



CUI's Demystified

Robert Green – CAD-Manager.com

CP205-2

Have you been itching to try your hand at customizing your AutoCAD®-based products, yet have felt intimidated with the CUI customization format? If so, this class will get you rolling and demonstrate that CUI files aren't as hard to handle as they seem. Starting with definitions of the functional blocks of customization, we'll quickly branch out into creating command macros and attach them to drop-down menus, toolbars and keystroke accelerators, then create your own workspaces to deploy what you've learned. Along the way we'll also define how to bring over legacy controls like icon menus, how to use multiple CUI files within a single workspace and strategies for employing the Enterprise CUI. If you want to get started with CUI files, this is the class for you.

About the Speaker:

Robert is head of the Robert Green Consulting Group and a 13-year veteran speaker at Autodesk University. You've likely read his work in CADalyst magazine, where he authors the "CAD Manager" column, or in his bi-monthly CAD Manager's Newsletter. He holds a degree in Mechanical Engineering from the Georgia Institute of Technology and gained his CAD skills from 21 years of AutoCAD®, MicroStation®, and MCAD® software usage. Since starting his own company in 1991, Robert has performed consulting and teaching duties for private clients throughout the U.S. and Canada.

Web site/email: www.CAD-Manager.com

The Learning Approach

My goal for this course is to expose you to the Custom User Interface (CUI) environment so you'll have a good starting point to begin your own exploration of the CUI command. To this end I'll be using a combination of PowerPoint slides, live demos and short lecture segments.

Obviously this class isn't a live lab environment so you won't be able to follow along. Given this limitation I'd like to offer some strategies you can use to get the most from this course. Here are my recommendations:

Try to get the concepts, not the specifics: You'll do better later if you know more of what you're trying to do as opposed to memorizing a bunch of random clicks and sequences.

Follow along in the handouts: I'll give you page references as I go along so you'll be able to see what I'm pointing to on the screen. Feel free to squiggle in some notes in the margins and spaces provided if you'd like.

Use my videos when you return: I've recorded some demonstration segments that you can watch and listen to that will go over the show and tell segments I'll do in class. You can use these segments as many times as you'd like later so you don't have to worry about remembering everything today.

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|---|
| The web address for the videos is: www.cad-manager.com/cui |
|---|

Use the procedures outlined in the videos to construct your own CUI projects: The procedure segments you'll see give you a step by step resource for creating some of your own workspaces, macros, and keystroke shortcuts. Why not try them out for yourself?

A Special Thank You

I'd like to thank Travis Jones of Autodesk for helping me with instructional materials during the AUGI CAD Camps in 2008. His willingness to point me towards Autodesk instructional materials helped hone the presentation immeasurably. Thanks Travis.

Why Customize?

Why not?

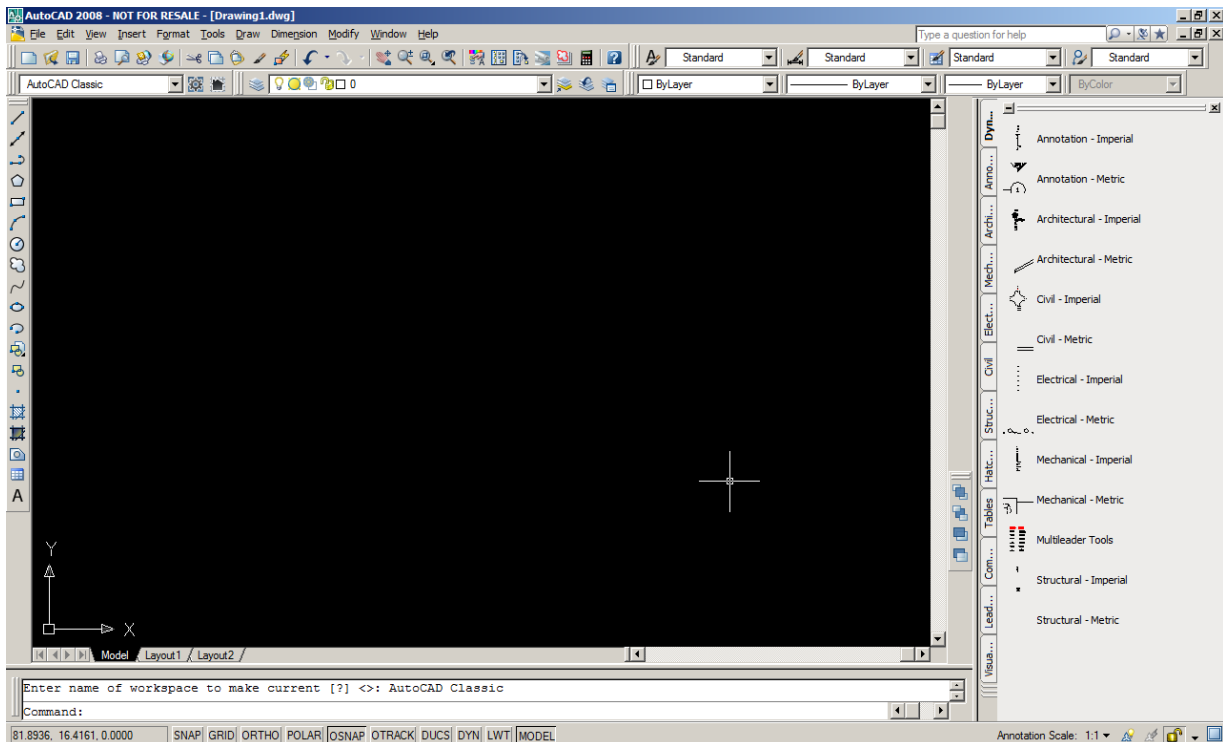
Why not make your AutoCAD based products do what YOU want rather than adapting your usage to how the software is already configured.

