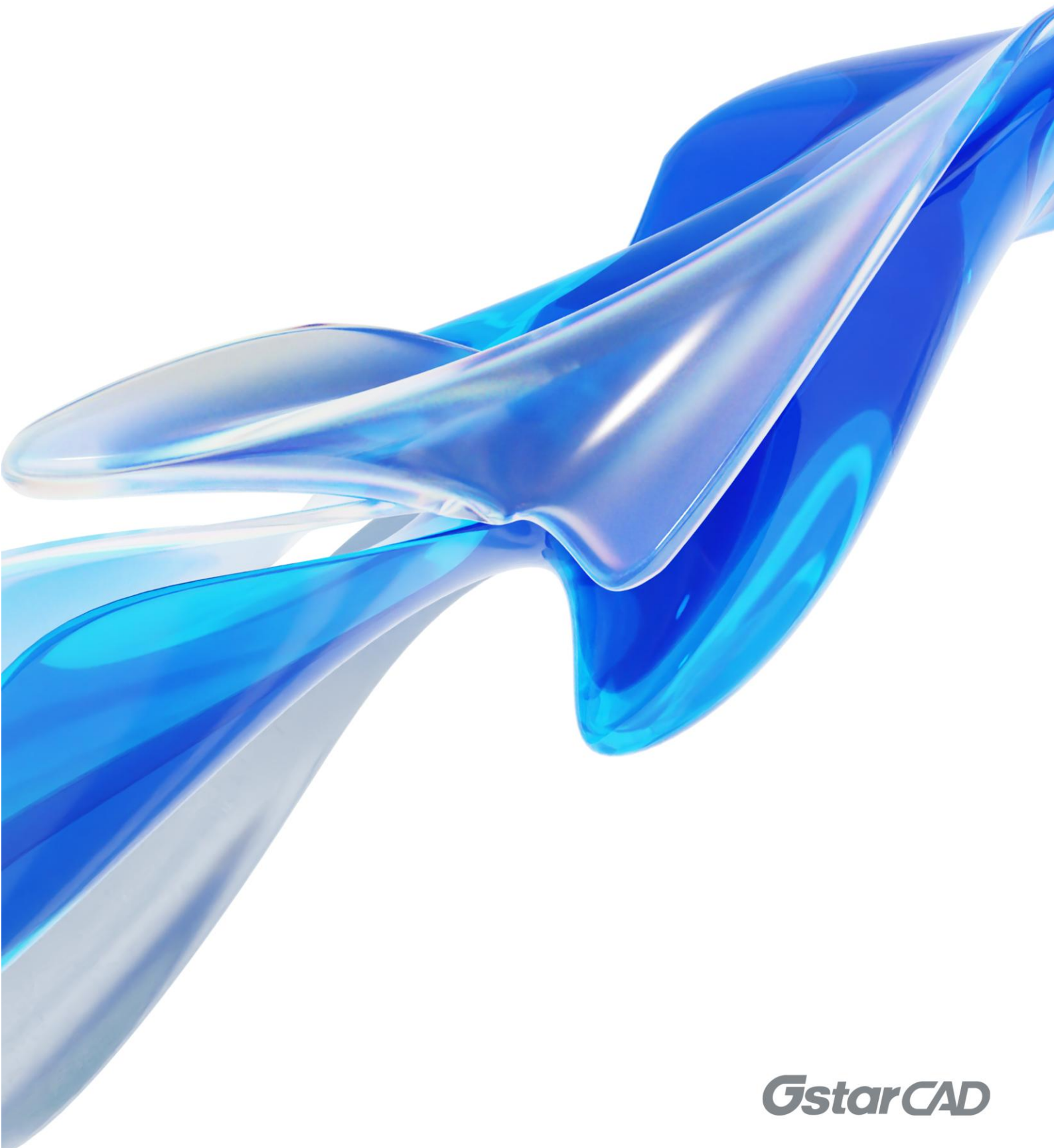




# ***GstarCAD 2025 VS AutoCAD 2025***

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***GstarCAD 2025***



# Table of Content

1.	Product Comprehensive Comparison.....	3
1.1.	Compatibility Comparison.....	3
1.2.	Performance Comparison.....	6
1.3.	Features Comparison.....	7
1.3.1.	Basic Features Comparison .....	7
1.3.2.	Key Features Comparison .....	28
1.3.3.	AutoCAD Special Features .....	33
1.3.4.	GstarCAD Special Features .....	38
1.3.5.	AutoCAD 2025 New Features.....	41
1.3.6.	GstarCAD2025 New Features.....	45
2.	Market Positioning.....	48
2.1.	Pricing Strategy.....	48
2.1.1.	AutoCAD2025.....	48
2.1.2.	GstarCAD 2025.....	49
2.2.	Marketing Share .....	50
3.	Summary and Suggestions .....	50

# GstarCAD 2025 VS AutoCAD 2025

GstarCAD 2025 elevates performance to a new level with **Hardware Acceleration** and other improvements, significantly enhancing the design experience. Exciting new features include **Parametric Constraints, BIM Data Editing, and Voice Annotation, etc.**, which further enrich functionality. Moreover, compatibility has been expanded with the addition of **Python** support, empowering more robust customization and automation. Without further ado, let's explore these exciting updates!

## 1. Product Comprehensive Comparison

### Comparison Environment

Product name	AutoCAD 2025	GstarCAD 2025
Software version	AutoCAD2025 (Windows 64-bit)	GstarCAD2025 (BUILD240603-64Bit)
System environment	Windows 11 Home version 23H2 10.0.22631.3593	
Hardware environment (processor)	11th Gen Intel ® Core™ i7-1165G7@2.80GHz	
Hardware environment (graphics card)	NVIDIA GeForce MX450 2GB	
Hardware environment (RAM)	16GB (8+8) DDR4 3200MHz	

### 1.1. Compatibility Comparison

- **Graphics File Compatibility:** GstarCAD 2025 can fully achieve bidirectional compatibility with AutoCAD2025 in terms of compatibility and adaptation of mainstream graphic file and drawing formats. GstarCAD has obvious advantages in IFC file import and export, IGES file export, etc., but it is still slightly insufficient in the adaptation of some unpopular formats such as Pro/ENGINEER Granite/Neutral, JT, etc. Each software has its own advantages and disadvantages.
- **Data File compatibility:** In order to ensure that the drawing display and printing effects are completely consistent with AUTOCAD, GstarCAD 2025 is fully compatible with various AutoCAD data files such as font files (\*.shx), line type files (\*.lin), Hatch pattern files (\*.pat), alias files (\*.pgp), sheet set files (\*.dst), slide files (\*.sld), script files (\*.scr), etc.
- **Secondary Development Compatibility:** The LISP VBA SDS GRX in GstarCAD is perfectly compatible with AutoCAD development interface. The tool plug-ins on AutoCAD can be easily migrated to the GstarCAD platform, and the Python secondary development interface is added to GstarCAD 2025, providing more possibilities for the software secondary development ecosystem.

Compatibility	AutoCAD 2025		GstarCAD 2025	
	Import	Export	Import	Export
DWG/DFX 2.5-2018	✓	✓	✓	✓
Template file (*.dwt)	✓	/	✓	/
Standard file (*.dws)	✓	/	✓	/
Interface files (*.cui/*.cuix)	✓	/	✓	/
Old menu files (*.mnu)	✓	/	✓	/
Sheet set files (*.dst)	✓	/	✓	/
Hatch file (*.pat)	✓	/	✓	/
Font files (*.shx)	✓	/	✓	/
Linetype files (*.lin)	✓	/	✓	/
Alias file (*.pgp)	✓	/	✓	/
Script file (*.scr)	✓	/	✓	/
Print style table files (*.ctb/*.stb)	✓	/	✓	/
LISP development interface	✓	/	✓	/
VBA development interface	✓	/	✓	/
Arx-like development interface	✓	/	✓	/
.net development interface	✓	/	✓	/
Python development interface	✗	/	✓	/
IFC2x3/IFC4 (*.ifc)	✗	✗	✓	✓

Revit (*.rvt)	×	×	✓	×
Step (*.stp *.step)	✓	✓	✓	✓
Iges (*.igs *.iges)	✓	×	✓	✓
Catta v4/v5	✓	/	×	/
Inventor (*.ipt *.iam)	✓	/	×	/
Jt (*.jt)	✓	/	×	/
Parasolid binary/text files	✓	/	×	/
Pro/engineer granite/neutral	✓	/	×	/
Rhino (*.3dm)	✓	/	(Under development)	/
Solidworks (*.prt *.sldprt *.asm *.sldasm)	✓	×	×	×
Acis (*.sat)	✓	✓	✓	✓
Others (*.dea *.fvx *.obj *.ply *.stl)	×	×	✓	×
3D DWF/DWFX (*.dwf *.dwfx)	/	✓	/	✓
Metafile (*.wmf)	/	✓	/	✓
Enhanced metafile (*.emf)	/	×	/	✓
3D model file format (*.stl)	/	✓	/	✓
Package ps (*.eps)	/	✓	/	✓
Dxx extract (*.dxx)	/	✓	/	✓
Bitmap (*.bmp)	/	✓	/	✓

DGN v7/v8 (*.dgn)	/	✓	/	✗
Vectorgraph (*.svg)	/	✗	/	✓

## 1.2. Performance Comparison

Test items	TESTFILE01(48.8MB)		TESTFILE02 (114MB)	
	AUTOCAD 2025	GstarCAD 2025 Plus	AUTOCAD 2025	GstarCAD 2025 Plus
	Average value	Average value	Average value	Average value
Open	5.77	<b>4.23</b>	5.55	<b>5.35</b>
save	3.81	<b>3.66</b>	4.73	6.52
Regen	1.91	<b>1.89</b>	2.14	<b>1.36</b>
Zoom All	0.8	<b>0.51</b>	1.21	<b>0.6</b>
Select all	0.6	<b>0.47</b>	1.63	<b>0.4</b>
delete	1.84	<b>0.88</b>	1.34	<b>0.97</b>
move	15.79	<b>5.51</b>	13.28	<b>9.69</b>
Revocation	6.88	<b>4.47</b>	11.15	12
recover	7.03	<b>4.79</b>	16.24	<b>12.31</b>
Mirror	15.74	<b>5.35</b>	12.82	<b>9.30</b>
CTRL+C	51.82	<b>39.95</b>	104.57	<b>26.88</b>
Paste to original	50.64	<b>49.63</b>	169.60	<b>49.15</b>

### 1.3. Features Comparison

#### 1.3.1. Basic Features Comparison

Among the 221 commonly used commands of AutoCAD2025, the functions related to 2D drawing are basically 100% covered by GstarCAD. AutoCAD2025 and GstarCAD 2025 also have their own unique functions that surpass each other, and they are equally matched in the comprehensiveness of drawing functions.

Commonly Used Commands in AutoCAD		GstarCAD 2025	Remark	GstarCAD 2025 Innovative Features
A				
A	ARC / Creates an arc	✓		<b>ALIGNTOOL</b>  Quick Align the Objects
ADC	ADCENTER / Manages and inserts objects such as blocks, xrefs, and hatch patterns	✓		<b>AREASUM</b>  Displays the current closed region value and area sum sequence in command line.
AA	AREA / Calculates the area and perimeter of an object or defined area	✓		<b>AREATABLE</b>  Dimensions and exports area data
AL	ALIGN / Aligns objects with other objects in 2D and 3D space	✓		<b>ARRANGETOOL</b>  Distributes the Objects
AP	APPLOAD / Loads application	✓		...
AR	ARRAY / Creates multiple copies of an object in an array	✓		
ARR	ACTRECORD / Starts the action recorder	✗	<b>Action Recorder</b>  Related Functions	
ARM	ACTUSERMESSAGE / Inserts a user message into an action macro	✗		

ARU	ACTUSERINPUT / Pauses in an action macro to wait for user input	✗		
ARS	ACTSTOP / Stops the action recorder and provides the option to save the recorded actions to an action macro file	✗		
ATI	ATTIPEDIT / Changes the text content of an attribute in a block	✓		
ATT	ATTDEF / Redefines a block and updates associated attributes	✓		
ATE	ATTEDIT / Changes attribute information in a block	✓		
<b>B</b>				
B	BLOCK / Creates a block definition from selected objects	✓		<b>BARCODE</b> Creates barcodes from text
BC	BCLOSE / Close the block editor	✓		<b>BATPURGE</b> Cleans up redundant objects in batches
BE	BEDIT / Opens a block definition in the Block Editor	✓		...
BH	BHATCH / Fills an enclosed area or selected objects with a hatch pattern, solid fill or gradient fill	✓		
BO	BOUNDARY / Creates a region or polyline from a closed area	✓		
BR	BREAK / Breaks the selected objects between two points	✓		
BS	BSAVE / Saves the current block definition	✓		



