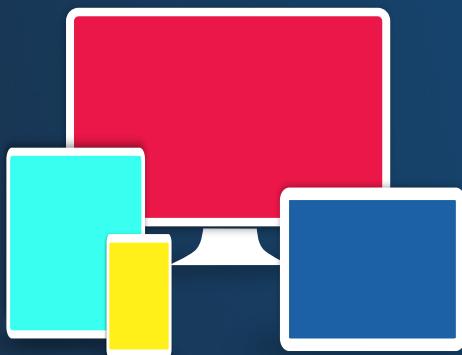


# Multi Device Preview & Gallery



v1.6.0  
for Unity 5.0 to 2018.2

©Arnaud Emilien

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**Thank you** for purchasing *Multi Device Preview & Gallery!* I wish this package will meet your needs and expectations. Please do not hesitate to contact me if you have a feature request, or any question, issue or suggestion.

Arnaud,  
[support@wildmagegames.com](mailto:support@wildmagegames.com)

# 1 OVERVIEW

## 1.1 Introduction

*Multi Device Preview & Gallery* gives you an accurate preview of your game for multiple devices, resolutions, and aspects, at a glance.

Preview at the device's physical size to check that your game content and UI are properly scaled, and use the resolutions and ratios previews to see how your game looks like on several configurations.

This is the very essential tool for developers making applications for multi resolution devices, like mobile developers. No more bad surprises, no more tedious checks, no need to buy dozens of devices. This asset will save you a lot of time, which you can use to focus on your game!

## 1.2 Features

- Use the Gallery to preview your game at several resolutions, aspects, and devices (ppi simulation) at a glance.
- Edit your game and GUI and see immediately what your changes look like on all selected devices.
- (**NEW**) Play your game and check that everything looks fine on any device with the Live Preview.
- (**NEW**) Automatically add your target devices to the GameView presets to play or edit at the device resolution.
- Preview at the device physical sizes with the ppi simulation, to better scale your UI content. No more bad surprises, unclickable buttons and unreadable texts, what you see is what you get!
- More than 120 mobile phone and tablet presets with their PPI, including the most popular smartphones on the market: Apple, Samsung, Google, HTC, etc.
- Use the Mobile, Standalone and PC popularity presets, to be sure that your game works perfectly with the most popular resolutions of your target platforms.
- More than 50 resolution presets sorted by ratios to test all the cases.
- Easily export screenshots for all Stores (Amazon, Google Play, App Store, Windows Store, etc.)
- Easily add your custom resolutions and devices.
- (**NEW**) Update using the hotkeys, or enable auto-refresh in play mode and/or in edit mode.

Also, this package comes with all the features of *Ultimate Screenshot Creator*, which is the ideal tool to create professional marketing and PR assets, wallpapers, mobile store screenshots, and more.

## **1 OVERVIEW**

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- Perfectly works with Unity 4.6 and later UI system.
- Capture multiple resolution screenshots in one click.
- **(NEW)** Export your screenshots to Android Gallery.
- **(NEW)** Export your screenshots to iOS Camera Roll.
- **(NEW)** Capture screenshots in-game on all platforms.
- **(NEW)** In-game gallery to manage the taken screenshots.
- **(NEW)** Display a validation UI to the user to save the screenshot or discard it.
- Customizable set of cameras with custom rendering properties, such as culling mask, clear mode, clear color and field of view.
- Customizable overlay system to automatically include your game logo, watermarks, and more.
- In-game preview with photography guides to better frame your screenshots.
- Burst mode not to miss the best moments, or to be used as input of a GIF creator software.
- Ultra HD screenshots.
- Powerful naming system with symbols to customize the export folder and file names.
- Easily export screenshots for all Stores (Amazon, Google Play, App Store, Windows Store, etc.)

