MrSID Viewer 2.0 for Windows 95/NT4.0

WHAT IS MRSID?

Introducing MrSID

MrSID image compression and decompression software offers users high-quality image-compression capabilities, along with the ability to view images quickly and easily on multiple platforms, or over the Internet. MrSID compression software takes images of virtually any size and compresses them into easily-manageable image files; the MrSID viewing products allow users to view, navigate, export, and print MrSID files. With the MrSID Image Server, highly-detailed imagery, with file sizes from megabytes to terrabytes, can be viewed quickly over the Internet.

WHAT IS THE MRSID VIEWER?

Introducing The MrSID Viewer

Each MrSID image file contains data from multiple resolutions built into a single pixel database. The MrSID Viewer starts viewing an image with the smallest resolution view, and allows you complete control to zoom, pan, navigate and investigate through larger and smaller zoom levels. The Viewer uses "selective decompression," decompressing only the portion of an image necessary for viewing. This makes rapid viewing of large images possible, while maintaining maximum image quality.

Contents

Be sure to review any additional accompanying documentation for support issues and license information.

System Requirements

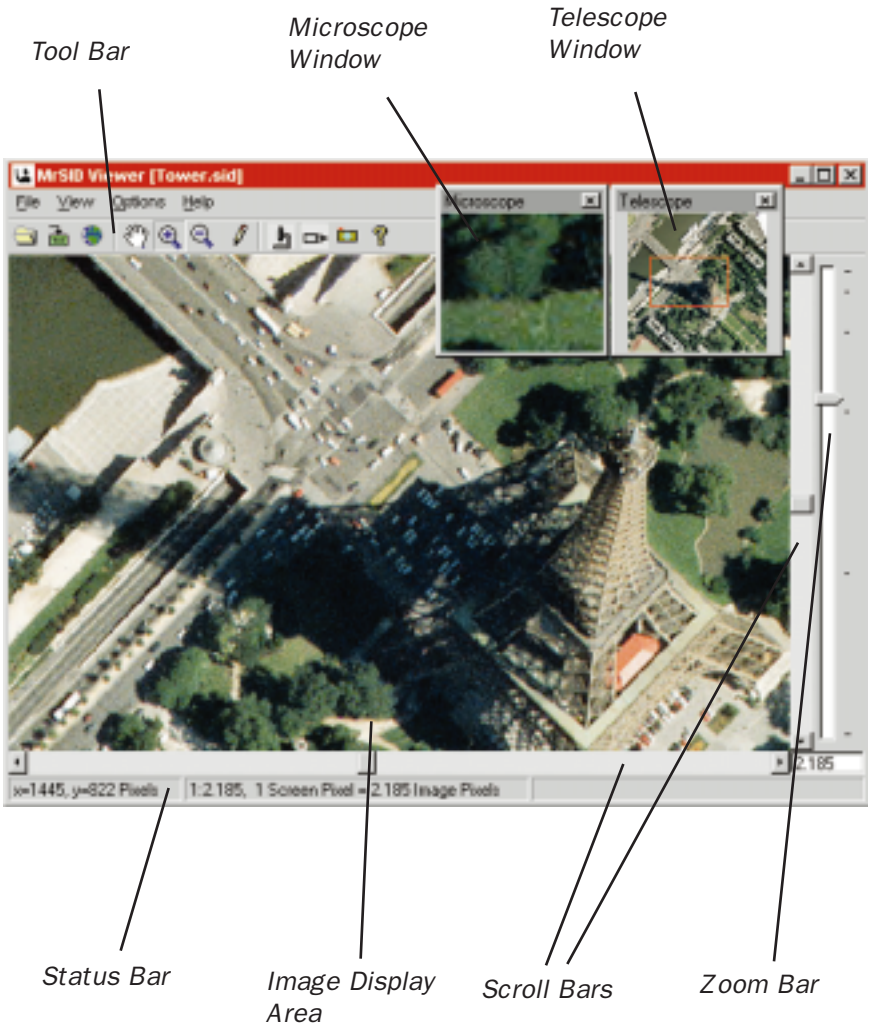
This version of the MrSID Viewer is configured to run on Windows 95 or Windows NT 4.0. We recommend there be a minimum of 2 megabytes RAM available for the program.

Installation

- Double-click on the MrSID Viewer install icon.
- Follow the instructions presented by the installation application.

