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May 2021

# What's New?

*Also in this issue:*

Interview with Jason Pohl

What's New in 3ds Max

New HVAC System Zones



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# CONTENTS

## FEATURES

- 6 3ds Max**  
What's New?
- 8 Civil 3D**  
What's New in Civil 3D 2022, ReCap 2022, and InfraWorks 2022?
- 14 Revit MEP**  
New HVAC System Zones
- 26 AutoCAD**  
What's New in AutoCAD 2022

## COLUMNS

- 4 Letter from the President**
- 18 Tech Manager**
- 20 Interview with Jason Pohl**
- 34 Inside Track**



14



18



20



# From the President



## HELLO AUGI MEMBERS!

I must tell you all that I LOVE SPRING. I love the sunshine, the warmer weather, and the feeling of renewal. I feel an increased sense of peace and happiness (especially since my taxes are done).

I also love new software, which always comes in the spring! I am one of those strange people that like to live on the “bleeding edge” of technology. I look forward to new software features every year and I’ll tell you why. New software features often mean that the software companies are listening to the users. Yes, I realize that software companies do have their own agendas and not all new features are based on user requests. But I still take joy in new features. One of the new features in AutoCAD has been on the wish list for so long I can’t remember when it was first added and that is the ability to pull a drawing tab to a different monitor – without running a separate instance of AutoCAD. Can we have a hallelujah for this one? Additionally, I’m in love with the new Count feature!

This AUGI issue is full of articles discussing the new features released in the 2022 versions of Autodesk software. So if you are like me and enjoy reading about new tools or if you just want to torture yourself with new features that your organization won’t let you have yet, then enjoy this month’s issue of AUGI magazine!

My best regards to all of you,

KaDe

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**3**ds Max 2022 comes with incredible enhancements bringing a range of new features and improvements making it one of the most exciting releases yet.

## THE TOP 6 PICKS

Some of the top improvements this year include:

- **Slice Modifier:** Additional controls like radial slicing, capping sliced boundaries as well as faster slicing operations makes the slice tool considerably more powerful and fun to work with.
- **Symmetry Modifier:** Already popular, the addition of multiple planer control with an enhanced interface and ability to align the symmetry gizmo to the face of an object with faster interactive performance will only improve its appeal.
- **Relax Modifier Enhancement:** The modifier offers a preserve volume option making it potentially a powerful tool for generating low poly content and working with retopology tools.

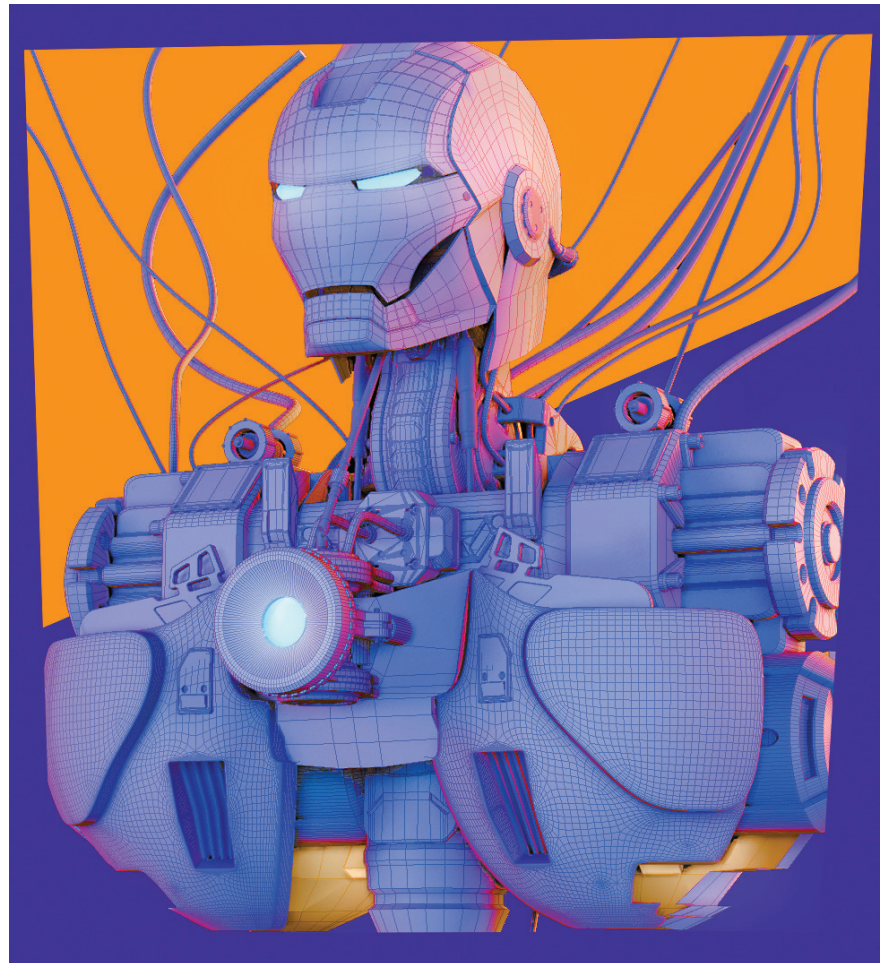


Figure 1 – Rendering Improvements





Figure 2 - Smart Extrude Example

- **Bake to Texture:** The Bake to Texture tool now includes default pre-configured maps making it easier than ever to apply complex detail to simple objects. These include Ambient Occlusion, Beauty, Color, Emissive, Material ID and Input, Metalness, Normal, Opacity, Roughness, Rounded Corners, and Vertex Color.

## RENDERING IMPROVEMENTS

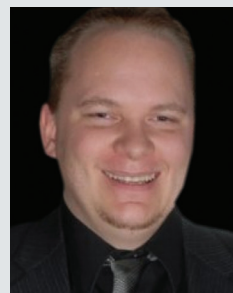
The configuration window is updated with a QT-based UI with faster response times and improvements to the bloom settings. Ambient Occlusion sampling values can be adjusted in the viewport configuration settings.

## SMART EXTRUDE

The smart extrude feature is incredible. By selecting a face and dragging the pivot along an axis, 3ds Max now extrudes and cleans up the linework dynamically. Using this feature, it took roughly three minutes to generate the sci-fi complex concept displayed in Figure 2.

## WORTH NOTING

Additional improvements worth mentioning include security features aimed to combat embedded malware in scene files, enhancements to the Retopology Tools for 3ds Max (version 1.1.0 available in the Autodesk Desktop App), improvements to the Autosmooth function, upgraded MAXtoA based on Arnold 6.2.0.0, and more. This update is one of the most exciting yet!



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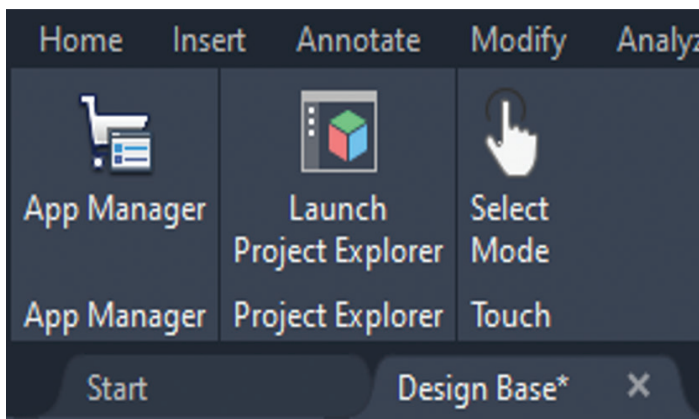


# What's New in Civil 3D 2022, ReCap 2022, and InfraWorks 2022?

In the past few versions of Civil 3D, there hasn't really been any changes that I think could really change the game and give your productivity a big boost. Yes, there were a lot of little things, and some nice additional, but nothing that made you go WOW!!! Until now, there are a couple things in the upcoming release of Civil 3D 2022 that I think could be real game changers and I'm happy to share them with you. Anymore though, we can't just look at what's new in our hero product, but all other complimentary products as well, so I will briefly mention a few of those.

## CIVIL 3D - PROJECT EXPLORER

This came out as an add-on for Civil 3D sometime last year in one of the products final updates. It installs for Civil 3D 2020, 2021 and now 2022. Once installed, it can be found on the Add-ins tab of the ribbon.

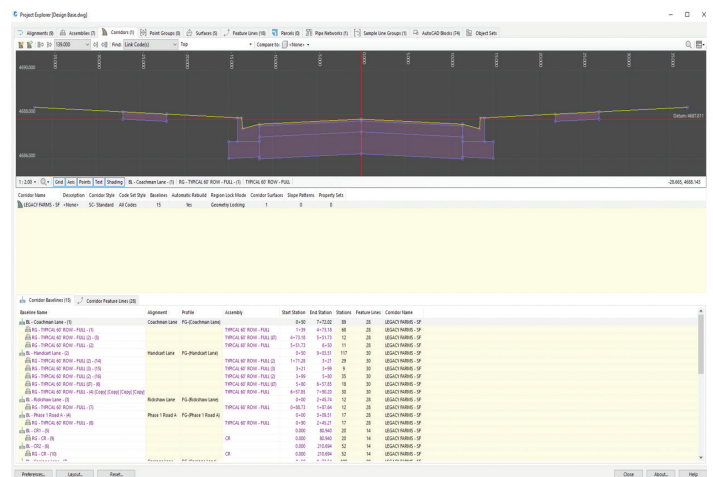


Project Explorer provides users with an easy-to-use Civil 3D design model review tool and user-configurable report generator. Civil 3D users now have a more efficient way to access, interact, and share the staggering array of design information that is in a Civil 3D model.

- Simplifies project data navigation, review, and editing of your Civil 3D models.
- Custom reporting and tables
- Discover and evaluate design criteria to help meet design standards

Typically, to manage project and drawing objects, users would use the Toolspace>Prospector tab in Civil 3D.

Now, you can view and edit Civil 3D designs in a tabbed series of object lists, profile and section views, parameter lists, and many other design review tools.



All information displayed in the Project Explorer window is live geometric project data from the Civil 3D model. Therefore, if something is modified or added to the Civil 3D model, the content in Project Explorer will update automatically.

If you use dual monitors, I'd consider keeping Project Explorer open on your second monitor while you work in Civil 3D.



Being able to see all alignments, profiles, and sections in one area, and to be able to switch between features is key to streamlining workflows. And being able to make edits, perform changes to geometry or styles without jumping all over the place in your model settings is extremely helpful.

The options within Project Explorer for pipe networks are never ending! You can easily switch between pipe runs, edit multiple lines, SWAP MULTIPLE parts, and make global changes that you've always wanted to make, but never had the option to.

And new in Civil 3D 2022 Project Explorer, you can now view and edit PRESSURE NETWORKS, where in past version you were only able to edit gravity networks.

## VALIDATE YOUR DESIGN USING PROJECT EXPLORER

*Dynamic violation reporting* is an important feature within the Project Explorer window. Violation reporting quickly draws your attention to:

- Areas of your design which may not fully meet your design goals.
- Objects within your civil model which are considered to be in an abnormal state.

Because Project Explorer always displays live information from the civil model, you can monitor how each violation is impacted by every design decision you make.

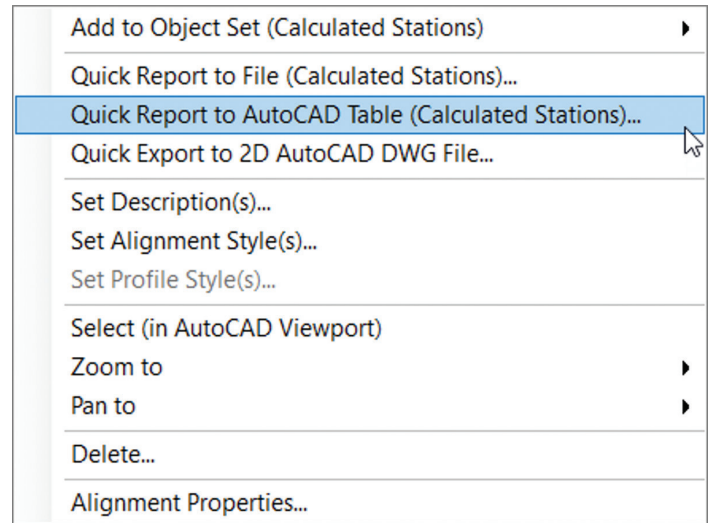
Pipe Name	Description	Pipe Style	Start Invert	End Invert	Slope	Sta
Pipe - (1)	PVC SS(BY OTHERS)	SC- Double Line (SS)	4624.890	4627.100	1.34 %	SS1
Pipe - (2)	PVC SS(BY OTHERS)	SC- Double Line (SS)	4627.300	4633.760	4.83 %	SS1
Pipe - (3)	PVC SS(BY OTHERS)	SC- Double Line (SS)	4633.960	4651.250	4.32 %	SS1
Pipe - (3)	- Maximum pipe length of 400.000 is violated by 0.384.					
			4651.350	4655.250	2.63 %	SS1
			4655.350	4657.350	5.76 %	SS1
Pipe - (6)	PVC SS	SC- Double Line (SS)	4657.550	4673.100	5.96 %	SS1
Pipe - (7)	PVC SS	SC- Double Line (SS)	4673.300	4684.650	4.08 %	SS1
Pipe - (8)	PVC SS	SC- Double Line (SS)	4684.750	4685.300	0.40 %	SS1
Pipe - (9)	PVC SS	SC- Double Line (SS)	4685.400	4685.700	0.40 %	SS1
Pipe - (10)	PVC SS	SC- Double Line (SS)	4685.800	4686.850	0.41 %	SS1

## REPORT AND SHARE DATA USING PROJECT EXPLORER

Within your Civil 3D files there is an abundance of information. As you know, there are many reporting methods for creating tables and exporting reports.

Project Explorer has its own built in, customizable and exportable, reports and tables. These can be built from individual objects as well as a group of "Object Sets".

Also within Project Explorer are the options to export out to 2D AutoCAD drawings. This export ONLY the Civil 3D Entities, and no other linework.



## Object Sets

The **Object Sets** tab in the main Project Explorer window allows one or more sets of objects to be persistently defined in your AutoCAD drawing. Object Sets are particularly useful for automating the generation of one or more reports from your drawing.

Actions may be associated with each Object Set, and these actions can be triggered with just a single mouse click. For example, a report generating action could be used to create a report file using a pre-configured Layout Style, Report Style, Output File Name, and Path.

