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Installing mods on Steam Deck

Steam Gems

The Steam Deck gaming console offers a galaxy of creative modifications for the games you love to play. BY JASON MCINTOSH

I n last month's *Linux Magazine*, I wrote about exploring the Arch Linux-derived operating system that undergirds the Steam Deck, Valve's hand-held game console. That article mentioned the potential for installing community-authored, rules-bending game modifications – *mods*, in gamer parlance – as one reason to pop the hood of your Steam Deck and root around in its KDE-based Desktop mode.

This article examines this aspect of Steam Deck Desktop mode in greater detail, demonstrating the various ways you can add mods to your installed games. As with last month's explorations, your comfort and knowledge with Linux give you an advantage when it comes to exploring this hidden but readily available feature of Steam Deck.

Before You Begin
Before exploring the options presented in this article, you should have some basic familiarity with Steam Deck Desktop mode and how it differs from the default Gaming mode. You can follow all of the steps in this article using nothing more than the Steam Deck itself. However, connecting the Steam Deck to an external, full-sized display, as well as a hardware mouse and keyboard, can provide a much more comfortable and navigable experience. For more information on using Desktop mode and connecting desktop peripherals to your Steam Deck, see the article on "Steam Deck Desktop Mode" in *Linux Magazine* issue 292 [1].

Keep in mind that tinkering with third-party game mods carries the same level of risk as any other task that involves downloading and running interesting stuff you find on the Internet. Use Steam Cloud or another method to back up your personal game data before experimenting.

About Mods on Steam Deck
In the context of video games, a *mod* is a piece of software that modifies the behavior of a game.

Mods are typically created and distributed by some entity other than the game's own creator. Mods are often made by fans of a particular game and freely shared with other players over the Internet.

There's no single way that mods work, much like there's no single way that games are made. In the Steam ecosystem, mods – and the level of support that games have for them – fall into three general categories: first-party mod support, Steam Workshop support, and unsupported mods.

In the rarest case, a game might embrace the concept of community-produced mods to such a degree that you can browse, download, and manage them right from the game's own UI. An example is the cooperative space-mining fantasy *Deep Rock Galactic* by Ghost Ship Games [2], which offers a *Modding* tab as a first-level option in its pause-screen menu. From there, an in-game web browser logs you into the third-party mod.io service using your Steam account, where you can browse or activate a panoply of fan-made *Deep Rock Galactic* mods. Because this uncommon and wholly self-contained approach doesn't require you to take any action outside of the Steam Deck's default Gaming mode, the remainder of this article focuses on the other two categories of mod support in Steam. Both of these options require a little more effort from you.

One of these options is games with Steam Workshop support. Steam Workshop is a Steam-wide mod-management toolkit. Game creators can opt to integrate their games with Steam Workshop in order to welcome the use of community-produced mods without necessarily offering a complete in-game interface for them.

Steam Workshop is essentially inaccessible from the Steam Deck's default Gaming mode, even for games with Workshop support. To use Steam Workshop, you have to drop into the KDE-based Desktop mode and use the Steam client, as described later in this article. When you subscribe to a mod through Steam

Workshop, your Steam Deck downloads the mod, keeps it up-to-date, and makes it available to the target game – including when you run the game in Gaming mode.

One example of a Steam Deck-compatible game with this level of mod support is the sci-fi role-playing game *Caves of Qud* by Freehold Games [3]. *Caves of Qud* has a *Mods* option on its main menu, similar to *Deep Rock Galactic*, and its official wiki includes thorough mod-authoring documentation. However, to obtain mods other than first-party ones published and sold by the game's creators, you have to go through the Steam Workshop.

The other option is games that don't have official mod support. When a game doesn't officially support mods by itself or through Steam Workshop, enterprising fans might find ways to create and distribute mods anyway – whether or not the game's creators or publishers explicitly condone it. You could consider this kind of mod a benevolent hack of the original game.

