

Civil 3D – Grasping at Styles?

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Why are so many Autodesk users terrified to make the jump to Autodesk Civil 3D? Part of the reason is the new interface. Every aspect of the software is now controlled through Tool Space, a collection of data, settings, and styles that are stored in the drawing. Yes, I did say, “Stored in the drawing.” Civil 3D does not store data in external databases as Land Desktop had done previously. This is a bit of culture shock for most of us seasoned Land Desktop users.

“We’re not in Kansas anymore.” Let us begin by taking a look into the Tool Space and explore its functionality. First off, the Tool Space is divided into two main tabs the Prospector and Settings tab.

The Prospector tab is a collection of data objects that are present in the active drawing. The collections are organized in a tree structure with overall collection categories and object data within those collections. The primary collections displayed upon drawing creation include points, point groups, surfaces, sites, pipe networks, corridors, assemblies, and subassemblies. Most of these categories deal with specific object data, such as points, surfaces, pipe networks, and corridors. The Sites collection is a bit different in that it contains a collection of objects that will interact with one another. Sites contain many different objects such as alignments, profiles, profile views, sample line groups (cross section data), grading groups, and parcels. To access any of the data within the Tool Space, simply expand each collection item and expose the object data.

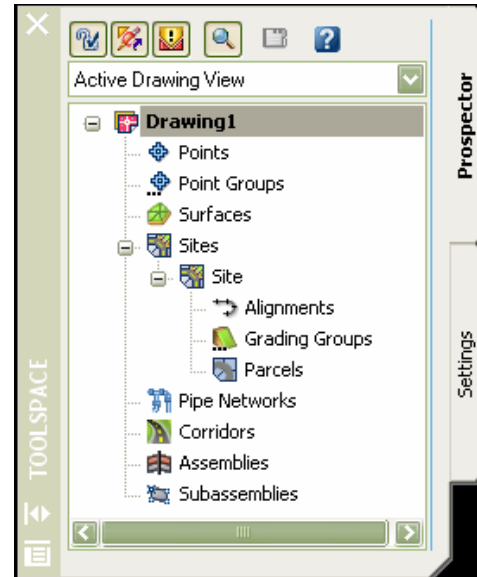


Figure 1: TOOLSPACE – Prospector Tab

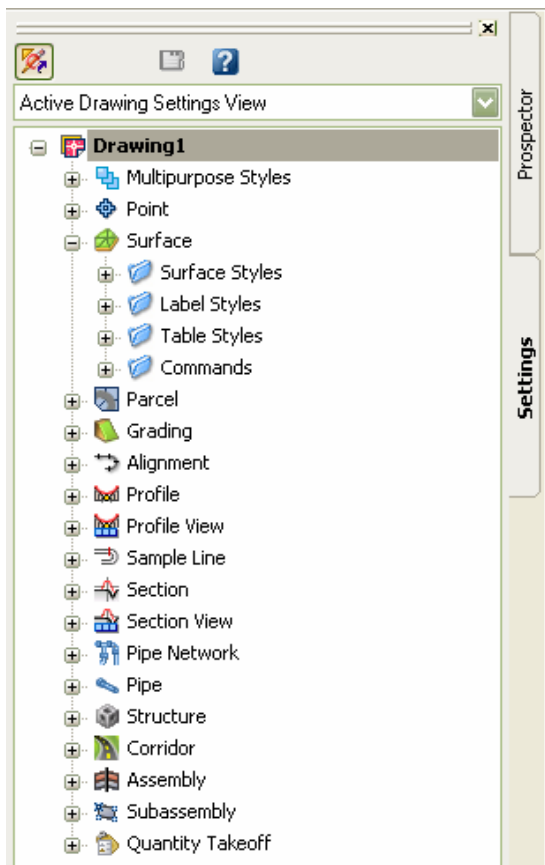


Figure 2: TOOLSPACE – Settings Tab

The Settings tab, on the other hand, is a vast collection of styles that Civil 3D utilizes to control objects, labels, tables, commands, and other settings. This could be considered the “brains behind the operation.” Without properly setting up your styles, it is very difficult to achieve desired results.

“This is how we always did it.”

Within Civil 3D, the process of creating styles can be a very daunting task, as most of us are trying to emulate what we did in Land Desktop and rightfully so. I think many would agree that most organizations could be defined by the style of their production drawings.

