AUTODESK **UNIVERSITY** 2015

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Chaining the Circles Together—A360 and AutoCAD 360

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Learning Objectives

- Discover the difference between A360 and AutoCAD 360x
- Discover the basic features of both services
- Discover how to create an account in either service
- Learn how to use these services in your workflow

Description

Autodesk, Inc.'s, cloud services change names more often than some people change their socks. As such, these services can be rather confusing. Despite their malleable call signs, these cloud tools can have dramatic impacts on your workflow. We will focus on 2 specific services in this class, namely the Autodesk 360 cloud-computing platform and the AutoCAD 360 web app. We will look at the history of these services as well as their feature sets, creating and utilizing accounts and where these services can impact your workflow.

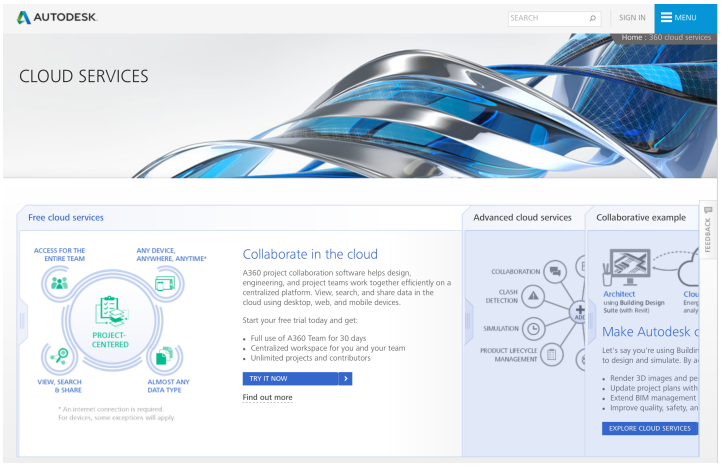
Your AU Experts

Jim LaPier is the owner of IMPACT Designs, LLC, a consulting firm based in Maryland. Jim has worked with AutoCAD software for 17 years in varying disciplines, including commercial and residential architectural design, mechanical engineering, materials handling, and telecommunications. He is skilled in customization, efficiency, and speed, and he is adept in information technology. He also worked as a genius at an Apple Inc. Retail Store, becoming a certified Apple technician. Jim combines paper-and-pencil drafting knowledge with his love of advanced technology, both Mac and PC-based. Jim currently travels around the country giving workshops and classes on AutoCAD for Mac software and using Apple computers in today's design offices.

360 Suite

Autodesk Cloud Services

Like most software companies today, Autodesk has been making forays into cloud services for their customers. The term “cloud” has been thrown around a lot in the past few years but many are still confused as to what exactly it entails. Cloud computing is a general term for anything that involves delivering hosted services over the Internet. These services are broadly divided into three categories: Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS) and Software-as-a-Service (SaaS). AutoCAD 360, Autodesk A360 and most of the other Autodesk cloud offerings are considered Software-as-a-Service. As opposed to purchasing software outright, downloading it and installing it on a local machine like your desktop or laptop, think of these services as applications you access through a web browser like Chrome or Safari. They are like an extremely sophisticated website. These cloud services also often run as individual apps for mobile devices like smartphones and tablets.



We can see all of the cloud services Autodesk currently offers here at http://www.autodesk.com/360-cloud. These include individual services for Revit, like BIM management or structural analysis, as well as services for ReCap and PLM. Most of these have “360” somewhere in the title to help distinguish them as cloud based. Each of these services offers collaboration tools and access to files and tools from wherever you are so I encourage you to look at some of the other services as well.

Of the many cloud services Autodesk offers one tailored for AutoCAD users, and that is AutoCAD 360. AutoCAD 360 was released originally as AutoCAD WS back in 2010 as an app for the iPhone on the iOS app store. The Android version was released 6 months later. The initial releases were all free and were fairly limited in their capabilities but still allowed you to open and edit native dwg files, including creating lines, circles and other shapes as well as basic modifying and commenting features. Eventually the service was renamed AutoCAD 360 and a web based component was added. Today the basic service and apps are still free, still allowing users to open and edit dwg files natively. Tools have been added and the program has improved as hardware has been upgraded. Another feature of AutoCAD 360 is the ability to store and sync files themselves in the cloud, sort of like a Dropbox or Google Drive just for your CAD files. The free account currently allows us to store 5GB of files with an individual file size cap of 10mb. The Pro account types, which are paid upgrades, currently offer up to 100GB of storage space. As of today there are 3 classes of AutoCAD 360; Web based, accessed through a web browser like safari or chrome, the app version for smartphones and tablets available for iOS and Android devices, and finally a Windows 8/10 app available in the Windows Desktop Store. Each of these classes use the same cloud service so you can have users accessing and modifying your files from whatever platform they prefer without compatibility issues. The account type, free

