the **Drawing Explorer** (**DRAWINGEXPLORER**) and were not displayed after unlocking.

Prompts in the command line for the **LAYOUT** command when specifying names containing prohibited characters have been corrected.

A warning message has been added when specifying a full file name longer than 255 characters.

In the reference edit mode (**REFEDIT**), the commands for inserting an external reference (**XATTACH**), saving all open documents (**SAVEALL**), and batch processing of files (**BATCHPROCESS**) are prohibited.

The bug has been fixed due to which the **Width** of previous fragments of a polyline (**PLINE**) changed after selecting the **Undo** option.

The bug has been fixed due to which text along an arc (**ARCTEXT**) was not created in paper space.

The bug has been fixed due to which lineweights were not taken into account when rasterizing objects with the **MERGE** or **DUPLICATE** commands.

The bug has been fixed due to which the UCS was not taken into account when constructing a multiline (**MLINE**) in a sketch mode.

The error in the command line prompt for the **Align the Viewport** (**ALIGNSPACE**) command has been fixed.

The bug has been fixed due to which snaps to the **REGION** object did not work correctly.

The work of snap (**SNAP**) **Offset** has been adjusted.

The bug has been fixed due to which the last nodes of a polyline (**PLINE**) and 3D polyline (**3DPOLY**) were not displayed in the **Properties** bar if the end point coincided with the first one.

The operation of the **3D Rotate** (**3DROTATE**) command when working with arrays has been corrected.

The error in displaying 3D constraints in the **3D History** toolbar that occurred when updating references has been fixed.

Visualization errors when applying a bounding prism (**MCLIP**) to a threaded solid to point clouds have been fixed.

Visualization when editing 3D solids using grips has been improved. Now, when editing, the object's transparency is 30%, which allows you to track objects located behind the original geometry.

Height change grips and the **Height** property for 3D solids obtained as a result of **Extrude** (**EXTRUDE**) of a closed contour from one element (circle, ellipse, polyline, etc.) or a contour having internal contours have been added.

The bug in modeling when pulling a circle along a trajectory (**SWEEP**) if the trajectory is a polyline has been fixed.

The bug has been fixed due to which the room marker (**SPROOM**) was created rotated if the current UCS is rotated relative to the WCS. Now the marker is oriented relative to the WCS.

The bug that caused annotative text to become invisible when copying and pasting has been fixed.

The program behavior when creating and editing text formatted using **%%U**, **%%O**, **%%K** combinations has been corrected. Now a space does not cause formatting change.

The bug has been fixed that caused the **Middle** option of the **Justify Text** (**TJUST**) command to work as **Center**.

The bug has been fixed due to which list numbering did not work in **Multiline Text** (**MTEXT**).

The behavior of the **Upside&down** and **Backward** parameters in the **Text Styles** (**TEXTPROPSCMD**) toolbar has been fixed. The parameters no longer affect multiline text objects (**MTEXT**) and are applicable only to single-line texts (**TEXT**).

The bug that caused extra spaces when entering characters using keyboard shortcuts in multiline texts (**MTEXT**) has been fixed.

Differences in the results of creating lists in **Multiline Text** (**MTEXT**) with different sequences of actions have been eliminated.

The bug has been fixed due to which the ^ sign appeared when changing superscript or subscript text to normal writing in the **Multiline Text** (**MTEXT**).

The non-dialog operation of the **XATTACH** command has been corrected, now the command accepts the file path as an argument.

The value for tooltips of user commands has been corrected, now DispName is displayed.

The bug has been fixed due to which raster images were displayed incorrectly when changing the **Fade** parameter.

The bug has been fixed due to which the changes in the LISP file were not applied in the **Application load** (**APPLOAD**) with **Add to History** option.

The bug has been fixed due to which when constructing an arc by start, end and radius (**ARCBYSTARTENDRADIUS**), dynamic input did not process negative radius values.

The display of dynamic block properties has been changed. Now, when the block scale is not proportional, the visibility switching line on the **Properties** (**INSPECTOR**) bar is hidden.

Bugs due to which dynamic block grips did not work correctly in user drawings have been fixed.

The incorrect display of angular rotation of dynamic blocks in the **Properties** (**INSPECTOR**) bar in use files has been fixed.

The use of standards files (**STANDARDS**) not in the **DWS** format has been excluded, for which a warning message has been added: "The file was not added because it is not a standards file".

The bug has been fixed due to which the values of a multi-line attribute could not be edited inside the block editor (**BEDIT**).

The display of a multiline attribute when editing it via the **Properties** (**INSPECTOR**) bar has been optimized.

The bug has been fixed due to which layer properties (**LAYERS**) changed when switching from **Model** space to **Paper** and back.

The bug has been fixed that reset cell alignment in a “child” table (**TABLE**) after filling data in the “parent” table with a fill marker.

The bug that caused the hatch background color to disappear after editing the hatch (**HATCHEDIT**) has been fixed.

The error has been fixed due to which it was impossible to delete a frozen or switched-off layer in the **Drawing Explorer** (**DRAWINGEXPLORER**) toolbar.

The error has been fixed due to which a file was not created when exporting a layout to model (**EXPORTLAYOUT**) if the current layer of the viewport is frozen in this viewport.

The bug has been fixed due to which some objects remained in their original coordinates when exporting a layout to model (**EXPORTLAYOUT**).

The bugs that occurred when creating and editing helices (**HELIX**) have been fixed.

The bug has been fixed due to which the text of the **Leader** (**LEADER**) on the paper was not copied (**COPY**).

The errors in the display of a polyline (**PLINE**) with different segment widths, dash linetype, and the **Linetype generation** option enabled in the **Properties** (**INSPECTOR**) bar have been fixed.

The errors in synchronizing attributes of block references (**ATTSYNC**) have been fixed.

The bug has been fixed due to which the layer visibility parameters changed after editing blocks (**BLOCK**).

The bug has been fixed due to which the **Explode Attributes to Text** (**BURST**) command did not work if attributes were set to **Hidden** mode.

The bug has been fixed due to which messages about unsuccessful import appeared for the second and subsequent pages in **Import PDF** (**PDFIMPORT**).

The bug has been fixed due to which a block from the **Tool Palettes Manager** (**TOOLPALETTES**) toolbar was not inserted if a block with the “Original file not found...” error was previously inserted in the document.

The command line prompt when specifying the name of an existing group for a group being created (**GROUP**) has been fixed.

