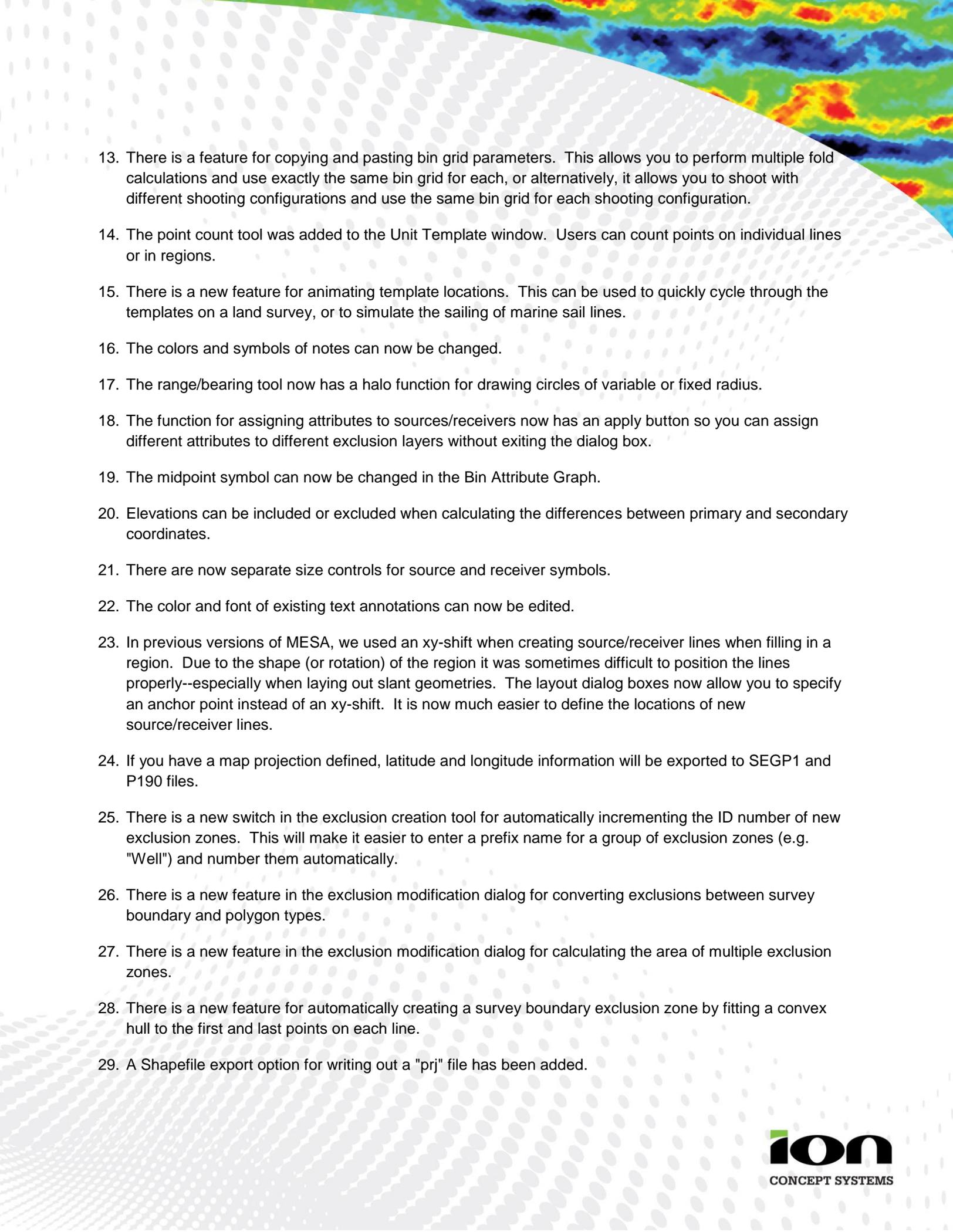