or pro, is only applicable to the service itself, meaning no matter which platform you use to access your account, the account itself is the same. The 3 classes are also mostly feature consistent, all allowing you a basic toolset of adding objects, modifying, and measuring. While there are differences in specific tools for the most part there is no benefit of one version over another. Currently, the browsers supported are Chrome, Firefox and Safari, but I encourage you to take a look at the support center as seen here to see what the latest requirements are. So AutoCAD 360 allows us to store, access and modify our dwg files from our Windows 8 /10 desktop (without needing AutoCAD proper installed) from our smartphone or tablet, or from a web browser on any internet connected computer.

Another cloud service Autodesk offers is called A360 Drive, formerly Autodesk 360. If AutoCAD 360 is the service that allows us to store, access and modify our dwg files, A360 Drive is the service that allows us to store, view and share all of our CAD files as well as other project related files. I tend to think of A360 Drive as the location that stores the files and lets you manage them, like your computer hard drive, while AutoCAD 360 is the application we use to actually modify the dwg files themselves. A360 Drive allows us to view a multitude of file types as seen at www.autodesk360.com/features. This includes files like IGES, IDW, RVT, and others as 2D and 3D, as well as media files like jpg and mov files, or office files like pdf, .doc and .xlsx. This means you can store your entire project with all associated files of nearly every format and access them from your mobile device or web browser, without worrying about what CAD applications are installed on the system itself. I may not have Revit on the conference room computer or AutoCAD on the computer at my client's home, but I can log in and display, navigate and mark up those files regardless.

Now, this is where it gets a little confusing. There are 3 products right now, all separate, that share a very similar name. A360 Drive looks at the same account created or used in your AutoCAD 360 log in. There are 2 other services, A360 and A360 team, that are different services than A360 Drive. A360 is a project management tool for teams with calendars and needed tools. Like AutoCAD 360, A360 has a free and paid version of the service, while all associated apps themselves are free. The free version currently includes 5GB of storage space in 1 project. The paid version, call A360 Team, allows for 10GB of storage and unlimited projects, billed per team member per month billed annually. I know this sounds confusing with a lot of repetitive letters and numbers so let's sum up.

A360 & **A360 Team** - Collaborative workspace for projects

A360 Drive (Formerly Autodesk 360) - Storage and management of CAD & other project related files

AutoCAD 360 (Formerly AutoCAD WS) "AutoCAD Super Lite" - Browser based version of AutoCAD that allows for creating / modifying dwg files

A360 Drive has a separate access for it's service, even if it is considered part of the A360 collaborative workspace. A360 also has platform specific services / apps including A360 Desktop for syncing files / preferences and A360 Mobile for a mobile version of the A360 collaborative workspace. A360 Mobile also provides access to your A360 Drive files for viewing. There is currently no separate A360 Drive mobile app.

As with the paid levels of AutoCAD 360 I encourage you to visit the website for each for up to date pricing and associated features.

Creating an account

The first step to using any of the 360 services is logging in to the service, and to do that we need an account. If you already have an Autodesk account for another service, like subscription, use that log in information so your account is linked. If you do not have any Autodesk account, we will need to create one. The easiest way to do that is open a web browser and navigate to one of the services:

360.autodesk.com (A360 Drive)

a360.autodesk.com (A360)

autocad360.com (AutoCAD 360)

Again, these services are all linked, so it doesn't matter which you start with, but navigate to each and make sure your username / password combination work everywhere and you can see the same files. Click Log in / sign up in the corner and click here where it says "Don't have an account? Get one" From here, all you need to do is provide your first and last name, a valid email address, and create a password. Accept the user agreement and click create. You are immediately taken to the dashboard and ready to go. The process is the same for the mobile app, aside from the need to navigate to the website through a browser. From any log in I can click on my image in the upper right and go to my profile. From here, I can click edit, and upload a photo for my avatar, and add professional information like my company and title. I can change my password and email under security settings, link my social media accounts under linked accounts, and finally change my preferred language and my communication preferences. This account can now be used for most of the services Autodesk offers so it is a good idea to keep track of your username and password.

