FDOT State Kit for AutoCAD Civil 3D 2015

Converting DGN to DWG

The inevitable exchange of geometric and CAD data between Bentley and Autodesk platforms

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Getting Microstation/Geopak and AutoCAD/Civil 3D to Play Well Together

Civil 3D objects when imported or exported, functions much like any other AutoCAD data. For example a surface objects is converted to polylines so only polyline editing is allowed

. If you are trying to import Civil 3D AEC data (Arch. Elec. Const.) objects like alignments, DTMs, profiles, and other intelligent objects, you should look into the option of importing via XML or recreating the objects. I'll demonstrate how to export data to LandXML.

It should also be noted that some intelligence may be lost when transferring data between Microstation and Civil 3D. Essentially after importing/exporting the data to Civil 3D you will only be able to use the basic information to filter through your data.

- Information is stored and displayed differently in the two programs.
- Microstation and AutoCAD users often use different methods to create CAD files.

It is highly recommended that transferring data between the two CAD systems be a last resort.

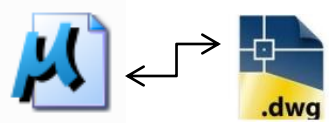
Always strive to keep the data in its native format.

Software Prerequisites:

- For software, the most current or latest version of the FDOT Civil 3D State kit should be installed currently only 2014 is out but 2015 is fast approaching. Having the latest will ensure that during the conversion process your linetypes, fonts, layers and so forth will translate to the latest FDOT Cadd standards.
- There are some translation files that are installed in a valid Support file search path in *C:\FDOT2015.C3D\Support\Translation*
- A configuration settings file named DgnSetups.ini is used for mapping translation such as layers, colors, line weights.
- To ensure Microstation custom linetypes are displayed, resource or (.rsc) file's are referenced when importing custom line types by the DGN file. These files are is included with the state kit install. This will also help in reducing the "Missing SHX font" message.

- *The FDOT Civil 3D State kit can be obtained from: http://www.dot.state.fl.us/ecso/downloads/software/software.shtm*

- Autodesk AutoCAD Civil 3D 2015 Service Pack 1 (July 18 2014): *http://www.autodesk.com*



- **Setting up the FDOT Microstation DGN file –** Before importing a DGN into Civil 3D the DGN file should be prepared (*Optional*).
- **Preparing a FDOT DWG file before importing –** Choosing the FDOT template and editing the DWG settings.
- **Importing the FDOT DGN file into Civil 3D –** Examining the Import DGN Setting dialog box in FDOT Civil 3D.

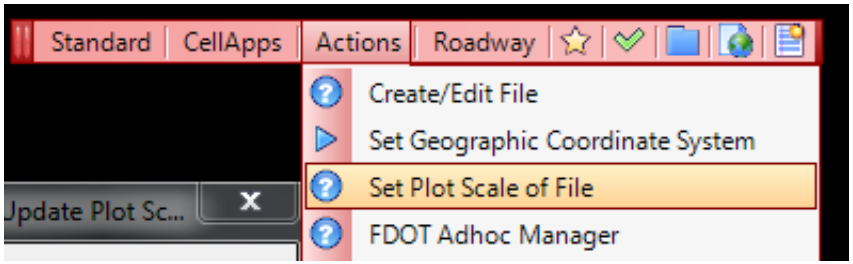
- **Export a FDOT Civil 3D DWG file before importing it into Microstation** – Convert and save Civil 3D models to base AutoCAD drawings.
- **Importing an FDOT DWG file into Microstation –** Examining the steps to import a base AutoCAD DWG file into an FDOTSEED3D.DGN file.

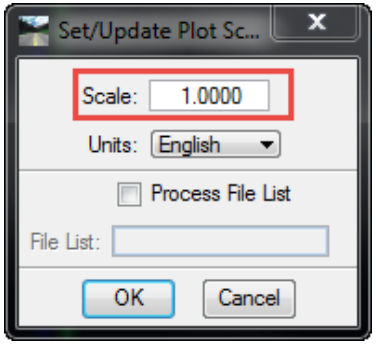
- **Tips for cleaning up your drawing file after importing –** Examining options to clean up you data after importing a DGN file.

