As formerly seen on Suite101.com.
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When you first start to draw you biggest problem will be, how do I navigate through the drawing? How do I see what I want to? Can I see something bigger? Can I make this smaller so that I can see other stuff not on my screen? These are all common questions I hear all the time from beginners, so if these are some of the questions on your mind, you're not alone.

First, remember that the drawing environment is unlimited. It's a universe unto itself. You can make something infinitely small or monumentally huge. AutoCAD doesn't care. You can also make a huge object that when looked closely at will start to reveal more information the closer you get to it.

To do what you want to do you need to use several different functions. All of these functions will work in 2D, but necessarily in 3D. Today we will simply look at 2D.

Your commands include Zoom, Pan, RTZoom, RTPan, and –Pan. There are also DDView and View commands that work like Memory+ keys on a calculator – they remember exact locations that you were looking at.

Zoom and RTZoom allow you to get closer or farther away from the object being looked at. Many beginners often confuse zooming with scaling an object. It is very important to understand that you are absolutely not changing the object that you are looking at. For example, look at your keyboard. Notice how big the keys look from where you are sitting. Now get up and walk across the room and look at the keyboard. Notice that the keys look smaller. This is because they take up more of your field of vision when you are closer and your brain interprets this as being bigger. In reality we know that the keyboard is not changing size, but rather our perception of the object is changing. The same holds true in AutoCAD. As you get closer to an object it appears larger on the screen taking up more of your field of view. As you get farther away from it, it appears smaller; details are lost and blurred together. The object however is not physically changing size. Similarly Pan, -pan and RTPan are not moving a drawing in space, but rather you are changing your vantage point – the place from which you are looking. You can pan left, right, up or down and scroll throughout the drawing.

So what does each command do?

Zoom – by far the zoom command is the most useful, one of the most complex, most riddled with subcommands, and most default subcommands of any command in ACAD. You have a series of subcommands that include: All, Center, Dynamic, Extents, Previous, Scale (X/XP), Window, and <Realtime>. Realtime, Scale and Window are all defaults, even though only Realtime is in brackets. On every single other command a bracket < >

designates that the command is the default. If you simply press return you will be taken to RTZoom. If you pick a point with the mouse on the screen you will then be prompted for a second point to define your Window. The Window that you selected will be zoomed to fit as best as possible you monitor. Because you can zoom a window that doesn't match exactly the shape of your drawing area, other objects may be seen at the edges of your screen. If you type in a number at the zoom command you will magnify the view by the number you type in. Therefore if you type in 2 it will magnify the view 2 times, and if you type in .5 it will decrease the view by 1/2. When we get into more advanced functions of paper space and model space we will come back to the zoom command and learn what the Scale XP factor is about. Zoom Extents and All do similar things on the surface. ACAD will place on your drawing area everything that is in the drawing. Now, this may mean that the items appear very small if objects are drawn far apart. Where the difference between these two sub commands occur is when you are using your limits. Typically I don't have students use Limits or Zoom All anymore because their usefulness has diminished during the last several releases of ACAD. With Zoom All you cannot be sure of what the outcome of your zoom will be. Depending on which is greater, the extents of the drawing or the limits of the drawing All will zoom to whichever are larger. In the case of limits, this can be a problem if your drawing is small and your limits are big. So, what are drawings' limits? The limits are two points that define an area of drawing space. You can draw both inside and outside of these limits. They do not limit your drawing area in anyway. However, there are know bugs in ACAD that if you change your limits from the default, then try to do various Fillets outside of the limits, ACAD will report an error. In all cases a Zoom Extents will display the exact extents of the drawing. Previous is one of the most useful sub commands of the Zoom family. It undoes the current view and brings back the last view. You can do up to 12 Zoom Previous before you get an error that says no previous views saved. There are a few other cases where you will get this error message. The most common of which is when you open a drawing and do 2 zooms and try to do a Zoom Previous 3 times, on the 3rd time it will report back the error since you have that many zooms stored in memory. Next is Zoom Center. I find this is seldom used as it takes a lot to get to where you want to be. First you select the Center sub command, and then you pick a point that will be the new center point of your view. Then it asks for a magnification or height. This is the distance from the object being viewed, but for most people is quite meaningless. The larger the number, the farther away you are from an object and the smaller the number, the closer you are. Finally is the Dynamic sub command. This is a really poor command on slow machines or large drawing files. Even on quick machines I tend to stay away from this command, as it is too time consuming. What happens is that ACAD redraws the image you are looking at on the screen, complete with a blue dotted rectangle and a white rectangle with an X in it. The blue dotted line represents what is in ACAD's display memory. If you try to view an area outside of the blue rectangle a regen is preformed. On slow machines and large drawings a regen can be a slow process – several seconds to several minutes. The white rectangle represents you current view. By moving the mouse you change what you are looking at – this is basically a pan. If you click the left mouse button the X will change to an arrow and the rectangle will shrink or grow depending on your mouse movement. This is basically zooming in and out of the drawing. I find that it takes several switches between the X and the arrow to achieve a

correct zoom amount and location. When you have the correct location and zoom amount press either enter, return or the space bar. Escape cancels the command. You may also see a green dotted rectangle. This represents what you were viewing before the Dynamic subcommand. When all done with the Dynamic sub command ACAD will redraw the image a second time on the screen with a possible regen. I personally find this option to be too much work, but then there are always options in ACAD to suit everyone's likes and needs.

