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ProRaster Essential Feature Sheet

What is ProRaster Essential?

ProRaster Essential is exclusively for users of the latest version of MapInfo Pro (with or without the MapInfo Pro Raster add-in). It provides an advanced but simple to use rendering capability for rasters (grids and images) that breaks through the restrictions and limitations in MapInfo Pro. Combine any rasters in an algorithm, 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. Create, edit, and display raster rendering algorithms that contain rasters of unlimited size. Render and explore rasters of any size or format, in stunning clarity and with industry-leading speed.

Save your algorithms to MRD file and 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

- Exclusively for users of the latest version of MapInfo Pro. Design your raster rendering algorithm in ProRaster Essential, then push them across (publish) to MapInfo Pro for display in a map.
- Create, open, and edit multiple algorithms simultaneously and generate default algorithms for rasters.
- Render the algorithm in an interactive preview map supporting zoom and pan. Display the data values and coordinates at any pixel in a floating tooltip.
- 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.

Algorithm Editing

- Open algorithm MRD files for display and editing.
- Create default algorithms for rasters or raster sources.
- Create algorithms that match rendering styles for a raster in MapInfo Pro.
- Create new algorithms with a single Image, LUT Color, or RGB Color layer.
- Edit multiple algorithms simultaneously using undo and redo.
- Render the algorithm as you edit it in an interactive preview map.
- 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.
- Save your algorithm to an MRD file.

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.

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.
- 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.
- Override blending, to ignore opacity/alpha values in Image layers.

Layer Properties

- Define a single LUT Color layer, RGB Color layer, or Image layer in the algorithm.
- LUT Color layers have Color and Intensity components.
- RGB Color layers have Red, Green, Blue, and Intensity components.
- Image layers have Image and Intensity components.
- Define or override the Coordinate System of the layer if unknown or incorrect.
- Override the VCBC rule for this layer.
- Convert all color to greyscale.
- Set the Color – Intensity balance for the layer to balance color saturation and hill shading intensity.

Component Properties

- For each component, select the Raster Source or browse to a raster. Specify the field and band.
- Define or override the Coordinate System of the component if unknown or incorrect.
- For Color/Red/Green/Blue components, select a data-color transform to map data to color index.
- For Color components, select a color table. Red/Green/Blue components have a fixed color table.
- Option to clip to specified limits to prevent rendering of pixels.
- Option to reverse the color table.
- 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.

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- 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.

Compatibility

- Rendering algorithm files (MRD) are only compatible with ProRaster and MapInfo Pro 2021 or later.

Restrictions

Compared to ProRaster Premium, ProRaster Essential has these major restrictions:

- Exporting the rendered algorithm to a located image raster is not supported.
- The Data Transform Editor is not supported.
- The Data Conditioning Editor is not supported.
- External resizeable map windows are not supported.
- Multiple layers in an algorithm are not supported.
- Opacity components are not supported.
- Layer transparency and blending are not supported.
- Event selection (the temporal dimension) is not supported.
- The Data Transform Editor is not available, limiting the flexibility of data transforms.
- Data Conditioning Filters are not supported.
- Transform raster sources are not supported.
- Format support in the GDAL driver is limited. For example, the WMS driver is not supported, preventing the use of web mapping services.

Compared to ProRaster Scientific, ProRaster Essential has these additional restrictions:

- 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 Essential).
- There is no support for raster processing operations (although you can load virtual rasters that you create in ProRaster Scientific into ProRaster Essential).

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.

- 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.

Contact

ProRaster Essential 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 Essential, please download the ProRaster User Guide from the Roberts Geospatial website.

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