



Walt Disney World Swan and Dolphin Resort
Orlando, Florida

AutoCAD® Secrets Exposed

Jeanne Aarhus - DiversiCAD

GD31-1 This session is filled with time-saving tips and tricks that can be used to increase your productivity immediately. Some of AutoCAD's most precious features - and time-savers - are either buried in the documentation or have been lost in the upgrade shuffle. Attend this session if you are too busy "working" to spend time digging through all the new and old documentation and online information. Do you take advantage of new tools available or are you still doing things just like you did years ago? Some of the best and most productivity-enhancing tools have been introduced in recent upgrades. To take advantage of them, attend this session and discover what might take you years to discover on our own.

About the Speaker:

Jeanne is known for keeping her training sessions fast moving and fun. She is a nationally known speaker and expert in CAD and presents seminars and workshops on CAD productivity for managers and users in both corporate and college settings. She has been involved with production drawing, user support, standards coordination, programming, and training in CAD applications for more than 20+ years. She continues to be actively involved in international, national, and local CAD user groups.

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AutoCAD® Secrets Exposed!

The topics I selected for this presentation were collected from friends, co-workers, other user groups; and of course the newsgroups.

If you have an idea or a great tip to pass along. I invite you to share your ideas with other users. This only works when we ALL share ideas and concepts. Keep the information flowing....and thanks to all those who helped with this collection of ideas.

About this document:



Secret available in AutoCAD 2002



Secret available in AutoCAD 2004



Secret available in AutoCAD 2005



Secret available in AutoCAD 2006

I will assume that most of you are in 2002+ versions, at least I hope so!

Secret to Expose!



Thanks to everyone who contributed ideas to this session. And remember me if you have a clever way to use AutoCAD, send me YOUR "secrets". We all learn through sharing!

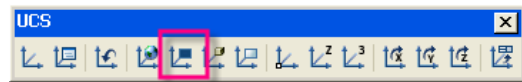
1 Rotating the WORLD



No, you can't control how the world spins; but you can control how it rotates! Do you ever need to draw at an angle for an extended period of time? Maybe that road or floor plan isn't at zero?

Rotate the CURSOR

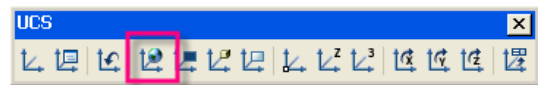
- Step 1: Use the UCS by OBJECT command
- Step 2: Select an object in the drawing that you need to align with.



Your cursor is now aligned with that object.

Note: If you use POLAR SNAP settings you can still have other angles at your disposal.

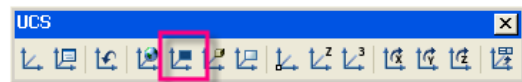
- Step 3: Use the UCS by WORLD command to return the cursor to the WORLD alignment.



You can void getting that "crick" in your neck by adding in this idea. Modify the system variable UCSFOLLOW so that your screen follows the cursor, rather than the other way around.

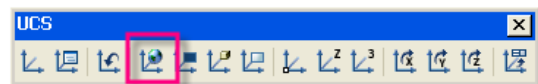
Rotate the SCREEN

- Step 1: Key in UCSFOLLOW and change the value to 1
- Step 2: Use the UCS by OBJECT command
- Step 3: Select an object in the drawing that you need to align with.

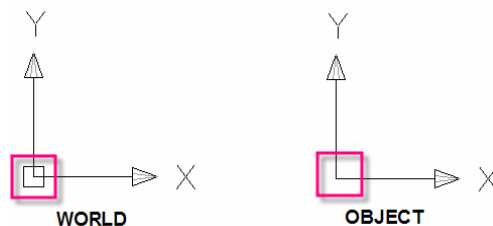


Your screen is now aligned with that object.

Use the UCS by WORLD command to return the screen to the WORLD alignment.



Note: You should also notice that the UCSICON appears differently when you are not aligned to the "world" alignment.



2 Windows-Like MOVE and COPY



If you're used to using the drag-n-drop technique in Windows, then you need to know you can do this in AutoCAD too! You can't use exact precision with this, but it is helpful when you are just trying to move an annotation symbol or text object out of the way.

To MOVE the object:

- Step 1: Select an object, you should see grips.
- Step 2: With the <Left-Click> on your mouse, select the object (NOT on a grip) and drag it to the new location.

