

Connecting your AutoCAD workflows to the cloud using Autodesk Docs

Morgan Smith

Implementation Consultant | Autodesk

About the speaker



Morgan Smith

Implementation Consultant | Autodesk

Civil Engineering Associate / Design Drafter

20+ years in Civil Engineering / Infrastructure

15+ years in CAD Management, Implementation & Support

10+ years working with AEC Collection of Products

5 years working with BIM 360 Platform

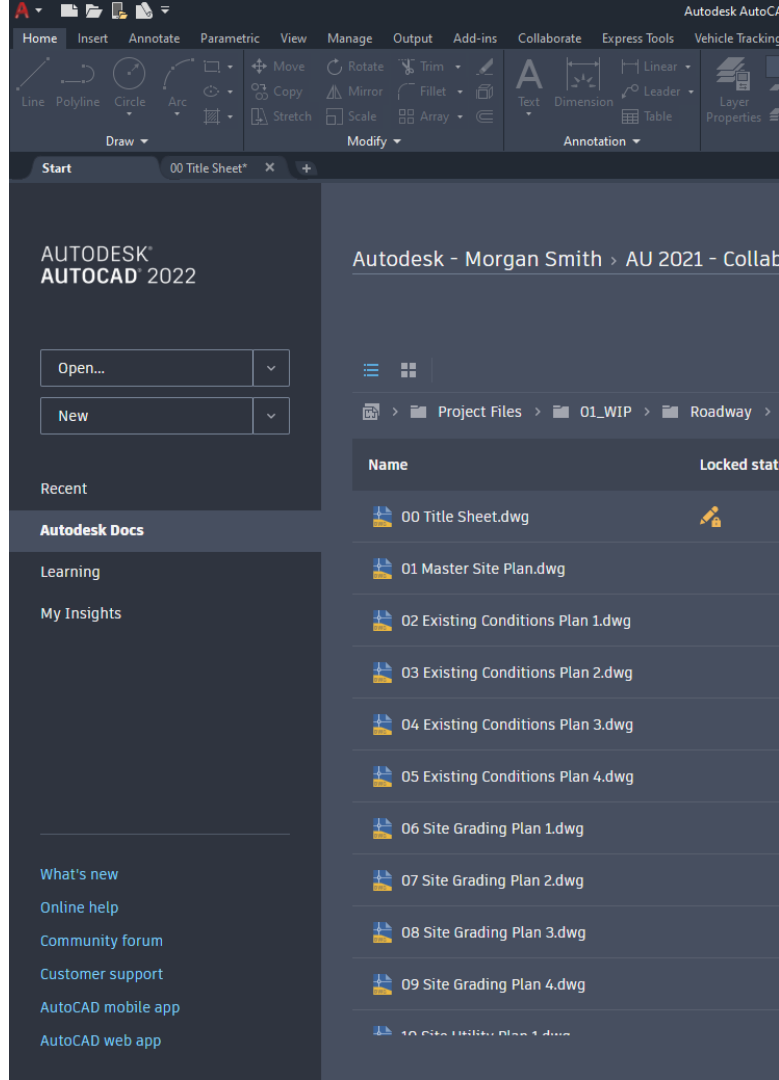
Started with AutoCAD R12

Passion for motorcycles, enjoys listening to music and sharpening his skills as a home barista

Class Summary

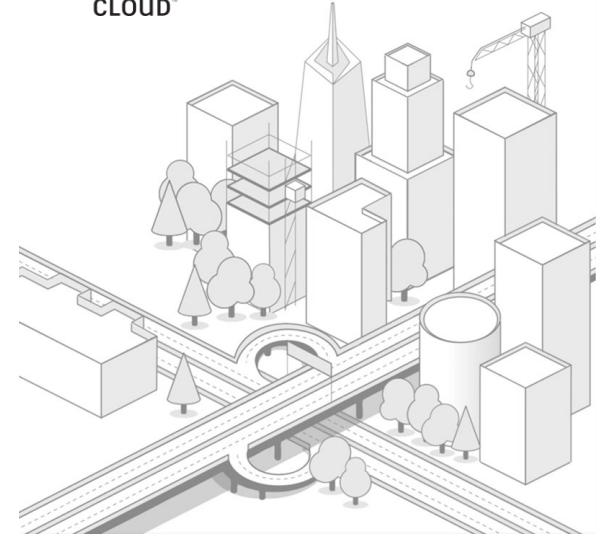
With the redesign of the start tab in AutoCAD 2022, users can easily access project data in the cloud using Autodesk Docs and Desktop Connector. However not everyone knows where to start.

This session will go over the essentials on how to get started and being comfortable when collaborating with AutoCAD. You will learn how to work efficiently, maximize project performance and how to navigate issues when they occur.



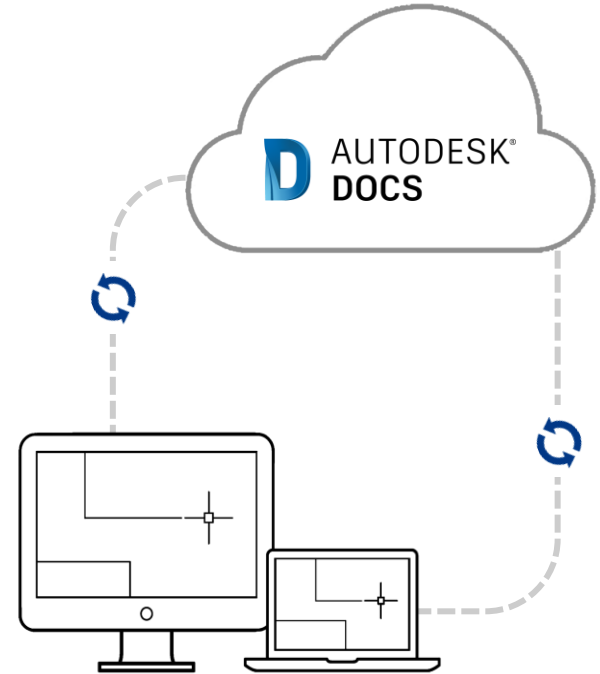
Learning Objectives

1. **Learn how to connect your existing workflows to the Autodesk Construction Cloud Platform**
2. Learn how AutoCAD data can be shared using Autodesk Docs with Desktop Connector
3. Learn how to work efficiently, maximize project performance and how to navigate issues when they occur
4. Learn how to ensure your entire project team have access to the most up-to-date design documentation