Unofficial mods for a game might use any number of techniques to work their magic, based on whatever opportunities the original game's software makes available – intentionally or otherwise. To apply a mod like this to a game, you typically need to follow instructions attached to the mod or otherwise maintained by the game's fan community.

Installing an unsupported mod sometimes means rolling up your sleeves and digging into your filesystem, making `README`-directed changes in the game's installed location. On Steam Deck, that's typically a subdirectory of `/home/deck/.steam/steam/steamapps/common/` named after the game. (And if you haven't taken a few moments to casually browse through those directories in Desktop mode, feel free! It can give you some interesting clarity on how your games are structured – to say nothing of how you might experiment with them.)

In other cases, you can use mod-management applications to help you find, install, and enable mods. These applications serve a similar purpose as Steam Workshop, but they can help you modify games that lack official mod support. One such manager is the free software called r2modman [4], which I will describe in greater detail later.

The capitalist-nightmare satire *Lethal Company* [5], a sleeper hit developed by the young auteur known
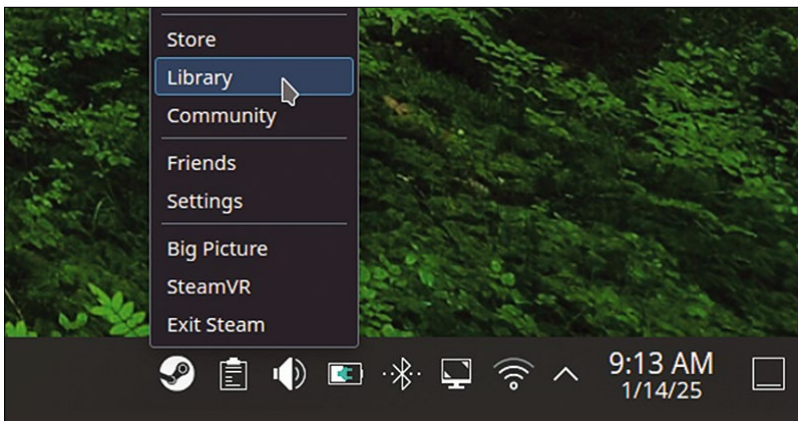

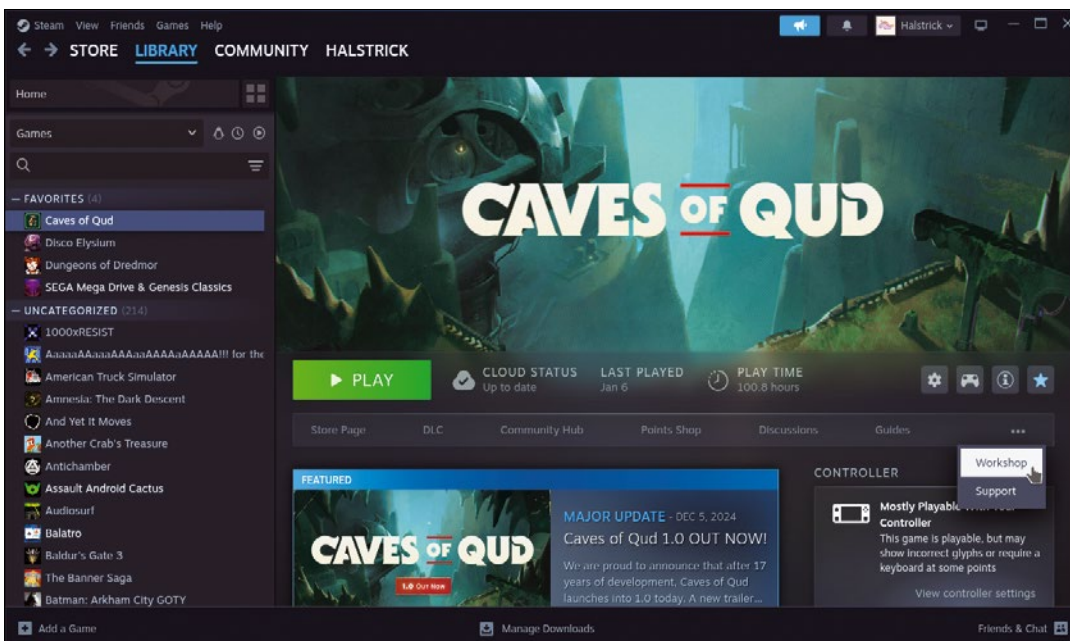**Figure 1:** Launching the Steam desktop client from the KDE panel.

