

AppGameKit STUDIO

AppGameKit Studio Repo 2024 Guide by Zaxxan

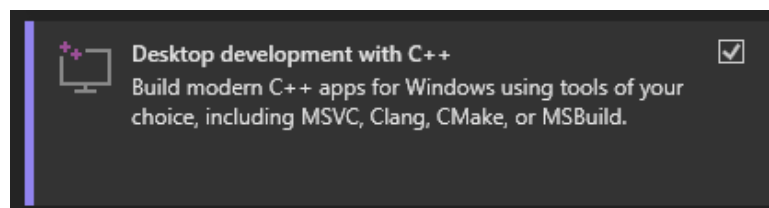
The purpose of this guide is to help AGK users to install and configure the necessary software to build the AGKRepo.

Visual Studio 2022

Download the Microsoft Visual Studio 2022 Community Edition using the following link:

<https://visualstudio.microsoft.com/thank-you-downloading-visual-studio/?sku=Community&channel=Release&version=VS2022&source=VSLandingPage&cid=2030&passive=false>

Run the VisualStudioSetup.exe, this will start the Visual Studio Installer. Ensure that the 'Desktop development with C++' is selected and then click the install button.



The software will be installed to the following location:

C:\Program Files\Microsoft Visual Studio\2022\Community

GitHub for Windows

Download and install GitHub for Windows using the following link and run the Git-2.46.2-64-bit.exe

<https://github.com/git-for-windows/git/releases/download/v2.46.2.windows.1/Git-2.46.2-64-bit.exe>

Note: Use the default install path and default selected components, just keep pressing NEXT and do not make any changes.

GitHub Desktop

Download GitHub Desktop using the following link and run the GitHubDesktop-x64.exe

<https://central.github.com/deployments/desktop/desktop/latest/win32>

GitHub Large File Storage

Download the GitHub Large File Storage using the link below and run the git-lfs-windows-v3.5.1.exe

<https://github.com/git-lfs/git-lfs/releases/download/v3.5.1/git-lfs-windows-v3.5.1.exe>

Note: Use the default install path

Android Studio

Download Android Studio using the link below and run the android-studio-2024.1.2.13-windows.exe

<https://redirector.gvt1.com/edgedl/android/studio/install/2024.1.2.13/android-studio-2024.1.2.13-windows.exe>

Java JDK v17.02

Download the Java SDK using the link below and unzip openjdk-17.0.2_windows-x64_bin.zip

https://download.java.net/java/GA/jdk17.0.2/dfd4a8d0985749f896bed50d7138ee7f/8/GPL/openjdk-17.0.2_windows-x64_bin.zip

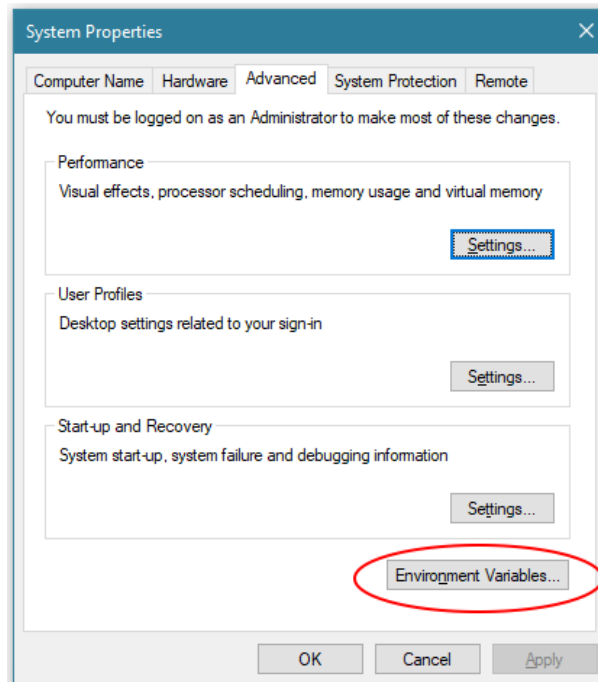
Rename the unzipped jdk-17.02 to jdk-17 and copy the folder to C:\Program Files\Java\

i.e. C:\Program Files\Java\jdk-17

Note: It is important that the jdk folder is named jdk-17 as the repo build process is looking for this folder. Step 16 of the build process will fail if it cannot find the jarsigner.exe

Configure the Environmental Variables

Type in the Windows search box ENV and the best match should show 'Edit the system environment variables' Select this option, and the System Properties Panel opens.



Click the button that is labelled 'Environmental Variables' and then add the following variables to the user section:

NDK_PATH with absolute path to "D:\DEV\AGKREPO\AGK_Build\External\android-ndk-r20b"

USERNAMEFORAGK with the folder truncation of your Username (so would be 'USER' as might appear in "C:\Users\USER\Documents\"). Do not use your full username or include any path text, just the folder name that appears in the example given.

VULKAN_SDK_PATH with absolute path to "D:\DEV\AGKREPO\AGK_Build\External"

AGK_STUDIO_PATH with absolute path to "D:\DEV\AGKREPO\AGK"

STEAMWORKS_PATH with absolute path to "D:\DEV\AGKREPO\AGK_Build\External\Steamworks"

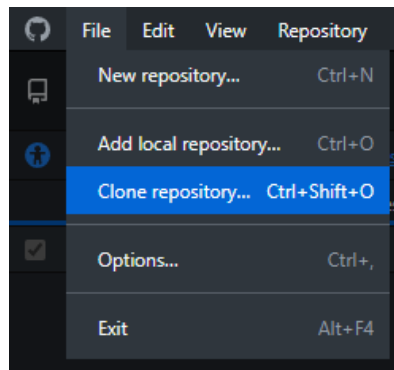
ANDROID_HOME with absolute path to "C:\Users\USER\AppData\Local\Android\Sdk" where **USER** is the folder assigned to you from your username

PATH with absolute path to "C:\Program Files\Java\jdk-17\bin" (add to the existing PATH variable)

Note: **USER** is your user name.