To pay or not to pay

Most of these services offer multiple levels of tools and functions. The specific tools and features change so I won't list every difference, but in general:

A360 - A360 has 2 levels, the default A360 for individuals and allows 1 project with 5GB of storage. A360 Team allows for unlimited projects and 10GB of storage per team member.

A360 Drive - This is a part of A360, but was formerly a free service known as Autodesk 360; if you created an Autodesk 360 account prior to 9/14, you receive 5GB of storage space. If you are on a subscription plan, 25GB of storage is included.

(Click here for a chart of the A360 / Team / Drive features)

AutoCAD 360 - This is where things get tricky (like they haven't already.) There are different apps for AutoCAD 360 with different features / functions:

AutoCAD 360 Web App - Free

AutoCAD 360 Desktop App (Windows Store) - Free

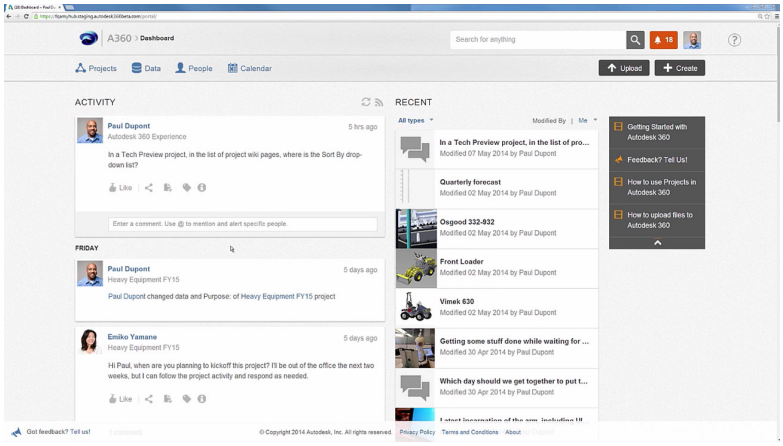
AutoCAD 360 Mobile App (iOS & Android) - 3 Tiers - Free / Pro / Pro Plus

The AutoCAD 360 Web App and Windows Desktop App offer access to all the same features no matter which Mobile app tier you are in. The only aspect of the tiered system that effects these versions are the file size limitations and total storage sizes. We can see at https://www.autocad360.com/mobileplans/ how the breakdown shakes out. Currently the Pro and Pro Plus tiers are identical in features but the Pro Plus offers much more storage and the ability to

store larger files. The Free tier restricts not only the size but also tools like the ability to create new drawings, more advanced editing tools and a blocks palette among others. Again, these change over time so I encourage you to visit the links to review the latest information.

Web Apps

A360 / Team

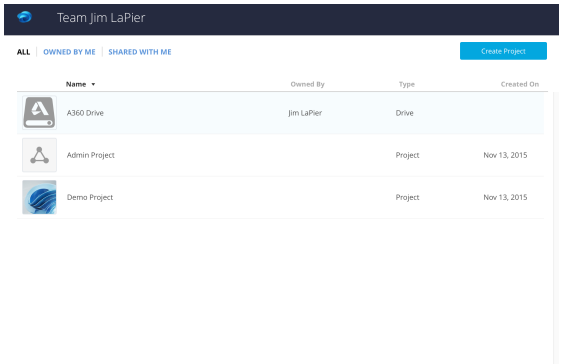


A360 is a great workspace from a project management standpoint. Users can log in and see what files were recently uploaded or worked on or have had comments added to. We can invite collaborators to help us in the design process or to review the work being done. With multiple levels of sharing, these shared users can be restricted from certain files or projects. Again, with design feed, users can add all of those project notes and discussions that never show up in the file itself. “Why did we change from a 3-0 door to a 2-4 door?” “I can’t remember.” “Well, you were in the field yesterday, what does the pipe intersection look like next to the doorway?” “Oh, I took a picture; I think this is it, but I don’t remember where I was standing.”

Now not only can changes be noted and confirmed but field conditions can be added into the file to support changes and allow users in other locations to see the field situation themselves.

