Create Design Files

Description:

The create design files app is a resizable C# Windows Presentation Form MicroStation Addin application that is fully integrated with ProjectWise.

This application is used to create new MicroStation design files for the current WorkSet according to the file naming and directory structure conventions defined in the **ODOT CADD Engineering Standards Manual**.

Software Requirements:

This application was developed using .NET Framework 4.6.2 in 64bit Windows 10.

Since it's a MicroStation Addin MicroStation CONNECT edition is required to run this (or OpenRoadsDesigner CONNECT edition, OpenBridgeDesigner....)

Loading the Application:
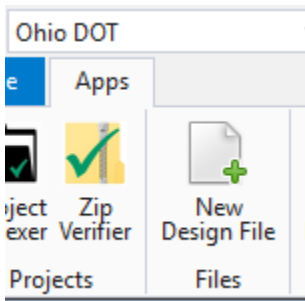
The application is loaded in MicroStation Connect Edition or OpenRoads Designer Connect Edition by selecting the **New Design File** option from the Ohio DOT Workflow.
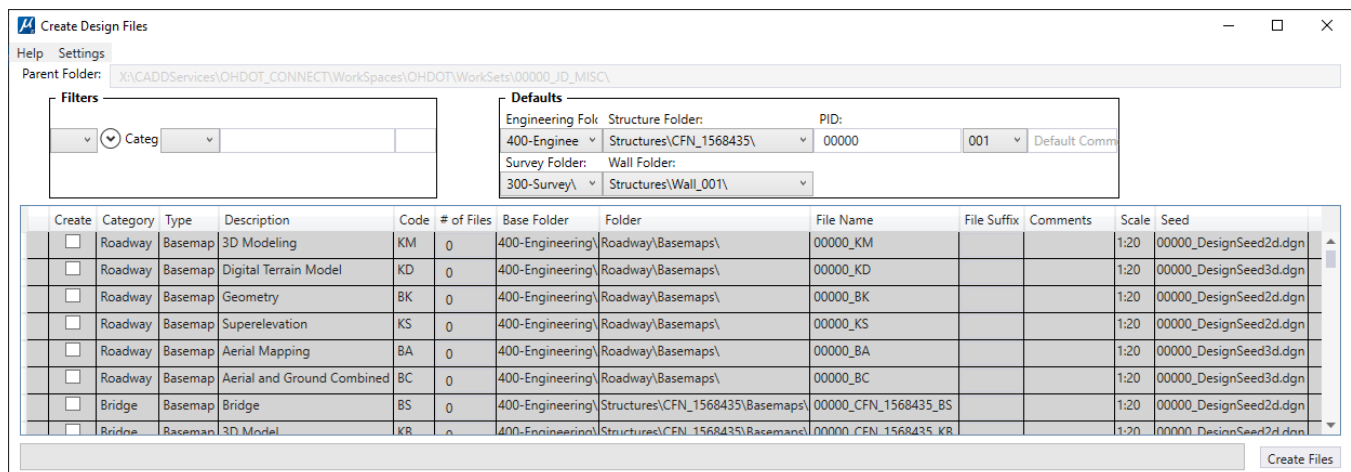
It can also be launched with the following key in

> *mdl load CreateDesignFiles; open CreateDesignFiles*

Note that the OHDOT workspace must be loaded.

Application Operation:

When the application is initialized, a dialog like the example below is opened.

Help Menu:

The Help Menu consists of three items PDF Doc, How to Video, and About.

PDF Doc

Clicking this item will launch this document.

How to Video

Clicking this item will launch the following link to a YouTube video explaining how to use this application.

ftp://ftp.dot.state.oh.us/pub/CADD/CADDSync/Links/CreateDesignFiles.html

About

Clicking this item will open another dialog, pictured to the right. This dialog displays the following information.

- o Application Name
- o Application version
- o Copyright
- o Company
- o Description
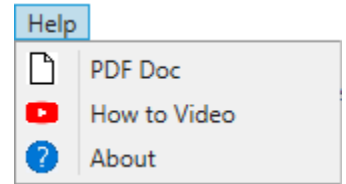
Settings Menu

The Settings Menu consists of one toggle item.