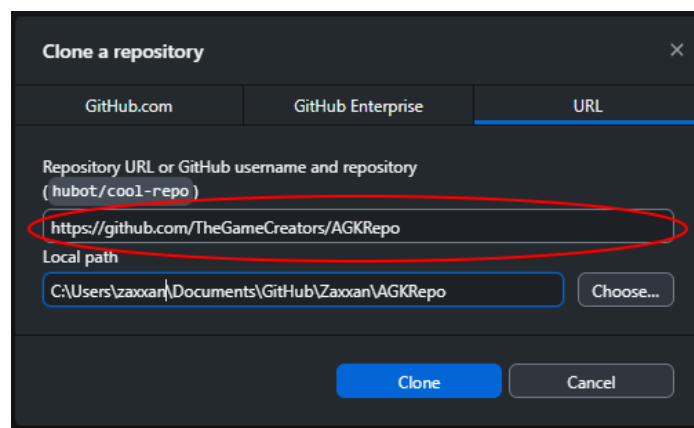
Downloading the Repo

Start GitHub Desktop by clicking the icon on your Desktop. Select Clone Repository

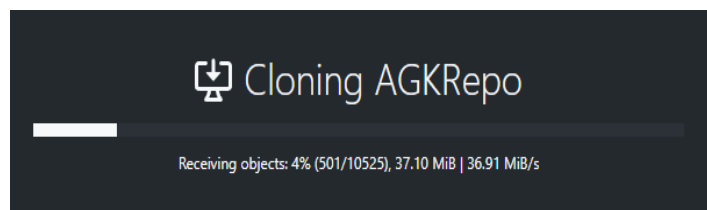


Paste the following link into the URL field:

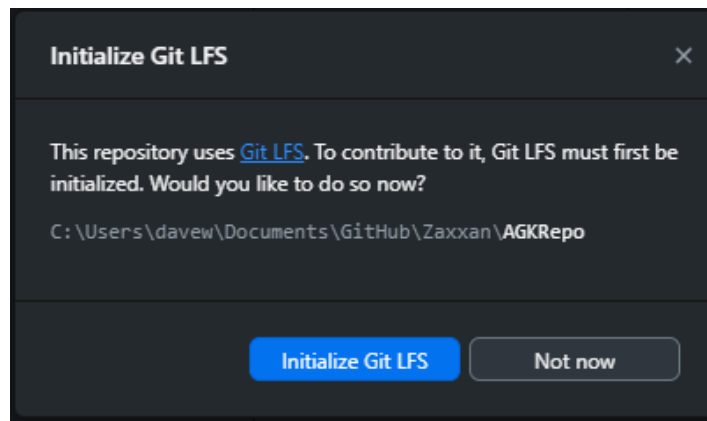
<https://github.com/TheGameCreators/AGKRepo>



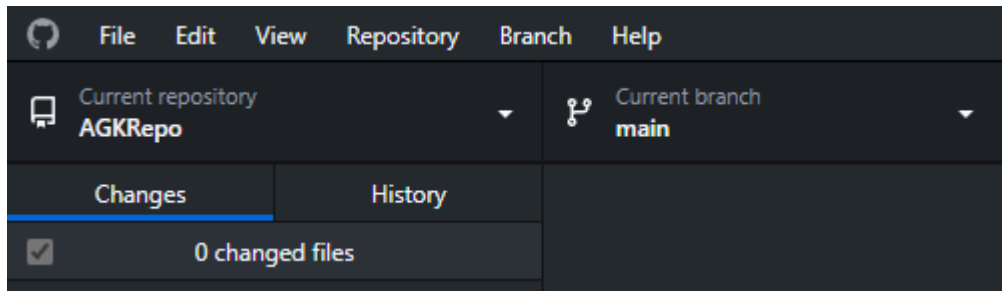
Click 'Clone', this will download the Repo to the path indicated in the Local Path field.



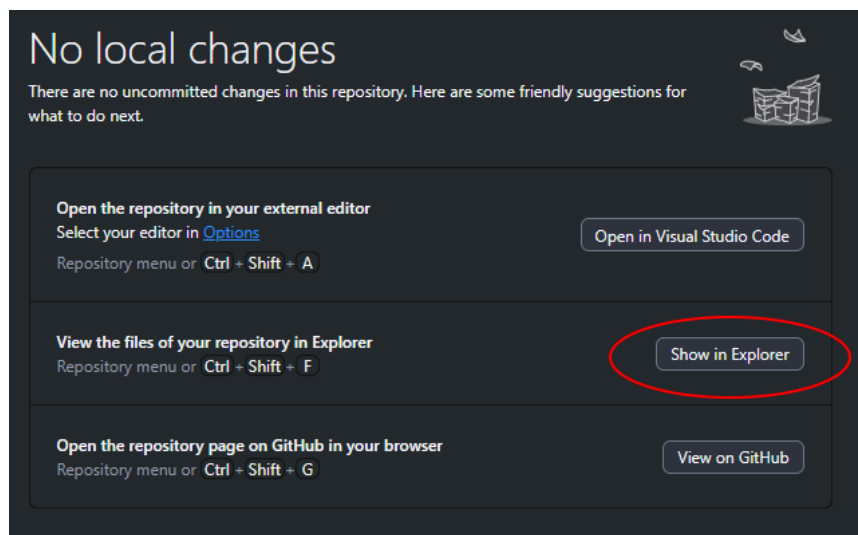
Once the Repo has finished downloading you will be asked if you want to initialise LFS, select 'Initialise Git LFS'



On the top right of the GitHub Desktop screen, you should see the name of the current repository and the current branch. These should be 'AGKRep' and 'main'.



On the right-hand side of the GitHub Desktop screen, you should see:



Click the 'Show in Explorer' button and you should see the following files and folders:

Name	Date modified	Type
.git	9/25/2024 1:40 PM	File folder
AGK	9/25/2024 1:33 PM	File folder
AGK_Build	9/25/2024 1:33 PM	File folder
.gitattributes	9/25/2024 1:33 PM	Git Attributes Sour...
.gitignore	9/25/2024 1:33 PM	Git Ignore Source ...
README.md	9/25/2024 1:33 PM	Markdown Source...