Another great tool for projects is the Wiki tool. Now we can create pages of standards / concepts / FAQ or other informational pages that users can view and update. This is great for product selections, hardware specifications or perhaps plant information for the landscaping in front of the new office.

A360 Drive



A360 Drive is available under the A360 login under the main page. Here, we can see all of the files from our 360 accounts. The files can be moved, copied and otherwise organized more efficiently than in some of the other apps. New folders can be created and files can be downloaded to your local machine. This is great for accessing files on the run at a clients or at another workstation. Note that files cannot be moved nearly as easily in AutoCAD 360. While I can drag and drop files from the main level to a folder, I cannot move the files up in the folder hierarchy.

AutoCAD 360

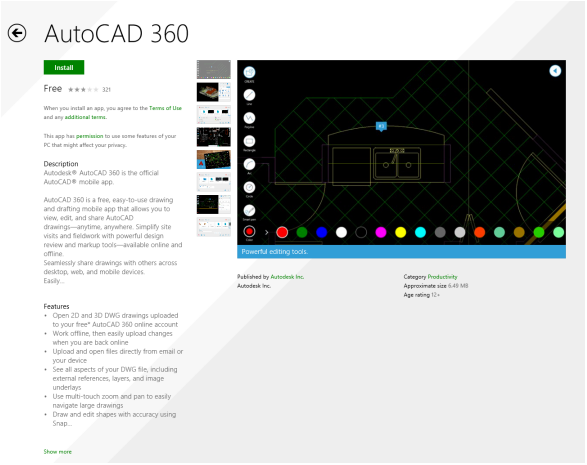
AutoCAD 360 Web is a handy tool for basic editing / markups and demos. The functionality of the web app is undergoing some revisions so many of the features are currently disabled as of this writing. Currently, a new layer is created in the dwg file for markups. On this layer, we can currently add text and basic dimensions. Most importantly (in my opinion) is we can still use our measuring tools as well as panning and zooming. This again allows clients / managers to view drawings, add notes and take measurements.

Many of the features like create and design feed are disabled during the update / overhaul process and Autodesk is looking for comments / requests, so I encourage you to voice your opinions on the current state of the web app and what you would like to see in the next versions.

Desktop Apps

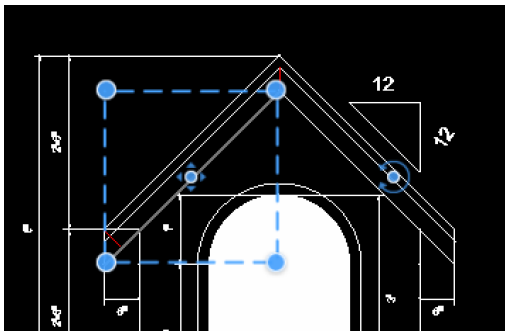
AutoCAD 360 - Windows Store

Available in the Windows Store, the desktop version of AutoCAD 360 is straight forward enough. I can download it from the Windows Store as seen below.



Once installed, I can add other cloud storage solutions to access my files from my other services by right clicking anywhere on the screen.

Note we can access the same files from our 360 accounts, but there is no place to open a file from the local computer. While the Windows Store app cannot open files on your hard drive from within the app, if you navigate to the file in Explorer, right click on the file and choose Open With . . . AutoCAD 360, the file will be uploaded to your 360 account and then opened.



Once in the app, I can select an object and copy or delete it using the options in the lower left corner. I can also use the move and rotate grips to modify the object. In the upper left, I have some buttons or charms for:

Create - Lines, Polylines, Rectangles, Arcs, Circles, or Smart Pen. Smart Pen allows me to draw rough shapes and have AutoCAD 360 convert them into proper ones, like circles and rectangles.

Markup - Text, Cloud, Marker, Image. Marker allows for freehand shapes, and Image allows you to insert an image at a location, either from your gallery or from your computer / tablets' camera.

Measure - Distance, Angle, Area, Radius

Dimension - Linear, Diameter, Radius, Angular. Note that even though it is called a Linear dimension tool, the dimension is actually an aligned dimension, meaning the measurement is the exact distance from the two selected points, not the horizontal or vertical measurement that a linear dimension gives.

