



SERTZ DOCUMENTATION

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CONTENTS

Welcome.....	2
Quick Start	2
New project	2
Changing the Size.....	3
Adding Chambers.....	4
Generate PDF Instructions.....	7
Inner Tray.....	8
Sertz concepts.....	13
Chambers.....	13
Layers, Trays, and Space	13
Layer	13
Tray	13
Space.....	14
Millimeter Sizing	14
Controls Reference	14
Toolbar.....	14
Tools	14
Selection mode	15
Create	16
Quickfit	16
Auto Grid (Premium Only)	17
Modify.....	17
Layers.....	18
Output	18
Sizing controls (Premium Only)	19

WELCOME

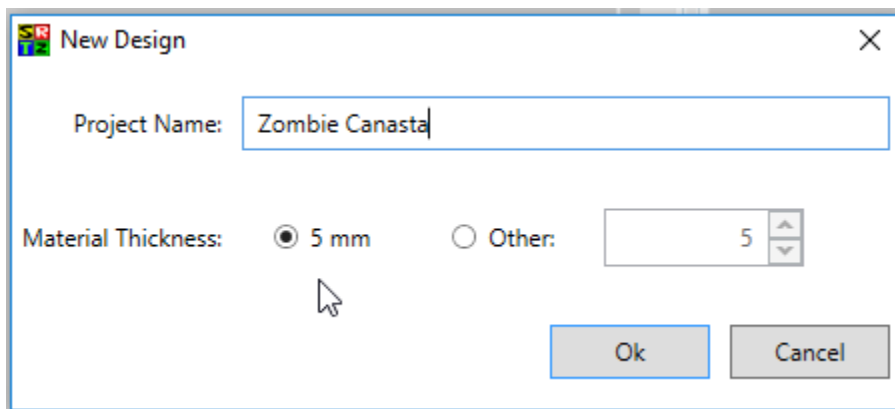
Welcome to Sertz, the tool for designing custom foam core inserts for your favorite boardgames! You don't need to know a lot about 3D design to get started, so the learning curve should be fairly shallow. If you want to build something quickly, check out the Quick Start section. If you are just looking for "what does that control do" information, take a look at the Controls Reference section.

QUICK START

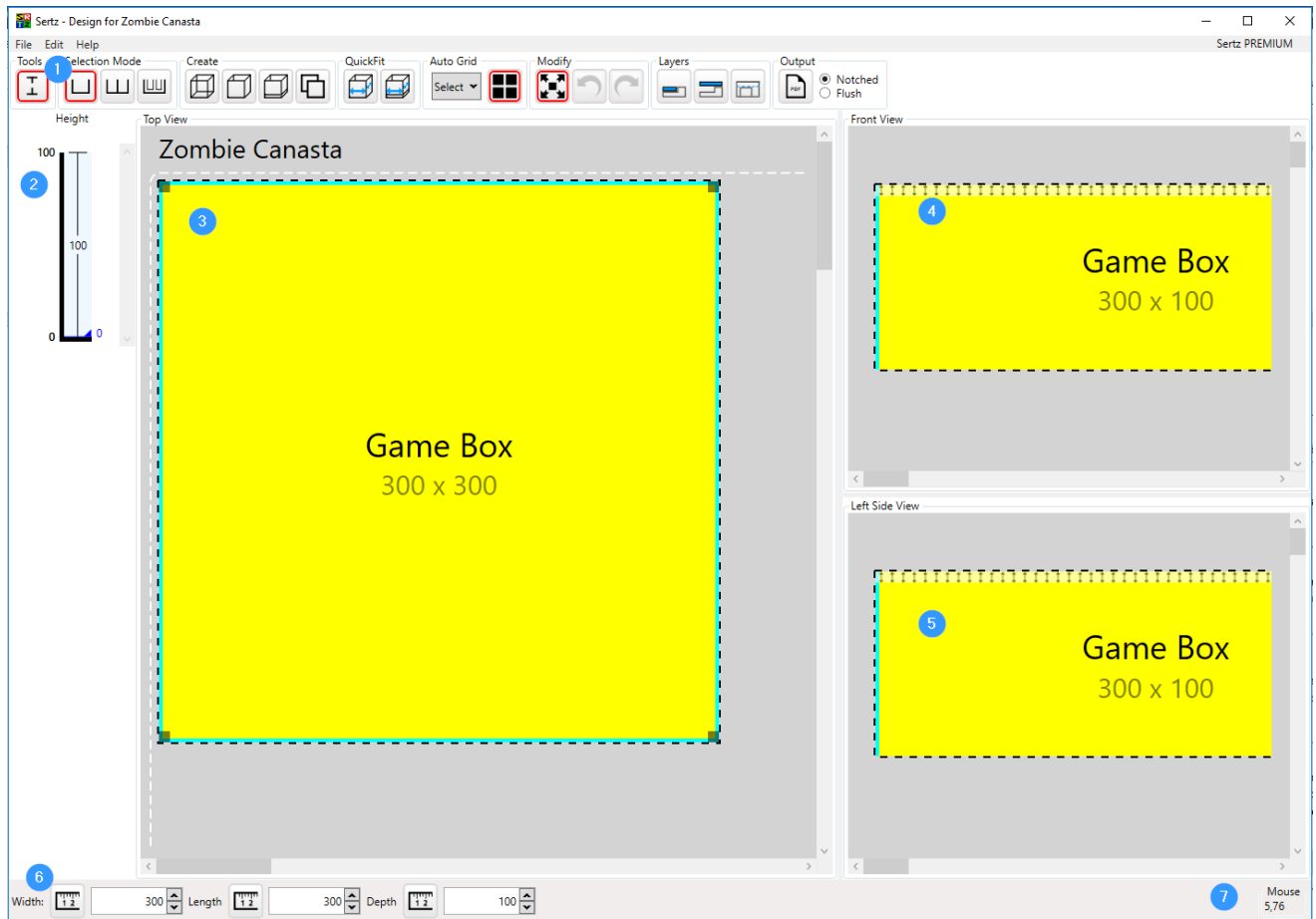
TLDR? Let's make a box already!