BVS	BVSTATE / Creates, sets, or deletes the visibility state of a dynamic block.	✓		
<b>C</b>				
C	CIRCLE / Creates a circle	✓		<b>CAREA</b> Exports the area to Excel
CAM	CAMERA / Sets the camera position and target position to create and save a 3D perspective view of an object.	×/	<b>CAMERADISPLAY</b> <b>CAMERAHEIGHT</b> There are related system variables but they are not effective.	<b>COLSS</b> Selects all entity sets with the same color
CBAR	CONSTRAINTBAR / Toolbar-like UI element that displays the available geometric constraints on an object	✓		<b>CHLA</b> Transforms the wall line of the specified line
CH	PROPERTIES / Controls the properties of existing objects	✓		...
CHA	CHAMFER / Adds a chamfer to an object	✓		
CHK	CHECKSTANDARDS / Checks the current drawing for standards violations	×	<b>Check for standards violations</b>	
CLI	COMMANDLINE / Displays the command line window	✓		
COL	COLOR / Sets the color of new objects	✓		
CO	COPY / Copies an object at a specified distance in a specified direction	✓		

CT	CTABLESTYLE / Sets the name of the current table style	✓		
CUBE	NAVVCUBE / Controls the visibility and display properties of the ViewCube tool	✓		
CYL	CYLINDER / Creates a solid 3D cylinder	✓		
<b>D</b>				
D	DIMSTYLE / Create and modify dimension styles	✓		<b>DYJT/REGSCALE</b> Selects a region of a drawing to be cut and copied to a new location.
DAN	DIMANGULAR / Creates an angular dimension	✓		...
DAR	DIMANGULAR / Creates an arc length dimension	✓		
DBA	Creates a linear, angular, or ordinate dimension from the baseline of the previous or selected dimension.	✓		
Dbc	DBCCONNECT / Provides an interface to external database tables	✗/	<b>DBCSTATE</b> There are related system variables but they are not effective	
DCE	DIMCENTER / Creates center marks or center lines for circles and arcs	✓		
DCO	DIMCONTINUE / Creates a dimension that begins at the extension line of the last dimension created	✓		

DCON	DIMCONSTRAINT / Applies dimensional constraints to selected objects or points on objects	×	Dimensional constraints	
DDA	DIMDISASSOCIATE / Removes associativity from selected dimensions	✓		
DDI	DIMDIAMETER / Creates a diameter dimension for a circle or arc	✓		
DED	DIMEDIT / Edits dimension text and extension lines	✓		
DI	DIST / Measures the distance and angle between two points	✓		
DIV	DIVIDE / Creates evenly spaced point objects or blocks along the length or perimeter of an object.	✓		
DJL	DIMJOGLINE / Adds or removes a jog line on a linear or aligned dimension	✓		
DJO	DIMJOGGED / Creates jog dimensions for circles and arcs	✓		
DL	DATALINK / Displays the Data Link dialog box	✓		
DLU	DATALINKUPDATE / Updates data to or from an established external data link	✓		
DO	DONUT / Creates a solid circle or wider ring	✓		
DOR	DIMORDINATE / Creates a coordinate dimension	✓		

DOV	DIMOVERRIDE / Controls overrides of system variables used in selected dimensions.	✓		
DR	DRAWORDER / Changes the draw order of images and other objects	✓		
DRA	DIMRADIUS / Creates a radial dimension for a circle or arc	✓		
DRE	DIMREASSOCIATE / Associates or reassociates selected dimensions to an object or point on an object	✓		
DRM	DRAWINGRECOVERY / Displays a list of drawing files that can be recovered after a program or system failure.	✓		
DS	DSETTINGS / Sets grid and snap, polar and object snap tracking, object snap modes, Dynamic Input, and Quick Properties.	✓		
DT	TEXT / Creates a single-line text object.	✓		
DV	DVIEW / Defines parallel projection or perspective views by using a camera and target.	✓		
DX	DATAEXTRACTION / Extracts drawing data and merges data from an external source to a data extraction table or external file.	✓		
<b>E</b>				
E	ERASE / Removes objects from a drawing.	✓		<b>ENTSS</b> Selects similar objects

ED	DDEDIT / Edits single-line text, dimension text, attribute definitions, and feature control frames.	✓		<b>ETT</b>  Real-time display of the final positioning of the extension effect
EL	ELLIPSE / Creates an ellipse or an elliptical arc.	✓		...
EPDF	EXPORTPDF / Exports drawing to PDF.	✓		
ER	EXTERNALREFERENCES / Opens the External References palette.	✓		
EX	EXTEND / Extends objects to meet the edges of other objects.	✓		
EXIT	QUIT / Exits the program.	✓		
EXP	EXPORT / Saves the objects in a drawing to a different file format.	✓		
EXT	EXTRUDE / Extends the dimensions of a 2D object or 3D face into 3D space.	✓		
<b>F</b>				
F	FILLET / Rounds and fillets the edges of objects.	✓		<b>FREESCALE</b>  Scales the graphic in different proportions
FI	FILTER / Creates a list of requirements that an object must meet to be included in a selection set.	✓		...
FS	FSMODE / Creates a selection set of all objects that touch the selected object.	✓		

FSHOT	FLATSHOT / Creates a 2D representation of all 3D objects based on the current view.	✓		
<b>G</b>				
G	GROUP / Creates and manages saved sets of objects called groups.	✓		GC_BOOLOP 2D Boolean operations
GCON	GEOCONSTRAINT / Applies or persists geometric relationships between objects or points on objects.	✓		...
GD	GRADIENT / Fills an enclosed area or selected objects with a gradient fill.	✓		
GEO	GEOGRAPHICLOCATION / Specifies the geographic location information for a drawing file.	×	Geographic location information module	GIS
<b>H</b>				
H	HATCH / Fills an enclosed area or selected objects with a hatch pattern, solid fill, or gradient fill.	✓		HCBGE Draws a table consisting of lines
HE	HATCHEDIT / Modifies an existing hatch or fill.	✓		...
HI	HIDE / Regenerates a 3D wireframe model with hidden lines suppressed.	✓		
<b>I</b>				
I	INSERT / Inserts a block or drawing into the current drawing.	✓		IFCIMPORT Imports IFC files

IAD	IMAGEADJUST / Controls the image display of the brightness, contrast, and fade values of images.	✓		IGSEXPORT Exports IGS/IGES files
IAT	IMAGEATTACH / Inserts a reference to an image file.	✓		...
ICL	IMAGECLIP / Crops the display of a selected image to a specified boundary.	✓		
ID	ID / Displays the UCS coordinate values of a specified location.	✓		
IM	IMAGE / Displays the External References palette.	✓		
IMP	IMPORT / Imports files of different formats into the current drawing.	✓		
IN	INTERSECT / Creates a 3D solid, surface, or 2D region from overlapping solids, surfaces, or regions.	✓		
INF	INTERFERE / Creates a temporary 3D solid from the interferences between two sets of selected 3D solids.	✓		
IO	INSERTOBJ / Inserts a linked or embedded object.	✓		
J				
J	JOIN / Joins similar objects to form a single, unbroken object.	✓		
JOG	DIMJOGGED / Creates jogged dimensions for circles and arcs.	✓		
L				

L	LINE / Creates straight line segments.	✓		<b>LAYDRAWORDER</b> Adjusts the order of graphics by layer
LA	LAYER / Manages layers and layer properties.	✓		<b>LAYLCKOTHER</b> Locks other layers
LAS	LAYERSTATE / Saves, restores, and manages named layer states.	✓		<b>LAYOUTMERGE</b> Merges Layouts
LE	QLEADER / Creates a leader and leader annotation.	✓		...
LEN	LENGTHEN / Changes the length of objects and the included angle of arcs.	✓		
LESS	MESHSMOOTHLESS / Decreases the level of smoothness for mesh objects by one level.	×	<b>Mesh Object Smoothness</b>	
LI	LIST / Displays property data for selected objects.	✓		
LO	LAYOUT / Creates and modifies drawing layout tabs.	✓		
LT	LINETYPE / Loads, sets, and modifies linetypes.	✓		
LTS	LTSCALE / Changes the scale factor of linetypes for all objects in a drawing.	✓		
LW	LWEIGHT / Sets the current lineweight, lineweight display options, and lineweight units.	✓		
<b>M</b>				



M	MOVE / Moves objects a specified distance in a specified direction.	✓		<b>MAGNIFIER</b>  Zooms in on a local area
MA	MATCHPROP / Applies the properties of a selected object to other objects.	✓		<b>M2LVPORT</b>  Positions the viewport in layout space
ME	MEASURE / Creates point objects or blocks at measured intervals along the length or perimeter of an object.	✓		...
MEA	MEASUREGEOM / Measures the distance, radius, angle, area, and volume of selected objects or sequence of points.	✓		
MI	MIRROR / Creates a mirrored copy of selected objects.	✓		
ML	MLINE / Creates multiple parallel lines..	✓		
MLA	MLEADERALIGN / Aligns and spaces selected multileader objects.	✓		
MLC	MLEADERCOLLECT / Organizes selected multileaders that contain blocks into rows or columns, and displays the result with a single leader.	✓		
MLD	MLEADER / Creates a multileader object.	✓		
MLE	MLEADEREDIT / Adds leader lines to, or removes leader lines from, a multileader object.	✓		
MLS	MLEADERSTYLE / Creates and modifies multileader styles.	✓		

MO	PROPERTIES / Controls properties of existing objects.	✓		
MORE	MESHSMOOTHMORE / Increases the level of smoothness for mesh objects by one level.	✗	Mesh Object Smoothness	
MS	MSPACE / Switches from paper space to a model space viewport.	✓		
MSM	MARKUP / Opens the Markup Set Manager.	✗	Mark input and labeling assistance	
MT	MTEXT / Creates a multiline text object.	✓		
MV	MVIEW / Creates and controls layout viewports.	✓		
<b>N</b>				
NORTH	GEOGRAPHICLOCATION / Specifies the geographic location information for a drawing file.	✗	Geographic location information GIS module	
NSHOT	NEWSHOT / Creates a named view with motion that is played back when viewed with ShowMotion.	✗	VIEWCUBE module advanced functions	
NVIEW	NEWVIEW / Creates a named view with no motion.	✗		
<b>0</b>				
0	OFFSET / Creates concentric circles, parallel lines, and parallel curves.	✓		OCMP Compares the selected graphic in a drawing or compare the graphic between two drawings

OFFSETSRF	SURFOFFSET/ Creates a parallel surface a specified distance from the original surface.	✓		<b>OUTLINE</b> Generates the outer boundary of the specified graphic
OP	OPTIONS / Customizes the program settings.	✓		...
ORBIT / 3DO	3DORBIT / Rotates the view in 3D space, but constrained to horizontal and vertical orbit only.	✓		
OS	OSNAP / Sets running object snap modes.	✓		
<b>P</b>				
P	PAN / Adds a parameter with grips to a dynamic block definition.	✓		<b>PCHC</b> Changes the color of the selected object or layer
PA	PASTESPEC / Pastes objects from the Clipboard into the current drawing and controls the format of the data.	✓		<b>PICKMIRRDRAWAXIS</b> Picks the axis of symmetry
PAR	PARAMETERS / Controls the associative parameters used in the drawing.	✗	<b>Dimensional Constraint Module</b> Parameter Manager	...
PARAM	BPARAMETER / Adds a parameter with grips to a dynamic block definition.	✓		
PATCH	SURFPATCH / Creates a new surface by fitting a cap over a surface edge that forms a closed loop.	✗	3D surface related	
PCATTACH	POINTCLOUDATTACH / Inserts an indexed point cloud file into the current drawing.	✓		

PE	PEDIT / Edits polylines and 3D polygon meshes.	✓		
PL	PLINE / Creates a 2D polyline.	✓		
PO	POINT / Creates a point object.	✓		
POFF	HIDEPALETTES / Hides currently displayed palettes (including the command line).	✗/	SHOWPALETTESTATE	There are related system variables but they are not effective
POL	POLYGON / Creates an equilateral closed polyline.	✓		
PON	SHOWPALETTES / Restores the display of hidden palettes.	✗/	SHOWPALETTESTATE	There are related system variables but they are not effective
PR	PROPERTIES / Displays Properties palette.	✓		
PRE	PREVIEW / Displays the drawing as it will be plotted.	✓		
PRINT	PLOT / Plots a drawing to a plotter, printer, or file.	✓		
PS	PSPACE / Switches from a model space viewport to paper space.	✓		
PSOLID	POLYSOLID / Creates a 3D wall-like polysolid.	✓		
PU	PURGE / Removes unused items, such as block definitions and layers, from the drawing.	✓		
PYR	PYRAMID / Creates a 3D solid pyramid.	✓		
Q				