Figure 2: Finding the *Workshop* tab on the *Caves of Qud* library page.

only as Zeekerss, is an example of a game whose creator informally condones mods but leaves their use and management entirely up to players. Fans of *Lethal Company* can accomplish this using r2modman.

Visit Steam Workshop

When you use your Steam Deck in Gaming mode, it acts as much as possible like a gaming console, rather than a more flexible PC that you happen to be using for games. This extends to the fact that Gaming mode offers no interface at all to Steam Workshop, even for games that support it. The world of fan-made mods can get a bit chaotic, and that's a step beyond the clean, console-like experience that Gaming mode seeks to offer.

Making use of Steam Workshop from your Steam Deck means signaling that you're willing to operate in a less streamlined environment in order to modify your games away from their pristine, vanilla flavors. That means dropping into Desktop mode and then running the desktop version of the Steam client.

To view Steam Workshop options for a game in your Steam library that has Workshop support, follow these steps:

1 Enter Desktop mode.
2 Launch the Steam desktop client by double-clicking the *Steam* icon on the desktop or clicking the Steam logo in the KDE panel and then selecting *Library*, as shown in Figure 1.
3 Click the *Library* tab in the Steam window.
4 Click the title of a game from the list.
5 In the row of tabs located after the game's artwork and basic information, click *Workshop*. If your Steam window is relatively narrow – which is likely if you're using Desktop mode without an external monitor attached – the

Workshop tab might be under a ... menu that replaces the last tab, as shown in Figure 2. From the *Workshop* tab, you can browse Workshop-available game mods and subscribe to any that appeal to you, as shown in Figure 3. Subscribing to a mod means downloading it and then allowing Steam to keep your copy of it updated.

Typically, subscribing to a mod also enables it in the game. If the game recognizes the mod, you should see its effects after you return to Gaming mode and run the game from there. That is, while you need to use Desktop mode to browse and obtain game mods using Steam Workshop, the mods don't require that you subsequently play the game in Desktop mode.

My example game, *Caves of Qud*, lists all Workshop-subscribed mods under its in-game *Mods* screen, from which you can individually enable or disable individual mods to suit your preferences. If a game does not have this interface, unsubscribing from the mod in Steam Workshop disables and uninstalls the mod.

If no *Workshop* tab appears at all in a game's detail screen, that game does not offer Workshop support.

