



FDOT Entity Manager

FDOT State Kit for AutoCAD Civil 3D

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What is Entity Manager (EMX)?

- Entity Manager allows the user to draw graphical entities with pay item data for QTO pre-attached, or place the pay item data on entities after they are drawn.
- Entity Manager helps enforce drafting standards with tools for drawing primitive entities on the proper ByLAYER for the drawing that is open.
- Entity Manager is evoked for the FDOT Ribbon, or can be run by typing the Command “EMX” at the command line
- Entity Manager stays resident during the Civil 3D Session so it can be opened and closed quickly.

Configuration File

- FDOTEntityManager.dll config contains user settings which can be customized. See Readme.html in Apps folder
 - Settings include input paths and data for: pay item database, pay item criteria, blocks and rule files.

Startup

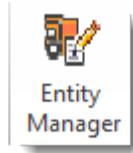
- System environment variable for FDOT software path.
- FDOT software path
- FDOT Pay Item database (**EntityManagerPayitemDatabase.txt**)
 - The shipped default database of pay items, attributes, adhoc, and symbology. This is used to restore defaults.
- FDOT Pay Item Criteria (**AECMERGE.xml**)
 - Contains formula data, etc, formatted for Civil 3D
- TRNS*PRT Categories provides numeric groupings (**FloridaCategories.xml**)
 - Database for filename, layer, symbology
- Information and error messages are written to **FDOTEntityManager.Log** in the user’s TEMP folder (ex: C:\Users\rd964rl.CO\AppData\Local\Temp\FDOTEntityManager.Log).

Loading

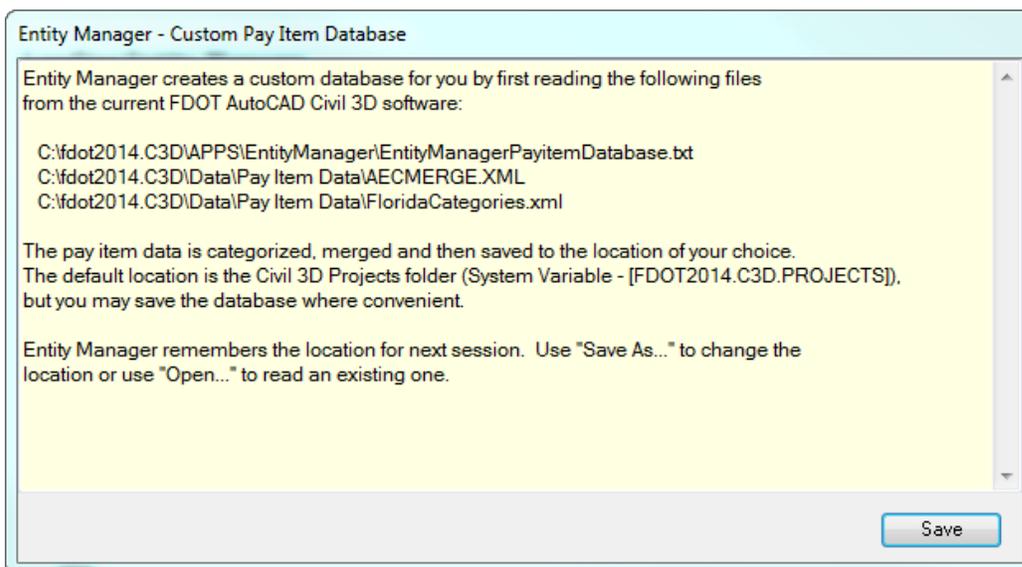
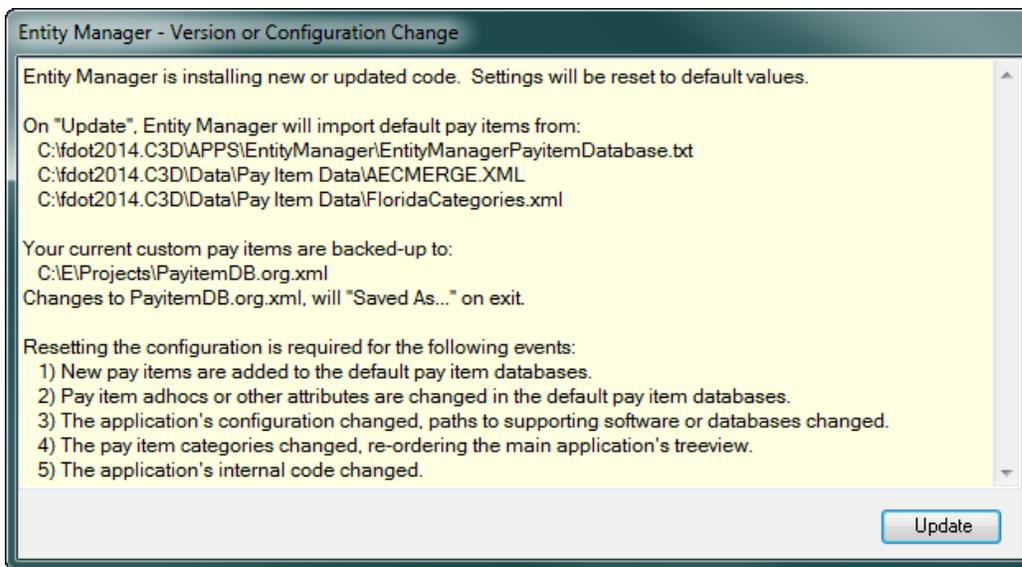
- The following events occur during the loading of Entity Manager (EMX command).
- If the first execution, EM reads the default EntityManagerPayitemDatabase.txt (defined by the configuration variable, “DefaultDatabasePath”).
 - Note: The default payitem database is accessible from the Open Folder icon as “Default...”
- After the first execution, Entity Manager uses the custom database.
 - Reads custom payitem database (PayitemDB.xml)
 - Allows custom changes to the pay items
 - Use the “Save As...” icon to the database to a project.
 - Copy and open the database to reuse in another project.
 -

