

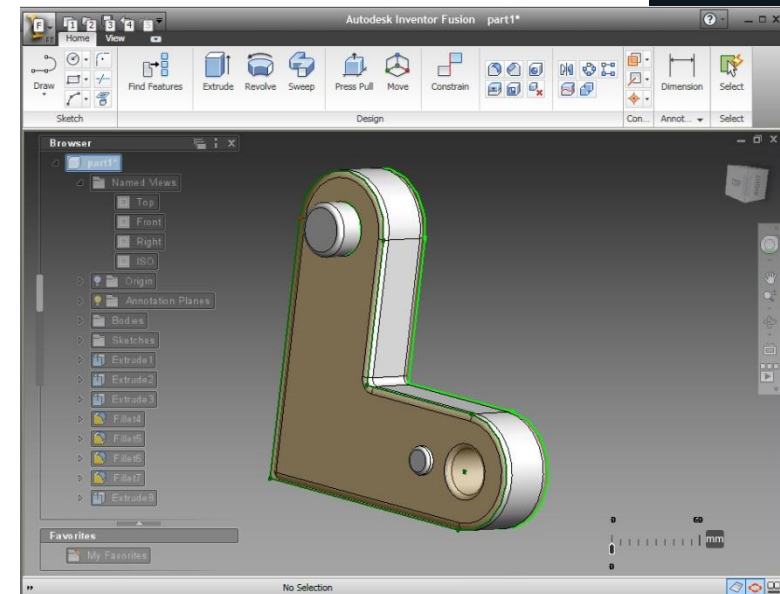
# Introduction to AutoCAD

Academic Resource Center

# What is CAD?

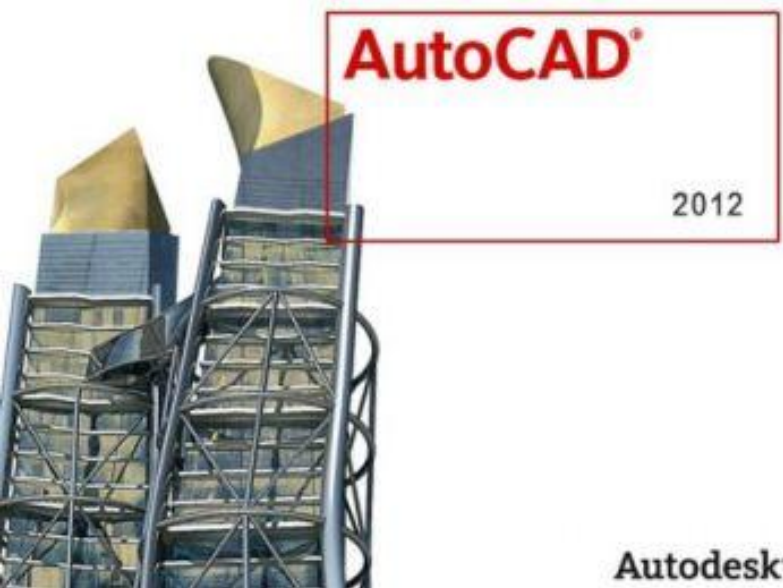
# Autodesk®

- Computer Aided Drafting
- Autodesk is the most popular drawing program
- Many student versions available for free online at [students.autodesk.com](https://students.autodesk.com)
  - AutoCAD
  - Architecture
  - Mechanical
  - Revit
  - Inventor
  - Civil
  - MEP
  - etc.
- Capabilities:
  - 2D line drawings
  - 3D constructions
  - Rendering
  - Part Assemblies



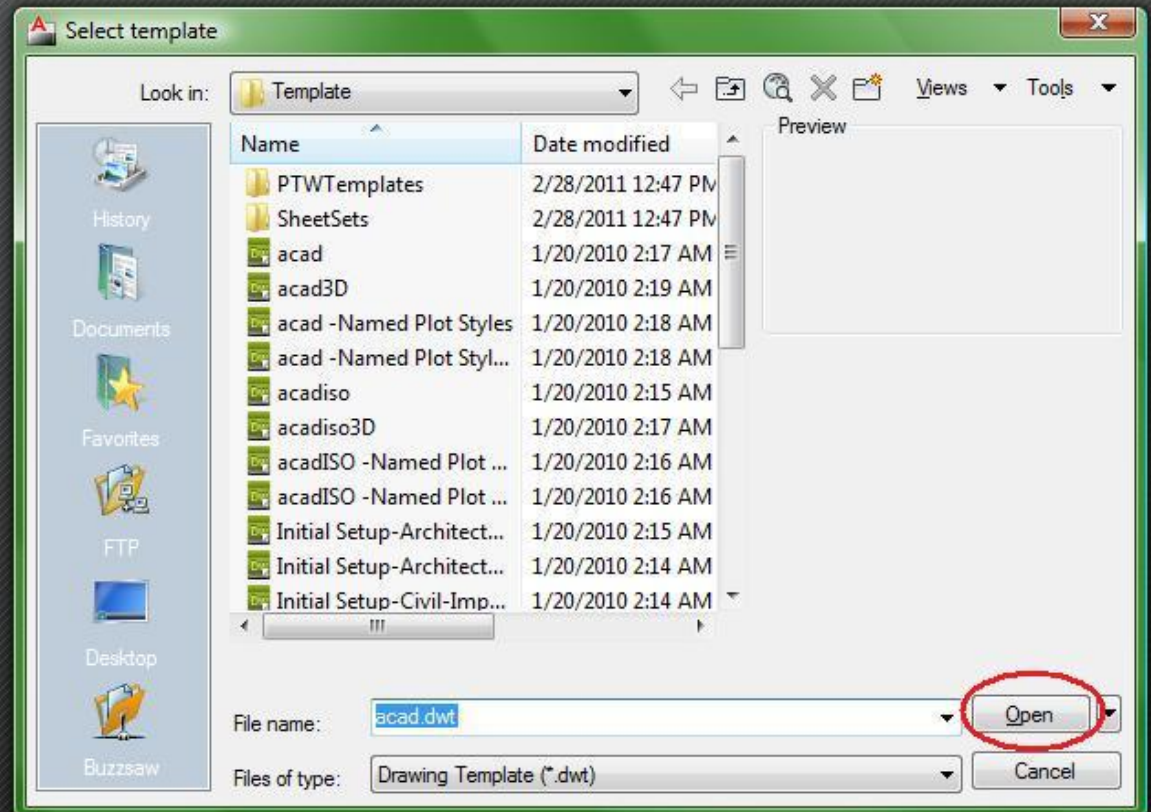
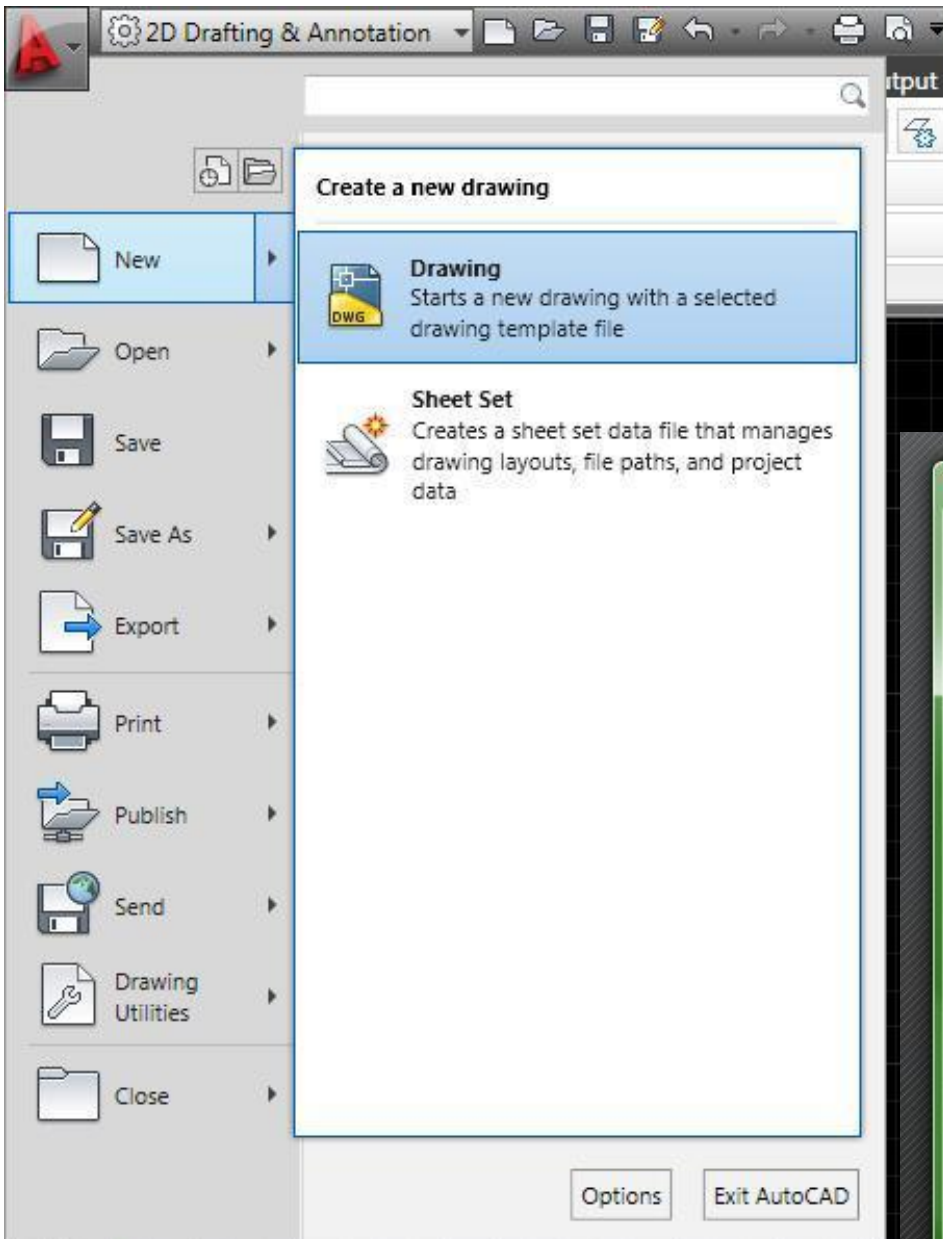
# Workshop Goals

