





# Configuring a Unity project to use Research Mode

**Make sure your project is using some version of Unity 2019!**

1. In your Unity Project, Navigate to the Assets>Plugins>WSA>ARM64 folder and put the HL2UnityPlugin.dll and the HL2UnityPlugin.winmd files there. If any of the folders don't exist, just create them.

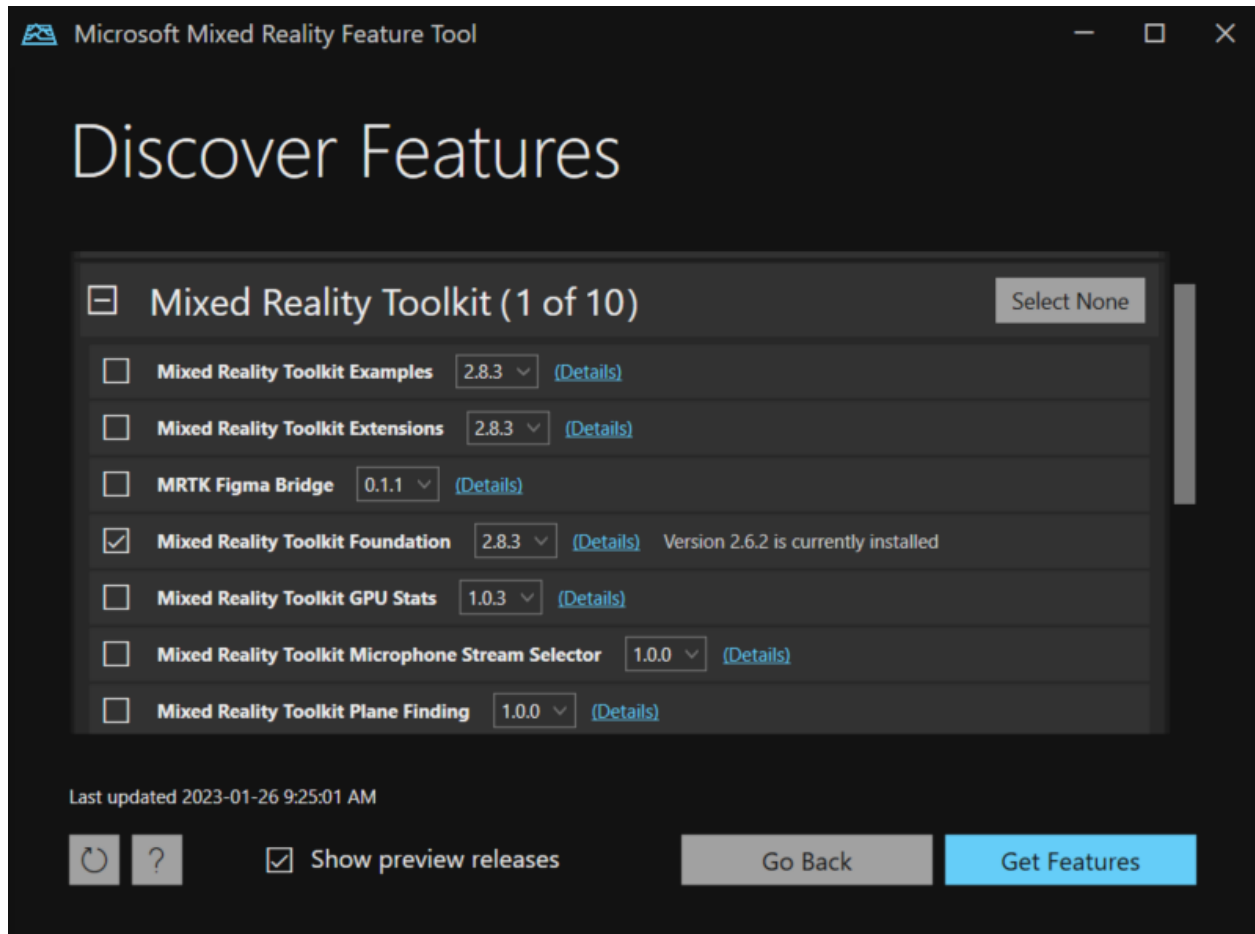
The HL2UnityPlugin.dll and HL2UnityPlugin.winmd can be found here:

[HATlab-UVIC/HoloLens2-ResearchModeSetup- \(github.com\)](https://github.com/HATlab-UVIC/HoloLens2-ResearchModeSetup)

» This PC » Documents » GitHub » HoloLens2-ResearchMode-Unity » Assets » Plugins » WSA » ARM64			
Name	Date modified	Type	Size
 HL2UnityPlugin.dll	2023-01-25 4:18 PM	Application extension	107 KB
 HL2UnityPlugin.dll.meta	2023-01-25 4:18 PM	META File	1 KB
 HL2UnityPlugin	2023-01-25 4:18 PM	WINMD File	6 KB
 HL2UnityPlugin.winmd.meta	2023-01-25 4:18 PM	META File	1 KB

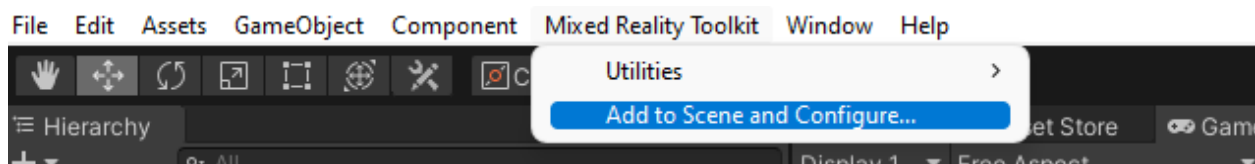
Go to an internet browser and download the Mixed Reality Feature Tool from Microsoft

Open it and select your project from the project path.



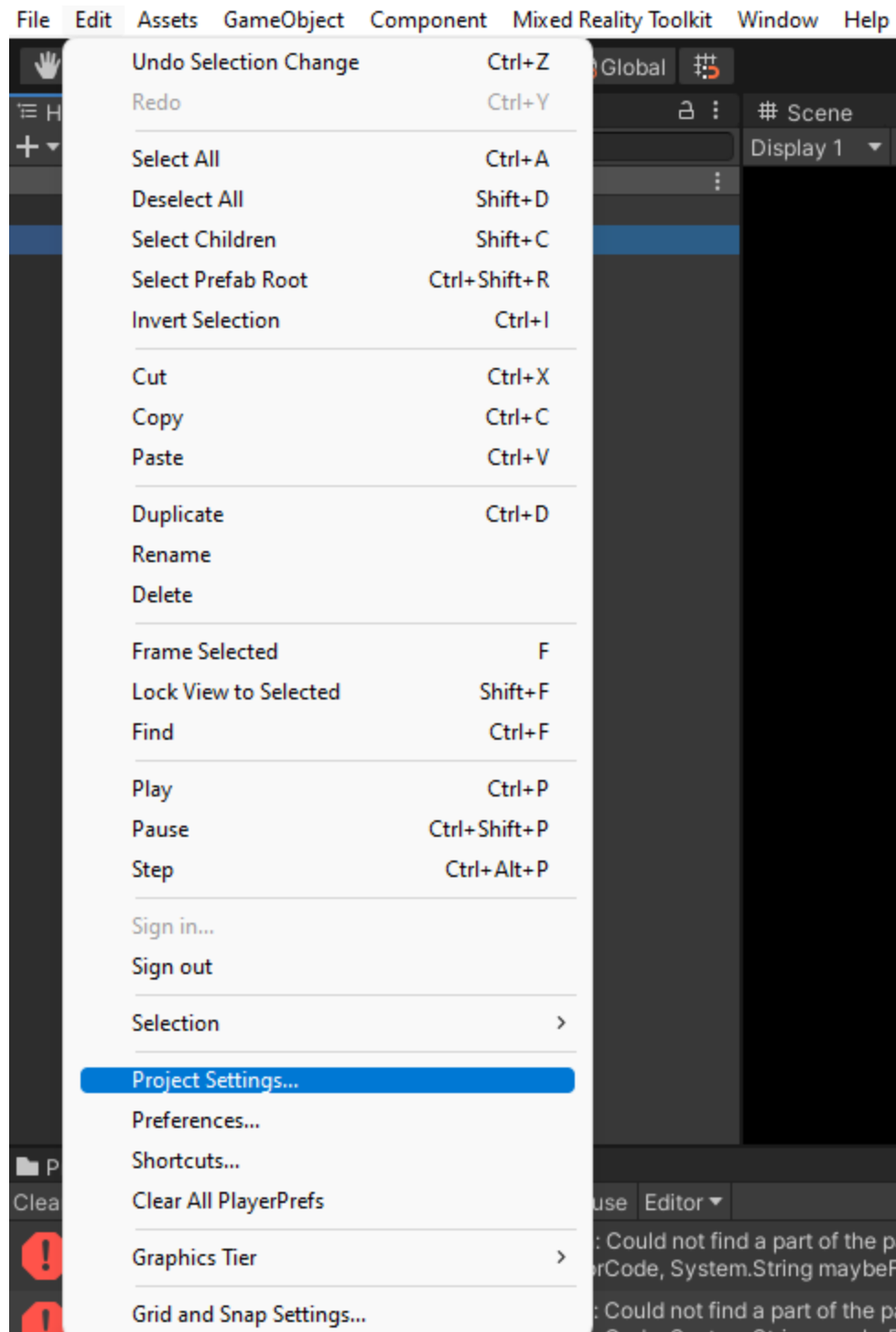
Select the Mixed Reality Toolkit Foundation and click get features.

