





Unity Auto Streaming 技术介绍

2021

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Auto Streaming简介

该技术对引擎资源加载模块进行了增强，使得开发者可以在不修改代码的情况下加载云端资源，从而减少游戏包体大小，提升加载速度，在不损失质量的前提下，为用户带来了即时游戏的体验。

功能特点：

- 极大减小包体
- 无需修改代码
- 兼容资源更新方案
- 运行稳定

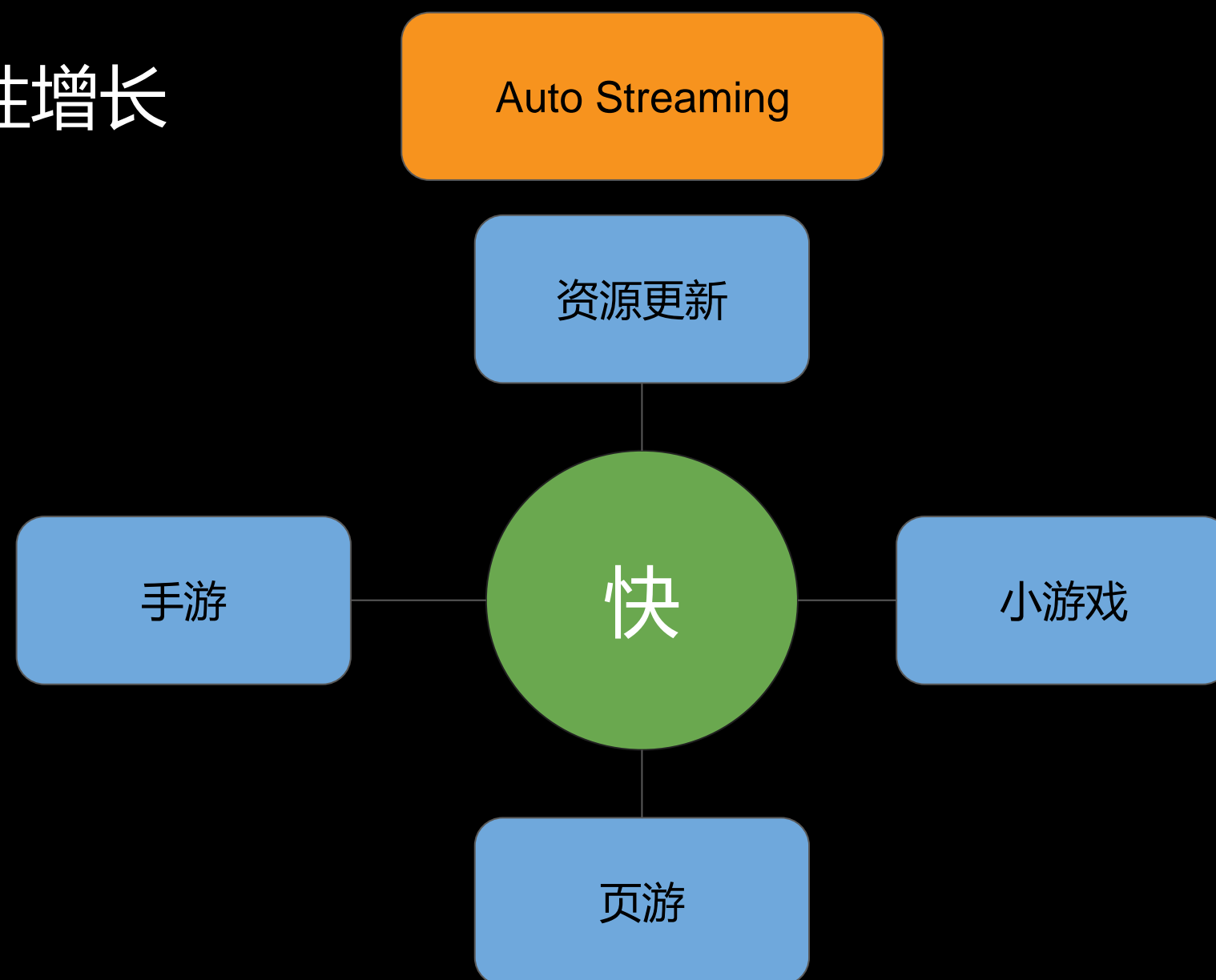