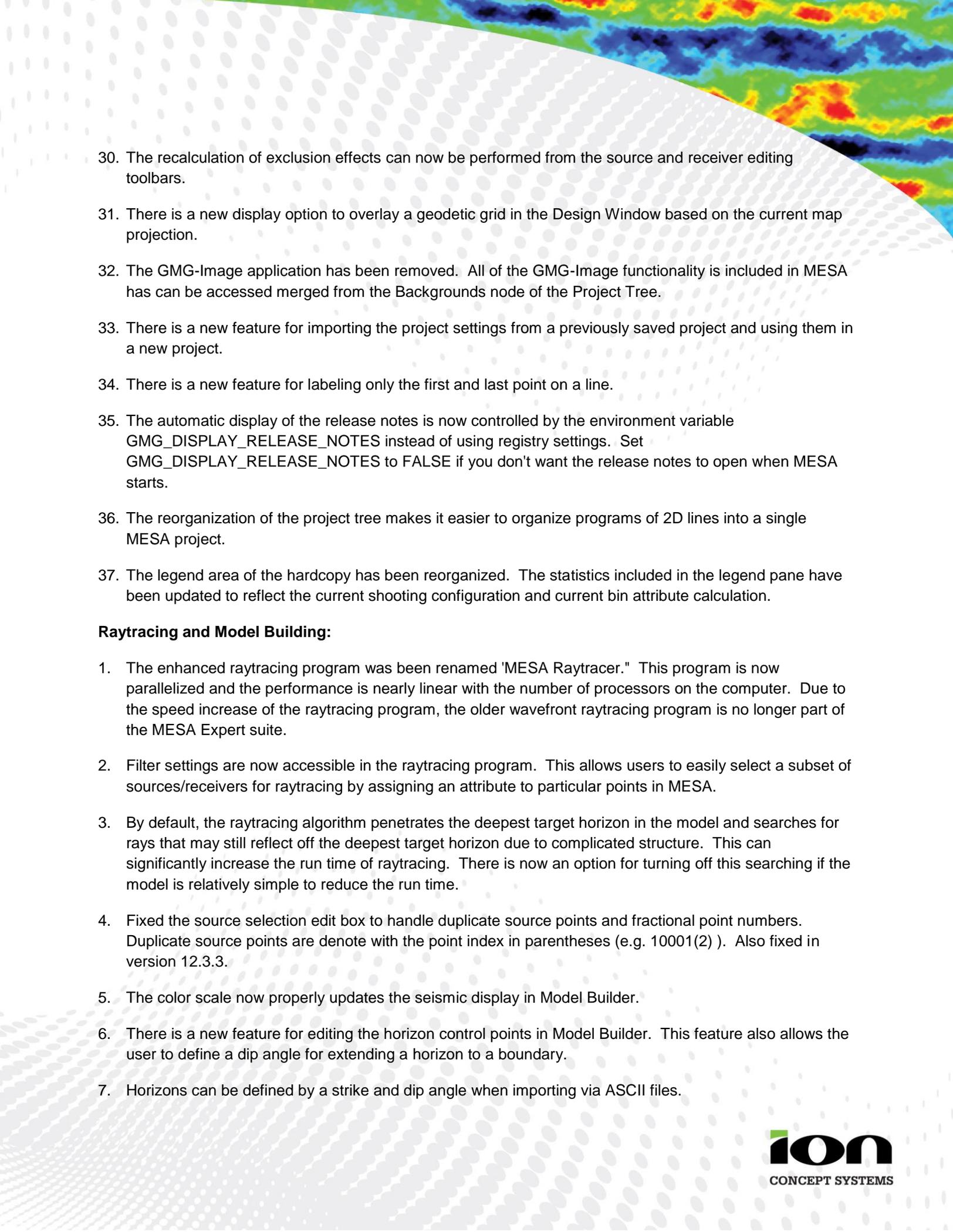