In your unity project, select the mixed reality toolkit from the top menu and click add to scene and configure



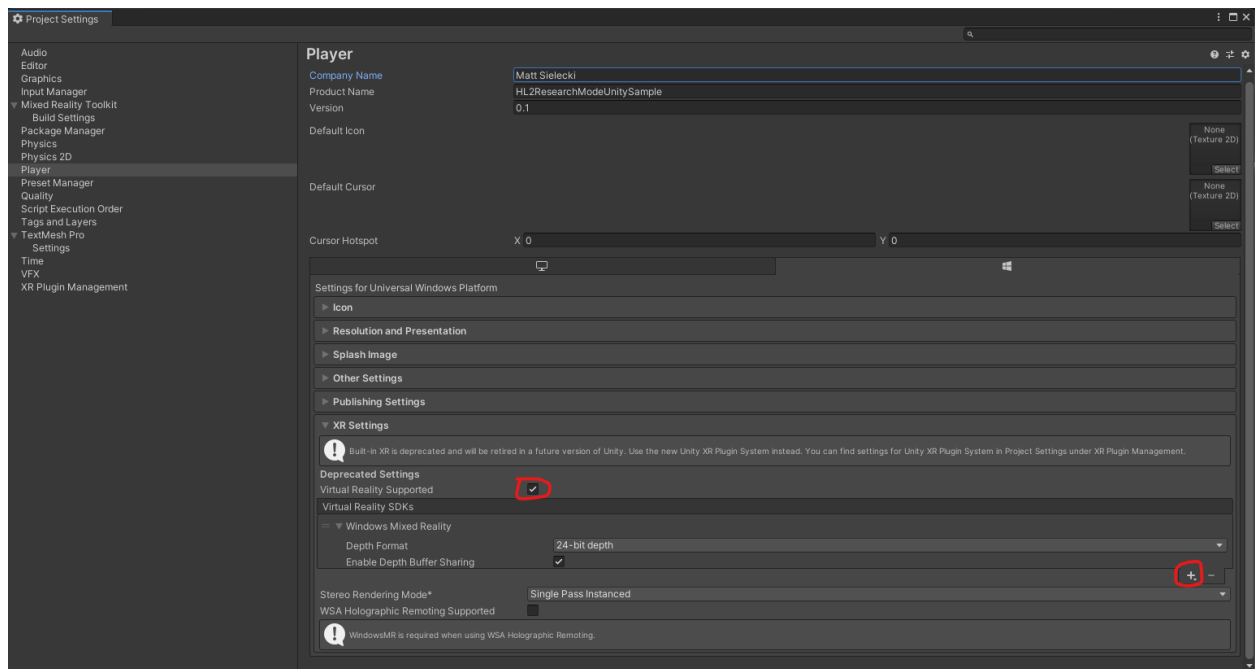
It will ask you what tools you want, select the **recommended legacy XR and import TMP essentials**