## Reports

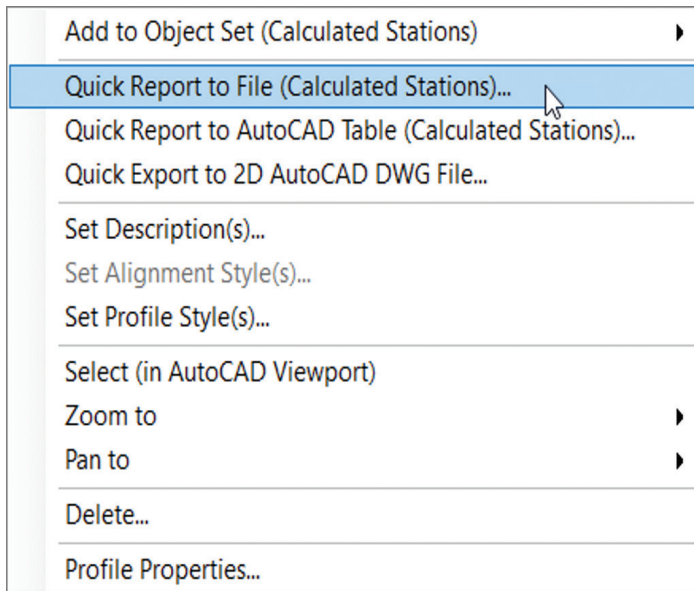
There are two key methods for generating reports and spreadsheets from Project Explorer. The quickest and simplest method is to use the Quick Report to File option. Alternatively, if more control is required over the content or scope of the report, or if it is likely to require updating repeatedly, an Object Set can be used to control the generation of your report.

## CIVIL 3D 2022 - GRADING OPTIMIZATION

Although I feel like this tool needs some help and will only get better, the Grading Optimization for Civil 3D is something people have been screaming for since Civil 3D came out!

Grading Optimization for Civil 3D is a tool that intends to help us design complex grading plans.

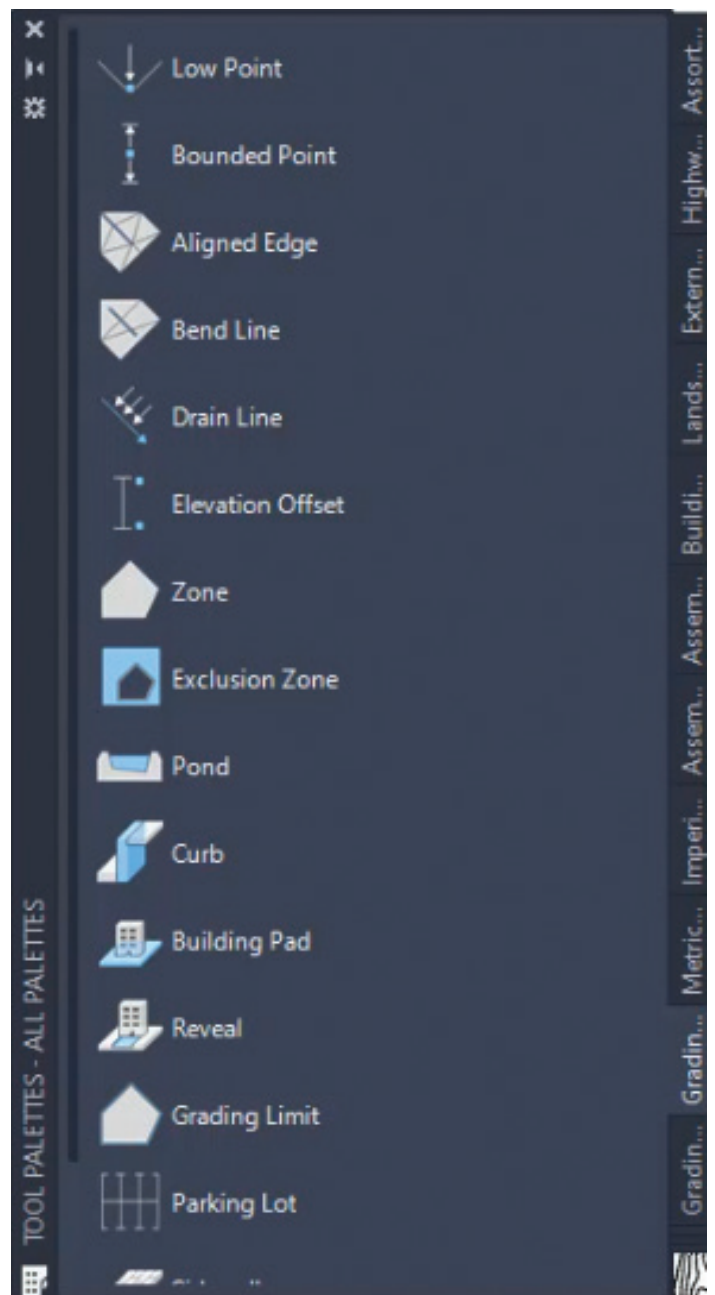
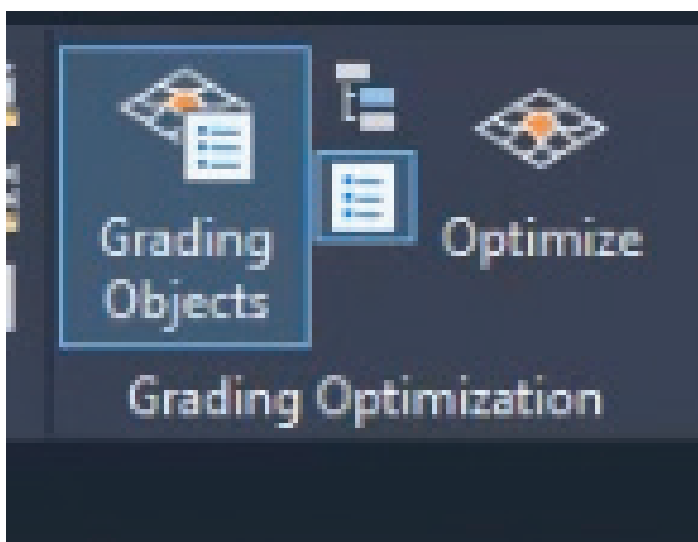




It does it in an interactive way, where we model different grading requirements with the help of grading elements. Grading elements can be used to create drain patterns, set slope, offset, and elevation constraints. You can see as it translates these grading elements into mathematical constraints and objectives. Grading Optimization finds the best possible solution for the given model. We can use Grading Optimization to visually analyze the result, adjust or completely change the grading elements, and rerun the optimization again until a suitable solution is found.

Grading Optimization is accessed on the Analyze Tab of the Ribbon and from the new Grading Optimization panel where you see the following options:

There is a new tool palette that provides you the options to create all your site characteristics, prior to running the Optimize tool.



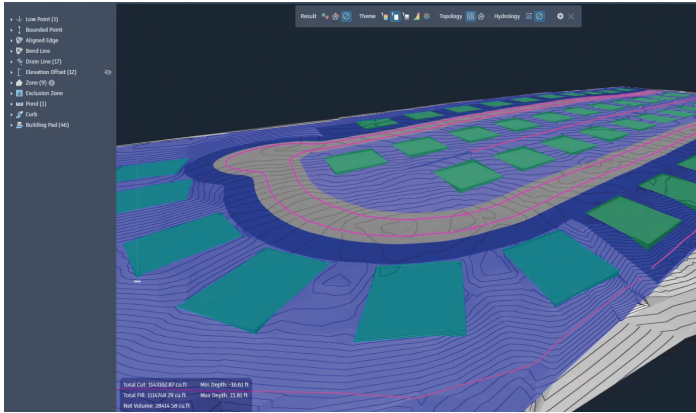
You can quickly create zones for building pads, sidewalks, ADA access points and specific drainage features within your site. Once you have placed these features to show your design intent, you can then choose OPTIMIZE.

In the grading optimization dialog, you have full access to all parameters and the optimization tool will go through iteration, after iteration, after iteration keeping in mind your site constraints and expected earthwork volumes.

This tool is a game changer when it comes to site design of parking lots, building pads, etc., but also key when trying to find the best and most cost-effective grading design of a subdivision. These



results are then directly brought into Civil 3D!



As this is one of the best new tools in Civil 3D in a long time, I'm sure you'll be seeing plenty more information to come. I can't wait to give it a shot on a live project, preferably a subdivision in the near future.

## CIVIL 3D 2022 CONNECTED ALIGNMENTS

The use of connected alignments in 2022 has been expanded to include more options for complex intersections and/or interchanges. You can specify the exact input parameters for the curves and now even create loop ramps using these same connected alignment options.

On a simpler level, these work great for a simple subdivision intersection curb return. With all dynamically connected alignments and profiles, you can make intersection design workflows simpler than ever.

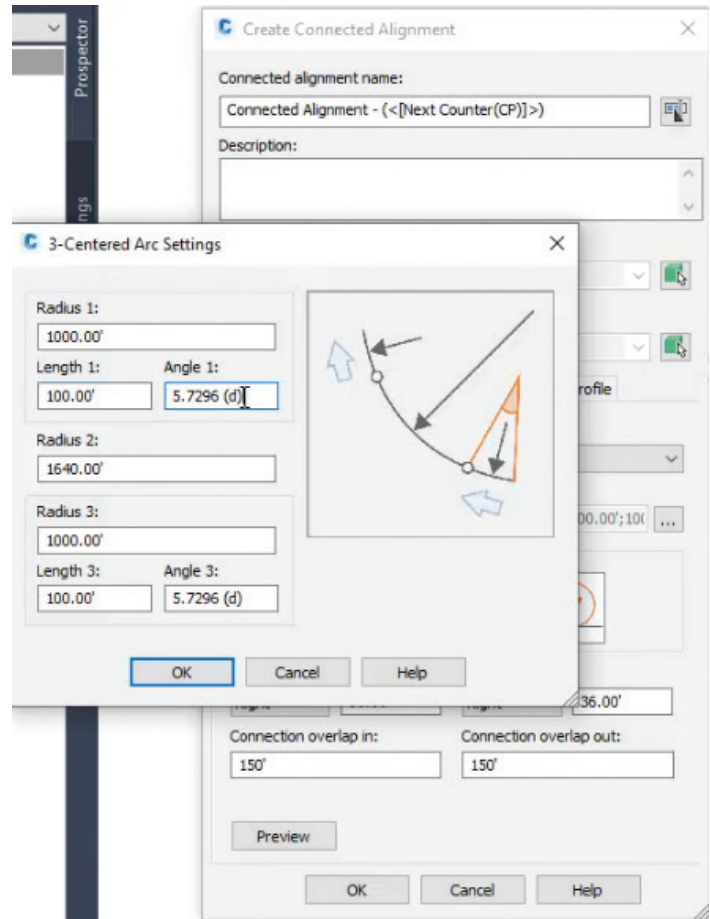
## AUTOCAD PLATFORM ITEMS

Here are few new things to look forward to in all AutoCAD platform products:

### TRACE

- Trace is an exciting new multiplatform feature to streamline the review process and enhance collaboration.
- You and your collaborators can safely markup DWG files without altering the existing drawing. Your collaborators can create a trace in the AutoCAD web and mobile apps and markup their design changes. Then you can open the trace in AutoCAD, view the feedback in context, and incorporate the changes.

### COUNT



- Count automates the counting of blocks or geometry. It cuts down on manual counting helping to avoid miscounting parts and the ordering of incorrect quantities. You can export your data to a dynamic table and get updates quickly.

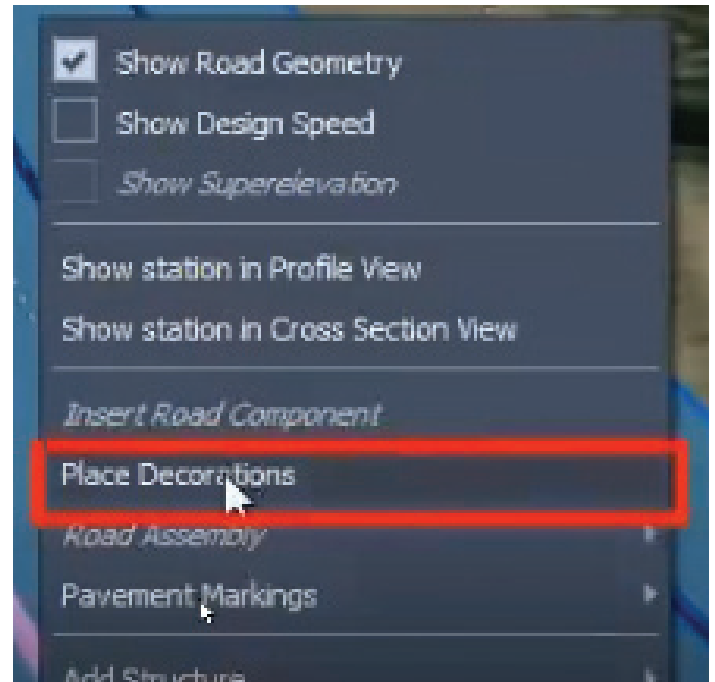
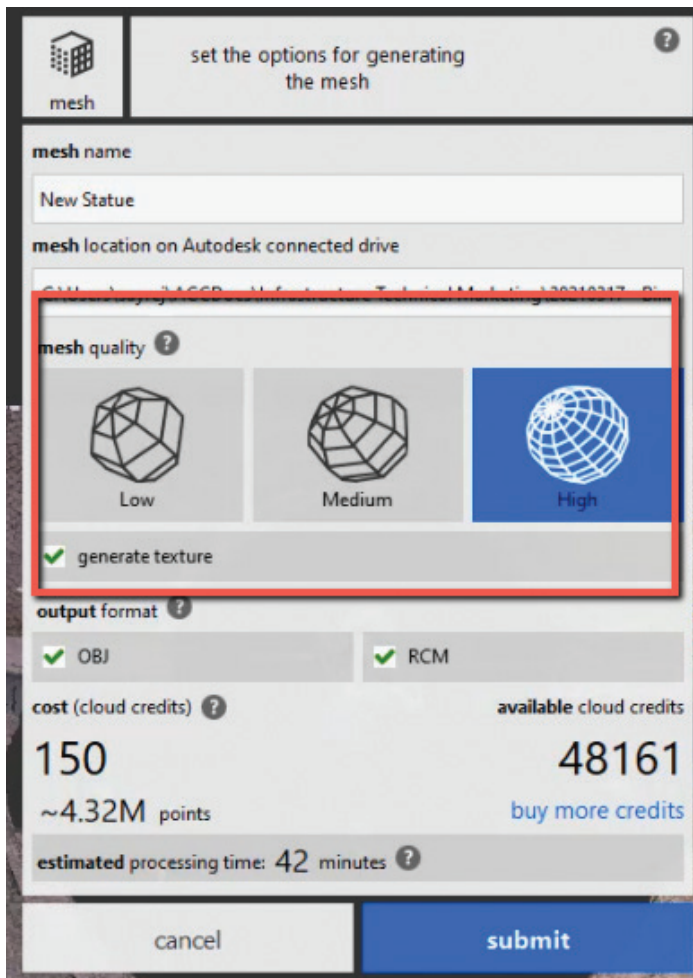
These are just a couple of the AutoCAD platform changes. Check out the full article on What's New in AutoCAD 2022!

## RECAP PRO 2022 – SCAN TO MESH

One of the exciting new things in ReCap Pro 2022 is the ability to quickly create a mesh object. I believe this was in beta/trial mode for a while a couple years ago, but has not come back into the program until 2022.