未开启Auto Streaming: 169MB

开启Auto Streaming: 60MB

快速启动有多重要？

- 快速触达玩家，爆发性增长
- 包体大小限制

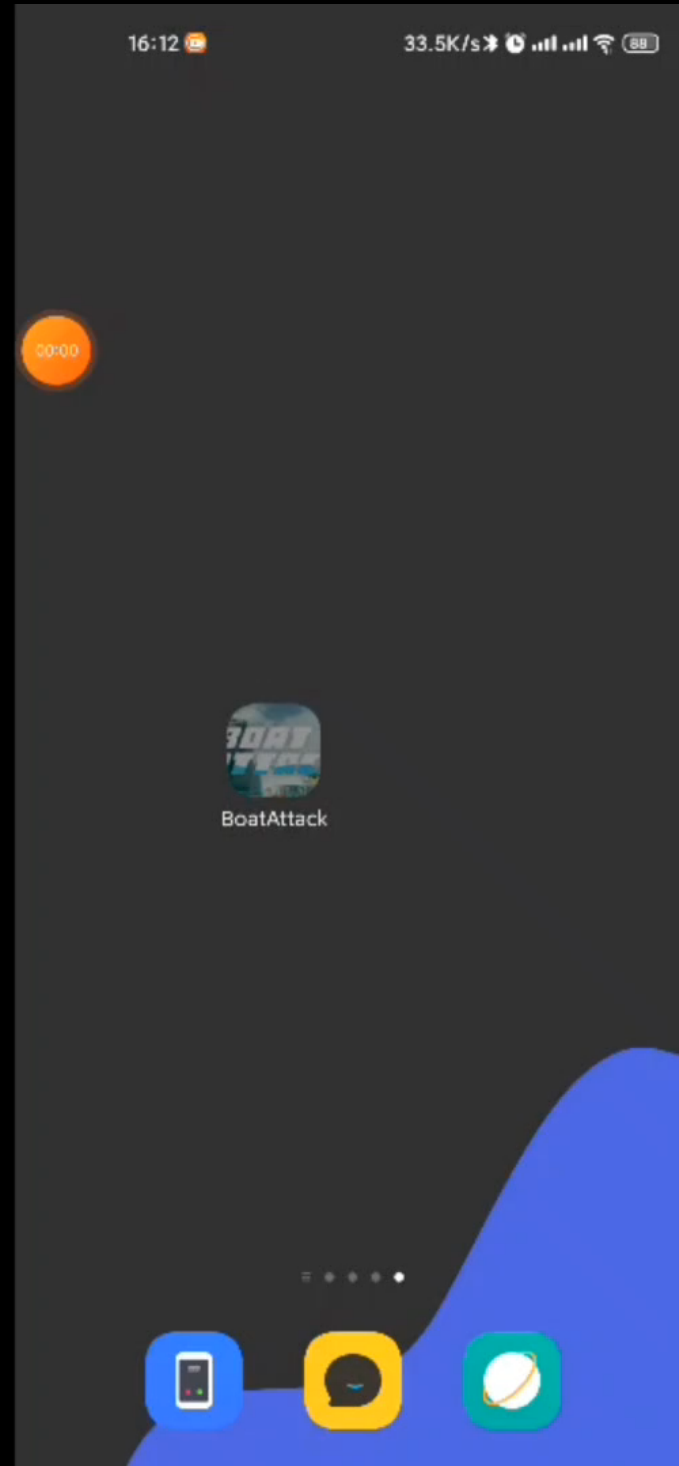


原始的Boat Attack



XRecorder

使用Auto Streaming的Boat Attack



XRecorder

Boat Attack包体大小对比

基于Auto Streaming的包体大小为**60 MB**

