AUTODESK® AUTOCAD® 2017

Lynn Allen's
Tips and Tricks

AUTODESK®

User Interface

The User Interface in AutoCAD 2017 continues to become more efficient and easier to use. Be sure to read this section thoroughly so you can get the most out of your UI!
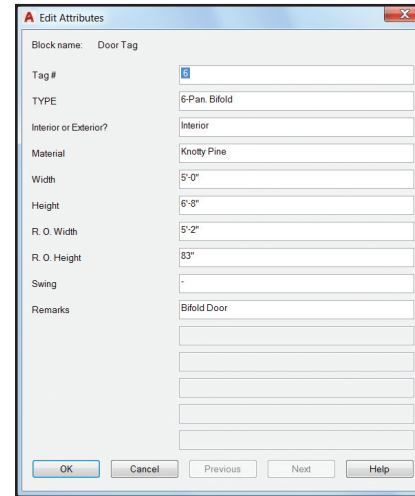
Dialog Box Enhancements

The number 3 AUGI wish list request has been granted! Many dialog boxes have an increased default size and are resizable. That means more information and less scrolling for you!
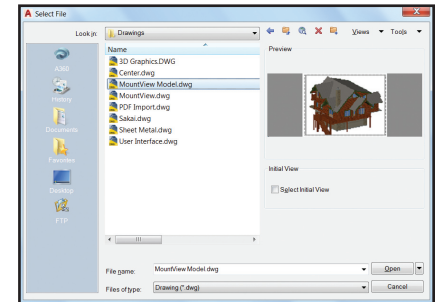
The plethora of productivity tools in AutoCAD 2017 is certain to provide a better design experience for everyone!

Let's look at a few:

Edit Attributes (ATTEDIT) is increased to display 15 attributes at one time (compared to 8).
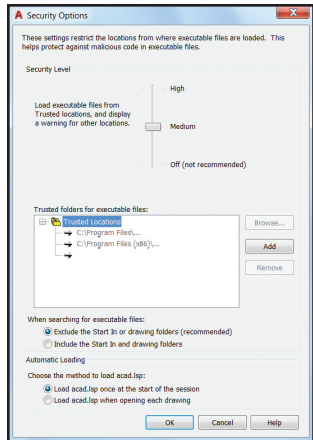

Insert: is enlarged and resizable with a larger preview Image—and it now supports AutoComplete! That means less typing and scrolling to select the correct block name.

Select File: This dialog shows up whenever you are asked to select files. You'll find the preview pane is increased (and the link to Buzzsaw® in the Places list is removed.
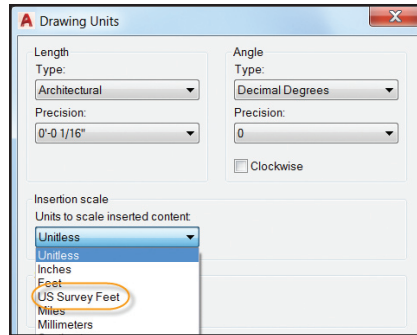
Security Options now trusts any files or folders under Program Files (which is under the operating system's UAC protection). Implicit Trusted paths are grayed out (before they weren't even displayed.)

Drawing Units is updated to include US Survey Feet in the list of Insertion scale units.

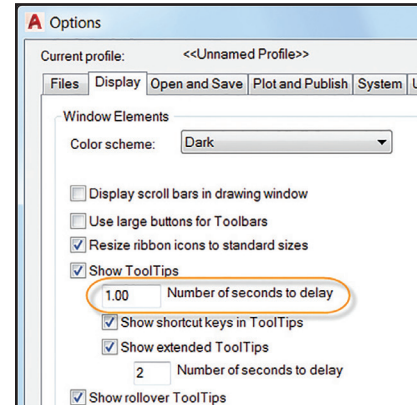**NOTE** US Survey Feet is not supported in previous AutoCAD versions.

Here is a list of the other improved dialog boxes:

Page Setup Manager, Object Grouping, Layer States Manager, Enhanced Attribute Editor, Move/Copy Layout, Drawing Properties, Load/Unload Applications, and Open VBA Project.
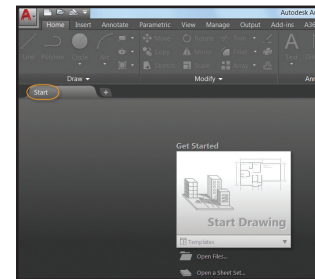
ToolTip Enhancements

Do you think ToolTips show up too quickly (or not fast enough!) Now you can set the exact number of seconds to delay before displaying rollover tooltips. Customize this on the Display tab of Options.

Start Tab

The Start tab is filled with information and speedy ways for you to start new drawings or edit existing ones.
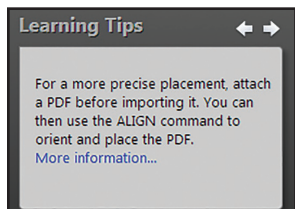

TIP/NOTE The Start tab contains two helpful sliding content frames: Learn and Create.

The Create page makes it easy for you to start a new drawing, access recent files, and connect with Autodesk® A360. Here you'll find various notifications as well as where to download offline Help.

Use the icons at the bottom of the Recent Documents list on the Create page to switch from thumbnail to text view (or both).

The Learn page is filled with What's New and Getting Started videos, and online resources. The Tip of the Day is updated every 24 hours. Be sure to check out previous tips to increase your skills!
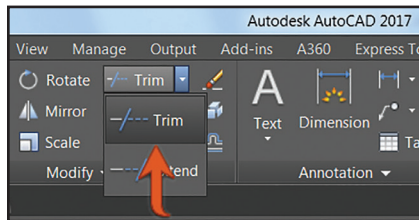

Ctrl+Home or GOTOSTART gets you to the Start tab quickly.

TIP/NOTE The Start tab can be turned on/off for deployments.

TIP/NOTE Set STARTMODE to 0 if you don't want the Start tab to display. This won't take effect until you close and relaunch AutoCAD.
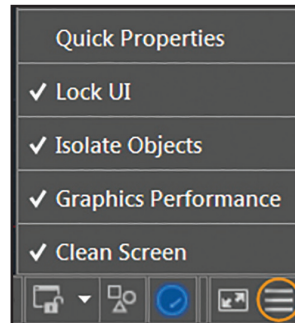
Help

Can't find a tool? Click on the Find link in the Help window and an animated arrow points to its location in the Quick access toolbar, ribbon, Status bar, and Application menu.
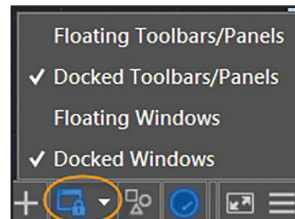

Status Bar

Populate the Status bar with the tools you want by clicking on the three stacked lines (the "hamburger") in the lower-right corner of the editor. Isolate Objects and Lock UI options have been added back in.

Use the Lock User Interface tool to check/uncheck multiple UI elements at one time. Click on the icon to quickly enable/disable locking.
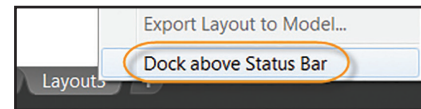

The Status bar will automatically wrap onto two rows when the icons can't fit into a single row.

