

7 Days To Die SDX Tutorial and Help

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Introduction

7D2D SDX Tutorials

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.

So what is SDX modding?

SDX is a modding framework for any game using the Unity game engine. It was originally created to add modding support to 7 Days To Die but has since been expanded with a plugin system to work with other games, and was created by Domonix.

[SDX's official website can be found here](#)

[SDX's official Documentation can be found here](#)

So, plain english, what is SDX modding?

SDX modding lets you add your own textures, your own blocks, characters, animations, and complex code. This document will show you how to do it.

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Getting Started



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



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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SDX 0.7.x

SDX is an amazing tool which allows us to mod the game more thoroughly and more interesting than XML and basic Icons.

However, SDX is very fickle when it comes to getting started. We've made a few changes to the SDX files to make things easier.

Please follow this guide carefully and thoroughly, and do not skip any steps!

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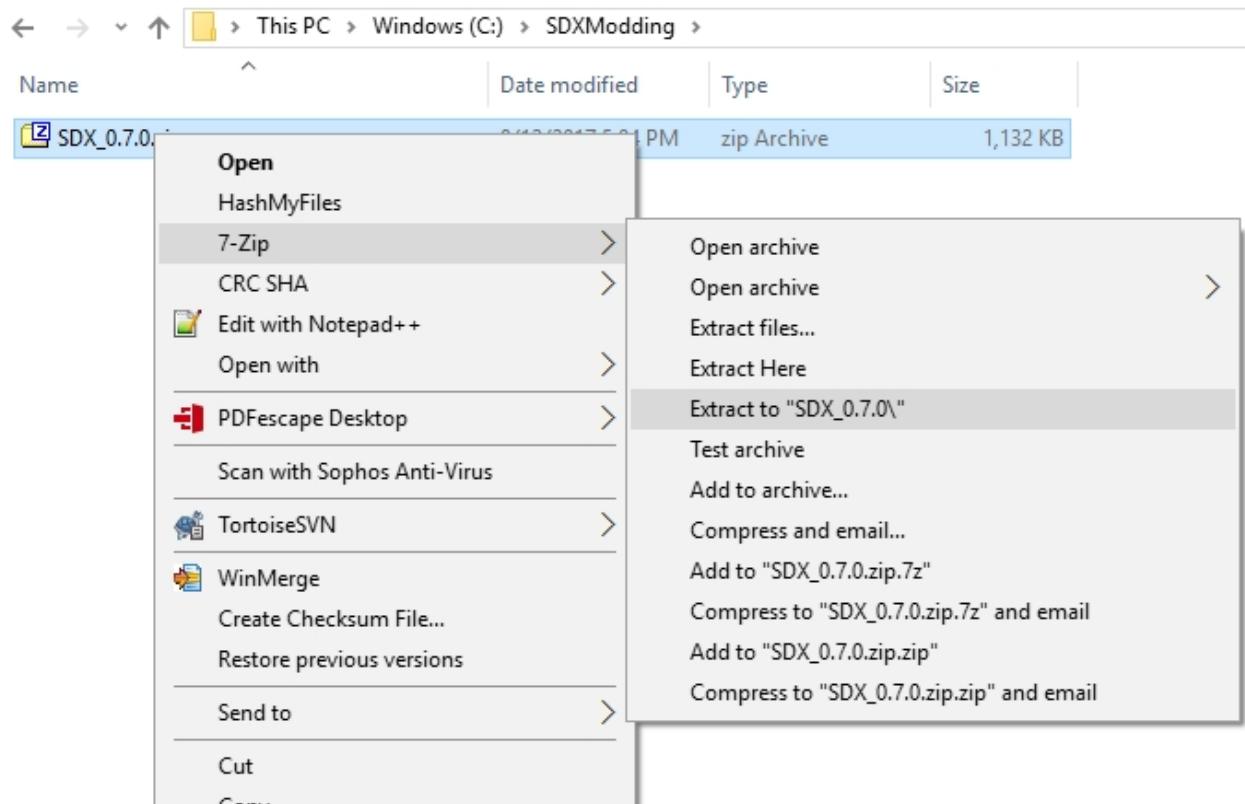
Installing and Configuring SDX Launcher

SDX is used to compile the individual SDX scripts into Mods.dll, add hooks into the Assembly-CSharp.dll.

Download SDX 0.7.x from [here](#) or [here](#) (mirror)

Copy the SDX.0.7.1.zip to your Modding Folder (C:\SDXModding\)

Right click on SDX.0.7.1.zip, and choose to extract to SDX 0.7.0.

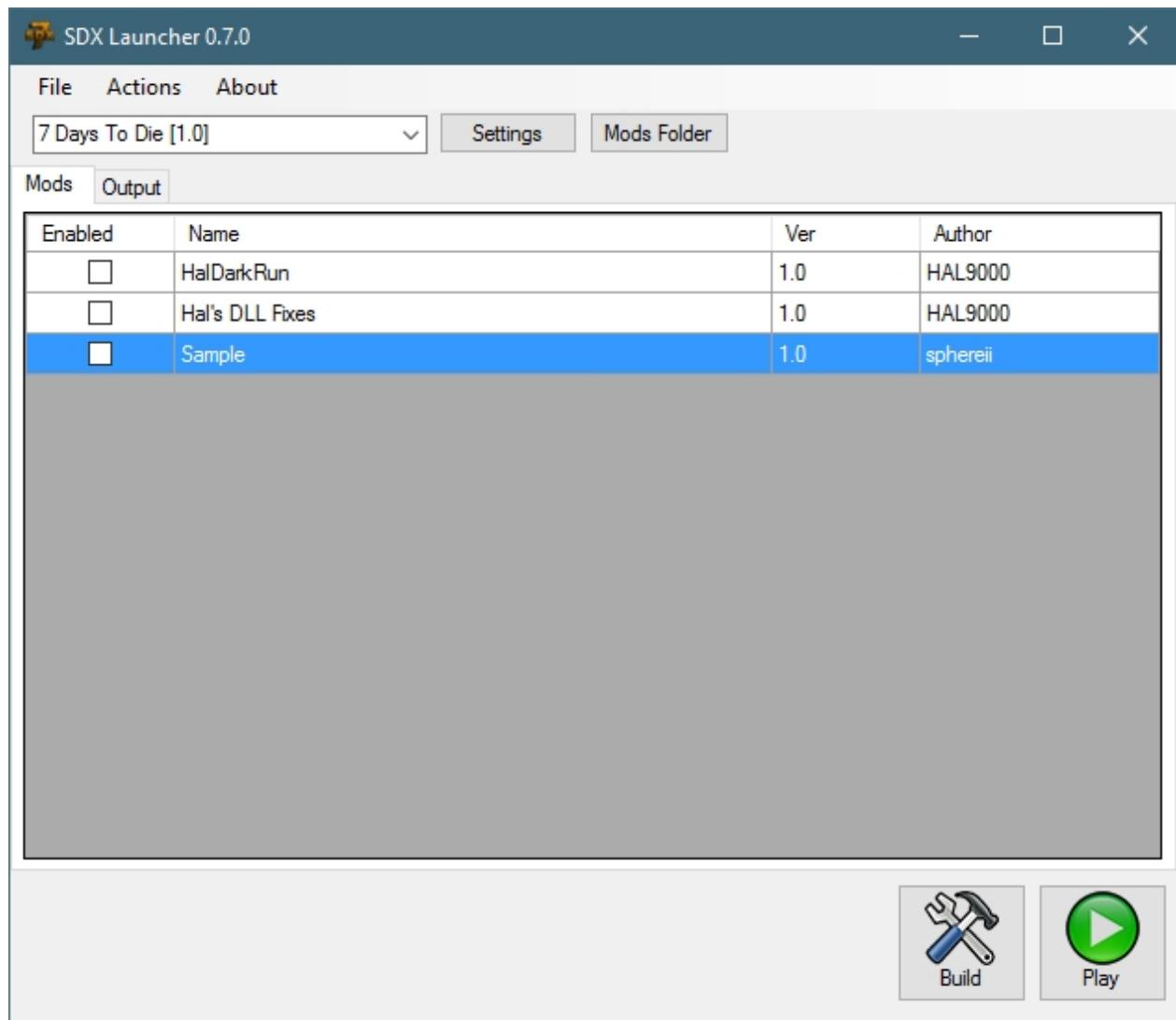


That's it!

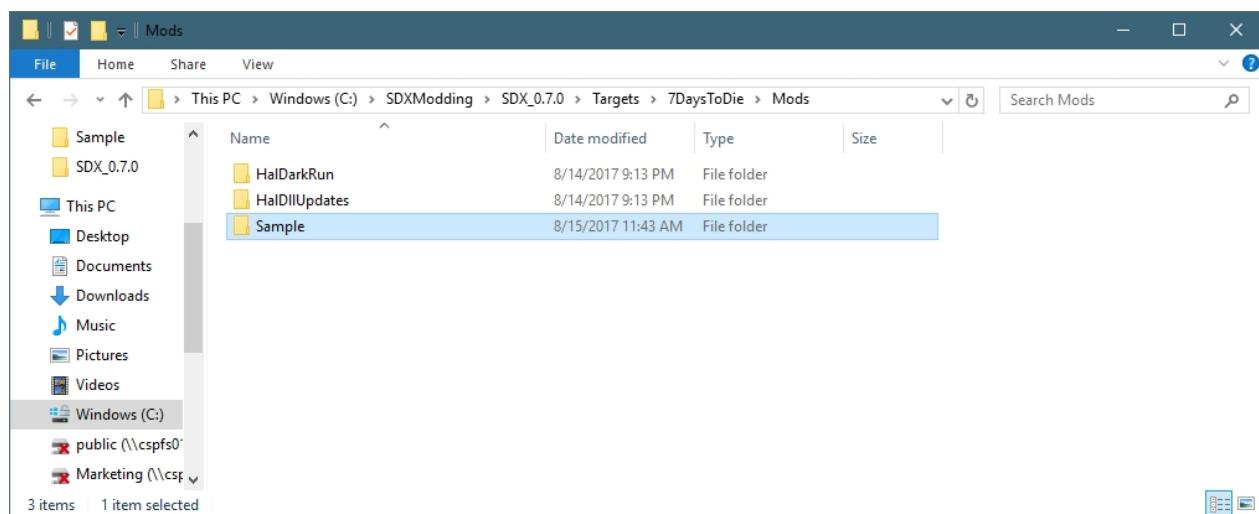
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Understanding an SDX mod

