



ZWCAD 2021 Official

PRODUCT RELEASE NOTES

THE ZWSOFT TEAM

ZWSOFT | 2020/8/26

Welcome to ZWCAD 2021!

Dear friends,

We are glad to tell you that the long-awaited ZWCAD 2021 Official is available now! After a long time of devoted preparation and development, and thanks to your valuable feedback for the Beta version, ZWCAD 2021 finally comes with significant new features and improvements, and notably enhanced efficiency and stability. Now, let's take a look at this Official version.

This Release Note mainly introduces the performance of efficiency and stability, new features and improvements, APIs, new commands and system variables, bug fixes, and limitations and notes in ZWCAD 2021.

Yours sincerely,
The ZWSOFT Team

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ZWCAD 2021 Release Notes

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Overview

ZWCAD 2021 has the following new features:

New Features	Description
Transparency	Transparency effects can be applied to different objects.
External Reference Manager	All kinds of External Reference Managers (DWG, DWF, PDF, Image) are integrated into one.
Viewport Layer	Layer properties can be different in different viewports.
Table Formula	Formulas can be applied in a table.
Field Formula	Fields can be calculated by formulas.
Invert Xclip	The part inside the defined boundary is hidden and the outside part remains.
Customizable Mouse Actions	Users can customize mouse actions in the CUI panel.

Efficiency

The following section describes the efficiency tests in this release.

The efficiency comparison is done based on the typical drawings collected from ZWCAD users. In the bar chart below, we can see that invoking commonly used commands like COPY in ZWCAD 2021 Official takes less time than the previous versions do. This means that choosing our latest version can free you from waiting for simple operations to be done.

Thanks to the upgraded graphic engine of ZWCAD 2021, some operations, such as file opening, moving, and regenerating are much faster than before.

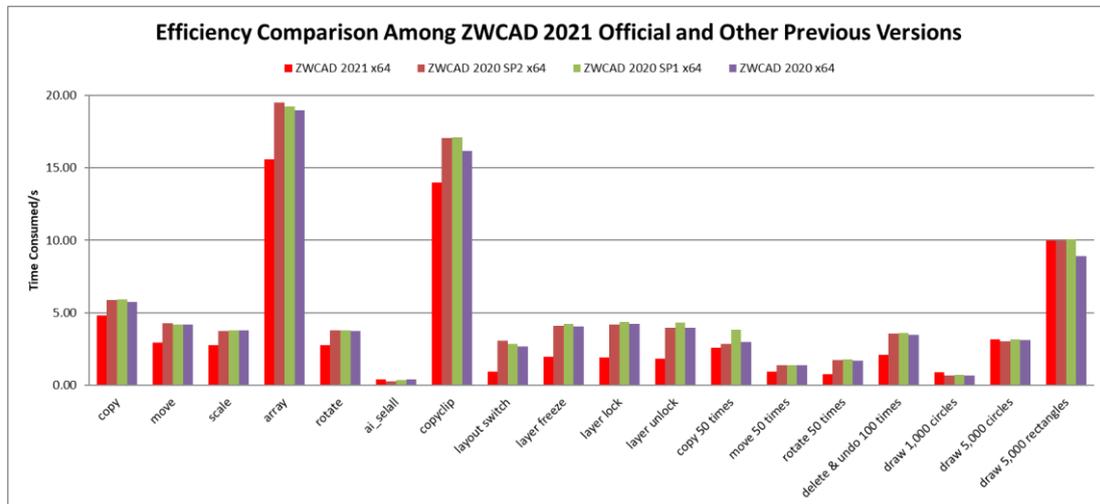


Figure 1. Efficiency comparison with previous versions

Stability

The following section describes the stability tests in this release.

The line chart below indicates that almost 100% of 1,270 comprehensive drawings selected for testing can be opened and saved successfully in previous ZWCAD versions as well as ZWCAD 2021 Official. It proves that ZWCAD is stable and reliable as always.

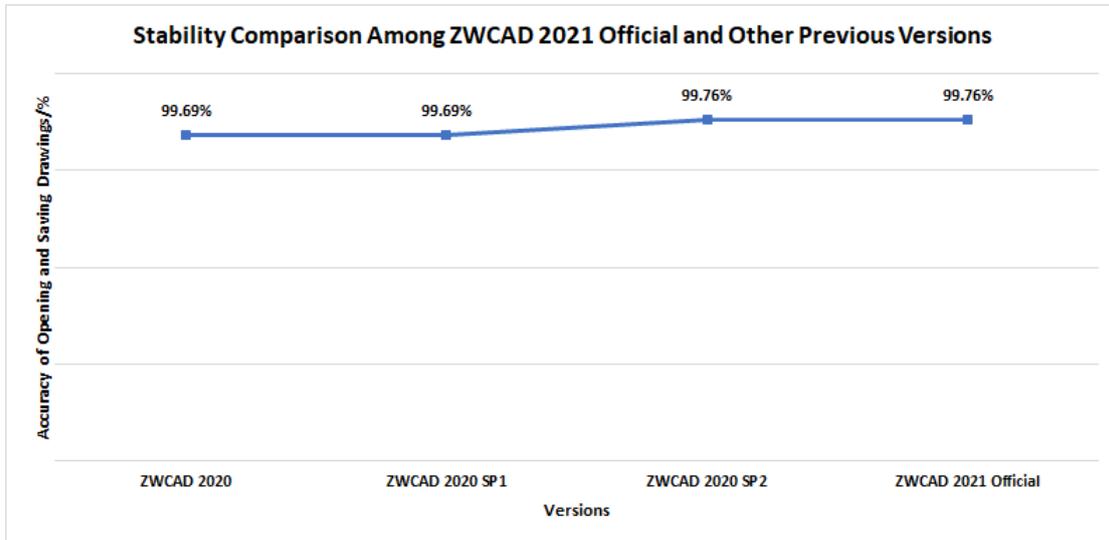


Figure 2. ZWCAD 2021 is stable as always

New Features

This section expounds the new features in this release.

