Draconic Evolution Fusion Core Automation

But why? I already have a working setup, why should I bother?

This guide aims to help you to automate the Draconic Evolution Fusion Core with PackagedAuto. The way the Fusion Core is automated in this guide:

1) is conflict-less. There are several recipes that have conflicts/collisions with each other; say, there might be a recipe that requires stars in the middle, while another one requires you to put nether stars on injectors: this is a conflict and cannot be easily filtered without making a whole new fusion setup,

2) is clog-less. The automation will not clog under any circumstances, unless you somehow manage to mess up encoded holders,

3) is universal, it can process every recipe, even recipes that require less than 10 distinct items while having 10 injectors.

Important notice: this guide was mostly written for post-creative tank where you don't have to craft Awakened Draconium anymore, which instead can be infinitely solidified. This setup cannot craft it without a workaround, see the Awakened Draconium paragraph for tips and workarounds. Thanks to Taras#5560 for mentioning this issue.

I sincerely ask you to follow it step-by-step. Everything mentioned in pre-requisites for each section is **required**. Feel free to use various tiers of stuff like GTCE chests, replace vanilla chests with different crates if you want to, but keep in mind that it will not affect the automation positively at all: it won't increase the speed, it won't increase the stability, it won't magically do anything else.

While this guide tries to be verbose, keeping everything step-by-step, it assumes you already know what PackagedAuto does and what it is for. If you don't, consider reading my attempt at explaining PackagedAuto.

This guide is brought to you by Neeve and targets the Omnifactory modpack. Feel free to come the Discord server to chat, or to add me on Discord to ask questions.

Making Patterns

Prerequisites

To begin making patterns with PAuto, you'll need:

a) 3 package holders,

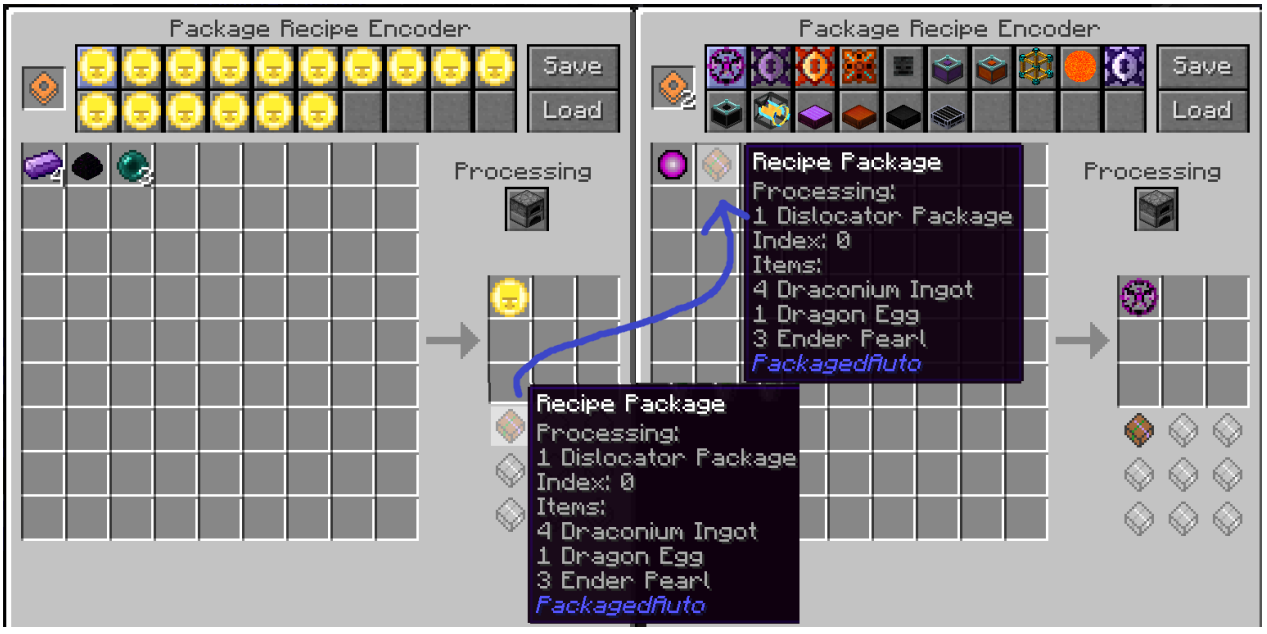
b) 2 package recipe encoders,

c) 2 packagers.