### **More Features.**

- **(NEW)** Export to several layers.
- **(NEW)** Capture only a sub-part of the screen.
- **(NEW)** Use the ScreenshotWindow to easily take screenshots in editor.
- **(NEW)** Export the screenshots to platforms Picture Folder.
- Export to PNG and JPG.
- Robust transparent backgrounds solution.
- Landscape and portrait mode.
- Screenshot preview, with photography guides.
- Resolution scaling.
- Customizable shot sound.
- Customizable hotkeys.
- Customizable export folder.
- Align cameras to view utils.

- Use the delegates to call your code during the capture process.
- Time management utils.
- Increment file name or override existing files.
- (NEW) Compatible with the new Unity post process stack.
- (NEW) Support multi-display settings.
- (NEW) Support of WebGL.

### 1.3 Requirements

- The solution works with Unity 5.0 and later free or pro edition.
- Unity 5.4 and later is recommended for live preview.
- On iOS, adding the picture to the phone gallery requiers the Photo Gallery access rights.  
By disabling some of the asset features it is possible to remove that requirement, see Section [9.4](#) for more details.
- We advise to use Unity 5.4 and later for a better GameView management using *GAMEVIEW\_RESIZING* in editor (see FAQ [10.14](#)).

### 1.4 Limitations

- Unity WebPlayer platform is not supported.
- SpeedTree leaves can not be rendered with a transparent background.

### 1.5 Known Issues

- On Unity 2018.1 and later, UI element with a stretch anchor within canvas using a constant physical size canvas scaler may not be positioned correctly in the preview.
- Possible incompatibility with obfuscators. Whitelist the namespace AlmostEngine.Screenshot.

## 2 QUICK START GUIDE

### 2.1 Quick Configuration

1. Open the gallery window in the menu *Window/Multi Device Preview and Gallery/Gallery*, or the preview window in the menu *Window/Multi Device Preview and Gallery/Device Preview*.
2. Open the settings window in the menu *Window/Multi Device Preview and Gallery/Settings*, or using the *Settings* button in the gallery or preview window. The settings are saved using a asset stored in the Resources folder.
3. Set your screen PPI in the Gallery section. A wrong PPI would result in a bad device scaling in ppi mode.
4. Select the resolutions to be used for the preview, create your own, or use the list + button to add one of the preset resolutions.
5. Set the destination folder and the filename for exporting the screenshots.
6. Select the display mode: *RATIO*, *PPI*, or *PIXELS*.
7. Click on Update in the window to create a preview of all selected resolutions. Note that you can also use and customize the menu item hotkeys (Section 7.5).

### 2.2 Ultimate Screenshot Creator Workflows

Ultimate Screenshot Creator is a very flexible and easy to use asset, and there are several ways to use it. In the following section, we describe some of the most common way to use it.

#### 2.2.1 Take screenshots in editor: **ScreenshotWindow**

The ScreenshotWindow is an editor window providing a quick way to take screenshots in editor. It can be fully configured and its settings are saved automatically.

1. Open the screenshot window in the menu *Window/Screenshot Window*.
2. Edit the window settings (see below).
3. The settings are automatically saved, except scene object references. For a persistent references to scene objects, use a ScreenshotManager.

You will find more details about the ScreenshotWindow on Section 6.

#### 2.2.2 Easy to use in-game screenshots: **ScreenshotManager**

The ScreenshotManager is a gameobject to be added on the scene to take screenshots in editor or in play mode. It is an all-in-one and easy to configure screenshot solution. It handles everything, like filenames, export directory, camera, canvas, etc.

1. Put the *ScreenshotManager* prefab into your scene.
2. Select the *ScreenshotManager* to configure it (see below).

3. Do not forget to Apply your modifications to the prefab to save them, or to create a new prefab.

You will find more details about the ScreenshotManager on Section [7](#).

*Available Example:* In the DefaultExample scene, the "ScreenshotManager" game object has a ScreenshotManager component.

