

# 7 Days To Die SDX Tutorial and Help

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## Introduction

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# 7D2D SDX Tutorials

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SDX modding is an enhanced form of modding for the 7 Days to Die game. It allows us to add custom scripts, custom textures and blocks, as well as add entirely new biomes to the world, creating an immersive experience styled to your players and yourself.

While the SDX community has done some amazing things with the game since its introduction, there lacks a central distribution and documentation aspects to it. This has caused considerable confusion for people who are anxious to get started, since they don't necessarily know how to get started, or even what all of this SDX stuff is about.

That's where this site comes in, to de-mystify SDX and help you get started creating new mods, reaching more people, and finally helping you create a game play that is styled perfectly for you.

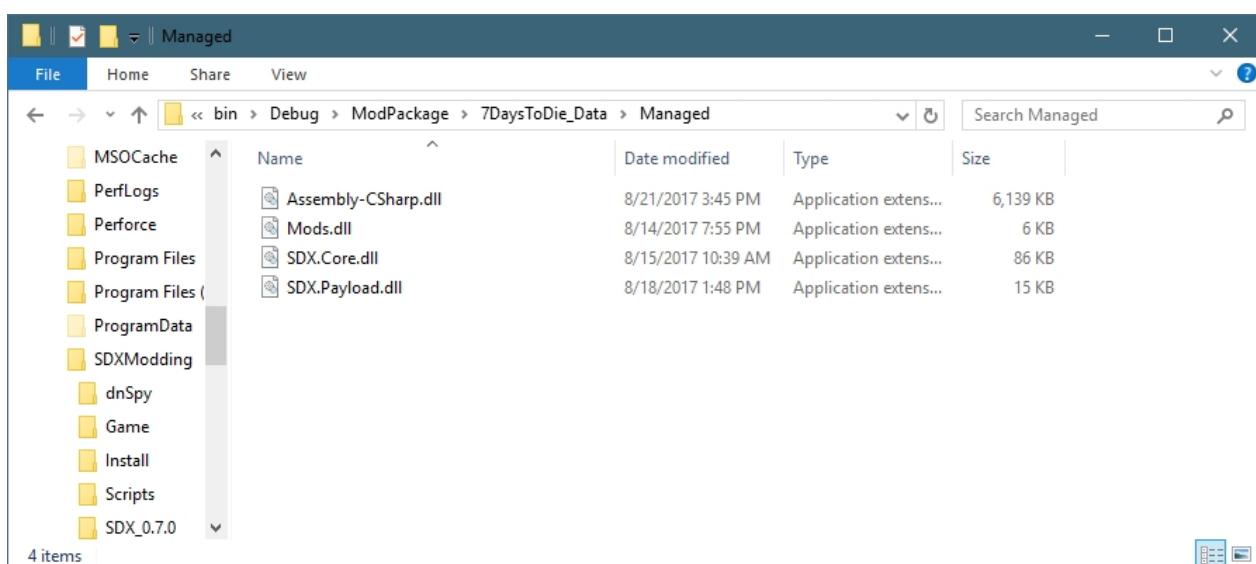
**Note: SDX is not EAC compatible. If you attempt to load up SDX with EAC enabled, you will get an error.**

**Note: SDX Servers require a Client Install for players to connect to, and play.**

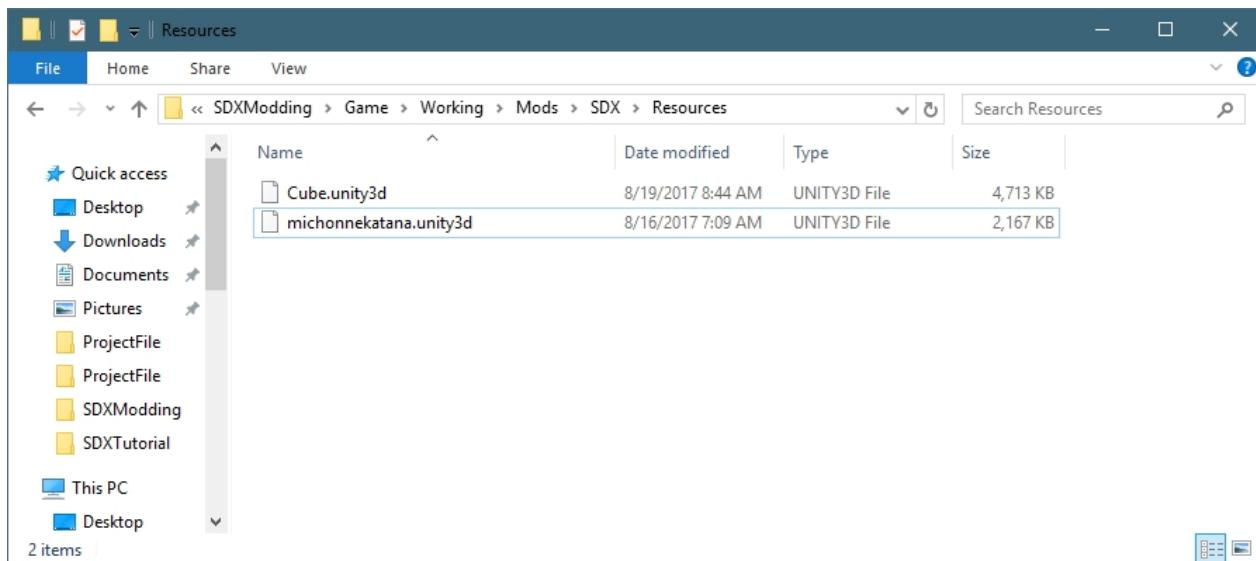
So what is SDX modding?

SDX modding lets you add your own textures, your own blocks, characters, animations, and complex code. It does so by instrumenting the Assembly-CSharp.dll with SDX hooks, allowing it to load up Unity3D texture bundles.

Custom scripts can be written that get compiled into the Mods.dll file, found in the 7DaysToDie\_Data/Managed folder, and merged with the Assembly-CSharp.dll at run time.



The actual Unity3D bundles, which are the files where the textures and models are stored in, can be found under your Mods/SDX/Resources folder




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## Getting Started

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Getting set up to do SDX modding is not that difficult. However, you will need a few tools to help you get started.

This section will cover what your basic system requirements are before beginning. The more complex a mod is, the more memory you will need, above and beyond what you need to play the base game.

In addition to the system requirements, we also list the tools that you'll be using, where to get them, how to install them, and what they'll do for you.

The list of tools you'll need may look big and confusing, but we'll take a slow approach in showing you what each tool will do. To make getting started easier, we created an SDX Modding folder structure, which you can download to get you started. Inside of that download, there's everything you need to get started on building your first sample mod, The Katana Mod.

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## System requirements

The following are the System Recommendation for 7 Days to Die base game. SDX is very memory heavy, so use this as a guide

RECOMMENDED:

OS: Windows 7 or higher

Processor: 3.0 Ghz Quad Core CPU or faster

Memory: 16 GB RAM

Graphics: 2 GB Dedicated Memory

DIRECTX: Version 10

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## Getting the Tools



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This tutorial will guide you through step-by-step on how to make your first SDX mod, and set it up for distribution.

In order to do this, some software needs to be installed and set up. We've listed the tools you should install, including download links.

*Most of the tool chain can be downloaded from the SDXModding Github depot, by downloading this link:*

*Direct Download Link: <https://github.com/7D2DSDX/SDXModding/archive/master.zip>*

The SDXModding Download Package contains everything you need to get started with SDX mods.

If you download the Direct Download Link, you do not need to install "The Included Software"

## The Included Software

### [SDX 0.7.x](#)

SDX is used to compile the individual SDX scripts into Mods.dll, add hooks into the Assembly-CSharp.dll, and copies the Resources and icons over.

### [GitHub Desktop](#)

For the 7 Days To Die modding community, it is recommended to use GitHub to store and distribute mods. It's free to use, provides a history of changes, and persistent download links.

### [Unity Assets Bundle Extractor \(UABE\)](#)

Unity Assets Bundle Extractor (UABE) is a stylish tool that allows editing asset bundles and .assets. It can export .assets files from bundles, import them back, modify most asset formats with plugins

and dumps with type information and create a standalone installer from the modifications.

## [dnSpy](#)

dnSpy is a tool to reverse engineer .NET assemblies. It includes a decompiler, a debugger and an assembly editor (and more) and can be easily extended by writing your own extension. It uses dnlib to read and write assemblies so it can handle obfuscated assemblies (eg. malware) without crashing.

## Optional Software

The following software will be useful when you get more comfortable with SDX, and ready to do more advanced tasks, such as converting and creating your own textures.

### [Unity 5.3.8](#)

Unity will allow to manipulate assets, and convert them into a format that SDX needs.

### [Blender](#)

Blender is the free and open source 3D creation suite. It supports the entirety of the 3D pipeline—modeling, rigging, animation, simulation, rendering, compositing and motion tracking, even video editing and game creation. This is useful for making new textures and meshes.

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## Quick Start to Getting the Tools

Glanced at the tools you need and anxious to download?

- 1) Download the [SDX Modding Kit](#)
- 2) Extract the SDX Modding Kit. *For the purpose of this tutorial, it's assumed to be under C:\SDXModding or D:\SDXModding\*

This software download includes UABE, SDX 0.7.x, GitHub, and the sample mods.

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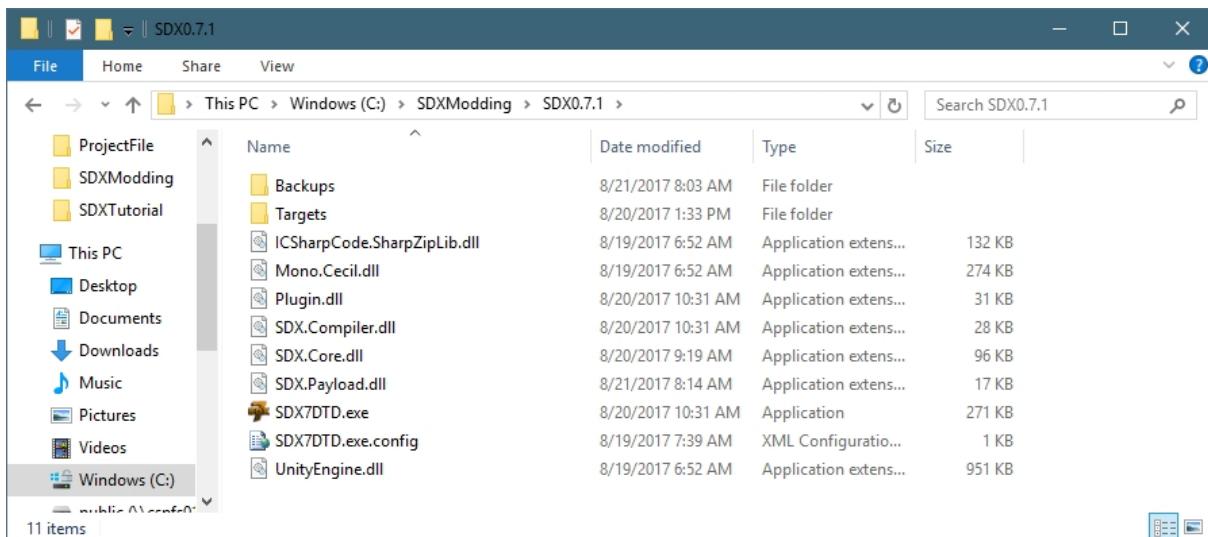
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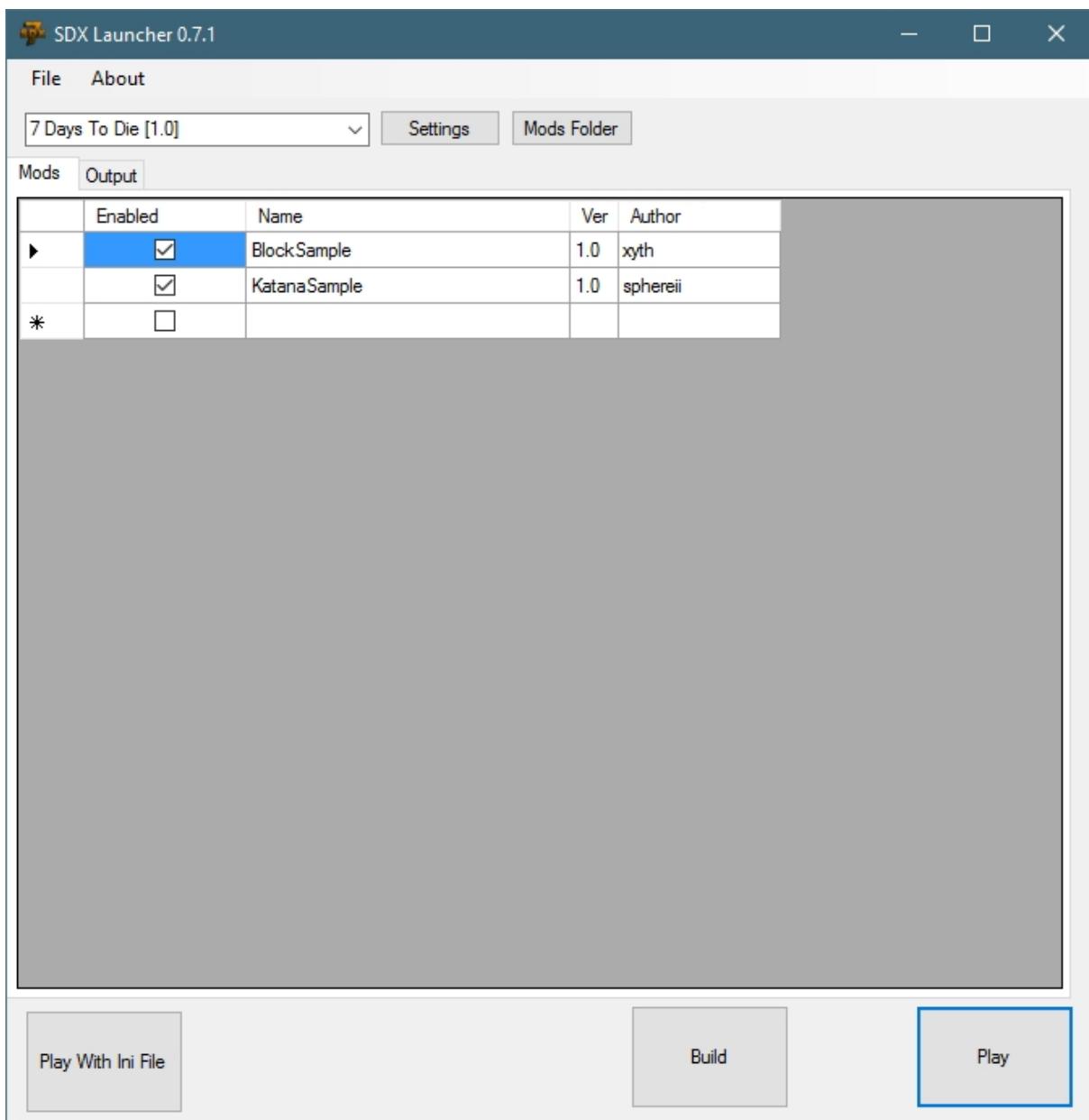
## SDX Launcher

The SDX7DTD.exe is the GUI front end of the SDX Tool, and will be used to compile the mods.

In the "C:\SDXModding\SDX0.7.1\" folder, double click on SDX7DTD.exe



Once loaded, you'll see this screen:



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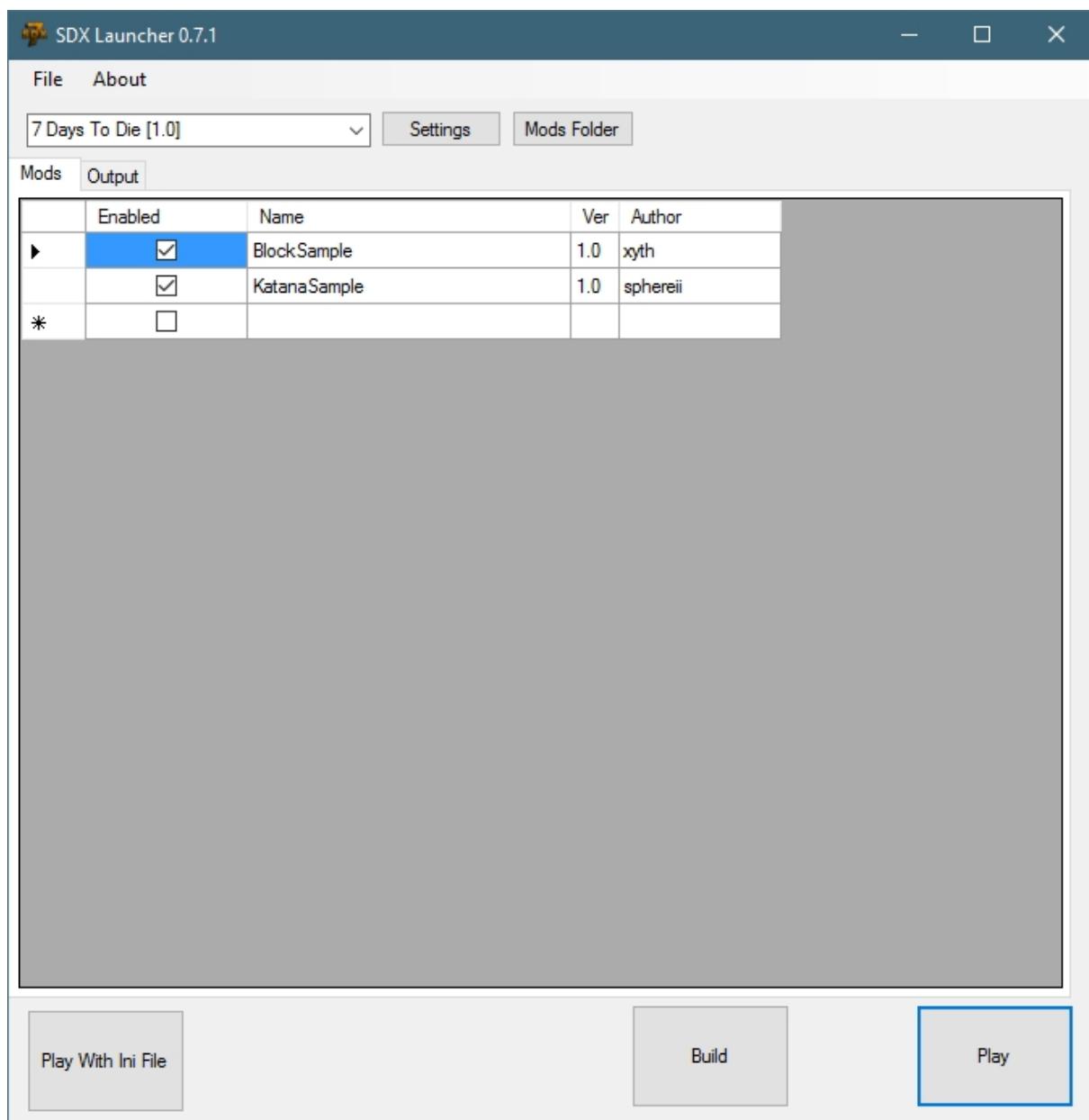
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## Settings Button

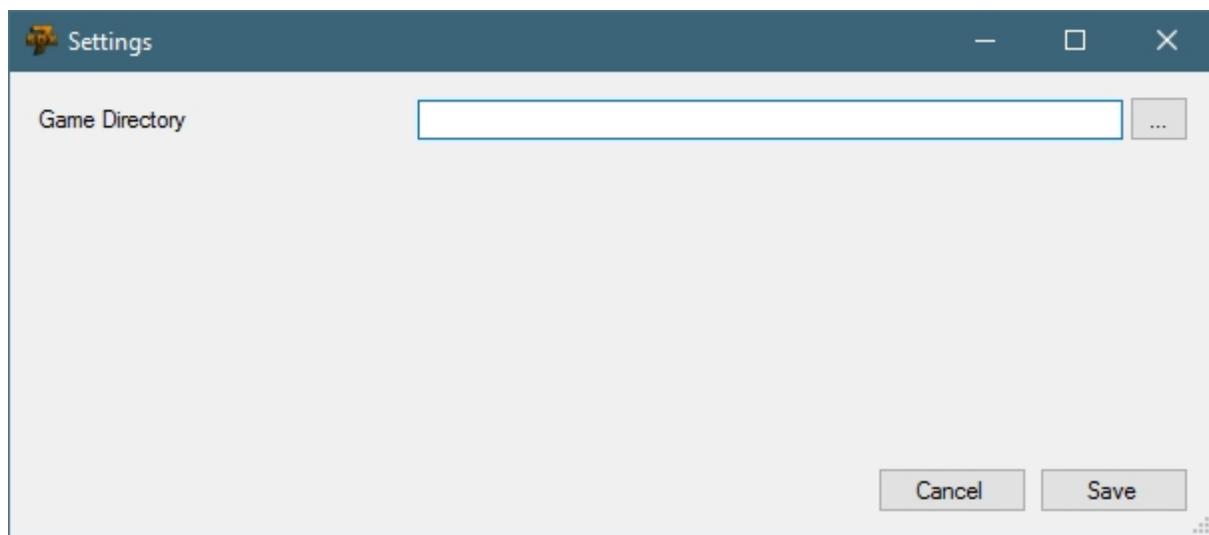
Once you have started the SDX Launcher 0.7.1, you will need to configure it for the first time.

*In previous versions of the SDX Launcher, you had to select either 7 Days To Die, or 7 Days To Die Server. It is now auto-detected.*

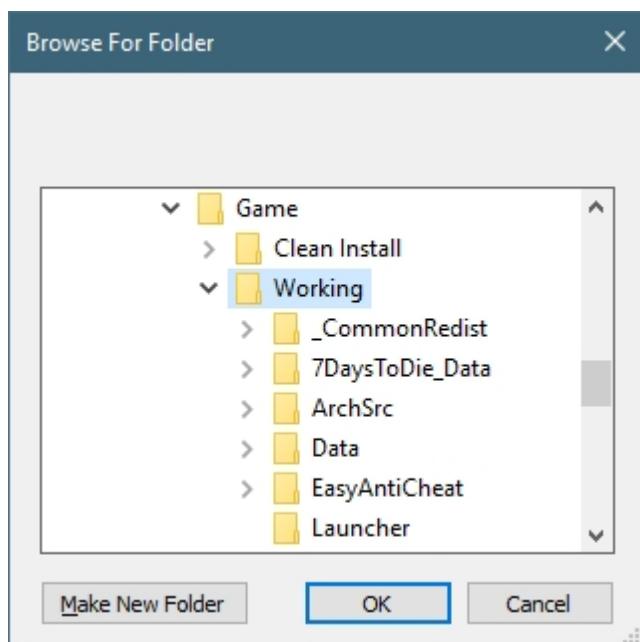
Click on the "Settings" button.



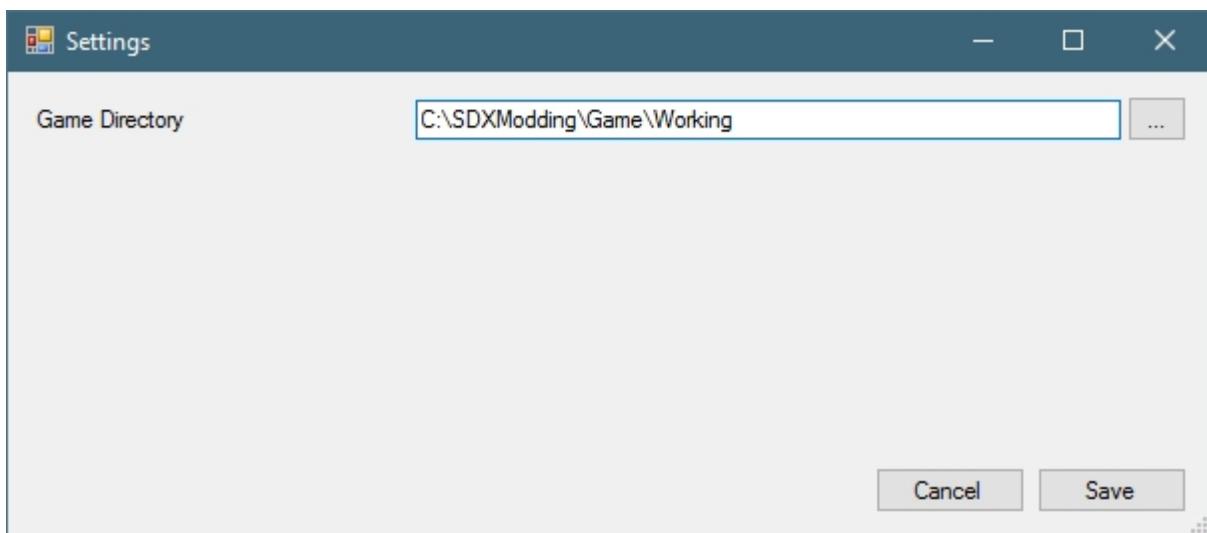
This is asking where your "Game Directory" exist. For us, it'll be that ["Working" Folder we created here "C:\SDX\Modding\Game\Working"](#).



Click on the "..." button and navigate to "C:\SDXModding\Game\Working", or Copy and Paste the URL.



End result should look something like this:



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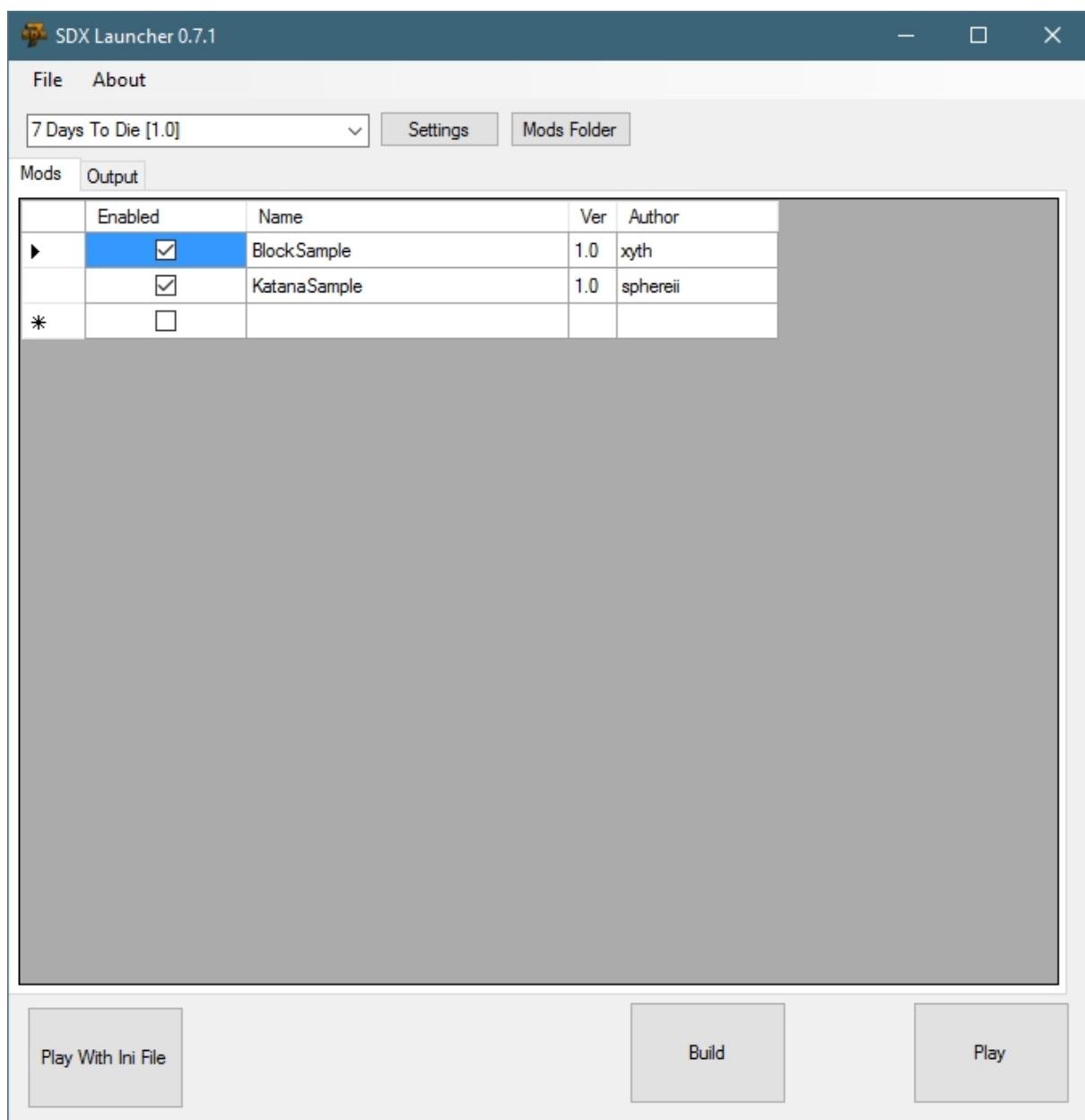
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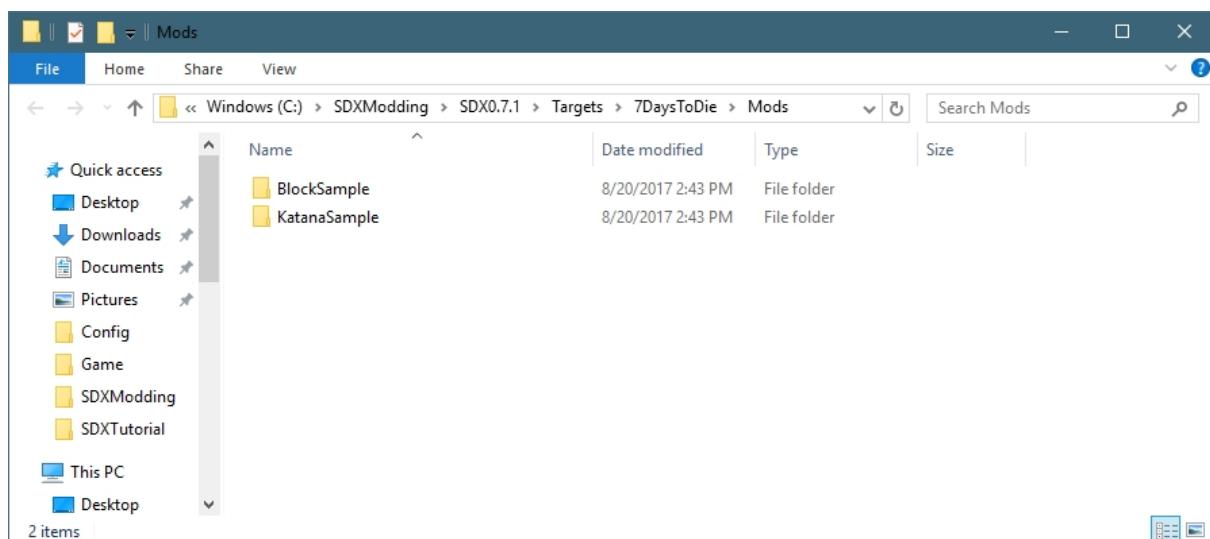
## Mods Folder Button

The Mods Folder is where your SDX Mods will be located at. This is the Mod's code, resources, and other XML files that are needed.

Click on the "Mods Folder" button. This will open an Explorer window under "C:\SDXModding\SDX0.7.1\Targets\7DaysToDie\Mods"



### Mods Folder in Explorer



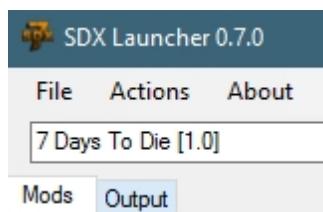
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## The Mods / Output tab

The SDX Launcher contains two Tabs, called "Mods", and "Output".