Select all of these and copy and paste to the following location:

D:\DEV\AGKRepo

Navigate to this folder and open the AGK_Build folder and you should see the following folders:

Name	Date modified	Type
Builds	9/18/2024 12:52 PM	File folder
Shared	9/18/2024 12:52 PM	File folder
Signing	9/18/2024 12:56 PM	File folder
Temp	9/18/2024 12:52 PM	File folder

Now we need to download additional files from the GitHub repository: -

Shared Folder

Click the following link: -

https://github.com/TheGameCreators/AGKRepo/releases/download/Prerequisite3/AGK_Build-Shared.zip

Unzip this folder and copy the contents to the D:\DEV\AGKRepo\AGK_Build folder, this will merge with the 'Shared' folder within the AGK_Build folder.

External

Click the following link: -

https://github.com/TheGameCreators/AGKRepo/releases/download/Prerequisite2/AGK_Build-External.zip

Unzip this folder and copy the contents to the D:\DEV\AGKRepo\AGK_Build folder, this will add the 'External' folder to the AGK_Build folder.

Build

Click the following link: -

https://github.com/TheGameCreators/AGKRepo/releases/download/Prerequisite/AGK_Build-Build.zip

Unzip this folder and copy the contents to the D:\DEV\AGKRepo\AGK_Build folder, this will merge with the 'Build' folder within the AGK_Build folder.

Name	Date modified	Type
Builds	9/18/2024 12:52 PM	File folder
External	9/18/2024 12:56 PM	File folder
Shared	9/18/2024 12:52 PM	File folder
Signing	9/18/2024 12:56 PM	File folder
Temp	9/18/2024 12:52 PM	File folder

Signing

Download the required keystore.keystore file for signing the android apps from here: -

https://drive.google.com/file/d/1wE7eHGkbJH91I3AZdBBTqO226lrIX7Gx/view?usp=drive_link

and copy the file to D:\DEV\AGKRepo\AGK_Build\Signing

The password for the keystore file is 'studio', this will be required during the build process

Synchronising Android Studio Projects

It is important to synchronise the three AGKPlayer's for Google, Amazon and Ouya, this has to be completed because during the synchronisation files are downloaded that are required during the Repo build process.

I would also recommend copying the contents of the HTML5 folder from the August 2023 update:

C:\Program Files (x86)\The Game Creators\AppGameKit Studio\media\data\HTML5

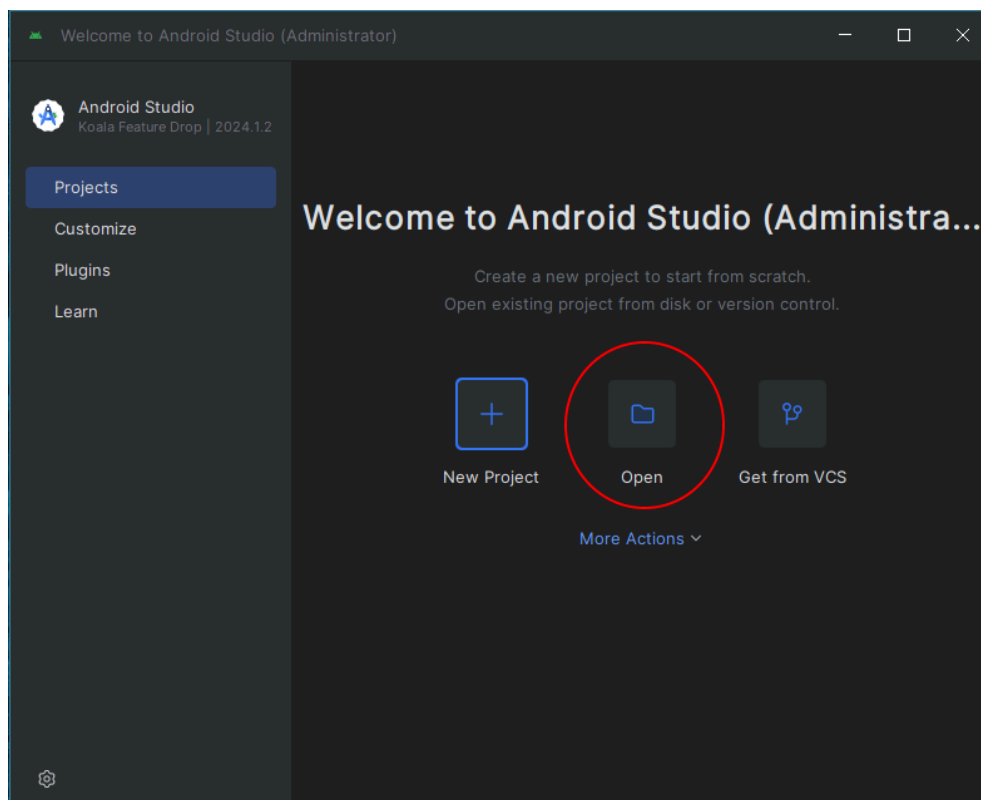
To the following location:

D:\DEV\AGKRepo\AGK_Build\Shared\WindowsReceive\Studio\HTML5

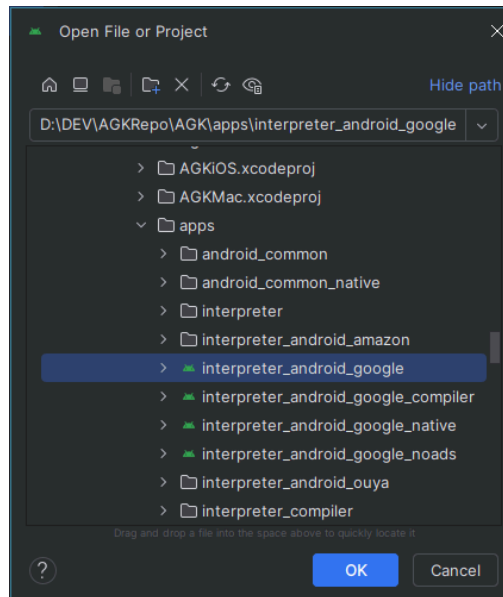
The reason for this is that the HTML5 files used to be generated by the Linux build, as we can no longer build the Linux files we have to copy the files from an existing installation.