- What we'll cover:
  - Setting up the workspace
  - Basic/common commands
  - Manipulating properties
  - Viewports and printing
- What we won't cover:
  - Rendering
  - External References
  - Block creation
  - Parts/assemblies



# Starting a New Drawing

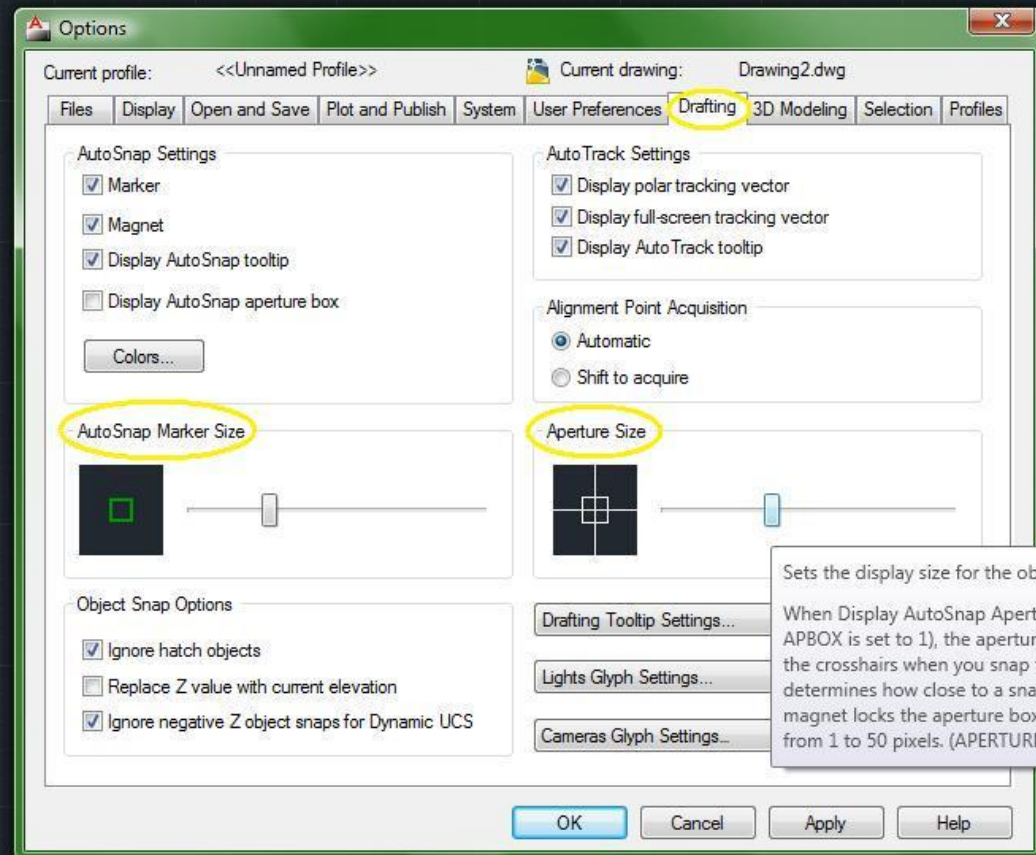
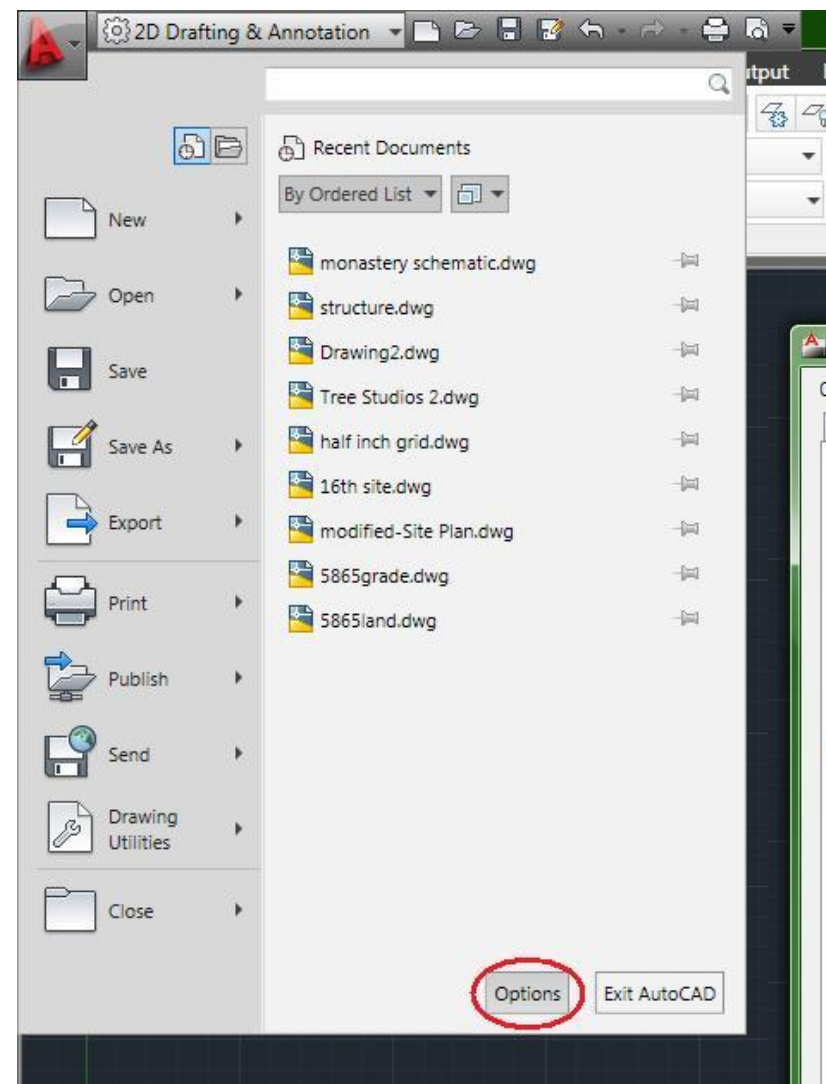
- The big A is like the home button in MS Office or the File menu in most programs
- The default template is good





