AUTODESK. UNIVERSITY

AS468498 Managing and Migrating Custom Files and Settings

Lee Ambrosius

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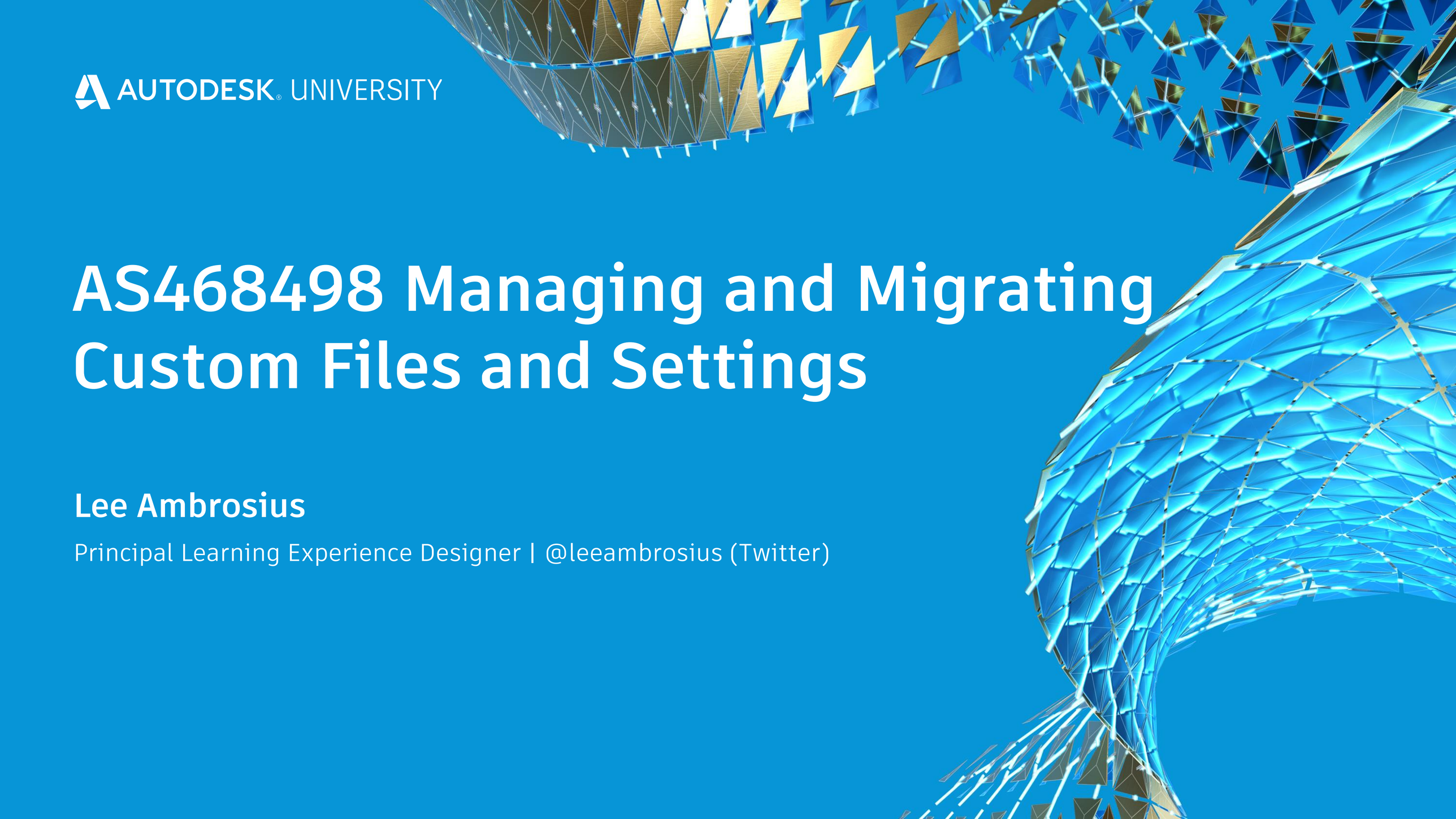


Who’s this Session For

Those that want to learn how to:

- **Improve workflows related to custom files and settings**
  - Migration
  - Management

What you should already know:

- **AutoCAD 2021 (or AutoCAD 2016 and later)**

About the Speaker

My name is Lee Ambrosius:

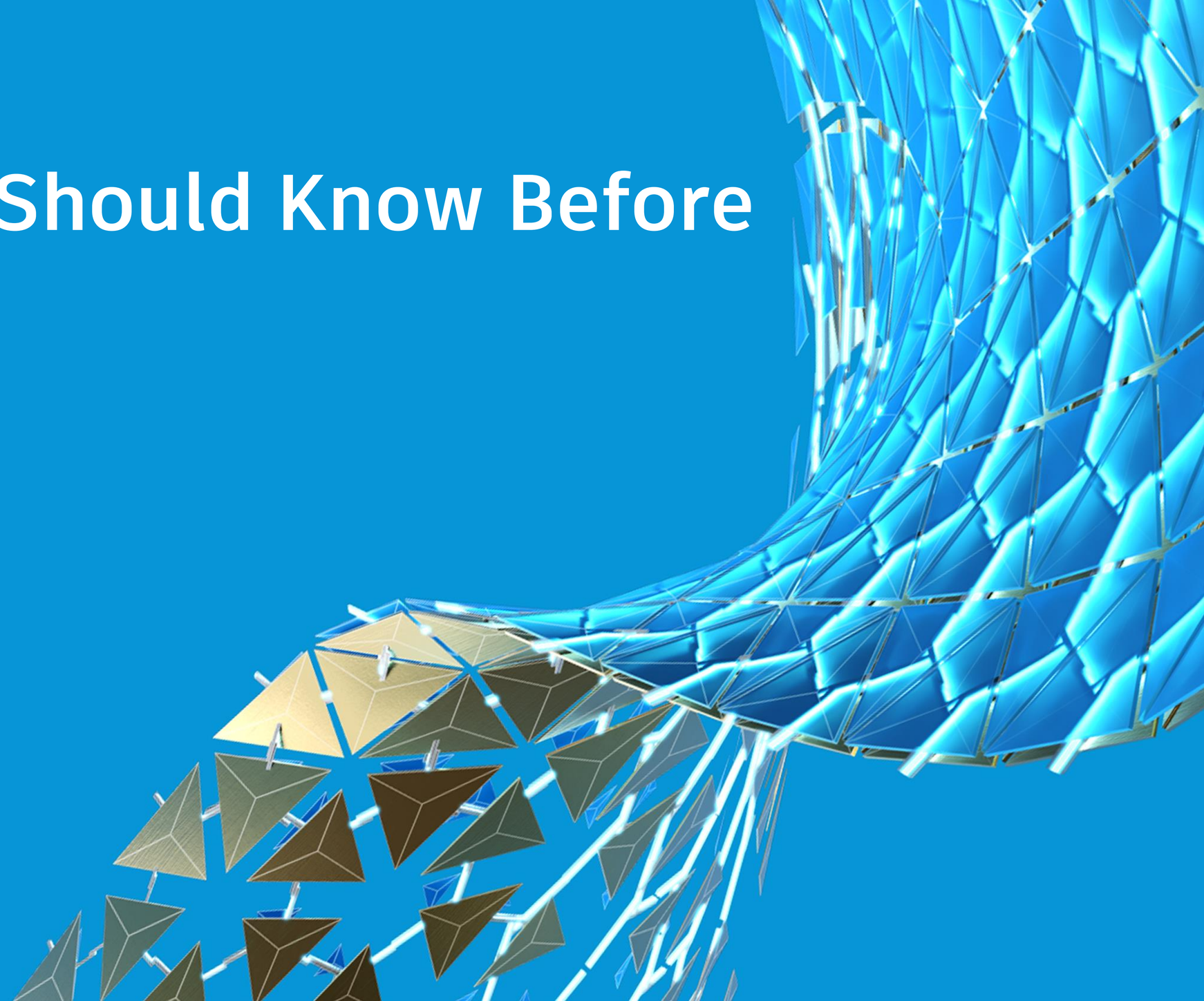
- **Principal Learning Experience Designer at Autodesk, Inc.**
  - Technical writer and data analyst
  - Customization, Developer, and CAD Administration documentation
- **Over 20+ years of AutoCAD customization and programming experience**
- **Authored AutoCAD Customization Platform book series published by Wiley & Sons**

My job in a nutshell:

- **Document the past and present AutoCAD releases for the future**

Yeah, running 48.6 miles in 4 Days is Dopey

Things You Should Know Before Proceeding



What You Need to Get Started

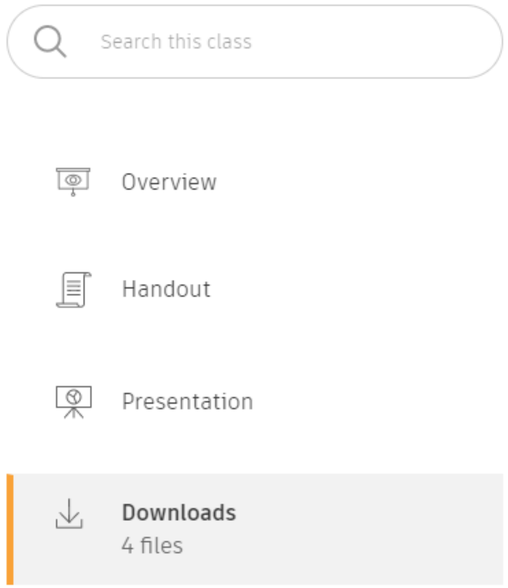
For this session, you will need/want:

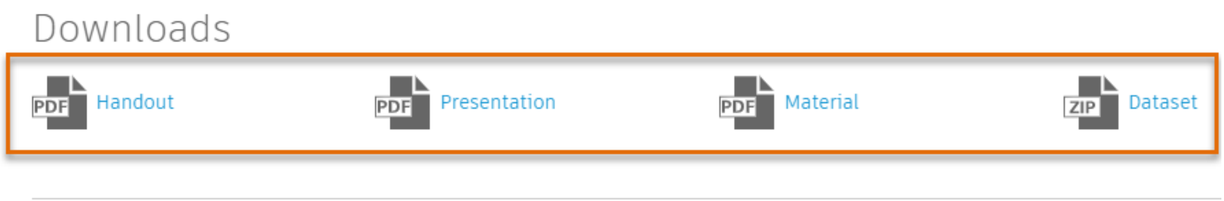
- **AutoCAD 2021 (or AutoCAD 2016 and later)**
- **Some experience with AutoLISP**
- **Materials for this session from the AU website**
  - Handout
  - Additional Materials
    - Extract to *C:\Datasets\AS468498*

Setting Up for this Session

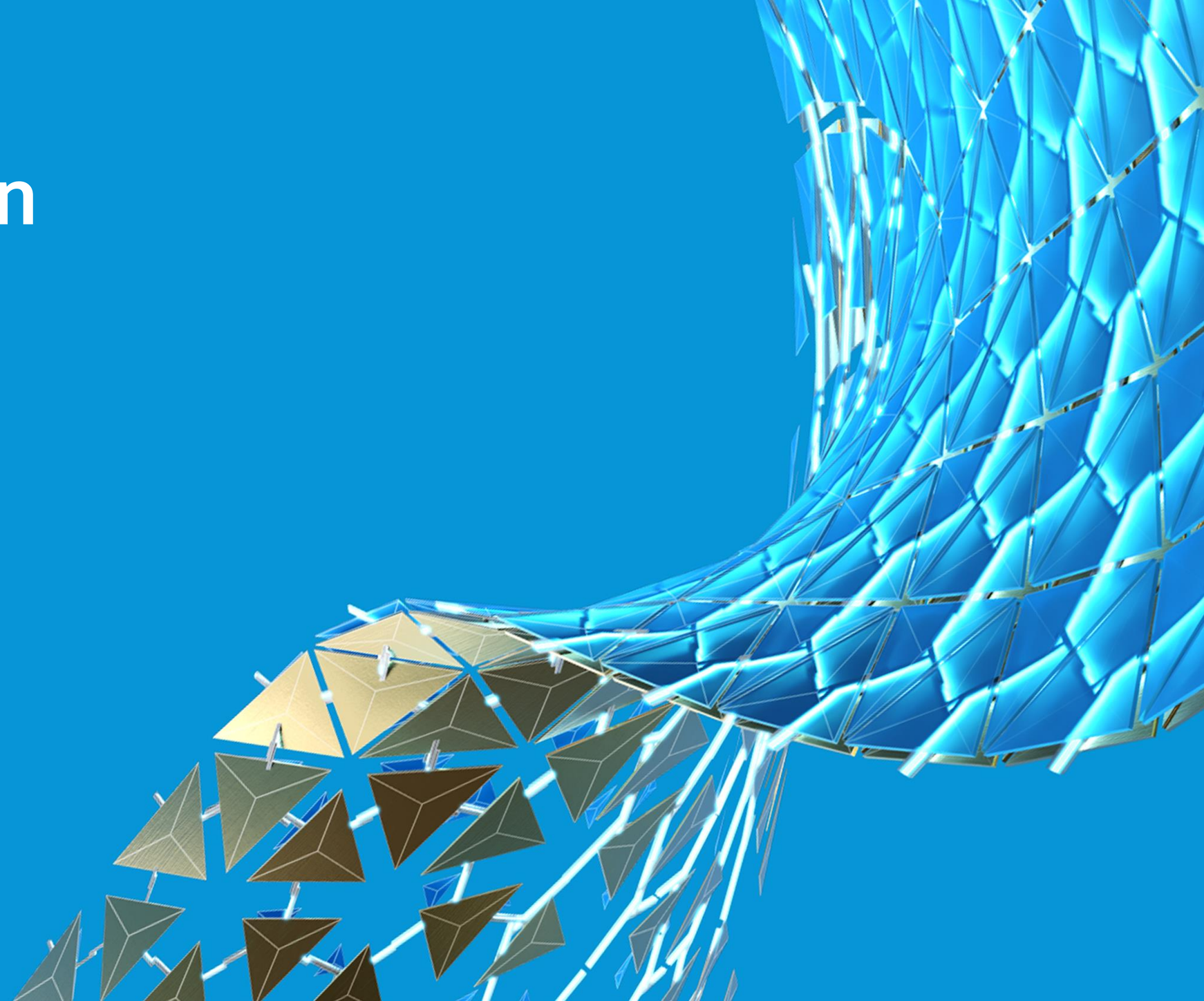
Materials for this session can be obtained by:

1. Going to the Autodesk University website and search on this session's ID of **AS468498**.
2. In the search results, click the entry for this session.
3. On the session page, click Downloads and then download
   a. Handout
   b. Material





Introduction



What You Will Learn Today

At the end of this session, you will have learned to:

- Take inventory of your current drawing environment
- Manage custom files and settings, locally and remotely
- Migrate custom files and settings between releases
- Use plug-in bundles to manage your drawing environment