The error has been fixed due to which a new group name was not displayed when renaming it using the **Rename** button in the **Object Grouping** (**CLASSICGROUP**) dialog.

The behavior of the **Object Grouping** (**CLASSICGROUP**) dialog when creating a new group has been fixed. Now, after clicking the **New** button, it is prompted to select objects for a new group and a copy of the existing group is not created.

The error has been fixed due to which a group after renaming remained unnamed and was not displayed in the **Object Grouping** (**CLASSICGROUP**) dialog without the checked **Include Unnamed** box.

The error has been fixed due to which a warning message about an invalid color name or number was displayed in the **Select color** (**COLOR**) dialog box when specifying a color **By Layer** in the **Coverings Browser** (**COVERINGBROWSER**) toolbar.

The bug has been fixed due to which hot keys (**CTRL** + **C**, **CTRL** + **A**, **CTRL** + **X**, **CTRL** + **V**) did not work in the **File explorer** (**FILEEXPLORER**) and **Coverings Browser** (**COVERINGBROWSER**) toolbars.

The errors with auto-zoom to an external reference (**XREF**) clip when the **Enable zoom and selection** mode was selected in the **Drawing Explorer** (**DRAWINGEXPLORER**) toolbar.

The bug has been fixed due to which the highlighting of external references was not reset when closing the **External References** (**XREF**) toolbar.

The error due to which coverings from **DAE** format files were not fully exported (**EXPORT**) has been fixed.

The bug due to which a command alias did not work if it matched the command name has been fixed.

The error has been fixed due to which the sheet highlighting was not saved when it was moved using the **Up** and **Down** context menu commands in the tree on the **Sheet List** tab of the **Sheet Set** (**SHEETSET**) toolbar.

Point Clouds

New Features and Fixes

Changes in the Composition of Commands

Commands for working with **Databases** have been moved to the new **Storage** module of the **Point Clouds** vertical application.

Project Manager

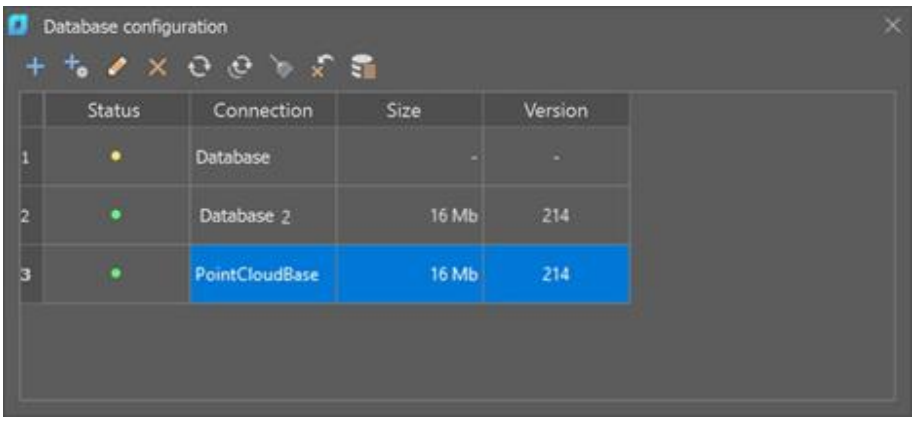
Errors in the **Project Manager** (**NPC_PROJECT_MANAGER**) have been fixed:

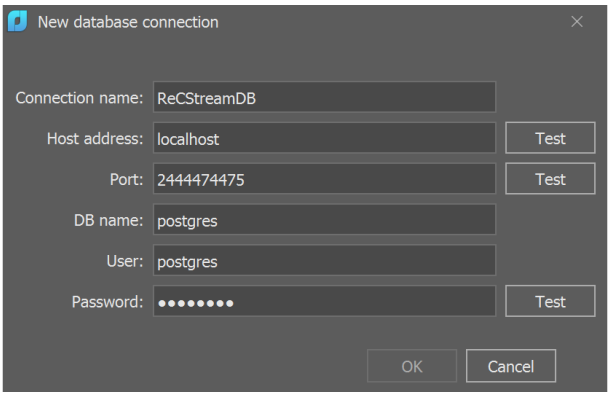
- freezing during import;
- crash resulting from block renaming;
- flight line shift.

Import of point clouds of RCS format has been improved.

Crash when closing the program after importing a cloud has been fixed.

The DB connection panel has been improved (parameter checks, connection log, default DB connection mode, etc. appeared).





The format for storage of point survey time (was GPS time, now became GPS week).

The **DB_UNDO**/**DB_REDO** (semi-automatic cloud undo tool) commands have been added.

The **POINTCLOUDSECTIONUCS** system variable has been added, which allows you to manage specifying UCS when performing cloud sections.

Index vocabularies for all attributes have been added in the cloud storage core. All index vocabularies are displayed in the **Point Cloud Info** (**NPC_INFO**) dialog.