QC	QUICKCALC / Opens the QuickCalc calculator.	✓		<b>QR CODE</b> Generates QR code
QCUI	QUICKCUI / Displays the Customize User Interface Editor in a collapsed state.	✓		...
QP	QUICKPROPERTIES / Displays open drawings and layouts in a drawing in preview images.	✓		
QSAVE	QSAVE / Saves the current drawing.	✓		
QVD	QVDRAWING / Displays open drawings and layouts in a drawing using preview images.	✗	<b>QVDRAWINGPIN</b> There are related system variables but they are not effective	
QVDC	QVDRAWINGCLOSE / Closes preview images of open drawings and layouts in a drawing.	✗	<b>QVDRAWINGPIN</b> There are related system variables but they are not effective	
QVL	QVLAYOUT / Displays preview images of model space and layouts in a drawing.	✗	<b>QVLAYOUTPIN</b> There are related system variables but they are not effective	
QVLC	QVLAYOUTCLOSE / Closes preview images of model space and layouts in the current drawing.	✗	<b>QVLAYOUTPIN</b> There are related system variables but they are not effective	
<b>R</b>				

R	REDRAW / Refreshes the display in the current viewport.	✓		<b>RTCUR</b> Real-time cursor rotation
RA	REDRAWALL / Refreshes the display in all viewports.	✓		<b>REGSCALE</b> Selects the area in the picture to capture as a large sample
RC	RENDERCROP / Renders a specified rectangular area, called a crop window, within a viewport.	✗	<b>3D render</b> module	<b>RVTIMPORT</b> Imports Revit Files
RE	REGEN / Regenerates the entire drawing from the current viewport.	✓		...
REA	REGENALL / Regenerates the drawing and refreshes all viewports.	✓		
REC	RECTANG / Creates a rectangular polyline.	✓		
REG	REGION / Converts an object that encloses an area into a region object.	✓		
REN	RENAME / Changes the names assigned to items such as layers and dimension styles.	✓		
REV	REVOLVE / Creates a 3D solid or surface by sweeping a 2D object around an axis.	✓		
RO	ROTATE / Rotates objects around a base point.	✓		
RP	RENDERPRESETS / Specifies render presets, reusable render parameters, for render an image.	✗	<b>3D render</b> module	
RR	RENDER / Creates a photorealistic or realistically shaded image of a 3D solid or surface model.	✓		

R W	RENDERWIN / Displays the Render window without starting a render operation.	×	3D render module	
<b>S</b>				
S	STRETCH / Stretches objects crossed by a selection window or polygon.	✓		<b>SASCL</b> Sets the drawing scale and automatically adapt
SC	SCALE / Enlarges or reduces selected objects, keeping the proportions of the object the same after scaling.	✓		<b>SETLAYER</b> Makes the object layer the current layer
SCR	SCRIPT / Executes a sequence of commands from a script file.	✓		<b>SPLINE2LINE</b> Fitters a spline curve to multiple straight line segments
SEC	SECTION / Uses the intersection of a plane and solids, surfaces, or mesh to create a region.	✓		...
SET	SETVAR / Lists or changes the values of system variables.	✓		
SHA	SHADEMODE / Starts the VSCURRENT command..	✓		
SL	SLICE / Creates new 3D solids and surfaces by slicing, or dividing, existing objects.	✓		
SN	SNAP / Restricts cursor movement to specified intervals.	✓		
SO	SOLID / Creates solid-filled triangles and quadrilaterals.	✓		
SP	SPELL / Checks spelling in a drawing.	✓		

SPE	SPLINEDIT / Edits a spline or splinefit polyline.	✓		
SPL	SPLINE / Creates a smooth curve that passes through or near specified points.	✓		
SPLANE	SECTIONPLANE / Creates a section object that acts as a cutting plane through 3D objects.	✓		
SPLAY	SEQUENCEPLAY / Plays named views in one category.	✓		
SPLIT	MESHSPPLIT / Splits a mesh face into two faces.	✗		
SSM	SHEETSET / Opens the Sheet Set Manager	✓		
ST	STYLE / Creates, modifies, or specifies text styles.	✓		
STA	STANDARDS / Manages the association of standards files with drawings.	✗	Standards Module	Check
SU	SUBTRACT / Combines selected 3D solids, surfaces, or 2D regions by subtraction.	✓		
<b>T</b>				
T	TEXTALIGN / Aligns multiple text objects vertically, horizontally, or obliquely.	✓		TXTHEI Modifies string height
TA	TABLE / Creates an empty table object.	✓		...
TB	TEXTEDIT / Edits a dimensional constraint, dimension, or text object.	✓		



TED	THICKNESS / Sets the default 3D thickness property when creating 2D geometric objects.	✓		
TH	TILEMODE / Controls whether paper space can be accessed.	✓		
TI	TOOLBAR / Displays/hides, and customizes toolbars.	✓		
TOL	TOLERANCE / Creates geometric tolerances contained in a feature control frame.	✓		
TOR	TORUS / Creates a donut-shaped 3D solid.	✓		
TP	TOOLPALETTES / Opens the Tool Palettes window.	✓		
TR	TRIM / Trims objects to meet the edges of other objects.	✓		
TS	TABLESTYLE / Creates, modifies, or specifies table styles.	✓		
<b>U</b>				
UC	UCSMAN / Manages defined user coordinate systems.	✓		<b>UNLOCK</b> Restores object lock status
UN	UNITS / Controls coordinate and angle display formats and precision.	✓		...
UNHIDE / UNISOLATE	UNISOLATEOBJECTS / Displays objects previously hidden with the ISOLATEOBJECTS or HIDEOBJECTS command.	✓		
UNI	UNION / Unions two solid or two region objects.	✓		
<b>V</b>				

V	VIEW / Saves and restores named views, camera views, layout views, and preset views.	✓		
VGO	VIEWGO / Restores a named view.	✗	VIEWCUBE module advanced functions	
VP	DDVPOINT / Sets the 3D viewing direction.	✓		
VPLAY	VIEWPLAY / Plays the animation associated to a named view.	✗	VIEWCUBE module advanced functions	
VS	VSCURRENT / Sets the visual style in the current viewport.	✓		
VSM	VISUALSTYLES / Creates and modifies visual styles and applies a visual style to a viewport.	✓		
<b>W</b>				
W	WBLOCK / Writes objects or a block to a new drawing file.	✓		WZDD/TXTBREAK Breaks text at specified position
WE	WEDGE / Creates a 3D solid wedge.	✓		...
WHEEL	NAWSWHEEL / Displays a wheel that contains a collection of view navigation tools.	✗	2D navigation control panel	
<b>X</b>				
X	EXPLODE / Breaks a compound object into its component objects.	✓		XEDGES Creates a wireframe by extracting edges from a 3D solid or surface
XA	XATTACH / Inserts a DWG file as an external reference (xref).	✓		...

XB	XBIND / Binds one or more definitions of named objects in an xref to the current drawing.	✓		
XC	XCLIP / Crops the display of a selected external reference or block reference to a specified boundary.	✓		
XL	XLINE / Creates a line of infinite length.	✓		
XR	XREF / Starts the EXTERNALREFERENCES command.	✓		
<b>Z</b>				
Z	ZOOM / Increases or decreases the magnification of the view in the current viewport.	✓		ZC/SUPERAXON Converts a plan view to an axonometric view
ZEBRA	ANALYSISZEBRA / Projects stripes onto a 3D model to analyze surface continuity.	✗		...
ZIP	ETRANSMIT / Creates a Self-Extracting or Zipped Transmittal Package.	✓		

### 1.3.2. Key Features Comparison

Modules	Function	Description	GstarCAD 2025	Remark
2D Sketches/Graphics /Annotations	Array	Create and modify objects in circular or rectangular arrays or along a path.	✓	
	Center Marks and Center Lines	Create and edit centerlines and center marks that move automatically when you move associated objects.	×	<p>CENTERDISASSOCIATE</p> <p>CENTERLINE</p> <p>CENTERMAR</p> <p>CENTERREASSOCIATE</p> <p>CENTERRESET</p> <p>Invalid command</p>
	Data Extraction	Extract information, blocks and attributes from objects, including graphical information.	✓	
	Data Links	Enables simultaneous updates by creating a live link between a Microsoft Excel spreadsheet and a table in a drawing.	✓	
	Dimensions	Automatically create dimensions. Hover your cursor over a selected object to see a preview before creating it.	✓	
	Dynamic Blocks	Add flexibility and intelligence to block references, including changing shape, size, or configuration.	✓	

Fields	Use a field in a text object to display text that automatically updates when the field value changes.	✓	
Layout	Specify drawing size, add title blocks, and display multiple views of the model.	✓	
Leader	Create leaders with a variety of resources, including text or blocks. Easily format leaders and define styles.	✓	
Parametric constraints	Apply geometric and dimensional constraints to maintain relationships between geometries.	✗	Dimension constraints Currently unsupported
Purge	Remove multiple unwanted objects at once with simple selection and object preview.	✓	
Revision Cloud	Draw revision clouds for the latest changes in a drawing to quickly identify updates.	✓	REVCLLOUDPROPERTIES Command unsupported. Does not affect usage
Table	Apply formulas, link to Microsoft Excel spreadsheets, and create tables containing data and symbols. Automatically import data into tables using features such as counting.	✓	
Text Settings	Create single-line or multiline text (mtext) as a single text object. Easily format text, columns, and borders.	✓	

	View	Save views by name and easily return to a specific view for quick reference or to apply to a layout viewport.	✓	<b>CAMERA</b> <b>NEWVIEW</b> <b>VIEWBACK</b> <b>VIEWFORWARD</b> Command unsupported. Does not affect usage
3D Modeling and Visualization	3D Navigation	Use 3D viewing and navigation tools to orbit, swivel, walk, and fly around 3D models to present your designs.	✗	<b>3DCLIP</b> <b>3D DISTANCE</b> <b>3DFLY</b> <b>3DPAN</b> <b>3DSWIVEL</b> <b>3DWALK</b> <b>3DZOOM</b> <b>ANIPATH</b> <b>WALKFLYSETTINGS</b> Command unsupported. Support <b>NAVI (View)</b> <b>cube</b>
	Model Documentation	Generate 2D drawings from 3D models, including basic views, projection views, section views, and detail views.	✗	

Point Cloud	Attach point cloud files acquired by 3D laser scanners or other technologies to use as a starting point for your design.	✓	<p>PCEXTRACTCENTERLINE</p> <p>PCEXTRACTCORNER</p> <p>PCEXTRACTEDGE</p> <p>PCEXTRACTSECTION</p> <p>POINTCLOUDCOLORMAP</p> <p>POINTCLOUDCROP</p> <p>POINTCLOUDUNCROP</p> <p>POINTCLOUDCROPSTATE</p> <p>Command does not support point cloud</p>
Render	Apply lighting and materials to give 3D models a realistic appearance to help communicate your designs.	✗	
Remote service render	Render 3D models online without consuming processing power or disk space on your local computer.	✗	
Section plane	Create section planes using solids, surfaces, meshes, or regions to display cross-sectional views.	✓	
Solid, surface and mesh modeling	Create realistic 3D models of your designs using a combination of solid, surface, and mesh modeling tools.	✓	
Visual Styles	Apply visual styles to control the display of edges, lighting, and shading of 3D models.	✓	

**Collaboration**

DGN Files	Share and reuse data in DGN files by importing, exporting, or attaching as an underlay.	✗	<b>DGNEXPORT</b> Support import but not export
DWG Comparison	Compare two versions of a drawing without leaving the current window.	✓	
Geographic location and online maps	Insert geographic location information into a drawing and display a map in the drawing from an online mapping service.	✗	
Referencing and importing models	Attach Navisworks model to your drawing as underlay, and import model from other applications.	✓	
PDF Document	Share and reuse data in PDF files by importing, exporting, or attaching as an underlay.	✓	
Sheet Set Manager	View, access, manage, and plot multiple drawings as drawing sets.	✓	
Save to Web and Mobile Devices	Save drawings from your desktop to view and edit in the web and mobile apps, including external references.	✓	
Shared View	Publish design views of your drawings in a web browser so stakeholders can review and comment on them.	✓	
Xref Compare	Compare two versions of a drawing, including external references (Xrefs).	✓	