More Company with r2modman

And now I arrive at the wilderness of creative game fans who take matters into their own hands, building and distributing mods for games that don't officially support them. This section uses a free and open-source application called r2modman to modify an example game. Although many routes exist to apply a certain mod to a given game, r2modman provides a Linux-friendly mod-management path using an AppImage file that runs well on SteamOS – making it an excellent starting place for your modding exploration.
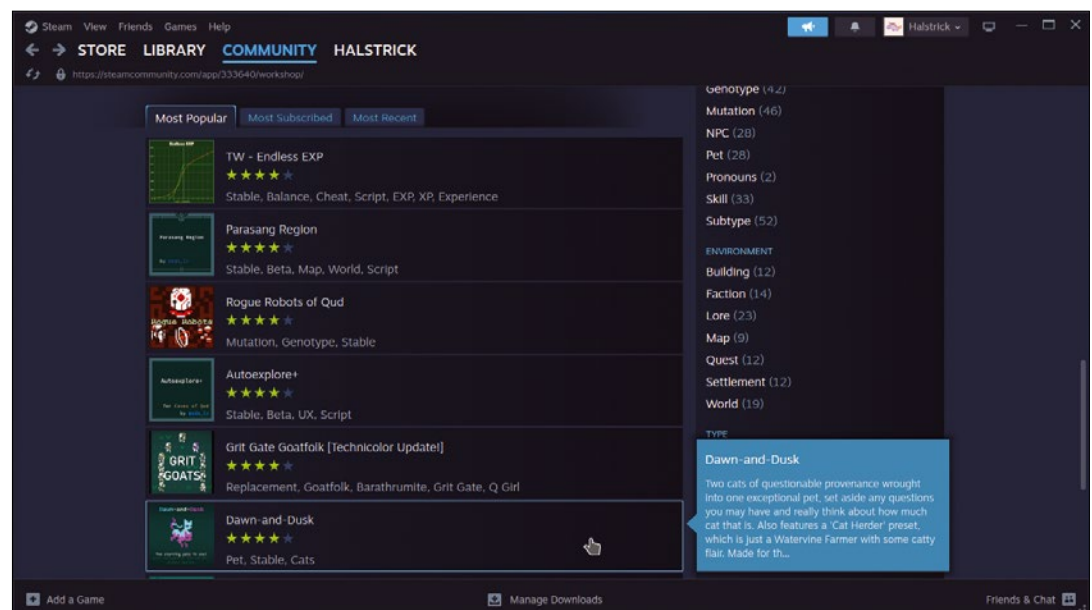

Figure 3: Browsing *Caves of Qud* mods in Steam Workshop: The mod selected here adds a friendly two-headed cat to the game.

The example I'll present involves installing a mod called "More Company," authored by the game-hacker known as notnotnotswipez, onto *Lethal Company*. This game is designed as a strictly four-player cooperative challenge, so it's no surprise that one of its most popular fan-made mods lets players ignore that limit and invite twice or more as many friends into a game – trading away its intended balance for chaotic multi-player fun.

If you happen to own *Lethal Company*, you can follow along with this section literally. The mod doesn't make any irrevocable changes to your game's installation, and you can enable or disable the mod at will. You can also lightly modify certain steps in this section to apply a different mod to any other game installed on your Steam Deck that r2modman supports. In any event, understanding how r2modman works on your Steam Deck can give you greater insight into how mods work in general and can help you tinker with your own game collection using a wider array of tools.

r2modman is a light-weight front end to the mod repository called Thunderstore [6]. Both were originally developed to manage mods for the game *Risk of Rain 2* and have since expanded to support mods for a growing list of popular titles, numbering well over 100 games at the time of this writing.

The mods that r2modman supports perform their functions in a variety of ways, all depending on the technology stack of the target game. The mods for *Lethal Company* work by taking advantage of the way that Windows loads DLL files when launching an executable – a technique that works on your Steam Deck thanks to the same Proton compatibility layer that allows it to run Windows games like *Lethal Company* in the first place.

After you install the mod, r2modman copies a certain DLL file into the directory that contains the *Lethal Company* executable. When launched, the game executable loads this file according to standard Windows behavior, whereupon the DLL immediately routes control to BepInEx, an open-source modding framework that r2modman installs and manages as part of this procedure. Before ceding control back to the game's normal executable, BepInEx loads any mods that you downloaded and enabled for the target game. This step allows the mods to freely modify the game's in-memory data and runtime code.

I'll take a closer look at these files later in this article. But first, I'll describe the procedure of making More Company work on Steam Deck. This process involves the following steps, which are similar for any other mod that you add using r2modman:

1 In Desktop mode, install the r2modman software on your Steam Deck (see the box entitled "Installing r2modman").

2 Use r2modman to download and install the More Company mod. This action also installs all of the mod's dependencies, which in this case includes the BepInEx framework.