Open Last Created File Toggle Button

When this is toggled on a checkmark will show, as seen in the image to the right. If this is toggled on then when the Create Files button is selected the last file that is created will be the active design file (it opens the last file it creates). If this is toggled off then the user is left in the current file. This setting is automatically saved as a user setting.
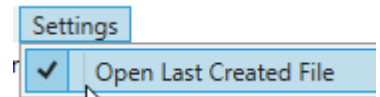
Parent Folder
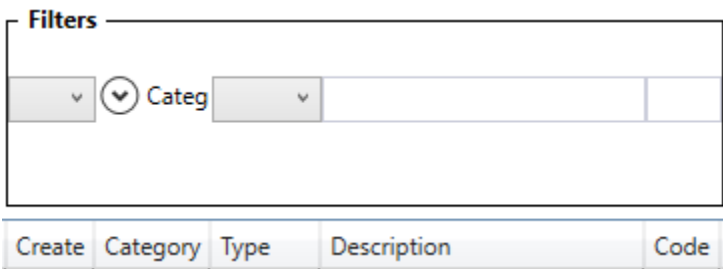
The **Parent Folder** is used to define the root folder for the WorkSet. The value is defined by the following MicroStation configuration variable:

_USTN_WORKSETROOT

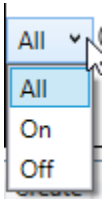If this variable is not defined, then the application can not be used.

Filter Section

This section is for filtering the Files List. Each Item in this section lines up with the column it will filter in the File List.

## Create Filter

This filter has three options All, On, and Off.

If All is selected then the create column is not filtered.

If On is selected then only the files in the File List that have Create check on will be displayed.

If Off is selected then only the files in the File List that dot not have the create check on will be displayed.

Category Filter

This filter is a multi select filter and lists all the different categories a file falls under.
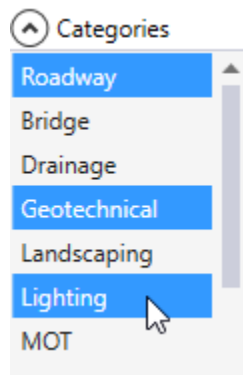
To use the filter just select all the categories you want to see in the File List then collapse the dropdown or click anywhere else in the dialog and the list will collapse, the selected categories will be displayed in this filters header, and the File List will be filtered to show only files that fall under any of the selected Categories.

If no categories are selected then the filter is not applied.

To remove a category from being filtered simply select it again and it will be un-highlighted. Once the filter is collapsed the filter will be updated.

Type Filter

This filter has three options, All, Basemap, and Sheet.
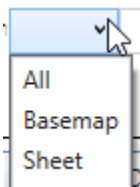
If All is selected then the filter is not applied

If Basemap is selected then only the files in the File List that are of Type Basemap will be displayed.

If Sheet is selected then only the files in the File List that are of Type Sheet will be displayed.

Description Filter

This filter is a textbox. As the user types characters in this textbox the filter is dynamically applied to the File List. This filter will only display files in the File List that have a description that contains the characters entered in the textbox.

Code Filter

This filter is a textbox. As the user types characters in this textbox the filter is dynamically applied to the File List. This filter will only display files in the File List that have a Code that contains the characters entered in the textbox.
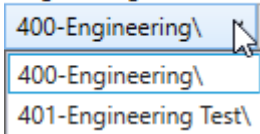
This filter is restricted to two characters.

Defaults Section

This section is used to set default values for the files in the File List. Each item in this section lines up with its corresponding column in the File List. Defaults are only applied to files in the File List that are not already checked on to be created.

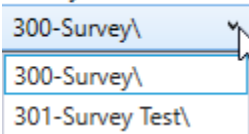### Default Engineering Folder

This dropdown list is populated with all Engineering folders found inside the WorkSet Folder Structure. Since a workset can have multiple Engineering folders the user can use this to set a default engineering folder. When the Engineering folder is selected the File List updates every line that is not checked on to the selected Engineering folder. Note this can be changed on a per file bases in the File List.

