QUICK REFERENCE GUIDE FOR LITTLE APPLICATION TWO DIVIDER DESIGNER

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FEATURES OF LITTLE APPLICATION TWO (LA2) DIVIDER DESIGNER

Some important features of Little Applications and in particular LA2 are:

1. Single executable file “LittleApp_BoxDivider.exe” that does not require an installation process. Just copy and paste.
2. You own it but you can’t sell, share or distribute the application (see licensing agreement).
3. The designer specifies the cell sizes and the number of rows and columns of cells.
4. LA2 compensates for beam diameter and allows adjustment for looser or tighter sockets.

5. LA2 produces two types of dividers, (1) a simple rectangular shape and (2) a rectangular shape with finger slots.
6. LA2 two types of dividers can be manually edited to have merged cells and customized finger slots.
7. LA2 stores data in common vector formats HPGL (.plt) and Scalable Vector Graphics (.svg). These formats can be imported into most laser cutters and photo editors.
8. LA2 has built in help documentation.
9. LA2 provides graphic templates in HPGL and SVG to aid in engraving layout or in graphical layout of artwork.

OVERVIEW

We define the term "Little Application" or "LA" as a software application that only consists of one executable file. There are no support files required such as DLLs, images, etc. Because of this, a LA does not have to be installed and can be copied as would any other type of file. Our licensing agreement does not allow for resale or distribution but a single user may make multiple copies. For example, I have often kept a copy of a LA with the data it created. If something changes, such as a specific laser cutter in the case of the Divider Designer LA2, the program is readily found and used to update the data based on the new laser cutter parameters. Huntbrook's policy for LAs is that the user owns their copy and the LA is functional as long as it's used with a compatible OS platform. This cannot be said for online or web based applications or for applications that require re-registration when moved to a different computer.

The Divider Designer LA is designed to generate vector data to be used to laser cut divider components with and without finger slots. These cuts are designed for high accuracy and take into account the beam diameter of the laser cutter. The Divider Designer also produces vector files to aid in layout. Given a divider grid, it is convenient to make a base, possibly out of card stock or engraved wood, that labels what object should be stored in each of the divider cells. The Divider Designer also allows cut lines to be produced to allow for cell merging within the divider footprint. Most laser cutters use metric units so while the designer can choose to enter parameters in English or metric units, the output vector files are in metric units of millimeters. The file formats are well known .plt and .svg ascii formats.

WHAT YOU NEED BEFORE YOU GET STARTED

The designer will need several things before beginning the divider design. They will need:

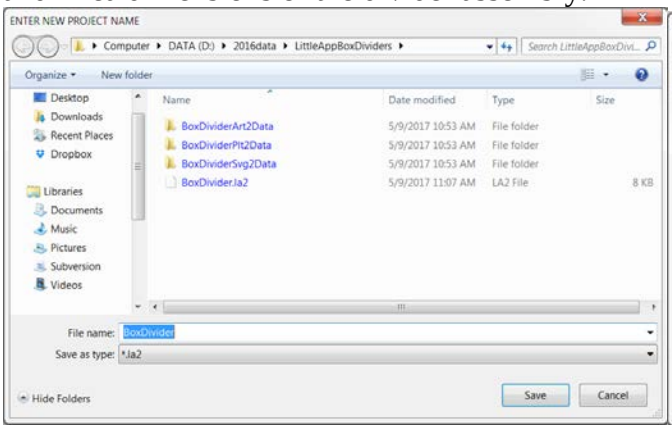
1. The BoxDivider.exe file.
2. A MS 64 bit operating system which includes Vista, Windows 7 thru Windows 10.
3. A linear caliper to measure laser cutter beam diameter and the thickness of the material that will be used to make a divider. The accuracy of the caliper should be 0.001 inches or 25 microns. We use a 6 inch linear caliper that we purchased for less than $25 at a local tool store.
4. The beam diameter of a laser cutter can be measured in several ways but one way is to cut a small square (~25mm square) from the same material the box is made from. Using the caliper to measure the cut square plug, say D_s, and then the width, D_h, of the square hole left by the plug the beam diameter is $D_{bd} = (D_h - D_s)/2$. For our laser cutter the beam diameter is about 0.011 inches or 0.28 mm.
5. Measure the thickness of the material that will be used for the divider. Never depend on the measurements given by material provider. They may mean well but materials can have significant deviations in thickness.
6. Know the laser power and speed for your material you want to use to cut your divider components.