### 2.2.3 Capture and export screenshots from script: SimpleScreenshotCapture

There are several way to take screenshot from scripts. For instance you can configure a ScreenshotManager game object and call the Capture() method from a custom script.

You can also take screenshots without any ScreenshotManager, by using the ScreenshotTaker.Capture() static methods. You can chose to capture the current screen, a set of cameras, or to specify all capture settings. It will take the screenshot and export it using the given fullname. See Section [11.1](#) for more details.

*Available Example:* In the DefaultExample scene, the "Simple Capture Script Example" game object has a CaptureScreenshotExample component.

### 2.2.4 Capture textures from script: ScreenshotTaker

The ScreenshotTaker component is the core of all screenshot taking methods of the asset. It provides several capture coroutines, for instance to capture the current screen, a set of cameras, etc. At the end of the coroutine process, the provided texture is updated and can be used directly. See Section [11.1](#) for more details.

*Available Example:* In the DefaultExample scene, the "CaptureTextureCanvas Example" game object has a CaptureCameraToTextureExample component.

## 2.3 Quick Screenshot Configuration

1. Select the capture mode. *GAMEVIEW\_RESIZING* is the most robust capture mode, and captures the UI perfectly. It works in Editor and Windows Standalone only. *RENDER\_TO\_TEXTURE* works in editor and on all platforms, but Screenspace Overlay UI are not rendered. *FIXED\_GAMEVIEW* works in editor and on all platforms, can only capture at the current screen resolution. It is the recommended settings for taking screenshots in-game.
2. Set the destination folder and the filename.
3. Select the camera mode: *GAME\_VIEW* mode copies what you see in game view, *CUSTOM\_CAMERAS* mode allows you to use a set of cameras. In custom mode, select the cameras to be used for the capture.  
Note that you can also customize their rendering settings.
4. Select the resolutions mode: *GAME\_VIEW* mode uses the game view resolution, *CUSTOM\_RESOLUTIONS* mode allows you to customize the resolutions to be used. In custom mode, select the resolutions to be used for the capture, or use the list + to create a custom resolution.

5. The overlay system enables the easy integration of your company or game logo into each screenshot. Edit the example canvas or create your own to display your game logo. You can reference scene objects or prefabs. Select the overlays to be used for the capture. You can customize the default overlay or create a new one using a *Canvas*.

Note that you can also disable the overlay system if you do not want any canvas, by simply disabling or removing all canvas in the overlays list.

6. The photography guide helps framing the screenshots, and is particularly useful using *PreviewWhilePlaying*.

## 2.4 Platform Specific Configuration

This section details the platform specific configuration required to be able to take screenshots in-game.

### 2.4.1 Android

1. The capture mode the capture mode *FIXED\_GAMEVIEW* is recommended to capture exactly what is on screen. *RENDER\_TO\_TEXTURE* is possible too.
2. The export mode must be *PICTURE\_FOLDER* or *PERSISTENT\_DATA\_PATH*.

**Permission.** To export to the *PICTURE\_FOLDER*, your application must have the *external storage* permission. In the Player Settings, set *Write Access* to *External*. In that case, the permission to access the image gallery should be asked at the first app launch. If your app does not have access to the external storage (for instance if the user rejects the permission), the export will fall back to *PERSISTENT\_DATA\_PATH* on all devices with an API > 23. On devices with API <= 23 an error message saying the directory or file could not be created will be displayed.

The *PERSISTENT\_DATA\_PATH* mode does not require any permission, and the screenshots will be saved in the specific app data directory.

Note that it is possible to remove the permission needs by excluding some features of the asset. See Section 9.4 for more details.

**Primary Storage.** Note that *PICTURE\_FOLDER* tries to export to the primary storage, if available. That means that screenshots saved to that directory are not deleted if the app is uninstalled. If the primary storage is not available, or on *PERSISTENT\_DATA\_PATH*, the plugin save to the first media storage available. On that case, the pictures are visible on the gallery, but can be deleted from the device when the app is uninstalled.