Default Survey Folder

This dropdown list is populated with all Surveying folders found inside the WorkSet Folder Structure. Since a workset can have multiple Surveying folders the user can use this to set a default surveying folder. When the surveying folder is selected the File List updates every line that is not checked on to the selected Surveying folder. Note this can be changed on a per file bases in the File List.

Default Structure Folder
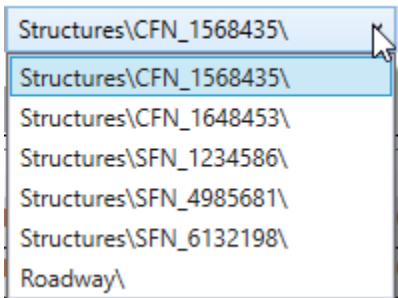
This dropdown list is populated with all bridge and culvert folders found inside the structures folder inside the selected Default Engineering Folder inside the WorkSet Folder. Once a folder has been selected the File List updates all the Bridge category files that are not checked on to the selected structure folder.

The roadway folder is added at the end of this list as well. This is to be used when there is minimal bridge or culvert work being done on the project. This will put all bridge/culvert files under the Roadway folder instead of having the files separated into specific bridge/culvert folders.

Note that the File List will also update the file name for all Bridge category files that are not checked on to follow standard naming convention. The following describes the naming convention.

When a bridge folder is selected

[PID]_SFN_[SFN]_[CODE][FILESUFFIX].dgn

When a Culvert folder is selected

[PID]_CFN_[CFN]_[CODE][FILESUFFIX].dgn

When the Roadway folder is selected

[PID]_[CODE][FILESUFFIX].dgn

Note that if the selected Default Engineering Folder is changed then this dropdown list is repopulated with all bridge and culvert folder found within the newly selected Engineering Folder.

Note this can be overwritten on a per file bases in the File List.

Default Wall Folder

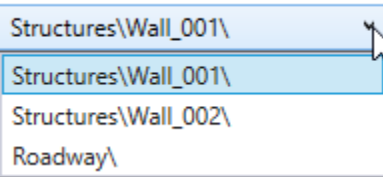This dropdown list is populated with all wall folders found inside the structures folder inside the selected Default Engineering Folder inside the WorkSet Folder. Once a folder has been selected the File List updates all the Wall category files that are not checked on to the selected Wall folder.

The roadway folder is added at the end of this list as well. This is to be used when there is minimal wall work being done on the project. This will put all wall files under the Roadway folder instead of having the files separated into specific wall folders.

Note that the File List will also update the file name for all Wall category files that are not checked on to follow standard naming convention. The following describes the naming convention.

When a Wall folder is selected

[PID]_ [WALL#]_[CODE][FILESUFFIX].dgn

When the Roadway folder is selected

[PID]_[CODE][FILESUFFIX].dgn

Note that if the selected Default Engineering Folder is changed then this dropdown list is repopulated with all wall folders found within the newly selected Engineering Folder.

Note this can be overwritten on a per file bases in the File List.

Default PID
This textbox is initially populated with the value of the OHDOT_PID variable, which should be set in the workset configuration file. This textbox is restricted to only numeric characters. As the user types in this textbox the File Last is dynamically updating the File name of all files that are not checked on with the entered value.

All files should follow the standard naming convention which means all files names should start with the PID value. Typically this textbox will not need to changed. It was added to account for cases where PIDs are combined.

Default File Suffix
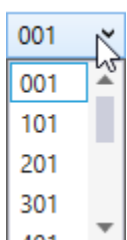
The file suffix is a three digit number at the end of a file name. it starts with 001. If multiple files of the same file type are needed then the file suffix is incremented to prevent duplicate names. This default gives the user the ability to start the file suffix at a certain number series. The number series are listed in the dropdown. For example if the 101 number series is selected then instead of the file suffix starting out at 001 it would start at 101 and then increment from that number 102, 103, 104 and so on.

The File Suffix for files in the File List are not populated until that row is checked on. This is to save processing time since it will check to see if there are any existing files of that file type in order to prevent duplicate file names.

Note this can be overwritten on a per file bases in the File List.

Default Comment

This textbox will dynamically update all files in the File List that are not checked on to have the comments entered in this textbox. Note this can be overwritten on a per file bases in the File List.