You should see the standard windows "move" icon on your cursor.



To COPY the object:

- Step 1: Select an object, you should see grips.
- Step 2: With the <Left-Click> on your mouse, select the object (NOT on a grip) and drag it to the new location while holding down the <CTRL> key.

You should see the standard windows "copy" icon on your cursor.



3 More Windows-Like COPY



To COPY with Precision

- Step 1: Select an object(s) and pick the GRIP for the location point to copy from.
- Step 2: Drag the object(s) to a "snappable" location and hold down the CTRL key when you select the "snappable" destination.

Easy right? Hopefully someone out there can use this!

4 Multi-Leader Arrows



This is another use for the previous functionality. If you use the CTRL key to COPY existing objects in your drawing, you should also know that you can use this same technology on a dimension leaders for notes.

ADD More Leaders

- Step 1: Select the Dimension Leader and select the grip at the "arrow" end of the line.
- Step 2: Hold down the SHIFT+CTRL keys and select a new "arrow" destination in the drawing.
- Step 3: You can continue to add additional leader arrows as needed while holding down the SHIFT+CTRL keys.

5 New Multi-Leader Arrows



This is another use for the previous functionality. If you use the CTRL key to COPY existing objects in your drawing, you should also know that you can use this same technology on a dimension leaders for notes.

ADD More Leaders

- Step 1: Select the Dimension Leader and select the grip at the "arrow" end of the line.
- Step 2: Position your cursor at the new "arrow" destination in the drawing.
- Step 3: Press and hold the CTRL key when you click the new destination location.

You do not need to continue to hold down the CTRL key for additional leaders, you are in a "copy" mode now.

6 Useful Hyperlinks




Everyone uses hyperlinks to navigate to a specific web site, but have you thought of other ways you could use this tool? How about a hyperlink to navigate to a reference file? Or a hyperlink to navigate to a product specification? Check it out!

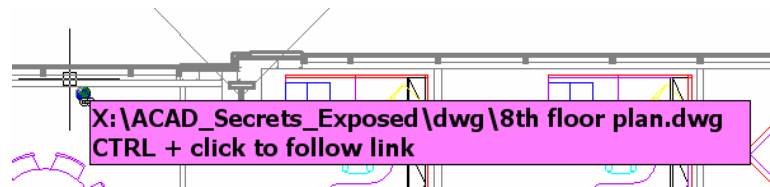
Hyperlink to a Reference File:

- Step 1: Select the command Insert → Hyperlink and select the reference file
- Step 2: Pick the File button and navigate to the file location of the reference file.

Now use this hyperlink to open the reference file for editing. A great shortcut!

- Step 1: HOVER over the reference file and you should see the “hyperlink” icon. 

The tool tip will remind you to hold down the <CTRL> key when selecting the file to follow the link to the reference file.



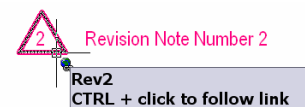
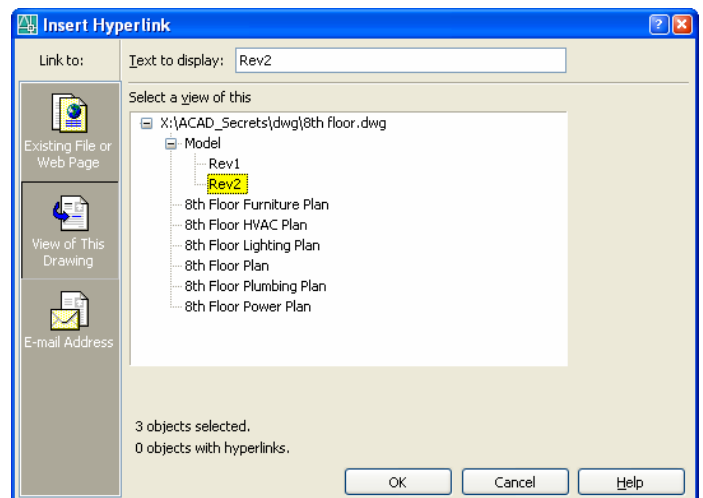
Hyperlink to a View:

- Step 1: Zoom in on the revised area.
- Step 2: Select View → Named Views and pick the NEW button to save the current view as REV2.

I placed the Revision Notes themselves in PaperSpace, so I will place the actual hyperlink there.