NEW PROJECT

Open the Sertz application, and choose "File|New"



Enter a project name and press the Ok button (just leave the default material thickness of 5 mm, standard for foam core). A new window will open:



- (1) Toolbar
- (2) Height Indicator
- (3) Top View
- (4) Front View
- (5) Left Side View
- (6) Size Adjustments
- (7) Mouse Position

Your project name is at the top, and a 300x300x100 game box is created by default (the big yellow square in the middle). If you want to edit the project name, double-click on the tabletop (anywhere NOT in the yellow box), change the name in the dialog box, and press Ok. Save your project by choosing “File|Save” or CTRL-S.

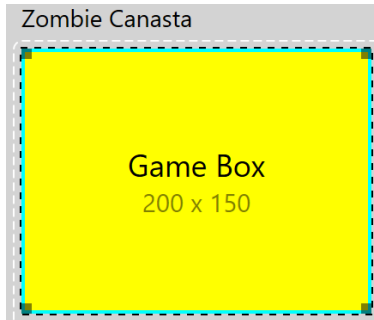
CHANGING THE SIZE

The default box created is always 300 mm wide, 300 mm long, and 100 mm deep. Of course, your target game box doesn't look like this, so you need to change size. There are two ways to do this: the easiest is to drag the edges or corners of the game box.

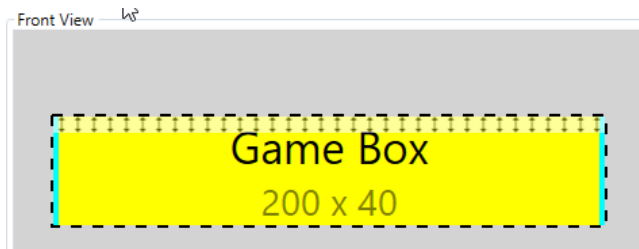
Before we do this, make sure you have enough room. Each of the three views (Top, Front, Side) have handles for adjusting the size. Click on any border between the views and adjust accordingly.

You can also zoom in and out on any of the views separately, by holding down the CTRL key, and using the mouse wheel. If you find you want to go back to the defaults, choose “Edit | Reset Scale”.

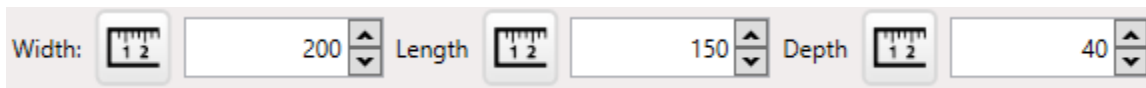
Now let’s change the box size. This is the INSIDE dimensions of the box you are designing for, so make sure to measure accordingly. Let’s say that our zombie canasta box is 200 mm wide and 150 mm long. First, click on the yellow “Game Box” to activate the handles, and then grab the lower right corner. Drag the box size until it matches 200 x 150:



If you prefer to only adjust one dimension at a time, use the edges instead of the corner. What about the height of 100? Let’s say our game box is only 40 mm tall. In the same way, you can adjust the height by clicking on the top of the box in one of the side views, and dragging to the desired size. Do this now, and set the height to 40 mm.



Another way to have accomplished this, is available only in the Premium version of Sertz. See the toolbar at the bottom of the application?



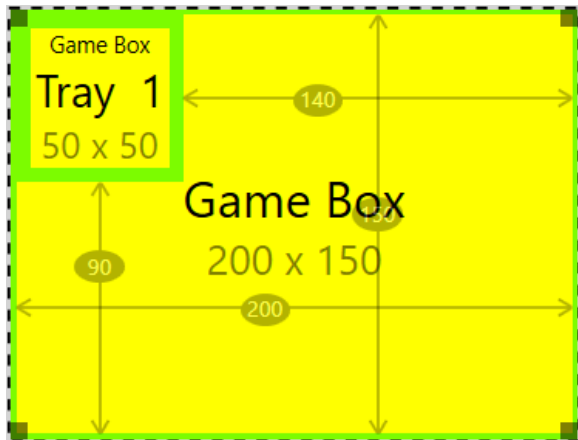
By typing values in each of the three fields, you can quickly specify the exact dimensions. Additionally, if you know the dimensions in inches, you can get the mm conversion by clicking on the ruler button. Neat!

ADDING CHAMBERS

Great, so we have a box, but now what? Obviously, we wouldn’t be here if we just wanted the entire space of the box. We need to break this into individual chambers, and maybe a removable tray. Let’s start by creating a structure around the inside of the box, so that our insert has stability. We need to create a “tray” object without a base. Start by selecting your game box (click on it). Now click on the tray-without-a-base button:



This will create a 50x50 tray, without a base, inside your game box, aptly named "Tray 1". The height of the tray by default will be 50mm too, but since our game box is a bit shorter, SertZ fits the size to 40. If you have premium, you can rename the tray to whatever you like. Either way let's leave the name alone for now:



Notice that this tray has its own four walls (in green). You can also drag the tray around, by clicking inside of it, and dragging it around the box. You can also drag it OUT of the box. Play around with that a bit, but then put the tray back into the box, and in the upper left corner when you are done.

