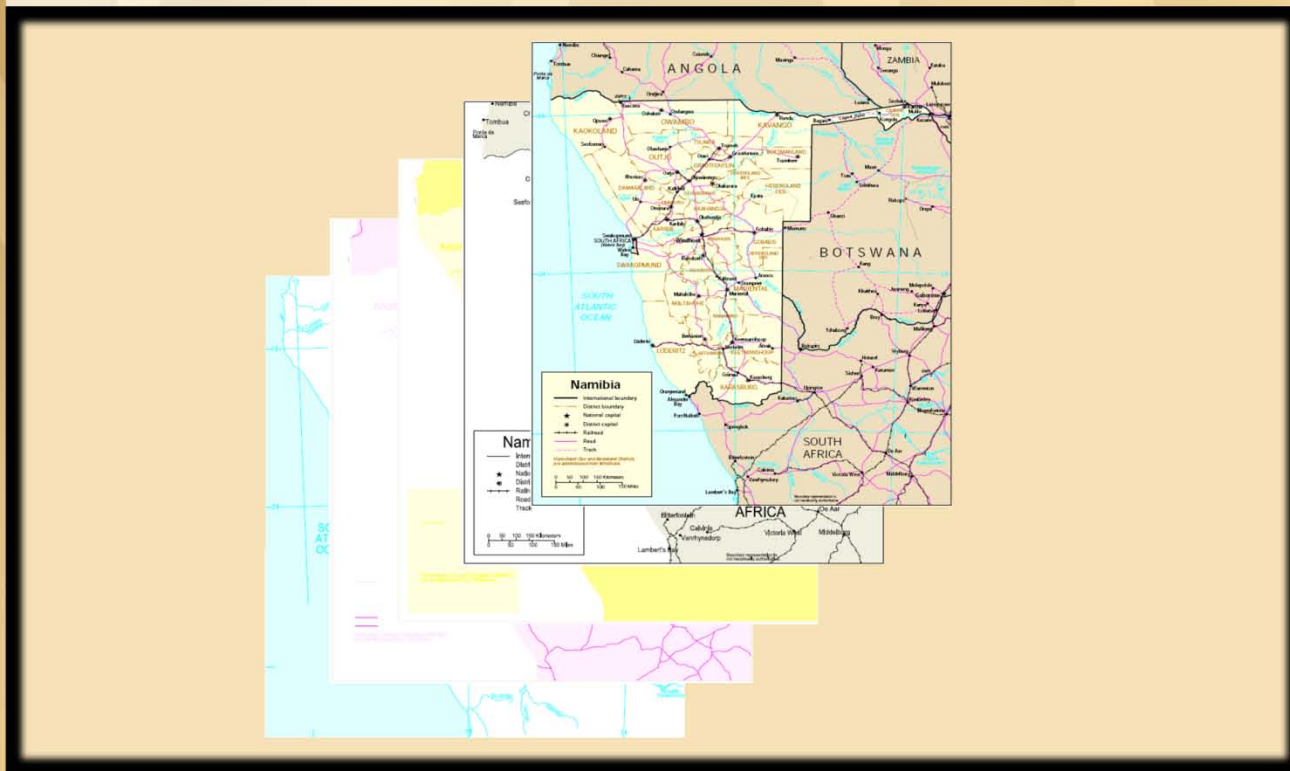


# Bentley CADscript fundamentals



envision

SEE THE CAD POSSIBILITIES



# Envision Group - Education

## Bentley CADscript Fundamentals Exercise Workbook

Prepared by:  
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## Introduction

Welcome to Bentley CADscript Fundamentals training. This training material is suitable for Bentley CADscript 2004 Edition through Bentley CADscript V8i SelectSeries 1. The format for this course is a lecture followed by a set of exercises for the student to accomplish. This will facilitate the learning process and allow the student to further experiment with the program.

## Document Conventions

Several conventions are used throughout this document to indicate actions to be taken or to highlight important information. The conventions are as follows:

<u>Item</u>	<u>Meaning</u>
Place Text	a command name or a file that you are to select
Tools > Options	a command path that you are to select – usually from the pull-down menus
<b><i>Key in</i></b>	entering data with the keyboard
<i>Document name</i>	style used when referring to another document
<b><u>Note:</u></b> Text information about a command or process that you should pay particular attention to	
<b><i>Emphasis</i></b>	an important word or phrase
1. Numbered Steps	actions to be performed as part of the lab activities
<D> or Data	press the data button on the mouse
<R> or Reset	press the reset button on the mouse
<T> or Tentative	press the tentative button on the mouse



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# chapter 1

CADscript Setup  
and Configuration





## 1. CADscript Setup and Configuration

### What is CADscript?

The CADscript application enables MicroStation to produce publication ready PostScript color separations, or EPS files that can be easily included in other publishing applications. It also includes other graphic arts type tools for enhancing appearance of typical MicroStation elements. These enhancements are not only shown on printed output, but also can be displayed in the file using the CADscript WYSIWYG (What You See Is What You Get) mode.

### Starting CADscript

#### Automatic Start

In a typical installation CADscript will start automatically when launching MicroStation. By default the CADscript toolbox will be displayed when CADscript starts. If the toolbox is not displayed you will know CADscript is loaded if the MicroStation pull-down menu includes an entry for **CADscript** located near the **Help** selection.

The automatic start is controlled by selecting **CADscript > Auto-Start** from the MicroStation pull-down menu. This menu selection works as a toggle switch, and will have a check mark displayed next to the entry if it is turned on. Selecting the entry again will turn remove the check mark and turn off the automatic startup of CADscript when starting Microstation.