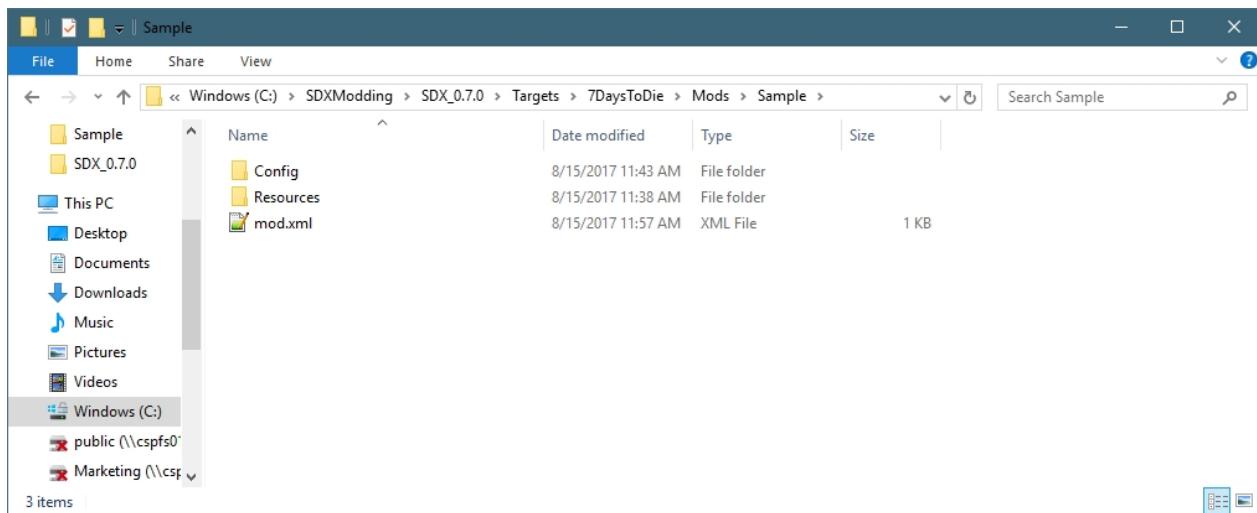
Start the SDX Launcher



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



Double click on the "Sample" 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>
```

The <config_mods> points to where your mods' XML files are stored.

"Config" Folder:

Double click on the "Config" folder, and open up the Sample.xml in Notepad++. This XML adds a carrot and a carrot 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">

            <!-- Example of a carrot, using a custom mesh. Notice no
ID value? SDX will populate it -->
            <item id="" name="carrot">
                <!-- SDX Textures are referenced like below: -->
                <property name="Meshfile" value="#fruits?carrot" />
                <property name="HoldType" value="45" />
                <property name="Material" value="organic" />
                <property name="Stacknumber" value="500" />
                <property class="Action1">
                    <!-- UseAction -->
                    <property name="Class" value="Eat" />
                    <property name="Delay" value="1.0" />
                    <property name="Use_time" value="..." />
                    <property name="Gain_health" value="2" />
                    <property name="Gain_food" value="2" />
                    <property name="Gain_water" value="2" />
                    <property name="Gain_wellness" value="0.2" />
                    <property name="Sound_start"
value="UseActions/player_eating" />
                    </property>
                    <property name="Group" value="Food/Cooking" />
                    <property name="EconomicValue" value="5" />
                </item>

                <!-- Adding a carrotBundle -->
                <item id="" name="carrotBundle" >
                    <property name="Extends" value="carrot" />
                    <property class="Action1">
                        <property name="Gain_health" value="6" />
                        <property name="Gain_food" value="6" />
                        <property name="Gain_water" value="6" />
                        <property name="Gain_wellness" value="0.6" />
                    </property>
                </item>
            </append>
        </config>
    <!-- switches SDX to now add the following to the recipes.xml -->
    <config name="recipes">
        <append xpath="/recipes">

            <!-- Add in the recipe for the a carrot bundle -->
            <recipe name="carrotBundle" count="1">
                <ingredient name="carrot" count="3" />
            </recipe>

        </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="carrot"> | 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="#fruits?carrot" /> | This will tell SDX, at run time, what the meshfile is called. |
| </append> | Closes the append tag |
| </config> | Closes the Items tag |

Resources:

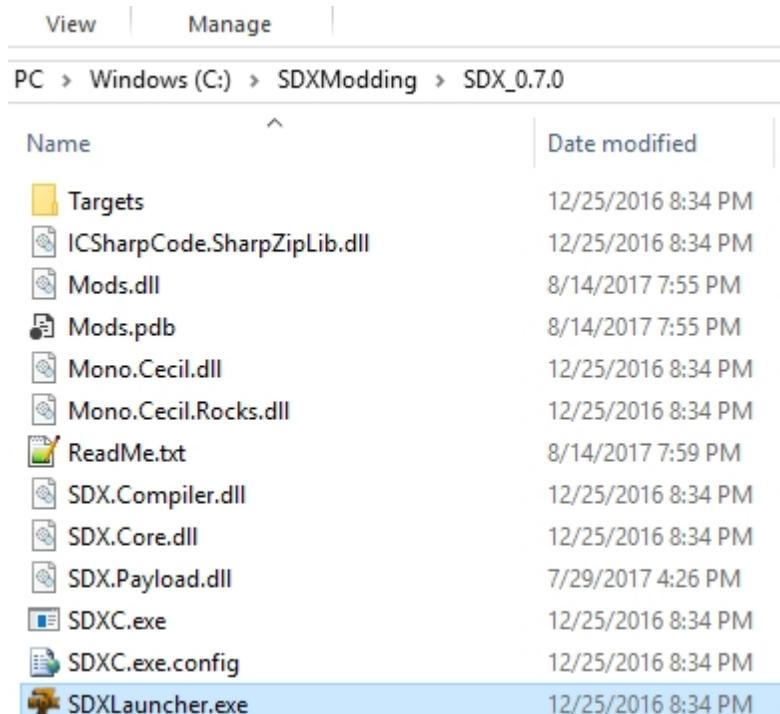
The Resources folder contains all your Unity 3D models and textures, stored as Unity Bundle 3D files.

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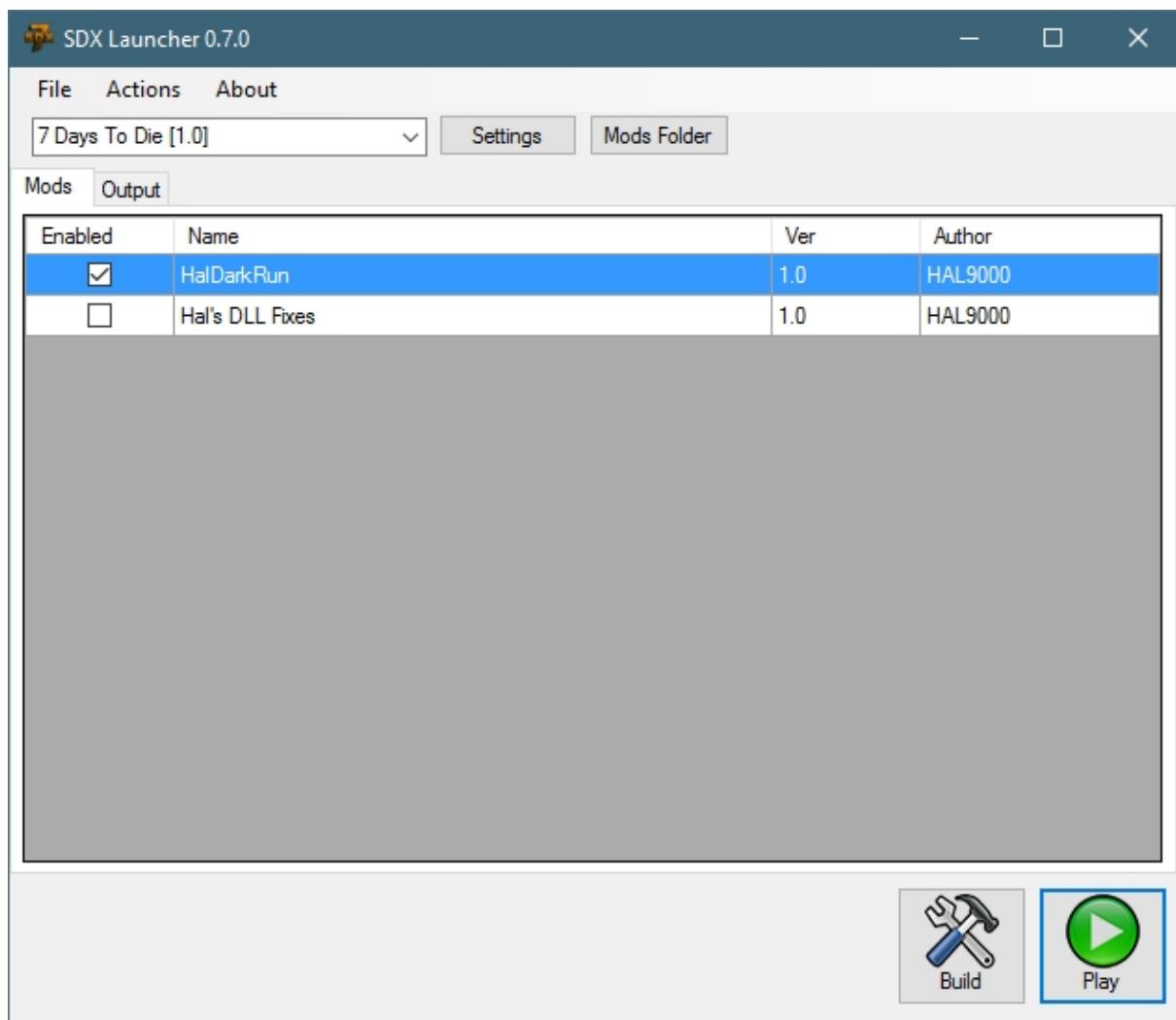
SDX Launcher

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

In the "C:\SDXModding\SDX_0.7.0\" folder, double click on SDXLauncher.exe



Once loaded, you'll see this screen:

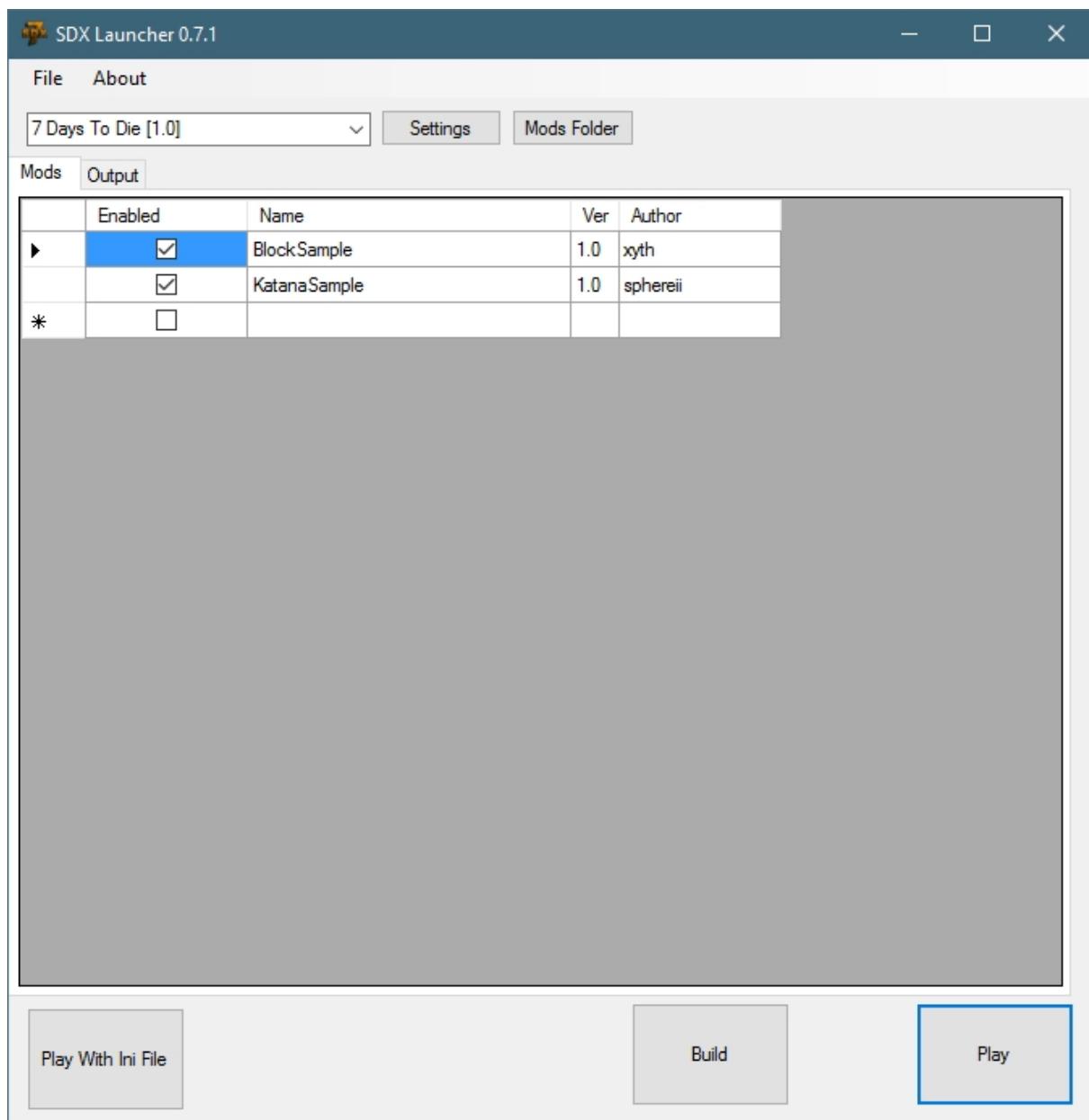


[Note: For this tutorial, I have added Hal9000's HalDarkRun and DLL Fixes.](#)

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Settings Button

Once you have started the SDX Launcher 0.7.0, you will need to configure it for the first time.



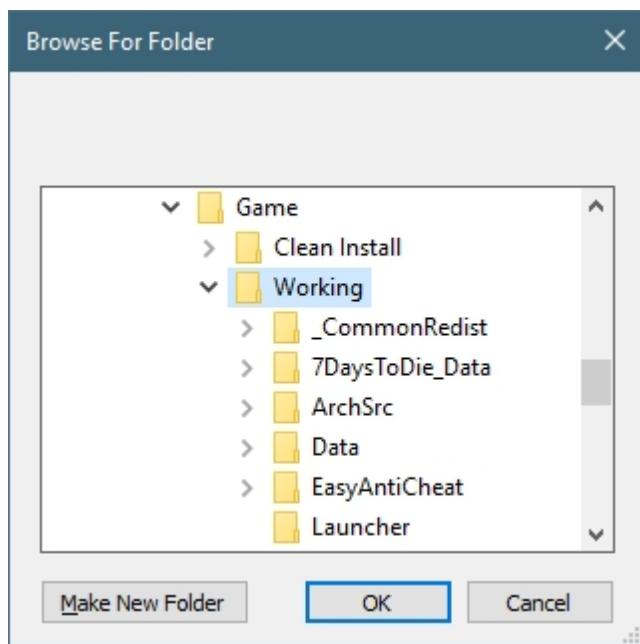
In previous versions of the SDX Launcher, you had to select either 7 Days To Die, or 7 Days To Die Server. It is now auto-detected.

Click on the "Settings" button.