By the way, the COLORS actually *mean* something in SertZ. Each color represents a unique height. If two things have the same color, they are the same height! The bottom of the tray is yellow, just like the box. That's because the tray shares the same bottom of the box. The walls are green because they are a DIFFERENT height than the bottom, but the SAME height as the edges of the game box, which are ALSO green.

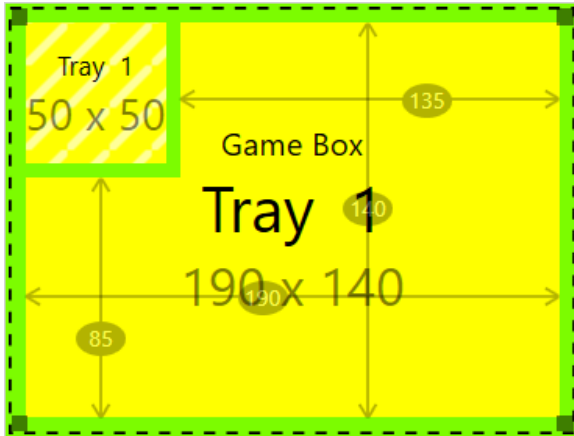
Guess what? You can resize the tray just like the game box! Let's do that and make the tray as big as it can possibly be inside the box. Select the tray and drag the lower-right corner as far as you can. It should look like this now.



Still not very exciting though. Zombie Canasta (our fictional game, which I now very much want to invent) has zombie tokens and cards. Let's make some space for that in our insert. In fact, that's what you need to do: create a "space" by selecting the Tray 1 (if it isn't already) and press this button:

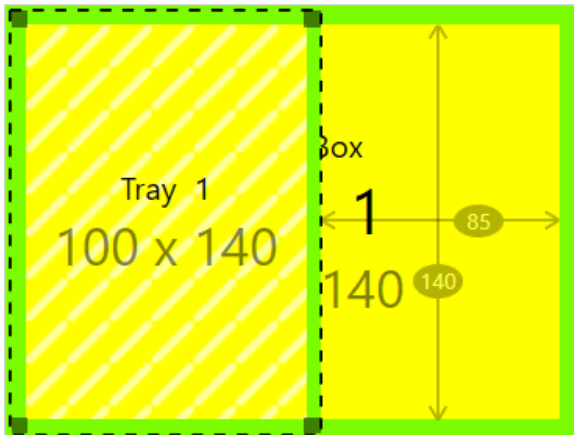


A new chamber will appear inside our Tray, but it looks a little different:



The new object has walls, but instead of being inset to make room for walls on the top and left sides, they are instead merged with the tray. That's because these "Space" chambers have virtual walls. Drag the space around, and you'll see what I mean.

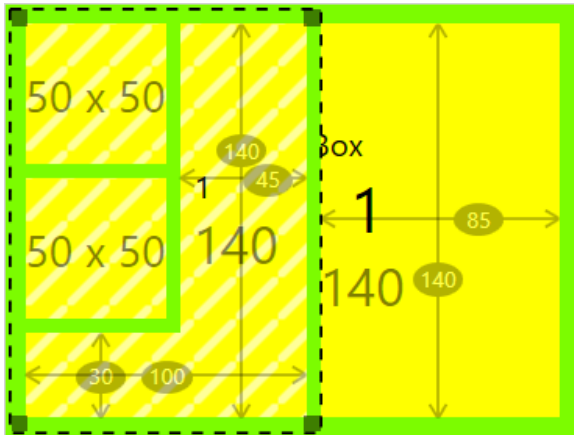
Let's use this chamber to demark the left side of our game box. Let's make it 100 wide, and as long as it can be (140):



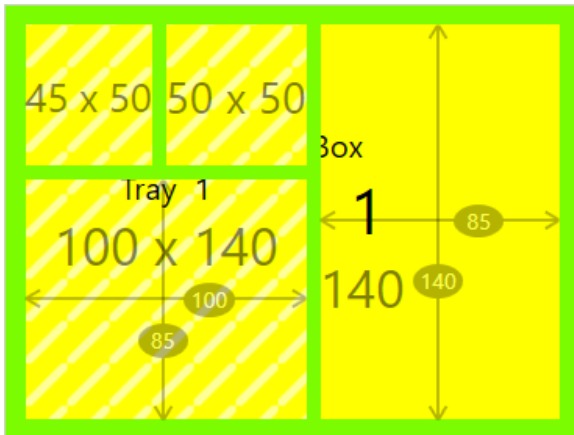
Select this inner space chamber (starting to sound like a sci fi...) and click this button a couple of times:



You should have something like this:



Shift and size these two inner spaces around so that it looks like this:

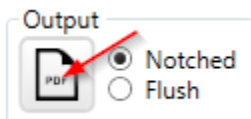


(Don't worry if the size isn't exact! Fictional game, remember?)