In the upper right corner is a button for the palette flyout. This opens a palette with tabs for multiple functions:

Design Feed - This is one of my favorite parts of the entire A360 paradigm. Users can collaborate with messages and notes regarding the drawing, as well as photo, audio or video tags for specific locations.

Layers - Basic Layer management, off / on, isolate / reverse, new / lock / delete / rename

Blocks - A display of all the blocks stored in the dwg file. These can be re-inserted into the drawing. Note that dynamic blocks can be inserted but the dynamic grips do not work.

View - Model / Layouts, Zoom Extents, visual style (2D Wireframe / 3D Wireframe / 3D conceptual)

Properties - Very basic properties of the selected object(s) but non-editable

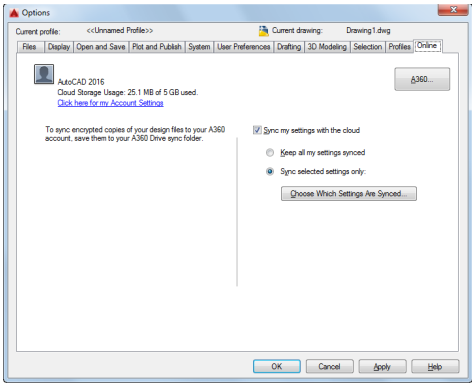
Settings- Currently just snap settings.

Also note (because it took me a few minutes to figure out) to share a drawing, export it or even close it, right click anywhere in the screen to bring up the file options.

The Windows app is a great way for non-AutoCAD users to view, markup and even use native dwg files along the design process. Perhaps you have a client who likes to stay up to date, or a supervisor who wants to make a few notes in the field on his Surface tablet.

A360 Desktop

This is similar to two other desktop apps (in a sense): Dropbox and iCloud. The Dropbox functionality is the ability to sync your files to your local computer. A copy of the individual files is downloaded on your hard drive for offline access, and are synced with the files in the cloud (A360 Drive) whenever an internet connection is present. New folders can be added, files copied and renamed, while all of these changes are synced to the cloud A360 Drive that you can later access on your mobile phone or tablet.



The other half is the syncing of your preferences. Right now, you can sync many of your personal settings across computers just by logging in to your A360 account. The log in is available under the Online tab of the Options Dialog. The files you can sync include:

Options - All of the settings you change in the Options dialog box are saved as your profile (.arg file.) These profiles are synced across computers so your display colors, cursor sizes, and drafting settings are the same no matter where you sit down to work.

Customization Files -Your Ribbon panels / tabs, toolbars, workspaces and other interface options are saved in your CUI and CUIX files, which are synced as well.

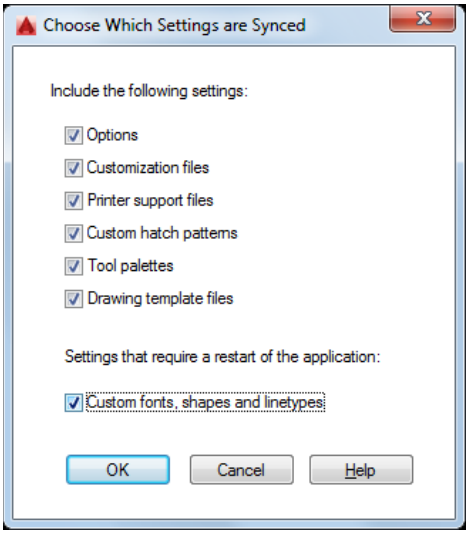
Printer Support Files - Includes printer configuration files (PC3), printer description files (PMP), and Plot Style Tables (CTB, STB).

Custom Hatch Patterns -All of your custom hatch pattern (PAT) files.

Tool Palettes

Drawing Template Files

Custom Fonts, Shapes and Linetypes



Personally, I have a laptop, desktop and multiple virtual machines, not to mention machines at different sites and carrying around a flash drive of all of my settings and support files was becoming tiresome. We can sync contacts and calendars from devices, and this service allows us to do the same for our AutoCAD preferences.

Note that currently as AutoCAD for Mac doesn't support profiles A360 Desktop for Mac only syncs your files to your hard drive from the cloud and does not sync any settings.