Layouts

You'll appreciate the layout preview thumbnails and the handy + symbol to quickly add a new layout. For those of you who like to heap on the layouts—you can use the overflow menu for easy access to layouts that extend to either side of the tabs. Drag and drop layout tabs anywhere, including the overflow.
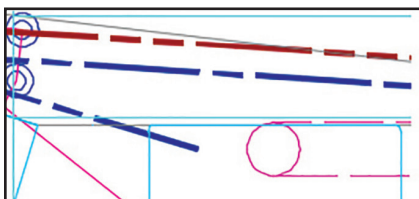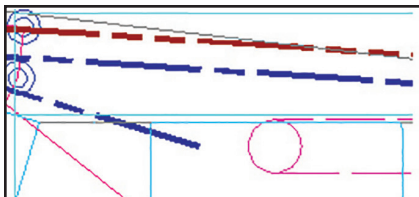

Do you prefer the layout tabs to display above the Status bar? Use the option in the right-click menu.
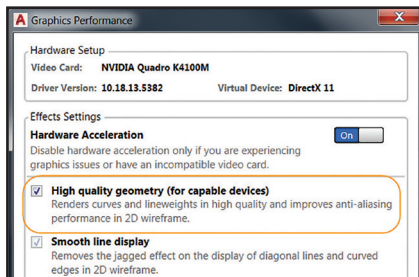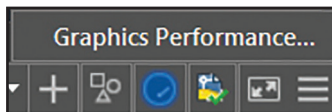
Improved Graphics

Are you tired of the jagged diagonal lines and unsmooth curves in AutoCAD? AutoCAD 2017 to the rescue! The appearance, selection and performance of 2D geometry continues to improve in AutoCAD 2017.

To experience the performance increase you'll need a DirectX 11-capable graphics card and your hardware acceleration turned on!

The High quality geometry option can be found in the Graphics Performance dialog box (available from the status bar).
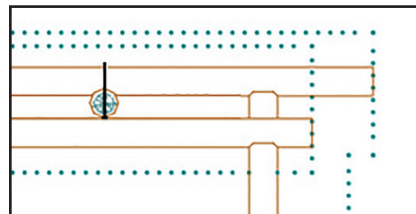

Set LINEFADING to 1 to automatically fade geometry as you zoom into super-dense drawings. Control the amount of fading with LINEFADINGLEVEL.

If your hardware doesn't support *High quality geometry* (isn't DirectX® 11-capable), try using the Smooth line display for better graphics performance.

Appearance and Selection

Remember how the previewed objects (while they're being created, moved or copied) often appeared jagged? Well not anymore!

Lines with "dot" linetypes were often difficult to see (even when you changed the lineweight!). Now you can actually see them In AutoCAD 2017!

Linetypes with dash and dot combinations now display round dots (no more very short dashes!).
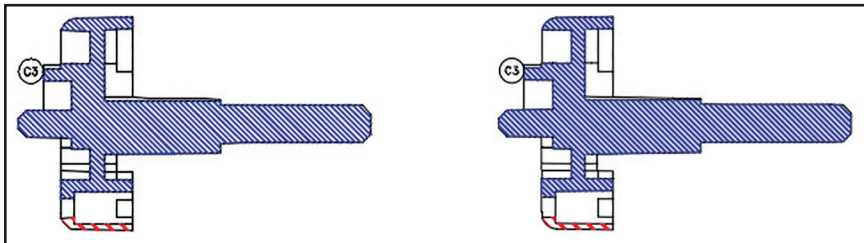

Snapping to Gaps

Have you ever tried to snap to a gap on an object with a dashes or dots linetype? No can do, right?

Now object snaps recognizes gaps allowing you to snap to objects even when picking on a blank space.

TIP You must turn on the system variable LTGAPSELECTION to get this new behavior!

Parallel Hatch Lines

In AutoCAD 2017, closely spaced parallel hatch lines have more consistent line spacing graphically.

You'll find that 2D and 3D performance in general is improved in AutoCAD 2017. Pan and Zoom operations are faster, orbiting large 3D models with visual styles no longer results in adaptive degradation. And if you've ever worked with models with a large number of small blocks containing edges and facets—you will be pleasantly surprised at the improved performance!

Object Selection

We spend so much of our AutoCAD time selecting and editing objects—check out these handy additions:

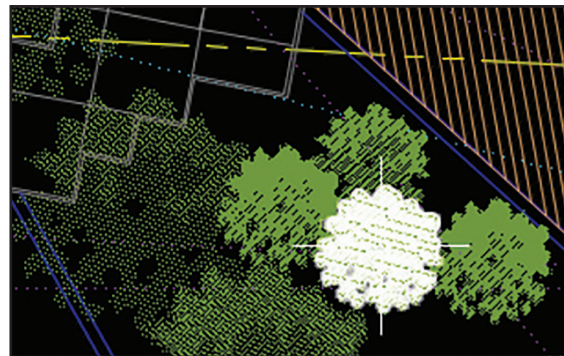## Selecting Objects

When selecting objects, the geometry appears thicker and darker (or lighter, depending on your background color).
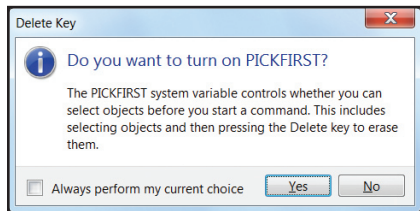
After you select objects, they change color and remain thickened, so you are certain you've selected the correct objects! (only if hardware acceleration is on).

TIP/NOTE Don't like the new highlight? Set SELECTIONEFFECT to 0.

TIP/NOTE Customize the highlighting color on the Selection tab of Options (Selection effect color).

Moving objects will be clearer with the faded deletion effect. Both Move and Copy previews are fast (even with very large selection sets!).
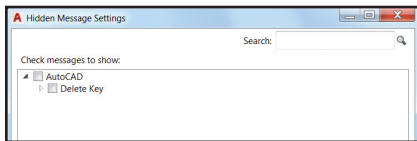
Delete Key with PICKFIRST

Have you tried to delete highlighted objects with the Delete Key (only to find that nothing happens?). You probably had PICKFIRST set to 0. A new message displays in AutoCAD 2017 to alert you and allow you to turn PICKFIRST on.

TIP If this message starts to bother you—you can turn it off in Options>System>Hidden Messages Settings

Property preview performance is improved with large selection sets.

Geometric Center Object Snap

The Geometric Center object snap (GCE) finds the geometric center of polygons and closed polylines.

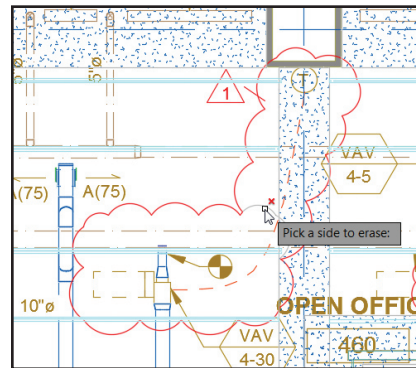**TIP/NOTE** An asterisk glyph indicates geometric center.

