



ProRaster Premium Feature Sheet

What is ProRaster Premium?

ProRaster Premium is an advanced raster rendering application. Render and explore rasters of any size or format, displayed in stunning clarity and rendered with industry-leading speed. Create, edit, display, export, and publish raster rendering algorithms that combine any rasters, regardless of differing coordinate system, cell size, or band structure.

Quickly and easily create a rendering algorithm for one or more rasters and see it rendered in the interactive preview map. Undock the map window so you can resize or maximise the view. Open multiple map windows for each algorithm.

Save your algorithms to MRD file and export to located images of any size that you can display in any GIS or mapping application that supports located imagery. Publish your algorithms to the latest version of MapInfo Pro. MapInfo Pro will display the algorithm in a map, retaining the full resolution and detail of the original rasters.

High Level Overview

- Create, open, and edit multiple algorithms simultaneously and generate default algorithms for rasters.
- Render the algorithm in one or more interactive undockable maps supporting zoom and pan. Display the data values and coordinates at any pixel in a floating tooltip.
- Export located imagery, of any size and at any scale, to a variety of standard formats.
- Publish algorithms to the latest version of MapInfo Pro, optionally clipping the algorithm to a polygon.
- Prepare your raster data using the Raster Source Editor, combine rasters together for convenience and control how rasters are loaded.
- Build, edit and import color look-up tables in the Color Table Editor.
- Build and edit Data Conditioning Filters for application to raster data prior to rendering.
- Build and edit custom data transforms in the Data Transform Editor.

Algorithm Editing

- Open algorithm MRD files for display and editing.
- Create default algorithms for rasters or raster sources.
- Create default algorithms for WebMaps (WMS - georeferenced map images and data).
- Create algorithms that match rendering styles for a raster in MapInfo Pro.
- Create new algorithms with a one or more Image, LUT Color, or RGB Color layers.
- Add, delete, and reorder layers.
- Add default layers for rasters, raster sources, WebMaps, or WebMap Overlays. A WebMap Overlay layer is a greyscale transparent WMS map that preserves detail (like roads and place names) whilst removing other map information to maximise the color saturation of underlying raster layers.
- Edit multiple algorithms simultaneously using undo and redo.
- The floating Time Control Panel is used to change the event time in an algorithm (to go forward or backwards in time, or to a specific time).
- Render the algorithm as you edit it in an interactive preview map or one or more undocked map windows.
- Zoom and pan the map using the mouse and define zoom ranges manually.
- Display the data values and coordinates at any pixel in a floating tooltip and acquire a deep pixel report by double clicking on any map.
- Save your algorithm to an MRD file.

Imagery Export

- Render an algorithm and export to a located image in MRR, GeoTIFF, or BIL format.
- Clip to the current map extents or to a polygon. The clipping polygon must be stored in a MapInfo Pro TAB format file. Complex polygons sets are supported including multiple polygons, and polygons with holes and islands.
- Precisely control the resolution, size, and extent of the image.



Publishing

- Publish your saved algorithm in the latest version of MapInfo Pro. This loads the algorithm and displays it in a map. MapInfo Pro will access the source rasters when it displays the algorithm to guarantee high quality rendering at any scale.
- Clip your algorithm to a polygon and publish it in the latest version of MapInfo Pro. The clipping polygon must be stored in a MapInfo Pro TAB format file. Complex polygons sets are supported including multiple polygons, and polygons with holes and islands.

Raster Source Editor

- The Raster Source Editor is used to create and edit raster source objects.
- A Raster Source is a global resource you can use in your algorithms to easily connect rasters to layer components.
- A raster source can link to one or more rasters, or all rasters in one or more folders.
- Render multiple rasters with a single layer in the algorithm using a raster source.
- Use the Validate, Clean and Prepare processing operations to build statistics and overview pyramids.
- Exercise control over how the raster engine mounts a raster Control by defining driver preferences.
- Acquire a raster information report, including statistics.

Color Table Editor

- The Color Table Editor is used to create, edit, and import color ramps, color tables, color maps, and color legends. You will use these global resources in the LUT Color layer in your algorithm.
- Color Ramps are simple color lookup tables that interpolate between two defined colors in RGB or HSL color space.
- Color Tables are color lookup tables that interpolate between multiple defined colors in RGB or HSL color space.
- Color Maps are color lookup tables that associate a data value with every defined color. They define both the data-color mapping and the color for a LUT Color layer.
- Color Legends are color lookup tables that associate a data value, data range, or text string with a defined color. They define both the data-color mapping and the color for a LUT Color layer.
- Link a folder to import all recognised color tables or color maps discovered in that folder.
- Automatically create a custom color table for a classified raster.

Data Conditioning Editor

- The Data Conditioning Editor is used to create and edit Data Conditioning Filters that can be applied to any raster in a component on-the-fly.
- Invalidate values, ranges of values, and ranges of color values to remove them from the raster on-the-fly.
- Apply a linear transformation to scale and translate raster values on-the-fly.
- Cap raster values to minimum and/or maximum values on-the-fly.
- Convert invalid values to a background value.

Data Transform Editor

- The Data Transform Editor is used to create and edit customised data transforms that are used in LUT Color and RGB Color layers to transform raster data values to color table indices.
- Create a data transform from any of the standard data transforms and customise it.
- Create unrestricted customised data transforms from tabulated data in a variety of ways.
- Display a preview map showing the transform applied to a raster of your choice.
- Display summary and distribution statistics for a raster of your choice.