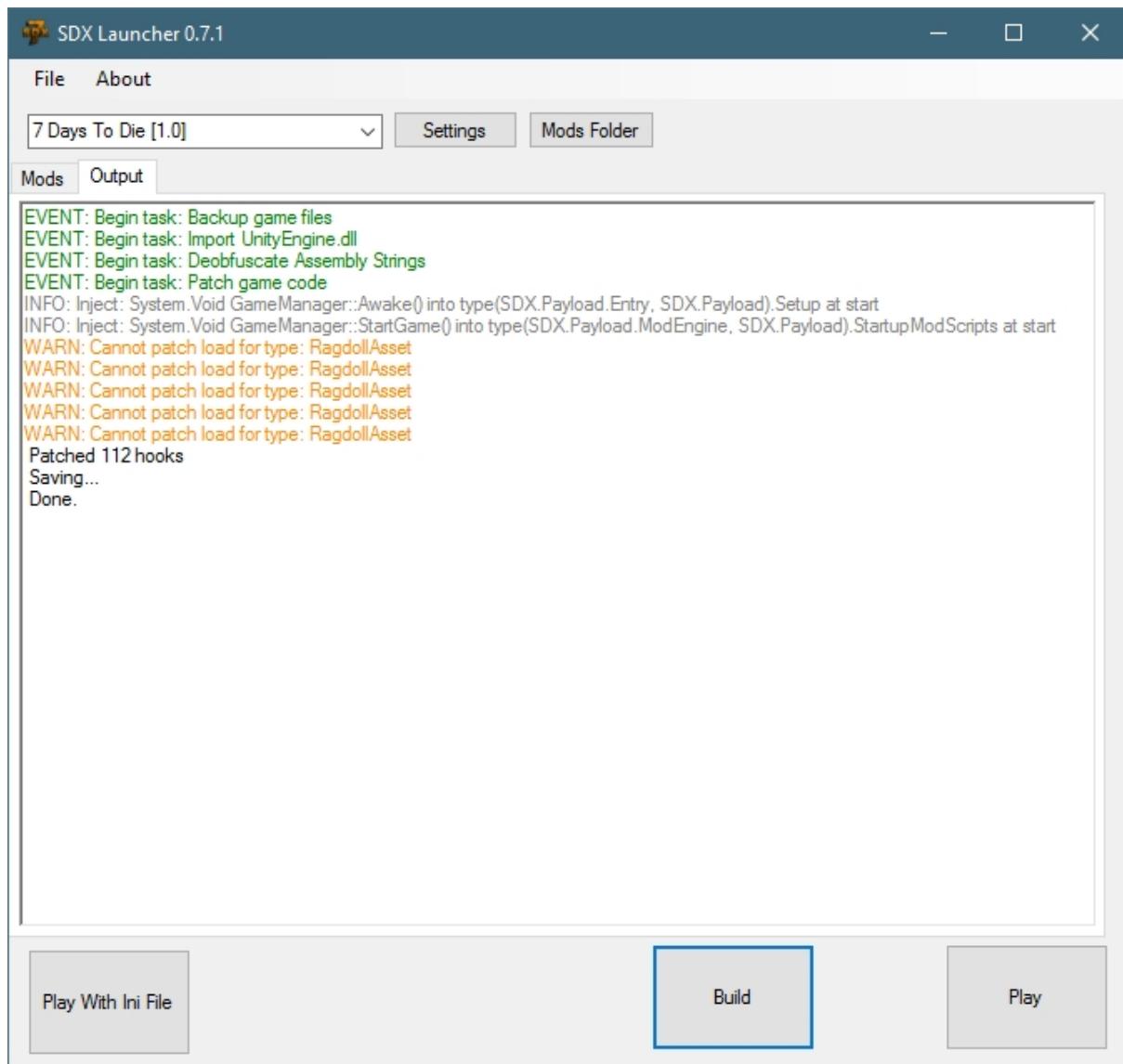


The "Mods" tab shows you the available Mods:

A screenshot of the SDX Launcher showing the "Mods" tab. At the top, there's a dropdown menu set to "7 Days To Die [1.0]" and a "Settings" button. Below that is a table with two rows. The first row has a checkmark in the "Enabled" column and the name "BlockSample" in the "Name" column. The second row has a checkmark in the "Enabled" column and the name "KatanaSample" in the "Name" column. The third row is empty with a grey background.

The Enabled check box indicates whether or not that SDX mod will be included in your compile or not.

The "Output" tab shows you the SDX Launcher's actions.



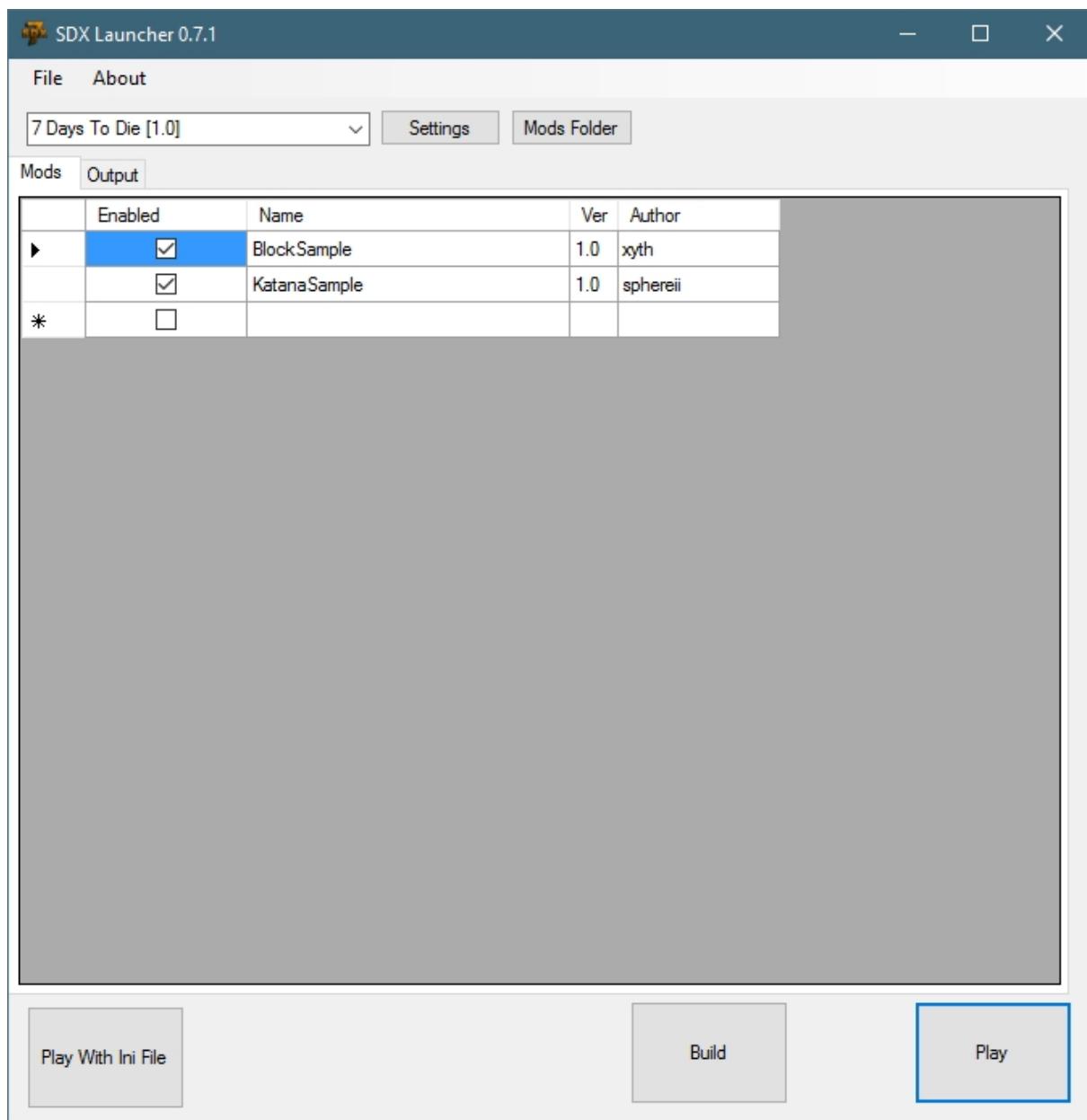
You can click back and forth between the Mods and Output folder.

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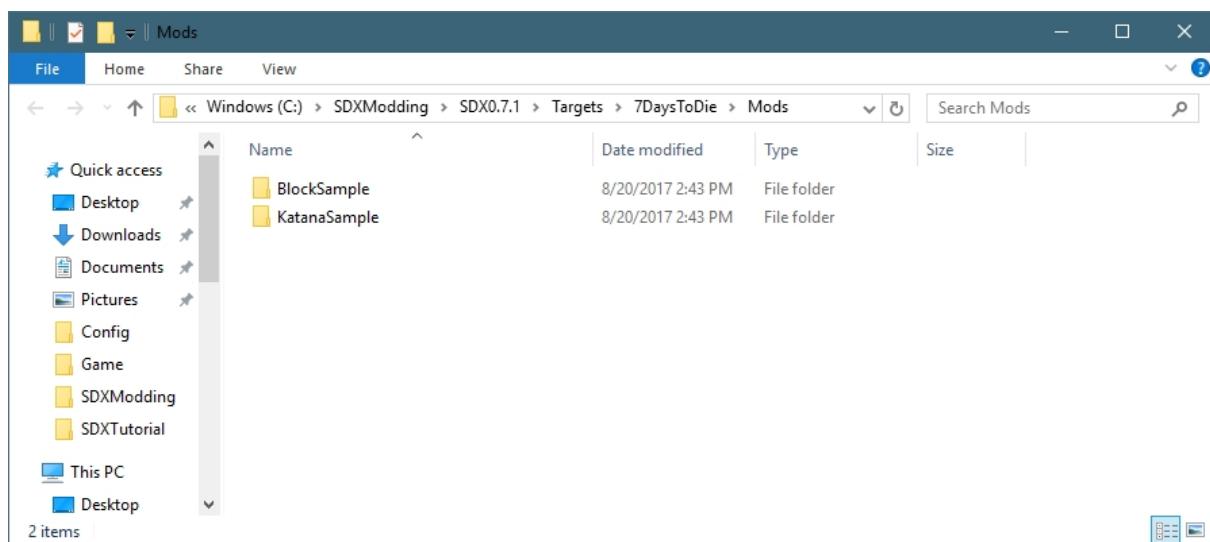
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## Understanding an SDX mod

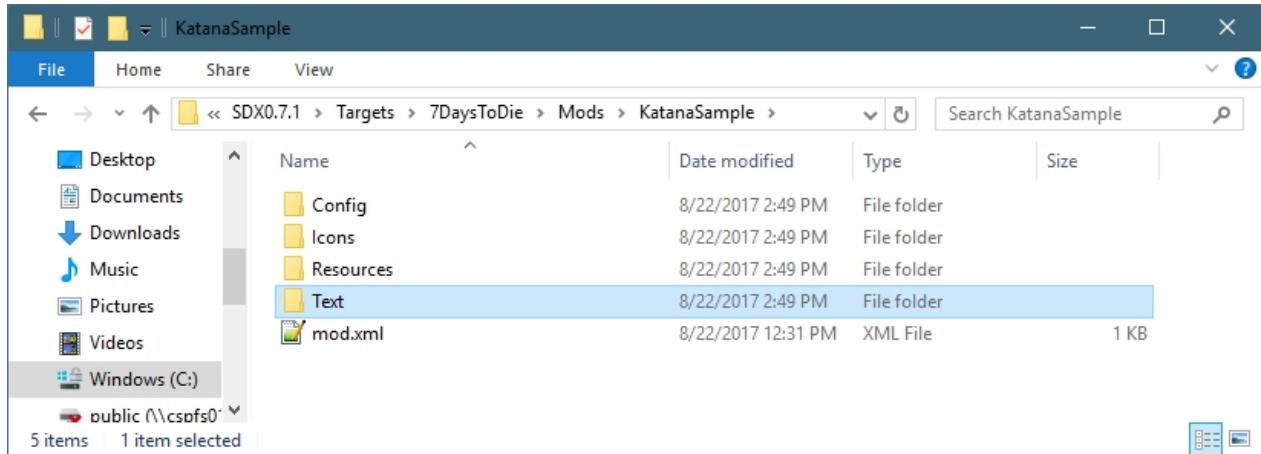
Start the SDX Launcher



Click on the "Mods Folder". This will open up the Explorer Window where the mods are installed.



Double click on the "KatanaSample" Folder, and look at the contents of the folder



The Config folder contains an XML file, that includes all the XML snippets and new items, blocks, and other items you want merged into SDX

The Resources folder contains the Unity3D bundles, which are your textures for new items and blocks.  
mod.xml is a basic XML configuration file for SDX

## ***mod.xml:***

The mod.xml gives information for the SDX Launcher, to show p in the tool.

```
<mod>
    <info>

        <author>spherei</author>
        <name>Sample</name>
        <description>Sample Basic SDX Mod</description>
        <mod_version>1.0</mod_version>
        <game_version>16.2</game_version>
        <launcher_version>0.0.0</launcher_version>
    </info>

    <!-- This references any config files that SDX needs to merge into
your files -->
    <config_mods>
        <import file="Config\Sample.xml" />
    </config_mods>
</mod>
```

Author: The name of the author who created this mod, shows up in the SDX Launcher

Name: The name of the mod, shows up in the SDX Launcher

Description: Short description on what the mod does; Shows up in the launcher

Mod version: Which version of the mod it is, determined by the author

game\_version: Which Game version the mod was designed for.

The <config\_mods> points to where your mods' XML files are stored.

## **"Config" Folder:**

*Note: The use of the Config.xml is optional. You can run your SDX Mod through the SDX7D2D without it merging any XML files. You can then edit your XML files as you normally would, in your game folder, and update the Meshfile.*

Double click on the "Config" folder, and open up the KatanaSample.xml in Notepad++. This XML adds a katana bundle using a unity3d bundle for its mesh.

```
<configs>
    <!-- This tells SDX to add to the Items.xml -->
    <config name="items">
        <!-- This tells SDX to add the following Items to the bottom of
the Items list -->
        <append xpath="/items">

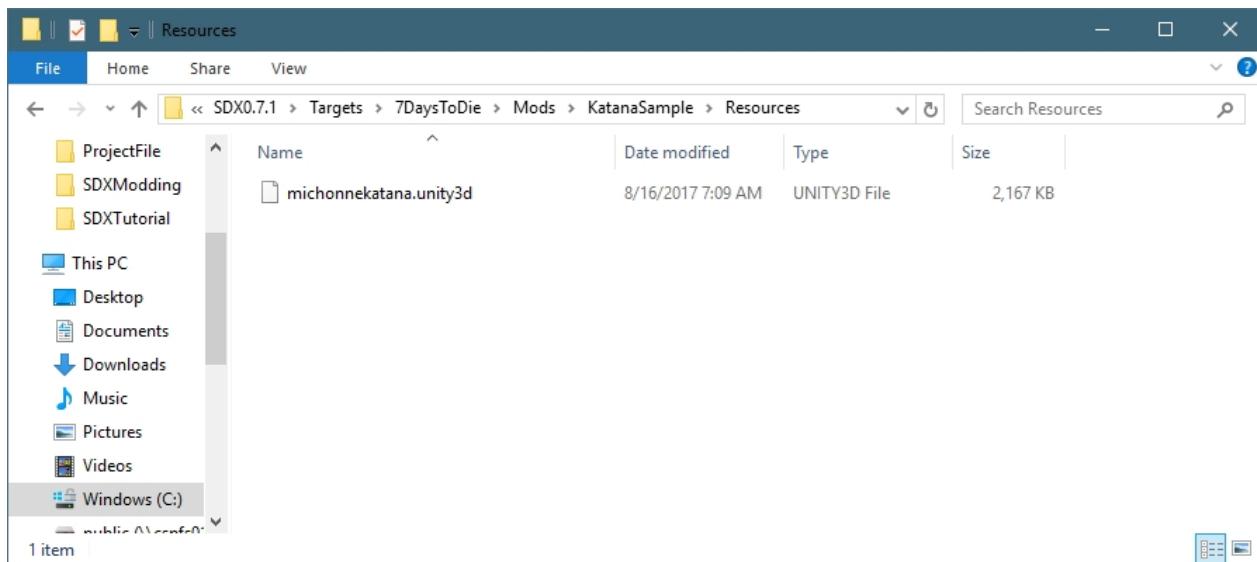
            <!-- New item will be Katana -->
            <item id="" name="karanamichonne">
                <!-- Extend it from the machete, but add the custom
mesh -->
                <property name="Extends" value="machete"/>
                <property name="Meshfile" value="#michonnekatana?
katana" />
            </item>
        </append>
    </config>
</configs>
```

SDX will read this XML file, and add its contents to the right XML of the game. At the bottom of the file, it shows where it's adding the recipe on how to make a carrotBundle using your new items.

Sample Items Code	Description
<config name="items">	This tells SDX that everything in between the <config> tags will be included in the Items.xml file
<append xpath="/items">	This tells SDX that everything in between the <Append> path will be included inside of the <items> tag of items.xml
<item id="" name="karanamichonne">	This tells SDX the name of the new item to add. Notice there is no ID? This will be auto-generated to the lowest new number available.
<property name="Meshfile" value="#michonnekatana? katana" />	This will tell SDX, at run time, what the meshfile is called.
</append>	Closes the append tag
</config>	Closes the Items tag

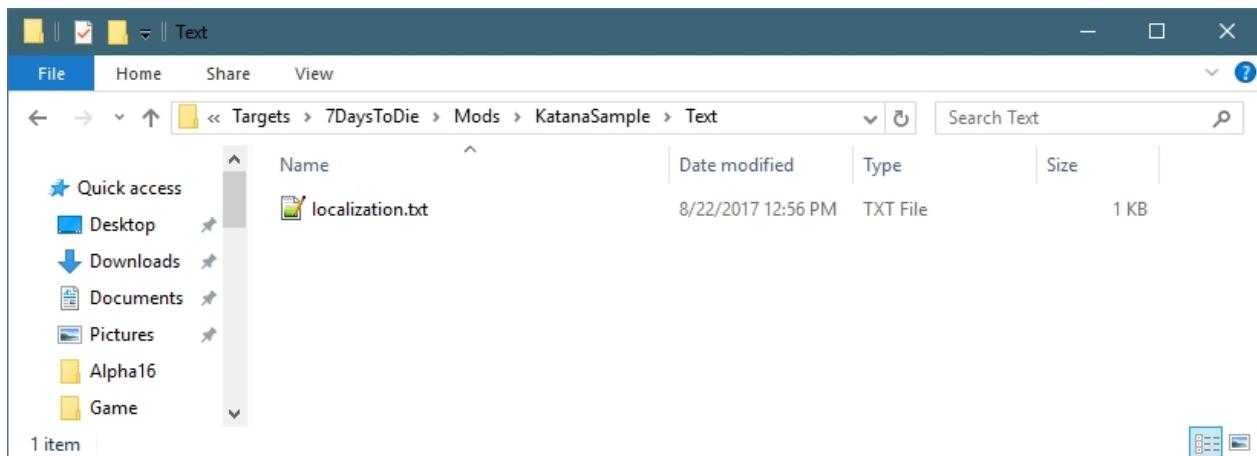
## Resources:

The Resources folder contains all your Unity 3D models and textures, stored as Unity Bundle 3D files.



## Text:

The Text folder is optional, but contains the localization files.

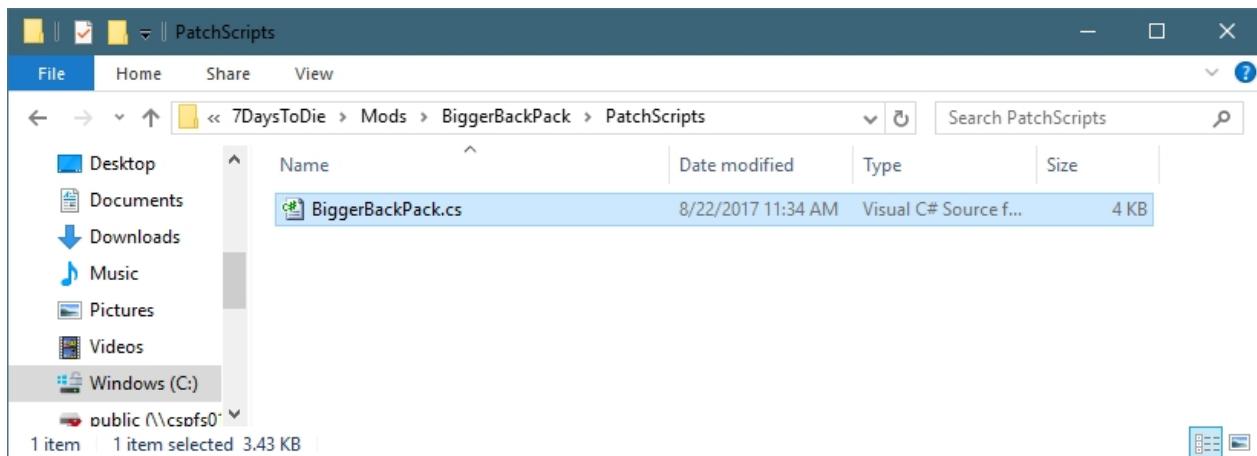


Example:

```
Key,Source,Context,Changes,English,French,German,Klingon,Spanish
katanamichonne,items,Melee,KgNone,Michonne's machete,,,
katanamichonneDesc,items,Melee,New,Michonne's machete is ready to slice and dice up the zombies,,,
```

## PatchScript:

Some SDX Mods, like the Bigger Back Pack Mod, contains a PatchScript folder. A PatchScript is a C# script that is compiled at SDX Build time, and allows injection into the Assembly-CSharp. The SDX Launcher reads any files in this folder, and tries to compile it.




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## [Unity 5.3.8p2](#)

### **Referenced Article**

For us, in the 7 Days To Die Community, Unity is the programming environment that is used by 7 Days to Die, as well as the SDX Mods. It allows us to add new models, new textures, and add in scripts that can manipulate the game in ways you've always dreamed about, and in some cases, things you haven't dreamed about.

This section will show you how to install and set up Unity 5.3.8p2.

## What is Unity3D?

Unity3D is a powerful cross-platform 3D engine and a user friendly development environment. Easy enough for the beginner and powerful enough for the expert; Unity should interest anybody who wants to easily create 3D games and applications for mobile, desktop, the web, and consoles.

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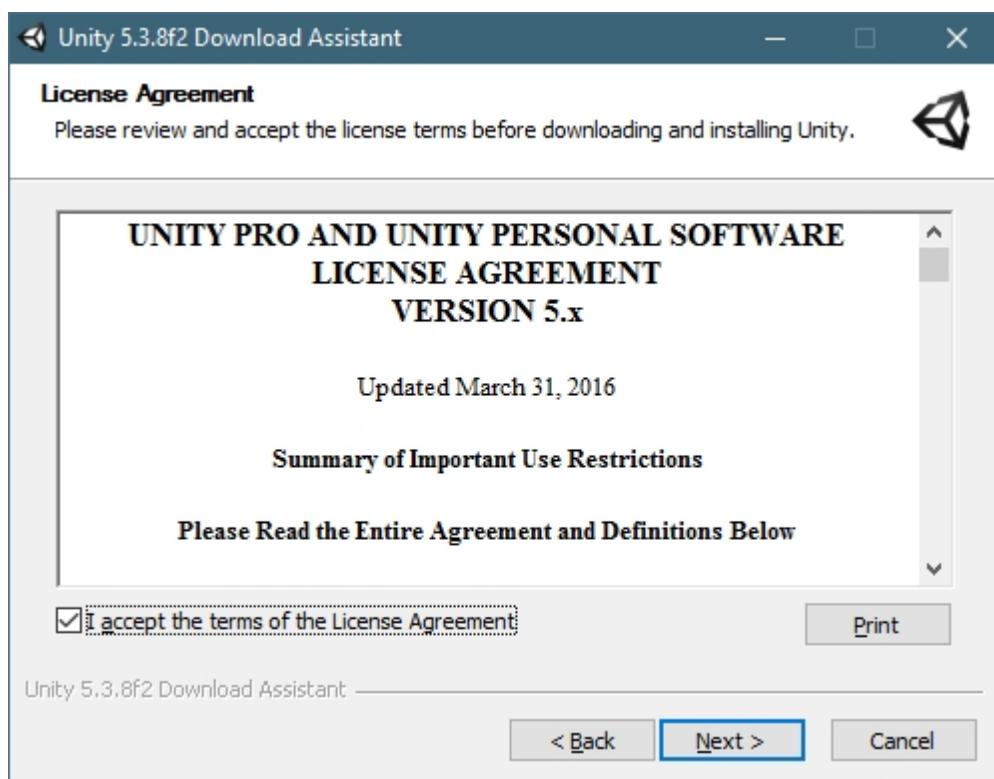
## [Installing Unity 5.3.8p2](#)

Download and install Unity 5.3.8p2 [here](#). Unity 5.3.8 will allow you to create custom Unity3D bundles, which will be used by SDX to add prefabs, and new blocks.

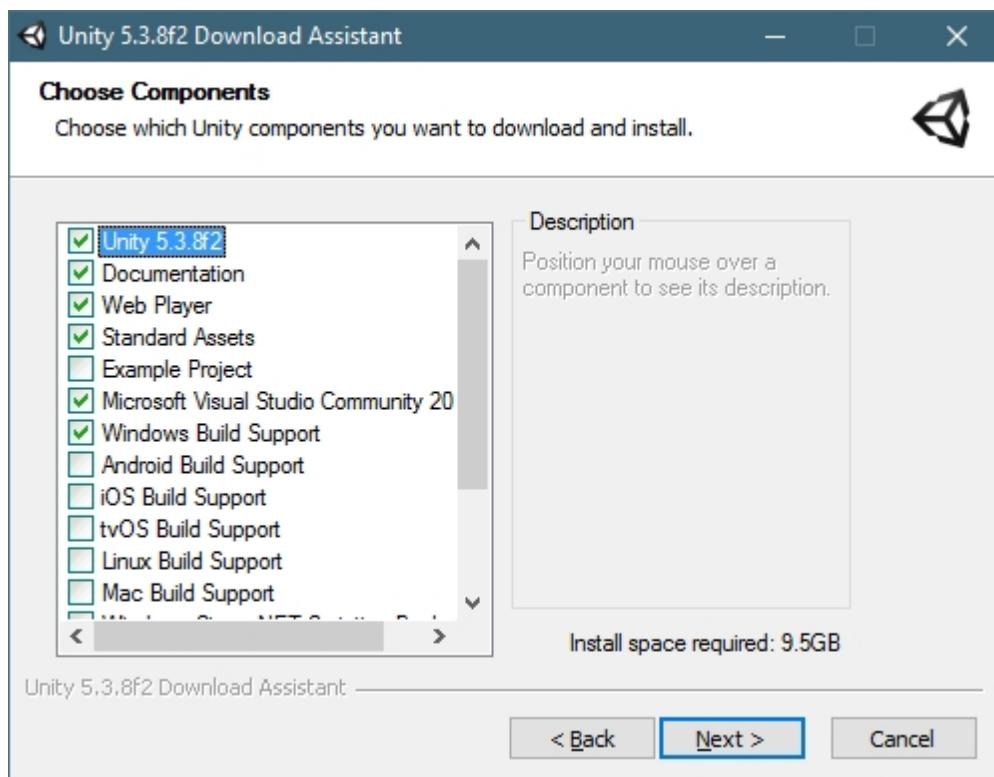
Once downloaded, double click on the UnityDownloadAssistant-5.3.8f2.exe



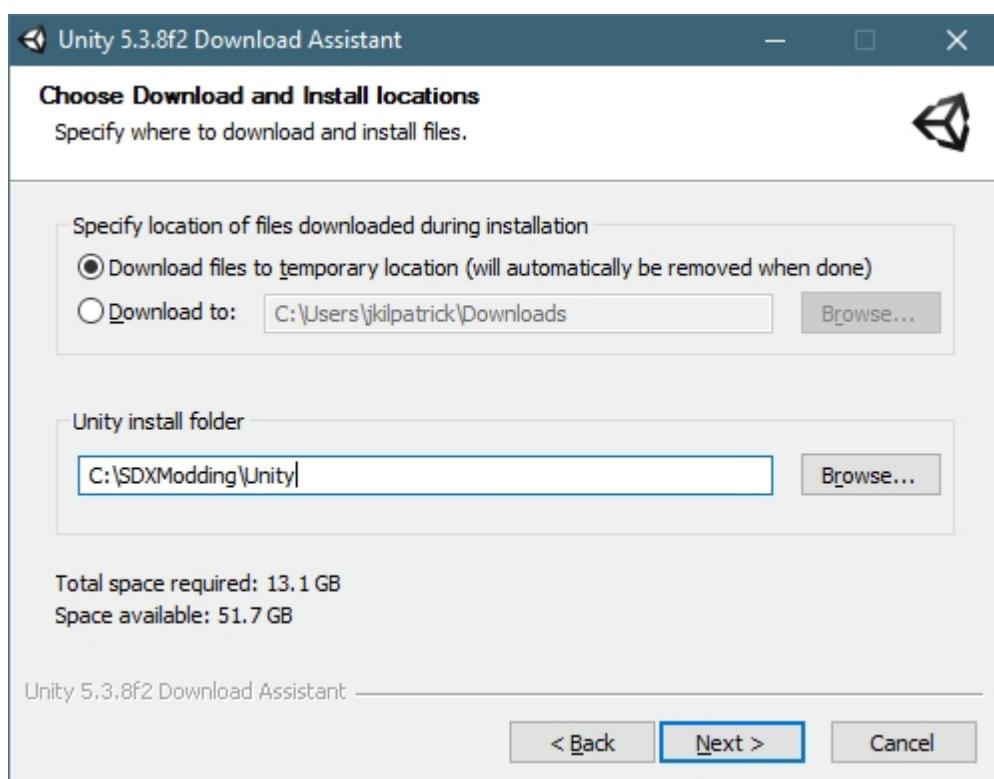
Accept the License Agreement



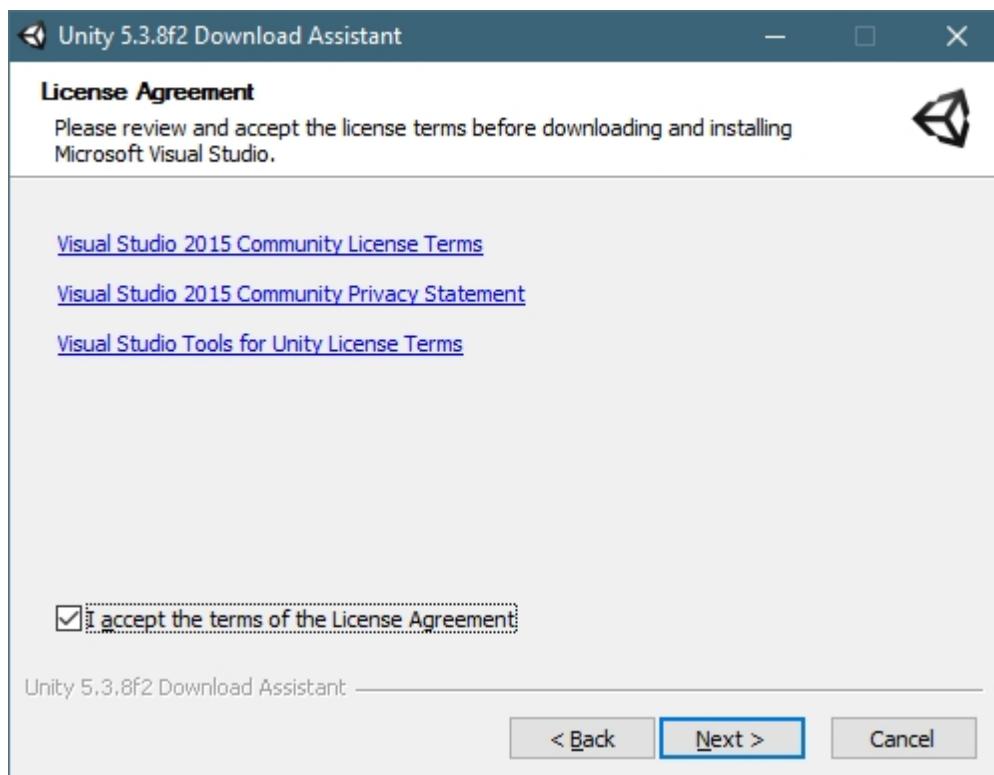
Accept Defaults:



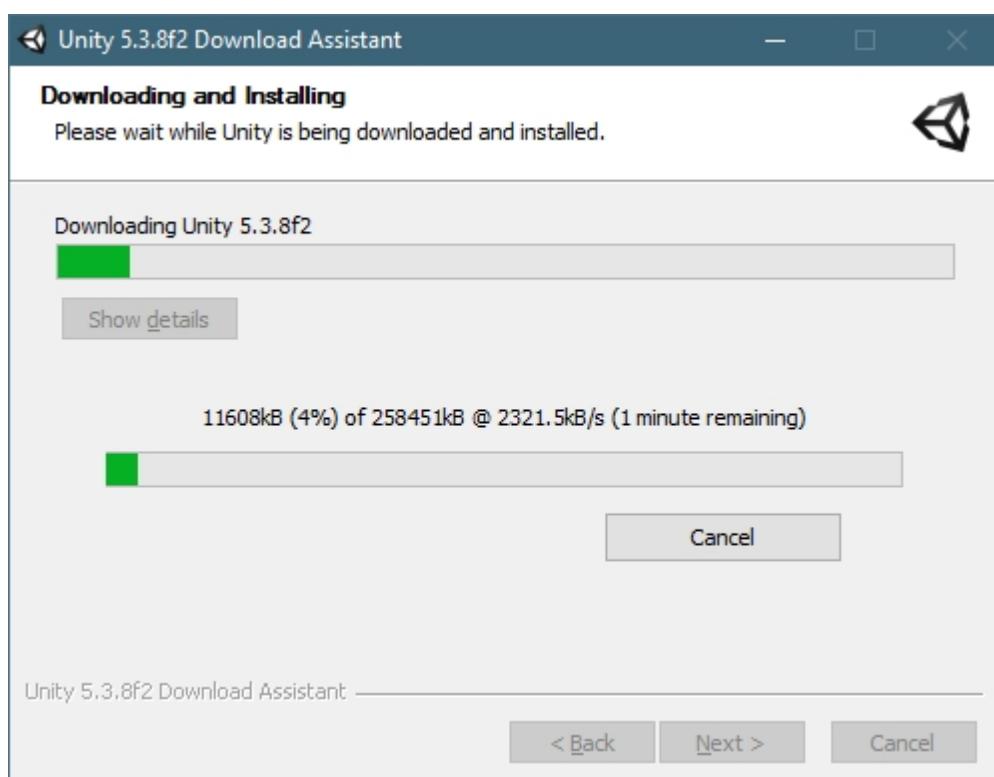
Select the Unity Install location, either as default, or under your C:\SDXModding\ folder.