#### Manual Start

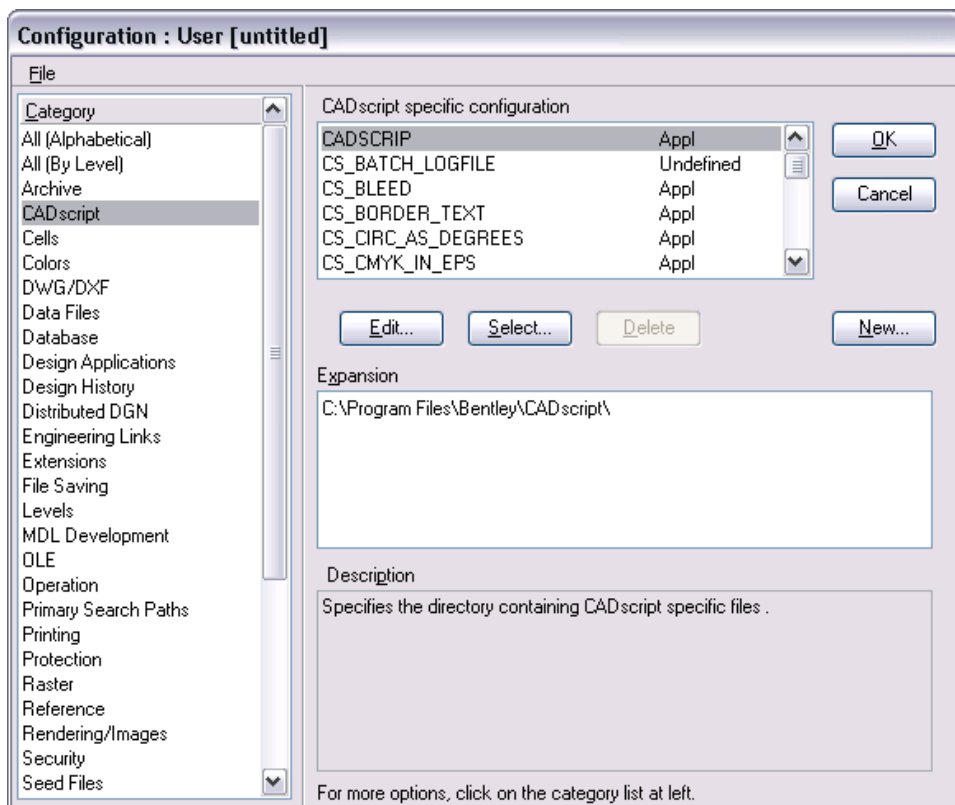
If you have more potential CADscript users than CADscript licenses you may want to start CADscript manually. CADscript can be started manually via the MicroStation key-in **mdl load cadscript**. This key-in can be attached to a function key, or other custom MicroStation menu button.



## Configuration Variables

Like many MicroStation based applications, CADscript offers multiple configuration variables for you to customize the application to best fit your environment. The CADscript configuration variables allow for defining various resources files and controlling plot processing and output options. There are far too many configuration variables to cover all of them in this course. Notable configuration variables will be identified in their relevant sections.

CADscript variables can be defined and included in your site's MicroStation configuration files. They can also be edited along with the other MicroStation variables in the MicroStation *Configuration* dialog by selecting **Workspace > Configuration** from the MicroStation pull-down menu, then selecting the **CADscript** category.



### Noteable Configuration Variable

CADSCRIP – defines the directory path for your CADscript resource files.

### Notes

- Opening the *Configuration* menu when CADscript is not started will check out a CADscript license from your license server.
- For CADscript 2004 Edition select **CADscript > Configuration** to edit these configuration variables.



## Configuring Fonts

One of the allures of working with PostScript is plethora of high quality PostScript fonts. These fonts can be installed on PostScript printing devices for faster printing performance, or they can be included in the output PostScript data file that is sent to the printer for better portability.

CADscript allows you to configure how to handle the fonts in the output PostScript files it generates.

- **RESIDENT** – installed on the PostScript printer, all PostScript devices are delivered with at least the standard 35 fonts installed.
- **PFB FILE** – the PostScript Font Binary (.pfb) file is included in the CADscript generated output file
- **STROKED** – the MicroStation text is dropped to its component lines and shapes.

Standard MicroStation fonts will most likely need to use the **STROKED** option as there are typically no PostScript versions of these fonts available. Traditional plotting using either MicroStation Print, or IPlot strokes the characters in the same way. You may take advantage of the **RESIDENT** fonts by using the **CADSCRIP.RSC** font resource file as it contains the definitions for the standard 35 PostScript fonts.

When using either the **RESIDENT** or **PFB FILE** option you can also configure the function of extended characters (those beyond your normal keyboard characters).

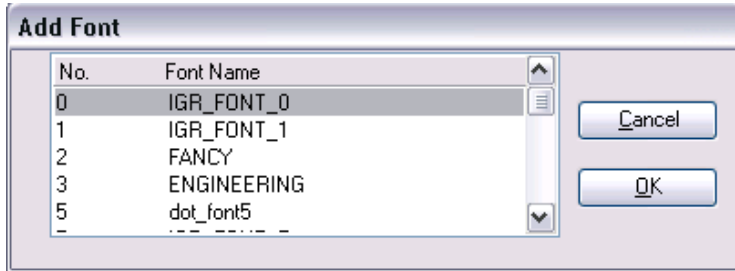
- **NONE** – characters are printed as is, no special placement is performed.
- **ACCENT** – characters are printed as accent characters above or below the preceding character (breve, cedilla, grave, macron, umlaut, etc.).
- **FRACTION** – characters are printed as fractions. The MicroStation font resource file **FRACTION.RSC** delivered with CADscript is configured to display and print these fractions correctly.

One other consideration when using either the **RESIDENT** or **PFB FILE** option is the difference in scale. MicroStation sizes fonts differently than PostScript so there will be a size difference that must be configured by using a scale factor.

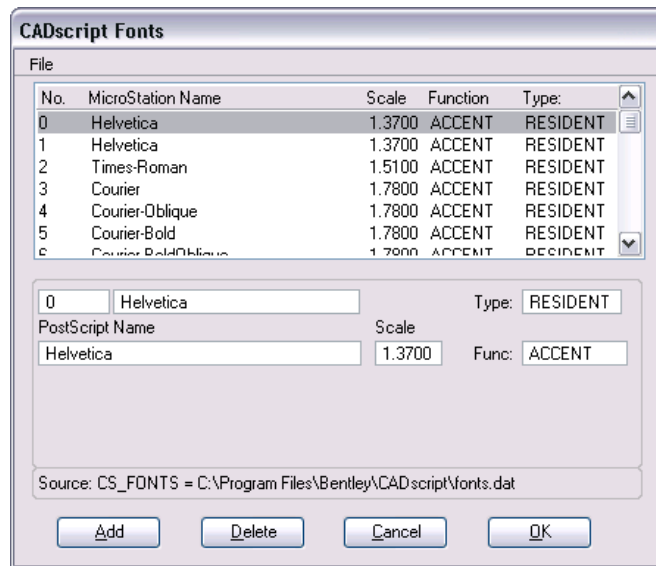


## CADscript Setup and Configuration

To configure your MicroStation to PostScript font mapping select **CADscript > Font Configuration** from the MicroStation pull-down menu to display the *CADscript Fonts dialog*. To add a font select the **Add** button on the dialog, the select the MicroStation font to add from the *Add Font* dialog.