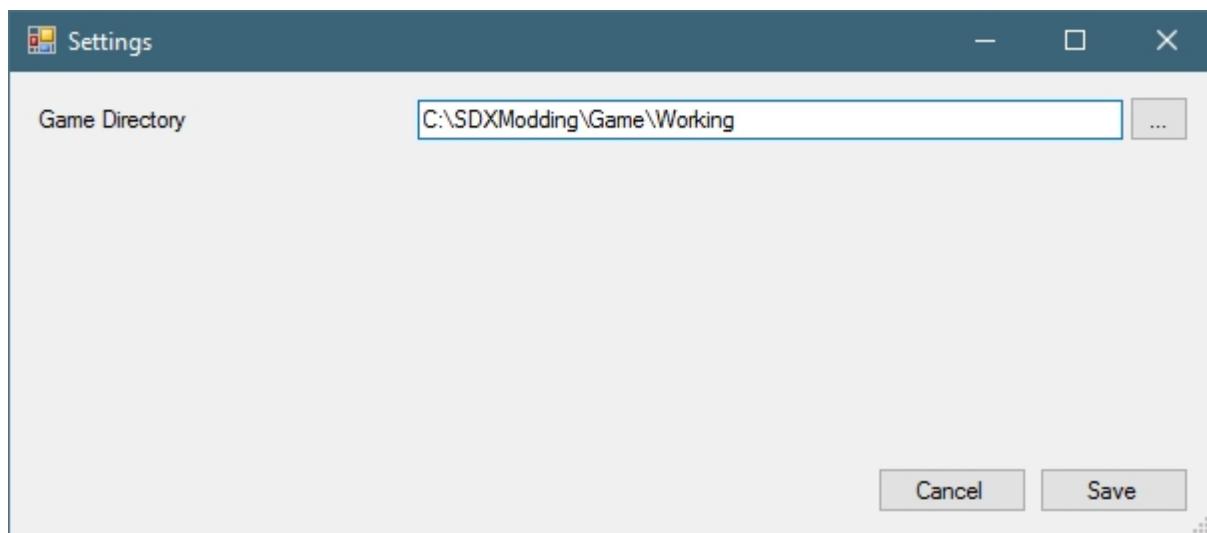


This is asking where your "Game Directory" exist. For us, it'll be that ["Working" Folder we created here "C:\SDXModding\Game\Working"](#).

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



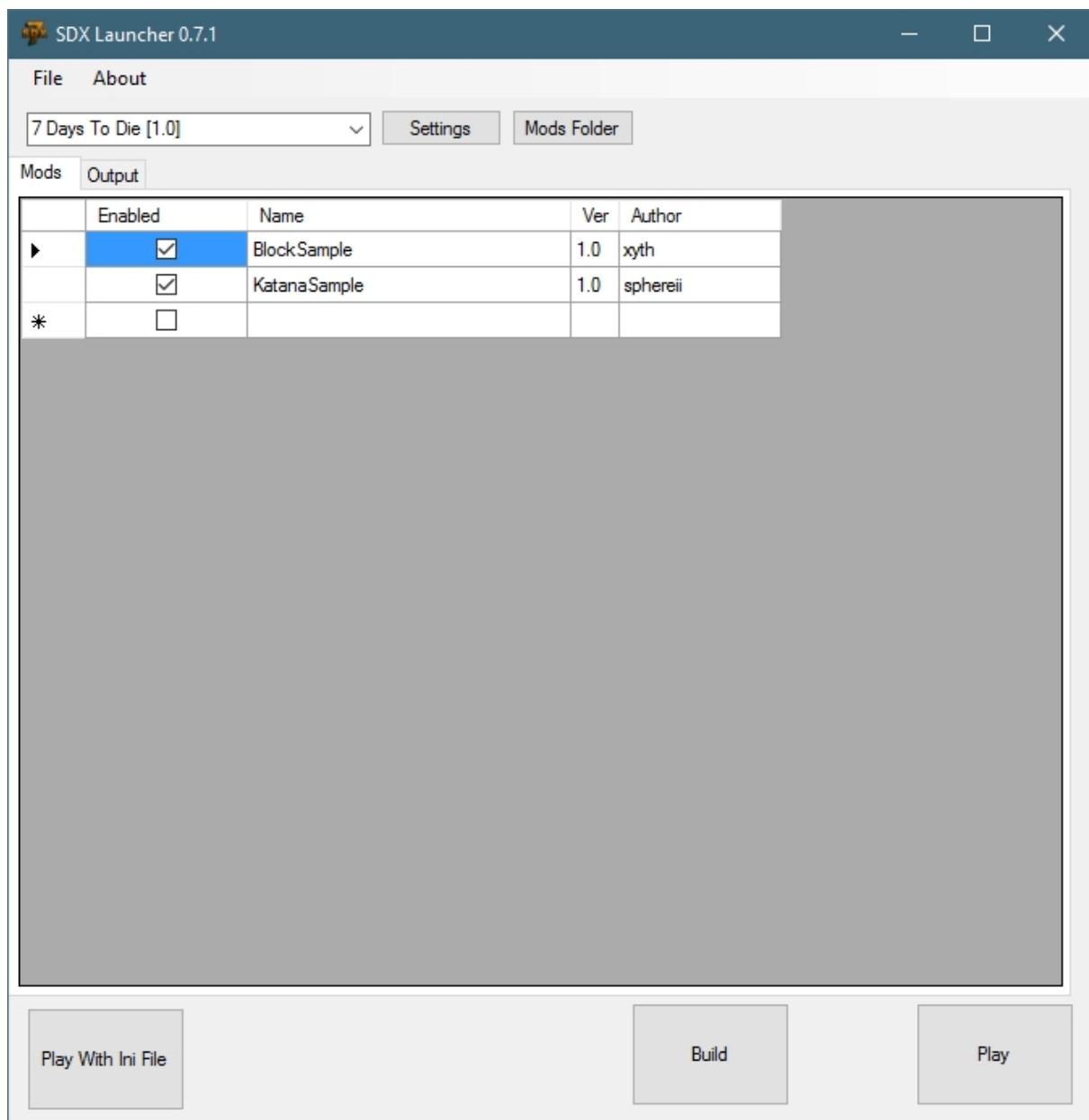
End result should look something like this:



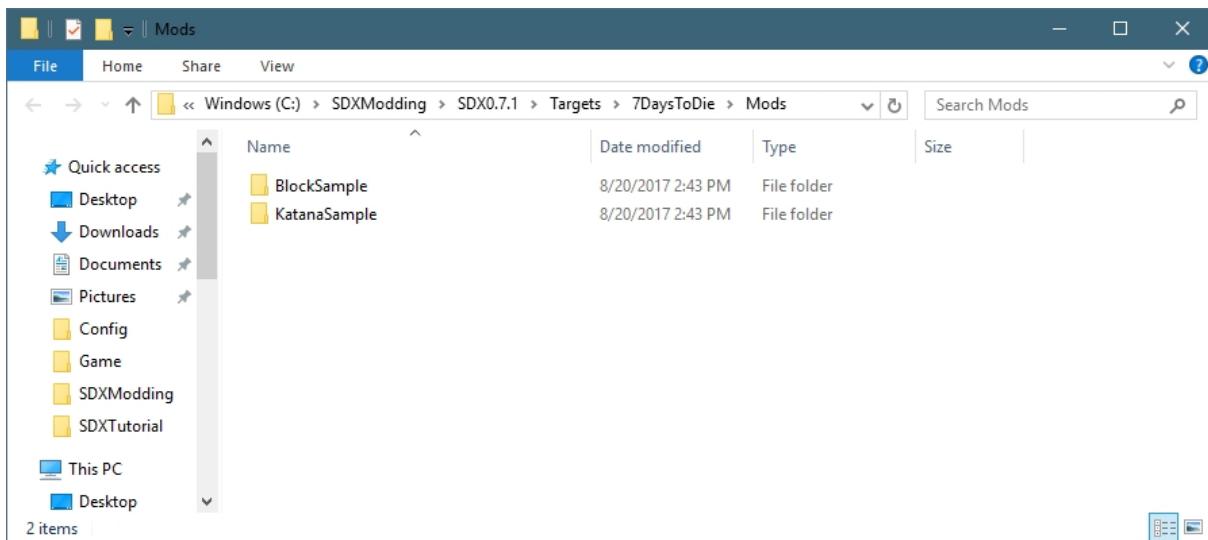
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Mods Folder Button

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.



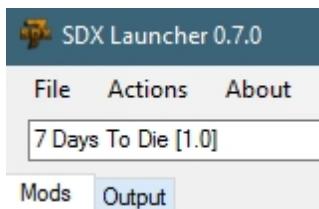
Click on the "*Mods Folder*" button. This will open an Explorer window under "C:\SDXModding\SDX0.7.1\Targets\7DaysToDie\Mods"



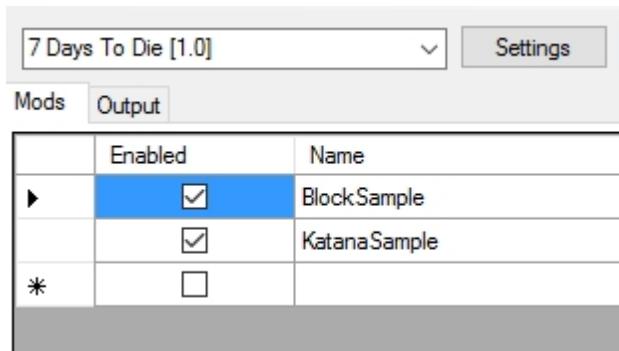
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The Mods / Output tab

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

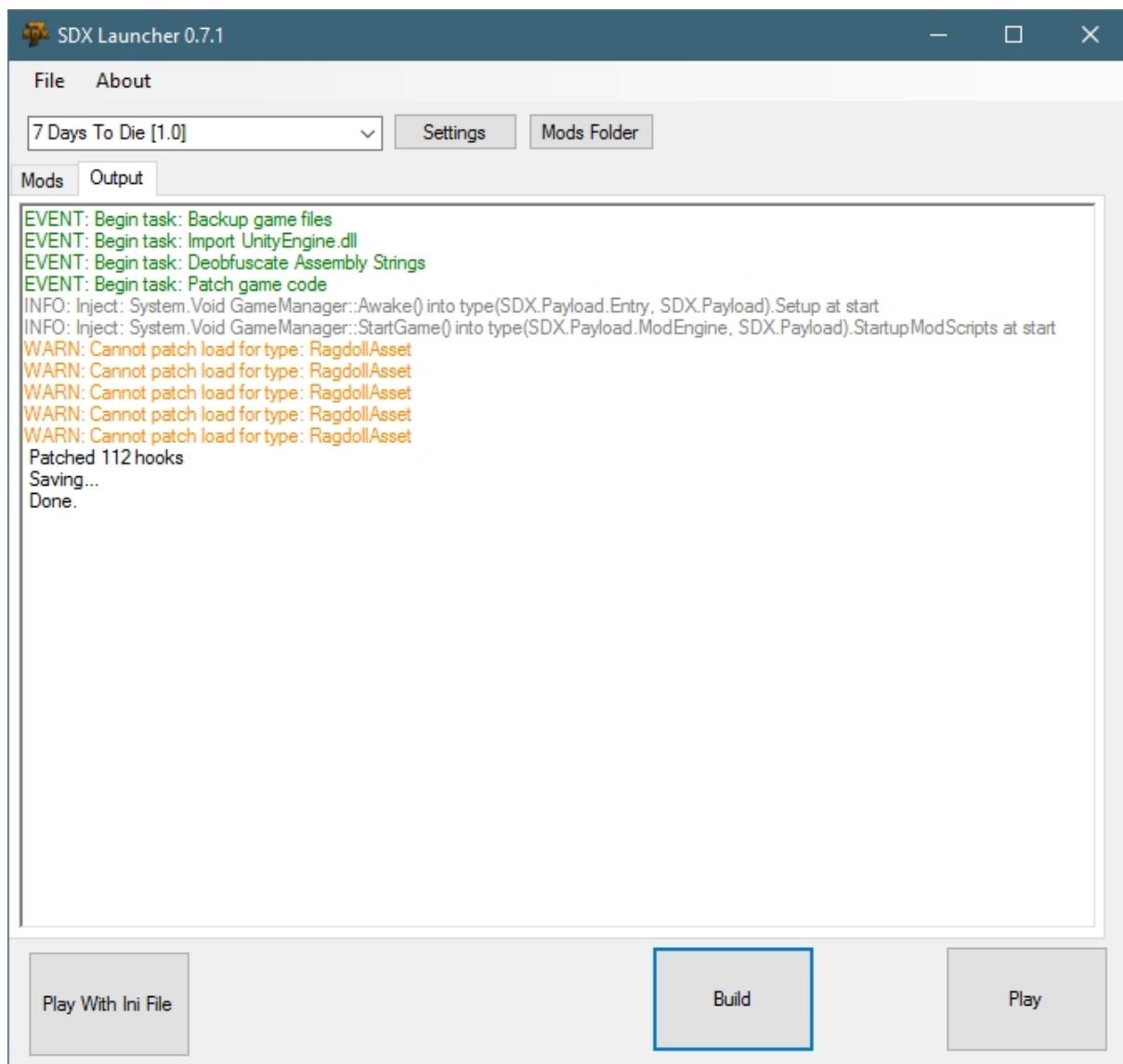


The "Mods" tab shows you the available Mods:



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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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.

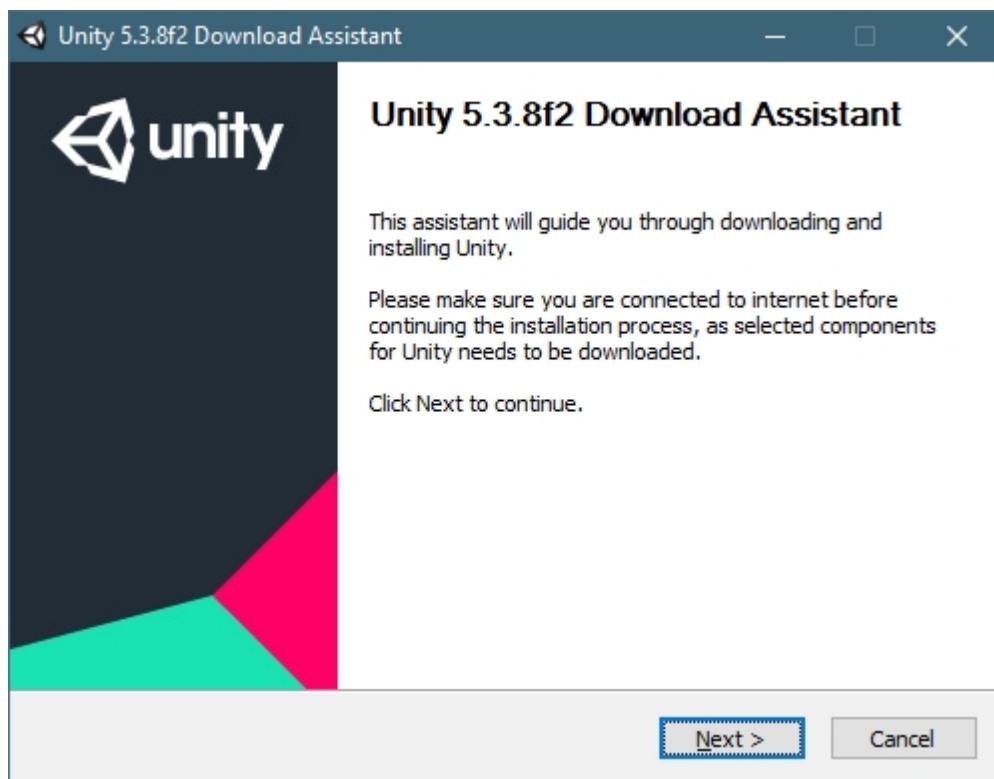
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[Installing Unity 5.3.8p2](#)

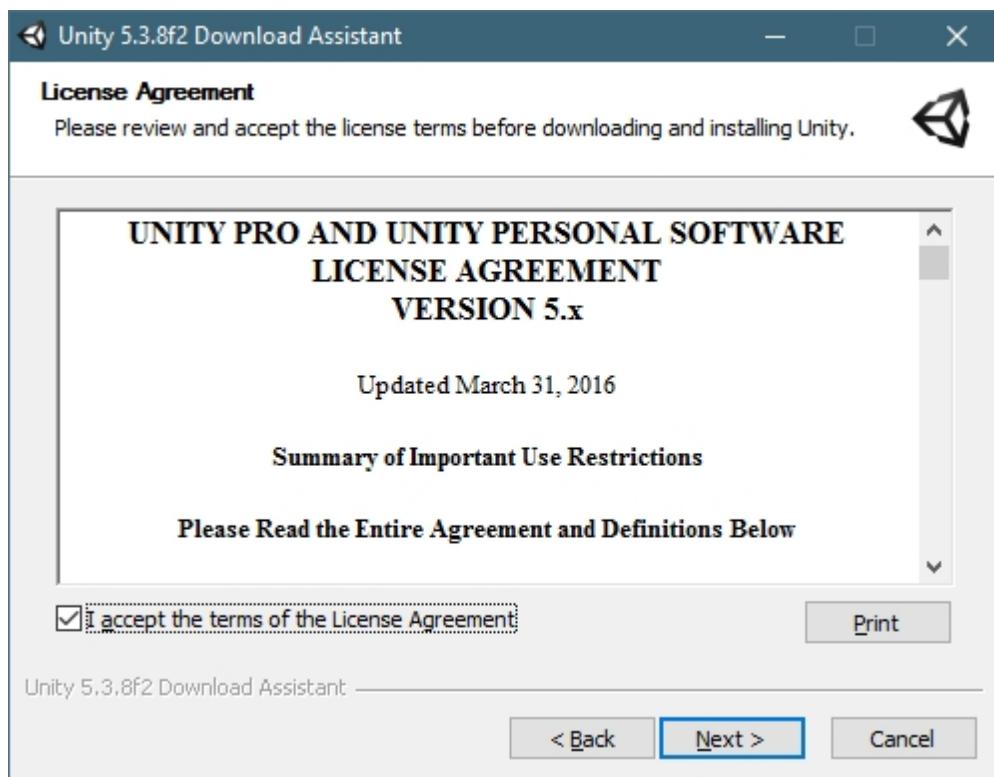
Unity 5.3.8p2

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.

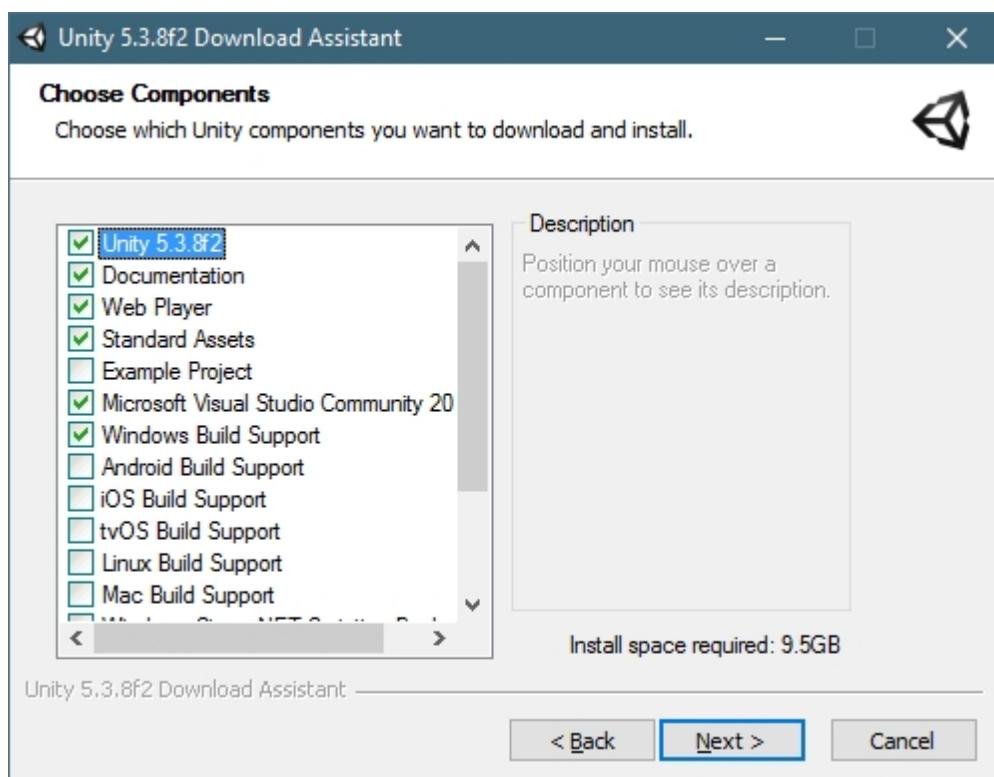
Once downloaded, double click on the UnityDownloadAssistant-5.3.8f2.exe



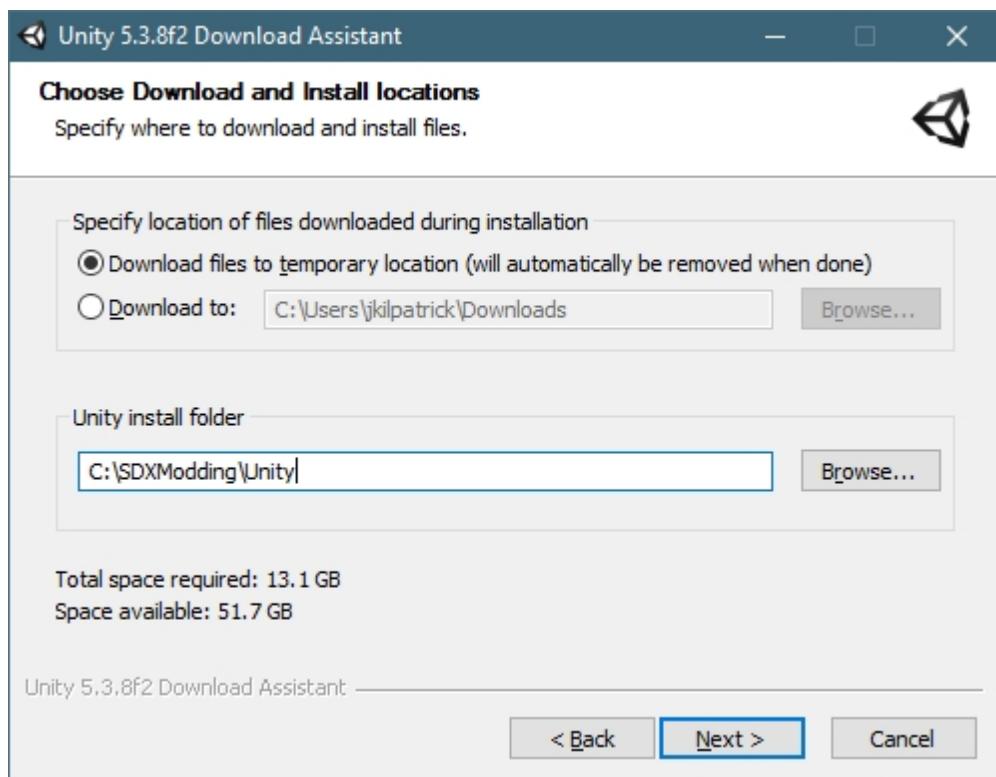
Accept the License Agreement



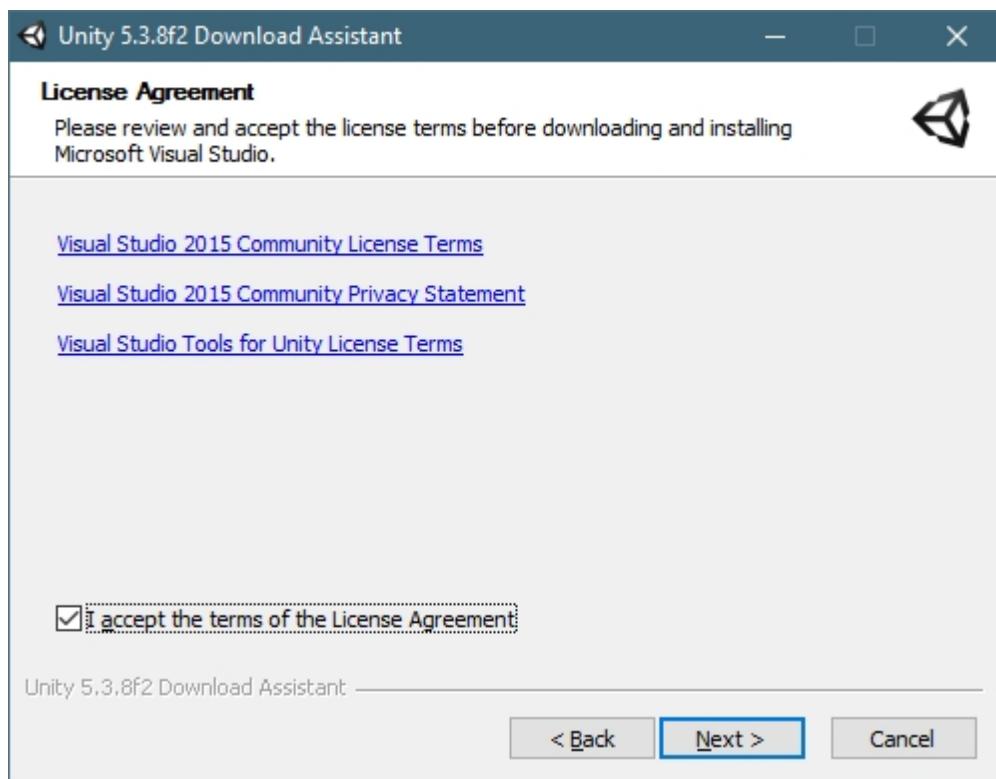
Accept Defaults:



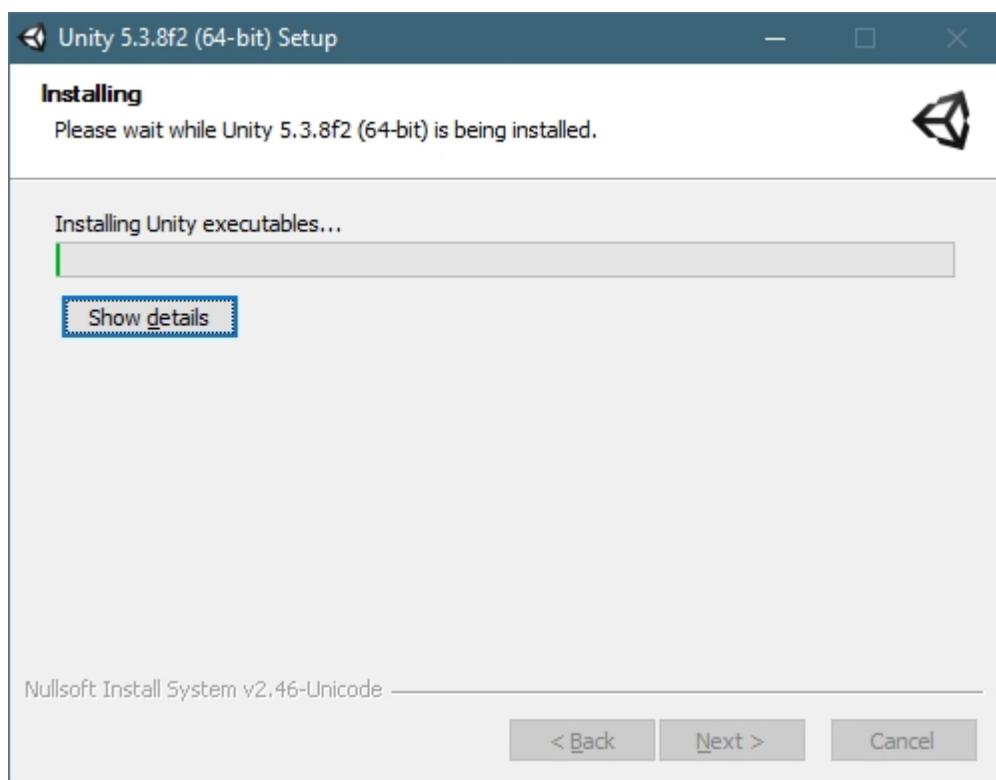
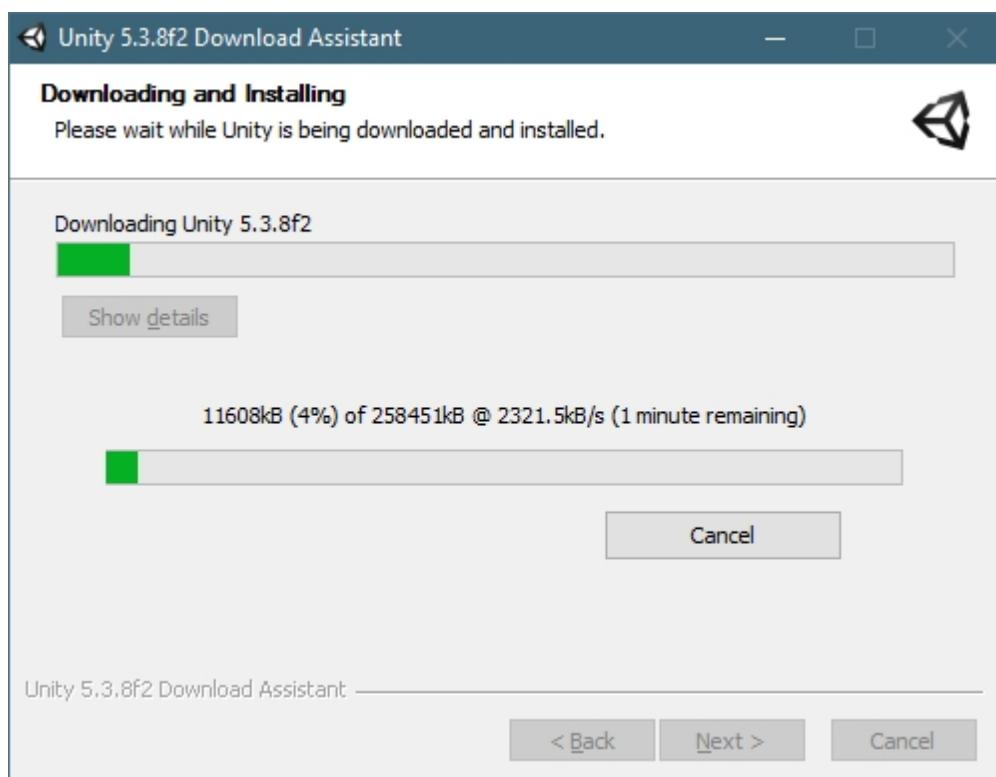
Select the Unity Install location, either as default, or under your C:\SDXModding\ folder.

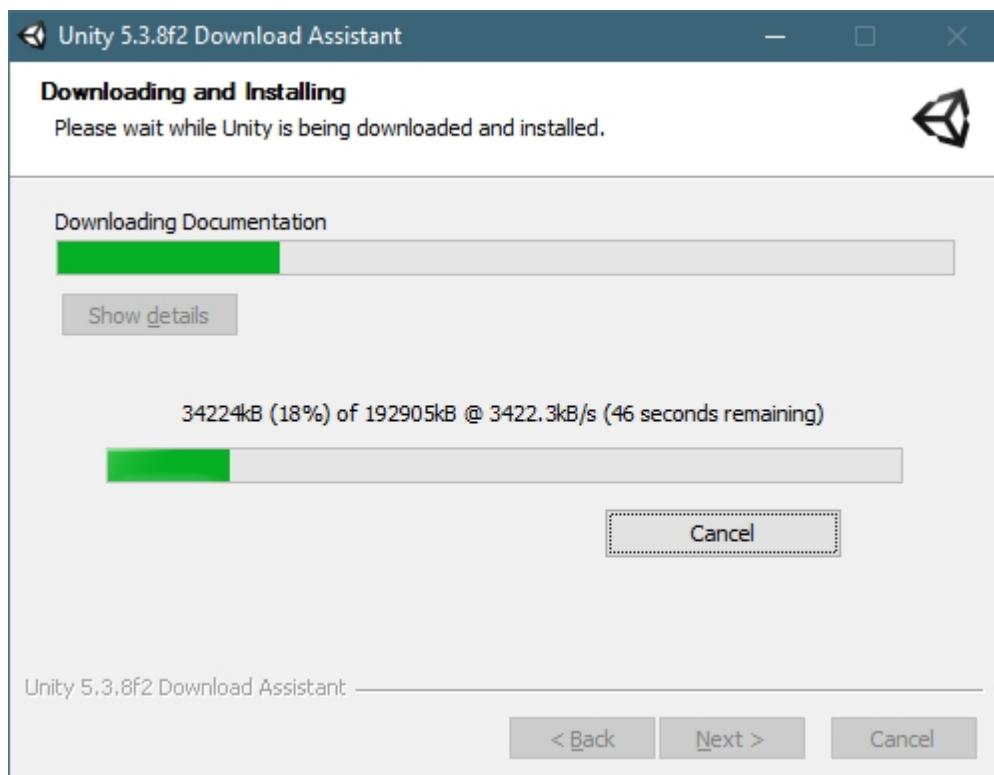


Accept the License Agreement by checking on the check box, once you have reviewed and accepted the licenses

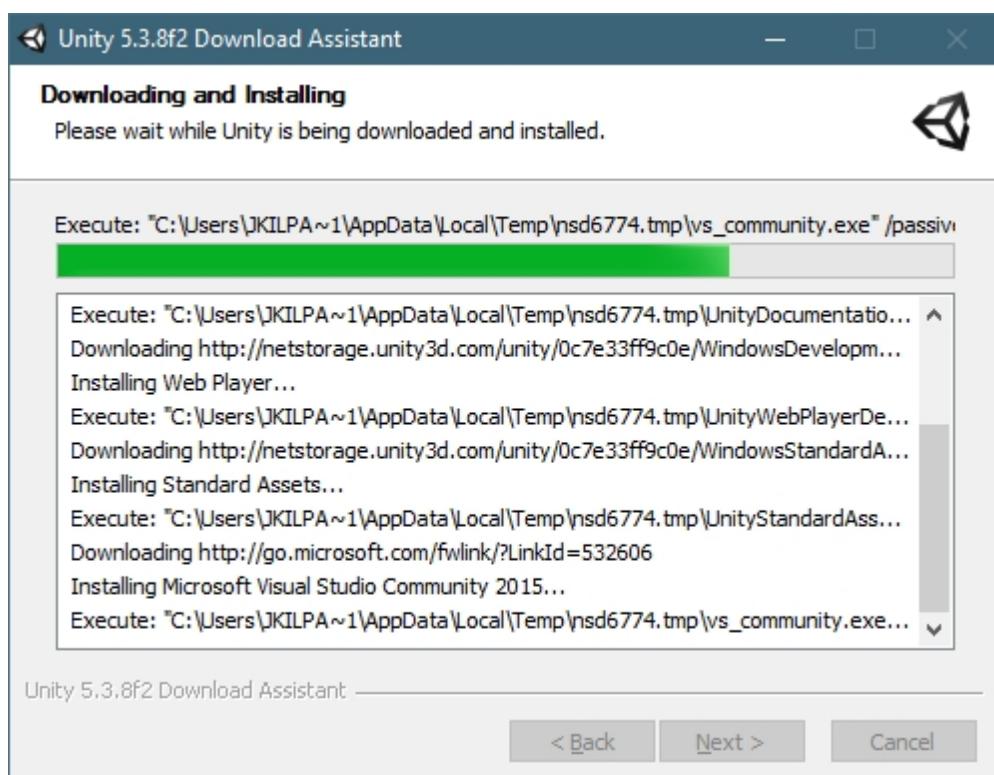


Wait for the automated download and install to be completed

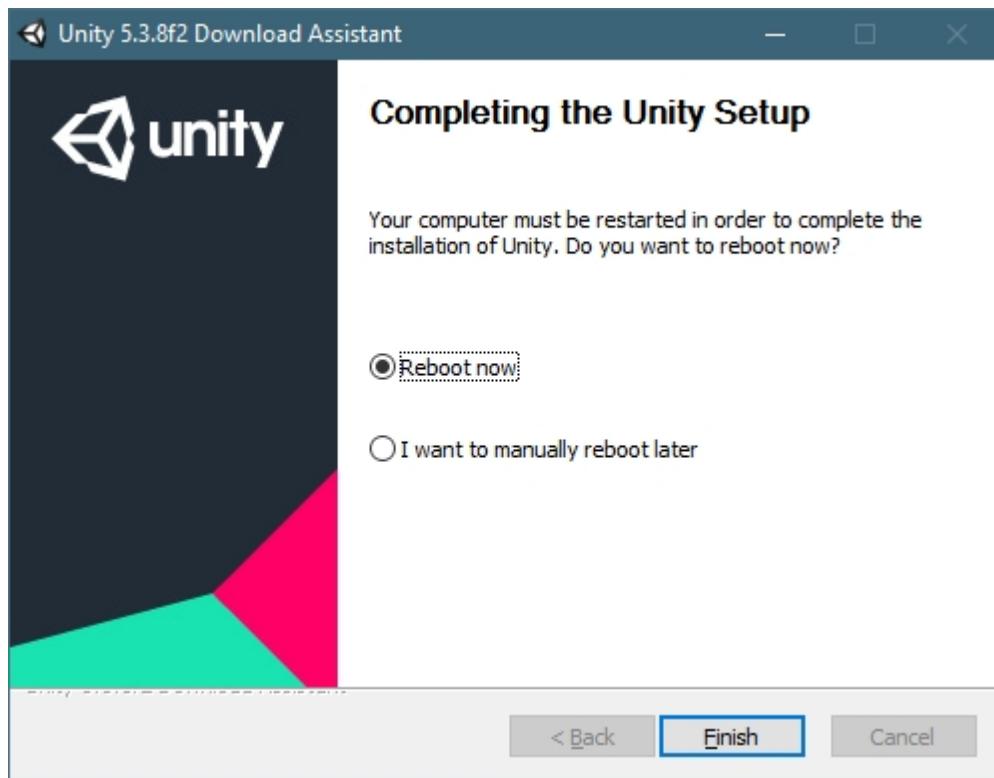




During the installation process, other tools will be installed as needed, such as Visual Studio 2015 Community Edition.



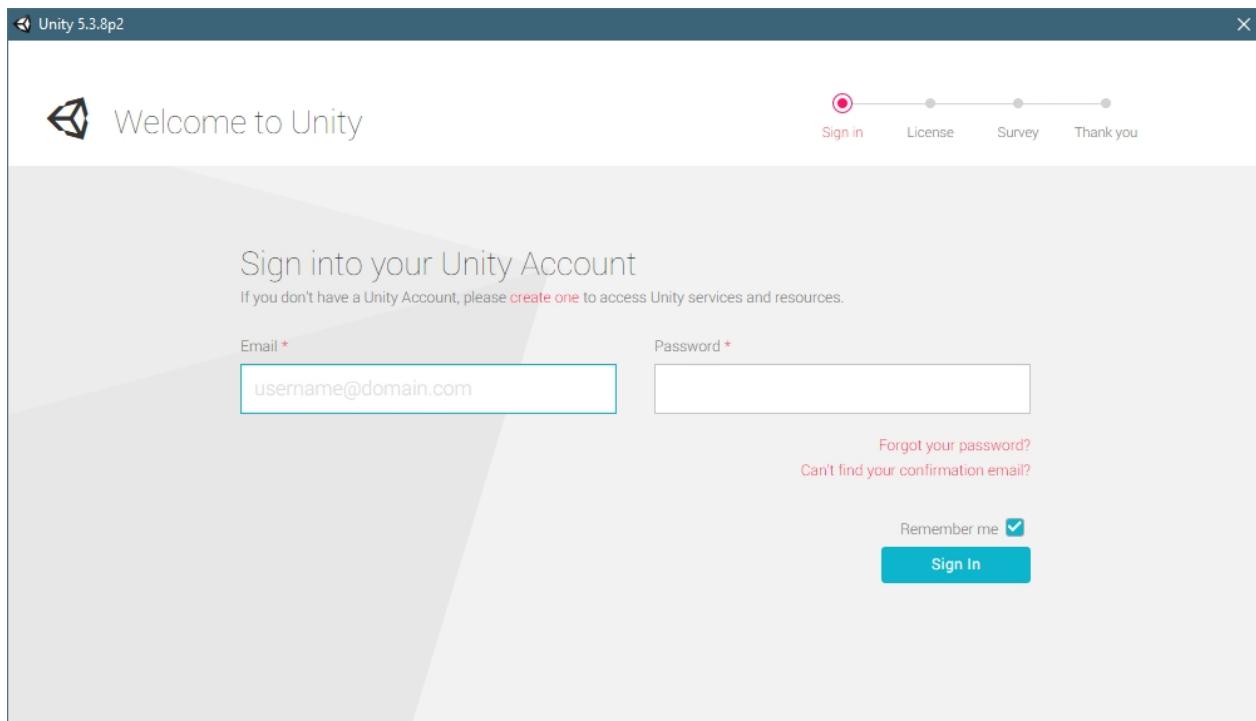
Reboot when done.



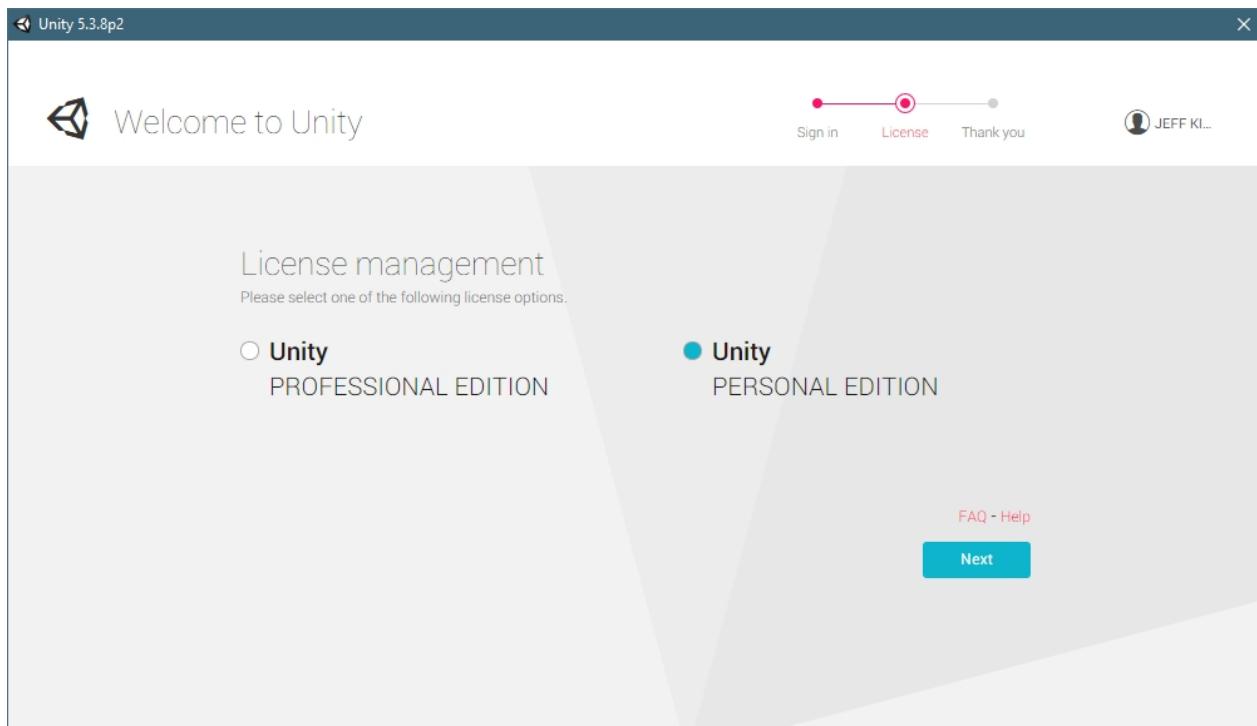
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Starting Unity for the first time

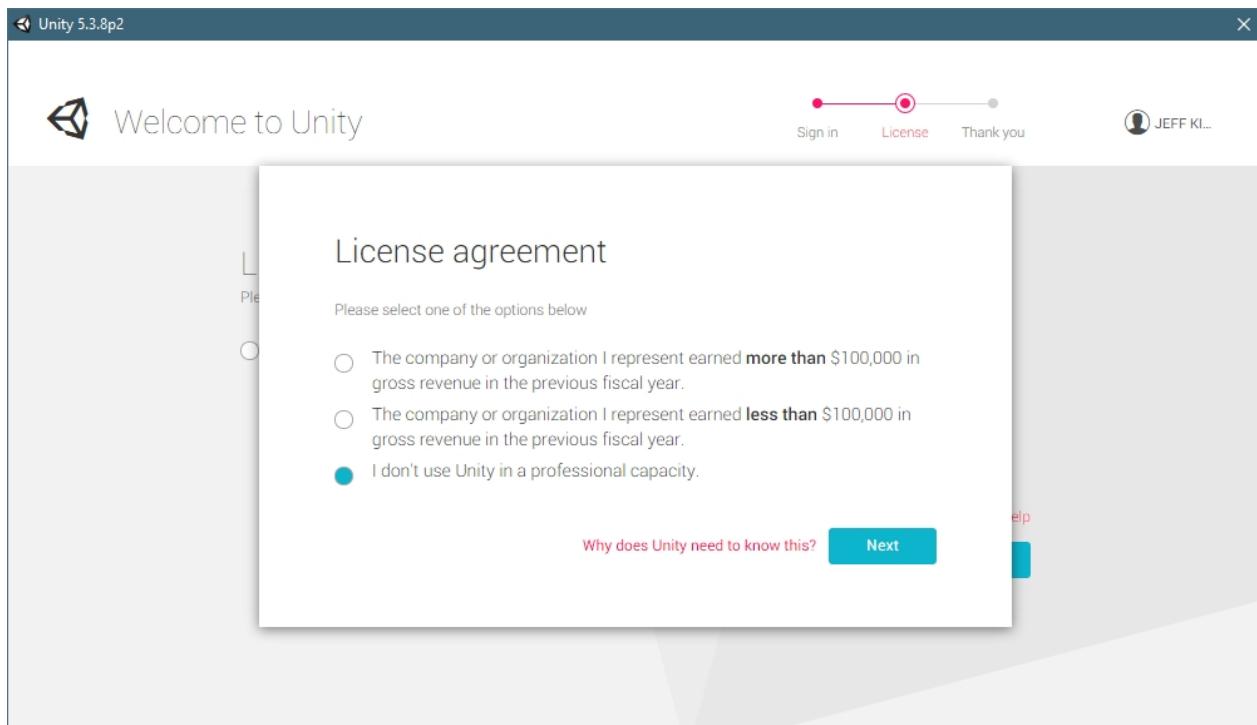
When Unity is started, it will ask you to either login, or create a new account. This will allow you to download assets from the Unity store.



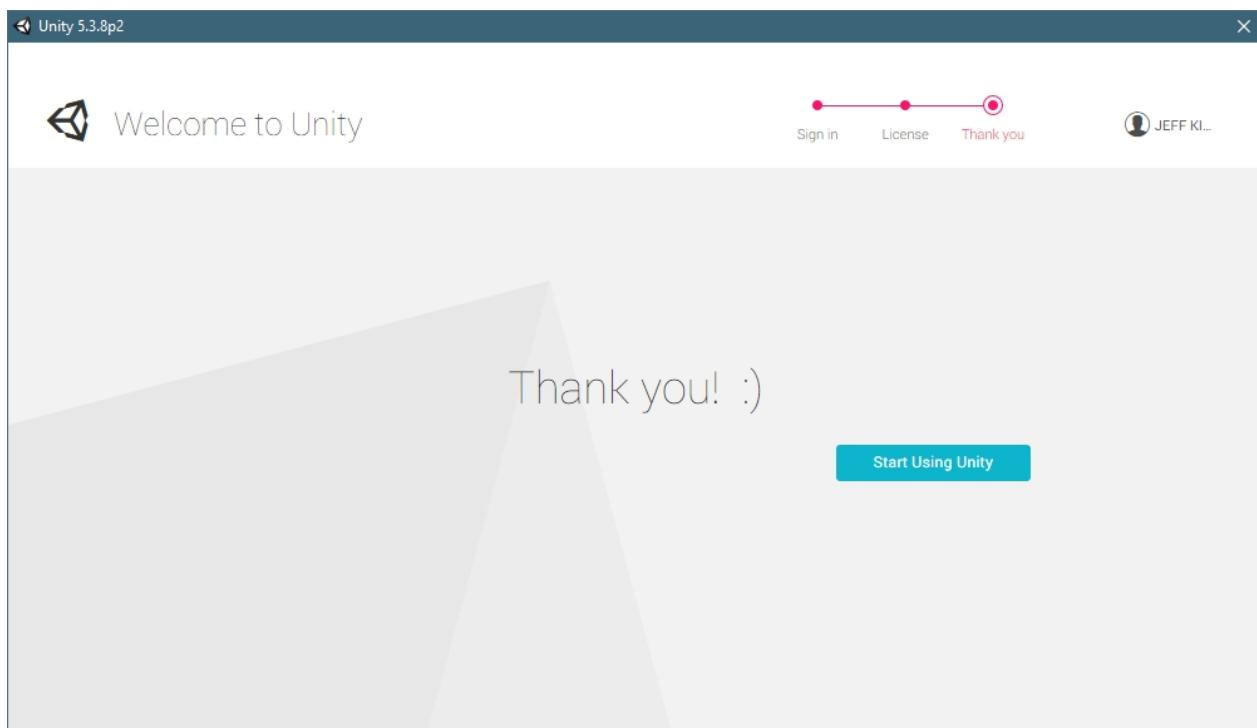
Unity offers two options, Professional Edition or Personal Edition. For this tutorial, we'll select Personal Edition.



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"

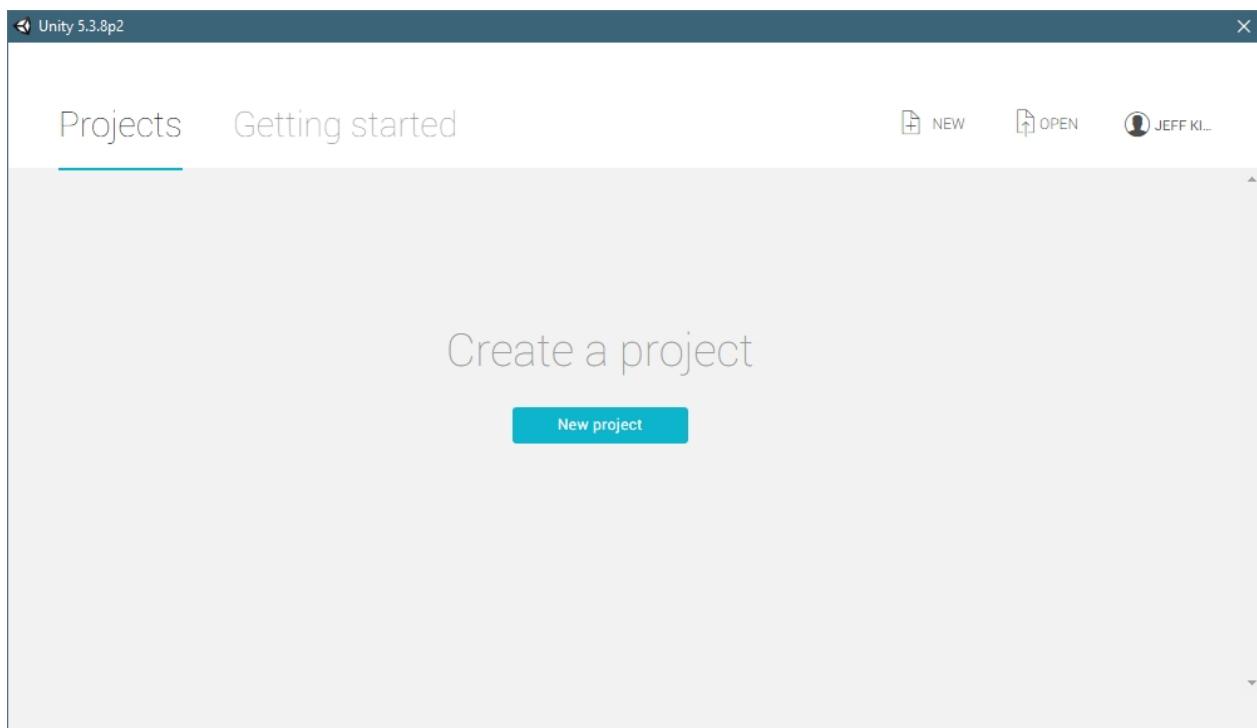


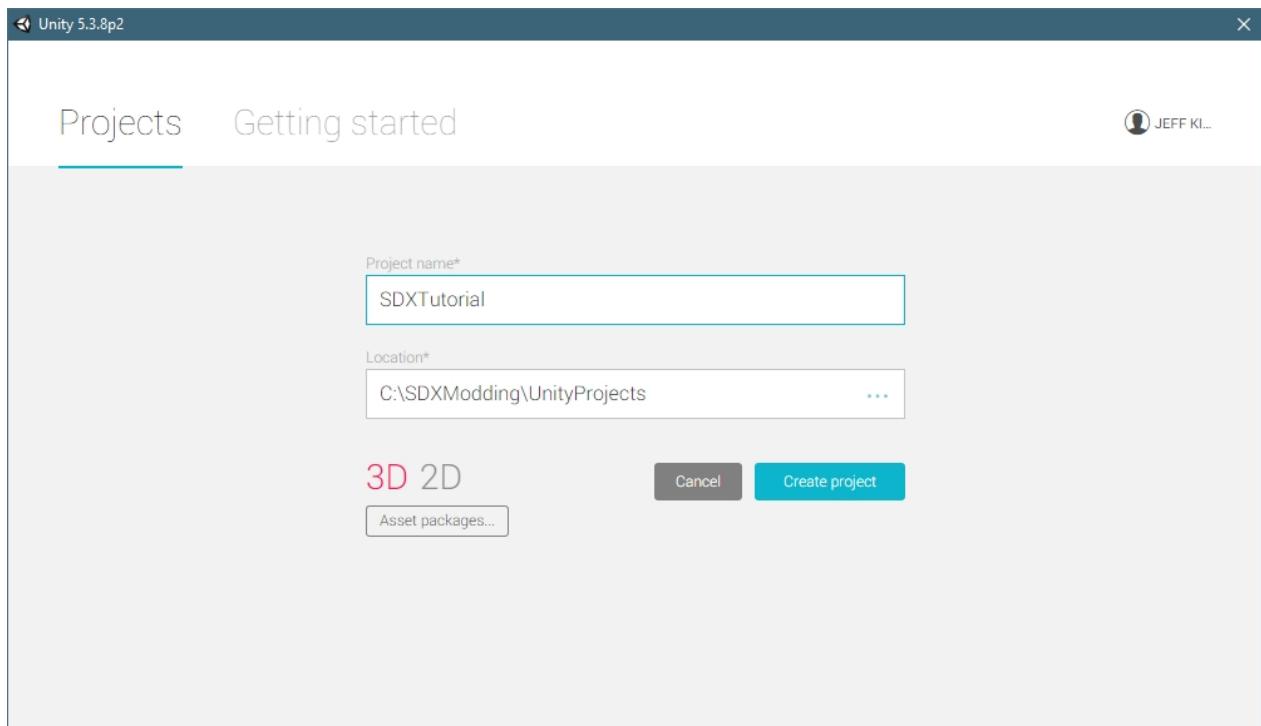
After a quick config, Unity is ready for you



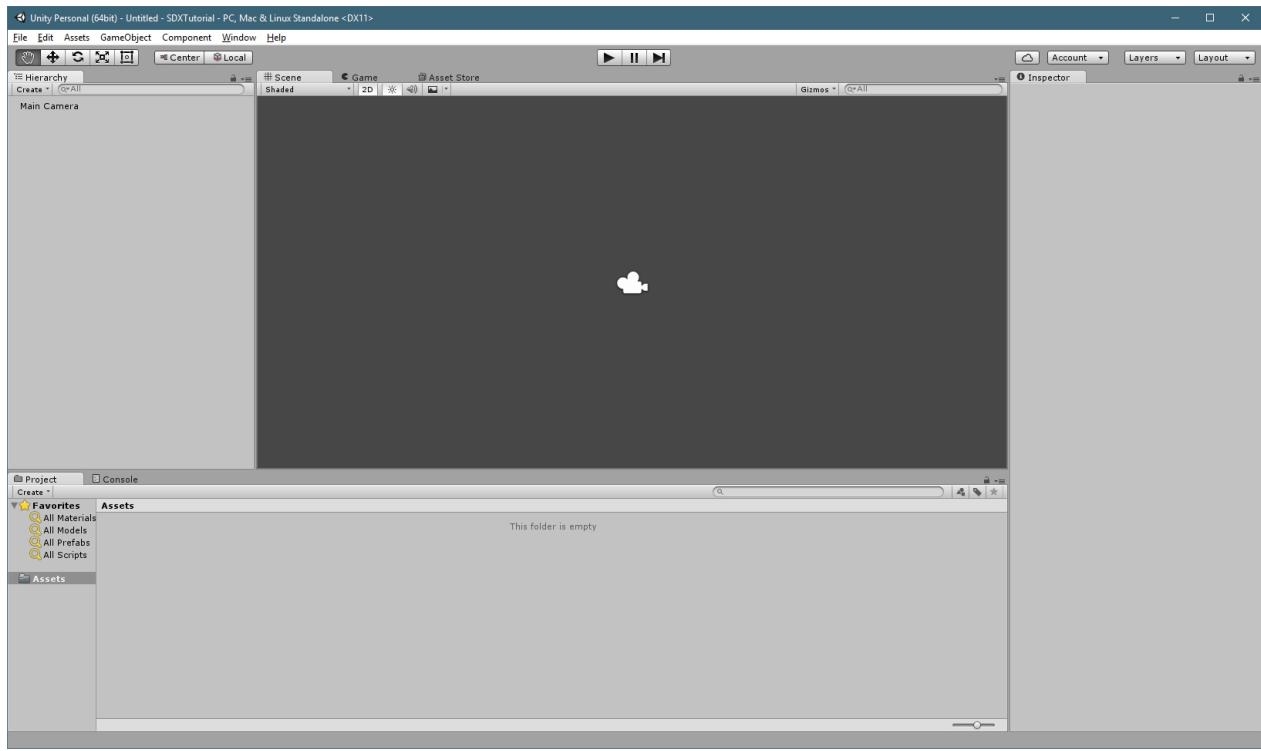
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Creating a new Unity Project

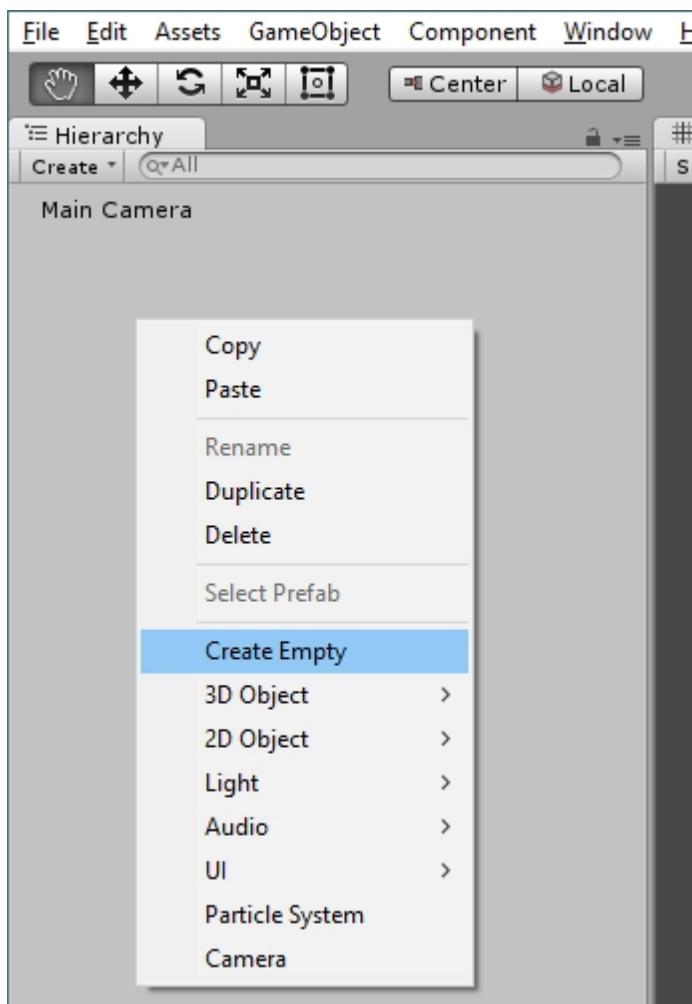




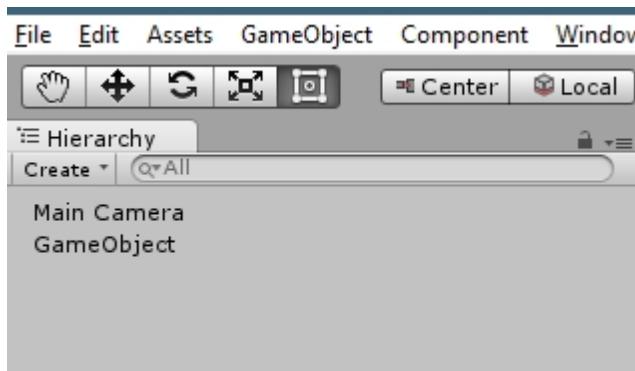
Unity UI



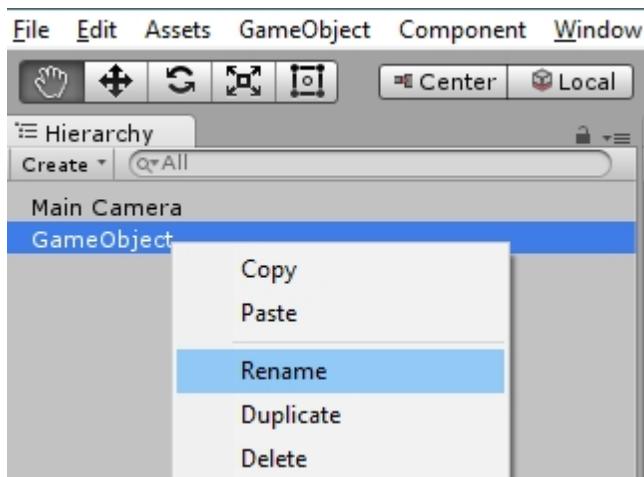
Right click under "Main Camera", and select "Create Empty"



This creates a new "GameObject" item under the "Main Camera"



Right click on the newly created "GameObject", and select "Rename"

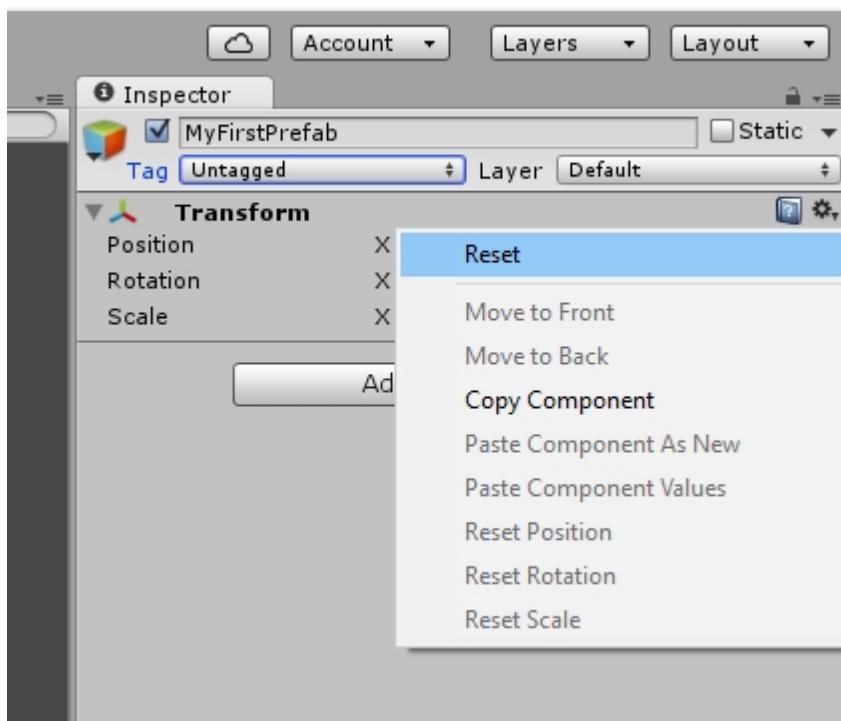


Rename it to "MyFirstPrefab"

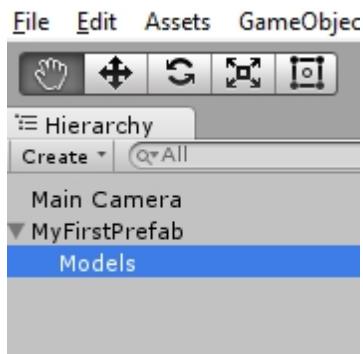


With "MyFirstPrefab" highlighted, we'll want to make sure that the Transform is reset to 0.

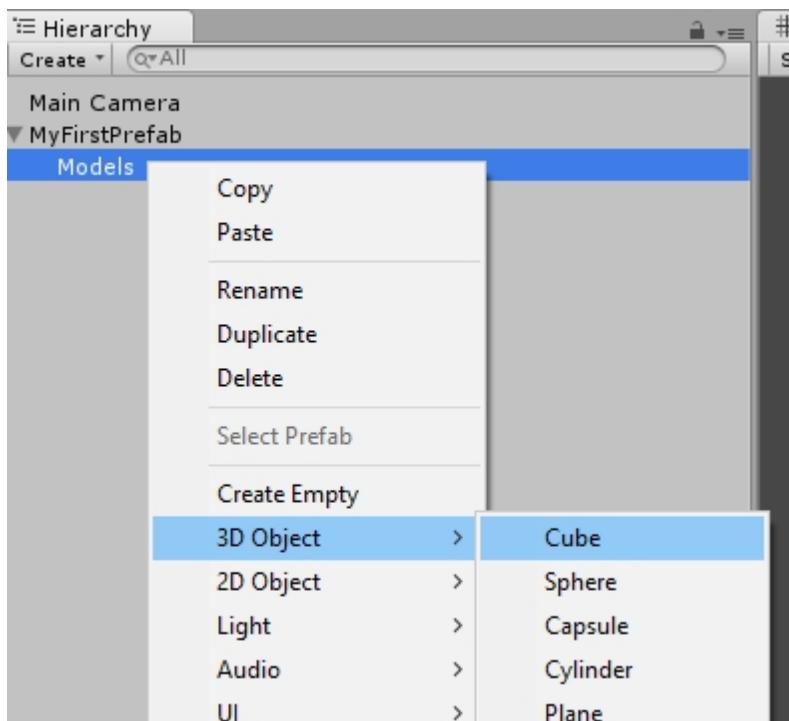
Click on the little Gear on the right hand side of the screen, and select "Reset"



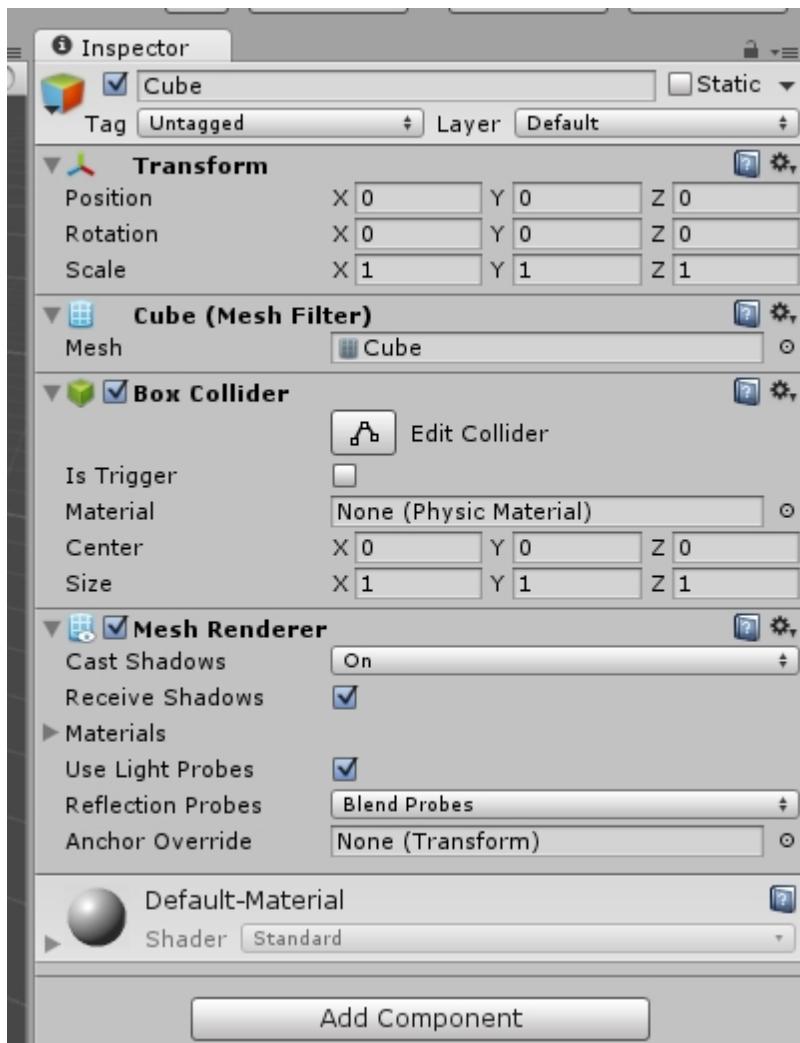
Right click on "MyFirstPrefab", and select "Create Empty". Rename the new "GameObject" to "Models"