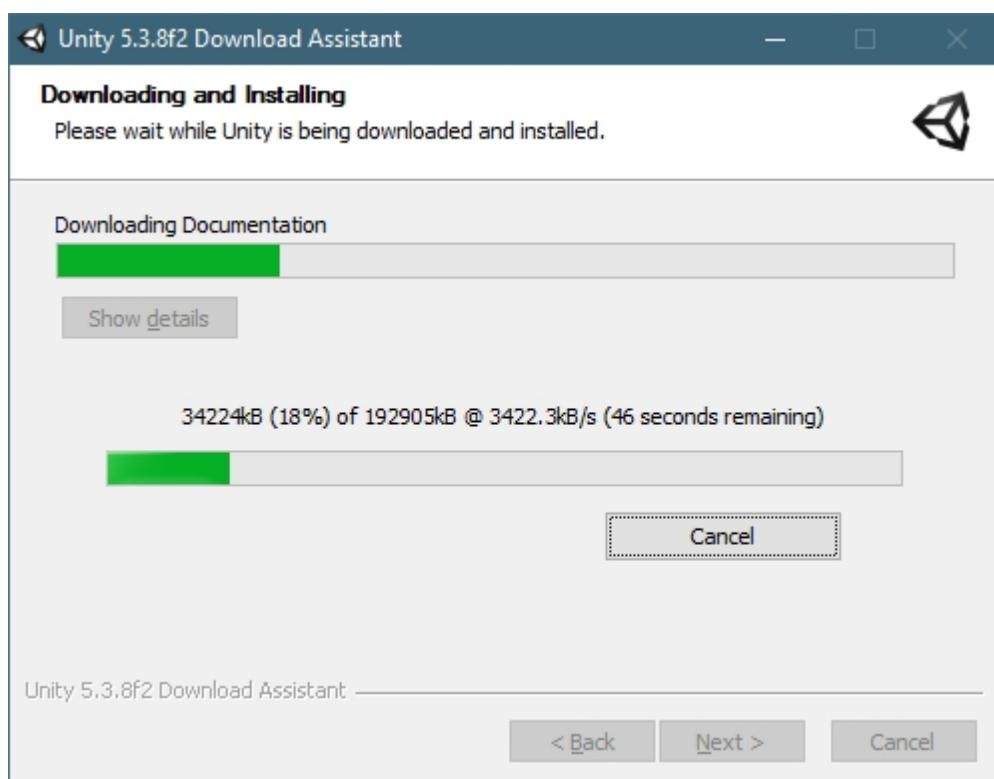
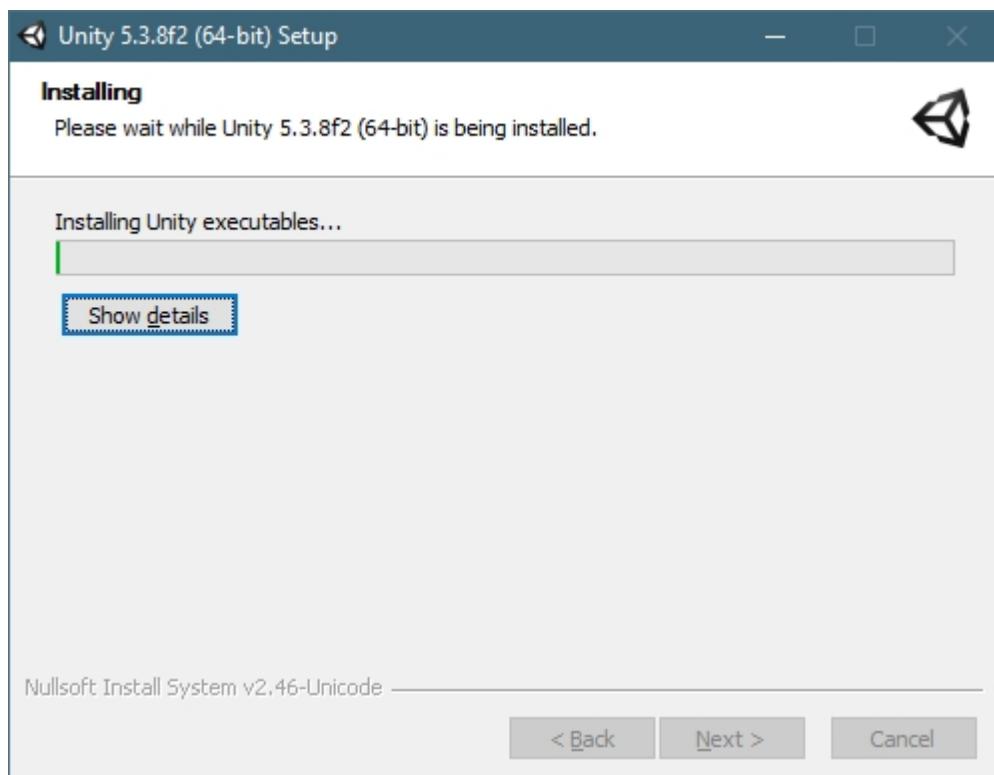


Accept the License Agreement by checking on the check box, once you have reviewed and accepted the licenses

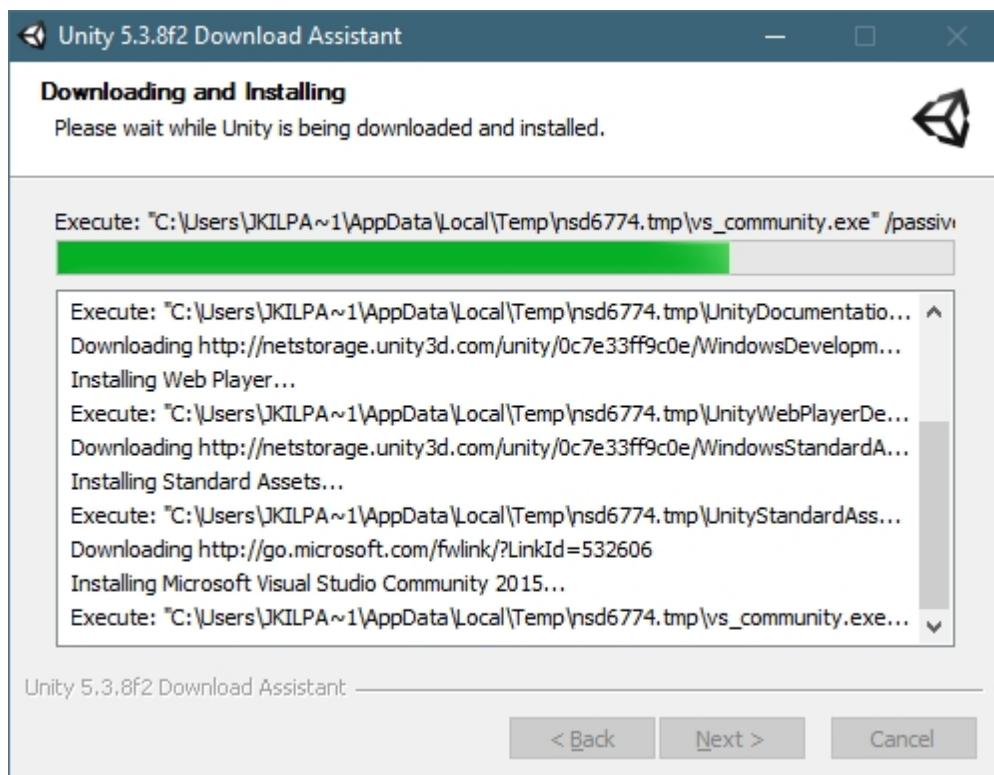


Wait for the automated download and install to be completed

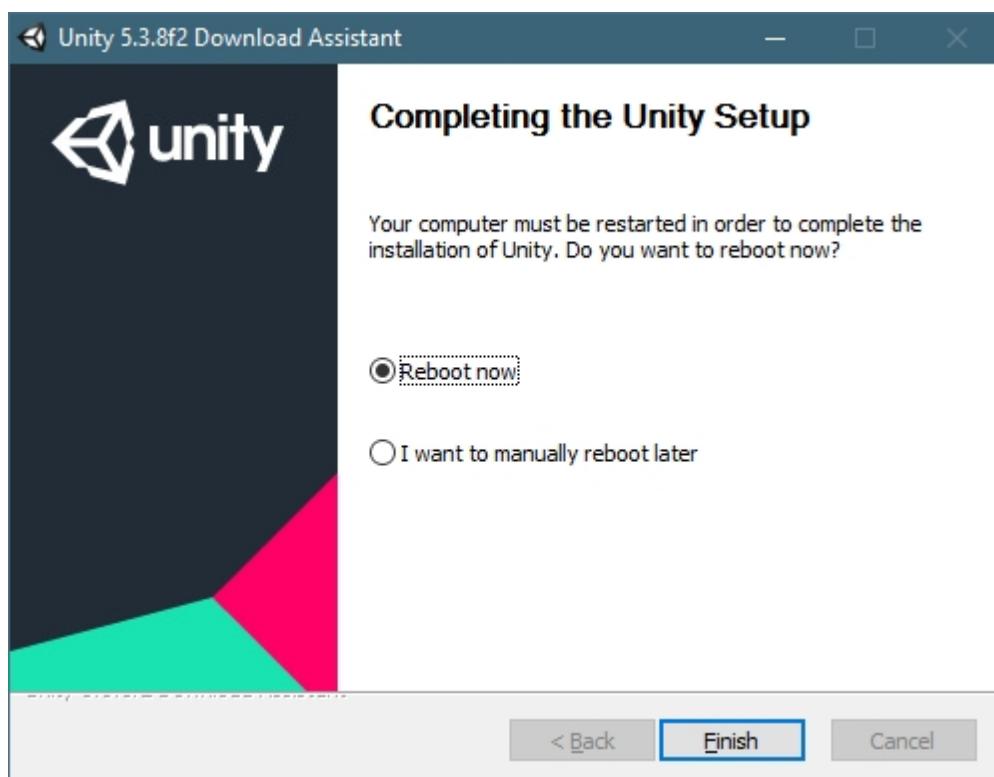




During the installation process, other tools will be installed as needed, such as Visual Studio 2015 Community Edition.



Reboot when done.



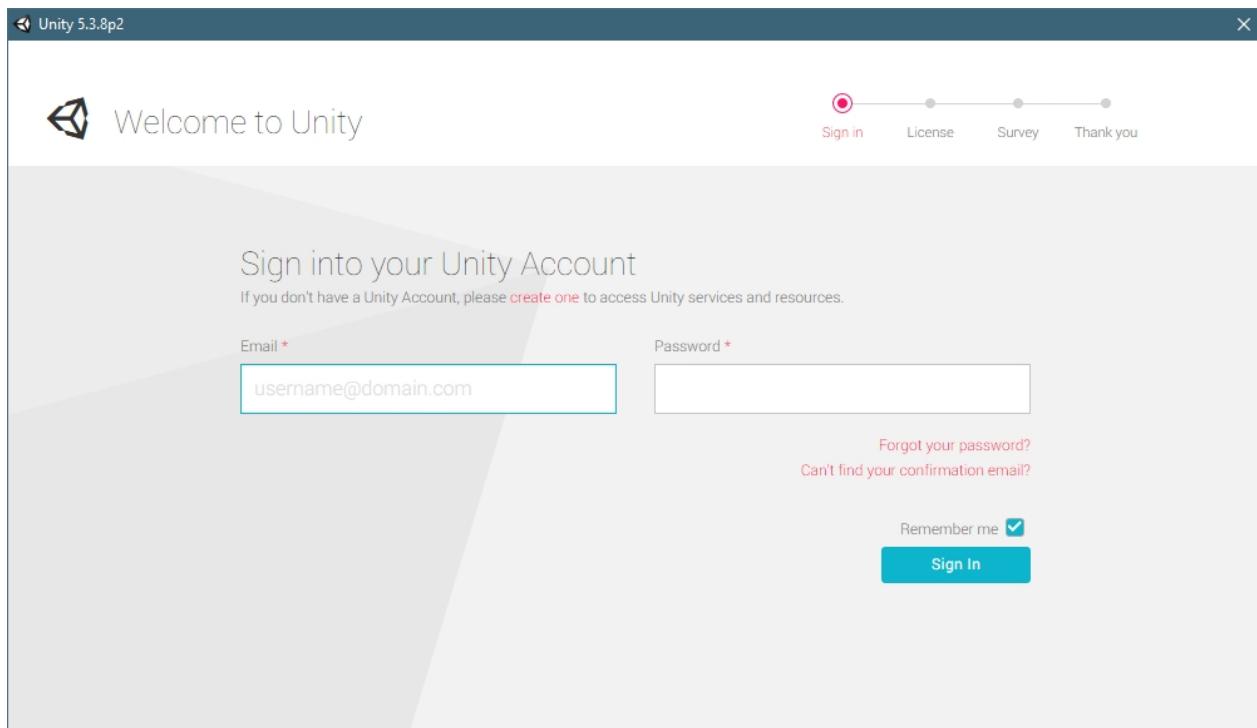
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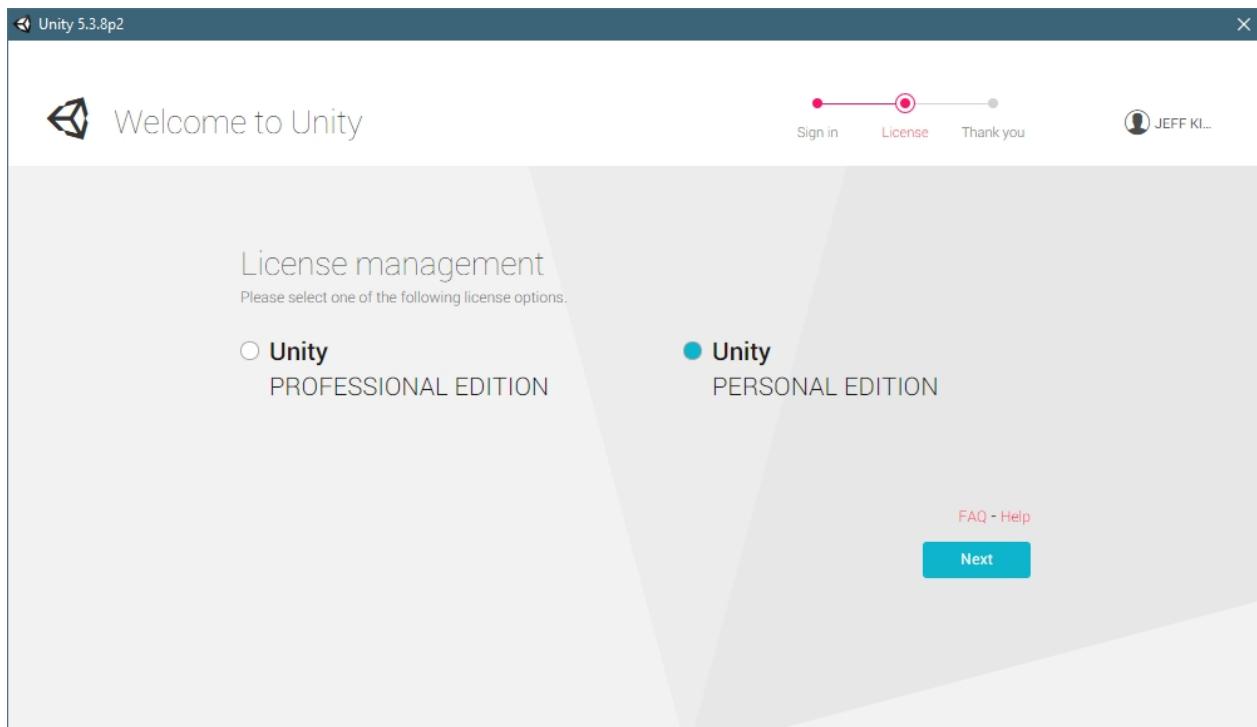
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## Starting Unity for the first time

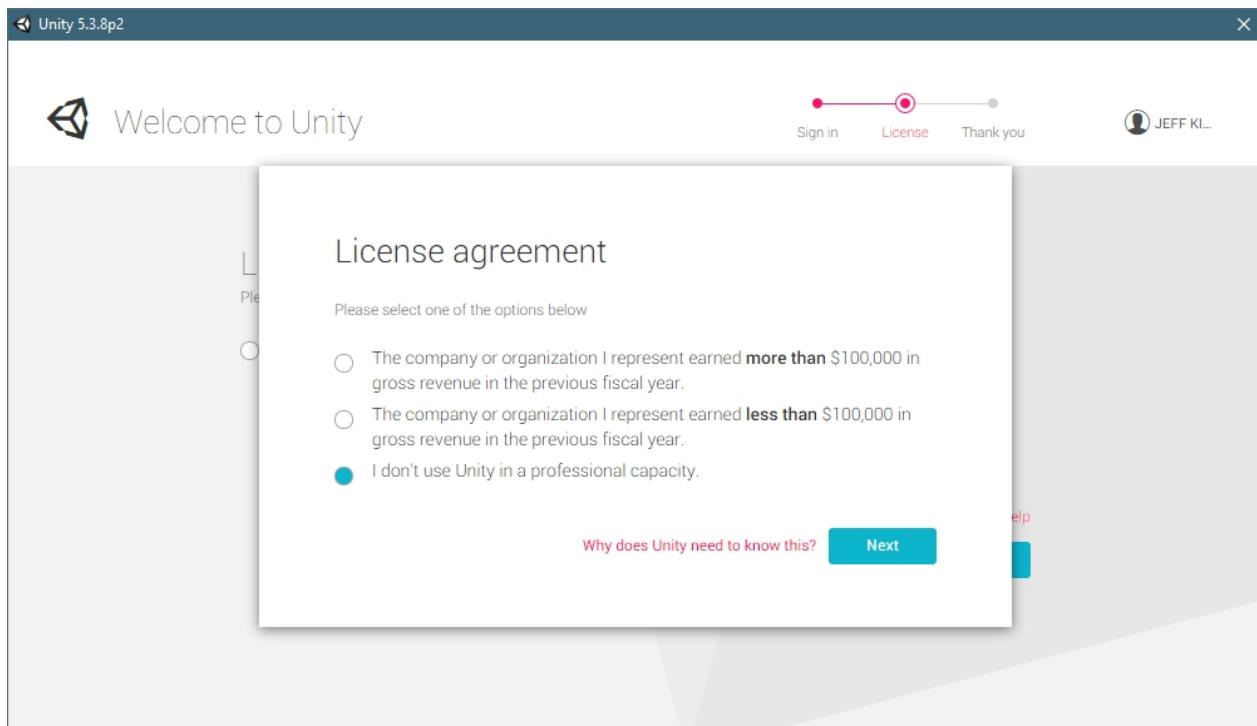
When Unity is started, it will ask you to either login, or create a new account. This will allow you to download assets from the Unity store.



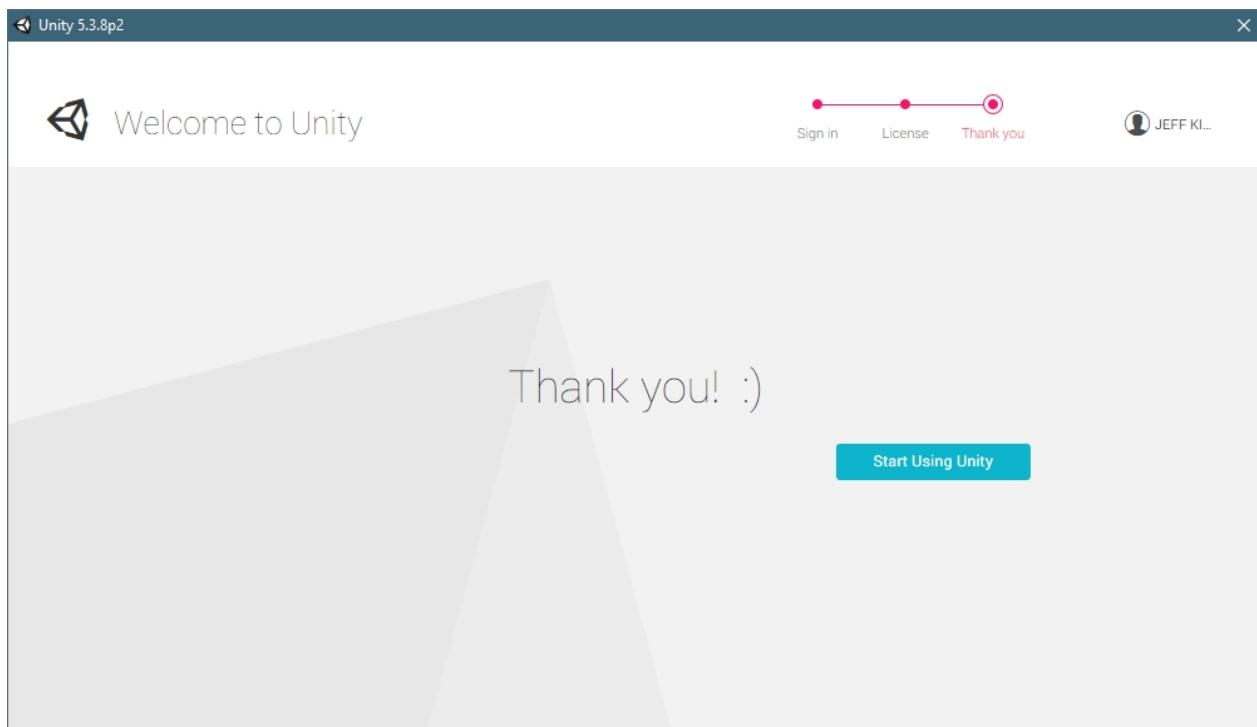
Unity offers two options, Professional Edition or Personal Edition. For this tutorial, we'll select Personal Edition.



Unity is a paid program once your organization makes over \$100,000, and then you must buy a license. Unless you are doing exceptionally well in your modding, you'll want to select the "I don't use Unity in a professional capacity"



After a quick config, Unity is ready for you



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[GitHub](#)

## [Referenced Article](#)

For us, in the 7 Days To Die Community, Github is the preferred way to host mods and code, that allows free storage, persistent download links, and a versioning system, so you can see how your mod, or your favorite mod, has evolved over time.

This section will show you how to install and set up GitHub Desktop.

## The “Git” in GitHub

To understand GitHub, you must first have an understanding of Git. Git is an open-source version control system that was started by Linus Trovalds – the same person who created Linux. Git is similar to other version control systems – [Subversion](#), CVS, and Mercurial to name a few.

### Version control systems

So, Git is a “version control system,” what’s that mean? When developers are creating something (an application, for example), they are making constant changes to the code and releasing new versions, up to and after the first official (non-beta) release.

Version control systems keep these revisions straight, and store the modifications in a central repository. This allows developers to easily collaborate, as they can download a new version of the software, make changes, and upload the newest revision. Every developer can see these new changes, download them, and contribute.

Similarly, people who have nothing to do with the development of a project can still download the files and use them. Most Linux users should be familiar with this process, as using Git, Subversion, or some other similar method is pretty common for downloading needed files, especially in preparation for compiling a program from source code (a rather common practice for Linux geeks).

In case you are wondering why Git is the preferred version control system of most developers, it has multiple advantages over the other systems available, including a more efficient way to store file changes and ensuring file integrity. If you’re interested in knowing the details, check out [this page](#) to read a thorough explanation on how Git works.

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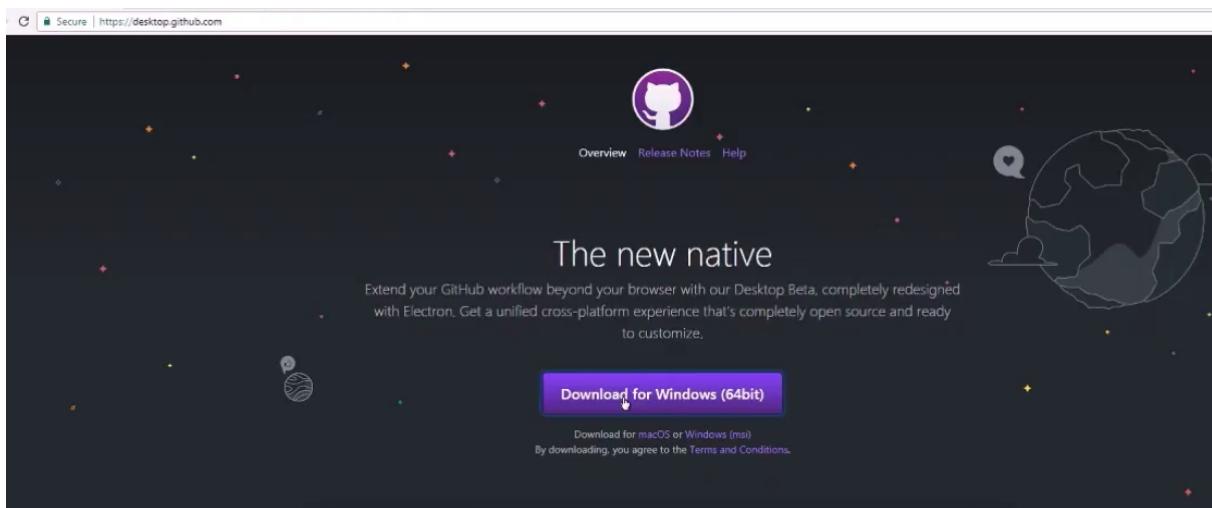
### Installing and Configuring GitHub

## GitHub Desktop

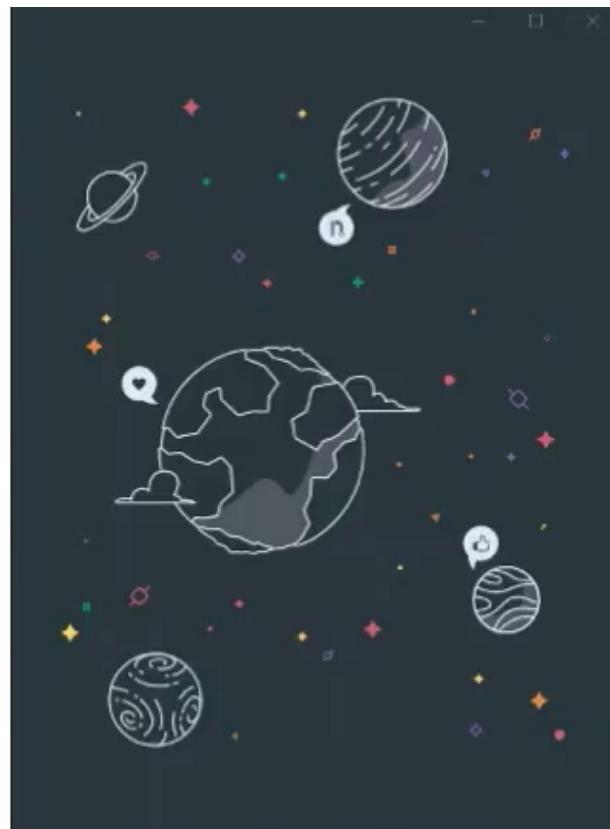
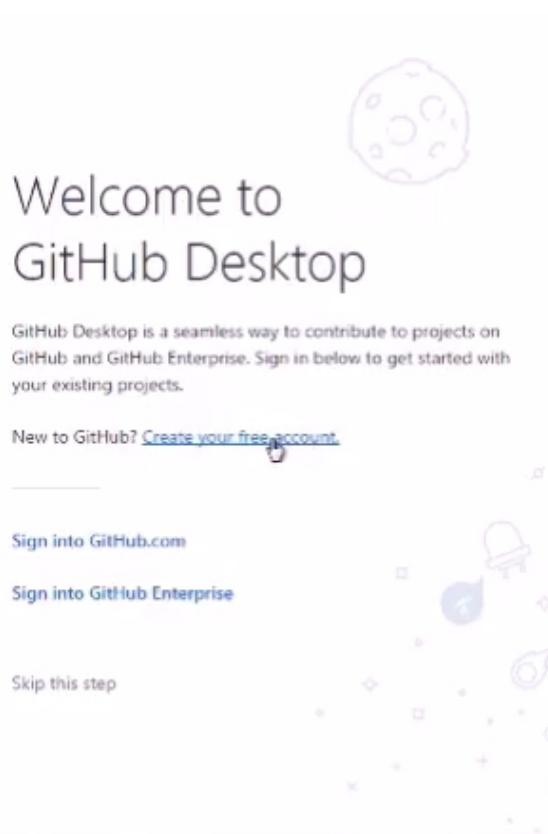
GitHub Desktop is an easy to use tool to manage code. You can download it [here](#).

GitHub is a free hosting site, useful for making small web sites, storing code, and distributing files to other people.

To get started, install [GitHub Desktop](#)



Click on "Create your free account". This will open a new browser window or tab:



Enter in a user name, your email address ( you'll get a verify email link), and your password.

# Join GitHub

The best way to design, build, and ship software.

Step 1: Create personal account	Step 2: Choose your plan	Step 3: Tailor your experience
------------------------------------	-----------------------------	-----------------------------------

**Create your personal account**

Username

This will be your username — you can enter your organization's username next.

Email Address

You will occasionally receive account related emails. We promise not to share your email with anyone.

Password

Use at least one lowercase letter, one numeral, and seven characters.

By clicking on "Create an account" below, you are agreeing to the [Terms of Service](#) and the [Privacy Policy](#).

[Create an account](#)

**You'll love GitHub**

- Unlimited collaborators
- Unlimited public repositories
- Great communication
- Frictionless development
- Open source community

Accept the default of "Unlimited public repositories for free"

## Welcome to GitHub

You've taken your first step into a larger world, @spheretest54.

Completed Set up a personal account	Step 2: Choose your plan	Step 3: Tailor your experience
--	-----------------------------	-----------------------------------

**Choose your personal plan**

Unlimited public repositories for free.

Unlimited private repositories for \$7/month.

Don't worry, you can cancel or upgrade at any time.

Help me set up an organization next  
Organizations are separate from personal accounts and are best suited for businesses who need to manage permissions for many employees.  
[Learn more about organizations.](#)

[Continue](#)

**Both plans include:**

- Collaborative code review
- Issue tracking
- Open source community
- Unlimited public repositories
- Join any organization

Optionally, you may fill out their small questionnaire

# Welcome to GitHub

You'll find endless opportunities to learn, code, and create, @spheretest54.

 Completed  
Set up a personal account

 Step 2:  
Choose your plan

 Step 3:  
Tailor your experience

How would you describe your level of programming experience?