Put two packagers anywhere in your system, preferably connected with an AE2 cable instead of EIO conduits touching them directly; using EIO conduits might lead to random issues like packages disappearing or etc.

Making Patterns

Make a pair of Package Recipe Encoders, put one holder into the first one, and two holders into the second one. For example, let's teach the fusion core to craft **Advanced Dislocators**.

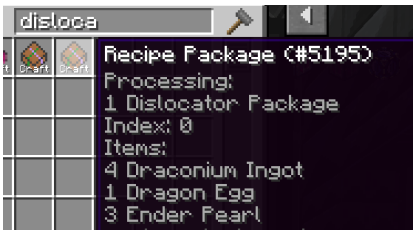


Pic. 1. A breakdown of encoded packages.

I'm using coins instead of cobblestone because I'm fancy.

According to JEI (pic. 1b below), Advanced Dislocators have a pretty simple recipe: **1 Dislocator** that goes into the core, while **4 Draconium Ingots**, **1 Dragon Egg** and **3 Ender Pearls** go into injectors.

Now, in the first Package Recipe Encoder, you'll need to encode a pattern containing all items that go into injectors, so **4 Draconium Ingots**, **1 Dragon Egg** and **3 Ender Pearls**. I suggest putting a named item into the output, so go name a piece of cobblestone *"Advanced Dislocator Package"* on a vanilla anvil and put it as a result of the package, or you can rename a previously created template in the template manager. Click Save, put the encoded holder into the first packager. Access a nearby ME terminal, then order the package and take it.



Pic 1a. Ordering the package. Missing the word “Advanced”, yes.

In the second Package Recipe Encoder, use JEI to move the Advanced Dislocator recipe into the encoder (pic. 1b). Remove everything but the Dislocator from the input box, and put the package instead. You should now have a recipe taking a **Dislocator** + **Advanced Dislocator Package** making **Advanced Dislocators**. Click Save, put one holder into the second packager. Save the other holder for later: you’ll need to put it into the setup itself.

Pic 1b. Moving items from JEI. As suggested by an anonymous commenter. ❤️

Please refer to the pic. 1 to make sure that everything is encoded correctly.

Assembling the Core

Prerequisites

You'll need:

a) EnderIO item conduits,
b) EnderIO redstone conduits,
c) EnderIO energy conduits,
d) an EnderIO redstone sensor filter,
e) a Phantomface from Actually Additions, and a Phantom Connector,
f) 2 PackagedAuto Unpackagers,
g) any tier GTCE Robot Arm (preferably LV),
h) any tier GTCE Conveyor (preferably LV),
i) a vanilla chest,
j) a GTCE Steel Chest,
k) 1 GTCE Item Filter,
l) 10 Fusion Injectors,
m) 1 Fusion Crafting Core.

Required tools:

a) GTCE crowbar (in case you messed up the cover placement),
b) GTCE screwdriver to configure covers,
c) Yeta Wrench,
d) (optional) Conduit Probe to copy/paste conduit settings.

Assembling the Fusion Crafting Setup Itself

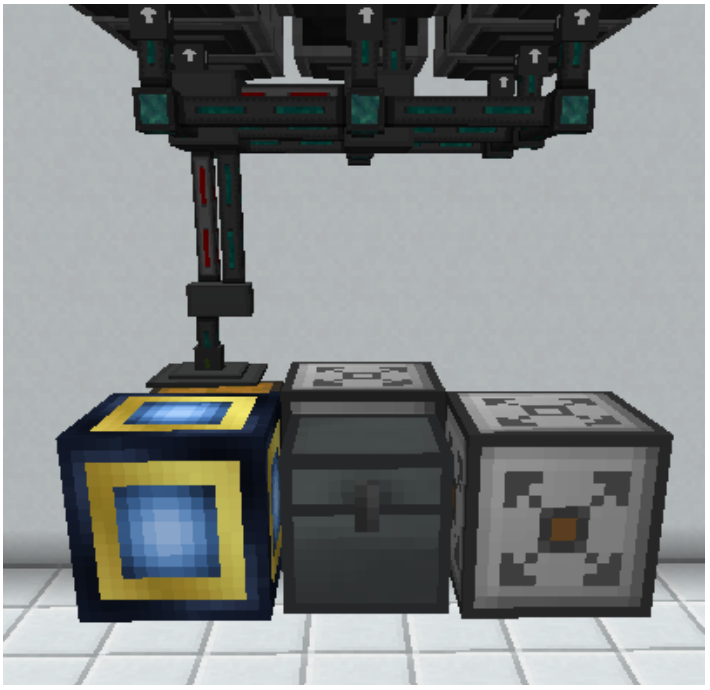
Build the core whichever way you prefer while following the correct placement of fusion injectors. You can use my design below as a reference (pic. 2), energy conduits omitted. Keep in mind that you're **not** limited in the placement of Fusion Injectors, just make sure everything is wired up correctly. Your creativity first!