Scan to Mesh is a cloud feature in ReCap Pro 2022 that converts a selected portion of the point cloud into a textured 3D mesh. The user selected portion of the point cloud is uploaded to the cloud service for processing, resulting in a much smaller file in size and a better representation of what was scanned. The textured 3D mesh is copied to the user's Autodesk connected drive account (Drive, BIM 360, or Autodesk Docs).





## CONCLUSION

I may not have covered all the features and there may not seem like a ton of new features, but the new features and enhanced features will help in your everyday workflows.

I also did a session at AU 2020 on Project Explorer, here is the link if you wish to explore a bit more.

<https://www.autodesk.com/autodesk-university/class/Explore-ProjectExplorer-Civil-3D-2020>

I would love to hear from you regarding the new features and features you would like to see added or enhanced, so feel free to call or email me anytime.

## INFRAWORKS 2022

### Enhanced Model Builder Interface

- New interface for InfraWorks Model Builder. It has the same functionality but is a bit more streamlined and/or modern and easy to use. You can now set your coordinate system upon creation of your model. Simple, but still a time saving exercise. And as the model is prepped, it gives you a summary of your model creation.

### Active Linear Road Decorations

- With roads that are imported from Civil 3D, you can now add road decorations to it. You were unable to do this before and had to create a component road to do so.
- You can also select a road corridor, right-click and choose Place Decorations and you can add decorations onto any of the model corridors. Also, once placed, you have a lot more control over the creation and editing your model on the fly, without constant regeneration of the model.

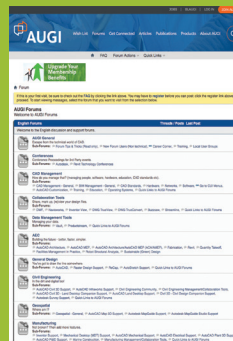
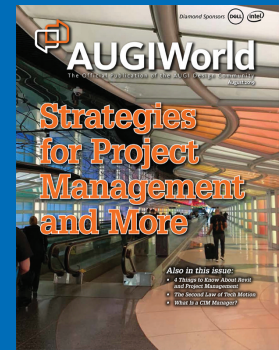
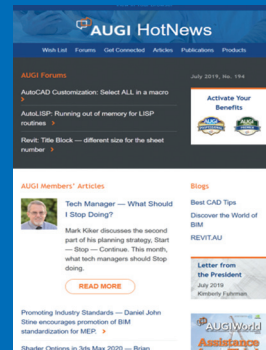


*Shawn has been a part of the design engineering community for roughly 15 years in all aspects of design, construction, and software implementations. He has implemented and trained companies across the Country on Civil 3D and other infrastructure tools and their best practice workflows. Shawn can be reached for comments or questions at [sherring@prosoftnet.com](mailto:sherring@prosoftnet.com).*

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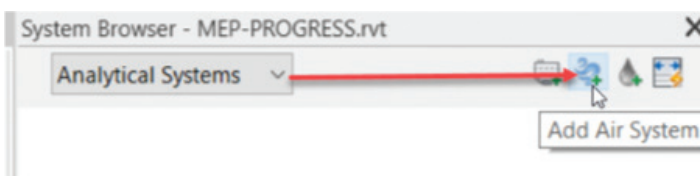


Something that's been added to Revit is the ability to create an entire air system based on an air handling unit, complete with water loops and the equipment that is associated with it. This allows us to perform overall building loading analysis in a much more concise manner than in previous versions. Also we can tie this into the new Analytical System Zones that Revit has.

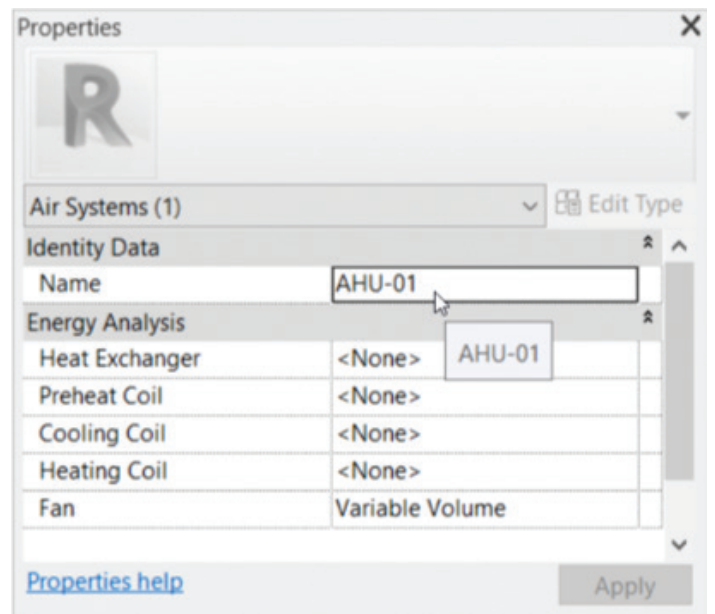
### ANALYTICAL AIR SYSTEMS

The first thing we need to do is to actually add an analytical air system. This is done in the System browser. Follow these steps:

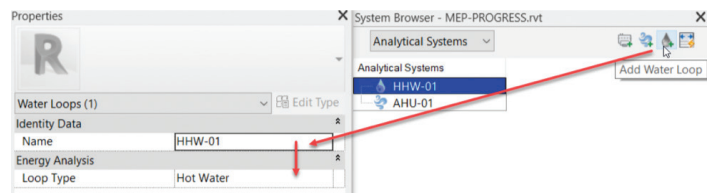
1. Open the model you wish to add an air system to.
2. Right-click in the drawing area and go to Browsers – System Browser.
3. With the System Browser open, Switch to **Analytical Systems**.
4. Click **Add Air System**.



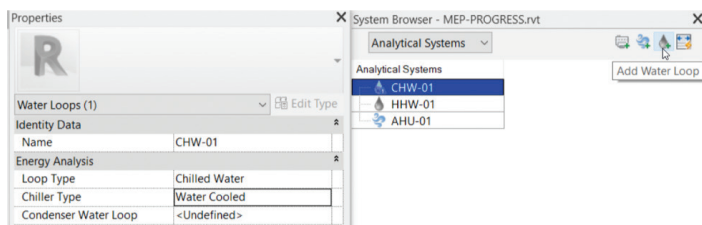
5. In the Properties dialog, rename the system to AHU-01.



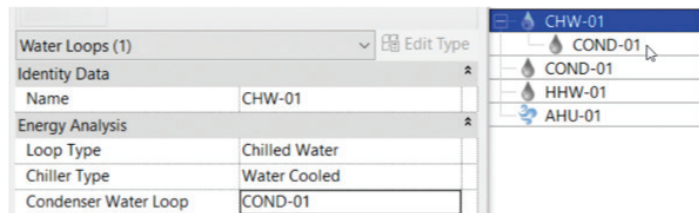
6. Back in the System browser, click **Add Water Loop**.
7. In the Properties dialog, rename it to **HHW-01**
8. Change Loop Type to **Hot Water**



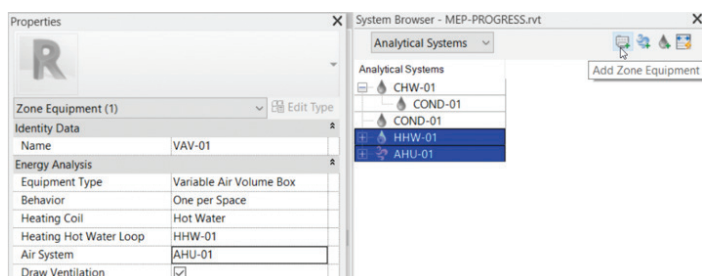
9. In the system Browser, add another Water Loop
10. Call it **CHW-01**
11. Change the Loop Type to **Chilled Water**
12. Change the Chiller Type to **Water Cooled**



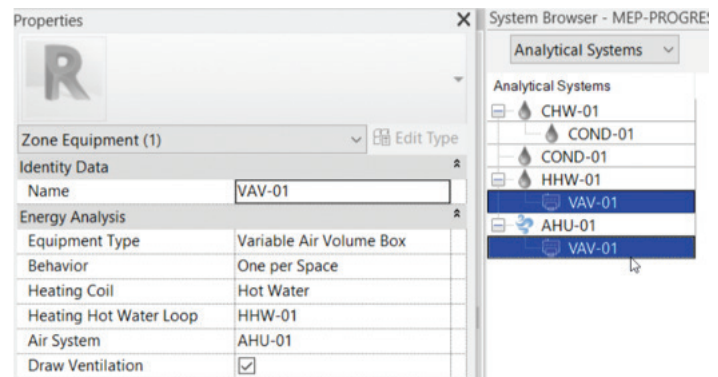
13. Add another water loop
14. Call it **COND-01**
15. For the Loop Type, add **Condensate Water**
16. Select the CHW-01 water loop
17. For the Condenser water Loop add **COND-01**. CHW-01 can now be expanded to show the condensate loop.



18. In the System Browser, click **Zone Equipment**.
19. For the name, call it VAV-01.
20. The Equipment Type is **Variable Air Volume Box**
21. Heating Coil is **Hot Water**
22. The Heating Water Loop is **HHW-01**
23. The Air System is **AHU-01**



24. In the **System Browser**, select **AHU-01**
25. In the properties, for the **Heat exchanger**, select **Sensible**
26. Preheat Coil is **Hot Water** set to **HHW-01** water loop
27. Cooling Coil is **Chilled Water** set to **CHW-01** water loop
28. Heating coil is set to **Hot Water** with the water loop set to **HHW-01** (you can add a secondary HHW loop here if desired)

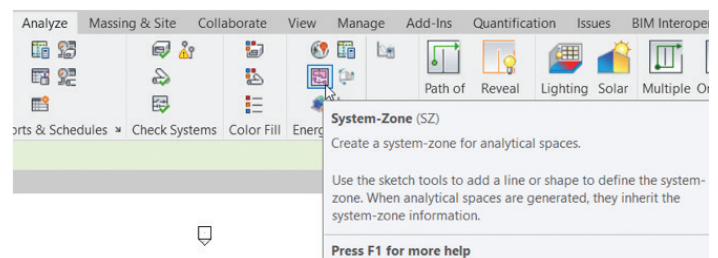


## ANALYTICAL SYSTEM ZONES

With the air system added, we can now physically assign it to rooms in our model. I say “rooms” as opposed to “spaces”, because we don’t need a space to do this. All we need to do is simply draw any shape connecting rooms to a zone. This is quite the departure from the previous workflow.

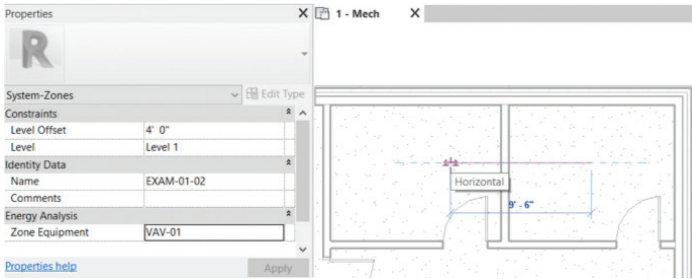
To add an Analytical Zone, follow these steps:

1. On the Analyze tab, click the System Zone button from the Energy Optimization tab as illustrated below.



2. Go to the rooms you wish to connect, and simply draw a line (or any shape that ties these rooms together)
3. Name it whatever you want.
4. For Zone Equipment, select **VAV-01**



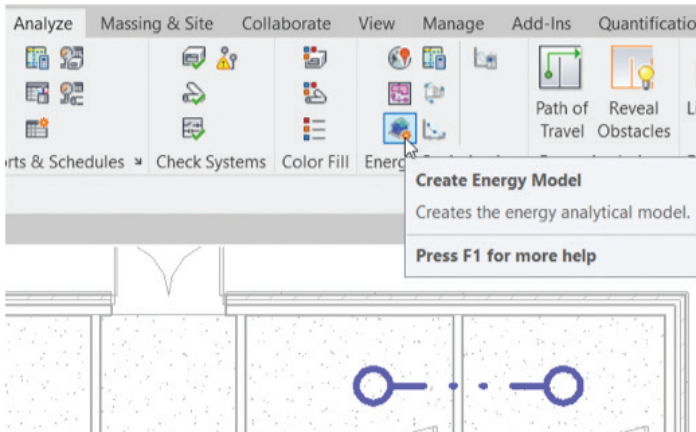


5. Click the Finish button.

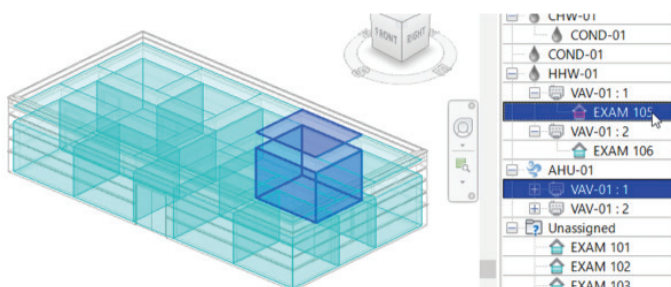
## CREATING AN ENERGY MODEL

With the Analytical system in place, we can generate an energy model. This is the step that ties all of our efforts into the new energy analysis tools available. To do so, follow along...

1. On the Analyze tab, within the Energy Optimization panel click the **Create Energy Model** button.



2. In the next dialog, click **Create the energy Analytical Model**.
3. In the System Browser, expand VAV-01 : 1
4. Select the space with your room name, and you got it!



So, this is the new process! Once we have added our analytical zones and assign them to an analytical system we can really push the Revit envelope on energy analysis.

That being said, I wish I could keep writing, but there are other authors in this magazine that are much more talented than me. Join me next month as we explore analyzing an HVAC system, creating an annual load report, and creating an Insight model.



*Eric Wing lives in Syracuse NY where he is the Director of BIM Services for C&S Companies. Eric is a popular speaker at events around the country speaking on many BIM-related topics.*

*Eric has authored several books including Autodesk's official training guide for their BIM solution "Revit" called Revit for Architecture No Experience Required. Eric is also an author for LinkedIn Learning where he has authored around 60 full courses on BIM management, Revit, AutoCAD MEP, Navisworks and Virtual Design and Construction (VDC)*

*Eric has truly been a leader in the architecture, engineering and construction industry since the conception of BIM and 3D design, and has specialty skills in BIM coordination, training and development of technical staff along with daily application of these tools on multi scale, multi-disciplinary projects.*

*Eric is also currently a Professor at Syracuse University teaching BIM and Advanced BIM at the School of Architecture, and at the School of Engineering.*

*Eric has also taught courses at the Rochester Institute of Technology and Clarkson University on the subjects of Analytical tools for Facility Management, BIM, and Integrated Project Delivery.*

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# Project Involvement

Let's just all get in a room (or virtual room) and lock the door until we get a plan in place and have a final decision. I have heard that stated in many different ways, but the concept is... get all stakeholders and anyone that can provide input or needed approval involved in a process and get it done. But even when we gather them all together, someone might get left out. We have all forgotten to bring someone into a project and must apologize later. It hurts the project momentum, and it hurts the uninformed person's feelings. Who needs to be involved in all of this and when do they need to be involved?