- **Setting up the FDOT Microstation DGN file –** Before importing a DGN into Civil 3D the DGN file should be prepared.
  - Its not always possible to perform the following steps due to Microstation being unavailable on the users workstation so these steps are only recommended.
  - We are going to set up the scale in Microstation so that the DGN is seen in real world coordinates by setting the scale to 1:1 and then apply the scale to all the lines that are in the DGN. This is based on the FDOT CADPilot installed and launched with in Microstation.

- **Setting up the FDOT Microstation DGN file –** Before importing a DGN into Civil 3D the DGN file should be prepared.

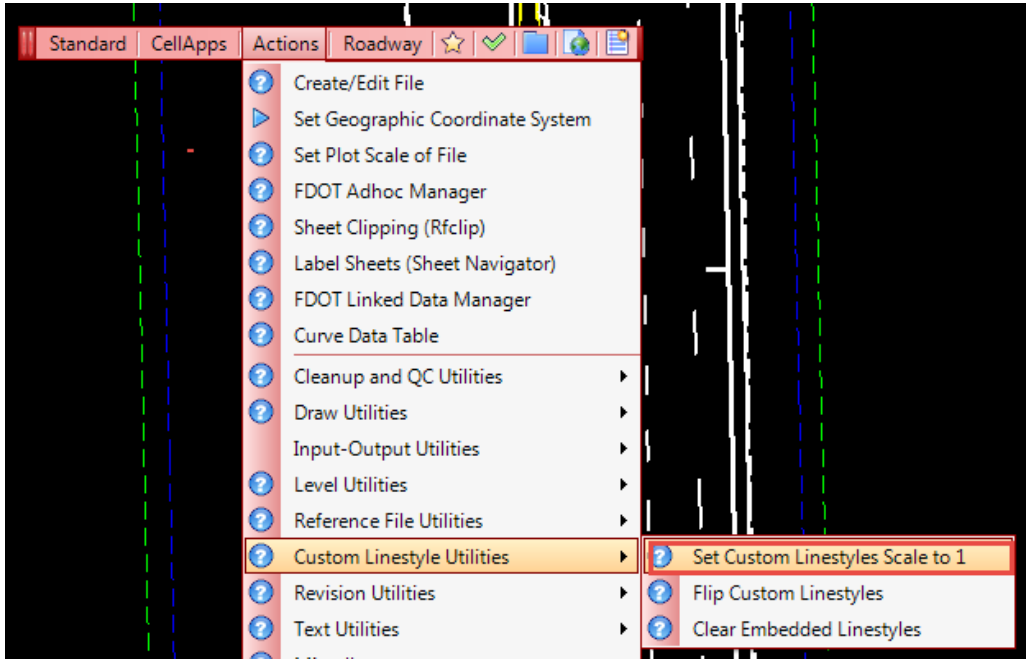
  1. Under the Actions pull down menu in the Custom Linestyle Utilities Category choose **Set Plot Scale of File.** Set the scale to 1.





- **Setting up the FDOT Microstation DGN file –** Before importing a DGN into Civil 3D the DGN file should be prepared.

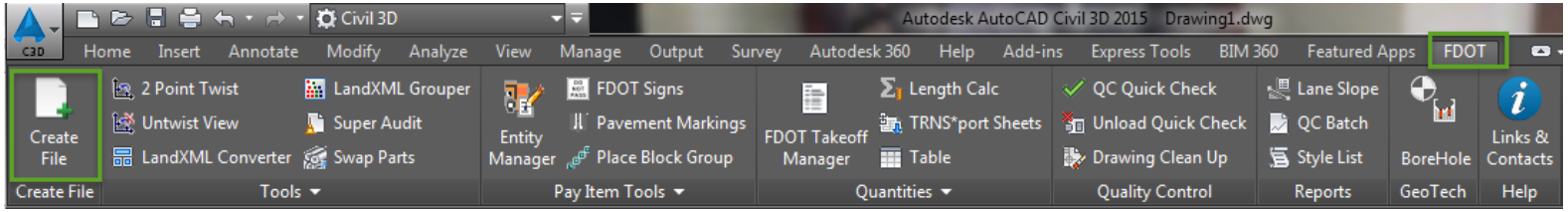
2. Under the Actions pull down menu in the Custom Linestyle Utilities Category choose **Set Custom Linestyles Scale to 1**.