Transparency

You can now assign a value (ranging from 0 to 90) to the transparency of objects, hatches, references, layers, etc. The higher the value is, the more transparent an object will be.

Transparency is widely and diversely used for CAD. For instance, you can make objects hidden under an overlap visible by increasing the transparency of the upper object. Another example is that the transparency of an Xref can be set so that users can easily tell the Xref from the original drawing.

The transparency of all the objects in a layer can be set collectively in the Layer Properties Manager.

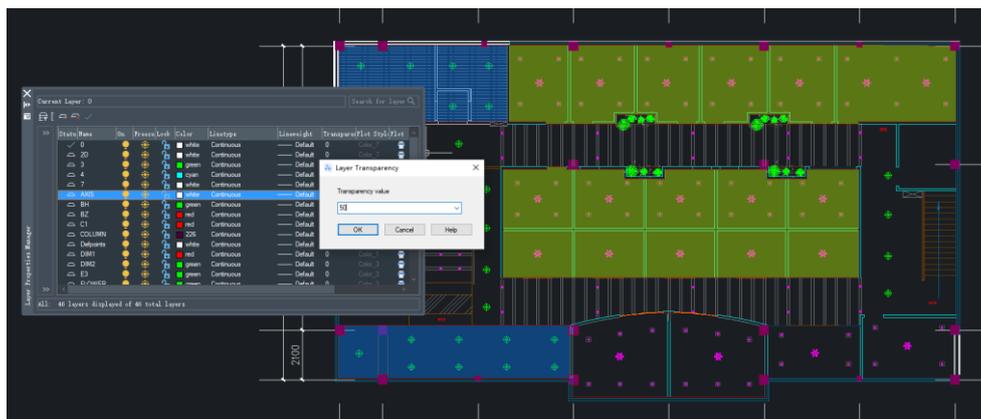


Figure 3. Setting the Transparency value in the Layer Properties Manager

As for setting the transparency of a single object, you can do it in the Properties panel.

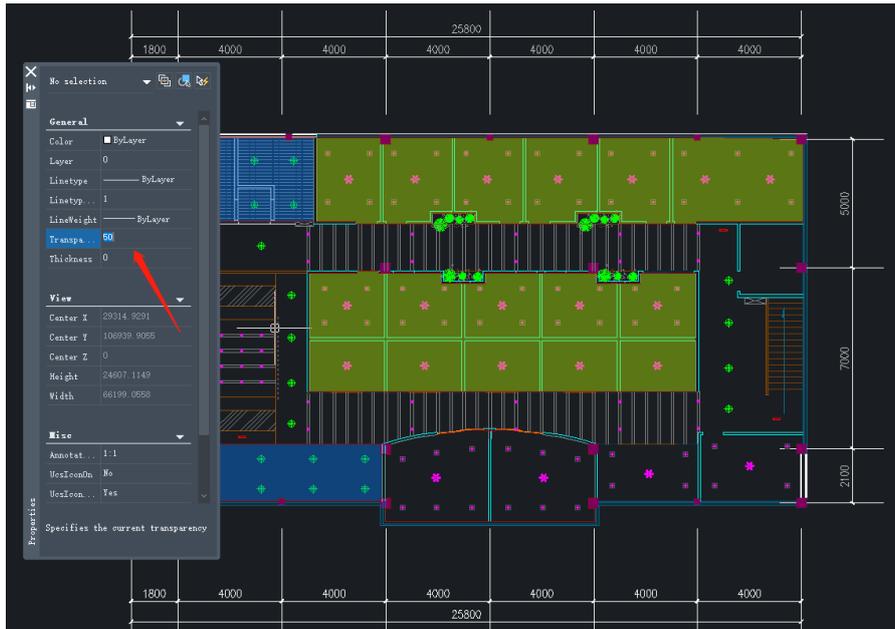


Figure 4. Setting the Transparency value in the Properties panel

External Reference Manager

External files in the formats of DWG, DWF, PDF, PNG, etc. are frequently used as references for CAD. In ZWCAD 2021, all the External Reference Managers are merged into one. You can now check the information of all Xrefs and adjust their status conveniently in one manager (the adjustments will be updated immediately in the drawing), which can remarkably boost the efficiency.

To invoke this manager, simply input XREF in the command line. By clicking the file name in the manager, you can check the detailed information of the file, such as its size, type, and path, and then adjust them in the “Details” box at the bottom of the manager. Also, you can right-click on the file to perform actions like attach, detach, unload, or reload.

