

Spatial Display

DataTips

A *DataTip* is a small box that appears in a TNTgis View window at the cursor position to present location-specific information from the geodata layers. The DataTip appears each time you hover the mouse cursor over the data layers. DataTips can show the cell value from a raster layer, database attributes for elements in geometric objects (vector, CAD, shape, Lidar, and TIN) and database pinmaps, and image thumbnails from a geotagged image database table. Used in combination with element styling and sidebar legends, DataTips allow you to design highly informative displays of your geodata.

You can easily configure DataTips for individual layers in the display using the Layer Controls Window; these settings are saved along with your other display settings in the display parameters for the layer (or with the group or layout settings if the layer is part of a saved group or layout). Using more advanced techniques you can set up a layer to show multiple lines of attribute information in the DataTip, include simple charts and graphs, or even show the result of computations performed on data at the cursor location. Although DataTips can show information from multiple layers in the View, including those currently hidden, controls on the View window allow the viewer to set limits on the amount of DataTip information shown.

DataTip Controls

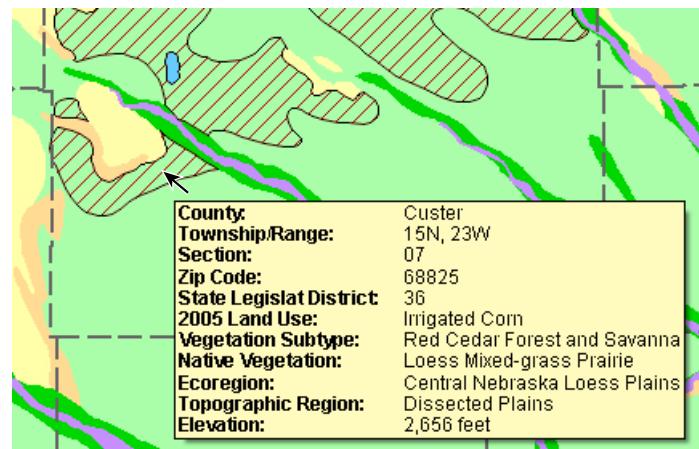
DataTip controls are found in various forms in the Layer Controls windows for raster, terrain, and geometric objects. For objects that can contain multiple element types (vector and TIN), separate DataTip controls are provided for each element type.

Show Menu: The Show menu lets you select whether or not to show the DataTip for the layer and to select the source for its content if shown. Choose the menu option None to not show the DataTip for the layer. The remaining selections on the menu differ by layer type. The Select Attribute option is provided for most layer types; choosing this option opens a Select Table/Field window in which you can choose a field in a database table associated with the geometric elements, raster cell values, or database pins to provide the DataTip text. That table.field reference is then added to the Show menu.

DataTips		
Show	ne_eco_14.US_L4NAME	Highlight
Prefix	Ecoregion:	Suffix
Scale Range Visible	Unlimited to	Unlimited

DataTip controls for a vector element type (above) and for a single-raster layer with units type set (below).

DataTip		
Show	Image Cell Value	
Units	feet	Decimal Places 5
Prefix	DEM_LIDAR:	Suffix ft
Scale Range Visible	Unlimited to	Unlimited



A DataTip can show location-specific information from a number of layers in the View, including those that are not currently visible because they have been manually hidden, are hidden by map scale, or are obscured by overlying layers.

The Show menu for a Lidar layer allows you to choose only certain predefined values of the Lidar points for the DataTip. The menu choices in this case are None, Z, Intensity, Class, and Return Number / Count.

The Show menu is provided for a raster layer if the layer contains a single grayscale raster with an integer data type, which can have a raster database to provide a DataTip value other than raster cell value. In this case the Show menu includes the choices Image Cell Value and Select Attribute. For other raster layer types (and for terrain layers) a Show toggle button is provided instead to toggle the DataTip on or off, and the DataTip automatically shows the raster cell value (or multiple values for a color-composite raster). The DataTip controls for color-separate and multiband raster layers provide a Show toggle for each color component.

Prefix and Suffix: Use the Prefix and Suffix text fields to enter text to be shown before and after the DataTip value, respectively. If a database field is set as the DataTip source, the Prefix text defaults to the name field. For Lidar and terrain layers the prefix text defaults to the type of value shown. For raster layers the prefix text defaults to the object name for single raster layers and to the color component for RGB separate layers.

Units and Decimal Places: A Units menu is shown and active below the Show menu for geometric objects and pinmaps if the DataTip source is a numeric field for which units have been set. It is also shown for grayscale raster layers for which the cell Value type and Unit have been set in the object information for the raster. When you choose a different unit from the menu, the source values are converted to the designated unit before being shown in the DataTip. The Suffix field is set by default to the abbreviation for the selected unit. (continued)

A Decimal Places (or Places) field is provided when the selected source attribute is numeric. This field sets the number of decimal places to be shown in the DataTip value for any units used.