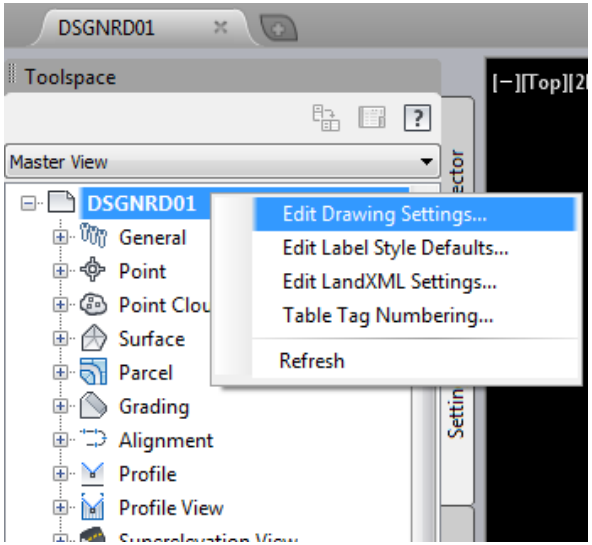
3. Save your file and close. AutoCAD Civil 3D will not import the DGN if it is still open.

- **Preparing a FDOT DWG file before importing** – Choosing the FDOT template and editing the DWG settings.

1. Within the FDOT Civil 3D State Kit, click on the FDOT tab and create a new drawing from FDOT templates using the Create File tool.