Productivity Improvements

AutoCAD 2017 has added many productivity commands to help you get your designs completed faster!

Revision Clouds

If you draw revision clouds, you're going to love the updated REVCLOUD that supports rectangular, polygonal, and freehand (and Object from the command line). The Revision clouds are easy to edit using grips (no more stretched, elongated arcs!).

Use the Modify option to create an additional revision cloud and delete selected portions of an existing revision cloud (put more than one revision cloud together).

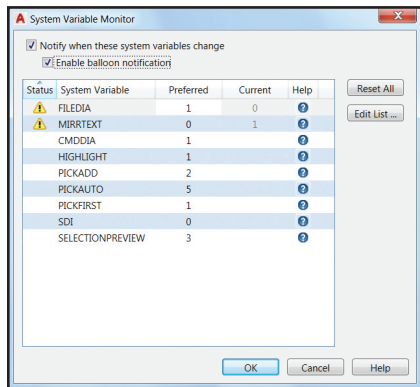**TIP/NOTE** Set your preferred default with REVCLOUDCREATEMODE

TIP/NOTE Set REVCLOUDGRIPS to Off to put grips back to legacy behavior.
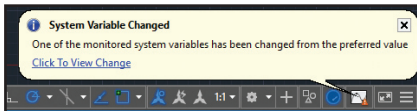
Hatch Layer

The HPLAYER system variable can be used to set a default hatch layer. Now you can specify a non-existing layer and HPLAYER will create the new layer and use it as your default for new hatches and fills.

System Variable Monitor

Tired of system variables being changed without you knowing about it? Use the System Variable Monitor (SYSVARMONITOR) to quickly identify system variables that no longer conform to your standard.
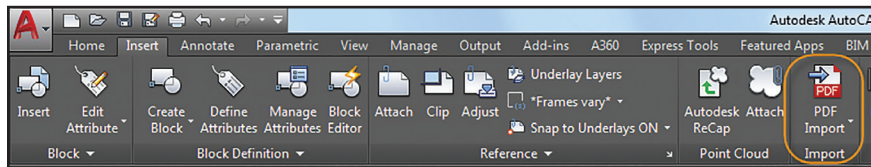

You set up the variables and their preferred settings (although you'll find some popular defaults already prepopulated). Turn on notifications to display at the command line, on the Status bar icon, or even enable a balloon notification should a variable on your monitored system variable list be changed.

Xref Enhancements

Control the display of layers from xref drawings (even if they're not set to Bylayer in the host drawing). Set XREFOVERRIDE to 1 and xref objects will take on Bylayer behavior.

PDF Enhancements

Not only have there been improvements to exporting PDF files, but now you can import the geometry, TrueType text and raster images from a PDF!

Importing PDF Files

Use the PDF Import tool (Insert ribbon tab) to import geometry from a PDF page into the current drawing as AutoCAD objects.

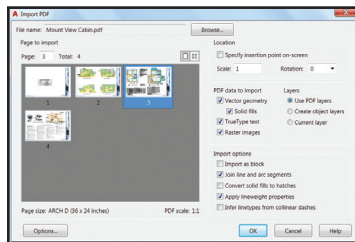**TIP** You can also find Import in the Application menu.

After selecting a PDF File—use the Import PDF dialog to customize your import.
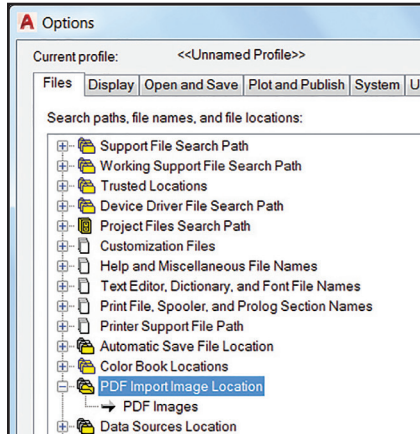
Choose which page from the PDF file to import

· Specify scale, rotation and insertion point
· Select what type of data you wish to import (vector geometry, solid fills, True Type fonts, raster images)
· Control layer results
· A variety of post-processing options for imported geometry.

TIP Raster images are extracted as .png files (and attached). Use the Options button to assign the file location for the image files.

NOTE Converting solid fills to hatches can increase the processing time

If you choose not to apply lineweight properties, AutoCAD will use the default lineweight.

Infer Linetypes from Collinear Dashes

When selected – AutoCAD will look at the collections of collinear dash and dot segments and replace them with a single polyline.
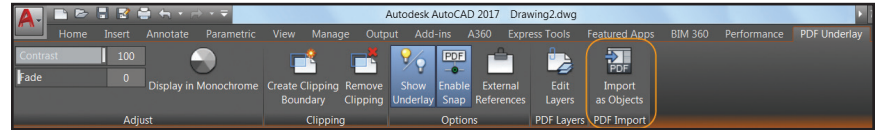
AutoCAD creates a dashed PDF_Import linetype based on the length of the dashes (some fidelity may be lost).

NOTE If unchecked, each segment in a dashed line is imported as a separate polyline (yikes!).

TIP While True Type fonts are imported as text objects, unfortunately SHX text is not recognized (but will be imported as geometry.)

PDFIMPORT Command

The actual PDFIMPORT command also offers you the option of selecting an attached PDF underlay. You'll find this option in the contextual PDF Underlay ribbon tab.

You can specify a rectangular or polygonal boundary around the objects you want to import, or you can choose to import the entire underlay.
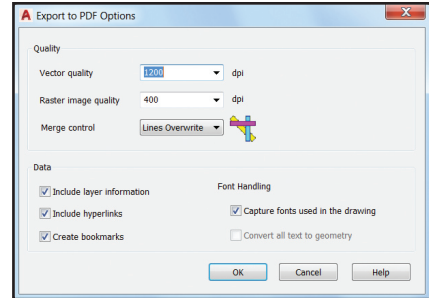
PDF Export

You'll find the updated PDFs created in Auto-CAD 2017 are slimmer and faster! More font types (including SHX) are fully supported. That means that more text can be highlighted, copied, and searched.

