



Application Name:	ODOT_SheetCrossRefs.mvba
Tested MicroStation Version:	MicroStation V8i (SELECTseries 3)
Tested GEOPAK/OpenRoads Version:	Not Applicable

Application Description

This application is provided to assist the user with the task of creating, finding, and updating sheet cross references in an ODOT plan set developed using the ODOTcadd standards distributed January 16, 2015 or later.

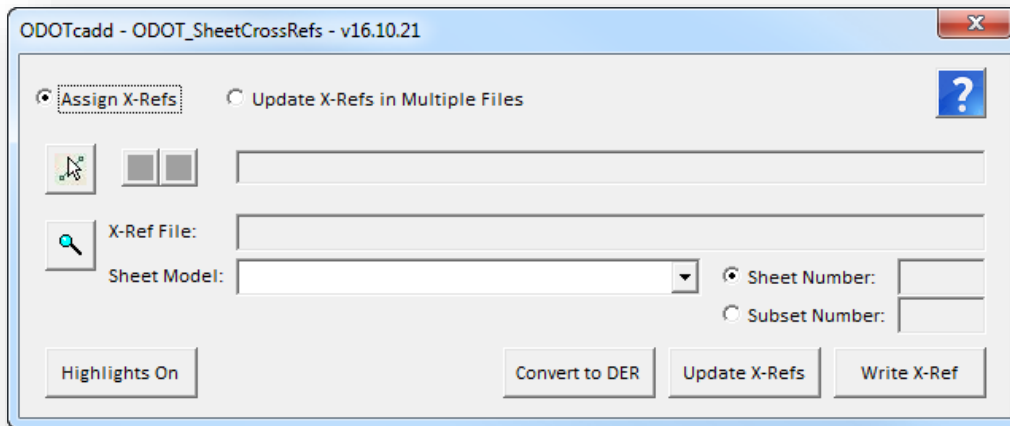
The January 16, 2015 update to ODOT's CADD standards includes an update to the ODOT_Sheets.cel cell library. The data entry regions in the title block portion of each sheet cell were removed and replaced with MicroStation Tag elements. The value of these Tag elements can be edited to update the text that is displayed for each Tag element in the sheet title block by using MicroStation's **Edit Tags** command. These Tag elements for the sheet number can be used for sheet cross references using the ODOT_SheetCrossRefs.mvba application.

This application is not compatible with current or previous projects that have been developed using ODOT's V8istd CADD Standards or the old ODOT sheet cells with the Data Entry Regions.

The ODOT_SheetCrossRefs application can be accessed from the MicroStation pull-down menu by selecting **ODOT > Sheet Management > Cross References**. The application can also be accessed with the following key-in command:

vba load ODOT_SheetCrossRefs.mvba; vba run modXRefMain.ODOT_SheetCrossRefs

When the application is accessed, the dialog shown below is opened.





Application Operation

The dialog has the following operation modes:

Assign X-Refs

When this mode is selected, the application is used to assign cross references and to review cross references in the active model.

Update X-Refs in Multiple Files

With this mode selected, the application can be used to update sheet cross references in one or more MicroStation design files. This mode is provided to facilitate updating the cross references for the entire project after the plan sheet numbers have been assigned or updated. Sheet numbers can be managed using the ODOT_SheetManager.mvba application.

When **Assign X-Refs** is selected, the dialog has the following options:

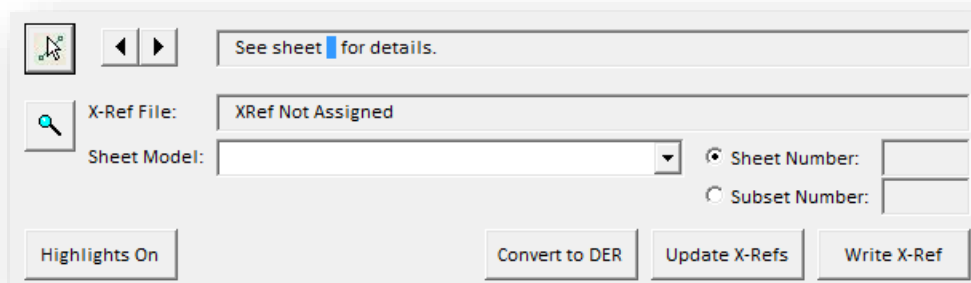
Select X-Ref Element

MicroStation text and text node elements containing one or more enter data regions can be used for cross reference assignments. The sheet number is read from a selected MicroStation design file/model containing an ODOT Sheet Border cell in a sheet model. An example of a MicroStation text string containing an entry data region is shown below.