The MrSID Viewer Window

The image below outlines the basic sections of the MrSID Viewer window.



For an explanation of the different functions of the Viewer window, click on the different sections in the image above.

The Viewer Toolbar

The Toolbar runs along the top of the MrSID Viewer Window. Each button offers a separate image-viewing function.

For an explanation of each viewing function, click on its icon in the toolbar above.

The Open Button

The Open button. You can also choose "Open" from the "File" menu.

The Open Button allows you to select a MrSID image to open.

When you click the Open button, the standard Windows Open File dialog box appears. Navigate to the drive and directory where a MrSID image is stored. Select a MrSID image (.sid extension) and click OK.

You can also open a MrSID image by double-clicking the image icon, or by dragging a MrSID image from the Windows Explorer into the MrSID Viewer window.

THE IMAGE EXPORT BUTTON

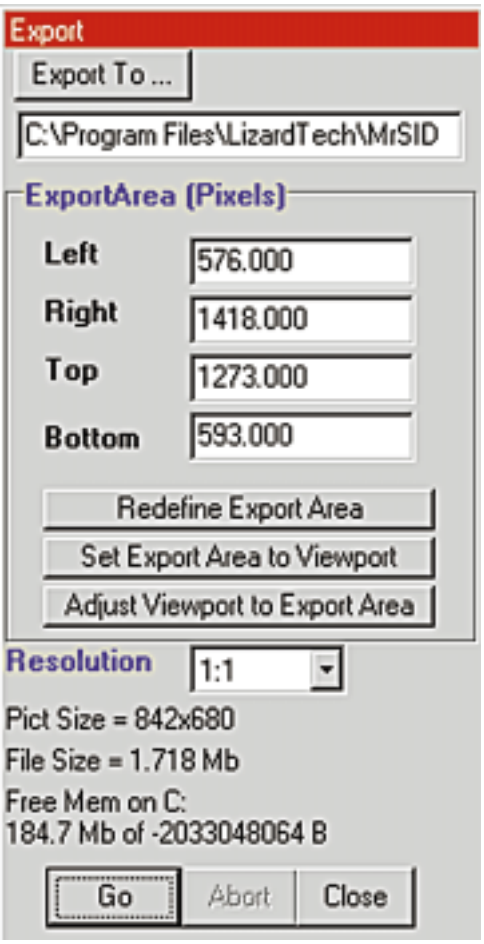
The Image Export Button

The Image Export button. You can also choose "Export" from the "Options" menu.

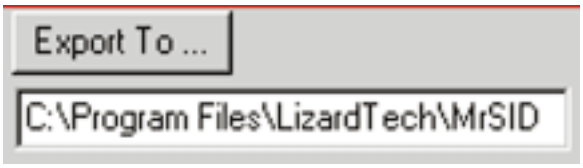
The Export button calls up the Export dialog box, which allows you to export data from your MrSID image to TIFF format.

THE EXPORT DIALOG BOX

The Export Dialog Box

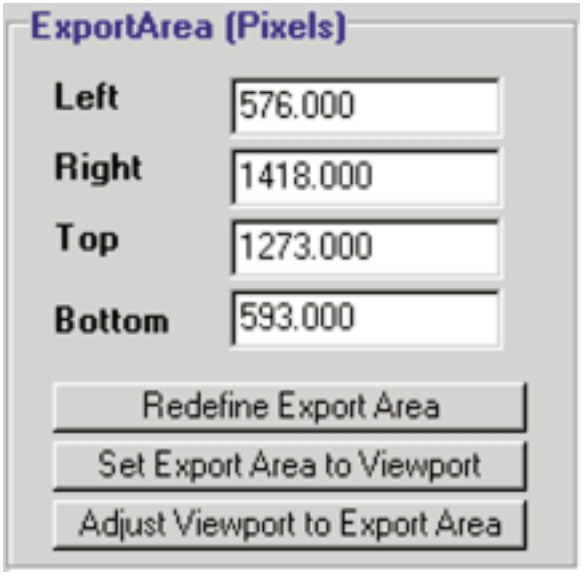


The Export dialog box. While the dialog box is open, you may continue to move around the image normally with the pan and zoom controls. Export options are explained on the following pages.



The "Export To..." button and field. You can also choose "Export" under the "File" menu.

