

Grid Splicer

The *Grid Splicer* command in *Vertical Mapper* is designed to combine one or more grids into a single grid file. There are two distinct ways in which grids can be spliced together: *Merging* and *Stamping*. The difference lies in how each of these procedures handles the values of grid cells that overlap other grid cells. Both numeric and classified grids can be processed with *Grid Splicer*.

Merging is the process where two or more grids are combined and where in the overlapping areas a mathematical calculation is performed to determine the new grid value. There are five calculation choices the user can specify: **Average**, **Minimum**, **Maximum**, **Average (Min,Max)** or **Median**, where **Average** is the default. Therefore if two grids are being merged using the average calculation, and where the first grid has cells with the value of 20 and the second has cells with the value of ten, then any overlapping areas will have cells with the value of 15 in the resulting grid (Figure 11.1). *Merging* is often used when there are several grid tiles that cover a study area that need to be combined into a single grid, or when you wish to create a grid that has the highest/lowest value of all the input grids. Null values contained in any of the grids being processed are ignored. For an instructional lesson on the *Grid Splicer* refer to Lesson 14 of the *Installation and Tutorials* manual.

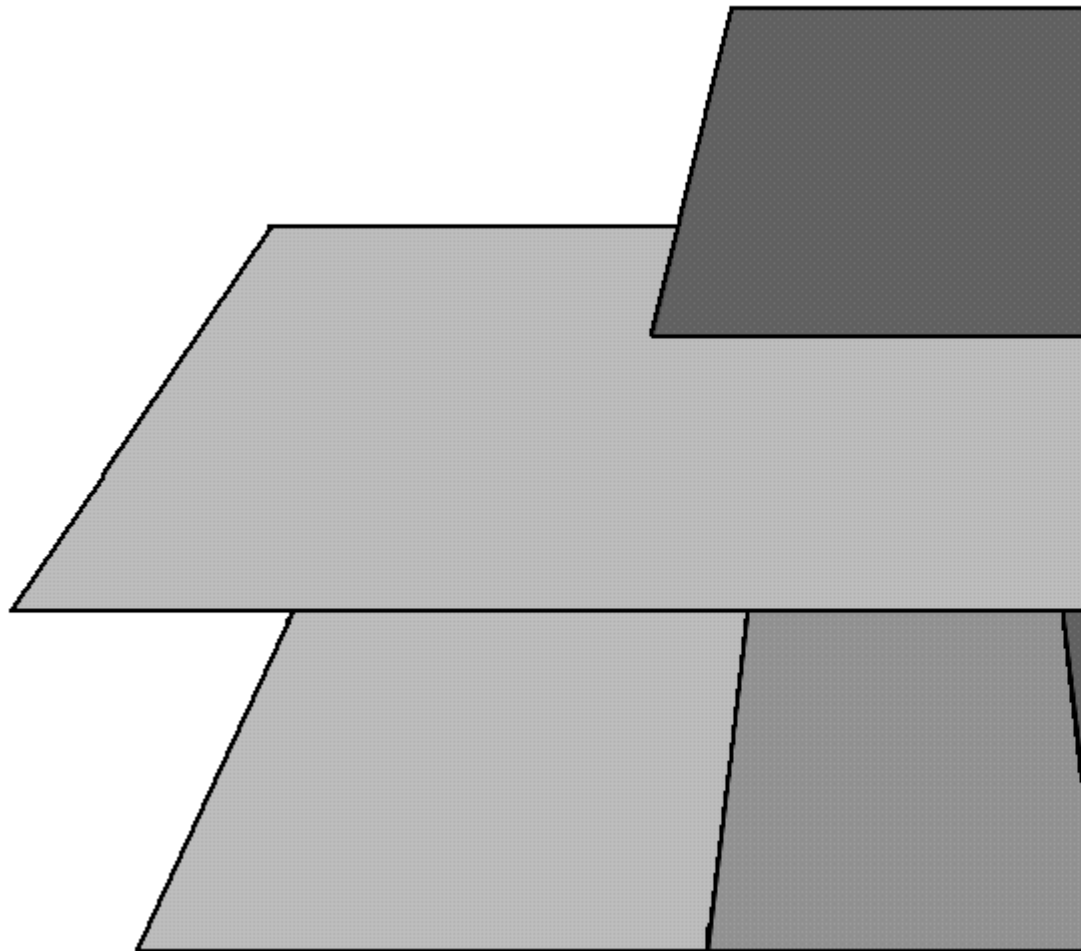


Figure 11.1. In the areas where Grid 1 (value of 10) and Grid 2 (value of 20) overlap, the resulting grid will have

a value of 15 when the *Average* overlap calculation is chosen.