MESA SOFTWARE – VERSION 13.0 RELEASE NOTES

Features

1. The Project Tree has been reorganized. The reorganization makes it much easier to handle multiple sets of shooting templates, multiple bin grids, and multiple sets of bin attribute calculations. The reorganization has also improved the workflow when multiple projects are loaded.
2. The bin attribute calculations are now parallelized and exploit all processors on the computer.
3. The source, receiver and exclusion editing toolbars now have undo/redo functions. There are no limits to the amount of edits that can be undone during an editing session, HOWEVER, the undo buffer is flushed when the editing toolbar is closed. If you want to undo any edits that you make, you must undo the edits prior to closing the toolbar.
4. The min max range can be set for both axes in the Offset Fold Chart of the Bin Statistics window.
5. Source and receiver numbers can now be up to 18 digits in length.
6. The WMS (Web Mapping Service) interface now allows users to enter a username and password if the service provider requires login credentials.
7. The WMS demo datasets have been expanded. The WMS data are provided courtesy of Spatial Energy-Spatial on Demand 4.0.
8. The survey statistics have been completely reorganized. Statistics are now calculated for each source and receiver line. Statistics can be calculated for all loaded projects. The methods for determining the survey area for density calculations have been expanded. There is a new tool for determining the maximum number of channels on adjacent lines to help determine the amount of equipment needed. A CSV output function has been added to the statistics spreadsheet.
9. There are two new features related to importing files in the ASCII Import Window. Based on the file suffix, a configuration file will automatically be loaded. For example, if you open an SPS file, the configuration file for source SPS data will be loaded. The second feature is a dropdown list of configuration file choices in the Import Window.
10. Users can now define a bin grid for 2D crooked line geometries. Users select either a 2D or a 3D bin grid when calculating bin attributes.
11. MESA 13.0 now incorporates the geodetic libraries from Blue Marble Geographics. This also allows users to define custom map projections.
12. Image ray files, normal ray files, and smart aperture ray files are automatically loaded into the MESA project after creation.

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13. There is a feature for copying and pasting bin grid parameters. This allows you to perform multiple fold calculations and use exactly the same bin grid for each, or alternatively, it allows you to shoot with different shooting configurations and use the same bin grid for each shooting configuration.
 14. The point count tool was added to the Unit Template window. Users can count points on individual lines or in regions.
 15. There is a new feature for animating template locations. This can be used to quickly cycle through the templates on a land survey, or to simulate the sailing of marine sail lines.
 16. The colors and symbols of notes can now be changed.
 17. The range/bearing tool now has a halo function for drawing circles of variable or fixed radius.
 18. The function for assigning attributes to sources/receivers now has an apply button so you can assign different attributes to different exclusion layers without exiting the dialog box.
 19. The midpoint symbol can now be changed in the Bin Attribute Graph.
 20. Elevations can be included or excluded when calculating the differences between primary and secondary coordinates.
 21. There are now separate size controls for source and receiver symbols.
 22. The color and font of existing text annotations can now be edited.
 23. In previous versions of MESA, we used an xy-shift when creating source/receiver lines when filling in a region. Due to the shape (or rotation) of the region it was sometimes difficult to position the lines properly--especially when laying out slant geometries. The layout dialog boxes now allow you to specify an anchor point instead of an xy-shift. It is now much easier to define the locations of new source/receiver lines.
 24. If you have a map projection defined, latitude and longitude information will be exported to SEGP1 and P190 files.
 25. There is a new switch in the exclusion creation tool for automatically incrementing the ID number of new exclusion zones. This will make it easier to enter a prefix name for a group of exclusion zones (e.g. "Well") and number them automatically.
 26. There is a new feature in the exclusion modification dialog for converting exclusions between survey boundary and polygon types.
 27. There is a new feature in the exclusion modification dialog for calculating the area of multiple exclusion zones.
 28. There is a new feature for automatically creating a survey boundary exclusion zone by fitting a convex hull to the first and last points on each line.
 29. A Shapefile export option for writing out a "prj" file has been added.