- Step 3: Select the layout and zoom window around the revision notes area of the sheet.
- Step 4: Select the Revision 2 objects
- Step 5: Select Insert → Hyperlink and choose the Link to → View of this Drawing
- Step 6: Expand the model file and select the named view Rev2

Test the hyperlink from the sheet to verify that it is working.



7 Copy Objects from the XREF



Have you ever wanted to copy an object or several objects from a reference file?

Hopefully, you are already familiar with the single object method. To copy a single object you use the Express Tool COPY NESTED OBJECTS.

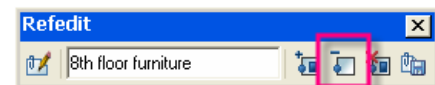
Copy SINGLE Object from XREF:

- Step 1: Select Express → Copy Nested Objects
- Step 2: Select the object in the reference file and copy it to a new location.

The next option is a little more difficult, but well worth the effort!

Copy MULTIPLE Objects from XREF:

- Step 1: Select the XREF you need to copy from
- Step 2: <Right-Click> and select the command EDIT XREF IN PLACE
- Step 3: Choose the level of editing you need, file, block, etc. and highlight the appropriate level.
- Step 4: Select the objects you want to copy and copy them to the new location.
- Step 5: Select the new copy of the objects.
- Step 6: Pick the REMOVE FROM SELECTION SET button on the Refedit toolbar.



This will remove the newly copied objects from the xref file set.

- Step 7: SAVE your changes from the Refedit toolbar.

You are now back in the original drawing and the objects you copied are in this file not the Xref file.

8

How to get GREAT IMAGES from AutoCAD



I constantly get this question from users.

“How can I get good images of my drawing files into a PowerPoint presentation?”

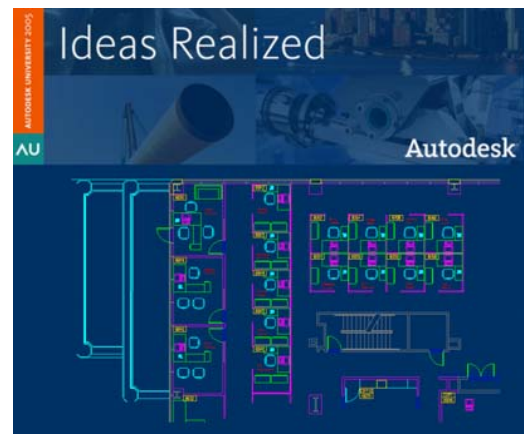
First, I recommend using the Windows clipboard, and since AutoCAD 2005, the background is automatically clear!

Paste Image into PowerPoint

- Step 1: Setup the AutoCAD view window with the desired layers and aspect ratio.
- Step 2: Select everything using a window or crossing.
- Step 3: Copy the selection set to the windows clipboard.

The only thing you will see if it is successful is a “quick flash” in the drawing window.

- Step 4: Paste the clipboard image into any PowerPoint presentation.



Note: The background of the image is automatically clear in AutoCAD 2005 and 2006!

Note: For previous releases you will need to modify the drawing background to white for good image capture.

9 Control Startup Workspace

jtbworld.com



If you are using the new workspaces in AutoCAD 2006, you probably have wanted to control which workspace is set on startup. Here is a great tip that will set the workspace on startup.

Automatic Workspace Setup

Step 1: Create a script file with the following contents

```
(if (/=(getvar "wscurrent") "WSname") (command "wscurrent" "WSname"))
```

Step 2: Be sure this script file is in a defined support directory.

Step 3: Edit the startup icon and add the following startup switch.

```
C:\...\AutoCAD 2006\acad.exe /b "StartupWS.scr"
```

Step 4: You can also set the default profile on startup using the following startup switch.