When creating styles, one should first create an outline, identifying what it is that you do and with whom you share your information. This may seem trivial, but is a very important process that needs to be evaluated. You will be faced with a major decision on whether to use the ByStyle or ByLayer format. These formats can be utilized together to create an optimum workflow, but may depend on the requirements of the final output.

Out-of-the box, Civil 3D includes template files based on the ByLayer or ByStyle styles. In my opinion, ByLayer is the method of choice, because most seasoned AutoCAD users are accustomed to working in this manner. Users control the display of object information within the Layer Manager. Assign a color to a layer and that layer will plot to a specific line weight or other assigned property. ByStyle works on the theory of blocks. We can assign individual display characteristics within the style and have little and no control over the object in the Layer Manager. The use of ByStyle can be detrimental to users that rely on vanilla AutoCAD or other software packages.

Object Styles

On the Settings tab, each object is broken down into its own collection of styles. By default, there is a style called Standard. The Standard style is essentially a placeholder for the creation of other styles. There are several styles created by Autodesk for our use.

There are multitudes of theories on how styles should be named, created, and utilized. I would recommend starting with a style that has been setup to perform a specific task. One of Autodesk's styles pertains to *Borders & Contours*, which displays both the border and contour components created from supplied data. Once you establish base settings for your components and display, you may want to copy this style, rename it, and make the appropriate component changes to reflect the new name. This will ensure that all style settings are congruent throughout a specific object type.

It is imperative to understand that layer visibility and component display are controlled in two different areas of the program: the Display tab of an object style and the Layer Manager. Be very careful when turning off components in an object style, this will render the functionality of the Layer Manager useless. In addition, display settings are controlled separately for 2D and 3D viewing modes.

Label Styles

Many factors go into the creation of labels. What is it that you want to label? How do you want the label to display? Do you want the label to be plan readable? Do you want a Block included in the label?

Label styles control the annotation of object data within a drawing. They are somewhat more complex to create, modify, or even manage than object styles. All label styles are created utilizing the Label Style Composer. The Label Style Composer dialog box is consistent throughout the entire program making the interface easier to navigate and eases creation. The Label Style Composer is comprised of five tabs: information, general, layout, dragged state, and summary. The Information tab controls the name of the style, a brief description, and information regarding who created or modified the style. Label settings can be configured at multiple levels. The ability to lock label style defaults at various levels enables users to force standards down through the hierarchy of the styles. Any default label style that is locked at a parent (higher) level cannot be edited or changed on a child (lower) level.