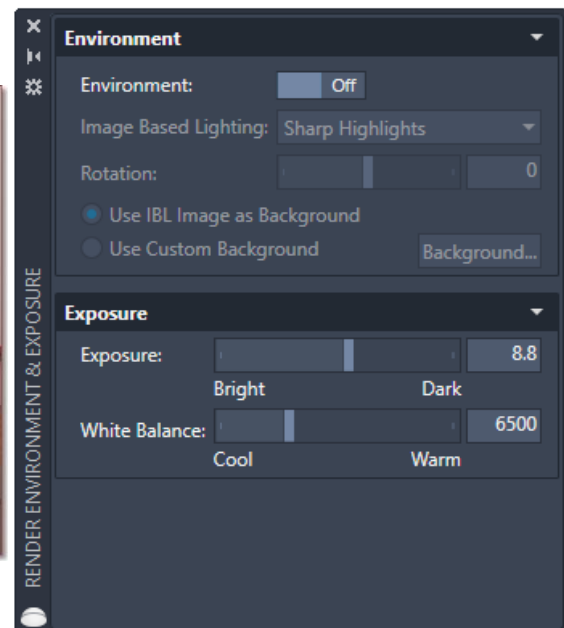
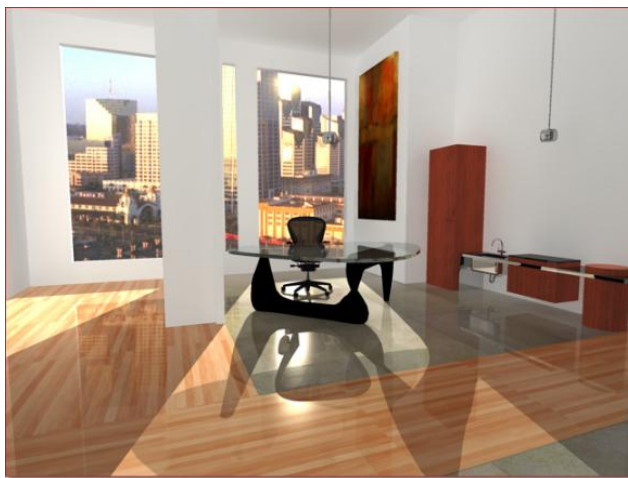


### 1.3.3. AutoCAD Special Features

- 3D Render

Use the render to calculate the appearance of materials attached to objects in the scene. Lighting and shadows are calculated based on the light sources placed in the scene. You can adjust the render environment and exposure settings to control the final rendered image.

Render example with render environment and exposure settings tabs:



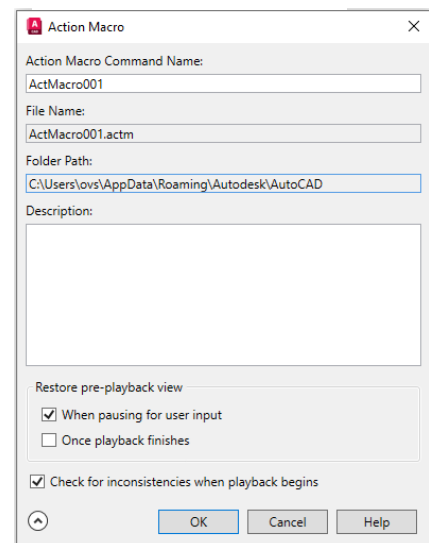
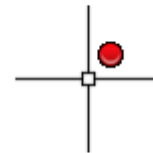
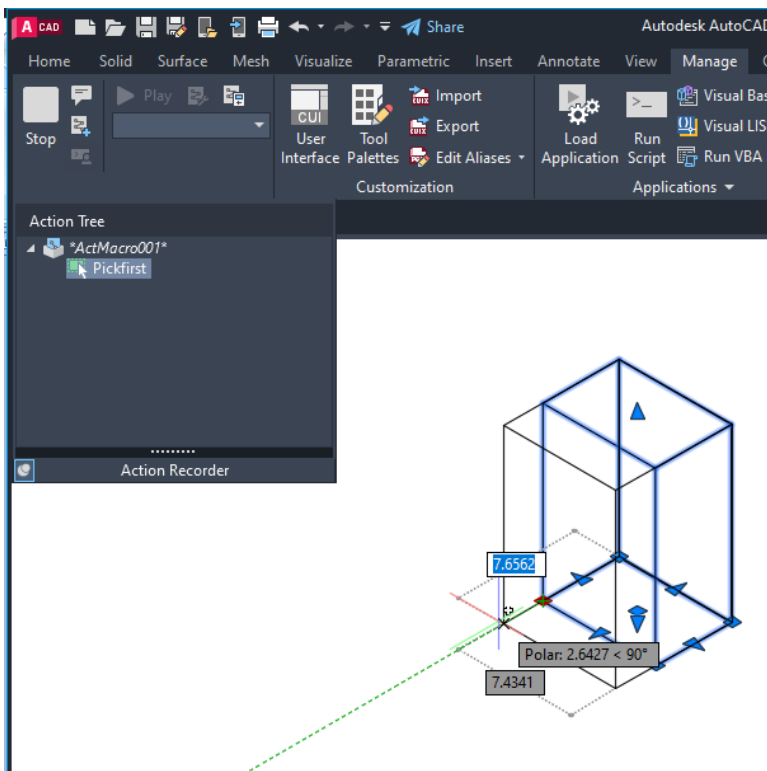
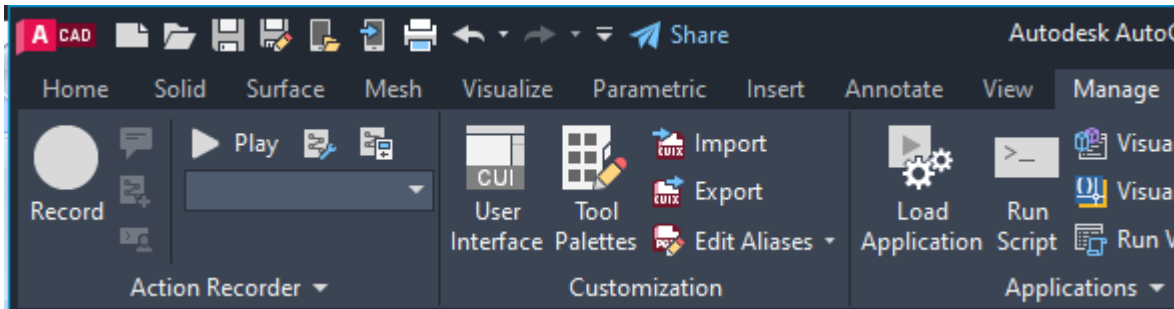
#### 3D Render workflow:

Process	Related Commands
Create a 3D model containing the objects you want to render using 3D solids, surfaces, meshes, and 3D faces.	3DFACE, 3DMESH, BOX, CONE, CYLINDER, EDGESURF, EXTRUDE, LOFT, MESH, PFACE, PLANESURF, POLYSOLID, PRESSPULL, PYRAMID, REVOLVE, REVSURF, RULESURF, SPHERE, SURFBLEND, SURFNETWORK, SURFOFFSET, SURFPATCH, SWEEP, TABSURF, TORUS, WEDGE
Defines the view of the 3D model to render.  Use named views to ensure consistency and make switching views easier.	VIEW
Specifies a background for the current view.	BACKGROUND, VIEW
Create a material to attach to a 3D object.	MATBROWSEROPEN, MATEDITOROPEN

Attach materials to 3D objects directly or through layers.	MATERIALASSIGN , MATERIALATTACH
Add user-defined lights or use default lights. Note: The LIGHTINGUNITS system variable must be set to 1 or 2.  Enable image-based lighting to use as an alternative to default lighting, or to fill the entire scene with light and eliminate dark areas.	DISTANTLIGHT , FREESPOT , FREEWEB , LIGHT, POINTLIGHT , SPOTLIGHT, TARGETPOINT , WEBLIGHT , RENDEREXPOSURE
(Optional) Enable and define settings for sun- and sky-based lighting when render interior or exterior architectural scenes. Note: The LIGHTINGUNITS system variable must be set to 1 or 2.	SUNPROPERTIES
Set the Low render preset to current.	RENDERPRESETS
Render a region of a 3D model to test attached materials and lights.	RENDERCROP
Based on the results of the test render, adjust the materials and lighting in the scene.	
Set up render environment and exposure settings.	RENDEREXPOSURE
Create another test render; make any desired changes to materials, lights, and general render environment settings.	
Set the render preset with the highest desired render quality as current, and then create the final render image.	RENDER, RENDERPRESETS
Save the rendered image as a raster image file.	RENDER, SAVEIMG

- **Action Recorder**

Use the ACTRECORD / ACTSTOP command to turn the action recorder on/off or click the Record/Stop button in the Ribbon Manage - Action Recorder options. When recording starts, a red circle will appear next to the cross cursor to inform you that the Action Recorder is actively listening for actions. After recording is completed, an action tree is generated based on the recorded actions.



Generate an action macro at the specified path based on the actions recorded in the action tree , and then play the macro using one of the following methods:

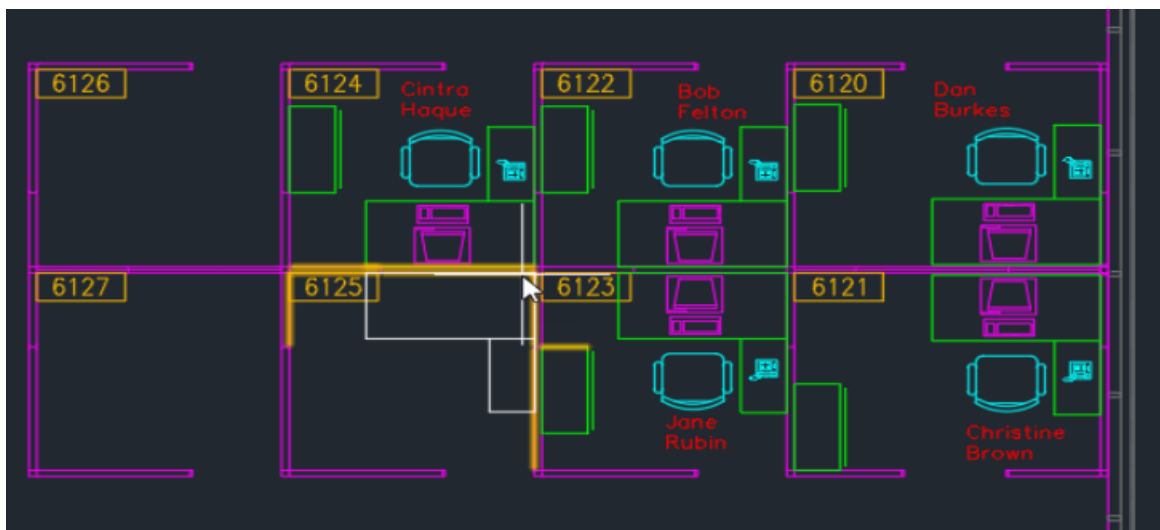
- At the Command prompt, enter a name for the action macro.
- In the graphics window, right-click, choose Action Macros > Play, and select an action macro.
- On the ribbon, click the Manage tab > Action Recorder panel and select an action macro from the drop-down list. Then, click Play.

- **Smart Blocks: Placement**

The new Smart Block feature provides placement suggestions based on where you have previously placed the block in the drawing.

The block placement engine learns how existing block instances are placed in a drawing to infer the next placement of the same block. When you insert a block, the engine suggests placements that are close to similar geometry where you previously placed the block.

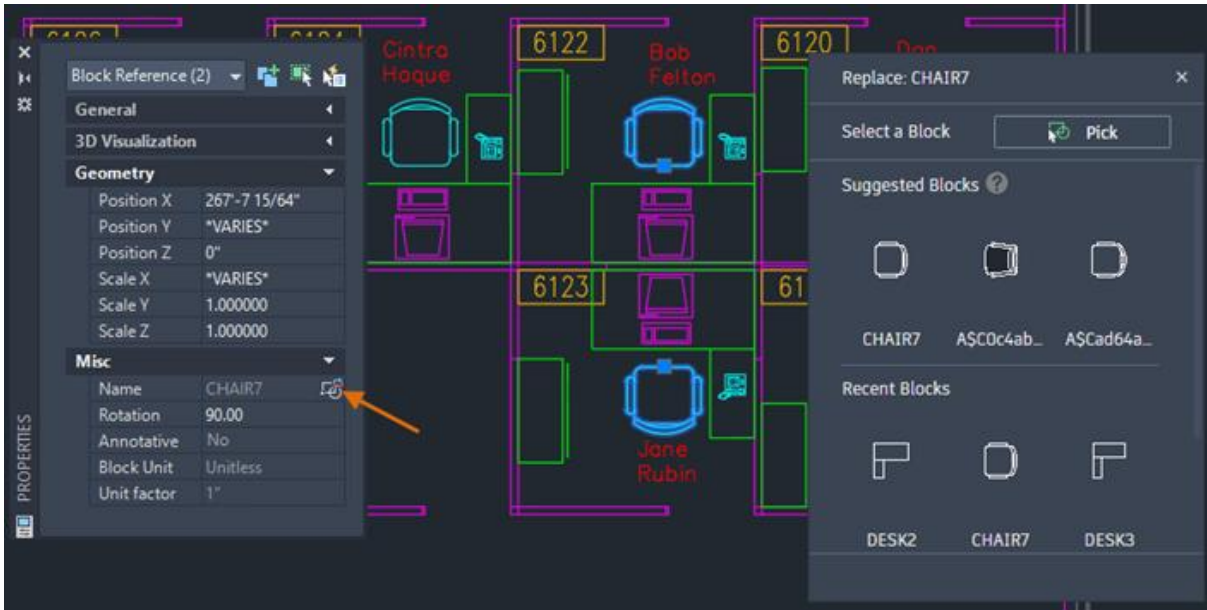
For example, if you have placed a chair block near a wall corner, when you insert another instance of the same chair block, AutoCAD automatically positions the chair as you move it closer to a similar corner point. As you move the block, the wall highlights, and the position, rotation, and scale of the chair block are adjusted to match the other block instances. You can click to accept a suggestion, press the Ctrl key to switch to a different suggestion, or move the cursor away to ignore the current suggestion. To temporarily turn off suggestions while placing a block, press Shift+W or Shift+[ while inserting or moving the block .