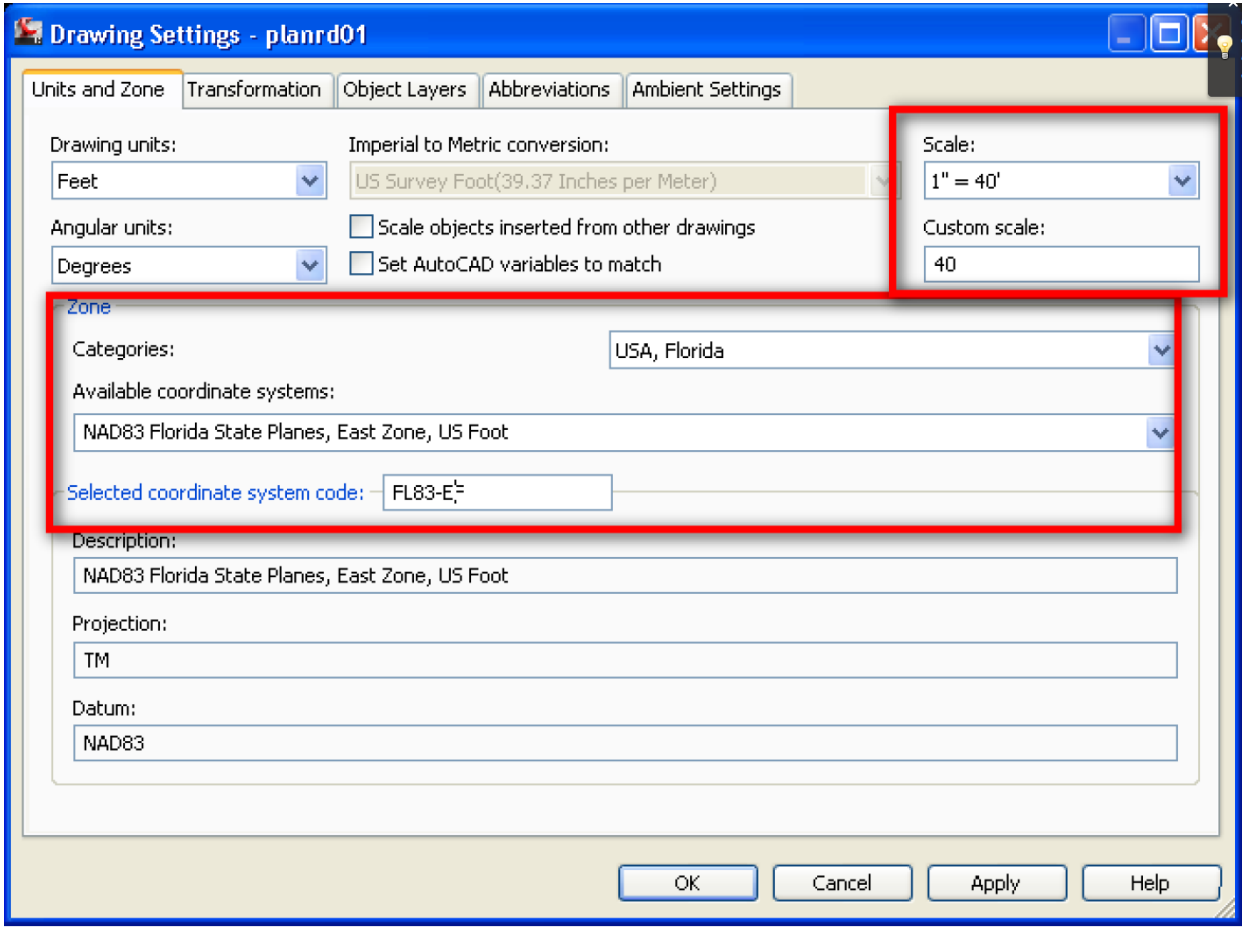


2. Navigate to Edit Drawing Settings dialog box. On the Settings Tab on Toolspace> Right-click on the DWG name> choose Edit Drawing Settings.



- **Preparing a FDOT DWG file before importing** – Choosing the FDOT template and editing the DWG settings.

3. Set the scale and choose the appropriate zone coordinate system to the correct project values.



➢ Importing the FDOT DGN file into Civil 3D – Examining the Import DGN Setting dialog box in FDOT Civil 3D.

1. Select the **Import** icon. The command is found under the Insert tab>Import.

2. For “Files of Type” choose the Microstation DGN (*.dgn) and open it: (***See figure on next page***)

   A. Select the **Import into current drawing** option.

   B. Select **Ignore duplicate names** to give precedence to definition for duplicate names in the current AutoCAD DWG file (layer names, dimensions styles…).

   C. A DGN file can have multiple design models but a DWG can only have one, you will need to select one design from the design model DGN file list.

   D. For External DGN references select **Attach as DGN underlay** all DGN references are imported as DGN underlay's in the new resulting DWG file.

