

CPD – Confused Point Disorder

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Why do my points act the way they do and where did they go?

This has been an interesting topic surrounding Civil 3D. In past releases (pre 2008) points and point groups behaved in a much different manner than they do now. We will explore the basics of points and some of the differences between software releases.

Let's start off with the basics of points. Points are Civil 3D objects that contain several types of data. All points have an x, y, z designation which describe its known location in space. But in order to display this information on plan, a point should have a point style and point label style assigned to it. Points can be added to point groups for organization. Points can be manipulated using description keys upon insertion.

The point style and label style define the display properties of each point in the drawing. A point style will designate how the point object (node) is displayed. A point label style is the annotation associated with the point data. The combination of these styles will give a user the ability to display information in the drawing in a desired format.

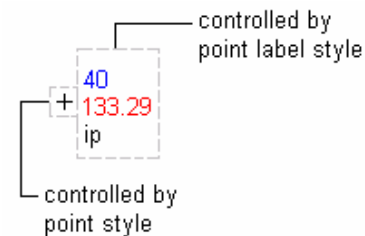


Figure 1: Point Style and Point Label Style

The point style is the simpler of the two. A point style can be made from 3 main sources: (1) an AutoCAD point, (2) a Civil 3D Object, or (3) an AutoCAD block. If using a block, be certain of the scale and size of the block before adding any scale factors to it within Civil 3D. This could result in undesirable behavior.

The point label style on the other hand could be a bit more complex. The label itself is comprised of components (text, line, etc.). The text components are extracted from the point object data. Data such as northing, easting, point number, elevation, description, etc. can be added to the label styles. The ability to have several different label styles available will facilitate the labeling process and organization within your drawings.

Another utility at our disposal is description keys. To apply styles to a point, a user can configure description keys. Description keys can automatically assign the appropriate styles based on a raw description assigned in the field, compiled into an ASCII based file, and imported into a drawing. Each code is assigned a point style by selecting the check box and appropriate style. The same holds true for the point label style. The format or full description can translate a simple code into meaningful information. The format column can be configured to use parameters, a string of text, or both to create the label information. Parameters are used to control scale or rotation of the point.

Code	Point Style	Point Label Style	Format	Layer	Scale Parameter	Use drawing scale	Apply to X-Y	Apply to Z
CMF*	<input type="checkbox"/> Iron Pin	<input checked="" type="checkbox"/> <default>	Con Mon (Fnd)	<input checked="" type="checkbox"/> V-NODE-CMON	<input type="checkbox"/> Parameter 1	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> no
CT*	<input type="checkbox"/> <default>	<input checked="" type="checkbox"/> <default>	\$1" \$2 Tree	<input checked="" type="checkbox"/> V-NODE-TREE	<input checked="" type="checkbox"/> Parameter 1	<input checked="" type="checkbox"/> yes	<input checked="" type="checkbox"/> yes	<input checked="" type="checkbox"/> yes
DT*	<input type="checkbox"/> <default>	<input checked="" type="checkbox"/> <default>	\$1" \$2 Tree	<input checked="" type="checkbox"/> V-NODE-TREE	<input checked="" type="checkbox"/> Parameter 1	<input checked="" type="checkbox"/> yes	<input checked="" type="checkbox"/> yes	<input checked="" type="checkbox"/> yes
IPF*	<input checked="" type="checkbox"/> Iron Pin	<input checked="" type="checkbox"/> Point#-Elevation-Description	IP (Fnd)	<input checked="" type="checkbox"/> V-NODE-IPIN	<input type="checkbox"/> Parameter 1	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> no
SWL#	<input type="checkbox"/> <default>	<input checked="" type="checkbox"/> <default>	\$*	<input checked="" type="checkbox"/> V-NODE-SWLE	<input type="checkbox"/> Parameter 1	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> no
TOPO*	<input type="checkbox"/> <default>	<input checked="" type="checkbox"/> <default>	\$*	<input checked="" type="checkbox"/> V-NODE-SPOT	<input type="checkbox"/> Parameter 1	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> no
TOS#	<input type="checkbox"/> <default>	<input checked="" type="checkbox"/> <default>	\$*	<input checked="" type="checkbox"/> V-NODE-TOB	<input type="checkbox"/> Parameter 1	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> no
UP*	<input type="checkbox"/> <default>	<input checked="" type="checkbox"/> <default>	\$*	<input checked="" type="checkbox"/> V-NODE-POLE	<input type="checkbox"/> Parameter 1	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> no

Figure 2: Description Key Editor

For example a simplified field code of DT 24 MAPLE, could be translated to read 24" MAPLE TREE on plan without any manual text manipulation. The point may be scaled to give a better representation on plan, smaller trees verses larger trees.