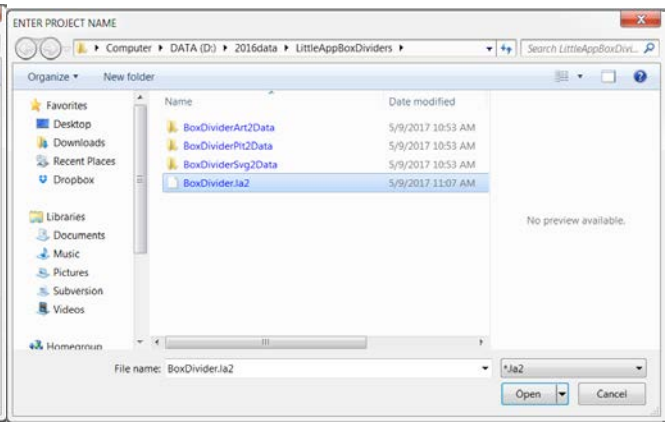
GETTING STARTED

1. The designer should know the inside cell dimensions with the divider. The designer will also need the thickness of the material being used. Other dimensions can be determined on the fly.
2. **Run the program:** On the first run, the designer will be asked to read the licensing agreement and then either accept or decline it. If declined then there is no reason to go further but if accepted, go to the next step.

FILE MENU

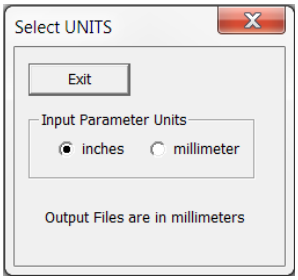
3. **File-New or File-Open:** Under the File Menu, the designer can either create a new project or open an existing one. If new project is selected, a prompting dialog is activated. The designer can navigate, select or create a folder for the project. And then type in a project name. A parameter file starting with the project name and ending with .la1 will be stored in the project folder. When a project is created or opened, the LA2 program runs with the existing parameters. For the default settings, the main screen will display 2 rectangular dividers, “Top” and “Bot”, 2 dividers with finger slots, “Top” and “Bot” components, and 1 divider assembly view. Within the project folder, 3 new folders will be created: [project name]SvgData, [project name]PltData and [project name]ArtData where the SVG, HPGL and art templates are stored, respectively. There is also a *.txt file stored in [project name]ArtData which contains the outer dimensions and Area dimensions of the divider assembly.