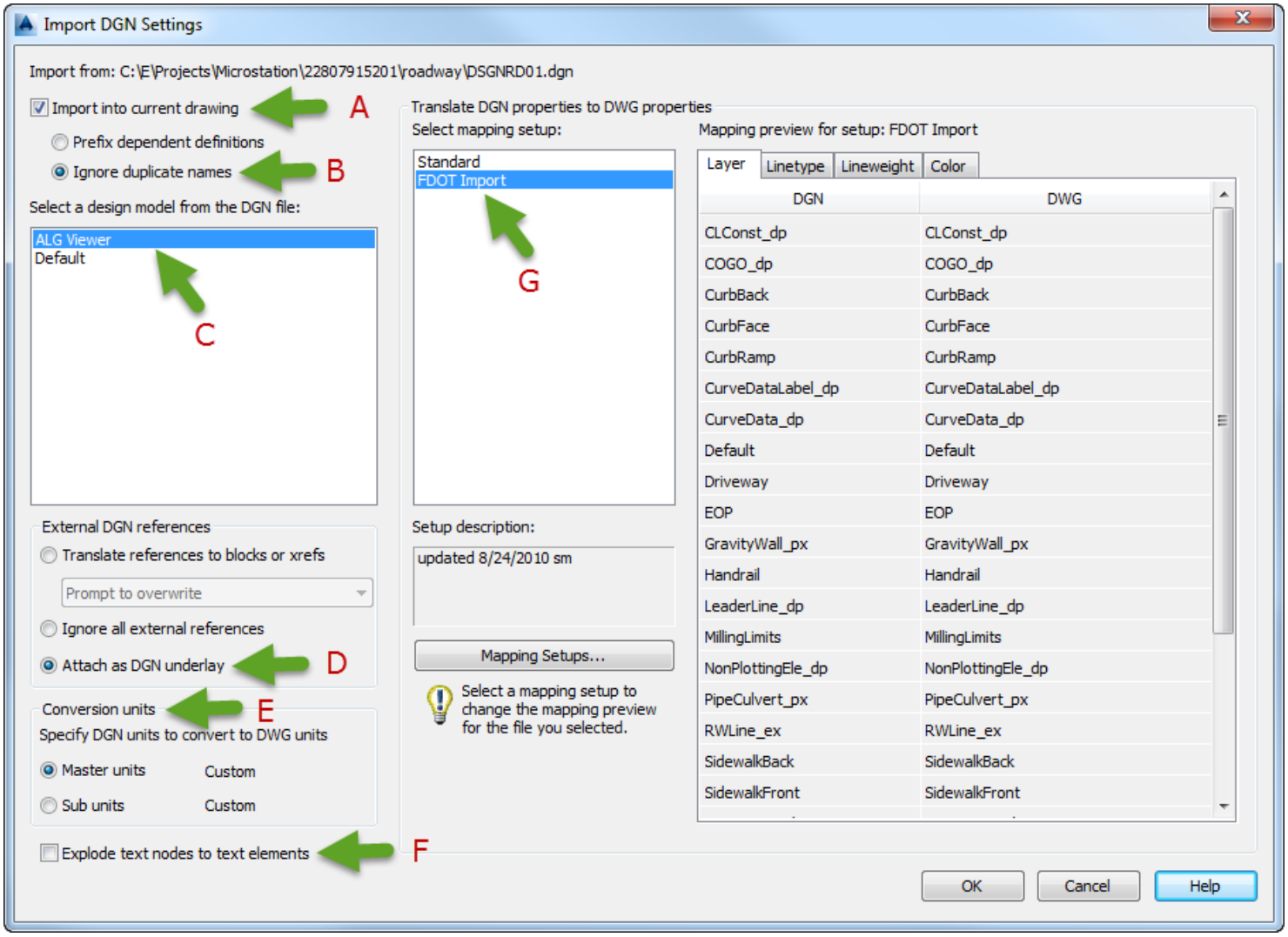
   E. Conversion Units allows you to select the appropriate units for translation. For reference the master units and sub-units of your selected DGN are preselected for convenience.

   F. Explode text nodes to text elements should be **unchecked** to maintain multiple lines of text as a single multiline text (Mtext) object in AutoCAD.

   G. In the Import DGN Setting dialog box ensure that the Mapping Setup chosen is **FDOT Import**. This will ensure that the linestyles, level and line weights are imported correctly. A Mapping preview for this setup is displayed on the left of the dialog box.

3. Press **OK** to import the DGN into the DWG file.

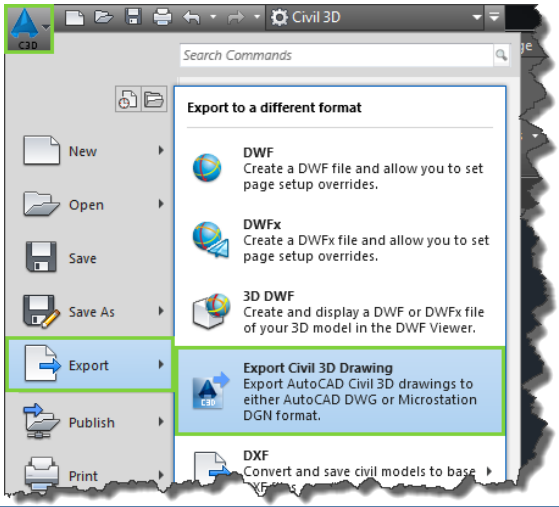
- **Importing the FDOT DGN file into Civil 3D** – Examining the Import DGN Setting dialog box in FDOT Civil 3D.