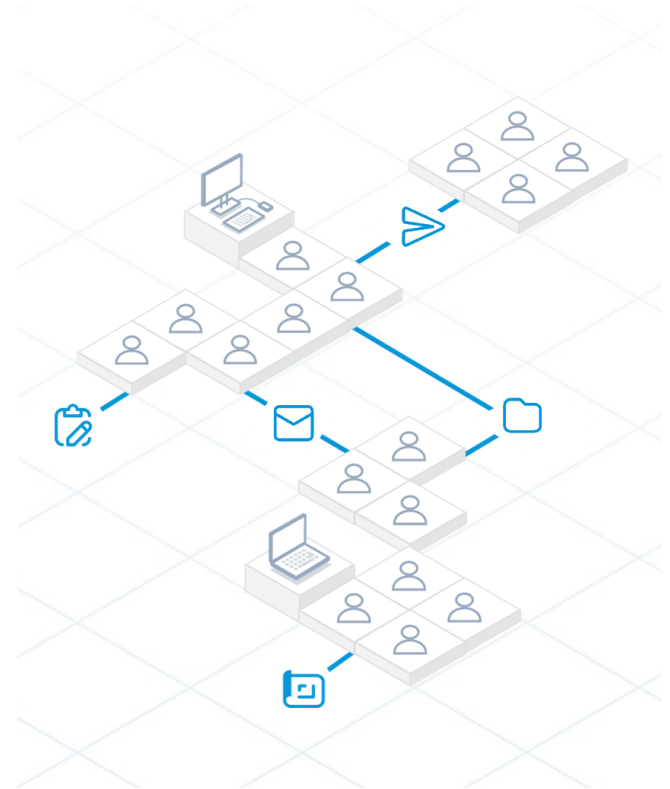
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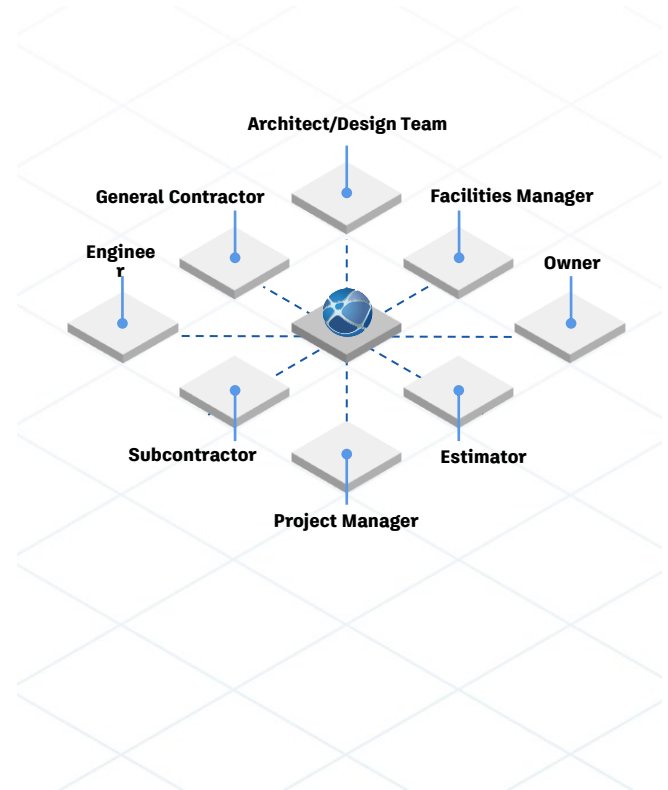
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🔍 Today's Focus

- Getting started with your first project
- Working with DWGs files
- Learn tips for keeping your project healthy
- Know how to access your files wherever you go

If you missed something today...

- Don't forget the handout!
- [The Hitchhiker's Guide to AutoCAD](#)
- [Autodesk Construction Cloud Learning Center](#)



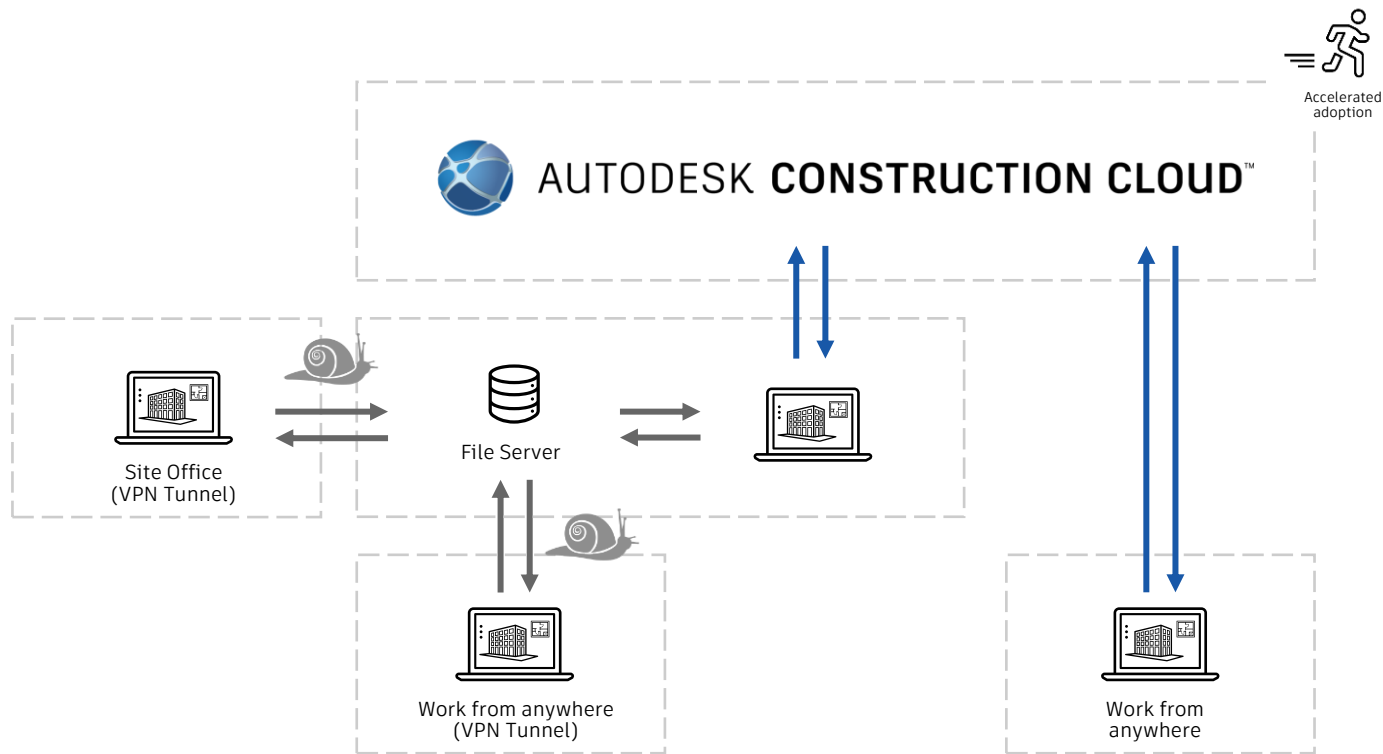
**Connect your workflow to
the Autodesk Construction
Cloud Platform**

Evolution of “Work from anywhere”

 CLOUD

 OFFICE

 REMOTE



Evolution of “Work from anywhere”

 CLOUD



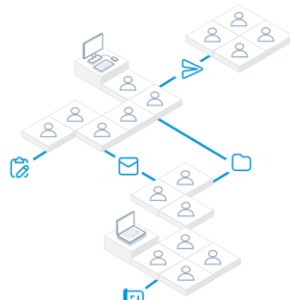
AUTODESK CONSTRUCTION CLOUD™



OFFICE



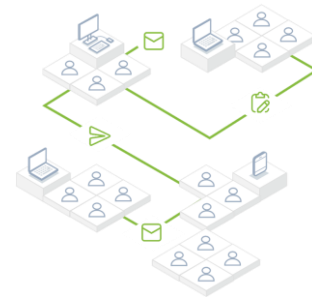
REMOTE
(via VPN)