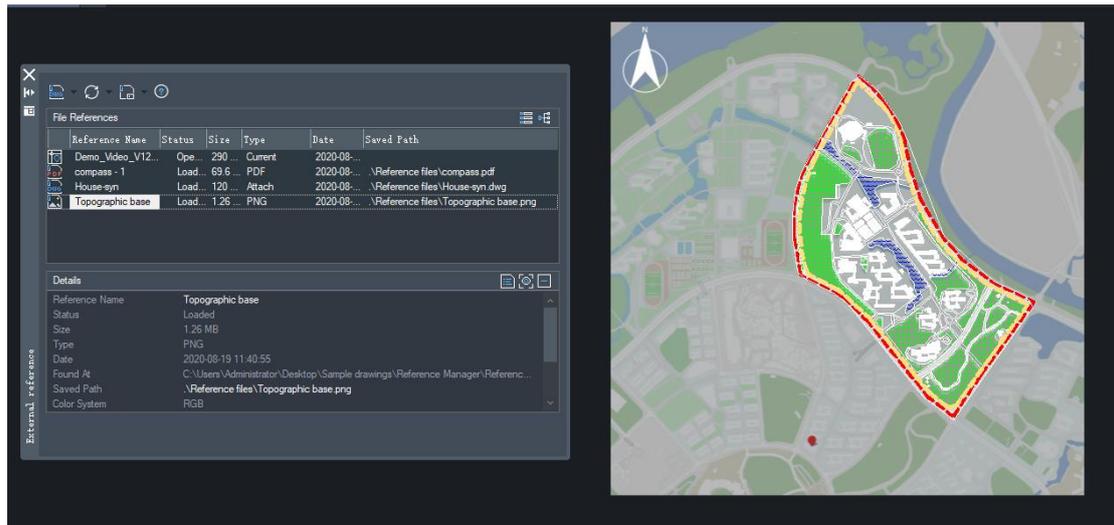


Figure 5. Managing different types of reference files in one panel

Customizable Mouse Actions in CUI

A mouse action on different objects will have different effects. For example, double-clicking on a circle will invoke the Properties panel by default. But now, you can change the effect of double-clicking on a circle to copying, moving, or offsetting it. Besides double-clicking, users can also customize the effects of right-clicking, Shift+Click, Ctrl+Click and Ctrl+Shift+Click. In this way, user experience and working efficiency can be greatly improved.

To customize a mouse action, you can input CUI to invoke the Customize User Interface dialogue box, and then configure under “Double Click Actions” or “Mouse Buttons”. For the detailed tutorial on this feature, please refer to the Help file.

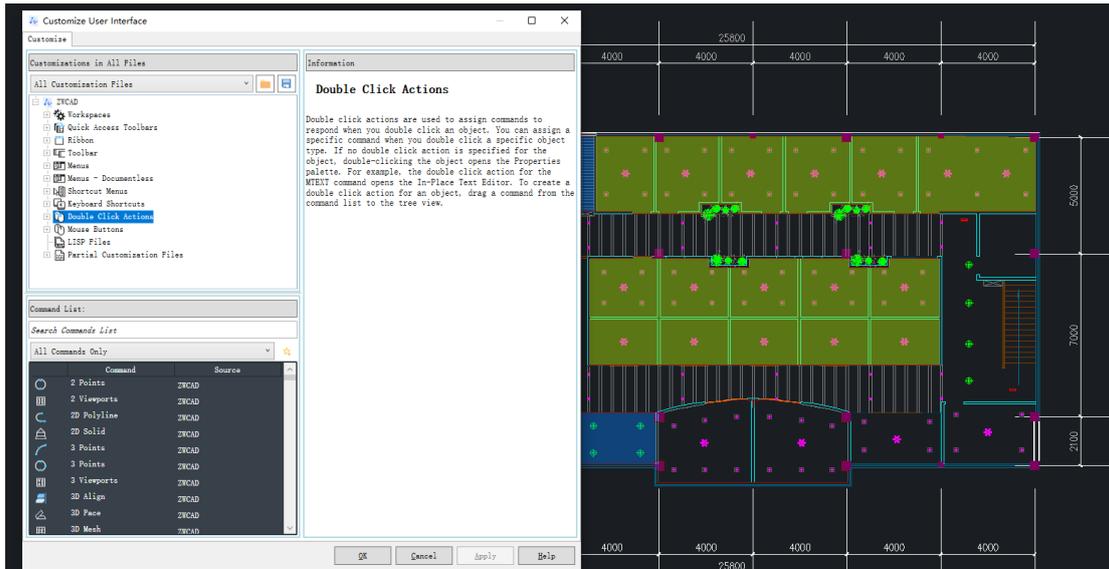


Figure 6. Customizing mouse actions in the CUI panel

Viewport Layer

The newly added Viewport Layer allows you to highlight layer properties (layer color, line type, line weight, plot style, etc.) differently in each viewport. More importantly, the adjustments of viewport layer properties will not affect the layers of the drawing.