Select edit from the top menu and go to project settings

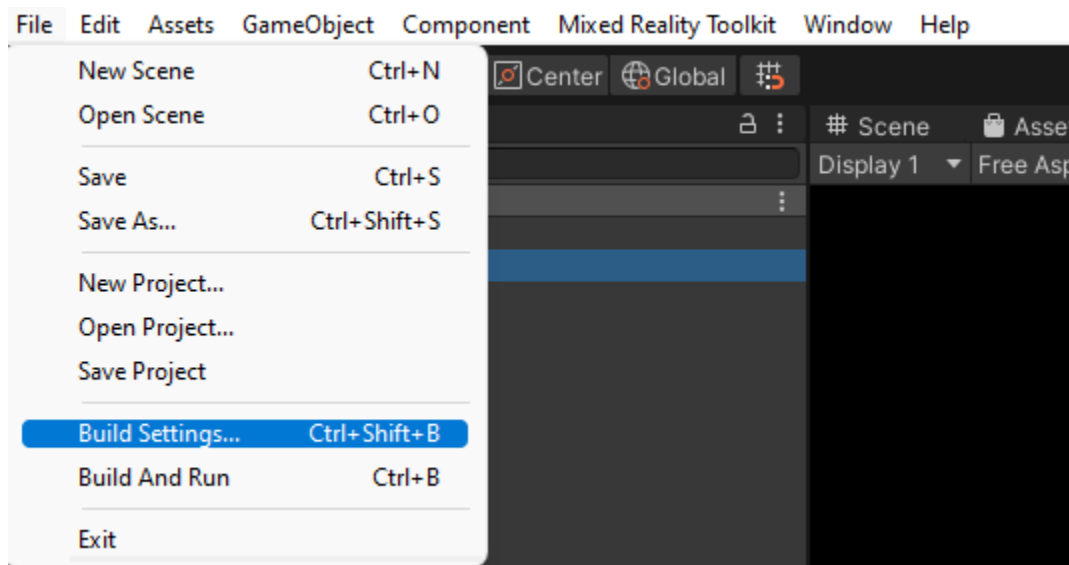


Go to player and under the XR settings select Virtual Reality Supported.

Click the plus button under the Virtual Reality SDKs and add Windows Mixed Reality



