5 Image Interpretation

Preview

In this lesson, you will learn how to:

- Set up Vectorization
- Use the Vectorize Heads-up Digitizing Functions
- Use Spy Window
- Use Raster Snap
- Set up Theme Styler
- Open a Theme File
- Display Themes
- Modify a Theme
- Create a Hatch
- Create a Theme
- Set a Theme

Image Interpretation

➤ **Set up MicroStation Descartes**

1. From the MicroStation Manager dialog box, select Workspace > dcartes.

MicroStation Manager

File Directory

Files:

Directories:

...\ustation\dcartes\tutorial\

lesson1.dgn
lesson2.dgn
lesson3.dgn
lesson4.dgn
lesson5.dgn
lesson6.dgn
lesson7.dgn
lesson7b.dgn

🗁 c:\
　🗁 win32app
　🗁 ustation
　　🗁 dcartes
　　　🗁 tutorial

OK

Cancel

List Files of Type:

MicroStation Design Files [*.dgn] ▼

☐ Open Design Files Read-Only

Drives:

c: ▼

Workspace: dcartes ▼
Project: default ▼
Interface: dcartes ▼
Style: Status Bar ▼

2. Open the LESSON5.DGN file supplied with the tutorial. The file is in the …\dcartes\tutorial directory.

3. From the MicroStation *Tools* menu, select Image > Image Control and dock it under the MicroStation Main tool box.

Image Control

4. From the MicroStation Tools menu, select Image and the Vectorize and Theme tool boxes.

Vectorize tool box

Vectorize

Theme tool box

Theme

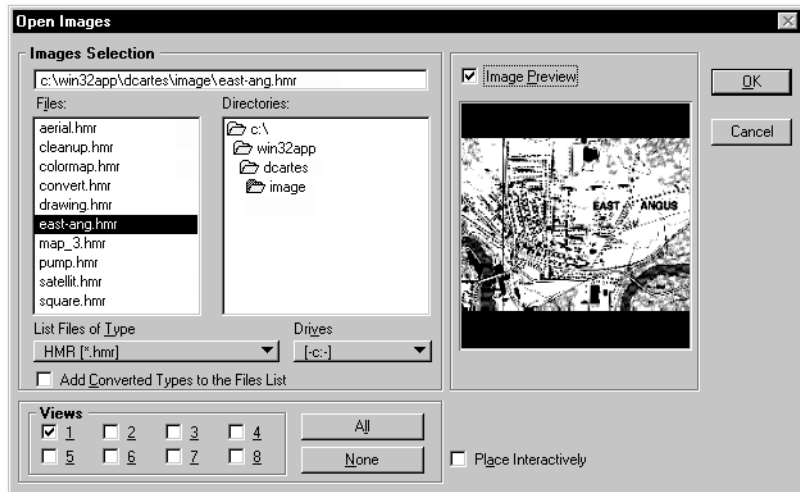➤ **Open an image**

1. From MicroStation File menu, select Open > Image.

The Open Images dialog box opens.

2. Find the EAST-ANG.HMR image that is supplied with the tutorial in the …\dcartes\tutorial directory. Highlight the image.
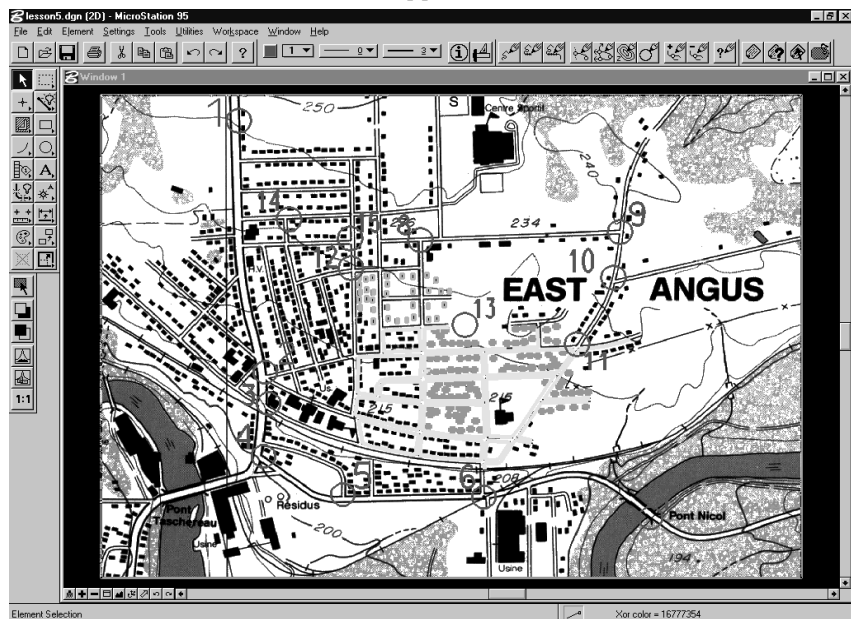
3. Set the Image Preview setting to on.

