Using Unity To Create Better Gaming Experiences on Tizen

Liming Zhang
Agenda

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  - Unity
  - What’s new in Unity 5.0

- Getting Started with Tizen Development
  - Setting up Unity
  - Tizen Details
  - Building Plugins for Tizen

- Getting Started with Samsung TV Development
  - Samsung TV Setup
  - Samsung TV Input
  - Restrictions and Not Support

- FAQ
What is Unity

AN ECOSYSTEM FOR YOUR CREATIVE SUCCESS

The game engine used by over 4 million people.

The Asset Store, for ready-made assets and production tools.

The generosity of the Unity Community.

New services to market your game and grow your audience.

LEARN MORE

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**INDUSTRY-LEADING MULTIPLATFORM SUPPORT**

Experience polished, end-to-end multiplatform development. Confidently target today’s hottest platforms and the ones that will shape the future. Efficiently optimize performance with cross-platform tools and deploy with near one-click ease.

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**MORE ABOUT MULTIPLATFORM**
Tool Chain

- Physically-Based Shading
- Advanced Memory Profiling
- Intuitive UI Tools
- Powerful Animation Technology

More about the Editor
## WHAT’S IN THE BOX?

With Unity you get all this out of the box, with no supplementary licenses necessary:

### ANIMATION
- Retargetable animations
- Full control of animation weights at runtime
- Event calling from within the animation playback
- Sophisticated State Machine hierarchies and transitions
- Blend shapes for facial animations

### GRAPHICS
- Enlighten-powered Real-time Global Illumination
- Physically-based shading
- Reflection probes
- Curve and gradient-driven modular particle system
- Intuitive UI tools

### OPTIMIZATION
- Advanced memory profiling
- Umbra-powered occlusion culling
- Asset bundling
- Level of detail support
- Build size stripping
- Multi-threaded job system

### AUDIO
- Real-time mixing and mastering
- Hierarchies of mixers, snapshots and predefined effects

### 2D AND 3D PHYSICS
- Box2D with a comprehensive range of effectors, joints and colliders
- NVIDIA® PhysX® 3.3

### VERSION CONTROL
- Full integration support for Perforce and Plastic SCM

### SCRIPTING
- C#, JavaScript or Boo
- AI features with advanced automated path finding and Navigation Meshes

[LEARN MORE] [TUTORIALS]
SAVE TIME AND EFFORT WITH THE ASSET STORE

Shop in the Asset Store directly from the Unity Editor or your web browser. With thousands of ready-made free or for purchase assets and production tools, you are sure to find something tailored to your specific needs. Select from a vast array of Editor extensions, plug-ins, environments and models and much more.

MORE ABOUT ASSET STORE
Cloud Services

CONNECT TO YOUR PLAYERS FOR GREATER SUCCESS

Unity is more than an engine. It also brings a growing range of integrated services to engage, retain and monetize audiences.

MORE ABOUT SERVICES

UNITY ADS
Grow your revenue

UNITY ANALYTICS
Get actionable insights into player behavior

UNITY EVERYPLAY
Attract and retain players

UNITY CLOUD BUILD
Create and share builds automatically

UNITY PERFORMANCE REPORTING
Capture your game’s exceptions

UNITY MULTIPLAYER
Networking made easy
What’s new in Unity 5.0

- Realtime GI and Physics Based Shading
- New Audio Mixer
- WebGL Preview
- Oculus Rift and GearVR support
Realtime GI and Physics Based Shading

PHYSICALLY BASED SHADING
The Standard Shader in Unity 5 is easy to use and extremely flexible at the same time. Therefore, we were able to iterate quickly on material quality.

STANDARD SHADER

CUSTOM SOLUTION FOR HIGH RESOLUTION REALTIME SHADOWS

CUSTOM SHADER FOR HAIR AND BEARD
New Audio Mixer

Audio Mixer

Mixer Tree

Outputs

Views

Snapshots

Default Snapshot
UNITY FOR WEB

TARGET THE WEB WITH CONFIDENCE

Access complimentary build options for Web publishing in Unity 5. Once a user installs it, the hugely popular Unity Web Player plugin updates automatically. Use it to deploy to Internet Explorer, Safari, Mozilla Firefox and more.

Depending on your use case, Unity's new highly-optimized WebGL build option can deliver performance at native speeds. It's already used in a number of successful commercial titles.
UNITY FOR **VR AND AR**

**LEADING THE REVOLUTION**

At Unity we’re VR enthusiasts, and it shows. Our highly optimized rendering pipeline can help you achieve exceptional frame rates. That, and the Unity editor’s rapid iteration capabilities, have already helped to make Unity far and away the most widely used VR development platform.

Native Oculus Rift and Gear VR support are available to Unity developers right now, and we’re adding additional platforms all the time. Microsoft HoloLens support is upcoming, and there are further unannounced platforms in the pipeline.

LEARN MORE
Getting Started with Tizen Development

- Setting up Unity
- Tizen Details
- Building Plugins for Tizen
Setting up Unity

1. Install the Tizen SDK
   
   [link](http://developer.tizen.org/downloads/tizen-sdk)

2. Download and Install the Tizen Certificate Extension SDK
   
   [link](http://developer.samsung.com/technical-doc/view.do?v=T000000198)
Setting up Unity

3. Enable USB debugging on your device:

   Launch the Phone app from the home screen.