Introduction

Management then migration

Or

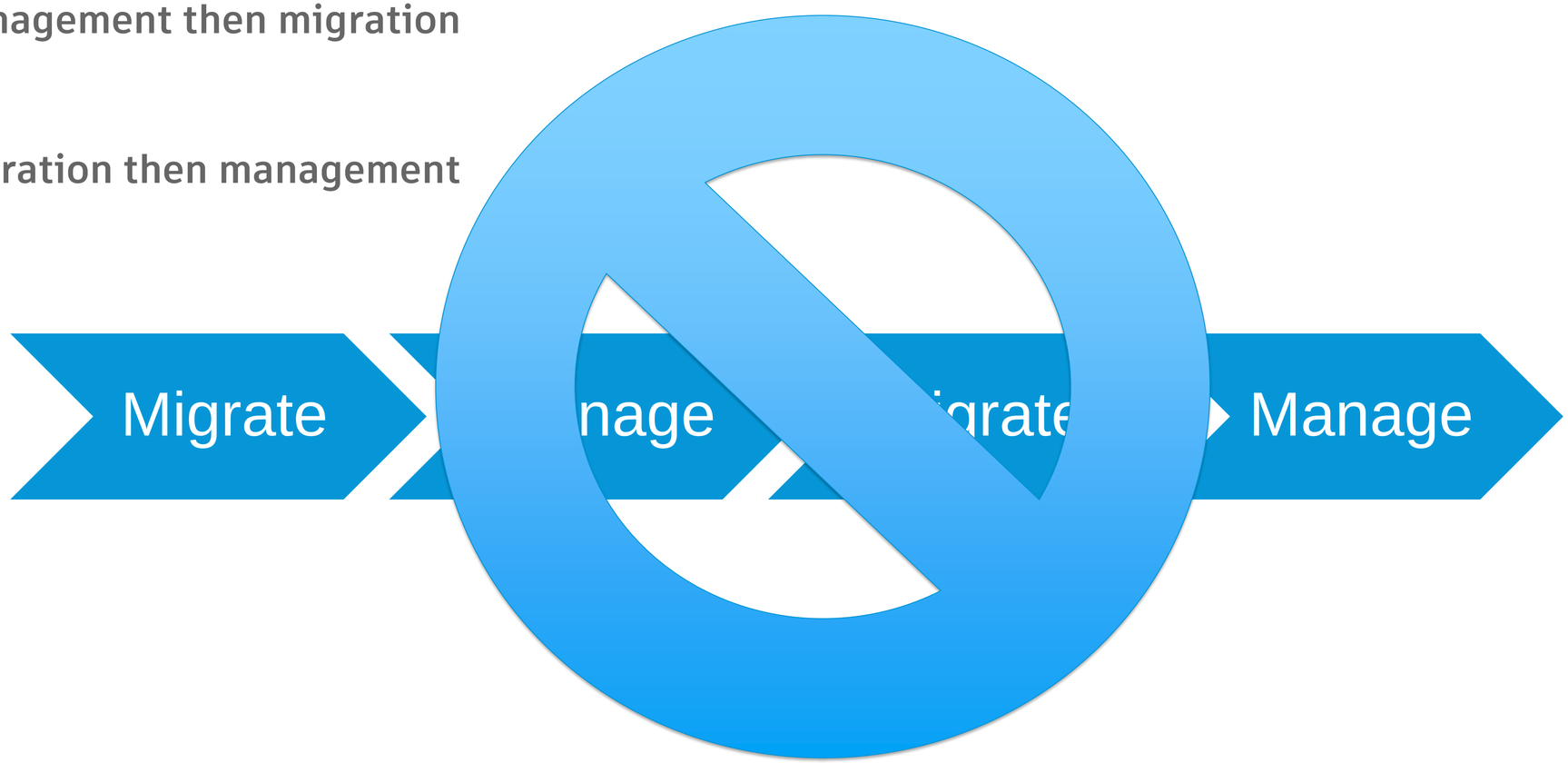
Migration then management

Introduction

Management then migration

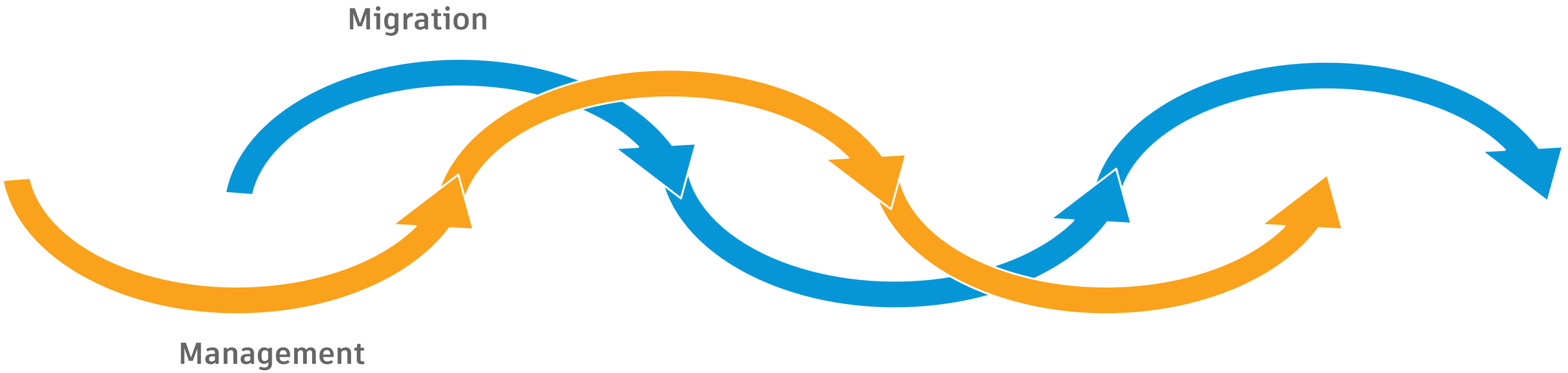
Or

Migration then management

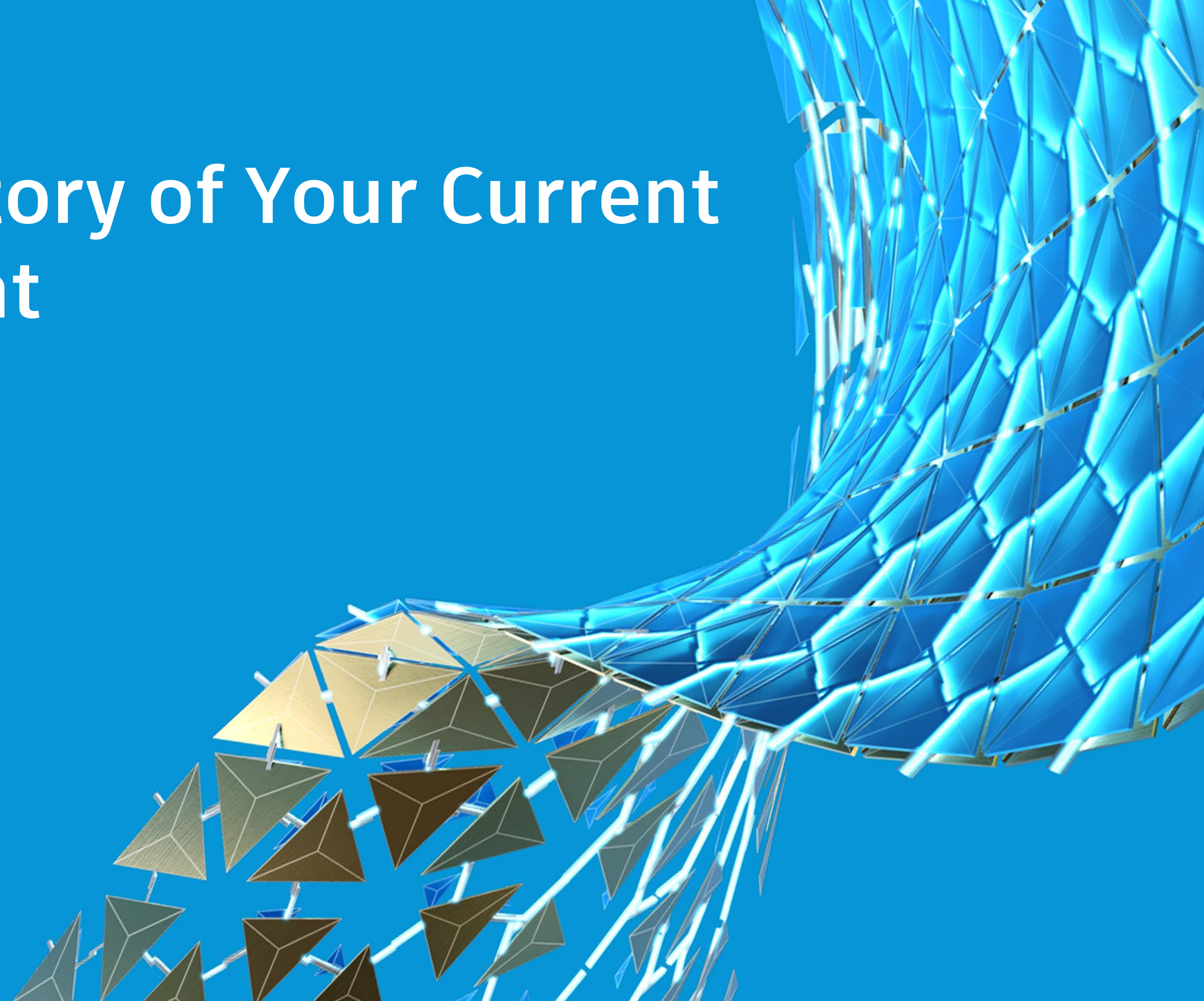


What You Will Learn Today

Migration AND management



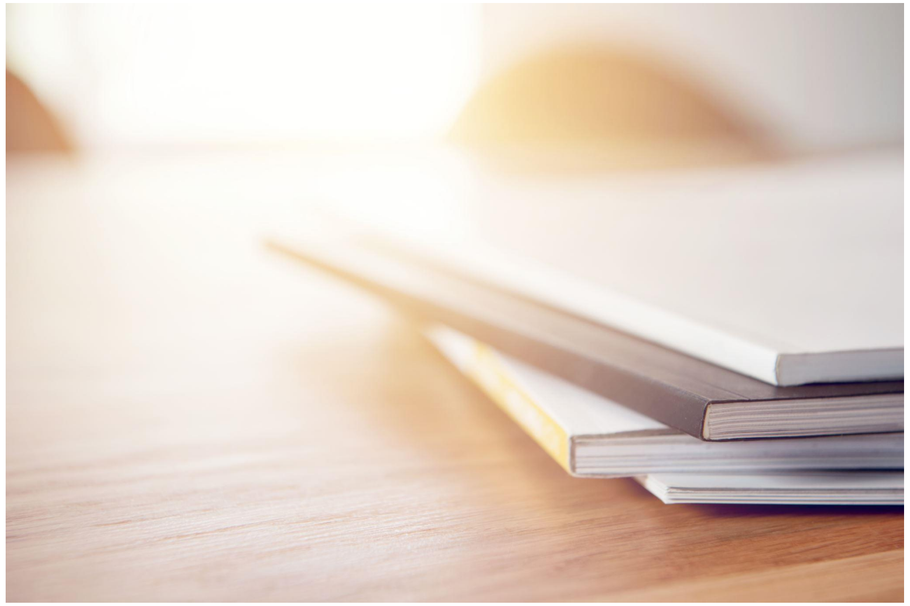
Take Inventory of Your Current Environment



Take Inventory of Your Current Environment

Why document your current environment?

- Migrating between releases
- Managing custom files and settings
- Installing and configuring the product on a new workstation
- Supporting the product



Document, Document, Document…

What should I document?

Document, Document, Document…

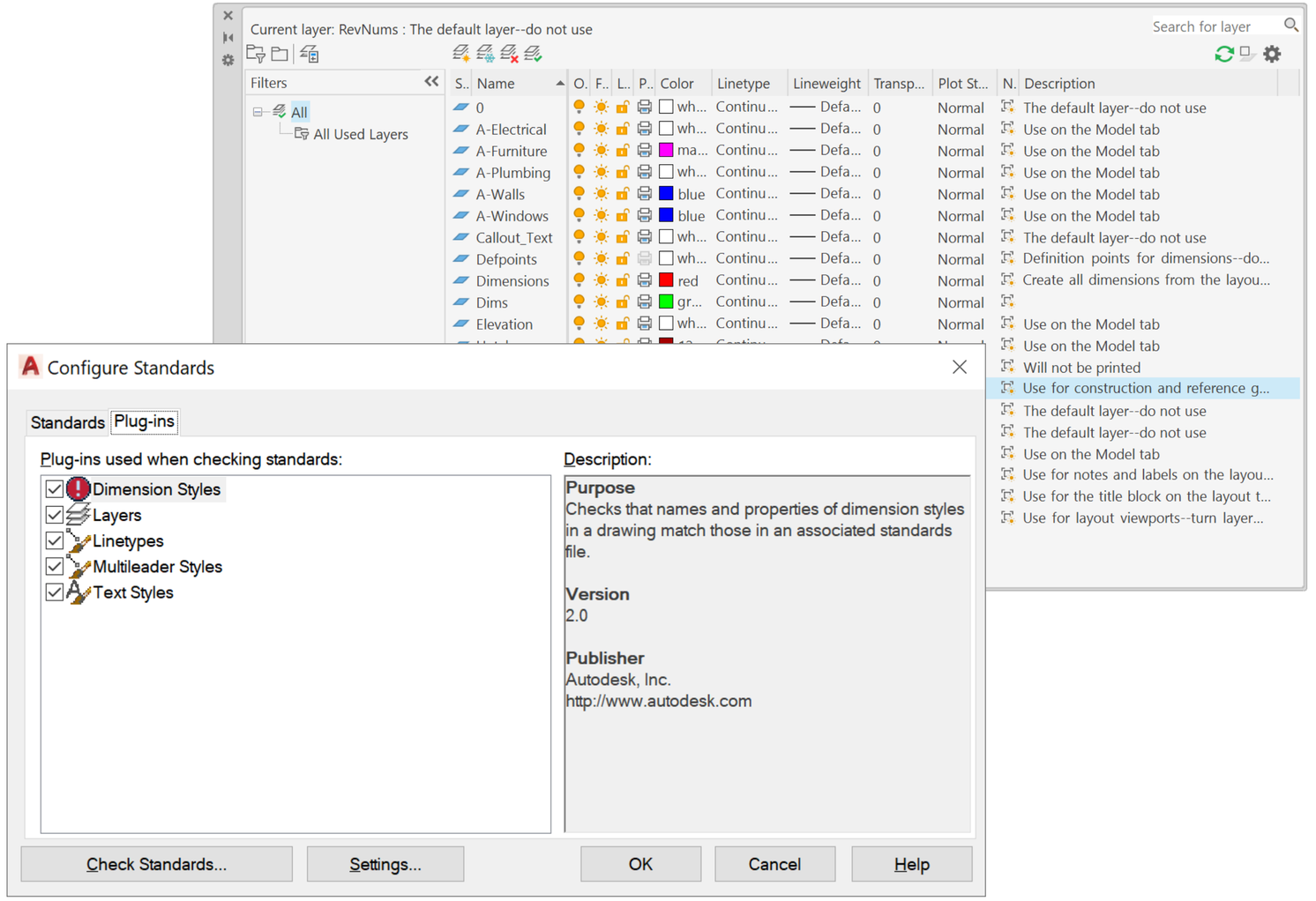
What should I document?

EVERYTHING!!!

Document, Document, Document…

What should I document?

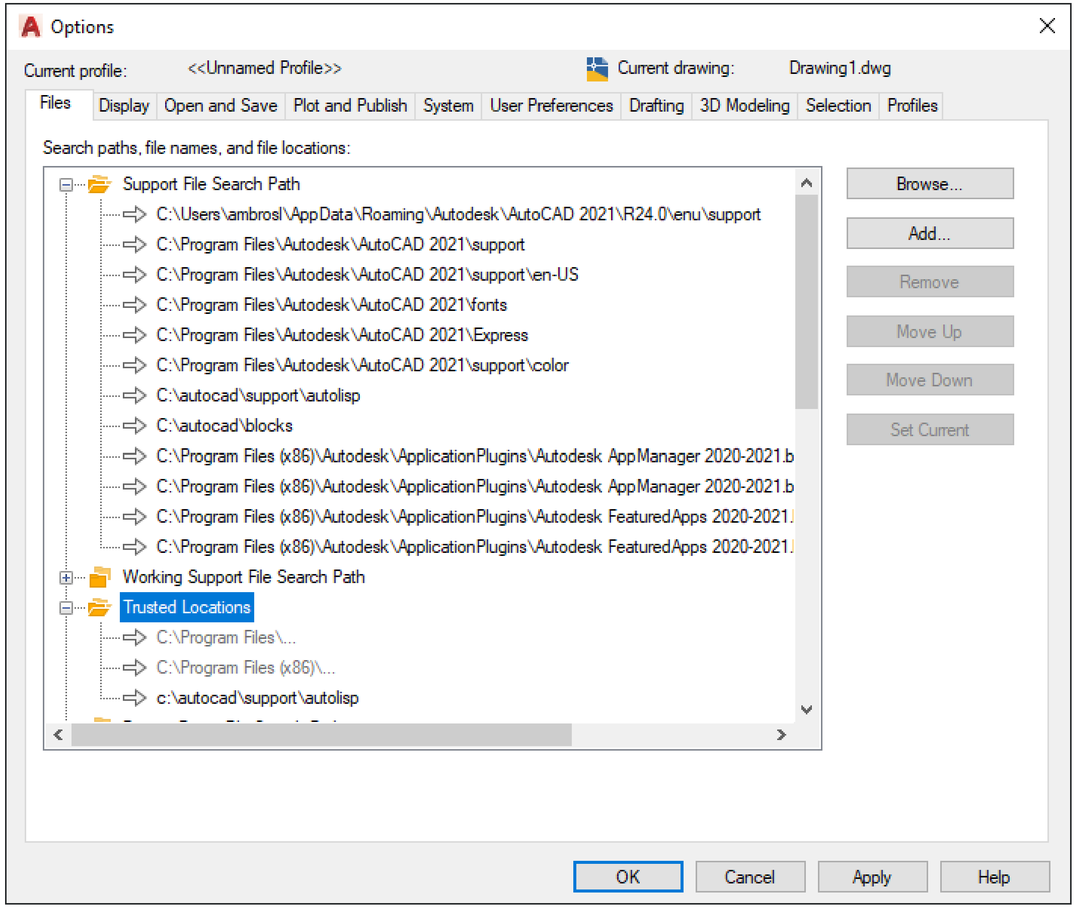
- **Drawing standards**
  - Layers
  - Text styles
  - Dimension styles
  - Units
  - Hatch patterns
  - Title blocks



Document, Document, Document…

What should I document?

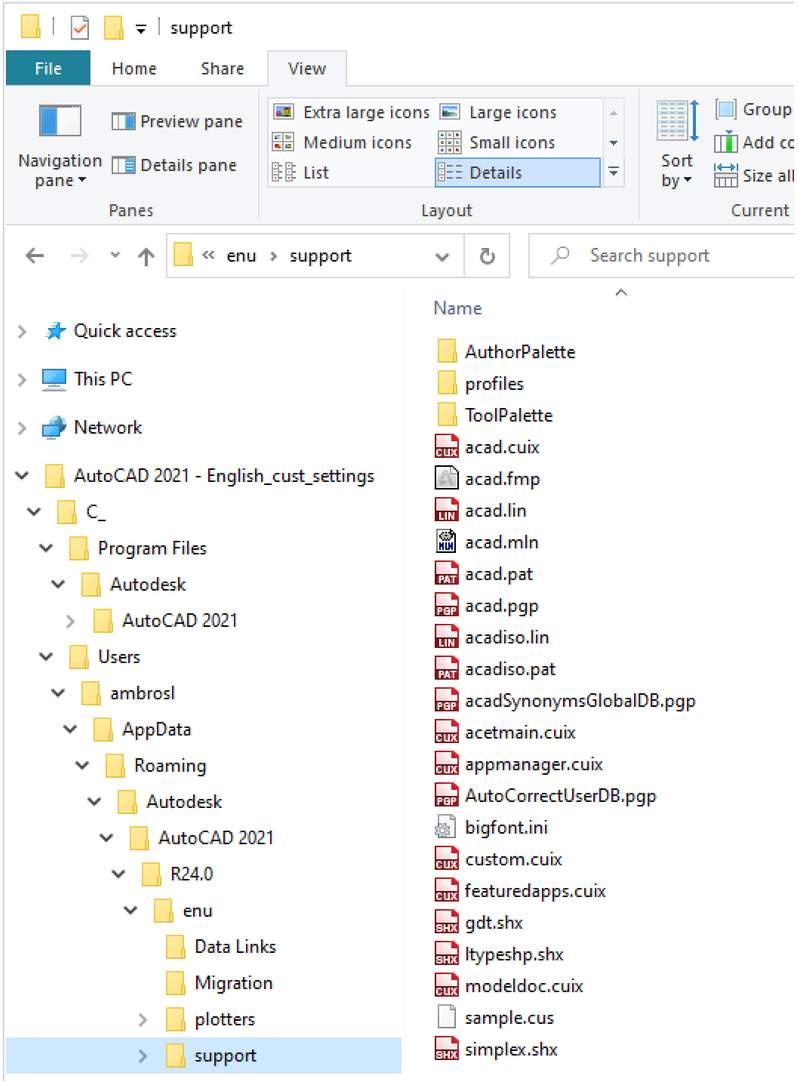
- **Drawing standards**
- **User settings and profiles**
  - Support file search paths
  - Trusted locations
  - Plotter configuration and plot style files
  - Drawing templates
  - Automative save time
  - Zoom factor
  - Properties palette object limits, …



Document, Document, Document…

What should I document?