Notice the display of a thumbnail of the image in the Preview window.

4. Check that the settings for View **1** is set to on.

5. Click OK to open the image.
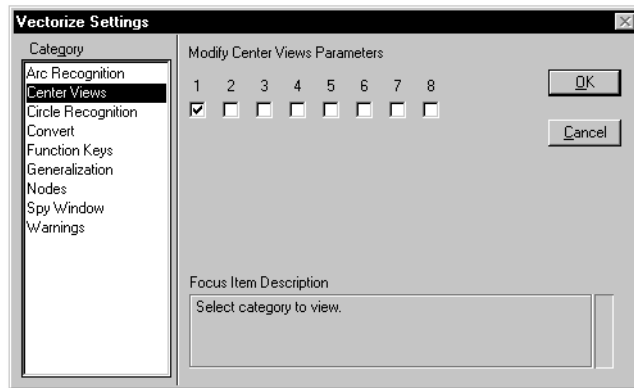
The screen should appear as follow.

6. Using the *Select Images/Active Image* tool, double-click on EAST-ANG.HMR to make it the active image.
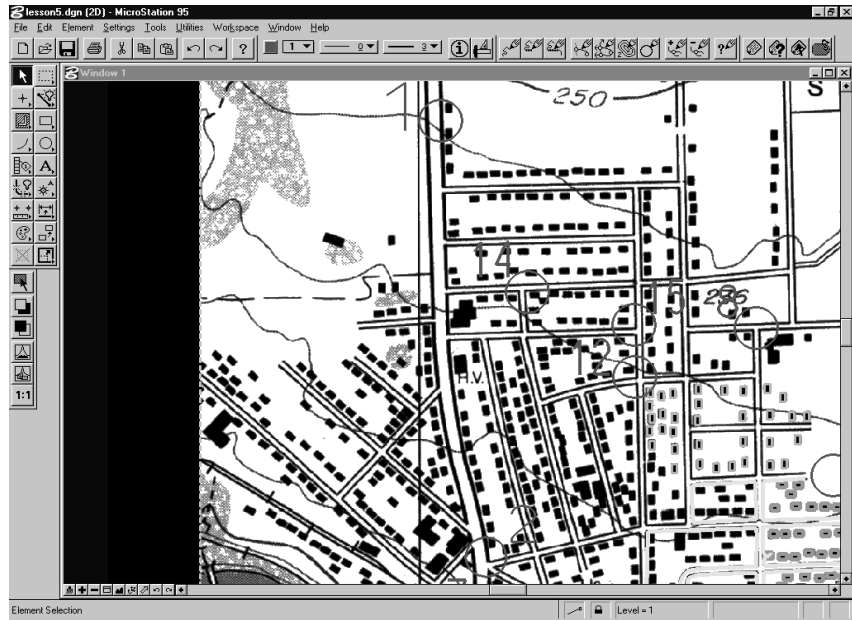
➤ **Set up Vectorize**

1. From the Vectorize tool box, select the *Vectorize Settings* tool.

2. Click on Center Views in the Category box. Turn off all toggles except the one for View 1.

3. Select OK to confirm and exit.

4. *Window Area* around locations **1** and **2** in Window 1.
   Window 1 should appear as follows.

You are now ready to digitize.