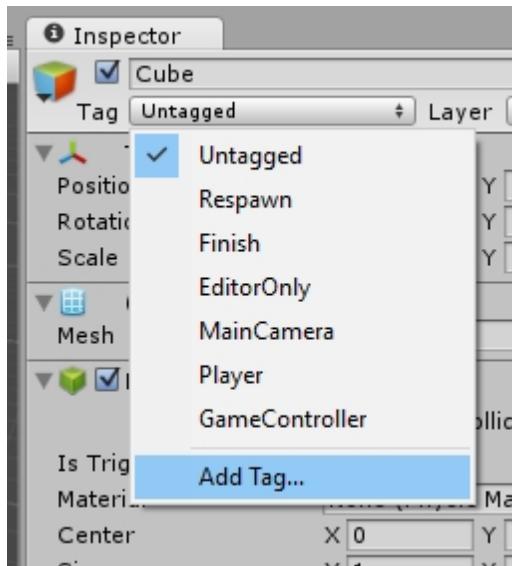
Right Click on "Models", and select "3D Object", then Cube



With the new Cube highlighted, look over in the Inspector window



Click on the Tag drop down, that says "Untagged".



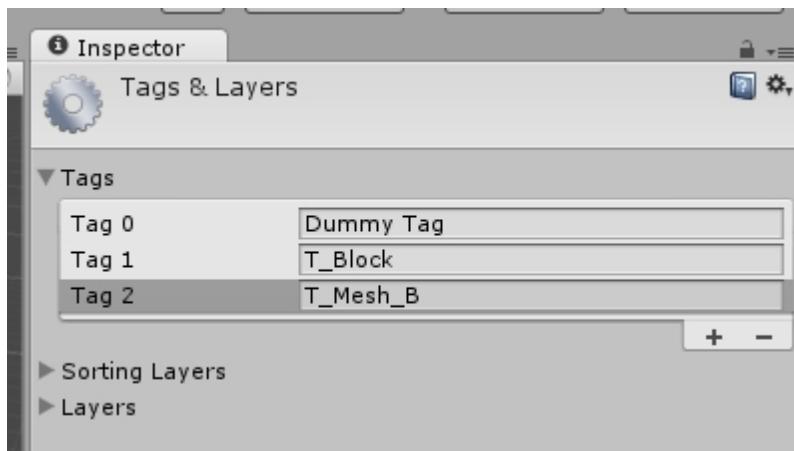
All Game Objects for 7 Days To Die that need meshes, are required to have a T_Mesh_B tag. If you see the screen above, without the T_Mesh_B, click on "Add Tag..."

You'll need to add these tags if they don't exist:

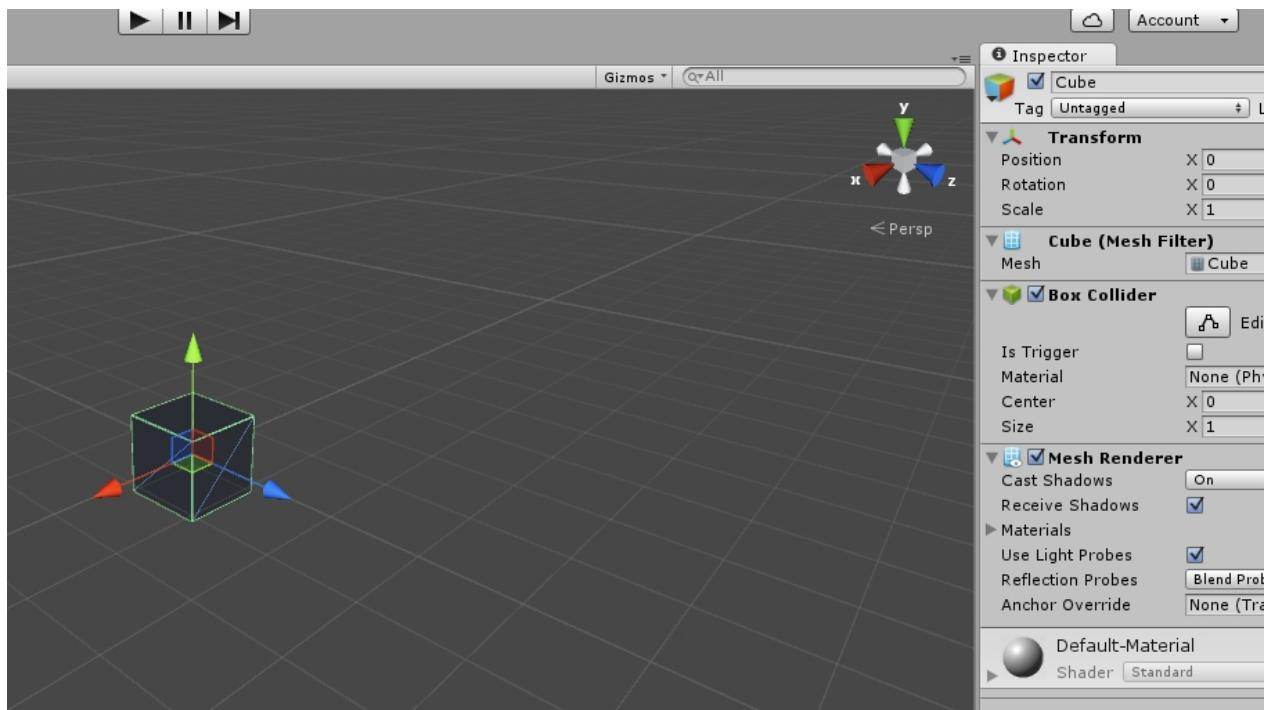


Click on the + button, and add two new tags, in this order:

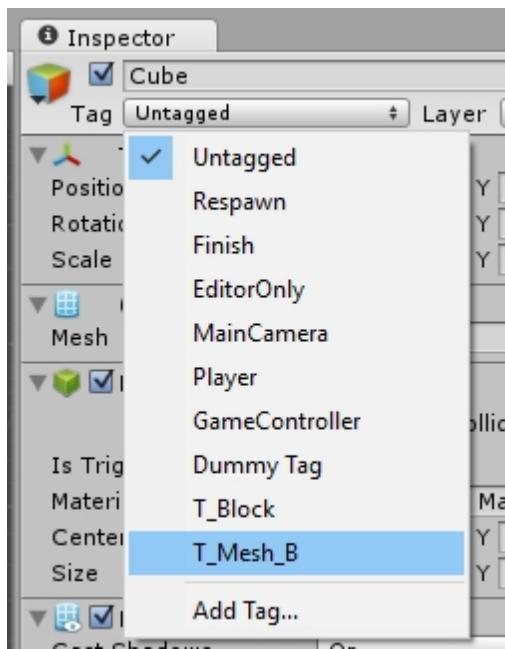
Dummy Tag
T_Block
T_Mesh_B



Once done, click on your Cube in the center of the screen to get the Inspector back

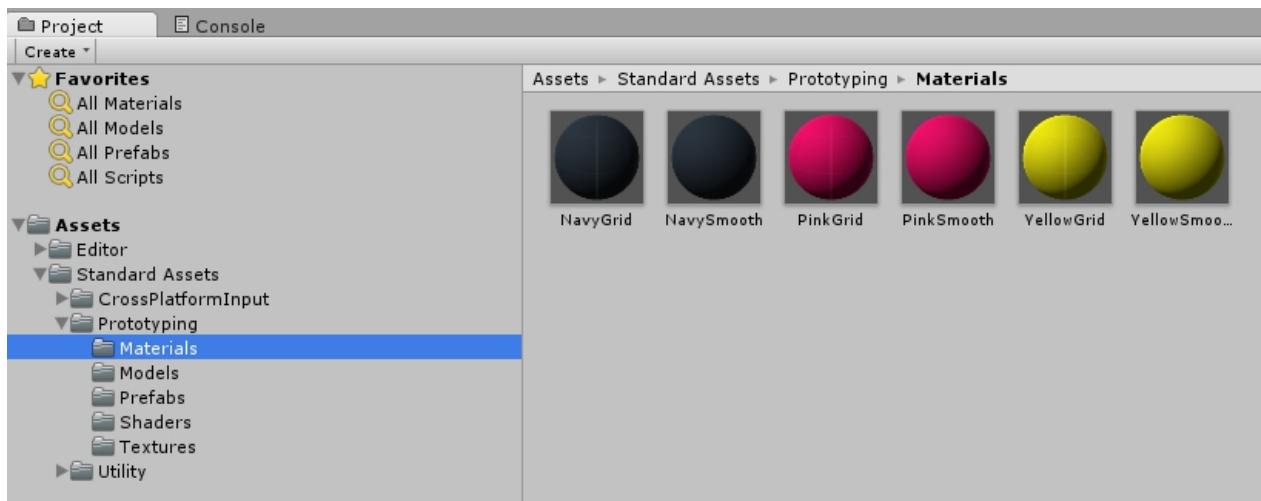


Then, click on the Tag drop down again, and select "T_Mesh_B".



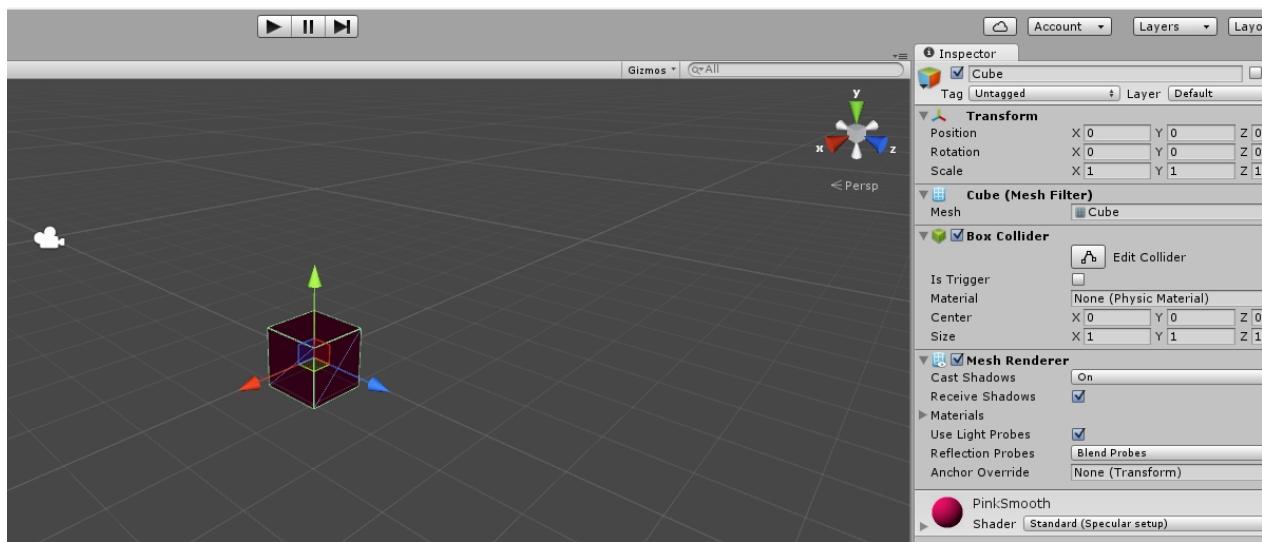
Click on the Cube on the Hierarchy.

Then, at the bottom of the screen in the "Project" Tab, expand the "Asset" list, then "Standard Asset", then "Prototype", and finally click on Materials



Drag the colour of which material you want to use. In this example, we are going to use PinkSmooth, as it'll stand out.

Click and hold on the PinkSmooth, and drag unto your Cube game object.



Notice that the colour is now PinkSmooth.

Now, under the Heirachy section, click and hold on "MyFirstPrefab", and drag down to the My assets folder.

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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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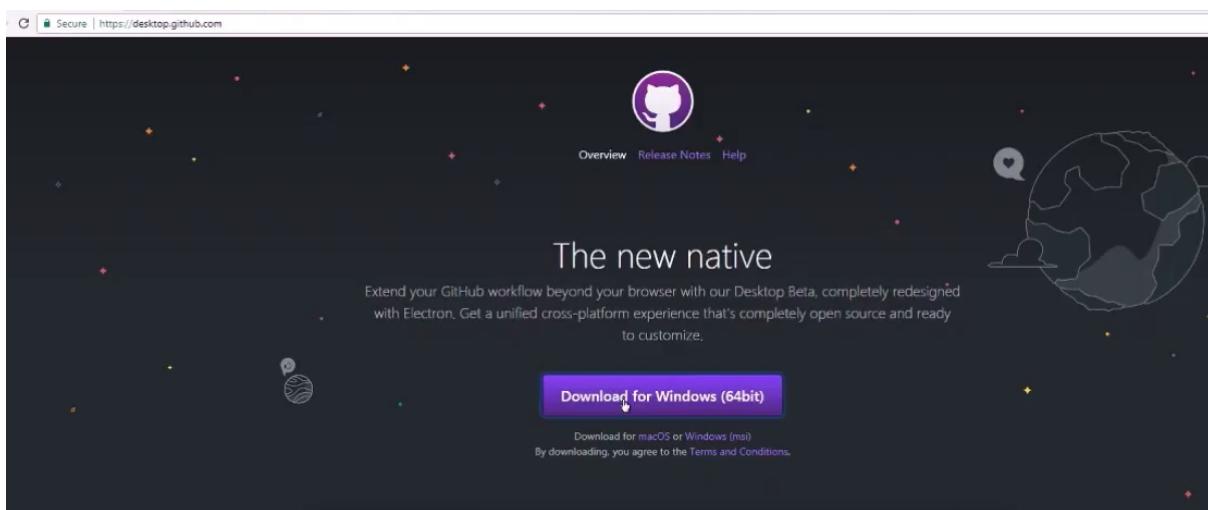
Installing and Configuring Github

GitHub Desktop

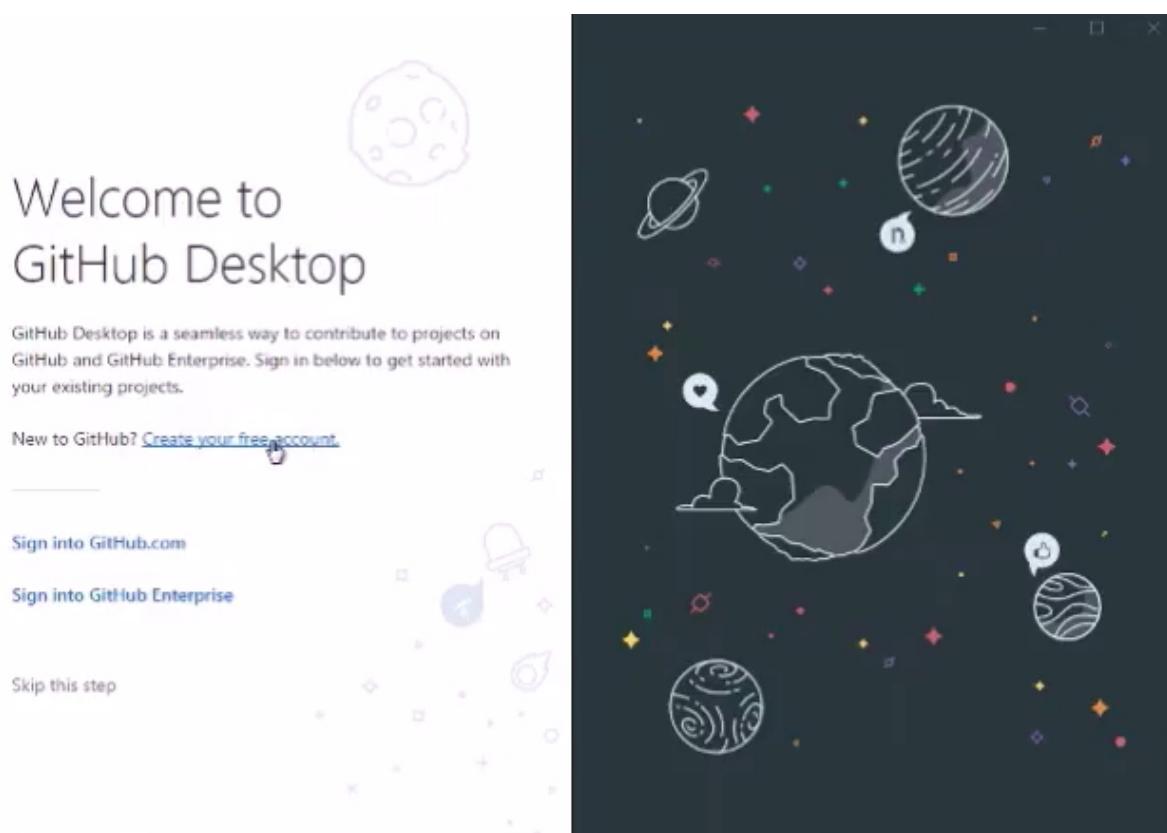
GitHub Desktop is an easy to use tool to manage code. You can download it [here](#).

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.

The screenshot shows the GitHub 'Welcome to GitHub' page. At the top, there are three steps: 'Completed' (Set up a personal account), 'Step 2: Choose your plan' (highlighted in blue), and 'Step 3: Tailor your experience'. The main section is titled 'Choose your personal plan' and contains two options: 'Unlimited public repositories for free.' (selected) and 'Unlimited private repositories for \$7/month.'. Below these options is a note: 'Don't worry, you can cancel or upgrade at any time.' There is also a checkbox for 'Help me set up an organization next' with explanatory text about organizations. A green 'Continue' button is at the bottom.

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

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

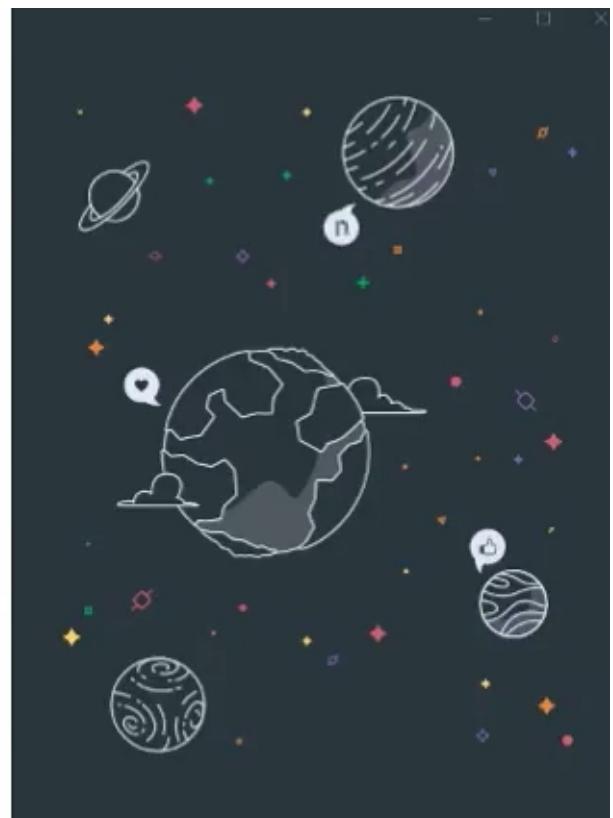
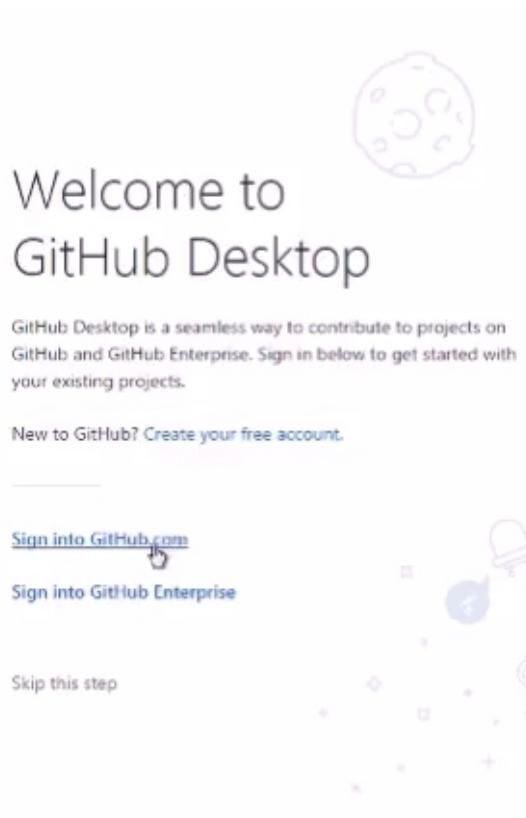


Please verify your email address

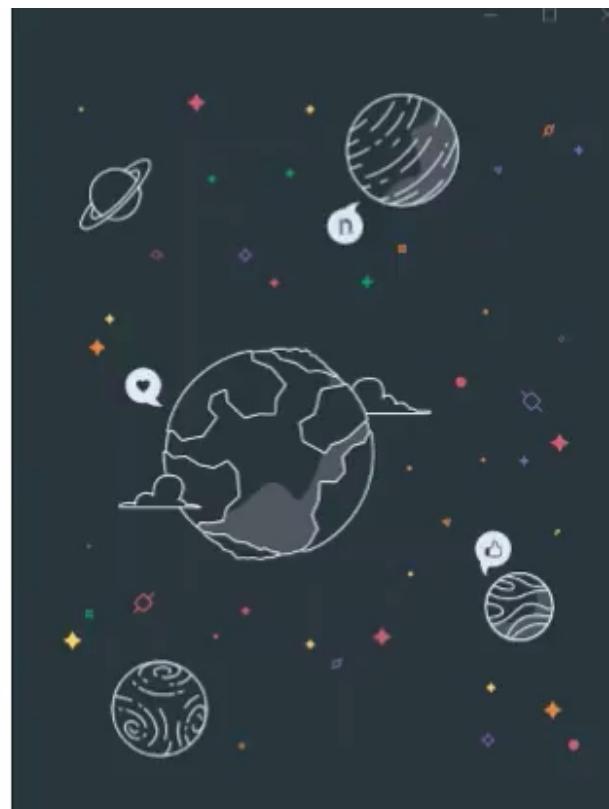
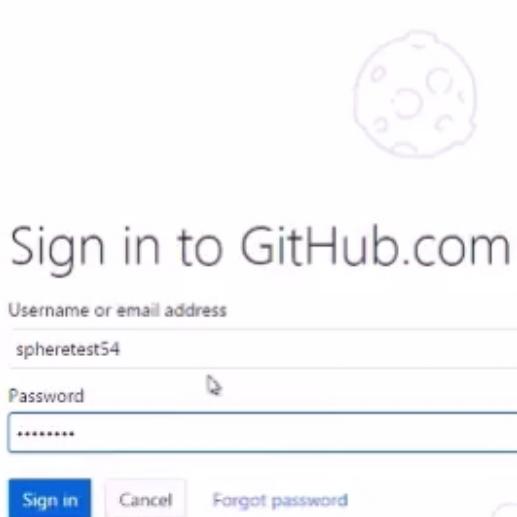
Before you can contribute on GitHub, we need you to verify your email address.
An email containing verification instructions was sent to spheretest54@7d2dmodlauncher.org.

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

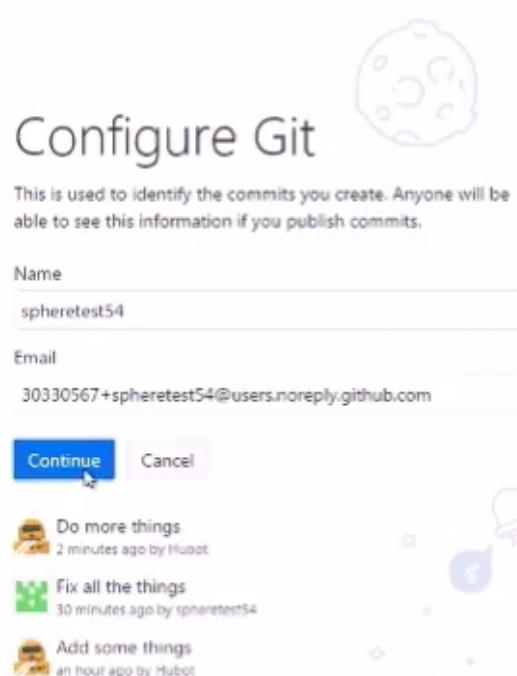
After verifying your email address, go back to the Github Desktop, and click on "Sign into Github.com"



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.

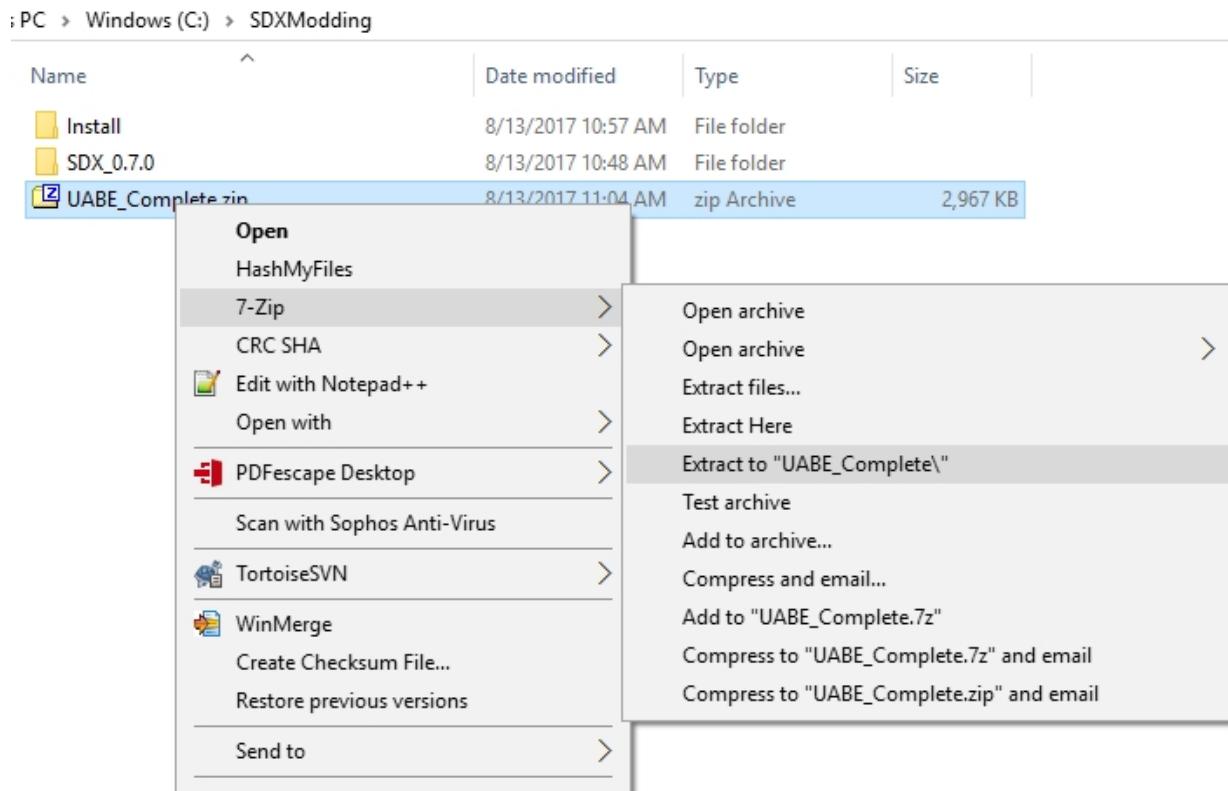
Download UABE tool from [here](#) or [here](#) (mirror).

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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Getting Set up

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

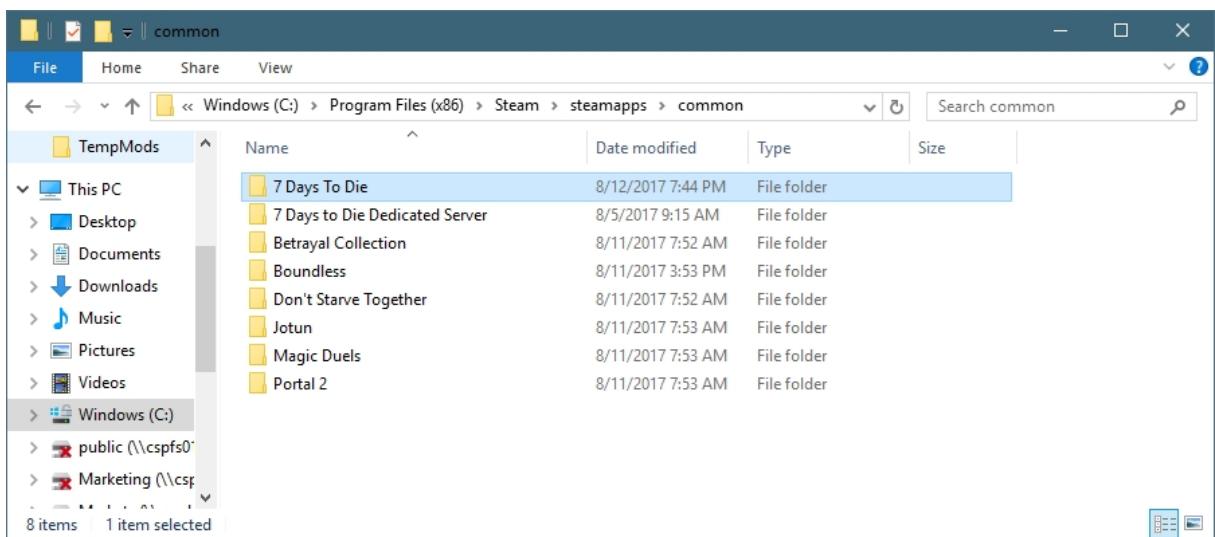
You'll want a 100% vanilla install of 7 Days To Die, without any mods or any additional changes.

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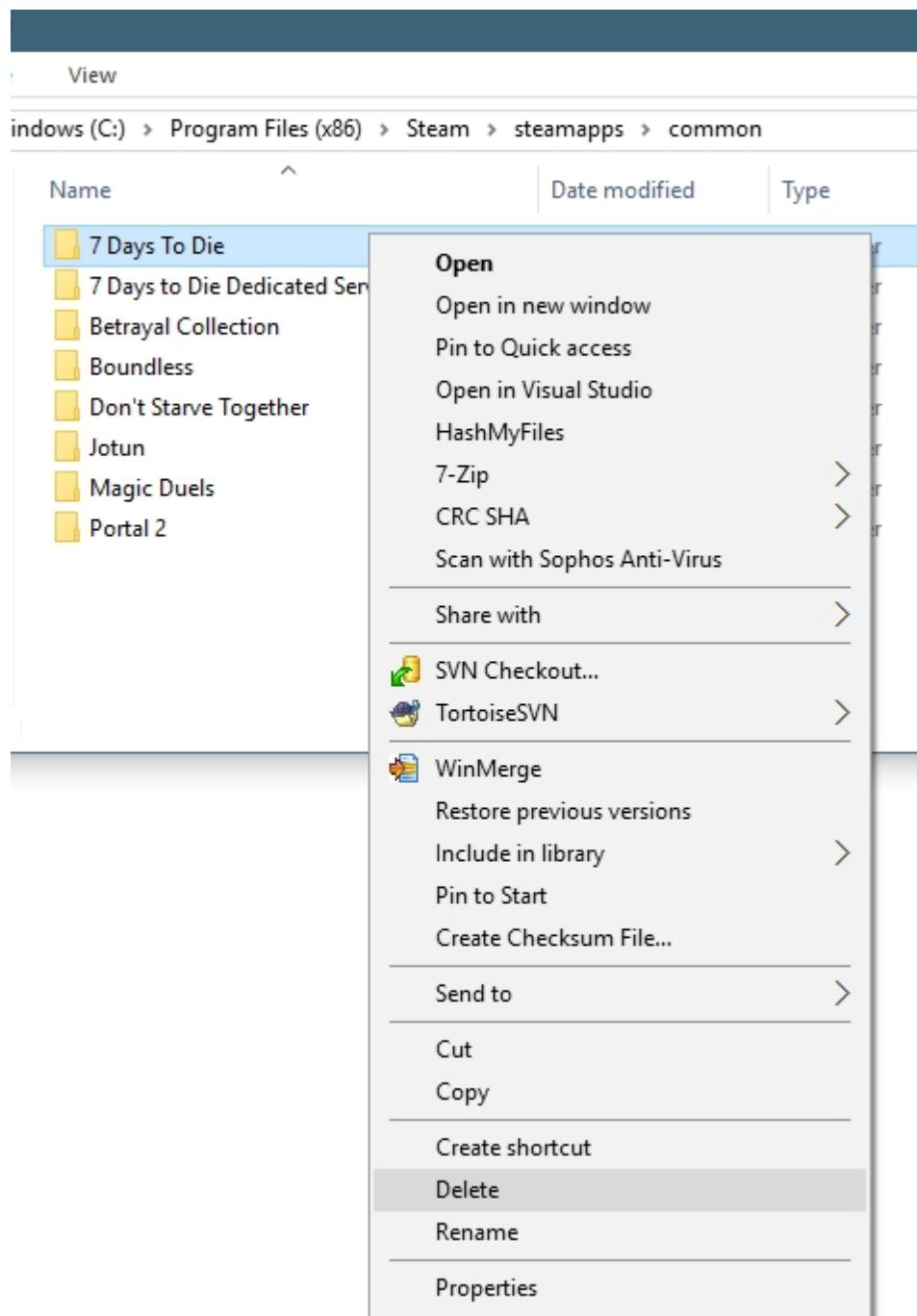
Starting off Clean

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