- Very experienced       Somewhat experienced       Totally new to programming

What do you plan to use GitHub for? (check all that apply)

- School projects       Design       Project Management  
 Research       Development       Other (please specify)

Which is closest to how you would describe yourself?

- I'm a hobbyist       I'm a student       I'm a professional  
 Other (please specify)  


What are you interested in?

e.g. tutorials, android, ruby, web-development, machine-learning, open-source

**Submit**

[skip this step](#)

## Create a New Project

### Learn Git and GitHub without any code!

Using the Hello World guide, you'll create a repository, start a branch, write comments, and open a pull request.

[Read the guide](#)

[Start a project](#)



Check your email for the Verification link

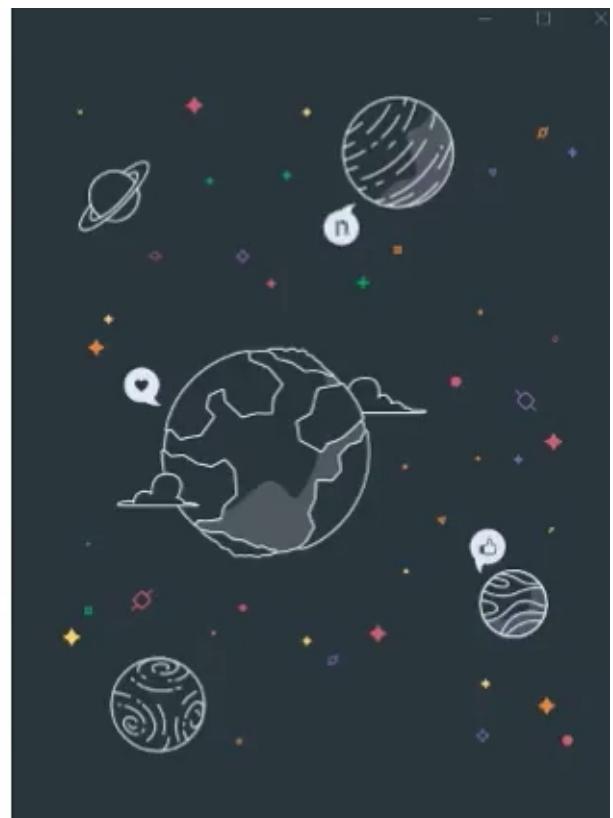
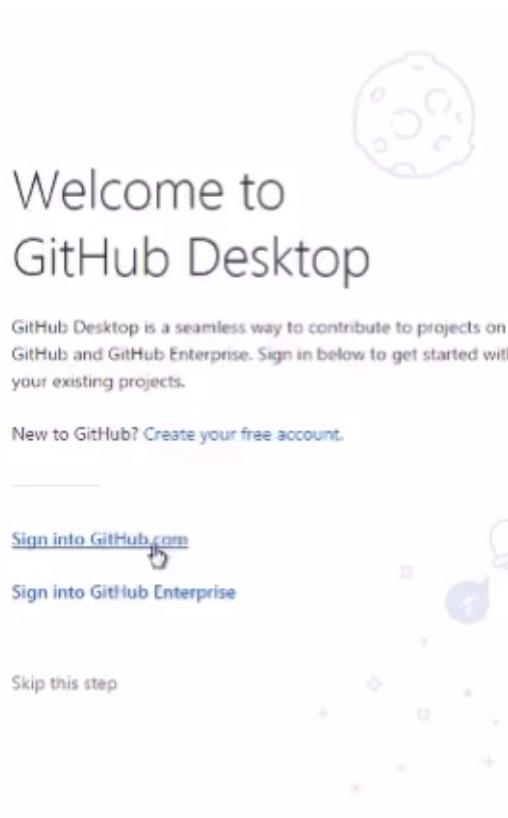


## Please verify your email address

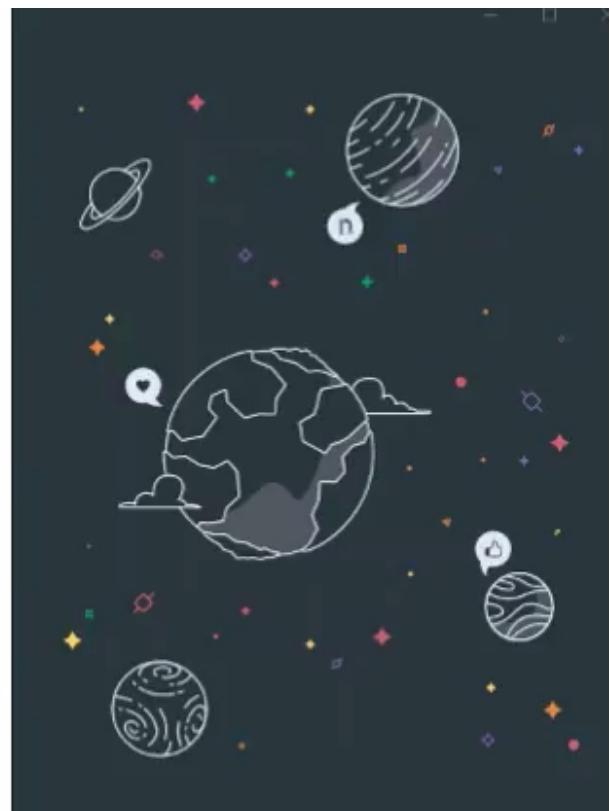
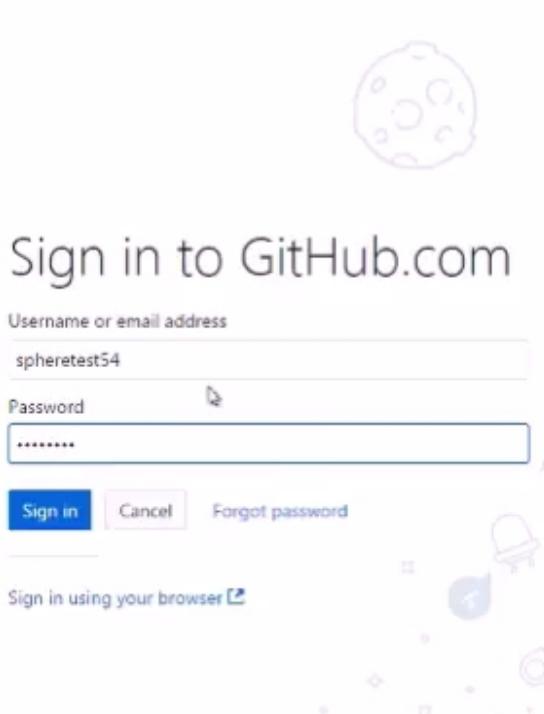
Before you can contribute on GitHub, we need you to verify your email address.  
An email containing verification instructions was sent to [spheretest54@7d2dmodlauncher.org](mailto:spheretest54@7d2dmodlauncher.org).

[Didn't get the email? Resend verification email or change your email settings.](#)

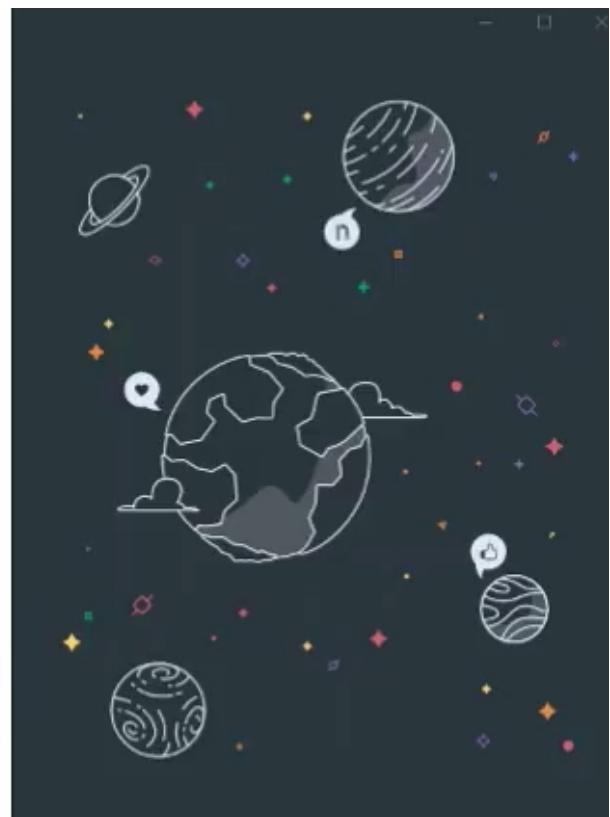
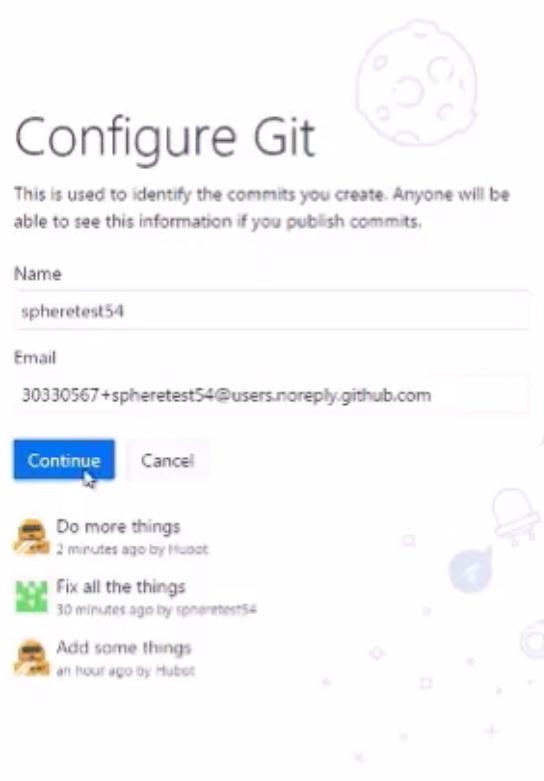
After verifying your email address, go back to the Github Desktop, and click on "Sign into Github.com"



Enter in your username or email address, and your password.



Configure Git. You can just accept the defaults.



Click on Finish.

## Make GitHub Desktop better!

Would you like to help us improve GitHub Desktop by periodically submitting anonymous usage data?

Yes, submit anonymized usage data

**Finish** | Cancel



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---

### Unity Asset Bundle Extractor

Unity Assets Bundle Extractor (UABE) is a stylish tool that allows editing asset bundles and .assets. It can export .assets files from bundles, import them back, modify most asset formats with plugins and dumps with type information and create a standalone installer from the modifications.

[You can find DerPopo's thread here on the 7 Days to Die Forum.](#)

---

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#### Installing UABE

### **Unity Asset Bundle Extract**

UABE can extract existing unity assets from the game, allow changes, then re-add them.

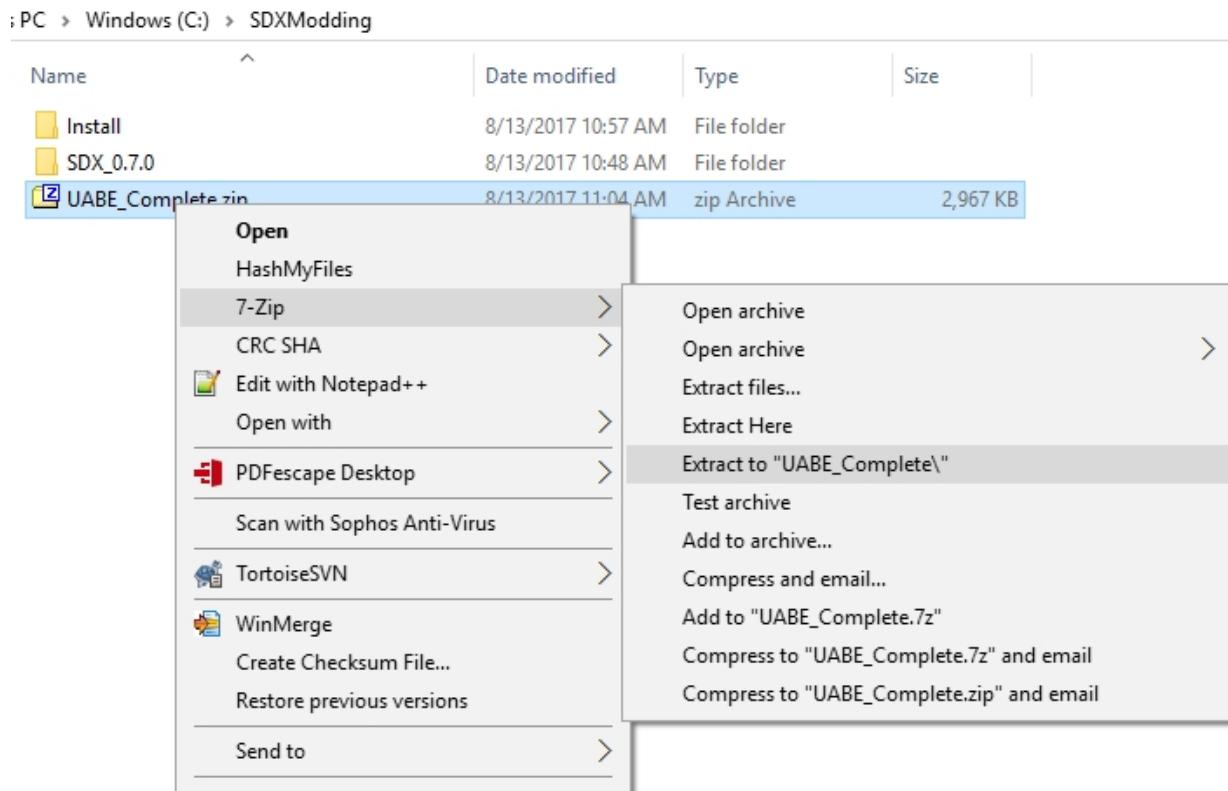
Download UABE tool from [here](#) or [here](#) ( mirror ).

*Note: The mirror link is all of the UABE combined into a merged zip file.*

In [this thread](#), find the following and download:

2.0 (32bit : [here](#) or [here](#), 64bit : [here](#) or [here](#))  
7tdt UMAMesh plugin for 2.0 ([here](#) or [here](#))  
2.0b bugfix, download 2.0 first (32/64bit : [here](#) or [here](#))  
New type package with 5.6.0f3 : [here](#) or [here](#)

Alternatively, you can download from the mirrored link, with the UABE\_Complete.zip.  
 Copy the UABE\_Complete.zip to your Modding Folder ( C:\SDXModding\ )  
 Right click on UABE\_Complete.zip and choose to extract to UABE\_Complete



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## Preparing For Setup

In order to be fully successful with SDX, it's strongly recommend following this Getting Set up guide close.

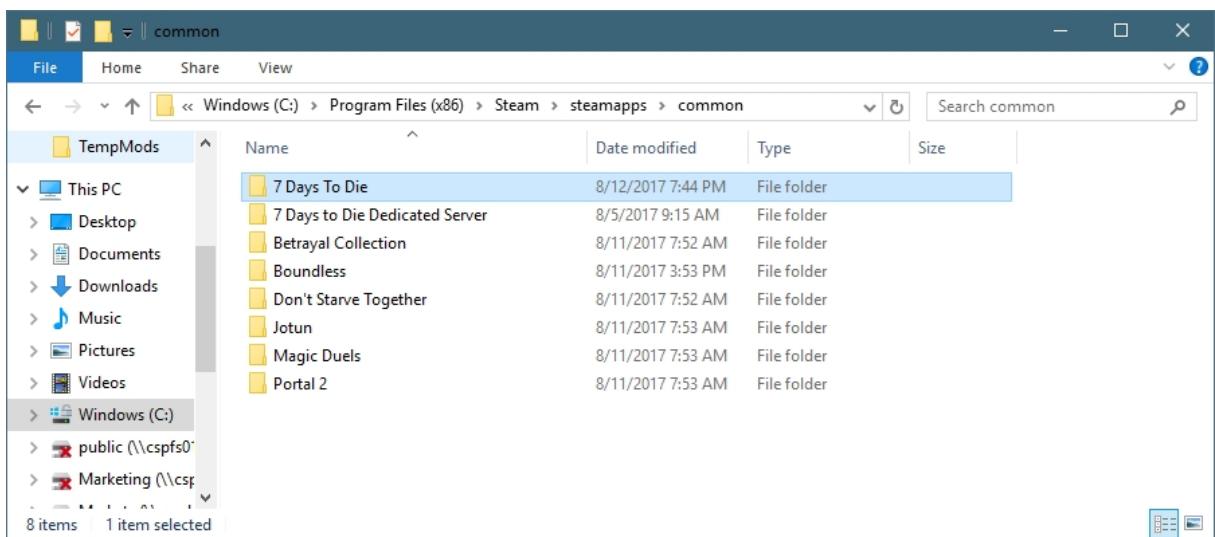
You'll want a 100% vanilla install of 7 Days To Die, without any mods or any additional changes.

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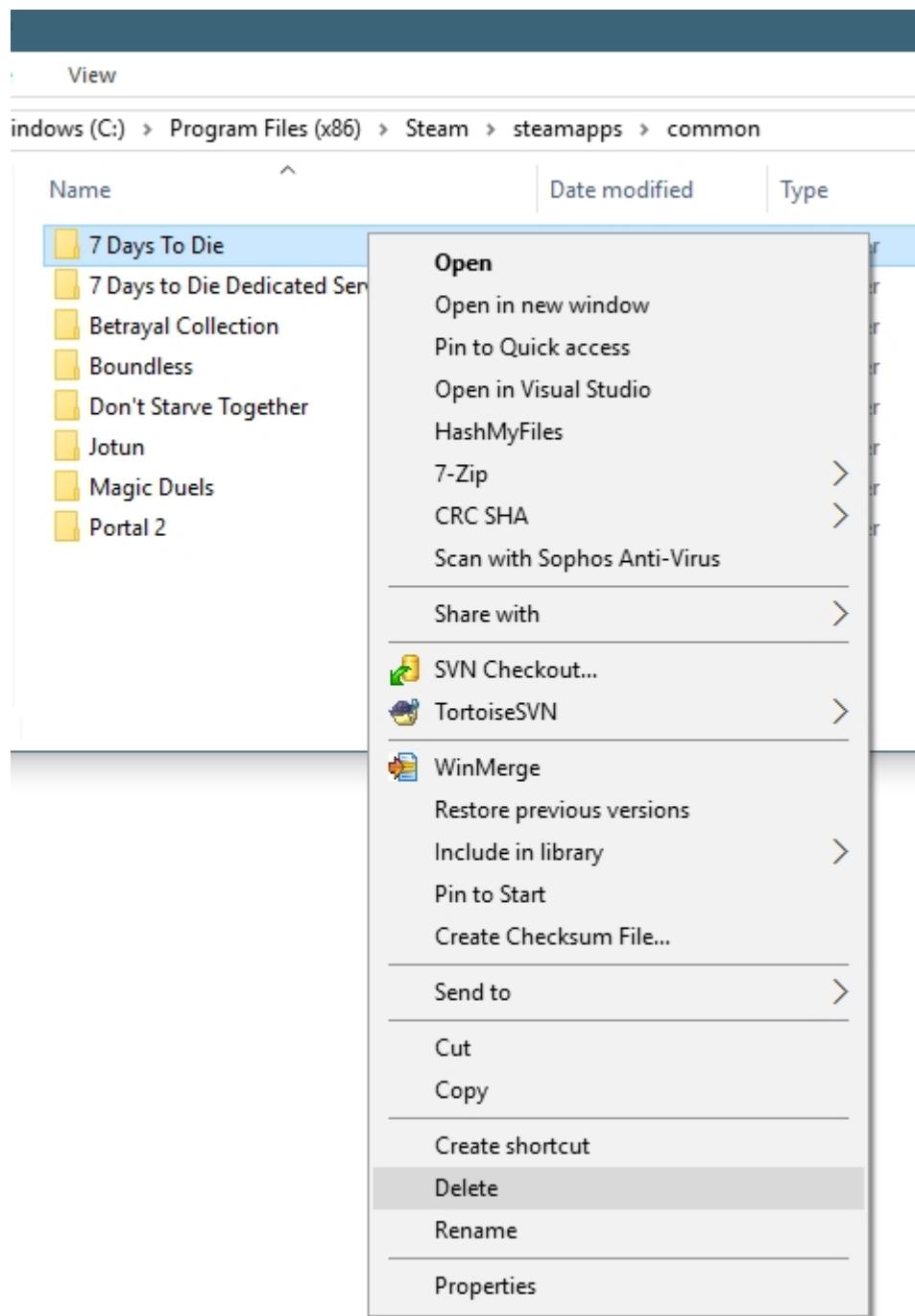
## Starting off Clean

***NOTE: This will remove any mods or any changes you've done to the game.***

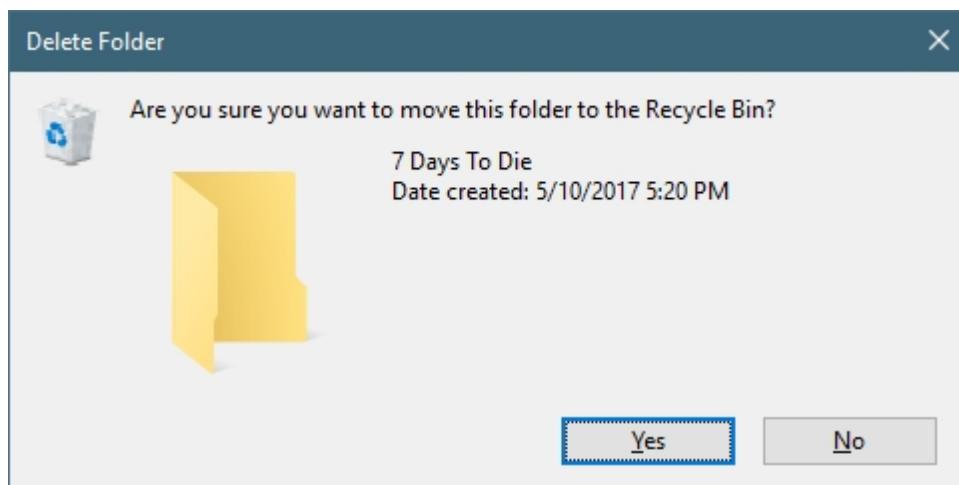
Using Windows explorer, navigate to your Steam Folder, which is by default "C:\Program Files (x86)\Steam\steamapps\common"



Right Click on the "7 Days To Die" folder, and select Delete



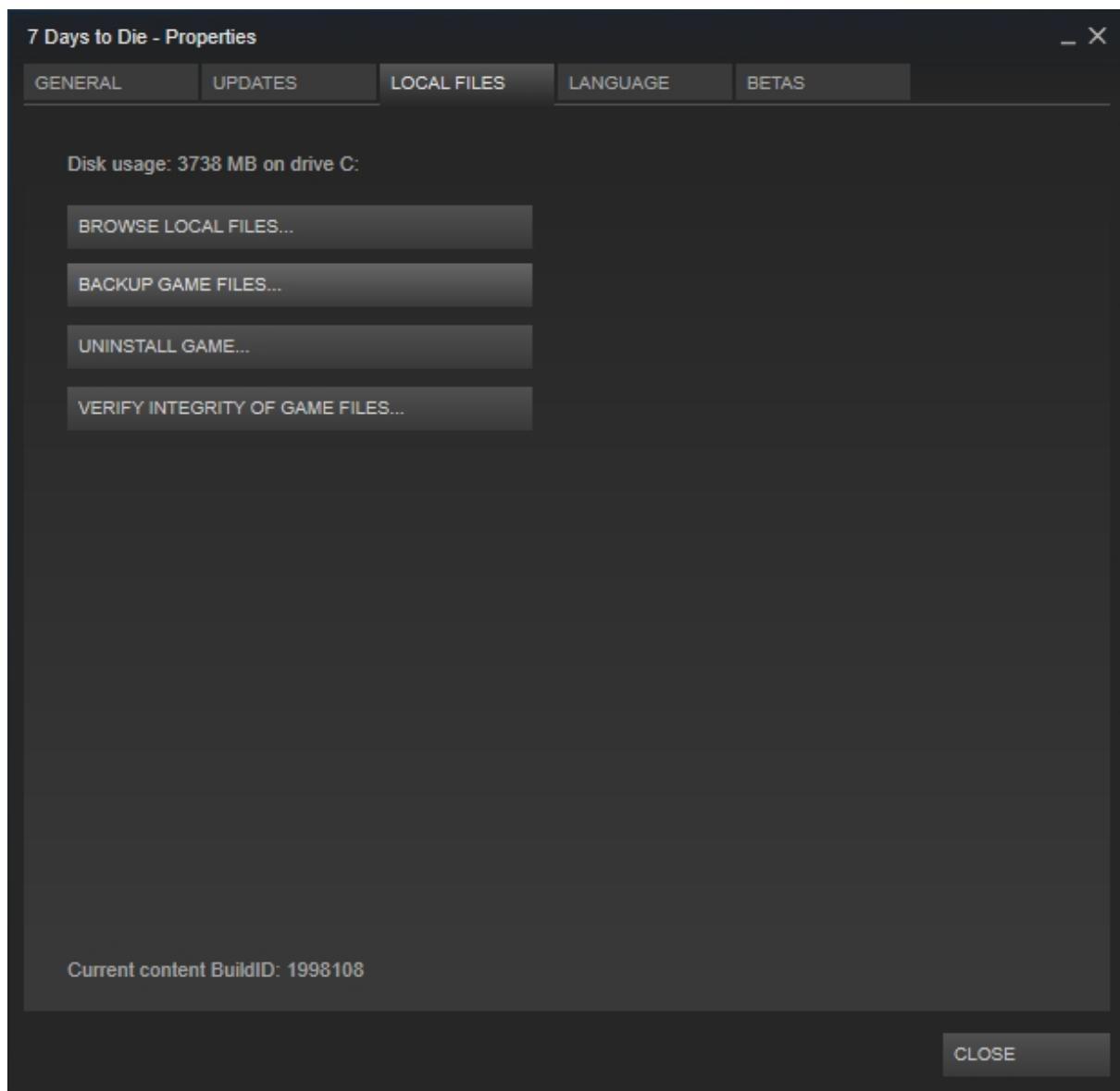
Confirm that you want to delete the "7 Days To Die" folder



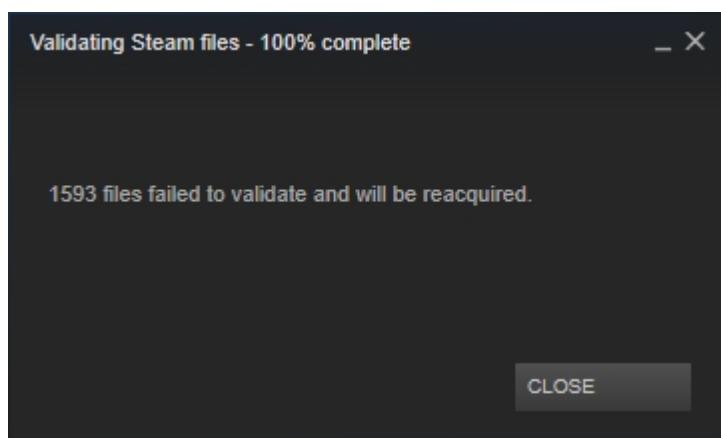
In Steam, right click on the "7 Days to Die", and click on Properties



Click on the "Local Files" tab



And click on "VERIFY INTEGRITY OF GAME FILES"



This will download a fresh install of 7 Days to Die of the latest stable release.

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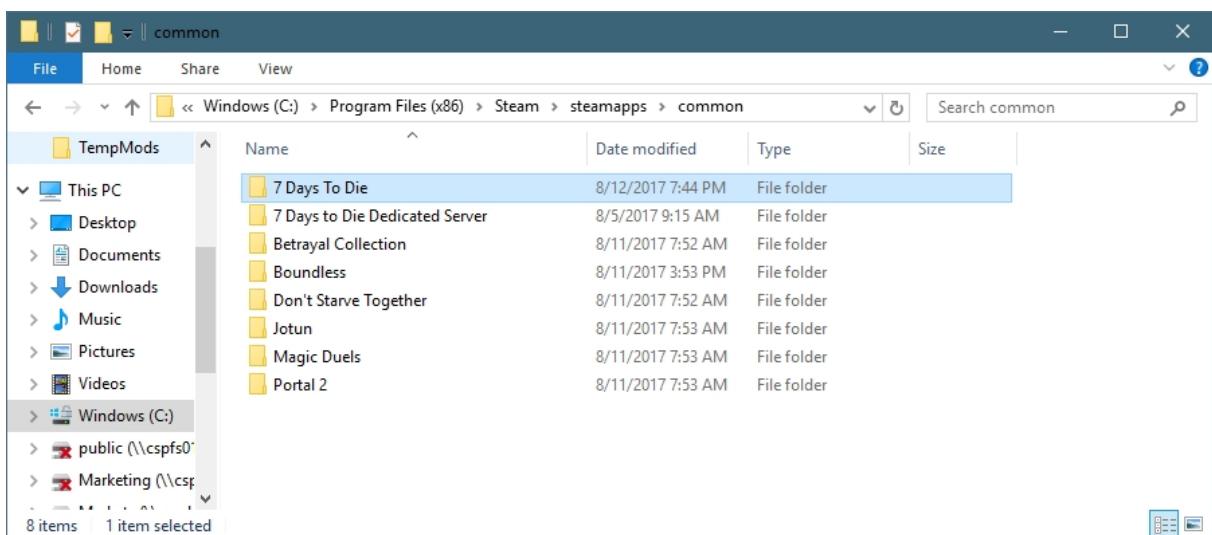
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## Making a Clean Backup

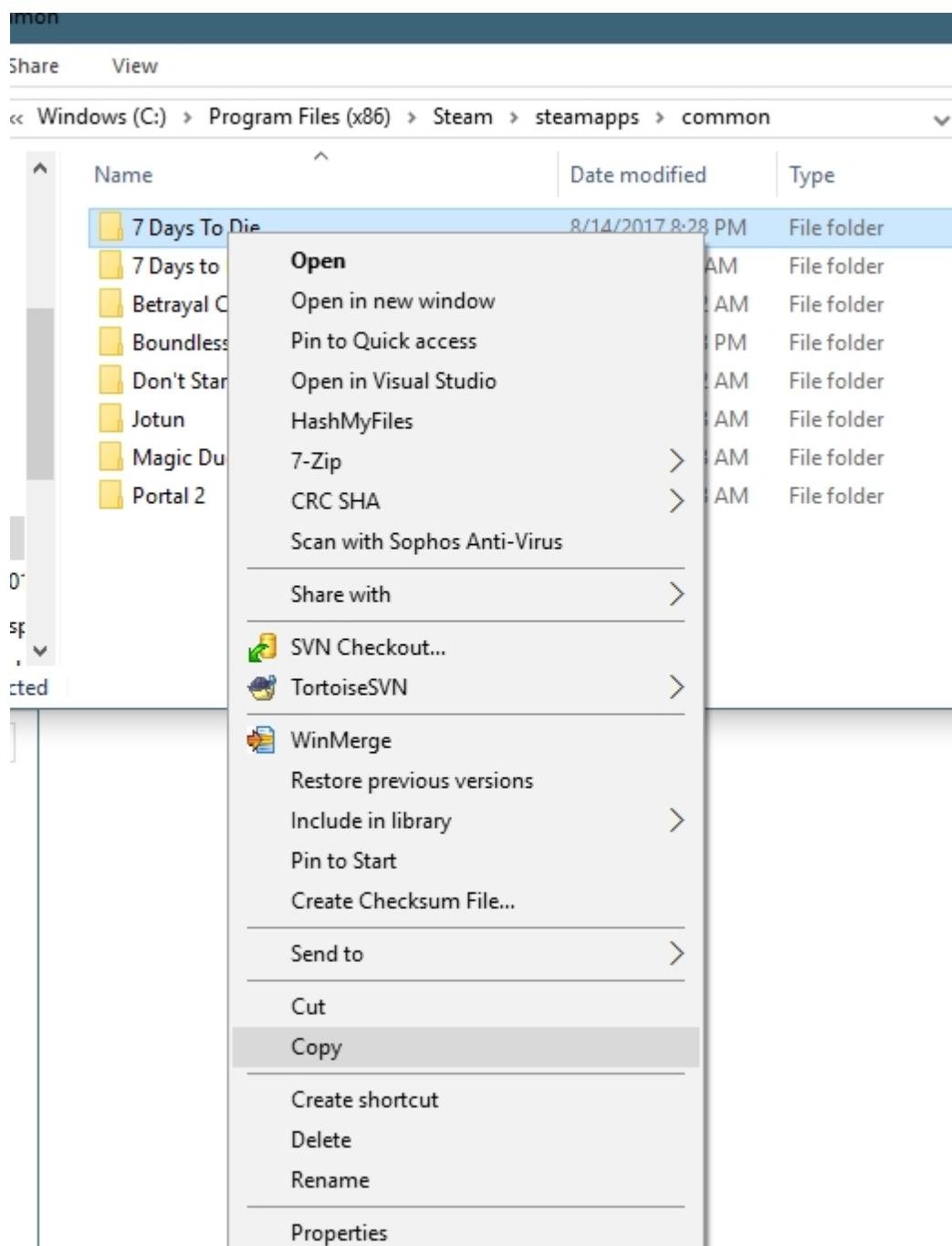
Once you have completed the "[Starting off Clean](#)" section, it's time to make two copies.

