

LAORT CADD LECTURE NOTES (LAYOUT NOTES 1)

CREATING A SINGLE VIEW LAYOUT

READING

LAYOUT	pgs. 667-690
VPORTS	helpfiles

EXERCISES

TUTORIAL	pgs. 688-690
THIS HANDOUT	

OVERVIEW

Paper space represents the paper on which you arrange the drawing prior to plotting. In each Autocad drawing you can use the LAYOUT command to create multiple, unique PAPERSPACE sheets. Each layout represents an individual plot output sheet, or an individual sheet in a DRAWING file.

It is one of two primary spaces in which AutoCAD objects reside.

- Paper space is used for creating a finished layout for printing or plotting, as opposed to doing drafting or design work.
- Model space is used for creating the drawing.

One thing that is not part of your layout is the actual objects that you have entered in model space to create your drawing. Anything drawn while in paper space will exist only in that layout.

When you are ready to setup your drawing for plotting, you can use a LAYOUT. The LAYOUT command creates a paper space drawing environment in which you can create viewport objects and insert drawing specific objects such as title blocks and notes. Each layout also saves its own unique page settings for plotting. Page settings are just plot settings that are saved with the layout.

Typically, when you begin designing a layout environment to plot, you step through the following process:

- Create a model drawing.
- Configure a plotting device.
- Activate or create a layout.
- Specify layout page settings such as plotting device, paper size, plot area, plot scale, and drawing orientation.
- Insert a title block.

- Create floating viewports and position them in the layout.
- Set the view scale of the floating viewports.
- Annotate or create geometry in the layout as needed.
- Plot your layout

THIS DOCUMENT

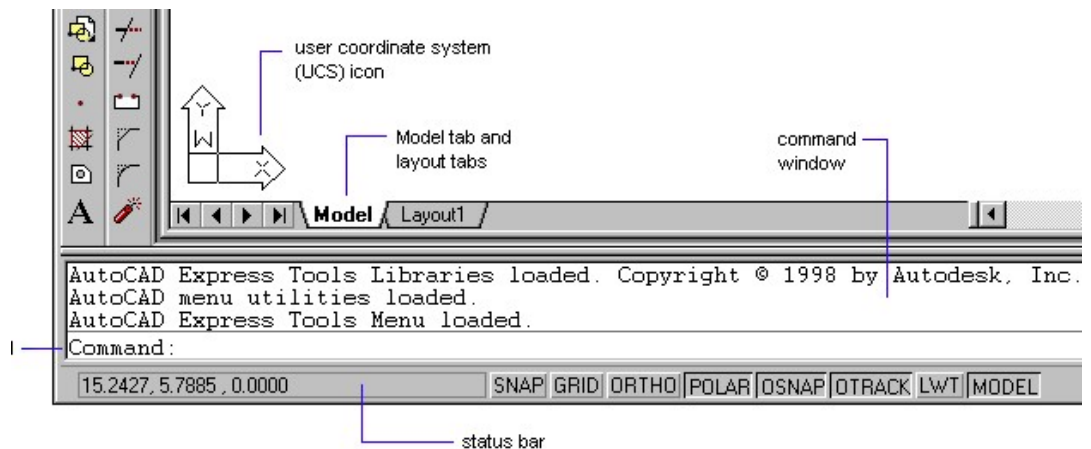
This document steps through the process of creating a layout with a single viewport. For more details on specific commands refer to the helpfiles or your textbook.

The steps for this process include:

- Setting related SYSTEM VARIABLES
- Modifying default layouts
- Creating a new layout using the LAYOUT command
- Creating paper space objects
- Inserting a viewport into the layout

USER INTERFACE

The simplest way to manipulate model space and paper space is by using the tabs bottom of the drawing window. These tabs include the Model tab and one or more layout tabs. The Model tab is where you spend most of your time creating and editing your drawing. When you are in the Model tab, you are always working in model space.



While a layout tab is active, you can work in either model space or paper space. In paper space you create floating viewport objects that contain different views of the objects in model space.

You can switch between floating model space view and paper space by choosing Model or Paper on the status bar or by using the MSPACE and PSPACE commands.