Export to DWF™ and Export to PDF options have been split, and they each have their own Export Options dialogs.
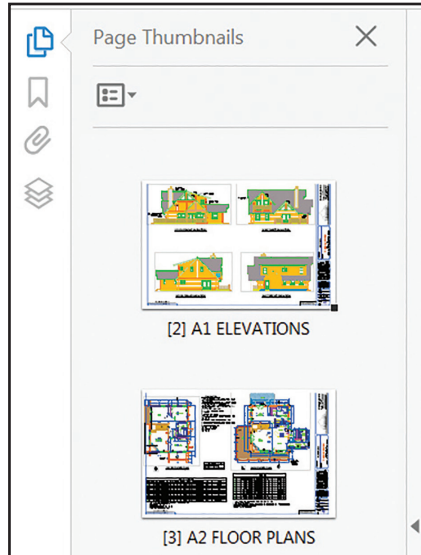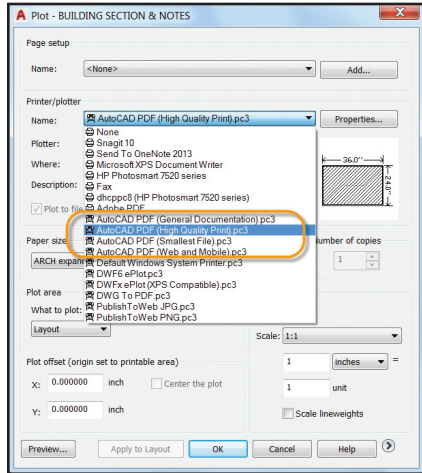

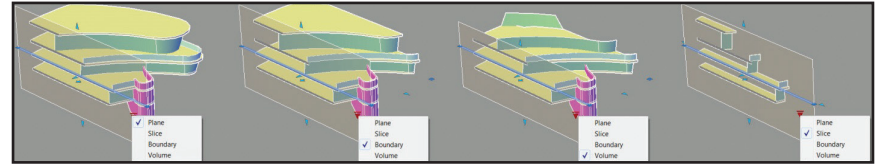PDF export options for hyperlinks and bookmarks have been added.

TIP/NOTE Use hyperlinks to link sheets, named views, external websites, and files (or from objects such as images, blocks, fields, etc.).

Four different predefined PDF options can be found when plotting, so you can easily select the one to suit your needs.

Layout names are automatically displayed as page labels in the PDF file (much easier to identify sheets!).
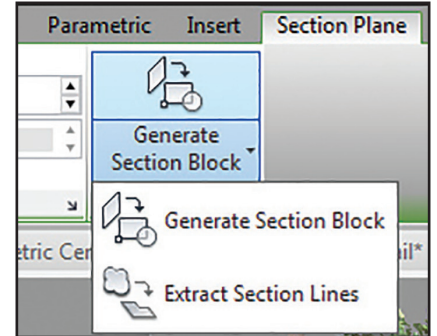

3D Modeling

The Section Plane tool, which creates a cutting plane through 3D objects, now works on point clouds.

Choose between a simple cutting plane, a slice, a bounded or volumetric area for your section object type.

Slice generates a thin cut through the model with parallel front and back section planes. It has a thickness property (but no jogs allowed).

The contextual Section Plane tab is filled with more section plane controls, including a Live Section toggle, the ability to add jogs, generate section blocks from solids, and extract section lines from point clouds.
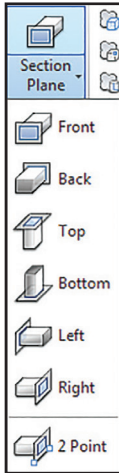
Point Cloud Improvements

Point clouds are becoming more of an integral part of the AutoCAD drawing process. If you use point clouds—you'll appreciate the many improvements in AutoCAD 2017.
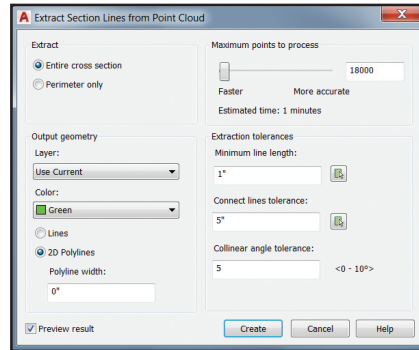
Section Planes

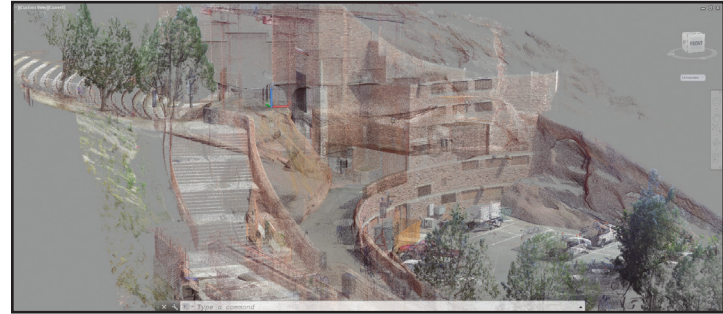A Section Plane drop-down has been added to the ribbon.

TIP/NOTE The initial size and position of a section object is based on the extents of the visible 3D objects in the drawing.

Use the Extract Section Lines tool to generate section lines from a point cloud (when live sectioning is on).

TIP/NOTE Use the Preview result option to make sure you get the desired results (Create can take some time, depending on the number of points analyzed!).
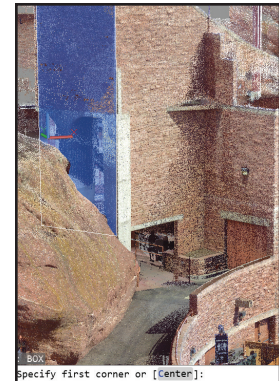
Point clouds now support transparency (making it easier to see your geometry).
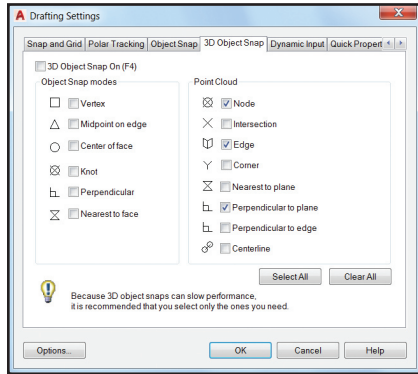

Dynamic UCS

The handy to use Dynamic UCS tool now works on point clouds! Just make sure Dynamic UCS is turned on and all the point cloud object snaps are turned off. Pass your cursor over a point cloud face and begin drawing!

TIP/NOTE The point cloud must include segmentation data (indicated in the Properties Palette).

Point Cloud Object Snaps

Control the point cloud object snaps from the 3D Object Snap tab of Drafting Settings. Object snap modes include Intersection, Edge, Corner, Perpendicular to Edge, and Centerline!
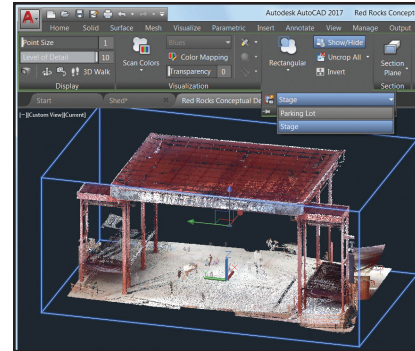

Be sure 3D Object Snap is displayed on the Status bar for easy access to the point cloud object snaps.

· Use the Intersection object snap to snap to the apparent intersection of two lines of a sectioned point cloud.
· Edge snaps to the edge of two intersecting planes.
· Corner snaps to the corner of three intersecting planes.
· Use Perpendicular to edge to draw perpendicular to the edge of two intersecting planes.
· Use Centerline to snap to the centerline of a cylindrical shape.

Point Cloud Cropping

Use the Cropping panel (rectangular, polygonal, or circular) to clip your point clouds. You can continue to crop your point cloud by changing the view.

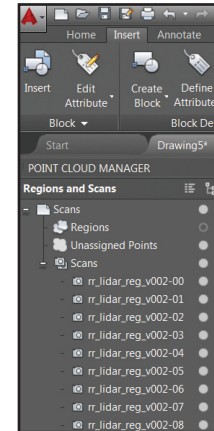Now you can save and restore named cropping states.