# Setting Up the Workspace

- The options window lets you set all your preferences within the drawing
- Snap and Aperture settings are on a totally personal basis

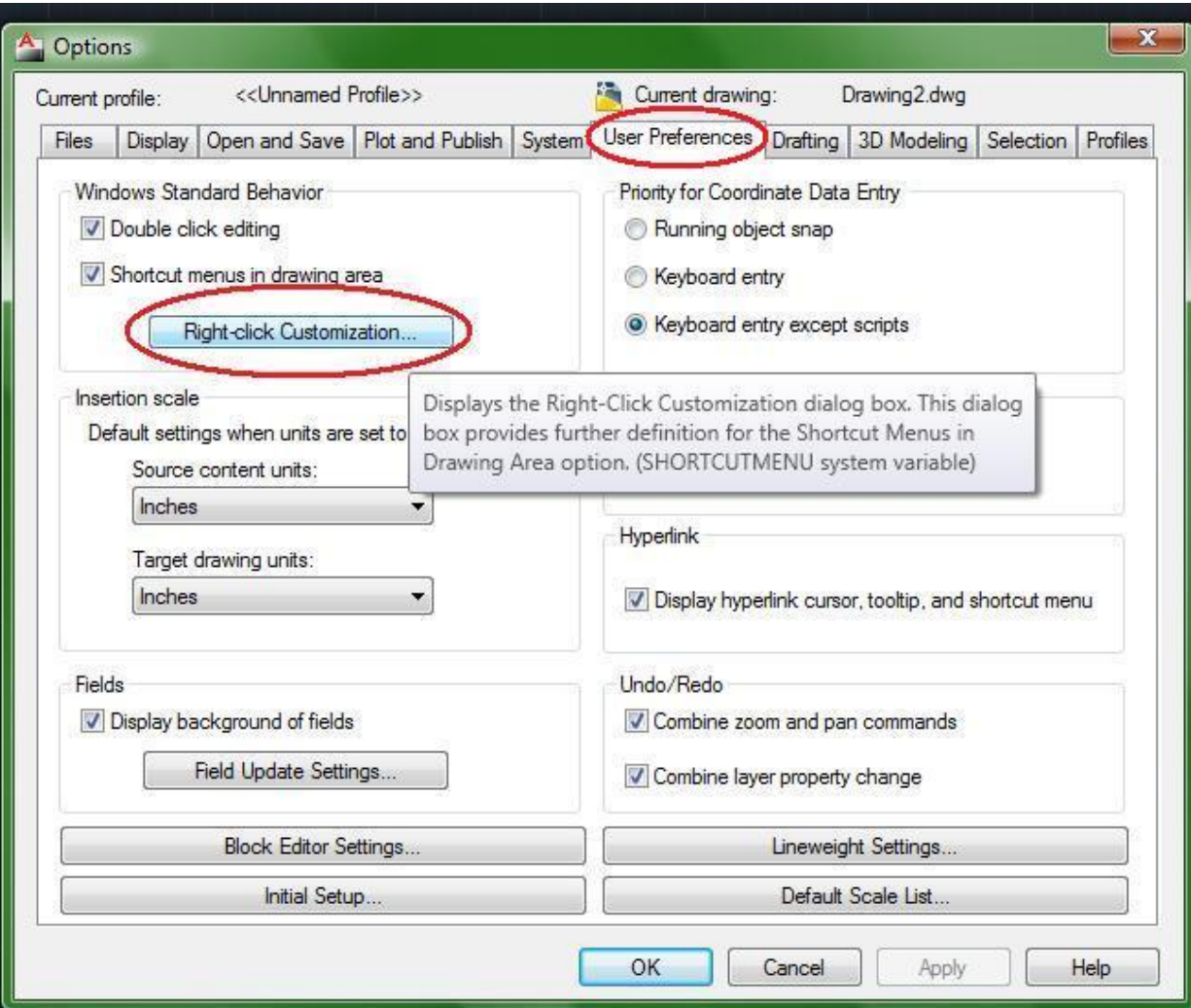


Sets the display size for the object snap target box, in pixels.

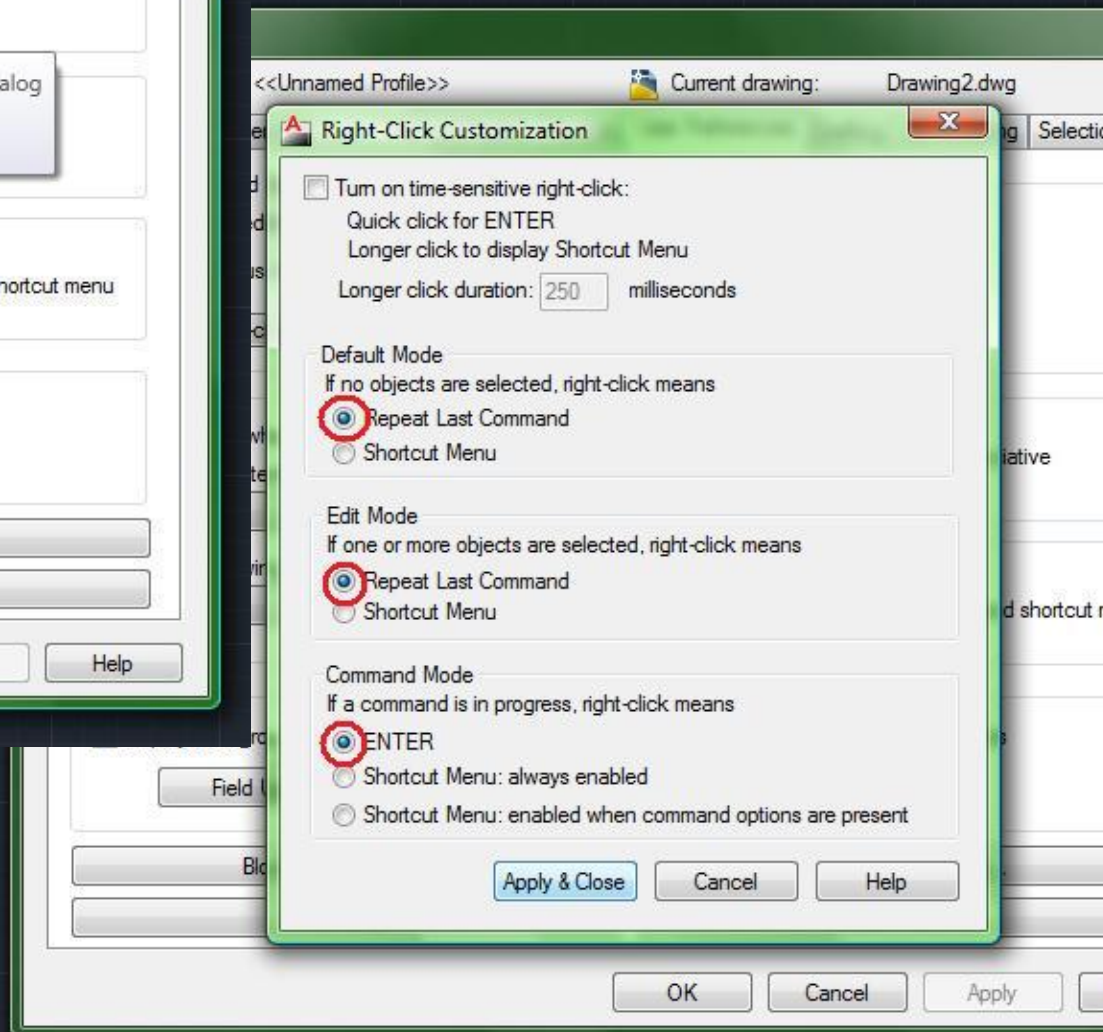
When Display AutoSnap Aperture Box is selected (or when APBOX is set to 1), the aperture box is displayed in the center of the crosshairs when you snap to an object. The aperture size determines how close to a snap point you can be before the magnet locks the aperture box to the snap point. Values range from 1 to 50 pixels. (APERTURE system variable)