Now we have an insert that divides our game box into four separate chambers, each a different size. If we wanted to stop here, we could. In fact, let's save again ("File|Save" or CTRL-S)

GENERATE PDF INSTRUCTIONS

Now let's create the instructions for building this insert. Press this button in the toolbar:



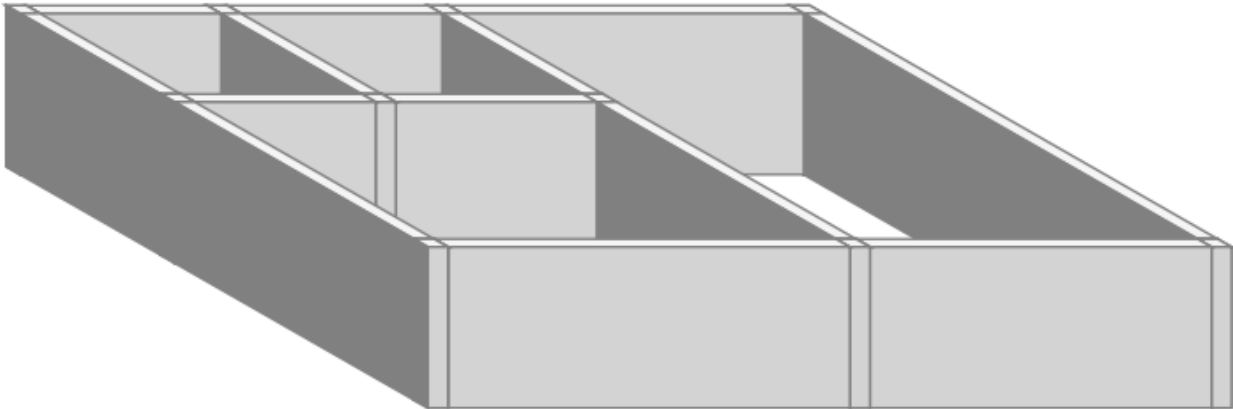
After a few moments, a PDF document should open in your favorite editor. The instructions are broken into a pre-cut section, and a build section for each tray. The pre-cut section tells you how big, and how many of each cut you need to make before you start.

Since we only have one tray so far, there's only a single tray section. The tray section starts with the tray name and a picture of the tray in pseudo 3d:

The instructions include a section for “Pre-cuts”, or the pieces you should cut out first. Then there’s a picture of the finished insert:

Zombie Canasta

Tray 1 - 1/3



Finally, there are pictures and dimensions of each of the notched cuts you need to make before the insert can be constructed and glued. Don’t like the idea of cutting notches? (I know, it’s a pain) Select the “Flush” option instead and regenerate the PDF. That’s it!

INNER TRAY

One more thing to do before we are *really* done. Let’s create a removable tray to hold some of the more fidgety pieces that you actually want to take out and set on the table while playing.

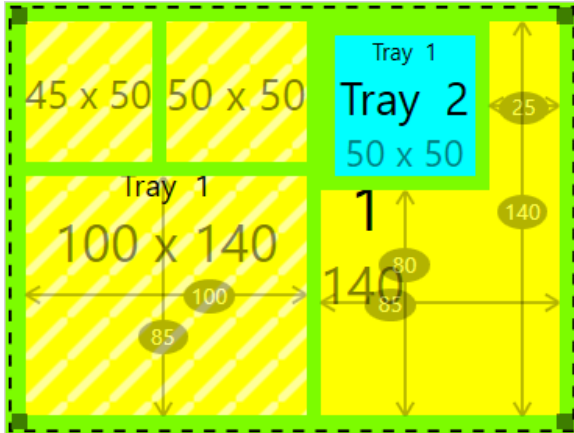
Select Tray 1. You can do this by clicking in the yellow part on the right-hand side. However, it might be tricky to do if ALL the space is occupied by other things. Let’s change the selection mode to “tray” by clicking this button:



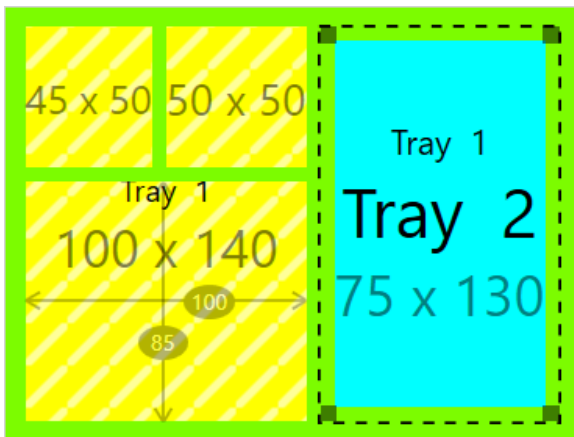
Now you can click anywhere that is yellow, and it will select the “tray” not the “chamber”. Good, now let’s create a tray with a base by clicking this button:



A new tray will appear in the available space, but THIS time, the tray has a foam core base, which is 5 mm thick:

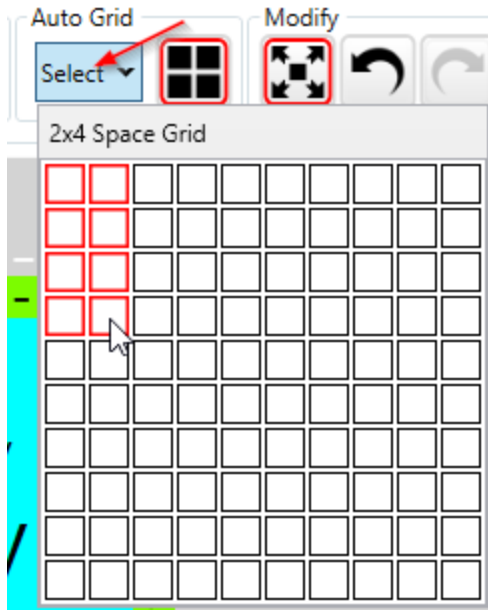


You can see that the new tray (Tray 2) has an aqua-colored base, but the walls are still green, meaning that although the tray has a base, it's walls are still at the same height. Let's resize the tray so it fits in the remaining space:

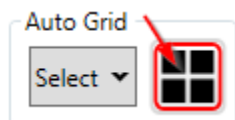


Maybe you are concerned that the tray will be TOO snug. You can always make it a few mm smaller in both dimensions, if that makes you feel more comfortable.

