ASL Storage And 3D Printing

Description

This article is tangential to playing ASL. Speaking about storage systems is likely to cause a holy war akin to a classic IFT/IIFT debate. With that in mind, what I present here is simply my opinion and my approach to storage. My thinking about this topic has developed over two decades. I have had many discussions with folks who have different approaches. I have done the best I can to incorporate the things they do into my system where it makes sense. Still, what works for me may not work for you.

Before I get started, there are many links to commercial products in this article. I am not affiliated with any of these companies or products or getting any compensation for speaking about them here. I link to them in case someone has a question about what they are or where they can purchase them.

With that introduction, let's dive in.

The Basics

Olli's Wall of Raaco

All ASL storage is about compromise. It needn't be if you are blessed with a lot of space, the willingness to use it for ASL, and the money to take advantage of it. That doesn't describe me. I doubt it describes many outside Olli and his wall of Raaco. Let's discuss the compromises.

Ease Of Retrieval versus Ease Of Storage
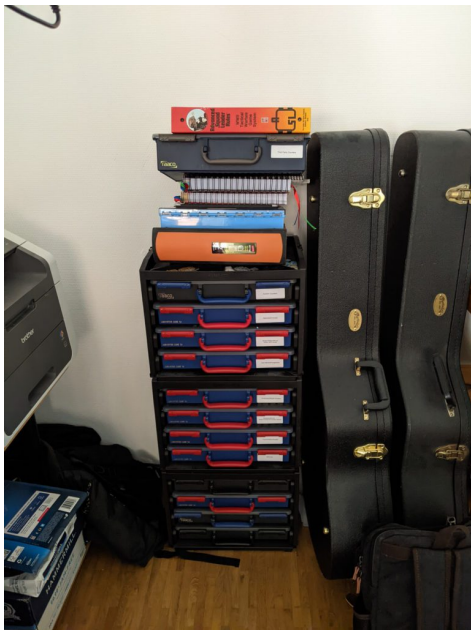
My ASL kit at home

First, there is a tradeoff between ease of storage and ease of retrieval. Units which are easily retrieved–i.e. pulled from storage so we can use them in play–are stored with more accuracy–i.e. put into storage in precise ways to make locating the counter easier. This precision in storage means putting counters away requires more time as we put everything back into its proper place. This "everything in its place" is taken to the

extreme when every counter has its own place.

Weigh this approach to simply sweeping everything into a large container with no organization. Retrieving counters for play will be time-consuming as we sift through every counter in the game to retrieve the ones needed. Cleaning up afterwards is a snap as we dump counters back into the storage en masse.

Density Versus Packed Air

The second tradeoff is also a retrieval tradeoff. The more densely we pack the counters, the more difficult retrieval is. This density can place multiple counter types into the same storage slot, filling the capacity of the slot until we use all the room, or both.

With taking all the space, tipping over the tray to dump out only the slot in question is likely a non-starter. Getting fingers or tweezers into the space can be difficult. If we store multiple counter types in the same slot, you will still have to sort through them, just on a smaller scale than everything in the same bulk container.

Putting things back into storage requires more precision than sweeping the table into a container. There is still a premium on precision in returning counters to where they belong. The real problems arise when there is little to no space remaining in the slot. This can make getting the pieces back to where they belong fiddly. Some will find that frustrating.

My Solution

My Inserts

Over the years, I have used everything from [Planno 3700](#)'s to sandwich baggies. These days I use [Raaco Storage](#) boxes for counters. I have one Service Case 4X12 I bought from the [Sitrep: Kitshop,](#) which I think is no longer available. This custom case stores all my third party counters. I stored everything else in two handyboxes, each containing four Service Case 4X8. Each Service Case has a mixture of [A75](#), [A78](#), and custom 3D printed inserts. The Service Case containing my system counters contains [A9-1](#), [A9-2](#), and custom designed inserts.

Only recently have I been migrating to custom made inserts (pictured above on right). I transitioned because of the release of [Hakkaa Päälle](#), [Croix de Guerre – 2nd Edition,](#) and [Hollow Legions – 3rd Edition](#) by [MMP](#). Each of these products increases the number of counters for the countries focused on. I squeezed the Finnish counters in with some reorganization. The next two pushed my storage beyond two Handy Boxes. Something had to be done.

3D Printing To The Rescue
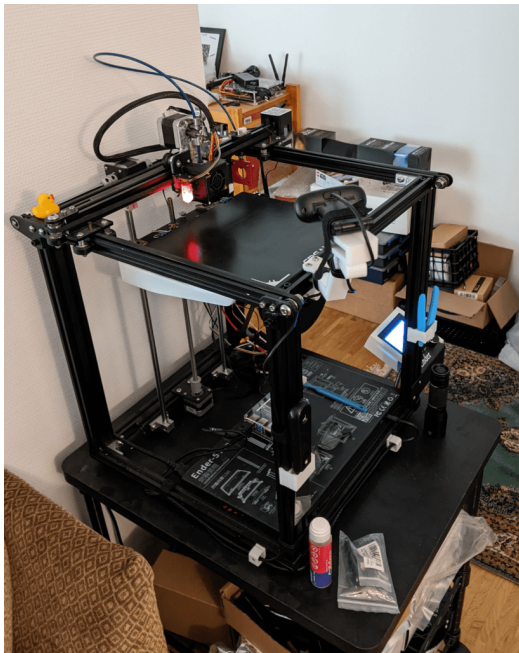
Ender 5 Pro by Creality

I am a hobbyist 3D printer nerd and I have been using 3D printers for a while now. I have used them to print Dungeons and Dragons terrain and miniatures. When I was more heavily into robotics, I used my printer to fabricate parts to mount sensors and solve problems I was having while I built my terminator (it was an autonomous vehicle which

actively hunted my house cats and took pictures of them up to no good). While I am no expert, I can print things.