Cropping states maintain the boundary as well as the visibility of scans and regions.

TIP/NOTE Use command POINTCLOUDCROPSTATE to list and delete crop states.
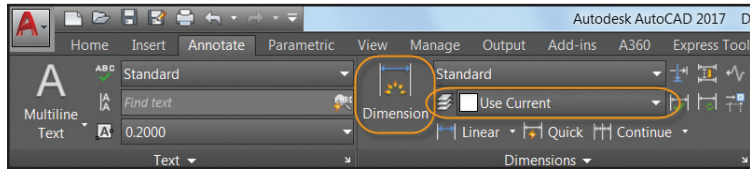
Point Cloud Manager

Use the Point Cloud Manager to work with multiple point clouds: On/Off buttons for scans and regions are always displayed—names are truncated if needed (but displayed in the tooltip).

TIP It's so easy to double-click on a point cloud to view the model from its scan position.

Annotation

Annotation is an important part of our designs—check out these timesavers!
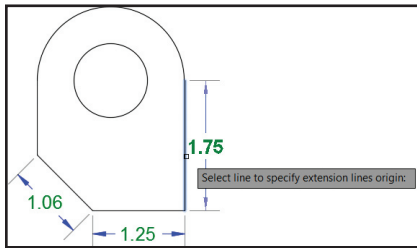
Smart Dimensioning

Let AutoCAD 2017 take the tedium out of dimensioning! The updated DIM command is smart enough to detect objects and provide various visual dimension options.

TIP/NOTE Use the DIMLAYER command to create a new default layer for dimensioning (only valid when using the new DIM command).

Check out the horizontal, vertical and aligned dimension previews when you select a linear object—then simply place the desired dimension. Or select another non-parallel linear object to display and place an angular dimension.
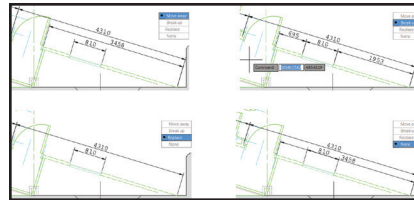

Hover over a circle or arc and preview a diameter or radial dimension—arcs come with the additional option to create an angular dimension.

The default values are automatically assumed for the dimension text and angles resulting in fewer steps (but you can still change them from the right-click menu or command line).
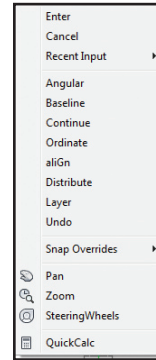
If you attempt to create an overlapping dimension you'll see options to move, break up, or replace the existing dimension.
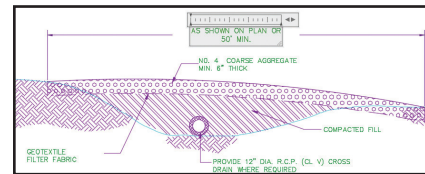

The DIM command remains active until you exit the command, so you can knock out multiple dimensions at one time.
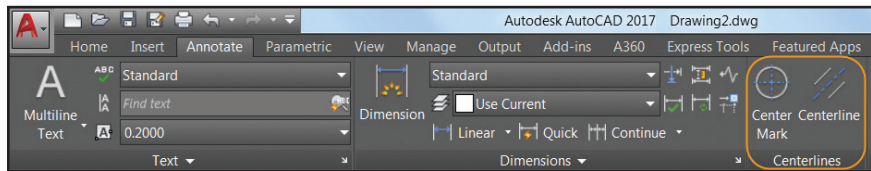
Think of all the time you can save!

TIP/NOTE If you prefer to specify a type of dimension, you'll find the various dimensioning options in the right-click menu.

TIP/NOTE Use the width sizing control to wrap dimension text! (another one of the many AUGI Wish List items granted!).
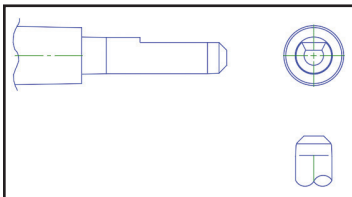
Associative Centerlines and Center Marks

Now it's easy to create customized associative centerlines and center marks! Find these powerful tools on the Annotate ribbon tab.

Centerline: Create centerline geometry (of a specified linetype) associated with selected lines and polylines.

Center Mark: Create an associative center mark at the center of a selected circle, arc or polyarc.
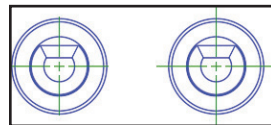

TIP If you move or scale the associated objects—the centerlines and center marks update accordingly!

CENTERDISASSOCIATE: Disassociates centerlines and center marks from their respective objects.
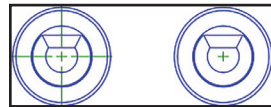
CENTERREASSOCIATE: Reassociates centerlines and center marks with selected objects.

Centerline and Center Mark System Variables

CENTEREXE: Controls the length the extension line overshoots

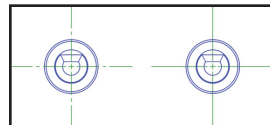**CENTERMARKEXE:** Determines whether extension lines are created (center marks)

TIP Use the CENTERRESET command at any time to reset the extension lines of a center mark or centerline object to the current value of CENTEREXE.
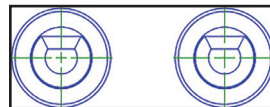
CENTERLTYPE: Specifies the linetype

CENTERLAYER: Specifies the layer for centerlines and center marks

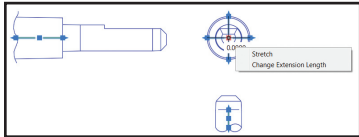**CENTERLTSCALE:** Sets the linetype scale

CENTERCROSSSIZE: Used to set the size of the central cross (center marks)
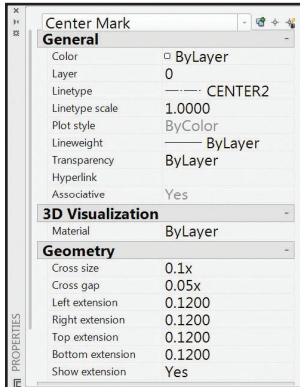

CENTERCROSSGAP: Sets the extension line gap between the central cross and the extension line (center marks)

TIP Modify centerlines and center marks with grips. Use the multifunctional grip menu for additional controls.
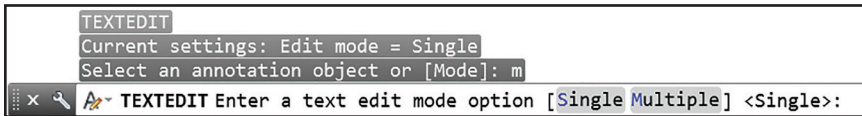
You can also use the Properties palette to view and edit centerline and center mark properties.