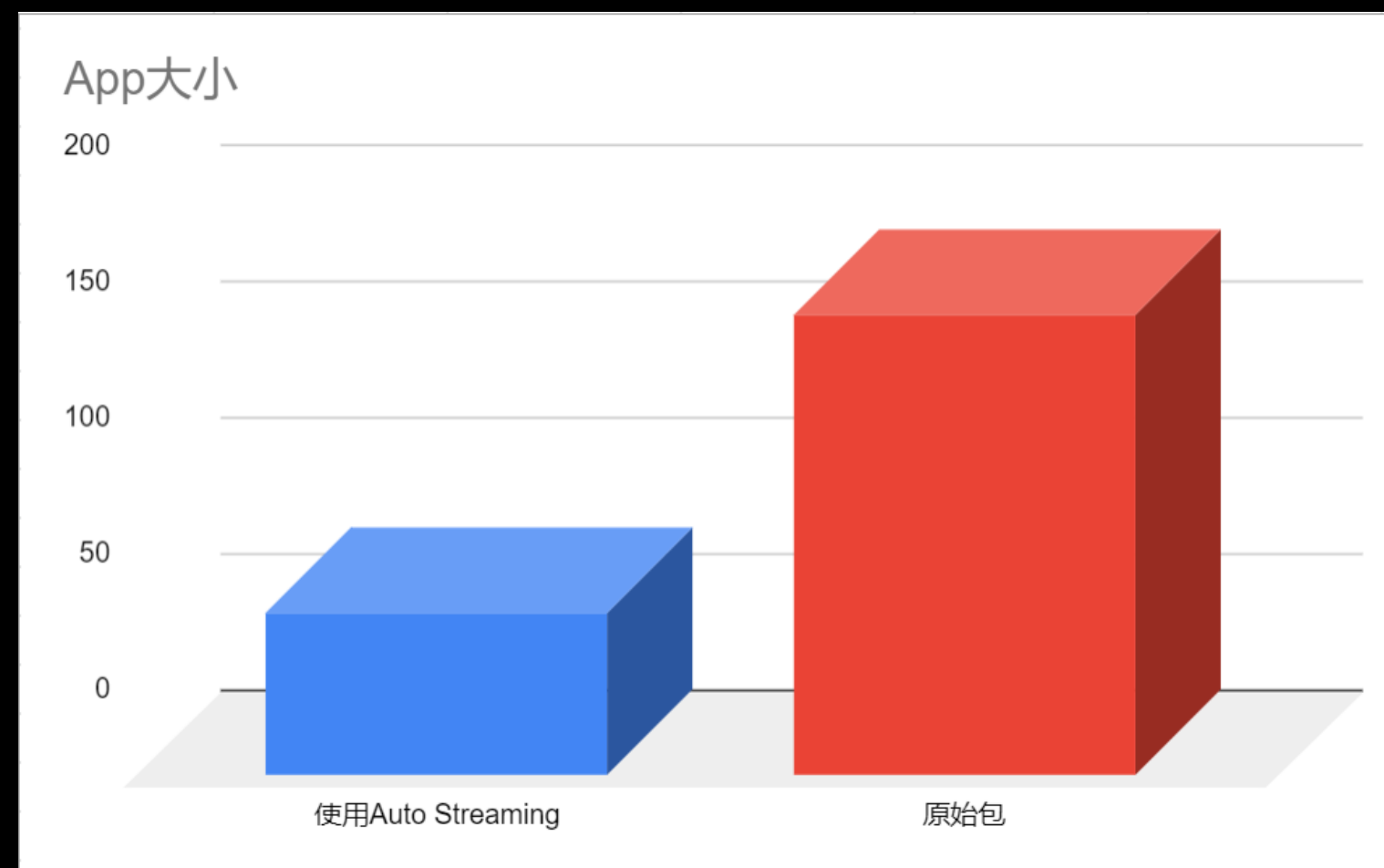
原始包体大小为**169 MB**

Textures **63/71**

Mesh **116/152**

工程地址

<https://plastichub.unity.cn/unity-tech-cn/AutoStreaming-Demo>



Auto Streaming支持的资源类型

- 🔒 Texture
- 🔒 Mesh
- 🔒 Audio
- 🔒 Animation
- 🔒 Font
- 🔒 Scene

Auto Streaming的跨平台支持