Even when you have the right mix of staff, many times a project gets derailed not by bad decisions but by communication breakdowns. And communication starts with an invite. Whether it is an update to a standard, a new project kickoff, a new software rollout or a retirement of old tools, someone could not be informed, or they are not part of the decision and they get offended. Mostly it is by accident. You just forget to let someone know. When it happens, I find that most of the time the actual decision or plan is not the issue, it is the failure to be invited. The person actually agrees but is upset that they were not included in the conversations. You must spend time defusing their frustration and not making progress on the project. They walk away with resentment and may

drag their feet in the future. But you just forgot to include them. It was a mistake.

So, over the next few articles, we will spend some time covering topics about building a Project Team, inviting the right mix and then launch into some communication topics.

So how do you make sure all key players are involved in a project and get invited at the right time? Who needs to define requirements? Who can approve the budget? Who can define the timeline? Who needs to be informed of the changes? Who should work directly with vendors or clients? Who says the project is complete?

## LAYERS OF INVOLVEMENT

There are several layers of project involvement during development, input, decisions, approvals, execution, and communication. Some or all of these layers involve people who are actively involved at some point in conversations. Some may be doing the work and others just observing. Let's start by knowing who the participants are. You can't succeed until you know who is on the field, who is on the bench and who is in the stands. You can't tell the players without a program – lol. They are all stakeholders on some level. Those who may need to be involved include the following:

**Executive Owner** – This is the highest person up the ladder that supports and endorses the project. Go as high as you can up the ladder. It could be the Director, C Suite leader, and even CEO. Big projects require high level endorsement. Projects that impact more staff, offices and clients need upper-level backing. This person does not have to be a hands-on user, just have a big stake in the success or failure of the endeavor. When I published a completely new CAD/BIM Standard, I had the CEO sign the first page so that everyone knew that we were all going to move forward because the CEO supported the effort.

**Champion** – This is an end user that totally is excited to make the change and will support the effort with positive feedback, cheerleading, convincing folks and leading the charge. This person should have negotiation skills and not expect people to just do it because they say so. This is usually not someone up the ladder from you. It is most likely a lateral staffer who wants to see things happen. Think Project or Office Manager.

**Approver** – This person can approve the plan or purchase and controls the budget, staff, or client relationship. It might be you or someone else. It is someone that can approve the next steps or milestone in the project flow. It is the bottom-line person that can actually spend the money, assign staff tasks or manage the client impact. It might be several people. They approve time, money, or deadlines. They not only can, but they should also approve. You should not move forward until the Approvers actually approve. Approval means taking responsibility for outcomes. You need their buy in, and sometime even a signature (get it in writing).

**Completer** – Not sure what to call these folks. They actually do the work, but I did not want to call them Workers. They are hands on. They are expected to get things done. They will have assigned tasks and need to complete them as the project goes forward. The team is critical and should be filled with those that have some stake in the outcome and are motivated toward success, working together and not letting the team down.

**Supporter** – Those that can support the progress. They are like champions but are not expected to lead the charge. They are early adopters. They are expected to help get stragglers on board. They help adoption by joining in the flow when things start happening.

**Consultant** – These are the ones that you want to consult with, as the project progresses. They may never attend a meeting, but they can be advisors to your team. You would have conversations with them, or they could review documents that the team generates. They are a fresh set of eyes that help you see what is not obvious. They help you not ignore signposts or signals that things are derailing. They help you get back on track. They may even be outside your company. They are not expected to have their foot on the throttle or the brakes, but they will encourage progress and watch for blind spots. They should be good at asking question that challenge thinking and not be afraid to voice their concerns.

**Informant** – No, these are not secret spies or snitches who tell you about others that might be working against your efforts. These are the people that you keep informed. I guess they should be informees (is that a word?). They may be end users or support staff that need a heads up on what is coming down the line. They are not part of the effort but may want to know the progress being made. Define the milestones when you will let these folks know the progress. Maybe let them know when you will give them info so they can manage their expectations.

Now that you have your team gathered and defined you can start making progress. As we move forward, we will discuss meetings, reports, status updates and more that will keep the team on point and focused on the goal line.



*Mark Kiker has more than 25 years of hands-on experience with technology. He is fully versed in every area of management from deployment planning, installation, and configuration to training and strategic planning. As an internationally known speaker and writer, he is a returning speaker at Autodesk University since 1996. Mark is currently serving as Director of IT for SIATech, a non-profit public charter high school focused on dropout recovery. He maintains two blog sites, [www.caddmanager.com](http://www.caddmanager.com) and [www.bimmanager.com](http://www.bimmanager.com).*





Photo by: @ErinWitkowskiPhoto

I recently had the opportunity to talk with Jason Pohl and ask him a few questions about himself, the industry, and a little of what he is doing now.

Jason is a designer best known throughout the world as the Lead Designer for Orange County Choppers which aired on the Discovery Channel. That's right, *AUGIWorld's* first celebrity! Jason earned his Bachelor of Fine Arts degree from the Illinois Institute of Art. He now works for Dassault Systèmes and is a Brand Ambassador for Solidworks. Jason is a father of four, one being born just this year in 2021. He currently resides in the great state of New York with his wife and kids, where he has lived for quite some time. Welcome to the world of AUGI Jason! We are pleased you're here.

### **Q: What got you into the world of design?**

A: It was just the strong desire to create something, anything; whether I was in the shop at my Dad's shed or my Grandfather's farm. I was just always building stuff so I always liked the idea of 'here's the task that's in front of you. What can you make

of it?' In my imagination, as a kid, a board could be anything. It was just a wooden block, and then once you start cutting and grinding and pounding nails into it, it becomes something. So my whole life I just had this strong desire to create and design, and then when I grew up, I was able to refine that into specific skills and acquire the tools to be able to do greater and greater projects every day.

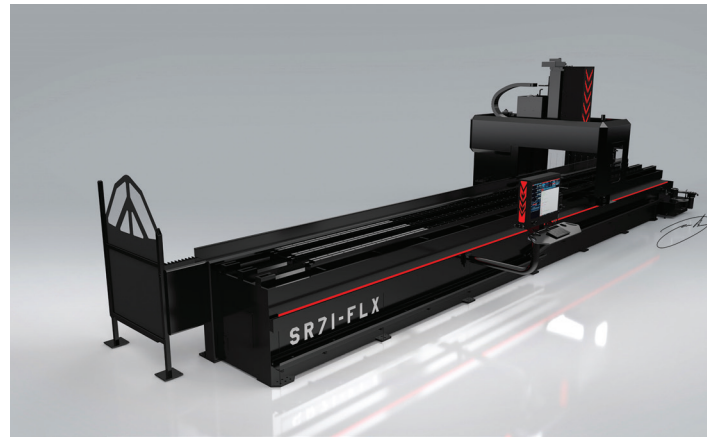
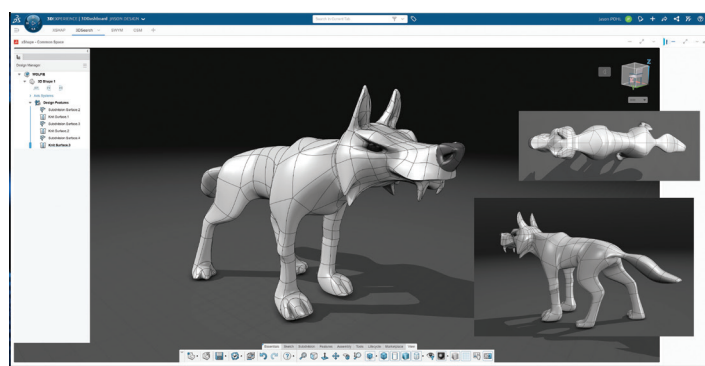
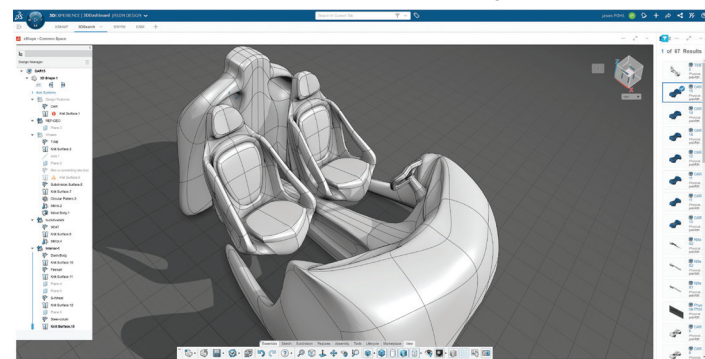
So for me, it wasn't just one thing that made me want to become a designer. It was just kind of the natural progression of my life; I needed to create. I needed to make something, whether it was a painting, a sculpture, or a freaking birdhouse. I wanted to build and create. That's where my love and passion of art and design kind of came together.

**Q: So you earned a lot of fame when you worked with Orange County Choppers, kind of a "rock star" gig at least for designers and engineers. Do you ever get sick of people asking about your time at OCC?**

A: You know what? It's like when you go see your favorite band, at a concert, and you really want them to play that one song that they're really sick of, but you need to play that song. The audience goes nuts, and that's what they want. In a weird twisted way, people have compared me to a rock star, which is awesome so I've embraced it. It's been my life for the last 17 years, and I'm proud of that body of work. I still have a great relationship with Paul Senior, and that experience helped shape me into the designer that I am today, so I'm definitely proud of my past. It was always a good positive thing for me, and it still is.

### Q: What was the one thing you learned working for the Teutuls' that makes you are who you are today?

A: There was a lot of things that I've learned along my way at Orange County Choppers, and working with the Teutuls. One thing that stuck out to me was the amount of passion they have about what they're doing. I'll never forget the day I met Paul, and he introduced me to his son, Paulie. I'm pretty sure they got into a huge blowout fight, and I think anyone with enough common sense would have ran away from the job at that point. But I was 21 years old, and I looked at these guys and thought, 'wow, these guys are passion-driven. This is awesome.' I compare that to the passion that I had, to create and design. Sometimes, I learned what not to do, just as much



as I learned what to do, but it was home for me for 17 years. I learned a lot along the way, and I'm very grateful to them for that opportunity.

### Q: Switching gears here; you were a big user of Autodesk products. How hard was the transition to SOLIDWORKS?

Well, I actually started on SOLIDWORKS before I started using anything from Autodesk. I mean, I can go all the way back to Bryce 3D, when I was 14 years old, doing landscapes in 3D. And then I went on and went to art school, and they were pushing Discreet's 3Ds Max, so I jumped into that, doing spline models and character models. I was actually a 3D environment artist also for a hot minute, in the video game industry, right out of college, and I kind of used that, but it was polygon-based. It was all polygons and splines. And I was doing some cool stuff, but at the end of the day, to make motorcycle parts, I needed something that was more engineering-driven.

It was a transition, because I was coming from this loose polygonal world, where I'm just kind of slapping things in 3D space and making them look cool, to more, real-life engineering stuff. You got to sit down and focus, and you need to understand what relations are, and more about creating the center line and working off of a point, in space, become more exact. So I learned SOLIDWORKS at a very young age, sometime around 2004, and it's been my right-hand when it comes to 3D modeling. I have ventured off with other packages, but I always end up back in SOLIDWORKS modeling, because it models so fast. And it knows my next move, so it's a really good relationship that I've had with that software, that even if I do try something else, I always end up back with it.



We were in a very unique position with OCC, in 160 countries and on television. It was a good, good place to be, but that comes with a lot of pressure from different marketing firms and different agendas from big companies, and they would often push software or equipment at us. They want you to use it, and then, it's like, sometimes you had to make different decisions. For instance, our tools in the shop changed quite a bit. At one point, we did a Snap-on bike, and then the next year, we're doing a CRAFTSMAN bike, and after that, we're doing a KOBALT bike. So sometimes, you had to shift gears with what was current and what was put in front of you. But when the dust settles, I go back to my core and what I've relied on all these years, and that's SOLIDWORKS.

The biggest problem, for me, with using all these different software packages was having a license for this, having a log-in for that; and it was hard to get things to talk with one another. I was using a model in SOLIDWORKS, and then another package to render it out, so it would look pretty for my clients. So I was juggling, trying to import this file type into the program I'm using for rendering and kick out the final product. And now, what I've found is my workflow is much more streamlined, because I'm always working in this same environment: the 3DEXPERIENCE platform.

Now I go from my SOLIDWORKS model, kick it out to Visualize Connected, which is amazing. And I'm doing awesome renders in half the amount of time. Before to do these renders, I would be setting up lights, and I'd be making my own shader from scratch. And I'd be spending literally days on how to get a Chrome shader just right or how do I get this car paint to go on this motorcycle gas tank. And now, with Visualize, they already have the shaders and everything so I just drop them right on top of my model. I'm not messing with a light rig. Because I used to have to use up to 20 different lights in one scene, just to get this motorcycle to look right. Right now, I just rely on Visualize to do it for me, and it's all connected, because it's all on the same platform. And it's just so nice having all my tools under one roof, it just makes my life that much easier.