See Sheet _ for details.

The **Select X-Ref Element** option is used to select a MicroStation text or text node element containing at least one data entry region to assign one or more cross references. When a text or text node element is selected with an entry data region, the dialog will display the current cross reference value if one has been previously defined.

In the example below, a text element with one data entry region has been selected.

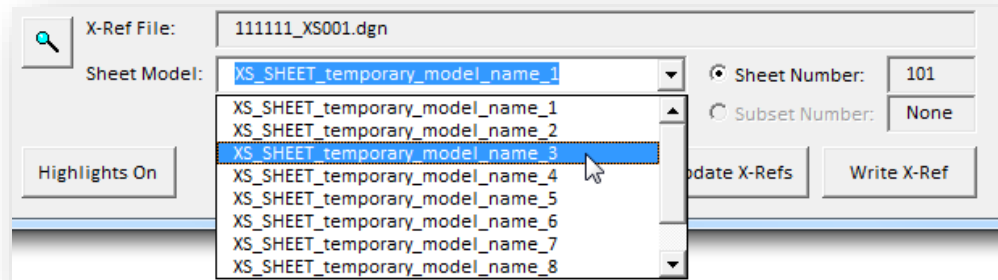


If more than one data entry region is present in the selected text or text node element, the left and right arrow buttons, **Go to Previous Data Entry Region** and **Go to Next Data Entry Region**, are used to select the data entry region to make the cross reference assignment.



The **Select X-Ref File** button is used to select the MicroStation design file containing the sheet number to be referenced.

When the X-Ref design file is selected, the program will scan the file searching for any sheet models in the file. When a sheet model is found, the name of the model is added to the **Sheet Models** list similar to the example below.



The **Sheet Number** is displayed for the selected **Sheet Model**. If the selected file/model contains as sheet cell with subset numbers, such as a Right-of-Way plan sheet, the **Subset Number** field is populated with the value read from the selected file/model.

If the sheet number has not been assigned in the selected design file/model, the program will display a **Sheet Number** value of 0. Cross-reference assignments can be made with a sheet number value of 0; however, users must update the sheet references later after the sheet numbers have been assigned to the sheet design files.

If no sheet cell is found in the selected **X-Ref File** and **Sheet Model**, the program will display a **Sheet Number** value of -1. Cross references can be made with a sheet number value of -1; however, users must later add an ODOT sheet border cell to the referenced file and then update the cross references in order to display the current sheet number.

It is assumed that there is only one sheet border cell in the selected **Sheet Model**, including cross section design files. All cross section design files created using GEOPAK should use the **One Sheet Per Model** option. If multiple sheet borders are contained in the selected sheet model, the first sheet cell placed will be read to extract the sheet number.



Highlights On/Off

When this button is selected, the program will search the active model for text elements containing data entry regions. If a text element with a data entry data region is found, the program will next check to see if a cross reference assignment has been made. Lastly, the program will search for text elements containing an underscore character that is not defined as a data entry region. The text elements are highlighted as shown in the example below:

See Sheet 158 for details.

See Sheet _ for details.

See Sheet _ _ for details.

Green

A sheet cross reference has been successfully assigned

Yellow

The text string contains a data entry region, but no X-Ref assignment has been made

Red

The text string contains underscore characters that are not defined as a data entry region

Convert to DER

This option is used to convert text strings containing underscore characters that are not defined as a data entry region (DER) to a data entry region. Use the **Highlights On/Off** option to as described above to identify any text elements in the active model that meet the criteria. After choosing the **Convert to DER** option, select the text element that you wish to convert the underscore characters to data entry regions.

Update X-Refs

Choose the **Update X-Refs** option to update all of the cross references found in the current model. A report dialog is displayed listing the text strings that were updated and an errors that may have been encountered.

