Introduction

Background

Although MicroStation provides a setting that makes it easy for the user to visually identify all elements in the active model that have data entry regions (DERs), there is no efficient way to detect which of those elements also have sheet cross references short of examining each individual element with the ODOT cross reference edit tool. Even in a small project, checking that all cross references have been made is both tedious and prone to errors of omission.

Another referencing issue arises when data entry regions are needed in text that has been created in other software – such as plan notes created in Microsoft Word or summary chart text created in Excel – and then imported into MicroStation. Although the text has the underbar characters (ODOT’s data entry field indicator for MicroStation text), MicroStation will not interpret them as DERs for the simple reason that the text was not created in MicroStation. Although v8i (but not XM) provides a tool to manually add the data entry fields, there is no block select type capability.

Purpose

ODOT_XRef_Utility.mvba has been developed in response to the above issues. It provides the ability to add data entry regions to text containing plain underbar fields as well as visual definition of and reporting on three relevant situations:

- Text with all DERs containing sheet cross references
- Text with at least one DER without a sheet cross reference
- Text with at least one underbar field that is not a DER.

Requirements

The program runs in MicroStation XM or MicroStation V8i on an ODOT CADD Standards set-up. The configuration variable v8istd (or XMstd) that points to the location of the folder of the same name must be defined. The program should be in the vba sub-folder of that directory, and this user guide’s pdf file should be in the \vba\doc\ sub-folder.

Contents

The report explains how to start and use the program, followed by a brief discussion of the application’s shortcomings and potential error situations. Following that, any future development plans or possibilities are mentioned. Lastly, contact information for problems and suggestions is given.
How it Works

General

Backlighting
The cross reference utility relies upon backlights rather than highlights to visual emphasize the three types of text of interest. Although MicroStation mvba provides tools to create apparent three-color highlights, there is no means by which such highlights can be visually altered when chosen with the selection tool. However, by using backlights, the user will still be able to see the color changes for tentative and selection states.

Basic Operation
The user may set the colors to use for the backlighting. When the user turns backlighting on, the program scans the file to determine which text and text node elements are of interest and assigns each the appropriate color. The various elements are then backlit — they appear to be outlined — with their associated colors, and the report form will appear. Turning backlighting off simply removes the outlining and hides the report.

A separate control and screen form is used for adding DERs to those text or text node elements that have one or more underbar fields without an associated data entry region. If backlighting is active when DERs are active, the affected elements’ outline color and report information will change accordingly.

Editing “On the Fly”
All screen forms are non-modal — meaning the user may interact with the active model while the program is running. Backlit text and text node elements may be edited, including creation or editing of cross references, and the backlight colors and report contents will dynamically alter, as applicable, in response to the completed changes.

Step by Step

Setting Up & Starting the Program
The cross reference utility program is typically accessed via the “ODOT” item of the MicroStation main menu bar. Select ODOT>Sheet Management>Cross References>Utility to bring up the program’s primary interface.

If you do not have the ODOT menu item, you will need to load the program via the VBA Project manager Dialog. Select Utilities>Macro>Project Manager from the main menu bar, use the dialog’s icons to navigate to the v8istd (or XMstd, as is applicable) directory, open the vba sub-folder, and select program ODOT_XRef_Utility.mvba. The program may then be activated via the dialog’s run icon. For complete details on working with the VBA Project Manager, refer to the MicroStation help.
The Main Form

The form first appears with default colors, as shown above, for the three backlight situations.

The user should adjust these as per his/her taste and with consideration for how well they will “show” against the text color(s) and the file’s highlight settings. To change a color setting, click on the color box to bring up the color selector palette, from which you may then select the desired color.

The button at the left bottom of the form is used to describe the status of the backlighting as well as turn it, and the reporting, off and on. An example with the backlighting “on” is show here:

See sheets 7 through 9 for slope undercut details.

See sheet 2 and sheet 8 for drainage details

See sheet __ for signal details

See sheet __ for channel cross sections
The Report Form

The report, and example of which appears in the above graphic, lists information about every element that is backlit: the element type and MicroStation identification number, the current text contents, the type of backlighting, the number of data entry regions and, if applicable, the number of sheet cross references.

The report appears when backlighting is turned on and is hidden when backlighting is off. It may also be closed manually.

Adding DERs to Plain Underbar Fields

Click on the “Create Data Entry Regions” button on the right side of the main form to activate the interface for changing plain underbar fields to true data entry fields.

Simply select the desired elements with the MicroStation selection or fence tools. If selection is by fence, be sure to check the “Use Fence” option on. Once the selection is made, press the “Process” button.

Changes may be made while backlighting is on; backlight color and report information for the affected elements will automatically update.

Regardless of what all is in the selection set, the program will add DERs only to text or text node elements, and only if and where it finds plain underbar fields within those.

Caveats

Color Choices and Backlighting Visibility

As stated previously, the user should set the backlight color choices such that they will “show” well against the color of the text to which they will be applied as well as to the user’s settings for tentative and selection highlighting.

The backlighting is designed to be used with ODOT normal fonts 30 and 31 at line weights of zero and one. It does not work well at all with filled fonts, such as 70, and becomes more difficult to detect for text and text node element line weights above two.

Adding DERs

The user need not be bothered with selecting only text or text node elements containing plain underbar fields for input to the “Add DERs” process. The program ignores all other element types as well as text and text node elements that do not contain plain underbar fields.

There is no tool in MicroStation or in this program to remove a DER once it is added to an element. If you have inadvertently added a DER where you do not want one, an undo will remove it, although just ignoring it should be fine for most ODOT purposes.
Backlighting is Temporary

The objects used to create the backlighting are not permanent. They are removed from the active model when the user clicks backlighting off. Should the backlighting be on when the user closes the program, they will be automatically removed.

In moving from one active model to another with the program running, any backlighting left on in a non-active model will remain until the program is closed (or the On/OFF button is pressed) with that model active. The user need not be concerned, though, as any backlighting in inactive models will still be removed when the file is closed.

Backlights cannot be made permanent by MicroStation crashes.

Future Development

At this time there are no plans for further work with this program. Worthwhile suggestions will certainly be entertained, of course, with actual implementation dependent upon resource needs and availability.

Contacts

If you have any questions, suggestions, or problems please contact the ODOT Office of CADD and Mapping Services CADD Support team or use the following form on the ODOT web site at:

http://www.dot.state.oh.us/Divisions/Engineering/CADDMapping/CADD/Pages/suggestions.aspx