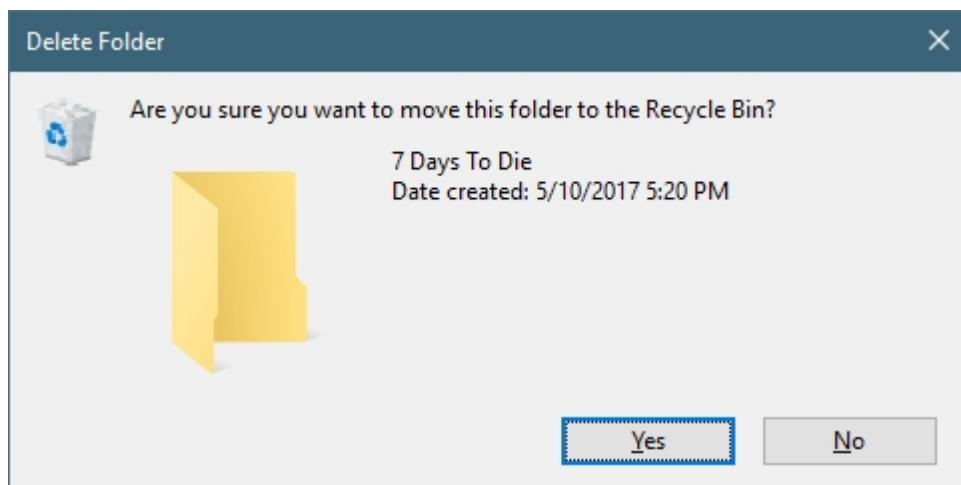
Using Windows explorer, navigate to your Steam Folder, which is by default "C:\Program Files (x86)\Steam\steamapps\common"



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



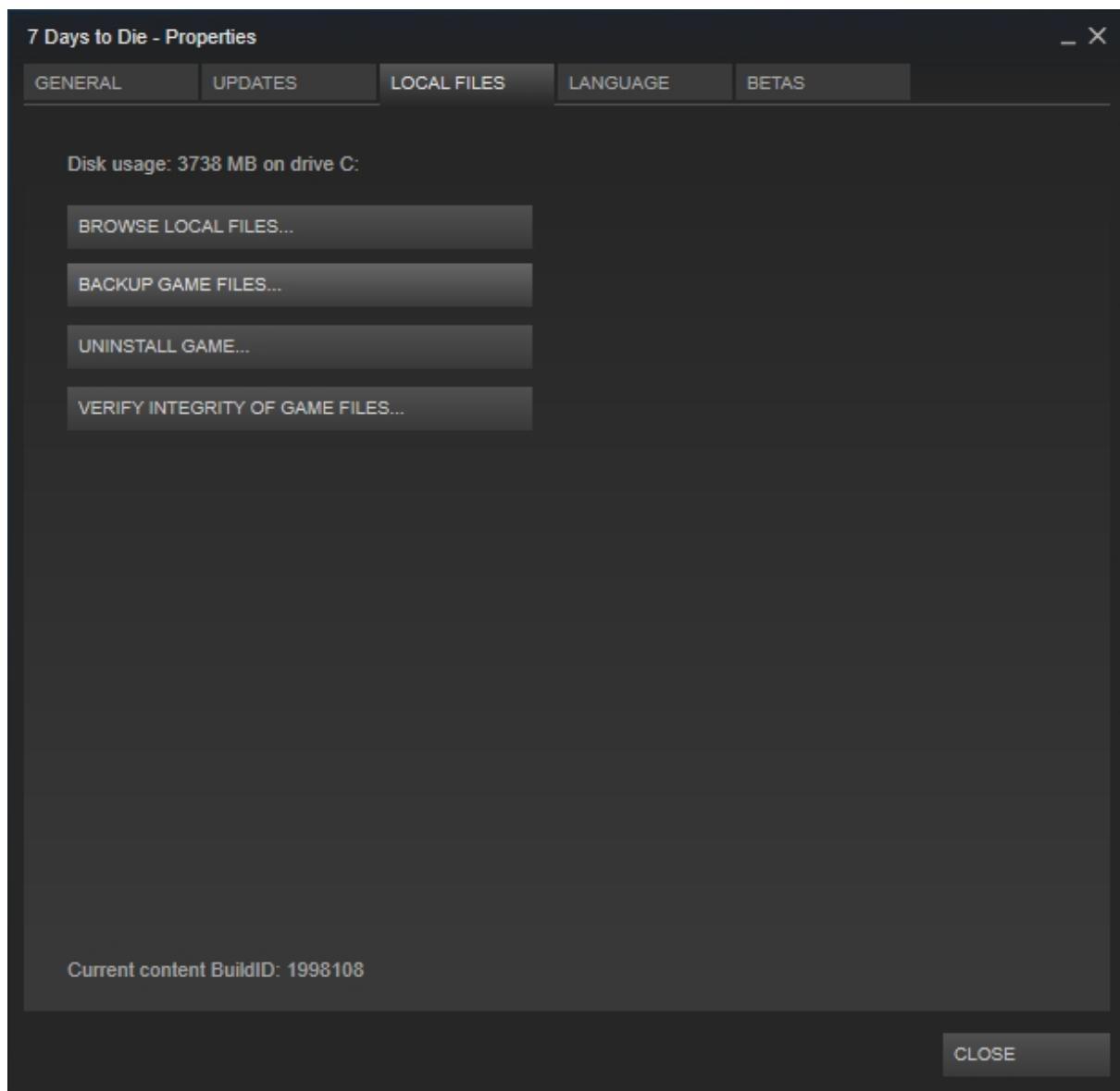
Confirm that you want to delete the "7 Days To Die" folder



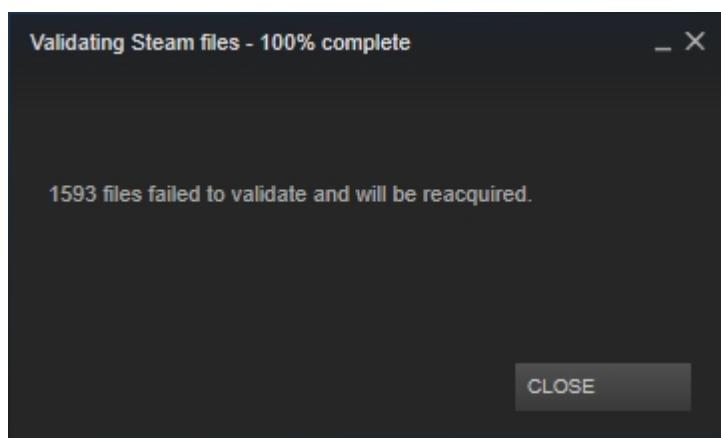
In Steam, right click on the "7 Days to Die", and click on Properties



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.

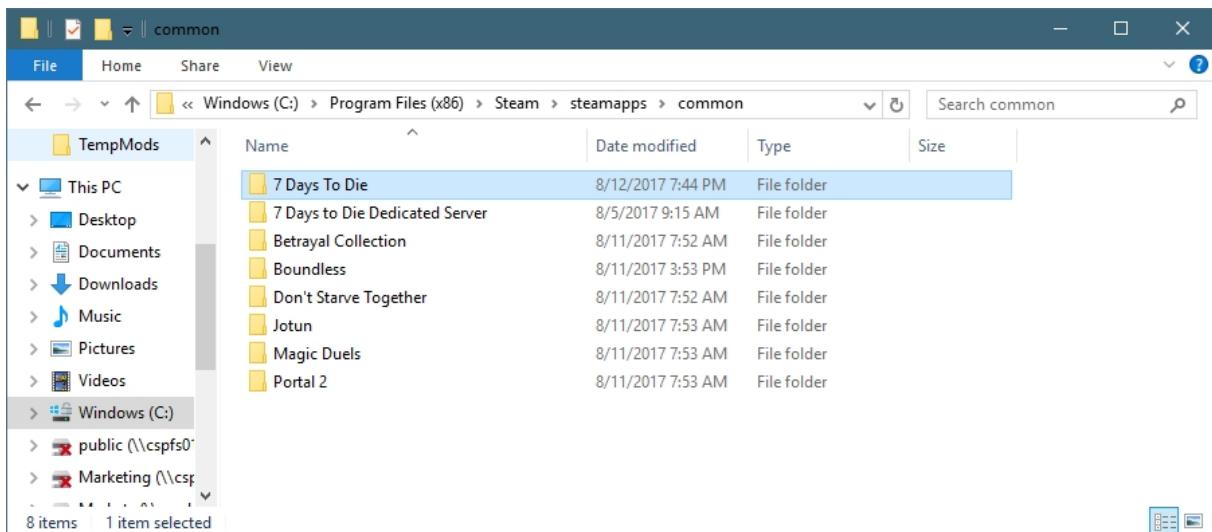
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Making a Clean Backup

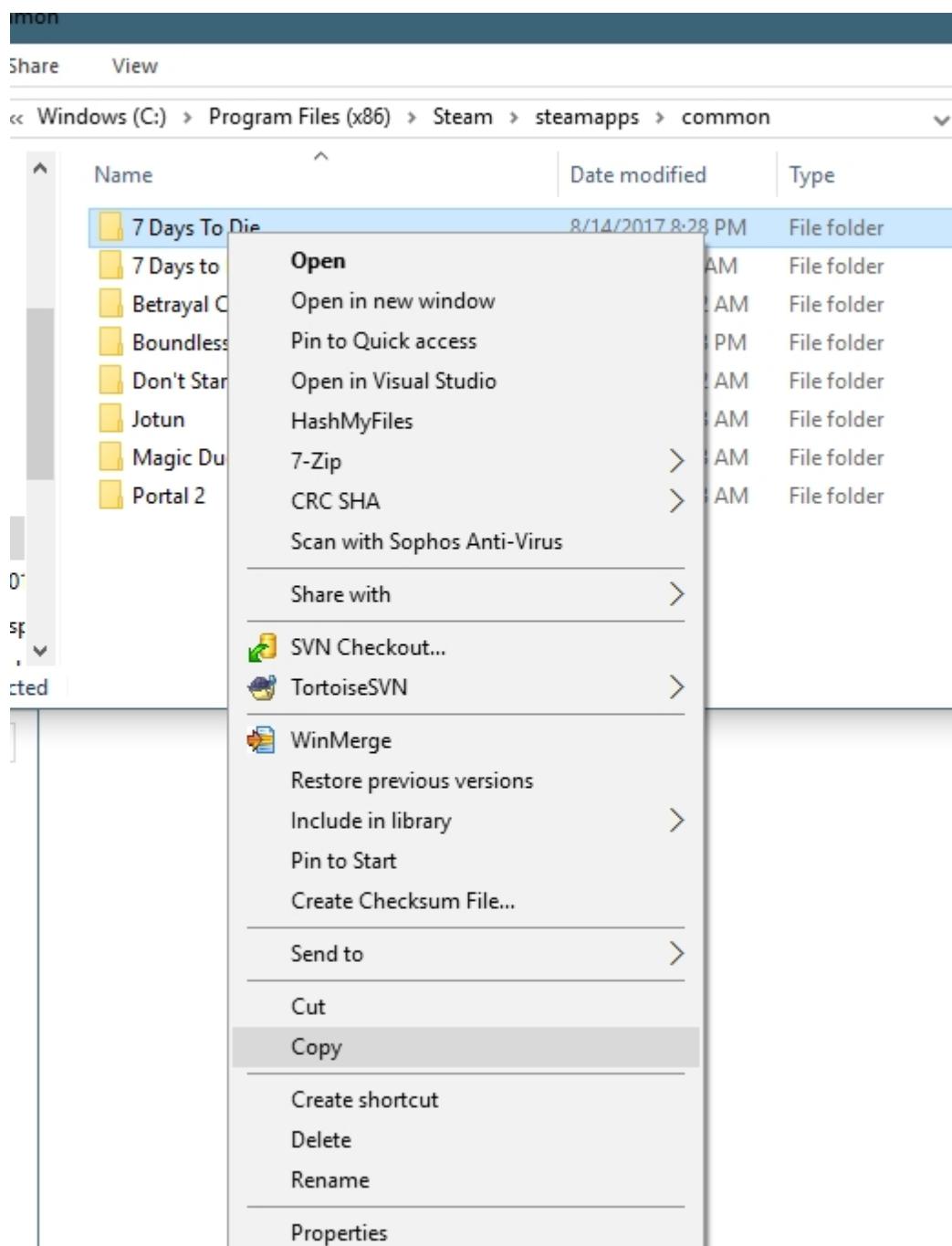
Once you have completed the "[Starting off Clean](#)" section, it's time to make two copies.

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.

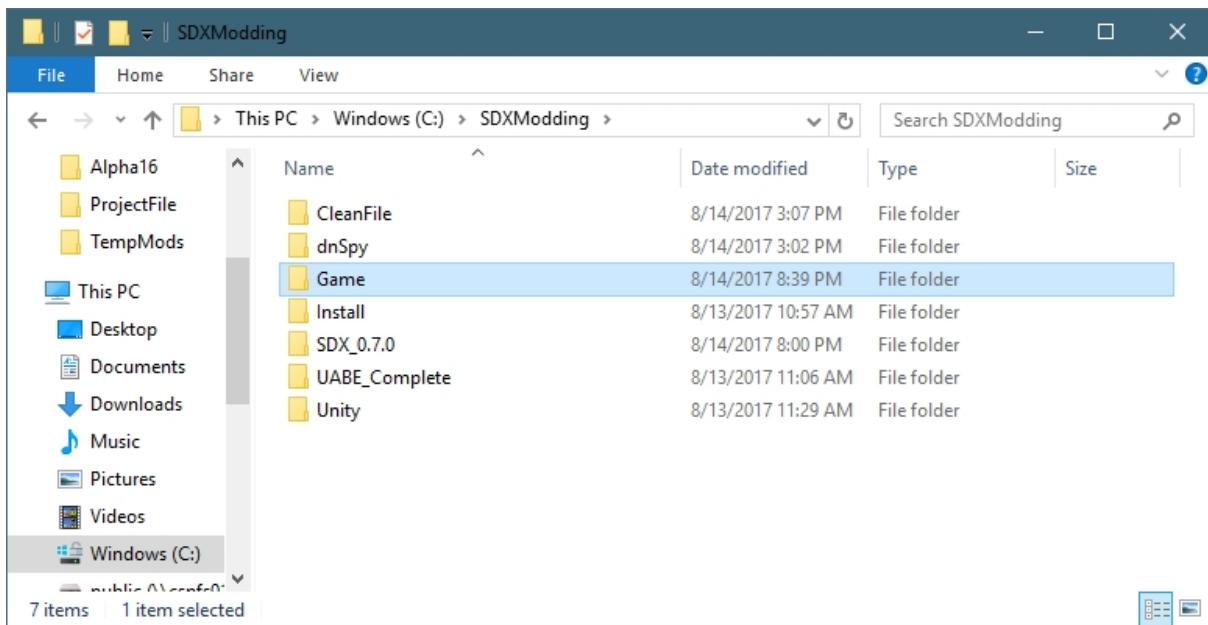
Using Windows explorer, navigate to your Steam Folder, which is by default "[C:\Program Files \(x86\)\Steam\steamapps\common](C:\Program Files (x86)\Steam\steamapps\common)"



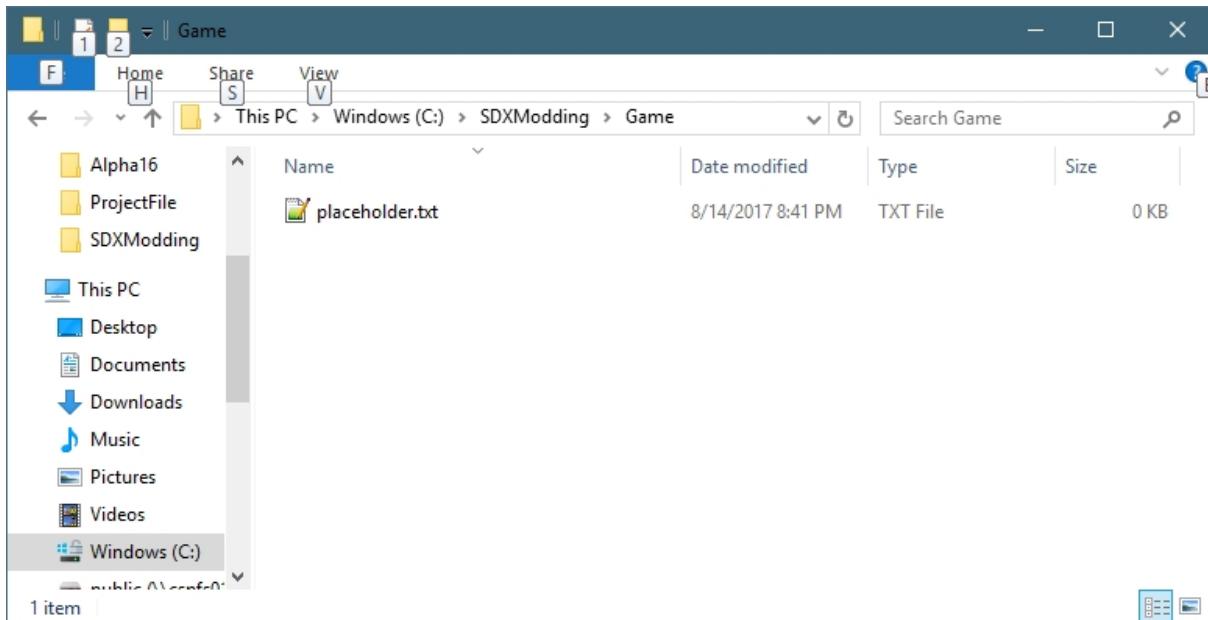
Right Click on the "[7 Days To Die](#)" folder, and select Copy



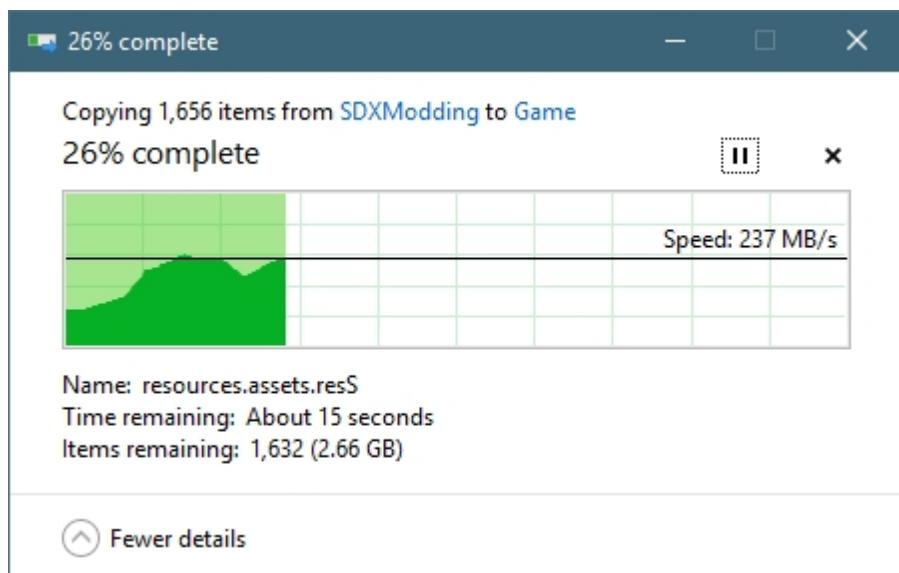
Open up an Explorer Window where you have installed the SDXModding, such as C:\SDXModding\Game\



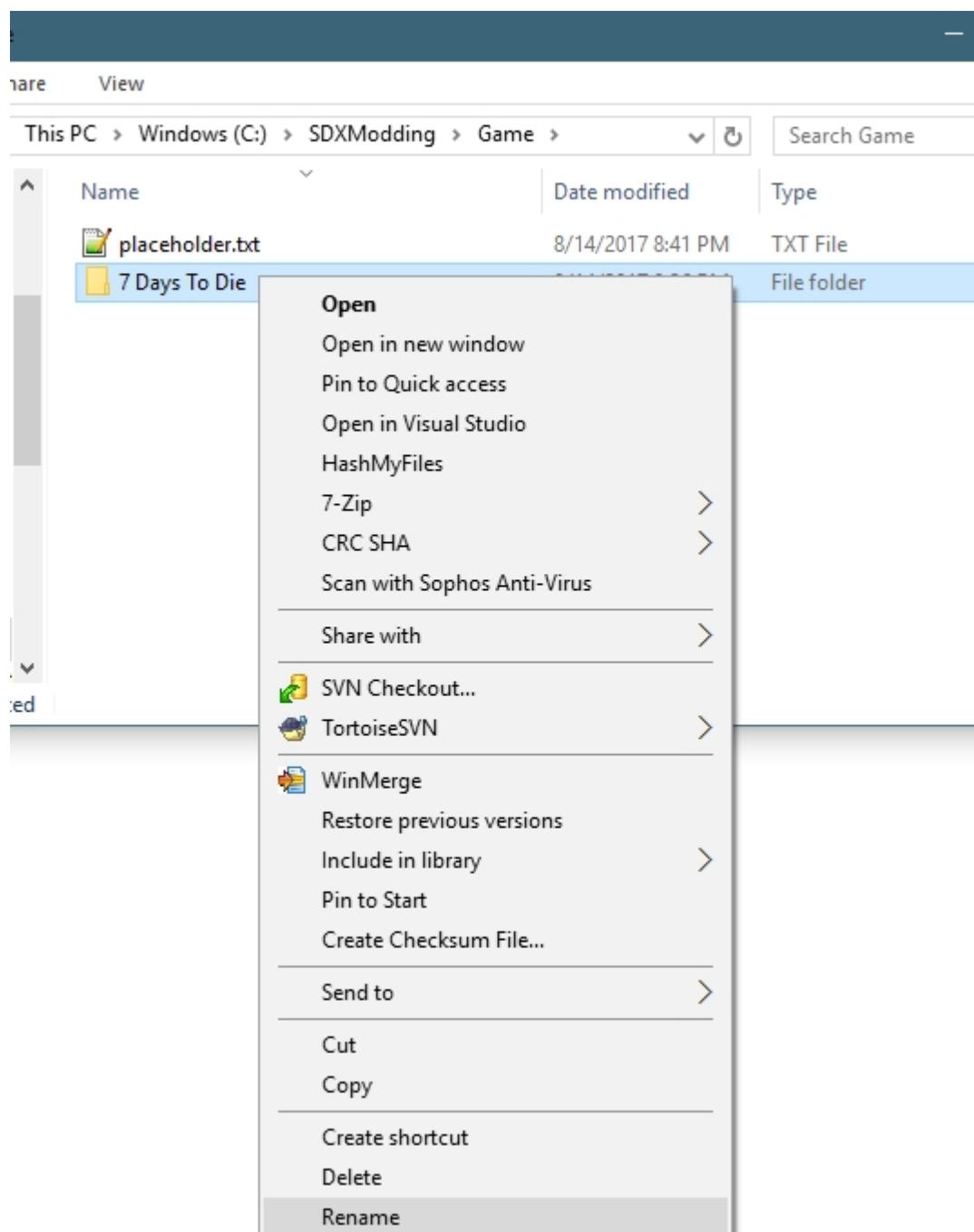
Double Click to open the "Game" Folder.



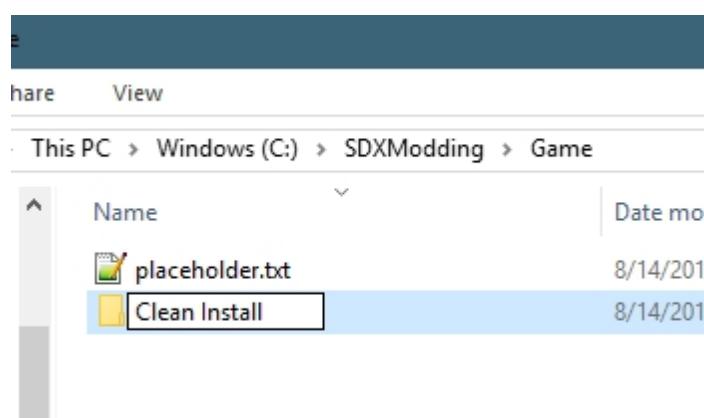
Right click on the folder, and select "Paste". It will then make a copy of the game:



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"



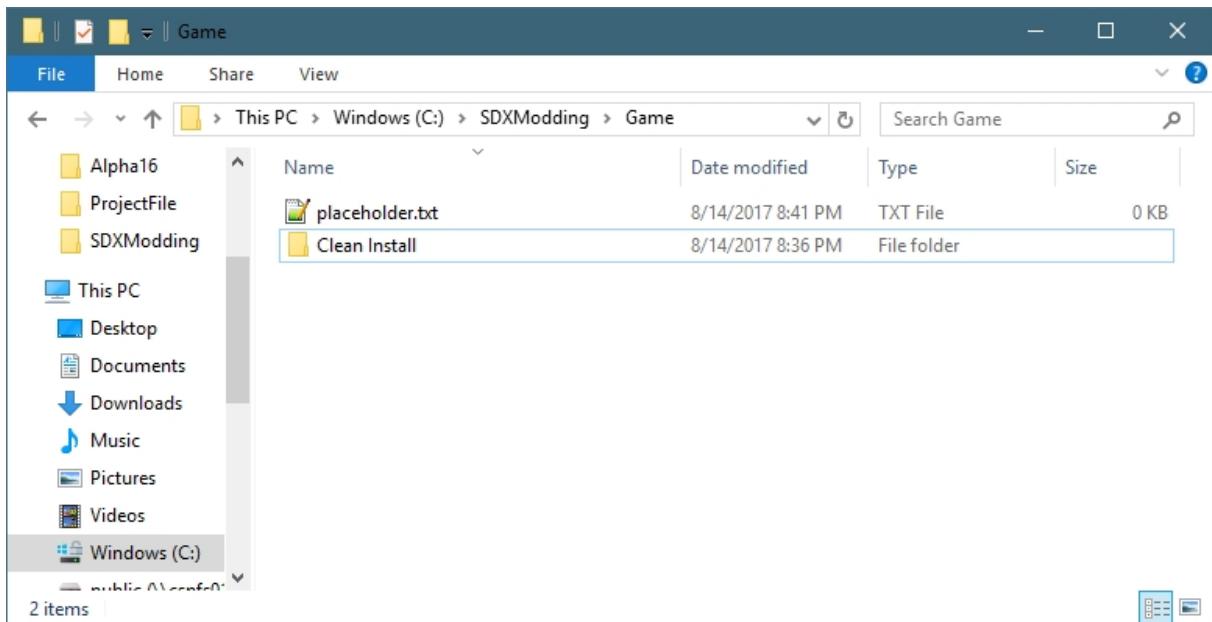
You now have a perfectly preserved copy of the game.

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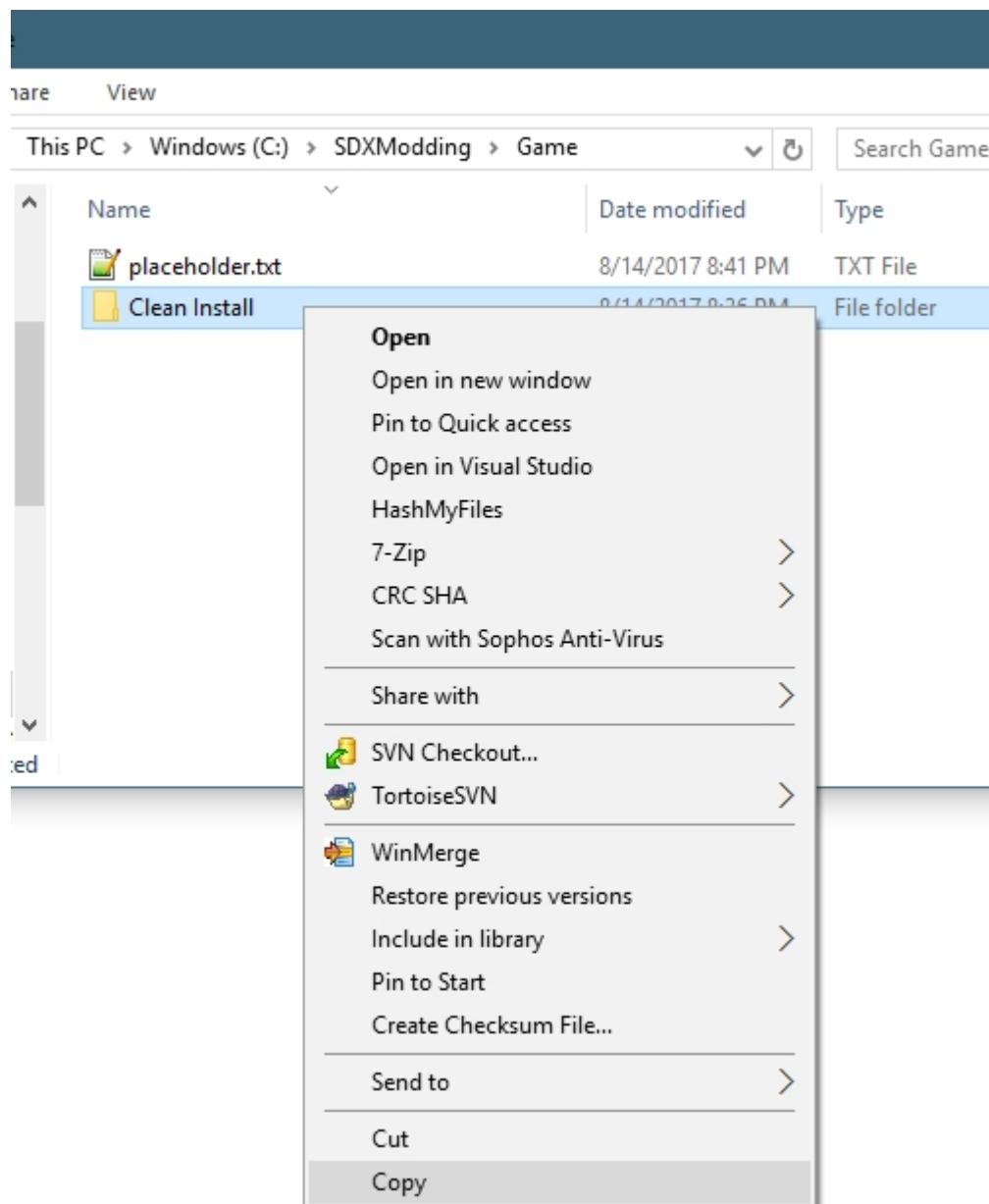
Making a Working Folder

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.

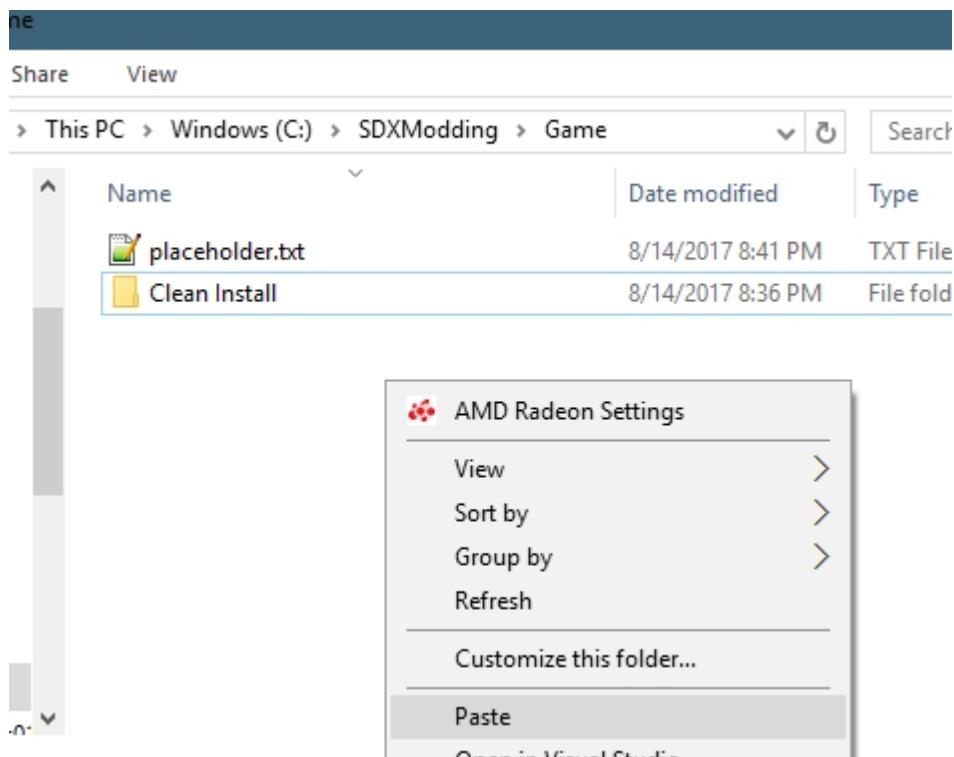
Using Explorer, navigate to your "C:\SDXModding\Game" Folder.



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

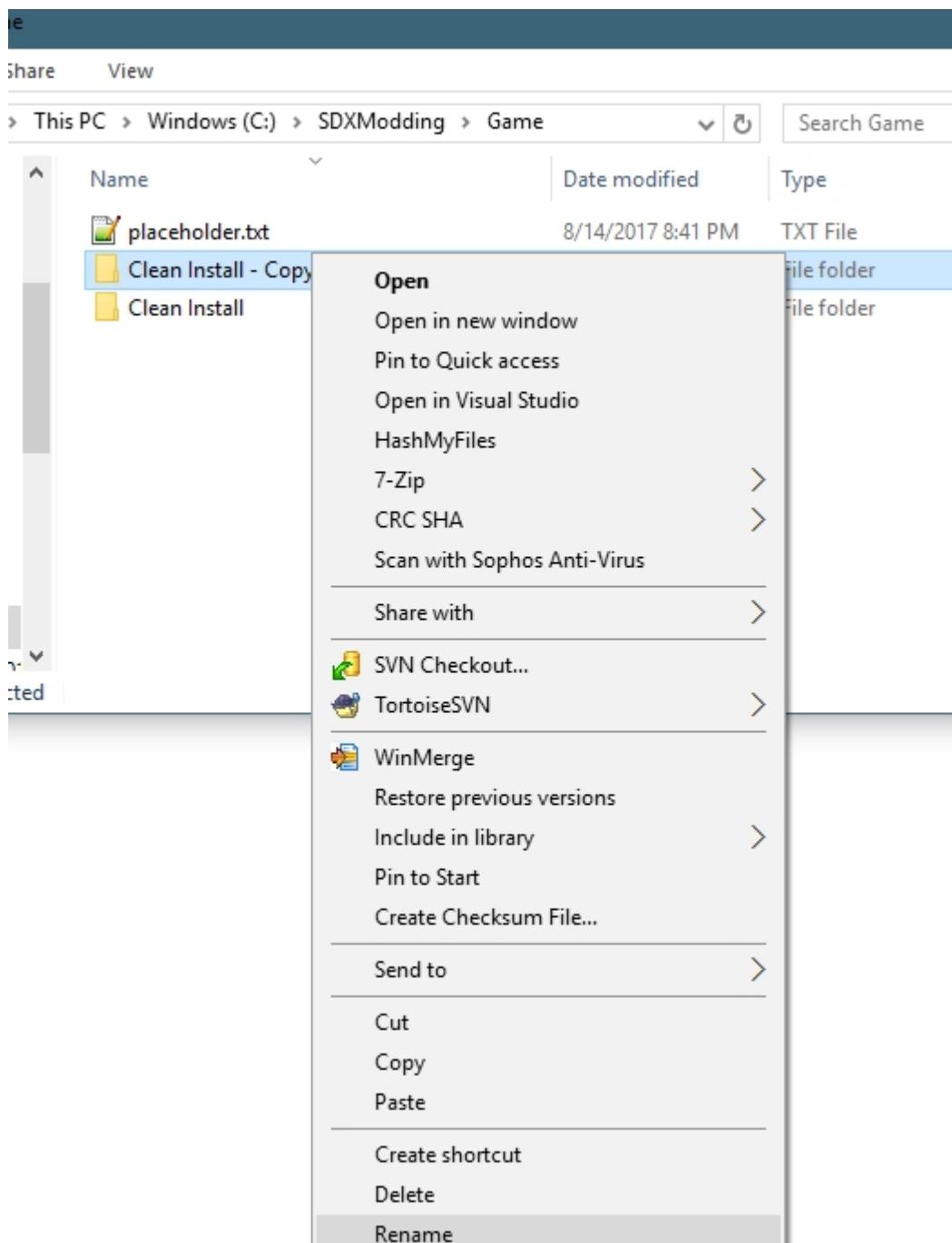


Right click on the Explorer Window again, and select "Paste"

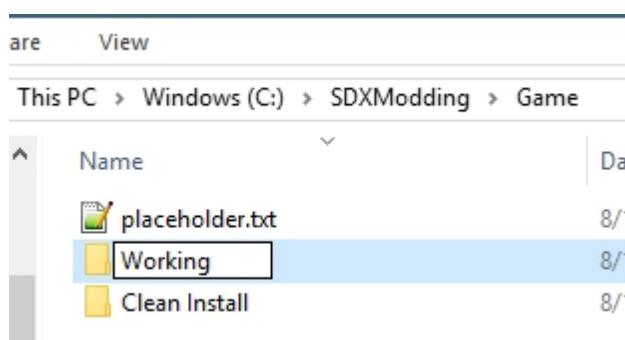


This will make a new copy called "Clean Install - Copy".

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



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.

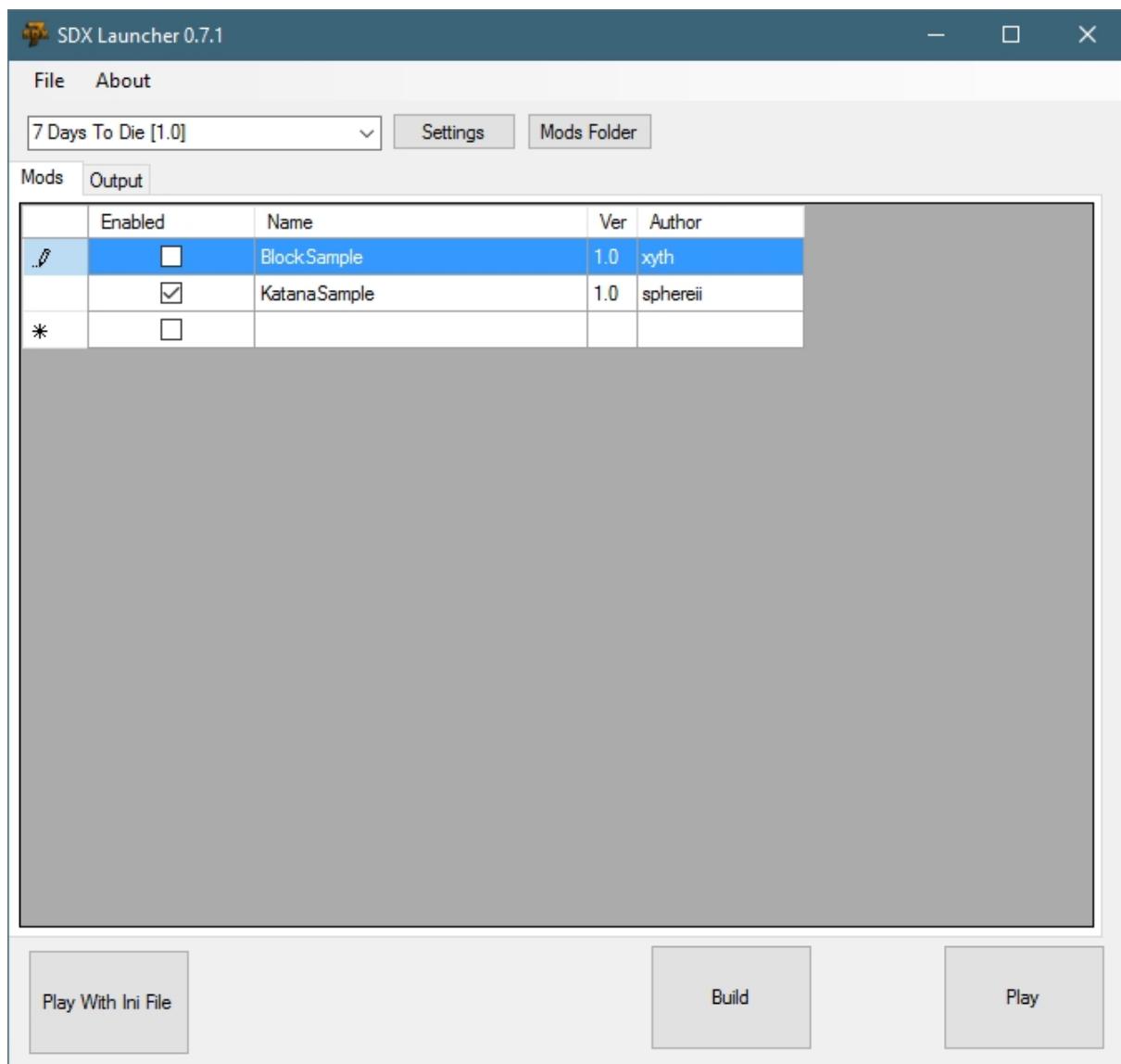
Finally, when you are ready, we'll add an actual item into the game, using the supplied Katana Mod.

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Building for the first time

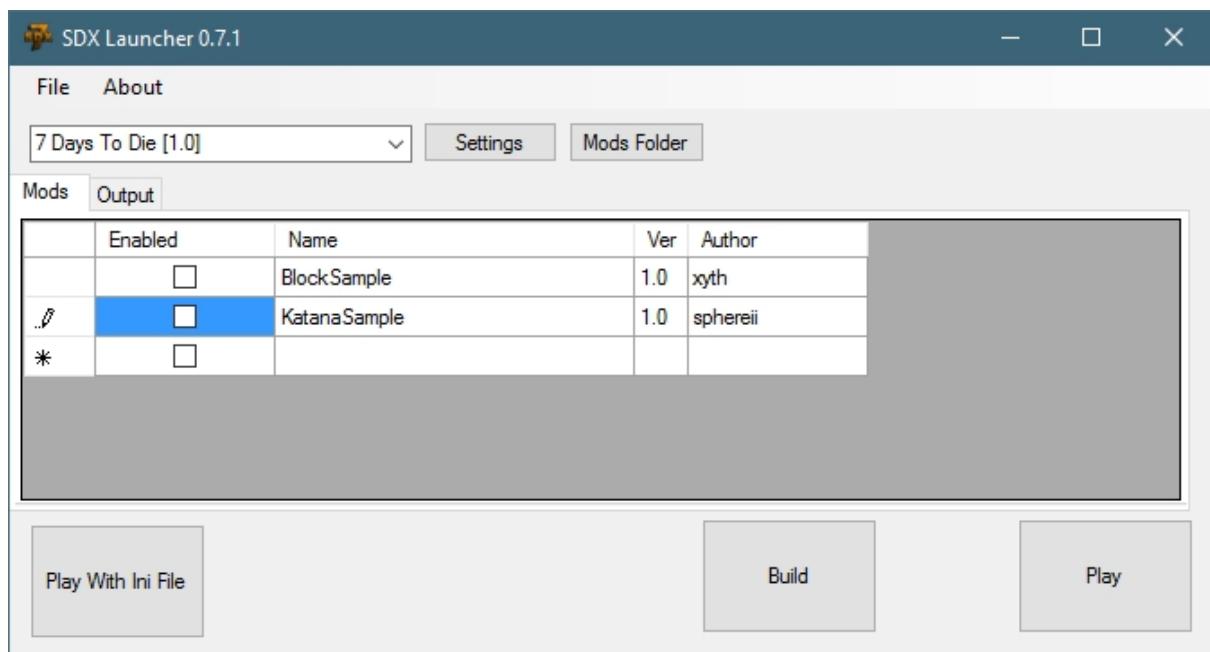
Once you have completed all the steps in the [Getting Started](#) section, it's time to trigger your first SDX compile!

Start the SDX Launcher



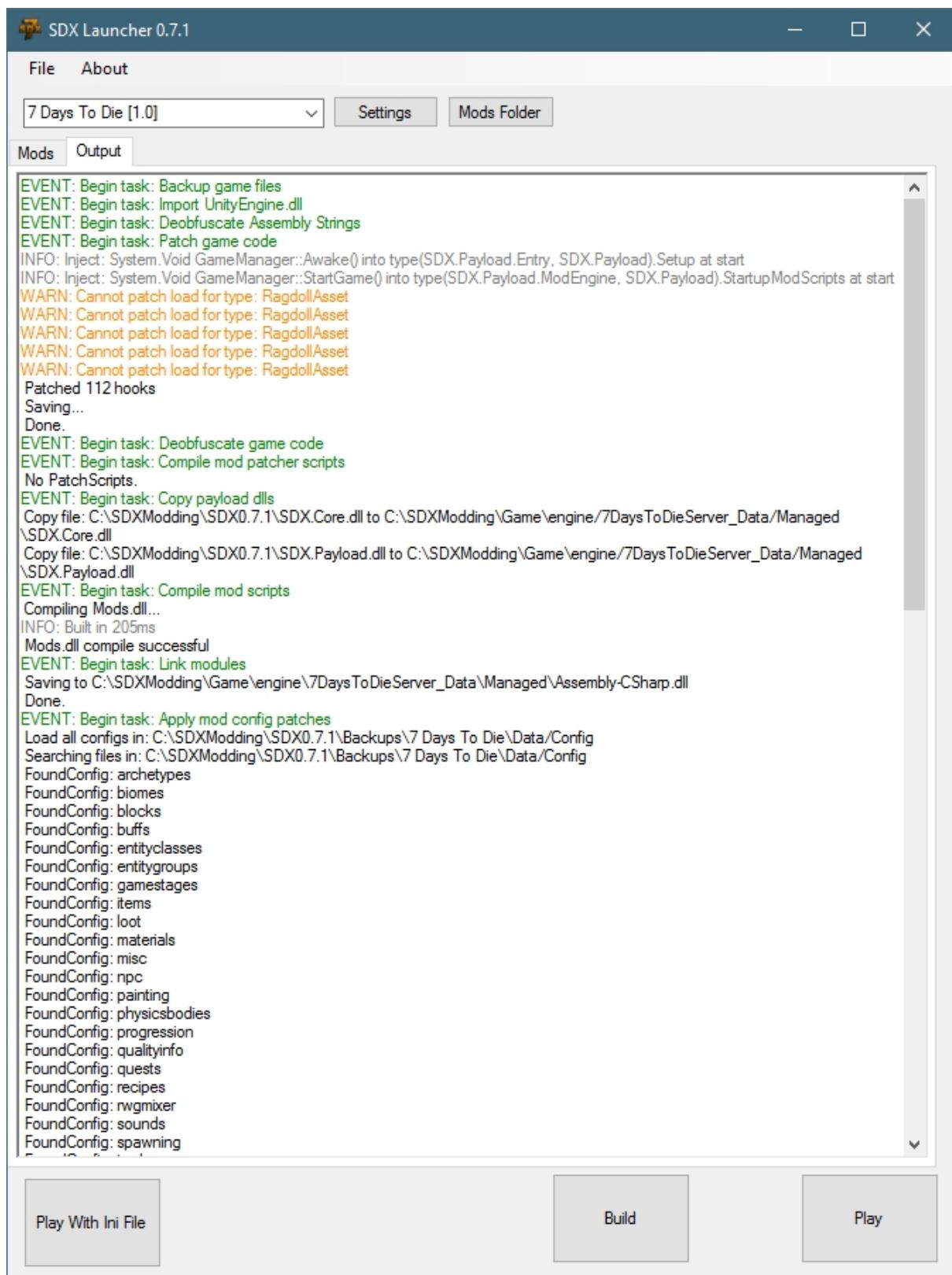
For the first compile, we want to disable all the available mods, to make sure everything is set up correctly.

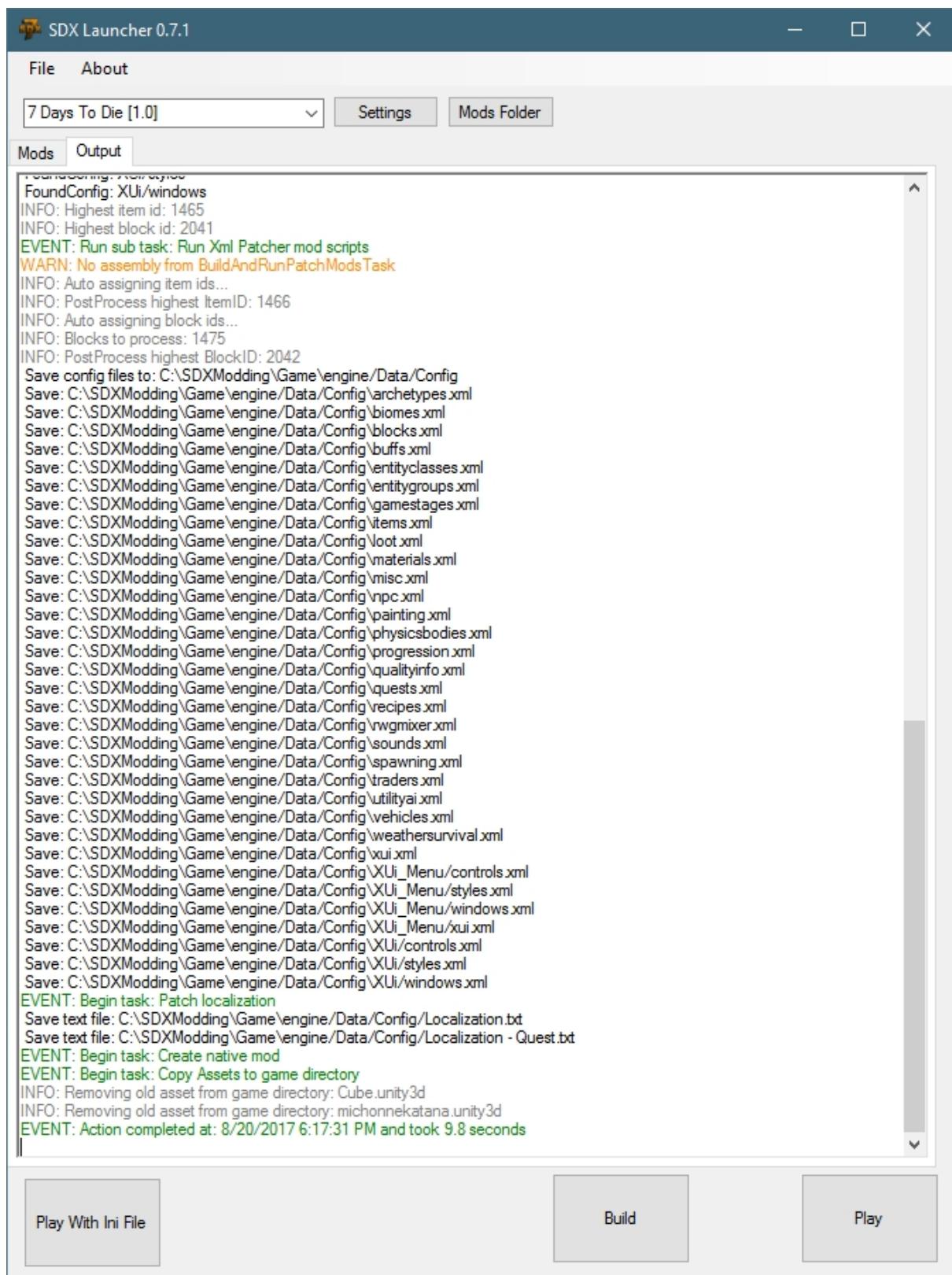
For each Mod listed in the "Mods" tab, click on the checkmark to disable it.



Click on the "Build" Button.

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

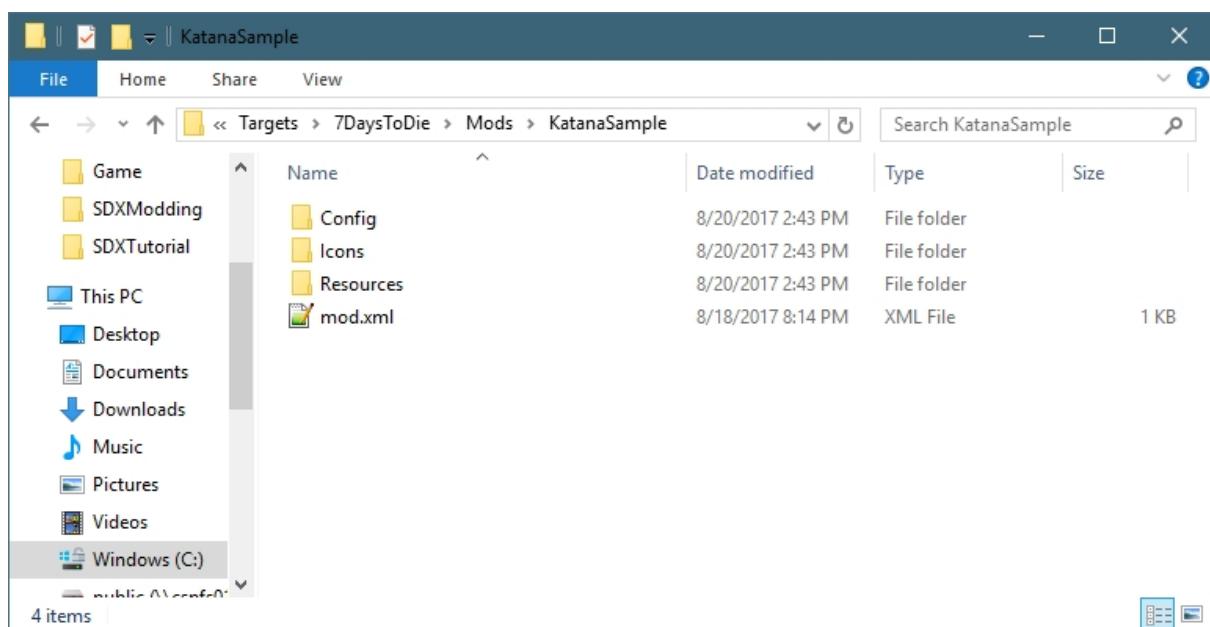




The Katana Mod



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">
```

```

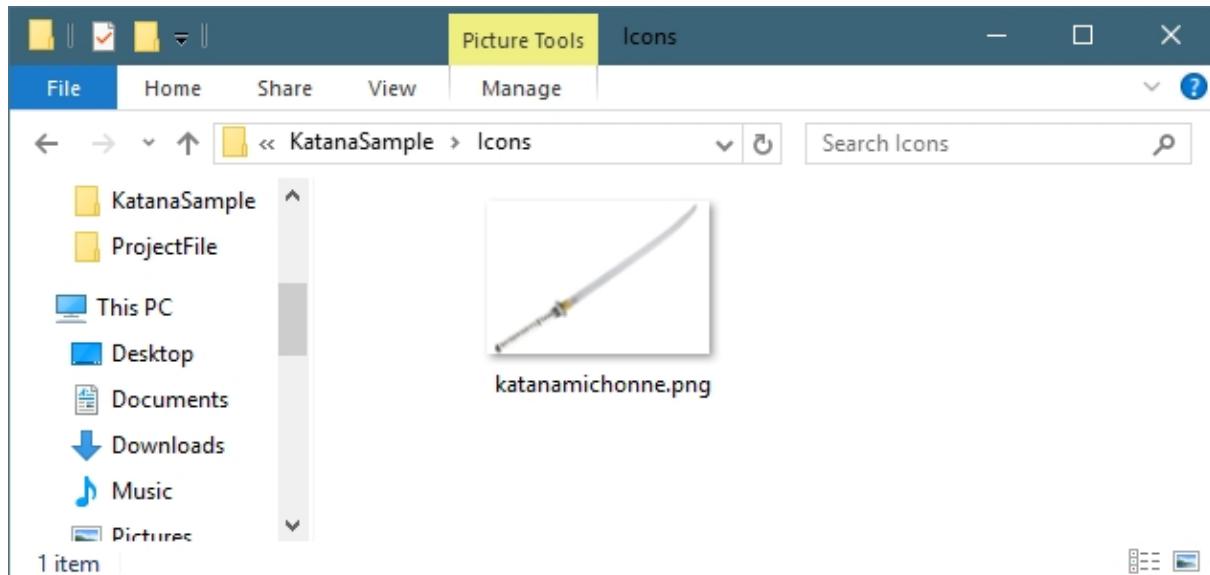
        <!-- This tells SDX to add the following Items to the bottom
of the Items list -->
        <append xpath="/items">

            <!-- 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

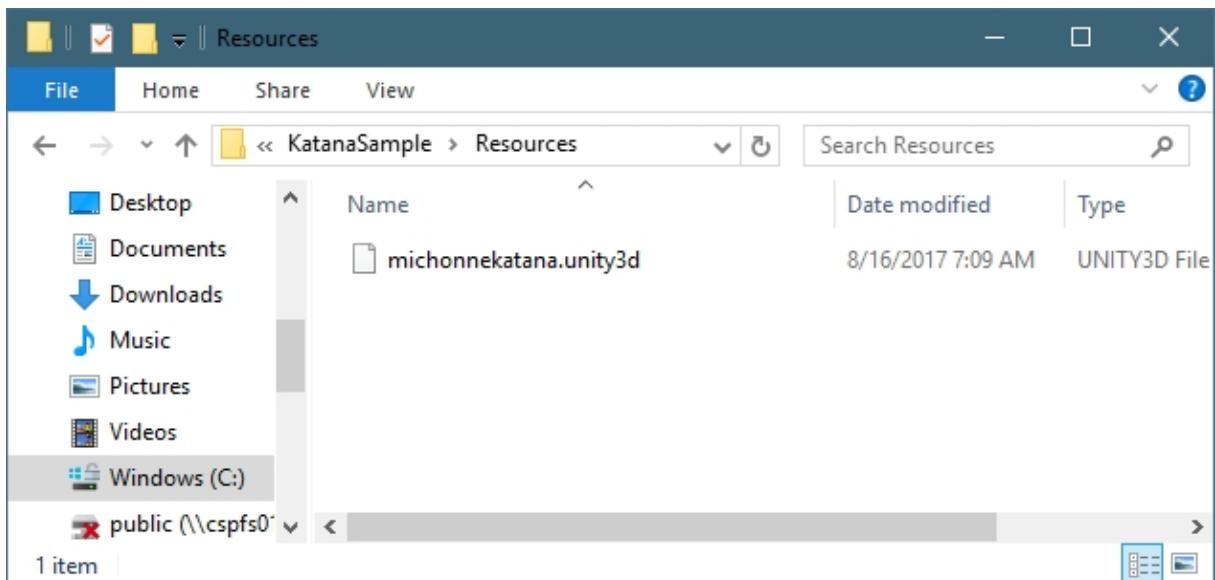
The Icons folder contains the item's inventory icons for the mod.



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>

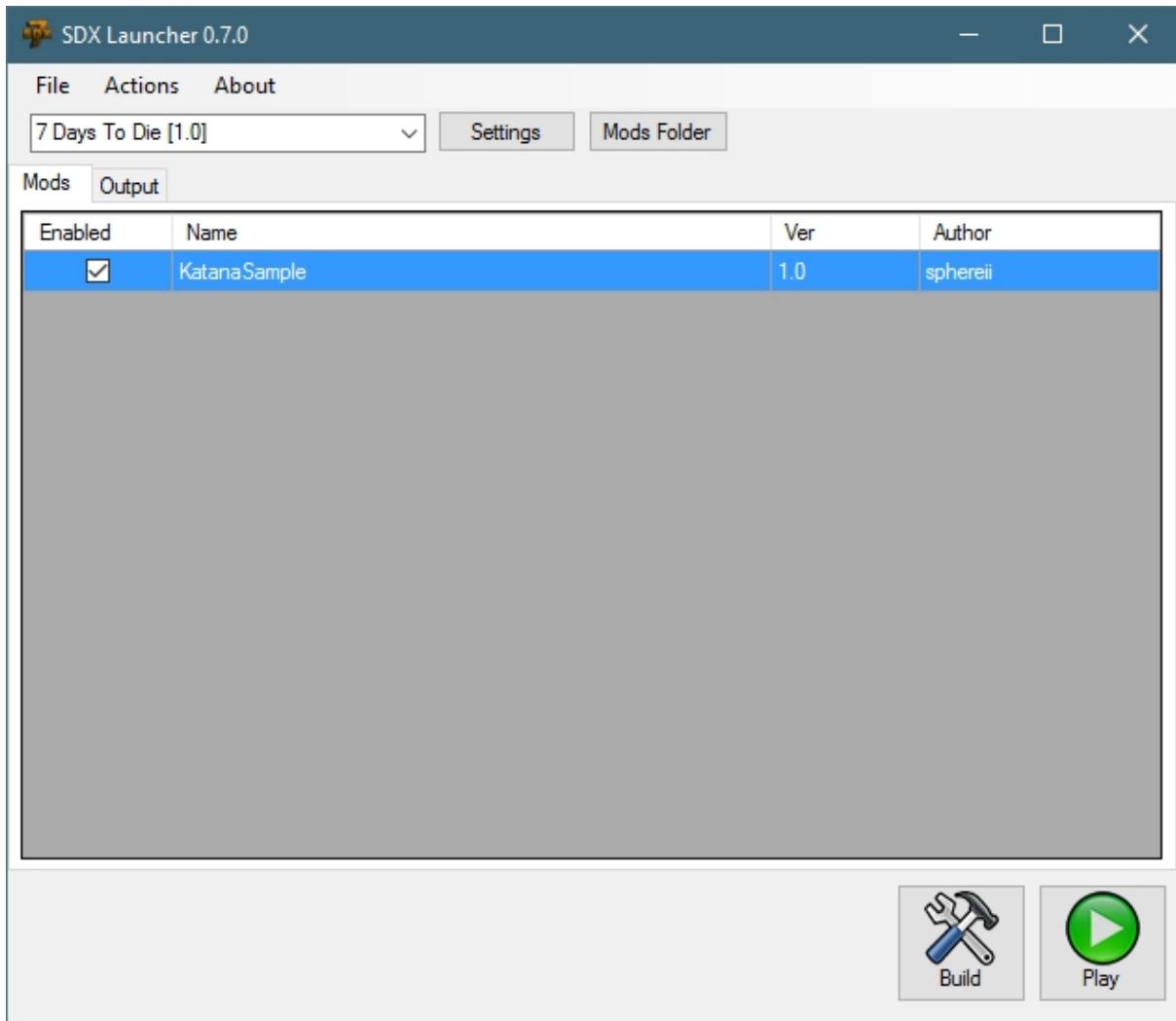
    <!-- This references any config files that SDX needs to merge into
your files -->
    <config_mods>
        <import file="Config\Katana.xml" />
    </config_mods>
</mod>
```