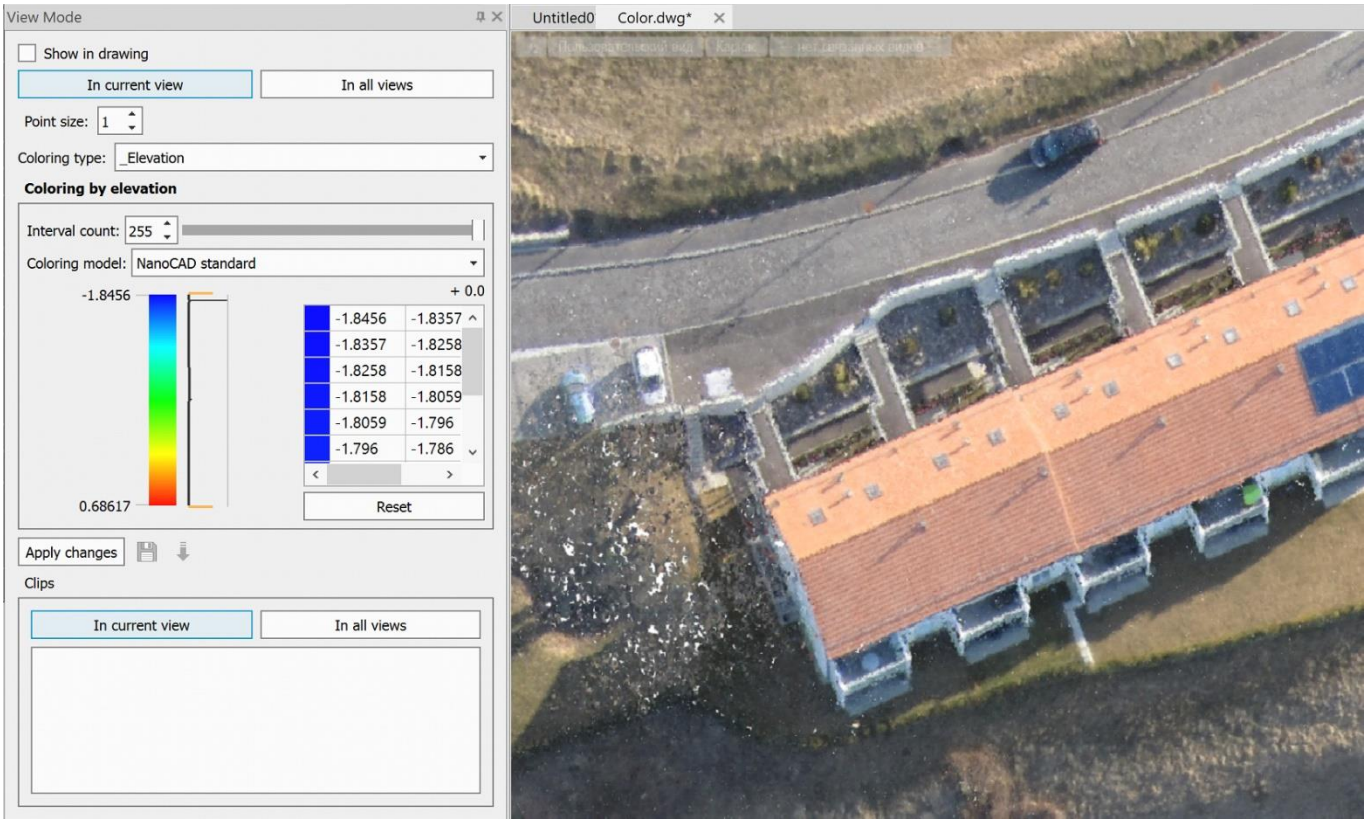
The procedure for constructing cloud detail levels in order to improve the visual perception of the transition from one detail level to another has been redesigned.

The problem of importing PTS files with normals has been fixed.

The possibility to undo and redo the creation of areas in the point cloud preview window during import has been corrected.

View Mode

View Mode (**NPC_VIEWMODE**) of point clouds has completely changed and is now presented as a new bar that expands the capabilities of the old dialog.



New Options for Coloring Point Clouds

The possibility to create independent coloring buffers untied from the basic cloud settings has been added. This allows using independent coloring in preview and optimizing work with color through multi-threaded processes.

New Type of Metadata – Spatial Dimension

A new type of metadata for point clouds has been added – **spatial dimension** (topological, correlation, fractal). This type is supported when saving to the Database, for histograms, coloring, access via API and MetaData structures.

Coloring Point Clouds by Dimension

Coloring of points based on their **spatial dimension** has been implemented using interpolation by color scheme. The mechanism is integrated into the new **View Mode** bar ensuring data visualization by normalized values.

Binding Point Cloud Classes to Layers

The possibility to **bind classes to layers** is disabled. Now, when importing point clouds, new layers corresponding to the classes are not created and the Note field is not filled. Also, it is not possible to control the visibility of point cloud classes through the Layers dialog. However, classes are still managed using the **View Mode**.

Topoplan Module

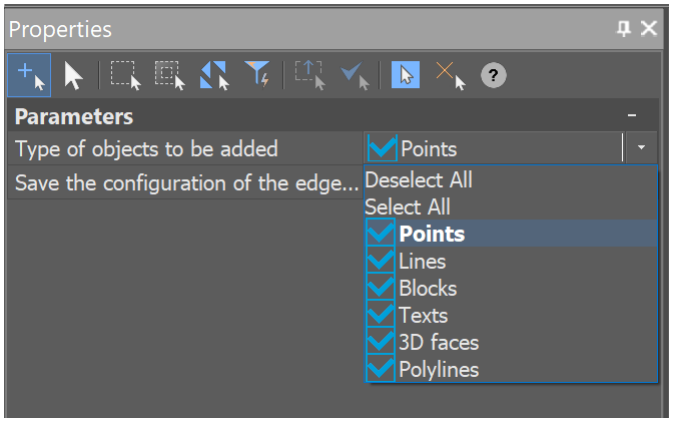
New Features and Fixes

New Commands in the Topoplan Module

New commands for converting surfaces:

- **NG_CONVERT_TO_SURFACETIN** – Converts a Mesh, a Polyface Mesh and 3D Faces (nanoCAD objects) into a TIN Surface (Civil object);
- **NG_CONVERT_FROM_SURFACETIN** – Converts a TIN Surface (Civil object) into a Mesh, a Polyface mesh and 3D Faces (nanoCAD objects).

The new command **Adding Drawing Objects** (**NG_MESH_ADD_OBJECTS**) adds the following types of objects:



It is possible to save or rebuild triangle edges.

The new command **Creating Contour Lines from Objects** (**NG_MARK_AS_CONTOUR**). Now polylines and 3D polylines can be marked as contours, which will allow you to place labels and bergstrings on them.

The new command **Create Points by Resection** (**NG_CREATE_POINT_BY_RESECTION**). The first version of the command provided the possibility to create a new point by Reverse angular geodetic resection.

The new command **Creating a Coordinate System** (**NG_NEW_CRS**) allows you to set parameters and configure your own coordinate system, which can further be used for recalculation.

The new command **Information About Coordinate Systems** (**NG_CRS_INFO**) displays the parameters of all coordinate systems in the Topoplan module database.

Projecting Objects onto a Surface

The possibility to project dynamic blocks has been added to **NG_MESH_PROJECT_OBJECTS** command.

3D Slopes

The **NG_3D_SLOPE** command has been supplemented with the ability to construct 3D slopes using 3D polylines.

Errors in constructing 3D slopes have been fixed.