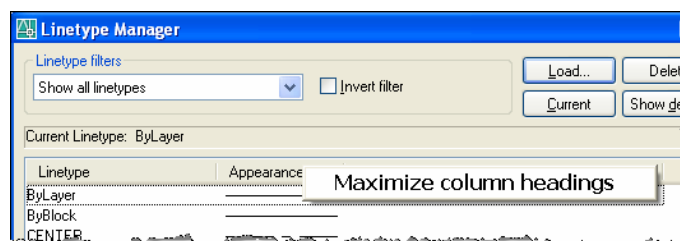
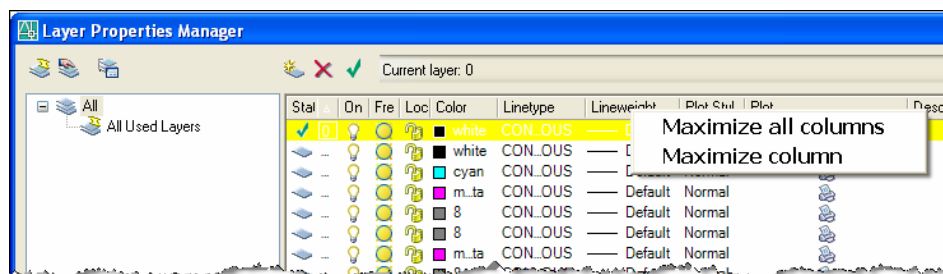
```
C:\...\AutoCAD 2006\acad.exe /p ProfileName /b "StartupWS.scr"
```

Note: Once this script is created you can use it to set other defaults on startup.

10 Maximize Dialog Columns



You can <Right-Click> on any column heading in a dialog to maximize the column width.



11 Easy Super/Sub-Script Text



You can use the stacked fractions to get quick and easy superscript or subscript text without the dialog box.

SuperScript Text

Step 1: Key in 2 32^ and highlight the 32^

Step 2: Select the Stacked Fraction button 

Superscript 2^{32}

Subscript Text

Step 1: Key in 2 ^a and highlight the ^a

Step 2: Select the Stacked Fraction button 

Subscript 2_a

More Examples

Key in TOP/BOTTOM and highlight the entire string

STACK TIP - $\frac{TOP}{BOTTOM}$

Key in TOP#BOTTOM and highlight the entire string

STACK TIP - $\frac{TOP}{#BOTTOM}$

Key in TOP^BOTTOM and highlight the entire string

STACK TIP - $\frac{TOP}{^BOTTOM}$

Key in TOP^BOTTOM and highlight the ^BOTTOM

STACK TIP - $\frac{TOP}{^BOTTOM}$

Key in TOPBOTTOM^ and highlight the BOTTOM^

STACK TIP - $\frac{TOP}{BOTTOM^}$

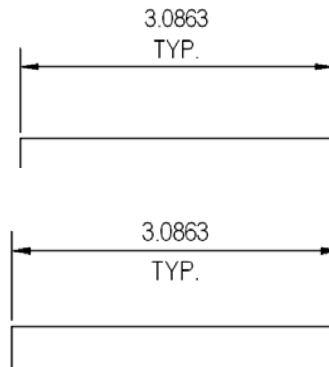
12 Stack Those Dimensions



Now that you know everything you need to stack anything, how about in dimensions? Unfortunately, the previous options don't work the same when you are working with dimension text. But try this little trick, it works great!

Two lines of Dimension Text

- Step 1: Edit the dimension text using the MText editor.
- Step 2: Press the ENTER key after the "dim value" in the editor and add TYP. on the second line. You should notice that the output wasn't quite what you were expecting.
- Step 3: Edit the dimension text again, and change it to "dim value" \XTYP.
- Isn't that what you really wanted?



13 Multiple DTEXT Objects

Autodesk



In 2006, the DTEXT has changes slightly in functionality. In prior versions, you could continue placing additional DTEXT objects without re-starting the command by picking a blank location in the drawing. In 2006, this option disappeared, but you can get it back by setting the following system variable.

AutoCAD 2002, 2004, 2005

- Step 1: Key in the DTEXT command and enter the needed text
- Step 2: Pick in a blank location in the drawing to start a new DTEXT object.
- Step 3: Continue to place as many DTEXT objects as needed without having to re-start the DTEXT command.

AutoCAD 2006

- Step 1: Modify the system variable DTEXTED to 1 to allow multiple insert points for DTEXT.
- Step 2: Key in the DTEXT command and enter the needed text
- Step 3: Pick in a blank location in the drawing to start a new DTEXT object.
- Step 4: Continue to place as many DTEXT objects as needed without having to re-start the DTEXT command.

14 CLEAN Image Frames on Paper



When you use logos or images in your title blocks or drawings you need the image frame to be visible to allow you to manipulate the image. But you don't want the image frame to plot right?

Try using the IMAGEFRAME command to get the exact control you need.

