

Prepare Audio Sources for VREVAL with Unity and Upload Asset Bundle to VREVAL Website.

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ABOUT MODELS FOR VREVAL

About

The VREVAL application works with a Unity Framework.

That means, Unity has to be installed. Through Unity, the models will get prepared for the VREVAL application.

So called *Assets* will be uploaded to a desired Project at VREVAL Website.

To collect one or more models, an Asset Bundle will be created.

To create Asset Bundles in Unity the package *AssetBundles-Browser* from git must be installed.

Install

The two following softwares have to get installed, before starting importing models to Unity and creating Asset Bundles:

- 1. Unity **2020.1.13** (https://unity3d.com/getunity/download/archive)
- 2. git

(https://git-scm.com/downloads)

1. INSTALLATION OF UNITY AND GIT

Step 1 Get Unity 2020.1.13.

https://unity3d.com/get-unity/download/archive



Step 2 Install the recommended Unity Version.

Additional modules are not required.

Finally, start the Unity Hub.

Step 3 Download and Install git.

https://git-scm.com/downloads



During the installation process, the default settings can be used.

Unity Personal is free of charge.

https://store.unity.com/products/unity-personal

Eligibility: Unity Personal is for individuals, hobbyists, and small organizations with less than \$100K of revenue or funds raised in the last 12 months.

2. UNITY – ADD ASSET BUNDLE BROWSER

Step 1 Create a new Project. Select the "3D" template.

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g Projecta	Projects		ADD NOT	
tean	Project Name	Units Version	Target Platform Last Modified	. Q.
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	C EE High Defendion IP	O O University Render Pipeline		
			CANCE	CREATE

Step 2 Open the Package Manager in the Unity Project.



Step 3 Add package from git URL:

https://github.com/Unity-Technologies/AssetBundles-Browser.git

+ ▼ Packages: In Project ▼ Sort: Nan	ne 🗸 🔻	
Add package from disk		JetBrains Rider Ed
Add package from tarball	1.2.1 🗸	Unity Technologies
Add package from git URL	1.1.18 🕥	Version 1.2.1 - December 19,
▶ TextMeshPro	3.0.1 🕤	
▶ Timeline	1.3.6 🕤	Code editor integration for our
Unity Collaborate	1.3.9 🗸	support for generating csproj f
▶ Unity UI	1.0.0 🗸	etc.
Visual Studio Code Editor	1.2.3 🗸	Registry Unity
Visual Studio Editor	2.0.3 🕥	

Add the package.

Package Manager
 + ▼ Packages: In Project ▼ Sort: Name ↓ ▼

 ity-Technologies/AssetBundles-Browser.git
 JetBrains Rider Editor
 1.2.1 ✓ Unity Technologies

The package will get imported.



Step 4 Open the Window AssetBundle Browser.



AssetB	undles		:	Π×
C	Configure	Build	Inspect	
Drag a	issets here of	r right-click t bundles.	o begin crea	ting

2. UNITY – IMPORT AUDIO

Тур

OGG Video File (VLC)

OGG Video File (VLC)

Step 1 Download, Cut, Edit and Generate Audio Files.

Recommended export file format is OGG or MP3 for VREVAL APP Windows.

Name

V 198120_potok-potoczny_park ₩ 352861_louismay1_ambience-o... V 572816_klankbeeld_park-may-7... OGG Video File (VLC)

Step 2 Create a new folder in the Asset folder.

Right click in Asset canvas.



New folder ...

🖿 Project	🖬 Console	
+ -		
🔻 🛨 Favorit	es	Assets > Audio
Q, All Ma Q, All Ma Q, All Pro	ateriais odels efabs	
🔻 🚘 Assets		
🗀 Audio		
🖿 Scen	es	

Step 3 Import Audio Files via Drag&Drop.



2. UNITY – AUDIO SETTING

Step 4

There are two major types of audio. First, there are voices. **Voices** are played back as **2D** stereo sounds.

Second, there are **ambient** sound. Ambient sound is played back as **3D** sound and can be handled as **mono** audio files. Step 5.1 Voices Recommended Audio Settings for Voices. Step 5.2 Ambient Sound Recommended Audio Setting for Ambient



Unity Documentation https://docs.unity3d.com/2021.2/Doc umentation/Manual/class-AudioClip.html

2. UNITY – AUDIO LOCATION FROM VREVAL WEBSITE

Step 6

The location of the Audio has to be defined in Unity. An Audio Source must be created.

First, create an empty object. Rename the Object



Step 7 Reset position of object.



Step 8.1 Set position of object (Unity Coordinate System)

Copy Coordinates Sound Marker from VREVAL Website.

MARKER DESCRIPTION		TYPE					
Street Opposite Site MLH		Sound					
		Location, wh	nich acts as a j	playba <mark>ck sour</mark> o	e of an enviro	nmental audio	file.
AVATAR INFORMATION							
MARKER HEIGHT ABOVE GROUND [meters]	VISIBILITY RANGE PERI	AETER [meters] PLACEMENT DISTANCE TO		ISTANCE TO MAR	RKER [meters]		
1.2	3			1.5			
CAD INFORMATION							
CAD INFORMATION		SURVEY POIN X	r	Y		z	
CAD INFORMATION CAD ID 4521835		SURVEY POINT X 0		Y 0		z 0	
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2. UNITY - AUDIO LOCATION FROM REVIT

Step 8.2

Set position of object in Unity Coordinate System

The position can be extracted directly from Revit with a Dynano Player Script. The Revit Coordinates get transformed to the Unity Coordinate System.