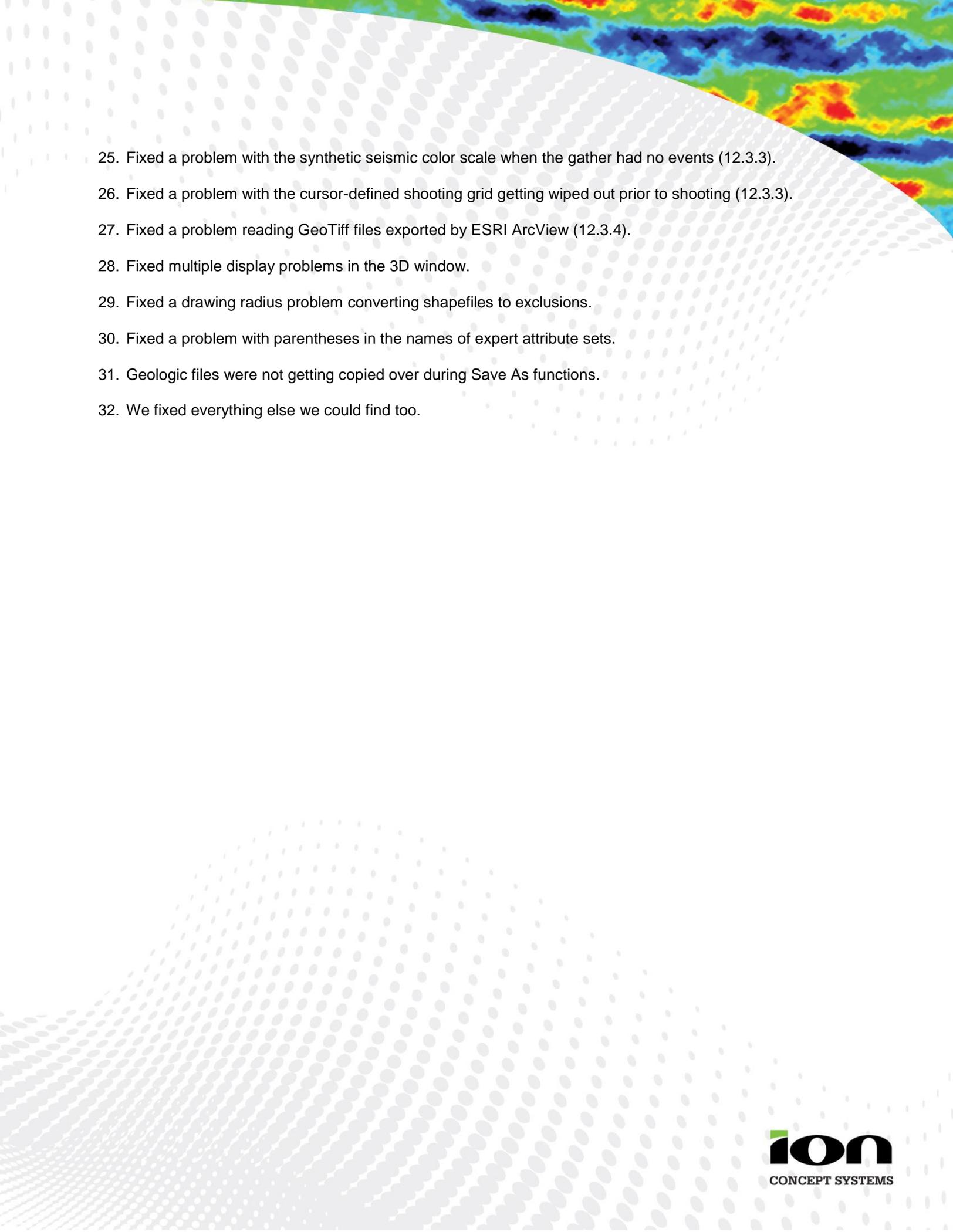
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30. The recalculation of exclusion effects can now be performed from the source and receiver editing toolbars.
 31. There is a new display option to overlay a geodetic grid in the Design Window based on the current map projection.
 32. The GMG-Image application has been removed. All of the GMG-Image functionality is included in MESA and can be accessed merged from the Backgrounds node of the Project Tree.
 33. There is a new feature for importing the project settings from a previously saved project and using them in a new project.
 34. There is a new feature for labeling only the first and last point on a line.
 35. The automatic display of the release notes is now controlled by the environment variable `GMG_DISPLAY_RELEASE_NOTES` instead of using registry settings. Set `GMG_DISPLAY_RELEASE_NOTES` to `FALSE` if you don't want the release notes to open when MESA starts.
 36. The reorganization of the project tree makes it easier to organize programs of 2D lines into a single MESA project.
 37. The legend area of the hardcopy has been reorganized. The statistics included in the legend pane have been updated to reflect the current shooting configuration and current bin attribute calculation.