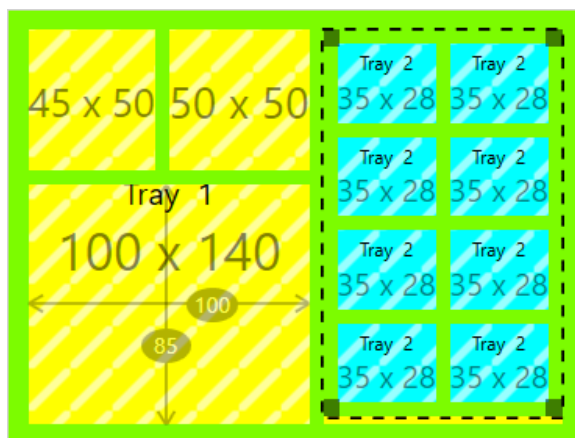
Let's break this tray up in to eight separate chambers. If you have Premium, this is easily accomplished by selecting the tray, and choosing the Auto Grid feature. Click on the dropdown, and drag your mouse to the dimension of chambers you want:



If you leave the “Force Uniform Grid” option turned on:



Then it will guarantee each chamber is an equal size, updating the size of the tray a bit to fit:



If you don't want that to happen, turn off that option.

If you don't have Premium edition, no worries, you can still accomplish the same thing! Let's walk through it.

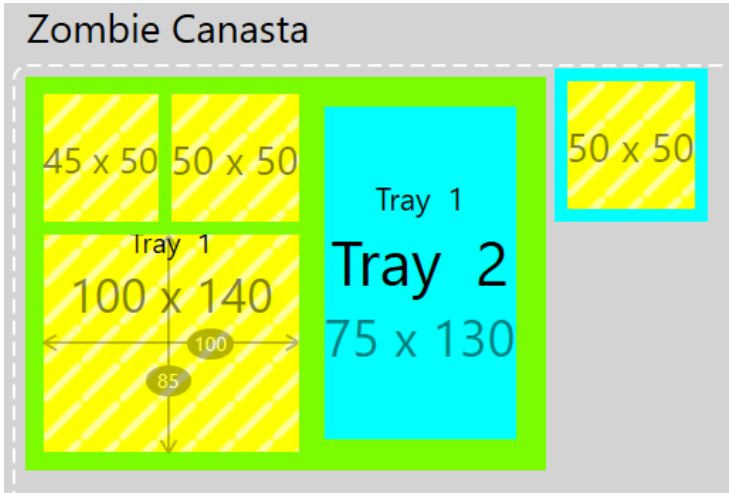
First, let's turn off tray selection mode by going back to chamber selection mode:



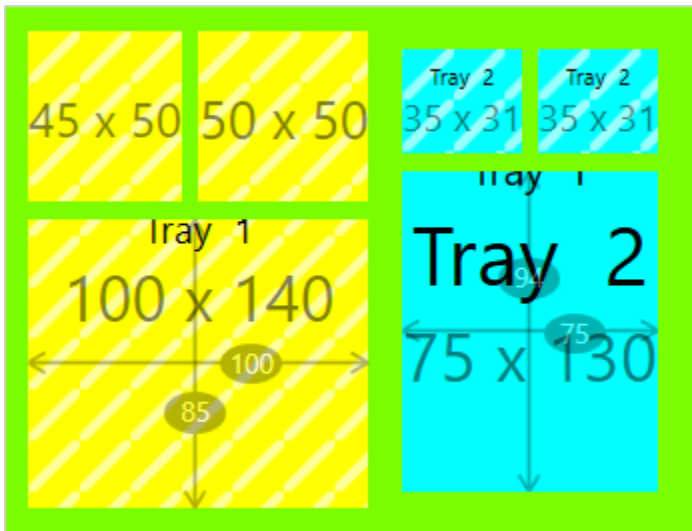
Next, click on the tabletop (anywhere in the gray area) to deselect everything. Press the space chamber once:



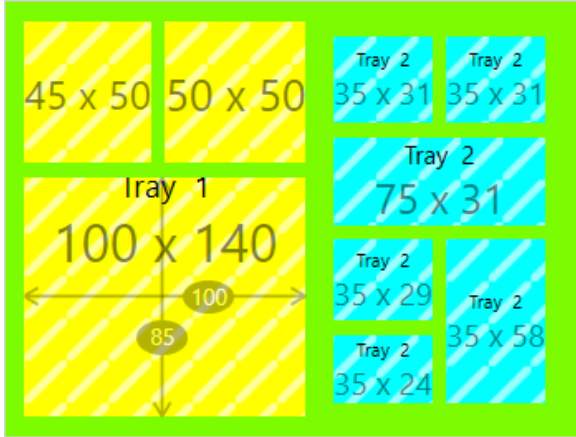
This time, the new chamber is added to the tabletop:



Resize it to something smaller and drag it inside the Tray 2 in the upper left corner. Do this again with one in the upper right corner, and fiddle with the sizes until they fit like you want:



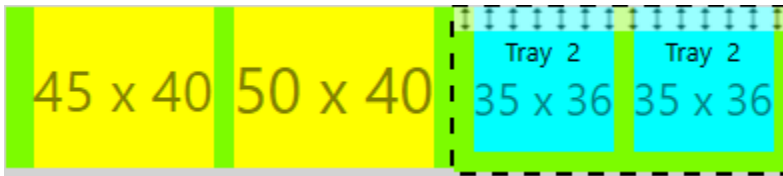
Alternatively, you could figure out in advance what sizes to make, and just fit them in. Continue this way until you have all the chambers. Maybe you decide you actually don't want a uniform grid:



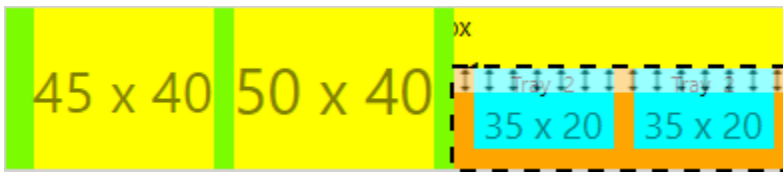
Let's say that you want the removable tray to be a bit shorter, to allow room for instructions, or maybe another tray. Choose tray selection mode:



Select the tray and turn your attention to the front view:

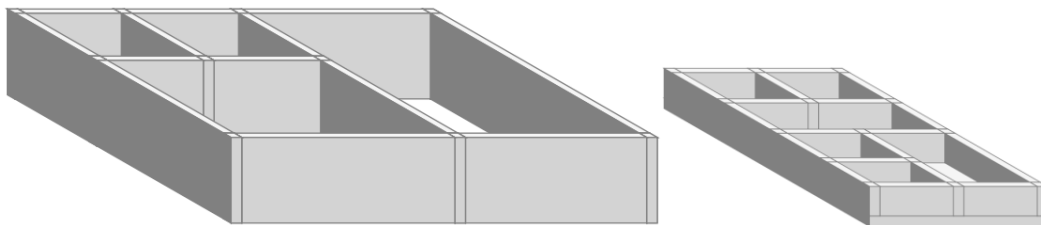


Remember how you sized the game box in the beginning? Do the same here by dragging on the top edge. Let's make the inner tray 20 mm tall:



Notice how all the inner space-type chambers size accordingly. Now you have a little space above the tray for whatever you might need to put there.

When you generate instructions, you'll have two tray sections, the main tray, and the removable tray:



Make sure you save your project! This file can be opened later with Sertz or shared with the community if you have a really nice design.

That's it, you've made your first insert plans! Read on for more information about how Sertz works, and what all the controls do. Soon, there will be tutorial videos which will guide you through some of the trickier concepts, like building layered inserts.

SERTZ CONCEPTS

CHAMBERS

All the objects that are created in Sertz are called "chambers" (as referenced throughout this document). Each chamber has three dimensions: width, length, and depth. Every chamber can be moved around on the tabletop, placed inside of another chamber, and resized in all three dimensions. Each chamber can have its own unique name (Premium version).

The colors of the chambers are defined by their height in the project. If two chambers have the same color "floor", then the floors of both chambers are at the same height. Placing a mouse over the top of any chamber floor or wall, will present a height value in the height indicator tool (See Height Indicator Tool in controls reference).

The width (horizontal) and length (vertical) can be adjusted in the Top View by selecting the chamber of interest and dragging an edge or corner to the desired size. The depth can be adjusted in either of the two side views (front or left) by clicking and dragging the top edge of the chamber. Alternatively, all three dimensions can be modified by the sizing controls at the bottom of the application window.

LAYERS, TRAYS, AND SPACE

There are three types of chambers:

LAYER

A layer is a working unit of space and has no walls itself. The initial layer created is the game box. The default game box created is always 300mm x 300mm and 100mm tall. This size can and should be adjusted to fit the specific project being designed. In Sertz, no chamber can ever be placed directly over the top of another chamber, so creating additional layers is important for managing this type of design. There are even a few automated tools to help create a correctly sized layer.

TRAY

The tray is a physical structure that after construction, will be removable from the game box. The tray might be the entire game box or may be one of many trays in the box. While in Sertz, trays cannot be placed over the top of each other, the design can accommodate creation of trays that will fit over the top using layers. Trays don't have to be the same depth, so its entirely possible to have an array of different depth trays (taller walls) at the same level, to accommodate additional game components, like a game board or tall miniatures.

Each tray has four walls, and an optional base. These are configurable, so that a tray can have fewer than four walls, and no base. For example, there may be a need to have dividers in a box without requiring a full base piece at the bottom (the box itself serves as the base).

SPACE

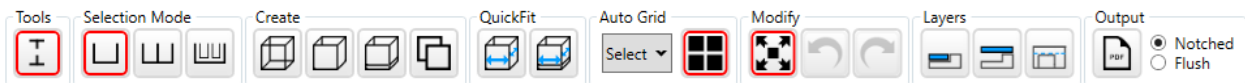
The “space” chamber is a virtual object that helps define walls inside of a tray. Like any chamber, the space has three dimensions, but lacks any walls or base of its own. Rather, the walls are dynamic and depend on position and proximity to other chambers. These types of chambers are the primary way of dividing up an individual tray into sections for tokens/cards/etc.