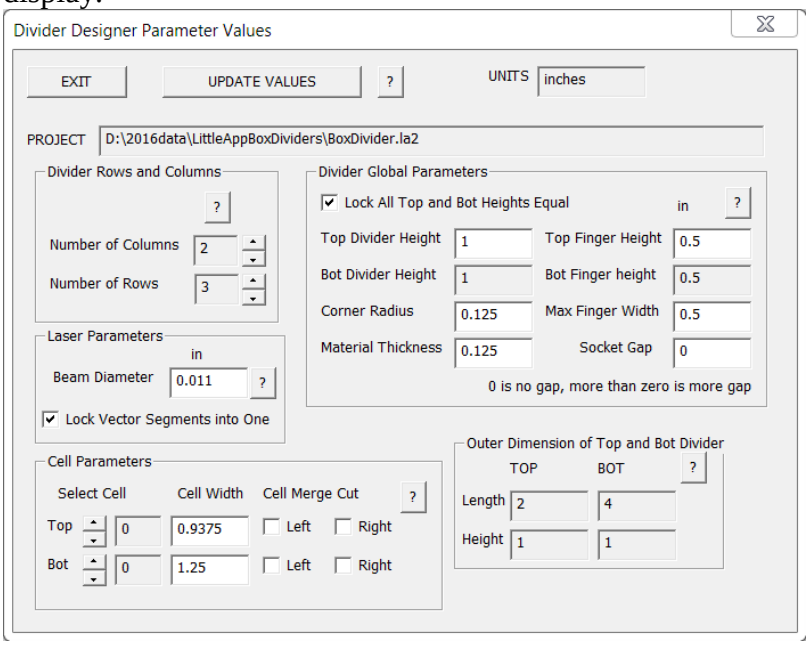


EDIT MENU

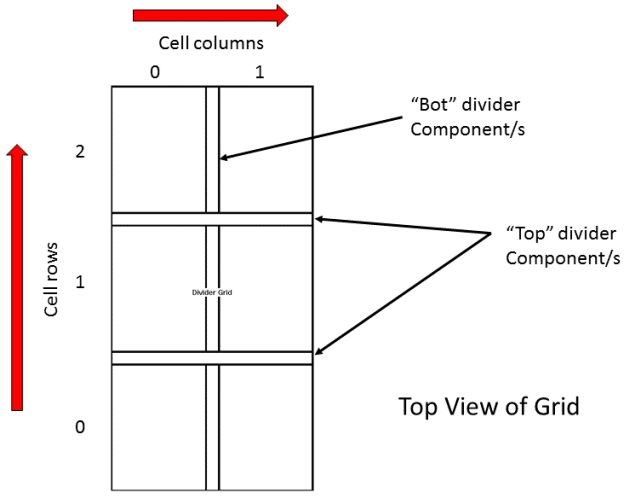
4. **INPUT UNITS:** Under Edit-Units select which type of input units, inches or millimeters, to use. This does not affect the output units which are in millimeters.



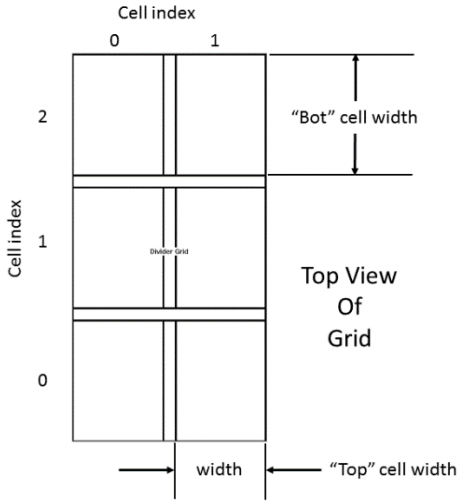
5. **Edit-Box Controls and Help Buttons:** The Divider Parameter Values control all the design aspects of the divider components. The check boxes and spinner controls update the parameters as they are used but manual entries need to be followed by clicking the "UPDATE VALUES" button. The displayed results change real time on the main screen. Units are displayed and there are small buttons with "?" on them provide help documentation. Some of these help buttons have a toggle feature between text and graphical display.



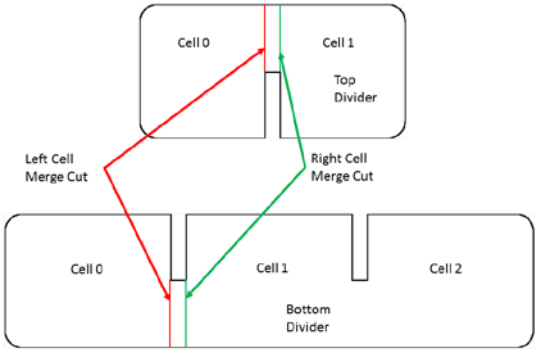
6. **Divider Rows and Columns: Use spinners to enter the number of rows and columns in the divider assembly.** In the example control values, the divider grid is 2 columns by 3 rows. This is also expressed as a 2 cell by 3 cell grid.