TEXTEDIT

Want to perform multiple text edits at one time? Use the new "multiple" option in the TEXT EDIT command (avoid all those tedious enters!).
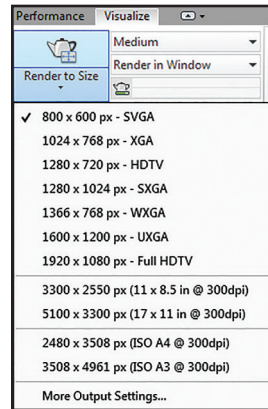
```
TEXTEDIT
Current settings: Edit mode = Single
Select an annotation object or [Mode]: m
```
```
× ✎ A⃗ TEXTEDIT Enter a text edit mode option [Single Multiple] <Single>:
```

You'll also find a handy Undo option within Multiple mode so you can undo Individual text edits.

NOTE If you leave TEXTEDIT and perform an undo—all of the edits within the TEXTEDIT will be undone.

Rendering

The rendering engine in AutoCAD 2017 is simpler to use and yields better results.

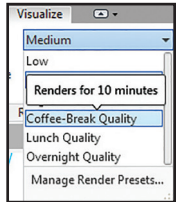You'll find the updated Render panel (Visualize ribbon tab) includes a Render to Size drop-down list.

Select "More Output Settings" to access the Render to Size Output Settings dialog. Here you can specify the image size, resolution, and format in easily understood terms.
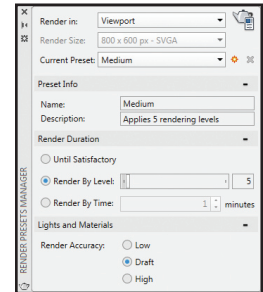
Render Presets

Use the Render Presets list to control the render quality (in levels) or how much time it will take to render.
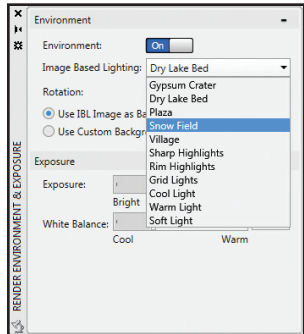
TIP/NOTE The tooltips provide helpful details.

The Render Presets Manager is much easier to use. Create, modify, and delete custom render presets.

Specify Render in a window, current viewport, or a specified region in the current viewport. Specify the duration and accuracy of the render.

Render Environments

Check out the image-based lighting (IBL) environments! In the Render Environment and Exposure palette you can automatically apply lighting effects and 360-degree background images.

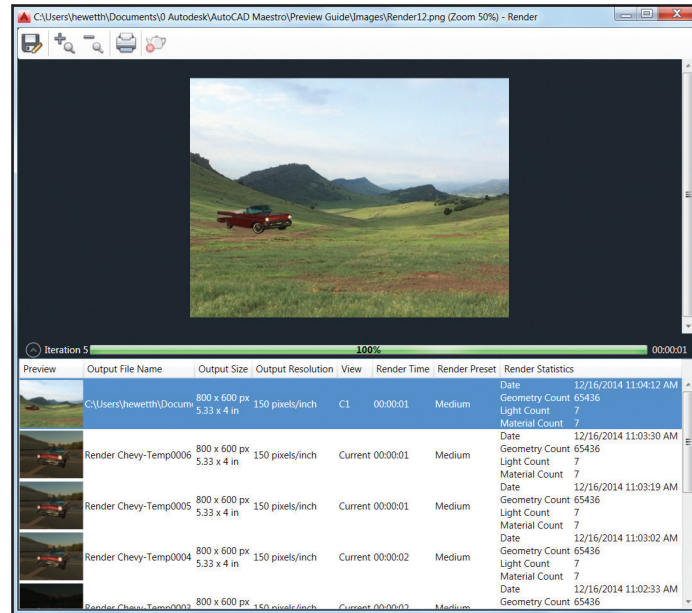**TIP/NOTE** The viewport or model needs to be in perspective view and you must render in order to orbit around the model.

TIP/NOTE You can also use a custom background image (but they remain static).

Render Window

Save a snapshot, zoom while rendering, and print the image in the Render window.
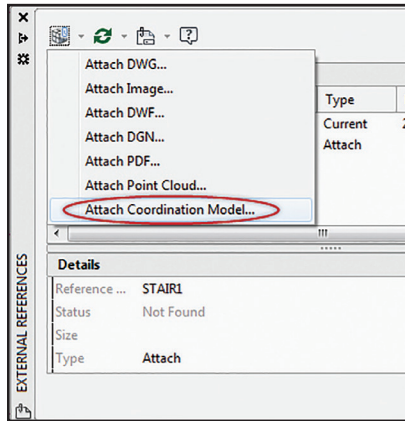
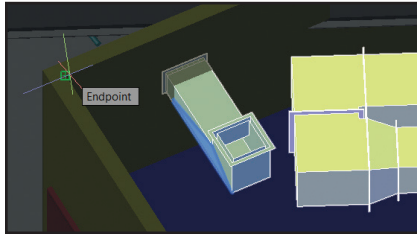Expand the window to view the render history.

Coordination Model

Navisworks

Did you know you can attach coordination models to a drawing? The Attach command and the Xref Manager have options for Autodesk® Navisworks® files (NWD or NWC).
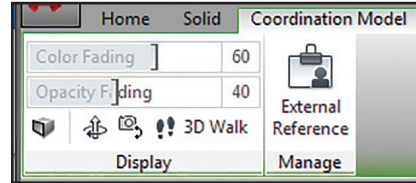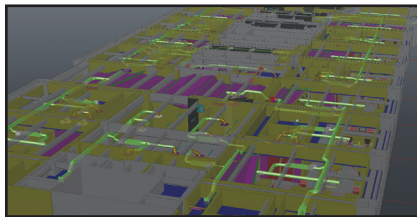

TIP/NOTE You can also attach Navisworks files using the CMATTACH command.

The Attach Coordination Model dialog contains typical controls such as path type, insertion point, etc.
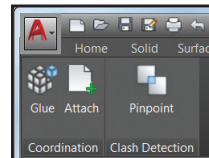

New to AutoCAD 2017 is the ability to snap to precise locations on an attached coordination model using the 2D endpoint and center object snaps!

Selecting the coordination model displays the contextual ribbon tab with options to control the display through fading.

TIP/NOTE To attach coordination models, you need a 64-bit system and hardware acceleration must be on.
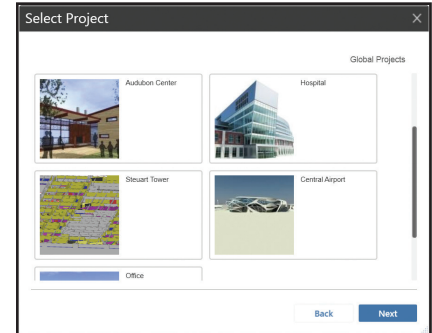
BIM 360

AutoCAD 2017 makes it easy to access Autodesk® BIM 360® Glue® software for model sharing and clash detection. Attach

single or merged models to your AutoCAD drawings using the Attach tool on the BIM 360 ribbon tab.
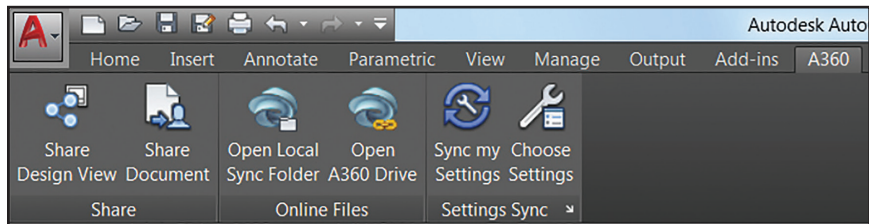
Access your BIM 360 Glue projects directly from AutoCAD by signing into A360 and selecting the project host.