- **Smart Block: Replace**

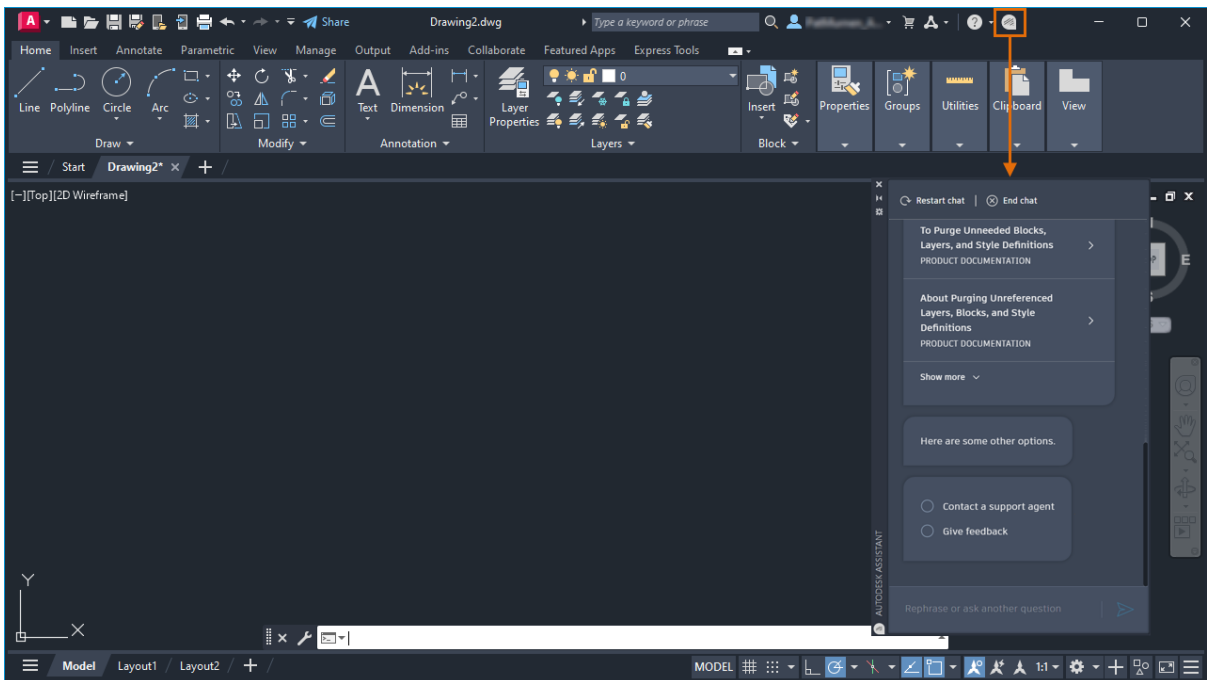
Replaces a specified block reference by selecting from a palette of similar suggested blocks.

When you select a block reference to replace, the product suggests similar blocks for you to choose from.



- **Autodesk Assistant (English, German, Japanese)**

Autodesk Assistant is an AI-guided natural language search tool built into most Autodesk software products, including AutoCAD Help. It can use AI's natural language processing to retrieve more accurate information with simpler terms. As the number of users increases and the number of learning samples increases, Autodesk Assistant will provide more accurate results. When the answer cannot solve the problem, Autodesk Assistant can also contact technical support personnel directly from within the software.



- **Compatible with Mac System**

In October 2010, AutoCAD released AutoCAD2011, which supports Mac OS environment and is optimized for Mac environment, including multi-touch gestures, Cover Flow navigation, etc. Starting from AutoCAD2024/AutoCAD2024 LT, it natively supports Apple Silicon chips, solving the performance decrease problem under the ARM structure. According to the news release, the maximum performance can be increased by 2 times.

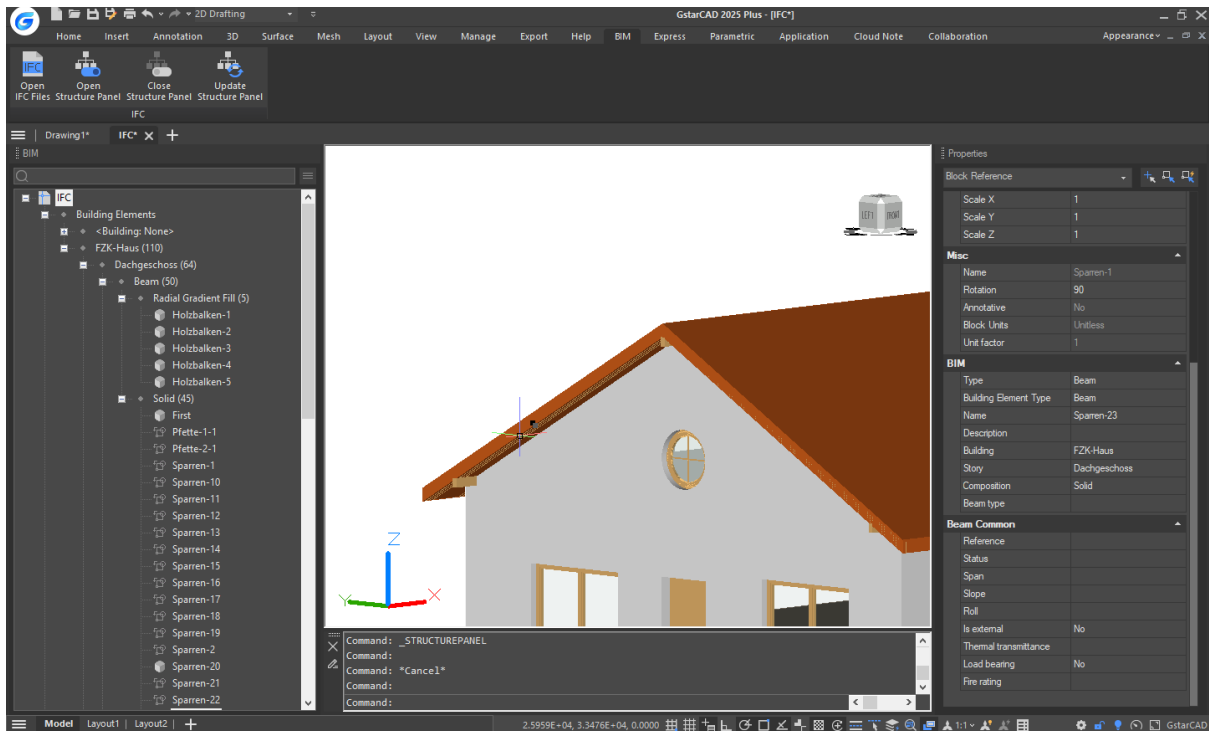
### 1.3.4. GstarCAD Special Features

- **IFC standard data conversion**

GstarCAD Supports importing and parsing BIM information models in IFC format through the IFCIMPORT command and forming a tree-structured panel to display a single object.

View the BIM information of the model through the property panel.

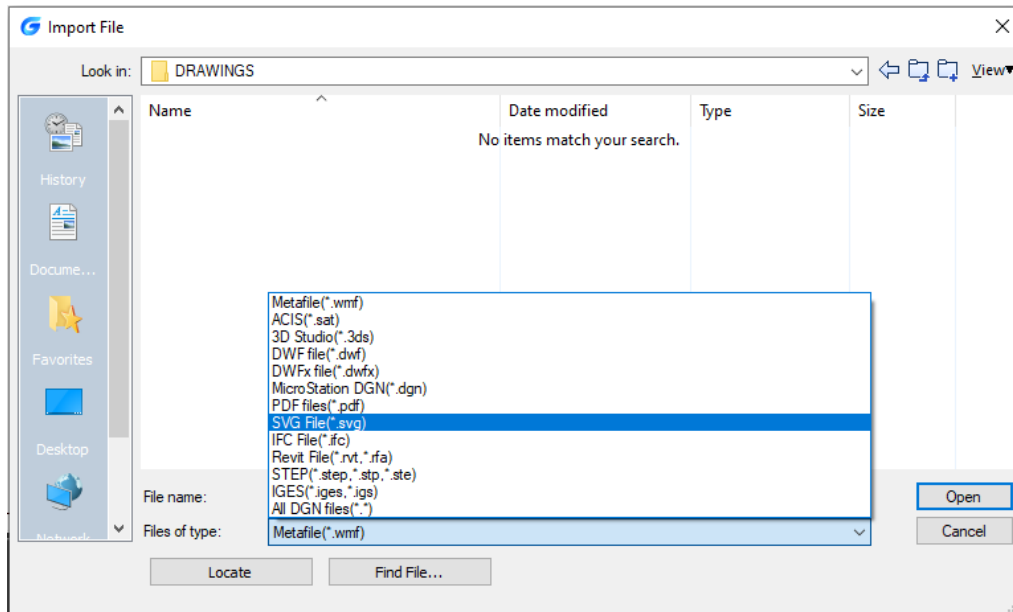
The model information is retrieved and managed through the BIM structure panel, and the single model structure is displayed in the form of a tree structure panel.



- **SVG Import and Export**

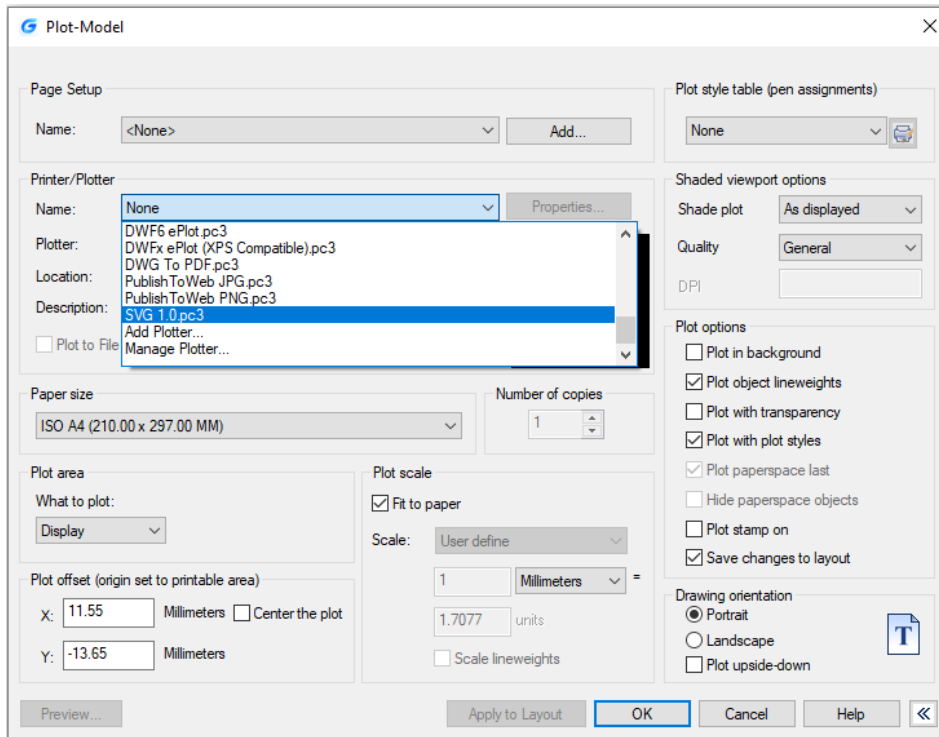
### SVG Import:

This function supports the import of SVG files. After executing the command, the "Import File" dialog box will be displayed, from which you can select the SVG file to be imported and import its data into the current drawing. The imported SVG graphic is a block and can be edited in the block editor or edited directly after decomposition. Objects such as straight lines, polylines, polygons, circles, ellipses, texts, and image fills can be correctly imported.