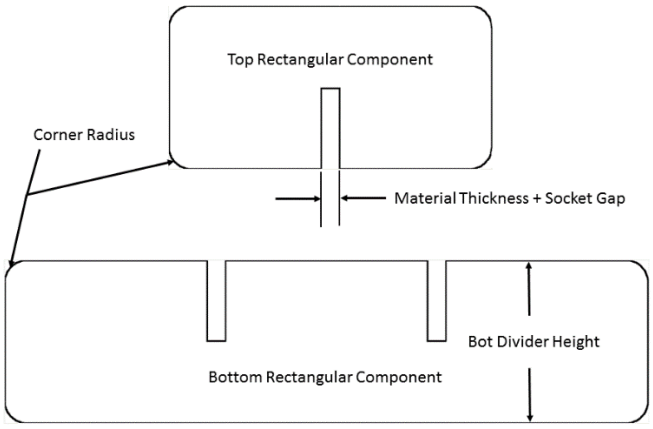
7. **LASER PARAMETERS (also related to the Socket Gap value in Divider Global Dimensions group):** Enter the Beam Diameter and choose to either lock or unlock the vector segments. Given the **Socket Gap** =0; if the socket fit is snug then the beam diameter is correct. *If the sockets are loose then the Beam Diameter should be reduced* whereas *if the sockets are so tight they will not fit, the Beam Diameter needs to be made larger*. Once snug, the **Socket Gap** value should be used to loosen the sockets. The maximum **Socket Gap** is equal to the beam Diameter and that will be the space between the sockets. When you select the "UPDATE VALUES" button, at the top of the dialog box, the values and graphics are updated. The **Lock Vector Segments into One** is usually checked active which will combine the divider segments into a single vector which means the laser will cut the entire piece without stopping. If unchecked, the designer can manually crop and move finger slots between different dividers for more customization.
8. **Cell Parameters:** The designer can select up to 30 rows and 30 columns of cells. Each cell column width is specified by the "**Top**" **Cell Width** value. Likewise, each cell row width is specified by the "**Bot**" **Cell Width** value. We use the terms "Top" and "Bot" to indicate that the cell dividers slide together from the top side or they will be the component on the bottom side of the divider assembly.

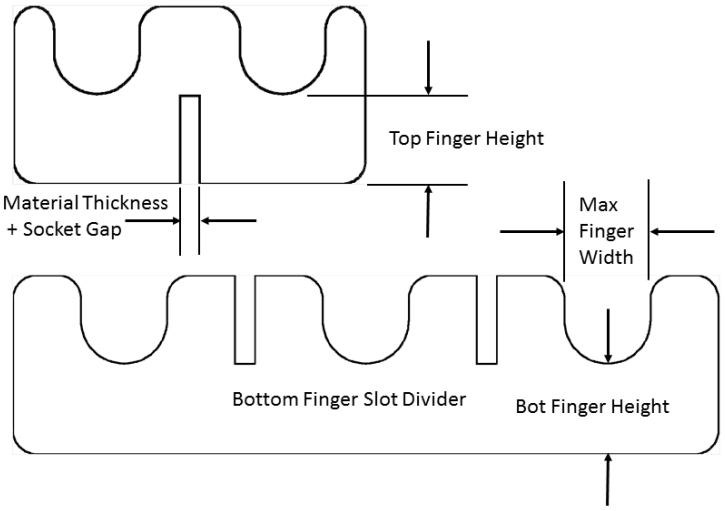


The merge line check boxes will insert separate segments on the left or right side of each socket specified. This allows the designer to merge cells by cutting the appropriate sections out of the dividers.