**Q: One of AUGI's long-time supporters is Lynn Allen. She was our guest speaker, once again, this year for AUGI's Annual General Meeting. Lynn was the spotlight for Autodesk for almost 24 years.**



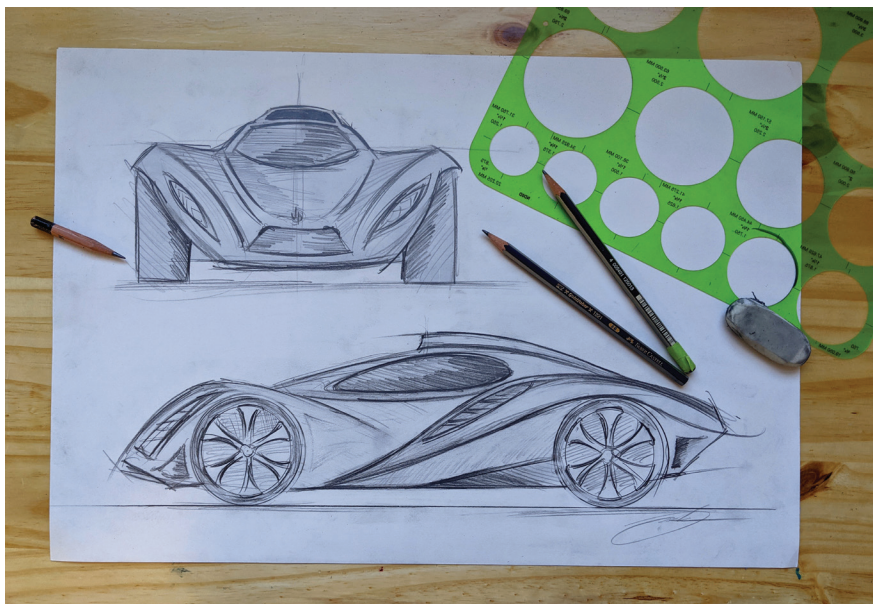
Photo by: @ErinWitkowskiPhoto



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**She was known as THE Technology Evangelist for many years. She is now with Dassault Systèmes. Have you had a chance to chat it up with her yet?**

A: Yeah, she's amazing. Everyone knows who she is in the industry, so it was cool to sit down and talk with her. We're both like-minded, and I think we share the same passion when it comes to getting this technology and these design tools out there. Part of what I'm trying to do here is to inspire the next wave of industrial designers, because honestly, I had an awesome time. And I still do. I'm still designing stuff every day. It's such a great career. It doesn't feel like work for me, and it's just like, I want to spread the joy. You know what I mean? I think this world could be a better place if everyone had a job or a hobby or a trade or a skill that they love to do. So part of me wants to see other people get out there and use these tools and have fun with it and create. When people are happy, they have more respect for one another, and it's been an awesome life for me, as a designer. And I just want to see

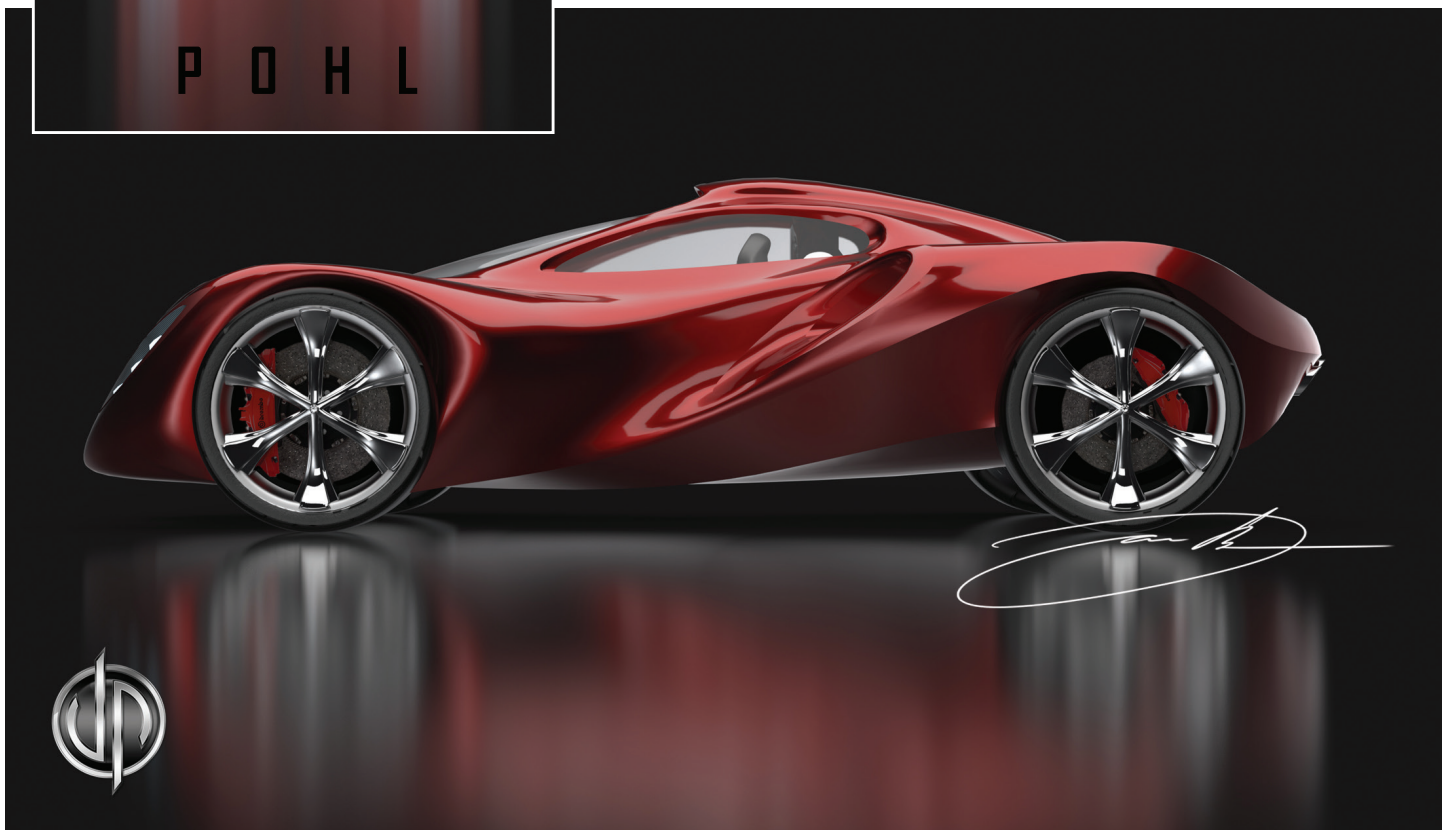


[www.JasonPohl.com](http://www.JasonPohl.com)

Instagram: @Pohlie

Twitter: JasonPohlOCC

Email: [Contact@JasonPohl.com](mailto:Contact@JasonPohl.com)





other people do the same thing, have fun. It's all about having fun.

## **Q: Your personal company is Jason Pohl Designs. What is Jason Pohl Designs currently working on these days?**

A: Right now, I'm juggling of a bunch of different projects, but the one that's on the forefront right now is I'm redesigning a CNC machine. It's pretty cool, because I spent the last five years inside a CNC shop, at Orange County Choppers, so while I was there, I was always thought it would be cool to design one of these. And here I am on my own, and I get this contract come up, and I'm like, hell, yes, I want to design a CNC machine.

It's like a 50-foot Gantry CNC machine, and it's got a theme to it. They're chasing the styling of the SR-71 Blackbird, which is one of the fastest jets ever made, and they want to pour that style into their equipment. So I'm just having a blast with it. They got me a huge SOLIDWORKS assembly to work from. I'm changing things and just having fun with it, as a designer. Don't tell them that, but it is a lot of fun for me.

## **Q: When you were with OCC, you designed over 300 motorcycles. Being an avid biker and Harley Davidson lover myself; are motorcycles your "go to" design that really brings out the passion in designing? Or is there something else that really gets you motivated?**

A: Yeah, motivation comes from all sorts of different places, and I love designing motorcycles. I really do. And I'm not done designing them, by any means, but right now I feel like a kid in a candy store, because I'm designing anything and everything. So for the longest time, I was stuck, focused just on motorcycles. So it's like a fresh breath of air to be able to do more product design and be in other industries and tackle other projects. So it's something that's always on the back on my mind, and I'll get to it one day. But right now, I'm just having so much fun designing all these other products; that this is where I need to be.

## **Q: A little on the personal side here: How do you find time to juggle what you do and be a dad to 4 children? It's got to be quite a task.**

A: Well, it's a lot of fun, and things are very busy these days. And lucky for me, I have a rock star wife. We work really well together, as a team. I'm always carving out that time, because well, like I always say, my most important title in life is Dad. I'm raising my kids up right, and I'm going to give them all the chances that I had growing up and inspire them to do great things. It's so much fun. That's part of the reason education is all of a sudden on the forefront of my mind. It was always sell a TV show, sell a bike, make money, repeat. And now, with four children of my own, I have the strong desire to teach and show them right from wrong and all these different experiences. So now, education has quickly bumped up to the top of my radar again. So it's really cool, and it's something that I never really thought about until it was in front of me.

## **Q: Do you have any of them showing any interest in engineering or design or putting things together?**

A: Yeah. We have Sindoh 3D printer here at the house, and I mean, my kids are obsessed with it. We print stuff for them, and they get it, man. They're a little too young, but I already got them using SOLIDWORKS apps for kids. And we're modeling stuff like that. And of course, my two oldest are six and four, and they're in the Minecraft world. I think it's great, because they're building and they're creating. And they're modeling inside a video game, which is awesome. So it all translates, and I'm able to put it in real life, in front of them, with that 3D printer, so it's really cool.

## **Q: Do you have any good, solid advice for these designers and users that you practice on a day-to-day basis?**

I would say that they need to always be looking ahead when it comes to design tools. This new cloud-based platform system, the **3DEXPERIENCE** Platform, is really going to change the game. The most amazing thing that I found working with the platform is that when I'm working on the Cloud, my data is always secure. It's always saved. I don't have to fumble around with all these external hard drives and wonder where everything's at. That's one thing.

The other this is the access to all these tools that SOLIDWORKS just doesn't have, like XShape, which is amazing. I'm able to model these very complex and organic parts while holding C2 surface

continuity. This is just something that is very hard to do in SOLIDWORKS; I'd have to do a billion different loft sections. By using xShape, I am able to use my artistic skills to quickly model advanced 3D surfaces by simply sculpting inside a 3D space. It's really the ultimate tool for all industrial designers.

If you want to advance, the platform is for you. That's one thing I always tell future designers and engineers alike is you need to become better today so you can conquer tomorrow. So if you're just complacent in life and you do the same thing that you've always done, you're going to be that same person, that same designer, that same engineer. You need to take that extra step that makes you better, that separates you from the pack. So for me, it's learn something new every single day and push yourself to be a better designer. That's what I do. I put myself in awkward positions and try to learn from them.

Basically, conquer something new, and with the platform, there's so many new tools and things to do that it makes your workflow that much better and stronger, to be able to do something that you couldn't before. Right now, I'm a better designer, because of the 3DEXPERIENCE Works portfolio, because I got on it, and I found these new tools, and I'm a better designer because of them.



Photo by: @ErinWitkowskiPhoto



*Todd Rogers has over 28+ years of experience in teaching, managing, and, providing hardware and software solutions for hundreds of engineering firms throughout greater Houston, Texas and surrounding areas. Mr. Rogers is a valued member of Walter P Moore, where he works as a BIM Manager. He also holds the "Autodesk Expert Elite" status - a program to recognize individual community members who have made extraordinary contributions with helping customers by sharing knowledge, providing community leadership, and exemplifying an engaging style of collaboration that drives a healthy and valuable Autodesk customer community. He is an active blogger. Through his personal blog website ([civil3dj.wordpress.com](http://civil3dj.wordpress.com)), he shares tips and solutions with Autodesk software issues. He is also the Treasurer on the Board of Directors for AUGI and the Copy Editor for this magazine - AUGIWorld.*



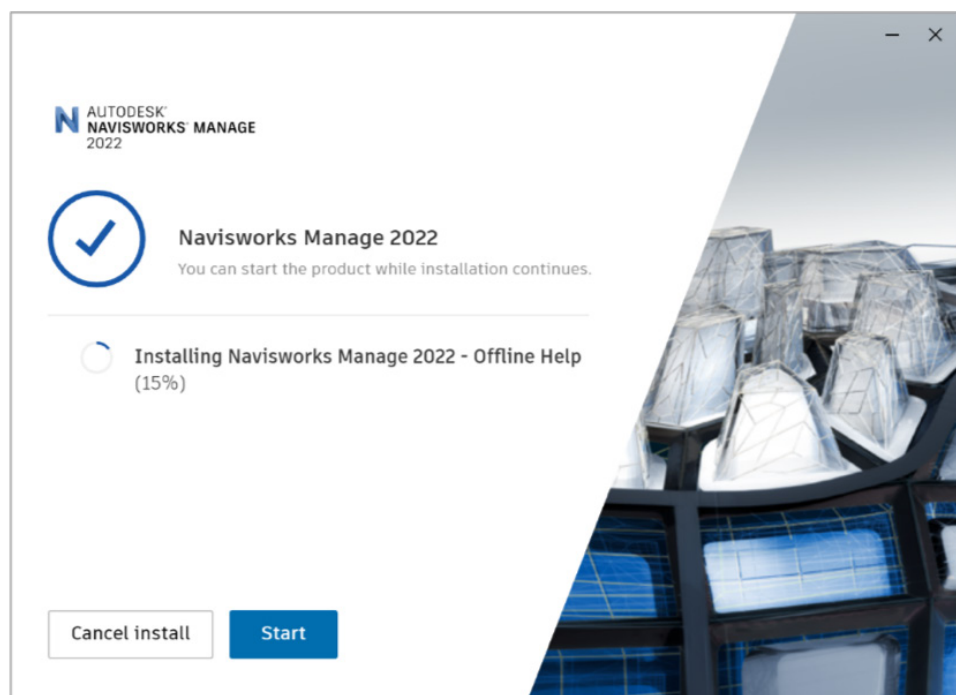
# What's New in AutoCAD 2022

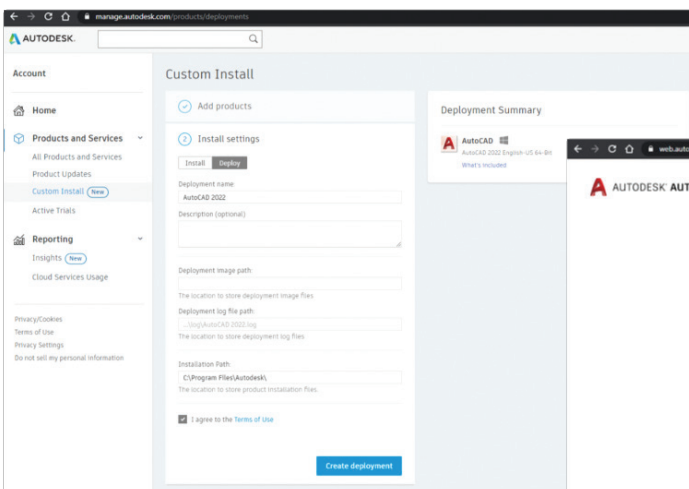
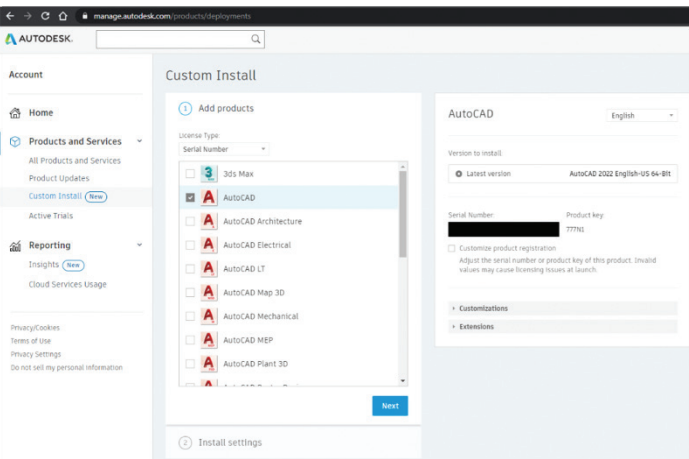
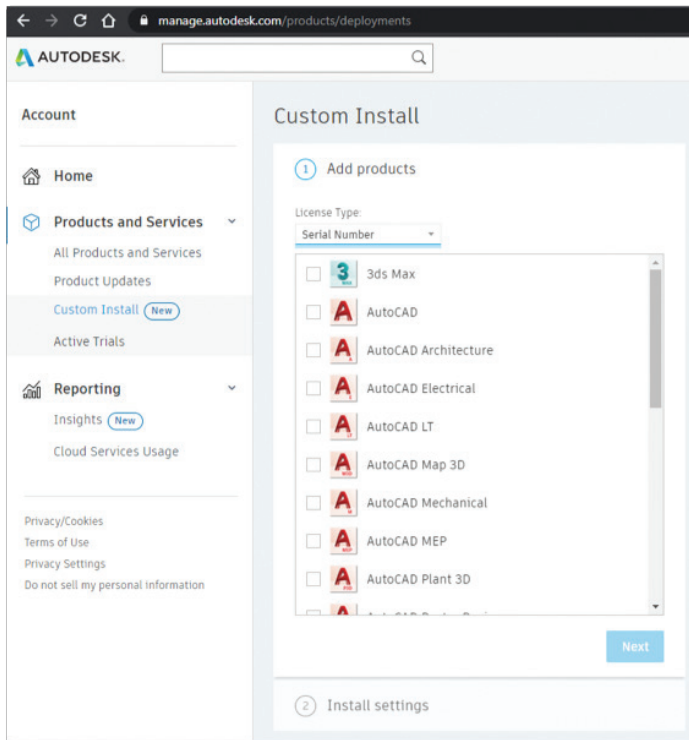
It has been officially over 1 year since the COVID-19 pandemic has forced all of us to rethink and rework how we work and live day to day. During this time, we pushed, we persevered, we endured...Now that there seems to be some true light at the end of this tunnel, Autodesk as you know has just released their latest 2022 software as of March 23rd, 2021. Today's AUGI article will cover the installation improvements, the cloud/web updates and the newest features inside the software. We will not touch on AutoCAD LT or the AutoCAD Vertical products (CAD Automations) such as AutoCAD Architecture, AutoCAD Electrical, AutoCAD Mechanical, etc. The improvements to the base AutoCAD 2022 are contained in those products as well. I hope you find this article helpful for your research and knowledgebase. Should you have any questions, you can always reach out to me via email or phone. Thank you and enjoy...