### 2.4.2 iOS

1. Move the *Plugins* folder at the root of the *Assets* folder. The plugin should be located exactly here: *Assets/Plugins/iOS/iOSUtils.m*.
2. **IMPORTANT.** On Unity 5.6 and later, you need to add the dependency to the **Photos** framework to the *iOSUtils.m* plugin. In Unity, select the *iOSUtils.m* file, look in the Platform settings, and add the Photos dependency in the *rarely used frameworks* list.

3. The capture mode the capture mode *FIXED\_GAMEVIEW* is recommended to capture exactly what is on screen. *RENDER\_TO\_TEXTURE* is possible too.
4. The export mode must be *PICTURE\_FOLDER* or *PERSISTENT\_DATA\_PATH*.

**Permission.** Adding the picture to the phone gallery requiers the Photo access rights. This is done automatically by the script *iOsPostProcessBuild.cs*. Note that it is possible to remove the permission needs by excluding some features of the asset. See Section 9.4 for more details.

The permission to access the camera roll should be asked at the first screenshot capture. To ask the permission at startup, add the script *RequestAuthAtStartup* to your project, or call *iOsUtils.RequestGalleryAuthorization()* when you want to.

**Usage Description.** You can personalize the Photo usage description by editing the associated field in the ScreenshotManager inspector, or by editing the *UltimateScreenshotCreator/Assets/Resources/PhotoUsageDescription.asset* object.

### 2.4.3 WebGL

1. Move the *Plugins* folder at the root of the *Assets* folder. The plugin should be located exactly here: *Assets/Plugins/WebGL/WebGLUtils.jslib*.
2. The capture mode the capture mode *FIXED\_GAMEVIEW* is recommended to capture exactly what is on screen. *RENDER\_TO\_TEXTURE* is possible too.
3. Note that with WebGL, the export mode is ignored since the image will be downloaded using the web browser.

### 3 GALLERY WINDOW

Open the gallery window in *Window/Multi Device Preview and Gallery/Gallery*.