I would also recommend that you make a backup of the AGK_Build folder so that you don't have to repeat this part of the process again. If you download a newer version of the repo it's always a good idea to start off with a clean AGK_Build folder, that includes the keystore file and the HTML5 files

To synchronise the AGKPlayers start Android Studio and click on the 'Open' button



You will then be able to select the Google project by navigating to D:\DEV\AGRepo\AGK\apps and then selecting the interpreter_android_google project as shown below, click OK and the project will load.

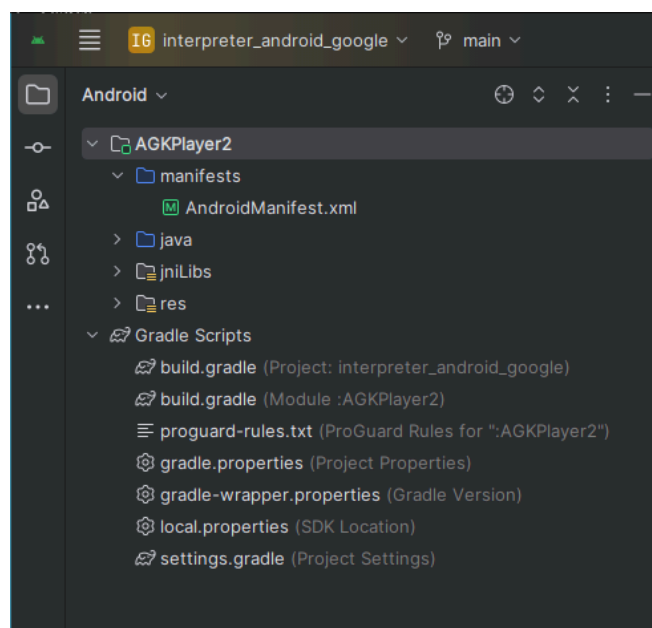


Note: you may see a message saying:

'The SDK path 'C:\Users\leeba\AppData\Local\Android\Sdk' does not belong to a directory. Android Studio will use this Android SDK instead: 'C:\Users\YOUR USER NAME\AppData\Local\Android\Sdk' and will modify the project's local.properties file'

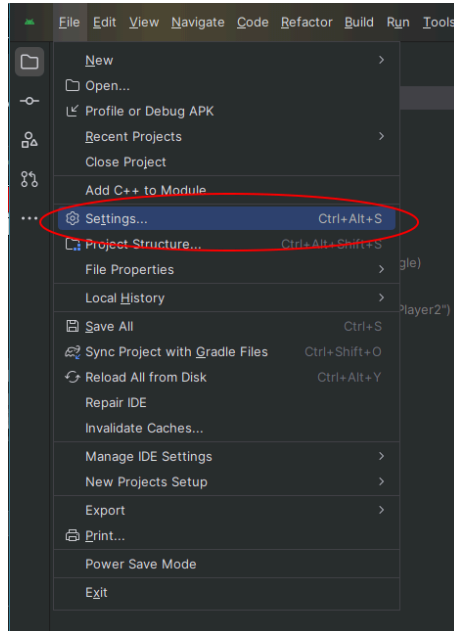
This is normal and the message is just saying it is changing the user name to your user name.

During the load process Android Studio will synchronise the project and download any necessary files. Once the synchronisation process is complete you will see the project files in the left-hand pane as shown below.



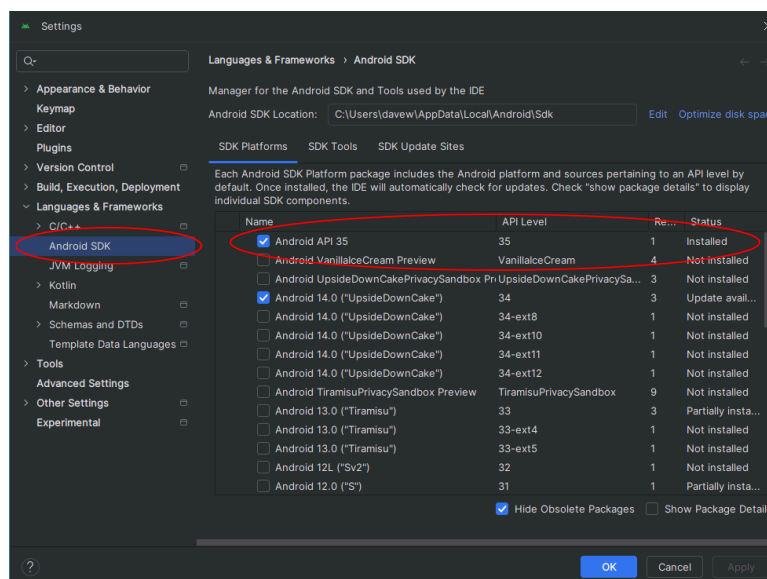
The next step is to verify that the Android API 35 is installed, to do this go to the 'Tools' menu and select the 'SDK Manager'

Note: You can also check this via 'Settings'