ROADWAY



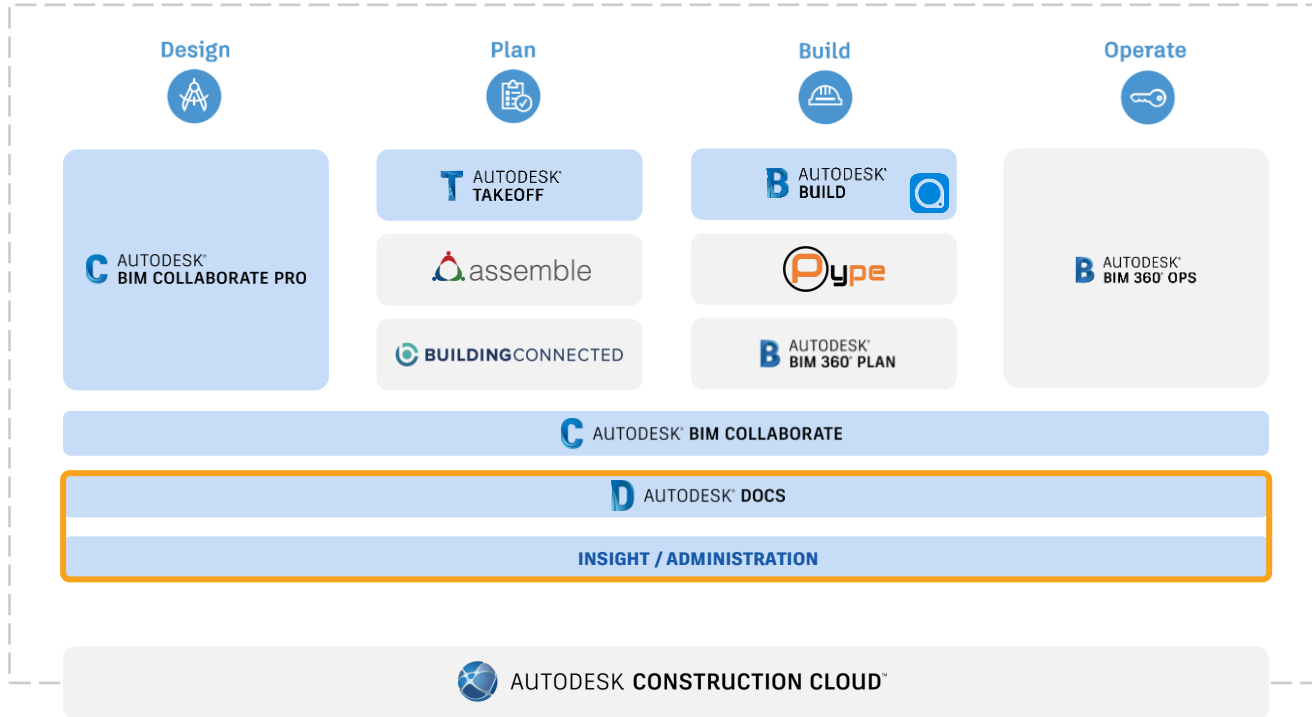
BRIDGES



DRAINAGE

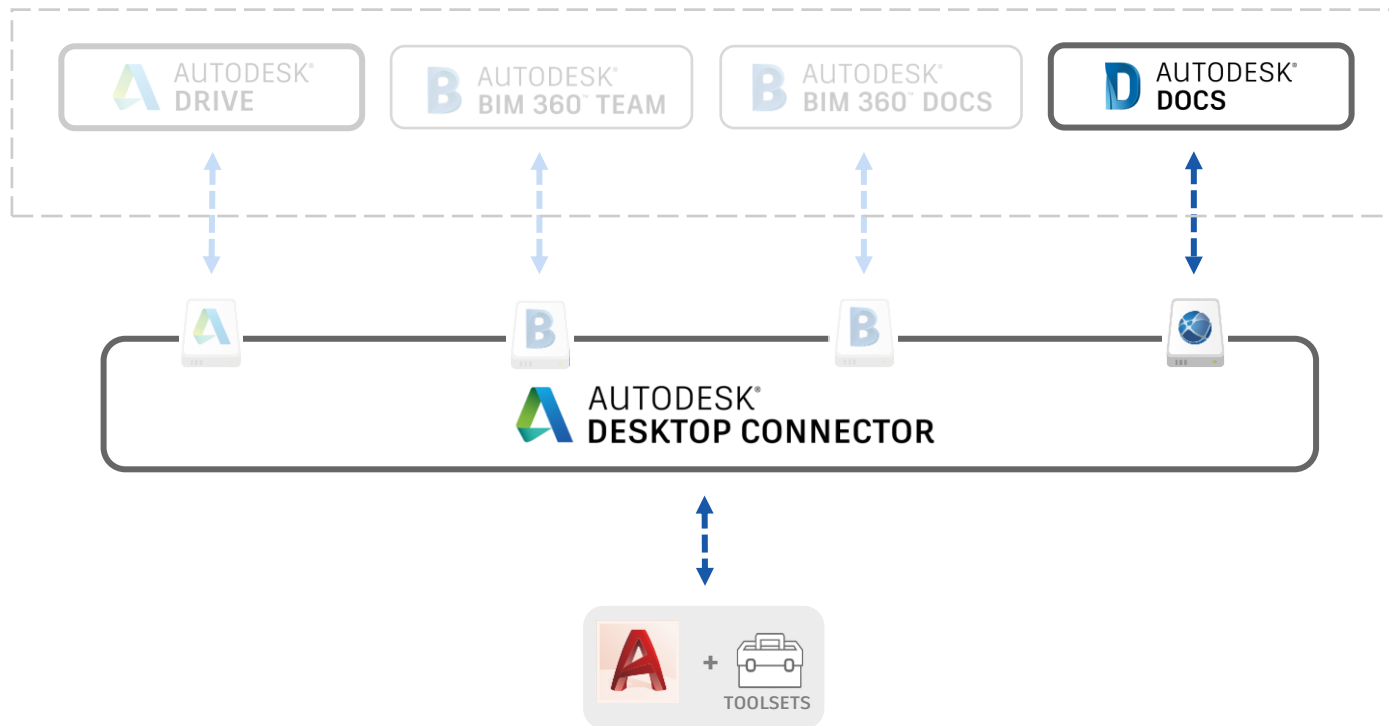


Connecting Team, Workflows and Data





Connecting Team, Workflows and Data





Collaboration with AutoCAD

The Essentials



PREPARE

- Create Project
- Invite Members
- Create folders and set permissions



INSTALL

- Deploy latest versions incl. updates / hotfixes
- Install file locking app if using AutoCAD 2020/21