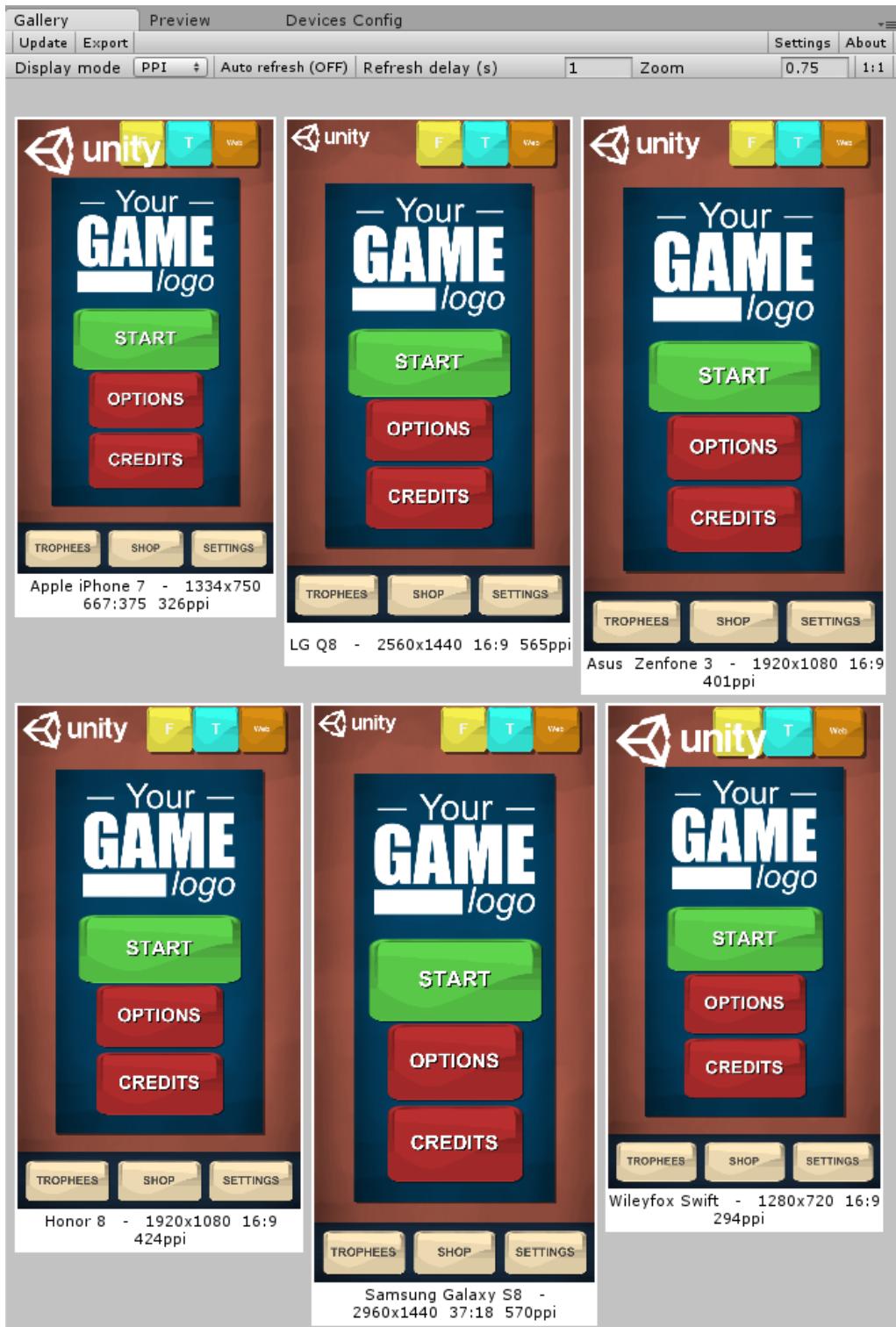


Figure 1: The gallery window, used to preview multiple devices or resolutions at a glance.

### 3 GALLERY WINDOW

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**Update.** Press this button to update all active resolutions. Note that you can use the hotkey to update the resolution previews when focused on the gallery window or on the sceneview.

**Export.** Will export the preview images to files, using the export settings of the *Preview-Manager*

**Settings.** Open the settings window.

**Display Mode.** There are three display modes:

- **RATIO:** the preview width is proportional to the window width, and its height is computed based on the resolution ratio. A zoom of 1 means the preview width is equals to the window width.
- **PIXEL:** the preview dimensions are proportional to the resolution dimensions. A zoom of 1 means one pixel on screen is equal to one pixel on the device.
- **PPI:** the preview dimensions are proportional to the resolution physical dimensions. A zoom of 1 means the preview physical size on screen is equal to the device screen physical size in real life.

**Auto Refresh.** Auto refresh can be set to play mode and/or edit mode in the settings window. It is recommended to enable auto refresh only with one active resolution to prevent the gameview to be constantly resized, but it works with any number of resolutions.

**Refresh Delay.** You can set the time waited between each refresh pass. Set to 0 for a real-time preview, set to a higher value to reduce performance costs.

**Zoom.** Use the zoom slide to change the preview dimensions.

Note that you can also use Ctrl + Mouse scrollWheel.

**1:1.** Use that button to quickly reset the zoom value to 1.

## Live Preview with Auto refresh

Enable auto refresh and start playing. You can stop/start the auto refresh at any time while playing.

If you want a live preview of your game, it is recommended to close the Gallery Window and only use the Preview Window with the desired resolution. Indeed, with only one active resolution, the gameview and UI will be resized only one time, so the game will still be playable with the mouse. With several active resolutions, the gameview will be constantly resized, making it hard to play the game while previewing the devices. In that case, it is recommended to set a high delay value.