Pushing the "Export To..." button calls up the standard Windows "Save As" dialog box for selecting a path and filename. You may also type a path and filename directly in the "Export To..." field. If you type in a directory which does not exist, the MrSID Viewer will create it for you before exporting your image.



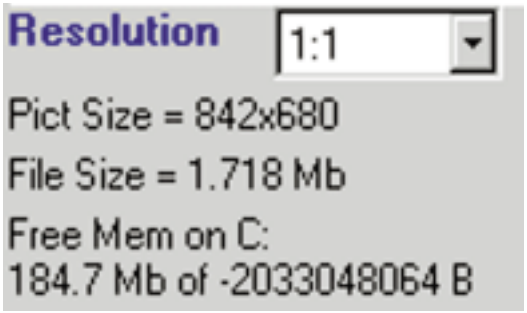
The Export Area section of the Export dialog box has fields for defining the area of your image which you wish to export. In the Left, Right, Top, and Bottom fields you may enter the coordinates of the area to be exported. The exported image will contain all data within these boundaries, inclusive.

If your MrSID dataset has an associated geographic positioning file (world file, .sidw), the boundaries of the export area are given in the world file's coordinate system. If your MrSID dataset does not have an associated world file, the boundaries of the export area are given in pixel coordinates.

Press the "Redefine Export Area" button to define your export area using the mouse. After pushing this button, the mouse cursor turns to a hand. Drag a rectangle surrounding the area you want to export. A blue line shows the boundaries of the export area, and the Left, Right, Top and Bottom fields update automatically.

Press the "Set Export Area to Viewport" button to set the export area to the area currently displayed. The Left, Right, Top and Bottom fields update automatically.

Press the "Adjust Viewport to Export Area" button to set the viewport to the current export area. The image display pans and zooms to fit the export area within the viewport.



The Resolution pull-down menu. Different resolutions will affect the file size and detail of your exported image.

Use the "Resolution" field pull-down menu to select the resampling ratio for your exported file. The values in the Resolution field are the number of pixels in the original MrSID image which will be resampled into a single pixel of the exported TIFF file. 1:1 resolution exports the data pixel-for-pixel with no resampling. 1:2 resolution gives you one pixel in the exported file for every two pixels in the original MrSID image, etc.

The Pict Size information field shows the size of the exported image in pixels, in the form (width x height).

The File Size information field shows the size of the exported image in megabytes.

The Free Space information field shows how much free disk space is available on the disk drive you are exporting to.

Push the Go button to begin exporting.

Press the Abort button to stop the export while it is running.

Press the Cancel button to turn off the Export dialog box without exporting an image.

Export Results

When the MrSID Viewer successfully exports an image, it creates a TIFF file in the directory specified in the "Export to..." field. Accompanying the TIFF file will be a geographic positioning file, or "world" file, with the extension .tfw.

If you export from a MrSID image which has a geographic positioning file (a "world" file with the extension .sidw), the coordinates in the exported .TFW world file will be given in the coordinate system of the original .SIDW world file.

If the original MrSID image has no world file, the coordinates in the exported .TFW world file will be in pixels, with an origin of (0,0) in the upper left corner of the image.

The View Full Dataset Button

The View Full Dataset button. You may also choose "Full View" from the "View" menu.

When you press the View Full Dataset button, the MrSID Viewer zooms out as far as possible, so that the entire image will fit in the display window.

The Pan Button

The Pan button. You may also choose "Pan" from the "View" menu.

The Pan button changes the mouse cursor to pan mode.

With the cursor in pan mode, click and hold the mouse button; you can drag the image data in any direction. When you release the mouse button, the new location will come into focus.

This is an alternative to panning with the scroll bars (see page 16 of this guide).

The Zoom In Button

The Zoom In button. You may also choose "Zoom In" from the "View" menu.

The Zoom In button changes the mouse cursor to zoom-in mode.

With the cursor in zoom-in mode, click-and-drag over an area of your image; the selected area will be brought into focus in the Viewer window. In addition, you can double-click on a point of your image; the display centers on the point you double-clicked, and zooms out one resolution level.

The Zoom Out button

The Zoom Out button. You may also choose "Zoom Out" from the "View" menu.