Stamping is the procedure where two or more grids are combined and where in the overlapping areas the cell values of one of the input grids will overwrite the values of the others. The process order is important. Depending on which grid is specified as the reference grid and the order in which the other input grids are listed, different results can be obtained. Note that classified grids can only be stamped one on top of the other since it is impossible to arithmetically merge classified grid values. Stamping is normally performed only when areas of a grid need to be updated such as updating a land use grid with the area of a new subdivision or an elevation grid with building heights. Null values contained in any of the grids being processed are ignored.

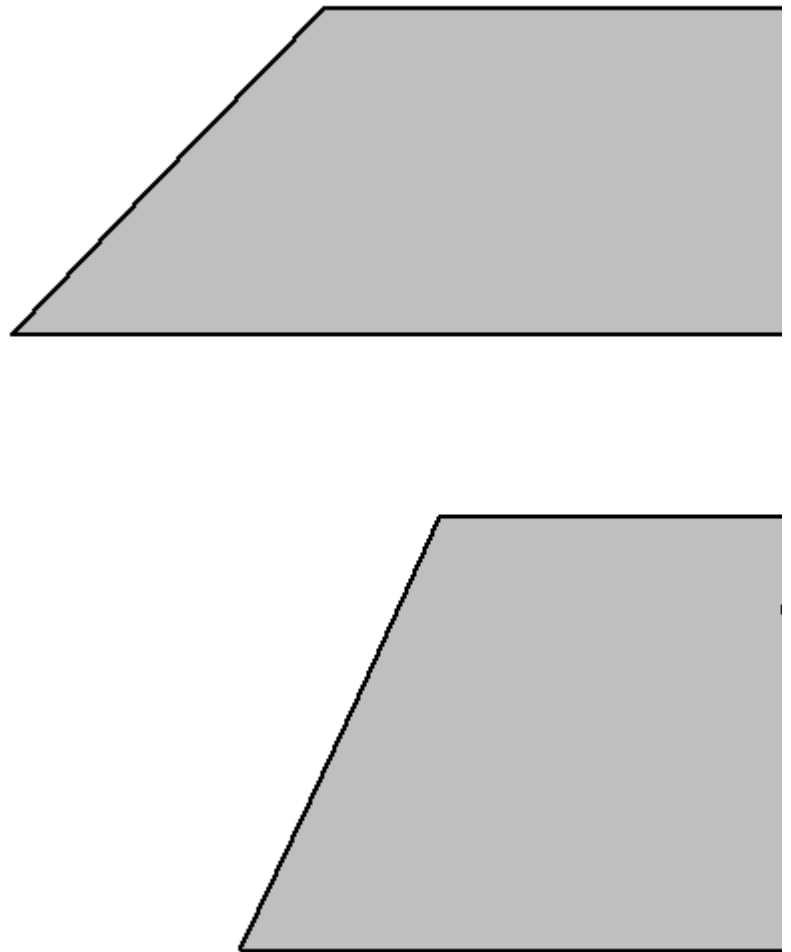

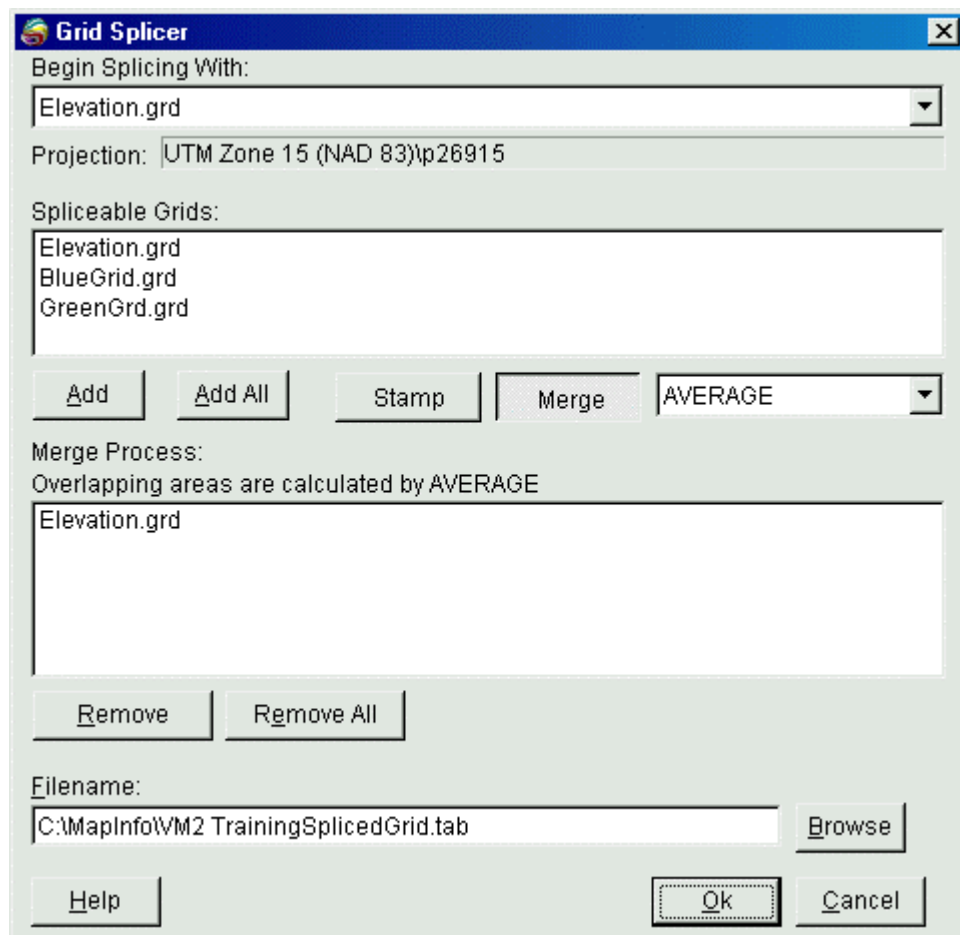


Figure 11.2. Depending on which grid is the reference grid and the order in which the input

grids are listed, different results will be obtained. In the left diagram, Grid 2 is being stamped on Grid 1. Therefore the cell values of Grid 2 will override the values of Grid 1 in the resulting grid. In the right diagram, Grid 1 is being stamped on Grid 2. Therefore, the cell values of Grid 1 will override the values of Grid 2 in the resulting grid.

- To access the *Grid Splicer* dialogue, choose the  button from the *Grid Manager* dialogue and select the *Splicer* command from the drop-down menu.
- The *Grid Splicer* dialogue is used to manage all of the grid files used in any splicing process.



1. The ***Begin Splicing With:*** dropdown specifies which grid will be used as the reference grid for the splicing operation. The reference grid can either be numeric or classified.
2. The ***Spliceable Grids*** window lists all grid files open in the *Grid Manager* that can be successfully spliced with the reference grid. This list is restricted to those grids that are the same grid type (numeric or classified), the same projection, and the same Z-units as the reference grid. There are no restrictions placed upon the cell size of the input grids. The resulting grid will always have the same cell size as the reference grid.
3. The ***Add*** button enters the highlighted grid in the *Spliceable Grids* section to the ***Process***

Order window. Use the **Add All** button if there are many grids to be entered into the splicing operation.

4.

5. The **Stamp** and **Merge** button specifies what type of splicing will be performed with the input grids. Only one of these processes can be performed at a time.