Loading Entity Manager

1. Located on the FDOT Civil 3D Ribbon Panel



2. On first Launch, **EMX** reads the default **EntityManagerPayitemDatabase.txt**
After the first execution, Entity Manager uses the custom database you saved for your project
PayitemDB.xml allows custom changes to the pay items
Click Update then SAVE to save initial database.



Features

- Open Folder Icon 
 -  Open – Reads the custom pay item database (automatic on EMX startup)
 -  Save – Saves the database as changes are made (does not save by default!)
 -  Save As – Saves custom pay item database to new location
 - ..EXPORT - Saves a Pay Item database compatible with QTO (**AECMERGE.xml**)
 -  Default – Opens and loads the original pay item database text file delivered with application (**EntityManagerPayitemDatabase.txt**).

The PayItemDB.xml is the customized pay item database. Any changes the user makes to the pay items data are saved to this database. Favorites are also saved to this file. You can copy or Save As... for another user or project. Once you open EM, you can select to open another customized database from the menu bar Open menu item. EM remembers your selection (or last Save As) to open in the next session. By default the application saves file to the My Documents folder. To undo all changes, select the Default menu item. The original pay item database will load.

- Show / Hide Categories Icon 
 -  Show or  hides the pay item category tree view
-  Horizontal View Change palette view orientation
- Favorites
 - Add to Favorites
 - Remove from Favorites
 - Organize Favorites – open dialog to aide in editing, importing and exporting favorites
 - Favorites list – is saved in the registry and with the custom pay item database.

Finding Pay Items in the Database

- Search Text Field
 - Type the pay item id to locate – jump to category and listing
 - Type first characters (numbers) – to display dropdown list of pay items
- Binocular Icon 
 - Search for the next occurrence of the pay item id
- Filter Text Field
 - Type text to filter pay item id or descriptions
 - Finds the first occurrence and list all matching items
- Filter Icon 
 - Reapply the current filter to redisplay the filtered items
 - Clear the current filter to display the full list of pay items
- ID Icon 

- Displays the selected entity properties palette
- Loads the properties with attached XData information
- Properties Icon 
 - Displays the properties palette

Create Geometry with Pay Items

Entities can represent “Point” objects, Linear Objects (as we have seen), and Area based objects

Blocks can be placed as single insertions or by evoking the Place Block Group Tool

Linear Objects controlling geometry for Pavement Striping can be place that striping using the Pavement Markings Tool.