Snap-Assisted Digitizing

➤ Digitize a drawing

1. From the Vectorize tool box, select the *Place Element* tool.

2. Set the tool setting as follows:
   Raster Snap: OFF
   Auto Convert: OFF
   Mode: Point
   Theme: None
   Erase Raster: OFF

3. Set the Active Color to Red and the Line Weight to 3 in the
   MicroStation Primary Tools tool box.

4. In Window **1**, enter a data point at location **1**. Digitize the road until you reach the location **2**.

   Your data points should be entered as displayed in the image below.

5. Select <F5> to recenter the view around the cursor position.

   Only Window **1** will be recentered, since it is the only view with Center Views set to on. If other views were on, they would also be recentered around the same point regardless of their scale. The next location, **3**, will now be visible. Enter a data point at location **3**. Repeat step 5 to digitize 3, 4 and 5.

6. If you make a mistake when you enter a data point, do not be concerned. Press <F2> two times. Notice that the data points are removed. Also notice that you are still in the *Place Element* function and that you can immediately enter the next data point.

7. Press <F3> three times to reinsert the points that were removed. Note that you can use <F2> and <F3> to quickly correct mistakes by moving along the captured line string. Accept the element.

   You can restart a line string that was terminated at any time without losing your previous work.

8. From the Vectorize tool box, select the *Continue Element* tool.

9. In Window **1**, enter a data point on the element at the point that was accepted in the previously at location **5**.

   The line string highlights for acceptance.

10. Enter a data point and resume digitizing up to location **6**.

11. To convince yourself that the line string can be treated as one entity, press <F2> five times. Each time that you press <F2>, you remove a point. To reinsert the points, press <F3> five times.

12. You may also use the digitizing functions to snap to a line. To practice this function, select the *Place Element* tool. Place your pointer at location **6**, just over the line.
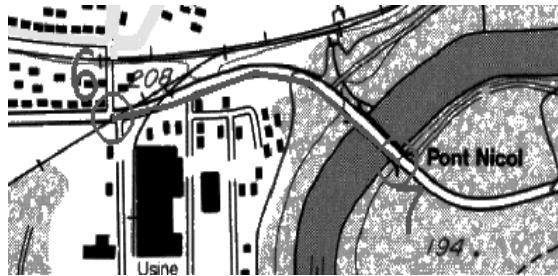

13. Press <F4> to snap the new line to the element. The element highlights for acceptance. Accept the element with a data point. Resume digitizing up to location **7**.

   The snap creates a node at the break point of the line string and segments the target element creating a node at the intersection point.

   At any time while you digitize, you may use a View Control tool. The digitizing function temporarily suspends while the View Control function is executed. The digitizing function is restarted by entering Reset. Use the Zoom In control as you digitize to practice this feature.

➤ **Use the Spy Window**

1. Move the pointer to where you want to enter the next point and press <F8>.

   This action opens the Spy Window, centered around the pointer position.
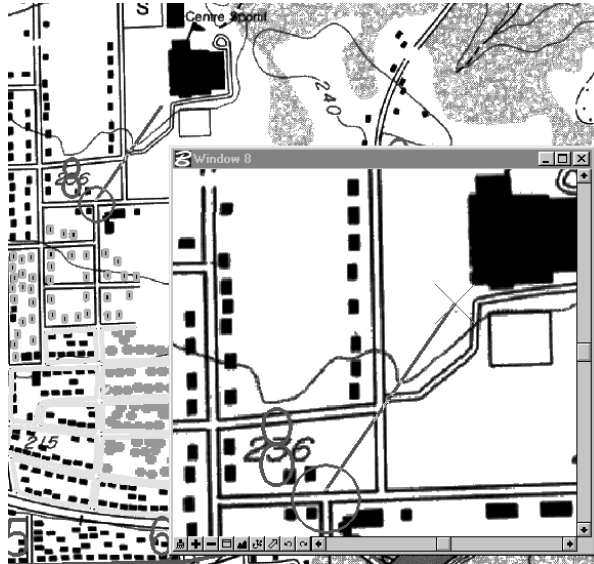
2. Digitize a point inside the Spy Window for better precision.

3. Press <F8> twice to open and close the Spy Window. (Notice that <F8> is a function key to open or close the Spy Window.)