## INSTALLATION

In customary fashion, I went to [manage.autodesk.com](https://manage.autodesk.com) and logged in as me to get my software. I used the "Browser Download" method to get my 2022 software to ensure I

downloaded all installation files which includes any library content or special content not installed when choosing the "Install Now" or "Download Now" methods. You can find the alternative methods by clicking "View All" on your [manage.autodesk.com](https://manage.autodesk.com) portal. After downloading the compressed, exe file, I double-clicked it to extract the software and was off and running with the installation. Setup.exe ran as usual and I was presented with a new installation window for my AutoCAD 2022. Autodesk has revamped their installation process for the 2022 products. The





speed at which the software (AutoCAD, AutoCAD Architecture and Navisworks Manage as of this writer's testing so far) have been incredible. The installation takes less than 10 minutes to install. On top of that, the software can be started and ran even before the installation completes. Here is a screenshot of Navisworks Manage. Sorry, I could not get a snapshot of AutoCAD 2022 installation quick enough...it is that quick!

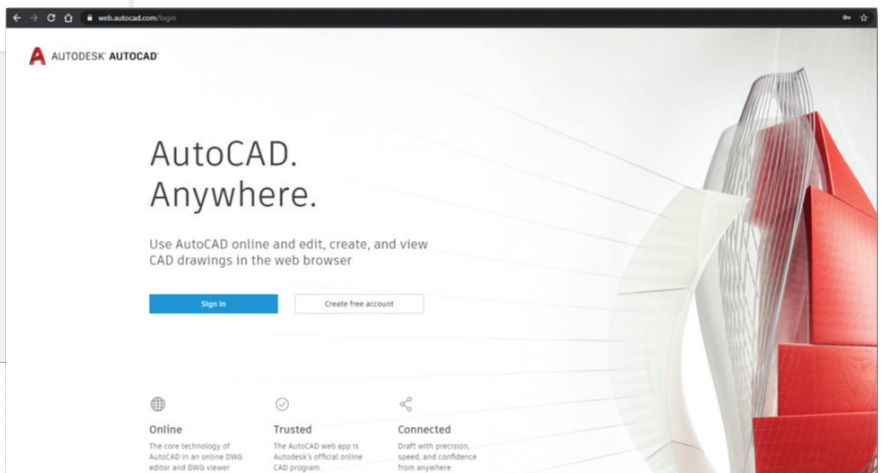
In addition to the speedy installation, you now can create custom installations via your manage.autodesk.com portal. This has been an improvement since the previous attempt. During the use of the wizard, you can choose any product available from your list of software, modify the custom settings, create an Installer file or create a Deployment image. Below are some screenshots of this part of the portal. Overall, the installation process was extremely easy and quick.

## CLOUD AND WEB UPDATES

As most of you know, you can use AutoCAD anywhere on any device...You can install it on your desktop computer, your laptop, your tablet and even your smartphone. Depending on your device in hand, you will be able to use either the full version of AutoCAD 2022 or some various of the application.

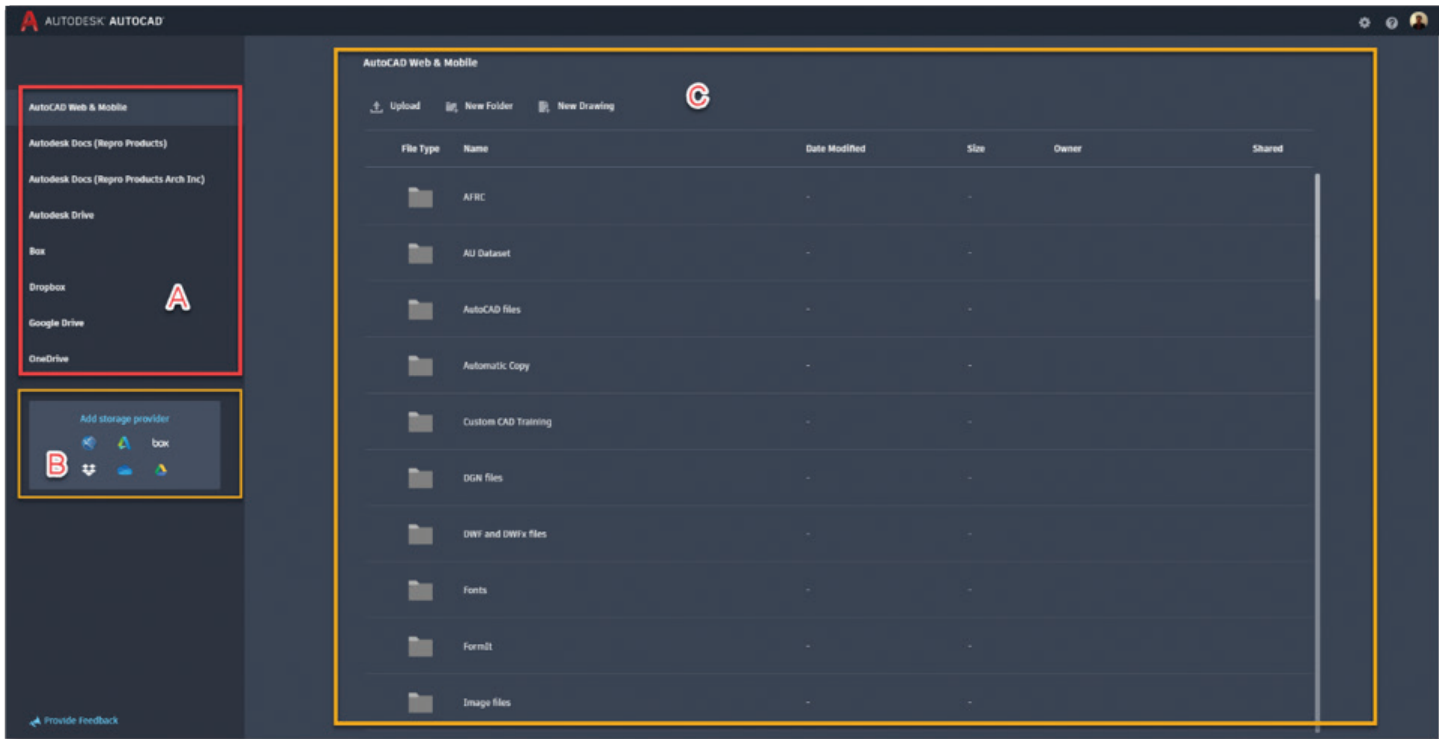
## AutoCAD Web App

You can head to web.autocad.com and log into your account to start using a web-based version of AutoCAD 2022. It is not the full package, but it does offer fundamental creation and manipulation of the files. More importantly, it gives you access to those files via many new methods.





Once logged into your account, you are presented with the following:



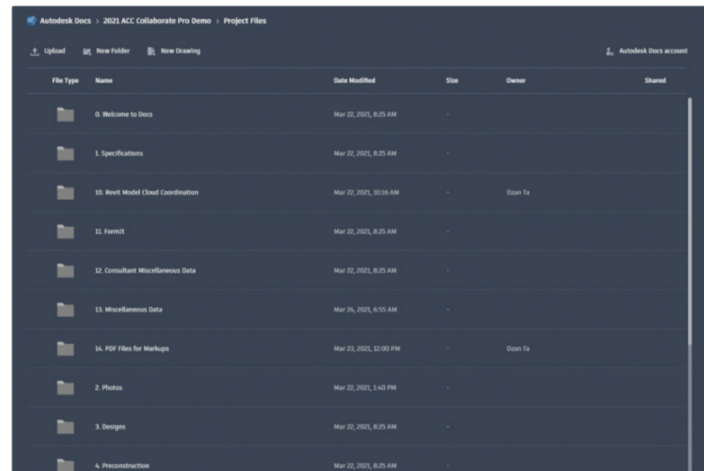
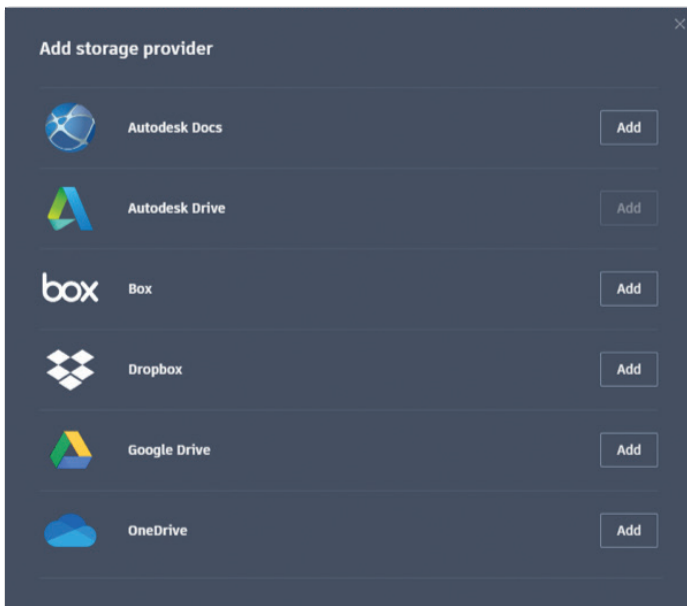
You have 3 main areas of focus...A, B and C.

**Area A** shows you a list of all the locations you can set up to access your online data. You can now link to Autodesk Docs (multiple hubs), Autodesk Drive, Box, Dropbox, Google Drive and OneDrive.

**Area B** is the wizard for adding your storage providers. When you select any one of the icons, you will get the following window. Just make your selection, authenticate the account and

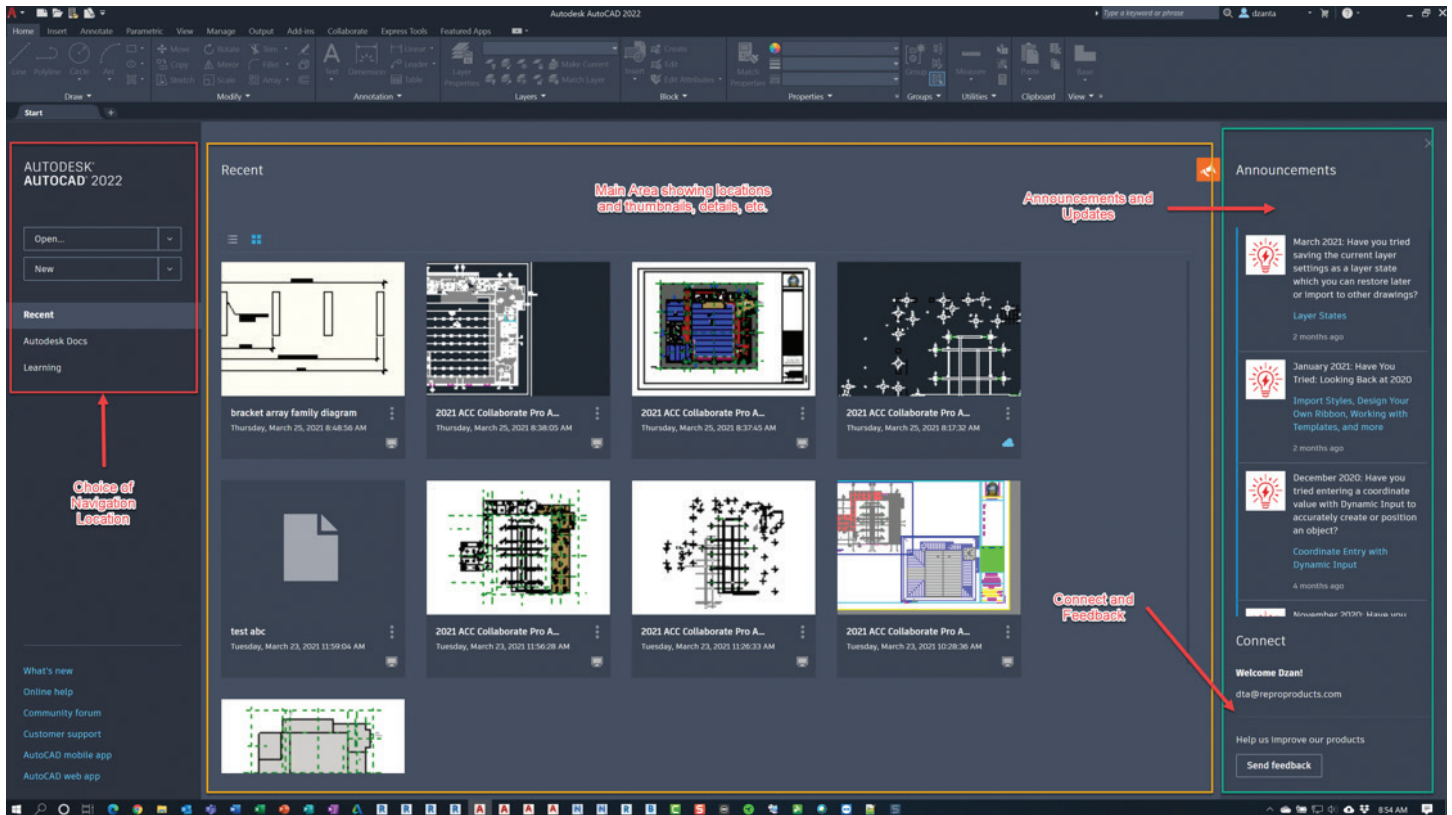
connectivity to web.autocad.com and your account will be updated within web.autocad.com to work with those services.