 Standalone Players

 Android

iOS iOS

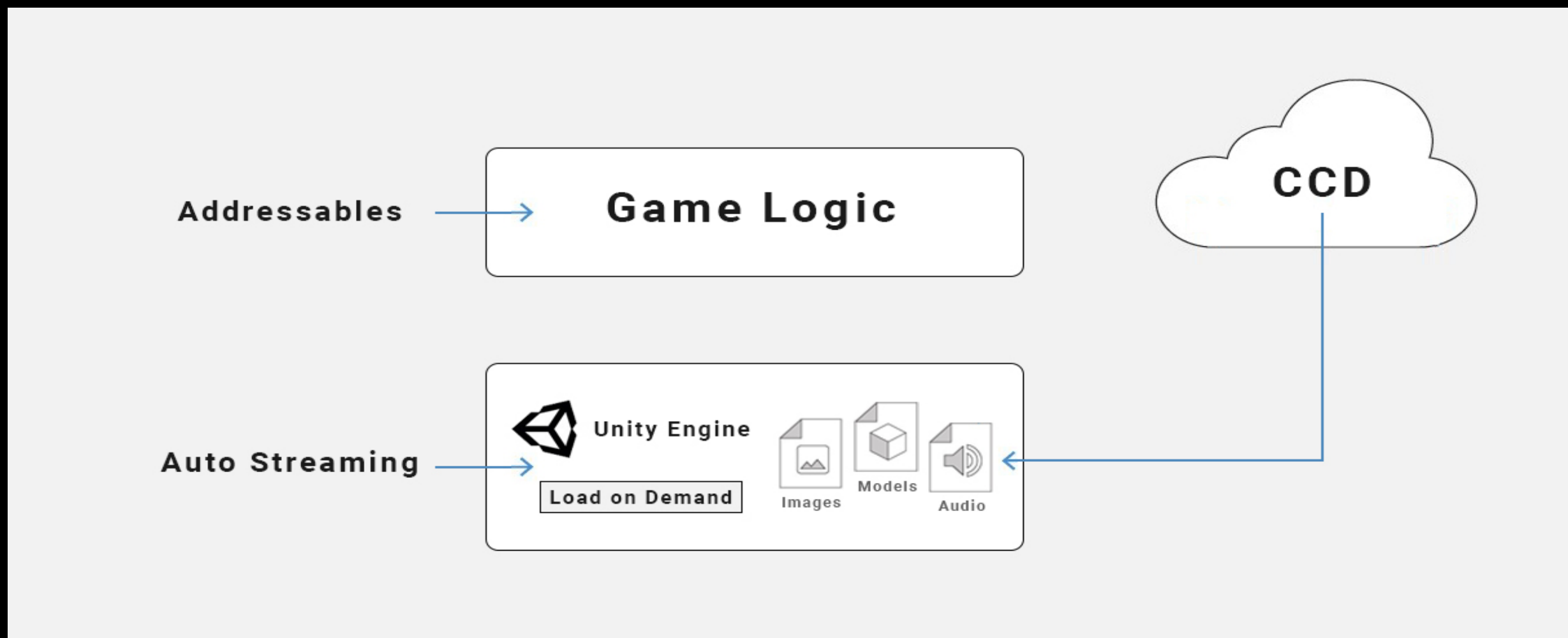
 WebGL

...

Editor ?

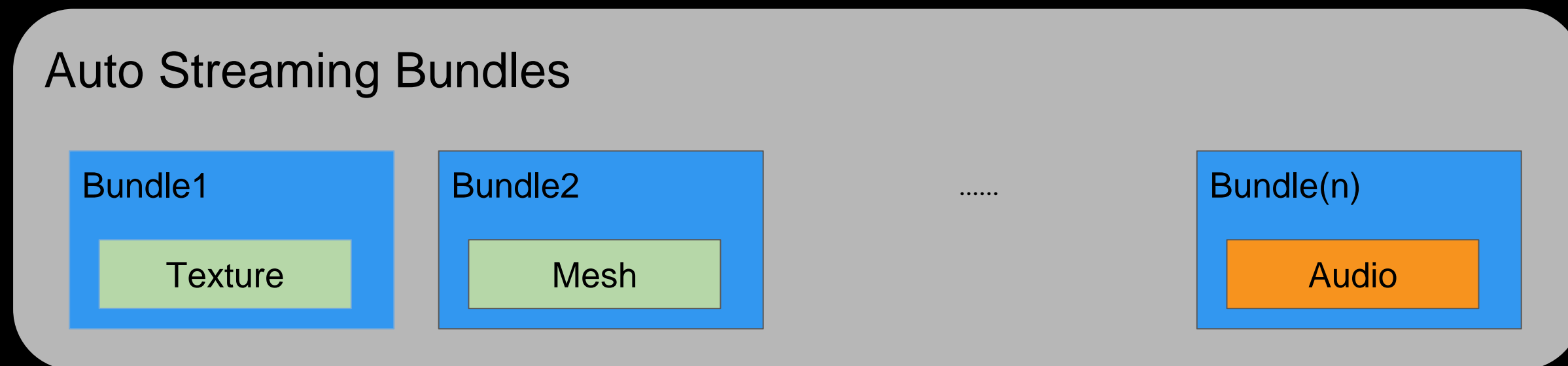
引擎底层实现 无需修改代码

Auto Streaming是对引擎内部资源加载模块进行了增强，自动去远程加载相关资源，因此该方案无需修改项目代码，只需在构建时指定需要Streaming的资源，制作成Streaming Asset Bundle并上传云端即可。