A layer designation can also be applied to a particular point. By applying a layer to a point, you can have control over the point utilizing the layer manager in AutoCAD. The layer selected is for placement of the point only other layers can be designated for the point label within the label style. It is much easier to apply layers on the import of points rather than changing after insertion.

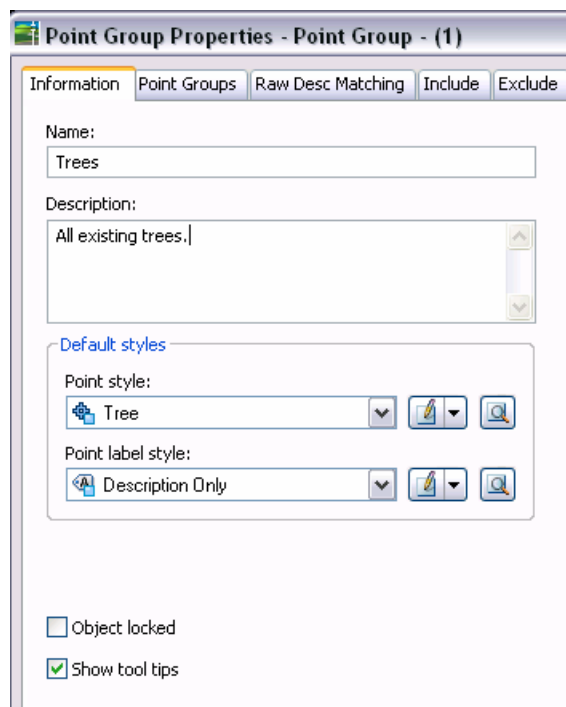


Figure 3: Point Group Properties Dialog

Point groups are another method to manipulate points. Point groups enable a user the ability to organize their point data and apply style changes on a global scale. By creating a group of points, you can apply a default point style and point label style for the group.

Be careful when applying default styles to a point group it could override the original, inserted style. On the Overrides tab, in the point group properties dialog, you can force the style changes by selecting the check boxes for point style and point label style and by choosing the desired style to apply.

Property	Override
<input type="checkbox"/> Raw Description	
<input type="checkbox"/> Point Elevation	
<input checked="" type="checkbox"/> Point Style	Tree
<input checked="" type="checkbox"/> Point Label Style	Description Only

Figure 4: Point Group Override Tab

In pre 2008 releases of Civil 3D, point groups had the option to apply a layer to the group. This feature often caused points to be confused as to their proper layer. Points would be listed on one layer and actually residing on another. This particular option has been removed from the dialog box and no longer functions as in the past.

An advantage of point groups is the ability to set their display order. The display order is accessed through the properties of the point group collection on the Toolspace. If a point should belong to several groups, a hierarchy will then take precedence within the drawing for its display characteristics. This is a quick and easy way to set your display of points when working with drawings. Point groups can be configured and stored in your drawings. Once points are inserted, you can update the group either individually or globally.

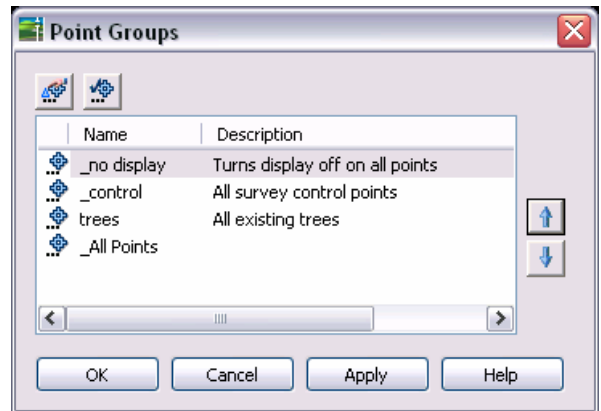


Figure 5: Point Group Display Order

The sheer number and complexity of the aforementioned styles can be a daunting task to complete, but once configured they can be stored in your drawing templates and used for all future projects. Set your styles, point groups, and description keys correctly and your points will not encounter CPD ever again.