We'll look at the following components for customization in this class:

- Workspaces
- Workspace components
- The CUI interface
- Commands
- Macros
- Keyboard shortcut keys
- Enterprise CUI's
- The transfer tab

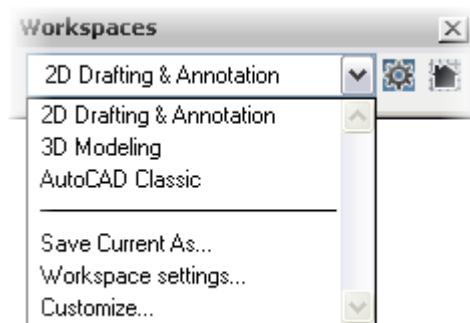
Workspaces

Workspaces are simply collections of menus, toolbars, ribbons, palettes and commands that help you make the AutoCAD experience more productive for your user. Here you can see the **AutoCAD Classic** workspace in AutoCAD 2008:

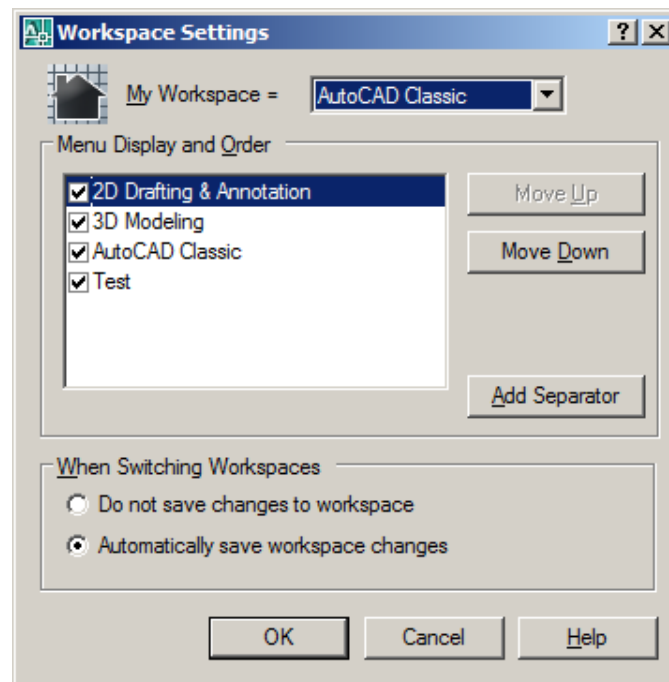


Selecting the Workspace

Here you select the workspace in the **Workspaces** popdown menu. Every user can select from the available workspaces as shown here:



If you select **Workspace settings ...** you receive the following dialog which allows for setting workspaces to be selectable or not and whether user changes to workspaces are saved or not. Pretty straightforward.

