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Converting Text and Cells from Raster to Vector

This chapter describes a set of tools that you can use to extract text or symbols from scanned drawings or images and to place them into a design vector file. Combined with the Vectorize tools presented in the previous chapter, these tools provide an efficient environment for data conversion projects.

Overview

The text and cells conversion functions work with gray scale or color images, as well as with binary or two-color images. When gray scale or color images are converted, a color filter can be used to determine the features to be converted.

When you convert raster text or cells into design elements, you can define the characteristics and meaning of these elements by using a theme. A theme is a set of parameters that defines the element symbology, such as the font, height and width, spacing for text, line weight, line style, pattern, hatch, or colors for the cells.

Text/Cells tool box



Text/Cells tool box

The Text/Cells tool box provides the following tools for text conversion:

- Select Horizontal Text
- Select Oriented Text
- Convert Text

The remaining tools are used to convert symbols or cells:

- Convert Cell
- Convert Horizontal Cell
- Convert Oriented Cell

Text conversion can be carried out in two modes: standard or multiple selection. In the first mode, you convert strings singularly

with the *Select Horizontal Text* or *Select Oriented Text* tools. You select the raster text string, and you place the equivalent text string in the design file with the same tool.

In the multiple selection mode, you select several raster text strings before you place the equivalent text strings in the design file. While you select the raster text string with the *Select Horizontal Text* or *Select Oriented Text* tools, the Text Editor dialog box does not display. When you finish selecting the text strings, choose the *Convert Text* tool. The selected text blocks are highlighted one by one, and you place the equivalent text string in the design file for each of these. The purpose of the multiple selection mode is to speed up text conversion.

The mode is controlled by the Convert Now toggle in the tool settings window of Select Horizontal Text or Select Oriented Text.

- If toggle is on, you convert the text at once.
- If toggle is off, you are in the multiple selection mode.

Select Horizontal Text tool

Used to select horizontal raster text strings interactively. Once a raster string is selected, it is added to the selection set and you can convert it now or later.



*Select Horizontal
Text tool*

► To select a horizontal raster text string

1. Select the *Select Horizontal Text* tool.
2. Turn on Convert Now if you want to convert the text string at once, or off if you want to add it to the selection set.
3. Turn on Shrink Selection to Text if you want to automatically adjust the rectangular box to the extent of the text you select, or off if you want to keep control of the size of the rectangular box.
4. Enter two data points to define a rectangular box around the text to convert.

If Shrink Selection to Text is on, the rectangular box automatically adjusts to the extent of the text you selected.

If Convert Now is on, the Convert Text tool is automatically selected for you (see the Convert Text tool below), and you are returned to Select Horizontal Text when you finish with Convert Text.

If Convert Now is off, the selected raster text is added to the selection set and you can continue the multiple selection of raster text with the same tool or with Select Oriented Text.

Select Oriented Text tool

Used to select raster text strings interactively with an oriented rectangular box. Once a raster string is selected, it is added to the selection set and you can convert it at once or later.



Select Oriented Text tool

► To select a raster text string with an angle

1. Select the *Select Oriented Text* tool.
2. Turn on Convert Now if you want to convert the text string at once, or off if you want to add it to the selection set.
3. Turn on Shrink Selection to Text if you want to automatically adjust the rectangular box to the extent of the text you select, or off if you want to keep control of the size of the rectangular box.
4. Enter three data points to define an oriented rectangular box around the text to convert.

When you enter the first point for the origin of the input area, a rubber band appears. Stretch the rubber band to specify the base and the orientation of the rectangle. When you enter another data point, a dynamic rectangle appears, and the third data point finishes the oriented rectangle.

If Shrink Selection to Text is on, the rectangular box automatically adjusts to the extent of the text you selected.

If Convert Now is on, the Convert Text tool is automatically selected for you (see the Convert Text tool below), and you are returned to Select Oriented Text when you finish with Convert Text.

If Convert Now is off, the selected raster text is added to the selection set and you can continue the multiple selection of raster text with the same tool or with Select Horizontal Text.

- ☞ When entering data points for selecting the oriented text, you should be careful in placing the relative positions of the three points. The first point pins the origin of the text. The direction from the first to the second determines the direction of the text. The direction from the second point to the third determines the “upward” position of the text.

Convert Text tool

Used to convert all raster text strings in the current selection set. This tool is automatically activated by Select Horizontal Text or Select Oriented Text when Convert Now is on. Or you can select it to convert a selection set of raster text strings.



Convert Text tool

► To convert a selection set of raster text strings

1. Select the *Convert Text* tool.
The first raster text string of the selection set is centered in the view and its extent is highlighted.
2. Set all parameters in the tool settings window, as explained below.
3. Use the special Text Editor box to manually enter the corresponding text.
4. Click on the forward arrow in the special Text Editor box. The “vector” text string is then placed in the rectangular box previously selected (horizontal or oriented), with the appropriate symbology. Then the next item in the selection set is centered in the view and its extent is highlighted.
5. Repeat steps 2 to 4 until all items in the selection set are converted, or until you stop the process by clicking End in the special Text Editor box.

The Tool Settings (Convert Text)

Theme

Used to select a theme from the open Theme file. If you choose None, the active MicroStation text parameters will be used.