DESIGN

- Desktop Connector
- Preparing Project
- Working with DWGs
- Collaboration Tips



MANAGE

- Review drawings and documents
- Track and resolve issues
- Create Transmittals

Sharing AutoCAD data using Autodesk Docs with Desktop Connector

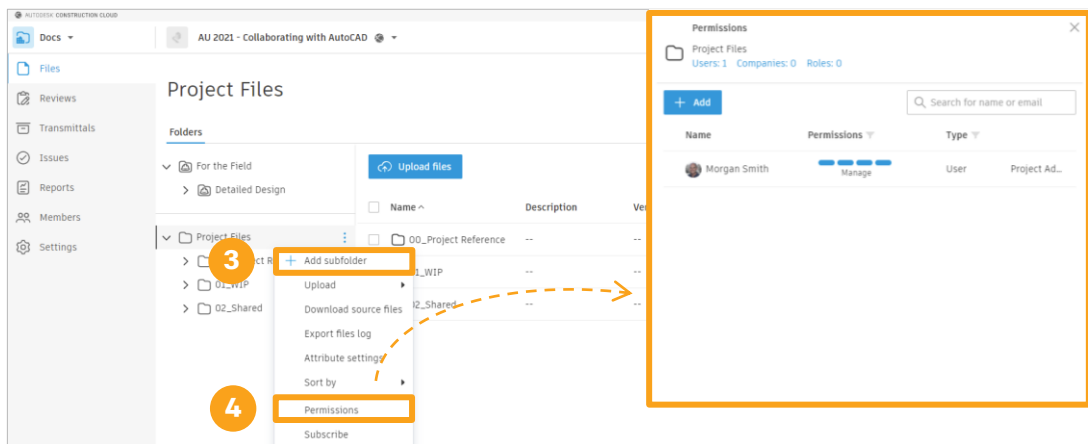
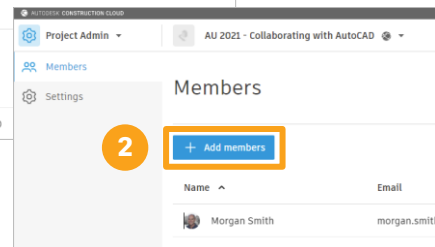
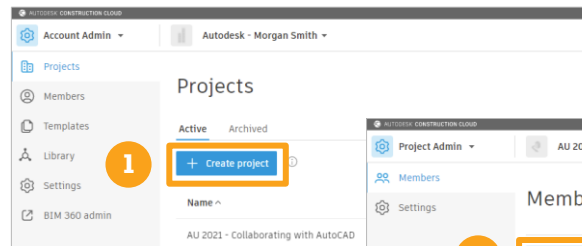


PREPARE

Prepare your Project for Collaboration

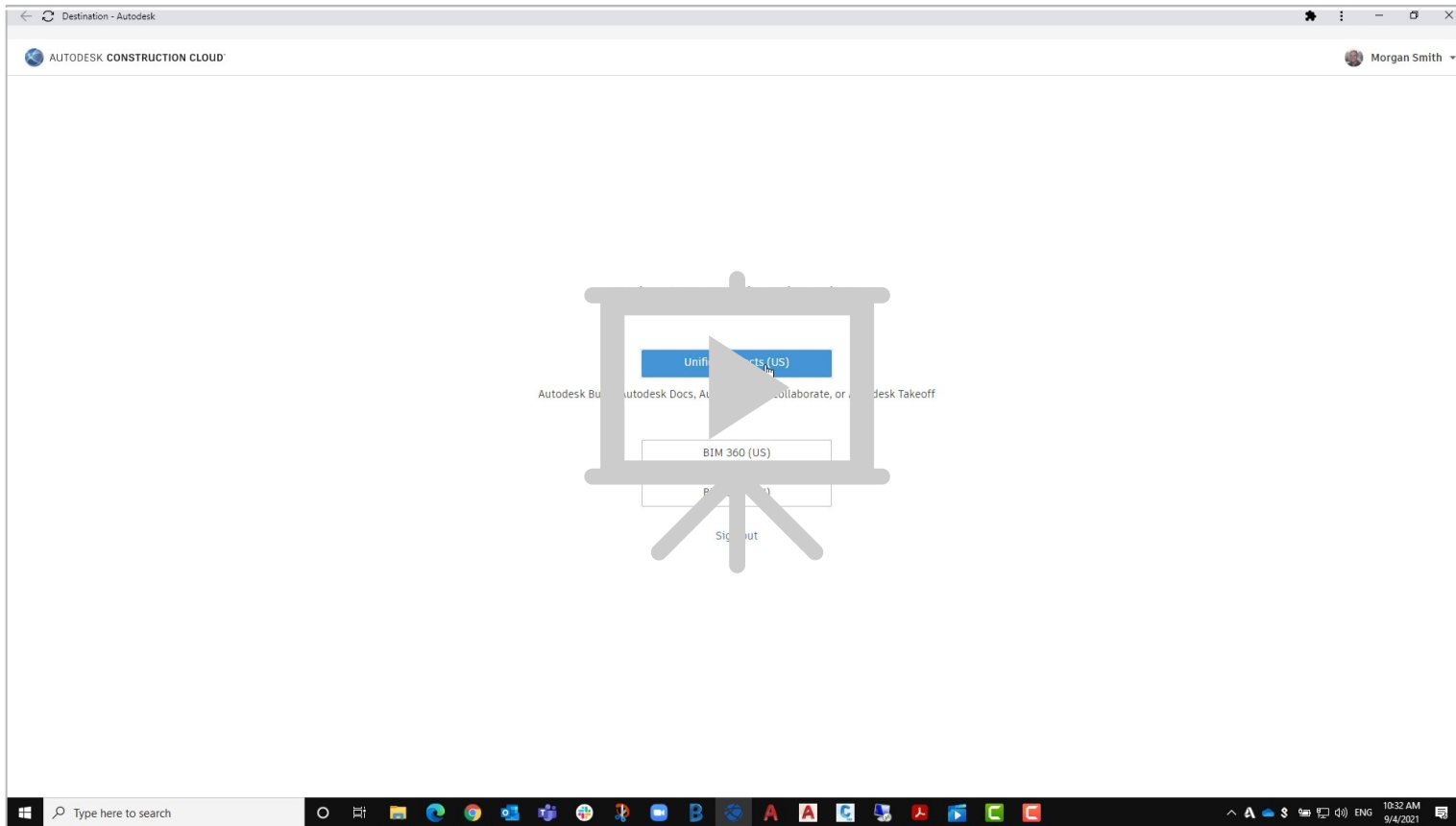
Do the following to prepare the project:

1. [Create a project](#) and activate products
2. [Manage project members](#)
3. [Create folder structure](#)
4. [Assign Folder Permissions](#)





Create your project





Adding Project Members

The screenshot displays the Autodesk Project Administration web interface. The browser address bar shows the URL `https://acc.autodesk.com` and the page title is 'Members - Autodesk Project Administration'. The interface includes a sidebar with 'Project Admin' and '20211006 - Autodesk Docs' selected. The main content area is titled 'Members' and features a '+ Add members' button and a search bar labeled 'Search members by name or email...'. A table lists members with columns for Name, Email, Company, Role, Access level, Phone, Status, and Actions. One member, Morgan Smith, is listed with the email `morgan.smith@autodesk.com` and status 'Active'. A large play button icon is overlaid on the table. The right sidebar shows the profile of Morgan Smith, including their role 'VDC Manager' and access level 'Project administrator'. Below this, there are sections for 'Purchased products' (Docs, Build, Cost, Insight) and 'Not purchased' products, each with a toggle switch.