➢ Export a Civil 3D DWG file before importing it into Microstation – Setting up the Autodesk DWG file.

In order for AEC Civil 3D object (Surface's Alignment's Pipe's…) to show in Microstation (without having to explode the drawing) you must export the Civil 3D drawing to a vanilla/plain AutoCAD DWG. This procedure takes all Civil objects and converts them into blocks with in the current drawing file. The current drawing open is not affected. **Performing the Save As option will not have the same effect**.

1. Open the Civil 3D drawing file that you want to export.
2. Click  Export>Export Civil 3D Drawing (Export AutoCAD Civil 3D drawings to either AutoCAD DWG or Microstation DGN format).



➢ Export a Civil 3D DWG file before importing it into Microstation – Setting up the Autodesk DWG file.

3. Choose the following setting to export file to AutoCAD DWG:

   A. Export to file type: Choose AutoCAD DWG

   B. External DWG references: Choose **Ignore** so only objects that are in the current drawing are exported.

   C. Files to Export: Specify whether to export the current drawing only or all drawings in the source folder, and whether to export sheets.

   D. Export Settings: Choose AutoCAD DWG and specify that DWG version which the file will be exported.

   E. Source Folder: Displays the location of the current drawing. When Selected Drawings in Source Folder is selected under Files To Export, you can click the browse button to select a different source folder (for example, if you wan to export all drawings within a specified folder).

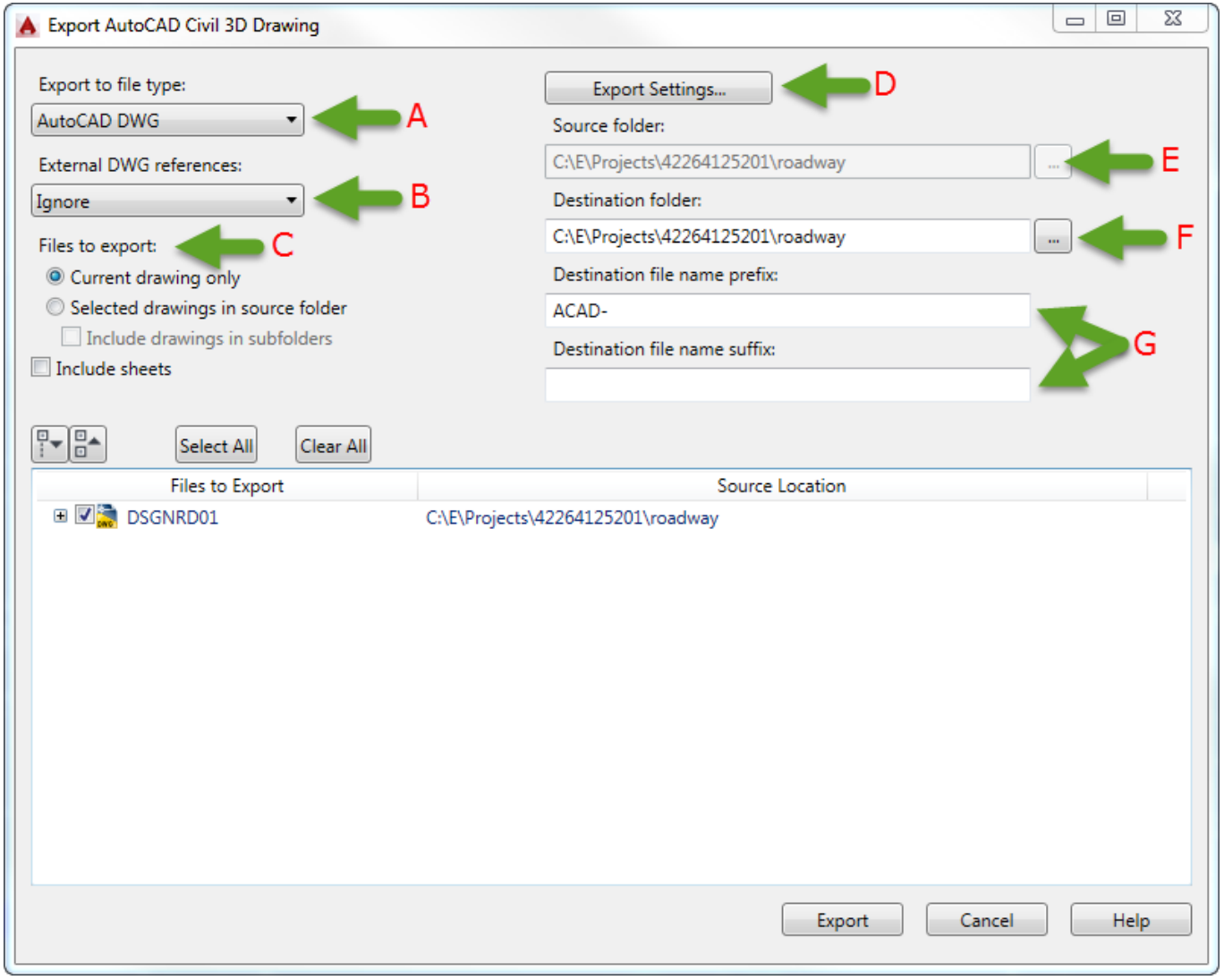
   F. Destination Folder: Specify the location where the exported files will be saved.