- 1. Selet the Marker.
- 2. Change Audible Source Height from Host Level to Speaker Level.
- Copy the calculated coordinates and paste it into the Unity object postion fields.



Speaker Level will not be consider, if positions are copied from VREVAL Website

2. UNITY - AUDIO LOCATION FROM REVIT

Step 8.2 Dynamo Script



SP = SurveyPt; CP = MarkerLocation;

2. UNITY – AUDIO FILE

Step 9

Add a new component to the object.



Step 10 Drag Audio file to AudioClip.



🚺 🗹 Audio Source 0 7 i AudioClip _18Flügel None (Audio Mixer Group) Mute **Bypass Effects Bypass Listener Effects Bypass Reverb Zone** Play On Awake 1 ~ Volume • 1 Stereo Pan • 1 Spatial Blend Reverb Zone Mix **3D Sound Settings Doppler** Level Spread Volume Rolloff Custom Rolloff Volume Spread Zone Mix

Step 11

Setup Audio Source

Unity Documentation <u>https://docs.unity3d.com/2021.2/Do</u> <u>cumentation/Manual/class-</u> AudioSource.html

Play On Awake: Play the sound when screen loads. *Loop:* Set the source to loop.

Spatial Blend:

- 2D Sound Source at participant avatar. No 3D sound affect.
- 3D Sound Sources are affected by spatial position and spread.

3D Sound Settings

 If logarithmic rolloff used and sound should not be audible extend of max distance, last part of rolloff curve must go to **0**. (orange curve)

Audio off = 0.0

2. UNITY – AUDIO FILE

Step 12 Drag the object from the Hierachy into the Project folder.



The object will turn blue.



Step n Repeat the previous steps to add more audio/sound to the environment.



... Unity and VREVAL Website

2. UNITY – EXPORT ASSET BUNDLE

Step 13 Add audio objects to an Asset Bundle. Step 14 (optional) Add additional audio to an existing Asset Bundle.

Select audio objects. Select the AssetBundle *name*. Audio object(s) will be added.



Do not use Period "." (dot) in Asset Bundle Name! If used, VREVAL project gets corrupted after Bundle upload.

2. UNITY – EXPORT BUNDLES

Step 15 Open the AssetBundles Browser.

Refresh the tab *Configure*. Select the *name* of the AssetBundle to export.

AccotBundles			: 🗆	I ×
C Configure	Build	Insp	ect	
audio 🗊				×
audio	Asset Asset Backyard Chiner Confice Street Oppos Street RedTra Street Round Street Round St	Bundle audio audio audio audio audio auto auto auto auto auto auto	Size 3.0 K 3.0 K 3.0 K 3.0 K 2.0 N 3.2 N 14.2 5.6 N 12.9	
▼ audio Size: 37.9 MB Dependent On: - None Messages: - None				

Step 16 Open the tab *Build.*

Inspector	AssetBundl	les			а:
	Configure	e		Inspect	
			Example build setup		
Build Target		Standalone W	indows		•]
Output Path	٨	AssetBundles/	StandaloneWindows)
				Browse	Reset
Clear Folder	s				
Advanced Se	ttings	i.			
			Build		

- 1. Browse and select the save (build) location.
- 2. If previous builds should be deleted, enable *Clear Folders*.
- 3. Select *Build* to start the AssetBundle builder.

Step 17 Zip the new created files (defined AssetBundle name in Unity) for upload to the VREVAL Website.

The following files get zipped. (AssetBundle Name + ~.manifest

Name	Тур	Бгове 🗸 🗸
audio	Datei	25.232 KB
audio.manifest	MANIFEST-Datei	1 KB
Export AssetBoundle	Datei	1 KB
Zipped and re	named life	
audio	Datei	25.232
audio	Datei	25.232
audio audio.manifest	Datei Montest Datei ZIP-komprimierter Or	25.232 . 25.233

Exclude the files *Export_AssetBoundle* **and** *Export_AssetBoundle.manifest* in the zipped file.

Include asset named files. In this case, **audio** and **audio.manifest** get zipped.

2. UPLOAD THE ASSET BUNDLE TO VREVAL WEBSITE

Step 1 Open the VREVAL Website.

Navigate to the project and the section *Environment Bundles*.

Create new Environment Bundle.

Name

Environment Bundles cuck to collapselerapsed

 Name
 Updated at
 Created at
 File Size
 Actions

 Total file size: 0 B
 CREATE
 CREATE
 CREATE

Drag & Drop your files or Browse

Change the Name of the Environment Bundle.

Drag & Drop the file or Browse the location. The zipped file will be uploaded automatically.



Step 3 Test the models and audio with the VREVAL application.

Select models and audio for the Task Environment.

WAILABLE DW/ROMMENT ASSETS IN PROJECT (BUNDLE NAME / ASSET NAME) MILPUMLPLE - Urban UI Entrogade	ENVRONMENT ASSETS INCLUDED IN TASK
Mi LIMI Li E. Ultran (1) Planting	MLH/MLH_E - Urban 01 TopoBuild
mervmence - orban of Planning	MLH/MLH_E - Urban 01 Planting Rec
MLH Audia/Office	
MLH Audio/Street Opposite Site	MLH Audio/Street Red Iree
MLH Audio/Street Roundabout	

BACK SAVE