Name	Email	Company	Role	Access level	Phone	Status	Actions
Morgan Smith	morgan.smith@autodesk.com	Autodesk	VDC Manager	Project administrator		Active	Today



INSTALL



Deploy latest versions (& updates / hotfixes)

Recommend latest versions:

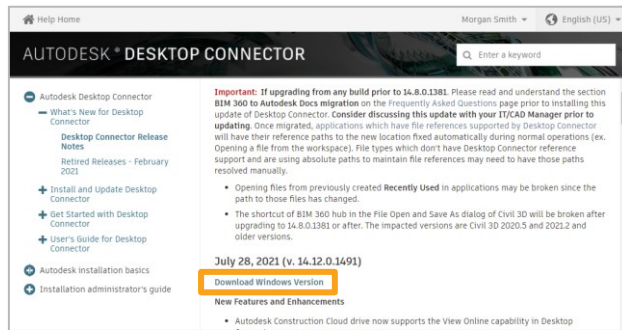
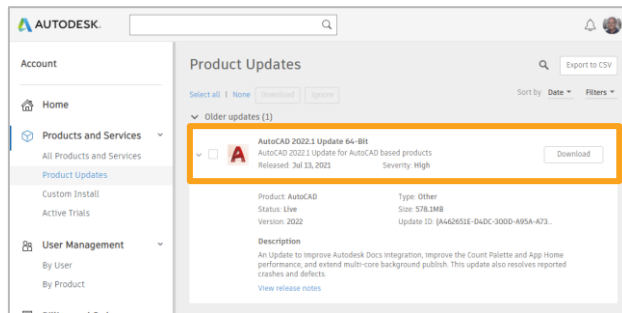
- AutoCAD 2022.1 onwards
- Desktop Connector - Jul 28, 2021 (14.12.0.1491) onwards

Take time to review the release notes:

- [AutoCAD 2022 Release Notes](#)
- [Desktop Connector Release Notes](#) (incl. downloads)

Downloads:

- AutoCAD – [Autodesk Account](#) / [Desktop App](#)
- Desktop Connector - [Autodesk Account](#) / [Release Notes](#)



Note: Desktop Connector frequently updated (monthly). Recommend forming a plan for consuming these updates as they become available



File locking App if using AutoCAD 2020 / 2021

Download from [Autodesk App Store](#)

Locks DWGs and DWTs when opened from connected drive

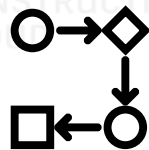
File locking included in AutoCAD 2022 onwards

QUICK TIP!

Have AutoCAD 2021, 2020 installed with AutoCAD 2022 on the same machine?

Make sure to install the version 2.2.0!

The screenshot shows the Autodesk App Store interface. At the top, there's a navigation bar with 'AUTODESK APP STORE' and a language dropdown set to 'English'. Below this is a search bar with 'AutoCAD' entered. The main content area is titled 'AutoCAD > Item Detail'. It features a large image of the app icon (a blue 'A' with a lock) and the app name 'File Locking for Autodesk® BIM 360®'. The app is by Autodesk, Inc. and has a 5-star rating. Below the image, there are buttons for 'Like' and 'Tweet'. The 'OS' is listed as 'Windows' and the 'Language' as 'English'. A 'Description' section follows, explaining that the app provides automatic locking and unlocking for DWG and DWT files stored in BIM 360. A 'Note' mentions compatibility with various Autodesk products. There's a 'Read Help Document' link. The 'About This Version' section lists the version as 2.2.0.10, released on 3/23/2021, and includes an update for AutoCAD 2022/2021/2020. It details what's new and what's fixed, including a fix for XREF layers. The right sidebar shows the app is 'Free' to download, with a 'Download' button and an 'Add to Wishlist' option. It also lists the download size (1.4 MB), release date (3/23/2020), last updated date (3/23/2021), version info (2.2.0.10), website (http://www.autodesk.com), and customer support link (https://knowledge.autodesk.com/contact-support). A 'Compatible with:' section lists compatible Autodesk products and versions. At the bottom, there's a 'Publisher Information' section for Autodesk, Inc. and a 'Hire Consultants' link.



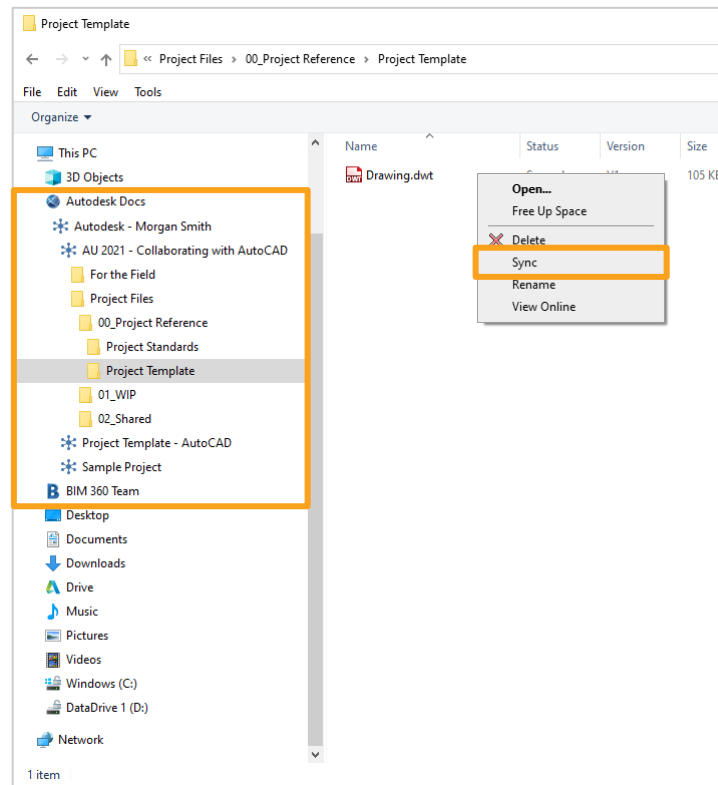
DESIGN



Getting started with Desktop Connector

Allows users to upload files, and access, edit and delete cloud stored files from your computer with out using a web browser

- Once installed and connected, folder structure and file placeholders created in local drive
- Only downloads files when opened by user, or manually synced (on demand)
- Work offline, upload changes when back online (recommend locking file BEFORE going offline)
- Works with Navisworks / Revit Issues App





Getting started with Desktop Connector

The screenshot displays the Desktop Connector application interface, which is divided into two main panes. The left pane, titled 'Project Files', shows a hierarchical view of the project structure. The right pane, titled 'Drawings', shows a list of drawing files with their status, version, size, and lock status.