MILLIMETER SIZING

For convenience, everything in Sertz is presented in millimeters. If a chamber is “50 x 50, and 50 tall”, then it is 50 mm x 50 mm and 50 mm tall. The sizing controls at the bottom of the application allow you to adjust the size, and enter values in inches, if that is preferable.

CONTROLS REFERENCE

TOOLBAR



The top toolbar provides access to most of the Sertz design functionality. Some of the buttons have a red border to indicate that they are selected. In some cases, these are toggle buttons, so clicking the button will turn off the border. In the case of Selection Mode, the border indicates which mode is currently active. See proceeding sections for details on each button’s functionality.

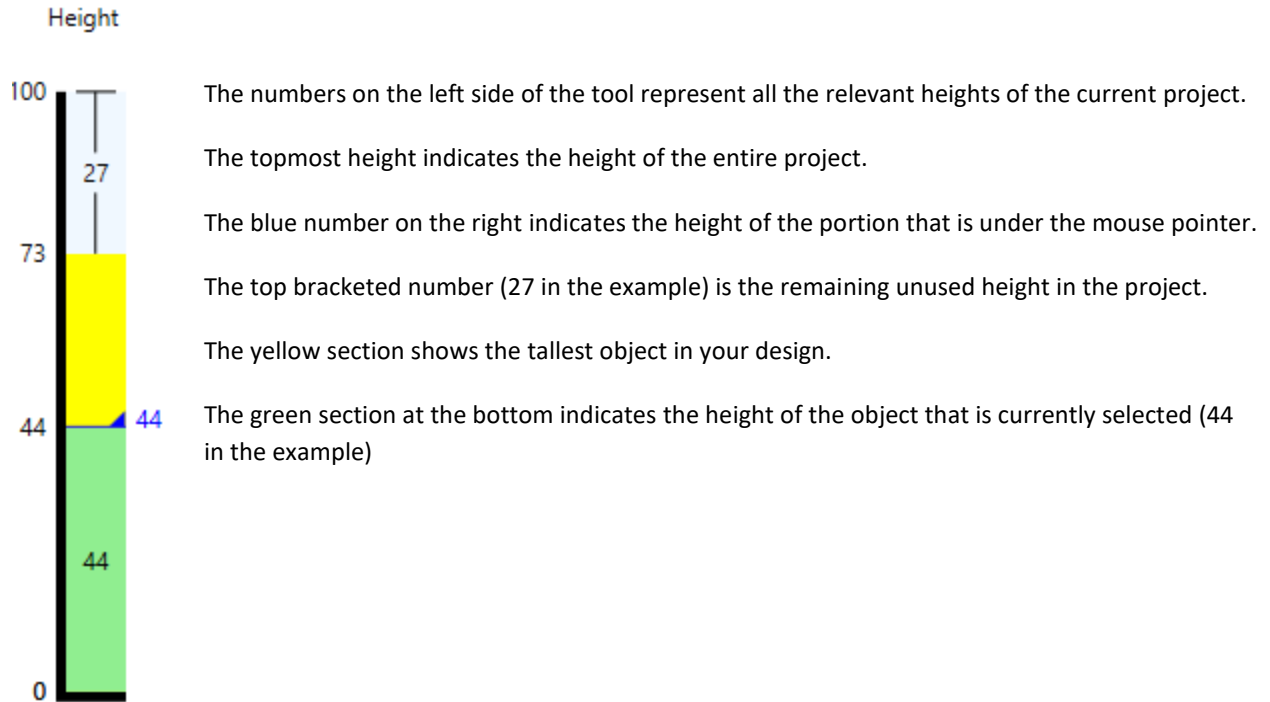
TOOLS

The tools are on-screen features to make designing a bit easier.



Height Indicator Tool

Toggles the height indicator tool on/off. This tool appears on the left side of the application and presents a measure of heights in the display.



Zoom Tool

You can zoom in any view by clicking on this icon. This will temporarily open up a zoom editor like this:



Adjust the zoom out to get a view of your entire project or zoom in to edit the finer details. Click on the zoom reset button (far left) to restore 100%. Note that you can also zoom by putting the mouse cursor in a window, holding down the CTRL key, and spinning the mouse wheel! Using the mouse will also open the zoom tool so you can see where you are at.

SELECTION MODE

Selection mode is what determines what gets selected in your design when you click on a chamber. This is particularly useful when you are trying to move trays or layers around on the tabletop.



Chamber Selection (default)

When clicking on a chamber, only the chamber under the mouse pointer is selected. This is useful early in the design, and for making fine adjustments to chambers when the design gets complicated.



Tray Selection

When clicking on a chamber, the parent tray is selected. This allows moving a tray and all its children. This is also the preferred way to select a tray for duplication. When adjusting the height of a tray, all of its children are adjusted at the same time.



Layer Selection

When clicking on a chamber, the entire layer is selected. When working with multiple height layers side-by-side, this is the easiest way to move everything around on the tabletop or performing layer-type functions.

CREATE

Creating chambers is essential for building a design, so its important to understand what each of these functions do. Take a look at the section above on Chambers in the Sertz Concepts section to get a better understanding of what each of these are.



Create new Space

Clicking this button will create a 50x50 "Space" chamber in the currently selected tray, if there is room, or on the tabletop if not. This type of chamber is always the same height as the chamber it is inside of. It has virtual walls, which means that walls will be added as needed. If you move this chamber close to another wall, the overlapping walls will be removed. Use this type of chamber to divide up a tray into individual containers for tokens/cards.