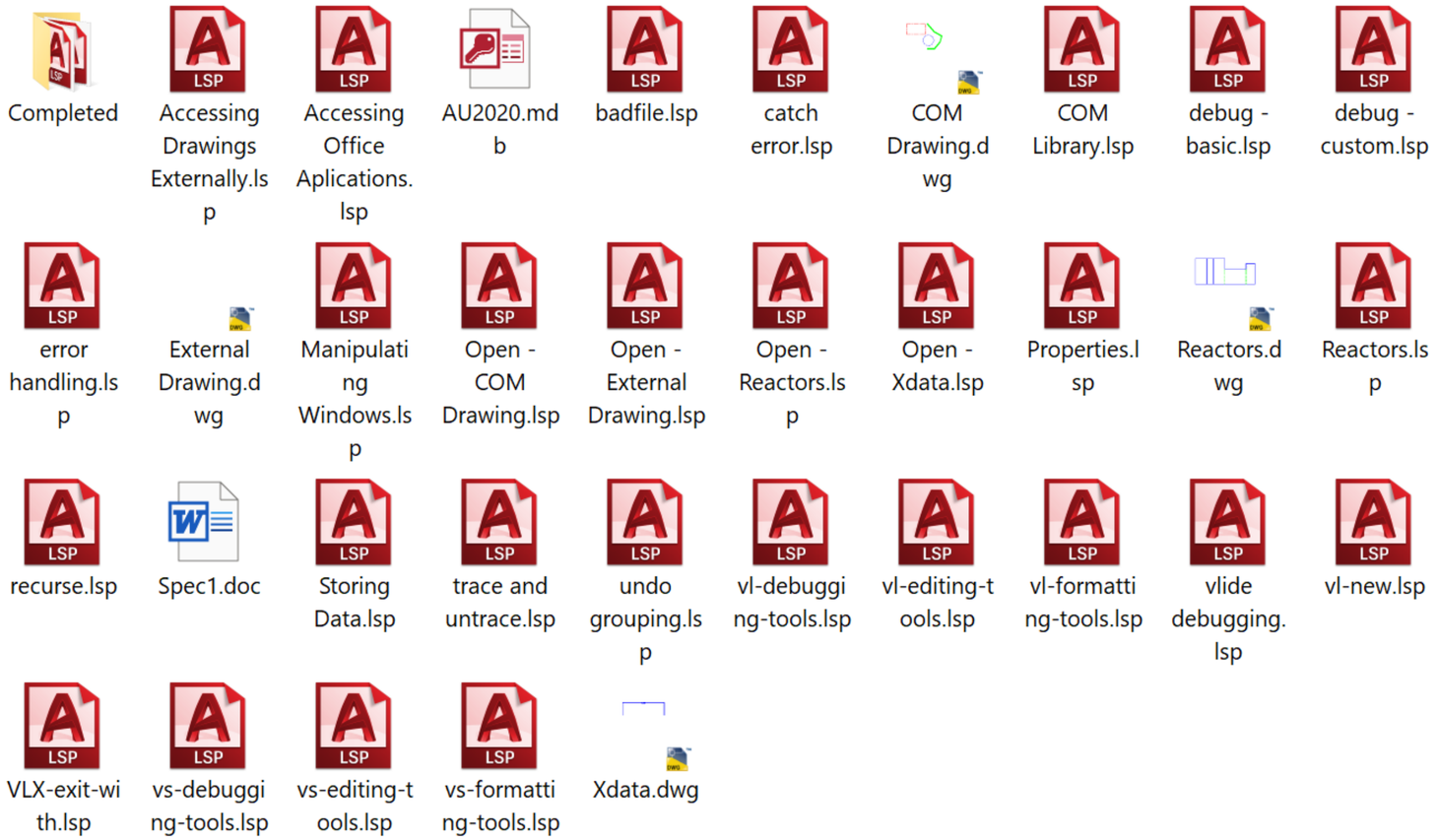
- **Drawing standards**
- **User settings and profiles**
- **Locations of custom files**
  - acad.cuix
  - acad.lin
  - acad.pat
  - acad.pgp, …



Document, Document, Document…

What should I document?

- **Drawing standards**
- **User settings and profiles**
- **Locations of custom files**
- **Custom applications**
  - Do we use them?
  - Where are they?
  - What do they do?
  - Do they work?



Document, Document, Document…

See the handout for a full list of file types

File Type	Description	Export/Import Settings	Migrate Custom Settings Utility	Not Migrated
*.acb	AutoCAD Color Book	Yes	No	No
*.actm	Action Macros	No	No	Yes
.adsklib	Favorites material library - *FavoriteMaterials.adsklib*	Yes	Yes	No
*.arx	ObjectARX applications	No	No	Yes
*.atc	Tool palettes definition files	Yes	Yes	No
*.aws	Fixed profile settings	Yes	Yes	No
*.bmp, *.jpg, *.png, *.gif, *.tif, *.tiff	Custom images for tools on tool palettes	Yes	Yes	No
*.bmp, *.dib, *.rle, *.png	Images used in a customization (CUIx) file	Yes	Yes	No
*.crx	Core ObjectARX application	No	No	Yes
*.ctb	Color-based plot styles	Yes	Yes	No
*.cui	"Legacy" customization file used to control the user interface; AutoCAD 2006 through 2009	No	Yes	No
*.cuix	customization file used to control the user interface; AutoCAD 2010 and later	Yes	Yes	No
*.cus	Custom dictionary	Yes	No	No
*.dwg	Drawings/blocks/block libraries	No	No	Yes
*.dws	Drawing standards	No	No	Yes
*.dwt	Drawing templates	No	Yes	No
*.dbx	ObjectDBX application/Object enabler	No	No	Yes
*.dll	Dynamic link library/application resource file	No	No	Yes
*.dgn	Microstation Design Templates	No	No	No
*.dvb	VBA project	No	No	Yes
*.fas	Fast-load AutoLISP application	No	No	Yes
*.fmp	Font mappings for True Type fonts	Yes	No	No
*.ini	"Legacy" configuration settings for some features	Yes	No	No
	Big fonts - *BigFont.ini*	No	Yes	No
*.js	JavaScript application	No	No	Yes

Collecting Information

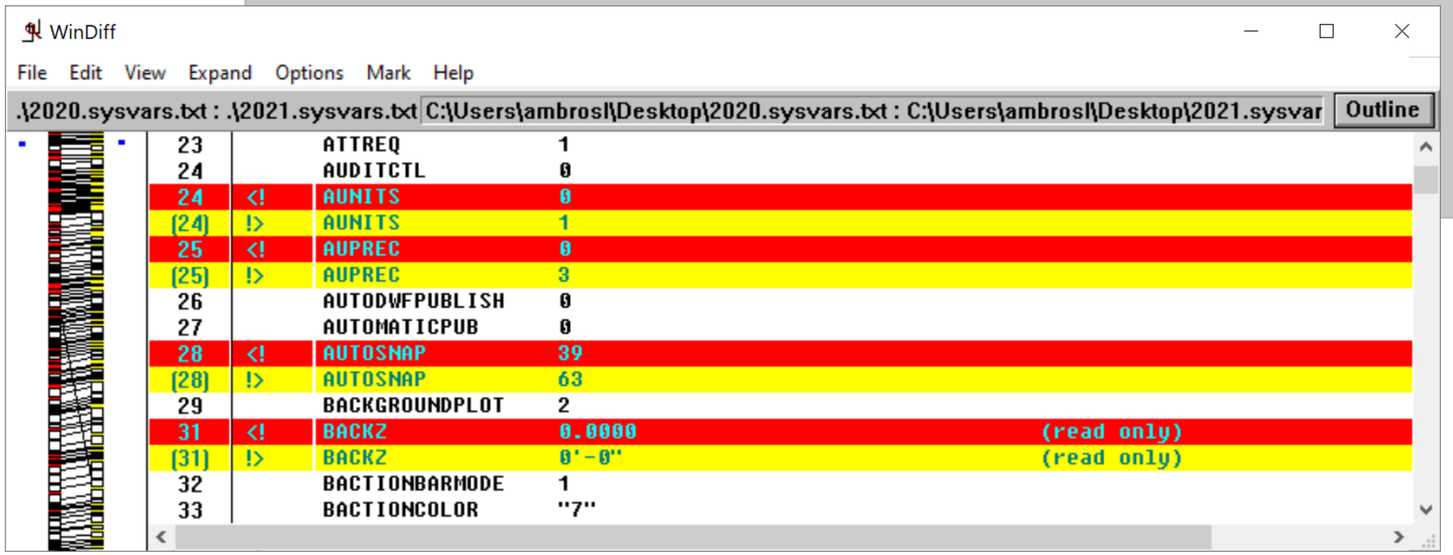
How do I find what to document?

Collecting Information

How do I find what to document?

- **SETVAR command**
  - List all variables
  - Compare variables between releases

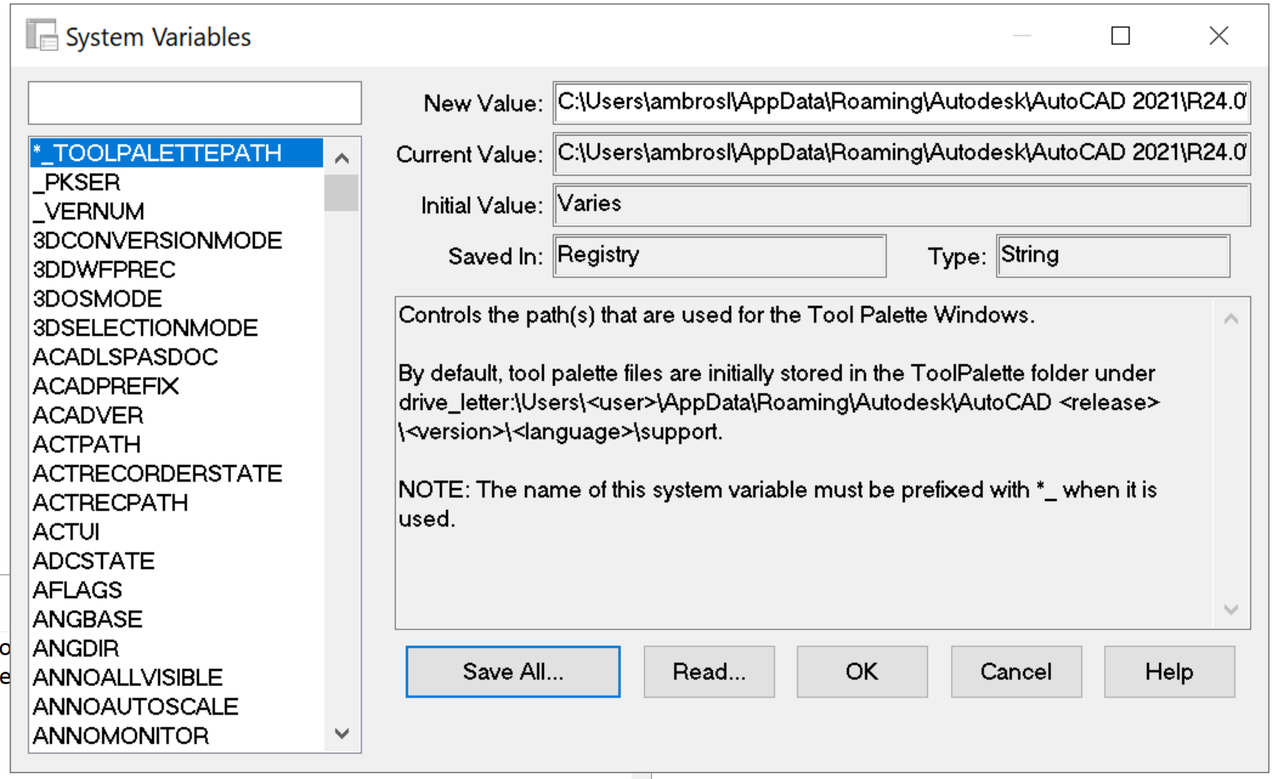
```
Command: SETVAR
Enter variable name or [?]: ?
Enter variable(s) to list <*>:
3DCONVERSIONMODE  1
3DDWFPREC         2
3DSELECTIONMODE   1
ACADLSPASDOC      0
ACADPREFIX        "C:\Users\ambrosl\AppData\Roaming\Autodesk\AutoCAD 2021\R24.0..." (read only)
ACADVER           "24.0s (LMS Tech)"                    (read only)
ACTPATH           ""
ACTRECORDERSTATE  0                                     (read only)
ACTUI             6
AFLAGS            16
ANGBASE           0
ANGDIR            0
ANNOALLVISIBLE    1
```

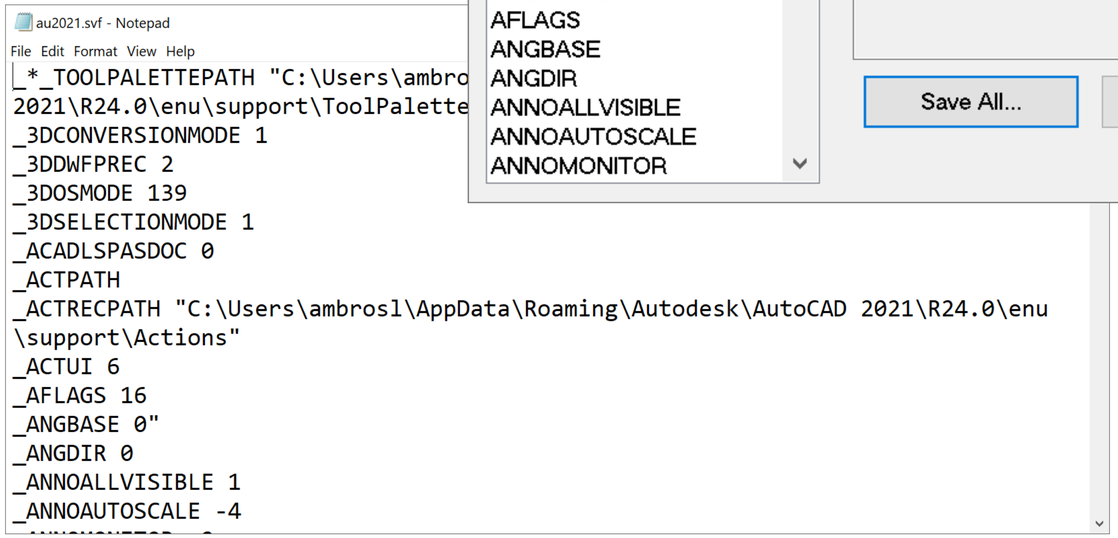


Collecting Information

How do I find what to document?

- **SETVAR command**
  - List all variables
  - Compare variables between releases
  - SYSVDLG – Save All option

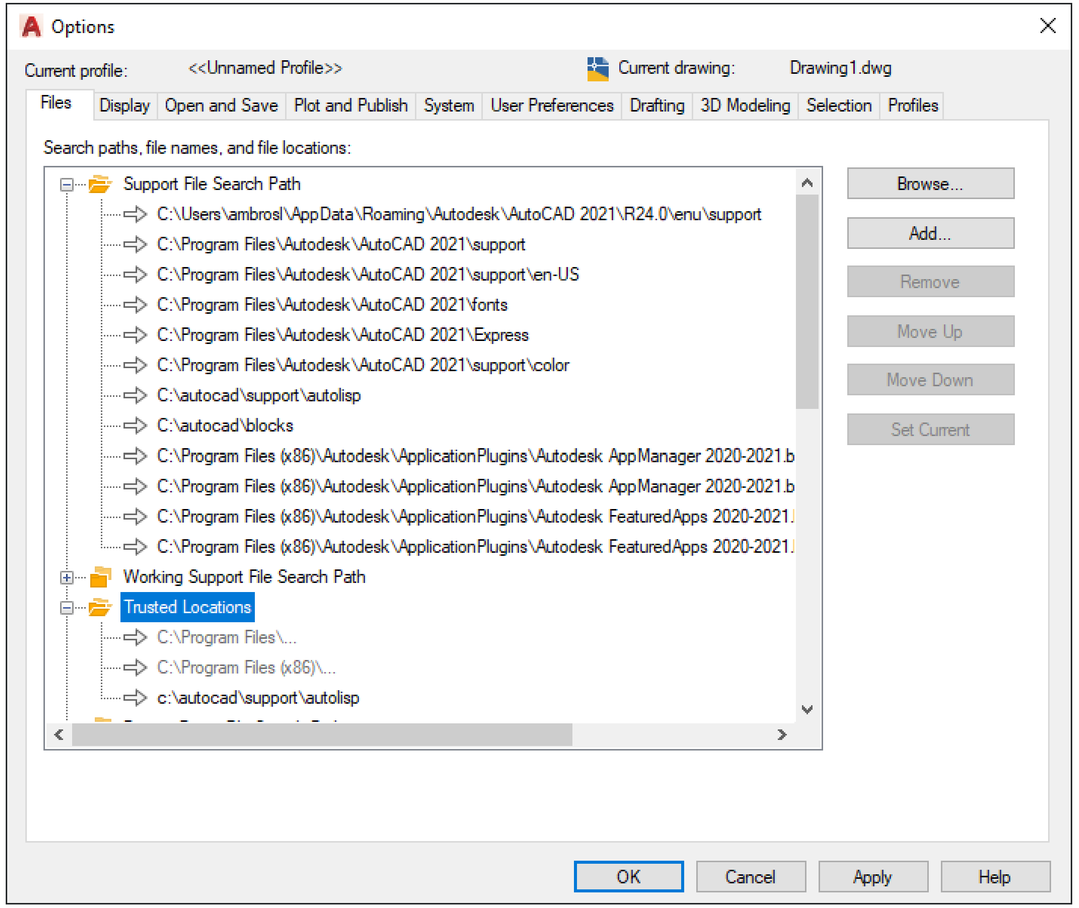




Collecting Information

How do I find what to document?