Structural Lines Along a 3D Slope

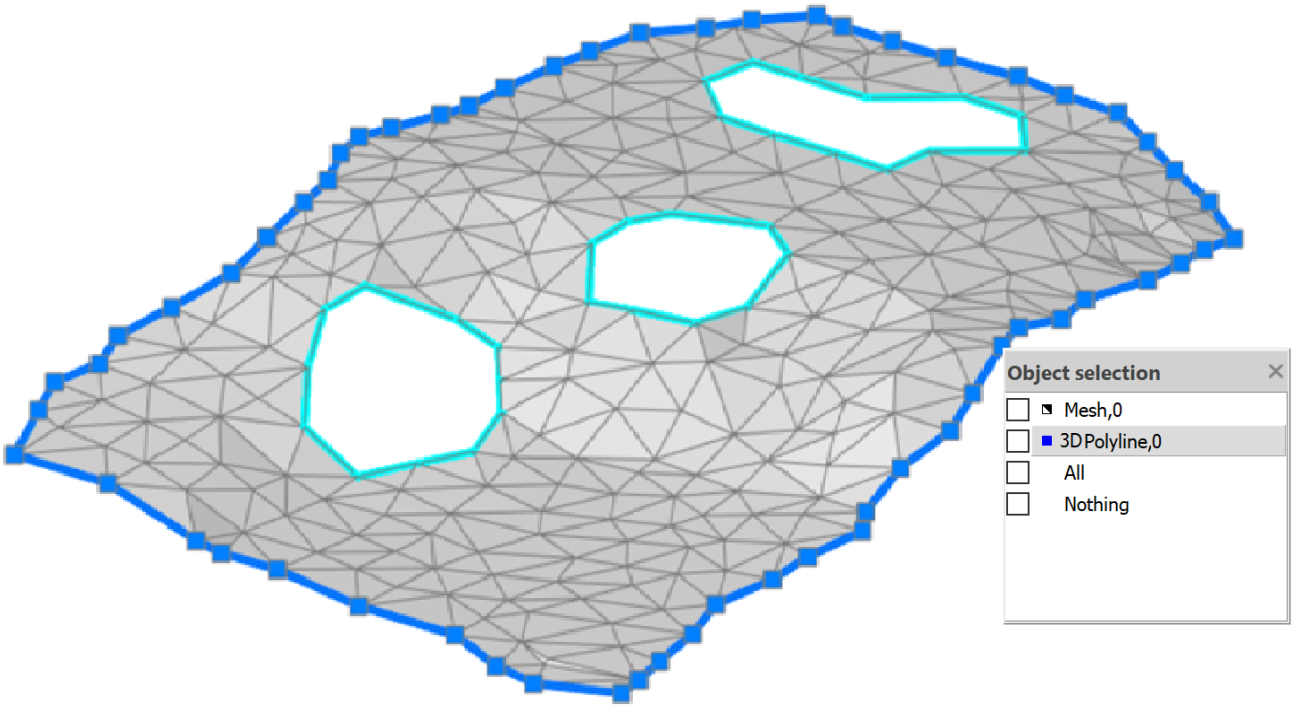
The **NG_GET_STRUCTURAL_LINES_FROM_3D_SLOPE** command has been added to create 3D polylines from 3D slope objects.

Adding a 3D Slope to a Surface

The **NG_MESH_ADD_3D_SLOPE** command has been added toad 3D Slopes to a surface.

Extracting a Surface Boundary

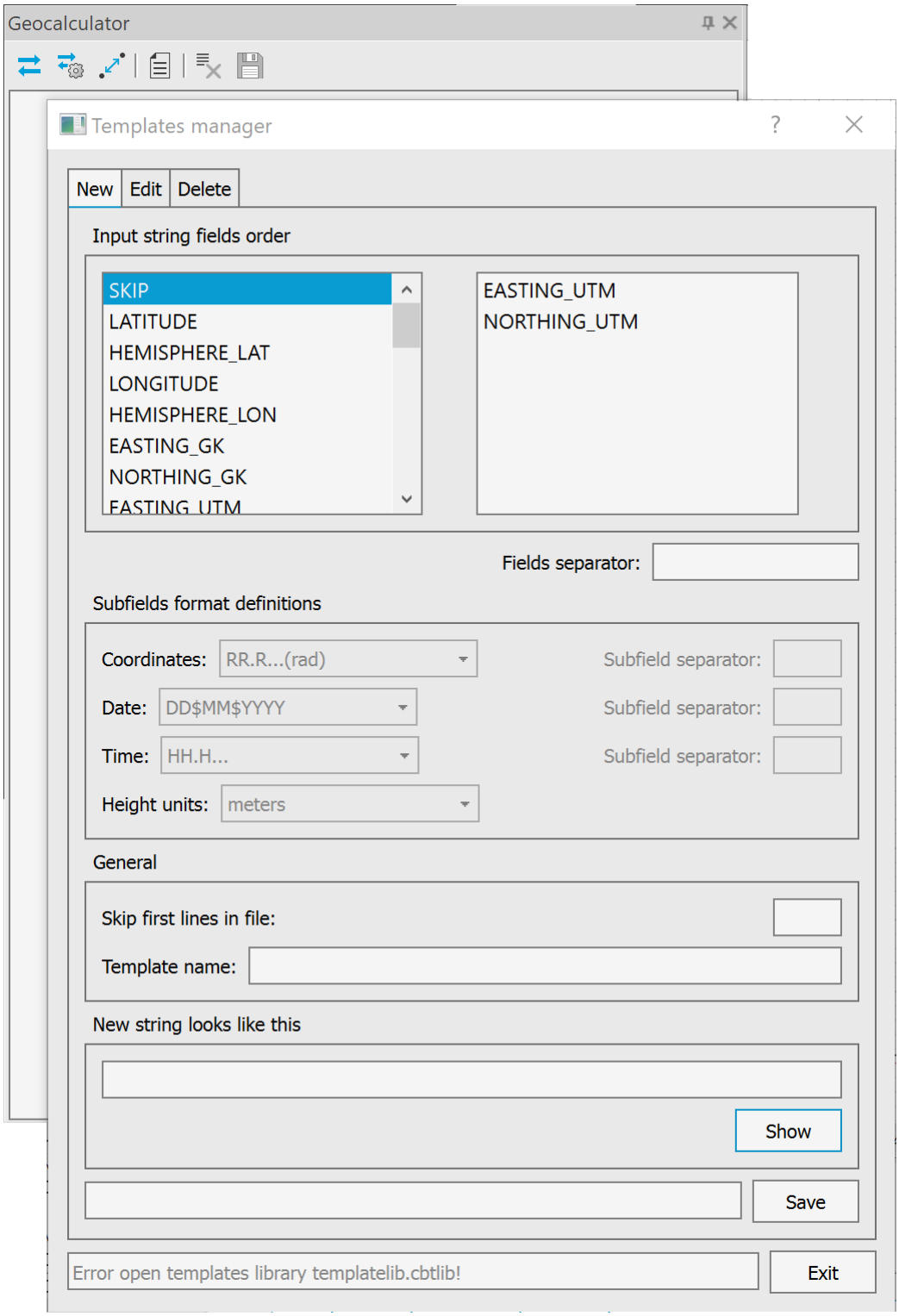
The **NG_MESH_GET_BOUNDARY** command has been added to extract internal and external boundaries from surfaces. The boundaries are created as 3D polylines.