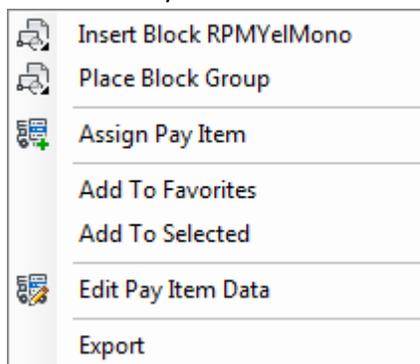
LINEAR

- Select Pay Item and then draw linear entities with tools



BLOCKS

- Select Pay Item for blocks and rt-click to use Place Block Group



AREA

Select Pay Item for area and add using area button 

Pay Item Manipulation

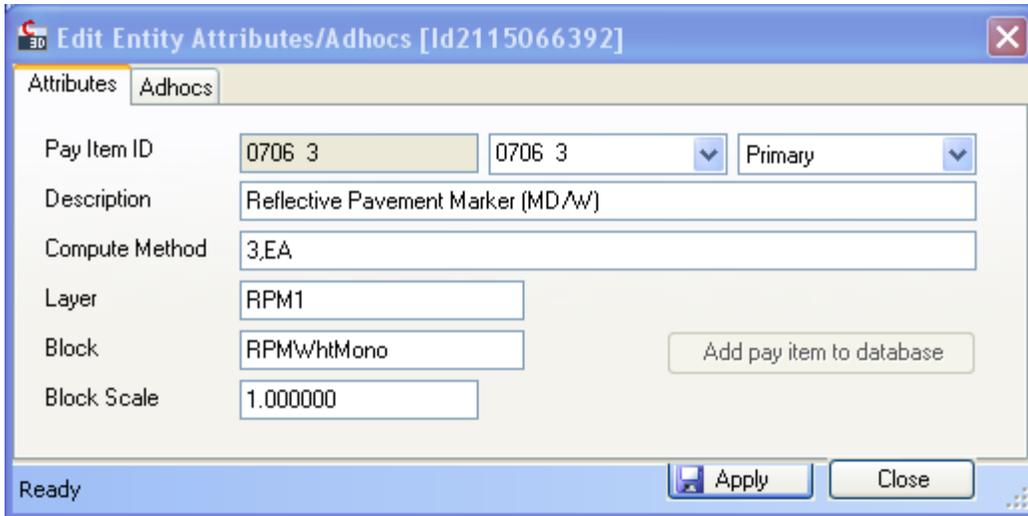


- Plus (+) Icon 
 - Adds the current pay item to the Selected Pay Items list on the Pay Item Properties palette.
- Truck Plus (+) Icon 
 - Appends selected pay items data to selected entities.
- Truck X (Green) Icon 
 - Appends selected pay items data to selected entities by replacing original data.
- Truck X (Red) Icon 
 - Removes all EM pay item data from selected entities.
- Truck Pencil Icon 
 - Display Edit Entity Attributes/Adhocs dialog for each entity selected.
 - Defines the primary pay item (moves to top of list)
 - Remove pay items from entity.
 - Add missing pay item to custom pay item database (rarely used).
 - Edit Adhoc data

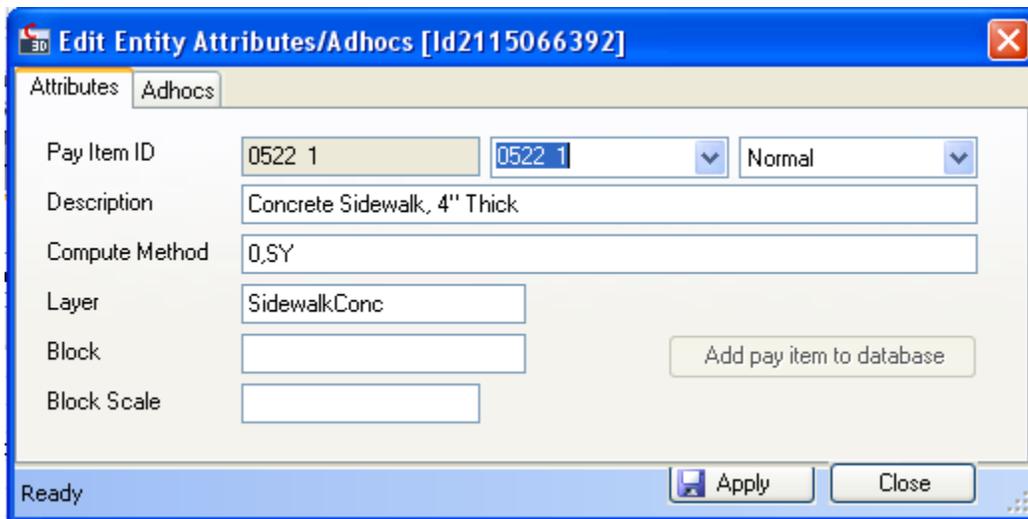
HINT: Can use AutoCAD features to select objects prior to applying pay items

Editing Adhocs

1. Select the Truck Pencil Icon  then an object with Entity Attributes/Adhocs. The Edit Entity Attributes/Adhocs dialog opens.