If the **Merge** option is chosen, the user must specify the mathematical operation that will be performed on the grid cells contained in the overlapping regions of the input grids. This is specified by the drop-down to the right of the **Merge** button containing the following choices **Average**, **Minimum**, **Maximum**, **Median**, or **Average (Min,Max)** (average of the minimum and maximum values). These options are only available for splicing numeric grid files and are applied to all grids in the splicing process. It is not possible to use different operations on different grids in the same splicing operation.

If the **Stamp** option is chosen, the user cannot choose which mathematical calculation will be performed on the overlapping regions. Grid values in the overlapping regions will be determined by the order in which grids are listed in the **Process Order** window.

5. The **Process Order** window displays all grid files that will be used in the splicing operation; the reference grid will always be listed first. A message will appear above the window reminding the user what splicing process was chosen, and a brief description on how the grids will be processed. The order in which the grids are entered is only important when a Stamp is specified. When stamping, the second grid is stamped on the reference grid, overwriting the grid values contained in the overlapping areas. The third grid is then stamped on the results of the first stamp, again overwriting the grid values contained in the overlapping areas. This process is repeated for each of the grids listed. The order in which the grids are listed can be altered by selecting and then dragging a grid to a different position in the list.

6.

7. The **Remove** button will remove the highlighted grid in the **Process Order** window. If the user wants to remove all of the grids then the **Remove All** button may be chosen. The reference grid will always remain in the window.

8. The **Filename** edit box is used to enter a unique file name for the spliced grid.

Power Note: As mentioned earlier it is possible to update specific areas of an existing grid, such as adding a new housing subdivision to a land use grid or building elevations to a DEM. This is best done by first creating polygonal regions around the areas to be updated, i.e., the new subdivision or building footprint. Secondly, attach the appropriate information to these regions, i.e., “urban” for the subdivision and the buildings height to the footprint. Thirdly, use the *Region to Grid* utility to convert these regions to a grid. Be sure that the projection and the grid units are the same. Lastly, use *Grid Splicer* and stamp these “region grids” on the grid to be updated.

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