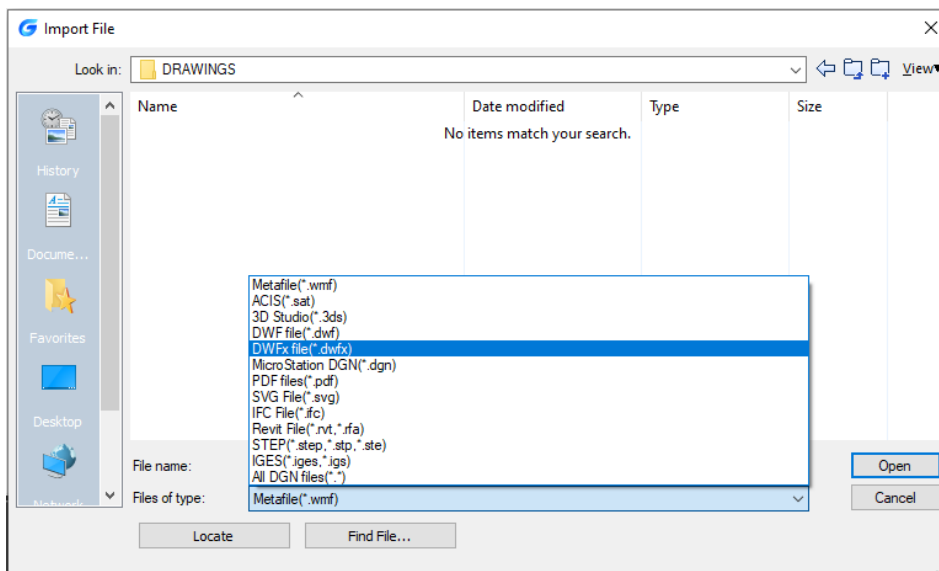
### SVG Export:

Execute the PLOT/EXPORT command to export the current graphic file to the specified SVG file format. SVG file is a two-dimensional vector graphic format that takes up little space, is highly compressible, and can be printed with high quality at any resolution. Most objects in the graphic can be exported to SVG files, except for images and gradient hatch. The exported SVG file can be accurately displayed by third-party tools.



- **DWF Import**

Import the DWF/DWFX file into the current drawing. After importing, it becomes a block, which can be exploded into regular objects for editing. After executing the command, the "Select DWF File" dialog is displayed.



- **Linux System Support**

GstarCAD supports Linux system and GstarCAD 2025 for Linux version will be release soon. AutoCAD doesn't support Linux system.

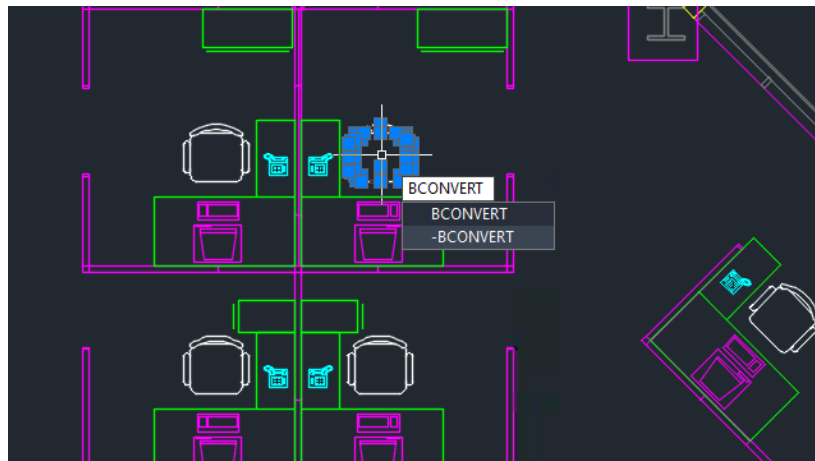


### 1.3.5. AutoCAD 2025 New Features

- Smart Blocks: Search and Convert

AutoCAD 2025 offers more smart block solutions to streamline your design process. In this release, you can easily convert multiple instances of selected geometry into blocks.

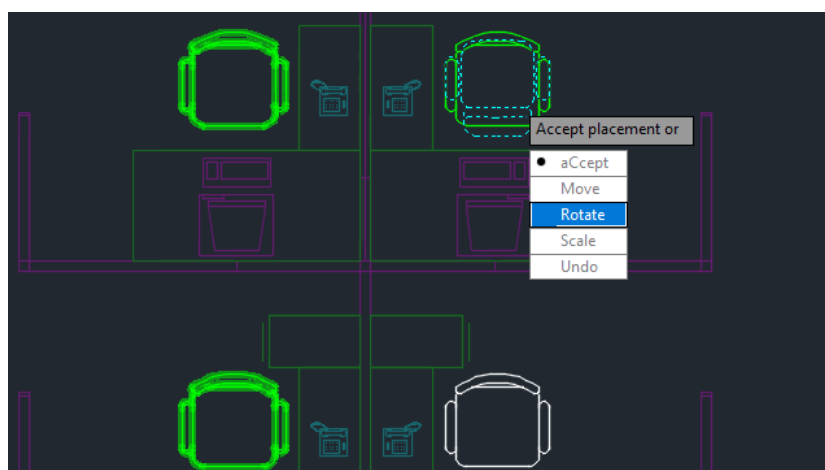
When you select geometry for conversion, AutoCAD finds and highlights all instances of the same geometry. You can then choose to convert the selected geometry and the found instances into a block.



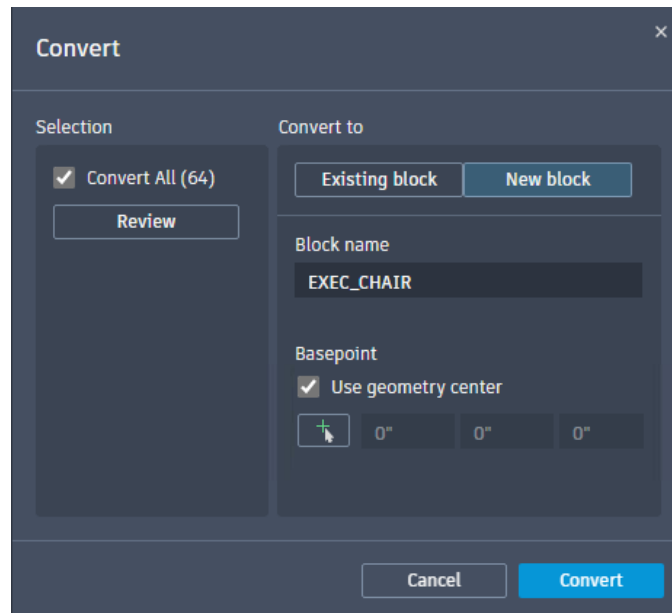
When converting to an existing block, you have several options. You can pick a block from the current drawing, a recently used block, or similar blocks in your block library identified by the machine learning algorithm.

**Note:** Machine learning-suggested blocks are only available in AutoCAD.

After selecting an existing block definition, you can adjust the scale and rotation to determine how the selected block definition replaces the found instances.



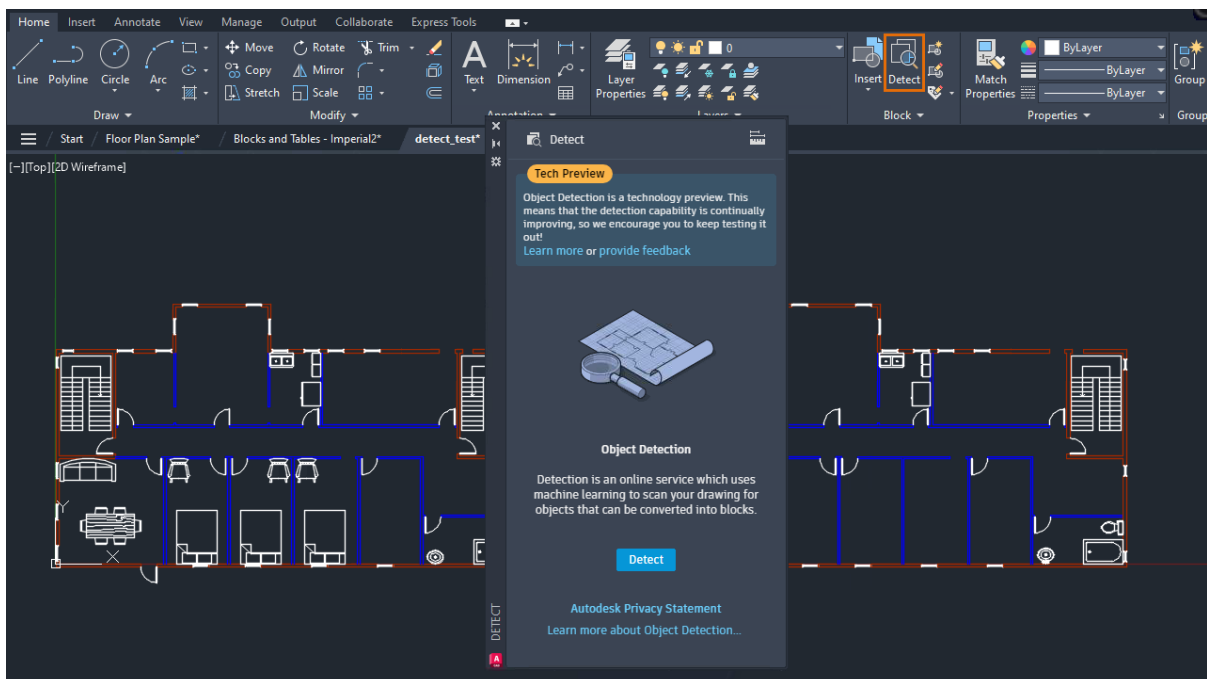
Alternatively, you can convert the source object or the selected instances to a new block. In the Convert dialog box, define a new block by specifying a block name and insertion point. By default, the insertion point is set to the center of the selected geometry.



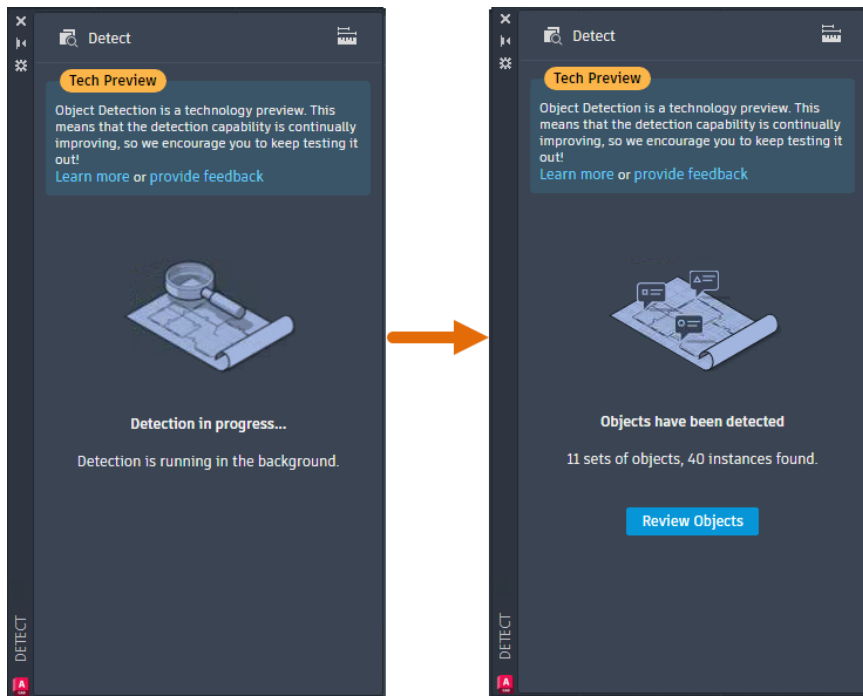
The ability to quickly convert repetitive geometry into blocks minimizes redundancy in the design process and provides a wider range of options for organizing drawings.

- **Smart Blocks: Object Detection (Technology Preview)**

AutoCAD 2025 includes a technology preview that uses machine learning to scan your drawing for objects that can be converted into blocks.