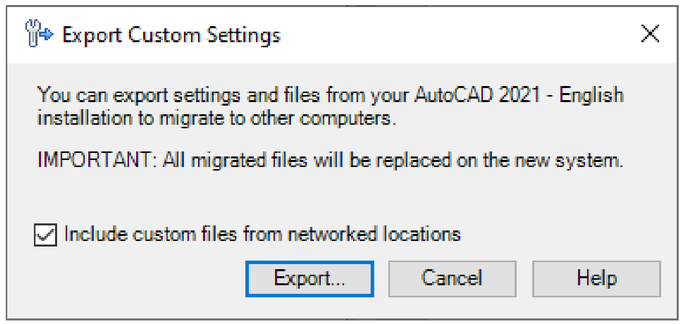
- SETVAR command
- Options dialog box

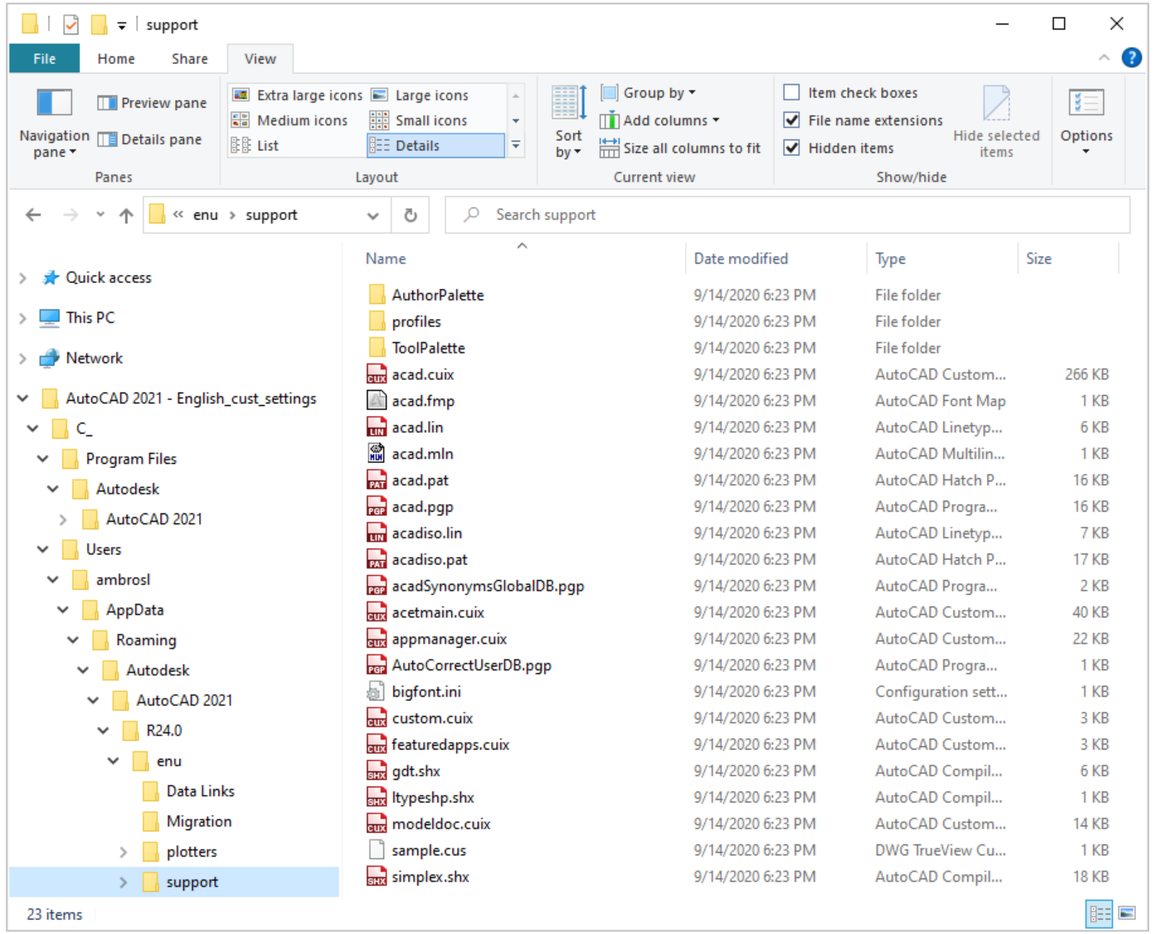


Collecting Information

How do I find what to document?

- **SETVAR command**
- **Options dialog box**
- **Export AutoCAD <*release*> Settings**
  - ZIP file with folder structure

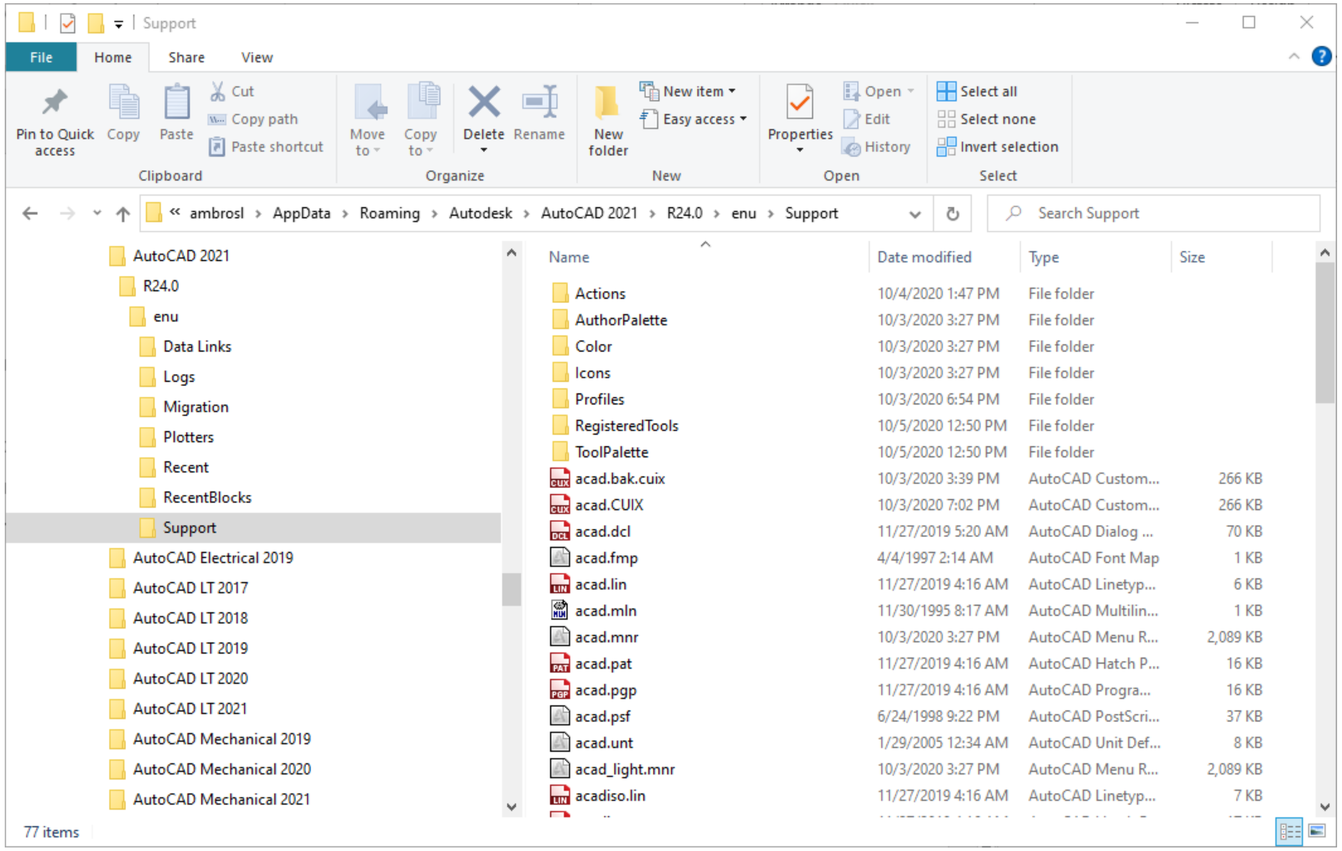




Collecting Information

How do I find what to document?

- SETVAR command
- Options dialog box
- Export AutoCAD <release> Settings
- Windows Explorer/File Explorer



Share, Share, Share…

How should I document everything?

- Use a document or wiki page
- Add tables and links
- Checklist of setup tasks

Current AutoCAD Environment Setup

Original creation: 2006/08/22

Last updated: 2014/05/03

Last updated by: Lee Ambrosius

This document provides a complete understanding of our AutoCAD environment setup as of the *last updated date*. Any changes not included in this document will be picked up during an audit prior to the next AutoCAD release being rolled out.

Note(s):

- Folders add the Support File Search Path should be first in the list to ensure our custom files are found, if they have the same names as files that ship with AutoCAD

Support Paths and Files

Location	What's Here	Setting in AutoCAD
k:\autocad\blocks	Drawing files that represent our block library	• Options > Files Tab > Support File Search Path
k:\autocad\support	Hatch patterns and linetypes • Default and company defined hatch pattern (PAT) files • Default and company defined linetype (LIN) files	• Options > Files Tab > Support File Search Path
k:\autocad\support\autolisp	Custom AutoLISP (LSP, VLX, and FAS) files used to automate and streamline our company workflows	• Options > Files Tab > Support File Search Path • Options > Files Tab > Trusted Locations

Don’t Keep Secrets

Based on my experience…

- I kept too much in my head
- When there were multiple problems, I was a bottleneck

Don’t Keep Secrets

What I wish I had done…

- **Documented things sooner**
- **Empowered others through self-help**
  - Wrote guidelines and rails for others allow exploration
  - Still trusted source of knowledge

Manage and Share Custom Files

Manage and Share Custom Files

Ask yourself... Self?

Manage and Share Custom Files

Ask yourself…

- **Where are our custom files and settings stored?**
  - Locally or in a shared location

Manage and Share Custom Files

Ask yourself…

- **Where are our custom files and settings stored?**
- **Who needs access to the custom files?**
  - Internal or external users

Manage and Share Custom Files

Ask yourself…

- Where are our custom files and settings stored?
- Who needs access to the custom files?
- What’s the expertise level of my users?

Manage and Share Custom Files

Ask yourself…

- Where are our custom files and settings stored?
- Who needs access to the custom files?
- What’s the expertise level of my users?
- Do I support multiple releases?

Where to Store Custom Files

Custom files can be stored

- Locally (default)
- Network
- Cloud storage service

Where to Store Custom Files

Custom files can be stored

- **Locally (default)**
- **Network**
- **Cloud storage service**

Files stored locally outside the default location can be:

- **Manually copied**
- **Synchronized through automation/utility**
  - Network to a local drive via RoboCopy or similar tool
  - Cloud storage to a local drive

Where to Store Custom Files

Whenever possible, store custom files in a shared location

- **Network**
- **Cloud storage service**
  - Map folder to drive letter with NET

Great for backing up your custom files too

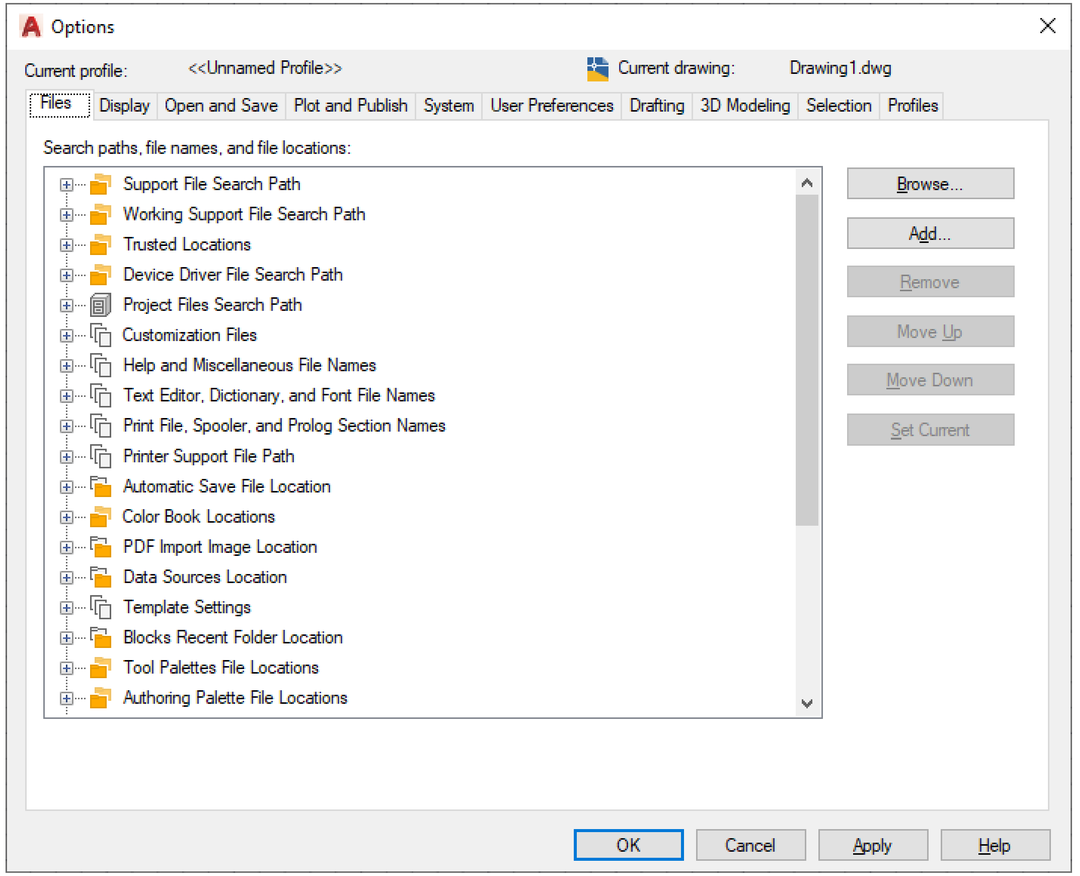
Configure AutoCAD to Look for Custom Files

Ways to configure where AutoCAD looks for your custom files

Configure AutoCAD to Look for Custom Files

Ways to configure where AutoCAD looks for your custom files

- **User profiles**
  - Support file search paths
  - Locations of other files
  - Display settings
  - User preferences
  - Drafting, editing, and selection settings

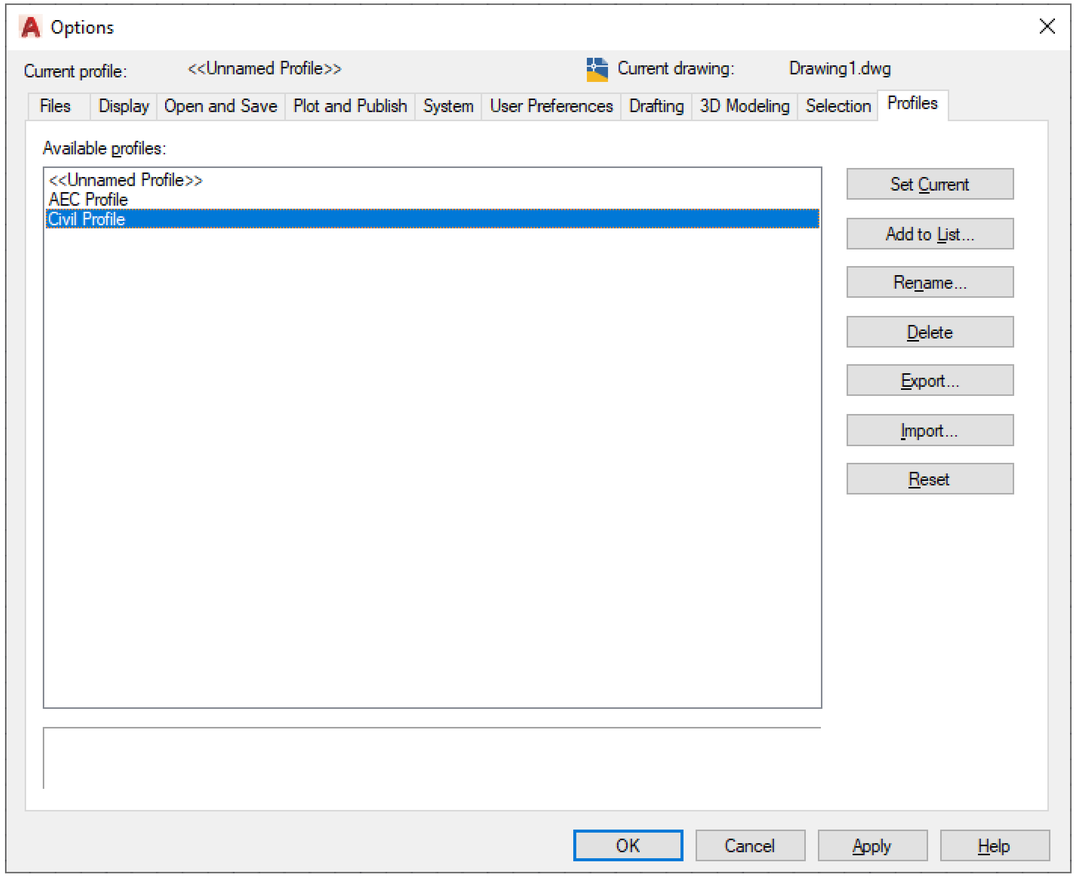


Configure AutoCAD to Look for Custom Files

Ways to configure where AutoCAD looks for your custom files

- **User profiles**
  - Support file search paths
  - Locations of other files
  - Display settings
  - User preferences
  - Drafting, editing, and selection settings

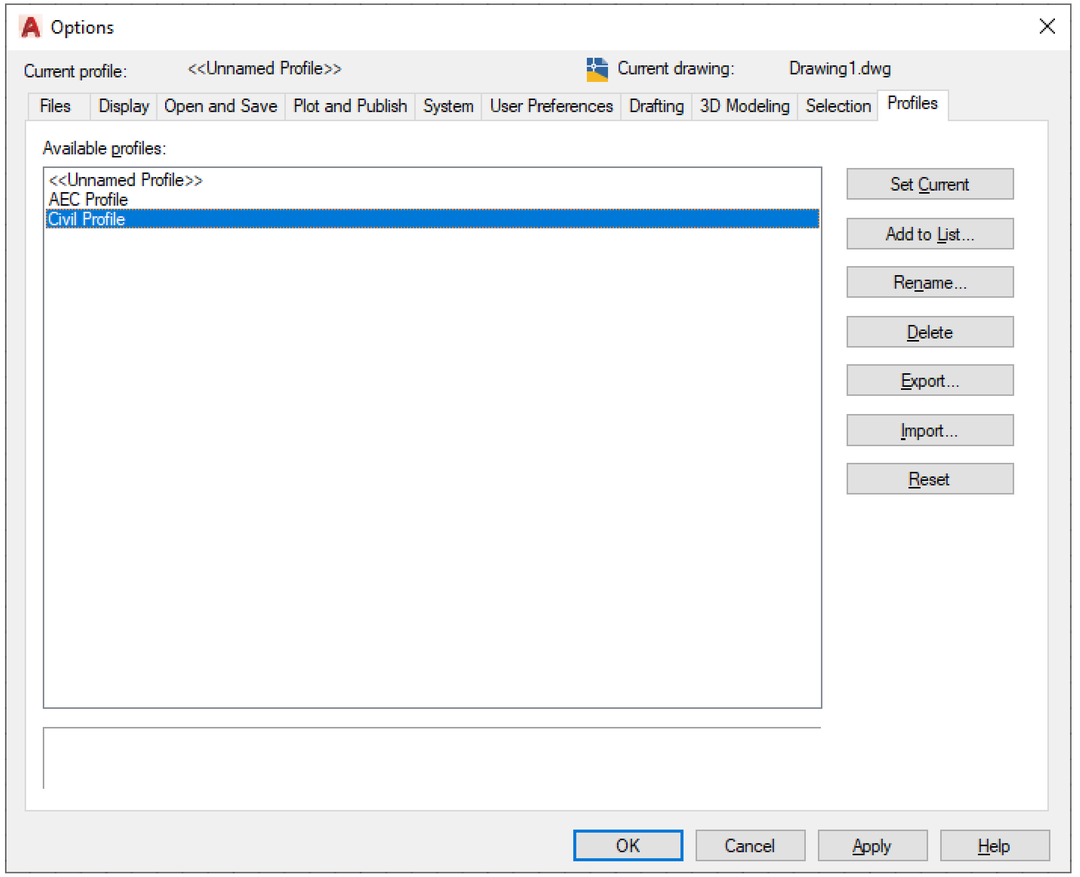
- **Managed on Options dialog box, Profiles tab**
  - Exported to ARG files
  - ARG file can be imported