# Right Click Customization

- Right-click settings are also personal preference

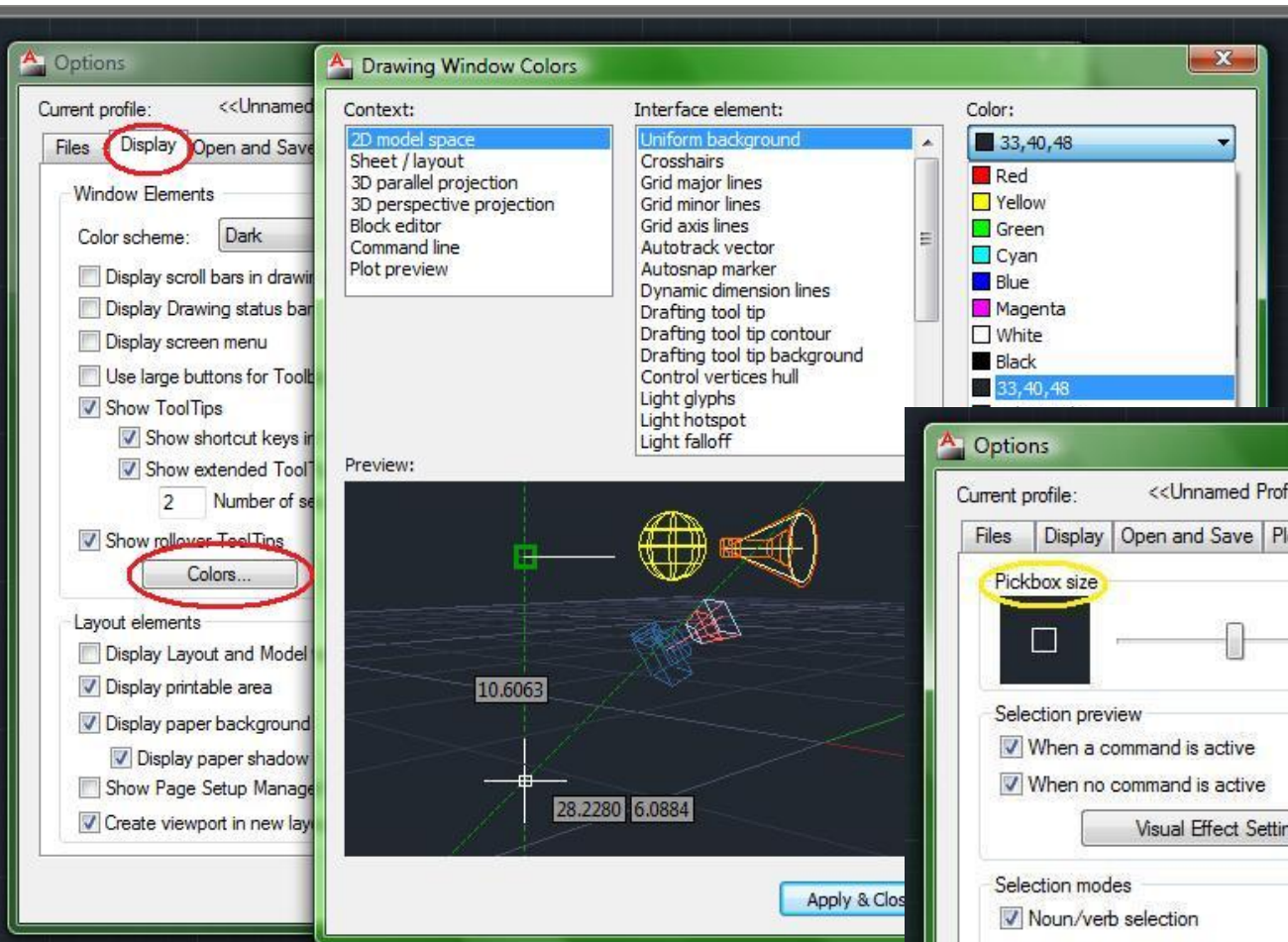


- Repeating commands and meaning *enter* make the drawing process faster

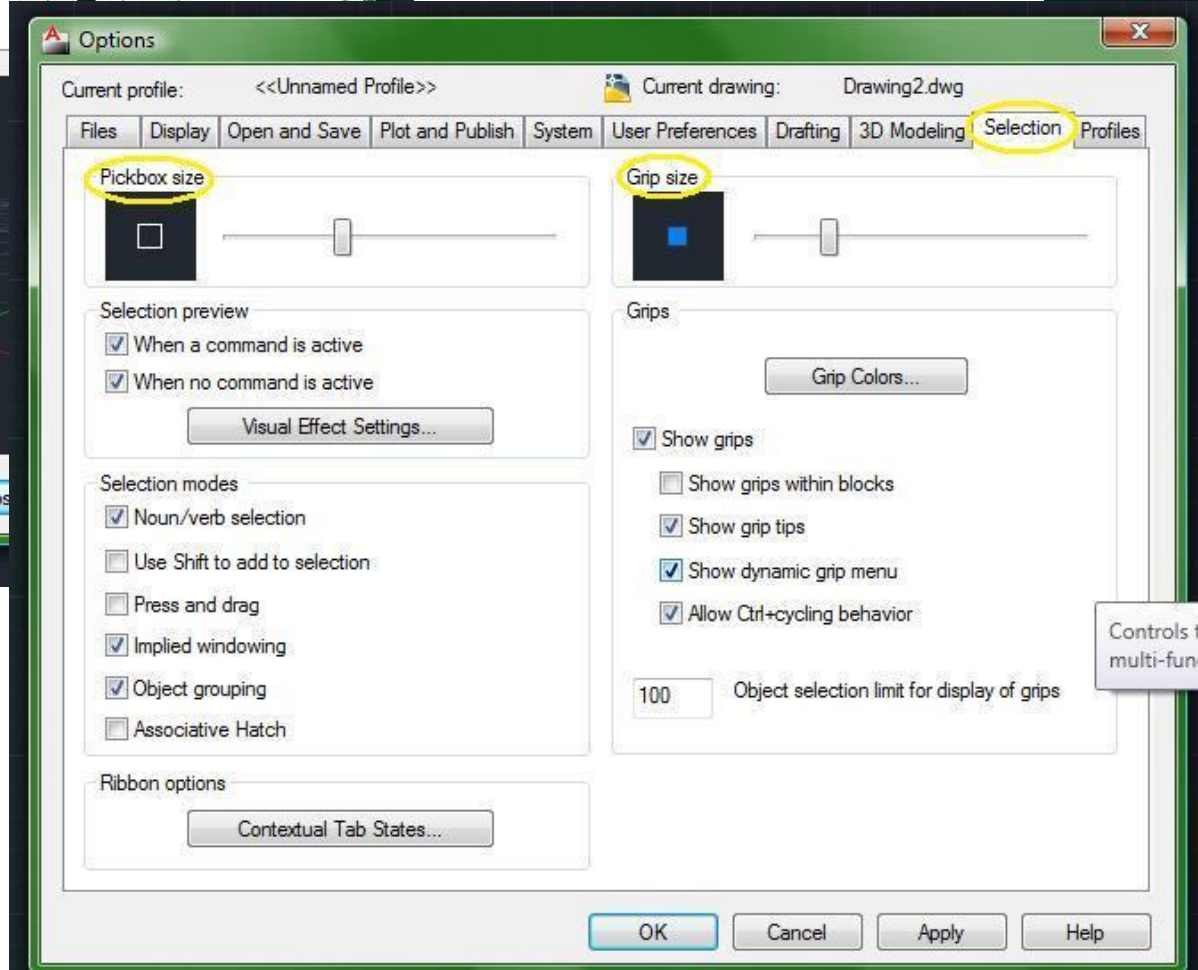




# Preferences



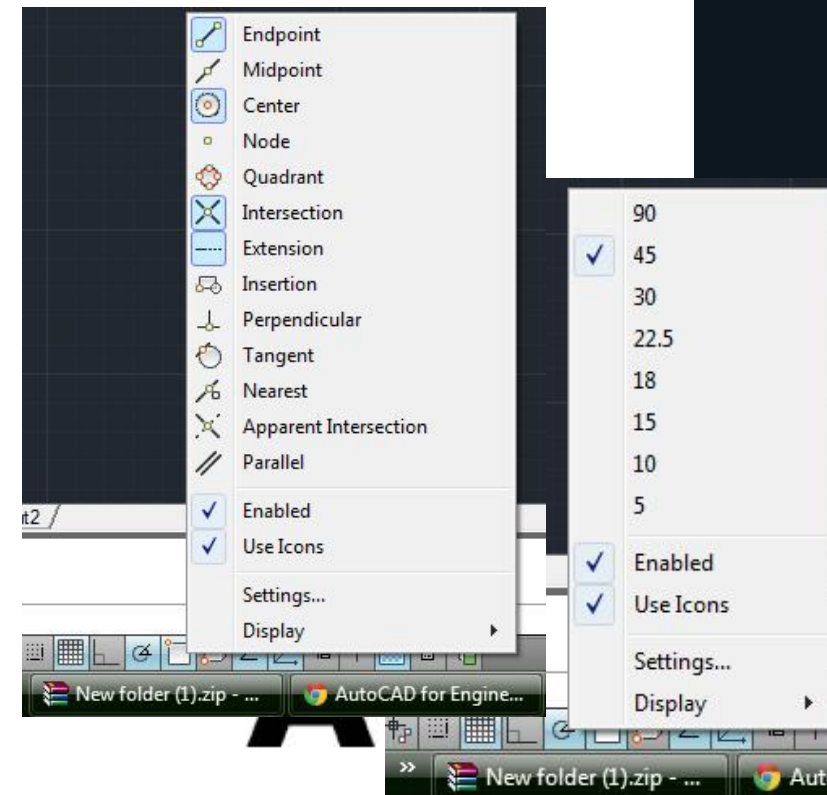
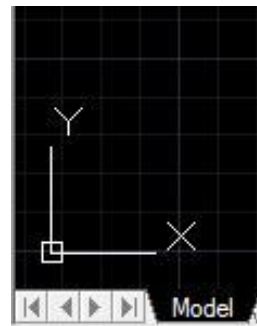
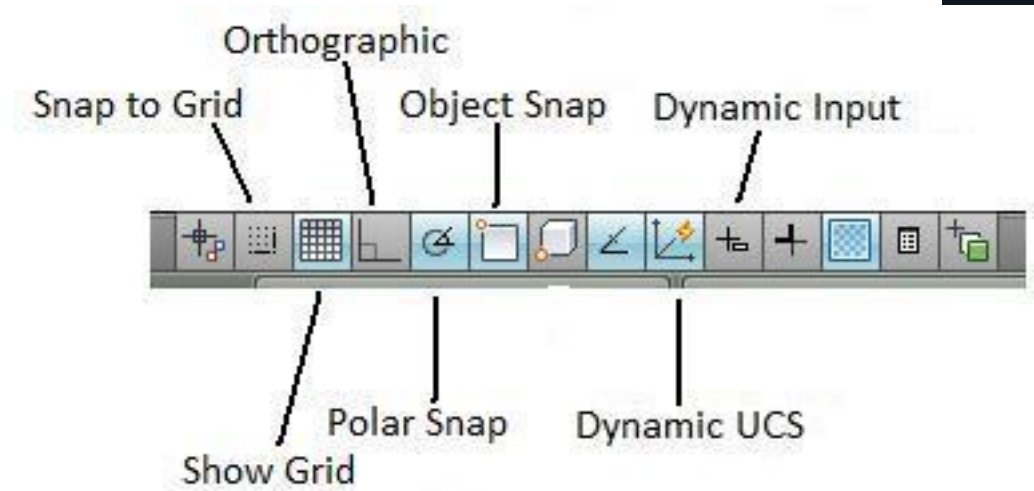
- You can set the color of just about anything in the drawing



- The pickbox and grip sizes will help you manipulate your drawing

# Snaps, etc.

- Snap to Grid
  - cursor snaps to grid points
- Show Grid
  - displays grid in model space
- Orthographic
  - constrains lines to 90deg angles
- Polar Snap
  - constrains lines to other angle increments
- Object Snap
  - cursor snaps to points on objects
- Dynamic UCS
  - shows UCS at all times
- Dynamic Input
  - displays input text in space