Why two copies? One copy will be used as a plain vanilla version. Since Steam will auto-update if a new release is pushed out, you may not be ready to jump to that new version just yet, especially if you are learning how to mod. The other copy will be your working copy, where you'll be applying mods.

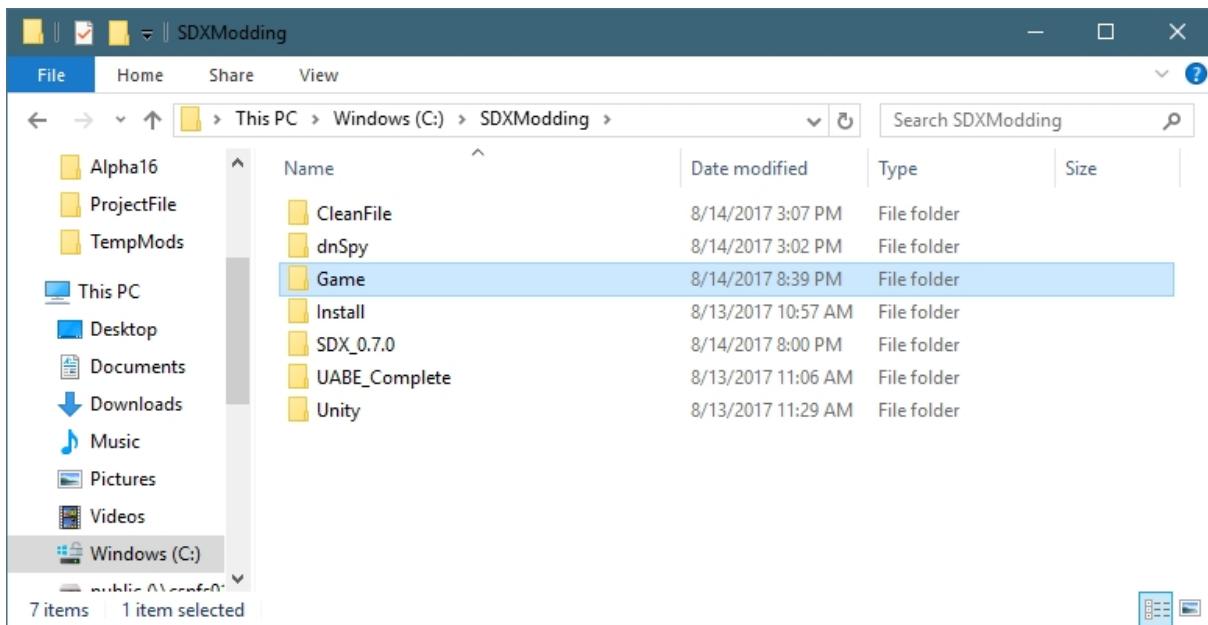
Using Windows explorer, navigate to your Steam Folder, which is by default "[C:\Program Files \(x86\)\Steam\steamapps\common](C:\Program Files (x86)\Steam\steamapps\common)"



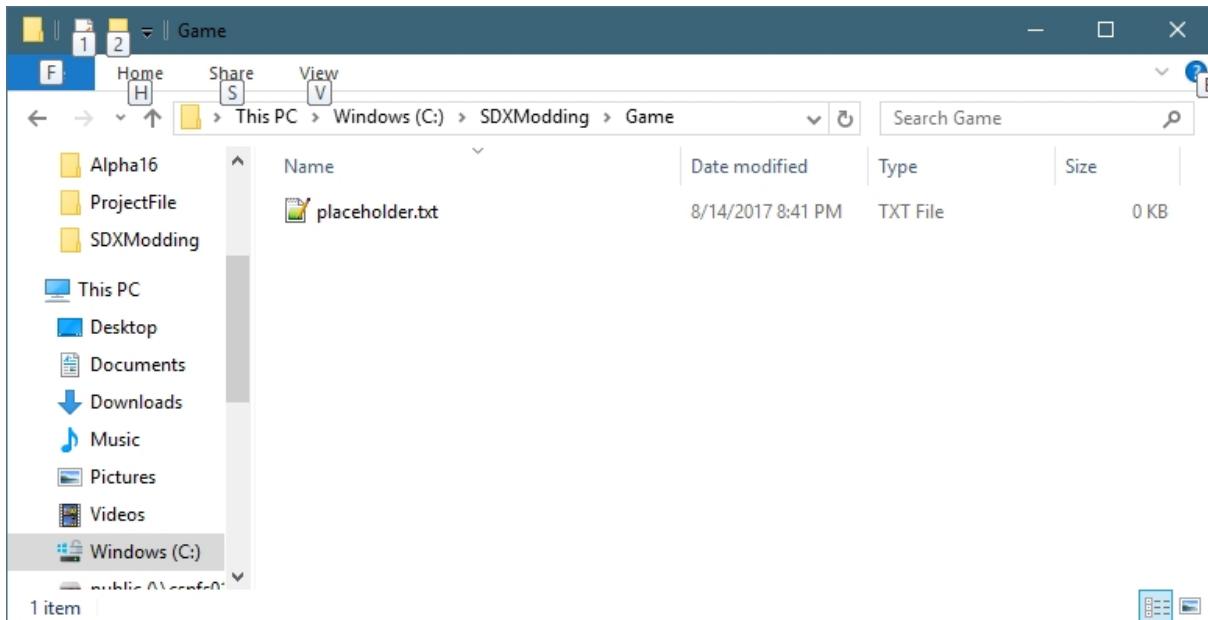
Right Click on the "[7 Days To Die](#)" folder, and select Copy



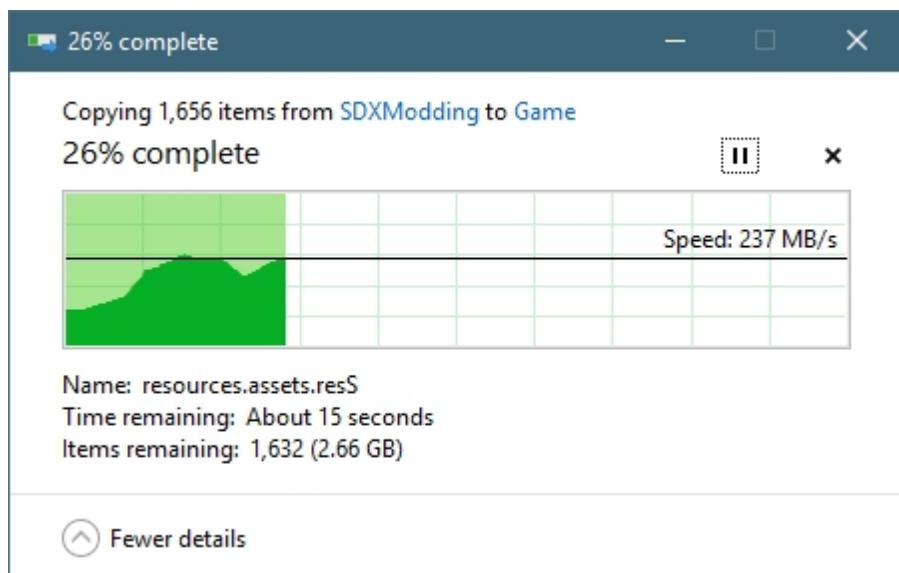
Open up an Explorer Window where you have installed the SDXModding, such as C:\SDXModding\Game\



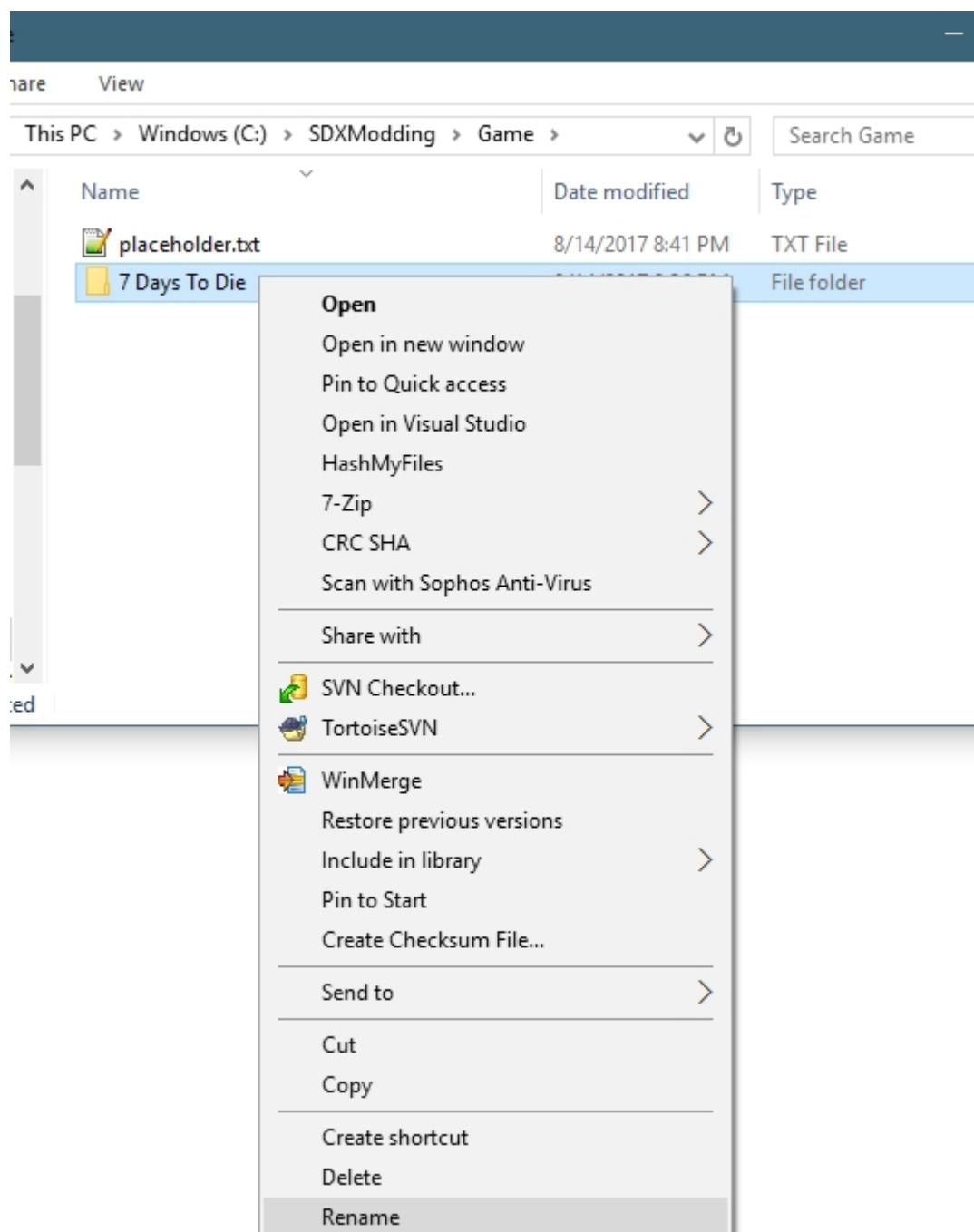
Double Click to open the "Game" Folder.



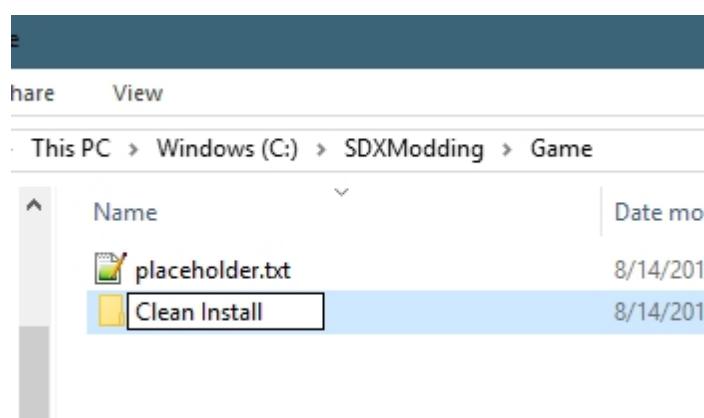
Right click on the folder, and select "Paste". It will then make a copy of the game:



Once it's finished, we'll rename the folder to "Clean Install". Right click on "7 Days To Die" in the "C:\SDXModding\Game\" folder, and select "Rename"



Rename the folder "Clean Install"



You now have a perfectly preserved copy of the game.

---

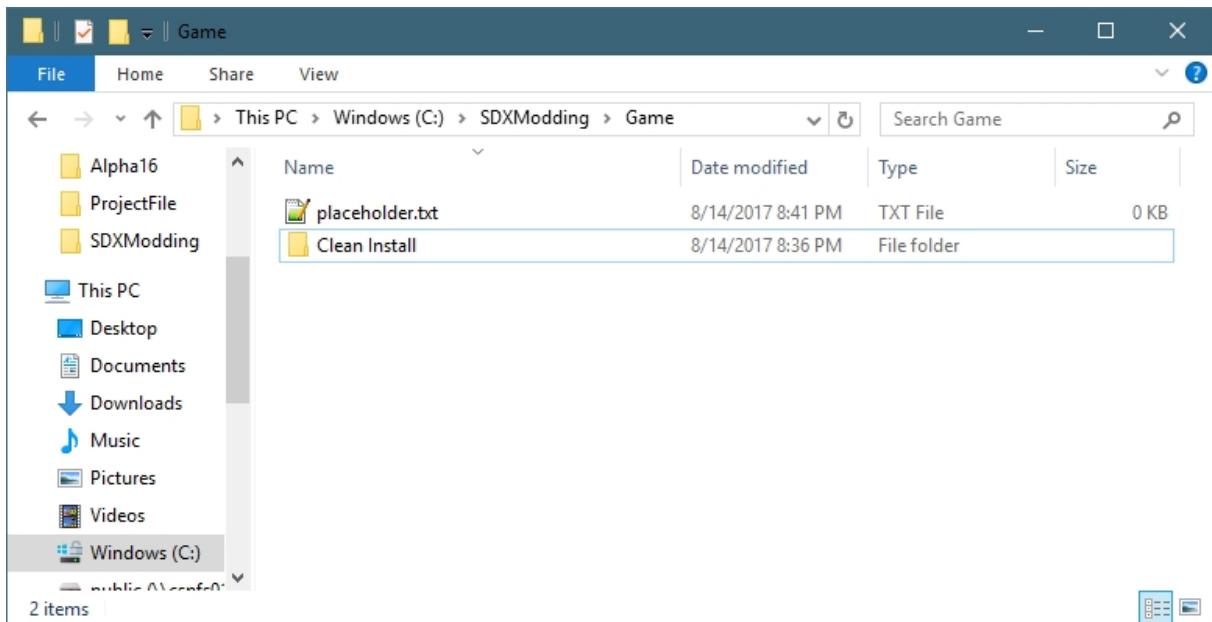
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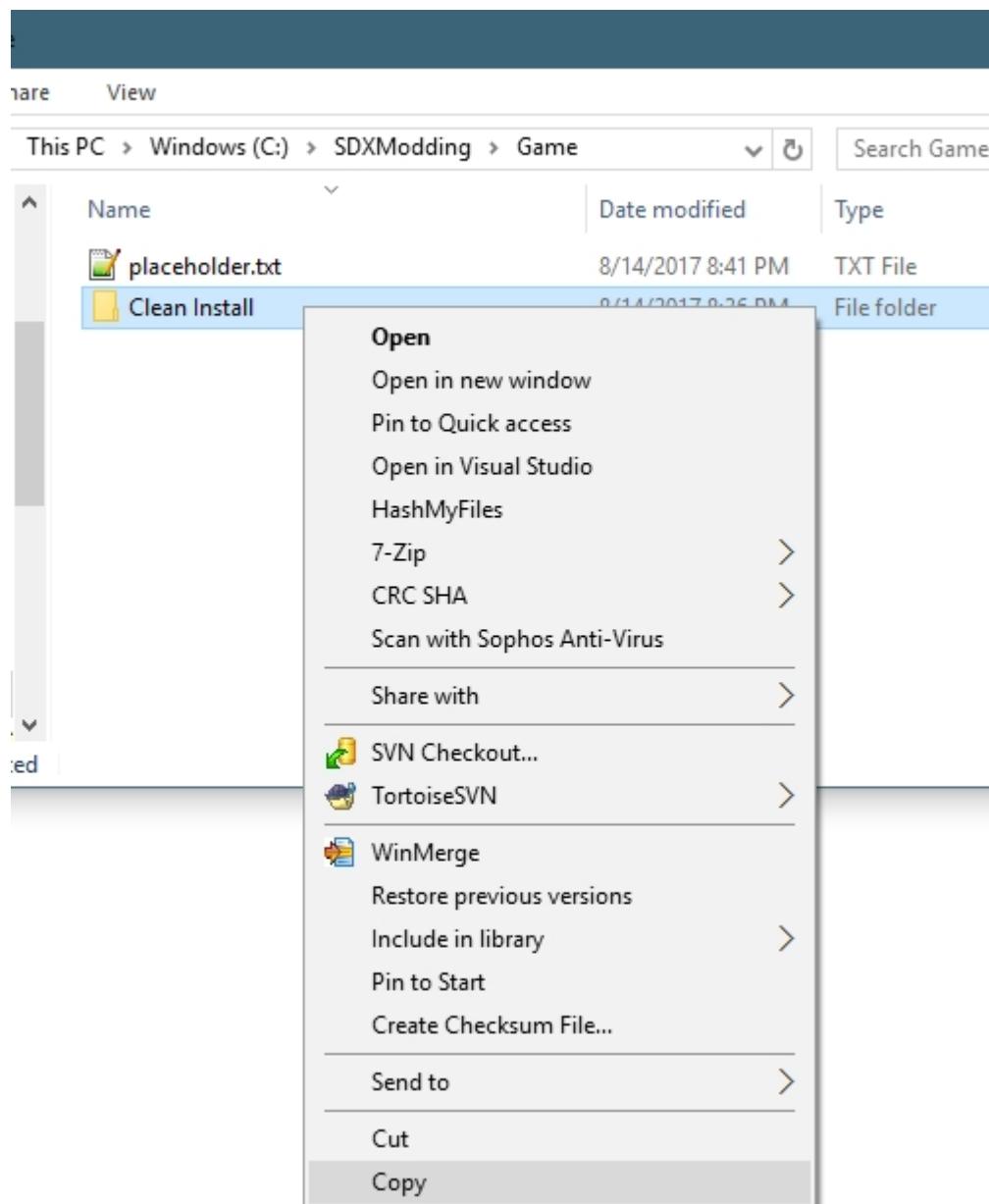
## Making a Working Folder

The second folder you will create will be called a Working. This is where you will be adding your SDX mods, trying out new things.

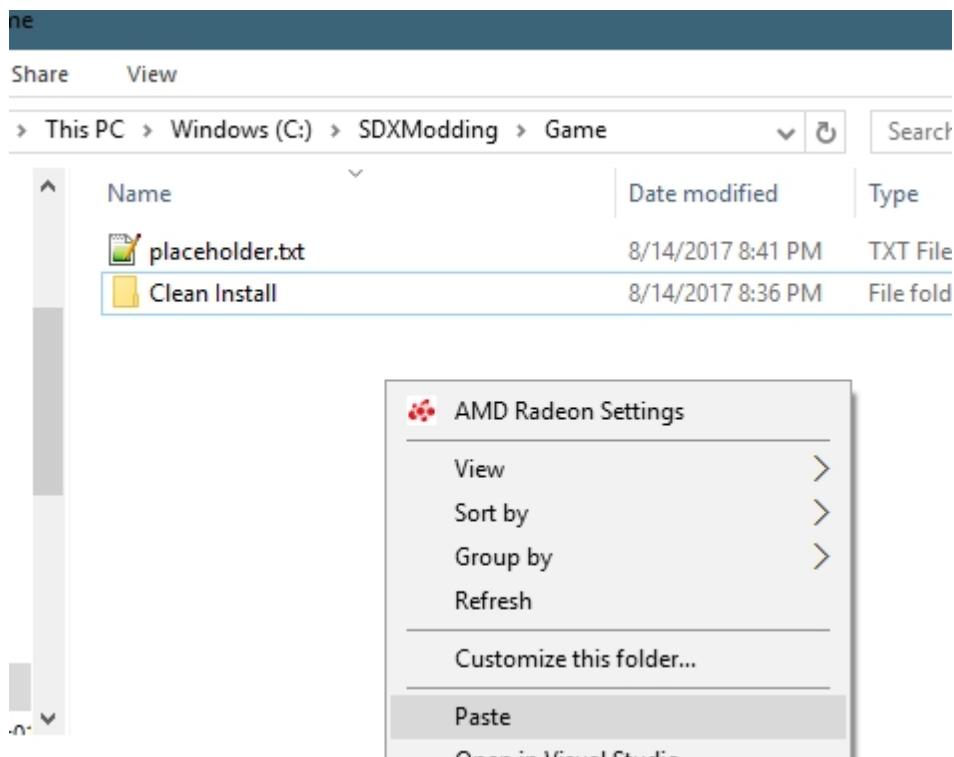
Using Explorer, navigate to your "C:\SDXModding\Game" Folder.



Right click on the "Clean Install" folder, and click on "Copy"

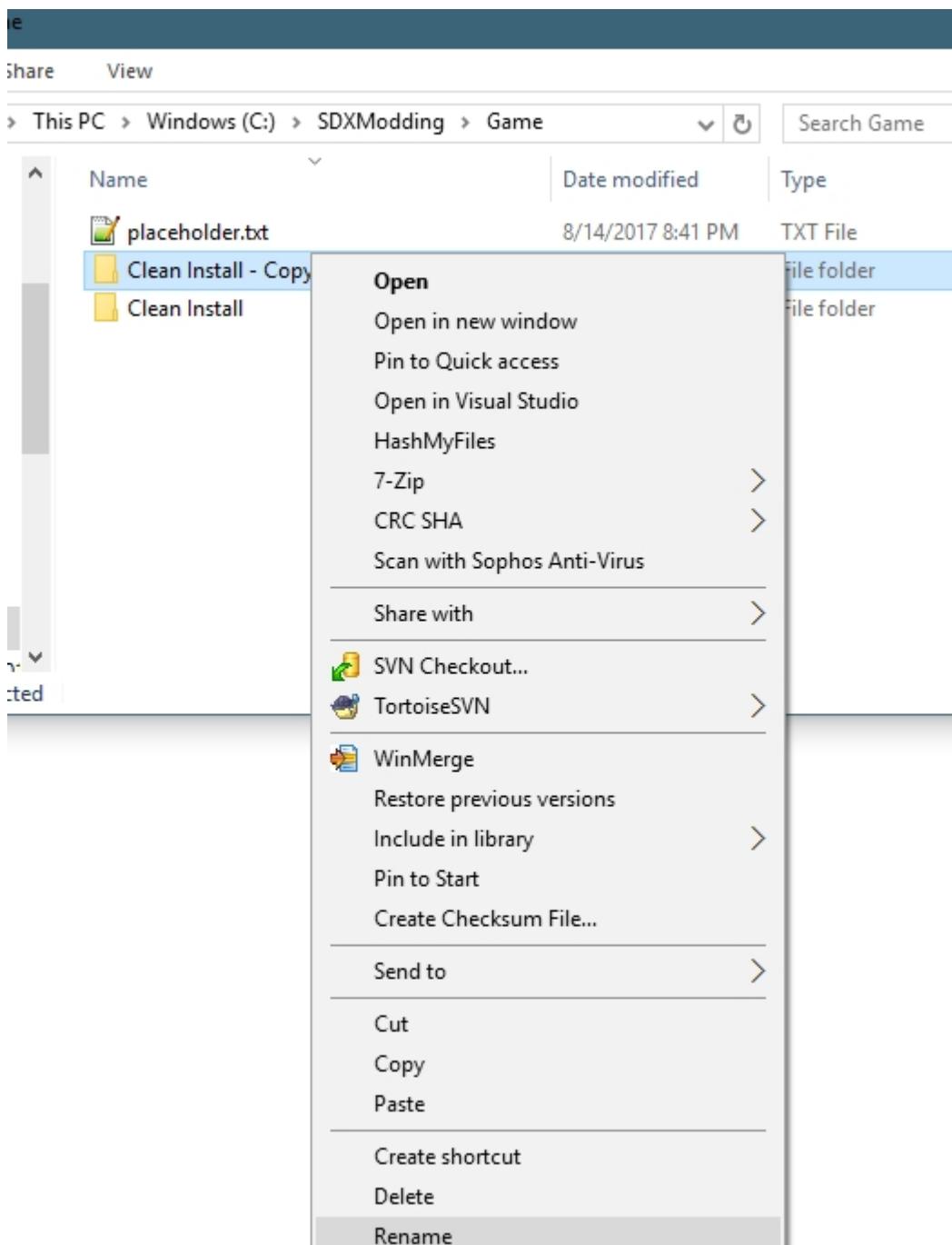


Right click on the Explorer Window again, and select "Paste"

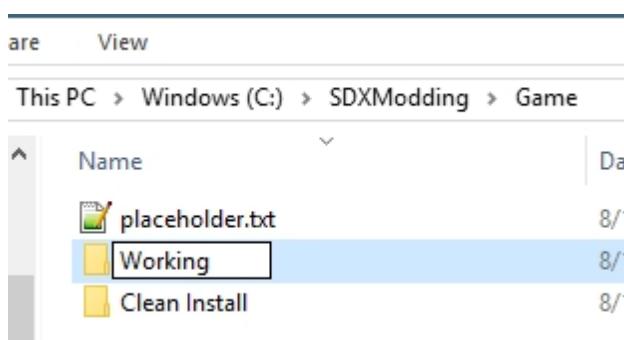


This will make a new copy called "Clean Install - Copy".

Right click on "Clean Install - Copy", and select "Rename"



Rename it to "Working"



There we go! Now we have two copies of the game. One for a back up, and the other as our working folder.

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## SDX Beginner Tutorial

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If you have never used SDX, or just want a refresher, this beginner tutorial is what you'll want to start with.

***The Beginner Tutorial assumes you have already followed the "[Getting Set up](#)" guide.***

It's so easy to get confused and lost during your SDX journey, so we crafted this guide to take you step by step on how to get your SDX environment up and running.

We'll guide you through the steps of making a clean 7 Days to Die game folder, since we don't want any extra mods or tweaks to interfere with this tutorial.

Once that's complete, we'll guide you through compiling an empty mod, and show you what each step does.

Finally, when you are ready, we'll add an actual item into the game, using the supplied Katana Mod.

---

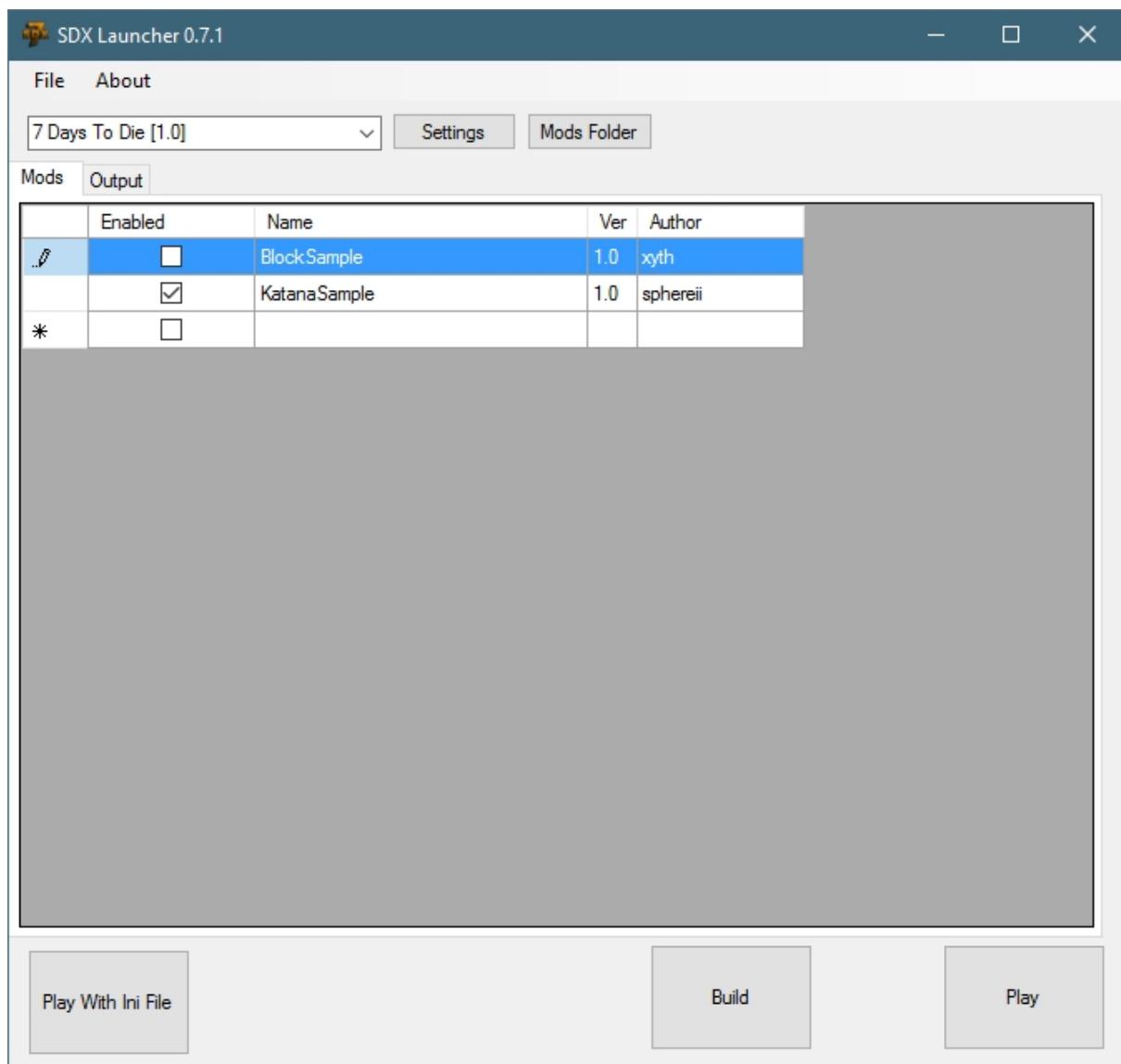
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## Building for the first time

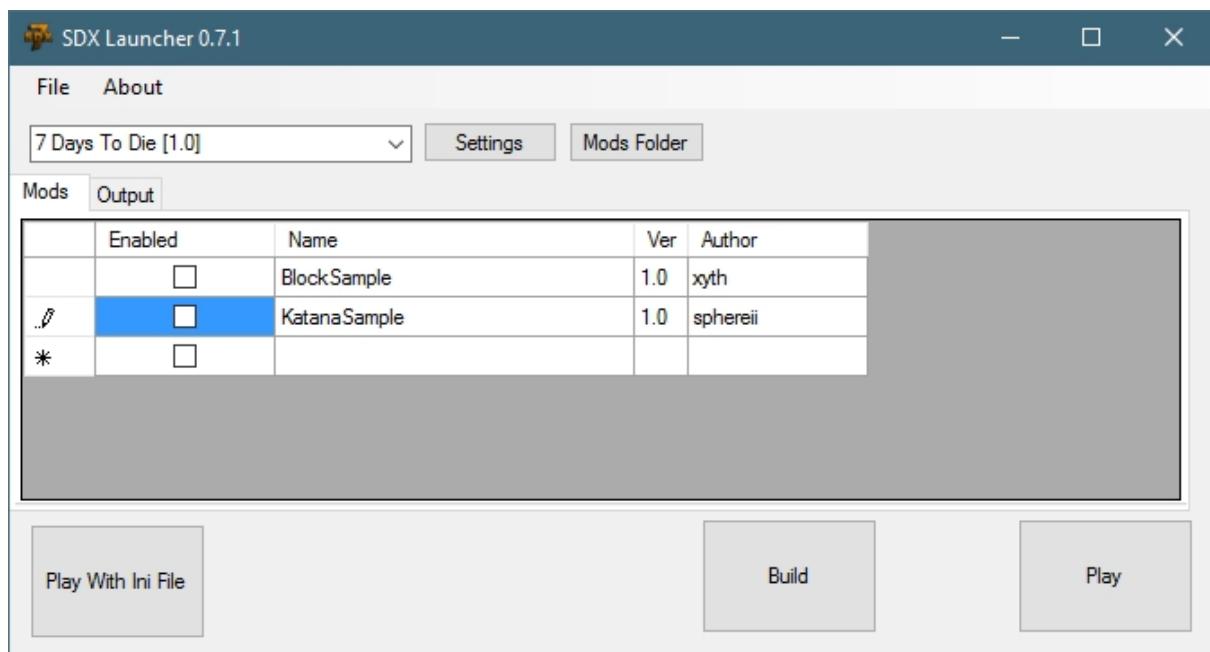
Once you have completed all the steps in the [Getting Started](#) section, it's time to trigger your first SDX compile!