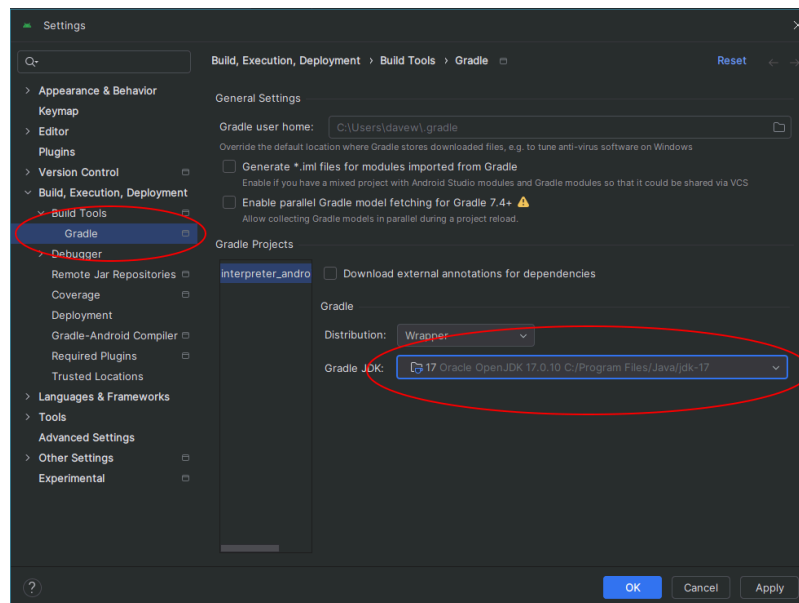
Selecting the SDK Manager will open the 'Settings' window. In the Languages and Frameworks section select 'Android SDK' and then check that 'Android API 35 is selected and installed, if not then select it and the SDK will be downloaded.

Note: SDK is downloaded to C:\Users\USER\AppData\Local\Android\Sdk\build-tools and Gradle is downloaded to C:\Users\USER\.gradle



The next step is to check that the Gradle JDK is selected. In the 'Settings' window select 'Builds, Execution, Deployment' and then 'Build Tools' and finally 'Gradle'

Set the Gradle JDK to the version that you previously installed by using the drop-down menu i.e. C:\Program Files\Java\jdk-17



REPEAT the above process for the interpreter_android_amazon and interpreter_android_ouya projects.

Building the Repo

The next step is to build the AGKBuild.exe

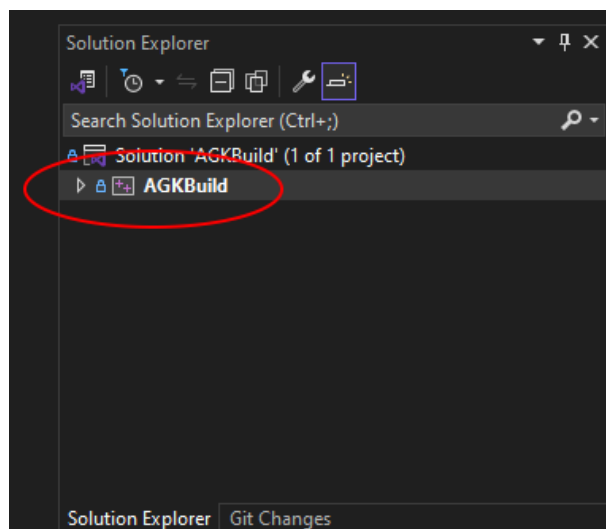
Navigate to the following folder: -

D:\DEV\AGKRepo\AGK\tools\AGKBuildSystem\Windows

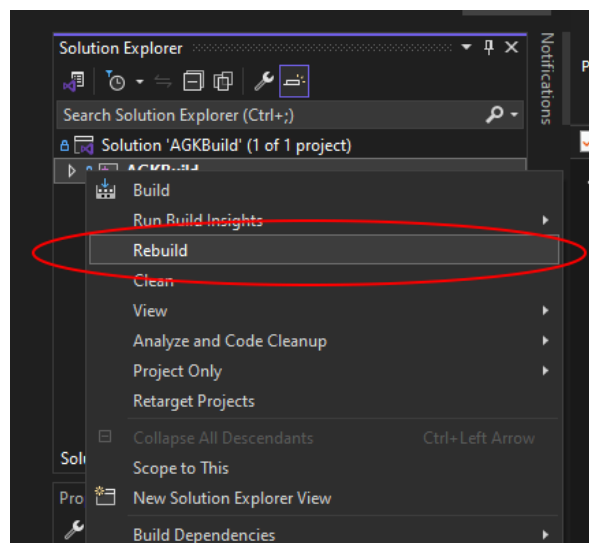
Then double click on the AGKBuild.sln file

This will open the AGKBuild solution in Visual Studio and you should see the Solution Explorer on the right-hand side of the screen.

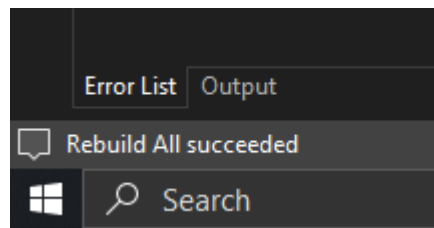
Right click on the AGKBuild solution as show below



Now click 'Rebuild'



If the rebuild is successful at the bottom left of the screen you should see 'Rebuild All succeeded': -



In the D:\DEV\AGKRepo\AGK\tools\AGKBuildSystem\Windows folder you should now see a folder called 'Final'

Navigate to this folder and then double click the AGKBuild.exe file, this will open a command window as shown below.

```
D:\DEV\AGKRepo\AGK\tools\AGKBuildSystem\Windows\Final\AGKBuild.exe
1: Update What's New File
2: Command Parser
3: Compile Windows Core Release
4: Compile Windows Core DebugCompatible
5: Compile AGK Compiler Static Lib
6: Compile AGK Compiler EXE
7: Compile AGK Broadcaster Static Lib
8: Compile VSCode Debug Adapter
9: Compile VSCode Language Server
10: Compile Windows Interpreter 64-bit ReleaseSteam
11: Compile template_windows project
12: Compile Windows IDE
13: Copy IDE files to build folders
14: Compile Android lib
15: Compile Android interpreter
16: Export Android Google/Amazon/Ouya interpreter projects
17: Build help files
18: Copy files to build folders
19: Copy shared files from other platforms
Enter start point (use 's' to do a single step):
```