Geocalculator

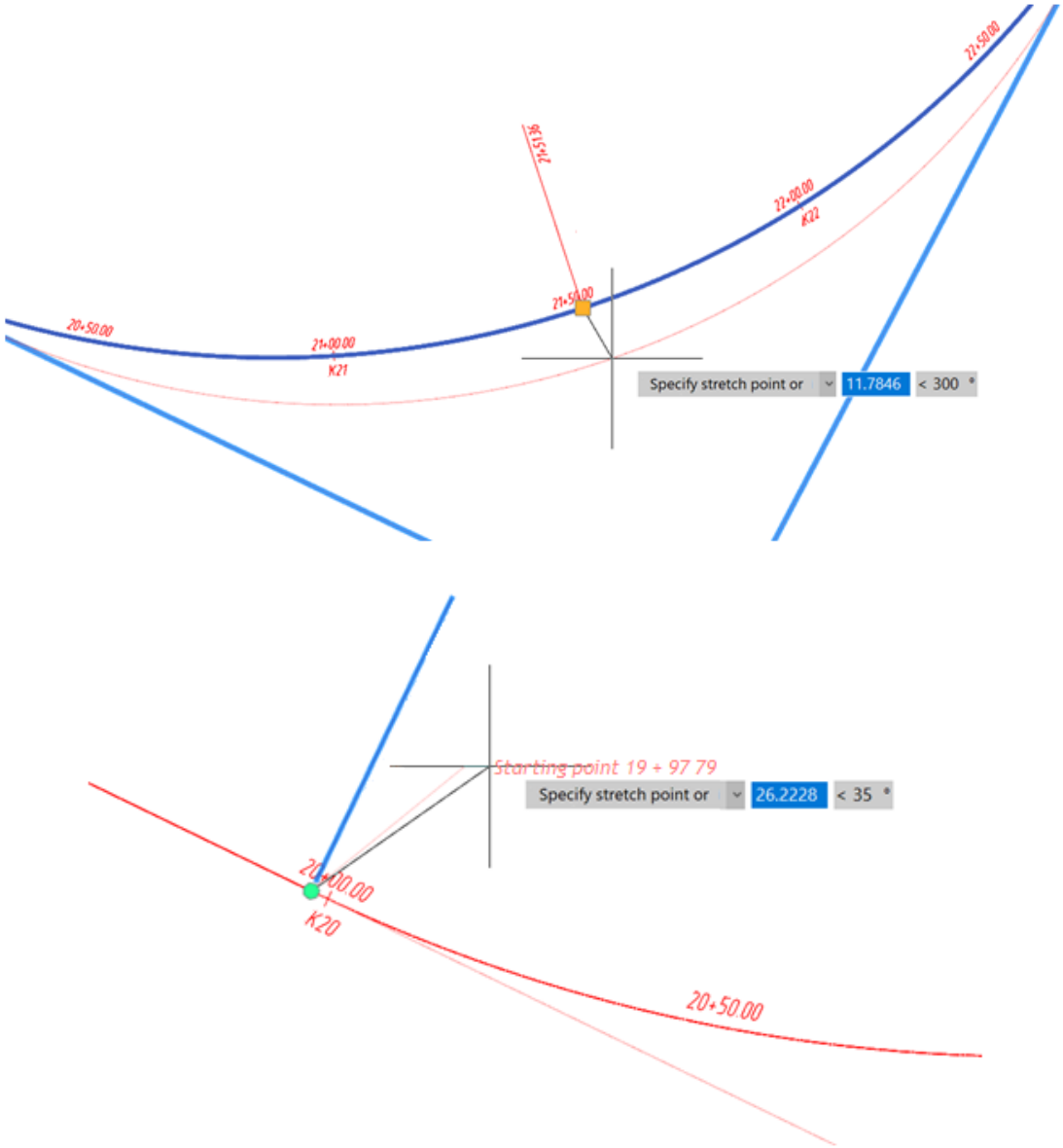
A new **Geocalculator** (**NG_GEOCALC**) bar allows you to perform various calculations:

- calculation of transformation parameters;
- calculation of distances and directions on an ellipsoid and on a plane;
- recalculation of coordinates between different coordinate systems, including for loaded text files.



Route Objects and Route Labels

The Route objects and Route labels now have grips that allow you to edit geometry.



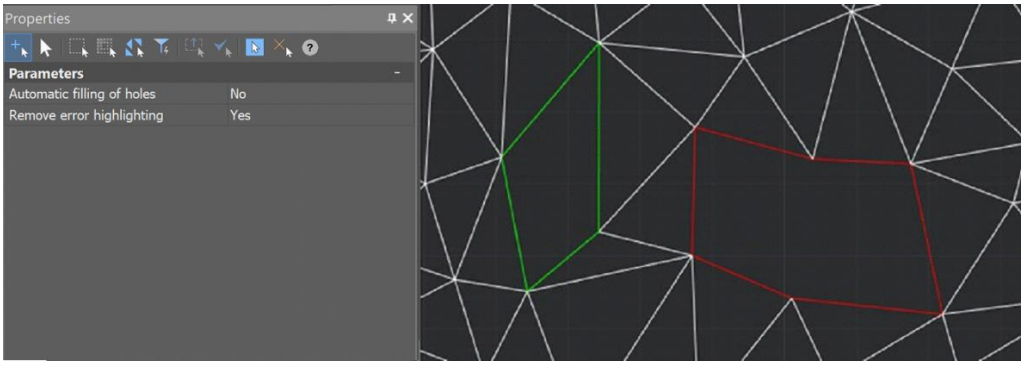
Updates and Improvements in Topoplan Module

The 3D slope construction command (**NG_3D_SLOPE**) has been corrected, construction of slope strokes at rotation angles has been improved.