Pic. 2. My personal Fusion Crafting design. Feel free to change to fit your needs.

First of all, switch all injectors into single item mode (shift-right click each one with bare hand). Wire all injectors with EIO item conduits, insert on white channel. Connect the core with redstone conduits, shift-**left** click the redstone conduit facing the Fusion Crafting Core with a Yeta Wrench to open its GUI, put a redstone sensor filter inside the core conduit connection and configure like shown below (pic. 3). Run redstone conduits all the way to the bottom.

Pic. 3. Fusion Core redstone conduit settings.

Assembling the Unpackaging System

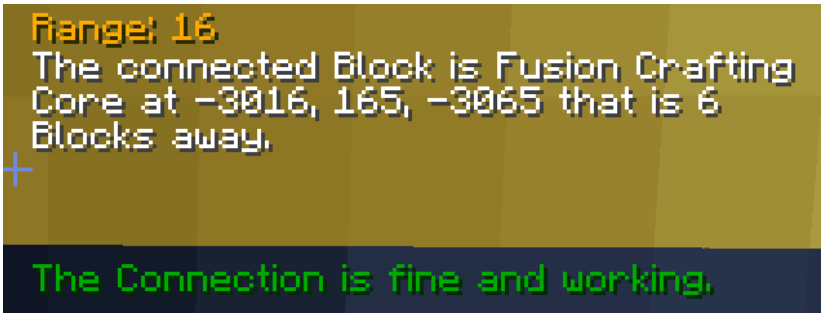


Pic 4. The unpackaging setup.

Keep in mind that you **must** have everything placed as shown.

Yes, even the Phantomface. It's required.

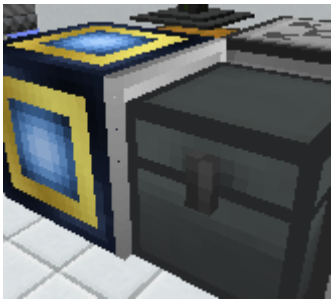
Place down both unpackagers, the steel chest, vanilla chest and the Phantomface in the same exact formation as above (pic. 4). Connect the vanilla chest with EIO conduits. Open unpackagers GUIs and enable blocking mode. Grab Phantom Connector, shift-right click the Fusion Crafting Core and then shift-right click the Phantomface.



Pic 5. If you see this, it means that you've configured the Phantomface correctly.

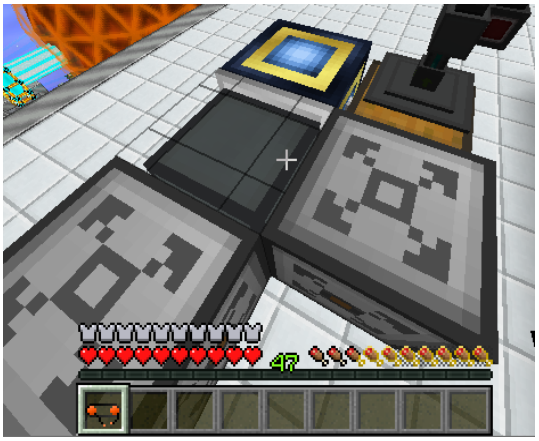
Now, get the robot arm and hold it in your hands. You should see GTCE grid to appear on the chest when looking at it. (pic. 6)

Pic 6. The GTCE grid. Right-click this exact part of the grid to apply the cover.



Pic 7. Robotic arm, put in place and facing the Phantomface.