Now type 1 to start the build process and when prompted for a password enter 'studio' The build process completes at step 17 and should look something like this:

```
D:\DEV\AGKRepo\AGK\tools\AGKBuildSystem\Windows\Final\AGKBuild.exe
Copying Android libs to Windows build
Copying to Windows build
  Copying Tier 2 files
    Copying apps folder
    Copying common folder
    Copying bullet folder
    Copying platform folder
    Copying Example Plugin folder
  Copying Windows and Android players
  Copying other files
  Copying Example Projects
Copying to Mac build
  Copying Tier 2 files
    Copying apps folder
    Copying common folder
    Copying bullet folder
    Copying platform folder
    Copying Example Plugin folder
  Copying Windows and Android players
  Copying other files
Copying to Linux build
  Copying Tier 2 files
    Copying apps folder
    Copying common folder
    Copying bullet folder
    Copying platform folder
    Copying Example Plugin folder
  Copying Windows and Android players
  Copying other files
Press any key to continue . . .
```

If the build process succeeds you will have created the AGK Studio files in the following location: -

D:\DEV\AGKRepo\AGK_Build\Builds\Studio\AGKStudioWindows

Step 19 must be performed as a single step by typing 19 after the first 18 steps have completed.

Step 19 copies the HTML5 files from:

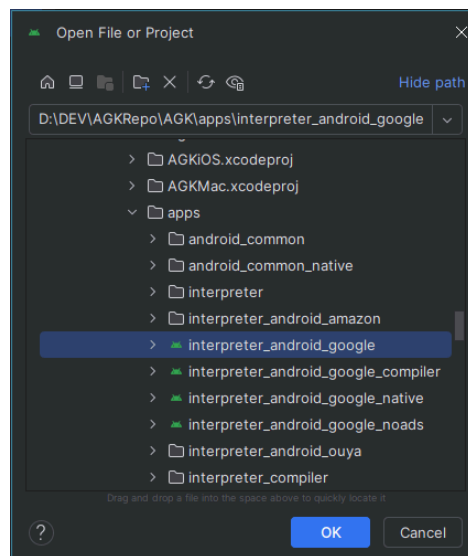
D:\DEV\AGKRepo\AGK_Build\Shared\WindowsReceive\Studio\HTML5

To the build folder:

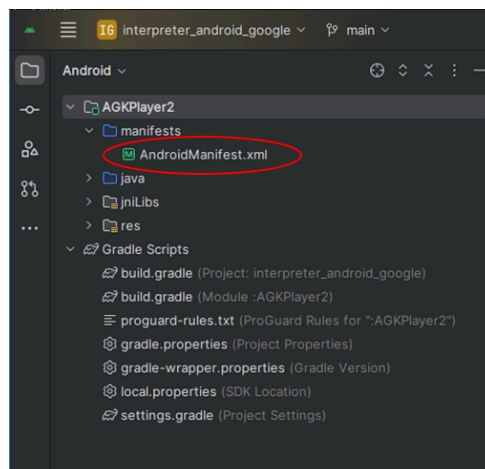
D:\DEV\AGKRepo\AGK_Build\Builds\Studio\AGKStudioWindows\media\data\html5

Change build date on the Google AGKPlayer2

Start Android Studio and open the interpreter_android_google project



When the project has finished synchronising double click on the AndroidManifest.xml

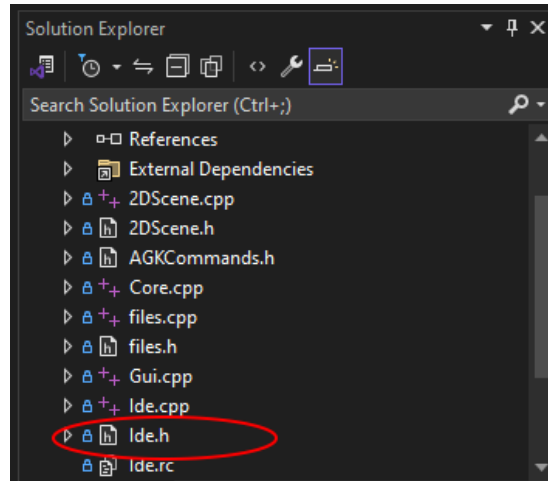


Change the date of android:versionName to the current date.

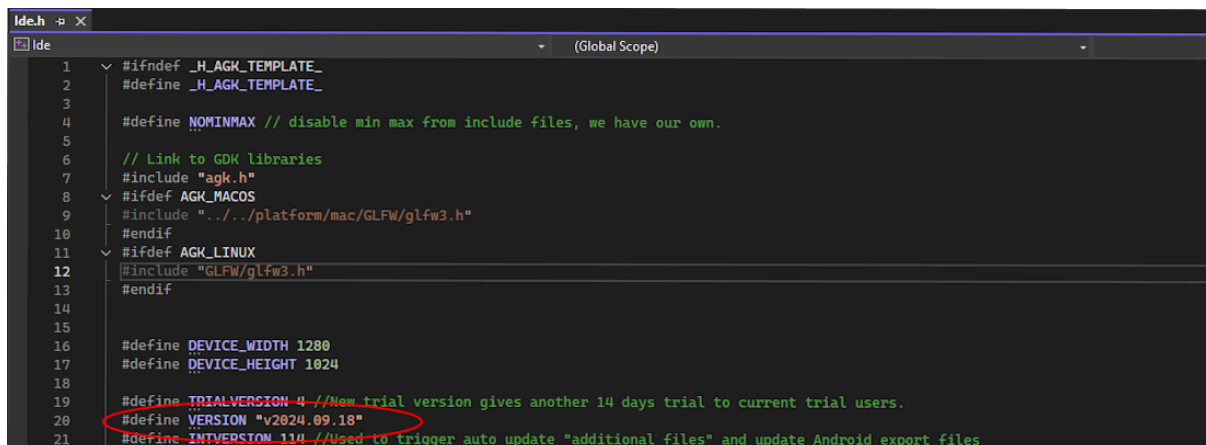
```
AndroidManifest.xml x
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     xmlns:tools="http://schemas.android.com/tools"
4     android:versionCode="110"
5     android:versionName="2024.09.18"
6     package="com.thegamecreators.agk_player2"
7     android:installLocation="preferExternal">
```