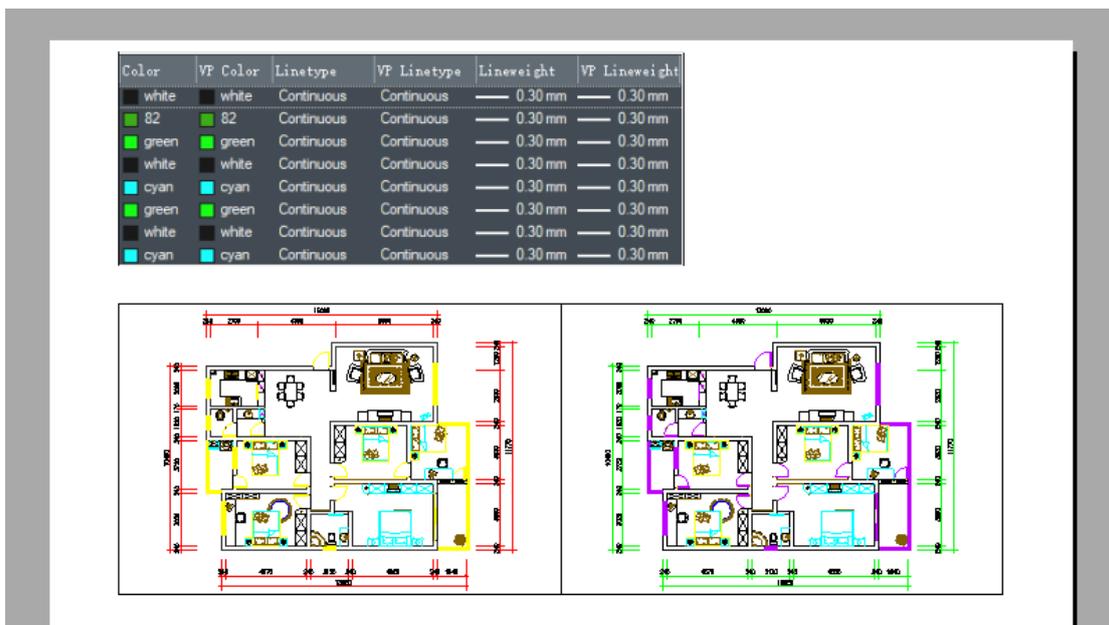


Figure 7. Highlighting different layer properties in different viewports

VpLayer can be really useful when you are plotting a 3D model in different views. For example, some lines are visible in a top view while invisible in a left view. To distinguish one view from another, you can set the line type of the two viewport layers differently.

Clip

The new command CLIP comprises the functionality of XCLIP, IMAGECLIP, PDFCLIP, DWFCLIP, and VPCLIP. With this new command, there is no need to invoke different command to clip objects and Xrefs.

Moreover, grips have been added to the clip boundary and the invert clip mode has been added to the menu for clipping Xrefs in the format of DWG. The clip boundary can be scaled by dragging the grips.

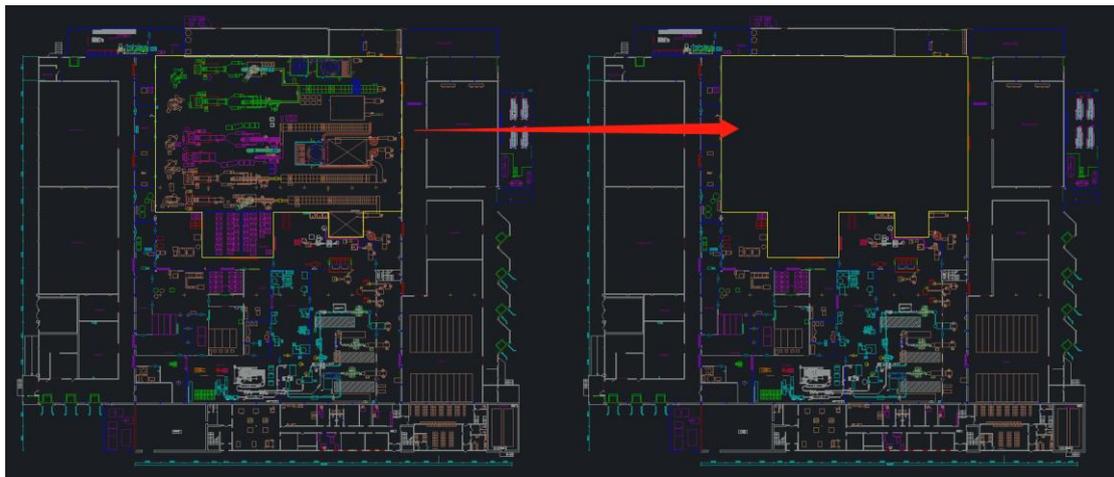


Figure 8. Hiding the objects within the clip boundary using Invert XClip

Table Formula

You can now apply formulas and mathematical expressions, such as Sum, Average, and Count in tables like you do in Excel® and therefore, create bills of materials effortlessly.

The screenshot shows a software window titled "Text Formatting" with a menu bar and a toolbar. Below the toolbar is a table with the following data:

1				
2	ROOM	WIDTH(mm)	LENGTH(mm)	
3	101	3000	3100	=B3*C3
4	102	3800	3100	
5	103	3800	2000	
6	104	3800	3000	
7	105	3800	3000	
8	106	3800	4300	
9	107	3800	3500	
10	Dining Room	3200	4000	
11	Dining Room	3200	5000	
12	Pantry	1800	3500	
13	Toilet	1800	4300	
14	Total	55800		

Figure 9. Formulas are available in the table

Field Formula

When there are changes in the drawing, related fields can be updated using REGEN. Now that there are field formulas, calculations become even quicker.

To quickly calculate, you can enter FIELD to invoke the Field dialogue box and select Formula in the "Field names" box. Then, choose one of the four formulas and a range of cells to average them out, add them up, count the number of cells that contain numbers, or extract information from them.

The image shows a 'Field' dialog box on the left and a table on the right. The dialog box is used for configuring fields in a table, including selecting a category, choosing a field name, and applying a formula. The table on the right, titled 'SQUARE FOOTAGE', lists various rooms with their dimensions and a calculated value. The 'Count' field is selected in the dialog, and the formula 'Table(2143148661160).Evaluate(Count(B3:B13))' is entered. The table shows values for rooms 101 through 107, Dining Room, Pantry, Toilet, and a Total row.