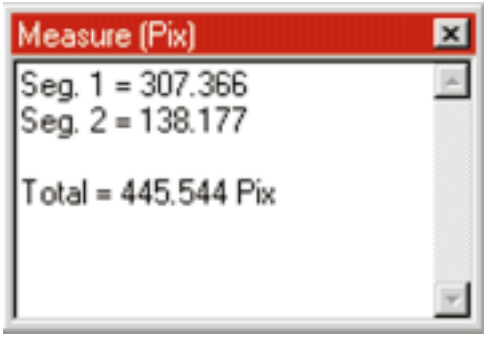
The Zoom Out button changes the mouse cursor to zoom-out mode.

With the cursor in zoom-out mode, double-click at any point on your image. The display centers on the point you double-clicked, and zooms out one resolution level.

The Measure Button

The Measure button. You may also choose "Measure" from the "View" menu.

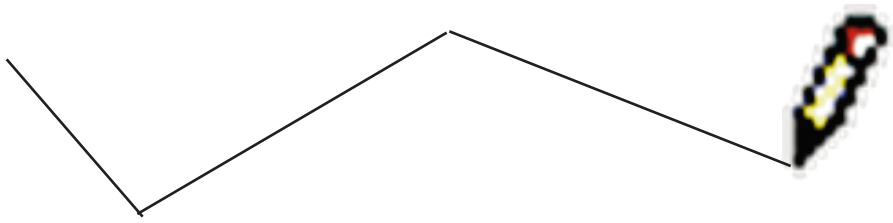
The Measure button toggles the cursor to measurement mode and calls up the Measure window.



With the cursor in measurement mode you can draw a polyline (a series of linked line segments) and the program will display the length of each of the lines you draw.

The Measure button

Click once to begin measuring.



Move the mouse, and a "rubber-band" line will track the cursor, with one end anchored at the first point you clicked. The Measure window shows the length of the line segment.

Click on a second, third, or additional points to measure additional segments of your polyline. The Measure window shows the length of each line segment in turn. Click twice on the last point in your polyline to finish measuring. The Measure window shows the total length of the polyline.

You can select the text in the Measure window and copy it to the clipboard.

If your MrSID image has an accompanying geographic referencing file (world file – extension .sidw or .swf), the Measure window shows distances in the coordinate system of the world file. If your MrSID image doesn't have a world file, the Measure window shows distances in pixel coordinates.

If you measure with the Microscope window open, the Microscope window displays a crosshair and your measurement line so you can see detailed imagery around the point you are measuring.

If you click on the zoom-in, zoom-out, or pan buttons while in measurement mode, measurement mode will be deactivated and the Measure window will be closed.

The Microscope Button

The Microscope button. You may also choose "Microscope" from the "View" menu.

The Microscope button opens and closes the Microscope window, which displays the area around the cursor at 1:1 pixel resolution and tracks in near-real-time as you move the mouse.

You can resize the Microscope window to any size you wish.

If you use the Measuring tool while the Microscope window is open, the Microscope window displays a crosshair and your measurement line so you can see detailed imagery around the point you are measuring.

The Telescope Button

The Telescope button. You may also choose "Telescope" from the "View" menu.

The Telescope button opens and closes the Telescope window, which displays a thumbnail overview of your entire MrSID image for quick navigation.

The Telescope window shows an overview of the entire image with a red viewport frame indicating the area currently displayed in the viewer window.

If you put the mouse cursor inside the viewport frame, the cursor changes to a hand and you can drag the frame to any area of interest. That area will then be displayed in the main viewer window. The zoom level will not change.

If you put the mouse cursor outside the viewport frame, the cursor changes to a magnifying glass with a crosshair inside and you can click-and-drag a new viewport over an area of interest. When you release the mouse, the viewport frame will change to reflect the aspect ratio (width and height) of the main viewer window and your new area of interest will be displayed in the main viewer window. The zoom level will change to match the size of the viewport you selected.

The Telescope window cannot be resized.

The Screen Grab Button

The Screen Grab button. You may also choose "Copy to Clipboard" from the "Options" menu.

The Screen Grab button copies the current image display to the Windows clipboard. You can then paste the imagery into other applications.

The Screen Grab button is inactive while the imagery is redrawing.

The Help Button

The Help button calls up the MrSID Viewer's on-line help program.

The Image Display Area

The Image Display Area is the part of the window that displays your MrSID image. The display updates in near-real-time as you pan and zoom.

Display speed is fastest using monitors set to 16- or 24-bit color. Due to dithering, monitors set to 8-bit will move more slowly.