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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!

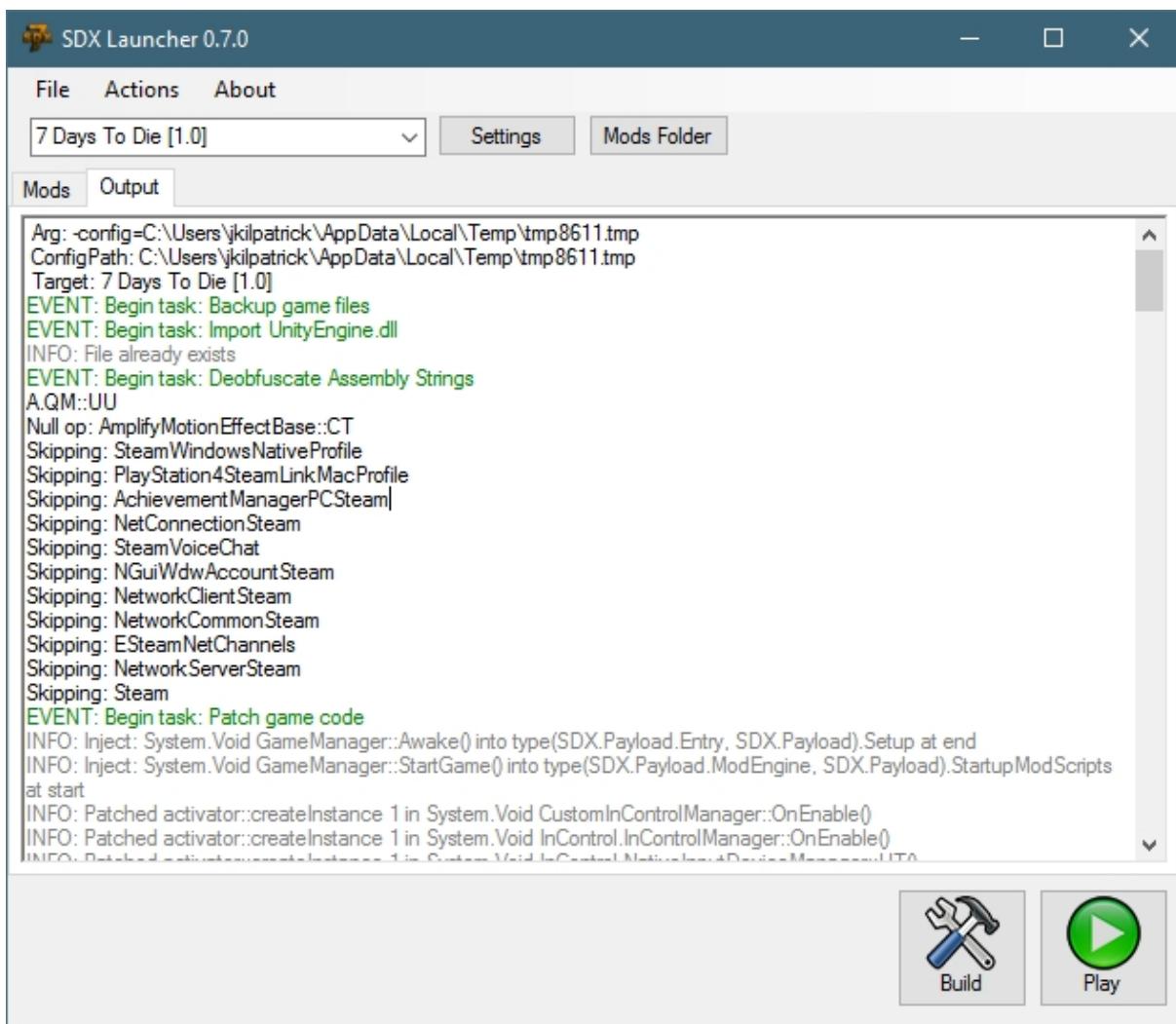
Click on the white square to enable the KatanaSample to enable it.