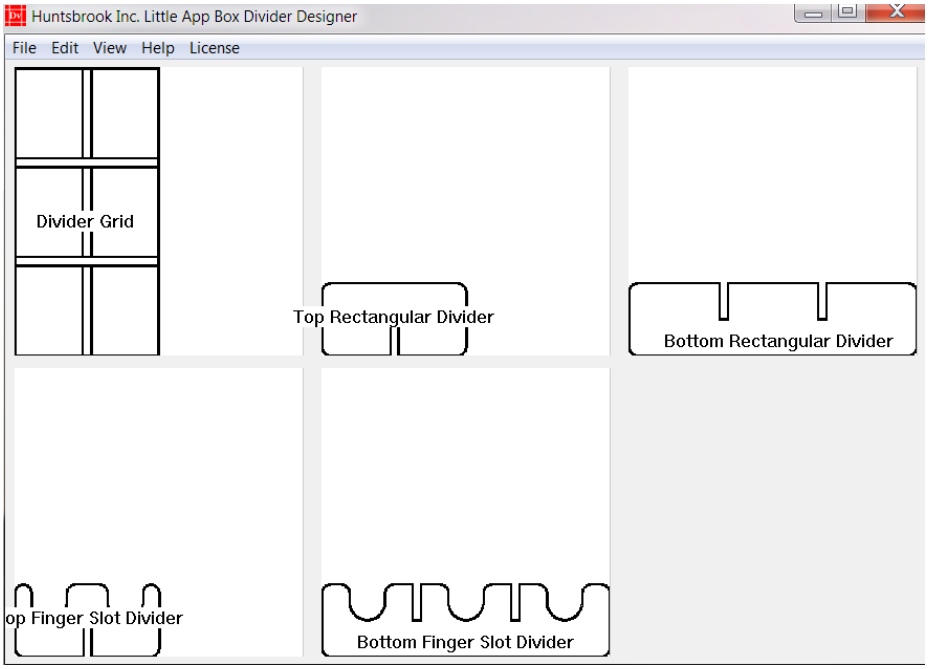


9. **Divider Global Parameters:** The **Top Divider Height** and **Top Finger Height**s are the height values of the rectangular dividers and the finger slot dividers. They can be different values or locked to be the same by the **Lock All Top and Bot Heights Equal** check box. The two figures below show the relationship between the laser cut patterns and the parameters for the (left) **Top Divider Height**, **Bot Divider Height**, **Corner Radius**, **Material Thickness** and the (right) **Top Finger Height**, **Bot Finger Height**, **Max Finger Width** and **Socket Gap**.

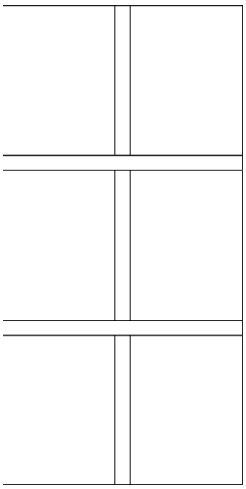




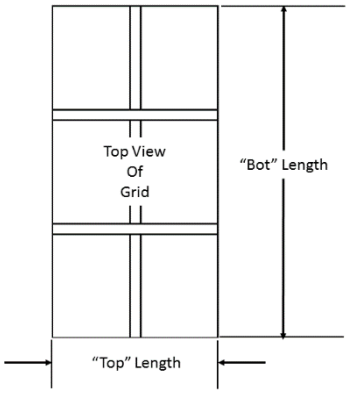
10. The main Dialog box shows the graphical results of the control parameters and updates in real time. This allows immediate feedback to the designer when updating the control parameters.



11. **Art Template:** The art layout template is stored in formats of SVG, PLT and BMP. These can be used to plan the overall divider layout. They also help in the design of a divider grid that has merged cells. Another use is to use the layout to label the cell contents. For example, the divider grid layout could be used to position cell labels and then printed on card stock. That would then be glued to the divider assembly and inserted into a box. Also, instead of printing on card stock, the layout could be engraved using the PLT data vectors.



12. **Outer Dimensions:** The outer dimensions are provided to aid the designer in estimating costs and layout. A .txt file is created with all the outer dimensions and is stored in the ArtData folder.

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DIVIDER CELL ROWS (bot slots)=3 AND COLUMNS (top slots) = 2
Number of pieces to cut, Top=2 and Bot=1

ALL PARAMETERS IN MILLIMETERS

LASER: Beam Diameter = 0.279400

Outer Corner Radius = 3.175000, Max Slot Radius = 6.350000, Socket Gap= 0.000000

Material Thickness = 3.175000

TOP DIVIDERS: Length = 50.800000, Height = 25.400000, Slot Height=12.700000

BOT DIVIDERS: Length = 101.600000, Height = 25.400000, Slot Height=12.700000

DIVIDER AREA IN SQUARE METERS
Area Total = 0.005161, Top Area = 0.002581, Bot Area = 0.002581

ALL PARAMETERS IN INCHES

LASER: Beam Diameter = 0.011000

Outer Corner Radius = 0.125000, Max Slot Radius = 0.250000, Socket Gap= 0.000000

Material Thickness = 0.125000

TOP DIVIDERS: Length = 2.000000, Height = 1.000000, Slot Height=0.500000

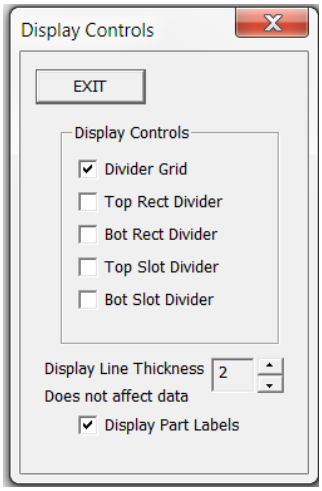
BOT DIVIDERS: Length = 4.000000, Height = 1.000000, Slot Height=0.500000