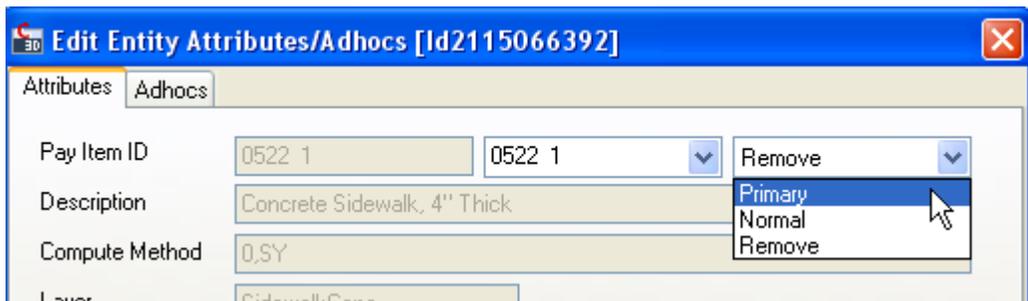


The screenshot shows the 'Edit Entity Attributes/Adhocs' dialog box for object ID [Id2115066392]. The 'Adhocs' tab is selected. The 'Pay Item ID' is 0706 3, with a dropdown menu showing '0706 3' and 'Primary'. The 'Description' is 'Reflective Pavement Marker (MD/W)'. The 'Compute Method' is '3,EA'. The 'Layer' is 'RPM1'. The 'Block' is 'RPMWhtMono'. The 'Block Scale' is '1.000000'. There is an 'Add pay item to database' button. The status bar shows 'Ready' and 'Apply' and 'Close' buttons.



The screenshot shows the 'Edit Entity Attributes/Adhocs' dialog box for object ID [Id2115066392]. The 'Adhocs' tab is selected. The 'Pay Item ID' is 0522 1, with a dropdown menu showing '0522 1' and 'Normal'. The 'Description' is 'Concrete Sidewalk, 4" Thick'. The 'Compute Method' is '0,SY'. The 'Layer' is 'SidewalkConc'. The 'Block' and 'Block Scale' fields are empty. There is an 'Add pay item to database' button. The status bar shows 'Ready' and 'Apply' and 'Close' buttons.

2. Defines the primary pay item (moves to top of list)

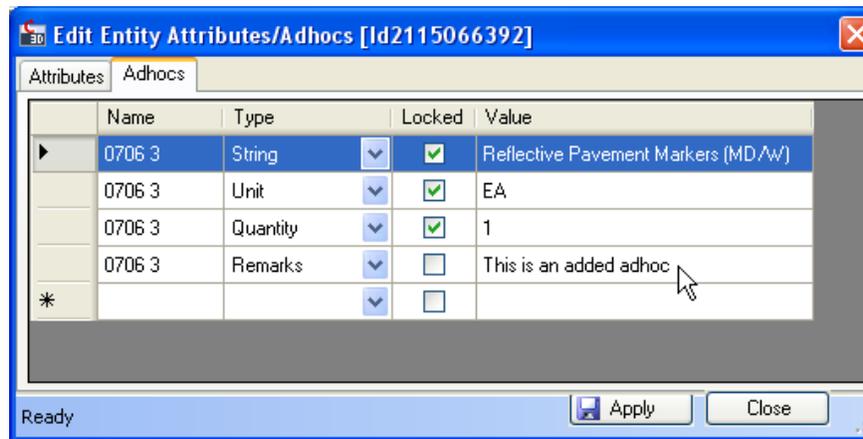


The screenshot shows the 'Edit Entity Attributes/Adhocs' dialog box for object ID [Id2115066392]. The 'Adhocs' tab is selected. The 'Pay Item ID' is 0522 1, with a dropdown menu showing '0522 1' and 'Remove'. The 'Description' is 'Concrete Sidewalk, 4" Thick'. The 'Compute Method' is '0,SY'. The 'Layer' is 'SidewalkConc'. There is an 'Add pay item to database' button. The status bar shows 'Ready' and 'Apply' and 'Close' buttons. A mouse cursor is pointing at the 'Primary' option in the dropdown menu.