Project Files Pane:

- Top bar: ACC - Select destination, <https://acc.autodesk.com>, Files - Autodesk Docs, AUTODESK CONSTRUCTION CLOUD, AU 2021 - Collaborating with AutoCAD, Morgan Smith.
- Left sidebar: Files, Reviews, Transmittals, Issues, Reports, Members, Settings.
- Main area: Project Files
 - For the Field
 - Detailed Design
 - Project Files
 - 00_Project Referenc...
 - 01_WIP
 - Architecture
 - Bldg Structur...
 - Civil Structures
 - Drainage
 - Rail
 - Roadway
 - Consumed
 - Drawings
 - References
 - Survey
 - 02_Shared

Drawings Pane:

- Top bar: Project Files > 01_WIP > Roadway > Drawings, Search Drawings.
- File Edit View Tools
- Organize
- Table with 6 columns: Name, Status, Version, Size, Locked by.
- 24 items

Name	Status	Version	Size	Locked by
00 Title Sheet.dwg	Synced	V3	441 KB	You
01 Master Site Plan.dwg	Synced	V3	361 KB	
02 Existing Conditions Plan 1.dwg	Synced	V2	343 KB	
03 Existing Conditions Plan 2.dwg	Synced	V2	347 KB	
04 Existing Conditions Plan 3.dwg	Synced	V2	349 KB	
05 Existing Conditions Plan 4.dwg	Synced	V2	345 KB	
06 Site Grading Plan 1.dwg	Synced	V2	287 KB	You
07 Site Grading Plan 2.dwg	Synced	V2	294 KB	
08 Site Grading Plan 3.dwg	Synced	V2	298 KB	
09 Site Grading Plan 4.dwg	Synced	V2	294 KB	
10 Site Utility Plan 1.dwg	Synced	V2	291 KB	
11 Site Utility Plan 2.dwg	Synced	V2	291 KB	
12 Site Utility Plan 3.dwg	Synced	V2	295 KB	
14 Site Utility Plan 4.dwg	Synced	V2	292 KB	
15 Site Layout Plan 1.dwg	Synced	V2	278 KB	
16 Site Layout Plan 2.dwg	Synced	V2	280 KB	
17 Site Layout Plan 3.dwg	Synced	V2	281 KB	
18 Nesenkeag Drive.dwg	Synced	V3	345 KB	
18 Site Layout Plan 4.dwg	Synced	V2	278 KB	
19 Sewer Profiles.dwg	Synced	V3	259 KB	
20 Drainage Summary.dwg	Synced	V3	397 KB	
21 Erosion Control Plan.dwg	Synced	V3	412 KB	
plot.log	Synced	V5	7.35 KB	
Roadway Set.dsd	Synced	V1	10.1 KB	



Preparing for collaboration

New Project

Best practice to start new projects rather than troubleshoot existing projects

Items that require your attention:

- Plan ahead!
- Identify workflows
- Team awareness
- Projects is initiated on web by Project Admin
- Users must log at least once to project via the web to “accept” invitation
- Can’t access project? Check permissions
- Keep drawings clean and working



Migrate an Existing Project

Recommend test migrating with small project first, in terms of number of files, references, and size of files.

Items that require your attention:

- Check folder path length
- Update references paths to relative paths instead of absolute
- Repair broken links to references
- Remove duplicate, unused, or corrupt data
- Examine folder structure and links to ensure data are in same project



Working with AutoCAD files

Opening:

- From AutoCAD Start tab / Application Menu
- On selecting file, may take a few moments to open

Saving to cloud:

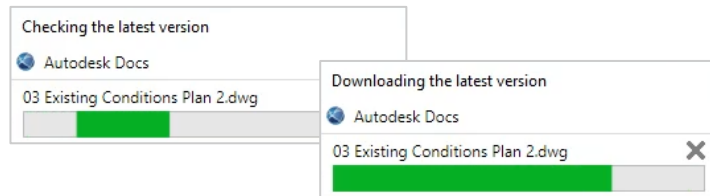
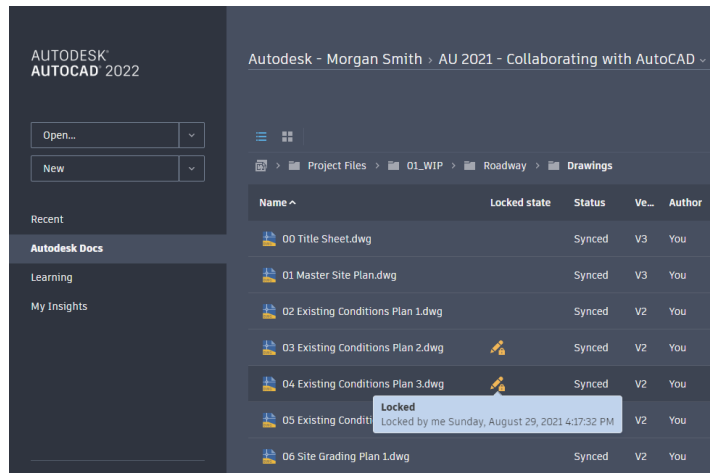
- Be patient on first-time saves to the cloud
- It takes time to sync and propagate to other users

File Locking:

- When user opens drawing, it's locked to other users
- File locking doesn't allow simultaneous editing

Versioning & Syncing:

- New version created when file is saved or when closing out of AutoCAD
- Saving a file will temp lock file as new information is uploaded to Autodesk Docs





Working with AutoCAD files

Autodesk AutoCAD 2022

Home Insert Annotate View Manage Output Add-ins Collaborate Express Tools Vehicle Tracking Raster Tools Featured Apps

Draw Modify Annotation Layers Properties Groups Utilities Clipboard View

Start

AUTODESK AUTOCAD 2022

Open... New

Recent

Autodesk Docs

Learning

My Insights

What's new

Online help

Community forum

Customer support

AutoCAD mobile app

AutoCAD web app

Autodesk - Morgan Smith > AU 2021 - Collaborating with AutoCAD

Project Files > 01_WIP > Roadway > 01_Roadway

Name	Locked state	Version	Author	Locked by	Date modified in Autodesk	Has references
00 Title Sheet.dwg	Locked	V3	You	You	Sunday, August 22, 2021 5...	No
01 Master Site Plan.dwg	Locked	V3	You	You	Sunday, August 22, 2021 5...	Yes
02 Existing Conditions Plan 1.dwg	Synced	V2	You	You	Monday, August 23, 2021 5...	Yes
03 Existing Conditions Plan 2.dwg	Synced	V2	You	You	Monday, August 23, 2021 5...	Yes
04 Existing Conditions Plan 3.dwg	Synced	V2	You	You	Monday, August 23, 2021 5...	Yes
05 Existing Conditions Plan 4.dwg	Synced	V2	You	You	Monday, August 23, 2021 5...	Yes
06 Site Grading Plan 1.dwg	Synced	V2	You	You	Sunday, August 22, 2021 5...	Yes
07 Site Grading Plan 2.dwg	Synced	V2	You	You	Sunday, August 22, 2021 5...	Yes
08 Site Grading Plan 3.dwg	Synced	V2	You	You	Sunday, August 22, 2021 5...	Yes
09 Site Grading Plan 4.dwg	Synced	V2	You	You	Sunday, August 22, 2021 5...	Yes

Open Open Read-Only

Type here to search

2:40 PM 9/4/2021

**Work efficiently, maximize
performance and navigate
issues**

Working efficiently

Working with References

Proper use of referenced files is fundamental to AutoCAD and drawing management

- Save / Upload references to Autodesk Docs first; then attach
- Use [“Overlay” Reference](#) prevent circular references being created
- Use [relative paths](#) instead of absolute
- Review unloaded references and detach
- Use partial references ([XCLIP](#))
- [Improving Performance When Using Xrefs](#)

Drawing maintenance

An optimized drawing tends to perform faster, decreased load time and reducing drawing corruption

- Remove unwanted items
- Purge vs –Purge
- Audit
- Recover
- MAPCLEAN
- Xrefs > Relative paths
- [Custom scripts using AcCoreConsole.exe](#)