Field Dialog Box Configuration:

- Field category: All
- Field names: Formula (selected)
- Buttons: Average, Sum, Count (selected), Cell, Evaluate
- Preview: 11
- Format: (none)
- Precision: (empty)
- Formula: Table(2143148661160).Evaluate(Count(B3:B13))
- Field expression: %<\AcExpr (Table(%<_ObjId 2143148661160>%).Evaluate(Count(B3:B13)))>%

SQUARE FOOTAGE Table:

ROOM	WIDTH(mm)	LENGTH(mm)
101	3000	3100
102	3800	3100
103	3800	2000
104	3800	3000
105	3800	3000
106	3800	4300
107	3800	3500
Dinning Room	3200	4000
Dinning Room	3200	5000
Pantry	1800	3500
Toilet	1800	4300
Total		

Figure 10. Fields can be calculated by formulas in the table

Improvements

Run DATAEXTRACTION in the Command Line

A new command “-dataextraction” has been added to this version. With it, you can run DATAEXTRACTION in the command line. This makes it more convenient for developers to invoke DATAEXTRACTION in the process of program development with LISP language.

```
Command: -DATAEXTRACTION
Create a new data extraction or [use a .Zex extraction]:
Select objects:
Specify opposite corner:
915 found
Please input a title for the table <>: |
```

Figure 11. Running DATAEXTRACTION in the command line

File Thumbtacks

You can thumbtack certain drawings in the “Recent Documents” list now, making it easier for you to find the documents needed. The thumbtacked drawings will be placed at the top of the list. This improvement is only available in the Ribbon interface.

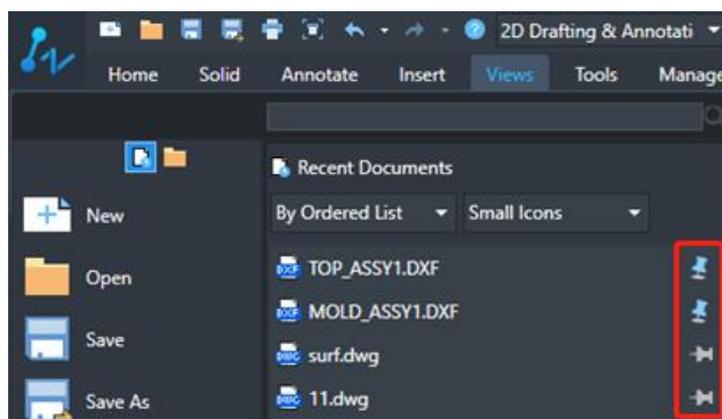


Figure 12. The thumbtacked drawings will be at the top

“Tab” Button to Cycle Select Snap Points

When snap points are close to one another and hard to choose from, you can use the “Tab” button to switch between them. This makes it easier to locate the desired point.

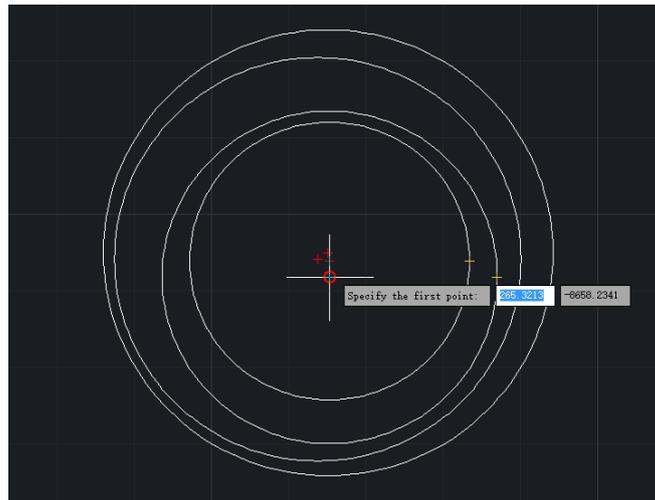


Figure 13. Cycle selecting snap points close to one another

“Proxy Info” Prompt

ZWCAD 2021 will detect if there is any proxy object in the drawing you are opening. If there is a proxy object, the corresponding prompt will pop up and show the information. Meanwhile, you can select a display mode of the proxy objects in this prompt.

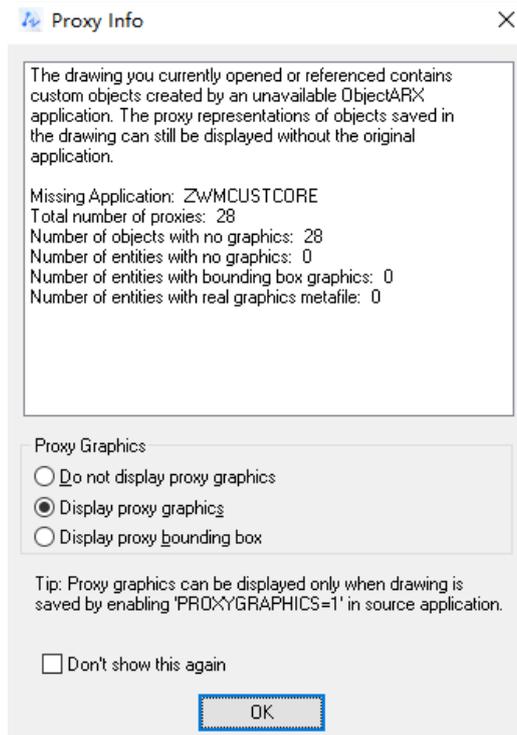


Figure 14. The Proxy Info prompt

New Functions in the Design Center

The “Create Tool Palette” option is added to the context menu of the Design Center, which allows you to transfer all the blocks from the current or an external drawing to a new tool palette instead of transferring one block at a time.