Auto Streaming Bundles

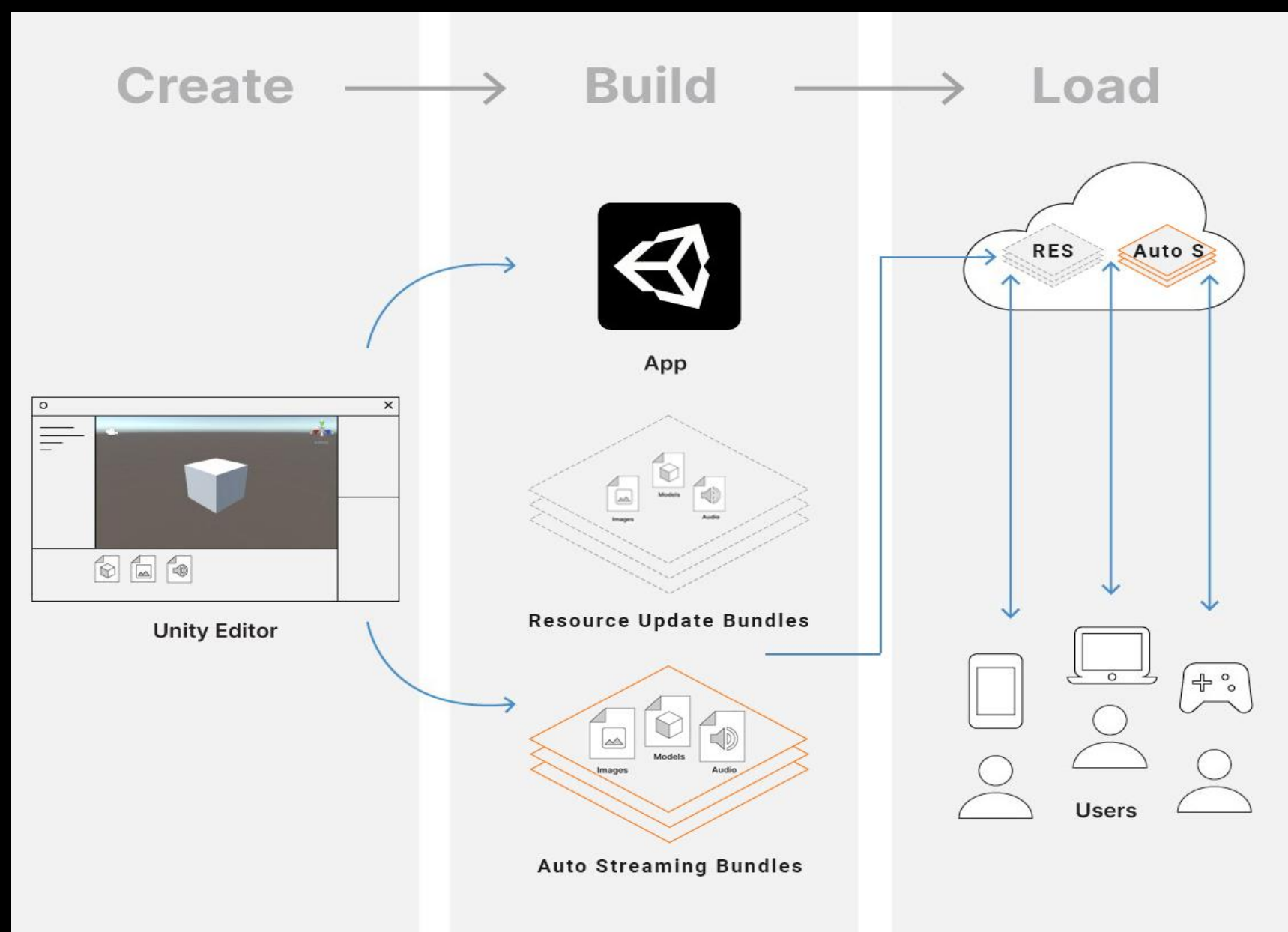
Auto Streaming的每一个资源会单独放入一个AssetBundle，利于资源的快速下载、显示以及内存回收。



仅首次下载，后续从缓存读取

支持Addressable Assets与AssetBundle

同时支持App与AssetBundle的资源缩减，因此资源更新的流程也会加快。





Auto Streaming演示

- Texture Streaming
- Mesh Streaming
- Configuration



Package Manager

+ ▾ Featured packages ▾

Advanced ▾ 🔍

Unity Technologies	
▶ Addressables.CN	1.18.11
▼ Auto Streaming	0.2.0-pre <input checked="" type="checkbox"/>
	See all versions
▶ Cloud Content Delivery	1.2.5
▶ Cloud Save	1.0.0-preview.2
▶ CloudBase	1.0.7
▶ ILRuntime	1.6.7
▶ MGOBE	1.0.9
▶ Plastic SCM	1.0.0
▶ Player Identity (CN)	0.2.7-preview.3
▶ SenseAR XR Plugin	3.1.0-preview.1
▶ ShaderProfiler	0.0.1-preview.1
▶ UIWidgets	1.5.4-preview.12

Auto Streaming

Version 0.2.0-pre - September 23, 2021 featured

Name
com.unity.autostreaming

Links
[View documentation](#)
[View changelog](#)
[View licenses](#)

Author
Unity Technologies

Registry Unity

Published Date
September 23, 2021

Auto Streaming adds support for on-demand asset streaming in China Unity Editor.