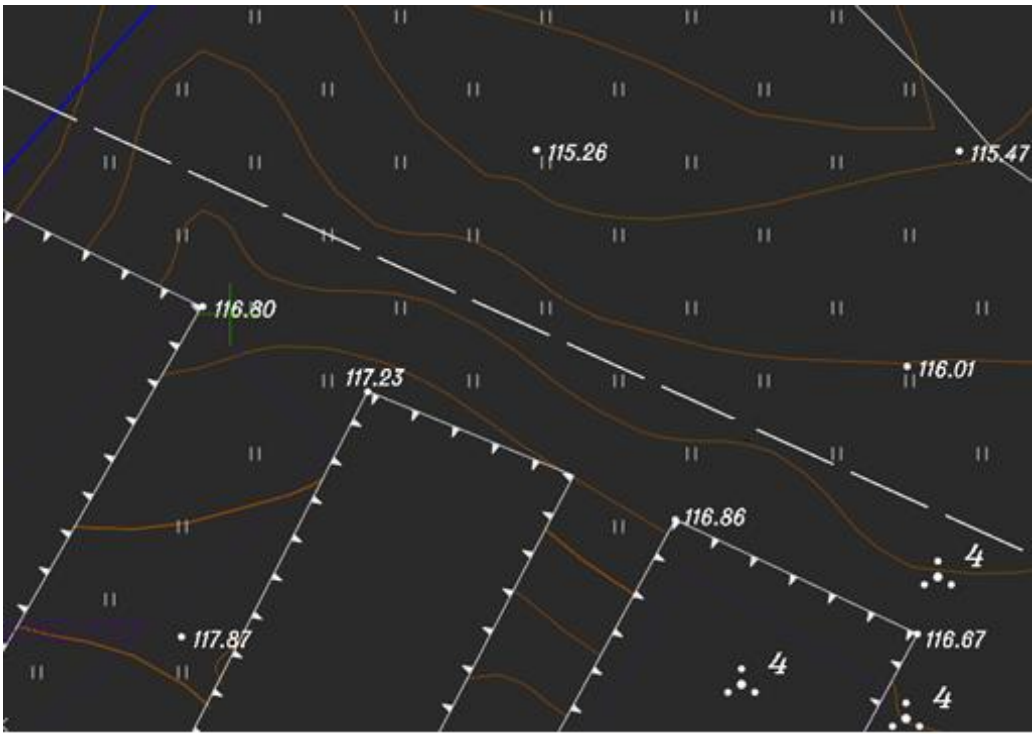
The replacement of blocks from the classifier if signs were previously selected in the drawing has been fixed. Now it is possible to select options - Replace or Draw a new sign.

The commands for inserting contour labels (**NG_CREATE_CONTOUR_LABEL**) and bergstrichs (**NG_CREATE_BERGSTRICH**) have been improved. The possibility to automatically place them along a line has been added. The possibility to select the text style and height has been added for the contour labels command. The possibility to select a block has been added for the bergstrichs command.

New parameters have been added to the **Mesh Seal Holes** (**NG_MESH_SEAL_HOLES**) command: the possibility to highlight found gaps and fill them automatically



A new block in the classifier of **Conventional signs** (**NG_CLASSIFICATOR**) for setting non-standard signs for communication lines:



The highlighting of a face and an edge has been added to adding a point to a surface (**NG_MESH_VERTEX_ADD**).

The possibility to create a layer with a user-defined name has been added to the contour line creation command (**NG_CREATE_CONTOUR_LINE**).

A new option has been added for the geopoint creation tool (**NG_CREATE_POINTS**) – creating blocks manually.

The bugs in the command for adding structural lines (**NG_MESH_STRUCTURAL_CREATE**) have been fixed. The mode for adding multiple objects has been improved.

An option to create points in the beginning and in the end has been added to the command for creating points by interpolation (**NG_CREATE_POINTS_BY_INTERPOLATION**).

When splitting with the **NG_EXPLODE_POINTCLOUD** command of a point cloud larger than 100000 points, it is now possible to explode it only into objects - points. For clouds smaller than 100000 points, it is still possible to explode it into geopoints and blocks.

The possibility to add new points beyond the surface boundary has been added to the **Add Point** (**NG_MESH_VERTEX_ADD**) and **Adding a Group of Points** (**NG_MESH_VERTEX_ADD_BY_POINTS**) commands.

Construction Module

Bulk conversion of **.dwg Tables** (**DTABLE**) to nanoCAD tables (**TABLE**) has been implemented.

For importing IFC models, the possibility to re-import IFC has been created, regardless of the hash sum, with automatic deletion of the existing MBD file from the cache. And depending on the import version, you can make a request for the availability of model verification and filtering of available verifications.

The number of leader lines is available in the properties of all leaders and the coordinates of the design objects are displayed.

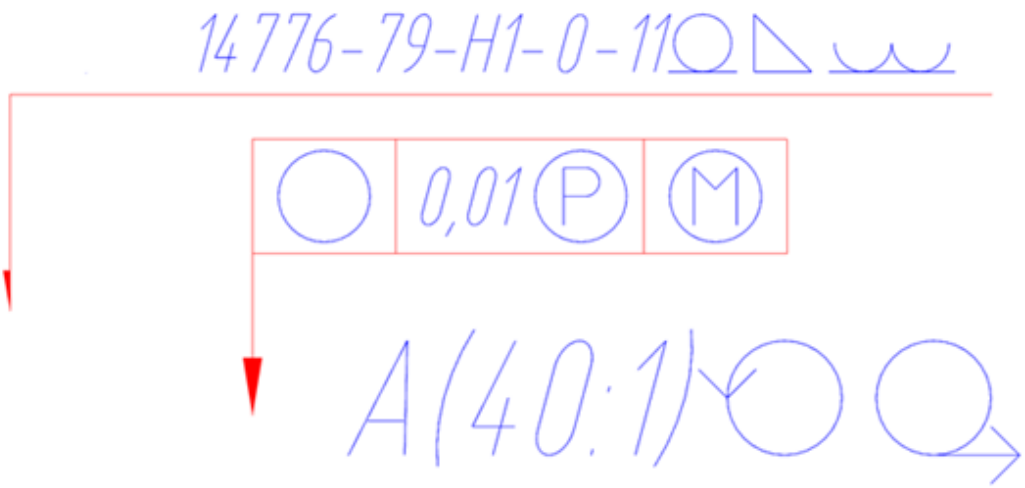
The BCF panel has been optimized.