Raytracing and Model Building:

1. The enhanced raytracing program was renamed "MESA Raytracer." This program is now parallelized and the performance is nearly linear with the number of processors on the computer. Due to the speed increase of the raytracing program, the older wavefront raytracing program is no longer part of the MESA Expert suite.
2. Filter settings are now accessible in the raytracing program. This allows users to easily select a subset of sources/receivers for raytracing by assigning an attribute to particular points in MESA.
3. By default, the raytracing algorithm penetrates the deepest target horizon in the model and searches for rays that may still reflect off the deepest target horizon due to complicated structure. This can significantly increase the run time of raytracing. There is now an option for turning off this searching if the model is relatively simple to reduce the run time.
4. Fixed the source selection edit box to handle duplicate source points and fractional point numbers. Duplicate source points are denoted with the point index in parentheses (e.g. 10001(2)). Also fixed in version 12.3.3.
5. The color scale now properly updates the seismic display in Model Builder.
6. There is a new feature for editing the horizon control points in Model Builder. This feature also allows the user to define a dip angle for extending a horizon to a boundary.
7. Horizons can be defined by a strike and dip angle when importing via ASCII files.

Fixes

1. Fixed an issue with full precision coordinate output in SEGP1. If selecting the full precision output option causes an overflow of columns in the ASCII file then the most significant digits of the coordinate will be truncated. This allows the user to recover the original coordinate by adding a constant.
2. Fixed an issue with having a '.' in the MESA project name.
3. The shot selection edit box in the raytracer now handles duplicated source points properly.
4. Made a minor adjustment to the depth dependent converted wave midpoint algorithm for source-receiver offsets > 25000 ft. The algorithm is now more memory efficient as well.
5. Fixed a synthetic wavelet issue. All wavelets now have an odd number of samples.
6. Fixed a problem with reverse button layout in the Unit Template window.
7. Fixed a problem saving source and receiver point/line labeling options.
8. Fixed a problem saving color options for the range-bearing tool.
9. Fixed a problem with parentheses in the name of an Expert attribute set.
10. Fixed a problem saving aperture models when doing a 'save as.'
11. Loaded vector files and shapefiles are now saved with the project.
12. Fixed a display problem toggling off Shapefile display.
13. Fixed a problem loading a double precision color scale from the XML defaults file.
14. Fixed a problem which caused the program to exit Edit Templates mode if you pressed the Print button.
15. Fixed a problem with updating WMS images while panning.
16. Fixed a problem with the frequency vs. offset array response plot. Our conversion of angles from degrees to radians was off by a factor of two.
17. Fixed a crash displaying label data from shapefiles.
18. Fixed a problem with color fill selection in the exclusion modification dialog.
19. Fixed a problem with filter settings not being restored correctly upon re-opening a project.
20. Fixed a crash if you have the shift-click identification box open and try to open a different project.
21. Fixed a problem displaying rays from duplicate source points in the 3D window.
22. Fixed a problem with the bin contribution tool when a project had multiple shooting configurations.
23. The bin attribute displays have been re-added to the 3D window.
24. Fixed some file format and units issues related to importing LAS files.

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25. Fixed a problem with the synthetic seismic color scale when the gather had no events (12.3.3).
 26. Fixed a problem with the cursor-defined shooting grid getting wiped out prior to shooting (12.3.3).
 27. Fixed a problem reading GeoTiff files exported by ESRI ArcView (12.3.4).
 28. Fixed multiple display problems in the 3D window.
 29. Fixed a drawing radius problem converting shapefiles to exclusions.
 30. Fixed a problem with parentheses in the names of expert attribute sets.
 31. Geologic files were not getting copied over during Save As functions.
 32. We fixed everything else we could find too.