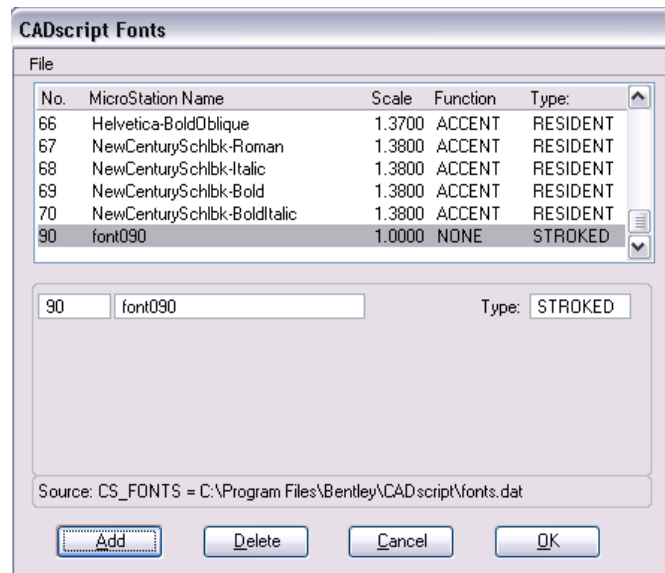
When the font is added you will have additional selections to make. If using either the **RESIDENT** or **PFB FILE** PostScript font Type you will need to specify a **Scale** factor and **Function** type. Additionally for the **PFB File** option you must specify the .pfb file to include.





## CADscript Setup and Configuration

There are no additional options for STROKED MicroStation fonts as the text is dropped to its component lines and shapes which are then treated like regular graphic elements.



### Noteable Configuration Variable

CS\_FONTS – defines the location of the MicroStation to PostScript font mapping file.



## Configuring Colors

The **CADscript Colour Control** dialog is used to configure the output color separations CADscript will produce. The dialog is launched by selecting **CADscript > Colour Table** from the MicroStation pull-down. Colors can be defined as standard CMYK values as well as any number of spot colors. CADscript color tables can be saved and reattached from CADscript Color Table (.cct) files.

### Note

When using CADscript do not modify color tables using the built-in MicroStation color table dialog. Always use the CADscript Colour Control dialog or you may encounter conflicts between your MicroStation colors and CADscript produced colors.

Prior to configuring individual colors on the pallet you will need to define then CMYK separation plates you will be using and their screen angles. This is done via the **Plates** dialog which is accessed from the *CADscript Colour Control* dialog from the **Plates > Configure** pull-down. Turning off a color will disable that selection from the main dialog as well as modifying the appearance of the color pallet.



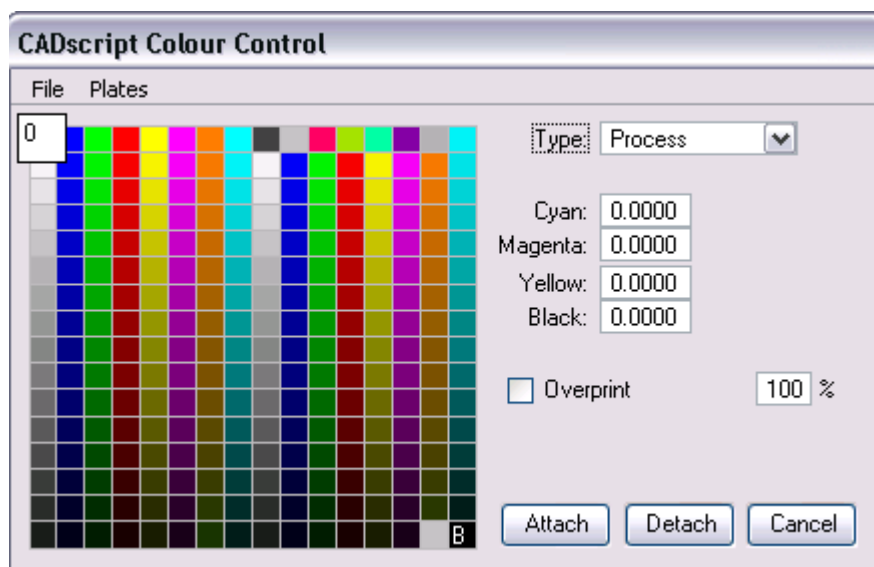
Once the plates are defined you can then modify the color **Type** for any, or all, of the 0-255 colors in the MicroStation color pallet.



## Process

This selection will produce standard CMYK process color separations and is the default option. You specify the percentages of each of the four process inks for that color. The percentage values for each color will range from 0.00 to 1.00.

The Overprint percentage defines the percent ink on other plates at which CADscript will simply overprint the other color, or produce a knockout (mask). A percentage at, or above the specified value will simply overprint while percentages below will produce a knockout. An Overprint value of 0 will always overprint and not knockout any other inks.



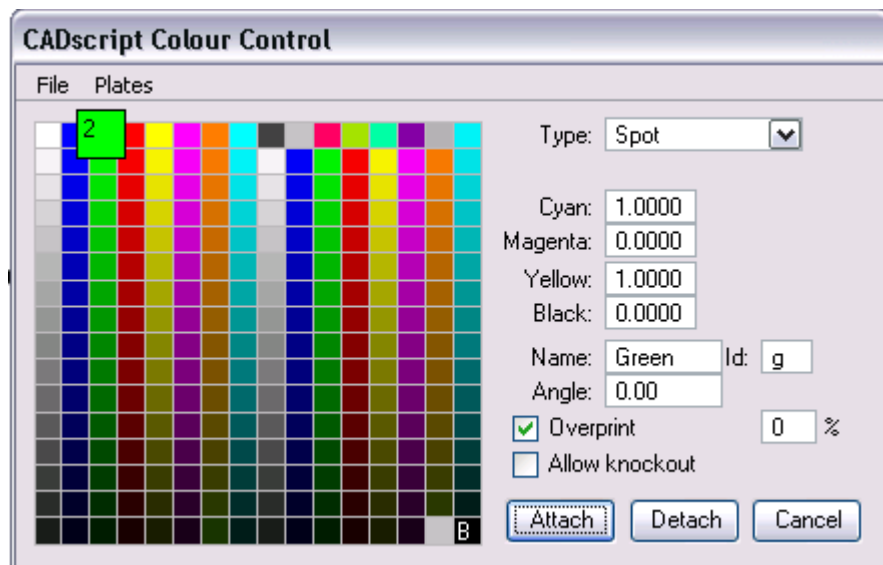


## Spot

Spot colors are printed on separate plates at 100% ink. For display purposes you will define the CYMK color values that make up the actual spot color. The color pallet display in the color control dialog will display spot colors with an S in the color square.

In addition to the process color settings, spot colors have additional settings that must be configured.