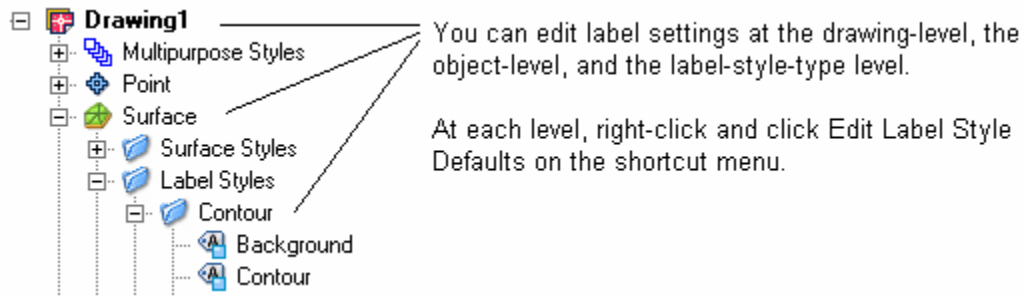


Figure 3: Label Style Hierarchy

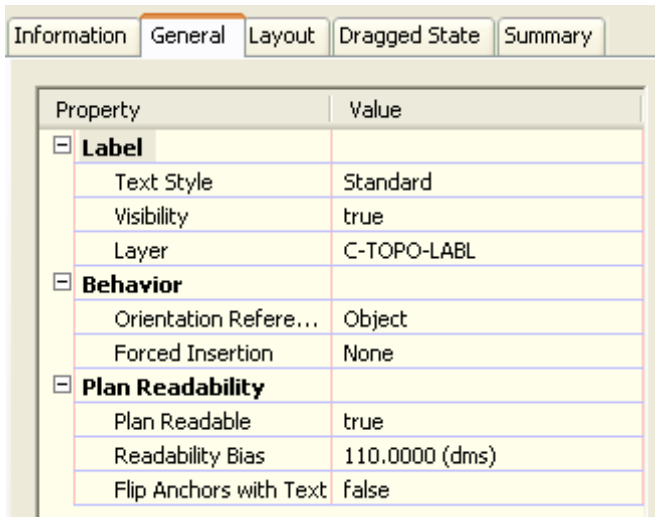


Figure 4: Label Style Composer

The Label Style Composer is a collection of tabs that control label creation and display characteristics. Within the Label properties, located on the General tab, you can set a default text style. The selected default Text Style is applied to all text components within that label style.

Note: Text styles within Civil 3D should not have a height assigned to them. The program will size the text based on the drawing scale. The sizing of text is going to be a drastic change in process and standards to those who have used Land Desktop for years.

The Visibility option controls the visibility display of the label. Setting this option to false will render the entire label invisible regardless of other visibility options set on individual components. A user can also set the layer to which a label will be set. One of the most important features within Civil 3D is the ability to adjust labeling to be plan readable. This feature is controlled within the Behavior and Plan Readability properties. The Orientation Reference property controls how text is to react within a plan. Setting this feature to Object, labels will be set to follow the rotation relative to the object it is referencing. For example, if you DView Twist a drawing 45 degrees, the label will also rotate 45 degrees, thus following the object's rotation. The Forced Insertion option is only applied when using the object reference. The None setting positions the label as it was composed. The other options will allow a label to be placed either above or below an object upon creation. Setting this feature to View, labels will rotate and assume that a zero angle is in a horizontal position. The View setting ignores any DView Twist or UCS that may have been applied. The World Coordinate System setting adjusts the labels with respect to the angle between the current view and world view. Changing the view or current UCS does not affect label rotation with respect to the World Coordinate System.



Figure 5: Label Components

Label components can contain text, ticks, lines, blocks, and direction arrows. By selecting the icon to the right of the component drop down list, you can choose the type of component added to the label. You can use an arrangement of components to create an appropriate label. By selecting the red "x," you can delete any component at any time.

Note: Be careful not to delete any component used as an Anchor Point for other components as this will affect your label.

The Component properties define the appearance, location, and orientation of that particular component. Each component has a unique name and may be changed at any time. All the Properties configured in the Layout tab are applied to each Component separately. The Visibility property on the Layout tab controls the display of the component. Sometimes it is easier to turn off a label rather than deleting it completely.

Another interesting feature is the Anchor Component. The Anchor Component allows a user to attach a component to a feature (object) or another component. When connecting to a feature, the Anchor Point reflects the positioning of the component around the object. The Anchor Point is the text justification parameter that we are accustomed to within AutoCAD. Connecting to a feature gives you the most flexibility with regard to component placement. If you select a label that has several components attached to a feature, you will notice that there are grips located at specified anchor points, which move independently of one another. On the contrary, labels that reference another component only display one grip and all attached components will move as a complete unit. This option ensures consistency among label placement.