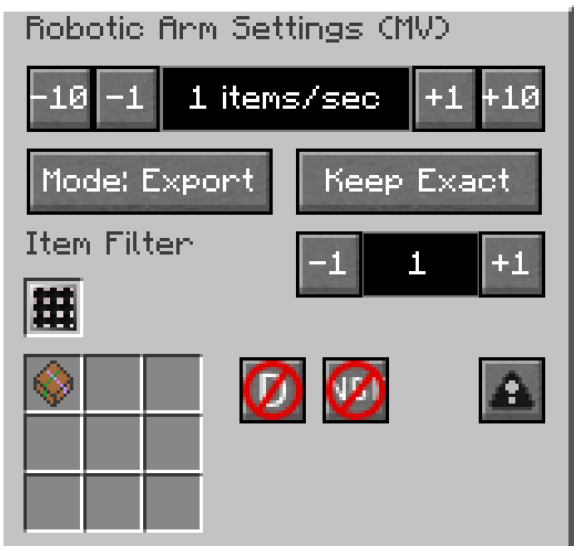
Look at the exact part of the grid as shown on pic. 6 and right-click. You should see the cover to appear on the left side as shown on pic. 7. Do the same with the conveyor cover, but this time apply it to the side shown on the screenshot below (pic. 8).



Pic. 8. This is where the conveyor goes.

If you messed up the cover placement, use a GTCE crowbar to remove a cover.

Now, get yourself a GTCE screwdriver if you still don't have one and right-click the spot where you placed the robot arm (pic. 6) with it, insert the GTCE item filter and configure the arm EXACTLY like shown on the screenshot below (pic. 9). Yes, by exactly I mean exactly.



Pic. 9. Robotic Arm Settings (MV).

Robotic Arm Settings (MV) ocelot.

Explanation: this will insert everything that's not a package into the Fusion Core, and will ensure that the core has only one item at a time, thus preventing any potential clogging. Left-click any slot of the filter with any PAuto package.

The conveyor already has all necessary settings set by default, you don't have to configure it.

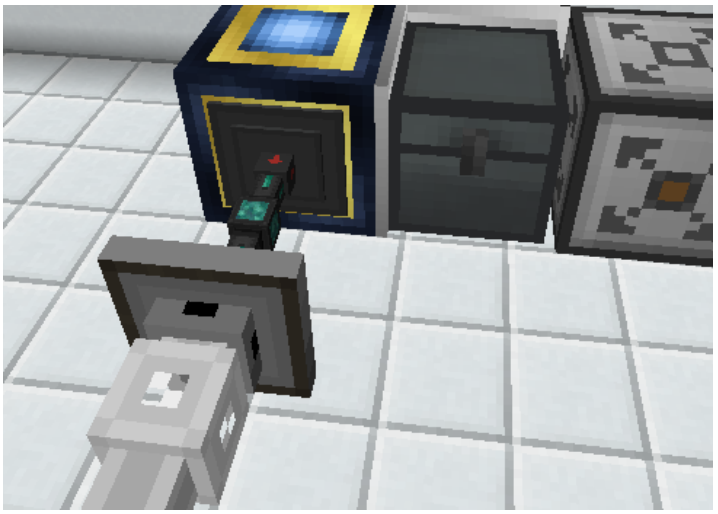
Right-click the vanilla chest conduit connection and configure it to be active **only without the red signal**, output on white channel. Also remember to set the redstone conduit to output on red so that it will not insert items while a craft is ongoing.

Pic. 10. Vanilla chest conduit connection. Please note that the "torch" button shows an unlit torch.

And finally, insert the holder from the Making Patterns section of this guide into this unpackager.