IMAGEFRAME

controls whether image frames are displayed and plotted

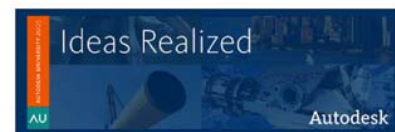
0 - Image frames are not displayed and not plotted.

1 - Image frames are both displayed and plotted.

2 - Image frames are displayed but not plotted.

Image OFF for Plots Only

Step 1: Key in IMAGEFRAME and set it to 2. This allows you to manipulate the image but it won't plot.



15 Using BYBLOCK

Autodesk



There are two generic options for layer color, weight and linetype in AutoCAD, they are BYLAYER and BYBLOCK. Everyone knows and uses the BYLAYER property setting, but I am always amazed how many users don't use or don't understand the BYBLOCK property setting.

BYBLOCK Definition

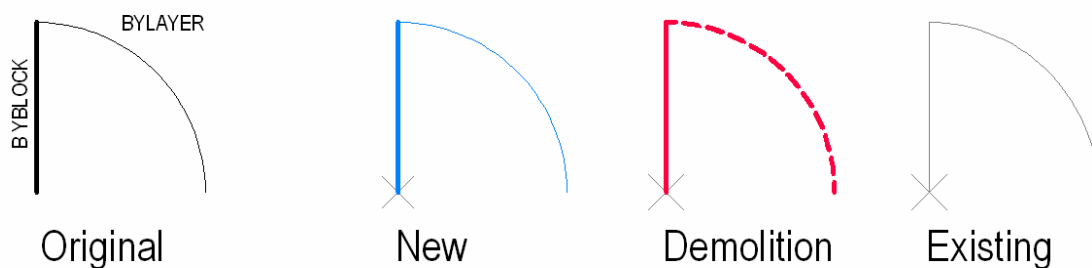
Inherit individual properties first, use layer properties second.

BYBLOCK Example

This example will show you how you can use the BYBLOCK property definition to create "generic" blocks that can be used for more than one representation.

This one DOOR block can be used for Existing, New and Demolition block symbology.

- Step 1: Create DOOR block using BYBLOCK for color, linetype, and lineweight on the Door Panel object, and BYLAYER for color, linetype, and lineweight on the Door Swing object.
- Step 2: Place the DOOR block on the following layers, A-Door, A-Door-Demo, A-Door-Exst.
- Step 3: Select the NEW door block and change the CURRENT WEIGHT to .50
- Step 4: Select the DEMOLITION door block and change the CURRENT LINETYPE to CONTINUOUS.



16 Controlling the New MTEXT

Autodesk



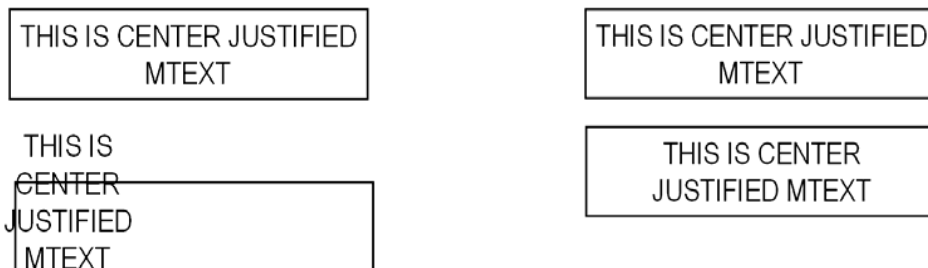
One of the best reasons for using MTEXT is the ability to manually adjust the text width of the paragraph by dragging a grip and resizing or stretching the paragraph width. This has changed slightly in 2006 if the text is CENTER justified. Stretching CENTER justified MTEXT in 2006 also moves the center origin of the entire MTEXT object.

To re-size MTEXT in 2006, AutoCAD expects the user to use the Ruler in the In-Place Text Editor, not by grips. Sorry, but I agree, this is too many steps!

To revert the MTEXT grip editing functionality back to the “old way” you need to change the system variable CENTERMT.

CENTERMT controls how grips stretch MTEXT that has a centered justification. The default setting is 0.

- 0 - When stretching the MTEXT with grips, the center grips also moves in the same direction.
- 1 - When stretching the MTEXT with grips, the center grip stays in place while the text is re-sized.