Configure AutoCAD to Look for Custom Files

Ways to configure where AutoCAD looks for your custom files

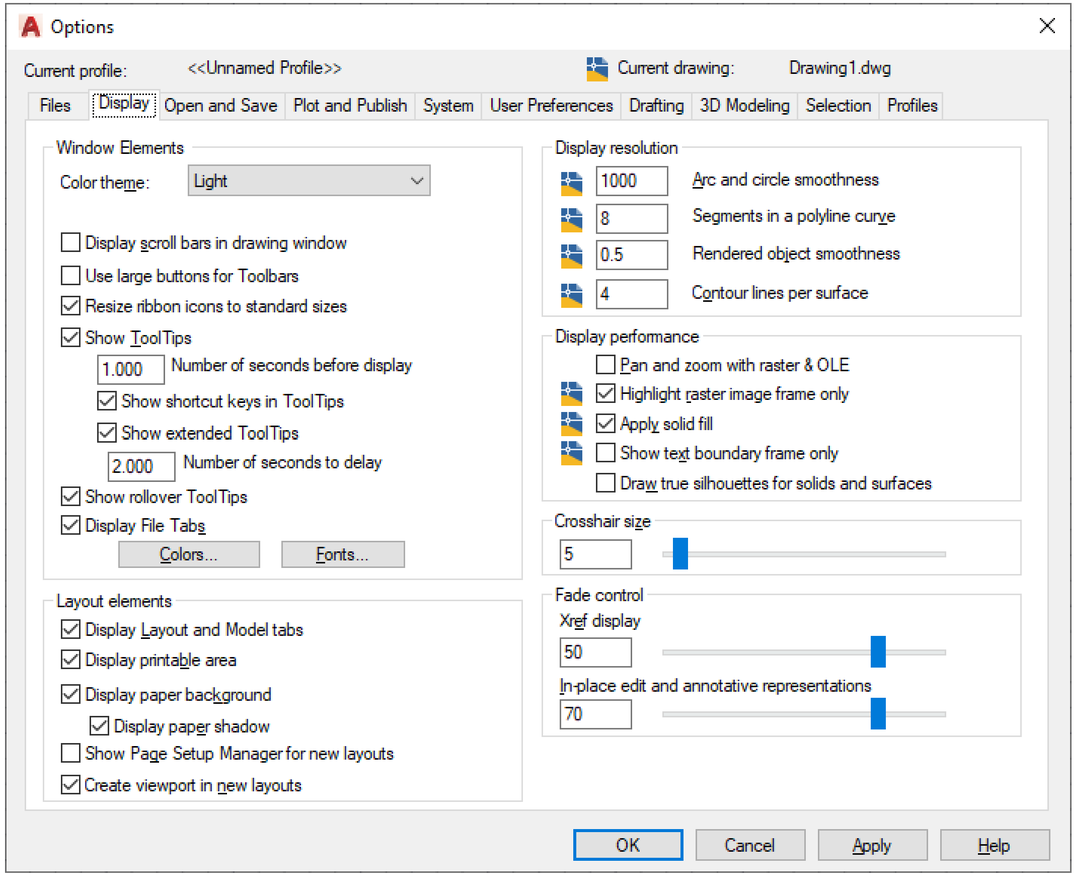
- **User profiles**
  - When something goes wrong, you can reimport an ARG file
  - All better right?



Configure AutoCAD to Look for Custom Files

Ways to configure where AutoCAD looks for your custom files

- **User profiles**
  - When something goes wrong, you can reimport an ARG file
  - All better right?
  - Until a user complains enough about
    - Display settings
    - User preferences
    - Drafting, editing, and selection settings
  - Resetting all settings might not be ideal



Configure AutoCAD to Look for Custom Files

Ways to configure where AutoCAD looks for your custom files

- **User profiles**
- **AutoLISP programs**
  - Strategically change settings, unlike user profiles
    - Support File Search Path NOT grip settings
    - Trusted Locations NOT drawing element color settings
    - Drawing Template locations NOT selection settings

```
(defun c:CopyProfile()
    ;; Copy the current and
    (setq acadObj (vlax-get
    (setq objPrefs (vla-get

    ;; Get the PreferencesP
    (setq objPrefProfile (v

    ;; Get the name of the
    (setq curProfile (vla-g
          destProfile "AU20

    ;; Copy and reset the p
    (vla-CopyProfile objPre
    (vla-ResetProfile objPr
```

Configure AutoCAD to Look for Custom Files

Ways to configure where AutoCAD looks for your custom files

- **User profiles**
- **AutoLISP programs**
  - Strategically change settings, unlike user profiles
  - System and environment variables

System Variable	Description	Path or Filename	Read-only
ACADPREFIX	Specifies the paths under the Support File Search Path node on the Files tab of the Options dialog box.	Paths	Yes
ATCPATH	Specifies the paths that the program looks-in for additional action macro (ACTM) files.	Paths	No
ACTRECPATH	Specifies the recording path that the program writes new action macro (ACTM) files.	Path	No
	Specifies the path of the blocks for the Recent tab of the Blocks palette.	Path	No
	Specifies the filename of the custom dictionary.	Filename	No
	Specifies the folder in the DGN mapping setups (*dgnsetups.ini*) file is stored.	Path	Yes
	Specifies the enterprise/secondary customization file that is loaded into AutoCAD.	Filename	Yes

Environment Variable	Description	Path or Filename
ACAD	Stores the available search paths for the current AutoCAD session. All the paths are valid for use. These are the same directories that show up under the Working Support File Search Path section under Preferences. See also the ACADPREFIX system variable.	Paths
ACADCFG	Specifies the location of the AutoCAD Configuration file. **Note:** It is recommended to not change the location of this file.	Path
ACADDRV	Specifies the location(s) in which AutoCAD looks-in for any driver information it needs.	Path

Configure AutoCAD to Look for Custom Files

Ways to configure where AutoCAD looks for your custom files

- **User profiles**
- **AutoLISP programs**
  - Strategically change settings, unlike user profiles
  - System and environment variables

```
;; Prefix the autolisp and blocks folders to the support paths
(setenv "ACAD" (strcat "c:\\autocad\\support\\autolisp;"
                       "c:\\autocad\\blocks;"
                       (getenv "ACAD")))

;; Appends the autolisp folder to the trusted locations
(setvar "TRUSTEDPATHS" (strcat
                         (getvar "TRUSTEDPATHS")
                                 ";c:\\autocad\\support\\autolisp")))

;; Directs AutoCAD to look in the macros folder for ACTM files
(setvar "ACTPATH" "c:\\autocad\\support\\macros")
```

Configure AutoCAD to Look for Custom Files

Ways to configure where AutoCAD looks for your custom files

- **User profiles**
- **AutoLISP programs**
  - Strategically change settings, unlike user profiles
  - System and environment variables
  - ActiveX API

```
;; Copy the current and reset the copied profile
(setq objPrefs (vla-get-Preferences (vlax-get-acad-object)))

;; Get the PreferencesProfiles object
(setq objPrefProfile (vla-get-Profiles objPrefs))

;; Get the name of the current profile and for the new profile
(setq curProfile (vla-get-ActiveProfile objPrefProfile)
destProfile "AU2020-LSP-Copied")

;; Copy and reset the profile
(vla-CopyProfile objPrefProfile curProfile destProfile)
(vla-ResetProfile objPrefProfile destProfile)
```

Configure AutoCAD to Look for Custom Files

Ways to configure where AutoCAD looks for your custom files

- **User profiles**
- **AutoLISP programs**
- **Plug-in Bundles**
  - Set system variables
  - Set environment variables
  - Load custom programs

```
<RuntimeRequirements
      OS="Win32|Win64"
      SeriesMin="R19.0"
      Platform="AutoCAD*"
      SupportPath="c:/autocad/support/autolisp;c:/autocad/blocks"
   />

   <!--Set the drawing template (DWT) files location-->
   <EnvironmentVariables>
     <EnvironmentVariable
        Name="TemplatePath"
        Value="c:/autocad/support/templates"
        Flags="OpenOnce"
     />
   </EnvironmentVariables>

   <SystemVariables>
     <!--Sets the path for additional action macros-->
     <SystemVariable
        Name="ACTPATH"
        Value="c:/autocad/support/macros"
        Flags="OpenOnce"
     />
   </SystemVariables>
```

Commonly Shared Custom Files

Files you might want to share with others:

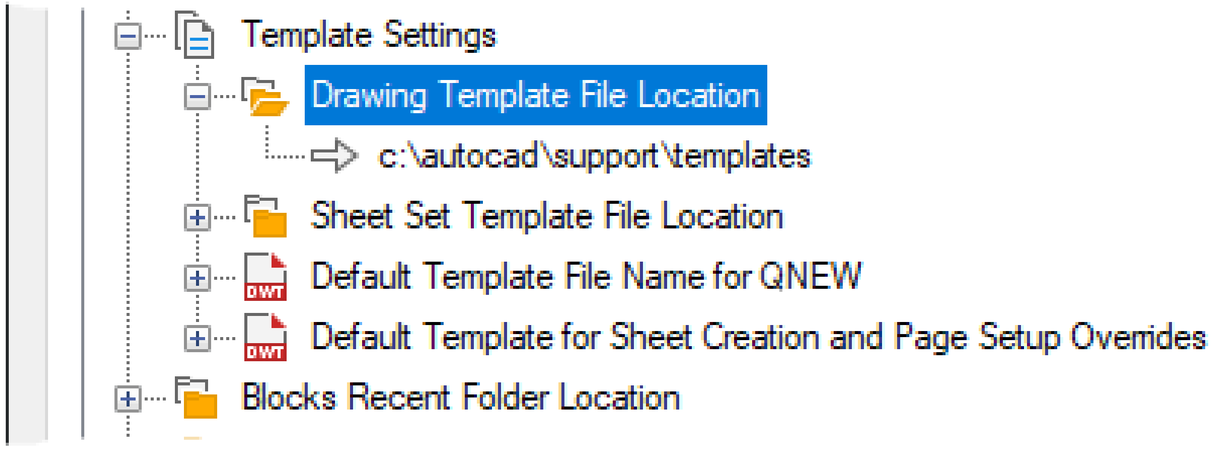
- Drawing Template (DWT) and Standard (DWS) Files
- Blocks
- Tool Palettes
- Plotter Configurations (PC3) and Plot Styles (CTB and STB) Files
- Customization (CUIx) Files
- Command Aliases
- Scripts (SCR)
- Action Macros (ACTM)
- Executables (LSP, ARX, DLL, …)

Drawing Template (DWT) and Standard (DWS) Files

Used to start new drawings and enforce CAD standards

- Layers and annotation styles
- Drawing measurement and units
- Layouts

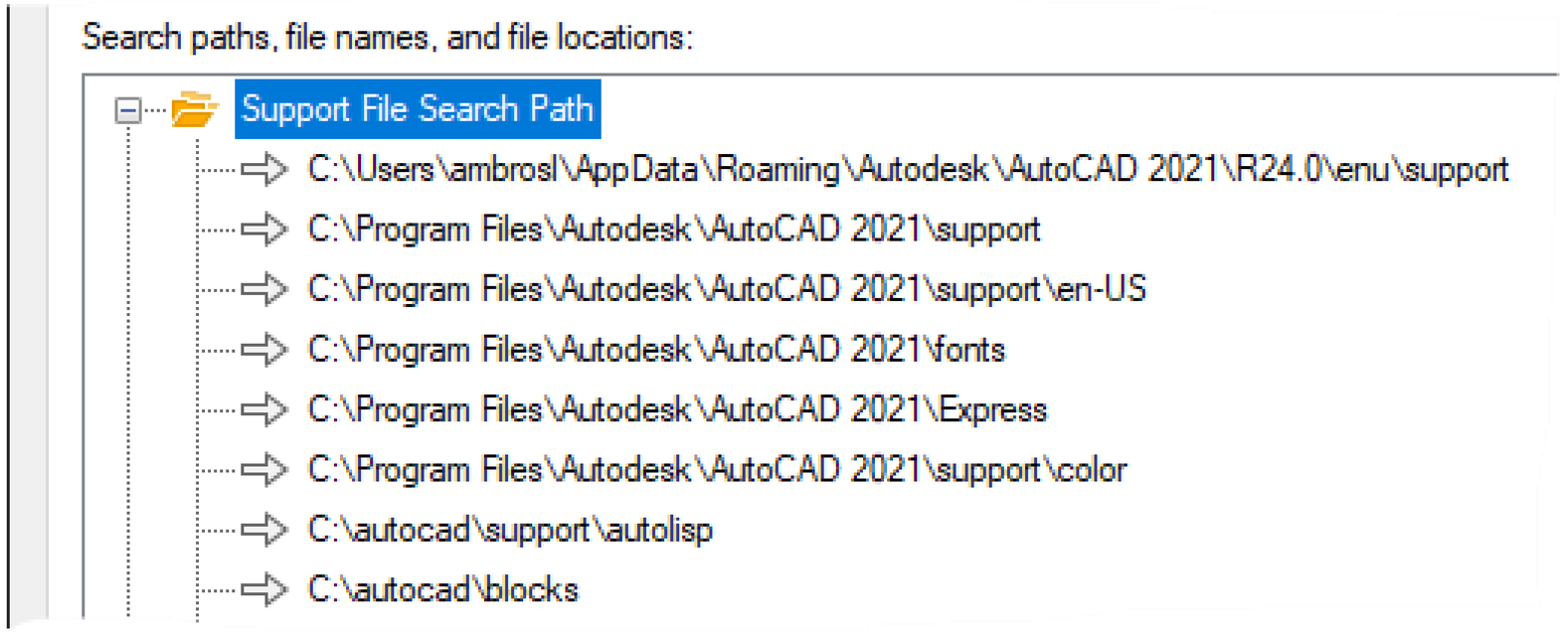
Options dialog box: Files tab > Template Settings > Drawing Template File Locations



Blocks

Named collections of geometry that can be inserted into a drawing

Options dialog box: Files tab > Support File Search Path

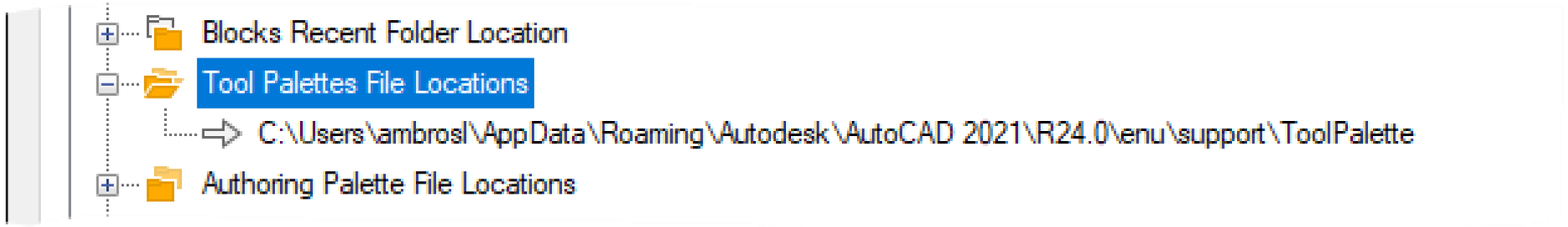


Tool Palettes

Tools used to enforce CAD standards

Shared by exporting and importing, tool palettes and groups

Options dialog box: Files tab > Tool Palettes File Locations

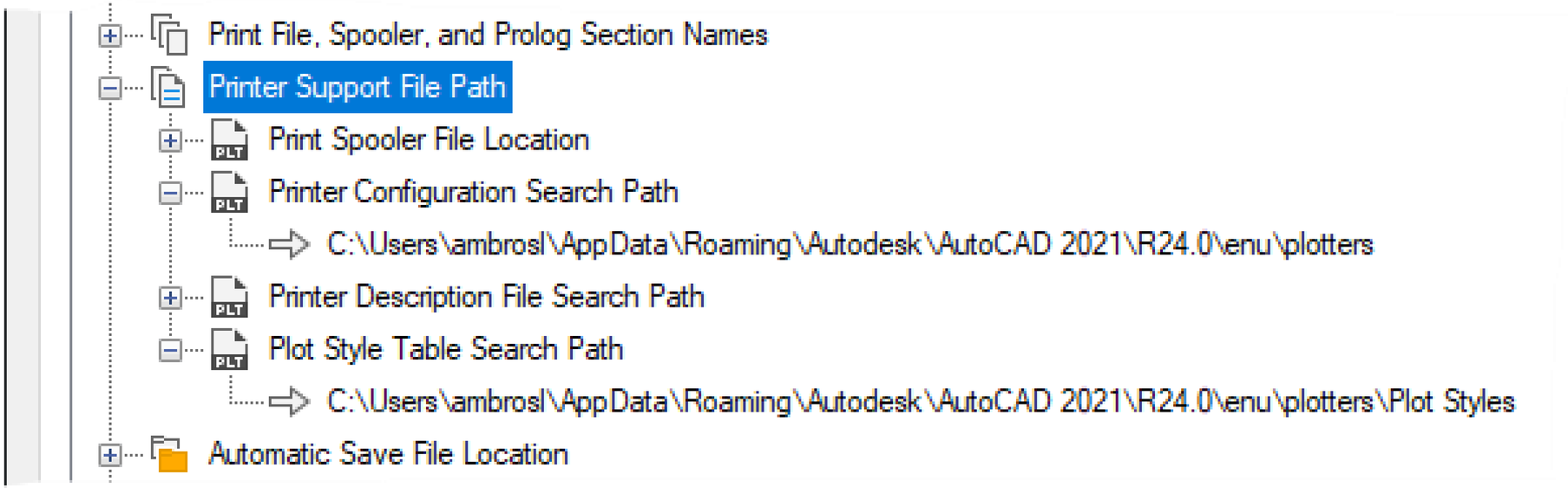


Plotter Configurations (PC3)

Devices used to output a drawing

- Hardcopy/physical paper
- Electronic file

Options dialog box: Files tab > Printer Support File Path > Printer Configuration Search Path