4. Enter two more data points with the Spy Window (use <F6> if you need to recenter the view) and Reset.

   This action terminates your line string and permanently inserts the element into the design file.
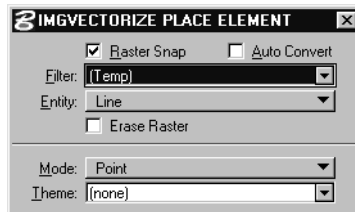
5. *Fit View* in Window 1.

➤ **Digitize precisely with Raster Snap**

1. *Window Area* around location **8**.

2. From the Vectorize tool box, select the *Place Element* tool.
   Check that Raster Snap is set to on.

3. Snap/data point at location **8**. Notice that you are close to but
   not on the raster lines. Make sure that the line falls within the
   square about the pointer.

4. Enter several points in the same manner and use <F5> if
   necessary. Use locations **9** to **11** to guide you if you are
   unsure.

   The Raster Snap feature continuously adjusts the points and
   the resulting line string fits well over the raster line.

5. Press Reset to terminate the line string
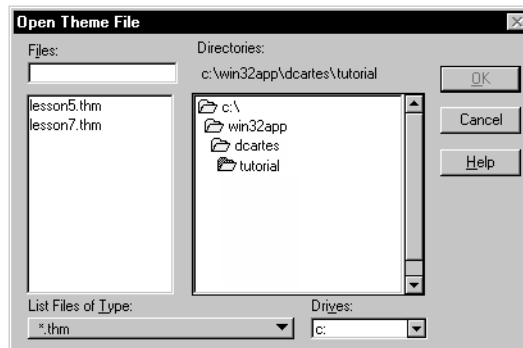
6. *Fit View* in Window 1.

➤ **Set up Theme Styler**

1. From the Theme tool box, select the *Theme Styler Dialog* tool.
   The Theme Styler dialog box opens.

➤ **Open a Theme File**

1. From the File menu of the Theme Styler dialog box, select Open.

   The Open Theme File dialog box opens.

2. Find and open the LESSON5.THM file that is supplied with the tutorial. The file is in the …\dcartes\tutorial directory.

   You will see a list of themes displayed in the Theme Styler dialog box.

3. Highlight the ROAD theme in the list box to select the ROAD as the active theme.

➤ **Display a Theme**

Theme Styler resymbolizes the elements in your file according to the theme definitions that are presently active.

1. From the Options menu, turn on the Display item. Use *Update View* to refresh the display in Window **1**.

    Notice that the vectors are now resymbolized with the theme symbology.

2. You may selectively turn on or off themes with the Theme Styler dialog box.

    Notice the X on the left hand side of the theme in the Theme list box. This X indicates that the theme is on. Double-click on the ROAD theme in the Theme Styler dialog box. Notice that the X is not displayed. The lack of an X indicates that the theme is off.

3. From the View Control bar of Window **1**, select *Update View.*

    Notice that all the ROADS are not displayed now.

4. Repeat steps 2 and 3 for the HOUSE theme.

    Notice that the HOUSE is not displayed.

5. To turn all the themes back on, double-click on ROAD and on HOUSE, and then execute an *Update View* of Window **1**.

➤ **Modify a Theme**

Theme Styler permits you to change the definition of a theme.

1. From the list of themes in the Theme Styler dialog box, click on the ROAD theme.

    The Theme Styler Description group now contains the definition of the ROAD theme.