- **Name** – the color name (or other identifying name) for the plate
- **Id** – single character identifier used as a suffix on the output file name
- **Angle** – screen angle of the spot color
- **Allow knockout** – allows the spot color to be overprinted by other colors



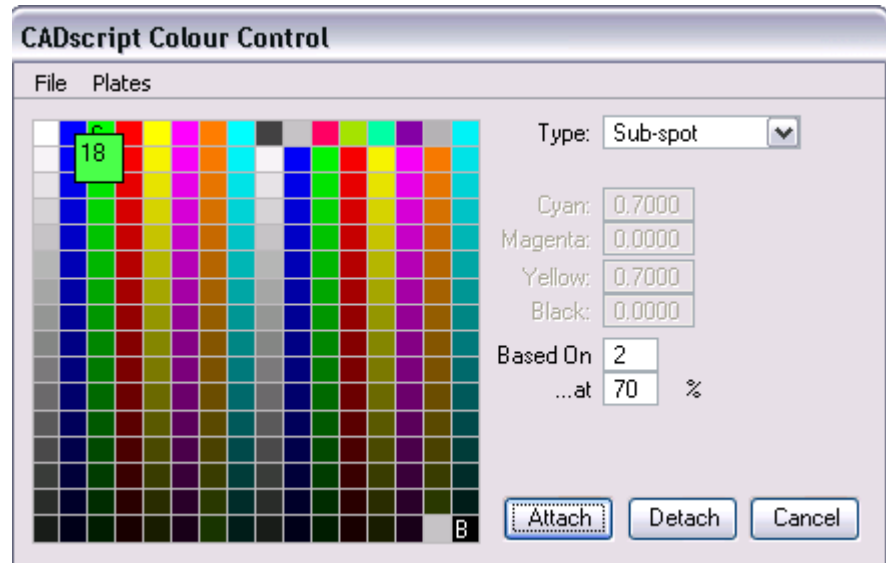


## Sub-spot

Sub-spot colors are defined as a percentage of a parent Spot color. At least one Spot color must be defined before a sub-spot color can be defined. The color pallet display in the color control dialog will display sub-spot colors with an **ss** in the color square.

Since sub-spot colors rely on parent spot colors there are no CMYK values to define, but the sub-spot color type does have two additional settings to configure.

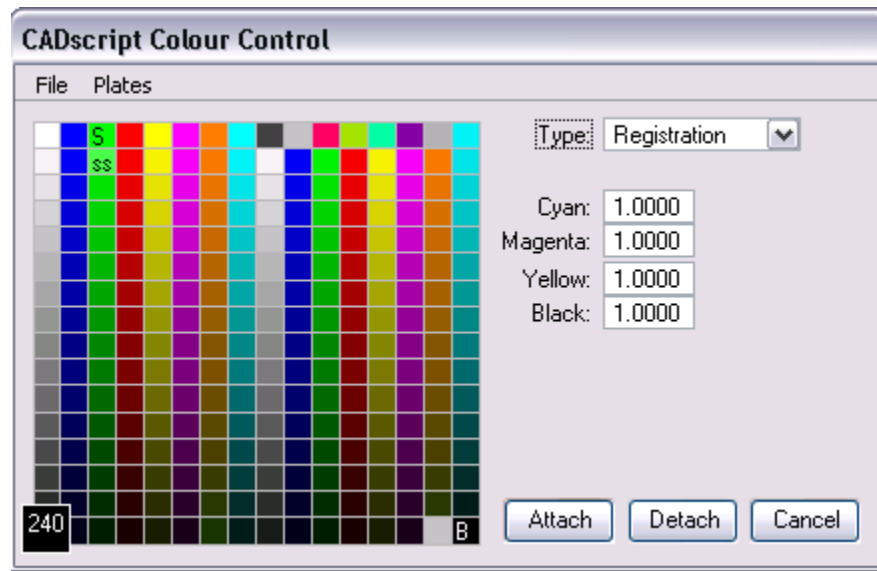
- **Based On** – the color number (0-255) of the parent spot color
- **...at** – the percentage (0-100) of ink the sub-spot color will be printed at on the spot color plate (the parent spot color will be printed at 100%).





## Registration

Used for printing registration ticks, this color is printed on every plate at 100%. Since registration colors are always printed at 100% on every plate the CMYK values are for display purposes only. The color pallet display in the color control dialog will display registration colors with an R in the color square.



### Noteable Configuration Variable

CS\_DEFAULT\_TABLE\_DIR – defines the default location for loading and saving CADscript table files, including the CADscript color table.



## **Lab 1 – CADscript Setup and Configuration**

### **Objectives**

*The purpose of this lab will be to:*

- Setup custom CADscript resource file location.
- Configure CADscript startup.
- Modify CADscript configuration variables.
- Create font mapping file.
- Create a color table.

### **Setup CADscript resource file location**

Prior to customizing your CADscript files and variables you will need to make a copy of the Bentley installed CADscript folder to another location. This allows you to create and modify your own custom files without destroying the installed defaults. It also prevents your custom files from being destroyed by re-installing CADscript.

1. Open a My Computer window and navigate to the folder **C:\Envision Group\_Training\CADscript Fundamentals**
2. Open a second **My Computer** window and navigate to the Bentley folder
  - For MicroStation 2004 or XM editions the default location is **C:\Program Files\Bentley**
  - For MicroStation V8i the default location is **C:\Program Files\Bentley\MicroStation V8i**
  - For MicroStation V8i SELECTSeries 1 the default location is **C:\Program Files\Bentley\MicroStation V8i (SELECTSeries 1)**
3. Copy the **CADscript** folder from the **Bentley** folder and Paste it in the **Bentley CADscript Fundamentals** folder.

### **Configure CADscript Startup**

1. Open MicroStation.
2. In the MicroStation Manager dialog change the following settings:
  - a. Set the **User** workspace to **Envision Group Training**
  - b. Set the **Project** workspace to **No Project**
  - c. Set the **Interface** to **envisiongrouptraining**
  - d. Set the directory to **C:\Envision Group\_Training\CADScript Fundamentals**.
3. Select the file named **Map\_Configure.dgn**.

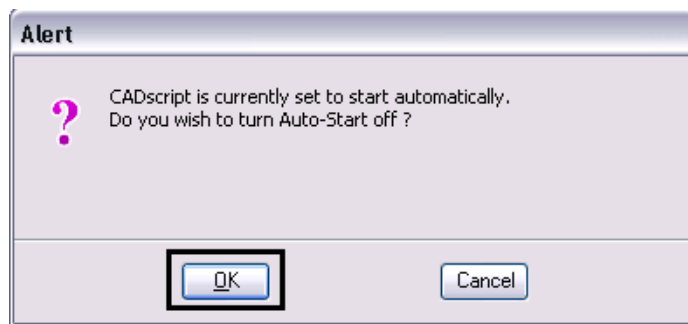


4. Click the **Open** button.

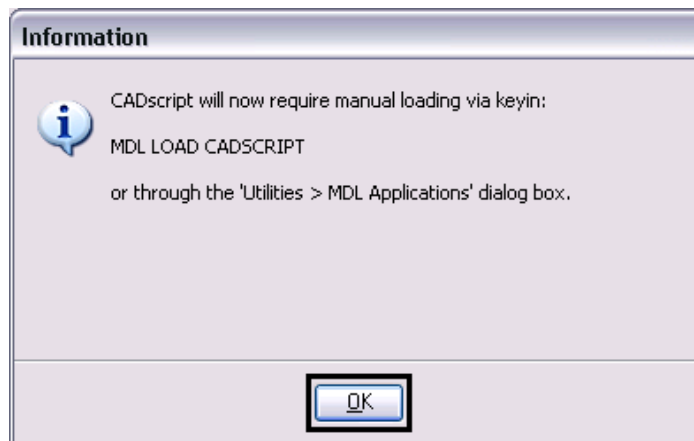
After the design file opens CADscript should have been loaded automatically. Verify this by finding the **CADscript** section on the MicroStation pull-down. CADscript is not loaded if there is no CADscript section. If CADscript was not loaded automatically skip ahead to step 8.