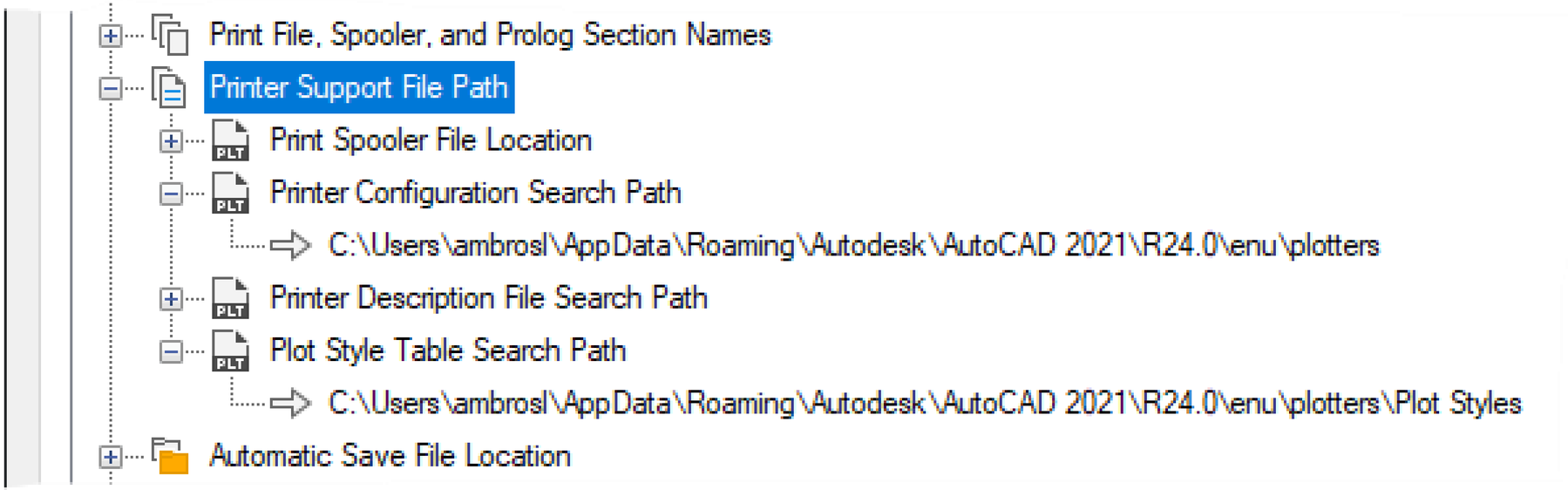


Plot Styles (CTB and STB)

Control the appearance of objects during output

- Styles by object color (CTB) or name (STB)
- Change color, lineweight, linetype, …

Options dialog box: Files tab > Printer Support File Path > Plot Style Table Search Path

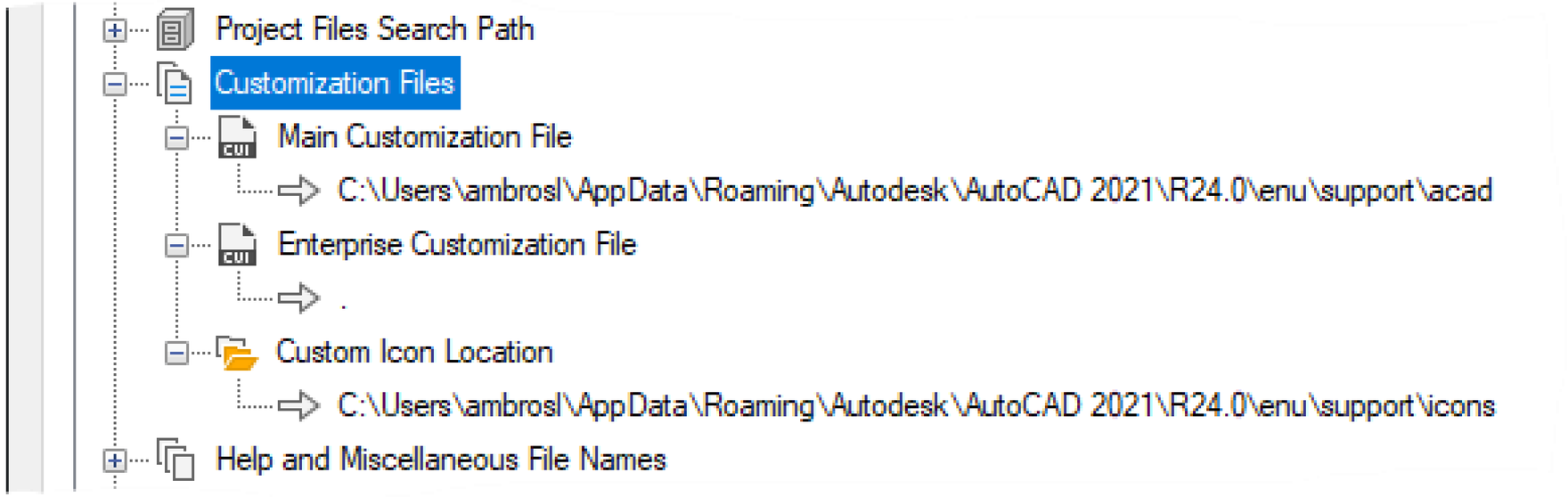


Customization (CUIx) Files

Control the elements of the AutoCAD user interface

- Common tools
- Custom discipline and organization tools

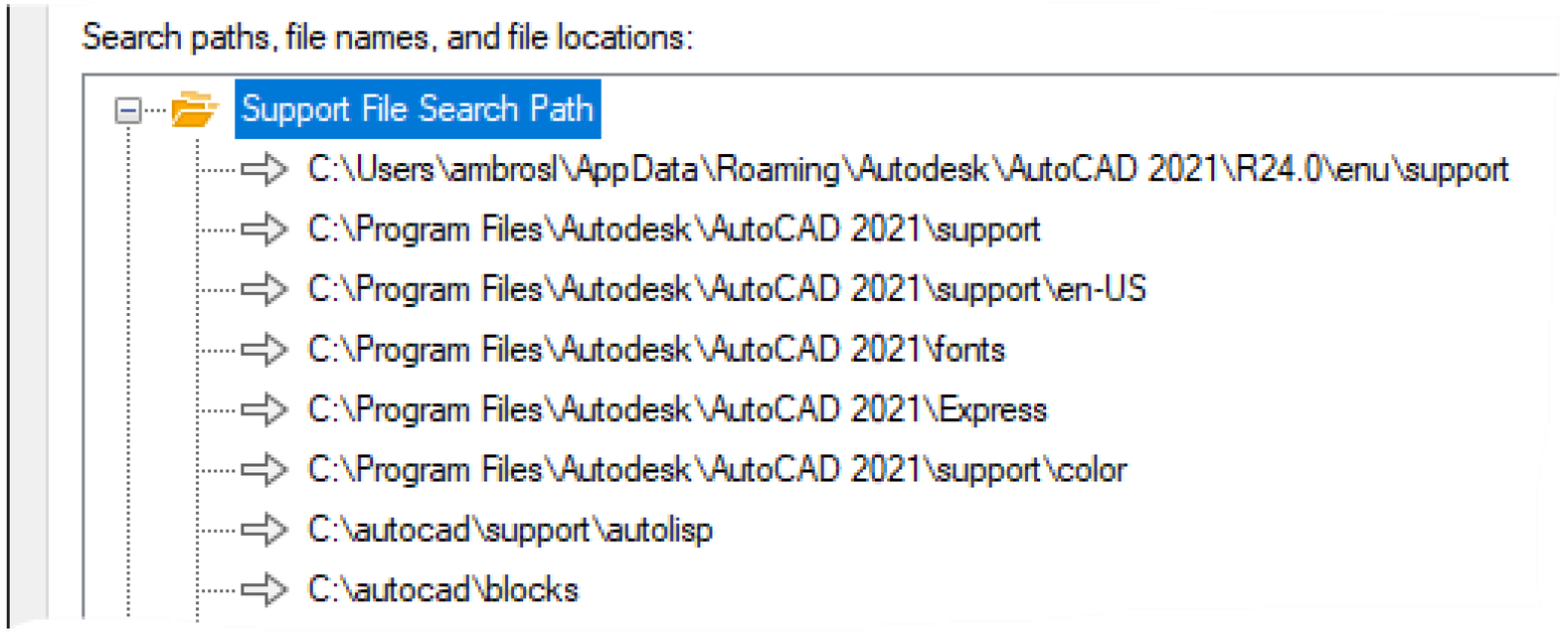
Options dialog box: Files tab > Customization Files > Main/Enterprise Customization File



Command Aliases

Shortened names used to start commands

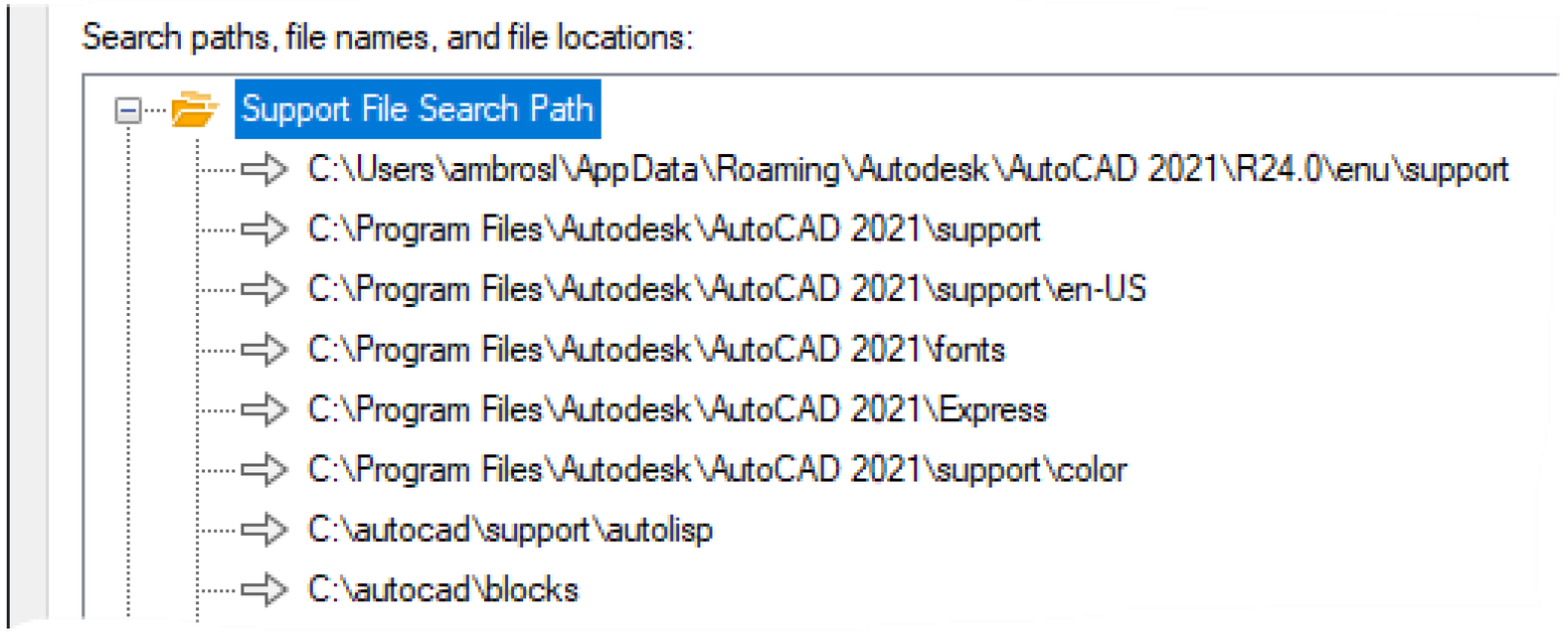
Options dialog box: Files tab > Support File Search Path



Scripts (SCR)

Used to automate workflows and repetitive tasks without user input

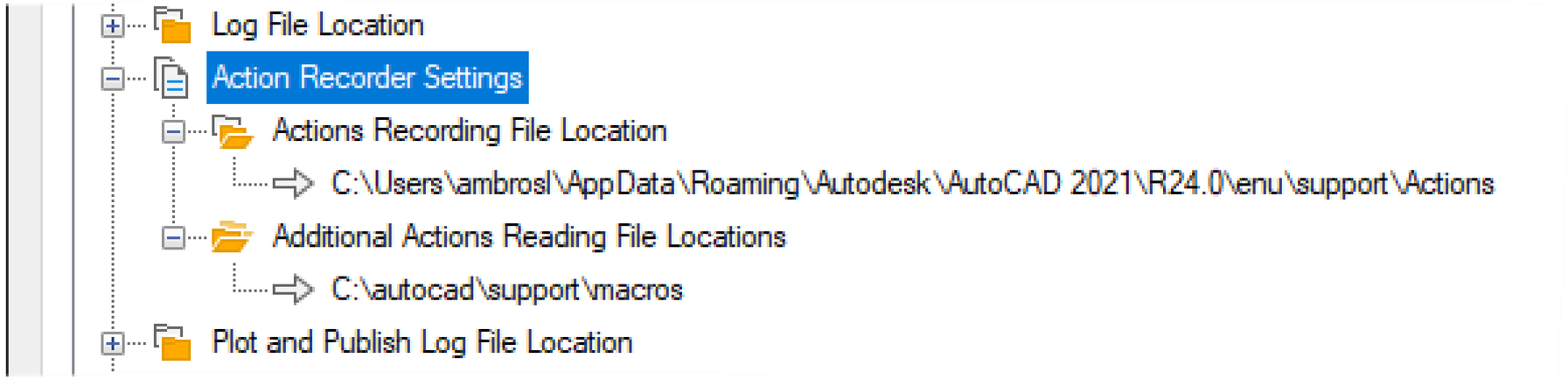
Options dialog box: Files tab > Support File Search Path



Action Macros (ACTM)

Used to automate workflows and repetitive tasks which might require user input

Options dialog box: Files tab > Action Recorder Settings > Actions Recording File Location

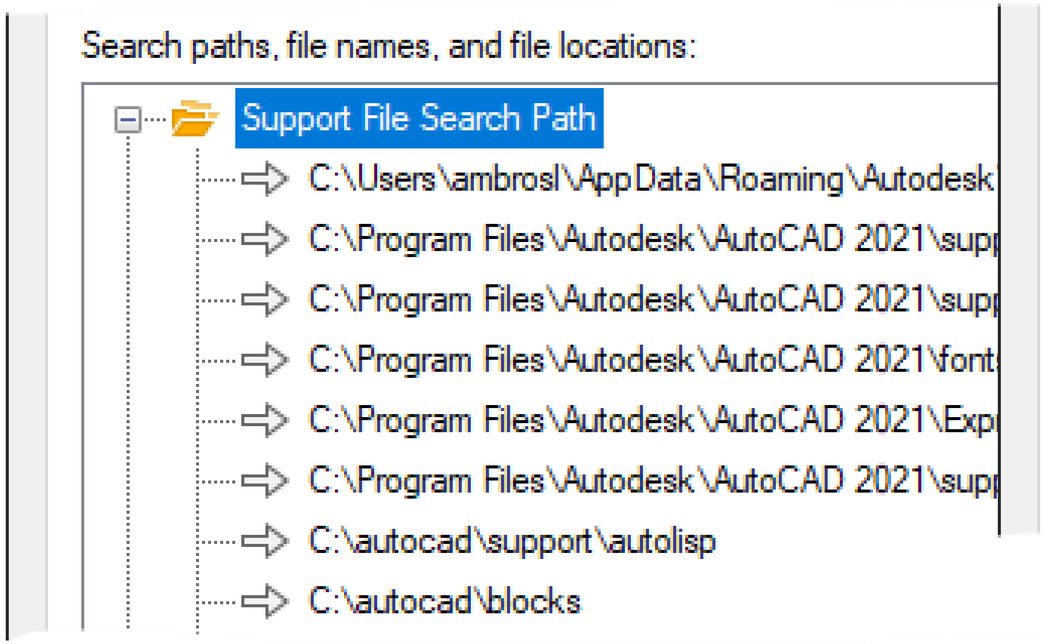


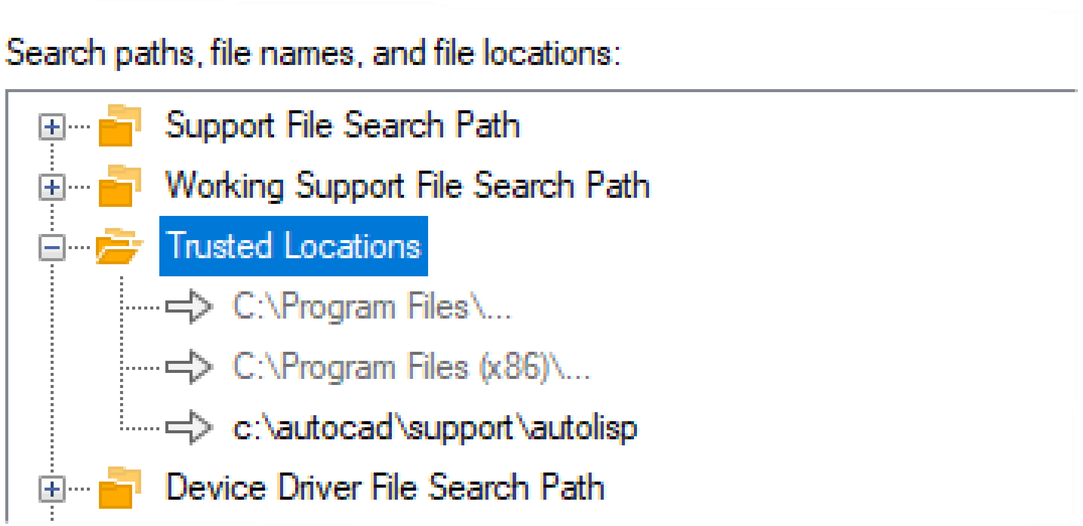
Executables (LSP, ARX, DLL, …)