You can also see the added “Block Editor” option in the context menu when you right-click on a block in the Design Center. With this option, you can finish designing the block before transferring it. Hence, the design elements stored in the Tool Palettes can be directly inserted in the drawing without further modifications.

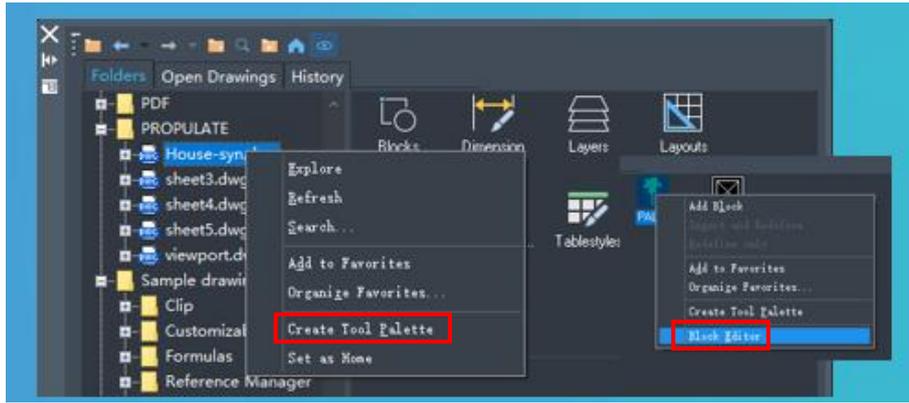


Figure 15. New functions in the Design Center

New “Retry” Button in the Prompt

When you are using a floating license in an unstable network connection, the “ZWCAD Network License warning” prompt will appear and you will have 10 chances to save, export, or plot the drawing you are working on by clicking “OK” on the prompt. Once ZWCAD detects the stable networks available, you can click “Retry” to get the license without restarting ZWCAD, which prevents unexpected data loss.



Figure 16. Save, export, or plot the drawing in an unstable network

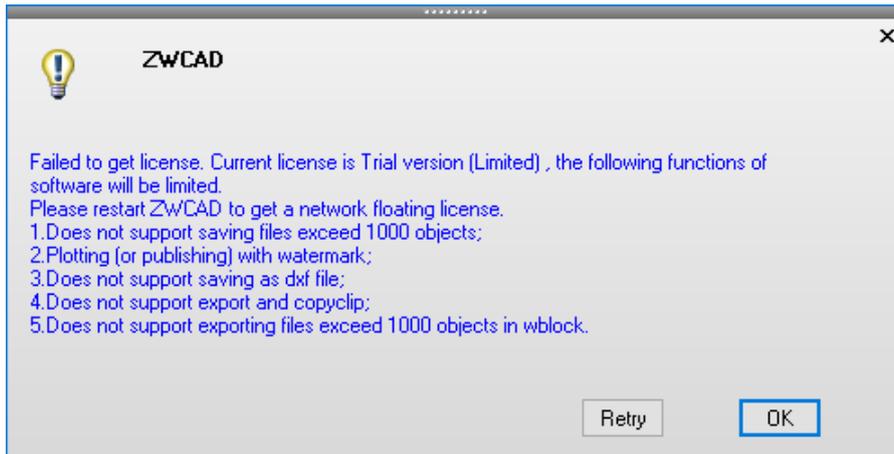


Figure 17. Retry to get the license in a stable network

Hatch Boundary

The “Generate Boundary” option is added to the context menu of right-clicking on a hatch. This option offers an easier way to create non-associative boundaries for irregular hatches.



Figure 18. Create boundary for hatches

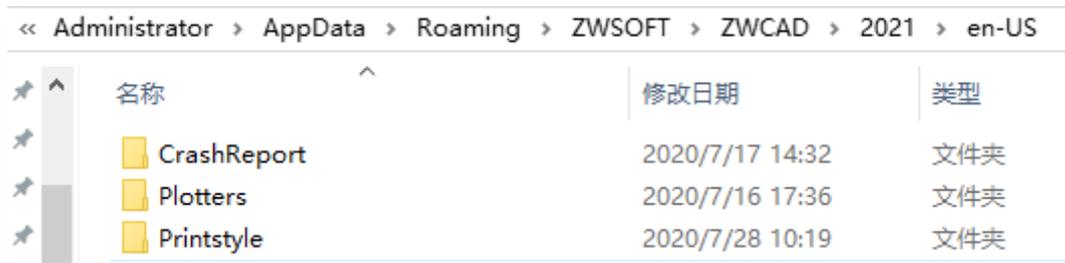
Edit Plot Configurations without Running Software

ZWCAD 2021 allows you to set plotters and print styles in the roaming folder so that you don’t need to run the program.

By inputting %appdata% in the search box of File Explorer (previously known as Windows Explorer), you can open a roaming folder. Then, go to ZWSOFT\ZWCAD\2021\ (Language version)\Plotters/Printstyle.

In the Plotters folder, you can edit plotter configurations by double-clicking on a

specific PC5 file. For example, in the Printstyle folder, print styles can be modified by double-clicking on STB files.