Create new Tray (no base)

Clicking this button will create a 50x50x50 Tray chamber in the currently selected tray, if there is room, or on the tabletop if not. This tray will not have a base, so it will just be four walls. You can always add a base later by double-clicking on the tray, and clicking on the center "base" toggle, and pressing ok. Use this type of chamber to create foundation walls inside your box and letting the game box be the "base".



Create new Tray (with base)

Clicking this button will create a 50x50x50 Tray chamber with a base in the currently selected tray, if there is room, or on the tabletop if not. The base is made of the same material as the walls with the same thickness, so understand that the tray will be that much taller. Like the previous function above, you can edit whether the tray has a base by double-clicking and modifying in the edit window. Use this type of chamber to create removable trays for tokens.



Create Copy (Premium Only)

Select a tray and click this button to create a copy of the tray and all its children.

QUICKFIT

Quick fit is just a quick way to fill a chamber with a tray. Note that you can always resize after quick fitting.



Quick-fit Tray (no base)

This will create a tray without a base in the currently selected chamber, to perfectly match the inner dimensions. This only works on an empty chamber. Use this to quickly add an inner structure to an existing chamber.

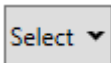


Quick-fit Tray (with base)

Identical to the function above, except that the auto-fit created tray has a base.

AUTO GRID (PREMIUM ONLY)

Auto gridding makes filling a large chamber with a known quantity of inner chambers as easy as a mouse click!



Auto-gridding selector

This will populate the currently selected tray with a grid of Space chambers. Simply click the dropdown, move the mouse to match the dimensions of the grid you are trying to create, and click again to create all the chambers you need. Note that if you auto-grid inside of a Space chamber, the parent chamber will be removed as it is no longer needed. Of course, trays and layers will always remain.



Uniform Grid Option

When creating an auto-grid, you have the option to force it to be uniform. If it's important to you that every cell is the same size after gridding, toggle this feature ON (red border). NOTE: When you auto-grid with Uniform Grid turned ON, the chamber will be resized slightly (always smaller) to accommodate any fractional difference required to make the grid uniform. If you don't care about uniformity, and just want the space to be filled up with a grid, turn this option off. Try it both ways to see how it works! Remember that you can UNDO any action, so its easy to go back and forth.

MODIFY

Editing chambers is important to get the right design together. These features will help with that.



Enable Resize Option

This option is turned on by default (red border) and allows you to edit the size of a chamber by click and dragging the corners. If you find that you keep accidentally resizing chambers when you are moving trays around, you can toggle this off, and toggle it back on when you are ready to edit sizes again.



Undo Last Change

If you make a mistake or just want to go back to something you had earlier, you can always undo. Undo can be pressed multiple times to go backward more than a single change. Undo is also available in the Edit menu, or activated with the keyboard shortcut CTRL-Z.



Redo Last Change

If you undo change(s), you can redo changes with this button. Redo can also be pressed multiple times to go forward more than a single change. Note that if you haven't pressed undo, there is nothing to redo, and so the button will be disabled. Redo is also available in the Edit menu, or activated with the keyboard shortcut CTRL-Y.

LAYERS

The layer features here allow you to develop storage solutions with multiple layers. Use full layer to add a new layer once you've designed a set of trays. Use fit layer to work around multiple tray heights. Crop layers that are too tall for the contents.



Fit Layer

Fit layer is a mechanism for creating a virtual working layer when you have multiple tray heights. Selecting a tray, and clicking Fit Layer, will create a new layer on the tabletop on top of the selected tray, and excluding any trays that might be taller than the selected tray. The best way to demonstrate this is to create a new game box and create two trays (with base) inside the box. Both trays should be shorter than the game box height. Make one of the trays taller than the other (using the side view handles). Now, click on the shorter tray and push this button. A new layer will be created, with a "hole" for the taller tray.



Full Layer

Full layer simply creates a layer the size of the game box, starting at the tallest tray height. This is the easiest way to start a new layer for creating stackable trays.



Crop Layer

Select any layer and press this button to crop the height of the layer to match the tallest inner tray. Note that while you CAN do this with the game box, you likely will not want to, and will receive an appropriate warning before the operation proceeds.

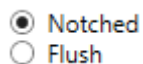
OUTPUT

This is what it's all about: getting the instructions for building! While only PDF is supported right now, future versions may add other options. If there is something you wish it could output (laser instructions?) let us know!



Generate PDF Instructions

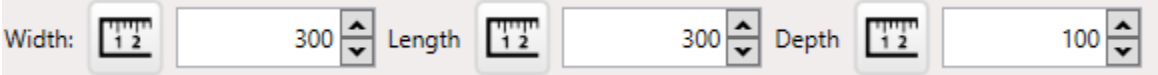
Click this, and all your hard work will be converted into a printable PDF instruction document for building your project!



Cut Options

There are two types of wall joins supported here. Notched and Flush. Notched will create joins that allow you to assemble walls by sliding them together, but it does mean a lot more tedious cutting. If you find that the advantage of having notches doesn't outweigh the work involved, choose "Flush". This option will give you simple rectangular cuts for assembling your project. More gluing in this style, but less cutting.

SIZING CONTROLS (PREMIUM ONLY)



The sizing controls allow you to fine tune sizes quickly and easily. They also serve as a view of the current precise dimensions of any selected chamber. Click the up and down arrows to adjust a mm at a time. Prefer to size things in inches? Click the ruler button, and enter the size in inches, and Sertz will do the calculation to mm for you.