Start the SDX Launcher



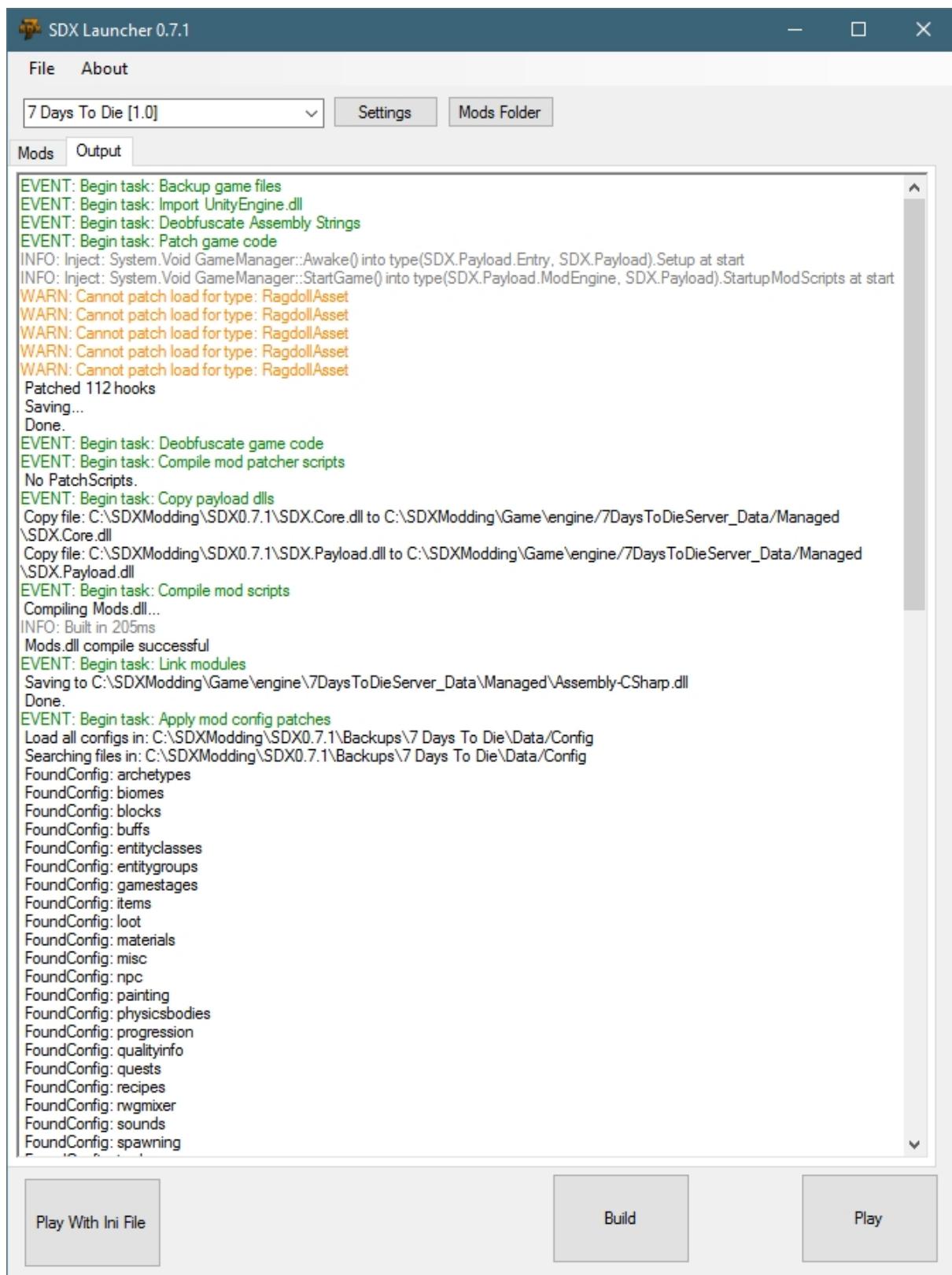
For the first compile, we want to disable all the available mods, to make sure everything is set up correctly.

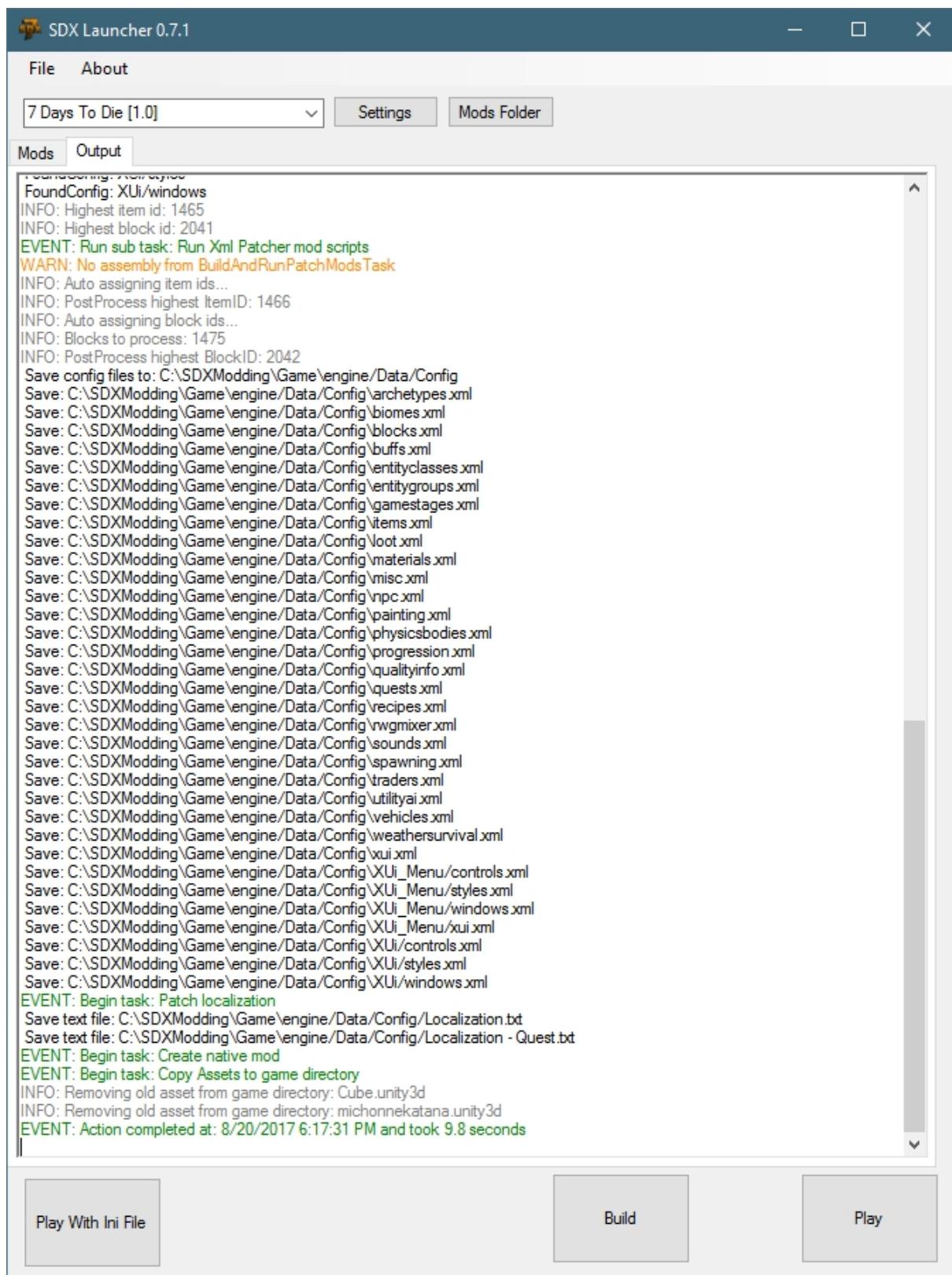
For each Mod listed in the "Mods" tab, click on the checkmark to disable it.



Click on the "Build" Button.

The SDX Launcher will print a lot of information in the "Output" window:

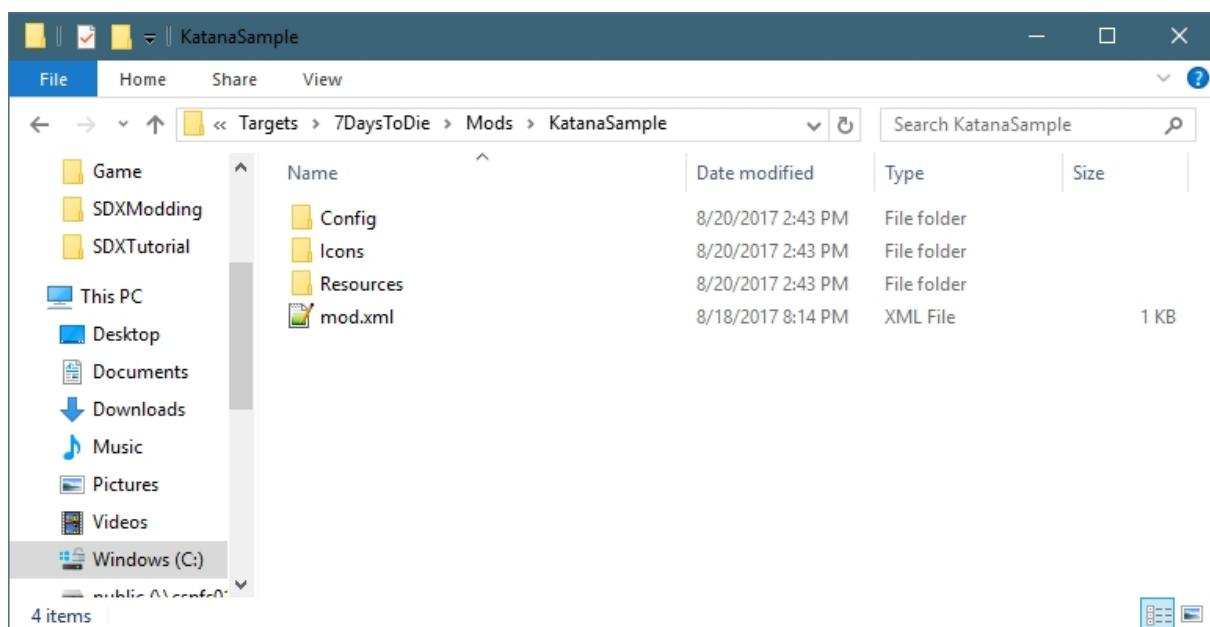




## The Katana Mod



The Katana Mod is a simple Mod to install and add to the game.



### Config Folder

The Config Folder of the Katana Mod contains the XML snippet that will be included into the game's DLL files. For the Katana Mod, this includes an item that simply extends the existing machete item, but uses a custom mesh file.

```
File: KatanaSample\Config\Katana.xml

<configs>
    <!-- This tells SDX to add to the Items.xml -->
    <config name="items">
```

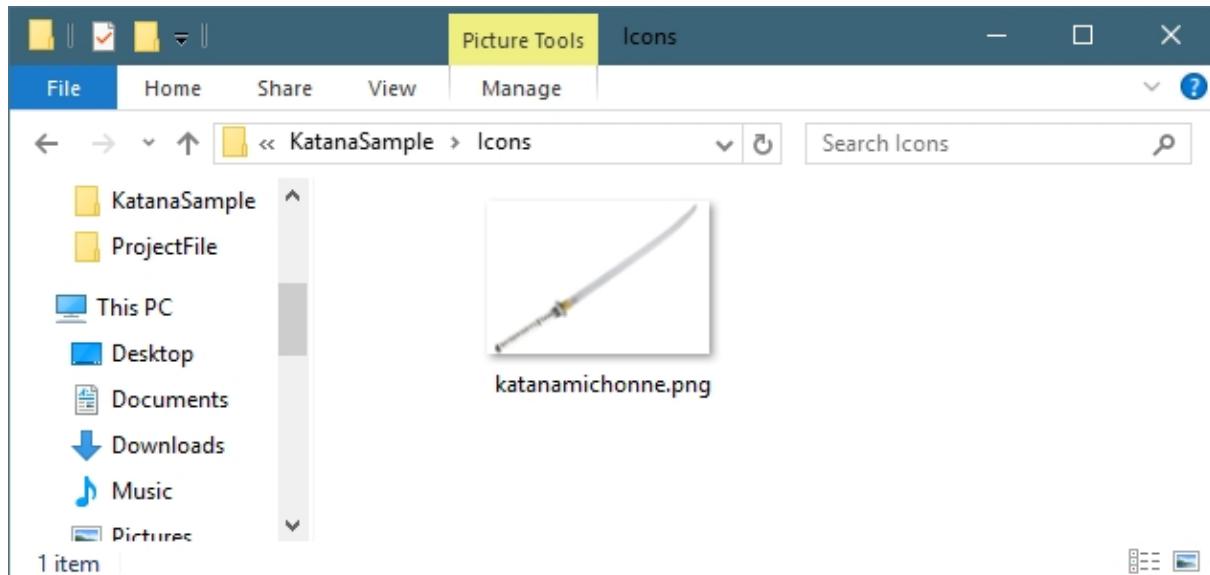
```

        <!-- This tells SDX to add the following Items to the bottom
of the Items list -->
        <append xpath="/items">

            <!-- New item will be Katana -->
            <item id="" name="katanamichonne">
                <!-- Extend it from the machete, but add the
custom mesh -->
                <property name="Extends" value="machete" />
                <property name="Meshfile" value="#michonnekatana?
katana" />
            </item>
        </append>
    </config>
</configs>
```

## Icons Folder

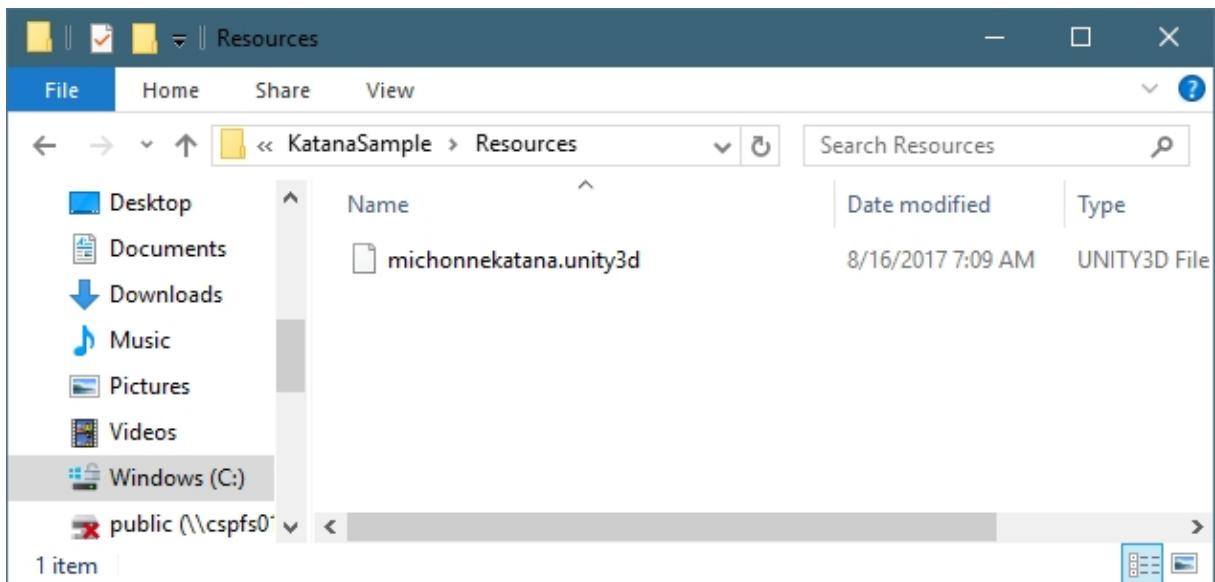
The Icons folder contains the item's inventory icons for the mod.



When the mod gets compiled, all files will be copied to your "Working\Mods\SDX\Item\icons\" folder.

## Resource Folder

The Resource folder contains the unity3D bundle, which contains the 3D model of the Katana sword.



When the mod gets compiled, all files will be copied to your "Working\Mods\SDX\Resources\" folder.

## mod.xml

The mod.xml file is used by the SDX Launcher to compile and find its files. This information shows up in the SDX Launcher.

```
File: KatanaSample\mod.xml

<mod>
    <info>
        <!-- Information about the Mod, the author and version
information -->
        <!-- These are displayed in the SDX Launcher -->
        <author>spherei</author>
        <name>KatanaSample</name>
        <description>Sample Katana SDX Mod</description>
        <mod_version>1.0</mod_version>
        <game_version>16.2</game_version>
        <launcher_version>0.0.0</launcher_version>
    </info>

    <!-- This references any config files that SDX needs to merge into
your files -->
    <config_mods>
        <import file="Config\Katana.xml" />
    </config_mods>
</mod>
```

---

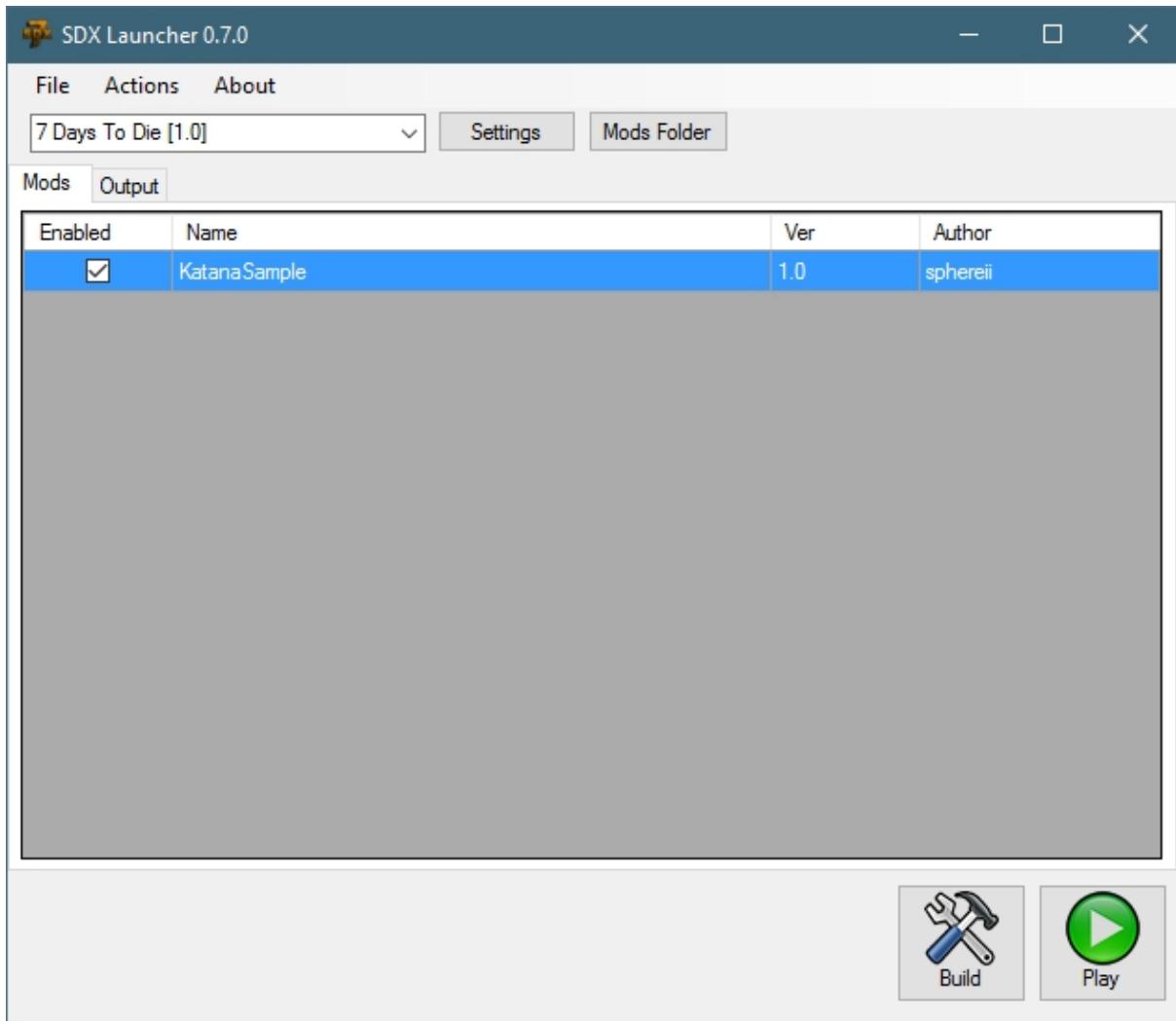
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## Building the Katana Mod

Once you have completed all the steps in the "[Building for the first time](#)" option, it's time to trigger your first SDX compile!

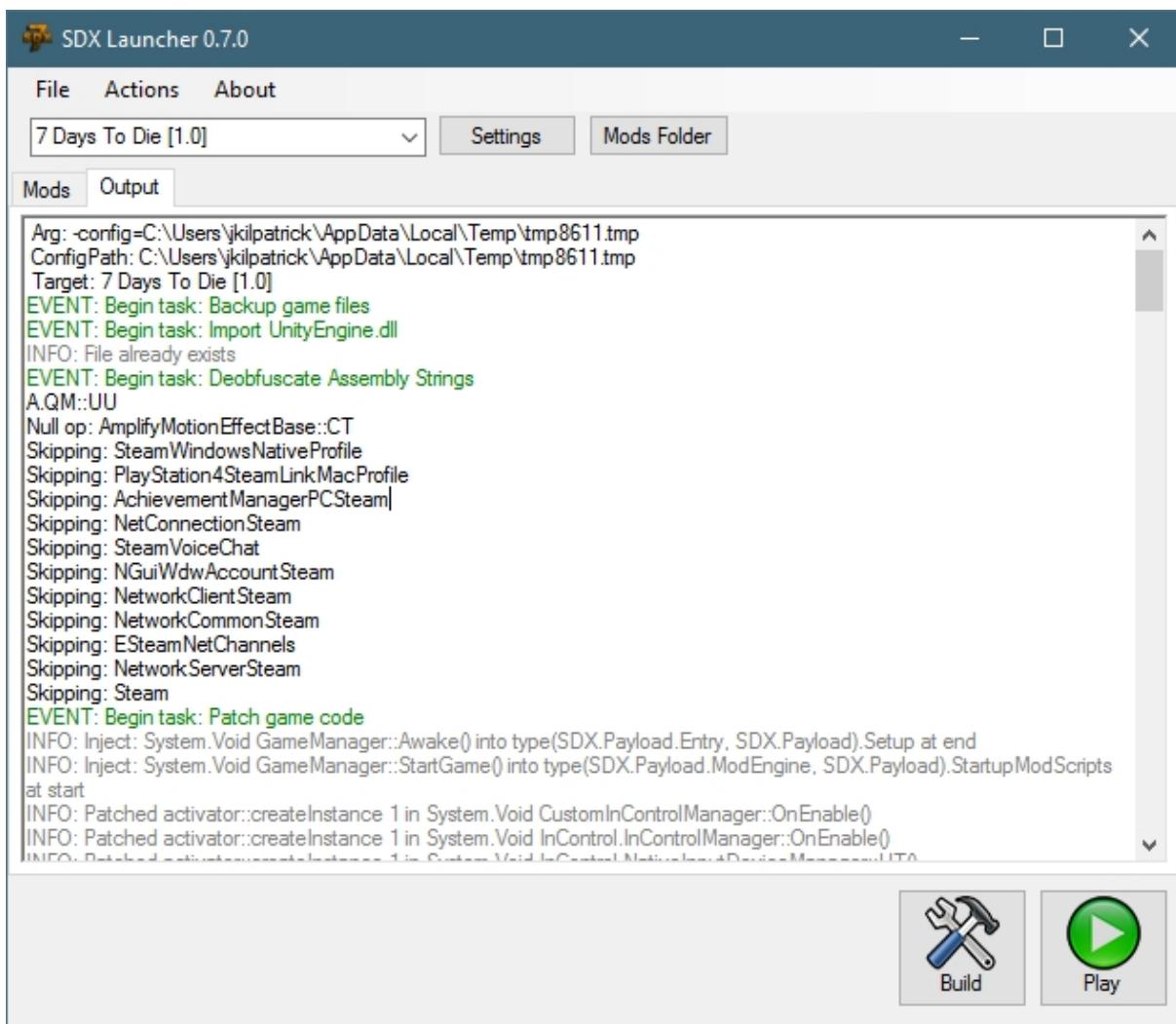
Click on the white square to enable the KatanaSample to enable it.



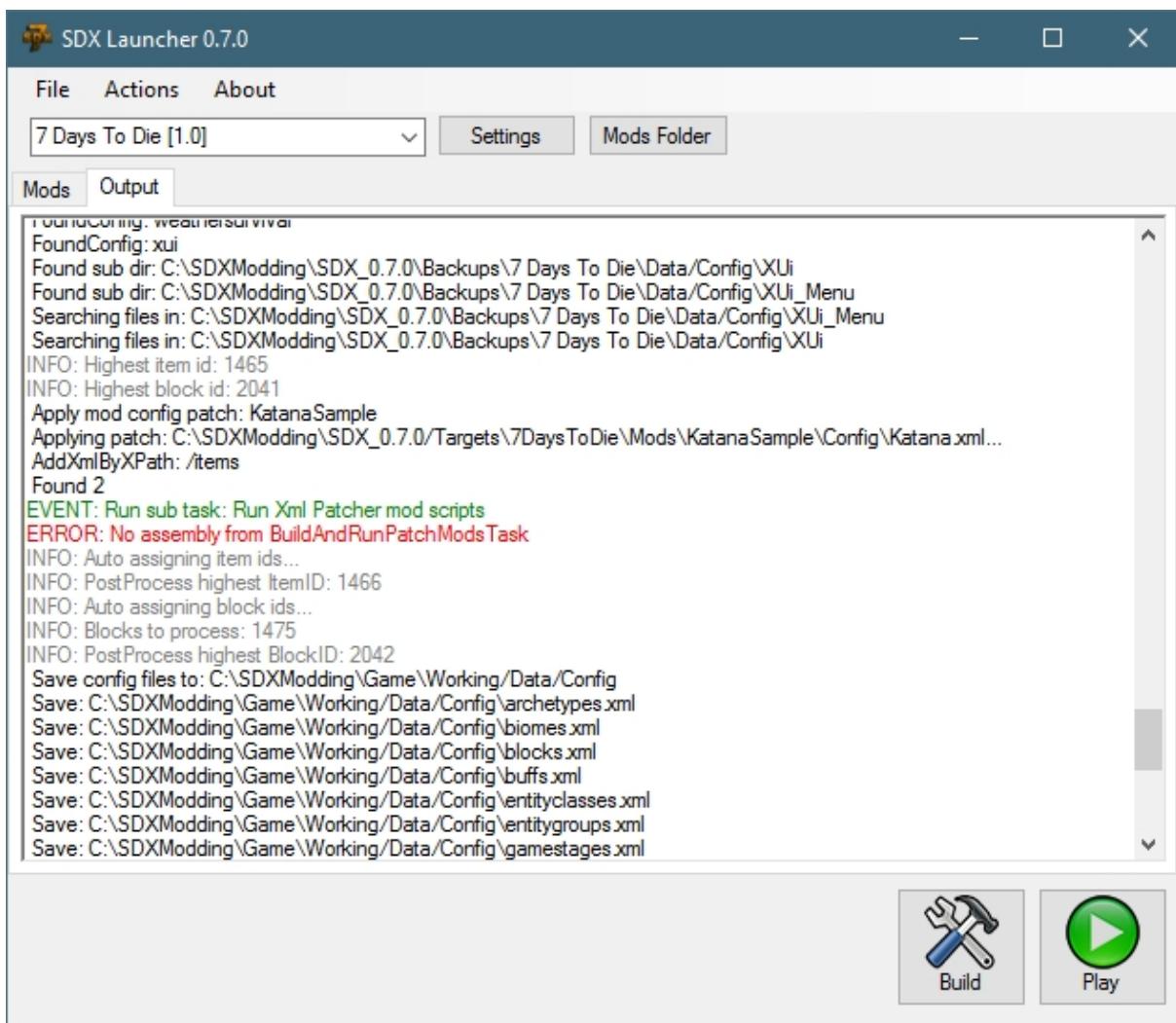
And click on Build.

The SDX Build starts by switching from the "Mods" tab to the "Output" tab.

You'll see the SDX compile start, and display the log file as it does its actions.