**Area C** is the main area to access and make your selection of file choice. This part will change depending on which location you choose in Area A. For example, here is what Area C looks like when you choose one of your Autodesk Construction Cloud projects for BIM Collaboration Pro.



## APPLICATION UPDATES

As with most of the Autodesk products, internal application updates are bound to included.



Here are the new commands and features with AutoCAD 2022.

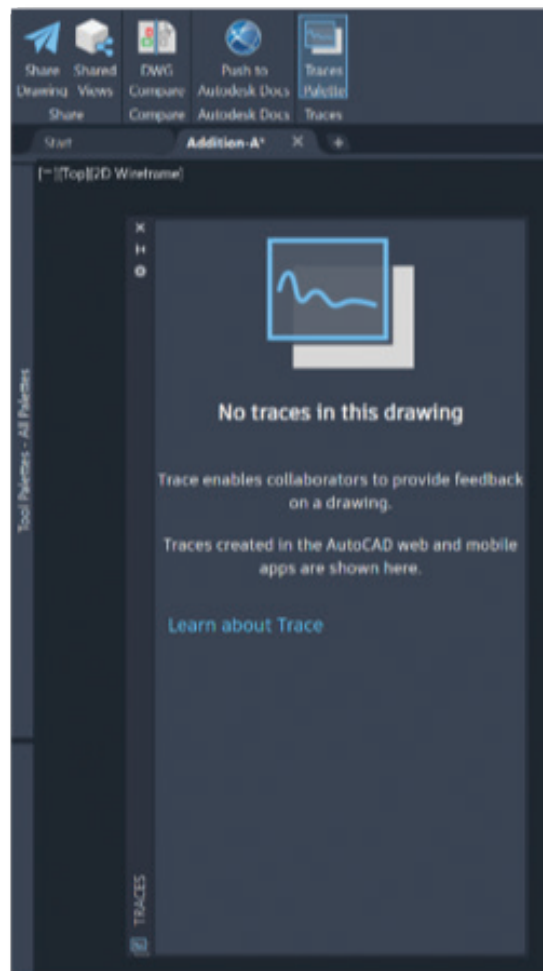
## GENERAL ENHANCEMENTS

In addition to the customizable installation, the graphics have been improved to show icons and data clearer, with more contrast and easier on the eyes. Most importantly, the new Start tab has been completely redesigned for easier access to files locally and via the web.

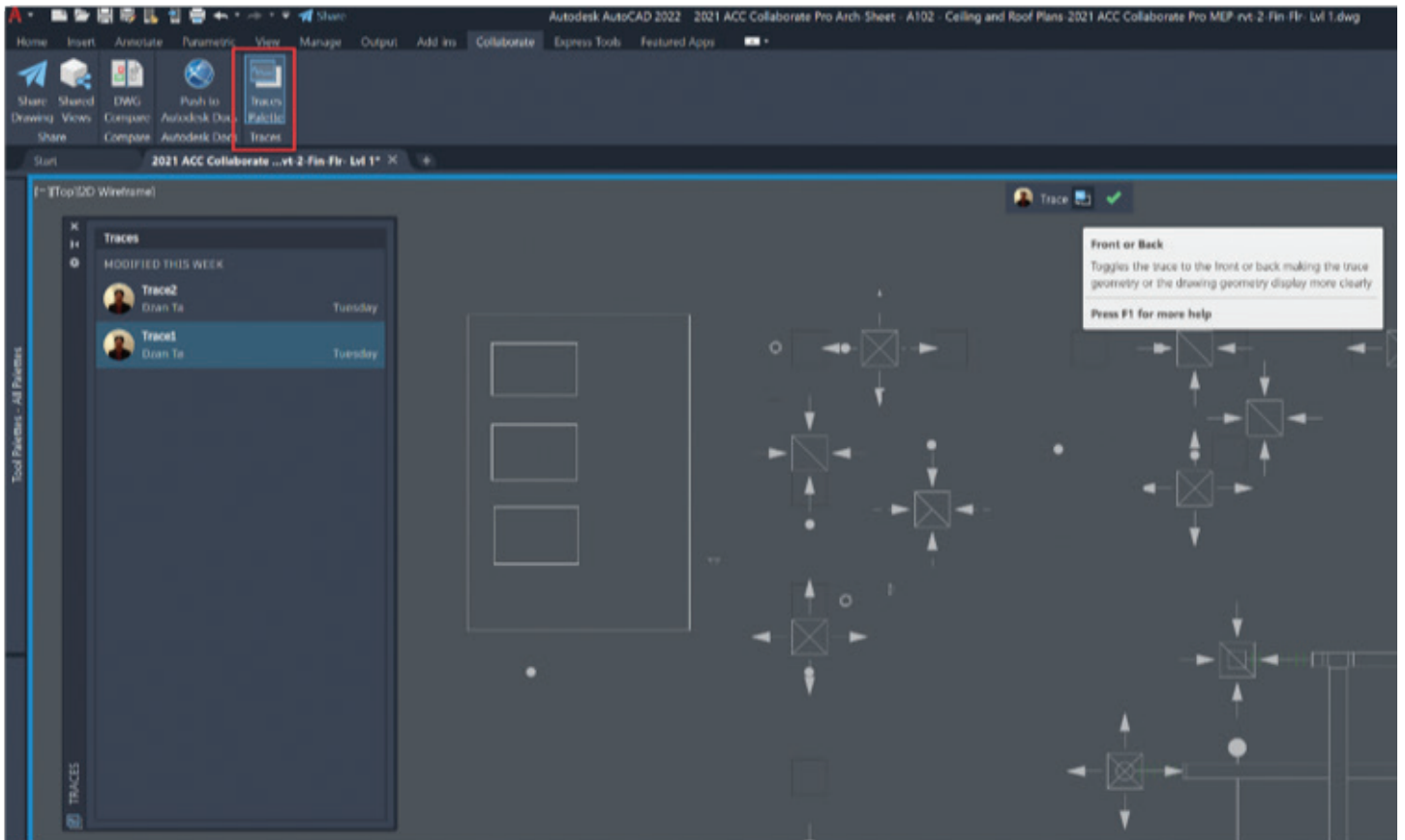
## TRACE

TRACE is a new command that allows you to sketch alternative content on top of your file without altering the original file. Think of TRACE as placing a piece of vellum paper on top of your drawing, sketch over it to come up with another alternative design or markup and then rip that piece of vellum out to keep for multiple design options. The TRACE command does work within the AutoCAD 2022 application. However, the creation of these TRACE objects needs to be created in the web.autocad.com site or mobile app. Once created, you can see them within the AutoCAD 2022 software application on your desktop or laptop.

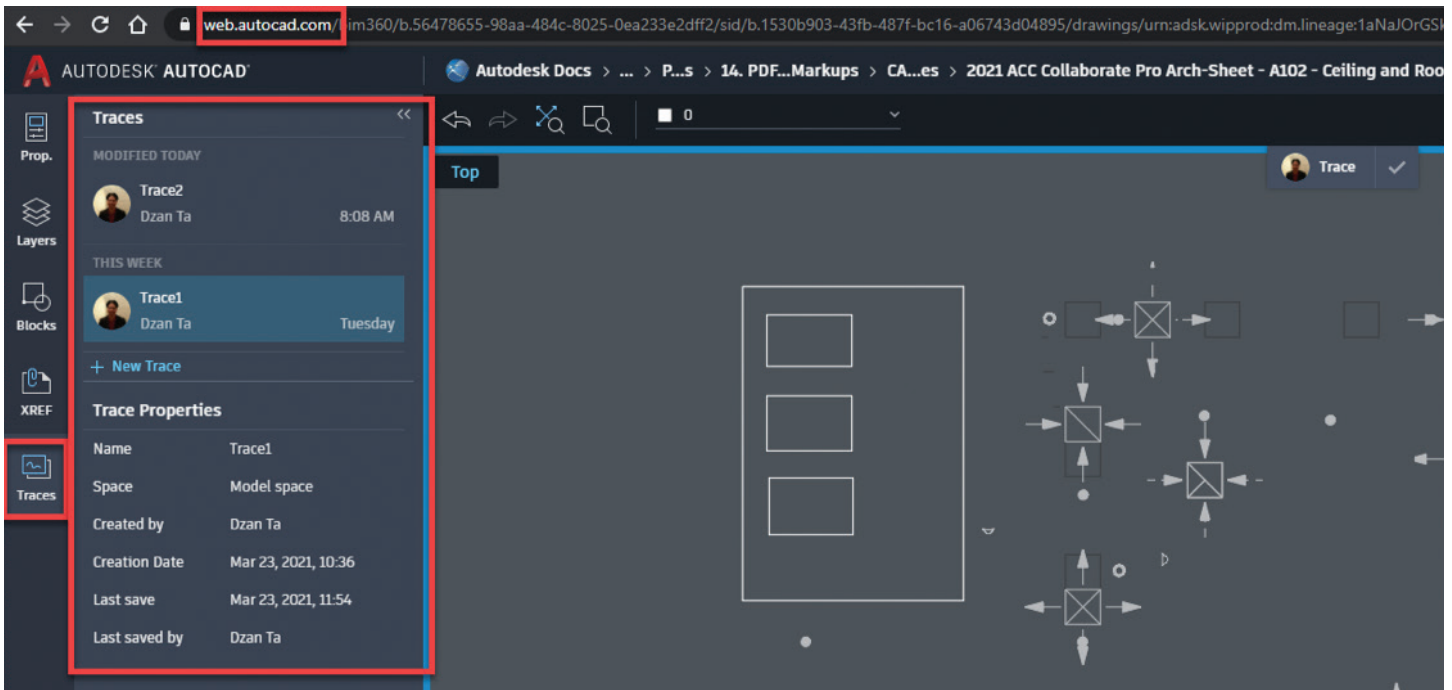
Screenshots of TRACE within AutoCAD 2022:

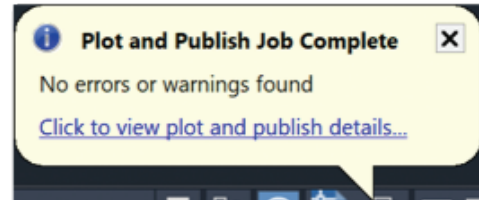
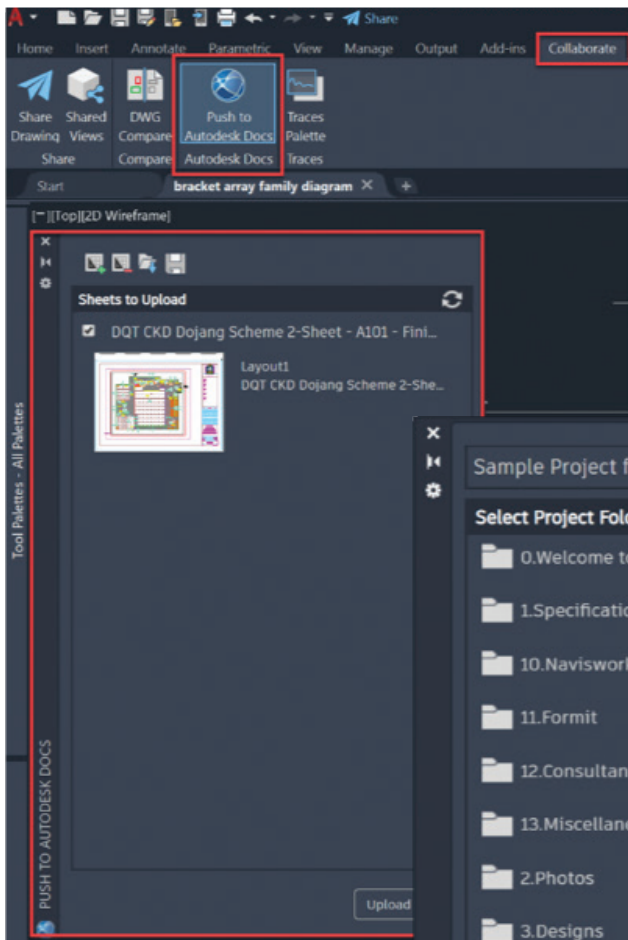






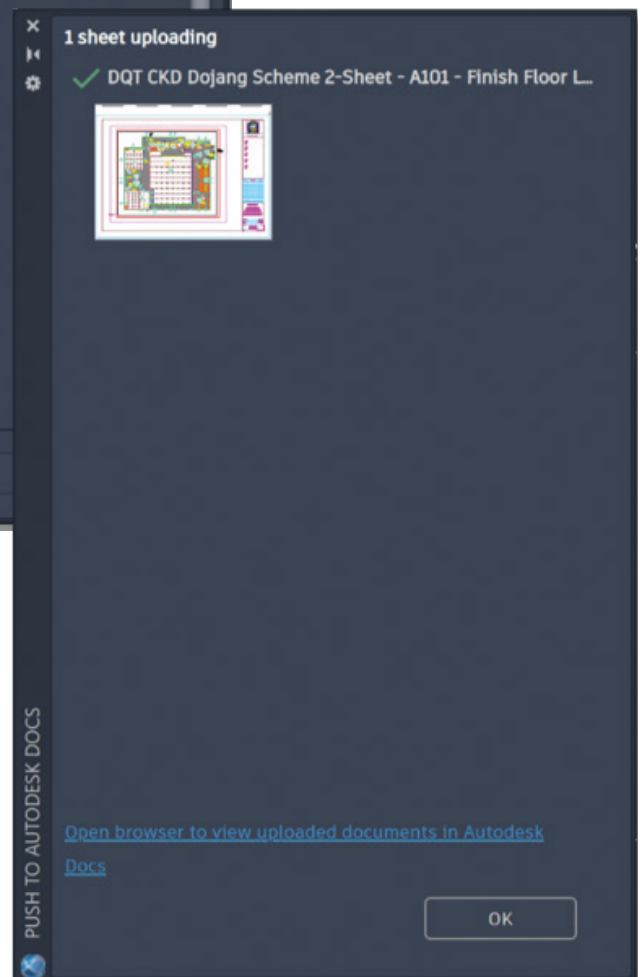
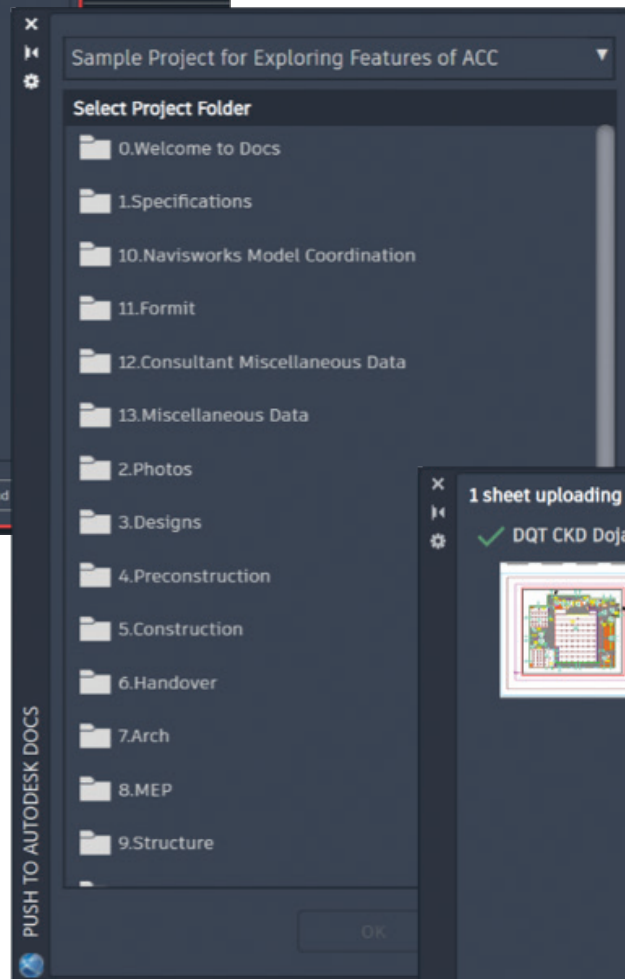
Screenshot of TRACE within web.autocad.com:





## PUSH TO AUTODESK DOCS

In addition to being able to share your drawing and share your views with the Share Drawing and Shared Views command which came out in the previous releases of AutoCAD, you now have **Push to Autodesk Docs**. Located in the Collaborate Tab of the Ribbon, you can use this command to open the tool palette to push your AutoCAD files up to your Autodesk Docs site. In using this command, the software will create a PDF file of your sheet and upload it to your Autodesk Docs location of choice. This prevents having to use the Plot command, choose AutoCAD to PDF.pc3, plot it, find the file in Windows Explorer and then drag/drop it to your Autodesk Docs location after you get to your hub and your project and your subfolder where you want to put it. Very streamline indeed.