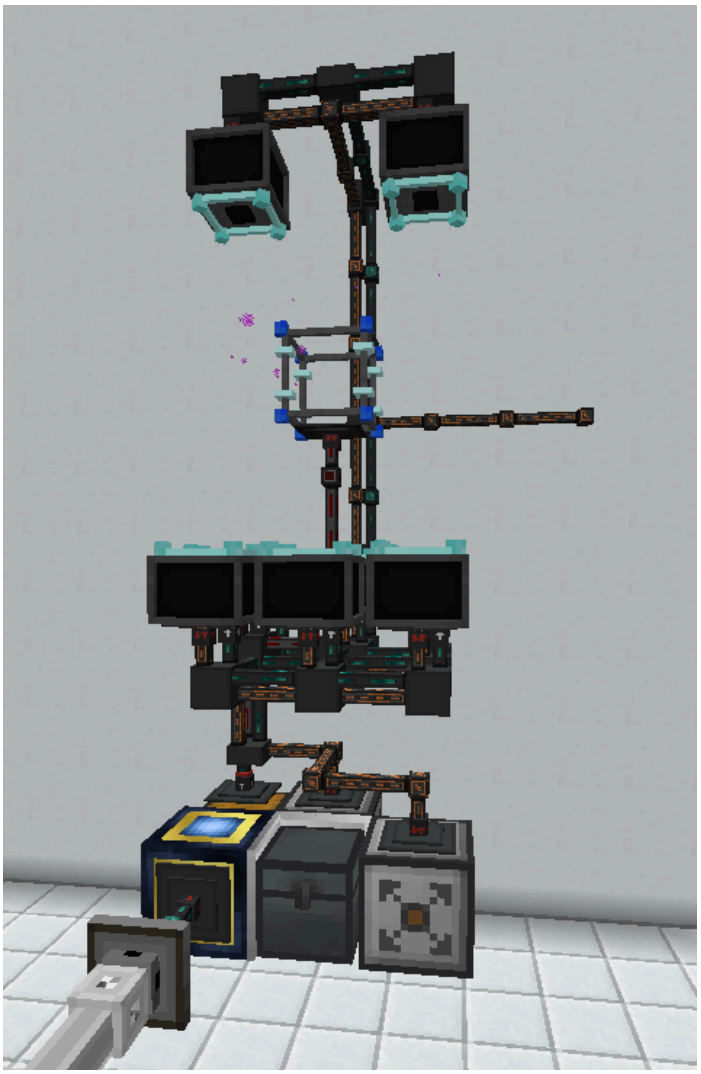
Pic. 11. The rightmost packager. Obnoxious blue arrow included.

Now, connect the Phantomface to your system whichever way you prefer to pull results from the Fusion Crafting Core. For example, I'm pulling items with an EIO conduit into a ME interface (pic. 12).



Pic. 12. Pullin' the results.

Now finally, provide power to your setup with EIO energy conduits. Your setup should end up looking like on the screenshot below (pic. 13).



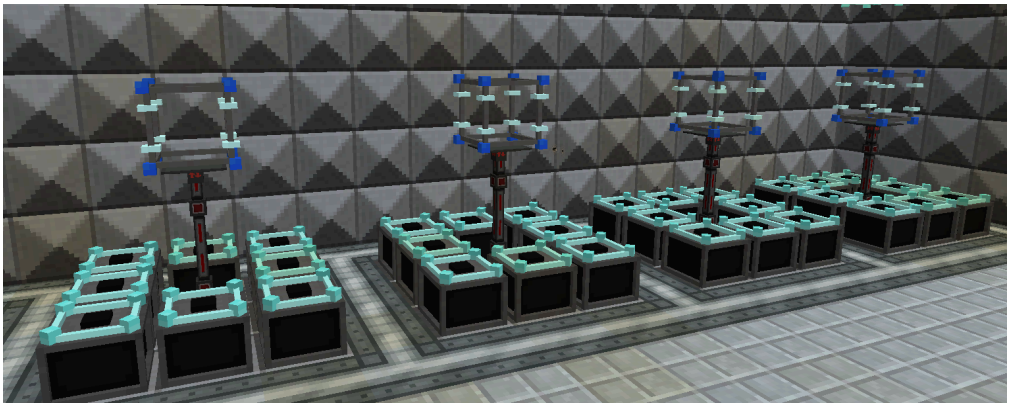
Pic. 13. The fully assembled Fusion Crafting setup. Please note that Unpackagers need to be connected to either your AE2 system or power conduits.

Done! Now connect the rightmost unpackager to your ME network, and you should be able to see and order (now) auto-craftable Advanced Dislocators.