Used to automate complex workflows and introduce new commands/features

Options dialog box: Files tab > Support File Search Path

Options dialog box: Files tab > Trusted Locations



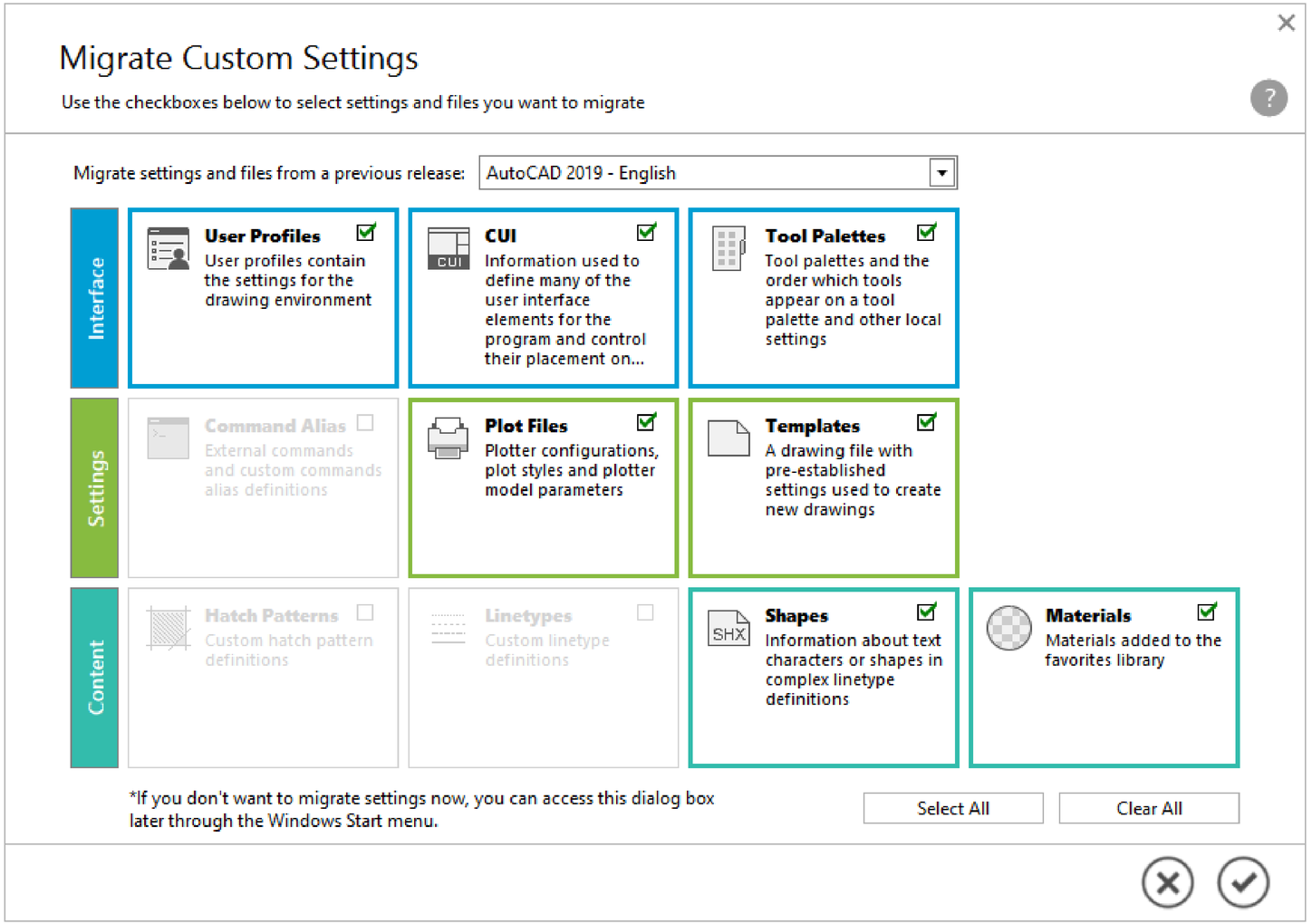


Migrate Custom Files and Settings

Empower AutoCAD to Migrate

Migrate Custom Settings

- Displayed during first launch
- Can be manually started from Windows Start menu
- Migrates custom files and settings forward



Empower AutoCAD to Migrate

Migrate Custom Settings

- Displayed during first launch
- Can be manually started from Windows Start menu
- Migrates custom files and settings forward
- Not all files are migrated

File Type	Description	Export/Import Settings	Migrate Custom Settings Utility	Not Migrated
*.acb	AutoCAD Color Book	Yes	No	No
*.actm	Action Macros	No	No	Yes
.adsklib	Favorites material library - *FavoriteMaterials.adsklib*	Yes	Yes	No
*.arx	ObjectARX applications	No	No	Yes
*.atc	Tool palettes definition files	Yes	Yes	No
*.aws	Fixed profile settings	Yes	Yes	No
*.bmp, *.jpg, *.png, *.gif, *.tif, *.tiff	Custom images for tools on tool palettes	Yes	Yes	No
*.bmp, *.dib, *.rle, *.png	Images used in a customization (CUIx) file	Yes	Yes	No
*.crx	Core ObjectARX application	No	No	Yes
*.ctb	Color-based plot styles	Yes	Yes	No

Manually Migrate Your Custom Files and Settings

Greater control over what is migrated

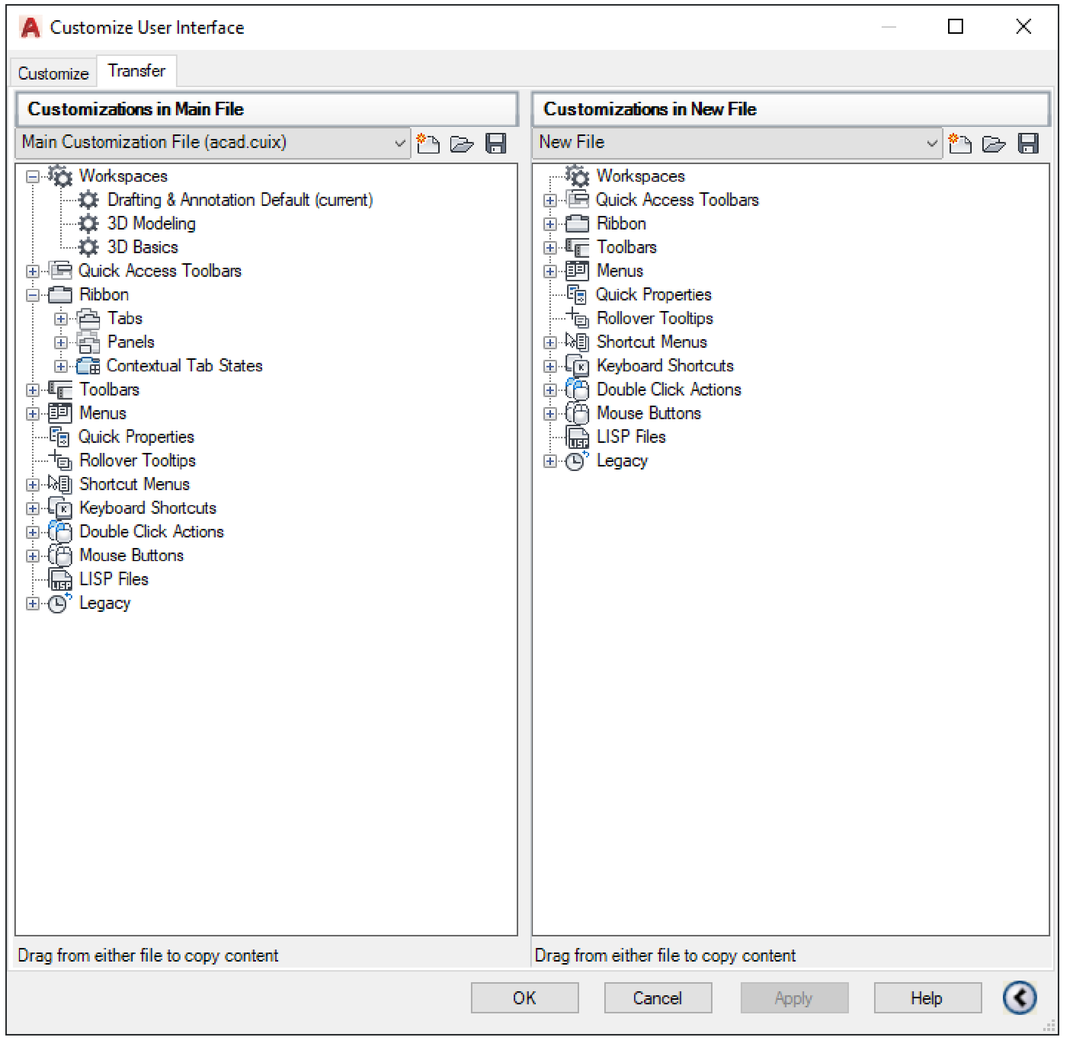
Manually migrate with:

Manually Migrate Your Custom Files and Settings

Greater control over what is migrated

Manually migrate with:

- **Customize User Interface Editor, Transfer tab**
  - Create a new or copy a customization (CUIx) file
  - Convert a “legacy” toolbar or dashboard panel to a ribbon panel
  - Copy elements and associated commands between CUIx files

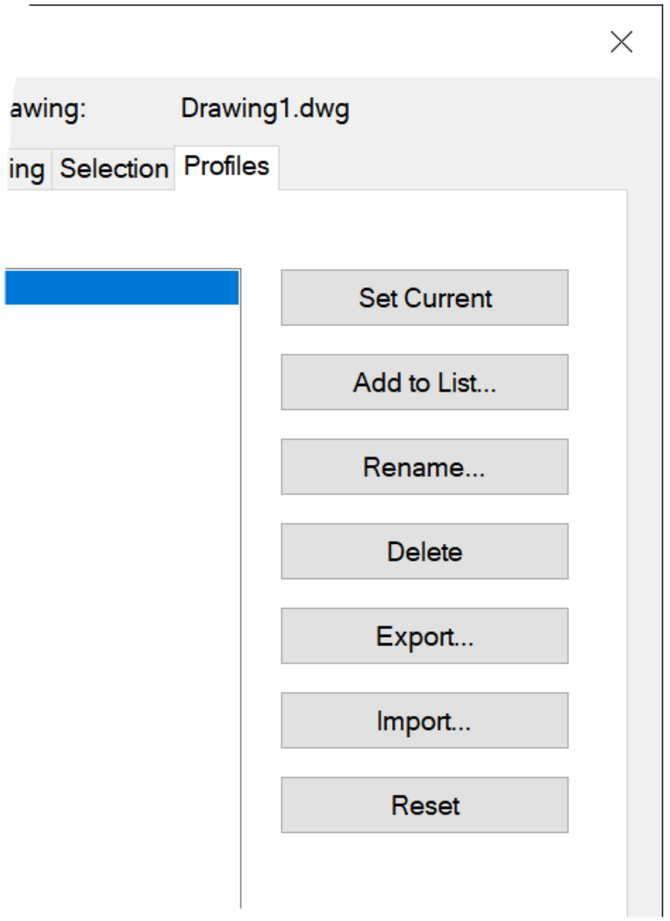


Manually Migrate Your Custom Files and Settings

Greater control over what is migrated

Manually migrate with:

- **Customize User Interface Editor, Transfer tab**
- **Options dialog box, Profiles tab**
  - Export and import a profile
  - Reset a profile

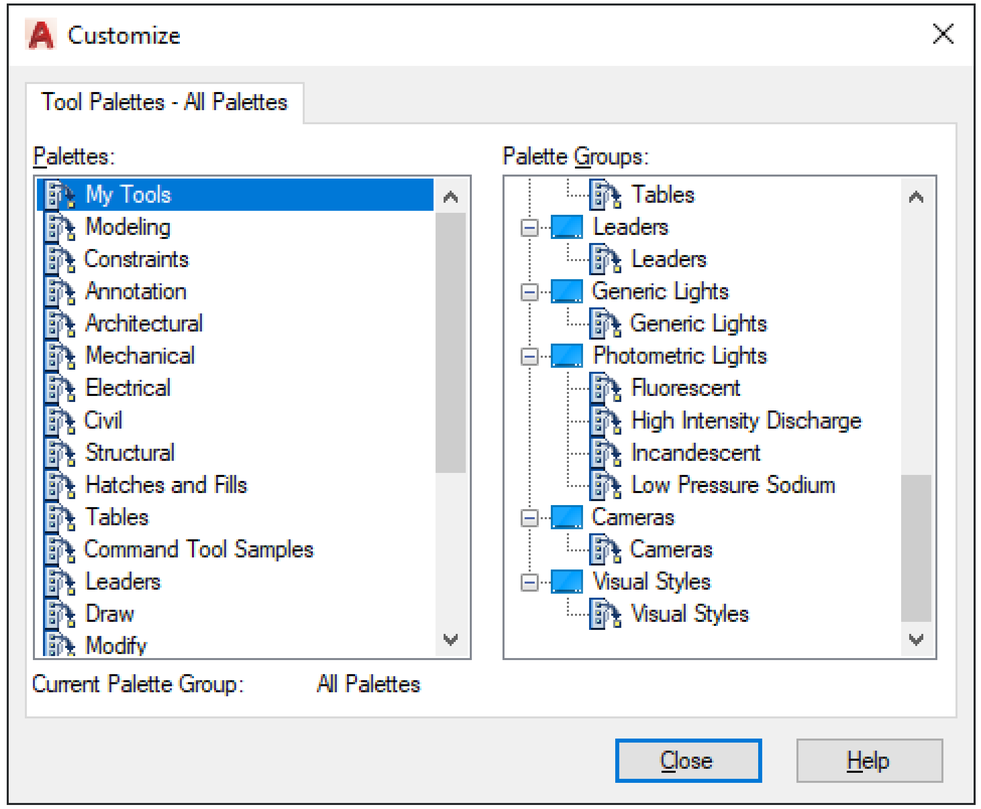


Manually Migrate Your Custom Files and Settings

Greater control over what is migrated

Manually migrate with:

- **Customize User Interface Editor, Transfer tab**
- **Options dialog box, Profiles tab**
- **Customize dialog box, Tool Palettes – All Palettes tab**
  - Export and import tool palettes
  - Export and import tool palette groups

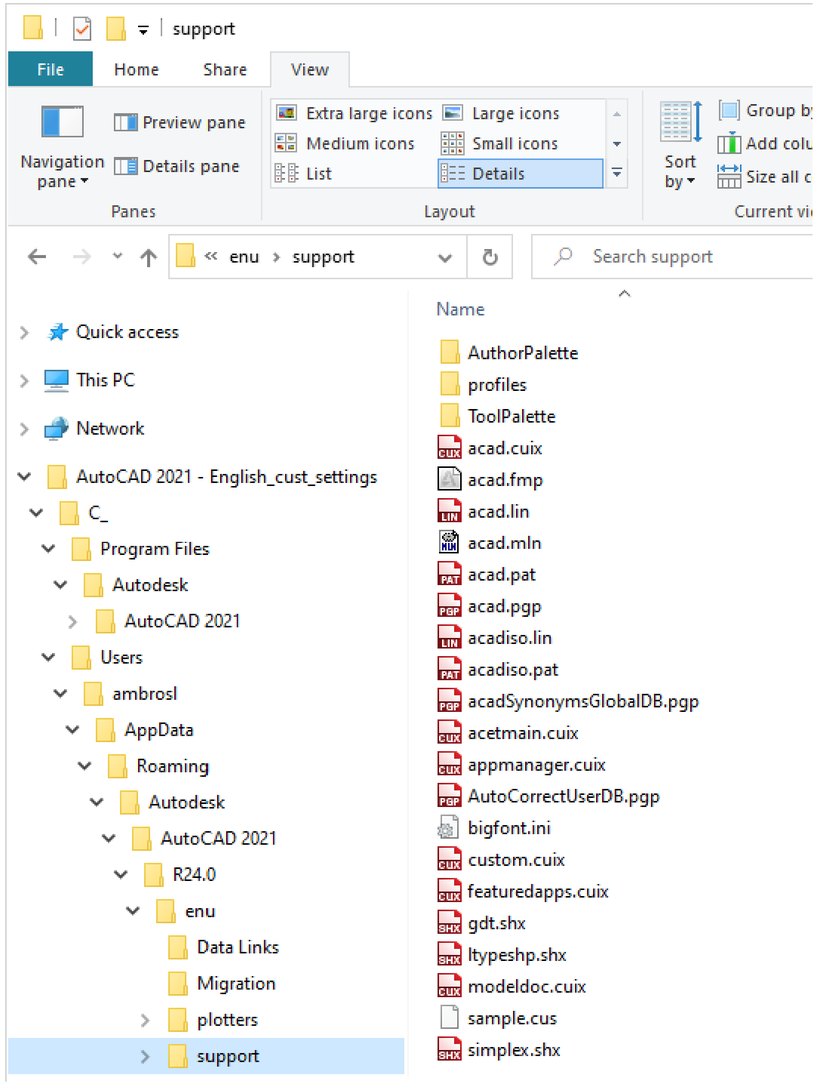


Manually Migrate Your Custom Files and Settings

Greater control over what is migrated

Manually migrate with:

- Customize User Interface Editor, Transfer tab
- Options dialog box, Profiles tab
- Customize dialog box, Tool Palettes – All Palettes tab
- Windows Explorer or File Explorer
  - Cut, copy, and paste files