Change the build date on the IDE

Navigate to D:\DEV\AGKRepo\AGK\AgkIde and open the Ide.sln solution and then double click the ide.h file in the solution explorer:



At approx. line 20 edit the #define VERSION "v2024.09.18"



Save and then Rebuild the solution. This will create a new IDE in the following location: -

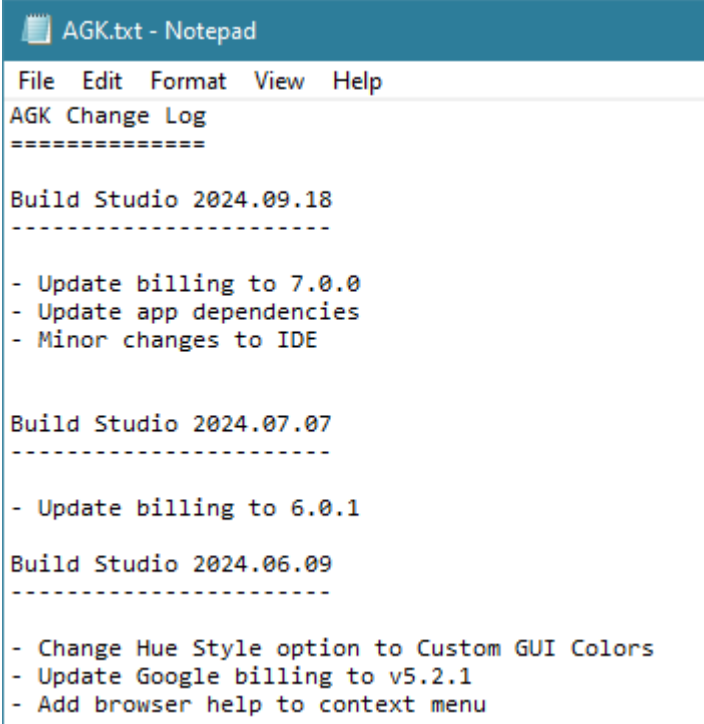
D:\DEV\AGKRepo\AGK\AgkIde\Final

Update the 'What's New'

Navigate to:

D:\DEV\AGKRepo\AGK

And open the file AGK.txt



```
AGK Change Log
=====

Build Studio 2024.09.18
-----

- Update billing to 7.0.0
- Update app dependencies
- Minor changes to IDE

Build Studio 2024.07.07
-----

- Update billing to 6.0.1

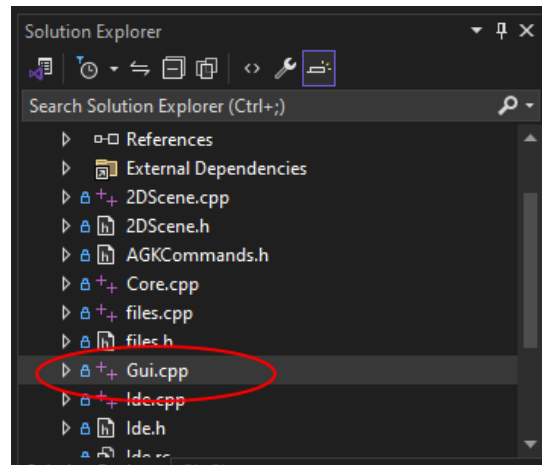
Build Studio 2024.06.09
-----

- Change Hue Style option to Custom GUI Colors
- Update Google billing to v5.2.1
- Add browser help to context menu
```

Edit the file with the new changes, save and then the next time the Repo is built it will use this file to create the change.log

Update Google Billing

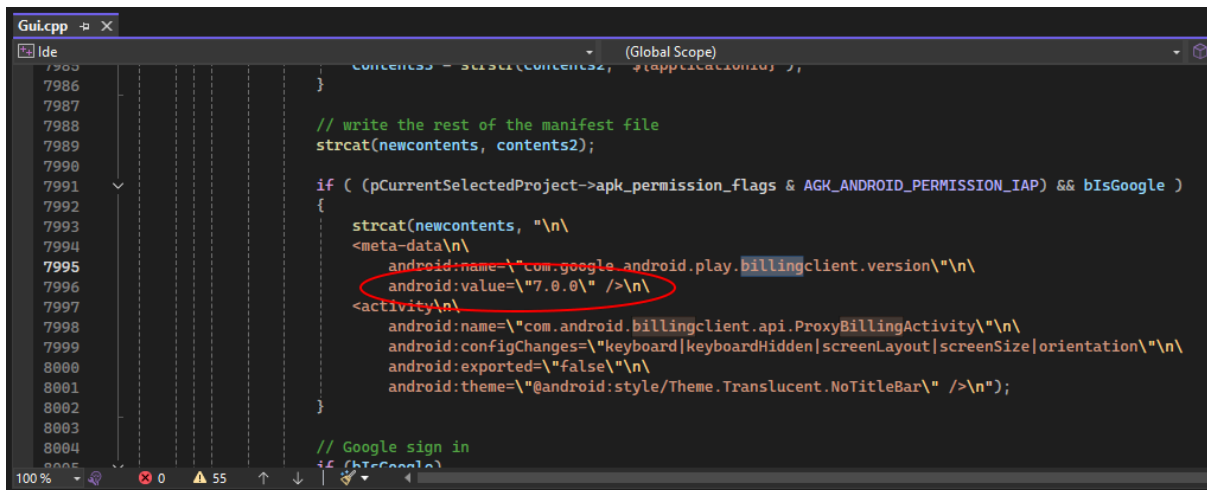
Navigate to D:\DEV\AGKRepo\AGK\AgkIde and in the solution explorer double click the Gui.cpp file to open it.



Next locate approx line 7996 where you will see: -

```
android:value=\"6.0.0\" />\n
```

Change this value to the new Google Billing API i.e to `android:value=\"7.0.0\" />\n`



Save this and then rebuild the IDE.