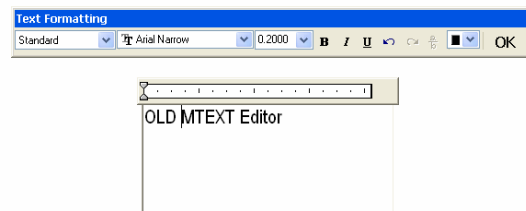
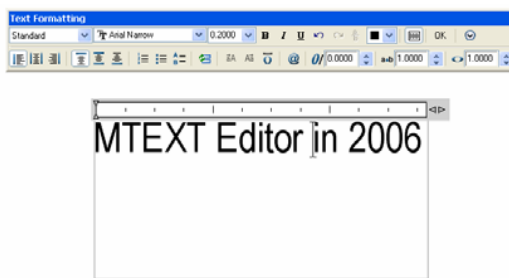
17 Prefer the “OLD” MTEXT Editor? *Autodesk*



To get the old MTEXT editor in AutoCAD 2006 modify the following system variables.

MTEXTED sets the name of the application to use for editing multi-line text objects.
 internal -
 oldeditor –

MTEXTFIXED displays the Multi-line Text Editor at a fixed position and size based on last use, and displays text in the editor at a fixed height. This setting is obsolete if using the new MTEXT Editor in 2006.



18 ZOOM Transitioning *Autodesk*



The new ZOOM commands have smoother view transitioning than previous releases of AutoCAD. If you think that this smooth transitioning is “cool” but too slow for your daily use, you can restore the “old” transitioning using the system variable VTENABLE.

VTENABLE controls when smooth view transitions are used. Smooth view transitions can be on or off for panning and zooming, for changes of view angle, or for scripts. The following options are available

Setting	Pan/Zoom	Rotation	Scripts
0	Off	Off	Off
1	On	Off	Off
2	Off	On	Off
3	On	On	Off
4	Off	Off	On
5	On	Off	On
6	Off	On	On
7	On	On	On

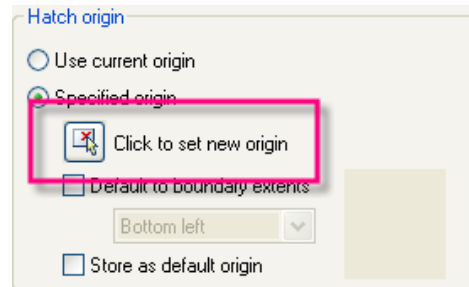
19 Controlling Hatch Origin



You can modify the origin of a hatch easily in 2006. There is a new specify Hatch Origin option in the Hatch Edit dialog.

AutoCAD 2006

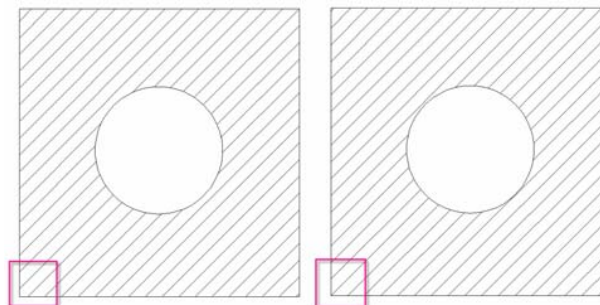
- Step 1: <Double-Click> on the existing hatch to edit the hatch.
- Step 2: Select the **Click to set new origin** button and pick the origin point in the drawing.
- Step 3: Pick OK to complete the command.



AutoCAD 2002, 2004, 2005

In the previous releases, you cannot modify the hatch origin of existing hatches, but you can set the hatch origin prior to placement using the SNAPBASE command.

- Step 1: Key in the SNAPBASE command and pick the desired hatch origin.
- Step 2: Hatch as needed.



20 Non-Explodeable Blocks!

Autodesk



In 2006, you can prevent specific blocks from being exploded by users. If you are a CAD Manager, you have probably been waiting for this one right?

Using Block Editor

- Step 1: Select the block you need to protect
- Step 2: <Right-Click> and select the Block Editor command
- Step 3: Locate the Block Section and modify the **Allow Exploding** setting to **NO**.
- Step 4: Select the Close Block Editor button.

Block	
Block name	RMNUM
Scale uniformly	No
Allow exploding	No
Units	Unitless
Description	
Hyperlink	

If you want to prevent the user from having access to this same command, modify the system variable BLOCKEDITLOCK.

BLOCKEDITLOCK controls access to the Block Editor and editing of dynamic block definitions.

- 0 – the block editor can be opened.
- 1 – the block editor cannot be opened.