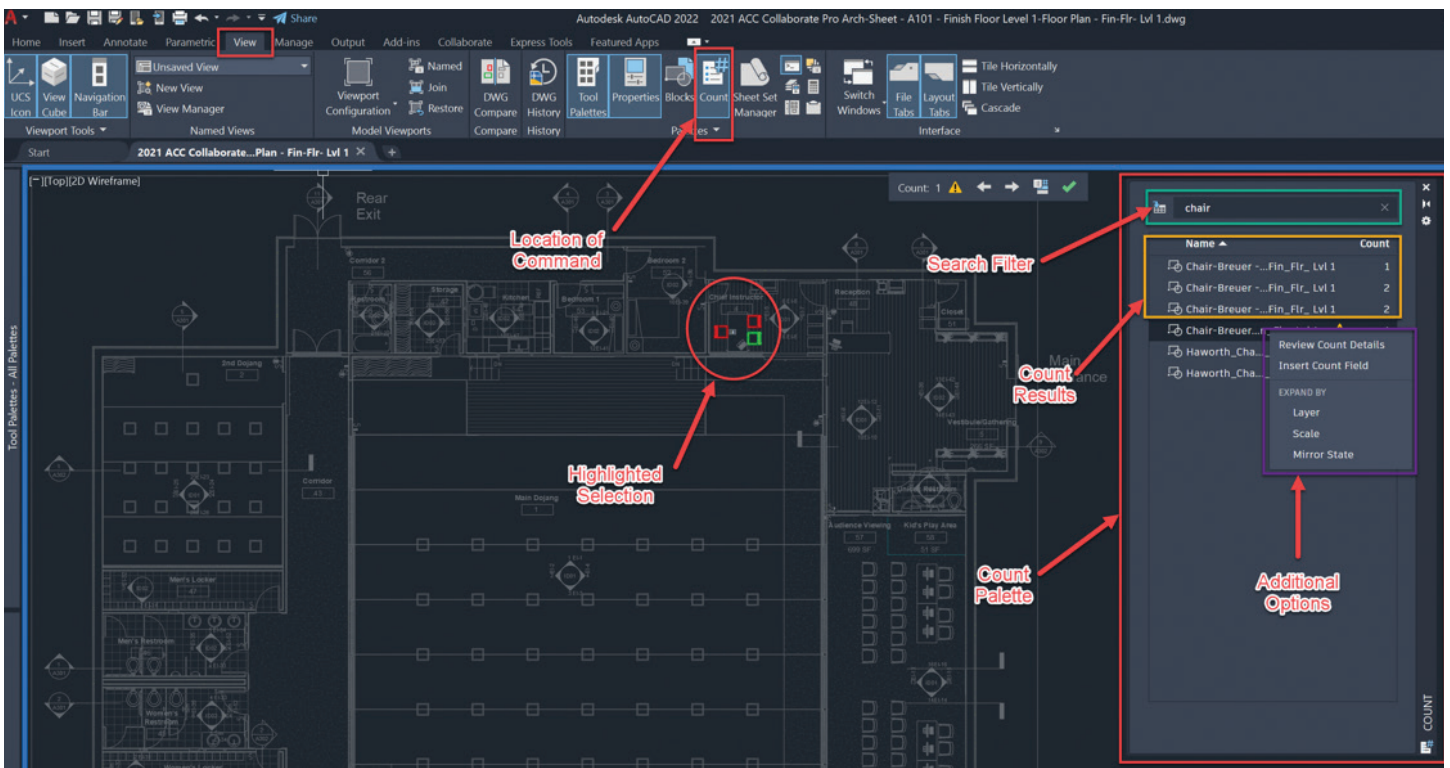


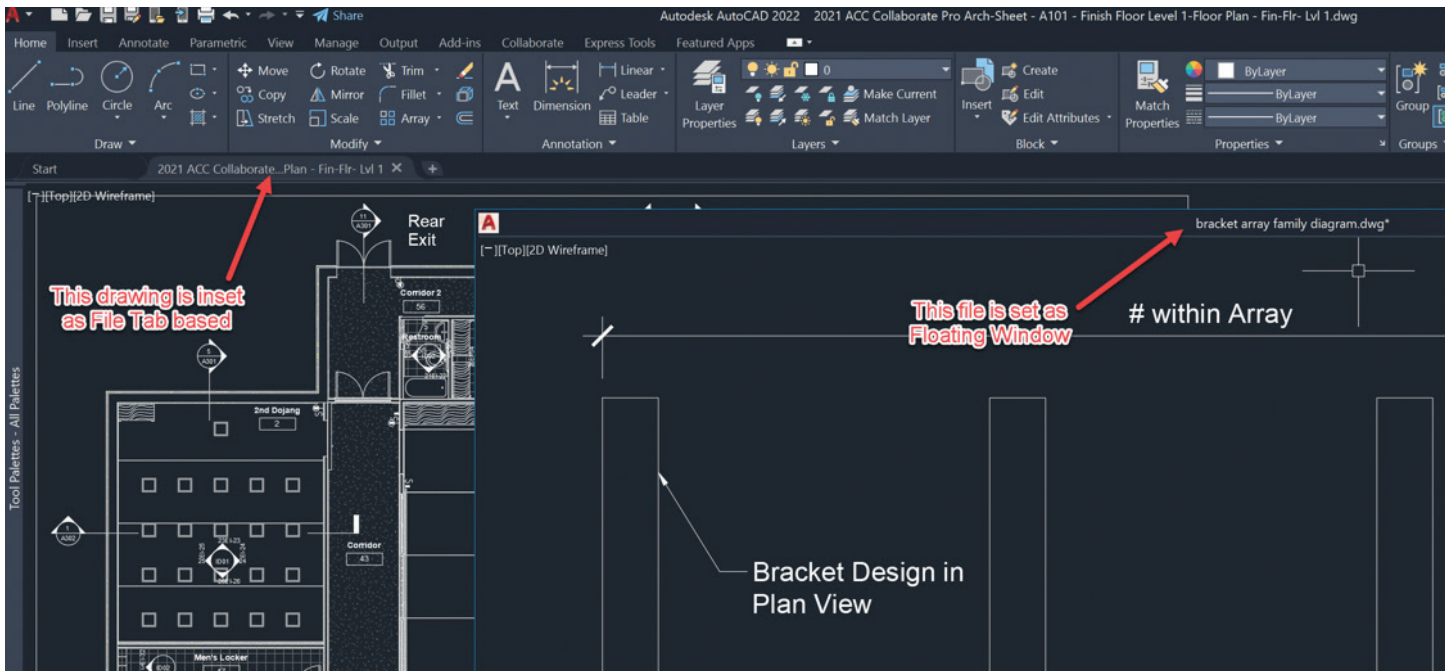


## COUNT

COUNT is a new command that allows you to automatically count the data in your AutoCAD file. You can access this feature by typing in the command COUNT in the command line or going to the View Tab of the Ribbon, Palettes Panel and selecting the Count icon. This will bring up the

palette and the software will automatically count everything within the Model space environment. You will be presented with the data and you can filter the results with the search toolbar within this palette. As you hover your mouse icon over one of the choices, it will highlight that data in the drawing. If there is something amiss about the data, it will show you a yellow triangular





exclamation icon as well. You can then get into additional options of your selection by right clicking. Very cool feature!

## FLOATING WINDOWS

You can now pull out your drawings as floating windows to place on multiple monitors. This allows you to work with multiple files within 1 session of AutoCAD but on many monitors. You always have the option of putting the drawings back into Tab view method by dragging and dropping the file into place. Floating the drawings as windows helps me work more efficiently now.

## SUMMARY

I hope that the new updates and features in AutoCAD 2022 are to your liking. These improvements allow anyone to work more efficiently, conveniently and get work done faster and smarter. I am sure there are a ton of additional micro updates to the software as well...I just have not had the time to dig deeper. I highly suggest you explore these features to see how they can help you and your team moving forward. Thank you for your time. As always, please reach out to me if you need to connect. Take care!!



*Professionally, I am a seasoned Autodesk Technical Specialist, Autodesk Expert Elite, Autodesk Certified Instructor, Autodesk University Speaker and Autodesk Service Marketplace Provider. In addition, I am a Bluebeam Certified Instructor and a University Instructor for Kennesaw State University. When I have time, I contribute to the Global Autodesk Community via AUGI, AKN, Autodesk Screencast, Autodesk University, Facebook, YouTube, Twitter, etc.*

*Personally, I am an Assistant Chief Examiner for CKD, a Chief Head Instructor for CKD International Headquarters Martial Arts, an Assistant Scoutmaster for Troop 002 and a Den Leader for Pack 002.*

*As the Lead Application Engineer for Repro Products, I excel at teaching and supporting clients with Autodesk products. I provide the knowledge necessary for clients to move forward in their thinking and design. I have worn many hats in my career and still do. As a result, I have a unique ability...a unique passion...TEACHING! I enjoy learning and passing on knowledge. I love engaging people to learn more about them and what their passion is. I love making new professional acquaintances. Reach out if you want to connect and engage me.*



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## LUMION® LIVESYNC® FOR AUTODESK® REVIT®

<https://lumion.com>

**Autodesk Revit**

Version: 2021, 2020, 2019, 2018

Always get a real-time view of your 3D Revit model in Lumion's breathtaking, full context environments with LiveSync for Revit.

The free Lumion LiveSync plugin lets you set up a simultaneous, real-time connection between your 3D model in Revit and Lumion 10.3. Change the model's shape in Revit to test a modified design, and you'll instantly see the model updated in Lumion so you can view it with accurate lighting and shadow, surrounding contexts such as urban neighborhoods or rural settings, and beautiful, realistic materials.

Lumion LiveSync for Revit includes:

- Realtime model synchronization between Revit and Lumion
- Camera synchronization between Revit and Lumion
- The ability to add and save Lumion's beautiful materials to your LiveSync project
- Real-time materials synchronization and visualization
- Automatic model importing into Lumion (no need to separately import a model)
- Collada (\*.dae) files exporter



## INCREMENT

[https://apps.autodesk.com/ACD/en/Detail/Index?id=8051485828049059617&appLang=en&os=Win32\\_64](https://apps.autodesk.com/ACD/en/Detail/Index?id=8051485828049059617&appLang=en&os=Win32_64)

**Autodesk AutoCAD, AutoCAD**

**Electrical, AutoCAD Mechanical, AutoCAD Architecture, AutoCAD MEP, AutoCAD Plant 3D: 2022, 2021, 2020, 2019, 2018**

**Autodesk® Civil 3D®: 2021, 2020, 2019, 2018**

**Autodesk AutoCAD P&ID: 2017**

The GILE\_INCR command opens the Increment dialog.

In its left part, the dialog provides common controls for all tools.

- The 'Value Type' frame is used to specify the incrementable value type (numeric, alphabetic, alphanumeric, hexadecimal, or roman numerals).
- The 'Parameters' frame provides text boxes to set the initial value, the increment value, and some optional settings: a separator character, a prefix, a suffix.
- The OK button launches an action according to the selected tab. The action repeats incrementing the value until the user presses Esc, Enter or Space to get out of control.

In its right part, the dialog provides four tabs to specify the settings of each of the different actions.

- The 'Attribute' tab is used to increment an attribute value at each block insertion. The user selects the block to insert, and the attribute to increment, they also can set some block properties (global scale and rotation).
- The 'Text' tab is used to create a text object which value is incremented at each insertion. The user can set some text properties (text style, justification, height, and rotation).
- The 'Selection' tab is used to edit existing Text, Mtext or Attribute objects by prefixing, suffixing, or replacing them with an incremented value. The user chooses one or more entity types and selects the action to perform.
- The 'Auto' tab allows to automatically increment a selection set of texts, mtexts, or block attributes according to ascending or descending X and Y coordinates.



## FILL GAPS IN SKETCH

<https://apps.autodesk.com/FUSION/en/Detail/Index?id=1232847965088759508&appLang=en&os=Mac>

**Autodesk Fusion 360**

Fill Gaps in Sketch add-in attempts to fill gaps between endpoints of lines and curves in a sketch. It is particularly useful in an imported sketch geometry.

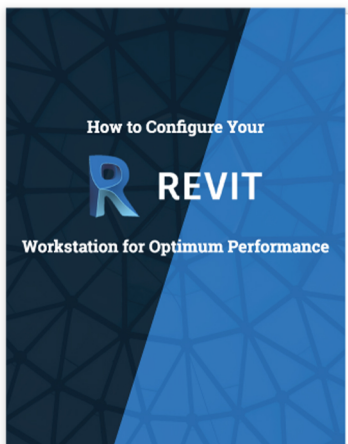
If you have some news to share with us for future issues, please let us know. Likewise, if you are a user of a featured product or news item and would like to write a review, we want to know. [brian.andresen@augi.com](mailto:brian.andresen@augi.com)

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