   G. Destination file name prefix/Suffix: Specifies the prefix/suffix to add to the file name after export.

4. Select **Export** to complete the export process.

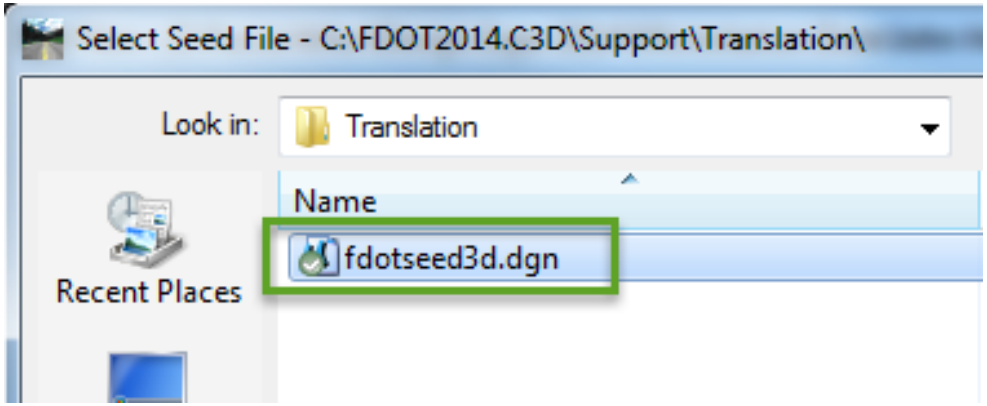
➢ Export a Civil 3D DWG file before importing it into Microstation

– Setting up the Autodesk DWG file.



- **Importing an FDOT DWG file into Microstation –** Examining the steps to import a base AutoCAD DWG file into an FDOTSEED3D.DGN file.