The Scroll Bars

The MrSID Viewer has two scroll bars for panning the image data. The left-right scroll bar is located across the bottom of the image display area. The up-down scroll bar is located across the right side of the image display area.

The scroll bars' indicators show the position of the current view within your MrSID image.

To pan left, right, up or down, drag the position indicators in the scroll bars in the direction you want to pan.

You can also pan the image by using the mouse cursor in pan mode (see page 9 of this guide).

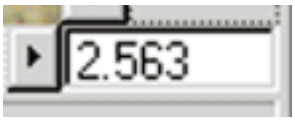
The Zoom Bar

The MrSID Viewer has a zoom bar for changing the zoom level (magnification) of the image data. The zoom bar is the vertical bar on the right side of the viewer window. The zoom bar consists of a vertical track with a slider which you drag up and down to change the zoom level.

The tick-marks on the zoom bar show the resolution levels actually stored in your MrSID image. If you select a zoom level in between two tick marks, the imagery will be generated by interpolation from the closest stored resolution level.

Drag the zoom slider downward to zoom in (magnify the image). Drag the slider upward to zoom out (reduce the image). As you drag, the viewer program zooms the image in near-real-time. When you release the mouse button, the program redraws the image at the resolution you have set.

The Pixel Size Indicator



The relative pixel size of the image is displayed in a text box directly below the zoom bar.

If your MrSID image has an associate geographic referencing or "world" file (.sidw or .swf), the pixel size indicator shows the pixel size of the current image display expressed in the same geographic units as the world file.

If your MrSID image does not have a world file, the pixel size indicator shows the resampling ratio of the current image display. A value of 1.000 indicates the imagery is being displayed at 1:1; a value of 10.000 indicates ten pixels in the original image are being resampled into one pixel in the display; etc.

If the geographic pixel size is equal to or greater than the size of a single pixel, or if the resampling ratio is one or greater, the pixel size is shown in black. If the geographic pixel size is smaller than the size of a single pixel, or if the resampling ratio is less than one, the pixel size is shown in red.

To set a specific pixel size, enter the size in the text box and press Enter. The image will be redrawn at the pixel size you set.

The Status Bar

The status bar shows redraw progress after panning or zooming. When no redraw is in progress, the status bar shows the coordinates of the mouse cursor, the current scale ratio, and the plain-text description of the scale.

The coordinates of the mouse cursor are displayed in the scale units set in the Display Units dialog box.

The scale ratio shows the ratio of one screen unit to one scale unit.

If the MrSID image currently being displayed has a geographic referencing or "world" file (.swf or .sidw), all coordinates are given in the world file's coordinate system. If the MrSID image has no world file, coordinates are given in pixels, with an origin of (0,0) at the lower left corner of the image.

The Display Units Dialog Box

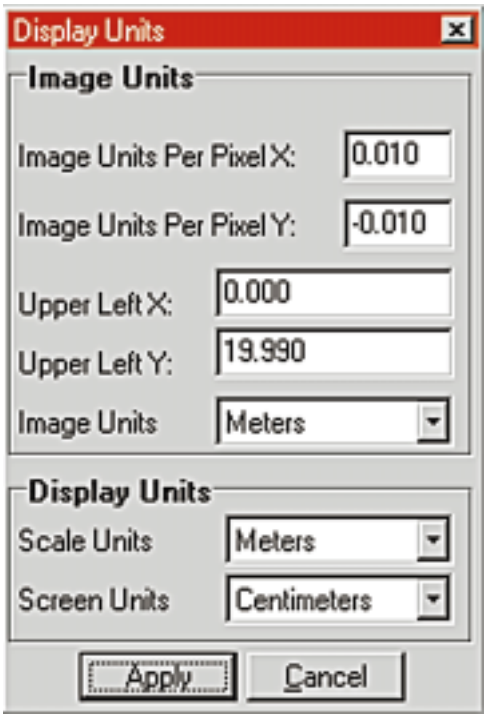
The "Display Units" dialog box offers an overview of the dimensions of your image, as well as the system of measurement used.

To open the Display Units dialog box, select "Units" under the "Options" menu.

Opening the Display Units dialog box.

The Display Units dialog box is used to set the three different units used by the MrSID Viewer – image units, screen units, and scale units.

The dialog box has two sections, Image Units and Display Units.