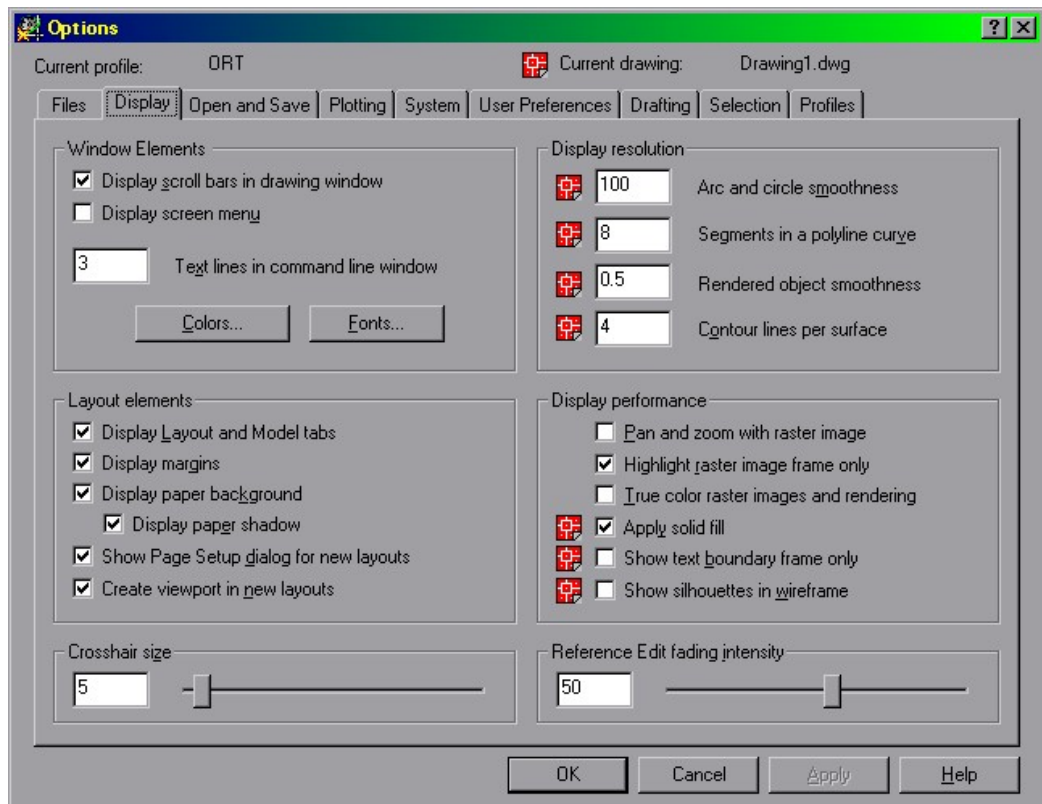
EXERCISE

SYSTEM VARIABLES

For the purposes of understanding the concepts of layouts and layout viewports we will start this exercise by setting some system variables that control they function and appear. *We will be changing the defaults for this exercise but in most cases you would leave them as they are.*

IN AUTOCAD DO THE FOLLOWING

- ❑ Open a new drawing using decimal units
- ❑ Type in the OPTIONS command (see image below)
- ❑ Select the DISPLAY TAB at the top of the dialog box
- ❑ Clear the following check boxes boxes: Display Margins, Display Paper Background, Display Paper Shadow, Show Page Setup dialog for new layouts, Create viewport in new layouts
- ❑ Click OK button to save apply settings and exit the dialog box
- ❑ Save your drawing as LAYOUT EX 1



You have now disabled most of the automated features that would normally simplify the process of creating layouts.

EDITING EXISTING LAYOUTS(Delete, Rename)

We will now take a quick look at manipulating existing layouts. The default Autocad template has two layouts predefined, LAYOUT1 and LAYOUT2. Access existing layouts by selecting the LAYOUT tabs at the bottom of your window.

To activate a layout left click on the specific layout tab. We will get back to that later.

Right now we are going to look at two ways to edit a layout. We will first delete LAYOUT1 and then we rename LAYOUT2. This will be done by using the layout tabs at the bottom of your drawing window.