Adjust the color and opacity fading on the contextual ribbon tab.

TIP/NOTE AutoCAD 2017 automatically loads the latest version of the attached BIM 360 Glue model.

A360

It's all about the cloud, baby! Connect to your secure A360 account for design view sharing, customization syncing, project management, and more.
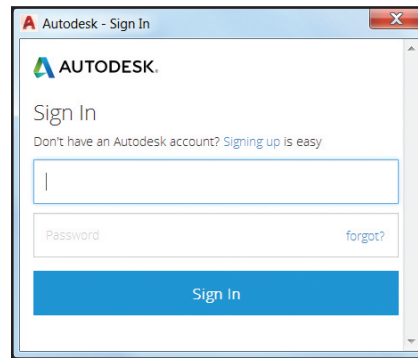
A360 Ribbon Tab

You'll find some new tools in the A360 tab, and the removal of some obsolete and less frequently used tools. Design Feed is no longer displayed but you can still access it with the DESIGNFEEDOPEN command.
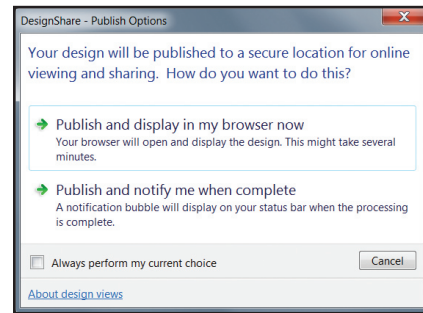
Share Design View

AutoCAD 2017 offers this new tool to easily publish views of your drawings to the cloud, and share with others while protecting your DWG file. Stakeholders viewing the design don't even need to log into A360 or have an AutoCAD based product!

TIP You can also find Design Views under Publish in the Application Menu or use the ONLINEDESIGNSHARE command.
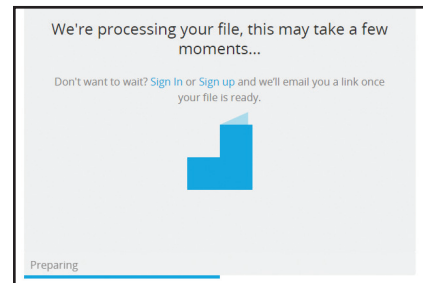
NOTE You must be logged into A360 to publish design views.

The Share Design View tool uploads your current drawing to a secure location in the cloud where 2D and 3D views are extracted along with the property database. You choose to publish and display in your browser right away (and wait) or receive a notification when all view processing is complete.

If you choose to publish and display now—AutoCAD launches your browser where you can see the status in the A360 viewer.

TIP Factors that affect the publishing speed are internet speed, backlogged queues and the complexity of the drawing.
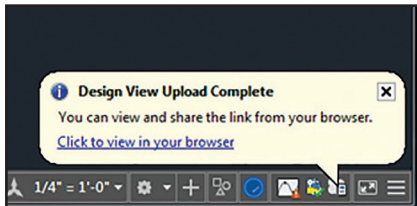
NOTE Closing the browser before the processing is complete doesn't cancel the operation.

Once in the A360 viewer you can zoom, pan, measure, display object properties, control layer visibility and more. Once you have the design view you want—you can easily share a link to the design view with other users.

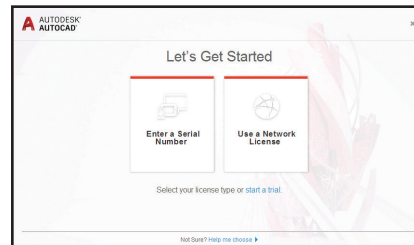**NOTE** This link stays valid for 30 days (and no logon requirements!).

If you choose the option to publish and be notified when processing is complete—you will receive a bubble notification with a link to display the design view in your browser.
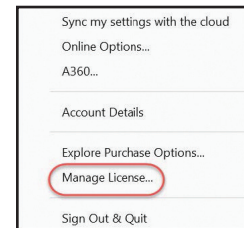

Installing AutoCAD and the New License Manager

It's easier to change between license types and save your work should your network license lose connection with the License Manager.

No need to input license type and serial number during the installation process. Now you provide this information when you first launch AutoCAD. Choose between a Serial Number (stand alone) and a Network License.

Infocenter has a new License Manager option so you can view your software license info and installed plug-ins, add-ons and extensions.

TIP Here you can also change the type of license (stand-alone or network) or input a new serial number.

If you select network license—AutoCAD will allow you to check out a license for up to 6 months so you can use it offline.

If you are online using the license server— and you lose your connection to the network at any time—AutoCAD will give you an error message and a timer that doesn't begin until you dismiss the message. This should give you plenty of time to save your work!
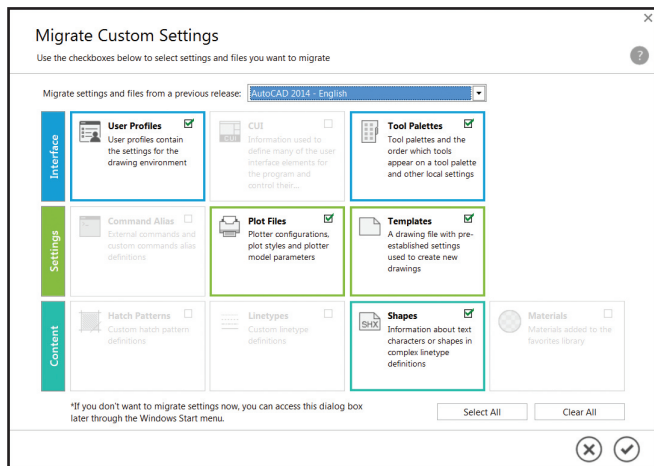
Smooth Migration

Use the new Migrate Custom Settings tool to migrate your custom settings and files from a previous release to AutoCAD 2017.

The modern and Informative interface makes it easier to detect and clearly identify customized settings for migrating.

TIP you can also access the Migrate Custom Settings tool from the Windows Start menu (but AutoCAD cannot be running). If you change your mind—you'll find a "Reset Setting to Default" option there.
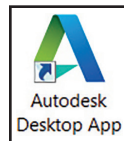
The updated summary report offers more information In an easier-to-read format!