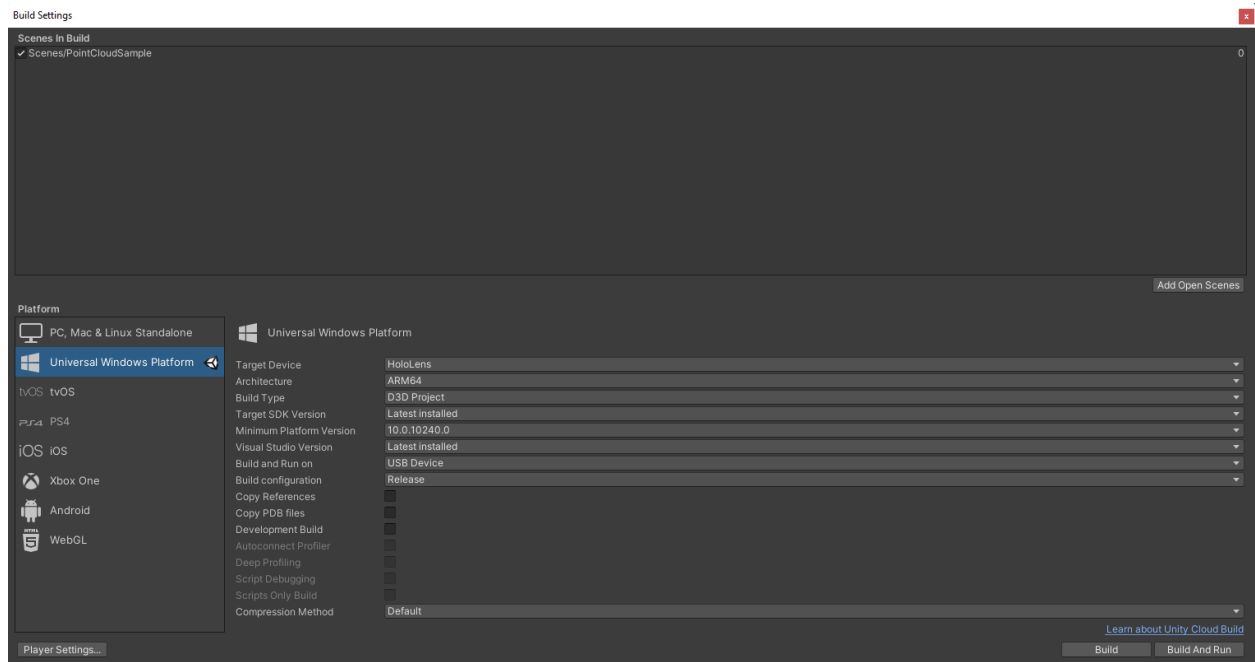
Go to File and click the Build Settings



Select the Universal Windows Platform and click switch platform, it should take a minute or so to switch.

After you have switched, change the following sections:

- Target Device to **HoloLens**
- Architecture to **ARM64**
- Build and Run on **USB Device**
- Take note of which Visual Studio Version you select!
- Take note of which Build configuration you select!



Click Build and create a Builds folder as the destination, it should take a few minutes for the project to fully build.

Navigate to the builds folder, and open the folder that contains your applications name.

» This PC » Documents » GitHub » HoloLens2-ResearchMode-Unity » Builds » HL2ResearchModeUnitySample

Name	Date modified	Type	Size
Assets	2023-01-25 4:43 PM	File folder	
Data	2023-01-25 5:20 PM	File folder	
Generated Files	2023-01-25 4:48 PM	File folder	
Managed	2023-01-25 5:20 PM	File folder	
Plugins	2023-01-25 4:43 PM	File folder	
App	2023-01-25 4:43 PM	C++ Source File	2 KB
App	2023-01-25 4:43 PM	C Header Source File	1 KB
AudioPluginMsHRTF.dll	2020-06-02 6:37 AM	Application extension	2,863 KB
HL2ResearchModeUnitySample.vcxproj	2023-01-25 4:44 PM	VC++ Project	8 KB
HL2ResearchModeUnitySample.vcxproj.filters	2023-01-25 4:44 PM	VC++ Project Filters File	2 KB
HL2ResearchModeUnitySample.vcxproj.user	2023-01-25 4:52 PM	Per-User Project Option...	1 KB
HL2UnityPlugin.dll	2023-01-25 4:18 PM	Application extension	107 KB
Main	2023-01-25 4:43 PM	C++ Source File	1 KB
Package	2023-01-25 4:47 PM	APPXMANIFEST File	3 KB
pch	2021-03-02 5:51 PM	C++ Source File	1 KB
pch	2021-03-02 5:51 PM	C Header Source File	1 KB
Resource.res	2023-01-25 5:20 PM	Compiled Resource Script	1 KB
StoreManifest	2023-01-25 5:19 PM	XML Source File	1 KB
Unity Data.vcxitems	2023-01-25 5:20 PM	VC++ Project Items	12 KB
Unity Data.vcxitems.filters	2023-01-25 5:21 PM	VC++ Project Filters File	8 KB
UnityGenerated	2023-01-25 5:20 PM	C++ Source File	1 KB
UnityGenerated	2023-01-25 5:20 PM	C Header Source File	1 KB
WSATestCertificate	2023-01-25 4:43 PM	Personal Information Ex...	3 KB

Open the Package.appxmanifest file in a text editor.

Add the following line:

```
xmlns:rescap="http://schemas.microsoft.com/appx/manifest/foundation/windows10/restrictedcapabilities"
```

Put it before IgnorableNamespaces, in the Package(second line)

```
fest/mobile/windows10" xmlns:rescap="http://schemas.microsoft.com/appx/manifest/foundation/windows10/restrictedcapabilities" IgnorableNamespaces="uap uap2 uap3 uap4 mp mobile iot" xmlr
```

Make sure your capabilities includes:

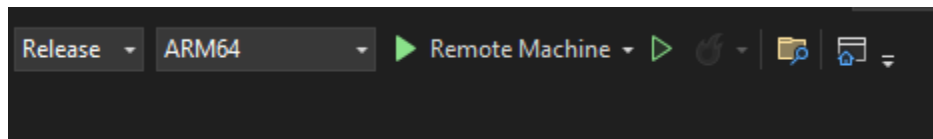
```
<Capability Name="internetClient" />
<Capability Name="internetClientServer" />
<Capability Name="privateNetworkClientServer" />
<uap2:Capability Name="spatialPerception" />
<DeviceCapability Name="backgroundSpatialPerception"/>
<DeviceCapability Name="webcam" />
<DeviceCapability Name="microphone" />
<DeviceCapability Name="gazeinput" />
```

```
<Capabilities>
  <Capability Name="internetClient" />
  <Capability Name="internetClientServer" />
  <Capability Name="privateNetworkClientServer" />
  <uap2:Capability Name="spatialPerception" />
  <DeviceCapability Name="backgroundSpatialPerception"/>
  <DeviceCapability Name="webcam" />
  <DeviceCapability Name="microphone" />
  <DeviceCapability Name="gazeinput" />
</Capabilities>
```

Next go to the builds folder in your unity project.  
Open the solution file in your Visual Studio version.

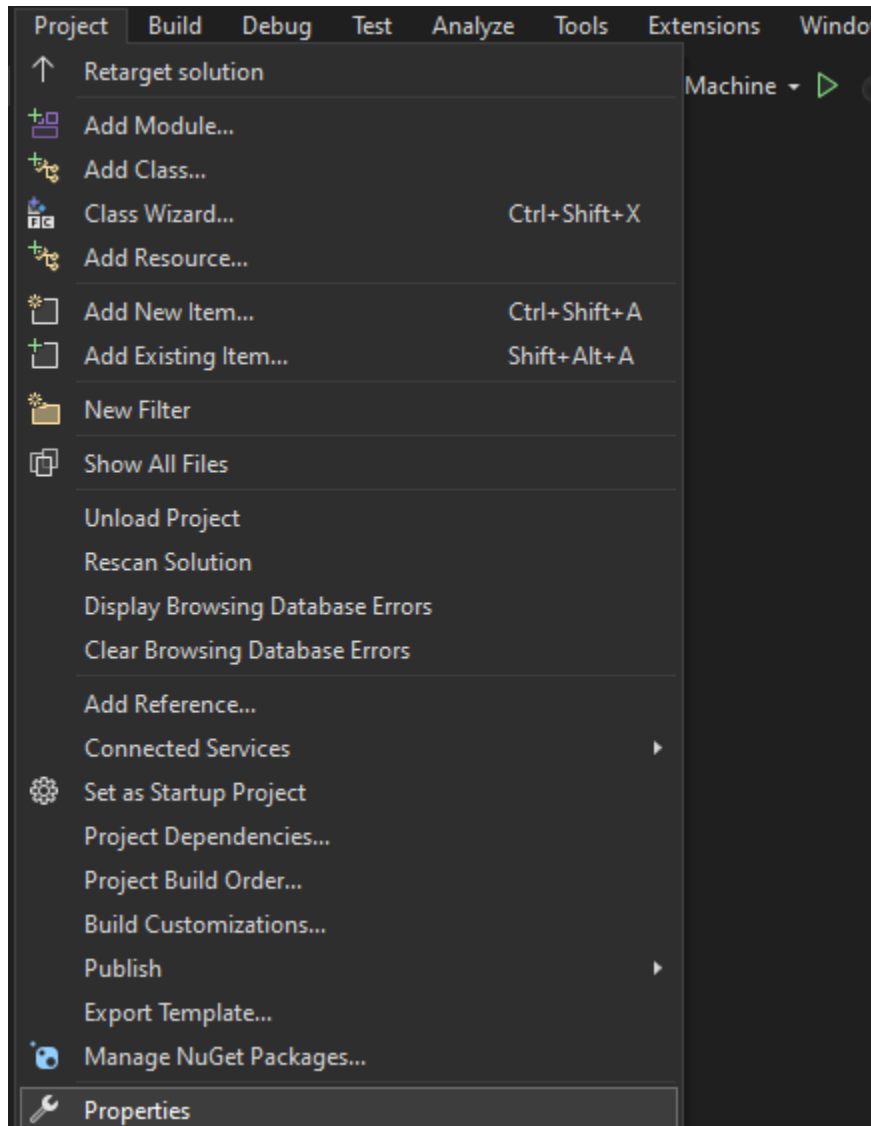
» This PC » Documents » GitHub » HoloLens2-ResearchMode-Unity » Builds				
Name	Date modified	Type	Size	
build	2023-01-25 4:48 PM	File folder		
HL2ResearchModeUnitySample	2023-01-25 5:20 PM	File folder		
IL2CppOutputProject	2023-01-25 5:21 PM	File folder		
HL2ResearchModeUnitySample.sln	2023-01-25 4:44 PM	Visual Studio Solution	8 KB	
UnityCommon.props	2023-01-25 4:44 PM	Project Property File	1 KB	

In Visual Studio, At the top of the screen change the Build configuration to the one you selected earlier and change the Solution platform to ARM64. Select the build platform to Remote Machine or Device.