Mobile Apps

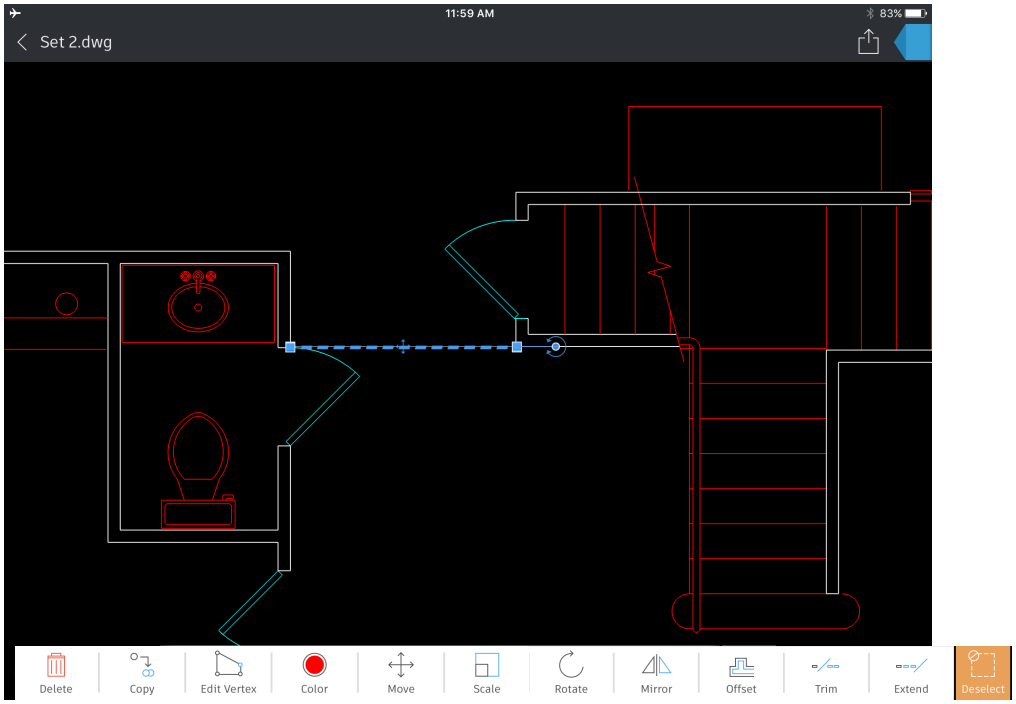
A360

A360 has had quite a few name and functionality changes over the years. I believe the original app was known as Design Review and was more of a mobile version of the desktop application. It was renamed Autodesk 360 and emphasis was placed on the collaborative aspects in addition to the file viewing. The app is now A360 and is tailored for the collaborative service. You can see recent activity in your projects as well as upload your own notes or media for the group to see and review.

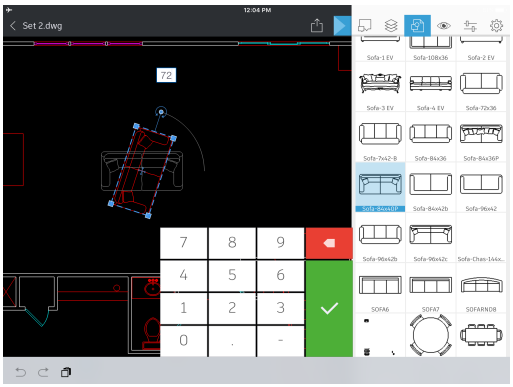
AutoCAD 360

AutoCAD 360 mobile has a special place in my heart as it was one of the first iOS apps created by Autodesk and I remember being quite excited to install it on my iPhone. The small screen made for a cramped working environment and I quickly realized this was not going to replace my desktop or laptop in any way. However, I quickly saw where this little tool could fit in my workflow and make my life a little easier. AutoCAD 360 mobile has improved greatly over the past 5 years since it's initial release, so let's take a look.

AutoCAD 360 mobile is available for iOS and Android devices, including phones and tablets. The functions are the same across the range of mobile apps (to the best of my current knowledge.) Depending on your plan (free or pro) different tools are available. The tool categories are displayed across the bottom of the screen and tapping one will flyout the tools above. These match the Windows Desktop app with the addition of an arrow tool under markup, a GPS functionality for setting locations, and some additional modify tools like mirror, offset, scale, edit vertex, and trim / extend. Also, under settings, we can alter the drawing units and access object snap tracking as well as Ortho Polar Snap.