Dependencies

Auto Streaming	1.0.0	(enabled ✓)
Auto Streaming CCD	0.2.0-pre	(installed ✓)

⌂ Up to date Remove ↗

Bring All to Front

Windows >

Terrain >

Layouts >

Gameplay Ingredients >

Open Last Build Report

Auto Streaming

Asset Store 🏷️ 9

Package Manager

Asset Management >

TextMeshPro >

General >

Rendering >



Texture Streaming			Mesh Streaming				Configuration		
<input checked="" type="checkbox"/> Sync Textures	<input type="checkbox"/> Force Rebuild	<input checked="" type="checkbox"/> Generate AssetBundles	<input checked="" type="checkbox"/> Generate Placeholders		<input type="text" value=""/>		Selected: 63/71, AB: 0 B, Warning: 0		
AssetPath	RT Mem	Width	Height	Placeholder	BlurPlaceholder	AB	References	War	
Assets/Objects/boats/Interceptor/AlbedoAO.tif	5.3 MB	2048	2048	✓	<input type="checkbox"/>	0 B	0		
Assets/Objects/boats/Interceptor/MSLL.tif	5.3 MB	2048	2048	✓	<input type="checkbox"/>	0 B	0		
Assets/Objects/boats/Interceptor/Normal.tif	5.3 MB	2048	2048	✓	<input type="checkbox"/>	0 B	0		
Assets/Objects/boats/renegade/AlbedoAO.tif	5.3 MB	2048	2048	✓	<input type="checkbox"/>	0 B	0		
Assets/Objects/boats/renegade/MSLL.tif	5.3 MB	2048	2048	✓	<input type="checkbox"/>	0 B	0		
Assets/Objects/boats/renegade/Normal.tif	5.3 MB	2048	2048	✓	<input type="checkbox"/>	0 B	0		
Assets/Objects/environment/Cliffs/Maps/Cave_defaultMat_AONormal.tif	21.3 MB	4096	4096	✓	<input type="checkbox"/>	0 B	1,2		
Assets/Objects/environment/Cliffs/Maps/Cave_defaultMat_BaseCurvature.tif	21.3 MB	4096	4096	✓	<input type="checkbox"/>	0 B	1,2		
Assets/Objects/environment/Cliffs/Maps/Cliff_Full_01_defaultMat_AONormal.tif	5.3 MB	2048	2048	✓	<input type="checkbox"/>	0 B	1,2		
Assets/Objects/environment/Cliffs/Maps/Cliff_Full_01_defaultMat_BaseCurvature.tif	5.3 MB	2048	2048	✓	<input type="checkbox"/>	0 B	1,2		
Assets/Objects/environment/Cliffs/Maps/Cliff_defaultMat_AONormal.tif	21.3 MB	4096	4096	✓	<input type="checkbox"/>	0 B	1,2		
Assets/Objects/environment/Cliffs/Maps/Cliff_defaultMat_BaseCurvature.tif	21.3 MB	4096	4096	✓	<input type="checkbox"/>	0 B	1,2		
Assets/Objects/environment/Cliffs/Maps/Hero_defaultMat_AONormal.tif	21.3 MB	4096	4096	✓	<input type="checkbox"/>	0 B	1,2		
Assets/Objects/environment/Cliffs/Maps/Hero_defaultMat_BaseCurvature.tif	21.3 MB	4096	4096	✓	<input type="checkbox"/>	0 B	1,2		
Assets/Objects/environment/Cliffs/Maps/Rocks_defaultMat_AONormal.tif	21.3 MB	4096	4096	✓	<input type="checkbox"/>	0 B	0,1,2		
Assets/Objects/environment/Cliffs/Maps/Rocks_defaultMat_BaseCurvature.tif	21.3 MB	4096	4096	✓	<input type="checkbox"/>	0 B	0,1,2		
Assets/Objects/environment/Clouds/Clouds.tif	16.0 MB	4096	4096	✓	<input type="checkbox"/>	0 B	0,1,2		
Assets/Objects/environment/Clouds/Clouds_AO.tif	2.7 MB	2048	2048	✓	<input type="checkbox"/>	0 B	0,1,2		
Assets/Objects/environment/Trees/Maps/TreeBillBoards_Normal_Smoothness.tif	5.3 MB	2048	2048	✓	<input type="checkbox"/>	0 B	0,1,2		
Assets/Objects/environment/Trees/Maps/TreeBillBoards_albedo.png	5.3 MB	2048	2048	✓	<input type="checkbox"/>	0 B	0,1,2		
Assets/Objects/environment/Trees/Maps/Trees_Albedo.png	5.3 MB	2048	2048	✓	<input type="checkbox"/>	0 B	0,1,2		
Assets/Objects/environment/Trees/Maps/Trees_Normal_Smoothness.tif	5.3 MB	2048	2048	✓	<input type="checkbox"/>	0 B	0,1,2		
Assets/Objects/props/houses/Maps/HousesJetty_LOW_Matr_BuildingsJettys_AlbedoT	2.7 MB	2048	2048	✓	<input type="checkbox"/>	0 B	0,1,2		
Assets/Objects/props/houses/Maps/HousesJetty_LOW_Matr_BuildingsJettys_Emissior	2.7 MB	2048	2048	✓	<input type="checkbox"/>	0 B	0,1,2		
Assets/Objects/props/houses/Maps/HousesJetty_LOW_Matr_BuildingsJettys_Metallic!	5.3 MB	2048	2048	✓	<input type="checkbox"/>	0 B	0,1,2		
Assets/Objects/props/houses/Maps/HousesJetty_LOW_Matr_BuildingsJettys_Normal.t	5.3 MB	2048	2048	✓	<input type="checkbox"/>	0 B	0,1,2		
Assets/Objects/props/props/Maps/Props_LOW_Matr_Props_AlbedoTransparency.tif	5.3 MB	2048	2048	✓	<input type="checkbox"/>	0 B	0,1,2		