The construction of rooms, room markers and area values in the UCS has been implemented.

Mechanica Module

Incompressible Characters

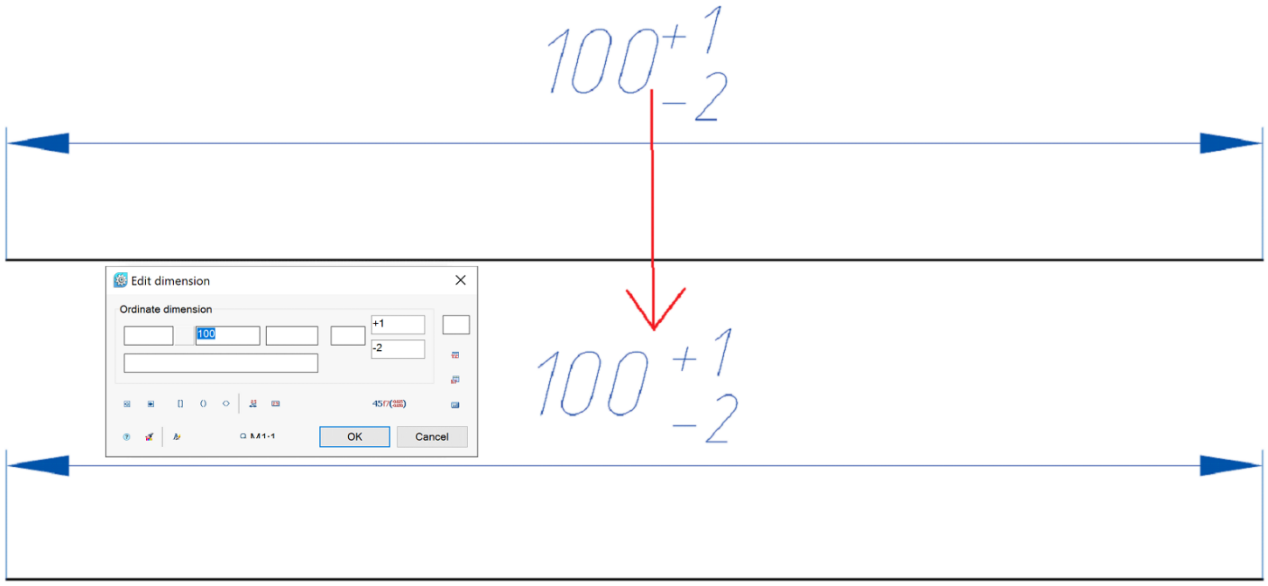
Special characters for designating welds, tolerances of shape and location, rotation and reversal of views are made so that they are not affected by either tilt or compression of the font, i.e. with any tilt and compression of the font, the geometry of these special characters remains unchanged.



Space between the Value and the Dimension Tolerance

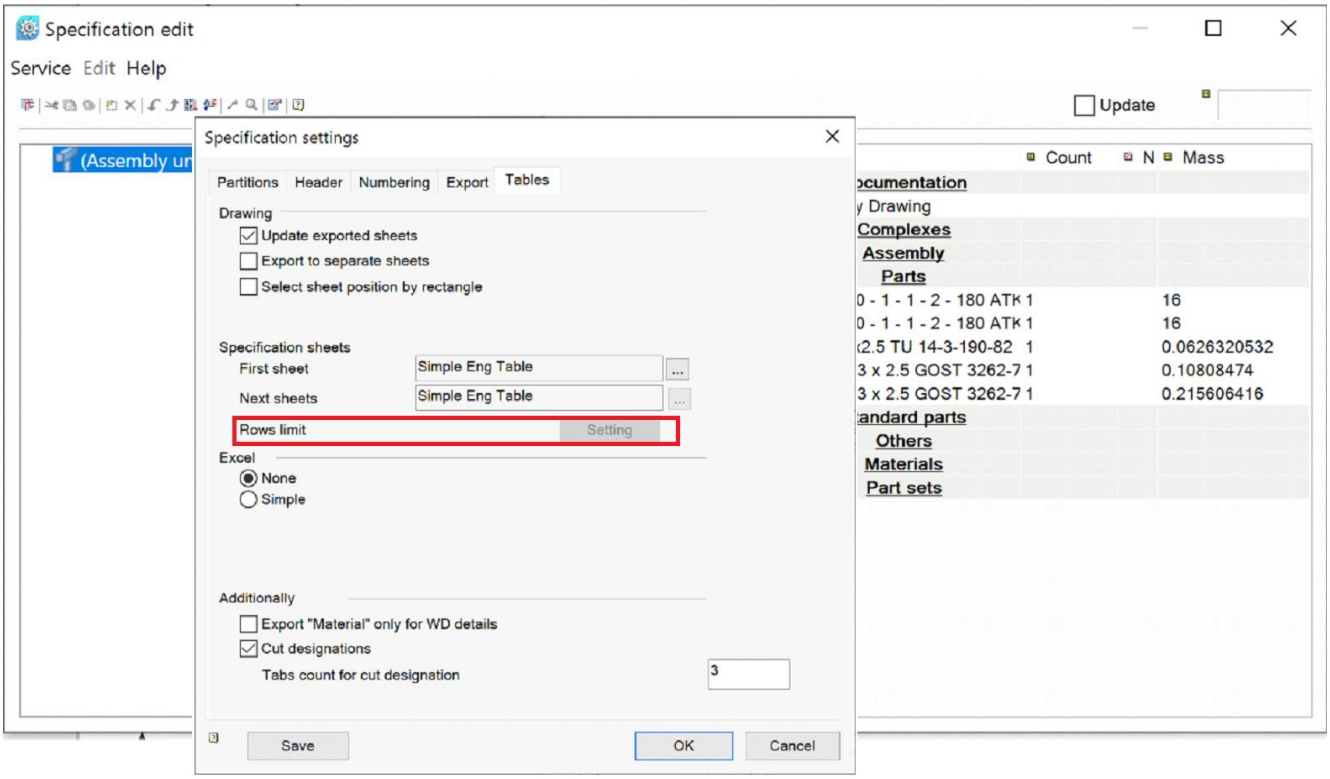
To correct the shortcomings of the dwg text, in which it is impossible to correctly make the slope of fractions in dimensions, a space has been added between the value and the dimension tolerance. The space is automatically added only if the following conditions are met:

- the dimension tolerance is not symmetrical;
- the upper tolerance is not zero;
- the tolerance display method includes the dimension nominal, upper and lower deviations.