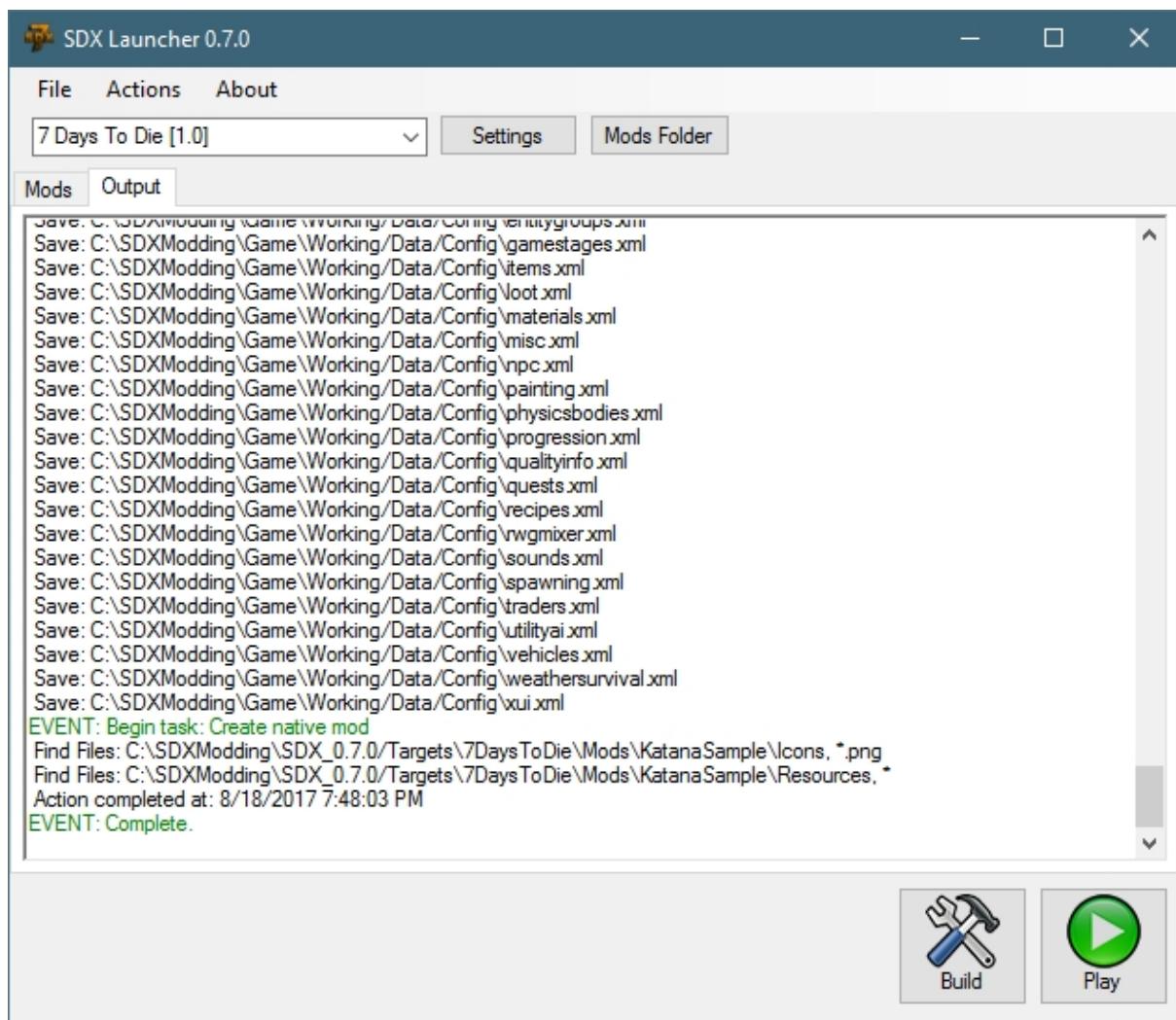


As it builds, you may see the following error:



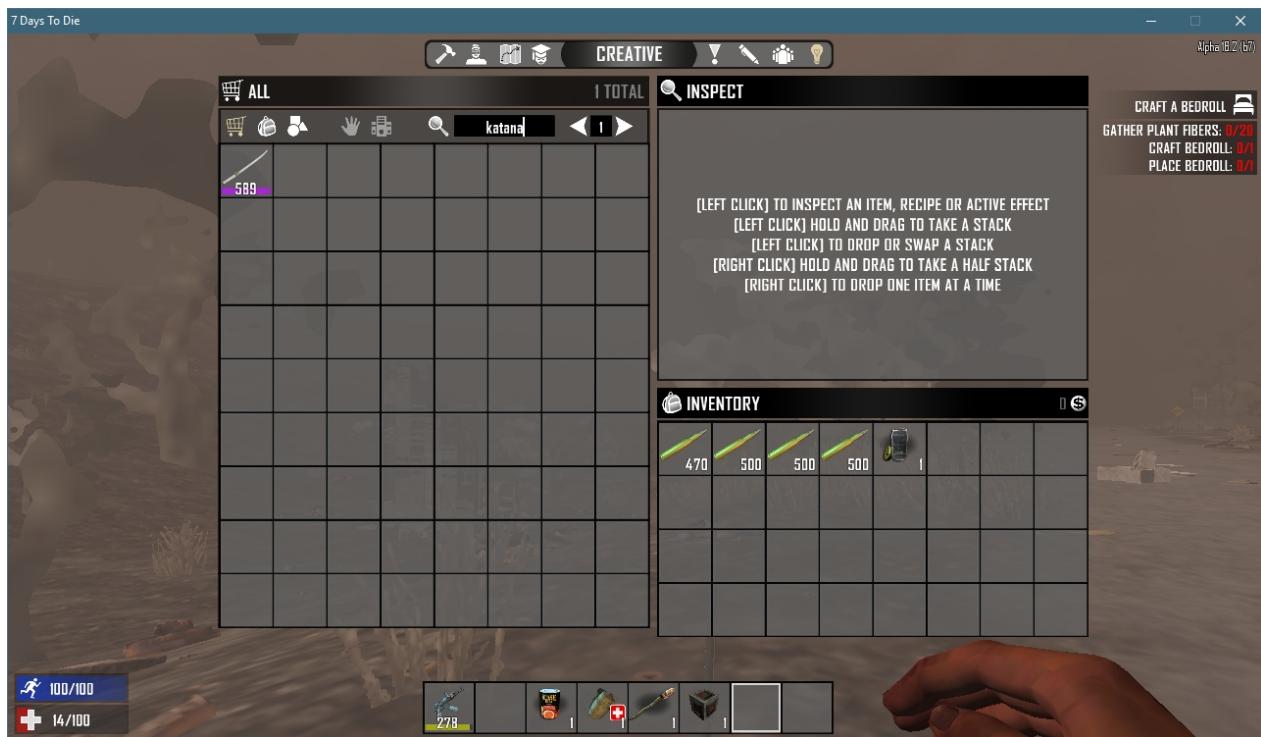
In this exercise, the "ERROR: No assembly from BuildAndRunPatchModsTask" is a not a concern, since there is no Mods scripts yet enabled.

When SDX is finished, you'll see this at the end of the Output window



SDX is now compiled into your Working copy of the game.

You can now hit the Play button to launcher the game. Spawn a new world, or log into an existing one, and go into the Creative Menu. You'll see that the Katana sword is now available.



And showing the Katana in hand:



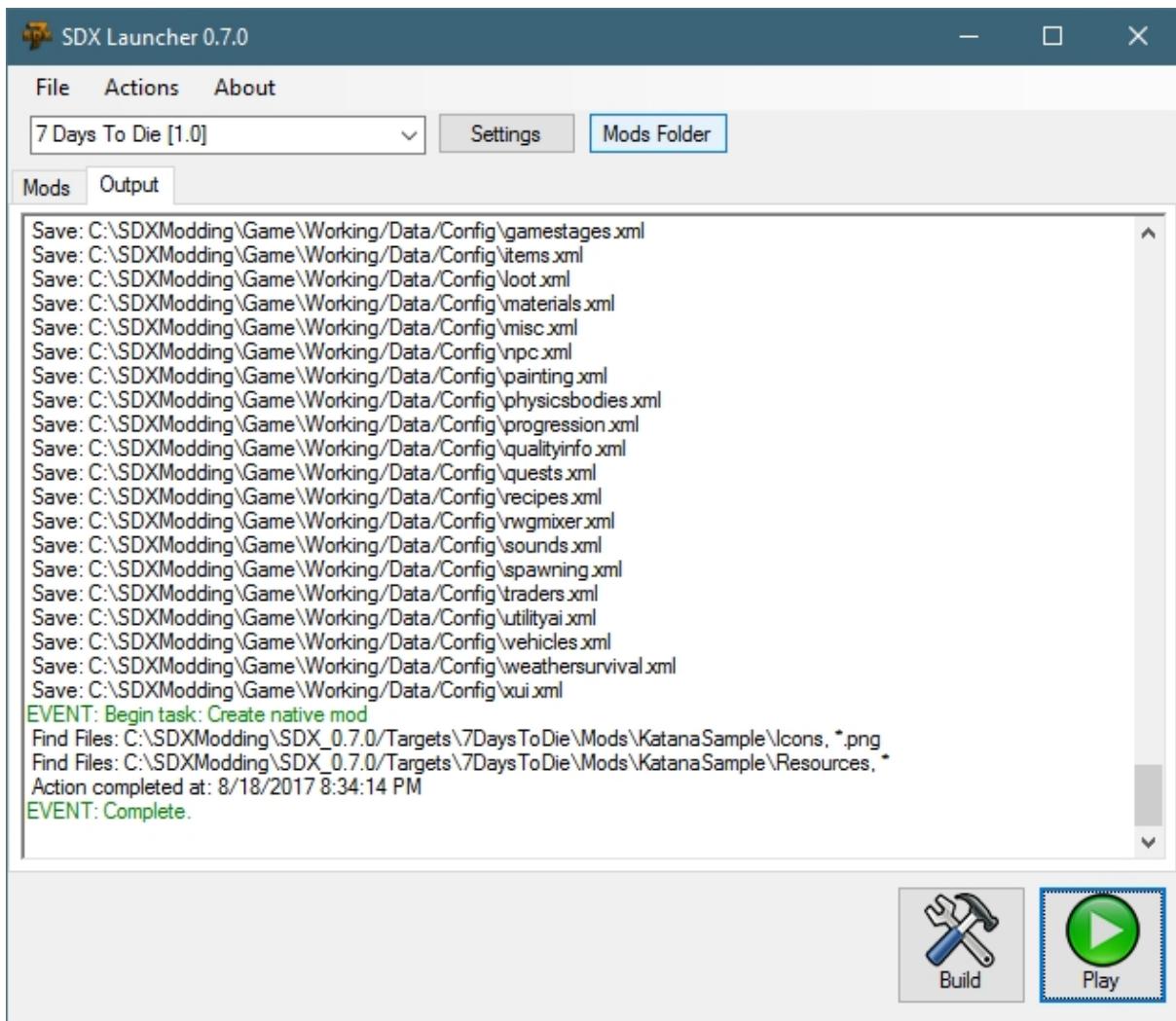

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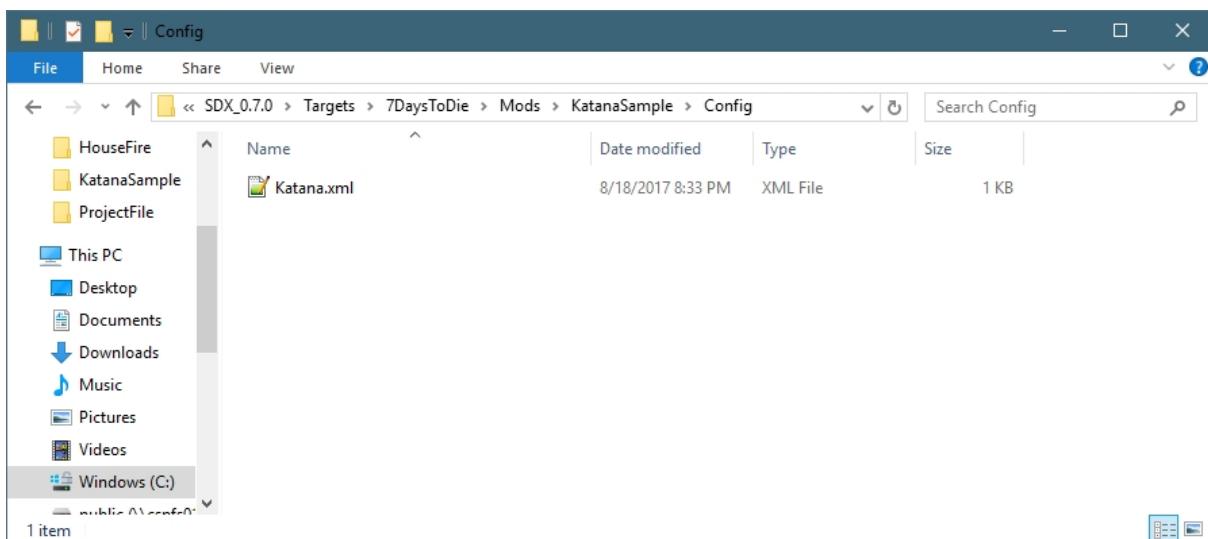
## Adding a Recipe for the Katana Mod

What fun is the Katana if you can't make it in game? Let's go through the steps on adding a recipe list for it.

In the SDX Launcher, click on the Mods Folder.



Then navigate into the double click on the Katana Sample folder, then the Config folder:



Using Notepad++, edit the file

Add a new "<config>" node under the katanamichonne item by copy and pasting the Recipes Snippet, highlighted in Blue for clarity

Recipes Snippet
<pre>&lt;!-- Adding a new recipe for the mod --&gt; &lt;config name="recipes"&gt;     &lt;append xpath="/recipes" &gt;         &lt;recipe name="katanamichonne" count="1" craft_area="workbench"&gt;             &lt;ingredient name="forgedSteel" count="20"/&gt;             &lt;ingredient name="wood" count="4"/&gt;             &lt;ingredient name="leather" count="4"/&gt;         &lt;/recipe&gt;     &lt;/append&gt; &lt;/config&gt;</pre>

The new file will look like this:

File: KatanaSample\Config\Katana.xml
<pre>&lt;configs&gt;     &lt;!-- This tells SDX to add to the Items.xml --&gt;     &lt;config name="items"&gt;         &lt;!-- This tells SDX to add the following Items to the bottom of the Items list --&gt;         &lt;append xpath="/items"&gt;              &lt;!-- New item will be Katana --&gt;             &lt;item id="" name="katanamichonne"&gt;                 &lt;!-- Extend it from the machete, but add the custom mesh --&gt;                 &lt;property name="Extends" value="machete"/&gt;                 &lt;property name="Meshfile" value="#michonnekatana? katana" /&gt;             &lt;/item&gt;         &lt;/append&gt;     &lt;/config&gt;      &lt;!-- Adding a new recipe for the mod --&gt;     &lt;config name="recipes"&gt;         &lt;append xpath="/recipes" &gt;             &lt;recipe name="katanamichonne" count="1" craft_area="workbench"&gt;                 &lt;ingredient name="forgedSteel" count="20"/&gt;                 &lt;ingredient name="wood" count="4"/&gt;                 &lt;ingredient name="leather" count="4"/&gt;             &lt;/recipe&gt;         &lt;/append&gt;     &lt;/config&gt; &lt;/configs&gt;</pre>

Save your changes, and go back to the SDX Launcher, and do another Build.

Load up your save game, and search for the Katana sword in your Crafting menu

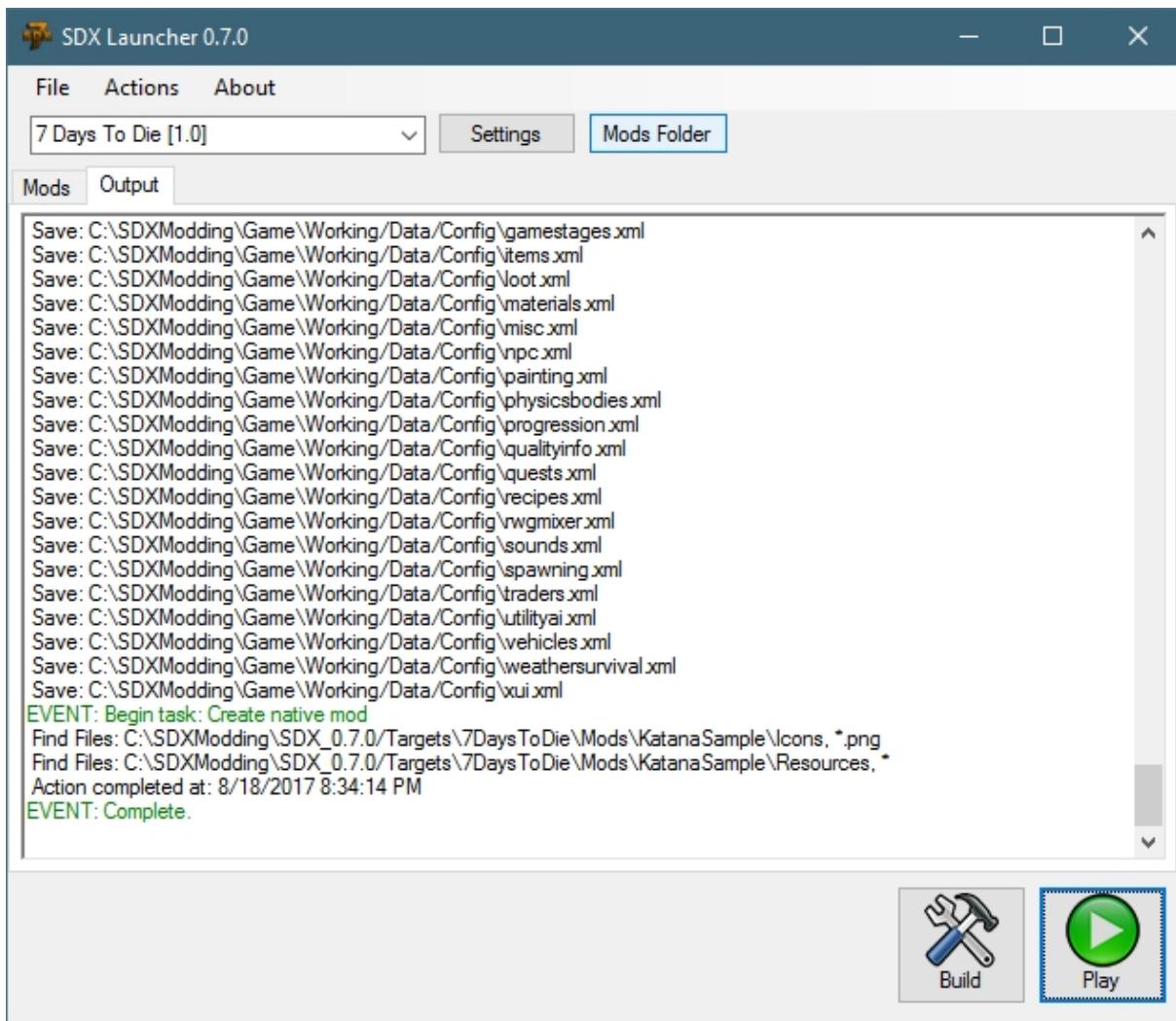


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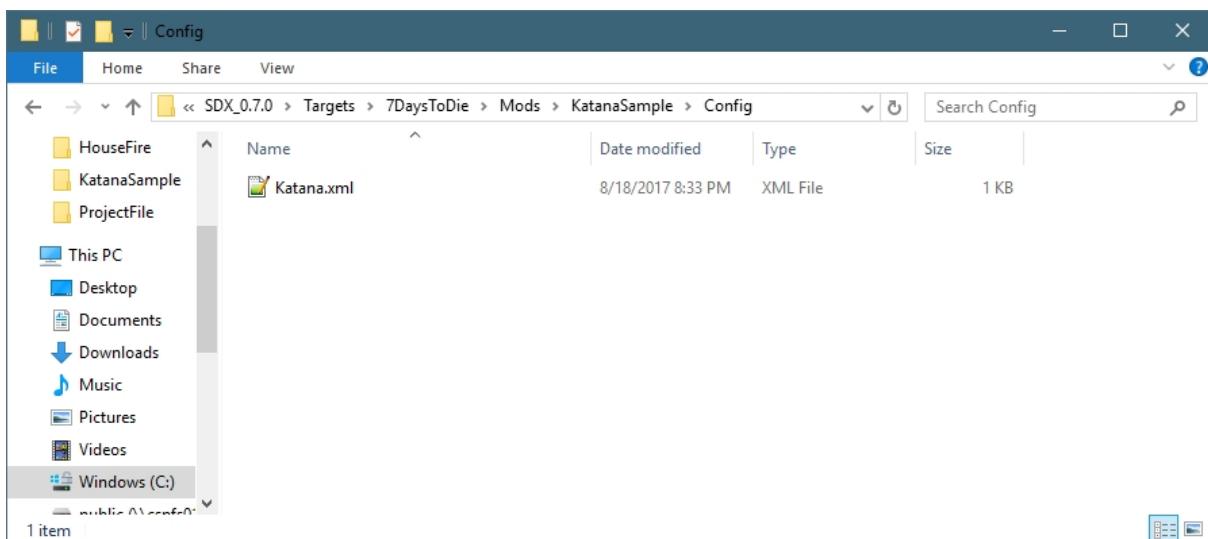
## Adding Katana to a Loot Group

With Steel being an expensive resource for a katana, we want to give players the chance of finding one. Let's add the Katana to a loot group.

In the SDX Launcher, click on the Mods Folder.



Then navigate into the double click on the Katana Sample folder, then the Config folder:



Using Notepad++, edit the file

Add a new "<config>" node under the katanamichonne recipe by copy and pasting the Loot Snippet, highlighted in Blue for clarity

### Loot Snippet

```
<!-- Let's add the Katana to the melee loot group -->
<config name="loot">
    <append xpath="/lootcontainers/lootgroup[@name='weaponsMelee']">
        <item name="katanamichonne" prob="0.05" />
    </append>
</config>
```

So this one is more complex than the other ones. Notice the "<append xpath"?

That's an xpath script that tells the SDX Launcher to look in the <lootcontainers> tag, find the <lootgroup> that has the attribute name='weaponsMelee', and appends it to the node list.

The Katana.xml should look like this now:

```
File: KatanaSample\Config\Katana.xml

<configs>
    <!-- This tells SDX to add to the Items.xml -->
    <config name="items">
        <!-- This tells SDX to add the following Items to the bottom of
the Items list -->
        <append xpath="/items">

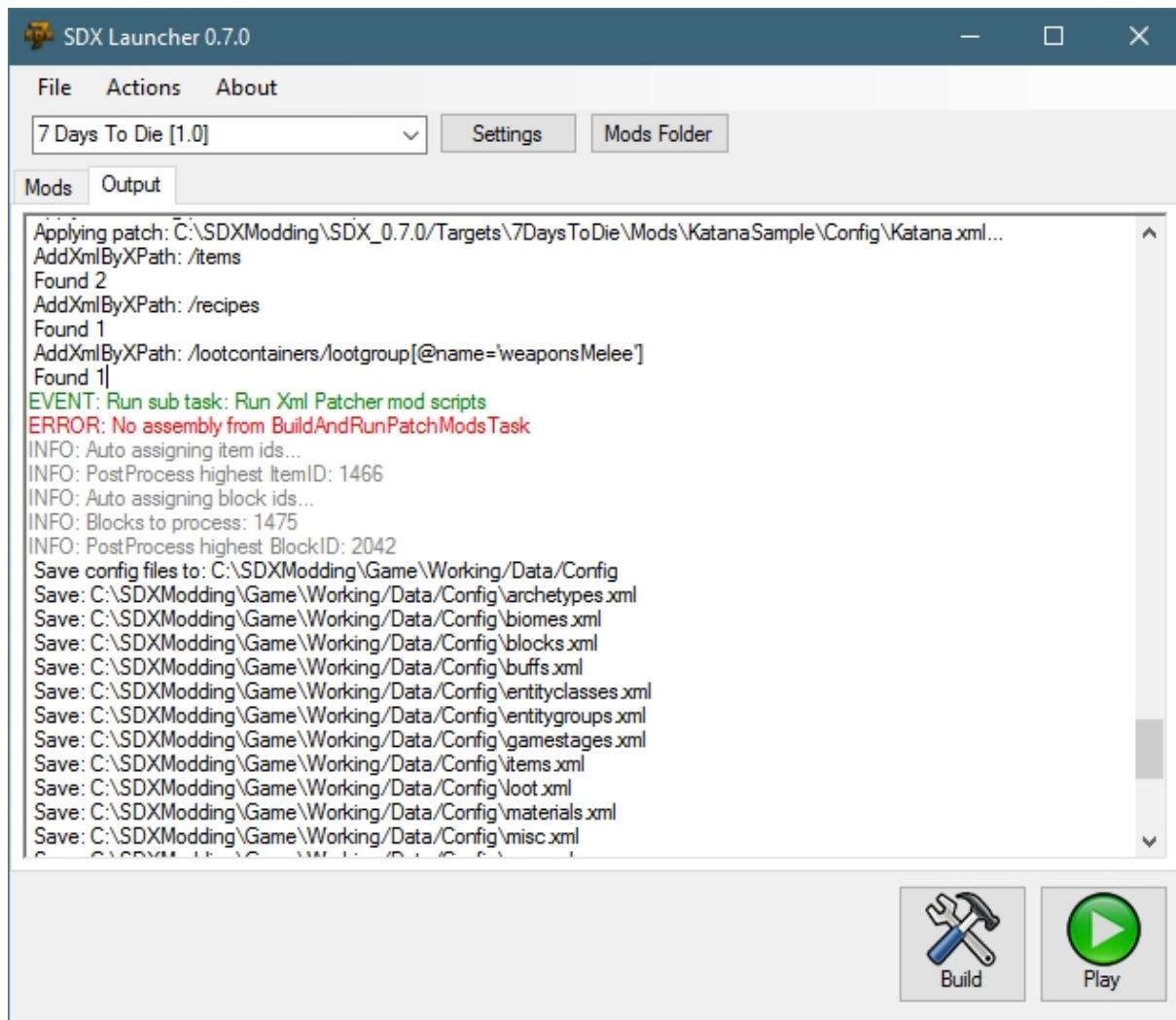
            <!-- New item will be Katana -->
            <item id="" name="katanamichonne">
                <!-- Extend it from the machete, but add the custom
mesh -->
                <property name="Extends" value="machete"/>
                <property name="Meshfile" value="#michonnekatana?
katana" />
            </item>
        </append>
    </config>

    <!-- Adding a new recipe for the mod -->
    <config name="recipes">
        <append xpath="/recipes" >
            <recipe name="katanamichonne" count="1"
craft_area="workbench">
                <ingredient name="forgedSteel" count="20"/>
                <ingredient name="wood" count="4"/>
                <ingredient name="leather" count="4"/>
            </recipe>
        </append>
    </config>

    <!-- Let's add the Katana to the melee loot group -->
    <config name="loot">
        <append xpath="/lootcontainers/lootgroup[@name='weaponsMelee']">
            <item name="katanamichonne" prob="0.05" />
        </append>
    </config>
</configs>
```

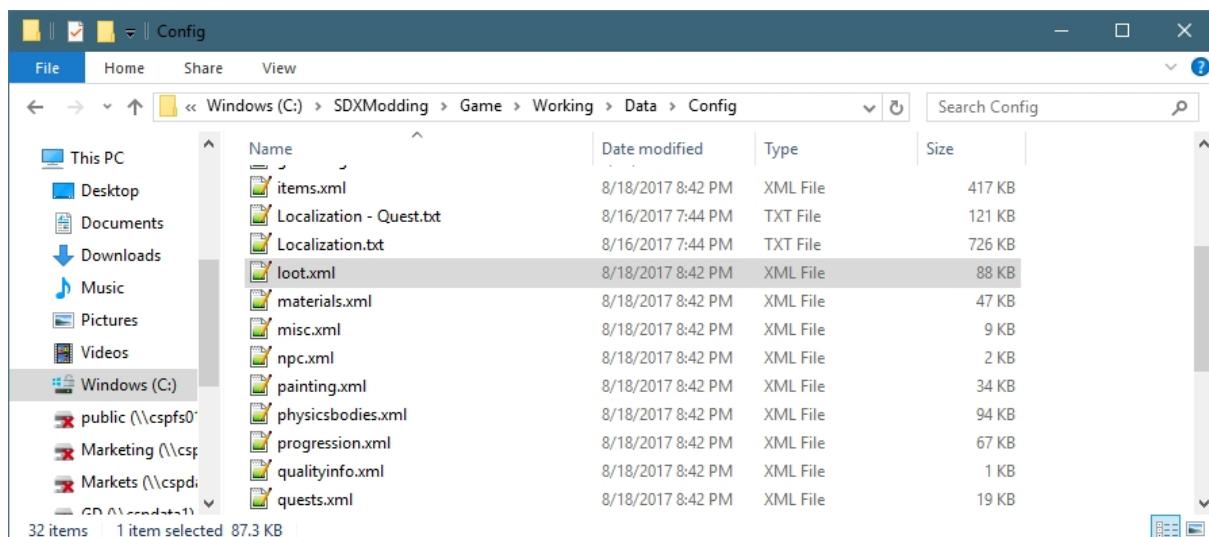
Once you've saved your changes, go back to the SDX Launcher, and click on the Build Button.

If you look through the log file, you'll see where it's adding the new XML:



Remember, the "**ERROR: No assembly from BuildAndPatchModsTask**" is not a fatal error right now, since we are not compiling any scripts for the Katana

Once compiled, look in the loot.xml of the Working game:



And search for "katana"

File: Data\Config\loot.xml

```

<item group="weaponsMagnumParts" prob="0.03" />
</lootgroup>
<lootgroup name="weaponsMelee">
<item name="clubWood" />
<item name="clubIron" />
<item name="clubBarbed" prob="0.2" />
<item name="clubSpiked" prob="0.15" />
<item name="huntingKnife" prob="0.2" />
<item name="machete" prob="0.1" />
<item name="katanamichonne" prob="0.05" />
</lootgroup>
<lootgroup name="weaponsCrossbow+ammo" count="all">
<item name="crossbow" count="1" />
<item name="ironCrossbowBolt" count="10,30" />
</lootgroup>

```

---

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## The Cube Mod




---

The Cube Mod is another example that follows the same principle as [The Katana Mod](#), but uses a block rather than an item. The files for the Cube Mod can be found: "[C:\SDXModding\Bundles\SDX Beginner Tutorial](#)"

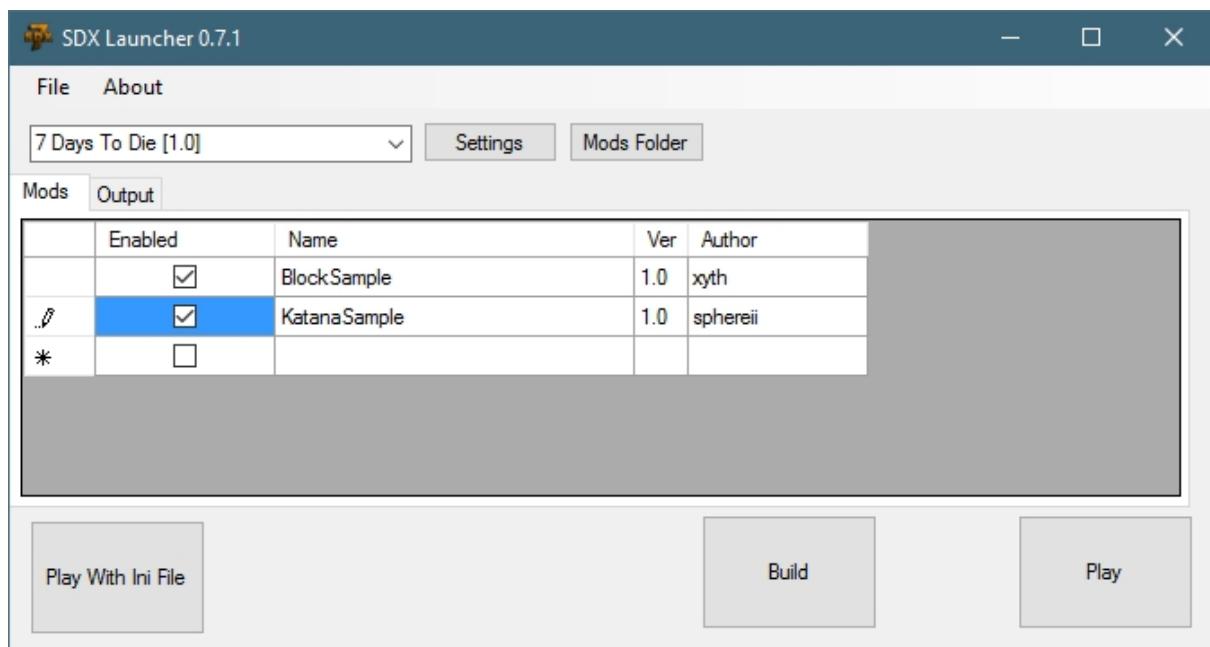
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### Building the Cube Mod

Once you have completed all the steps in the "[Building for the first time](#)" option, it's time to trigger your first SDX compile!