DIVIDER AREA IN SQUARE INCHES
Area Total = 8.000000, Top Area = 4.000000, Bot Area = 4.000000
```

DISPLAY MENU

The display dialogue has controls for displaying the different divider components as well as controlling the displayed line thickness and the component labeling. None of the Display controls affect the actual values in the data vectors.

1. The **Display** Controls are self-explanatory and turn on and off the component display. The display partitions are automatically scaled and positioned to fill the screen so more detail is shown when only one partition is turned on.
2. The **Display Line Thickness** controls the pixel width of the displayed lines. A 0 is a single line of pixels, a 1 yields a line width of 3, a 2 yields a line width of 5, etc. Line width = 2 x Thickness + 1.
3. The **Display Part Labels** is self-explanatory and turns the labels on and off.

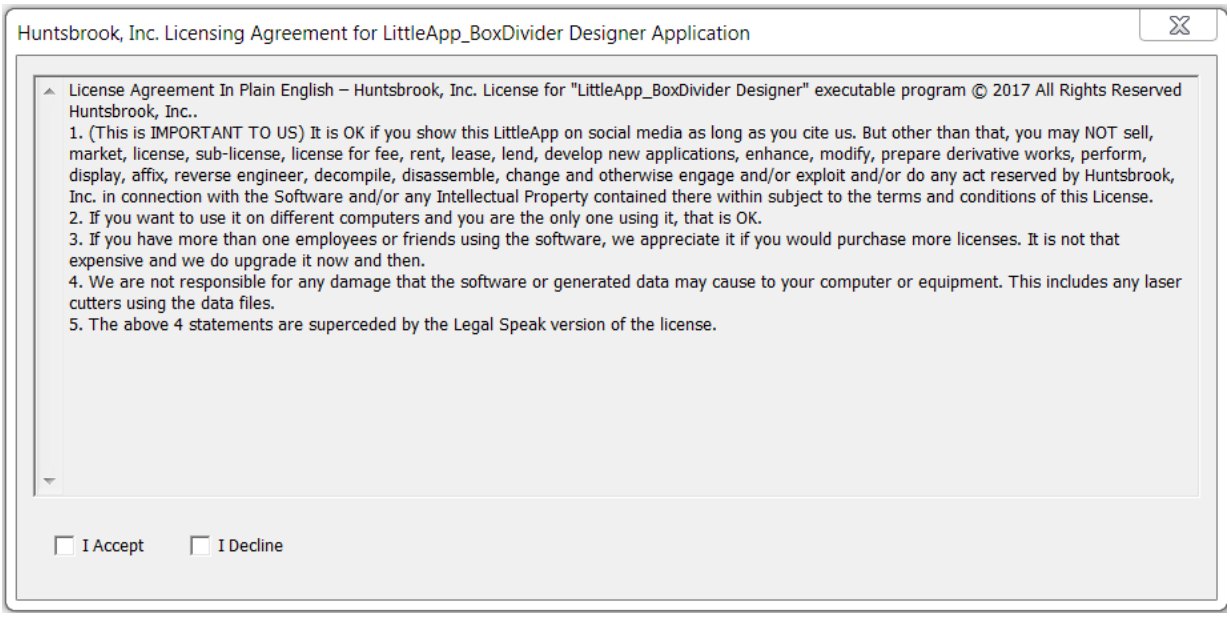


HELP MENU

The help menus contains the About dialogue which indicates the version of the Little App. The remaining help menus may change with future upgrades but would include written and graphical information that should help the designer.

LICENSE MENU

The license menu has two items that we call the “Plain English” version and the “Legal Speak” version of the licensing agreement. Of course the “Legal Speak” version supersedes anything else we say but the Plain English version conveys the spirit of what we are trying to do with Little Apps.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