Texture Streaming			Mesh Streaming				Configuration		
<input checked="" type="checkbox"/> Sync Textures	<input type="checkbox"/> Force Rebuild	<input type="checkbox"/> Generate AssetBundles	<input type="checkbox"/> Generate Placeholders		<input type="text" value="normal"/>		Selected: 63/71, AB: 0 B, Warning: 0		
AssetPath	RT Mem	Width	Height	Placeholder	BlurPlaceholder	AB	References	War	
Assets/Objects/boats/Interceptor/Normal.tif	5.3 MB	2048	2048	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0 B	0		
Assets/Objects/boats/renegade/Normal.tif	5.3 MB	2048	2048	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0 B	0		
Assets/Objects/environment/Cliffs/Maps/Cave_defaultMat_AONormal.tif	21.3 MB	4096	4096	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0 B	1,2		
Assets/Objects/environment/Cliffs/Maps/Cliff_defaultMat_AONormal.tif	21.3 MB	4096	4096	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0 B	1,2		
Assets/Objects/environment/Cliffs/Maps/Cliff_Full_01_defaultMat_AONormal.tif	5.3 MB	2048	2048	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0 B	1,2		
Assets/Objects/environment/Cliffs/Maps/Hero_defaultMat_AONormal.tif	21.3 MB	4096	4096	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0 B	1,2		
Assets/Objects/environment/Cliffs/Maps/Rocks_defaultMat_AONormal.tif	21.3 MB	4096	4096	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0 B	0,1,2		
Assets/Objects/environment/Trees/Maps/TreeBillBoards_Normal_Smoothness.tif	5.3 MB	2048	2048	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0 B	0,1,2		
Assets/Objects/environment/Trees/Maps/Trees_Normal_Smoothness.tif	5.3 MB	2048	2048	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0 B	0,1,2		
Assets/Objects/props/houses/Maps/HousesJetty_LOW_Matr_BuildingsJettys_Normal.t	5.3 MB	2048	2048	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0 B	0,1,2		
Assets/Objects/props/props/Maps/Props_LOW_Matr_Props_Normal.tif	21.3 MB	4096	4096	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0 B	0,1,2		
Assets/Textures/Island/Rock_normal.tif	85.4 KB	256	256	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0 B	0,1,2		
Assets/Textures/normalNoise.png	256.0 KB	256	256	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0 B	0,1,2		
Assets/Textures/Terrain/BeachSand_normal.tif	1.3 MB	1024	1024	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0 B	0,1,2		
Assets/Textures/Terrain/Bush_normal.tif	1.3 MB	1024	1024	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0 B	0,1,2		
Assets/Textures/Terrain/SandRocks_normal.tif	1.3 MB	1024	1024	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0 B	0,1,2		