4. Create a signing certificate:

   Directions for creating a signing certificate can be found via the Tizen IDE.
5. Set up the Tizen CLI environment:

Windows:
.	\tizen-sdk\tools\ide\bin\tizen.bat cli-config "default.profiles.path=C:\path\to\workspace\.metadata\.plugins\org.tizen.common.sign\profiles.xml"

OS X:
.	\tizen-sdk\tools\ide\bin\tizen.sh cli-config default.profiles.path=/path/to/workspace/\.metadata/\.plugins/org.tizen.common.sign/profiles.xml
Setting up Unity

6. Launching your game:
Player Settings - Resolution and Presentation
Setting up Unity

Player Settings - Icon
Setting up Unity

Player Settings - Other Settings

- **Rendering**
  - Rendering Path: Forward
  - Static Batching: On
  - Dynamic Batching: On

- **Identification**
  - Bundle Identifier: com.Unity3D.
  - Bundle Version: 3.0.0

- **Configuration**
  - Scripting Backend: Default
  - Disable HW Statistics: Off
  - GPS Location: Off
  - Microphone: Off
  - Scripting Define Symbols: Off

- **Optimization**
  - Api Compatibility Level: .NET 2.0 Sub
  - Prebake Collision Meshes: Off
  - Preload Shaders: Off
  - Preloaded Assets: Off
  - Stripping Level: Disabled
  - Optimize Mesh Data: Off

* Shared setting between multiple platforms.
Setting up Unity

Player Settings - Publishing Settings

- Publishing Settings
  - Product Description
  - Product URL
  - Signing Profile Name: default

- Capabilities
  - Location
  - DataSharing
  - NetworkGet
  - WifiDirect
  - CallHistoryRead
  - Power
  - ContactWrite
  - MessageWrite
  - ContentWrite
  - Push
  - AccountRead
Install Unity Launcher

Unity Setup

- Open Unity with Samsung TV support.
- In File->Build Settings, switch the Build Target to Samsung TV.
- Obtain the IP address of the TV from Unity Launcher.
Insert TV’s IP address into the PlayerSettings -> Publishing Settings -> Device Address.
Samsung TV Input

The input mechanism is different depending on the model of TV.

Touch Remote – Large clickable touchpad is the main input mechanism

Air Remote – Small clickable touchpad with gyro and arrow buttons
Detecting Remote Type

You can use

```
SamsungTV.airMouseConnected
```

to determine if you have an Air Remote or Touch Remote connected.
Input Modes

You select one of three input modes. Each input mode maps to the controller type.

- DPAD
- Joystick
- Mouse
Samsung TV Input - Input Modes

**DPAD**

```
SamsungTV.touchPadMode = SamsungTV.TouchPadMode.Dpad;
```

- **Touch Remote:**
  - Swiping sends keyboard arrow key events.

- **Air Remote:**
  - Physical up, down, left and right buttons around the touchpad send keyboard arrow key events.

```csharp
if (Input.GetKeyDown(KeyCode.RightArrow))
{
    // Right DPAD event
}

if (Input.GetKeyDown(KeyCode.Return))
{
    // touchpad clicked
}
```
Samsung TV Input - Input Modes

Joystick

SamsungTV.touchPadMode = SamsungTV.TouchPadMode.Joystick;

Touch Remote and Air Remote:

- Touchpad works like an analog joystick producing values from $-1$ to $1$ on two axes.
- For air mouse, you can alternatively use gyro data to get more precision.

```csharp
// Set up axis Touchpad x in input manager as joystick 2 x axis.
Input.GetAxis ("Touchpad x"); // joystick 2 y axis
Input.GetAxis ("Touchpad y");
if (Input.GetKeyDown (KeyCode.Return))
{
    // touchpad clicked
}
```
Samsung TV Input - Input Modes

**Mouse**

`SamsungTV.touchPadMode = SamsungTV.TouchPadMode.Mouse;`

**Touch Remote:**

Touchpad controls a mouse cursor like a laptop's touchpad.

**Air Remote:**

Placing one finger on the touchpad activates *air mouse mode*.

// Sets the cursor image (cursor is a Texture2D)
Cursor.SetCursor (cursor, Vector2.zero, CursorMode.Auto);

// Position of the mouse pointer
Vector3 pos = Input.mousePosition;

if (Input.GetMouseButton(0))
{
   // touchpad clicked
}
Samsung TV Input

Exiting a Game

If the user presses the RETURN / EXIT key, KeyCode.Escape button is pressed and can be caught by your game. If desired, the game can exit by calling

Application.Quit().

A user can directly exit a game by long pressing on the RETURN / EXIT key of the remote. If this occurs, the OnApplicationQuit message is sent to user scripts.
Samsung TV Input

Camera Gestures

Certain TV models have a camera which can detect hand positions.

Gamepad Input

You can use gamepad input as you would on any other platform.
Restrictions

Because of the security model on Samsung Smart TV, the following restrictions are enforced:

- WebPlayer security model is active.

- File access is not allowed. Please use PlayerPrefs to persist user data.

- Native plugins are only allowed if signed by Samsung. If you are interested in developing a native plugin for Samsung TV, please post on the forum.
Certain features are not yet available on Samsung Smart TV due to no SDK support.

- Movie Playback
- Webcam Texture from TV’s built in camera
- Voice Controls
- Open URL in browser
- Stereo 3D image output
- Script debugging (kernel limitation)
FAQ

Is the emulator supported?

No the Tizen emulator is not supported.

What can I do to extend battery life?

If you are not using the Gyroscope, consider turning it off using:

```java
Input.gyro.enabled = false;
```

in your game start-up code.

How can I place my completed Unity project for sale on the Tizen Store?

http://www.tizenstore.com/
Q&A
Thanks