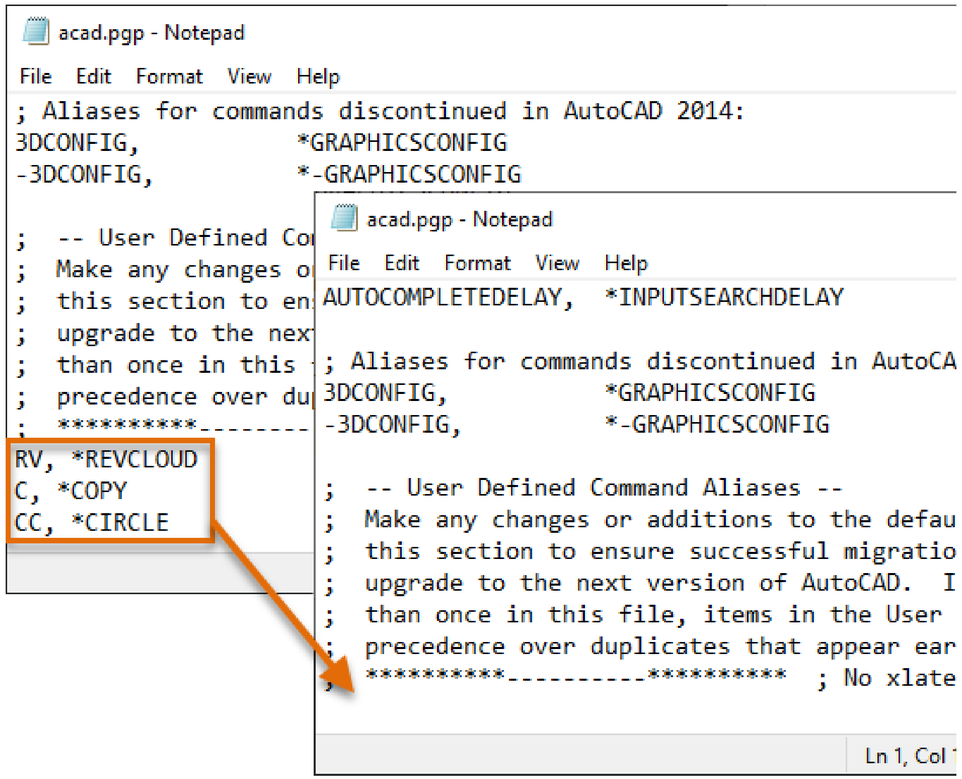


Manually Migrate Your Custom Files and Settings

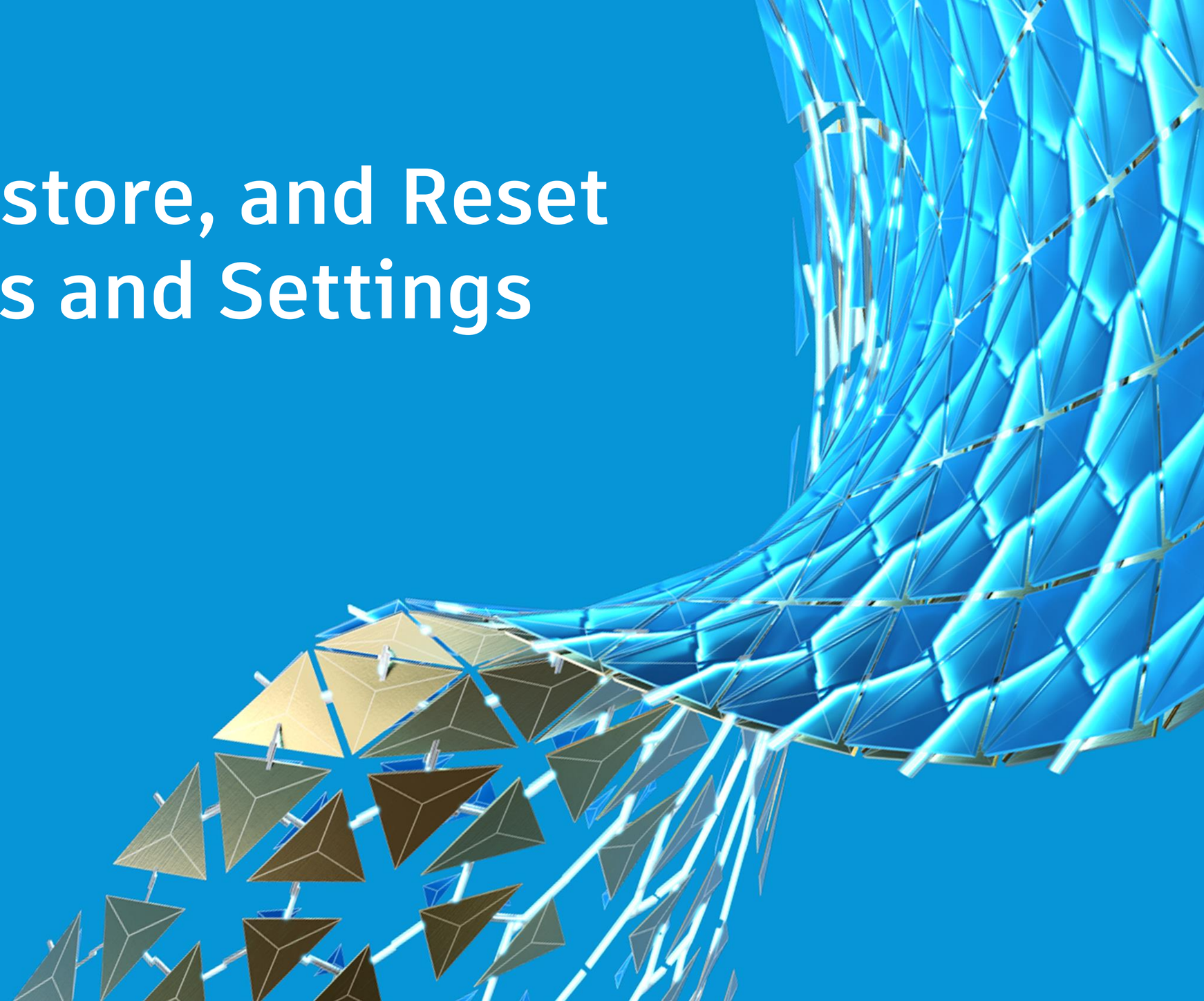
Greater control over what is migrated

Manually migrate with:

- Customize User Interface Editor, Transfer tab
- Options dialog box, Profiles tab
- Customize dialog box, Tool Palettes – All Palettes tab
- Windows Explorer or File Explorer
- Notepad
  - Copy edits between files

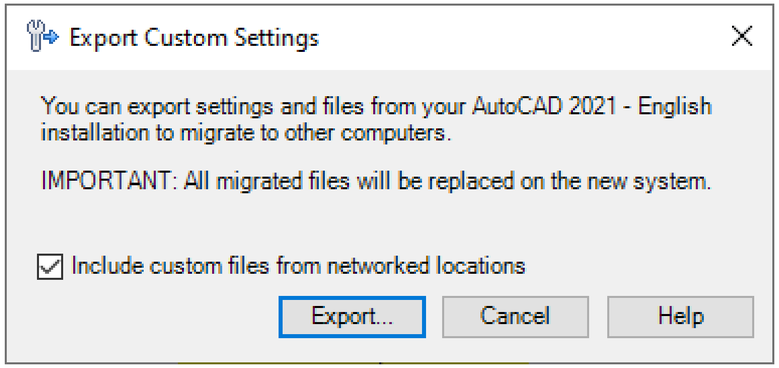


Back Up, Restore, and Reset Custom Files and Settings

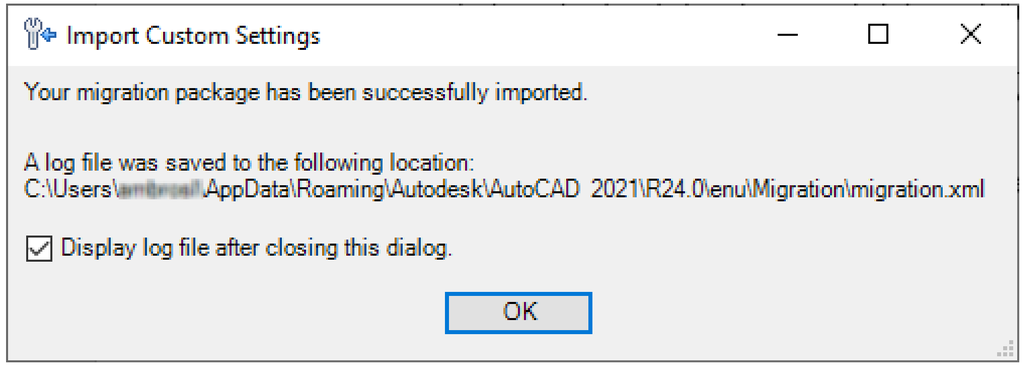


Back Up and Restore AutoCAD Settings

Export AutoCAD <*release*> Settings



Import AutoCAD <*release*> Settings

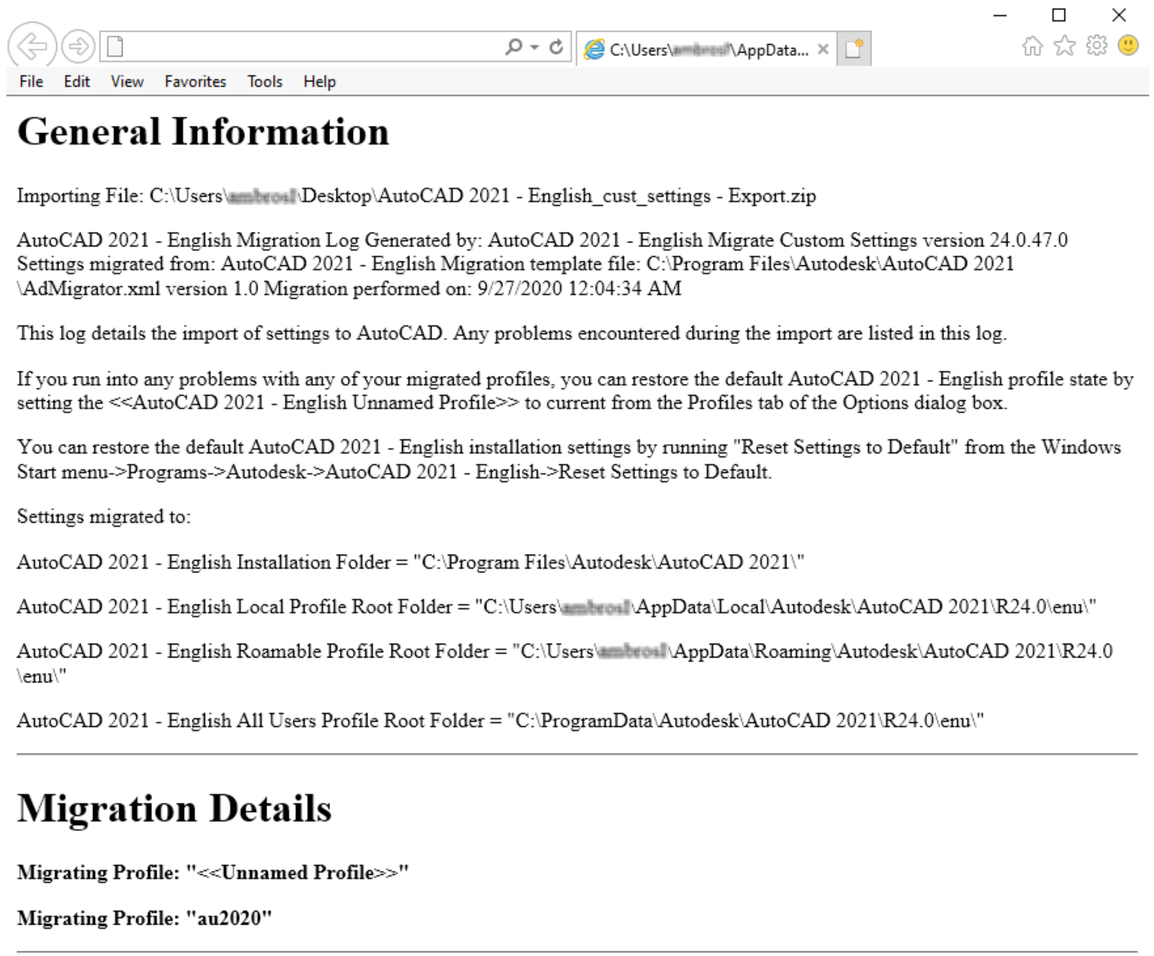


Note: Same product to Same product only

Back Up and Restore AutoCAD Settings

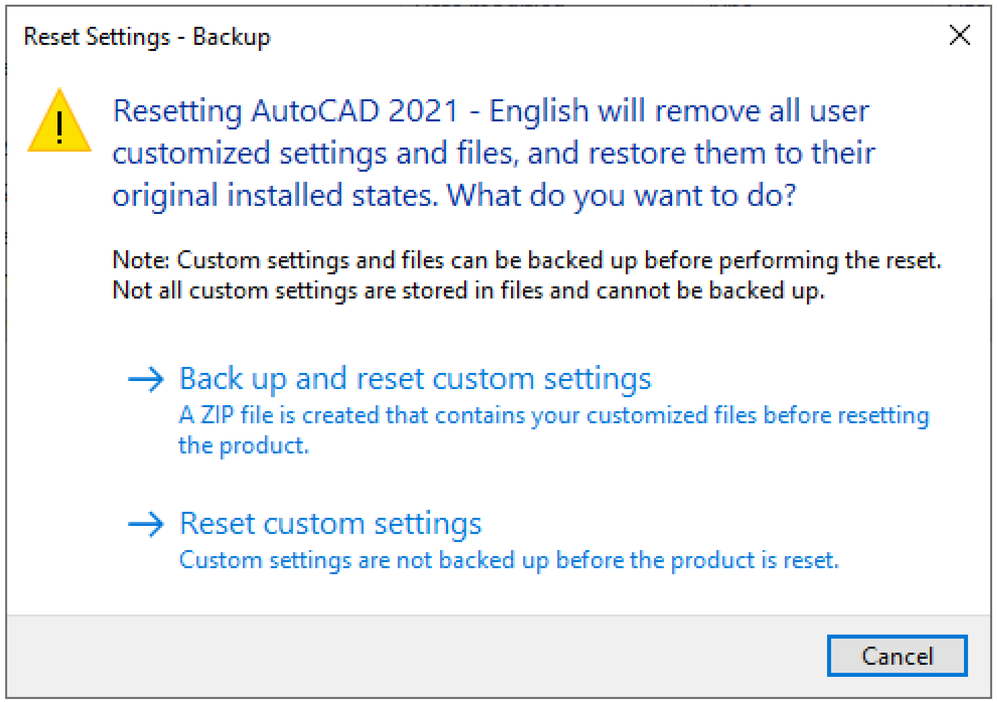
Import AutoCAD *<release>* Settings log

- Detailed migration information
- Lists problems encountered

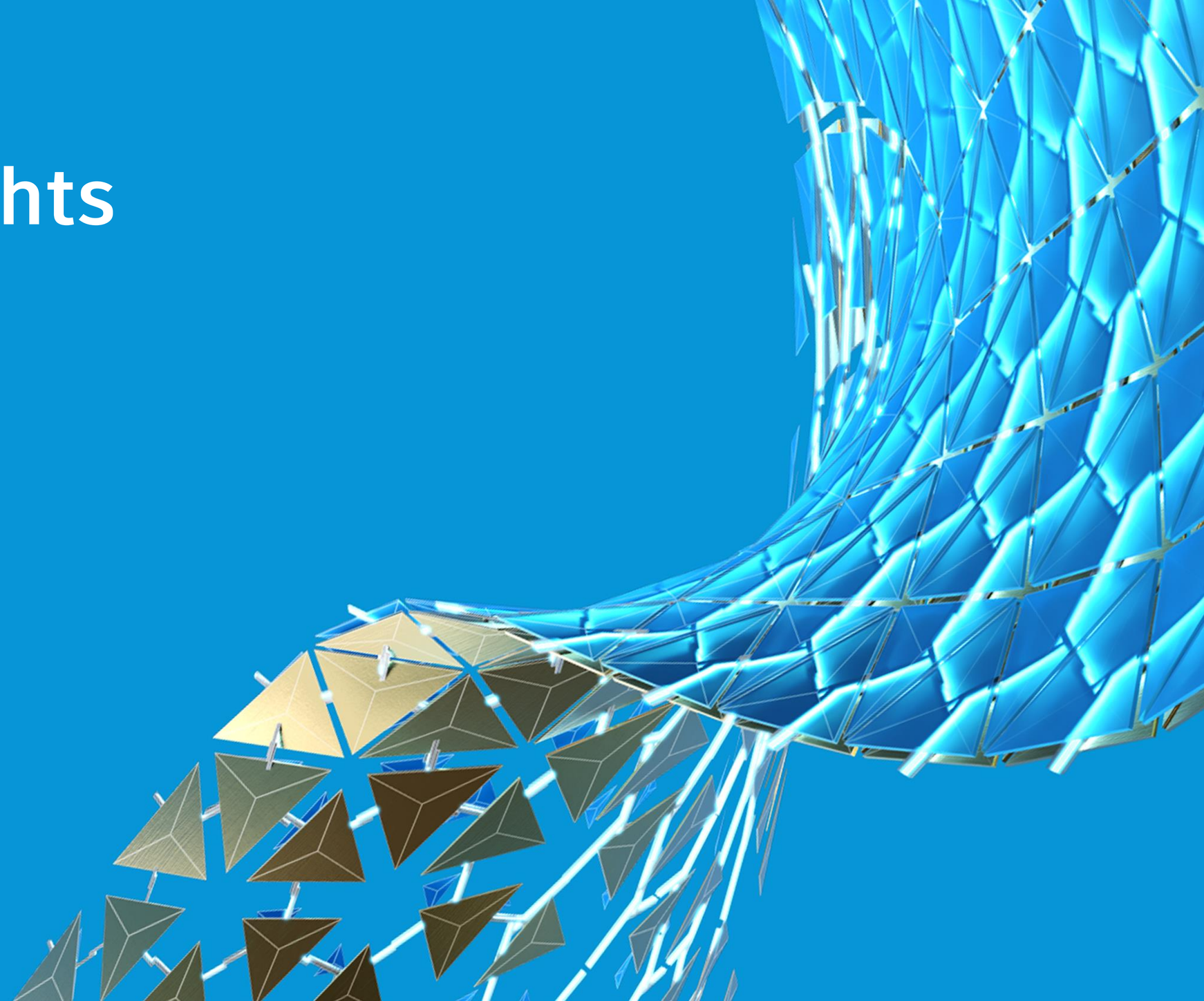


Back Up and Restore AutoCAD Settings

Reset Settings to Default



Final Thoughts



Final Thoughts

Managing and migrating custom files:

- Productivity
- Standards enforcment

Customizing has many similarities to Wonderland in *Lewis Caroll's Alice's Adventures*.

Both

- Are virtually endless
- Hold many mysteries just waiting to be discovered

Final Thoughts

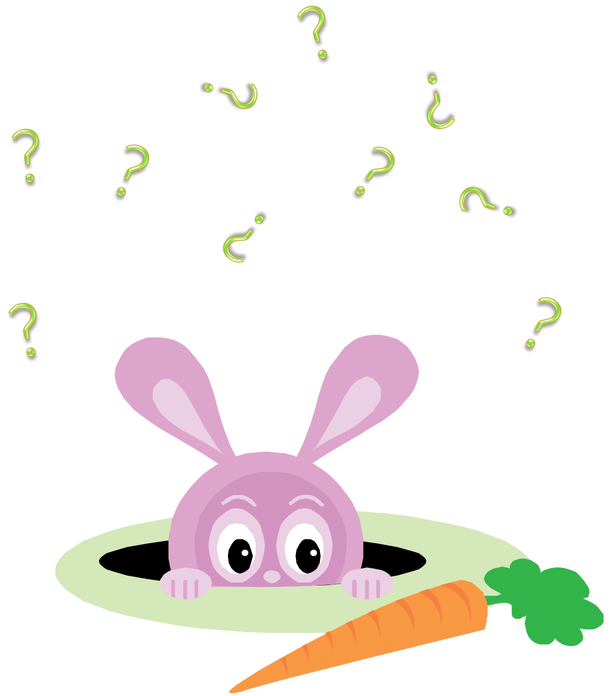
Questions? Questions? Questions?

If you have any further questions, feel free to contact me via

email: lee.ambrosius@autodesk.com

twitter: @leeambrosius

Thanks for watching this session!



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