IN AUTOCAD DO THE FOLLOWING

- ❑ Right click with your mouse on the LAYOUT2 tab to use the shortcut menu. Do not left click or you will activate paper space in that layout.
- ❑ Notice the different options available for modifying and existing layout. The *Page Setup* option will be grayed out because you are currently in an active layout.
- ❑ Select the *Delete* option from the menu, click on OK in the pop up. Notice that the LAYOUT1 tab disappears.
- ❑ Now right click on the LAYOUT2 tab. Select *Rename* from the menu. Enter DWGA in the dialog box. The tab should now say DWGA.
- ❑ Save your drawing.

You can create as many as 64 layouts in a single drawing. You can delete all the layouts in a drawing.

You cannot delete the model tab.

CREATING A NEW LAYOUT

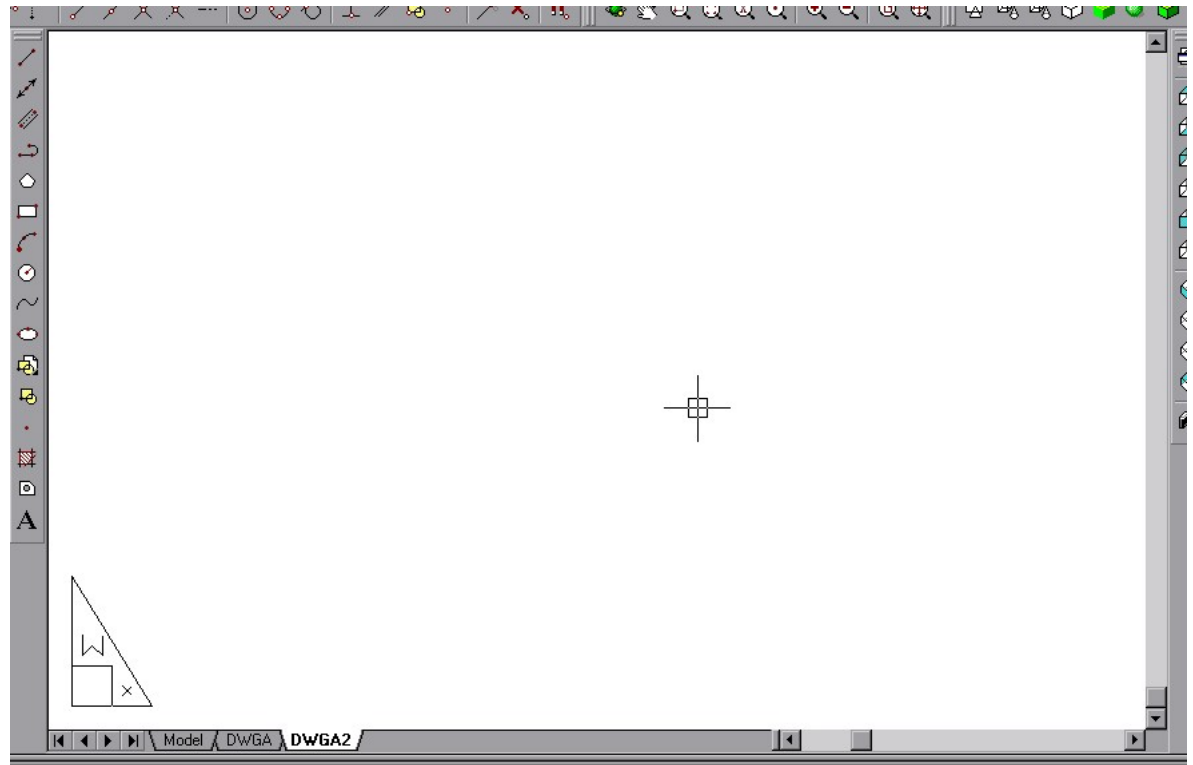
There are several methods for creating new layouts. These include the LAYOUT command, the shortcut menu from the MODEL/LAYOUTS tabs, from a *template* and by using the *Layout Wizard*.

In this case we will use the tabs to execute the *New layout* action. After completing this exercise you will go back through the same process using the other methods to understand how they help to simplify the process.

IN AUTOCAD DO THE FOLLOWING

- ❑ Right click on any of the MODEL/LAYOUT tabs and select *New layout* from the pop up menu.
- ❑ Autocad creates a new layout called LAYOUTn by default. Rename this new layout to DWGA2.
- ❑ Activate this new layout by left clicking on the DWGA2 layout tab.
- ❑ Save your drawing

Your drawing window should now look like the following picture. We will now look at how you control the layout display.