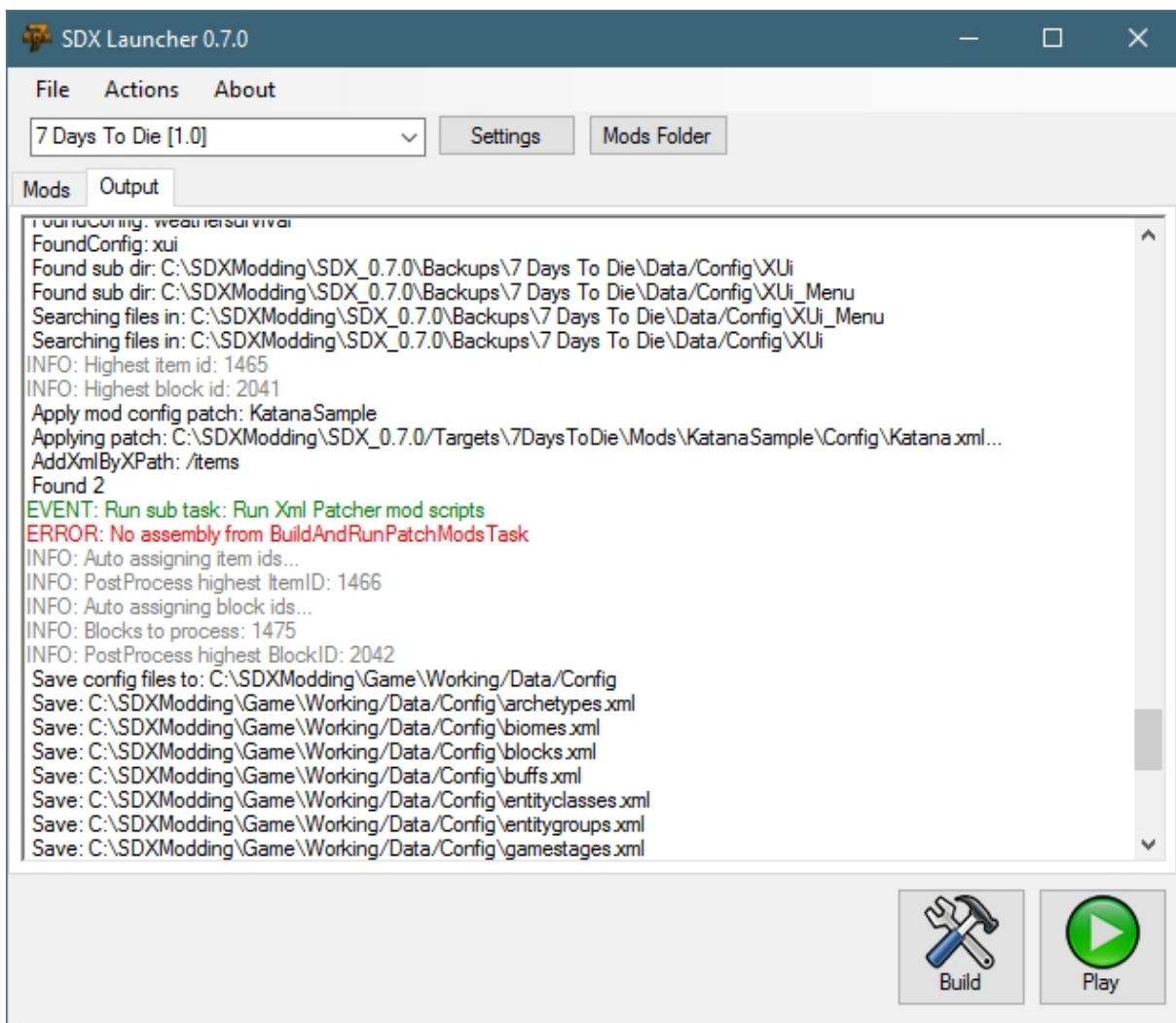
And click on Build.

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.

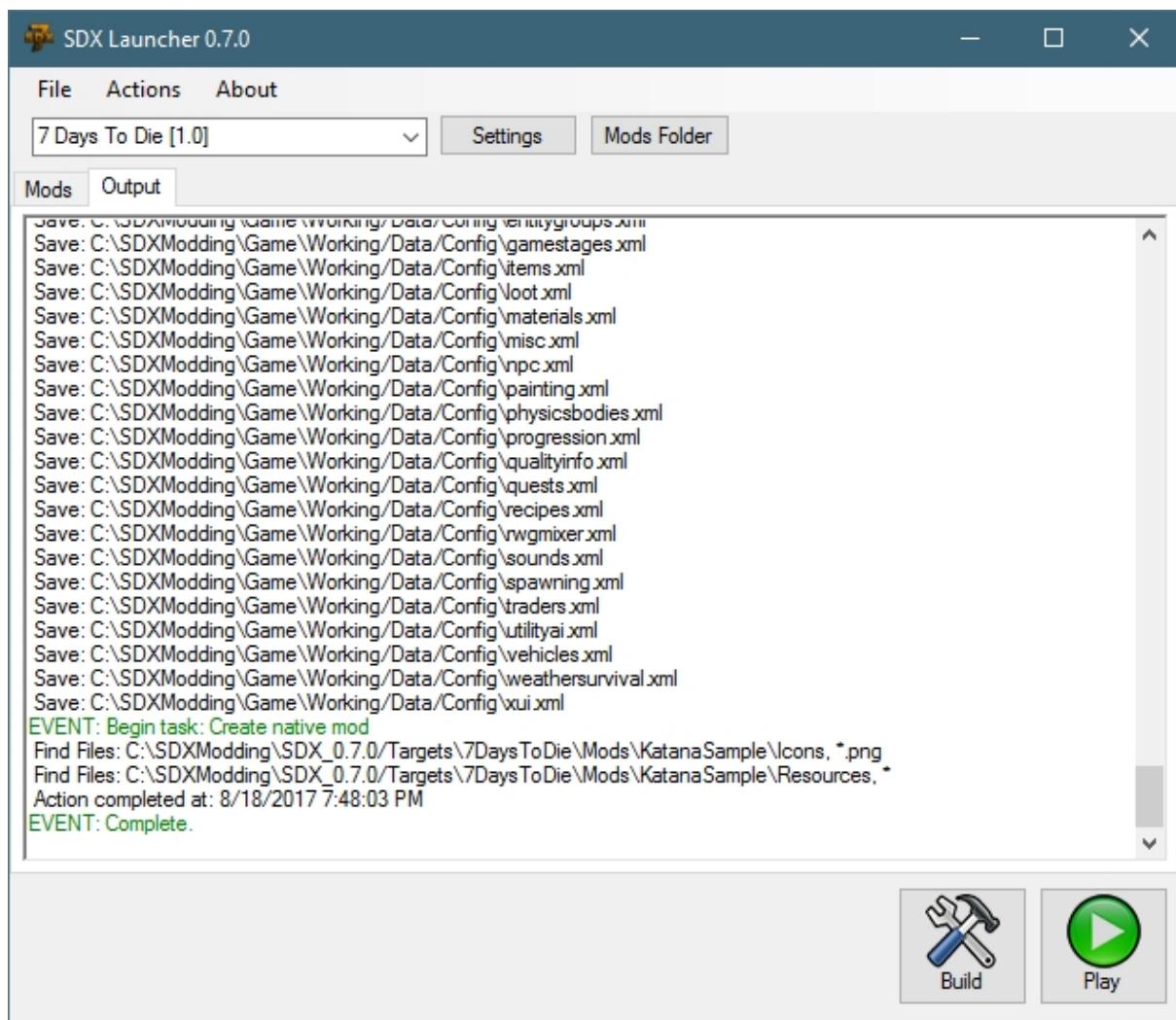


As it builds, you may see the following error:



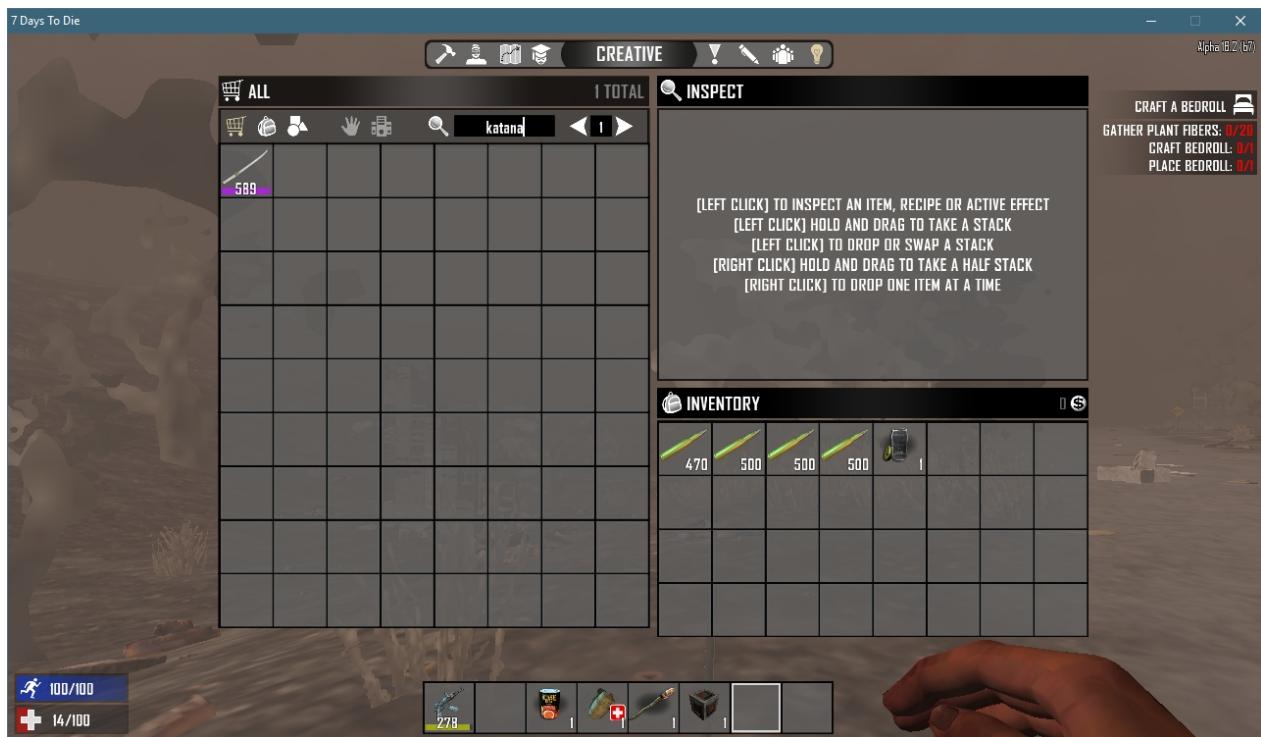
In this exercise, the "ERROR: No assembly from BuildAndRunPatchModsTask" is a not a concern, since there is no Mods scripts yet enabled.