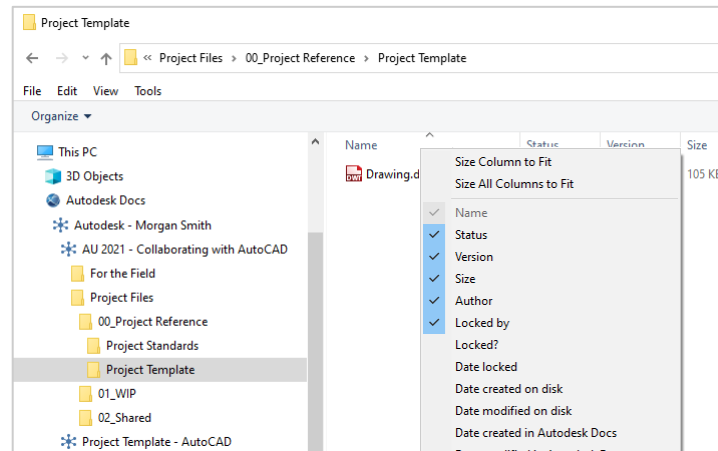
Tips when collaborating

Visual tools can be leveraged to better understand the current state of files (e.g., AutoCAD [“Start Tab”](#), Desktop Connector [“Pending Actions”](#), Connected Drive [“Status”](#) Column).

“xref update” notification will not pop up when a referenced drawing is saved on Autodesk Docs as Desktop Connector is download on demand.

Recommendation:

- Check AutoCAD “Start Tab”. If stale, go back to Xref Manager and reload or
- Windows Explorer and Sync to get latest or
- Save, Close and Reopen to download latest



open for edit, and is locked by you



open read-only, and is locked by someone else



drawing no locked, no icon displayed

**Know your lock status when using
Start tab or Connected Drive**



Tips when collaborating

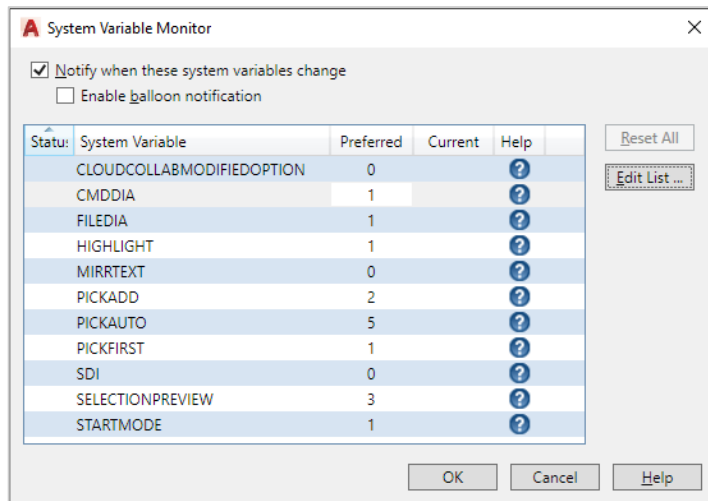
Know your System Variables:

- Ensure file is unlocked after uploading, change **CloudCollabModifiedOption** to 0
- If Start tab missing, change **STARTMODE** to 1 (On)

Note: restart AutoCAD after changing system variables

Items to be aware of:

- Sheet Set Manager is not optimized to work environment of cloud collaboration using Desktop Connector. [If you absolutely must use SSM, refer here](#)
- Support Files to be stored on local drive for best performance



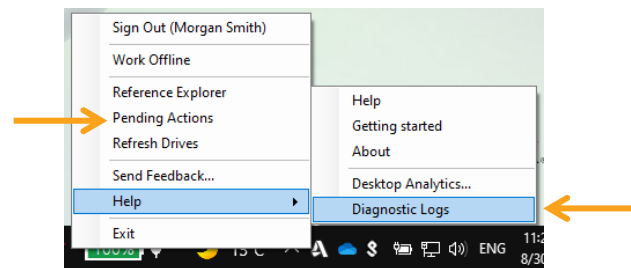
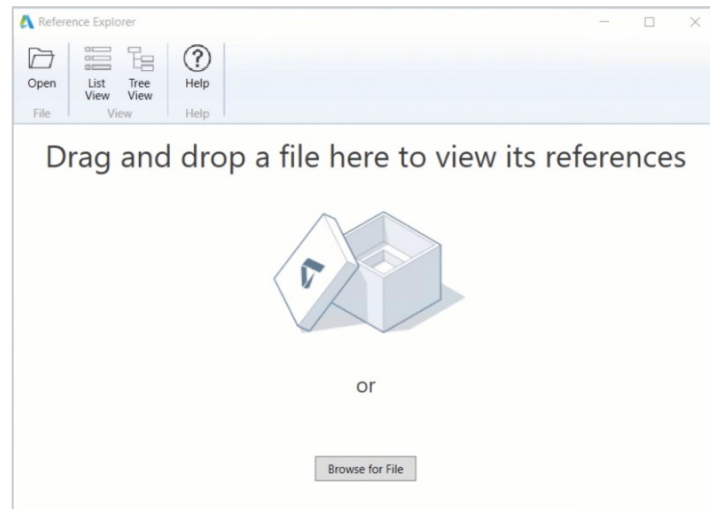
WARNING!

When syncing locally, opening a drawing associated with a DST will download/sync all files within the SheetSet

Troubleshooting techniques

If you're not sure why things are not going as expected, try some of the following:

- Review file properties in File Explorer. Eg columns in window explorer
- Check if any action is needed for [“Pending Actions”](#)
- Use [Reference Explorer](#) to visualize all files in a dataset including relationships between them.
- Gather [Diagnostic logs](#) to assist Autodesk Support trouble shoot Desktop Connector events



**Ensuring your project team
have the most up-to-date
design documentation**

Organize, distribute and share

Autodesk Docs

Autodesk Docs acts as the teams CDE or common data environment, supporting document control, versioning, and approvals workflows

- Integrated with AutoCAD and Revit
- [View](#)[↻] your file without installing additional software
- [Compare](#)[↻] all design changes in each file version
- supports the [document approval process](#)[↻]
- [Send files](#)[↻] to another project member or team

Design Collaboration (BIM Collaborate/BIM Collaborate Pro)

Teams can use Design Collaboration to share DWG files, and external references (XREFs) associated with them, with other project teams

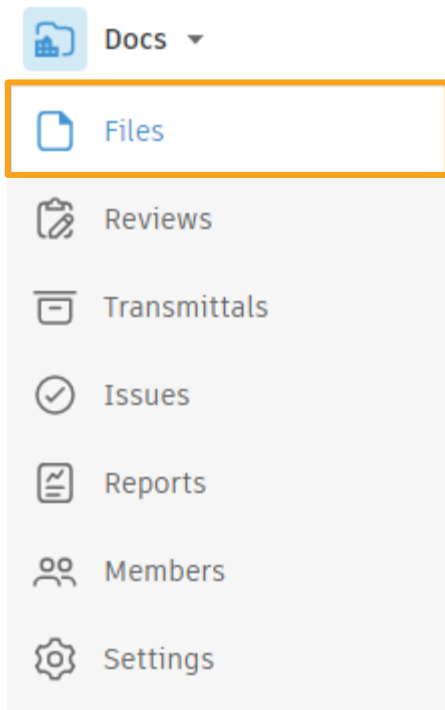
- [Viewing the file as a single model or as part of the aggregated project model](#)[↻]
- [Creating a package](#)[↻]
- [Previewing shared packages of DWG files using timeline nodes](#)[↻]
- [Comparing changes between DWG files](#)[↻]