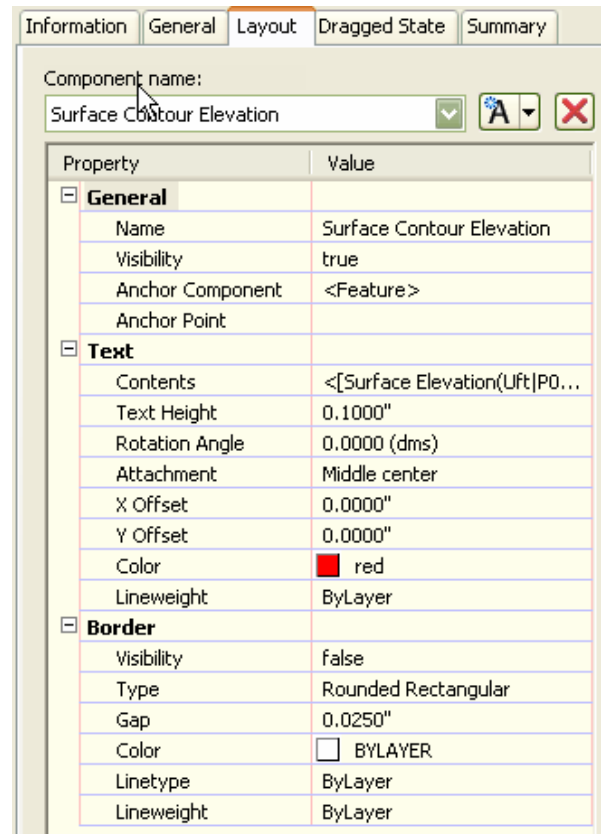


Figure 6: Component Layout Parameters

The next section of the Layout tab controls the size, rotation, placement, and display of text. The Text Height represents the text size in plotted inches. Each component has its own Rotation Angle. The Rotation Angle is applied based upon the Anchor Component, Anchor Point, and Text Attachment. The default x-y offset is set to zero. Users can modify offset distances by applying a positive or negative value in inches. Selecting ByLayer allows the Layer Manager to control Color and Lineweight based on the layer specified on the previous tab.

Label Style Composer

The Label Style Composer is where one controls what information is used and how it is displayed. To access the Label Style Composer, select the symbol with three dots. The Text Component Editor is a collection of object data values used in labeling. The values obtained from the objects create an appropriate label. Text may be entered separately or in conjunction with a Property. Enter text in the Contents Value Box. The parameters associated with the available Properties will change according to the type of component.

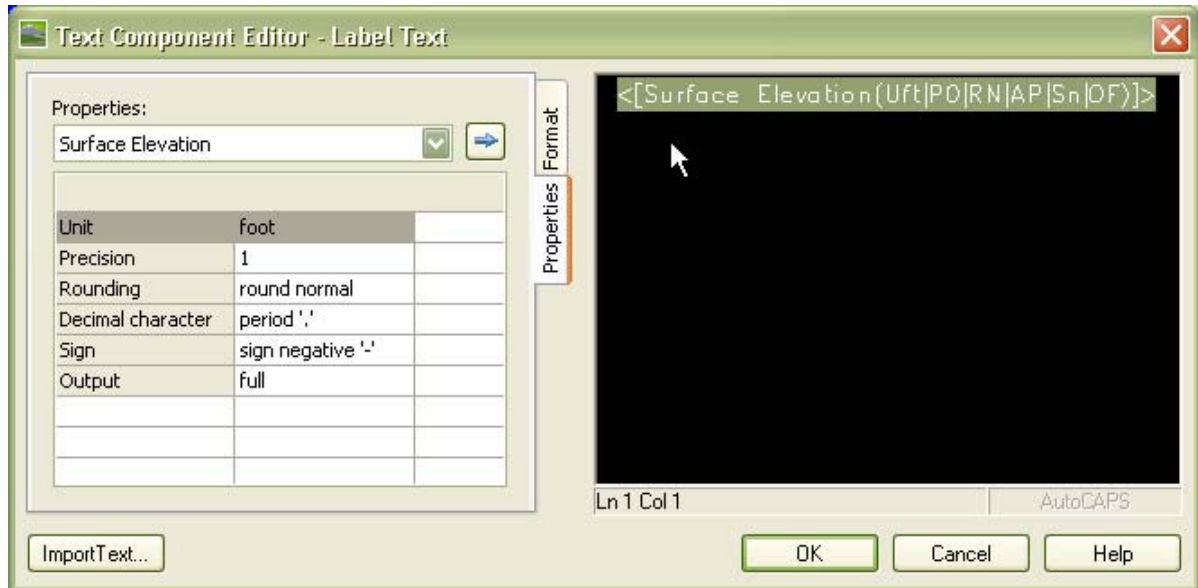


Figure 7: Text Component Editor

Note: It is always a good rule to delete the current Property component before applying changes. To apply the change, you must click on the blue arrow and this will place the Property component in the preview window. You can add additional annotation to the Text component. Just click and place at the appropriate location.

I hope that, with the information provided, some of the mystery behind styles has been uncovered. Understanding how and why information is displayed will certainly enhance your ability to create styles or modify styles that shipped with the product. This process will be lengthy and will probably consist of many trials and errors. There are some limitations with labeling in the 2006 release; however, the 2007 release looks very promising! Good luck and have patience.