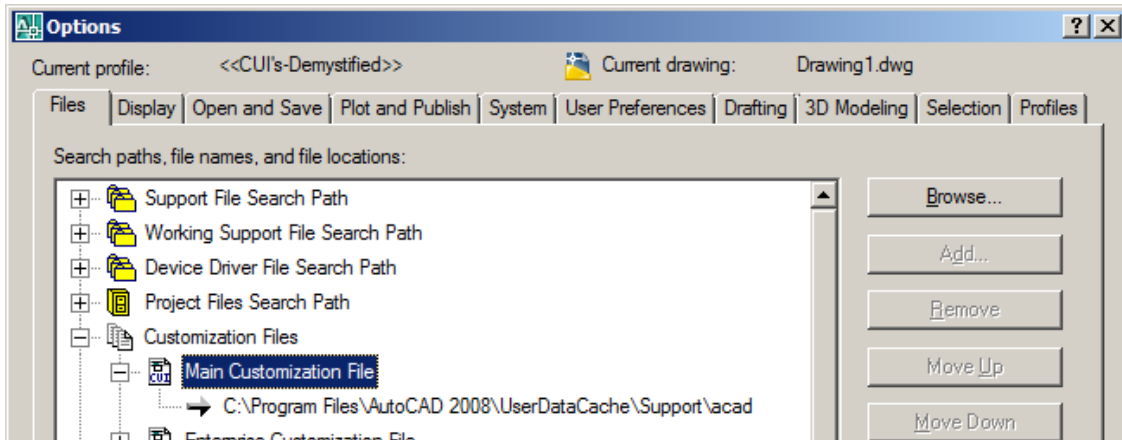


So how do you know where the Workspace resides or where it comes from? Good question, let's tackle that next.

Workspaces and Profiles

Don't confuse workspaces or CUI files with your AutoCAD profile even though the difference is subtle. The key thing to remember is the profile points to the CUI which points to the workspace. Confused yet? Let's walk through it:

AutoCAD's Options command defines where the current CUI file is as shown here:



Now that the CUI file has been located and loaded in it will contain the various workspaces you see in the **Workspace settings** ... dialog.

We can invoke the CUI command to see the listing of the workspaces within the CUI like this:



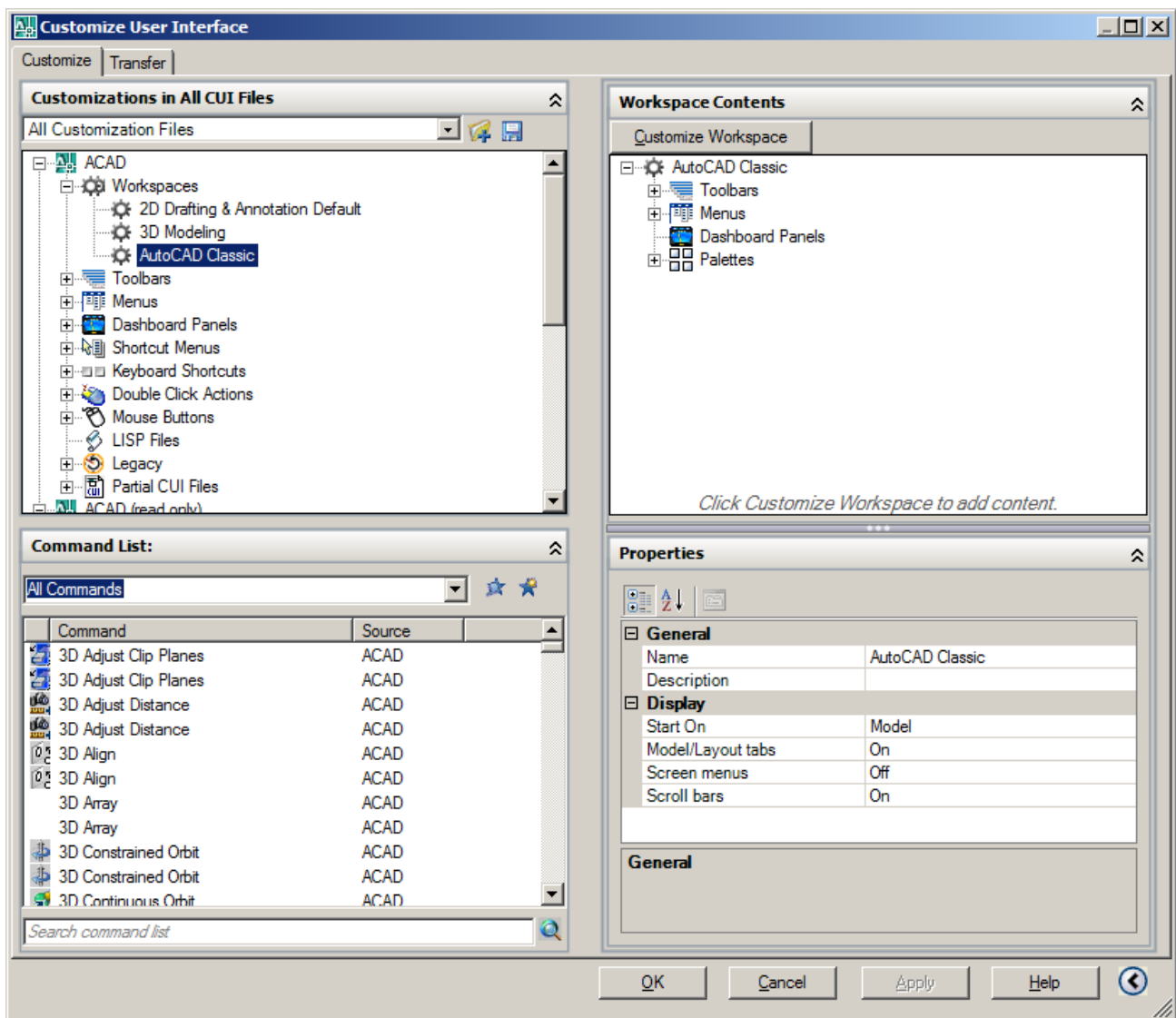
So, logically, the flow is like this:

- Use Options to set the CUI
- The CUI is now saved in the profile
- The workspace you use is a function of the CUI

Get it? ;-)

The CUI Command Interface

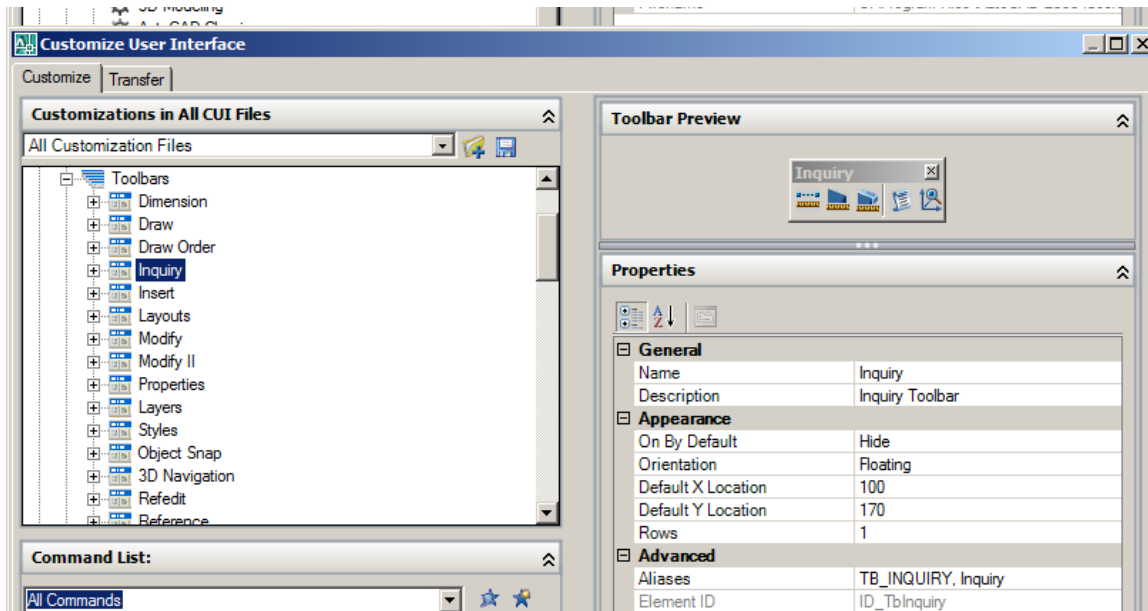
Now let's learn our way around the CUI command interface by manipulating some workspaces. Here you see the CUI command interface screen:



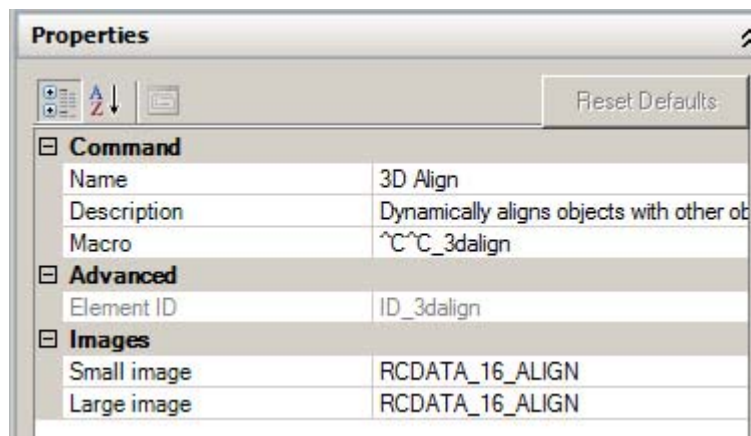
The key areas are:

- Upper left:** Workspaces and their components
- Lower left:** Commands
- Upper right:** Information panel (context switches with upper left area selection)
- Lower right:** Properties panel (context switches with selection in any area)

Here's another possibility for the upper left panel (working on a toolbar):



And here's a Properties window example when editing a command:



So you can see that the CUI command interface is dynamic and context sensitive as you select.

CUI Demo Sessions

Here's where the magic of video kicks in. It is far easier to watch my tutorial segments for the demonstrations I'm about to perform than trying to write things down. Try to understand my approach and follow the sequence of the demo then watch the videos later to refresh your knowledge. The video link is:

www.cad-manager.com/cui

Introduction to Macros

Macros are simply a way to pass instructions to AutoCAD when a graphic CUI element (like a menu selection toolbar button) are selected. Macro language has been around longer than AutoLISP and has a quirky vocabulary. The following cheat sheet should help you decipher macros:

| | |
|---------------|--|
| - | Suppresses dialog box display of commands and makes all dialog box options available. |
| ; | Issues ENTER. |
| ^M | Issues ENTER. |
| ^I | Issues TAB. |
| [blank space] | Enters a space. A blank space between instructions is equivalent to pressing SPACEBAR. |
| \ | Pauses for user input. This character cannot be used with accelerators. |
| _ | Provides international version support by translating standard English commands and options that follow into another language version of the software. |
| =* | Displays the current top-level drop-down, shortcut, or image menu. |
| ^C^C^C | Cancels all existing commands before proceeding with the macro. |
| \$ | Introduces a conditional DIESEL macro expression (\$M=). |
| ^B | Turns Snap on or off. This character is equivalent to CTRL+B or F9. |
| ^C | Cancels a command. This character is equivalent to ESC. |
| ^D | Turns Coordinates on or off. This character is equivalent to CTRL+D or F6. |
| ^E | Sets the next isometric plane. This character is equivalent to CTRL+E or F5. |
| ^G | Turns Grid on or off. This character is equivalent to CTRL+G or F7. |
| ^H | Issues BACKSPACE. |
| ^L | Turns Ortho on or off. This character is equivalent to pressing F8. |
| ^P | Turns Menuecho on or off. |
| ^T | Turns Tableton or off. This character is equivalent to CTRL+T or F4. |
| ^V | Changes the current viewport. |
| ^Z | Enters a null character that suppresses the automatic addition of blank space at the end of a command. |
| | |

Question: What does this macro do?

`^C^C^C-layer;make;circles;color;blue;;circle;\12;`

Answer: It cancels out of the current command, creates a layer called CIRCLES which has a color of blue then draws a 12 radius circle at a user specified point.

Demo Session:

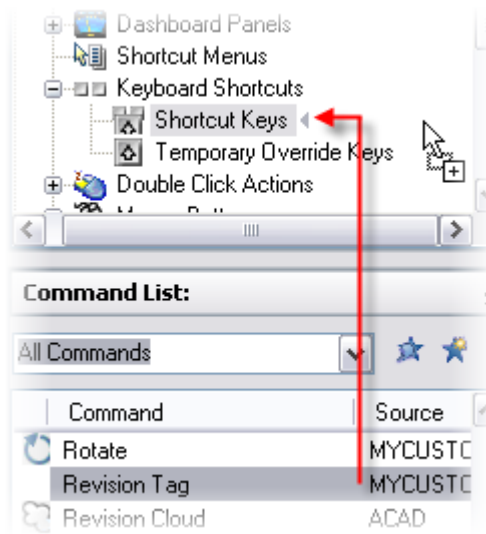
Now watch the demo on macros for some examples of attaching a macro to a command and testing it.