Write X-Ref

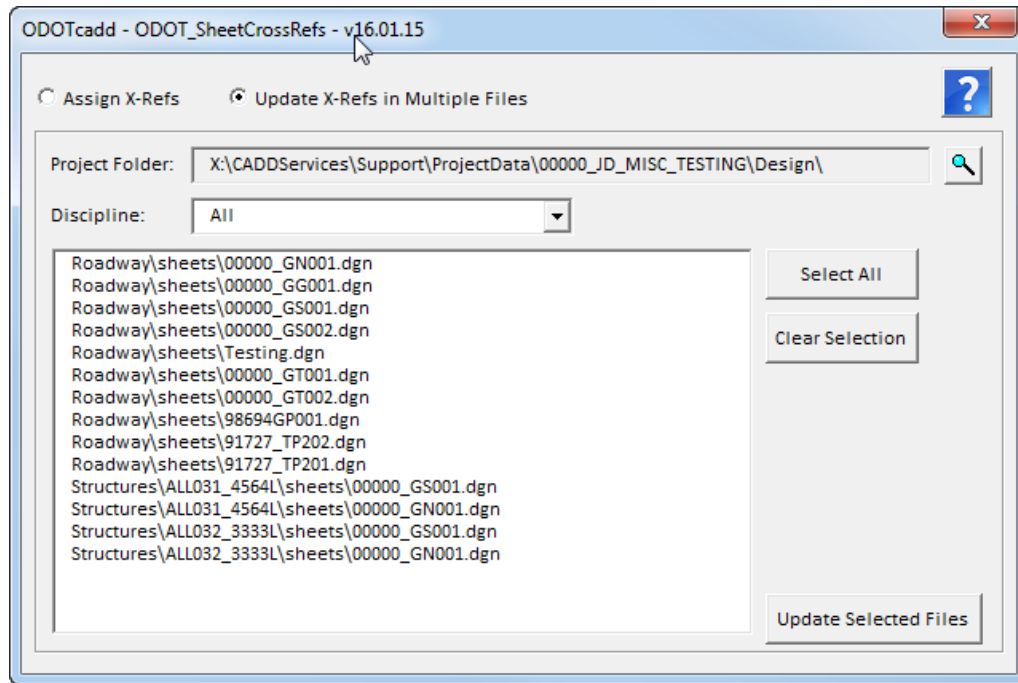
When this button is selected, sheet cross references are written to the selected element. The enter data regions in the selected element are updated to reflect the current sheet number found in the **X-Ref File** and **Sheet Model** for each cross reference.

A model link is also assigned to the selected element. The link is a link to the model of the assigned X-Ref. If the element has more than cross reference then the model link is assigned only for the first cross reference. When printing a multi-page PDF using print organizer these model links will turn into page links with in the multi-page PDF as long as both the sheet containing the cross reference and the sheet that's being cross referenced are in the pset file.



The cross reference information is written to the selected text element as a MicroStation Data Block attribute. These attributes are not user definable or editable. The name of the selected **X-Ref File** and the name of the selected **Sheet Model** for each cross reference is written to the selected element, not the actual sheet number.

When **Update X-Refs in Multiple Files** is selected, the dialog has the following options:



Project Folder

Use the **Select Project Folder** button to the right to select the project's design folder for the project. If the MicroStation configuration variable `_USTN_PROJECTDATA` is defined, the program will default to the value defined by the variable.

Discipline

The program will scan the **Project Folder** for any sub-folders that are named "sheets". Each folder that is found that contains a sheets sub-folder is listed in the **Discipline** drop-down list. When a specific **Discipline** option is selected, the design files found in the sheets sub-directory for that discipline are listed below. If the Discipline drop-down is set to "All" then all design files found in all the sheets folders for all disciplines will be listed.

Select All/Clear Selection

The options are used to select all the design files, or clear the selected files, from the list. Individual files can be manually selected for processing.

Update Selected Files

When this option is selected, the selected design files in the file list are opened and each sheet model in the selected file(s) is processed to update and cross references found. The user must



have read access to the selected file(s) in order for the cross references to be updated. When the process is complete, a report dialog is opened displaying the file name, model name, and the text strings that were updated as well as an errors that may have been encountered.

Contacts

If you have any questions, suggestions, or problem with this application please contact the ODOT Office of CADD and Mapping Services by use of the following form on the ODOT website:

<http://www.dot.state.oh.us/Divisions/Engineering/CaddMapping/CADD/Pages/Suggestions.aspx>

Acknowledgements

This program was written for the Ohio Department of Transportation, Office of CADD and Mapping Services by Eric Thomas, Eric Thomas Consulting, LLC.



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