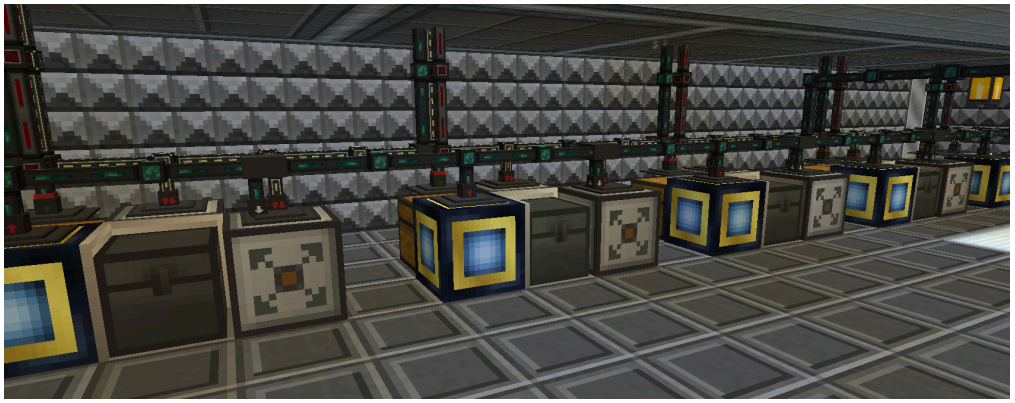
Make sure both unpackagers have blocking mode enabled. To add new recipes, you must retrieve all holders and encode them the way suggested at the beginning of this guide; there are up to 20 total slots in package holders which you can use to encode up to 20 different recipes!

Parallelizing, Ctrl+C/Ctrl+V

If you're reading this, then you're probably post-tank. If you're not post-tank, you probably don't need to read this. Probably.



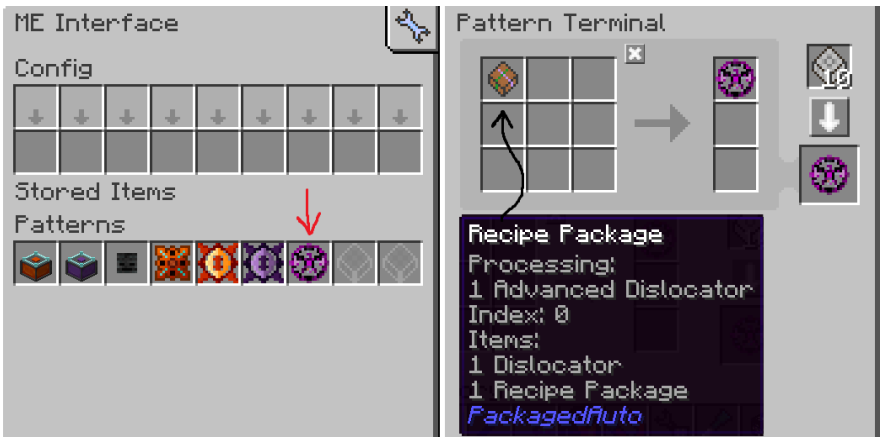
Pic. 14. Multiple Fusion Crafting Cores ready to fuse things.
Absolutely not ready to fuse the awakened draconium.



Pic. 15. Multiple Fusion Crafting Cores, but below. Note the same repeating formation.

Due to the insane amounts of items you'll need to craft post-tank (for the vending upgrade), parallelizing Fusion Crafting Cores isn't the worst idea: among other things, except the awakened draconium, you'll need at least 80k advanced dislocators after all, just imagine waiting for them to craft on a single fusion setup. (yikes!)

The idea is to have multiple identical fusion setups working in parallel, all being capable of processing every recipe (except the awakened draconium), and a centralized buffer that would distribute packages across several Unpackagers. Since you don't need the awakened draconium post-tank, you don't have to construct any workarounds for it. So pretty much Ctrl+C and Ctrl+V. Again, if you're pre-tank, you probably don't have to do any of this.



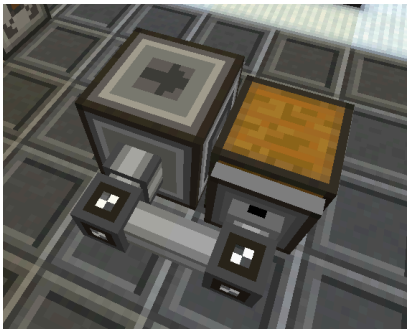
Pic 16. AE2 patterns, +1 level of the recipe depth.

Pic 17. Pretty much all patterns you need. Note the lack of the awakened draconium.