Keyboard Shortcut Keys

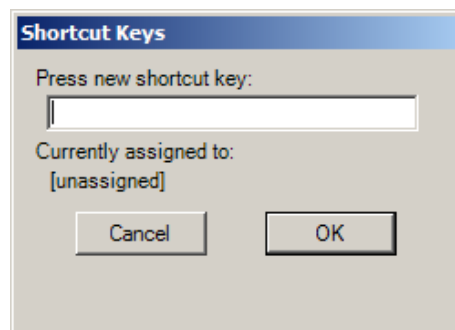
Do you ever drive AutoCAD with Ctrl key combinations? Most power users I know do. The key steps to creating your own keyboard shortcut keys are:

- Make sure the Ctrl key combination you want is available
- If available create your own keystroke
- If not available delete the old Ctrl key combination then make your own

Creating your keyboard shortcut is an easy drag and drop from the command list into the shortcut keys section of the CUI as shown here:



Once the command has been dropped you'll receive a prompting box that will record your Ctrl character sequence like this:



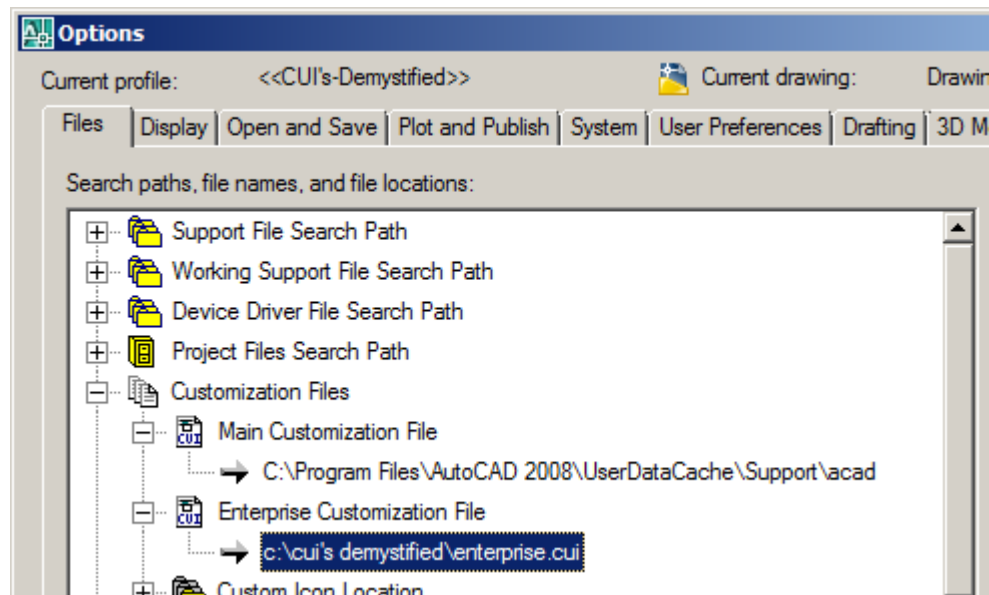
Demo Session:

Now watch the demo on keyboard shortcuts that shows you both cases (no Ctrl character conflict AND removing a conflict case as well).

The Enterprise File

It has nothing to do with Star Trek!

The Enterprise file is simply another CUI method you can use to have a READ ONLY CUI file. The benefit for the CAD manager is simply that user's can't accidentally modify the Enterprise CUI. You specify which CUI file to use as the Enterprise file in the OPTIONS command like this:



For more standardization power locate the Enterprise file on a network drive and you can deliver a standard file to all users!