Autodesk Desktop App

One of the first changes you'll notice when installing AutoCAD 2017 is the new Autodesk desktop app. This window automatically displays after installation.
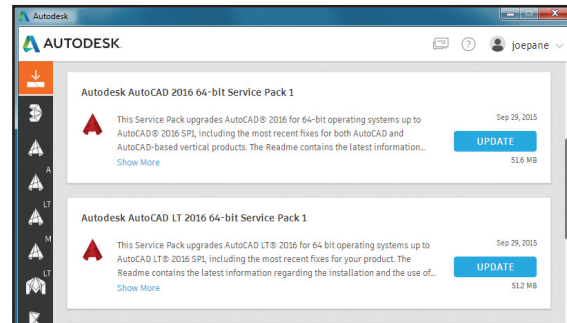
NOTE A shortcut for the Autodesk desktop app is also installed on your desktop and taskbar.

NOTE be sure to sign-in to your Autodesk account to get the most value out of the app.

Autodesk desktop app delivers security patches and updates for all Autodesk products (2015-2017). It is subscription aware and delivers updates and learning content for products under subscription (so be sure to sign on!).

When any type of update becomes available, a notification will appear on the system tray. Simply launch the Autodesk desktop app to get more info on the update and install the update if desired.
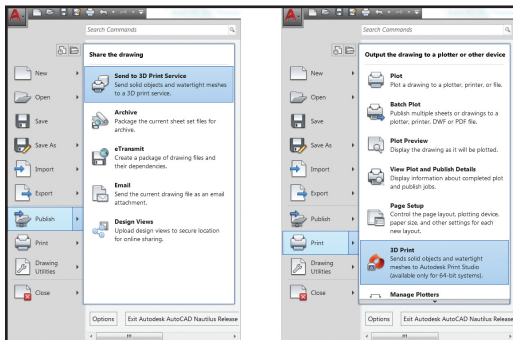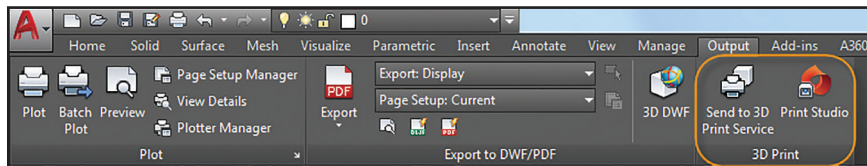
3D Printing

It seems that 3D Printing is all around us! AutoCAD 2017 is making it easier than ever for you to send your designs to a 3D printer.

Send to 3D Print Service

Under Publish in the Application menu you'll find the option to Send to 3D Print Service (formerly 3DPrint).

Or under Print in the Application menu you can choose the Print Studio option (the new 3DPrint command).
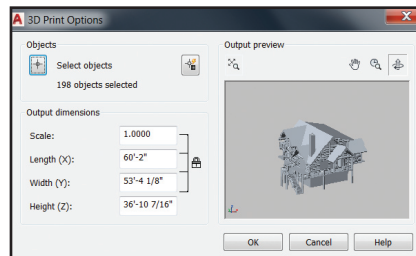

Both of these tools are available on the Output ribbon tab.
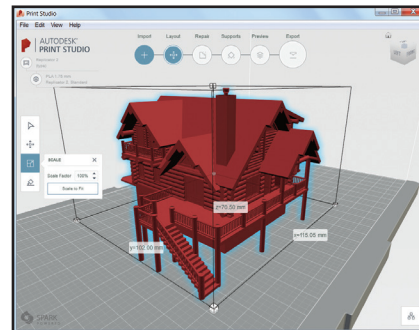

Print Options

However you choose to get there—you'll end up in the 3D Print Options dialog box where you can control a variety of settings including the output dimensions.
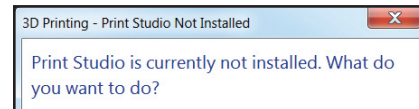

After hitting OK, you'll be asked to save the output file to STL format so you can send it to a 3D Print Service.

Print Studio

If you chose Print Studio—you will have access to additional tools to prep your model for printing success when sending to your 3D printer.

NOTE Print Studio is a separate application that is not installed by default. If it hasn't previously been installed—you will be prompted to do so.
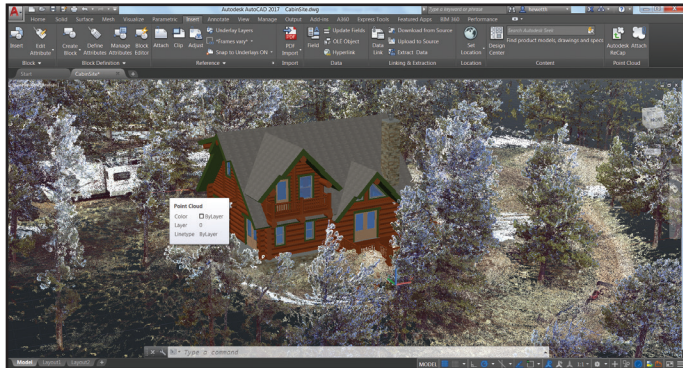
AutoCAD: Continuous Innovation

Autodesk is going through a transition about how we deliver value to our customers. We're changing to help customers embrace the new era of design innovation, help businesses stay competitive in the era of connection, and deliver continuous, incremental product value.

The new AutoCAD 2017 experience lets you:

· **Simplify** licensing, access, updates, and versions, so you can focus on your designs and collaborate better.

· **Personalize** your AutoCAD to fit the way you and your colleagues work, with no disruptions.
· **Connect** and collaborate on your designs from any device or platform, around the world.
· **Innovate** with one of the industry's leading design tools backed by more than three decades of technological breakthroughs and quality you can trust.

Simplify Software Management with AutoCAD

AutoCAD plans provide access to the latest updates and releases on a termed basis, to help you spend less up front and meet project needs:

· Stay current with the most recent releases and automatically receive updates.
· Receive setup support from Autodesk to get you up and running quickly.
· Access Autodesk® A360 project collaboration software and gain 25 GB of cloud storage.
· Enjoy flexible licensing rights and scale up or down depending on your workload*.

Take the Power of AutoCAD wherever you go with AutoCAD 360 Pro

AutoCAD 360 Pro is now included when you subscribe to AutoCAD software. AutoCAD 360, the official AutoCAD mobile app, is an easy-to-use drawing and drafting mobile app that allows you to create, view, edit and share AutoCAD drawings on your phone or tablet at job sites, client offices, or anywhere you are. AutoCAD 360 Pro comes with advanced features like:

· Markup, add text and make changes to drawings in real time
· Connect to external cloud storage (Google Drive, Dropbox etc.)
· Access advanced layer management, measuring and annotation tools
· Ability to work offline and sync changes when back online.

Visit **www.autocad360.com** to learn more and download the mobile app for iOS and Android.

Note this benefit is not available to AutoCAD customers on a maintenance plan or a perpetual license.

Lynn Allen, Cadalyst columnist and worldwide Autodesk Technical Evangelist, speaks to more than 30,000 users each year. For the past 23 years she has written a column in Cadalyst magazine called "Circles and Lines" and is the voice behind Cadalyst's "Tips and Tricks Tuesdays." Lynn started using AutoCAD software with Release 1.4, over 25 years ago, and got her start by teaching at the corporate and collegiate level for 12 years. A sought-after public speaker with a unique comedic style, Lynn has served as the Autodesk University host for more than 10 years and is always one of the highest-rated speakers. Her latest book is entitled *AutoCAD Professional Tips and Techniques.*

AUTODESK.