5. Turn off the CADscript auto-start by selecting **CADscript > Auto-Start** from the MicroStation pull-down.

6. In the *Alert* dialog click **OK**.



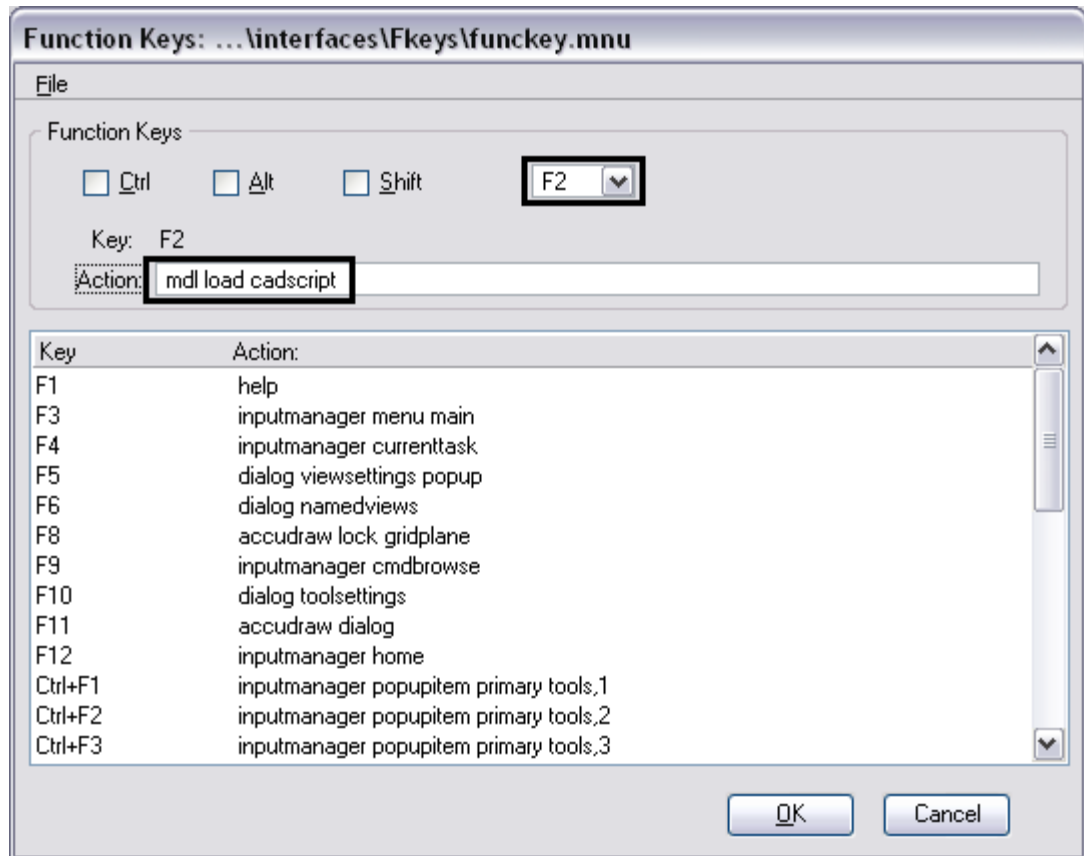
7. In the *Information* dialog click **OK**.





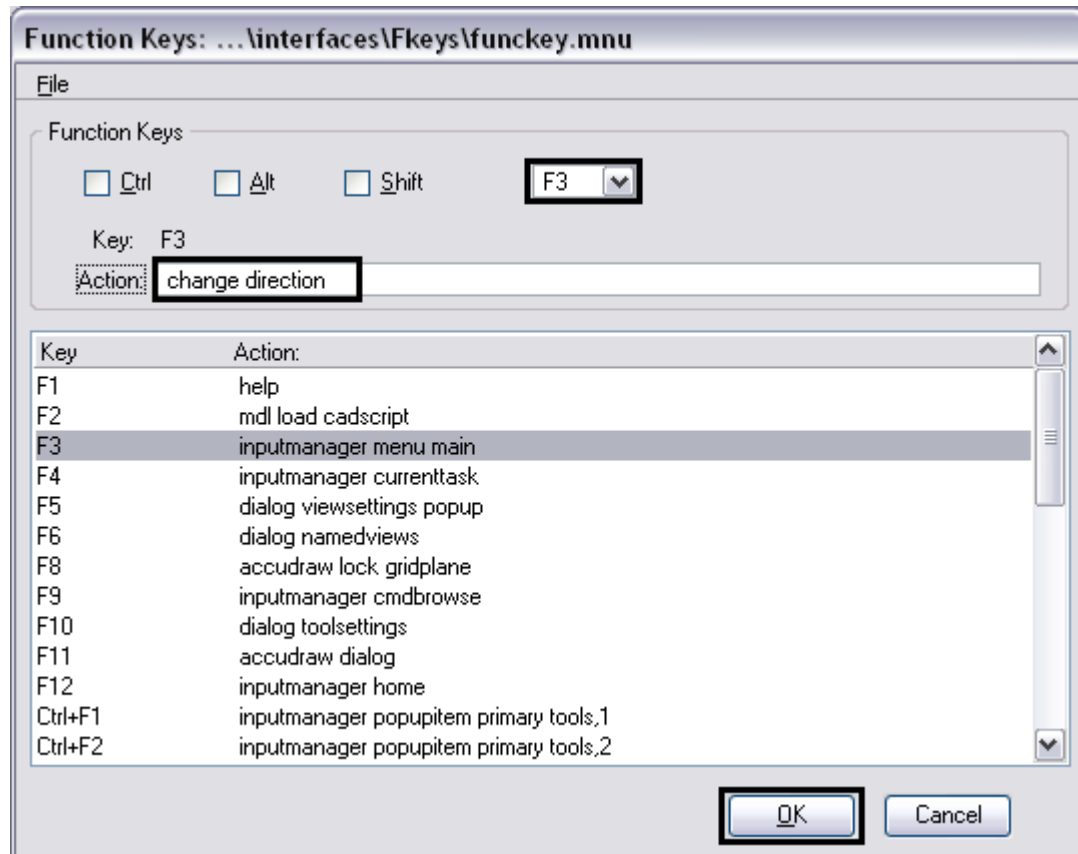
## CADscript Setup and Configuration

8. From the MicroStation pull-down select **Workspace > Function Keys**.
9. Configure function key F2 to perform the manual load of CADscript. In the *Function Keys* dialog:
  - a. Select **F2** in the function key drop-down.
  - b. Enter **mdl load cadscript** in the *Action* field.