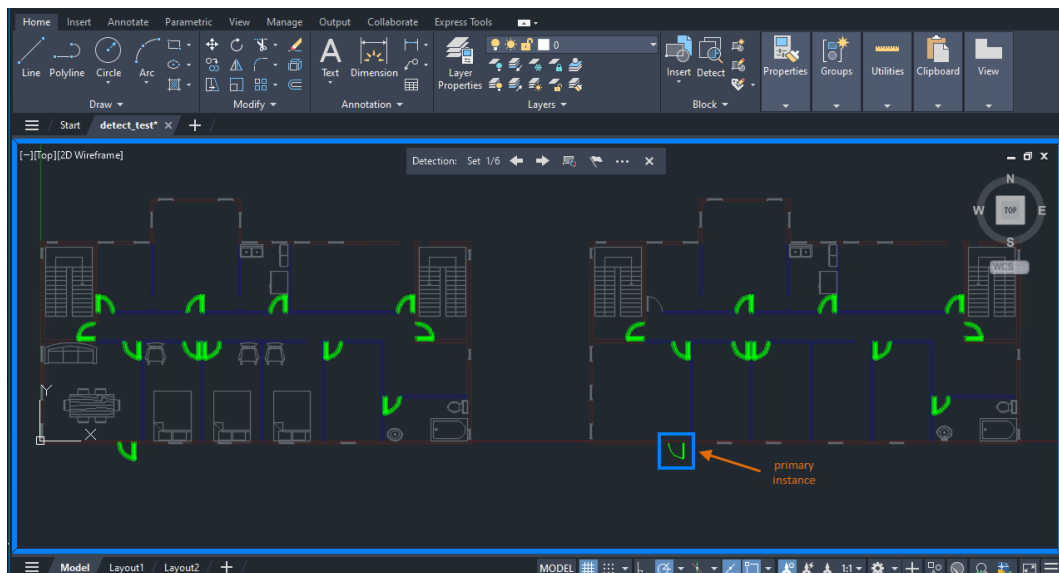


When you start Object Detection, the drawing's geometry is sent to the AutoCAD machine learning service for recognition. Once the service has analyzed the drawing, the palette will notify you if any objects have been detected that can be converted to blocks. To further inspect and assess the identified instances, click Review Objects.

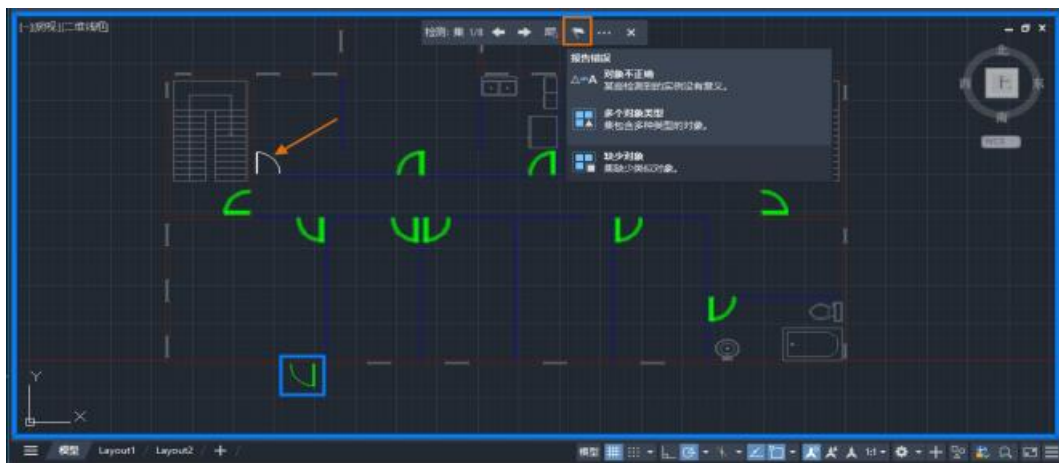
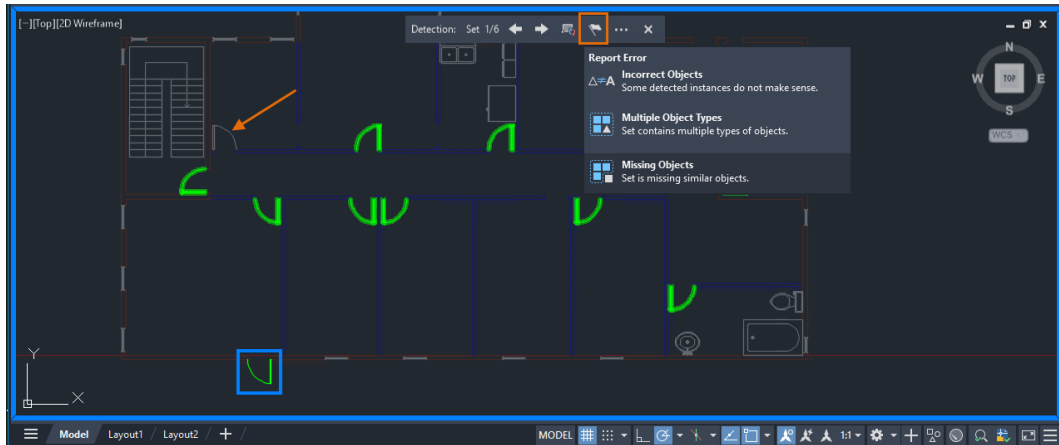


In review mode, the Detection toolbar is displayed at the top of the drawing window. This toolbar provides various options for navigating and managing detection results. The detection results are grouped into sets of similar objects. A *set* represents a group of similar detected objects that can be converted into instances of a single block.

Within each set, the *primary* instance (outlined by a blue border) serves as the block definition when converting into a new block. Alternatively, if you choose to convert into an existing block, the primary instance is used to define the insertion scale and rotation.



You may encounter incorrect sets or instances during detection review. In the following example, a similar object is not detected and included in the set. You can report this error using the Detection toolbar. By reporting errors, you contribute to improving the overall performance and accuracy of the machine learning service.



**Note:** Object Detection relies on machine learning algorithms, so the results may not always be completely accurate or comprehensive.

To optimize detection accuracy as we continue to improve our machine learning algorithms, we recommend that you set your graph to real-world units before starting detection.

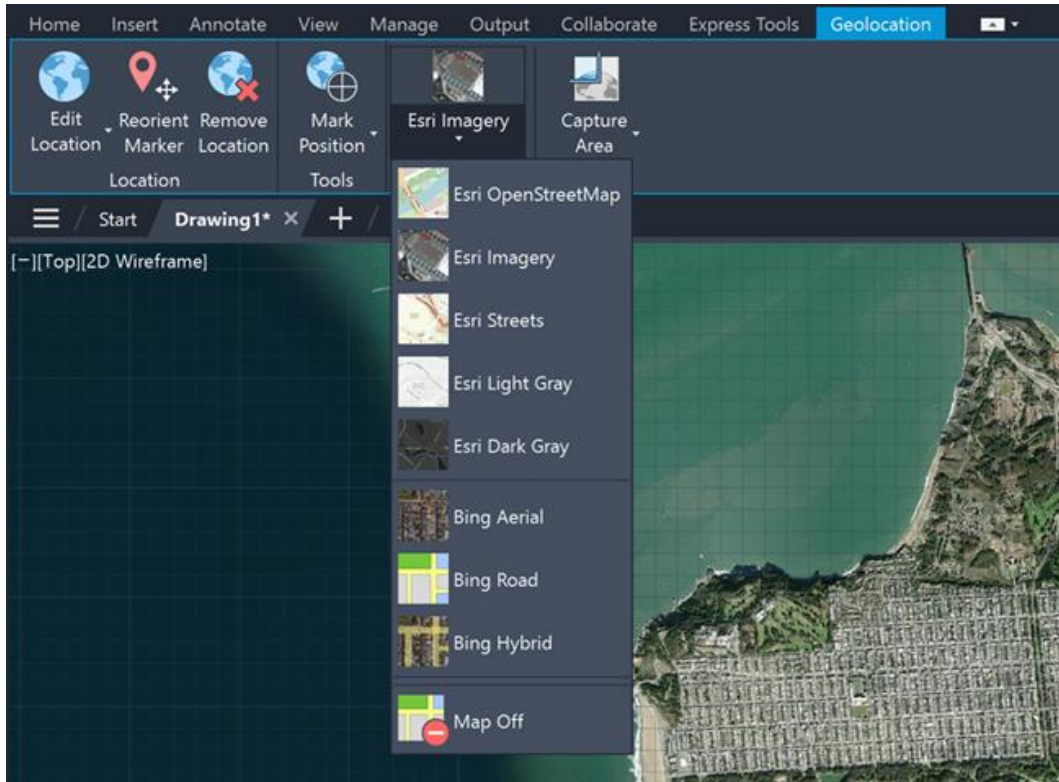
- **Importing Markups from Autodesk Docs**

In addition to the Markup Import feature, PDF markup files can now be connected from Autodesk Docs to AutoCAD to help designers review and merge revisions.

- **Esri — ArcGIS Maps**

There are five new Esri maps available to assign geographic location information to drawings.

Now, AutoCAD uses five additional types of Esri maps to assign geographic location information to a drawing file.

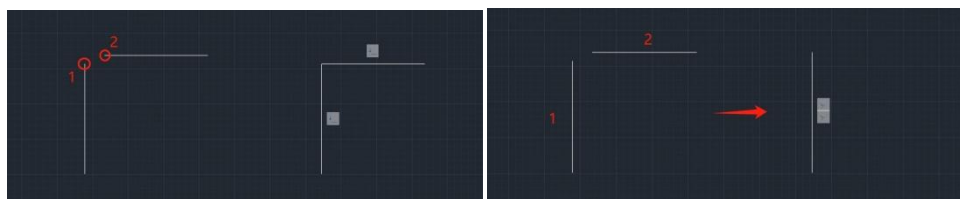
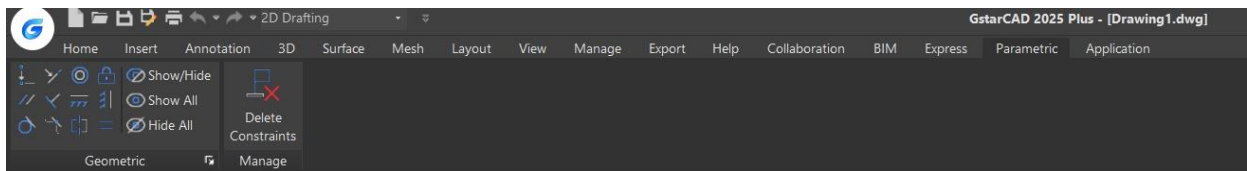


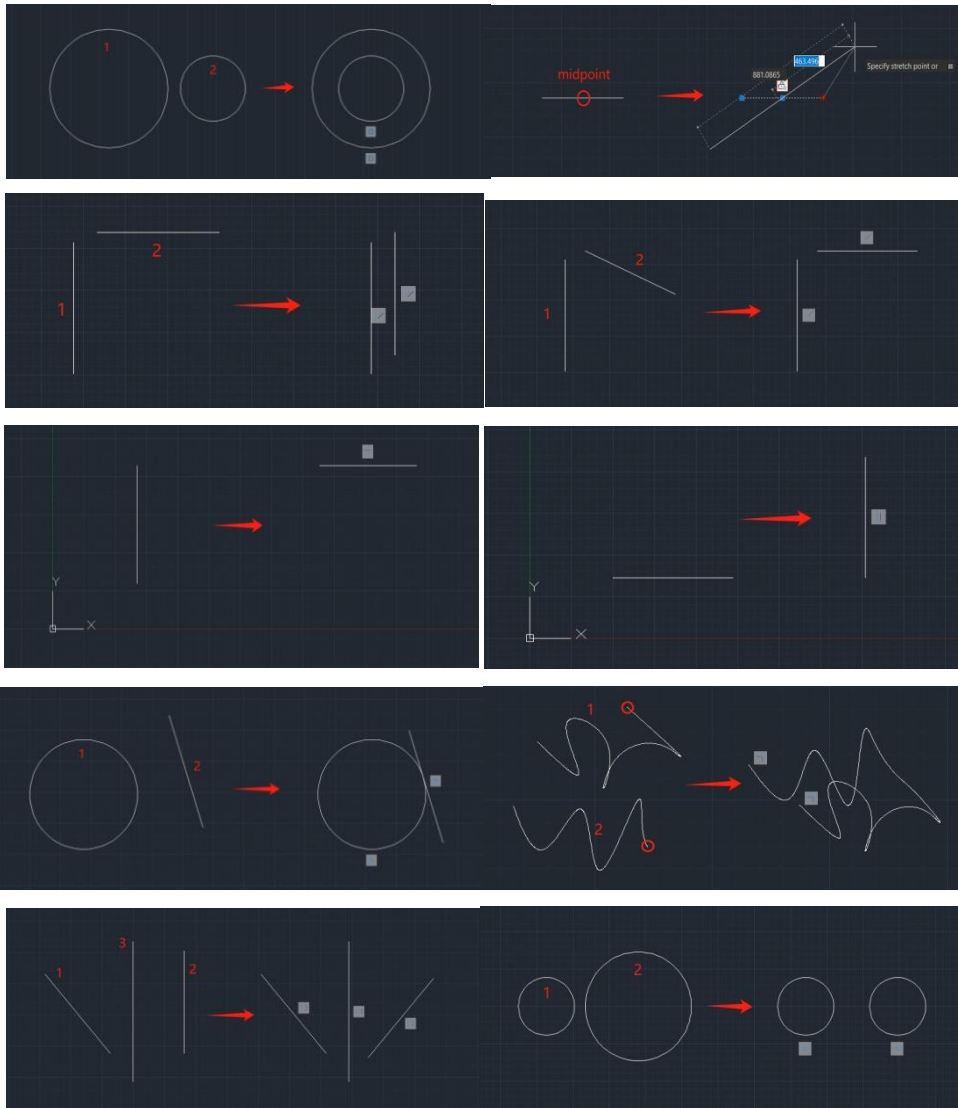
### 1.3.6. GstarCAD2025 New Features

- **Parametric Constraints (Geometry)**

GstarCAD 2025 introduces Parametric Constraints, focusing exclusively on geometric constraints this year. Geometric constraints manage how objects relate to others, enabling automatic adjustments to other objects when changes are made. They also restrict changes to distance and angle values, ensuring design precision.