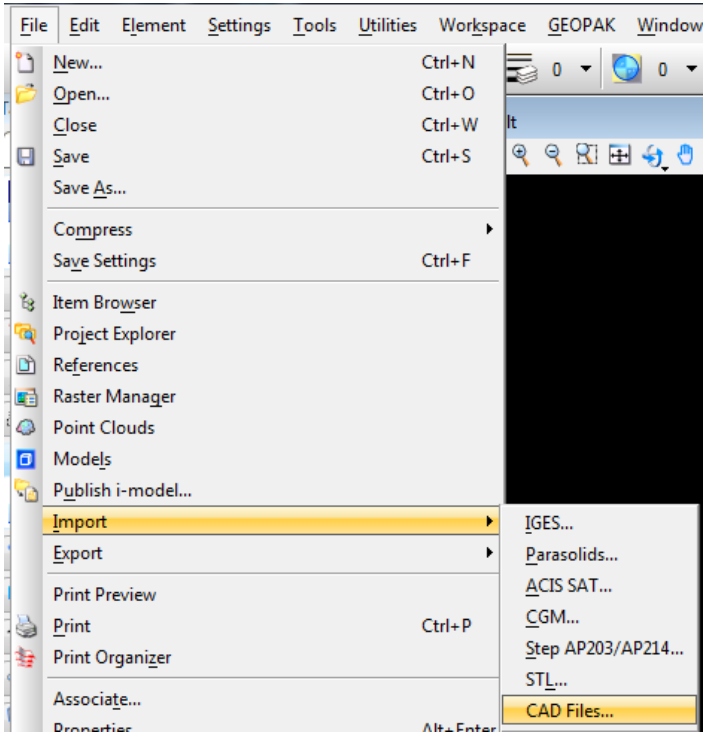
1. Launch Microstation.
2. Click on the “New File” icon. 
3. Select “Browse” and navigate to the FDOT Civil 3D State kit install directory to select the corporate FDOT DGN seed file. Select open.
   Location: *C:\FDOT2015.C3D\Support\Translation*



4. In the next dialog box give the new DGN file a name, choose a location to save the file.
5. In the following dialog box, select the new file name and choose open.

- **Importing an FDOT DWG file into Microstation –** Examining the steps to import a base AutoCAD DWG file into an FDOTSEED3D.DGN file.

6. Select File>Import>CAD files… Browse to the DWG file you wish to open, select the DWG file and select Open.



7. The DWG file will convert to a DGN file and open in the background.

- **Tips for cleaning up your drawing after importing –** Examining options to clean up you data after importing a DGN file.
  - If you do not have FDOT Layers, Text Styles, Dimension Styles… they can be imported using **Design Center**. Type **DC** at the command prompt. Locate the templates at the following location: *C:\FDOT2015.C3D\Data\Templates*
    Insert contents into the drawing by left-clicking and dragging them into the open DWG file.
  - All of the layers should be set to "By Layer" if they are not, run the command: **Setbylayer.** Choose the **"Settings"** option at the command prompt. Make sure that **Color, Linetype, Lineweight** are checked and click **OK**. Type **all** to select all objects in the current drawing.
  - If your drawing file needs the FDOT custom line types loaded you can load or reload them into your drawing. Type **Linetype** at the command prompt. Click the Load button. In the next window, click Select File and navigate to: **C:\FDOT2015.C3D\Support\Linetype\FDOT.lin**. Click open. In the load window, shift-select and highlight all the listed available linetypes. Select option "**Reload all selected linetypes**". Then OK in the next window to exit/end.

Additional notes:

- If possible export the .DGN file from Microstation to a .DWG for AutoCAD.
- Use TrueType fonts when possible, since both Microstation and AutoCAD support this font type.
- Inside Civil 3D perform a couple of purges to clear out any unused blocks, text styles, layers and the like.
- You can use the **wblock** command to export the entire contents of the drawing to a new file. This works similar to purge but seems to be more effective in eliminating unused layers
- Perform an **Audit** or use the **Recover** command to repair any possible internal file definition errors.
- Pen tables in Microstation are comparable to AutoCAD plot styles tables.

Thank You!

Are there any questions?

Are there any comments to improve your experience?

Email us:

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The Civil 3D FDOT State kit is available for download at:

http://www.dot.state.fl.us/ecso/downloads/software/FDOT2015CADDSoftware.shtm

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