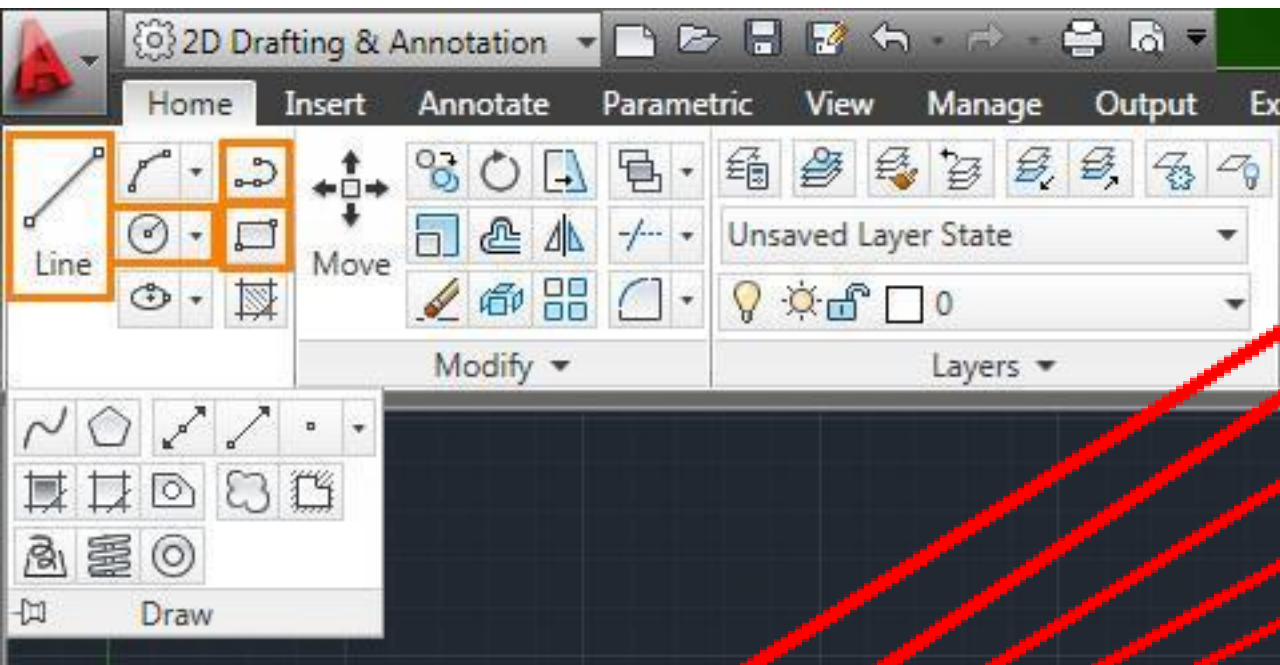




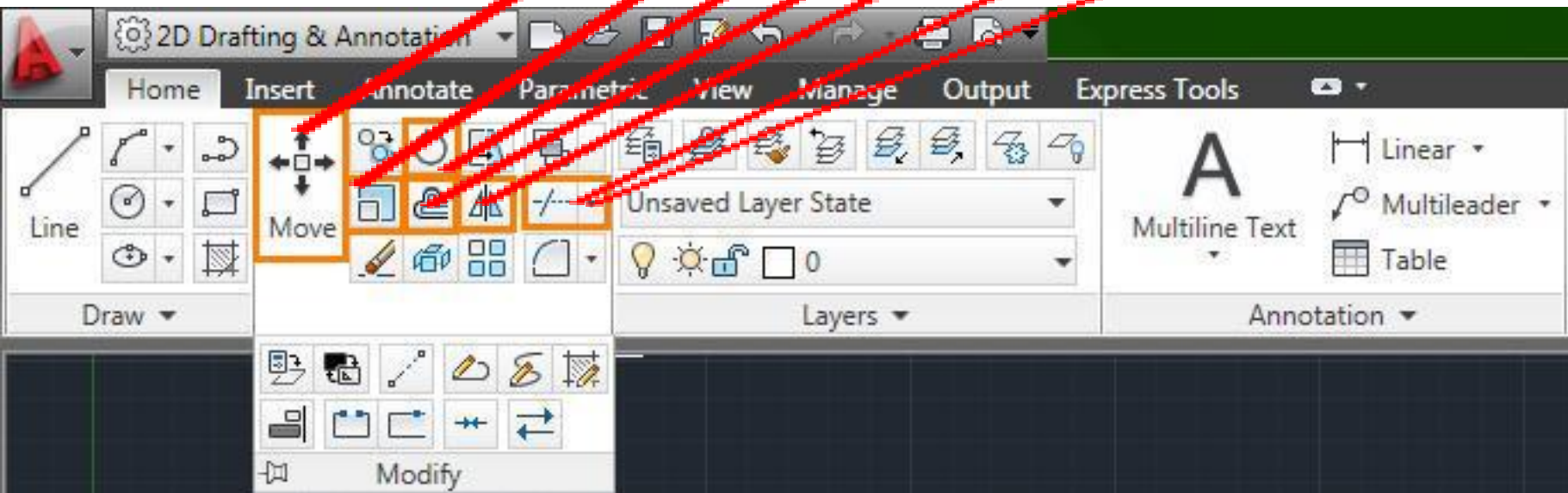
# Some Common Commands

- 2D Commands
  - Line
  - Rectangle
  - Circle
  - Polyline
  - Trim
  - Extend
  - Offset
  - Move
  - Mirror
  - Scale
  - Rotate
- 3D Commands
  - Extrude
  - Union
  - Subtract
  - 3D Rotate
- Helpful Commands
  - Units
  - Properties
  - Measure
  - Dimension

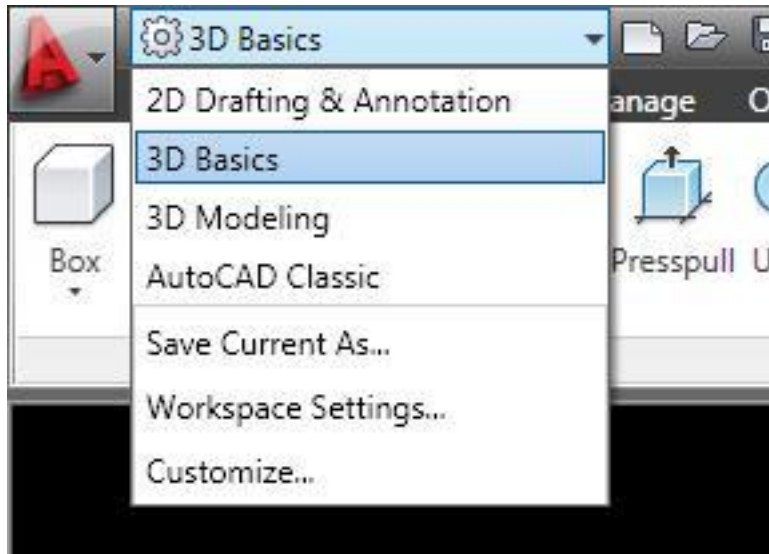
# Command Interface



- Line (L)
- Circle (C)