To begin, you'll need to take out the holder out of your first fusion setup, you will not need this holder anymore. Then, you'll have to "convert" each and every recipe of the holder into an AE2 pattern (except the awakened draconium), like shown above.

Order the corresponding package. Then, find the recipe in JEI, use the [+] button to move items into the pattern terminal set to processing mode, and remove everything from the left 3x3 grid. Put the package there instead, encode (pic. 16). Rinse and repeat for every single recipe the encoder has. Except the awakened draconium.

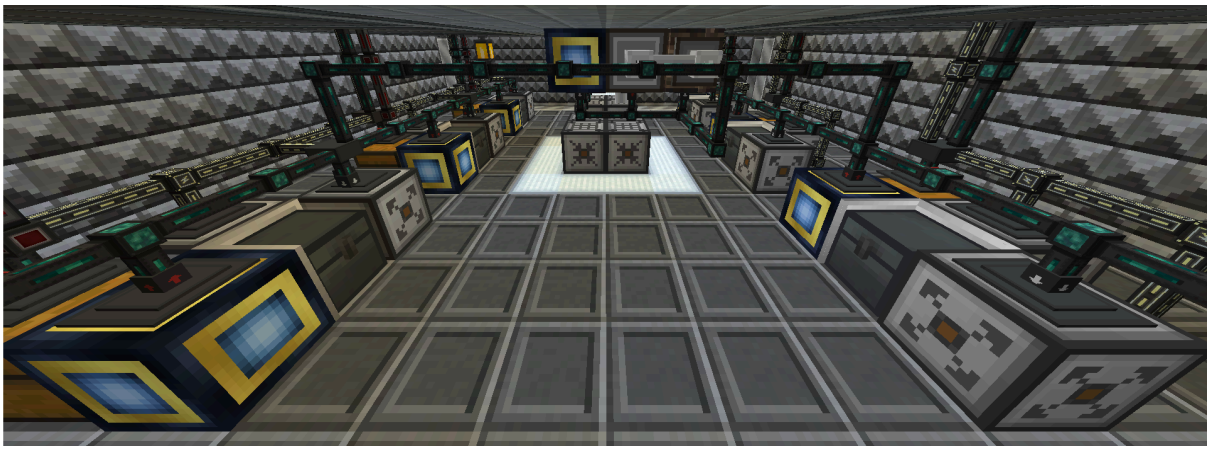
Once you're done, put down a buffer chest somewhere near your future parallel fusion setups. Connect two interfaces to it, preferably at least one full-block (pic. 18). Fill them with the patterns you've made. And finally, connect them both to the ME network.



Pic. 18.

From this moment, whenever you'll order something craftable on the fusion setup, the network will put a package into this buffer chest. You'll need to distribute packages across all **first** Unpackagers of the fusion setups evenly, and for this you can use EnderIO item conduits: they have in-built round-robin mode (don't forget to turn it on), and paired with the extraction **downgrade**, they can distribute packages pretty evenly. **Important notice: do not put any holders into Unpackagers from now on!**

If you want to speed things up, you can make more extraction conduit connections, or break the Unpackagers down into differently-coloured item channels (as in, some insert on white, some insert on black), or whatever you'll come up with. Your creativity is the limit, again!



Pic. 19. The finished setup.

Keep in mind that Packagers might start to bottleneck your setup soon. To get around this, Packager Extensions exist. You'll have to put them near Packagers to form multiblocks. Unfortunately, this is the only way to accelerate Packagers.

As always, feel free to point out ambiguous moments.

Bonus video: https://i.neeve.co/LavenderJubilantStag.mp4.

Post-Scriptum

While this guide attempts to be as verbose as possible, some moments might have been left ambiguous. Feel free to use the Google Docs commenting feature to point which parts of this guide should be explained.

Once again, this guide was brought to you by Neeve and targets the Omnifactory modpack. Feel free to come to the Discord server to chat and chill, and to add me on Discord to ask any questions regarding the guide.

Awakened Draconium, Workarounds

To temporarily fix the awakened draconium being uncraftable, you can:

> Put another Phantomface linked to the fusion core on top of the steel chest. Put a robot arm on top of the chest set to export (keep exact) with an item filter set to 5 draconium blocks.
>
> PhoReaper#9101