The second key was a fellow ASL'ers Steve Dennis and Stefan Fiedler. Steve makes a living as a CAD drawer. He has the talent it takes to create objects in CAD software. Steve created a series of Raaco inserts, which he shared. Steve's designs were further developed and changed by other ASL'ers who share his talent. Stefan modified Steve's original work. Dennis Malmström (Klas' brother) scratch developed some as for me as well. Not only did these kind folks create these inserts in software, they freely shared the files necessary for printing them (.stl files) so anyone could use them. This was the key to shrink my storage back to where it needed to be.

How Much Compaction Are We Talking About

Service Tray

Pictured at the left is the Service Case containing my German counters. In it, you can see a mix of A75, A78, and custom printed counters. Typically, a Service Case stores A-series inserts two deep (notice the tilted insert with the empty insert under it). All the custom inserts but the bottom left are designed to fit three deep instead. Notice the top-left is waiting for a fresh insert to come off my printers as I type.

In this system, I store all of my ⅝" counters in Vehicle/Ordnance Note Order. Each of the counters has their own slot, or in rare cases, spread across two adjacent slots. I stack each of my ½" counters neatly into slots, face-up, making identification and retrieval easy.

Before I made the leap to printing my own inserts, this Service Case was filled with A75 and A78 inserts, which were filled. The count of unit types compelled me to store full- and half-squads in the same slots in the A75s. I had over one AFV type in slots in the A75s and a map allowing a person to look up which slot the AFV was in. When putting stuff away,

you had to consult this map to make sure everything found its home.

Now, I am packing a lot less air in the inserts in use. The Service Case is only half-filled with inserts holding counters. And this is the first Service Case to get inserts for ½" counters.

Time-Lapse of a Print

Downsides

Just like ASL, there is no free lunch. To do this, you need to get the inserts printed. If you already have a 3D printer, you're in luck. The .stl files are available on the Texas ASL site in their download section (search for .stl on that page). A kilogram of filament will run about $25 and can print 20'ish inserts. Inserts take 5 – 6 hours to print depending on how you set up the print run. It takes patience and a willingness to tinker to get good prints, but once you do, it is quite satisfying. I use a Creality Ender 5 Pro, which is no longer available. An Ender 3 Pro is a functional equivalent. After a lot of testing, I prefer the Hatchbox PLA filament.

Even if you don't have your own printer, you can use the files. There are many 3D printing services that will print these for you. They aren't particularly cheap to do this way, but when you factor in the cost of a printer and filament, plus the time to sort out how to do this effectively, it is likely to be a much cheaper approach. The first set of inserts I used were made this way.

Other Bits

Having the .stl files is only the start. You must also have a "slicer" software. This piece of software opens the .stl file and then makes thin horizontal slices (typically) through the model and converts these slices into "G-Code". G-Code is fed to the printer to manufacture the piece. Of course, your slicer needs to be configured to speak your printer's language. Fortunately, you can find profiles for printers from printer vendors. I currently use Cura. Cura is open source software and constantly updated. Your slicer also needs to know the profile of your printing material. Again, manufacturers make this available as well.
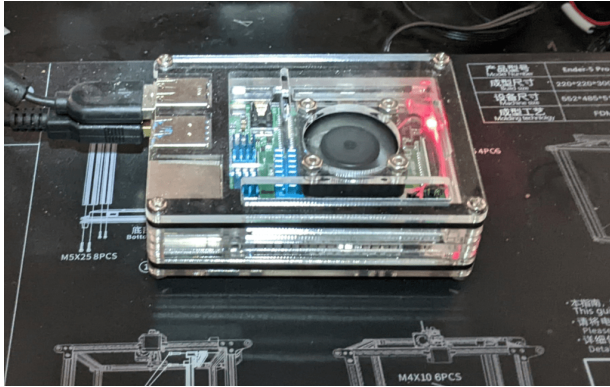
Raspberry Pi Running OctoPi

I also use a Raspberry Pi computer on a board to run Octopi (pictured on the right). Octopi runs on my local network and allows me to transfer files to and from my printer. It also allows me to remotely control and monitor my printer to make sure everything is running correctly. It has many open source plugins which can extend functionality to make the printer safer to run and operate (the hot end of the printer runs at 200C or higher to melt the plastic).

Other People's Approaches

As I said at the beginning, there are many approaches to storage systems. You can see some of them on display on the Desperation Morale website. People there are using everything from custom made wooden cases to match boxes. If you can imagine it, I am sure someone has used it to store ASL counters. When I first started, I stored my counters in empty check-book boxes (remember when we physically wrote checks?).

Storage By Martin Durik

Still, if you want to see what the art of the possible in 3D printing is, I leave you with these beautiful cases made by Martin Durik. Pictured is my friend Michal Sedlacko's kit. These

cases are fully customizable. Inserts of different sizes and configurations are available for these trays. Martin manufactures them with different labels and names on top. They are stackable and can meld together with magnets, letting you stack as many of these as you need and to separate them into component pieces for travel if you wish. They truly are a state-of-the-art storage system.

See this YouTube video where Martin describes his system:

> Martin speaking about his system on YouTube

If you want further information, Martin has a Facebook Page called [3D Boardgame Parts](https://jekl.com). Martin's contact information is printed on the lid in the YouTube video as well.

Conclusion

If people would like to expand on this article, I will consider it. It might be best to discuss one-on-one. The important thing to remember is that storage systems are highly individualistic. Sure, they share many of the same concepts and goals, but there are many ways to solve these problems. If it works for you and you can explain it to your opponent so he can pull and put away his counters, then it works. And that's ultimately all that matters. Until next time. – jim