10. Configure function key F3 to start the Change Direction function (we will be using this in the Place FlexiText lab in Chapter 3).
  - a. Select **F3** in the function key drop-down
  - b. Enter **change direction** in the *Action* field
  - c. Click OK



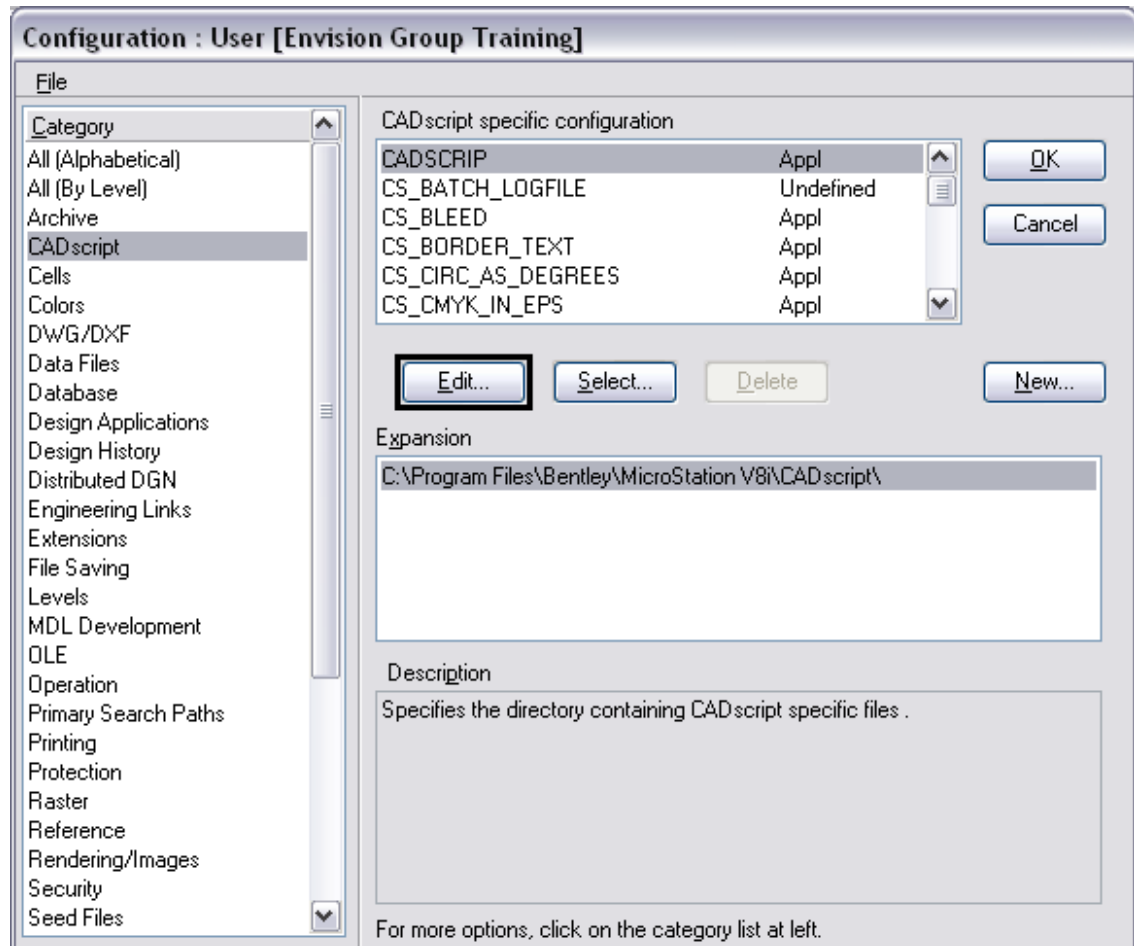
11. Exit MicroStation.
12. Restart MicroStation and open the same design file, **Map\_Configure.dgn..**

You will notice that CADscript now does not load automatically.
13. Press **F2** on the keyboard to load CADscript.



## Modify CADscript configuration variables

1. Select **Workspace > Configuration** from the MicroStation pull-down menu.
2. From the Category list select **CADscript**
3. From the variable list select the CADSCRIP variable, then click **Edit**

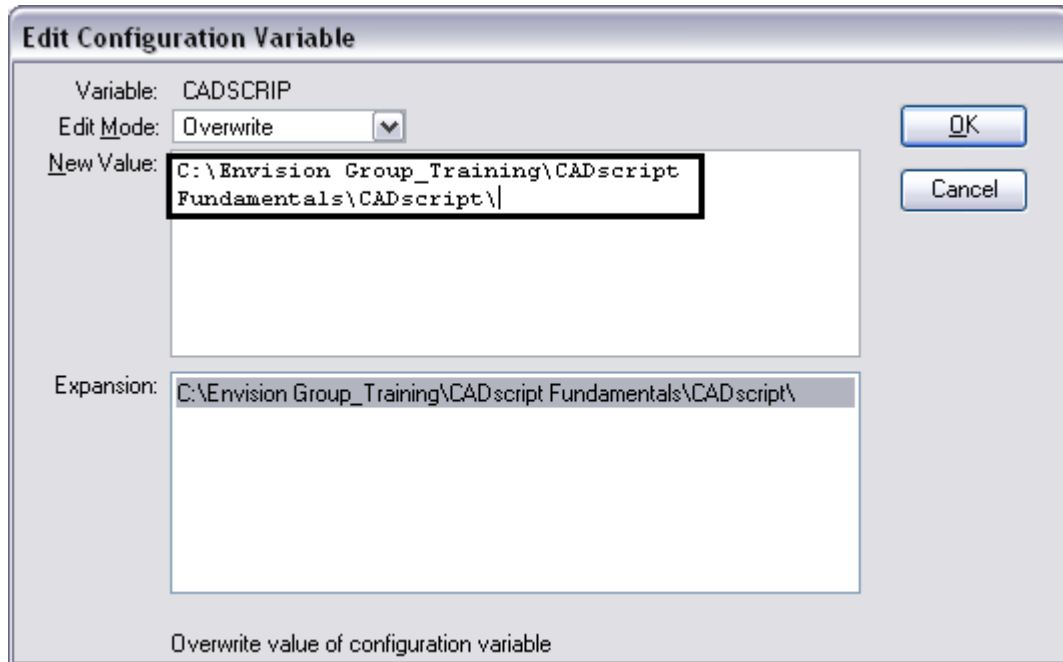


### Note

The default value listed in the **Expansion** section will vary depending on the version and installation location of MicroStation.