**** BEDIT command not allowed. Block Editor is disabled. ****

21 Auto-Exploded Blocks



If you use WBLOCK files for your standard details you can automatically explode them on insert using the following command.

```
-INSERT *blockname
```

Insert Block Exploded

- Step 1: Key in the following command to insert the detail “exploded”.

```
-INSERT *DETAIL_1.DWG
```

22 Rotate the Paper Model Only




Want to Rotate the model in PaperSpace but not in ModelSpace? For example, you are working on a civil road project and you need to rotate the model so that it fits better on the paper sheet.

Heading

Step 1: Activate the PaperSpace viewport you want to rotate the model in.

Step 2: Key in UCS and choose the NEW option.

Step 3: If you don't know the next options use the  button to see what options are available. We want to choose the ZAxis option. Key in Z

• 0,0,0
ZAxis
3point
Object
Face
View
X
Y
Z

Step 4: Key in the angle you want to rotate the model in this viewport. For this example we want to rotate the view 70 degrees.

If you don't know the angle you can also use the 3POINT option and define the angle of rotation graphically.

23 New INPUT Rules

Autodesk



AutoCAD 2006 introduces some new coordinate input rules. If you are using the dynamic input, and eventually you all will be, you can control the coordinate input using the following rules.

Relative Coordinates: 2,20 is relative to previous coordinate location
 Absolute Coordinates: #2,20 is an absolute coordinate location in the current UCS
 World Coordinates: *2,20 is a world coordinate location

Easier Relative Distances

I don't know about you, but I have keyed in enough "@" symbols to last me a lifetime! How about you? Here is another way to avoid the "@" symbol in AutoCAD 2006.

Step 1: Start the LINE command and key in 1,1.

Since this is the "first" input, it is interpreted as ABSOLUTE.

Step 2: Key in 2,2.

Since this is the "second" input, it is interpreted as RELATIVE to the first point.

Step 3: Key in #2,2.

Since this is the "second" input, it is interpreted as ABSOLUTE.

24 Easier CORNERS

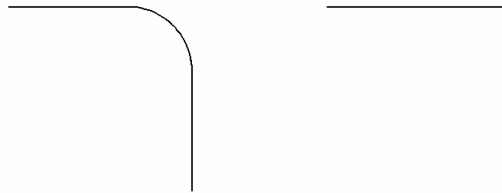


When using the FILLET or CHAMFER commands you no longer have to set the radius to "0" to get clean corners. Just use the new SHIFT key override to temporarily set the radius to "0".

ZERO Radius – Just Once!

- Step 1: Select the FILLET command and change the radius to "1"
- Step 2: Fillet the lines with the 1" radius.
- Step 3: Re-start the FILLET command and fillet the second set of lines with a "0" radius using the SHIFT key override when picking the objects.

You didn't have to reset the radius back to "0"!



25 Auto-Complete for AutoCAD

Autodesk



AutoCAD 2006 now provides an "Auto-Complete" option for command key-ins. Use the TAB key to look up commands matching your partial key-in.

Auto-Complete the CMD... Commands

- Step 1: Key in CMD and hit the TAB key to look up what commands are available that start with CMD. You should get the following options:

```
CMDACTIVE
CMDDIA
CMDECHO
CMDINPUTHISTORYMAX
CMDNAMES
```

The next "Secret" I want to discuss is the CMDINPUTHISTORYMAX setting.

26 Command History

Autodesk

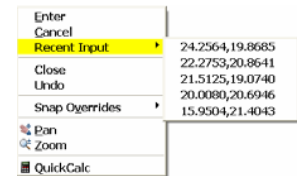


You can control the number of commands remembered in the command history list. The command history can save commands for the entire drawing session or for the current command. You can also turn off command history if that is your preference.

Accessing the command history list can be accomplished using the shortcut menu, or using the Up and Down Arrows on the keyboard.

CMDINPUTHISTORYMAX is the number of command inputs to save. This can be set from 1 to 255. The default is 20.

Use the **INPUTHISTORYMODE** system variable to modify your preferences for saving and accessing command history. Default is 15, enabling the $1 + 2 + 4 + 8 = 15$ options.