RTZoom – RTZoom stands for Real Time Zoom. This can be a nice feature for zooming in and out on a drawing, although most people who do a lot of CAD drafting have hotkey setup to making zooming quicker. However, this allows greater flexibility than your preset hotkeys do. When you invoke this command your cursor changes to a magnifying glass with a plus and minus sign next to it. In order to zoom you must hold down the left mouse button and move the mouse up and down to zoom in and out. Notice that you are zooming in and out based upon the center of the screen, not where you click the mouse button. Personally I find this annoying as it forces me to take extra steps to view an area that I want to see. It also means that you shouldn't think about where you click the mouse button since it doesn't matter. As with the RTPan command, if you use your right mouse button you will pull up a menu that allows you to switch between RTZoom, RTPan and Zoom Extents, Previous and Window. Also, when you are done zooming, you can hit enter, return, escape, or the space bar to end the command.

Pan – In r14 this is actually the same command as RTPan. In previous versions pan worked as the new –pan command does. This command changes your cursor into a hand that allows you to scroll the drawing in any direction. However, you cannot scroll in a perfectly orthogonal direction – use –pan for that. Once you get to where you want to be you can either click enter, return, the space bar, or hit the escape key and it will take you back to the command line. If you press the right mouse button while in the command you can switch back and forth between RTPan and RTZoom and the Zoom Extents, Window and Previous commands. There are no sub commands for Pan, -pan or RTPan, only the menu popup for the right mouse button.

RTPan – RTPan can still be typed in, but it's much simpler to use pan since they are the same now. If you are on r13, there was a documented bug I saw once that stated it was possible on some versions of r13 to corrupt your database is you used this command. Personally I'd stick with old version of pan until upgrading to r14.

-Pan (r14 only) - This is the former r13 pan command. It does panning by picking two points. The first point is where you are moving from and the second point is where you are moving the first point to. Unlike the newer pan command, this will allow you to pan using your ortho mode, which means it will pan in a straight line – important if you are trying to line things up.

FYI:
If you belong to the AIA, ASCE, ACSM, or NACE you are eligible for discounts on your next Autodesk purchase. Contact your local reseller for more information!

Other News:
AutoCAD 15 and the soon to be released new version of Mechanical and Architectural Desktop will support the new Pentium III graphics accelerators called Streaming SIMD Extensions. These will enhance most the 3D and 3D viewing commands in the new versions of ACAD. See http://www2.autodesk.com/compinfo/pressrm/pressrel/1,1118,508,00.html for more information.

Side Notes:
According to Robert McNeel web site – http://www.mcneel.com ACAD r11 and r12 will soon come to an end. ACAD r11 will not be upgradable after October 31, 1999 and r12 will not be upgradable after December 31, 1999. If you are planning on upgrading your existing seats of AutoCAD start planing it into your budget before it's too late!

Today's Gripe:
Autodesk has released the standards for ACAD2k compliance for computer manufacturers. Normally this is a good thing. It's nice to see a sticker on a computer that tells you for sure that your software that cost as much as the computer did will run without any problems. However, at this time only 5 companies are charter members and all they have to do to qualify for the sticker is put together a PII with 64megs of RAM, 56k modem, CD-Rom, 17" monitor with OpenGL support and an Intellimouse. Autodesk also states that the system must "pass" the AUGI ACAD2k benchmark, but they fail to claim what it means to "pass" this test. Quite frankly this logo program doesn't talk about hard drive size or speed, networkability, zip disks, which everyone now uses, CD-R's for archiving purposes, how much RAM is on the video card, quality of the monitor, or any of a hundred other things that make up a good CAD station. I have yet to anyone who actually likes the Intellimouse as their choice in mice over the Logitech mouse with a wheel. Why has Autodesk specifically mentioned a Microsoft mouse rather than simply stating a mouse with a wheel button? Considering how poorly ergonomic the Intellimouse is over the Logitech I don't get why people would choose that over the Logitech willingly. The only reason I can see is that all the charter members of this "elite" group of firms for the most part ship Microsoft Intellimouse with their system as part of a package deal with MS to sell end users (that's you) MS Windows, MS Office, and MS mice. Once again MS is flexing their muscles forcing us into inferior products.