Output of Embedded Specification in Several Columns

For the specification embedded in the drawing, the output of data in several columns has been implemented. In the specification settings, on the table tab, there is the **Rows limit** setting, which allows you to set the maximum number of rows for each column with data of specification embedded in the drawing.



3D Module

What’s New

The ability to build a **Pseudo Section** (**VIEWSECTION**) using the prism technology has been implemented. You can switch the method for building a section using the **LIVESECTIONMODE** command.

The option for setting layers for non-parametric 3D solids has been improved. Now, when setting the **Current** layer in the **Design Settings** (**PARAMS**) on the **3D** tab and selecting the desired layer as the current one for 2D geometry, the created 3D solid is located on the same layer.

Textures are now saved on the model when converting a **Mesh** to **3D solids** using the **Convert to Solid** (**CONVTOSOLID**) command.

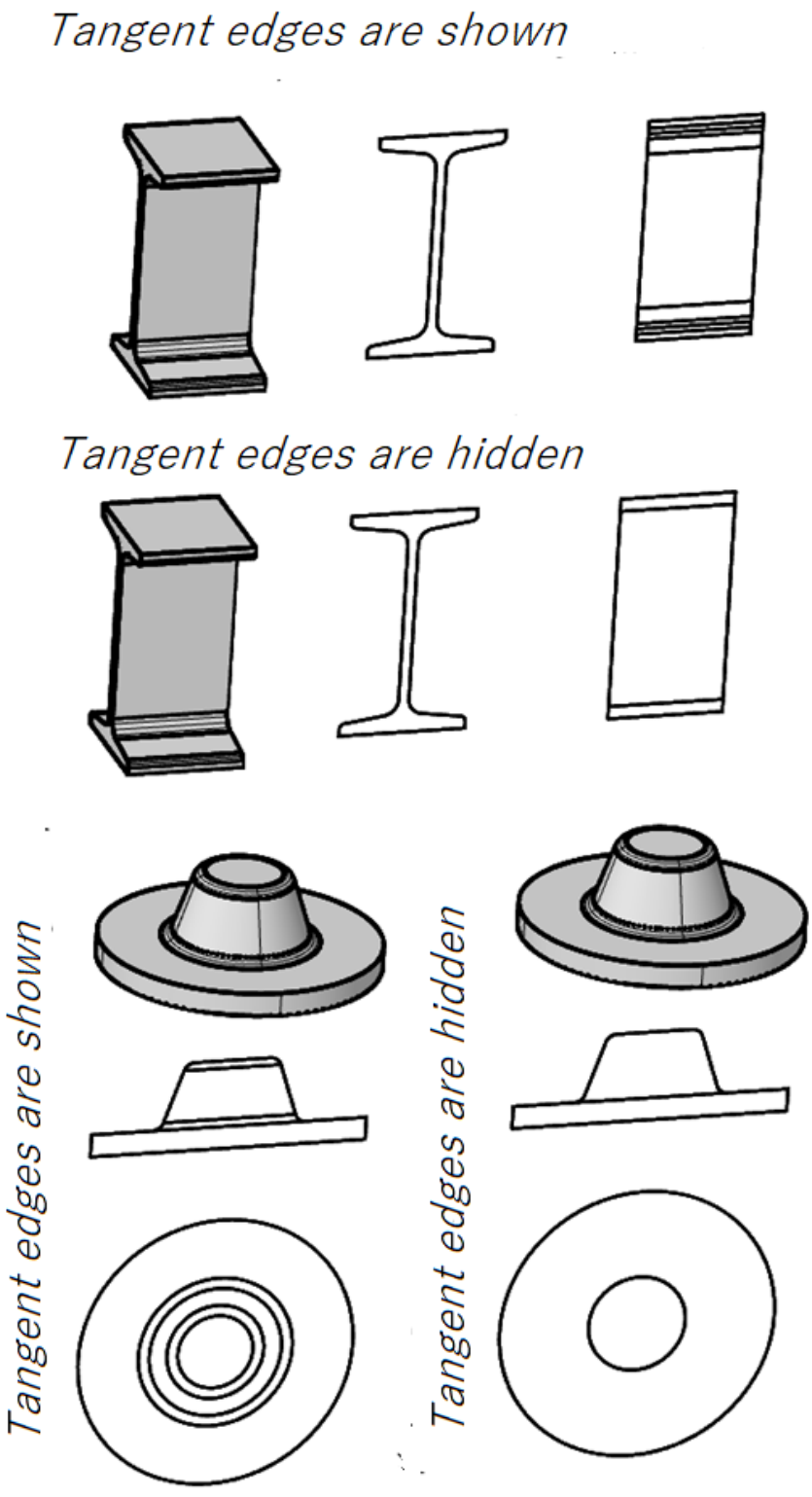
Direct Modeling

New features have been implemented for the **Direct Modeling** (**3DDRAFTINGMODE1**) mode. Face extrusion possibilities have been expanded: more flexible selection of contours, as well as elements that limit the extrusion for face alignment.

The possibility to change the colors of individually selected faces of 3D solids via the **Properties** (**INSPECTOR**) bar has been added.

The possibilities have been added for editing surfaces obtained in the **Surface** mode of the **Extrude** (**EXTRUDE**) command and **Regions** (**REGION**): the dynamic UCS is defined for a face-surface, the **Presspull** (**PRESSPULL**)command is applied to the specified surfaces.

Automatic Hiding of Tangent Edges



For views from 3D models, the **Show tangent edges** switch is set in the properties. If this switch is set to **No**, then the tangent edges in the views will be automatically suppressed. At the same time, the tangent edges of fillets remain visible if these are fillets with a flat surface and the tangent edge is located further than the flat surface in the direction of sight in the view.

What has been Fixed

The program freezes when working with the **Slice** (**SLICE**) command have been eliminated.

The error has been fixed due to which, when editing a polysolid (**3DPOLYSOLID**) using grips (**GRIP**), it moved to zero coordinates.

The algorithm for calculating the volume of a solid after Boolean operations in **Direct modeling** has been corrected.