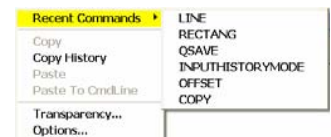
0 - No history of recent input is displayed

1 - History of recent input is displayed at the command line or in a dynamic prompt tool tip with access through Up Arrow and Down Arrow keys

2 - History of recent input for the current command is displayed in the shortcut menu

4 - History of recent input for all commands in the current session is displayed in the shortcut menu

8 - Markers for recent input of point locations are displayed in the drawing



27 Temporary ORTHO



Everyone has been using F8 to toggle ORTHO ON and OFF for years. One of the newest enhancements in AutoCAD 2006 is the introduction of “temporary overrides”. The one I think is most useful is the override for ORTHO. We no longer have to turn ON ORTHO to use it.

POLAR and ORTHO Together

I like to have POLAR be my default drawing aid instead of ORTHO these days, but now I can have both at my disposal.

Step 1: Start the LINE command using POLAR set to 45 degrees. If I need to force ORTHO for some reason, I can by holding down the SHIFT key while drawing. Now I only have access to “0” and “90” degrees – ORTHO.

When I stop holding down the SHIFT key I am back to using POLAR at 45 degrees.

28 Edit YOUR Scale List

Autodesk



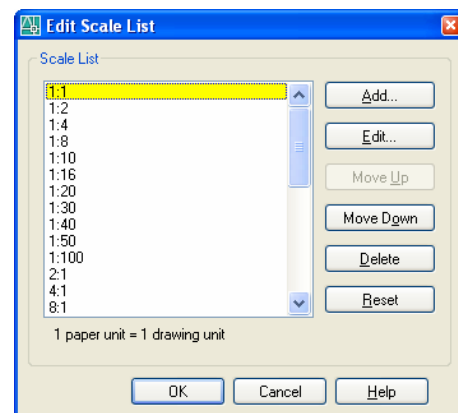
I assume everyone uses the new scale list available for setting viewport scales since it is so much easier than the old XP scale options. This list is now editable in AutoCAD 2006.

If you have some “obscure” viewport scales that you use on a regular basis, or you want to prevent users from using scales that are “not standard” for your organization you should edit this list using the new command SCALELISTEDIT.

ADD Viewport Scales

Step 1: Key in the command SCALELISTEDIT to add an additional scale to the viewport scale list dialog.

Step 2: Pick the ADD button to add the new scale.



REMOVE Viewport Scales

Step 1: Key in the command SCALELISTEDIT to add an additional scale to the viewport scale list dialog.

Step 2: Pick the DELETE button to remove scales from the list.

29 The Power of PEDIT



Everyone using the PEDIT command but many of you don't take advantage of some of its powerful options. For example, have you ever tried to joint several lines using the PEDIT command only to find that it fails due to "sloppy" drafting, by your co-workers of course!

Did you know that there is a "fuzz" factor you can apply to close those gaps in the lines? YES! This option is only available through the MULTIPLE option, so try it out!

The FUZZ Factor

- Step 1: Start the PEDIT command.
- Step 2: Key in M for the MULTIPLE option.
- Step 3: Select all the objects you wish to join together and convert to polylines.
- Step 4: Key in J for the JOIN option.
- Step 5: Enter in the "fuzz distance" for the "sloppy" lines.

This distance should be slightly large than the "sloppy" error gaps or overlaps.

- Step 6: Press ENTER to complete the command.

30 Auto-Edit Text Options



If you need to auto-number some text in your file, there is a quick Express Tool to help you out. So think of using this for notes, room numbers, part numbers, etc.

Auto-Number your Notes

- Step 1: Select Express → Text → Automatic Text Numbering.
- Step 2: Select your existing text objects.
- Step 3: Choose your preferred sort order for the numbering sequence.
- Step 4: Set your preferred Start number and Increment number.
- Step 5: Choose where you want the number placed in the text objects:

- Overwrite
- Prefix
- Suffix
- Find&replace

GENERAL NOTE ONE	1 GENERAL NOTE ONE
GENERAL NOTE TWO	2 GENERAL NOTE TWO
GENERAL NOTE THREE	3 GENERAL NOTE THREE
GENERAL NOTE FOUR	4 GENERAL NOTE FOUR
GENERAL NOTE FIVE	5 GENERAL NOTE FIVE

I hope each of you will go home with some new tools in your arsenal for AutoCAD, no matter which version of AutoCAD you are using!

If you have any questions, feel free to contact me here at the conference, or when you return home and have some time to recuperate! 😊

Thank you for your time

Hope you enjoyed the session!

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