名称	修改日期	类型
CrashReport	2020/7/17 14:32	文件夹
Plotters	2020/7/16 17:36	文件夹
Printstyle	2020/7/28 10:19	文件夹

Figure 19. Editing plotters and print styles without running the program

New Commands & System Variables

New Commands	Description
TRANSPRENCY	Control whether the background display of an image is transparent.
CLIP	Clip the specified object according to the clip boundary.
HATCHGENERATEBOUNDARY	Create a non-associative boundary for the specified hatch.
DGNPURGE	Remove the DGN data in the drawing.
TPNAVIGATE	Switch the tool palette by entering the full name.
-DATAEXTRACTION	Run DATAEXTRACTION in the command line.
EXTERNALREFERENCES	Open the External Reference manager.
EXTERNALREFERENCESCLOSE	Close the External Reference manager.
CLASSICXREF	Open the old External Reference manager.
CLASSICIMAGE	Open the old Image manager.

New System Variables	Description
FRAME	Control whether to display and plot frames of images, underlays, wipeout objects, or clipped Xrefs.
FRAMESELECTION	Control whether the hidden frame of an image, underlay, wipeout, or clipped Xref can be selected.
SMARTMOUSEFIRST	Control whether the right-click function or Smart Mouse function is executed first when the value of system variable SHORTCUTMENU is 0 or greater than or equal to 16.
MIRRHATCH	Control whether the direction of the hatch pattern changes when mirroring the hatch.
OLEFORMAT	Control the format of DWG files where OLE objects are saved.
VPLAYEROVERRIDES	Indicate whether there are any layer property overrides in the current viewport.

VPLAYEROVERRIDE MODE	Control whether to display and plot the layer property overrides of the viewport.
LAYEROVERRIDE HIGHLIGHT	Control whether the layers with property overrides are highlighted in the Layer Properties Manager. When it is on, the name and properties of the layer with property overrides will be highlighted with the background color.
TRANSPARENCY DISPLAY	Control whether the transparency effect of an object is effective.
CETRANS PARENCY	Set the transparency of new objects.
HPTRANSPARENCY	Set the transparency of new hatches. Valid values include ".", "ByLayer", "ByBlock" and integers from 0 to 90. The "." means to use the current value (specified by the system variable CETRANS PARENCY). Integers from 0 to 90 represent the transparency percentage. 0 is opaque, and 90 is the most transparent.
ERHIGHLIGHT	Control whether the reference object or reference name is highlighted when the reference name is selected in the External Reference palette or the reference object is selected in the drawing window.
COLORTHEME	Control whether the display style of the interface is light or dark.
EDUCHECK	Control whether the warning will appear when opening the education version of drawings, and whether there is a watermark when printing the education version of drawings. The setting of this system variable does not affect the education versions of ZWCAD.
EDITNESTEDBLOCK	Invoke the BEDIT or REFEDIT command to edit blocks and control the pre-selection when dialogue box pops up.

APIs

The following section describes the condition of APIs in this release.

ZRX

We have upgraded the ZRXSDK in ZWCAD 2021, and 13738 APIs are supported.

For full information, please refer to [ZWCAD2021_ZRX.xlsx](#).

.NET

11 were added and 15 were fixed:

State	Interface
Added	RibbonList.Items Property
Added	RibbonControl.ActiveTab Property
Added	RasterImage.EnableReactors Method
Added	Region.AreaProperties Method
Added	Autodesk.AutoCAD.ExportLayout Namespace
Added	Wipeout.SetFrom Method
Added	ObservableCollection.GetUndoHistory Method
Added	Manager.CreateAutoCADOffScreenDevice Method
Added	Device.Device Constructor ()
Added	Device.GetSnapshot Method

Added	View.Add Method
Fixed	Curve.GetClosestPointTo Method (Point3d, [MarshalAs(UnmanagedType.U1)] bool)
Fixed	Editor.GetKeywords Method (PromptKeywordOptions)
Fixed	Application.SetSystemVariable Method
Fixed	Curve.GetPointAtParameter Method
Fixed	RasterImage.EnableReactors Method
Fixed	PromptSelectionOptions.PromptSelectionOptions Constructor
Fixed	LinearEntity3d.Overlap(LinearEntity3d, Tolerance) Method
Fixed	Editor.SelectAll(SelectionFilter) Method
Fixed	Publisher.PublishExecute Method
Fixed	Autodesk.AutoCAD.GraphicsSystem.RenderMode Enumeration
Fixed	Polyline.GetBulgeAt Method
Fixed	Autodesk.AutoCAD.Windows.DockSides Enumeration
Fixed	Viewport.NonRectClipEntityId Property
Fixed	InputPointContext.GetPickedEntities Method
Fixed	Entity.MoveStretchPointsAt Method

ZWCAD 2021 Official allows you to customize the Ribbon interface by the .Net interface:

Class Name	Interface
ZwSoft.Windows.RibbonTab	All interfaces
ZwSoft.Windows.RibbonPanel	All interfaces
ZwSoft.Windows.RibbonPanelSource	All interfaces
ZwSoft.Windows.RibbonRowPanel	All interfaces
ZwSoft.Windows.RibbonFoldPanel	All interfaces
ZwSoft.Windows.RibbonPanelBreak	All interfaces
ZwSoft.Windows.RibbonSubPanelSource	All interfaces
ZwSoft.Windows.RibbonButton	All interfaces
ZwSoft.Windows.RibbonRowBreak	All interfaces
ZwSoft.Windows.RibbonItem	All interfaces
ZwSoft.Windows.RibbonCommandItem	All interfaces
ZwSoft.Windows.RibbonSplitButton	All interfaces
ZwSoft.Windows.RibbonToggleButton	All interfaces
ZwSoft.Windows.RibbonSeparator	All interfaces
ZwSoft.ZwCAD.Ribbon.RibbonCommandButton	All interfaces
ZwSoft.Windows.RibbonDataBoundDropDown	All interfaces
ZwSoft.Windows.RibbonList	All interfaces
ZwSoft.Windows.RibbonListButton	All interfaces
ZwSoft.Windows.RibbonGallery	All interfaces
ZwSoft.Windows.RibbonMenuItem	All interfaces
ZwSoft.Windows.RibbonMenuButton	All interfaces
ZwSoft.Windows.ToolBars.ToolBarSource	All interfaces