- Rectangle (REC)
- Polyline (PL)
- Move (M)
- Scale (SC)
- Rotate (RO)
- Offset (O)
- Mirror (MI)
- Trim (TR)

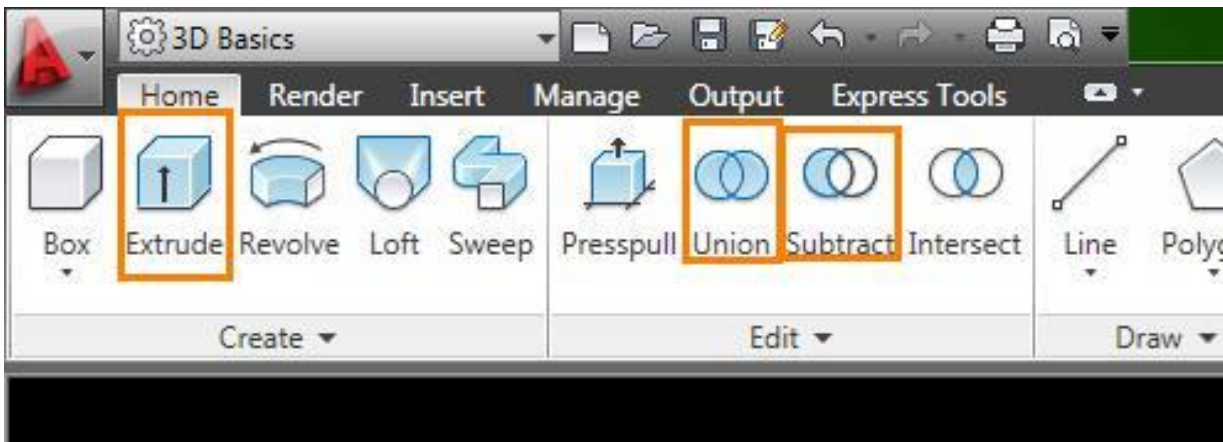


# 3D Commands

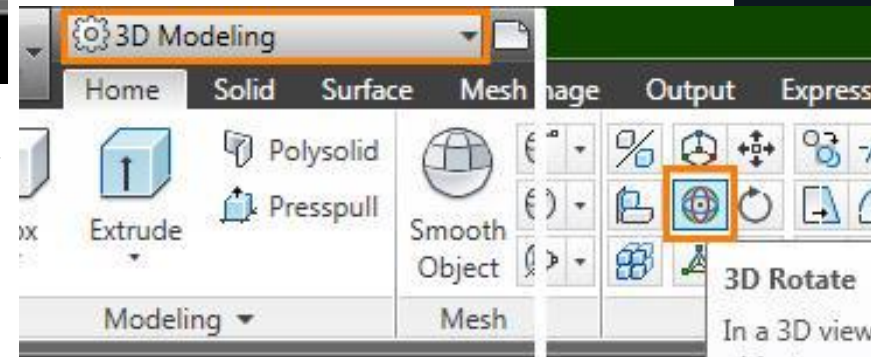


- You can change the user interface to 3D Basics or Modeling if you want to use buttons, or you can use keyboard entries

- EXT
- UNI
- SU



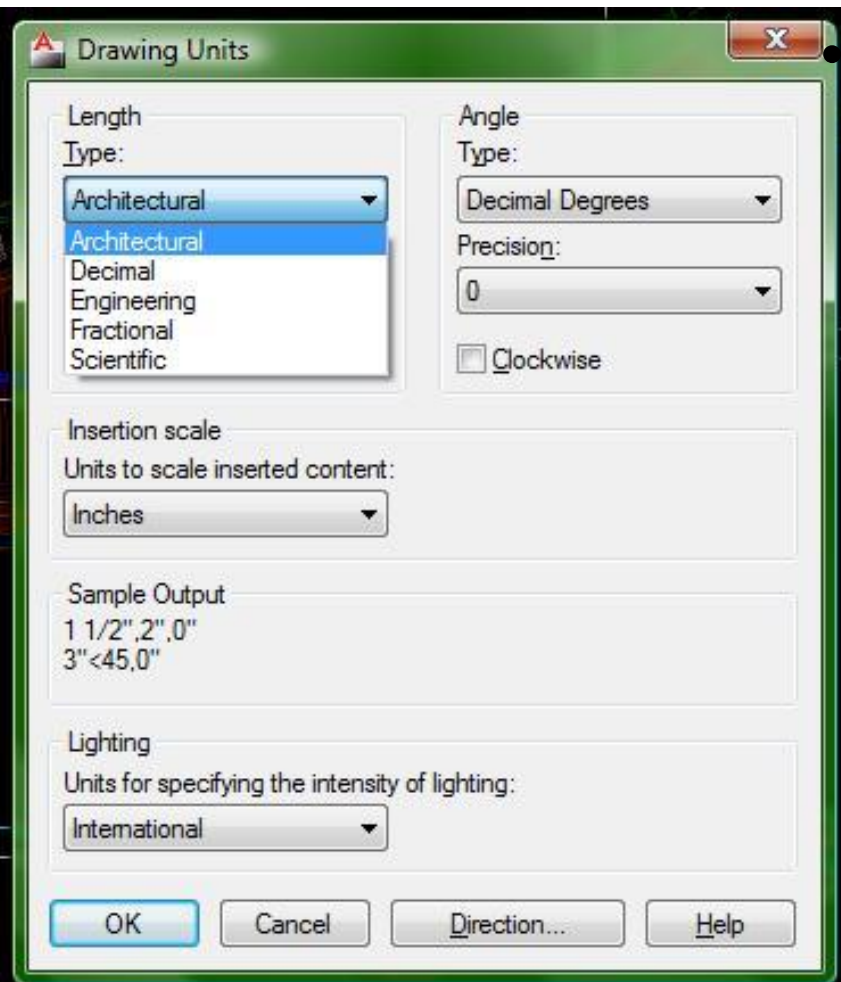
- You can rotate an object about the X or Y axis with the 3D rotate command (*3R*)