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:

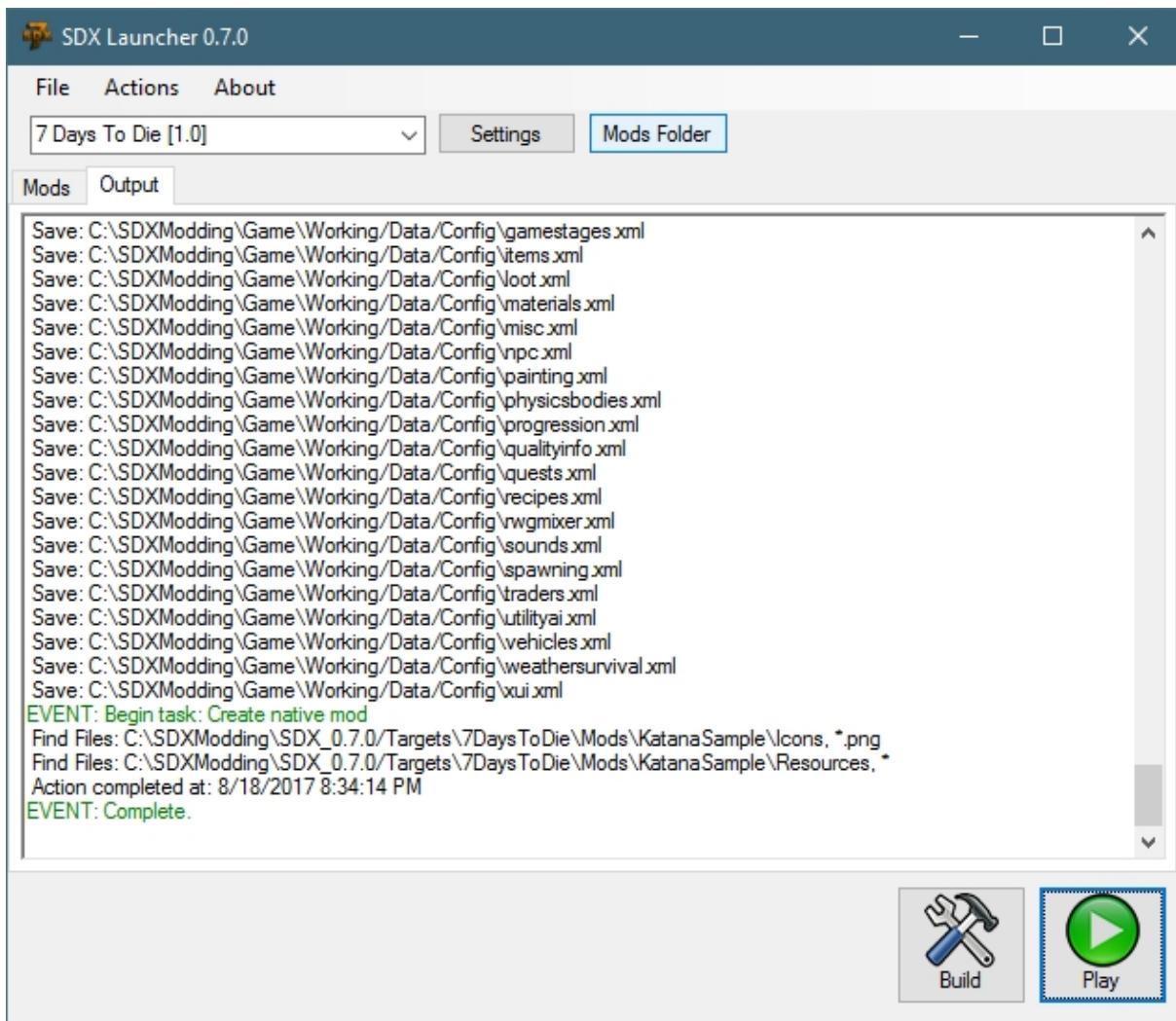


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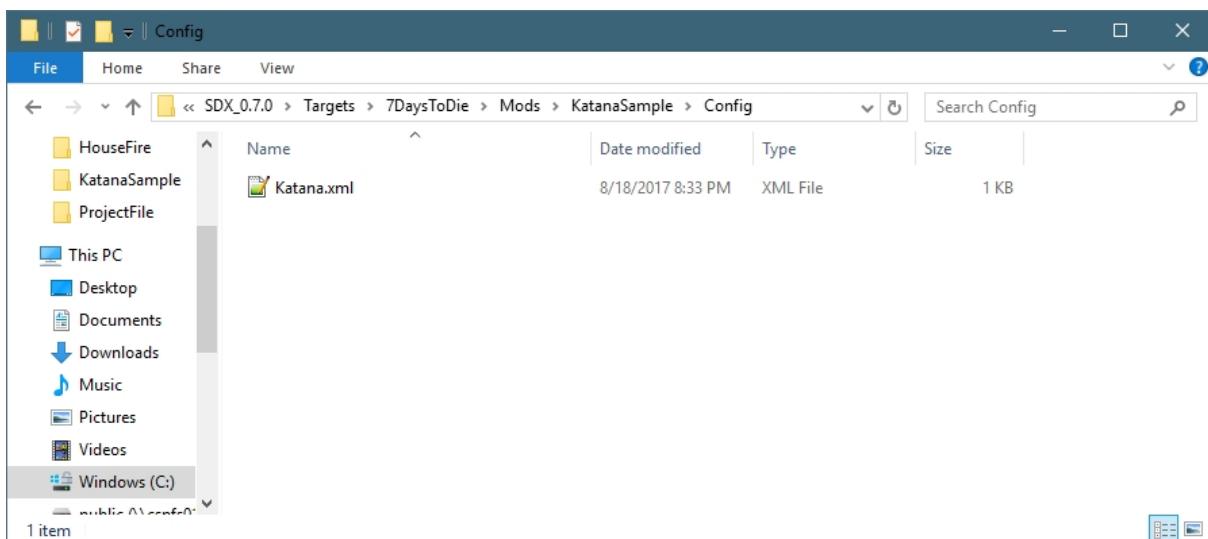
Adding a Recipe for the Katana Mod

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

```

<!-- 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>

```

The new file will look like this:

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>
</configs>

```

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

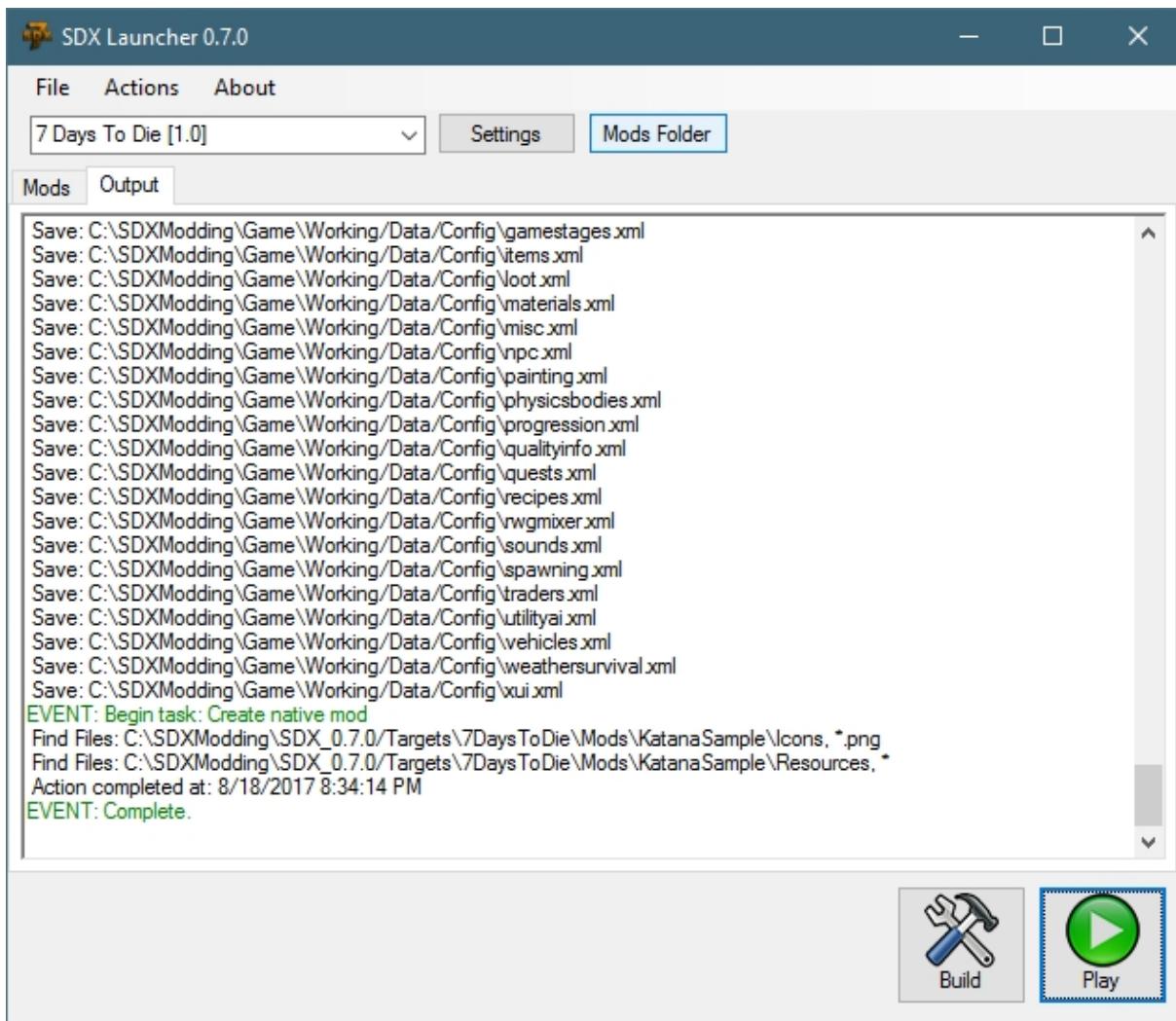


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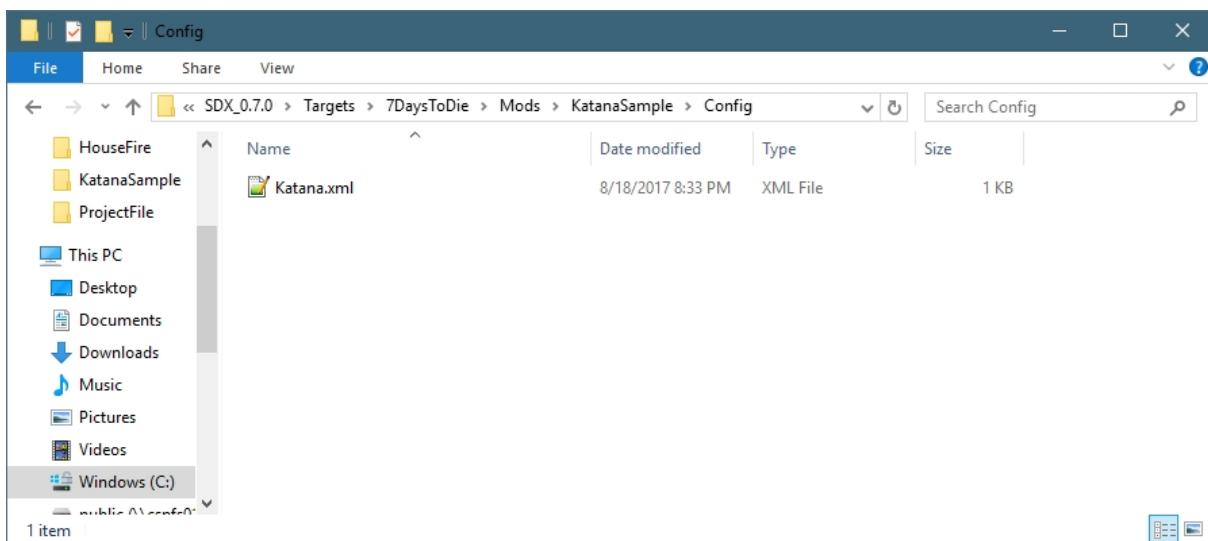
Adding Katana to a Loot Group

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">

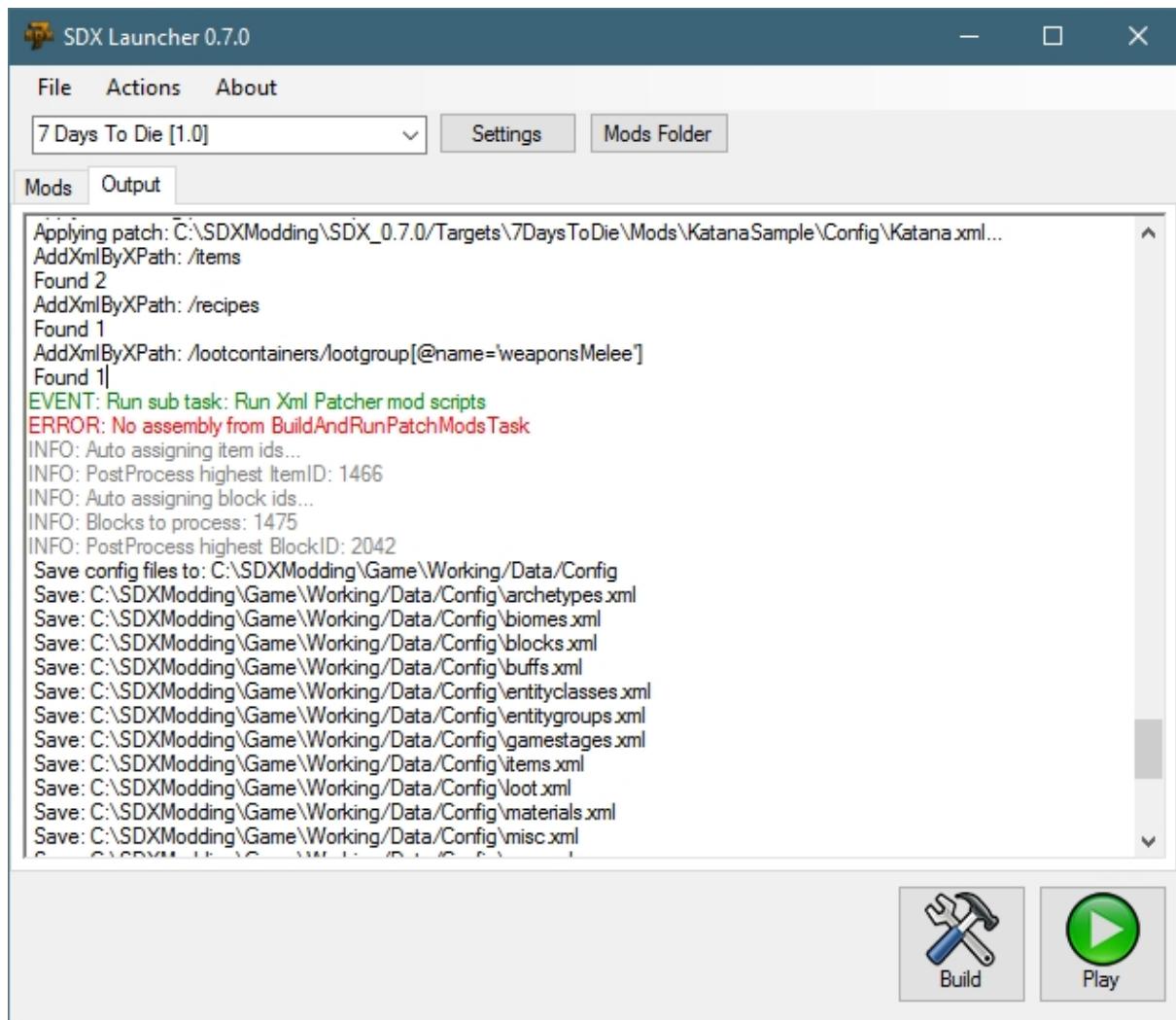
            <!-- New item will be Katana -->
            <item id="" name="katanamichonne">
                <!-- Extend it from the machete, but add the custom
mesh -->
                <property name="Extends" value="machete"/>
                <property name="Meshfile" value="#michonnekatana?
katana" />
       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

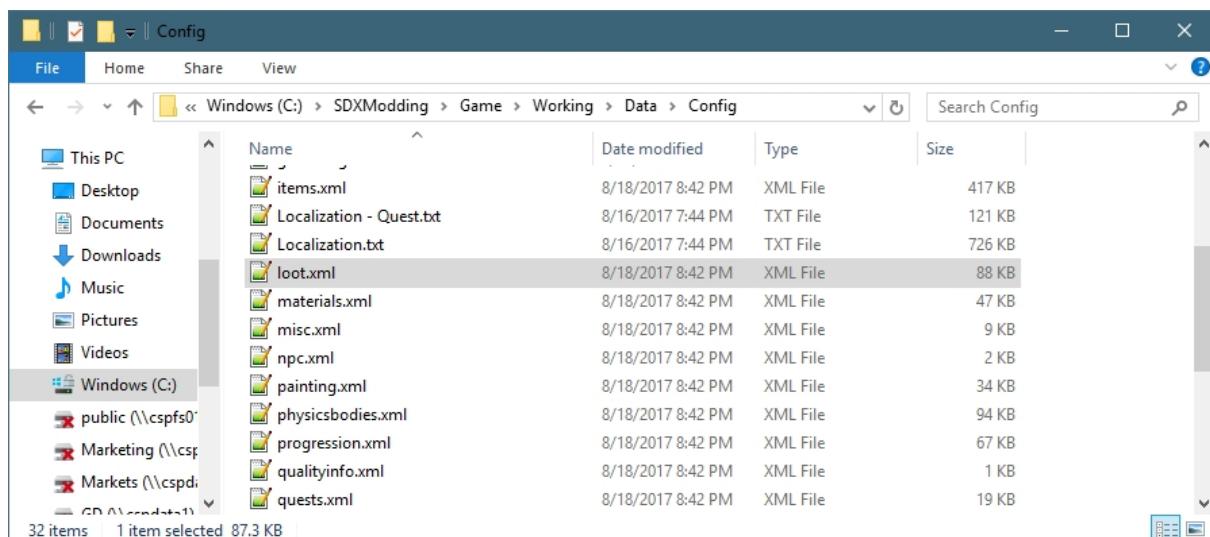
Once you've saved your changes, go back to the SDX Launcher, and click on the Build Button.

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



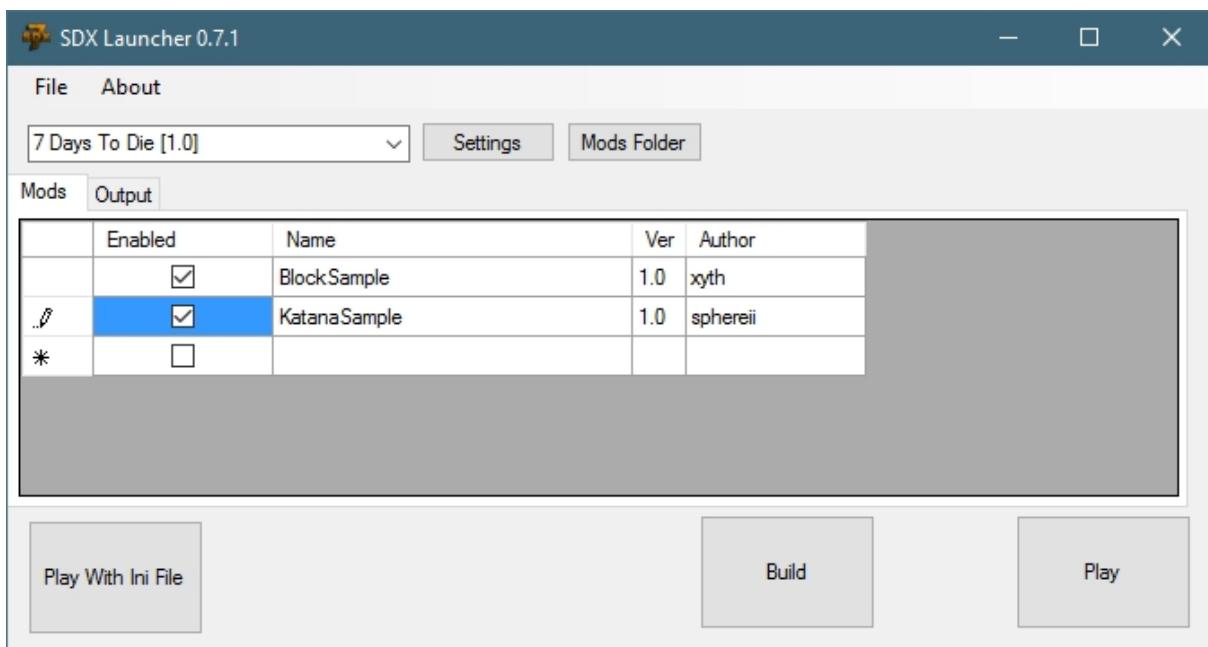
The Cube Mod is another example that follows the same principle as [The Katana Mod](#), but uses a block rather than an item. The files for the Cube Mod can be found: "[C:\SDXModding\Bundles\SDX Beginner Tutorial](#)"

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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!

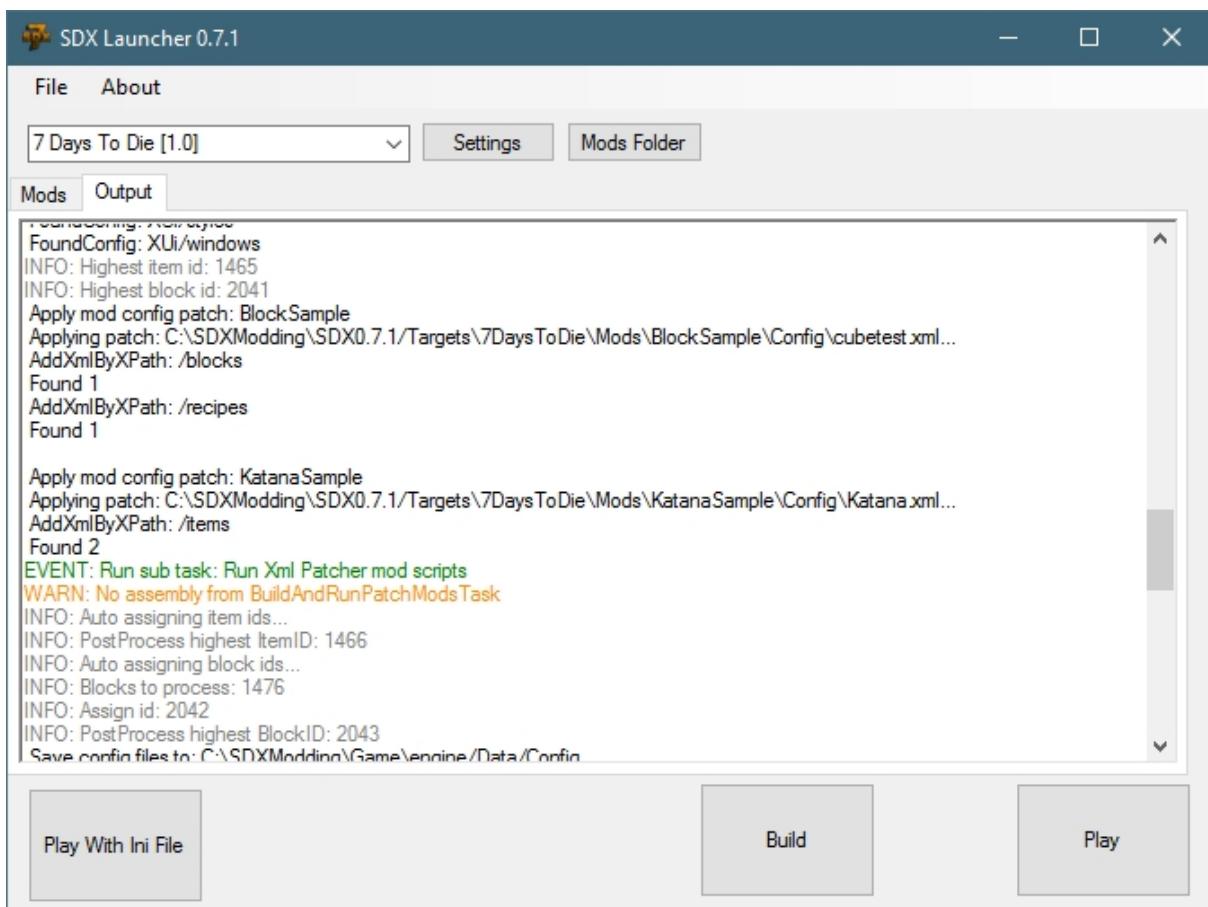
Click on the white square to enable the Cube Mod to enable it.



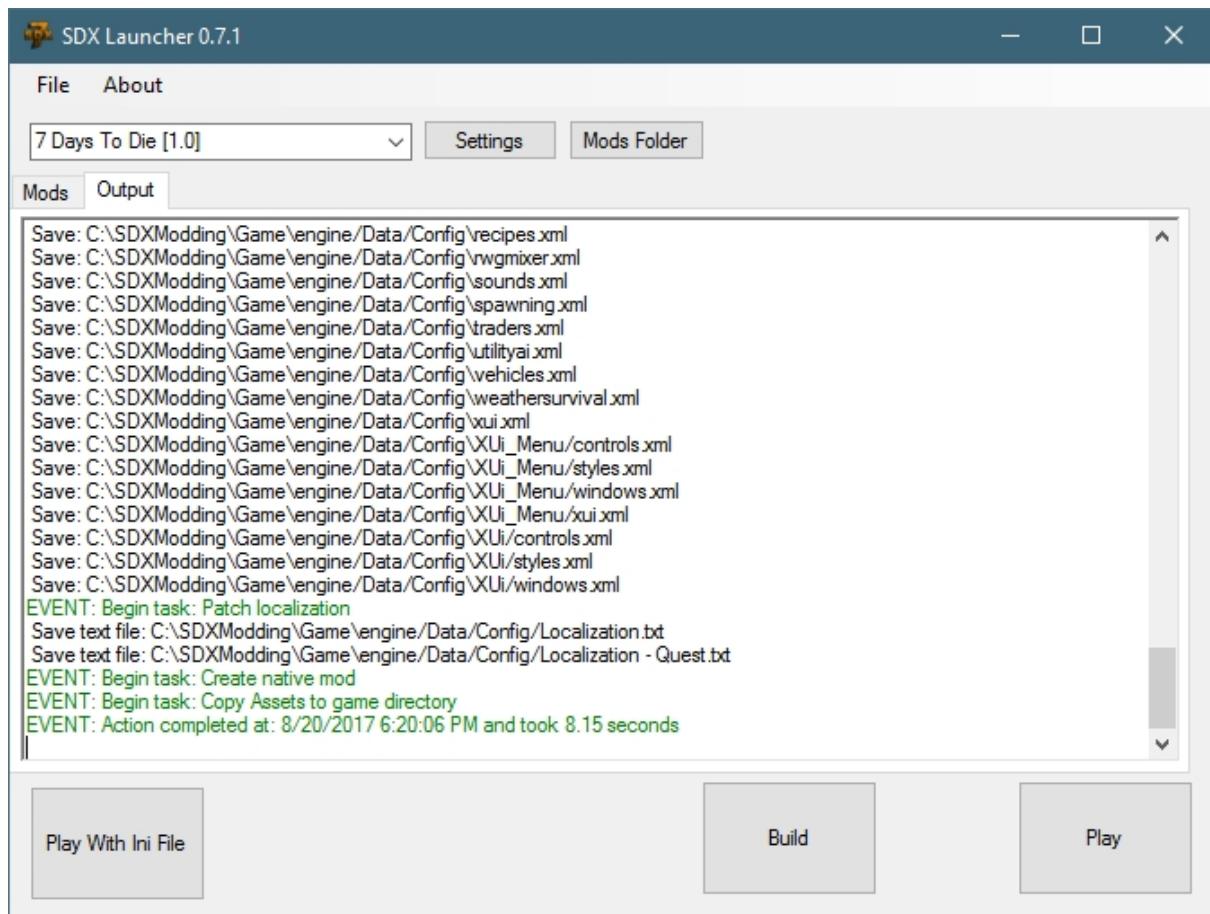
And click on Build.

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

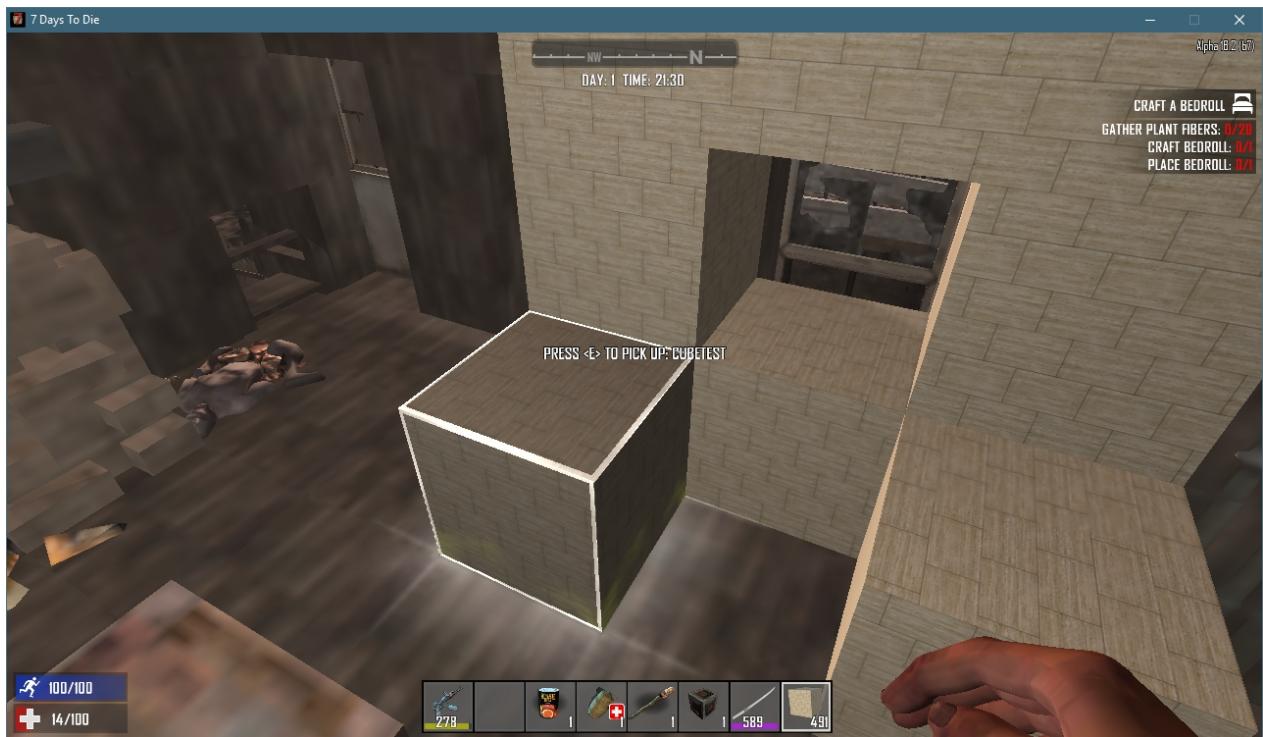


SDX is now compiled into your Working copy of the game.

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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Moving Forward



With the SDX Beginner Tutorial complete, you are probably wondering what else you can do.

[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.

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 |
|--|
| <pre><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></pre> |

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 reference 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 of 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, before adding the SDX hooks. From there, you can copy and paste unity3d files into the Resources folder, and update the XML files to use the new Meshfile.

Why Continue to Use SDX Launcher After the First Time?

If we can add new Unity3D Resources, and use an already modded copy of the game, why would we want to use the SDX Launcher after the first time?

Very good question. For some modders, using the SDX Launchers is a once and done thing, which is a valid strategy. You could get away with only using the SDX Launcher for each new release of the game.

The reason to use it more often, and using the Config folder for each SDX mod is *ease of maintenance*.

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. 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.

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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SDX Intermediate Tutorial



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

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SDX Advanced Tutorial



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

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