Algorithm Properties

- Override the Coordinate System of the algorithm. All rasters will be reprojected into this coordinate system.



- Set a default Valid Cell By Component (VCBC) rule for all layers to determine whether pixels will be rendered if data is missing from one or more components.
- Reverse the layer rendering order.
- Fix the interpolation method for Color/Red/Green/Blue/Image and Intensity components. Options include Nearest, Linear, or Cubic.
- Define the invalid pixel color and opacity.
- Define the background pixel color and opacity.
- Specify the blending rule (opacity – transparency) and related properties.
- Override the Intensity component shadow and highlight parameters (to control hill shading for all layers).

Layer Properties

- Define one or more LUT Color layer, RGB Color layer, or Image layers in the algorithm.
- LUT Color layers have Color, Intensity, and Opacity components.
- RGB Color layers have Red, Green, Blue, Intensity, and Opacity components.
- Image layers have Image, Intensity, and Opacity components.
- Define or override the Coordinate System of the layer if unknown or incorrect.
- Override the VCBC rule for this layer.
- Disable cell value reporting for a layer.
- Convert all color to greyscale.
- Set the Color – Intensity balance for the layer to balance color saturation and hill shading intensity.
- Set the opacity for the layer when blending.
- Define the interpolation method for Color/Red/Green/Blue/Opacity components.
- Ignore alpha (opacity) data in Image layers.

Component Properties

- For each component, select the Raster Source or browse to a raster. Specify the field and band. Specify the time range of data to accumulate.
- Select a Data Conditioning Filter if desired.
- Define or override the Coordinate System of the component if unknown or incorrect.
- Adjust the resolution of the layer, used to control WebMap scale and detail.
- For Color/Red/Green/Blue/Opacity components, select a data-color transform to map data to color index.
- For Color components, select a color table. Red/Green/Blue/Opacity components have a fixed color table.
- Option to clip to specified limits to prevent rendering of pixels.
- Option to reverse the color table.
- Define the interpolation method, if not overridden by the layer or algorithm.
- For Color/Red/Green/Blue/Opacity components where the data transform is based on statistical data, define an alternative raster source for those statistics.
- For the Intensity component, enable Shadow and specify the azimuth, altitude, and scale.
- For the Intensity component, enable Highlight and specify the azimuth, altitude, and scale.
- For the Intensity component, specify a manual scale.

Coordinate Systems

- Projection Explorer provides access to hundreds of defined coordinate systems.
- Search for appropriate coordinate systems graphically or by EPSG code or any other text.
- Create custom coordinate systems.

Data Transforms

- Select from a wide variety of standard transforms, many of which can be modified by setting clipping limits manually, as a percentage, or as a percentile.
- Non-transforms - Pass (Scaled, Index, Value), Rotate Index
- Linear transforms - Color Bits, Linear



- Non-linear transforms - Logarithmic, Equal Area (Fast, Stable), Sigmoid (Lightening, Darkening)
- Ranges – Ranges (over full range, between defined limits), Quantile Ranges
- Ranges - Ranges (about the mean, median, mode), Deviations about the mean
- Ranges - Jenks Natural Breaks.
- Select any system or user defined color map.
- Select any custom designed data transform.

Compatibility

- Located imagery (RGB/RGBA) is created in MRR, GeoTIFF, or BIL format. MRR format imagery can be displayed in MapInfo Pro 2015+. GeoTIFF and BIL format imagery can be displayed by a very wide variety of GIS and mapping applications.
- Rendering algorithm files (MRD) are compatible with other tiers of ProRaster and MapInfo Pro 2021+ (see below).

Restrictions (compared to ProRaster Scientific)

- Mask components are not supported.
- Pan components are not supported.
- There is no support for multispectral satellite imagery (although you can load products that you create in ProRaster Scientific into ProRaster Premium).
- There is no support for raster processing operations (although you can load virtual rasters that you create in ProRaster Scientific into ProRaster Premium).

Incompatibility

Rendering Algorithms in ProRaster are more advanced than in MapInfo Pro. Some features that are implemented in ProRaster are unsupported in MapInfo Pro, and some features are not properly supported.

- The Non-transforms - Pass (Scaled, Index, Value), and Rotate Index - may not work correctly.
- Clipping pixels beyond and between data limits is not supported.
- Opacity and alpha pixel values are poorly supported.
- Color table data transforms may not produce the desired effect.
- Range data transforms may not produce the desired effect.
- Table data transforms may not produce the desired effect.
- Outlier bin clipping may not produce the desired effect.
- VCBC rule "All to..." options are not supported.
- Manual zooms to establish algorithm spatial clipping bounds are not supported.
- Support for named rasters in ZIP file archives is not available.
- GeoTIFF rasters can be mislocated half a raster cell to the south and east affecting rasters produced by ARC GIS, including Landsat data.
- Layer resolution adjustment is not supported.
- WebMaps and some other raster formats are not supported.
- Data Conditioning Filter transforms are not supported.

Contact

ProRaster Premium is developed by Roberts Geospatial Engineering. Our software is proudly designed, developed, and supported in Australia. For more detailed information on all the features of ProRaster Premium, please download the ProRaster User Guide from the Roberts Geospatial website.

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