The Image Units section

The Display Units section

See the following page for a description of each section of the Display Units dialog box.

Image Units section

In the Image Units section, set parameters for the image units of the current MrSID dataset.

In the Image Units Per Pixel X field, enter the numerical value of the real-world distance represented by travelling one pixel left-to-right in your MrSID dataset in the X direction.

In the Image Units Per Pixel Y field, enter the numerical value of the real-world distance represented by travelling one pixel top-to-bottom in your MrSID dataset in the Y direction.

In the Upper Left X field, enter the real-world X coordinate of the upper left corner of your MrSID dataset.

In the Upper Left Y field, enter the real-world Y coordinate of the upper left corner of your MrSID dataset.

In the Image Units field, select the measurement unit (inches, meters, etc.) in which image units are expressed for this MrSID dataset.

If your MrSID dataset has a georeferencing file ("world file" – .sidw or .swf) then by default the MrSID Viewer fills the numerical fields in the Image Units section with the values given in the world file, and sets the Image Units field to Meters.

If your MrSID dataset does not have a world file, then by default the MrSID Viewer fills the fields in the Image Units section with values equivalent to a pixel size of 0.01 inches, which is approximately the actual physical size of a pixel on a typical computer screen.

The Display Units dialog box

Display Units section

In the Display Units section, set the measurement units (inches, meters, etc.) to be used for expressing scale units and screen units.

Press the Apply button to apply any changes you have made in the Display Units dialog box. All of the MrSID Viewer's coordinate readouts will update to reflect the changes. Readouts that are affected include the mouse cursor coordinates, the scale ratio and plain-text scale in the status bar, coordinates of the export area in the Export dialog box, and the distances shown in the Measure window.

See the following page for definitions of the different units of measurement used by the MrSID Viewer.

Units of Measurement

The MrSID Viewer uses three different units of measurement: image units, screen units, and scale units. The three different unit types may seem complicated at first, but they are needed in order to properly calculate measurement distances and scales for geographic data.

Image units are the real-world size represented by one pixel in the MrSID dataset. For example, one pixel in a MrSID image file might represent 25 cm x 25 cm in the real world.

Image units are expressed with two numerical values, one for the X dimension and one for the Y dimension of each pixel in the real world, plus a distance unit (inches, meters, etc.).

If your MrSID dataset has a geographic referencing file (world file, .sidw), then the MrSID Viewer reads the numerical values for the X and Y image unit dimensions from the world file. However, the world file does not contain the distance unit (inches, meters, etc.), so if you want the MrSID Viewer to display distances using the correct distance units, you need to set the distance unit manually in the Display Units dialog box (see below).

If your MrSID dataset does not have a geographic referencing file, then by default the image units will be set to 0.01 inches in both X and Y dimensions. 0.01 inches is approximately the size of one pixel on a typical computer monitor.

Screen units are for users who actually want to measure distances on their computer screens and convert them to approximate real-world distances represented by MrSID imagery. If you are measuring distances on your screen with a metric ruler, set the MrSID Viewer's screen units to centimeters. If you are measuring distances on your screen with an English ruler, set the MrSID Viewer's screen units to inches. If you are measuring distances on your screen in pixels, set the MrSID Viewer's screen units to pixels.

Scale units are the units in which the MrSID viewer shows all coordinates.

The mouse cursor coordinates shown in the status bar and the distances shown in the Measure window are always given in scale units.

The coordinates (origin and extent of the export area) shown in the Export dialog box and written to the exported world file are also always given in scale units.

Following are some examples that will demonstrate the differenct measurement systems used.

Units of Measurement examples

EXAMPLE 1: If you have a dataset whose real-world pixel sizes (image units) are in meters, and you want the MrSID Viewer to give all coordinates and distances in meters, then you would set the MrSID Viewer's image units to meters and the scale units also to meters.

EXAMPLE 2: If you have a dataset whose real-world pixel sizes (image units) are in meters, but you want the MrSID Viewer to show all coordinate readouts in kilometers, then you would set the MrSID Viewer's image units to meters but the scale units to kilometers.

EXAMPLE 3: If you have a dataset whose real-world pixel sizes (image units) are in meters, but you want the MrSID Viewer to show all coordinate readouts in inches, then you would set the MrSID image units to meters but the scale units to inches. The MrSID Viewer will then make all the coordinate conversions for you.

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