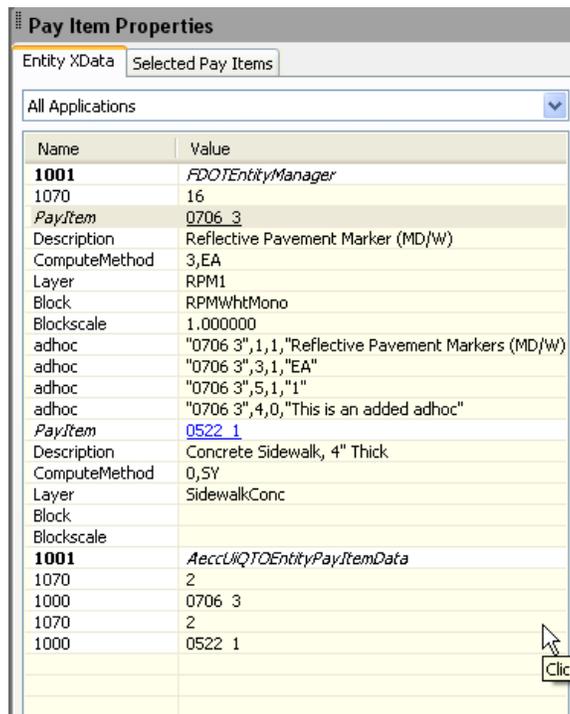
- Remove pay items from entity.



- Edit Adhoc data by typing in the line with the * and then select Apply.



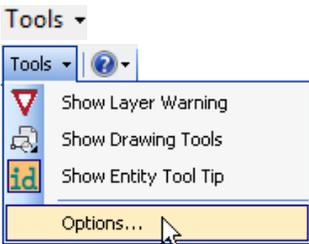
- Notice the Pay Item Properties Palette now shows the additional adhoc just added.



View Features

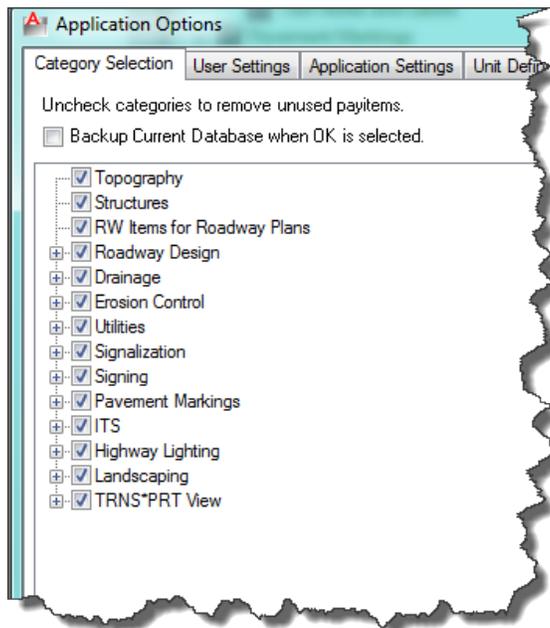
- Highlight Pay Item data 
 -  Highlight only objects with pay items
 -  Highlight only objects without pay items
 -  Highlight only objects with selected pay items (not yet implemented)
 -  Clear highlight selection
 - Toggle to optionally highlight or show/hide objects
 -

Tools and Options

- Tools 
 -  Show Layer Warning – If checked the user will be prompted when the current layer is not found in the FDOT Level rules database for the current drawing file name. Clicking on the warning will CREATE the layer required for the object.
 -  Show Drawing Tools – If checked the tools menu will display for drawing object and attaching pay item data.
 -  Show Entity Tool Tip – If checked, display tool tip pay item data when the cursor passes over objects with pay item data.
- Help Icon 
 - Readme – Application and version information
 - About – Display latest version number