ZwSoft.Windows.ToolBars.QuickAccessToolBarTraySource	All interfaces
ZwSoft.Windows.ToolBars.ToolBarTraySource	All interfaces
ZwSoft.Windows.RibbonItemEventArgs	All interfaces
ZwSoft.Windows.RibbonPropertyChangedEventArgs	All interfaces
ZwSoft.Windows.RibbonPropertyChangingEventArgs	All interfaces
ZwSoft.ZwCAD.Ribbon.RibbonServices	RibbonServices.RibbonPaletteSetProperty
ZwSoft.ZwCAD.RibbonPaletteSet	RibbonPaletteSet.RibbonControlProperty
ZwSoft.Windows.RibbonCombo	RibbonCombo.CommandHandlerProperty
ZwSoft.Windows.RibbonCombo	RibbonCombo.MenuItemsProperty
ZwSoft.Windows.RibbonCombo	RibbonSeparator.CopyFrom Method
ZwSoft.Windows.ToolBars.QuickAccessToolBarSource	QuickAccessToolBarSource.CopyFrom Method
ZwSoft.Windows.ToolBars.QuickAccessToolBarSource	QuickAccessToolBarSource.AddStandardItem Method
ZwSoft.Windows.ToolBars.QuickAccessToolBarSource	QuickAccessToolBarSource.FindStandardCommand Method
ZwSoft.Windows.ToolBars.QuickAccessToolBarSource	QuickAccessToolBarSource.RemoveStandardItem Method
ZwSoft.Windows.ToolBars.QuickAccessToolBarSource	QuickAccessToolBarSource.InsertStandardItem Method
ZwSoft.Windows.RibbonControl	RibbonControl.Tabs Property
ZwSoft.Windows.RibbonControl	RibbonControl.ActiveTab Property

VBA

1 was added and 5 were fixed:

State	Interface
Added	MLeader.GetLeaderLineVertices Method
Fixed	ModelSpace.AddSpline Method
Fixed	Document.SendCommand Method
Fixed	Layout.ConfigName Property
Fixed	Layout.StyleSheet Property
Fixed	Document.Activate Event

LISP

1 was added and 36 were fixed:

State	Description
Added	acet-currentviewport-ename
Fixed	getstring
Fixed	ssget
Fixed	getkeyword
Fixed	entget
Fixed	entmod

Fixed	grvec
Fixed	add_list
Fixed	angtof
Fixed	vl-string-subst
Fixed	setvar
Fixed	command
Fixed	entmake
Fixed	vla-safearray->list
Fixed	entdel
Fixed	vla-put-ToolPalettePath
Fixed	grread
Fixed	open
Fixed	vla-getremotefile
Fixed	list
Fixed	vl-cmdf
Fixed	set_tile
Fixed	entnext
Fixed	equal
Fixed	action_tile
Fixed	vl-sort
Fixed	getint
Fixed	vl-list->string
Fixed	vla-invoke
Fixed	vla-make-variant
Fixed	vla-put-closed
Fixed	entsel

Bug Fixes

Below are some important fixed bugs. For the complete list, please refer to:

<https://zwcad.freshdesk.com/support/solutions/articles/24000058938-what-s-fixed-in-zwcad-2021-official>

Bug ID	Description
APIs	
SUP-27540	lisp: Commands registered in lisp cannot be transparently executed.
SUP-19268	lisp: Failed to download lsp files from the server by vla-getremotefile.
SUP-18892	saveas: The last save path of the current document cannot be remembered when the drawing is saved as.
Others	
SUP-17813	smartplot: Hope to add the function of printing drawings as separate DXF files.
SUP-28718	layfrz/layer/xref: Cannot freeze the layer by selecting the entity in the external reference.
SUP-17826	layout: ZWCAD will delete the layout and replace the deleted layout with 2 new layouts (named layout1, Layout 2).
SUP-17657	Hatch\Boundary: The re-created fill boundary is incorrect.
SUP-18559	xref: ZWCAD cannot fully recognize all external references created in AutoCAD®.
SUP-19320	image: After opening the attached drawing, the raster image cannot be displayed.
SUP-18830	dataextraction: Cannot extract blocks created by pasting as using the BLOCK command.
SUP-18494	Block: I hope that the user settings will remain after exiting and restarting the software.

SUP-19330	zrx\AcDb3dPolyline::getPointAtParam: After inputting a value greater than endparam, the return value is incorrect.
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Limitations and Notes

SUP ID	Description
SUP-28171	Xref: When the drawing is not saved, changing the Xref's path to relative path is clickable, but not effective.
SUP-28167	Field: After pasting the "object" field in the "formula" field, the data displayed are incorrect.
SUP-28796	Field/formula/regen: When data changed, the result needs regenerating twice to be updated.
SUP-28189	.Net\Ribbon: RibbonCheckBox is not supported.
SUP-28188	.Net\Ribbon: Ribbonbutton-related interfaces do not support ToolTip.
SUP-28190	.Net\Ribbon: RibbonLabel is not supported.