2. From the Line Weight option menu, select weight #8.

3. From the Contour Color option menu, select blue.

4. Click Modify.

5. Execute an *Update View* of Window **1**. The ROADS will now be resymbolized.
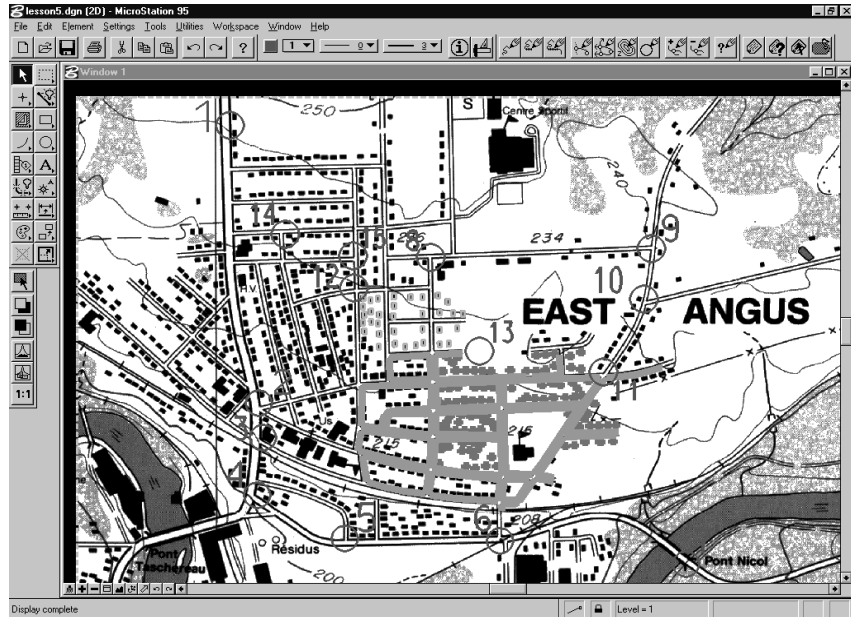
6. Theme Styler does not affect the original design elements. Turn off the Display toggle and update Window **1**.

    Notice that the elements revert to their original symbology.

7. Turn on the Display toggle and update Window **1**.

    Notice that the elements are again resymbolized.

➤ **Create a Theme**

Theme Styler permits you to define a theme from within a work session. The best approach is to start with an existing theme and then to modify its definition parameters to create a new theme.

1. From the Theme Styler dialog box, select the HOUSE theme in the list of themes. The definition of the theme displays.

2. The next task is to create a specific theme for B_HOUSE. Enter the following parameters into the Description box.

Field	Value(s)
No	40
Name	B_HOUSE

Field	Value(s)
Level	1
Description	Big House
Line Type	#0
Line Weight	#4
Contour Color	Red

3. Keep the default values for all other parameters.

4. Click the Add button.

   The new theme is created.
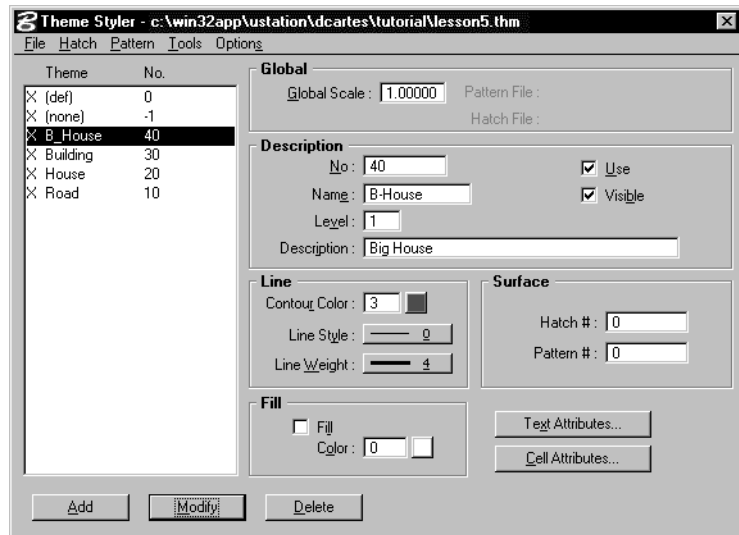
➤ **Attach a Theme to graphic elements**

Once a theme is created, it may be applied to graphic elements.

1. Execute a *Window Area* around locations **12** and **13**.

2. Create a selection set with the elements located at locations **12** to **13**.

3. From the Theme tool box, select the *Change Theme* tool.

4. From the tool settings window, select *B_House* to make it the Active Theme.

5. Enter a data point anywhere in Window **1**.

   The selection set is updated with the Active theme definition.

➤ **Digitize with an Active Theme**

1. *Fit View* and then *Window Area* around locations **14** and **15**.

2. From the Vectorize tool box, select the *Place Element* tool.

3. In the Place Element settings box, set the active theme to B_House.

4. Digitize the houses between locations **14** and **15** and use <F7> to close polygons surrounding each house.

   Notice that the house line is drawn in the symbology of the B_House Theme.