LAYOUT DISPLAY OPTIONS

The layout display is controlled by both the page setup (which is stored as part of each layout) and several system variables. We will first look at the basic display variables for layouts, *Margin Display*, *Background Display*, *UCS Icon*, and *Display Paper Shadow*.

IN AUTOCAD DO THE FOLLOWING

- ❑ Open the *OPTIONS* dialog box from the *TOOLS* menu or by right clicking in the drawing window and select *dialog box* from the *TOOLS* menu or by right clicking in the drawing window and selecting *OPTIONS* from the menu.
- ❑ Select the *Display paper background* check box and close the dialog box. Note the difference in the display. By displaying the back ground we can see the actual size of the layout in relation to objects created in it.
- ❑ Open the *OPTIONS* dialog box again. Select the *Display paper shadow* check box and close the dialog box. Note the difference in the display again.
- ❑ Open the *OPTIONS* dialog box again. Select the *Display margins* check box and close the dialog box. Note the difference in the display again.
- ❑ Turn the UCS icon off from the menu *VIEW* menu using *DISPLAY,UCS icon*.

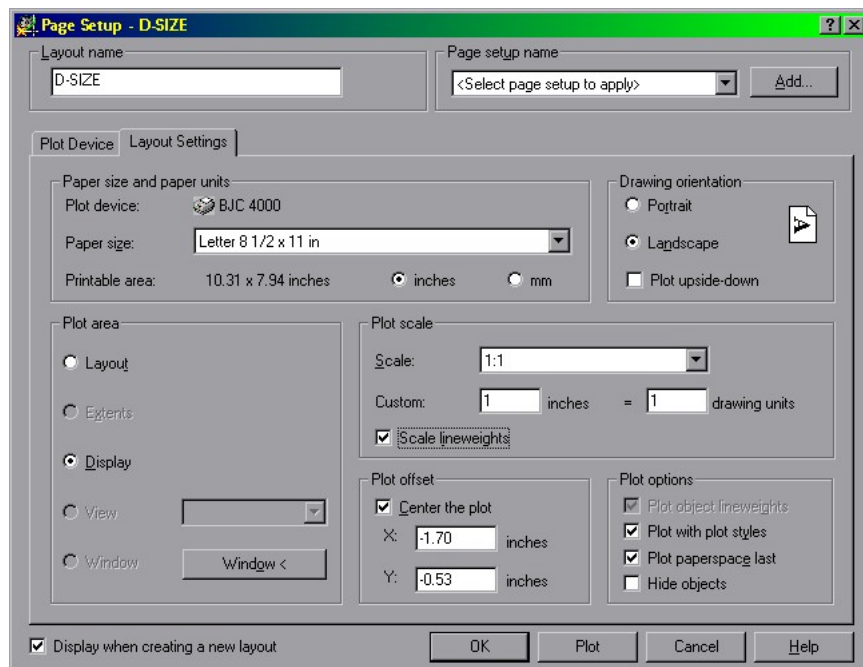
- ❑ Activate the other layout (DWGA) and note that the UCS icon display is different in each layout.
- ❑ Save you drawing.

You have now reset the display options for layouts to the system defaults. In most cases you would not change these.

The other aspects of the layout appearance and operation are controlled by the *Page Setup*. These settings controls the size of the layout and how it will plot.

PAGE SETUP

Each layout stores settings for the page setup, including plot device, plot style table, print area, rotation, plot offset, paper size, and scale. You specify these settings in the *Page Setup* dialog box show below. Normally this comes up when you first create a layout.



We are going to look at just a few of the settings in this exercise, *Plot Device, Paper Size and Plot Offset*. You can also save page setups so that you can easily retrieve them later.

IN AUTOCAD DO THE FOLLOWING

- ❑ Active layout *DWGA2* by clicking on its tab.
- ❑ Open the *Page Setup* dialog by right clicking the layout tab and selecting it from the menu.
- ❑ Save the current page setup by clicking on the *ADD* button at the upper right of the dialog and entering *STANDARD*.
- ❑ Select the *Plotter Device* tab. Click on the *Name* pull down box and select the *DWF eplot.pc3* plotter.