Next open interpreter_android_google in Android studio and after the project has synchronised

double click the build.gradle (Module:AGKPlayer2) file in the project window and then scroll down and locate the following line: -

```
implementation "com.android.billingclient:billing:6.0.0" //  
GoogleInAppPurchase
```

Change the billing version from 6.0.0 to 7.0.0

```
implementation "com.android.billingclient:billing:7.0.0" //  
GoogleInAppPurchase
```

More information on upgrading to Google Billing version 7 can be found here: -

<https://developer.android.com/google/play/billing/migrate-gpblv7>

Update bundletool.jar

Copy the latest version from here <https://github.com/google/bundletool>

And paste to here and overwrite existing byndletool.jar: -

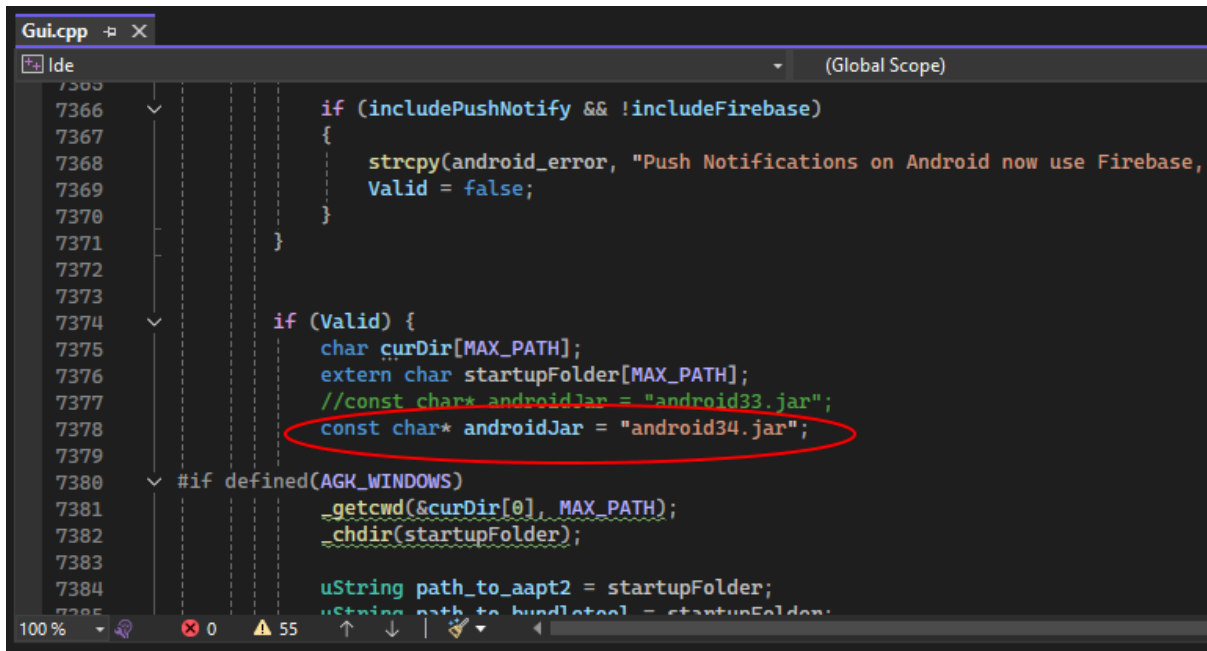
D:\DEV\AGKRepo\AGK\AgkIde\media\data\android

Update the API

For this example we will update the API from 34 to 35.

Navigate to D:\DEV\AGKRepo\AGK\AgkIde and in the solution explorer double click the Gui.cpp file to open it.

Next locate approx line 7378 where you will see: -



```
7366     if (includePushNotify && !includeFirebase)
7367     {
7368         strcpy(android_error, "Push Notifications on Android now use Firebase,
7369         Valid = false;
7370     }
7371 }
7372
7373
7374     if (Valid) {
7375         char curDir[MAX_PATH];
7376         extern char startupFolder[MAX_PATH];
7377         //const char* androidJar = "android33.jar";
7378         const char* androidJar = "android34.jar";
7379
7380     #if defined(AGK_WINDOWS)
7381         _getcwd(&curDir[0], MAX_PATH);
7382         _chdir(startupFolder);
7383
7384         uString path_to_aapt2 = startupFolder;
7385         uString path_to_bundletool = startupFolder;
```

change this to:-

```
const char* androidJar = "android35.jar";
```

Next we need to copy files from the Android Studio SDK to the AGEKRepo as follows: -

Update aapt2-bundle.exe, zipalign.exe

Copy aapt2.exe and zipalign.exe from the SDK you are upgrading to i.e API 35: -

C:\Users\davew\AppData\Local\Android\Sdk\build-tools\35.0.0

And paste to to the following location and overwrite the zipalign.exe: -

D:\DEV\AGKRepo\AGK\AgkIde\media\data\android

Delete aapt2-bundle.exe and rename the aapt2.exe that have just copied to aapt2-bundle.exe

Update apksigner.jar

Copy apksigner.jar from the SDK you are upgrading to i.e API 35; -

C:\Users\davew\AppData\Local\Android\Sdk\build-tools\35.0.0\lib

And paste to the following location and overwrite existing apksigner.jar: -

D:\DEV\AGKRepo\AGK\AgkIde\media\data\android

Update android35.jar

Copy android.jar from the SDK you are upgrading to i.e API 35 and rename to android35.jar: -

C:\Users\davew\AppData\Local\Android\Sdk\platforms\android-35

And paste to the following location: -

D:\DEV\AGKRepo\AGK\AgkIde\media\data\android

More information on upgrading the API can be found here: -

<https://developer.android.com/about/versions/15/setup-sdk>

Note: it is important to understand how updating the API may affect your apps so it is important to read the behavioural changes:-

<https://developer.android.com/about/versions/15/behavior-changes-all>

<https://developer.android.com/about/versions/15/behavior-changes-15>

Hopefully you should now have a working copy of AppGameKit Studio 😊

Zaxxan