MANAGE



Organize, distribute and share



Viewing and Sharing Files

Navigate all pages of documents as well as access markup and comparison tools

Folder Permissions

Edit user permissions to permit or restrict access to files

Search and Filter

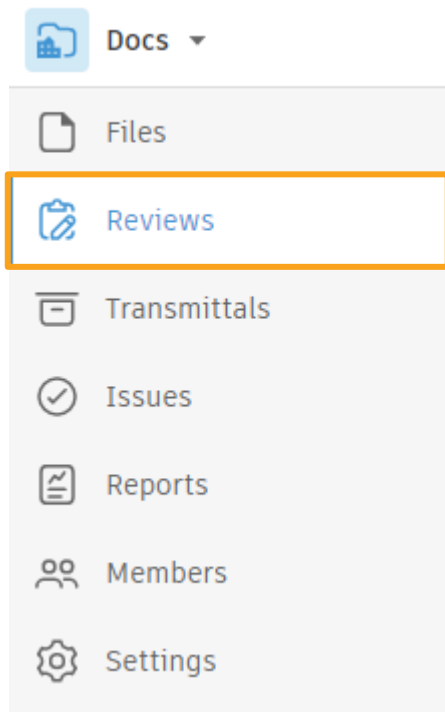
Quickly find what you need with robust search and filtering tools

Project Admin Settings

Add or remove custom attributes, configure and apply a project naming standard, and more advanced file settings



Organize, distribute and share



Approval Reviews

Automate the review of drawings, models, and documents before publishing and sharing

Transmittals

Easily create and share transmittals with project teams and track with a full audit trail

Issues

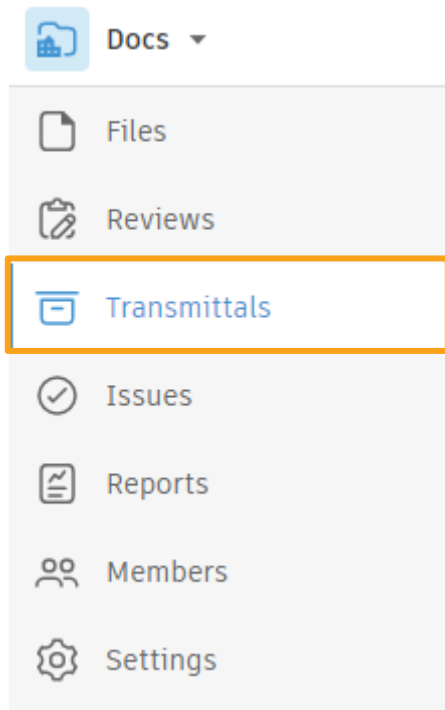
Identify and prioritize design and engineering problems with a centralized issues list

Reports

Create, schedule and run reports and gain project visibility



Organize, distribute and share



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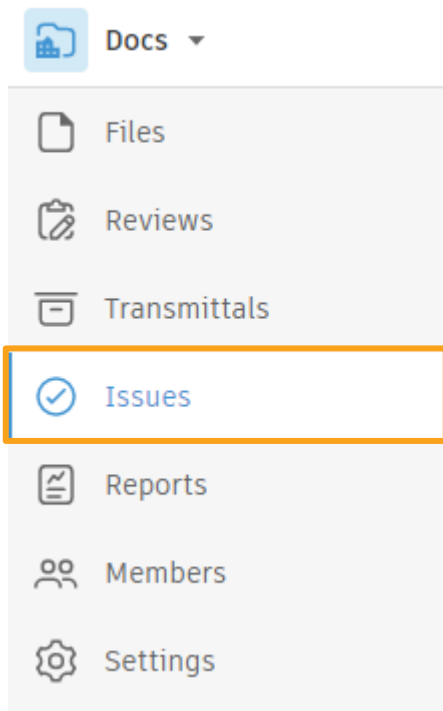
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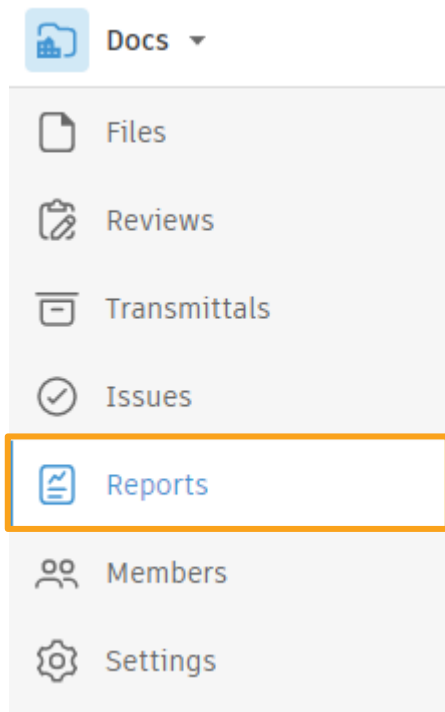
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Organize, distribute and share

AUTODESK CONSTRUCTION CLOUD

Docs ▾ Seaport Civic Center ▾ Leah Ho ▾

Files

Reviews

Transmittals

Issues

Reports

Members

Settings

Project Files

Folders

- AUTODESK
 - Bids
 - Contracts
 - Coordination
 - Correspondence
 - Crystal-Clear-Glazing
 - Delta-Engineers
 - Drawings
 - eurostudio
 - Exchange
 - Golden-Gate
 - Handover Docs
 - Owner's-Inc
 - Budget Paymen...
 - Main Contract
 - 2108-Owne...
 - Quantify Models
 - Schedule tool files
 - Sierra-Structures
 - Submittal Documents

Upload files

Holding Area Deleted items Settings ▾

Search

<input type="checkbox"/>	Name ^	Description	Volume/System	Level/Location	Type	
<input type="checkbox"/>	IN_CONTRACT-173...	MAIN_CONTRA	f7...			⋮
<input type="checkbox"/>	IN_CONTRACT	MAIN_CONTRA	f7...			⋮
<input type="checkbox"/>	view_G702-19	Preview_G702	2...			⋮

Showing 3 items



Organize, distribute and share

AUTODESK CONSTRUCTION CLOUD

Docs ▾ Seaport Civic Center ▾ Leah Ho ▾

Files

Reviews

Transmittals

Issues

Reports

Members

Settings

Reviews >

Settings

Approval workflow template

[+ Create approval workflow](#)

i These approval workflows are available to use in initiating a review | project members listed as initiators in the workflow settings.

Workflow ^	Initiator	Action upon completion	Last update	Status	
As-Built Review	United Construction	Update file approval status	Feb 1, 2021 7:35 PM	Active	...
Drawing Revision Review	Allied Architects, Delta Engineering, ...	Update file approval status	Feb 3, 2021 8:37 AM	Active	...
Specification Review	United Construction	Update file approval status	Feb 1, 2021 7:36 PM	Active	...
Submittal Review	Alpha Plumbing, Bravo Electrical, ...	Update file approval status	Feb 3, 2021 8:34 AM	Active	...

The background features four abstract, dark, metallic-looking geometric shapes in the corners, resembling stylized computer monitors or architectural elements. They are arranged symmetrically, with two in the top corners and two in the bottom corners, all pointing towards the center.

AUTODESK UNIVERSITY

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