Another difference in the mobile app is the way we create objects. In the Windows app, lines are fairly imprecise. I can use object snap points, but I cannot enter specific values for my line segments like length or angle. I also cannot enter a value for the radius of a circle or arc. I can specify all of these in the mobile apps however. For the length, I can specify this by selecting the value on the screen and entering my length. I can use oath tracking for orthographic lines and enter radii values.



Lastly, I can download drawings to work on when offline. The Windows desktop application requires an internet condition to open.

Workflows

Below are some workflows / scenarios where these cloud services can play with each other and hopefully be inserted in your workflow. Try to imagine one or more of these scenarios and how you would use these features.

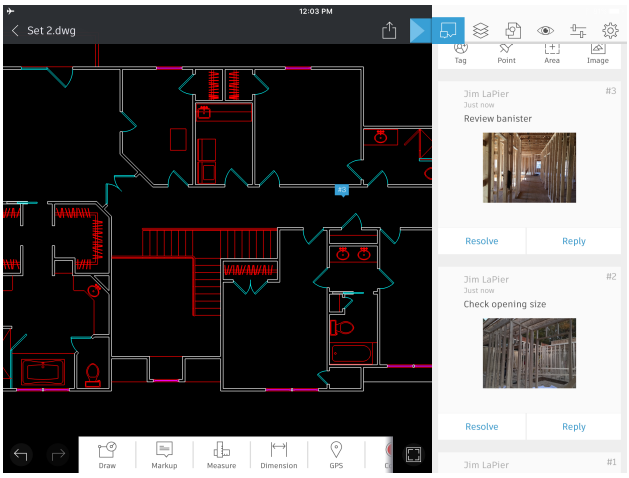
Laptop / Desktop

The new release of AutoCAD is out, which means migrating over all of my settings. Again. So, I sign in to my desktop and start tweaking. I load all of our hatch patterns, the printers upstairs, then the toolbars and menus I've been using for years. Then I take the new palette that AutoCAD has in the new release and I strip it of all the functions I don't need and dock it. Everything is exactly how I want it. Then I grab my laptop and walk out the door for a business meeting. I arrive at the clients site, open the laptop, and find out that IT loaded the new version of AutoCAD here too. Without telling me. So, I log in to my A360 Desktop account, and watch as all of my workspaces, menus and patterns show up.

Summary - I don't have to waste time setting up my preferences and files over and over every time I sit at a new desk or my hard drive fails.

Tablet / Desktop

I work for an architect and we need to inspect the field conditions to see how the project is progressing as well as try to anticipate any changes based on discoveries in the field. The drawings are syncing with our A360 Drive / AutoCAD 360 account. I grab my tablet and drive out to the jobsite. The carpenter points out a change in the field based on a new code that requires egress windows to be a certain distance from a doorway. Due to this code he moved the window 2 feet to the left. I pull out my tablet, take a quick picture and tag the location in the drawing. I add a note referring to the new code so I can follow up when I get back to the office.



As I'm talking with the plumber, I notice a support beam that is going to interfere with a water line. I mark the location and record a quick video, following the plumbing line to the interference point. As I turn to leave, I get a call from the architect. He received a notification that I added some notes to the drawing and has a concern about the new egress window location and the exterior elevation. He adjusts the window location in the room below, and I see this change on my tablet in real time. I show this to the carpenter and he starts making the change before I even leave the site.

Summary - Site visits become exponentially more efficient when you not only have access to the files but can make changes in the field. These notes can be read / checked by others and problems can be detected and head off.

Collaboration

Working for an engineering firm, we are reviewing our new portable radio system for the military. The fabricator is based in Texas, the company we are working for is in Washington DC and we are based in New York. The client and designer in our office settle in front of our desktops while the fabricator pulls out his tablet and we jump on the conference call. The client is concerned about the external enclosure and the reflectivity of the metal chassis. We assure the client we finished the enclosure in an anti-reflective coating, and the fabricator takes a picture of the prototype unit and adds it to the design feed, which we all see. The client approves. We move on to a design change regarding the support handles used to lift the unit into the mobile vehicles it will be transported by. We are concerned that they protrude too far and may interfere. The client grabs is mobile phone and walks to the warehouse next door and takes a measurement of the opening in a standard vehicle. He opens the dwg file on his phone and measures the width of the unit and handles and confirms there is clearance. Lastly the fabricator has an issue installing a bracket into the chassis. He recommends modifying the bracket slightly, but his description isn't clear to everyone. So, he opens the dwg file for the bracket, and draws a small notch in the bracket that will also clearance. We check the remaining material thickness, confirm the structural integrity, and accept the change. The drafter (also on the call, but quiet as always) makes the change to the dwg file and properly annotates the new notch.