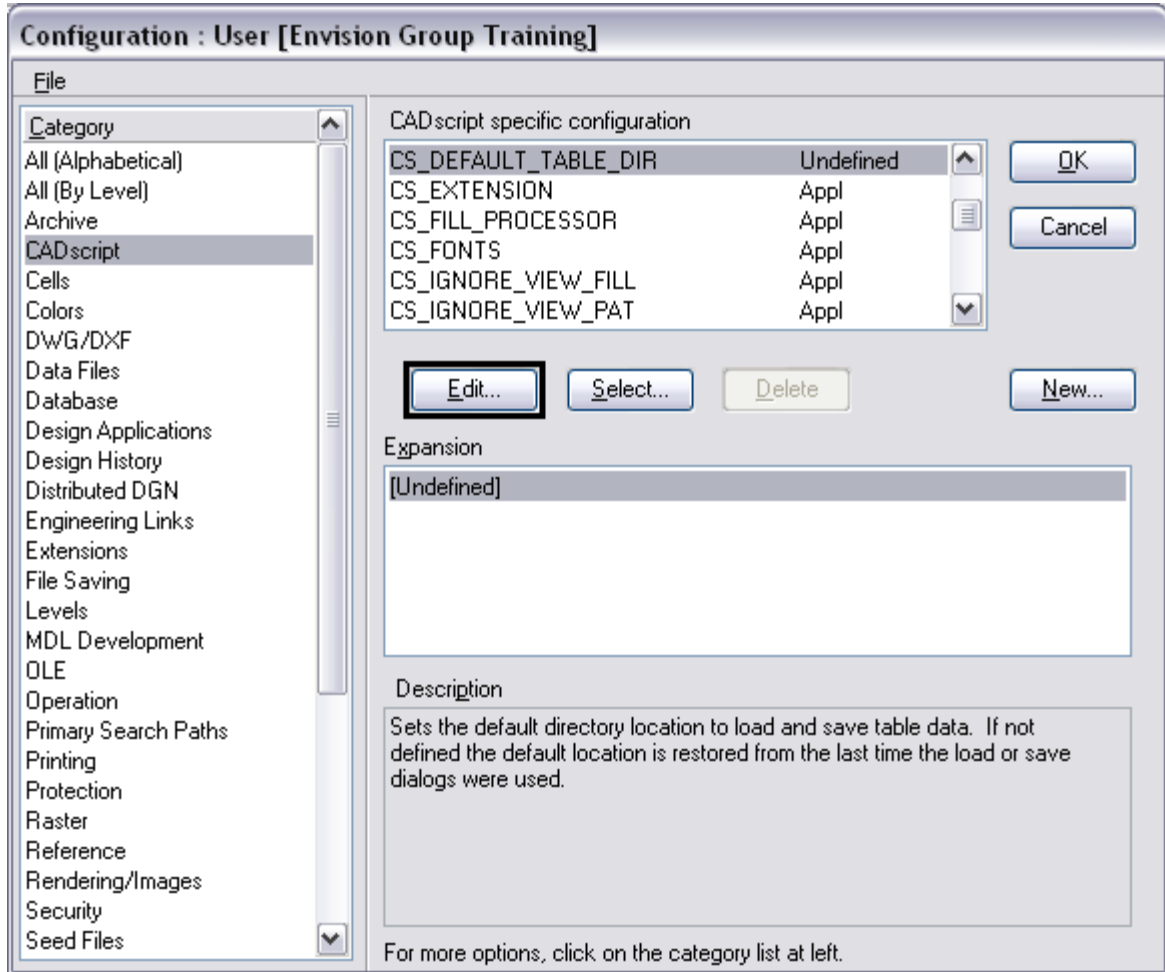


4. In the *Edit Configuration Variable* dialog replace the text in the New Value field with **C:\Envision Group\_Training\CADScript Fundamentals\CADscript\** and click OK.