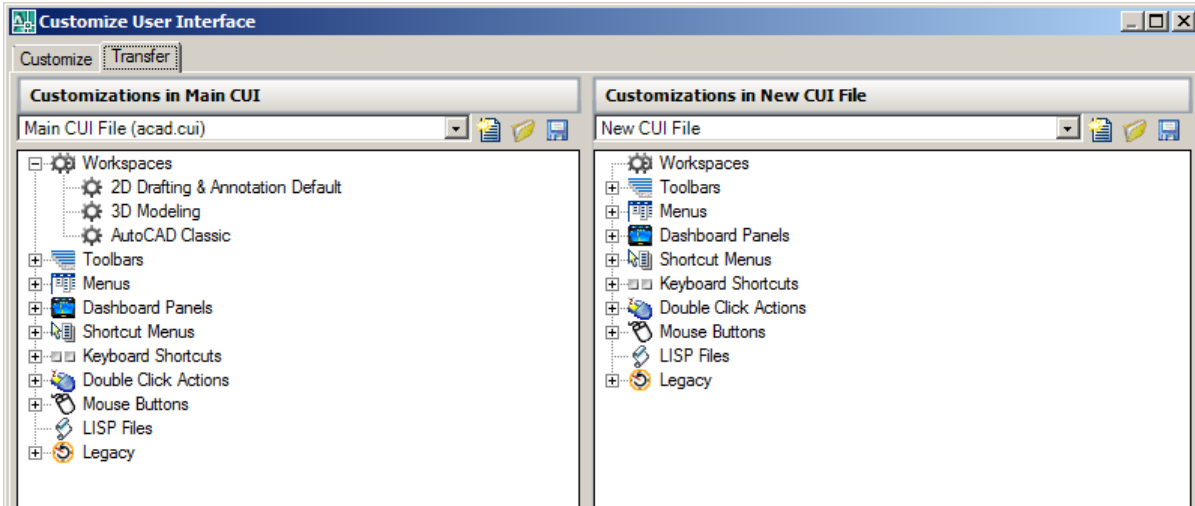
Demo Session:

Now watch the demo on Enterprise files to run through the process.

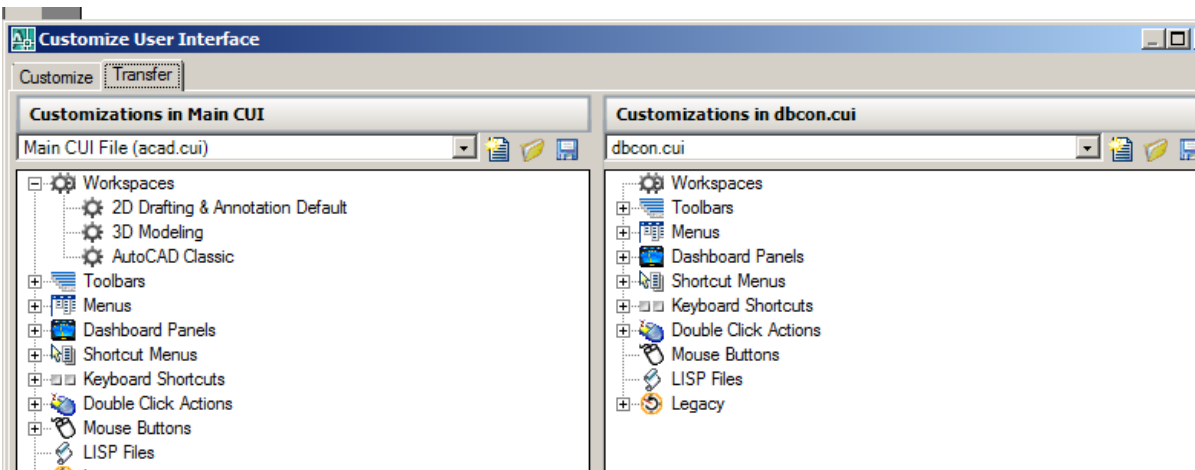
The Transfer Tab

Let's say you want to mix and match several CUI files to make your own custom CUI. Chances are you'll essentially need to "cut copy and paste" from a variety of CUI files to do this. The great news is it is simple to do with the Transfer Tab.

The Transfer Tab is located in the main CUI interface right beside the Customize tab as shown here:



Your current CUI is in the left hand tab and the other CUI that you will use to copy/paste from will be loaded on the right by using the OPEN icon to load in another CUI. Then it is a simple matter of drag and drop:



Demo Session:

Now watch the demo on using the Transfer Tab to see how it works.

Now You Try It:

After watching the video segments why not get your hands dirty and try out some of the concepts you've learned! You'll actually have fun with it now that you know what you're doing.

Materials and PowerPoints

You can download the updated course guide (with any additional notes or corrections) for this presentation at my web site www.CAD-Manager.com on the **AU 2008 Resources** page.

I will send you a PDF copy of the session PowerPoint presentation if you request it. Just send an email to me at rgreen@cad-manager.com and be sure to put **CP311 – CUI's Demystified** in the subject line so I'll know which class you attended.

I'll reply to all information requests upon my return to Atlanta on December 6th.

Reference Materials

You can find a wide range of information on customization, programming and CAD management at my web site: www.CAD-Manager.com