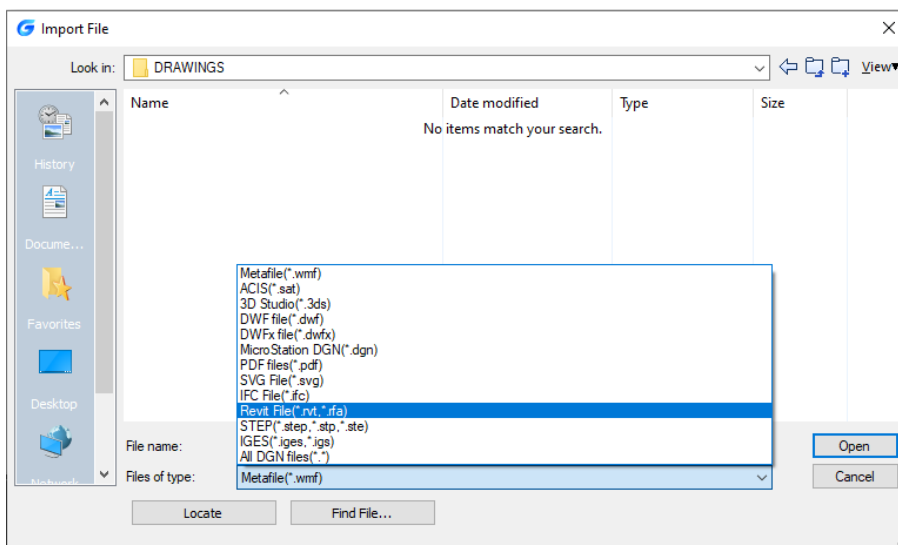
There are 12 types of geometric constraints corresponding to 12 relationships: Coincident, Collinear, Concentric, Fix, Parallel, Perpendicular, Horizontal, Vertical, Tangent, Smooth, Symmetric, and Equal.





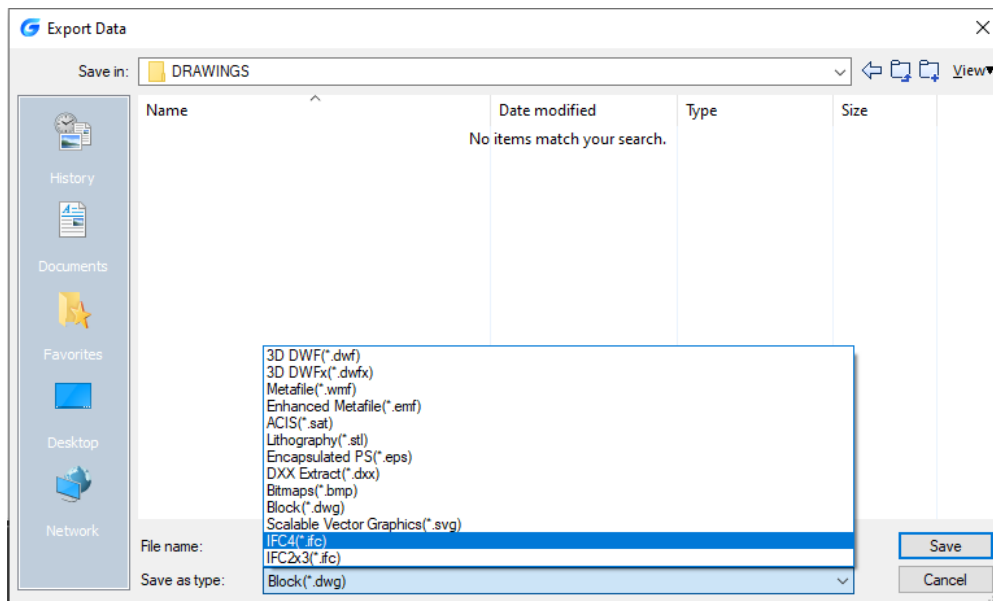
- **Import Revit Model files**

GstarCAD 2025 now supports the import of RVT format files with their complete BIM data.



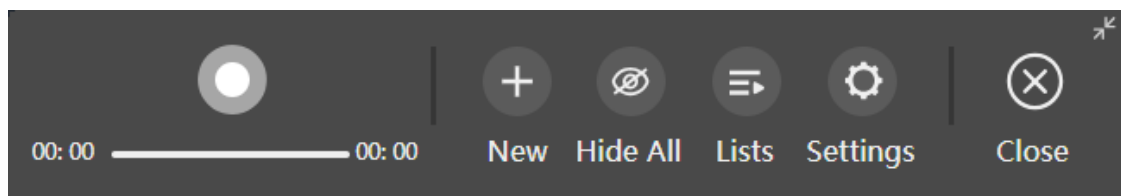
- IFC model file export

GstarCAD 2025 now supports exporting files in IFC4/IFC4/IFC2x3 (\*.ifc) format, with their complete BIM data.

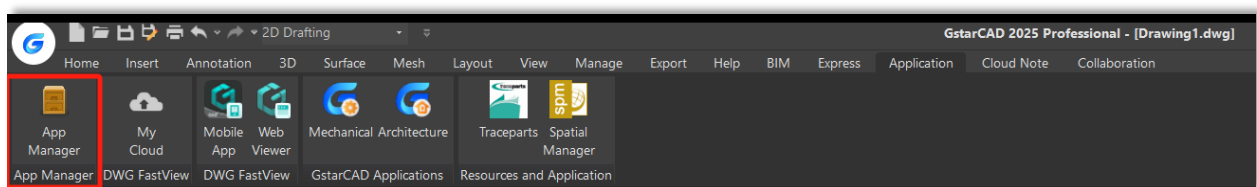


- Voice Annotation

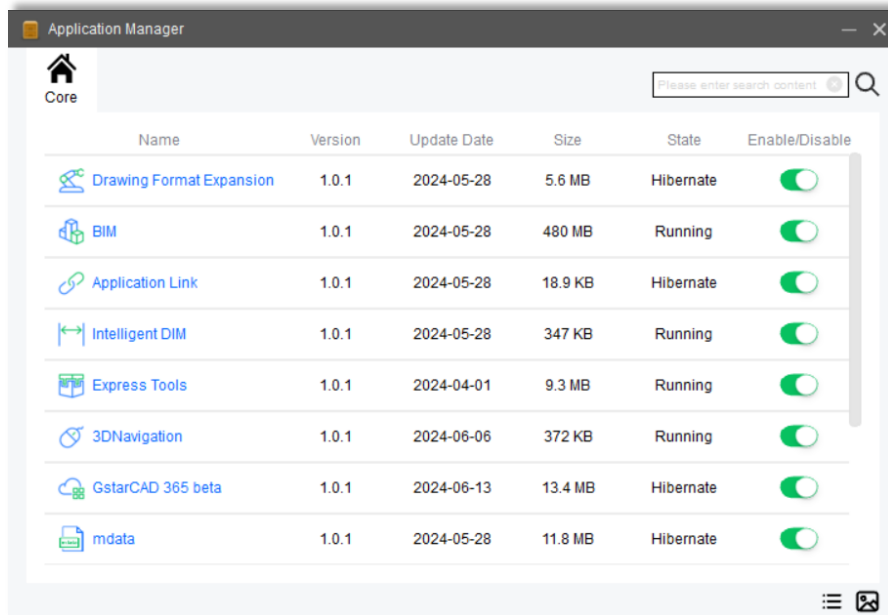
You can enter VOICEMANAGER to add voice annotations in GstarCAD 2025, enhancing clarity. Through the Voice Manager panel, you can easily create, record, play, and manage voice annotations.



- Application Manager



GstarCAD 2025 supports Application Manager. It is a unified system for plugin management. Users can search, enable/disable, and view details of modular applications within the Application Manager, achieving the most suitable service configuration with minimal resource utilization.



## 2. Market Positioning

### 2.1. Pricing Strategy

#### 2.1.1. AutoCAD2025

AutoCAD2025 adopts a subscription-based business model in line with previous versions.

**Buy AutoCAD**

Subscription Flex **NEW**

**SELECT A TERM**  
 ☆ Savings of 32% compared to monthly price

3 year <b>\$6,085</b> Pay annually ☆	1 year <b>\$2,030</b> Most popular ☆	1 month <b>\$250</b>
--	--	-------------------------

**\$2,030/year for 1 user**

**ADD TO CART** >

Credit and debit cards, PayPal, and direct debit (ACH) accepted. ⓘ

Enjoy a 30-day money-back guarantee | 
  Lock in your price for 3 years | 
  Buy with flexibility and security | 
  See more reasons to buy with Autodesk

In Europe and the United States, there is also a new usage-based subscription system called Autodesk Flex, 7 tokens/day, 100 tokens for \$300 (usage period of 1 year and 14 days), 500 tokens for \$1,500 (usage period of 1 year and 71 days), or purchase any number of tokens. Flex is a good choice for team members or individuals who want to try out the product or only need occasional access.



**Buy tokens**

Subscription Flex **NEW**

AutoCAD cost: 7 tokens/day

**\$300**

Minimum **\$300**  
100 tokens  
14 days over 1 year

Popular **\$1,500**  
500 tokens  
71 days over 1 year

Custom **Varies**  
Estimate tokens

**Buy tokens** **Learn how Flex works**

Tokens expire 1 year from date of purchase. Not all products and features are available with Flex. [Learn more](#)

Credit and debit cards, PayPal, and direct debit (ACH) accepted.

Access more with Flex | Estimate your usage | Buy more, save more | Pay as you go with Flex

**Estimate tokens**

**1** What products will you be using?  
Select products that users will access occasionally.

1 product selected

**2** How many users and how often each month?  
A Flex user uses tokens to open a product for 24 hours (one day). To estimate the tokens you will need, enter the number of users who will access the selected products, and the average number of days a month each user will use them.

	Users	Days per month
AutoCAD 7 tokens/day	10	5

**3** Recommendation for 1 year

Estimates are based on the information you provide and available purchase options. Recommendations are rounded up to ensure that you have sufficient tokens for one year based on current daily consumption rates. Daily rates are subject to change.

RECOMMENDED TOKENS: **4200/year** | PRICE: **\$12,600**

**Buy tokens** **Find an eligible reseller**

Talk to our sales team: 1-844-842-1674

These estimates are based solely on information provided by you and your costs may vary based on your actual usage. [Learn more](#)

AutoCAD LT 2025 adopts a subscription-based business model and is divided into three price tiers, \$65/month, \$505/year, and \$1515 for 3 years.

**Buy AutoCAD LT**

SELECT A TERM

☆ Savings of 35% compared to monthly price

**\$505/year for 1 user**

3 year **\$1,515**  
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### 2.1.2. GstarCAD 2025

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### ➤ **Yearly Subscription**

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## **2.2. Marketing Share**

**Autodesk:** As the global CAD software market leader, Autodesk's AutoCAD and other CAD products occupy a significant market share in the world. This is mainly due to its wide range of capabilities and applications in various industries such as construction, manufacturing and engineering.

**GstarCAD:** Even though GstarCAD market share is not as high as AutoCAD's, GstarCAD products are more and more accepted by designers due to it is seamless compatible, high performance, great stability and efficiency features, etc.

## **3. Summary and Suggestions**

Although AutoCAD is still the star product in computer-aided design field, the performance is still not as good as GstarCAD. GstarCAD is extremely excellent dealing with large amounts of data which enhances the work efficiency a lot. GstarCAD drawing file and data are compatible with AutoCAD perfectly and realizes bidirectional compatibility with AutoCAD, and users can easily migrate from AutoCAD to GstarCAD with a lower cost.

GstarCAD 2025 not only covers almost all the command used features of AutoCAD2025 at the drawing function level, but also develops plenty of practical features which enhance user's work flow greatly. Even it has also made more complete solutions in multi directions of collaboration, but it still needs to accumulate technology in terms of intelligence features.



**GstarCAD 2025**



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