Files List

This section lists all the different standard dgn files. Use this section to define which files should be created from the Create Files Button is selected.The list is comprised to 13 columns described below.

Create	Category	Type	Description	Code	# of Files	Base Folder	Folder	File Name	File Suffix	Comments	Scale	Seed
☑	Roadway	Basemap	3D Modeling	KM	1	400-Engineering\	Roadway\Basemaps\	00000_KM	001	Default Comment	1:20	00000_DesignSeed2d.dgn

Expand/Collapse sub rows Button

This is the first column of the File List. The button is only visible when the Create check box is check on for that row and the # of Files is greater than one for that row. The button will look like this

[-] when the sub rows are shown. When clicked the sub rows will collapse and the button will look like

this [+]. When clicked again the sub rows will expand and the button will switch back to the previous image.

Create

This column is a checkbox column. Checking on a row will activate the rest of the columns in that row. Checking on a row means that file will be created when the Create Files Button is selected.

Category

This column is not editable. It is there to show what category that row belongs to.

Type

This column is not editable. It is there to show what Type the row is (Basemap or Sheet).

Description

This column is not editable. It is there to give the description of that row.

Code

This column is not editable. It is there to show the two character code that will be used in the name of the file.

of Files

This column is editable and restricted to only allow positive integers. If multiple files are desired for a given row then this column can be used to specify the number of files to create. If the entered number is greater than one then rows will be added for each additional file. See screen shot below.

Code	# of Files	Base Folder	Folder	File Name	File Suf
KM	2	400-Engineering\	Roadway\Basemaps\	00000_KM	001
		400-Engineering\	Roadway\Basemaps\	00000_KM	002

Base Folder
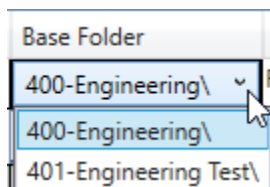
This column is editable. For all rows that don't have the category of Survey this column contains a dropdown list of all the found Engineering Folders within the WorkSet. This is to give the usr the ability to specify which engineering folder to create the file under on a per file bases.

Base Folder
400-Engineering\
400-Engineering\
401-Engineering Test\

Note that if the row is in the Bridge or Wall category then changing this column will also change the Folder column and the File Name column appropiately since those columns are dependent on the selected Engineering Folder

For all rows that have the category of Survey this column contains a dropdown list of all the found Surveying Folders within the WorkSet.

Folder

This column is only editable if that row is in the Bridge or Wall category. For all other rows this column is not editable. For rows in the Bridge Category this Column is populated with all found Structure Folders within the specified Engineering folder.

For rows in he Wall Category this column is populated with all the found Wall folders within the specified Engineering folder.

Note that changing the selected Bridge or Wall will update the File Name Column for that row appropriately.

File Name

This column is not editable. It show the prefix part of the file name. The file name follows OhioDOTs standard naming convention.

File Suffix

This column is editable. It is restricted to positive integers. When the create checkbox is checked on for a row this column is populated with the next available number. The set value in the Default File Suffix will be used as the starting number.

If the number entered is already in use then the cell will go red. Once that cell loses focus if the number entered is in use it will be changed to the next available number. If leading zeros are missing they will also be added. This is to prevent duplicate file names.
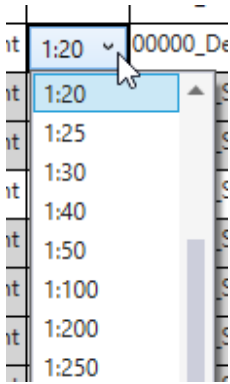
Note if inside projectwise both File name and Document file are checked to ensure duplicate file/document names do not occur.

Comments

This column is editable. This is for entering a comment about the file. For example for route this file might go with. When the file is created the comment is added to the file properties.

Scale

This column may or may not be editable. Each row has a default scale specified by the program. This column is only editable if that row is allowed to have different scales. If the cell is editable it will be populated with a dropdown that contains all the available scales in the active dgn file.

Note that all rows with a default scale of 1:1, the scale is not editable.

When the file is created the annotation scale will be set to the selected value.