## 4 DEVICE PREVIEW WINDOW

Open the gallery window in *Window/Multi Device Preview and Gallery/Device Preview*.

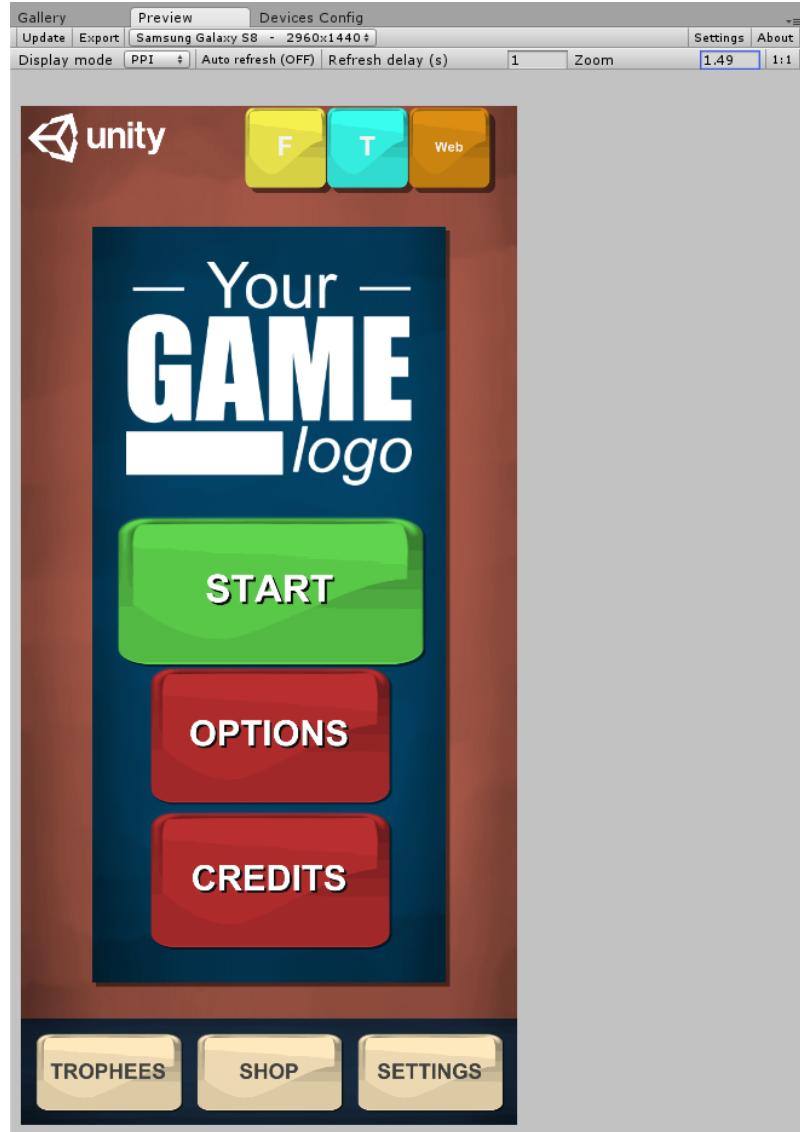


Figure 2: The preview window, used to preview a specific device, and do a live preview in play mode.

**Device Selection.** With this window, you can select one of the active resolution to be pre-viewed, update it and export it.

## 5 SETTINGS WINDOW

Open the settings window in *Window/Multi Device Preview and Gallery/Settings*. See Section [7](#) for configuration guide.

The Settings Window settings are saved in an asset stored in the Resources folder.