Texture Streaming	Mesh Streaming			Configuration	
Sync Meshes	<input type="text" value=""/>			Selected: 116/152, RT: 4.4 MB, Warning: 0	
AssetPath	RT Mem	OnDemandDownload	References	War	
Assets/Objects/boats/Interceptor/Interceptor.fbx:Boat_Interceptor	99.9 KB	<input type="checkbox"/>	0		
Assets/Objects/boats/Interceptor/Interceptor.fbx:physics	7.5 KB	<input type="checkbox"/>	0		
Assets/Objects/boats/Interceptor/Interceptor.fbx:Boat_Interceptor_Engine	5.3 KB	<input type="checkbox"/>	0		
Assets/Objects/boats/renegade/Renegade.fbx:Engine	12.2 KB	<input type="checkbox"/>	0		
Assets/Objects/boats/renegade/Renegade.fbx:Speedboat	39.4 KB	<input type="checkbox"/>	0		
Assets/Objects/environment/Clouds/Clouds.fbx:Cloud3	3.9 KB	<input type="checkbox"/>	0,1		
Assets/Objects/environment/Clouds/Clouds.fbx:Cloud6	8.9 KB	<input type="checkbox"/>	0,1		
Assets/Objects/environment/Clouds/Clouds.fbx:Cloud4	4.7 KB	<input type="checkbox"/>	0,1		
Assets/Objects/environment/Clouds/Clouds.fbx:Cloud5	9.2 KB	<input type="checkbox"/>	0,1		
Assets/Objects/environment/Clouds/Clouds.fbx:Cloud1	4.8 KB	<input type="checkbox"/>	0,1		
Assets/Objects/environment/Clouds/Clouds.fbx:Cloud2	5.9 KB	<input type="checkbox"/>	0,1		
Assets/Objects/props/props/Meshes/Props_low.fbx:Geo_Props_Blimp	10.3 KB	<input checked="" type="checkbox"/>	0,1		
Assets/Objects/props/props/Meshes/Props_low.fbx:Geo_Props_Kayak	5.7 KB	<input checked="" type="checkbox"/>	0,1		
Assets/Objects/props/props/Meshes/Props_low.fbx:Geo_Props_Bouy_LOD_0	9.8 KB	<input checked="" type="checkbox"/>	1		
Assets/Objects/props/props/Meshes/Props_low.fbx:Geo_Props_Umbrella_LOD_0	16.1 KB	<input checked="" type="checkbox"/>	0,1		
Assets/Objects/props/props/Meshes/Props_low.fbx:Geo_Props_WindSurfer_LOD_0	26.6 KB	<input checked="" type="checkbox"/>	0,1		
Assets/Objects/props/props/Meshes/Props_low.fbx:Geo_Props_Chair_LOD_0	6.5 KB	<input checked="" type="checkbox"/>	0,1		
Assets/Objects/props/props/Meshes/Props_low.fbx:Geo_Props_Paraglider_LOD_0	24.5 KB	<input checked="" type="checkbox"/>	0,1		
Assets/Objects/props/props/Meshes/Props_low.fbx:Geo_Props_ArrowSign_LOD_0	20.8 KB	<input checked="" type="checkbox"/>	1		
Assets/Objects/props/props/Meshes/Props_low.fbx:Geo_Props_Bouy_LOD_1	3.0 KB	<input checked="" type="checkbox"/>	1		
Assets/Objects/props/props/Meshes/Props_low.fbx:Geo_Props_Umbrella_LOD_1	5.7 KB	<input checked="" type="checkbox"/>	0,1		
Assets/Objects/props/props/Meshes/Props_low.fbx:Geo_Props_Chair_LOD_1	3.8 KB	<input checked="" type="checkbox"/>	0,1		
Assets/Objects/props/props/Meshes/Props_low.fbx:Geo_Props_WindSurfer_LOD_1	13.5 KB	<input checked="" type="checkbox"/>	0,1		
Assets/Objects/props/props/Meshes/Props_low.fbx:Geo_Props_Paraglider_LOD_1	10.9 KB	<input checked="" type="checkbox"/>	0,1		
Assets/Objects/props/props/Meshes/Props_low.fbx:Geo_Props_ArrowSign_LOD_1	5.8 KB	<input checked="" type="checkbox"/>	1		
Assets/Objects/environment/Cliffs/Meshes/Env_Rocks.fbx:Rock_Medium_02_LOD2	4.5 KB	<input checked="" type="checkbox"/>	1		
Assets/Objects/environment/Cliffs/Meshes/Env_Rocks.fbx:Rock_Small_04_LOD2	2.0 KB	<input checked="" type="checkbox"/>	0,1		




Texture Streaming Mesh Streaming Configuration

Use AutoStreaming

Auto Streaming Path

COS Key

Project UPID

 COS Key/Project Uuid is empty or invalid, please fill them with values from CCD Website.

Bucket to Use

Badge to Use

Custom AB Assets

技术稳定 服务可靠

□ 在即时游戏中的使用

Auto Streaming技术方案已经在Unity与字节、快手等合作的Instant Game平台中使用一段时间，并且稳定运行。<https://unity.cn/instantgame>

- 游戏数量 100+
- 单款DAU 100万+
- 累计用户 1000万+

技术稳定 服务可靠 (续)

▫ 与宝宝巴士的企业级合作

运用Auto Streaming技术针对宝宝巴士的若干热门产品进行缩减包体，在保证质量的前提下将包体缩减将近一半。



Next

- 2021.2 支持
- 资源热更新
- 资源优先级、预加载
- 支持Addressable Assets & AssetBundle的增量构建
- ...

Thank you

For more information, visit:

<https://unity.cn/autostreaming>

Auto Streaming官方群
628540768