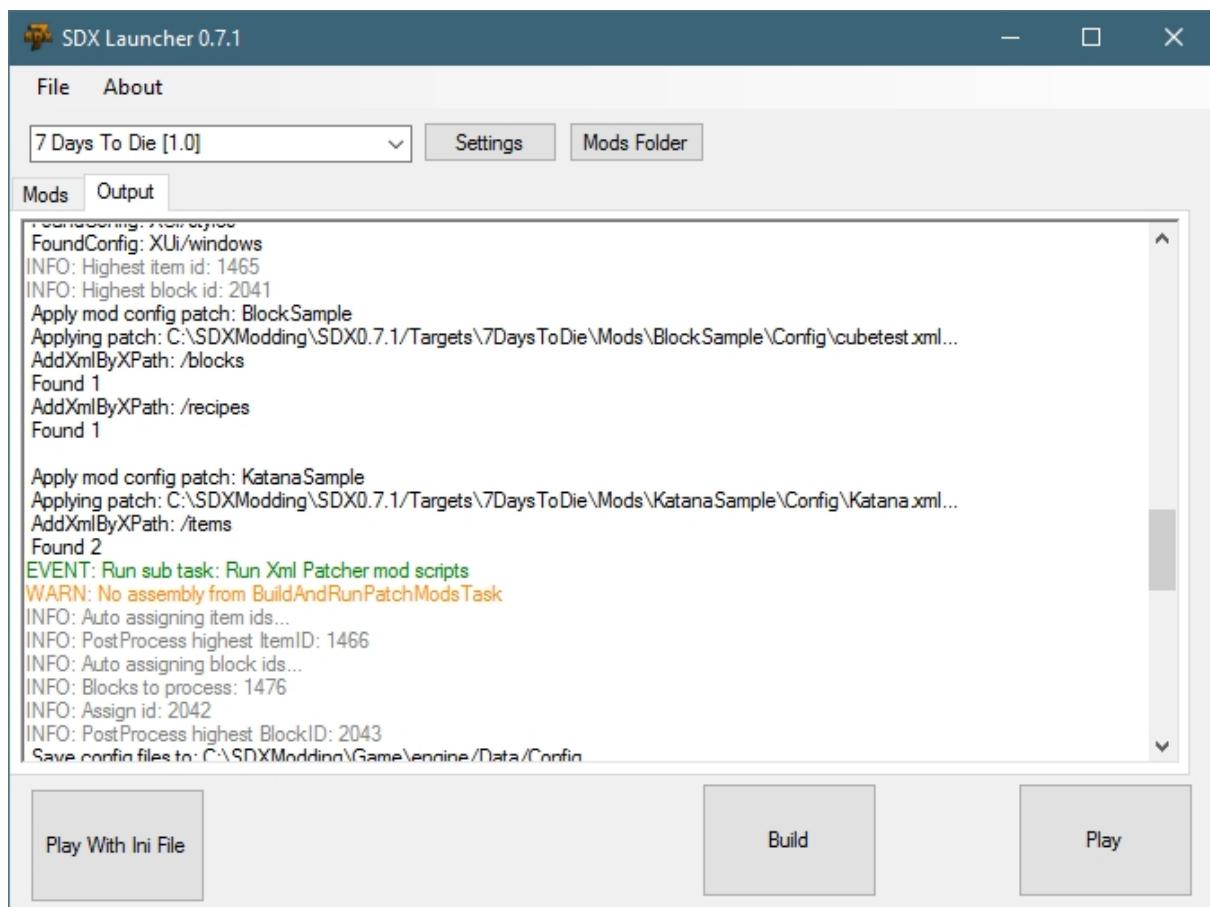
Click on the white square to enable the Cube Mod to enable it.



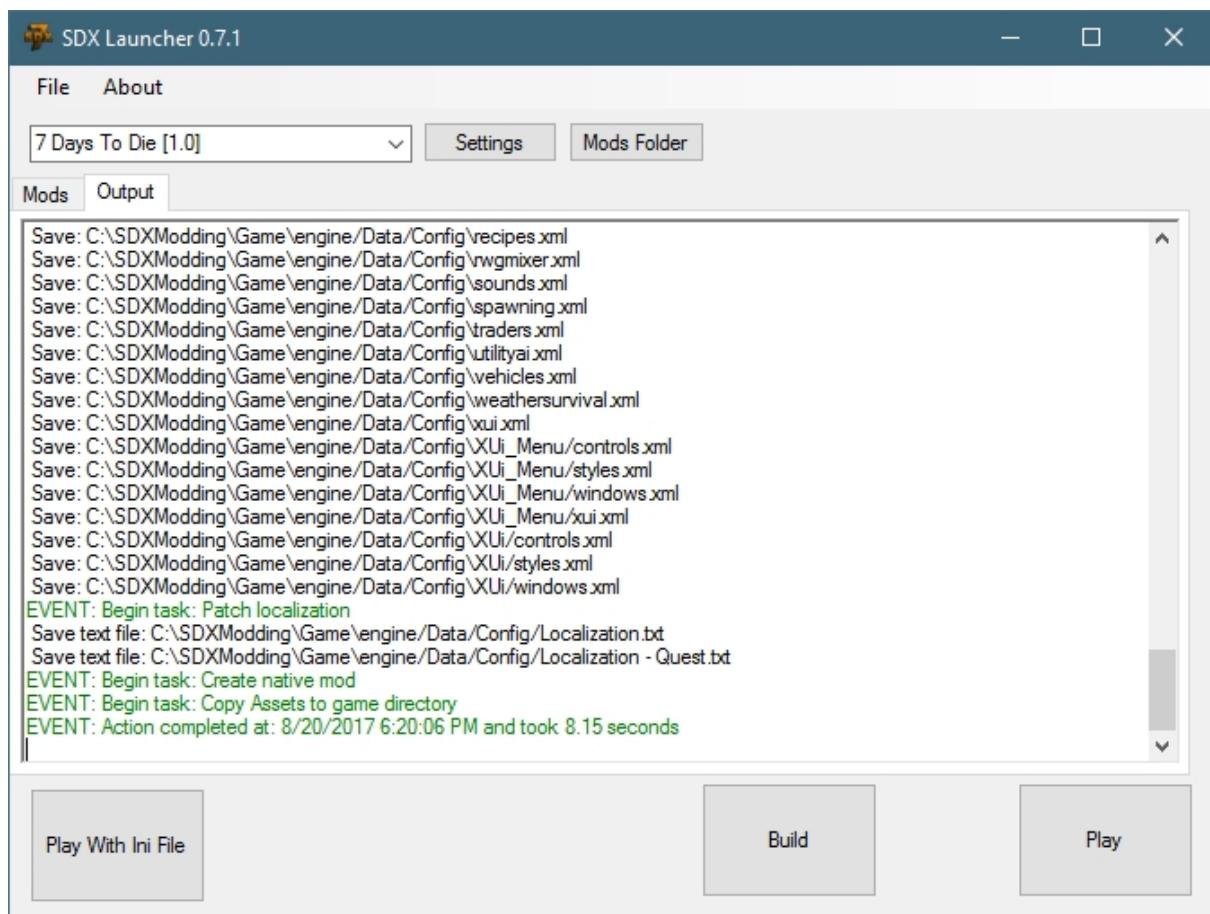
And click on Build.

The SDX Build starts by switching from the "Mods" tab to the "Output" tab.

You'll see the SDX compile start, and display the log file as it does its actions.



When SDX is finished, you'll see this at the end of the Output window

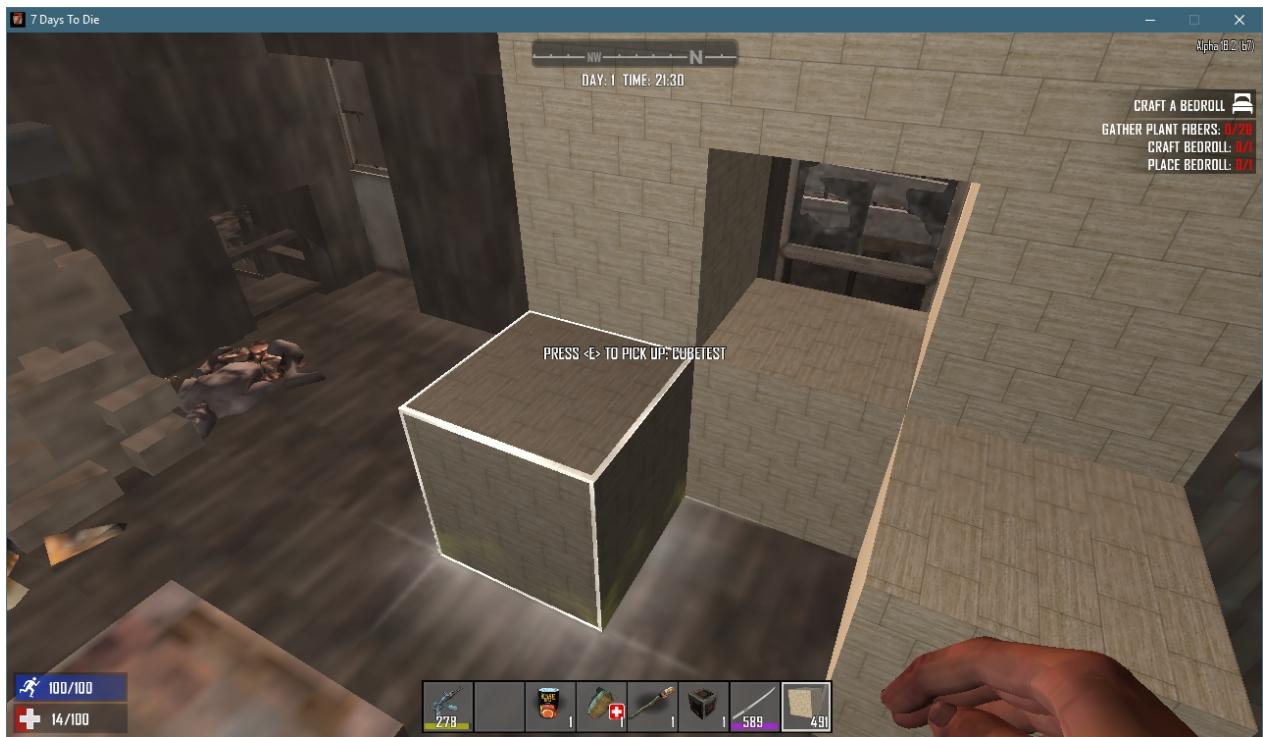


SDX is now compiled into your Working copy of the game.

You can now hit the Play button to launcher the game. Spawn a new world, or log into an existing one, and go into the Creative Menu. You'll see that the cube is now available.



And showing the cube in hand:




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## Tricks and Tips

# Tricks and Tips

---

Now that you've completed the Beginner Tutorial successfully, it's time to let you in on some tricks and tips.

[Building for the first time](#) step walked you through how to trigger your first SDX build. At first, we didn't enable the Katana mod, so *nothing* happened, right?

Actually, the SDX Launcher *did* do something to the Assembly-CSharp.dll even without using any SDX mods, and that was instrumenting it with some handy SDX hooks. The initial hooks that SDX does every time it builds, regardless of mods enabled, is to allow loading the unity3d bundles for adding textures.

### **Adding new Resources**

With these hooks, it's now possible to just copy the KatanaSample's Resource file, michonnekatana.unity3d, into the "WorkingMods\SDX\Resources\" folder, and reference it in your XML files, adding a new item as you would with traditional XML edits. The property Meshfile is changed to point to #michonnekatana?katana.

File: Data\Config\items.xml

```
<item id="1466" name="katanamichonne">
    <!-- Extend it from the machete, but add the custom mesh -->
    <property name="Extends" value="machete" />
    <property name="Meshfile" value="#michonnekatana?katana" />
</item>
```

When the game starts, the SDX hooks activate, and as the game is parsing the XML files, it'll see the special Meshfile reference, and look under the Resources folder for a matching mesh.

#michonnekatana is translated to michonnekatana.unity3d  
?katana is translated to look for the katana game object inside of michonnekatana.unity3d.

You can continue to do that, dropping the unity3d bundles into the Resources folder, and making references to the Meshfile, without using the SDX Launcher again.

## **Using Non-Vanilla Files as a Base**

For our examples, we have been using the vanilla XML files as a base. This makes a good, consistent starting point to get you comfortable with SDX without getting too overwhelmed.

But that's not the only way you can enjoy SDX mods, nor does it mean you have to piece together a mod yourself. If you have an existing XML mod that you want to use, such as Clockwork Project, or Valmar Overhaul, you can use those mods as a base file.

All you need to do is install the mod, as per the modders instructions, into your Working folder. Verifying the Mod works as-is, and run it through the SDX Launcher. From there, you can copy and paste unity3d files into the Resources folder, and update the XML files to use the new Meshfile.

## **The Mods/KatanaSample/Config/ Folder**

In our examples, we included a Config/Katana.xml

```
<configs>
    <!-- This tells SDX to add to the Items.xml -->
    <config name="items">
        <!-- This tells SDX to add the following Items to the bottom of
the Items list -->
        <append xpath="/items">

            <!-- New item will be Katana -->
            <item id="" name="katanamichonne">
                <!-- Extend it from the machete, but add the custom
mesh -->
                <property name="Extends" value="machete" />
                <property name="Meshfile" value="#michonnekatana?
katana" />
            </item>
        </append>
    </config>
</configs>
```

It's actually optional in SDX to need a Config/ folder. Once you add in your SDX hooks, you can edit the XML files as you normally would. Be sure to edit your mod.xml file and comment out the Config line:

```
<config_mods>
    <!--import file="Config\Katana.xml" /-->
</config_mods>
```

So why we do we start with a Config folder if we don't need it?

The reason to use a Config folder for a SDX mod is *ease of maintenance and distribution*.

If you code all your XML into the Config folder, using the recommended format, then your XML snippets will be merged into the vanilla files, or into whatever modded files someone is using. When a new Alpha release comes out, you'll just need to re-run the SDX Launcher, and merge your changes. With some minor tweaks, which are necessary for each of the Alpha releases, your mod will be ready.

If you are creating a complete SDX overhaul, then you could probably skip the Config folder in your SDX Mod. However, if you are building individual mods to be used by others, then it's best to use the Config folder for your mod.

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## SDX Intermediate Tutorial

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***The SDX Intermediate Tutorial assumes you have already followed the "[Getting Set up](#)" guide and completed the "[SDX Beginner Tutorial](#)"***

In our Beginner Tutorial examples, we added in the Katana and a Cube block to the game. These mods added a new unity3d object, and XML changes. What it didn't do, was add any new custom scripts.

There's two types of scripts that can be added in by SDX: PatchScripts and Scripts.

Patch Scripts are scripts that change the Assembly-CSharp.dll at compile time.

Scripts are scripts that are compiled into the Mods.dll, and loaded at run time.

For the Intermediate Tutorial, we'll explore the Patch Scripts.

HAL9000 has created a series of extremely valuable SDX 7 Videos that take you step by step through some of the advanced methods

The 7D2D SDX 7 Patch Scripts video takes you step by step through in how to create your first PatchScript.

[https://www.youtube.com/watch?v=Yo092Z\\_Mirk&feature=youtu.be](https://www.youtube.com/watch?v=Yo092Z_Mirk&feature=youtu.be)

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## Adding the Bigger Back Pack Mod



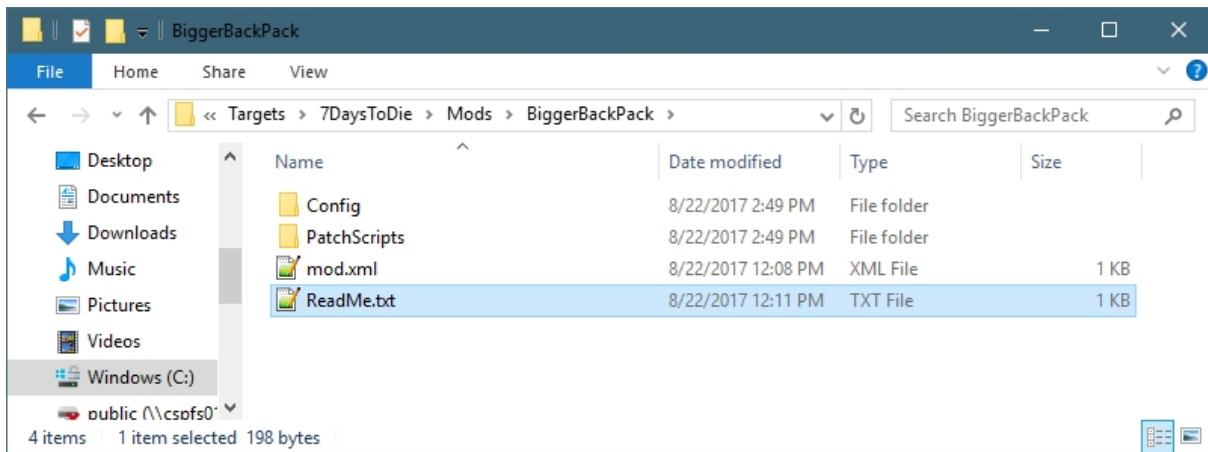

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The Bigger Back Pack mod. A lot of users love the extra space that it gives you, especially for larger mods that add a lot more diverse lootable items.

We decided to port the Bigger Back Pack mod to SDX, to show how the Patch Script system works, as well as demonstrate another, more advanced Config file.

Download and install the Bigger Back Pack mod under your Target/Mods/ folder.

The Config folder contains the XML snippet, while the PatchScript contains the build scripts. We'll look at both, and explain what's going on in each one.




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## Understanding the XML Config

### **Config\BiggerBackPack.xml:**

This mod makes two changes to files that the other SDX Mods haven't shown you yet. The Windows.xml under the XUi, and the xui.xml file under the Config folder.

```

<configs>
    <config name="XUI/windows">
        <!-- Back pack dimensions are set for 5 x 9, based on a 45 slot
back pack -->
        <set
xpath="/windows/window[@name='windowBackpack']/panel[@name='content']/grid[@
name='inventory']/@rows">5</set>
        <set
xpath="/windows/window[@name='windowBackpack']/panel[@name='content']/grid[@
name='inventory']/@cols">9</set>
    </config>

    <!-- changing the scale of the panel to better fit -->
    <config name="xui">
        <set
xpath="/xui/ruleset[@name='default']/@stackpanel_scale">1.03</set>
    </config>
</configs>

```

Notice we are using `<config name="XUI/windows">`? This lets SDX know that the windows.xml file is to be searched under the XUI folder. By default, SDX will search for the Data/Config/\*.xml files, so for any subfolders off of Data/Config, you'll need to specify the folder name.

The next part about this Config is the `<set xpath>` line. This line lets us change *individual attributes* in XML nodes, rather than adding a new recipe or block, as we did in the other examples. The Lines look scary, but it's not that bad! It allows us a very precise change in XML files.

Let's break it down:

```

<set
xpath="/windows/window[@name='windowBackpack']/panel[@name='content']/grid[@
name='inventory']/@rows">5</set>

```

/windows	Top level node in the file </windows>
/window[@name='win dowBackpack']	Look for the <window> that has a name of "windowBackpack"
/panel[@name='cont ent']	Look for the <panel> tag that has the name of 'content', that's inside of the above window
/grid[@name='invento ry']	Look for the <grid> tag with the name inventory, that's inside of the above panel
/@rows	Look for the rows attribute

There's a website that'll help you building your more complicated xpath:

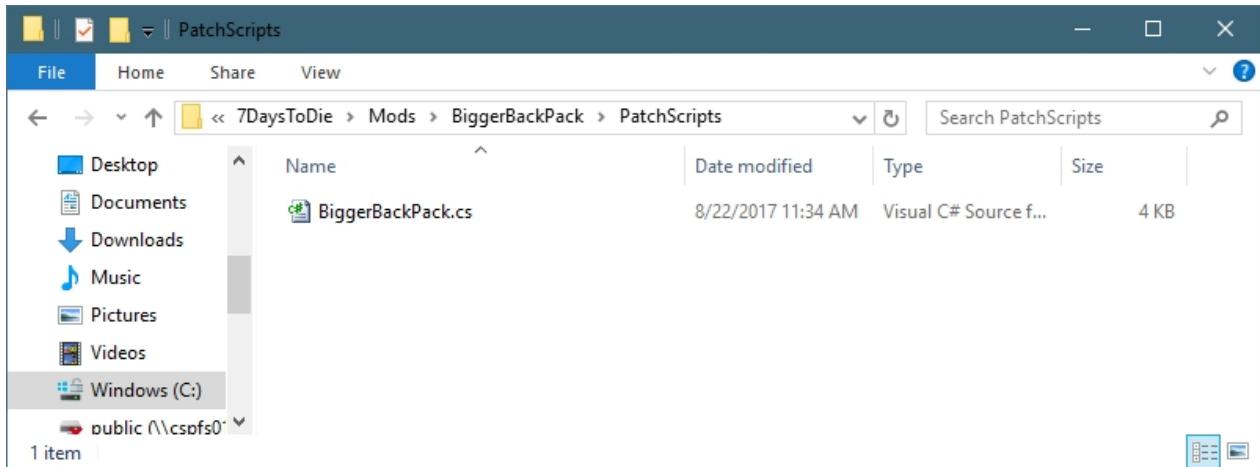
[https://xmltoolbox.appspot.com/xpath\\_generator.html](https://xmltoolbox.appspot.com/xpath_generator.html)

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## Understanding the PatchScript

The PatchScript for the Bigger Back Pack Mod let's us change the Assembly-CSharp.dll at build time, allowing us to increase the size of the Back Pack.



The PatchScripts are C# Scripts. You can either use Visual Studio, or even Notepad++ for them.

This will not be an in depth tutorial on how to write C#, but rather just to show the anatomy of a SDX PatchScript

```
using System;
using SDX.Compiler;
using Mono.Cecil;
using Mono.Cecil.Cil;
using System.Linq;

public class BiggerBackPack : IPatcherMod
{
    private sbyte OldInventorySize = 32;
    private sbyte NewIntenvotrySize = 45;

    public bool Patch(ModuleDefinition module)
    {

        private void SetAccessLevels(ModuleDefinition module)
        {

            private void SetBackpackSize( ModuleDefinition module)
            {

                // Helper function to update the backPack module
                public void UpdateBackPack(ModuleDefinition module, String strModuleName, String strMethodName, int maxCounter)
                {

                    // Called after the patching process and after scripts are compiled.
                    // Used to link references between both assemblies
                    // Return true if successful
                    public bool Link(ModuleDefinition gameModule, ModuleDefinition modModule)
                    {

                        // Helper functions to allow us to access and change variables that are otherwise unavailable.
                        private void SetMethodToVirtual(MethodDefinition meth)
                        {

                            private void SetFieldToPublic(FieldDefinition field)
                            {
                                private void SetMethodToPublic(MethodDefinition field)
                            }
                        }
                    }
                }
            }
        }
    }
}
```

The public class BiggerBackPack, inherits from the IPatcherMod. This IPatcherMod is an SDX class which allows patching. All your PatchScripts need this.

Two functions are required:

```
bool Patch( ModuleDefinition module )
bool Link( ModuleDefinition gameModule, ModuleDefinition modModule )
```

The Patch() call does the initial assembly, and is where most of the work gets called at. The Link() happens after the compile. In the Bigger Back Pack Mod, we do not use the Link() method, but it still needs to

exists, even if it's only does a simple return true.

The rest of the methods, SetAccessLevels(), SetBackpackSize(), UpdateBackPack(), SetMethodToVirtual, SetMethodToPublic, and SetFieldToPublic() are methods we declared to help us out. Some of the fields in the Assembly-CSharp.dll are private, and therefore cannot be access by SDX without changing.

The SetMethodToVirtual, SetFieldToPublic and SetMethodToPublic are all helper functions that can be called to change these private variables, to public ones.

The supplied BiggerBackPack.cs is a documented C# script. We encourage you to review it, and understand what it's doing.

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## SDX Advanced Tutorial

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***The SDX Advanced Tutorial assumes you have already followed the "[Getting Set up](#)" guide.***

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## SDX XPath Configurations

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SDX supports different ways to insert XML files from your mod's Config folder.

set - Replaces attributes  
append - Adds a node or nodes  
remove - Removes a node or nodes  
insertBefore - Allows you to add a node before another node  
insertAfter - Allows you add a node directly after another node

Set Example:

[The Bigger Back Pack mod includes an example for the <set> tag](#)

```
<set
xpath="/windows/window[@name='windowBackpack']/panel[@name='content']/grid[@na
me='inventory']/@rows">5</set>
```

Append Example:

[The Katana Mod includes an example for the <append>](#). Basically, it tells SDX to add the following snippets to the bottom of the node.

```
<append xpath="/items">
    <!-- more XML Nodes -->
</append>
```

In the above example, it will include all the subsequent nodes at the bottom of the Items list.

**remove Example:**

The remove node can be used to remove a complete node.

```
<remove xpath="/items/item[@name='club']" />
```

This tells SDX to remove the club item.

**insertBefore / insertAfter**

This tells SDX to insert the node before, or after the xpath location.

```
<insertAfter xpath="/items/item[@name='club']" >
    <!-- mode XML Nodes -->
</insertAfter>
```

Any XML nodes will be inserted after the Club item.

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## Creating an XPath Line




---

Now that you've completed the Intermediate Tutorial successfully, it's time to show you a bit about XPath

The XML portion of the Bigger Back Pack mod can be a bit confusing, because of the xpath.

I recommend using a site like [https://xmltoolbox.appspot.com/xpath\\_generator.html](https://xmltoolbox.appspot.com/xpath_generator.html) to help generate your xpath. You will still need to make some changes, but it'll go a long way.

**XmlToolBox**

Xml formatter ➔ Xpath generator Xpath evaluator Features About Blog

**Xpath generator**

1. Insert your xml in to the big field.
2. To generate an xpath. Place the cursor in the text, attribute or element you want an xpath to.

Xml field.

In the XML Input, copy and paste the window.xml file, found under your Data/Config/XUi/windows.xml

Xml field.

```
<windows>
    <window name="HUDLeftStatBars">
        <grid name="hud" pos="9,98" rows="2" cols="1" width="168" cell_width="168" cell_height="46" repeat_content="false" side="left">
            <rect width="168" height="43" controller="HUDStatBar" stat_type="Stamina" visible="(statvisible)">
                <sprite depth="1" name="border" color="0,0,0,100" height="43" type="sliced" />
                <sprite depth="2" pos="3,-3" name="background" height="37" width="162" color="64,64,64,100" type="sliced" />
                <sprite depth="3" pos="3,-3" name="BarContent" sprite="(statimage|once)" type="filled" height="37" width="162" fill="0" />
                <sprite depth="4" name="Icon" atlas="{staticonatlas|once}" sprite="{staticon|once}" size="32,32" pos="8,-6" foregroundlayer="true" />
                <label depth="6" name="TextContent" pos="0,-8" font_size="28" color="white" justify="center" pivot="topleft" text="(statcurrentwithmax)" height="30" />
            </rect>
            <rect width="168" height="43" controller="HUDStatBar" stat_type="Health" visible="(statvisible)">
                <sprite depth="1" name="border" color="0,0,0,100" height="43" type="sliced" />
                <sprite depth="2" pos="3,-3" name="background" height="37" width="162" color="64,64,64,100" type="sliced" />
                <sprite depth="3" pos="3,-3" name="BarContent" sprite="(statimage|once)" type="filled" height="37" width="162" fill="0" />
                <sprite depth="4" name="Icon" atlas="{staticonatlas|once}" sprite="{staticon|once}" size="32,32" pos="8,-6" foregroundlayer="true" />
                <label depth="6" name="TextContent" pos="0,-8" font_size="28" color="white" justify="center" pivot="topleft" text="(statcurrentwithmax)" height="30" />
            </rect>
        </grid>
        <rect name="hud" pos="93,124" side="left" controller="BuffPopoutList" pivot="BottomLeft">
            <panel width="168" height="43" name="item" visible="false" pivot="right" disableautobackground="true" pos="70, 0">
                <sprite depth="2" pos="0,0" name="Background" sprite="ui_game_popup" height="43" width="162" pivot="center" flip="Horizontally" color="transparent" />
                <sprite depth="4" name="Icon" size="36,32" pos="-58,0" pivot="center" color="transparent" />
                <label depth="6" name="TextContent" pos="0,0" font_size="28" color="white" justify="center" height="30" pivot="center" />
            </panel>
        </rect>
    </window>
</windows>
```

Once the XML is copy / pasted, you can now click on different values inside of the XML box to get it's Xpath result:

Note: I highlighted the 'controller' name for visibility. In order to get the XPath value, you do not need to highlight, just click on it.

Xml field.

```
<windows>
    <window name="HUDLeftStatBars">
        <grid name="hud" pos="9,98" rows="2" cols="1" width="168" cell_width="168" cell_height="46" repeat_content="false" side="left">
            <rect width="168" height="43" controller="HUDStatBar" stat_type="Stamina" visible="(statvisible)">
                <sprite depth="1" name="border" color="0,0,0,100" height="43" type="sliced" />
                <sprite depth="2" pos="3,-3" name="background" height="37" width="162" color="64,64,64,100" type="sliced" />
                <sprite depth="3" pos="3,-3" name="BarContent" sprite="(statimage|once)" type="filled" height="37" width="162" fill="0" />
                <sprite depth="4" name="Icon" atlas="{staticonatlas|once}" sprite="{staticon|once}" size="32,32" pos="8,-6" foregroundlayer="true" />
                <label depth="6" name="TextContent" pos="0,-8" font_size="28" color="white" justify="center" pivot="topleft" text="(statcurrentwithmax)" height="30" />
            </rect>
            <rect width="168" height="43" controller="HUDStatBar" stat_type="Health" visible="(statvisible)">
                <sprite depth="1" name="border" color="0,0,0,100" height="43" type="sliced" />
                <sprite depth="2" pos="3,-3" name="background" height="37" width="162" color="64,64,64,100" type="sliced" />
                <sprite depth="3" pos="3,-3" name="BarContent" sprite="(statimage|once)" type="filled" height="37" width="162" fill="0" />
                <sprite depth="4" name="Icon" atlas="{staticonatlas|once}" sprite="{staticon|once}" size="32,32" pos="8,-6" foregroundlayer="true" />
                <label depth="6" name="TextContent" pos="0,-8" font_size="28" color="white" justify="center" pivot="topleft" text="(statcurrentwithmax)" height="30" />
            </rect>
        </grid>
        <rect name="hud" pos="93,124" side="left" controller="BuffPopoutList" pivot="BottomLeft">
            <panel width="168" height="43" name="item" visible="false" pivot="right" disableautobackground="true" pos="70, 0">
                <sprite depth="2" pos="0,0" name="Background" sprite="ui_game_popup" height="43" width="162" pivot="center" flip="Horizontally" color="transparent" />
                <sprite depth="4" name="Icon" size="36,32" pos="-58,0" pivot="center" color="transparent" />
                <label depth="6" name="TextContent" pos="0,0" font_size="28" color="white" justify="center" height="30" pivot="center" />
            </panel>
        </rect>
    </window>
</windows>
```

Xpath results:  
/windows/window[1]/grid[@name="hud"]//rect[1]@controller

The XPath result it came up with is: /windows/window[1]/grid[@name="hud"]//rect[1]@controller

While it may work, we can actually fix it to be even more reliable. By default, it's trying to use /window[1]/, so the first window in the file. However, if we are using a modded windows.xml, or if the vanilla one changes in the future, then this script won't return what you want. Looking at the xml, we know that the window name is actually "HUDLeftStatBars"

Let's fix it:

```
/windows/window[@name='HUDLeftStatBars']/grid[@name="hud"]//rect[1]
@controller
```

The @name= allows us to specify the name string. For this example, we want to specify exactly HUDLeftStatBars. If this window ever changes spots in the future, the xpath with the name will still return the right window, while the generated one would likely fail.

The grid, mysteriously, has used the @name tag to make sure the right one is found. So we don't need to fix that one.

The rect[1] value, however, does need to be fixed. For this, we don't have a name attribute, so we need to find another unique attribute to use.

```
<rect width="168" height="43" controller="HUDStatusBar" stat_type="Stamina"
visible="{statvisible}">
```

Width, Height, Controller, and visible are not unique, as other <Rect> nodes have it. But the stat\_type is unique.

Let's flesh it out:

```
/windows/window[@name='HUDLeftStatBars']/grid[@name="hud"]//rect[@stat_type
="Stamina"]@controller
```

By default, that website uses double quotes to wrap around strings. We'll want to change those to single quotes, as our entire xpath will be wrapped around double quotes.

If we wanted to change that line, our Config xpath command would look like this:

```
<set
xpath="/windows/window[@name='HUDLeftStatBars']/grid[@name='hud']//rect[@stat_t
ype='Stamina']@controller">HUDStatusBar2</set>
```

---

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## Quick Start

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Impatient? Already went through the Tutorial and just looking to get started without going through each step?

Here's the short and sweet story of building and running your first SDX mod.

- 1) Download the [SDX Modding Kit](#)
- 2) Extract the SDX Modding Kit. *For the purpose of this tutorial, it's assumed to be under C:\SDXModding or D:\SDXModding\*
- 3) Copy a vanilla copy of 7 Days To Die to C:\SDXModding\Game\Clean Install\
  - This will be your back up, in case Steam pushes an update.
- 4) Copy another copy of 7 Days to Die to C:\SDXModding\Game\Working
  - This will be the copy of the game that will have SDX added
- 5) Go into C:\SDXModding\SDX0.7.1\ in Explorer
- 6) Double click on SDX7DTD.exe

- 7) Click on the Settings button, and navigate to C:\SDXModding\Game\Working\
- 8) Click on Build
- 9) Click on Play

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## **Video Tutorials**

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This tutorial was meant to guide you through the initial steps of getting SDX, installing it and its support tools, as well as compiling the sample mods.

A series of video tutorials have been created to help you with other tools, and to give you different perspectives of some of the items listed in this document.

## **Unity**

xyth has created some great tutorials, and they can be found [here](#)

## **PatchScripts and Custom Entities**

HAL9000 has created some very helpful YouTube videos showing different things you can do with SDX

[7D2D SDX7 - Patch Scripts](#)

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