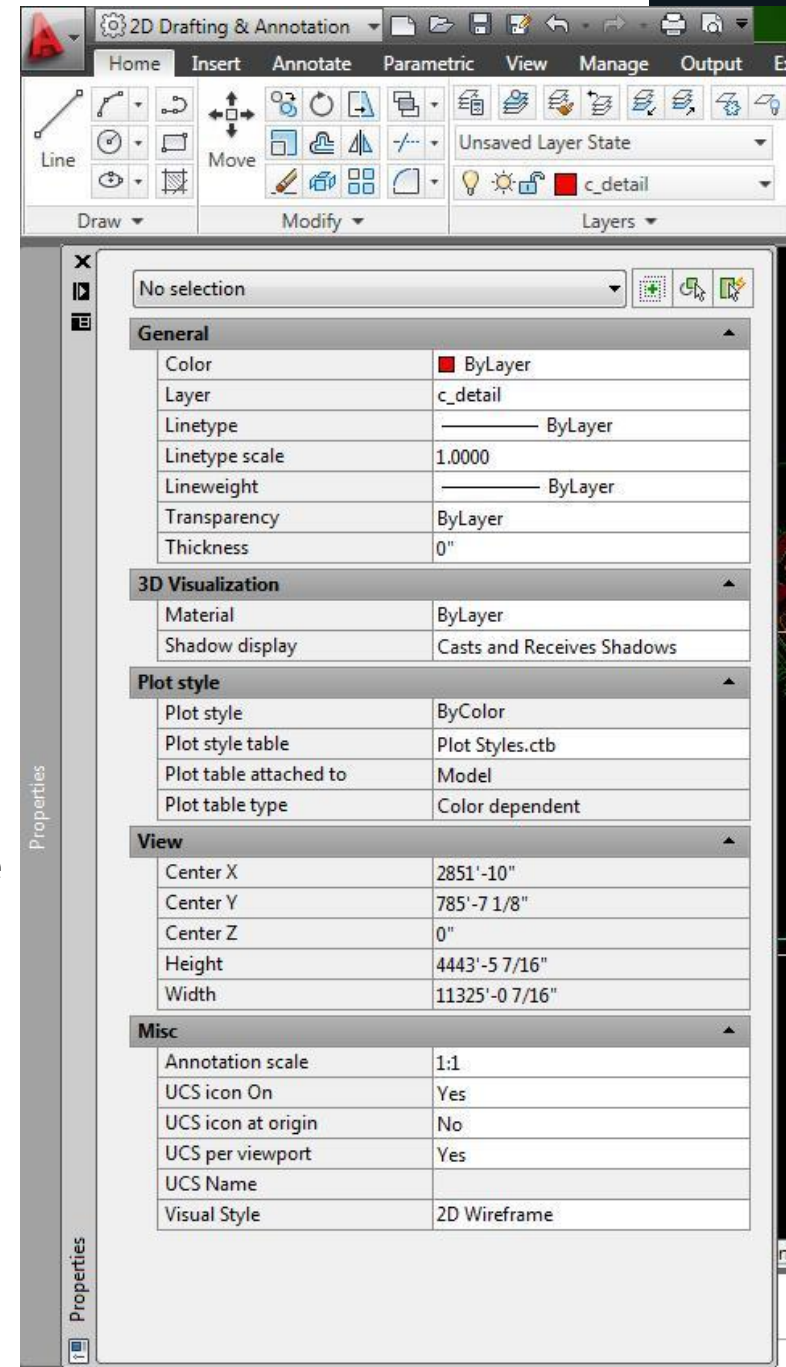


# Units and Properties

- The units command will let you change the primary units you will be drawing in

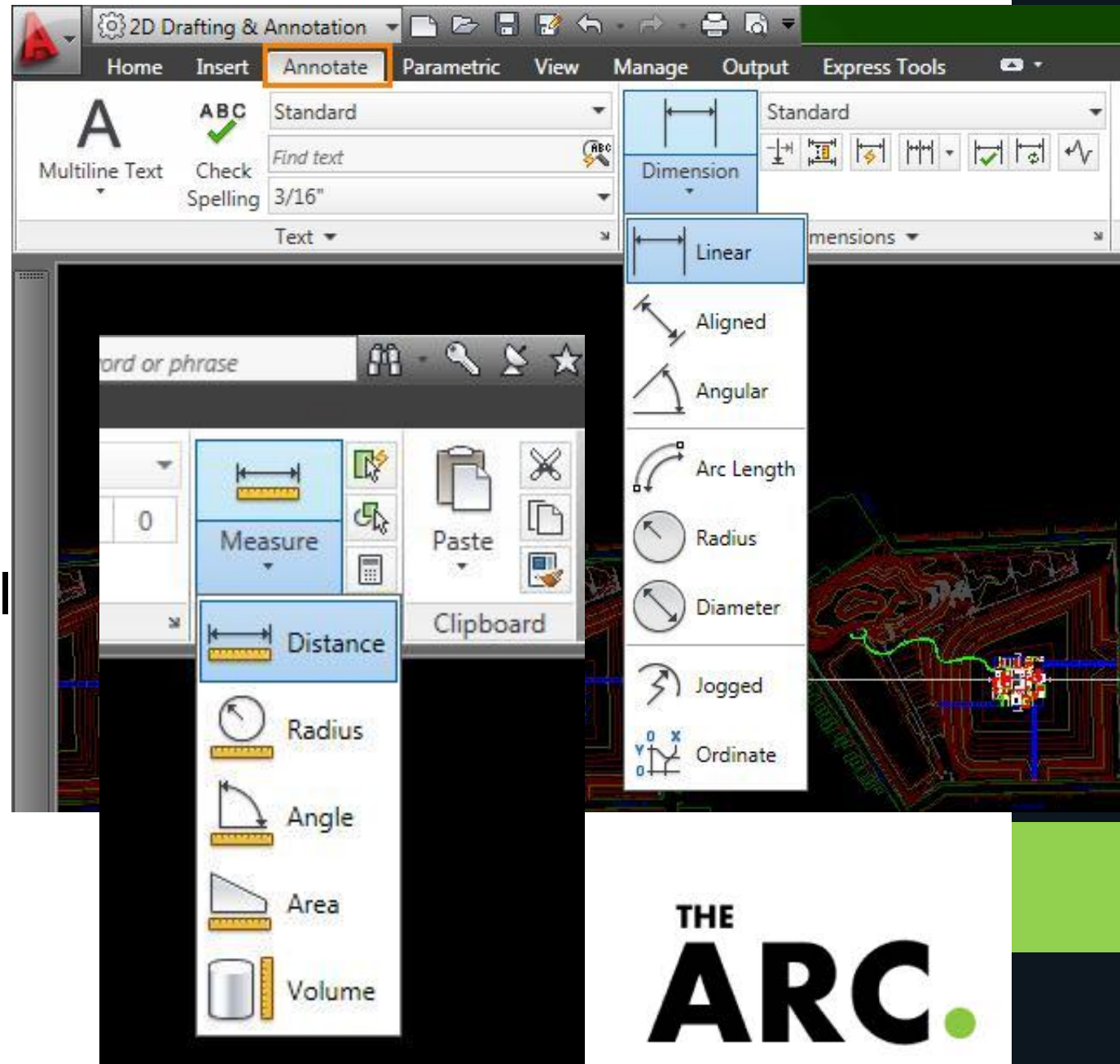


*Properties* will let you change just about anything with respect to the selected item



# Measure and Dimension

- The measure option has two important sub-commands:
  - Distance (DI)
  - Area (AREA)
- The dimension tool has many options, and displays the measurement in the drawing



# Viewports

AutoCAD 2011 Drawing2.dwg

Properties palette (Standard scale):