3 Let r2modman run the modded game once, which copies the files that BepInEx needs into your installed *Lethal Company* directory.

4 In Gaming mode, modify the launch arguments of your installed copy of *Lethal Company* to allow BepInEx to work its magic even when not running from r2modman.

Now to install the mod, as well as the code injector that it needs to work. Follow these steps:

1 Launch r2modman by opening the AppImage file that you downloaded.

2 Optional: You might want to pin r2modman to your KDE panel, for quick access in future visits to Desktop mode. Right-click the small r2modman icon in your KDE panel and select *Pin to Task Manager*, as shown in Figure 4.

3 Locate the game you want to modify from the list that appears. Continuing with this example, that is *Lethal Company*.

4 This takes you to a *Profile selection* screen. r2modman organizes every game's installed mods into profiles, starting with a default profile named `Default`. For the purposes of this example, that's good enough; click *Select profile*.

5 Click *Online* to browse a list of all of the mods available for the selected game. In the case of *Lethal Company*, and at the time of this writing, this list contains over 30,000 items.

6 In the search bar, type *MoreCompany*.

7 In the filtered list that appears, click on *MoreCompany by notnotnotswipez*, and then click *Download*.

8 In the dialog that appears, click *Download with dependencies*. This is how you obtain both this mod and the BepInEx injector software.

9 On the window's sidebar, click *Installed* and confirm that you have both `MoreCompany` and `BepInExPack` installed, as shown in Figure 5.
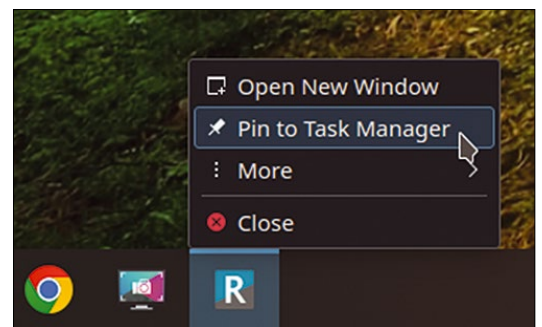
To test the mod and allow r2modman to

Figure 4: If you plan to run r2modman often, you might want to pin it to your desktop panel.

Installing r2modman

To get r2modman on your Steam Deck, follow these steps:

1 On your Steam Deck, go to Desktop mode.

2 Launch a web browser.

3 Visit the r2modman GitHub release page. In the section for the most recent release, click the file named `r2modman-VERSION.AppImage`, where `VERSION` is the version number of that release.

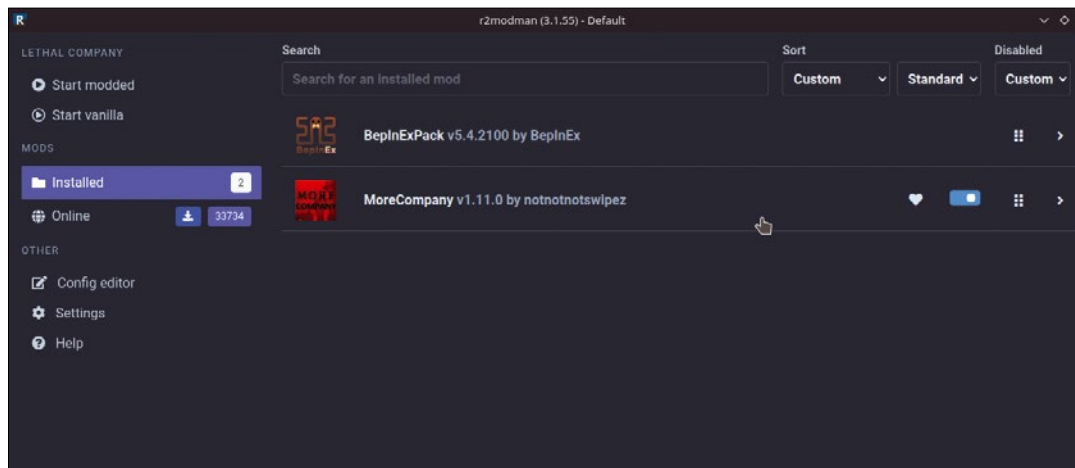**4** Store the downloaded AppImage file in whatever permanent location you'd like.