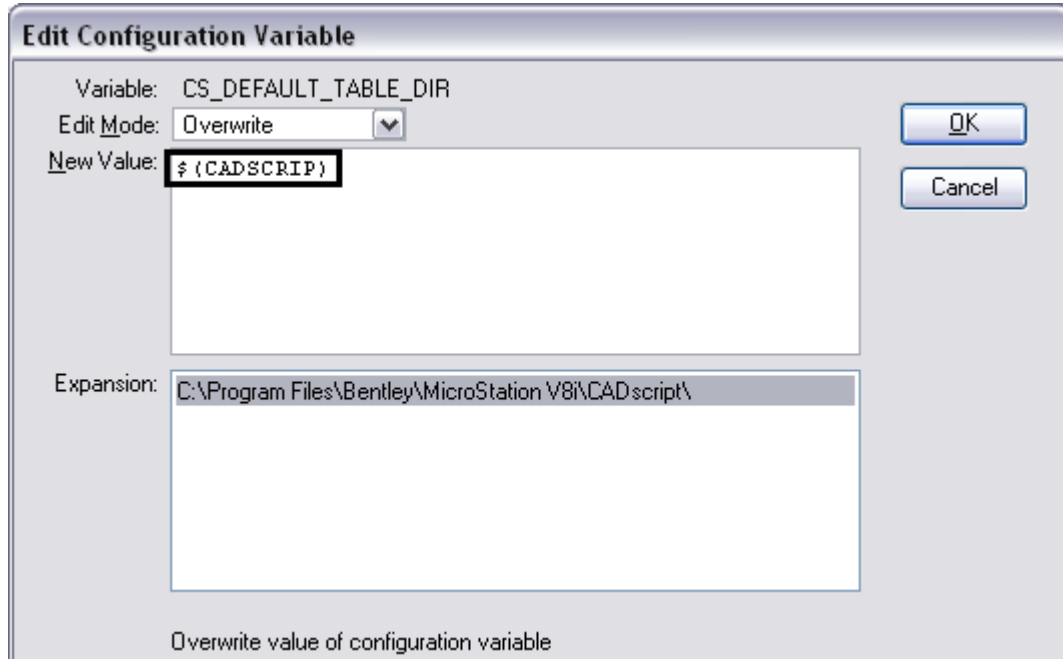


5. In the *Configuration* dialog select the **CS\_DEFAULT\_TABLE\_DIR** variable, then click **Edit**



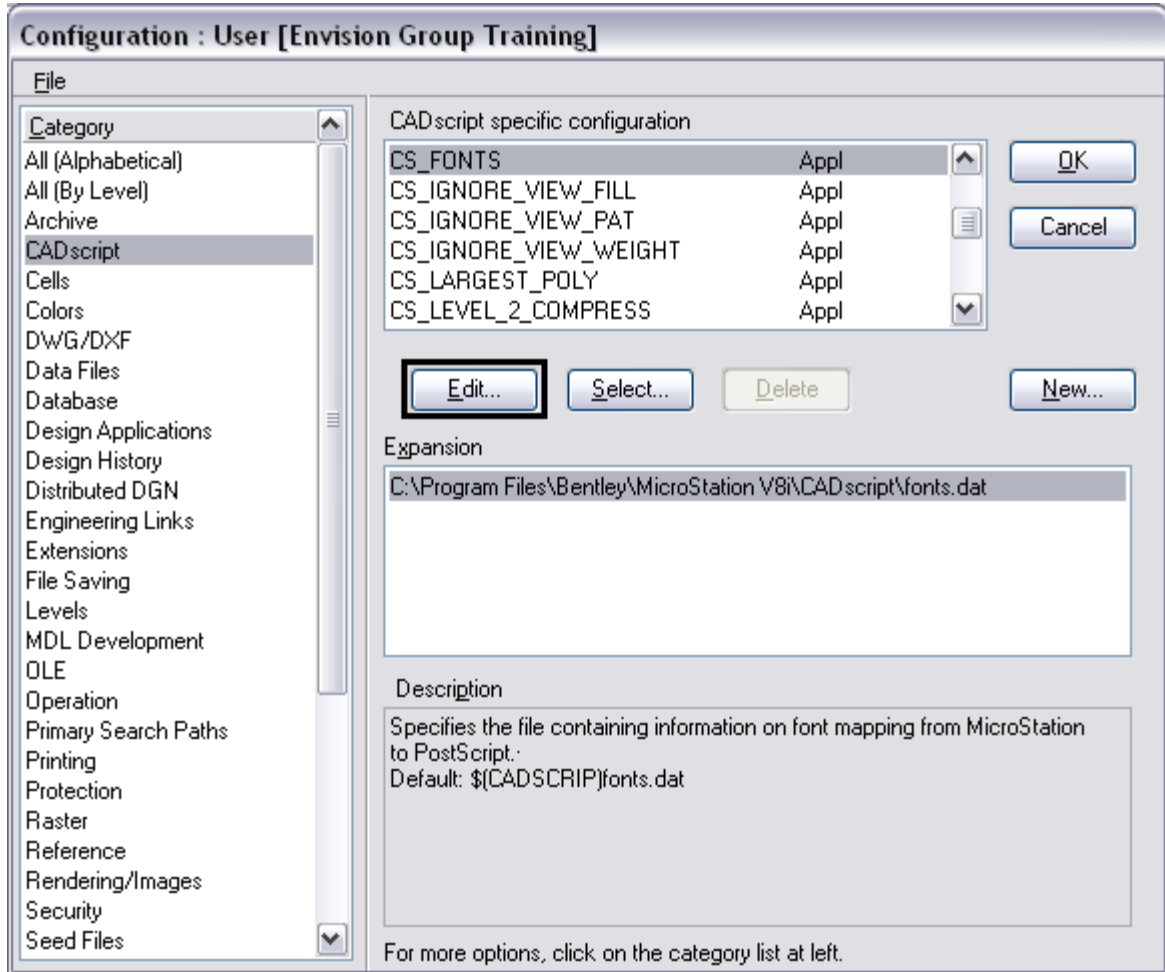


6. In the *Edit Configuration Variable* dialog replace the text in the New Value field with  $\$(CADSCRIP)$  and click **OK**.



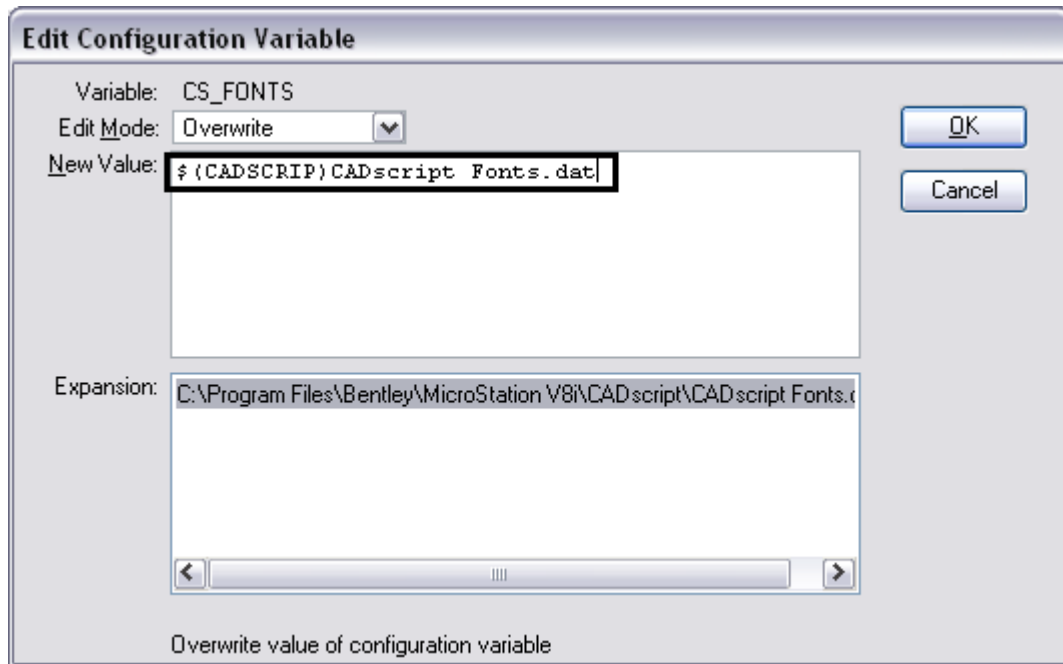


7. In the *Configuration* dialog select the **CS\_FONTS** variable, then click **Edit**





8. In the *Edit Configuration Variable* dialog replace the text in the New Value field with `$(CADSCRIP)CADscript Fonts.dat` and click **OK**.



9. In the *Configuration* dialog click **OK**
10. In the *Alert* dialog click **Yes** to save the changes
11. Exit MicroStation
12. Restart MicroStation and open the same design file, **Map\_Configure.dgn**.
13. Press **F2** on the keyboard to load CADscript.
14. Select **Workspace > Configuration** from the MicroStation pull-down menu and verify the changes to the three CADscript have been saved.
15. Close the *Configuration* dialog when completed.

Lab Continues



Each manual includes a dataset that can be downloaded from our website.

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- Mastering MicroStation AccuDraw
- MicroStation Everything 3D
- MicroStation V8 XM Edition Upgrade
- MicroStation V8 XM Edition Fundamentals
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- Bentley Map V8i Fundamentals

### Bentley Systems® InRoads®

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