Property	Value
Standard scale	Custom
Custom scale	0.3804
UCS per viewport	Yes
Layer property overrides	No
Visual style	2D Wireframe
Shade plot	As Displayed
Linked to Sheet View	No

Command line:

```
REGEN Regenerating model.  
Command: .PSPACE  
Command: Specify opposite corners  
Command:
```

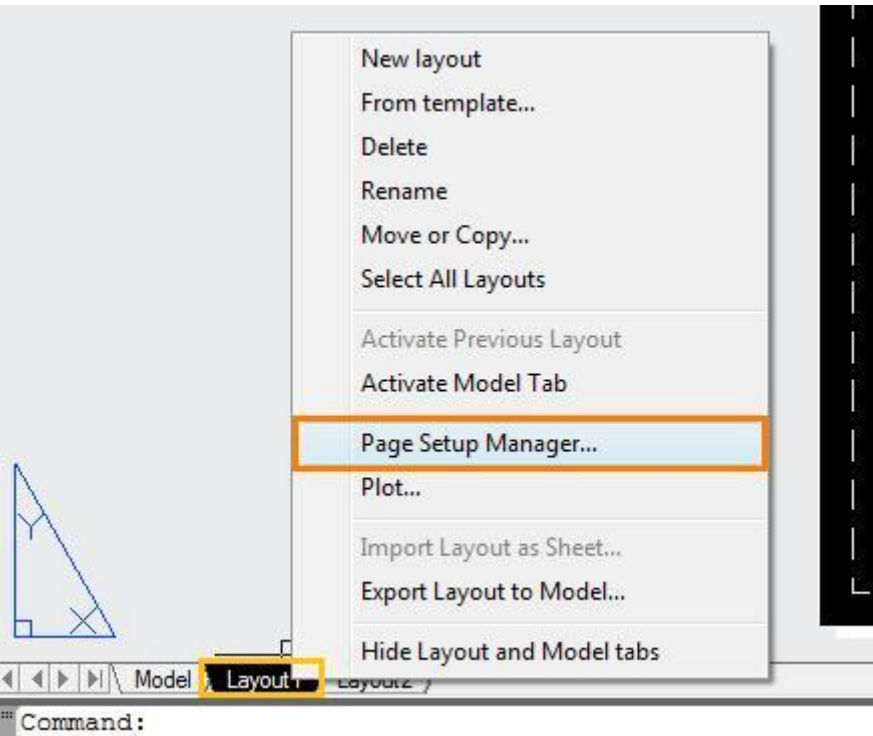
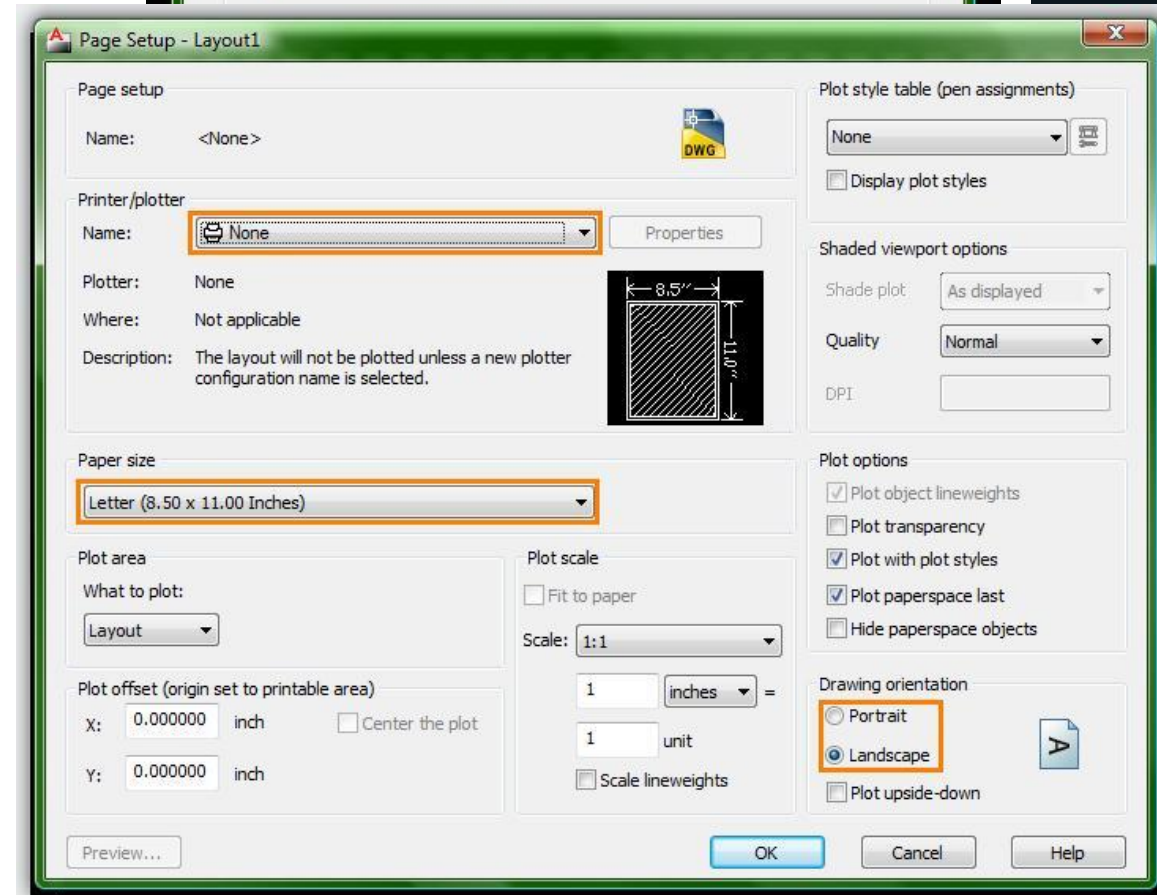
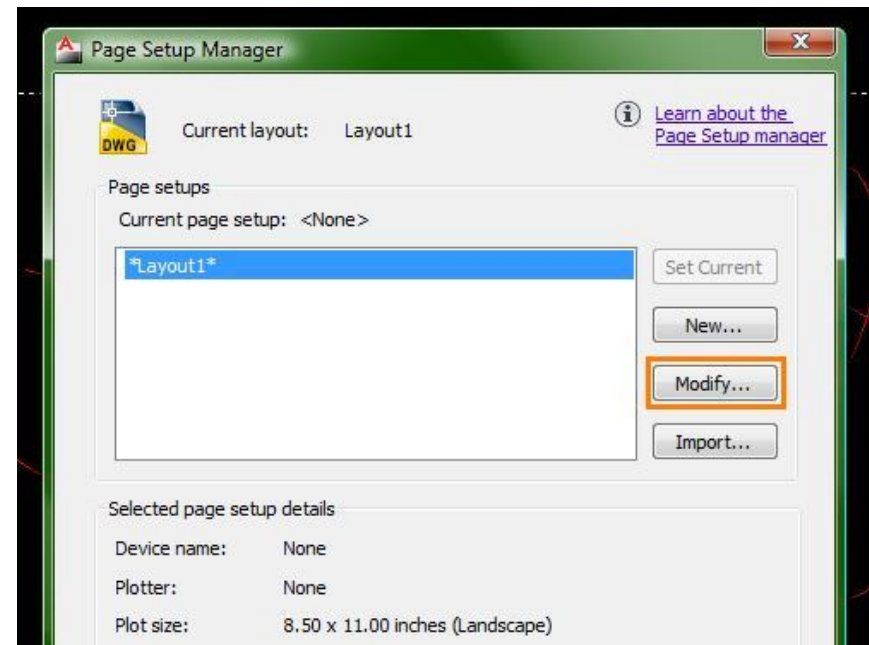
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No errors or warnings found  
[Click to view plot and publish details...](#)

- Viewports in layouts help you arrange your drawings into organized sheets at specific scales



# Setting up to Print

- You can apply a page setup to your layout to make the printing process quicker every time



# More Topics to Investigate

- CAD has lots of options and possibilities that you should explore on your own
  - Lineweights and types
  - Interface options
  - Complex shapes
  - 3D modeling
  - Rendering
  - External References
  - BI
- To download student versions or trials, go to <http://students.autodesk.com>
- You can also find tutorials and help on their website, on forums, or by pressing F1 in CAD
- Questions?