Seed
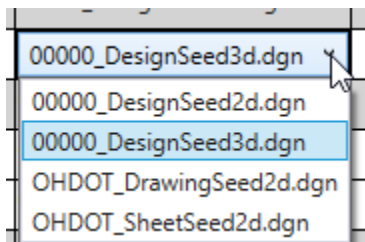
This column is editable. It is populated with all found seed files within the workset.

Note that if the Workset does not follow the standard folder structure the seeds files might not be able to be found.

Each row has a default seed that is specified by the program. This is typically the seed files you will want to use for that row. For example the Survey FieldBook file is defaulted to the 3D design seed file. Which the field book file should be in 3D. The seed files should contain a 2d and 3d design seed, a 2d drawing seed, and a 2d sheet seed.

Note that there could be more seed files, especially if the workset contains multiple locations which have different custom coordinate systems per location.

Create Files Button

When the create files button is selected the progress bar will be activated and display the current process being performed. The progress bar will also increment to help give the user a sense of where the program is at in the overall process. The follow lists the actions that happen when this button is selected.

- If the create column is checked on for a row then that row (and any subrows) are processed
- The selected seed file is copied to the WorkSet folder and renamed according to the file type being created.
  - The full path of the file is specified in the following way
    [ParentFolder][BaseFolder][Folder][FileName][FileSuffix].dgn
- The file is opened and the following steps are preformed:
  - The MicroStation Annotation scale is set according to the specified scale.
  - A Title is written to the file properties. The title is the Category, Description, and Type.
  - The Comments are written to the design file properties.
  - A MicroStation Save Settings command is executed.
  - The file is closed and the process is repeated for each design file to be created.
  - The results are added to the progress bar.

Results

After files have been created the user can see the results. Using the expander button shown above will expend the results. The results are color coded, red for things that failed and orange for warning messages.

Updates:

Version 1.0.0.1: Initial release for MicroStation and OpenRoads Designer Connect Edition
Version 1.0.0.2: Fixed bug if PID folder contained the text "Survey" it would show extra folders in the survey folder dropdown lists.
Version 1.0.0.3:
    -Fixed program to set the correct annotation scale when creating new files.
    -Fixed crashing error specific to ORD 2019 Update 1
Version 1.0.0.4: Removed "Default Comment" as the Default Comments when the application loads
Version 1.0.0.5:
    -Updated code to create collector files (inside and outside of Projectwise)
    -Added to results the name of the user who has a collector file checked out if collector file can not be updated
    -Updated results to show failed messages in red and warning messages in orange.
    -Added settings menu tab with a toggle button item for defining if the last created file should be made the active file, this is saved automatically as a user setting.
Version 1.0.0.6:
    -Fixed bug that was not placing the comments for the first created file.
    -Fixed bug that was leaving Use Annotation Scale toggled off when added a reference to collector file.
    -Updated code to validate selected seed files. If a valid seed file is not found then the cell will turn red. Default seeds are set in the workset cfg file.
Version 1.0.0.7:
    -Fixed typo in code for finding 3D seed file is was 3DDeisgn, changed to 3DDesign.
Version 1.0.0.8:
    -Fixed error in code that would only show the first found engineering folder if within ProjectWise. It now shows all found engineering folders.
Version 1.0.0.9:
    - Fixed code to prevent crashing the application when trying to open the application a second time in the same session.
Version 1.0.0.10:
    -Fixed code to better check if the user has access to create a document inside ProjectWise
Version 1.0.0.11:
    -Updated to allow for creating collector files for any sheet files. Collector files are the files that have the suffix ending in 00 like 000, 100, 200.. when the suffix is entered as a collector file the default seed file switches to the 2d design seed.

Version 1.0.0.12:

    - Updated the Category column default width to be wider.

Version 1.0.0.13:

    -Fixed error in code that stopped allow collector files for sheets.

Version 1.0.0.14:

    - Fixed problem that was resetting seed file back to default when scrolling.

Contacts

For any questions, suggestions, or problems with this document please contact the ODOT Office of CADD and Mapping Services by use of the following form on the ODOT website:

https://odot.formstack.com/forms/cadd_servicerequest