- ❑ Click on the *Layout Settings* tab.
- ❑ Open the Paper Size pull down and select ANSI A (11 x 8.5 inches). Note the Printable Area .
- ❑ Under *Plot area* you should see only *Layout* and *Display* available with *Layout* checked. Notice that the *Plot offset* option is grayed out.
- ❑ Click on the *Display* button. Note that the *Plotter offset* option is now active.
- ❑ Click on the *Center the plot* radio button under *Plotter offset*. Notice that the X and Y offset values are no longer 0.
- ❑ You may need to re-center the layout. Use *Zoom/Extents*.
- ❑ Save the current page setup by clicking on the *ADD* button at the upper right of the dialog and entering *EPLLOT-A*.
- ❑ Save you drawing.

For *Plot area* the default setting is *Layout* for the layout tab and *Display* for the Model tab.

PAPER SPACE OBJECTS

Now we are ready to start putting things on our paper to plot. In paper space most *Draw* and *Modify* commands work much like they do in *Model space*. When these commands are used in a *Layout* in *Paper space* the produce or manipulate objects only in that specific layout.

Layouts and *paperspace objects* cannot be manipulated with the normal 3D viewing options such as *VPOINT* or *3DORBIT*.

The most common objects include *Title Blocks* and *MTEXT* notes that are specific to that particular drawing sheet. One object type that is unique to *Paper Space* is the *Layout Viewport*.

IN AUTOCAD DO THE FOLLOWING

- ❑ Select the View menu. Notice what commands are deactivated.
- ❑ Draw a circle in the center of your layout
- ❑ Click on the *Model* tab. Can you see the circle? Open the other layout. Is your circle visible?
- ❑ Return to layout DWGA2.
- ❑ Save you drawing.

INSERTING A VIEWPORT INTO THE LAYOUT

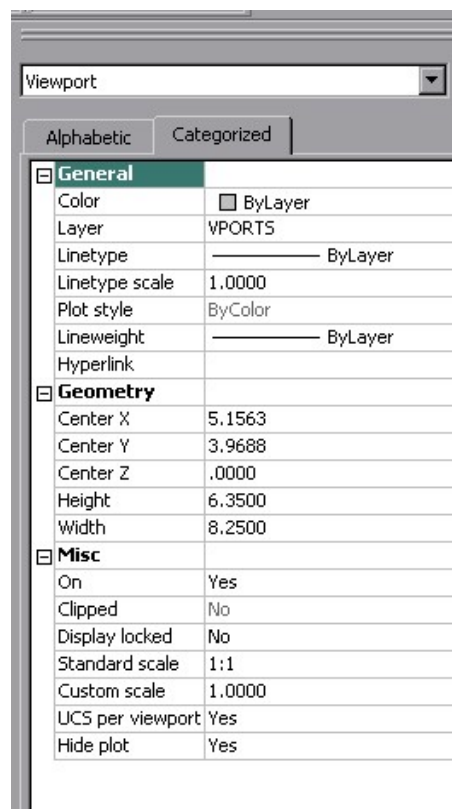
The most important *Paper Space Objects* however are *Layout Viewports*. While you are in *Paper Space*, *Viewports* are objects just like *lines*, *arcs*, and *dimensions*. *Viewports* are best described as windows that are used to look into your *Model Space*.

Like any other *Object* that is created in *Paper space*, *Layout viewports* have properties like *Layer* and *Color*. They can also be moved, deleted and modified. They also can be modified using *PROPERTIES*, *MVIEW*, *GRIPS* or *Shortcut Menus*.

You can add *Viewports* to your *Layout* by using either the *MVIEW* command or the *VPORTS* command. For this exercise we will use *VPORTS* to add a viewport to our layout.

IN AUTOCAD DO THE FOLLOWING

- ❑ Execute the *VPORTS* command. Click on *OK* in the dialog box.
- ❑ Indicate the desired corners for your *Viewport* slightly inside of the *Margins*
- ❑ Execute *Properties* and select the *Viewport* by clicking on one of its edges
- ❑ Note what Change the *Color* property. Change the *On* property to *No*
- ❑ Close the *Properties* dialog
- ❑ Save your drawing



PROPERTIES FOR LAYOUT VIEWPORTS

Now that you have created a *Layout* with a *Viewport* in it try doing it again with the *LAYOUTWIZARD* command in a new drawing.