Image Width and Height: If you choose an image or thumbnail field from a geotagged image table as the DataTip source for a geometric or pinmap layer, numeric fields are shown below the Show menu to allow you to constrain the screen size of the image in the DataTip. You can set the Minimum Image Width and Height and the Maximum Width and Height. All values for these fields are in screen pixels.



Scale Range Visible: Scale Range Visible fields are provided in the DataTip controls for most layer types. These fields let you limit the range of map scales over which the DataTip is displayed. For example, you may wish to not show DataTips when the View is zoomed out beyond a certain scale.

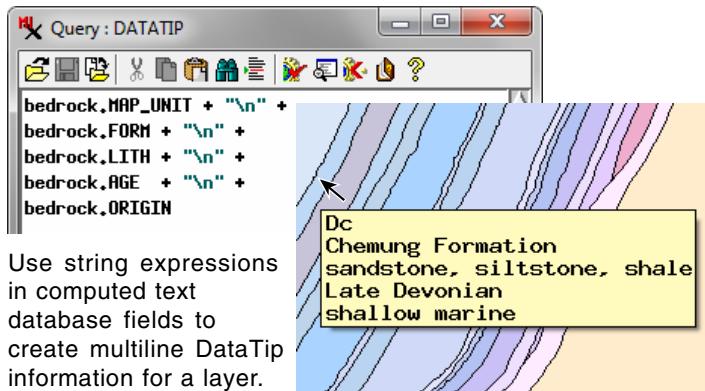
You set up scale control by specifying a minimum (field on the left) and maximum (field on the right) map scale. The minimum map scale controls how far out you can zoom and still show DataTips, while the maximum map scale controls how far you can zoom in.

The Scale Range Visible fields by default are initially set to Unlimited, in which case the DataTip is shown at all map scales.

You can change both scale limits, just one, or neither. To set a map scale for either field, you can enter the full scale fraction (e.g., 1:10000) or just the denominator of the scale fraction (e.g., 10000); the resulting map scale fraction is then shown in the field. To reset a map scale field to Unlimited, enter 0. For more information about scale range, see the Technical Guide entitled *Display Layers, Elements and Groups by Scale*.

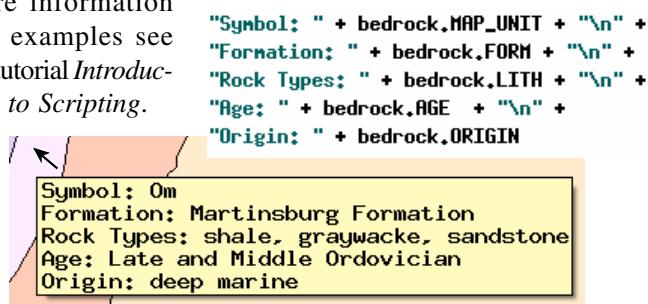
Multiline DataTips

A particular geometric element in a layer may have a number of pertinent attributes stored in different database fields that you may wish to show in a DataTip. To provide multiple lines of attribute information in a layer's DataTip, add a computed text field with a string expression that creates the multiple lines of text, and then set this field as the DataTip source (see illustration below).



Use string expressions in computed text database fields to create multiline DataTip information for a layer.

A string expression can reference other database fields in the same or a related table and concatenate the returned values with text. References to string fields can be used directly, but values returned by numeric fields must be explicitly converted to a string in the expression using the sprintf() or NumToStr() functions. Raw text strings, such as prefix or suffix text and the newline character (\n) used to create line breaks, must be enclosed in double quotes. You can concatenate strings and field references by simply using the addition operator (+) or use the sprintf() function to create a formatted string. For more information and examples see the tutorial *Introduction to Scripting*.



Adding Formatting for DataTips

You can use text formatting to enhance the readability of DataTips and to add emphasis to data from particular layers. For example, you may wish to use bold text for the prefix for each entry and show the prefix and value text aligned in separate columns (as in the illustration at the top of the previous page). You can use formatting codes provided by MicroImages for this purpose, as described in the TechGuide entitled *Add Styling to DataTips*, or use HTML markup and Cascading Style Sheet (CSS) style methods for formatting, as described in the TechGuide *Design DataTips using HTML*.

DataTip Colors

You can change the colors used for DataTips (and for interface ToolTips) in all TNTmips processes in the General System Preferences window (Tools / System / Preferences from the TNTmips menu). Press the *ToolTip and DataTip Colors* pushbutton to open a Select Colors window in which you can choose or create colors for the background, border, and text.

Enhance DataTips Using Scripts

Display Control Scripts can be used to modify and enhance the DataTip content. A display control script can access the cursor position as the DataTip is about to appear, use this position to obtain data from one or more layers, and present the data or results computed from it. The script can set text styles, add to or replace the standard DataTip text, and draw simple pie charts or bar graphs in the DataTip. For more information see the TechGuide entitled *Enhance DataTips Using Scripts*.

View Window DataTip Options

Viewers can set general viewing options for DataTips in the View window using the Options / DataTips menu. These options include turning off DataTips or showing them only for the active/top Layer or just for visible layers, among others. See the Tech Guide entitled *View Window DataTip Options* for more information.