Figure 5: Viewing your installed Lethal Company mods in r2modman. The list includes the BepInEx code injector that these mods require.

move the necessary files into place, click *Start modded*.

Instead of the normal *Lethal Company* title screen, you'll see the modified screen shown in Figure 6 – the result of the More Company mod making its own successful loading very obvious. (The unusually immediate visibility of the More Company mod is part of why I chose it as an example for this article.)

So far so good, but you're not done yet. To have this mod load in the Gaming mode of your Steam Deck, you must take a few more steps.

1 On the r2modman window's sidebar, click *Help*.
2 Take note of the string of command-line arguments on the bottom of the Help screen, under the heading *Launching the game from outside the mod manager*.
3 Return to Gaming mode.
4 Navigate to *Lethal Company*, and select it.
5 On the *Lethal Company* detail screen, select the gear icon.
6 Select *Properties…*.

Figure 6: The modified splash screen lets you know that you have installed and enabled the More Company mod.

7 In *Launch options*, provide the list of command-line flags that you noted earlier (Figure 7). In the case of the *Lethal Company* example, the flags are as follows:

```
--doorstop-enable true ⮐
  --doorstop-target "Z:/home/⮐
  deck/.config/r2modman⮐
  Plus-loca    l/LethalCompany/profiles/⮐
  Default/BepInEx
  /core/BepInEx.Preloader.dll" ⮐
  --r2profile "Default"
```

The next section explains what these options do. But for now, you can test your configuration by launching the game, which should show the "More Company" title again. To go back to playing unmodified, "vanilla" *Lethal Company*, take either of the following actions:

• Return to Desktop mode, run r2modman again, navigate back to your installed mod list for *Lethal Company*, and click the *Disable* toggle for More Company.
• Modify the Gaming mode arguments for *Lethal Company* so that the value of `--doorstop-enable` is `false` instead of `true`.

Understand How This Works

After you installed More Company and BepInEx, and when you clicked *Run modded*, r2modman copied files named `doorstop_config.ini` and `winhttp.dll` from your local BepInEx installation directory into the *Lethal Company* directory. Take a look, if you'd like: navigate to `/home/deck/.steam/steam/steamapps/common/Lethal Company` and see these new files in-place, right next to the `Lethal Company.exe` executable.

The `winhttp.dll` file is a standard part of the Windows API, which SteamOS speaks fluently thanks to its Proton compatibility layer. And so, when you run *Lethal Company* in Gaming mode, the game's

EXE file dutifully loads its neighboring DLL file as well. This step gives BepInEx the opening it needs to preempt the game's normal launch – thus the "doorstop" referred to by the extra command-line arguments that you provided in a previous step.

From there, as long as you have set the `--doorstop-enable` launch argument to `true`, BepInEx loads all the mods for this game (that you have marked as enabled using r2modman) under the `Default` profile.

As for the other two flags, `--r2profile` specifies the r2modman profile that you're using – `"Default"`, in this case – and `--doorstop-target` indicates the path to the full BepInEx mod-loader library, which r2modman installed. If you want to examine this directory yourself, note that the `Z:` in front of the path is how Proton refers to the Steam Deck's Linux filesystem root when working with Windows software.

Happy Hacking!

I'll conclude by gesturing once more at the tens of thousands of mods that r2modman makes available for *Lethal Company* alone. Take a moment to appreciate the simmering hacker spirit that powers this level of enthusiasm among people who love a somewhat obscure video game so much they have collectively found more than 30,000 ways to tinker with it, each of which they eagerly share with the world. Multiply this across all the games visible in the r2modman opening screen, and meditate on how this is just a taste of the wild world of game modification – authorized and otherwise.