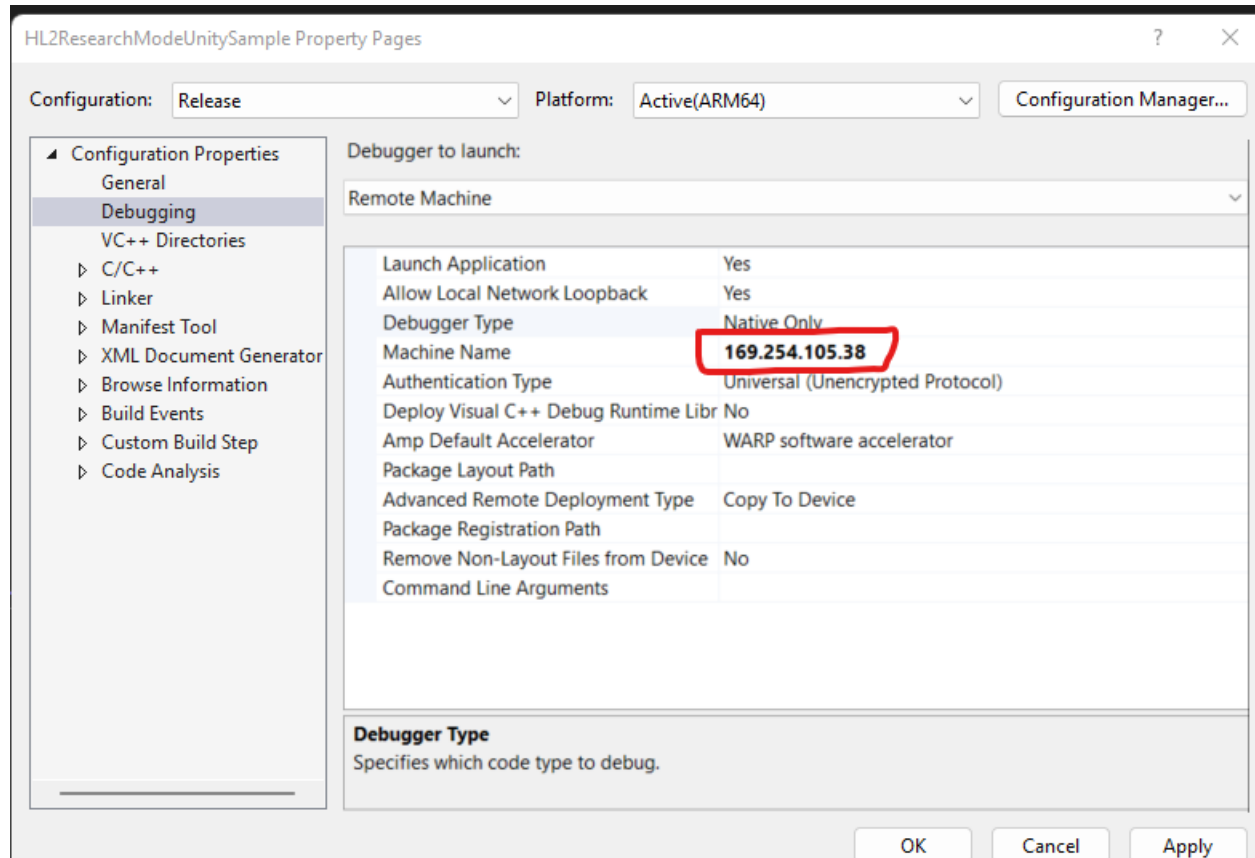
### If using Remote Machine

Select the project tab from the top and select properties at the bottom.





Under Debugging, change the machine name to the **IP Address** of your HoloLens



Now just hit the green button to start the project!