➤ **Create a hatch**

Theme Styler permits you to define a hatch that can be used with a theme.

1. From the Hatch menu of the Theme Styler dialog box, select Edit.

   The Hatch Editing dialog box opens.
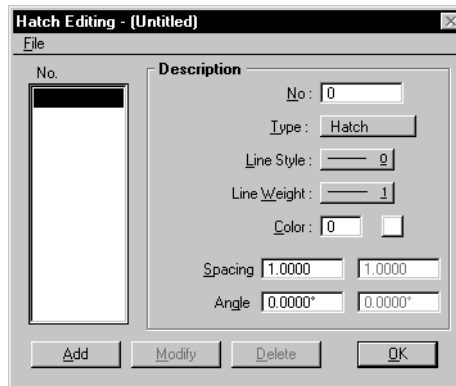
2. Enter the following parameters into the Description box.

Field	Value(s)
No	1
Type	Cross Hatch
Line Style	#0
Line Weigh	#1
Color	Yellow
Spacing	x: 1.5 y: 1.5
Angle	x: 45 y: -45

3. Click the Add button. The new hatch will now be created.

4. From the File menu of the Hatch Editing dialog box, select Save As. Enter LESSON5.HAT in the Save File dialog box and click OK to save the file.

5. Click OK to exit.

6. From the list of themes in Theme Styler, select the B_House theme.

   This action displays the definition of that theme.

7. From the Hatch menu of the Theme Styler dialog box, select Select. The Select Hatch File dialog box opens.

8. Select the LESSON5.HAT file that you have just created and click OK. This name displays in the Hatch File field in the Theme Styler dialog box.

9. Locate the Surface option group. Enter 1 in the Hatch # field.

10. Click Modify.

    You have now added a hatch to the Cross Hatch theme.

11. Execute an *Update View* and then a *Fit View* in Window **1** to
see the effect of the change.
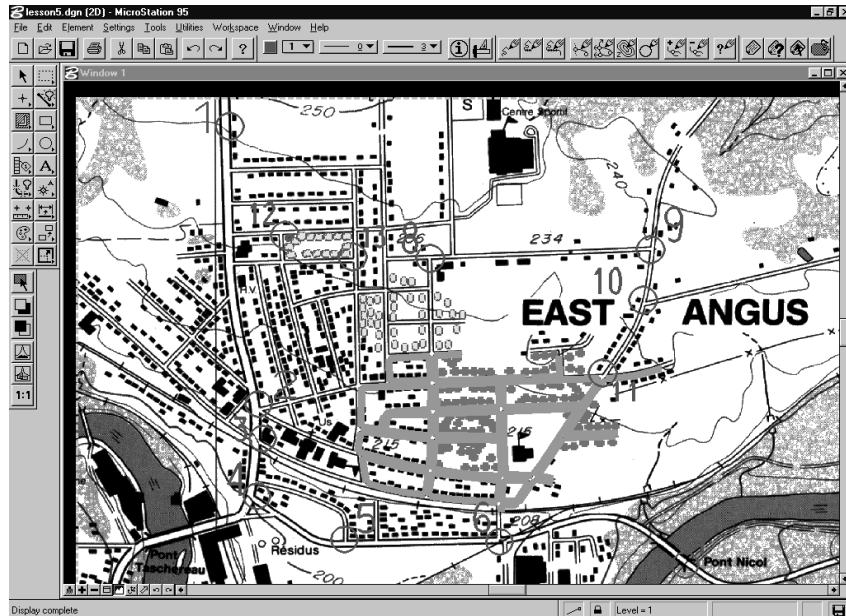
Practice

This lesson does not cover all of the functions related to Image
Interpretation. You should explore other functions by reviewing
chapter 12 "Vectorizing," chapter 13 "Converting Text and
Symbols from Raster to Vector" and chapter 11 "Preparing Theme
Symbology" of the *MicroStation Descartes User's Guide*.

Here are a few of the functions you should explore:

• Vectorize Place Element tool using Raster Snap, Auto Convert
and Erase Raster

• Raster Snap on Tentative

• Line and Outline mode on surfaces

• Patterns

• Update Design File

• Select Theme Tool

• Query Theme Tool