I hope this article has inspired you to further explore the Linux underpinnings of your game system, with open access to mods being one of

many benefits that the Steam Deck has over more traditional, closed consoles. Most game-focused machines don't offer you a place to modify a game's command-line launch arguments, let alone install fan-made mods authorized by nobody but you, the owner of the system running the game.

Have fun breaking the rules! ∎∎∎

Info

[1] "Steam Deck Desktop Mode" by Jason McIntosh, *Linux Magazine*, issue 292, March 2025, pp. 76-81, *https://www.linux-magazine.com/Issues/2025/292/Steam-Deck-Desktop-mode*

[2] Ghost Ship Games: *https://ghostship.dk/*

[3] Caves of Qud on Steam: *https://store.steampowered.com/app/333640/Caves_of_Qud/*

[4] r2modman on GitHub: *https://github.com/ebkr/r2modmanPlus/releases*

[5] Lethal Company on Steam: *https://store.steampowered.com/app/1966720/Lethal_Company/*

[6] Thunderstore: *https://thunderstore.io/*

The Author

Jason McIntosh is a writer who lives in New York City. His personal website is *https://jmac.org*. You can also find *Venthuffer*, his audio zine about the Steam Deck, at *https://venthuffer.com*.
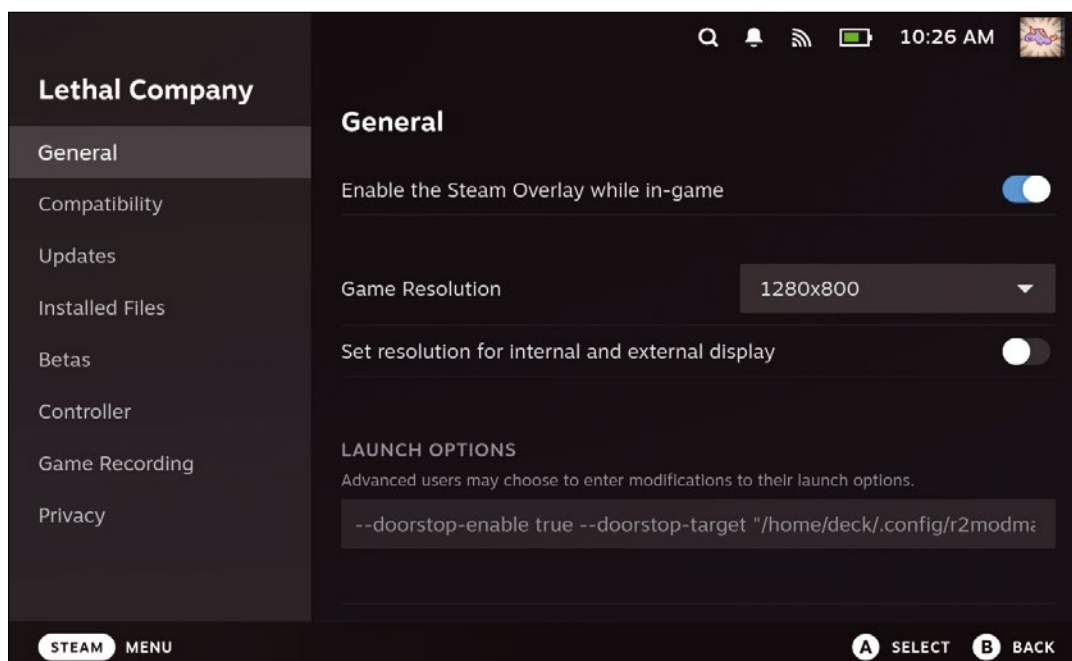
Figure 7: The *Lethal Company* Properties screen in Gaming mode, now populated with mod-activating command-line flags.