Fit Text

If on, the text is fitted inside the rectangular box selected by the user. The following text attributes are set accordingly: height, width, line spacing, line length, intercharacter spacing, justification and angle. Other text attributes are taken from the MicroStation text settings: font type, underline and slant.

If off, the text is placed by using all attributes from the selected theme and it does not necessarily fit inside the rectangular box selected by the user. However, the extent of the selected box is erased if Erase Raster is on.

Erase Raster

If on, the raster in the selected extent will be erased.

If the current extent is not over the active image, this toggle is disabled.

Auto Set Eraser Color and the color picker

Present with more than two-color images only.

Enabled only if Erase Raster is on.

When Auto Set Eraser Color is on, the color used to erase the raster in the selected extent is chosen automatically. That is the more frequent color in the selected extent, which does not belong to the current color filter.

If Auto Set Eraser Color is off, use the color picker to select the erase color.

Filter

Present with more than two-color images only.

Enabled only if Erase Raster is on.

Used to select a filter from the list of the open Color Filter file. The color filter determines which colors will be erased inside the selected extent.

Eraser Color

Present with two-color images only.

Enabled only if Erase Raster is on.

Used to select which color replaces the erased text. Options are Background (default) and Foreground.

The special Text Editor

Used to manually enter the “vector” text string corresponding to the highlighted raster text string and to control the process of converting the raster text strings in the selection set. It is slightly different from the MicroStation Text Editor.

Text entry field

Used to manually enter the “vector” text strings.

Forward arrow

Places the “vector” text string in the selected extent with the appropriate symbology and goes to the next item in the selection set. If the present item is the last of the selection set, this arrow becomes “End.”

End

Indicates that the present item is the last of the selection set, places the “vector” text string in the selected extent with the appropriate symbology, and closes the Text Editor box.

Backward arrow

Places the “vector” text string in the selected extent with the appropriate symbology and goes to the previous item in the

selection set. This allows you to re-edit the vector text strings you already placed.

If the present item is the first of the selection set, this arrow is not accessible.

Reset

Clears both the text entry field and the contents of the selected extent.

Done

Places the “vector” text string in the selected extent with the appropriate symbology and closes the Text Editor box.

☞ If you re-edit a text string where you erased the corresponding raster data, this data cannot be unerased.

Convert Cell tool

Used to place a cell with the default cell parameters and, if desired, to erase raster where the cell is placed.



Convert Cell tool

► **To place a cell with the default cell parameters**

1. Select *Convert Cell*.
2. Set all parameters in the tool settings window, as explained below.
3. Dynamically move the cell to the desired position and enter a data point.

Convert Horizontal Cell tool

Used to place and scale a horizontal cell or symbol interactively and, if desired, to erase raster where the cell or symbol is placed.

The aspect ratio of the cell is maintained.



Convert Horizontal Cell tool

► **To place and scale a horizontal cell**

1. Select *Convert Horizontal Cell*.
2. Set all parameters in the tool settings window, as explained below.
3. Dynamically move the cell to the desired position and enter a data point to pin the origin and start scaling the cell dynamically.

4. Enter more data points to again move the cell, change its size, and so on.
and/or
Reset to accept the cell.

☞ When entering data points for placing the horizontal cell, you should be careful in placing the relative positions of the two corners. To place the design cell normally, pick the first corner at the bottom left of the rectangle. You can flip the cell by changing the relative positions of the corners.

Convert Oriented Cell tool

Used to place and scale an oriented cell or symbol interactively and, if desired, to erase raster where the cell or symbol is placed.

The aspect ratio of the cell is maintained.



Convert Oriented Cell tool

► To place and scale an oriented cell

1. Select the *Convert Oriented Cell* tool.
2. Set all parameters in the tool settings window, as explained below.
3. Dynamically move the cell to the desired position and enter a data point to pin the origin and start rotating the cell dynamically.
4. Enter more data points to scale the cell, to move it again, to rotate it again, and so on.
and/or
Reset to accept the cell.

☞ When entering data points for selecting the oriented cell, you should be careful in placing the relative positions of the three points in one cycle. The first point pins the origin of the cell. The direction from the first to the second determines the direction of the “right” side of the cell. The direction from the second point to the third determines the “upward” position of the cell. You can flip the cell by changing the relative positions of the corners.

The Tool Settings (Convert Cell)

Theme

Used to select a theme from the open Theme file. If you choose None, the active cell will be used.

- ☞ This option menu is present only with the *Convert Cell* tool. The active cell is always used with the *Convert Horizontal Cell* and the *Convert Oriented Cell* tools.

Erase Raster

If on, the raster in the selected extent will be erased.

This item is disabled if there is no active image.

If the cell is placed over an image which is not the active image or outside all images, you receive a message.

Auto Set Eraser Color and the color picker

Present with more than two-color images only.

Enabled only if Erase Raster is on.

When Auto Set Eraser Color is on, the color used to erase the raster in the selected extent will be chosen automatically. That is the more frequent color in the selected extent, which does not belong to the current color filter.

If Auto Set Eraser Color is off, use the color picker to select the erase color.

Filter

Present with more than two-color images only.

Enabled only if Erase Raster is on.

Used to select a filter from the list of the open Color Filter file. The color filter determines which colors will be erased inside the selected extent.

Eraser Color

Present with two-color images only.

Enabled only if Erase Raster is on.

Used to select which color replaces the erased text. Options are Background (default) and Foreground.