Summary - Working as a team can be a strenuous task. Conversations can be misinterpreted all too easily. Instead of waiting for sketches to convey an idea or clarify a question, a picture can really speak volumes.

Design Process

While working on the new circuit board for our SCADA system I get a call from the board manufacturer. He has been looking at our layout and doesn't understand why there are two mounting holes that do not seem to line up. They are off by .125". He asks, for simplicity sake, to align the holes. You think for a moment, and remember when you started the design 6 months ago all of the holes were aligned. Why is one hole off? Is it an error in the dimension?

Did someone stretch or move the hole by mistake? So, you open up A360 and look through the notes. 2 months ago, an engineer made a change to a switch due to availability, resulting in needing a little more clearance. You confirm the dimension is accurate and the board is made properly.

Summary - Designs change. It's a fact of life like death & taxes. Keeping notes of changes as they occur can save a lot of time when someone questions a change that happened months ago. With A360 and design feed, we can store all of that critical project data that has no business in the dwg file itself.

Client Contact

In the middle of designing their dream home with their famous architect, the Millers see a front door driving through a neighborhood visiting their children. Mrs. Miller snaps a photo and adds it to the design feed for the architect to see. The architect sees the photo the next morning, but the door is twice as wide as the currently designed door. The Millers get a little upset as they really wanted the new wider door. When they return home, they open the dwg file in the web app and see where the architect has noted the interference the wider door would cause with the coat closets on either side of the door. The Millers see this and accept the architect's recommendation. The Millers decide to go carpet shopping and find a carpet they like but is slightly more expensive they they planned. Instead of calling / emailing the architect for the square footage of the master bedroom, where the carpet will be going, they open the web app at the flooring shops design computer. They use the tools to take room measurements and determine the area of carpet, and decide to move ahead with the more expensive carpet based on the total price.

Summary - While I recognize this as a double edged sword, giving the client access to files they can measure from saves those urgent calls for dimensions when someone is shopping for their project. The client gains a level of involvement and appreciation for the design process.

Home Use

(I won't lie, this is one I am guilty of on multiple occasions) Like any good designer, the first thing I did after purchasing my new home was measure everything and get the plans in AutoCAD. Room dimensions, window sizes and everything. While shopping for new window treatments, my wife finds the last two curtain panels in the color she wants. She turns to me and asks if they are wide enough for the living room window. I pull out my phone, open the floor plan, and measure the width of the window and confirm the drapes are the right size. Next, we head to the appliance department to pick up a new refrigerator. We find one that has all the shelves and drawers we could want, so I load up the kitchen plan on my phone to make sure it is not too wide.

Summary - Again, this is very much from experience, but I can't tell you how invaluable it is as a home owner to have your home in your pocket. I need to buy new christmas lights, what is the width of the front of the house? That sofa looks great in the showroom, but will it fit in the den?

Partners

My partner is working on a project for the local museum while I focus on a renovation for the Gilmores. We try to split up projects so we can focus and knock things out. Unfortunately my partner decides to take his family skiing for the weekend, and the museum calls because the steel beams are being delivered Saturday afternoon. They need a count and sizes of the beams

so they can check the delivery. Fortunately, my partner and I use A360, so I can open the files on my laptop, since everything syncs between our workstations, then log in to A360 and search for notes on the steel beams to make sure nothing has changed. My partner made a note to double check the member along the north wall as the size had changed mid-project, so when I arrive to look over the delivery I know to pay special attention to that beam.

Summary - The ability to have someone step in and pick up where you left off, notes and all, is a huge benefit to a small firm. Keeping those notes up to date is on you, but sharing the same files across workstations without the need for a central server can be a great way to start a small business.

Conclusion

Hopefully I've demonstrated the power behind this suite of apps and services. Having access to your native dwg files can be a powerful tool in and of itself. Add in the syncing features and you are at another level. Finally the project aspect of A360 and Design Feed gives you a running log of your designs, changes and notes from the field so that everyone is up to date.