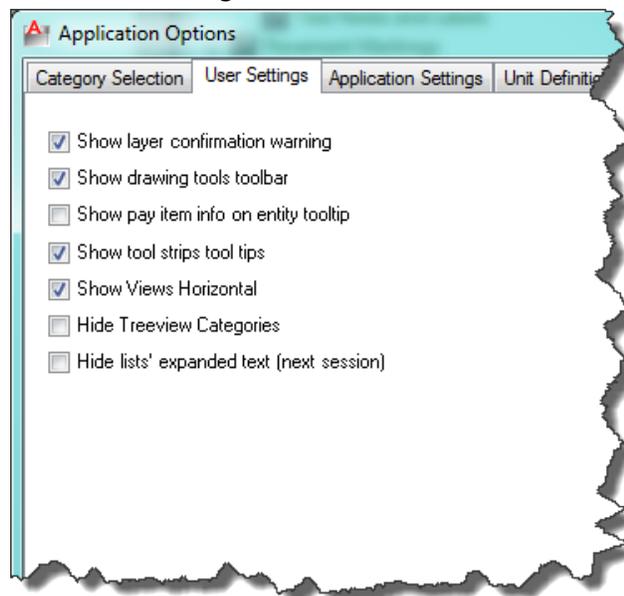
Options

- Which Categories to Display?

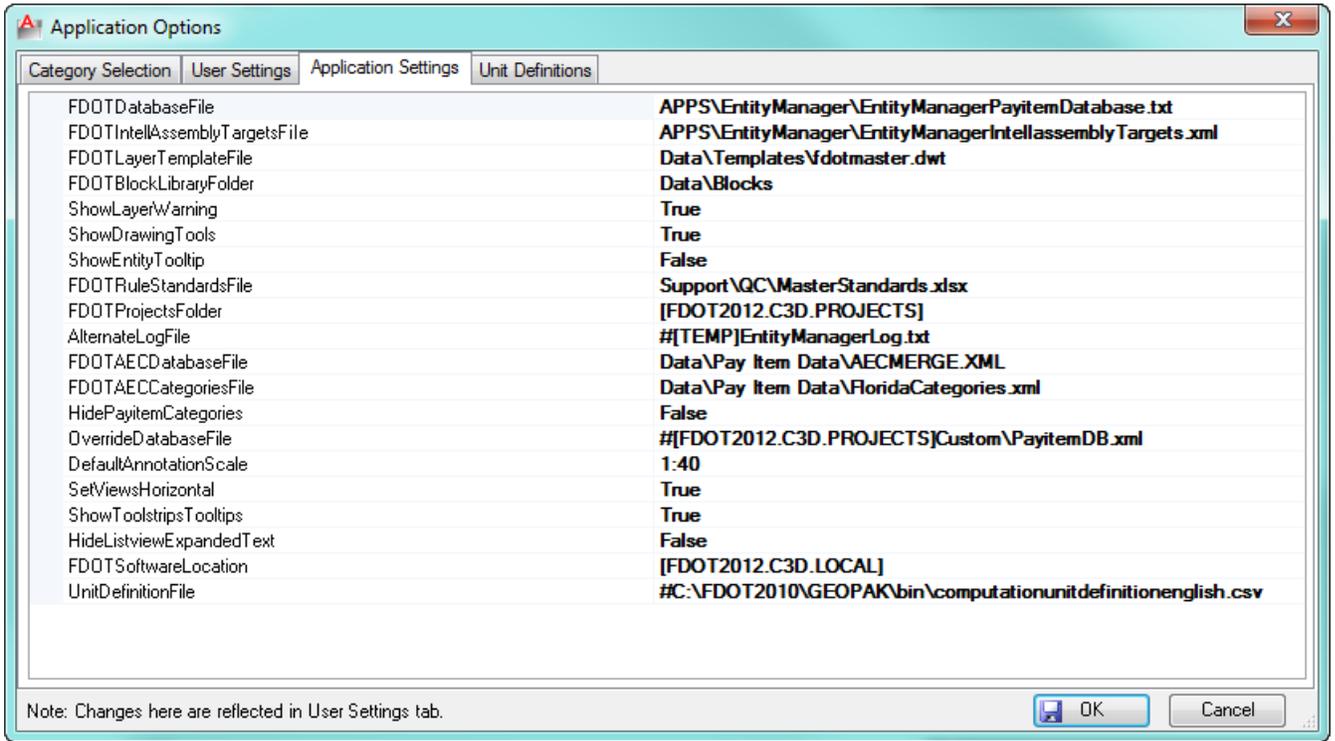


- User Settings

- Layer Confirmation default
- Drawing Toolbar Default
- Tool Tip defaults
- Vertical versus Horizontal View layout
- Hide categories in tree View



- o Program application configuration variables



- o Definition for Units and Formulas