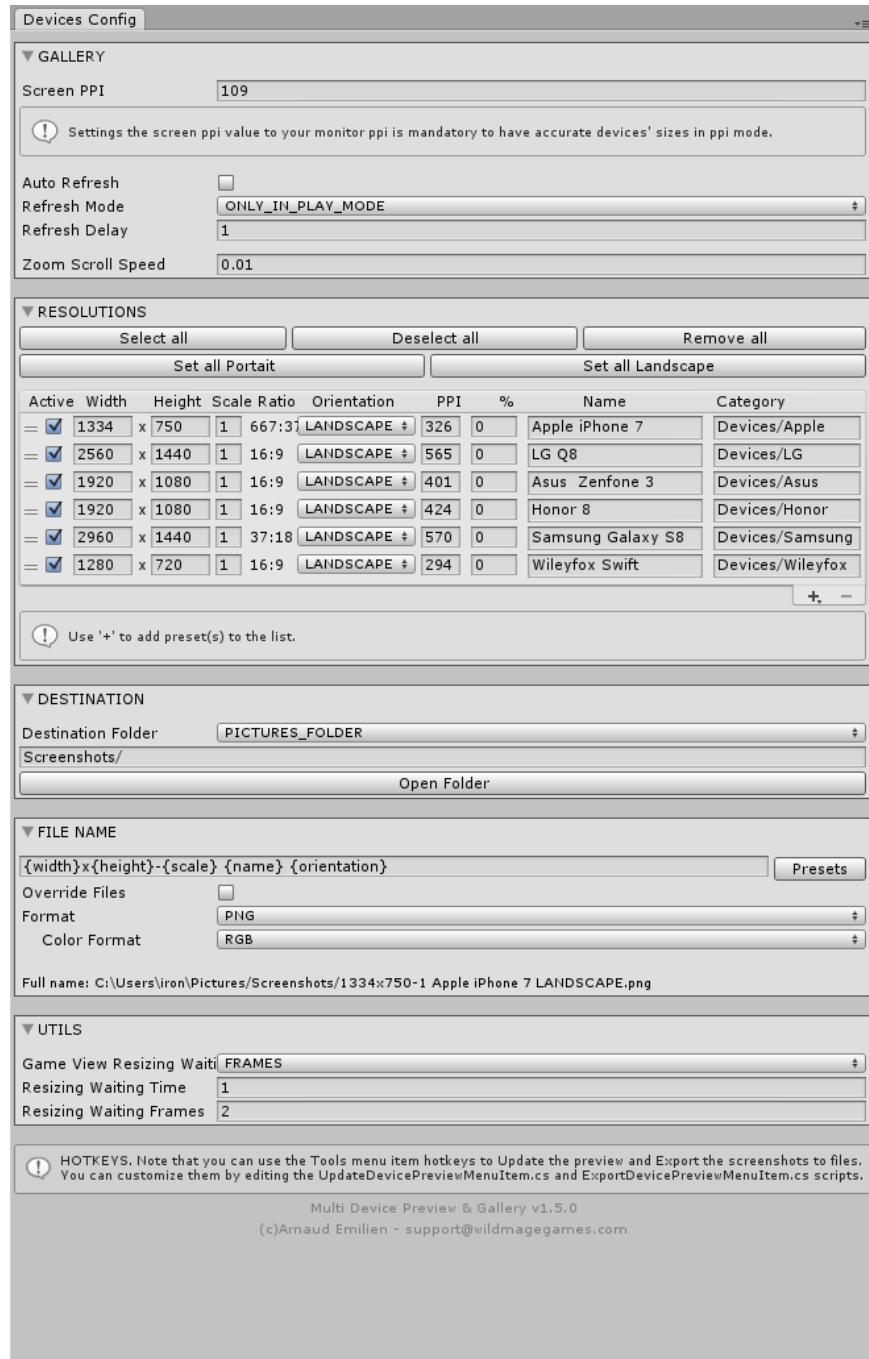


Figure 3: The settings window, used to configure the gallery and device preview window.

## 6 Screenshot Window

Open the settings window in *Window/Screenshot Window*. See Section 7 for configuration guide.

The Screenshot Window settings are saved in an asset stored in the Resources folder.

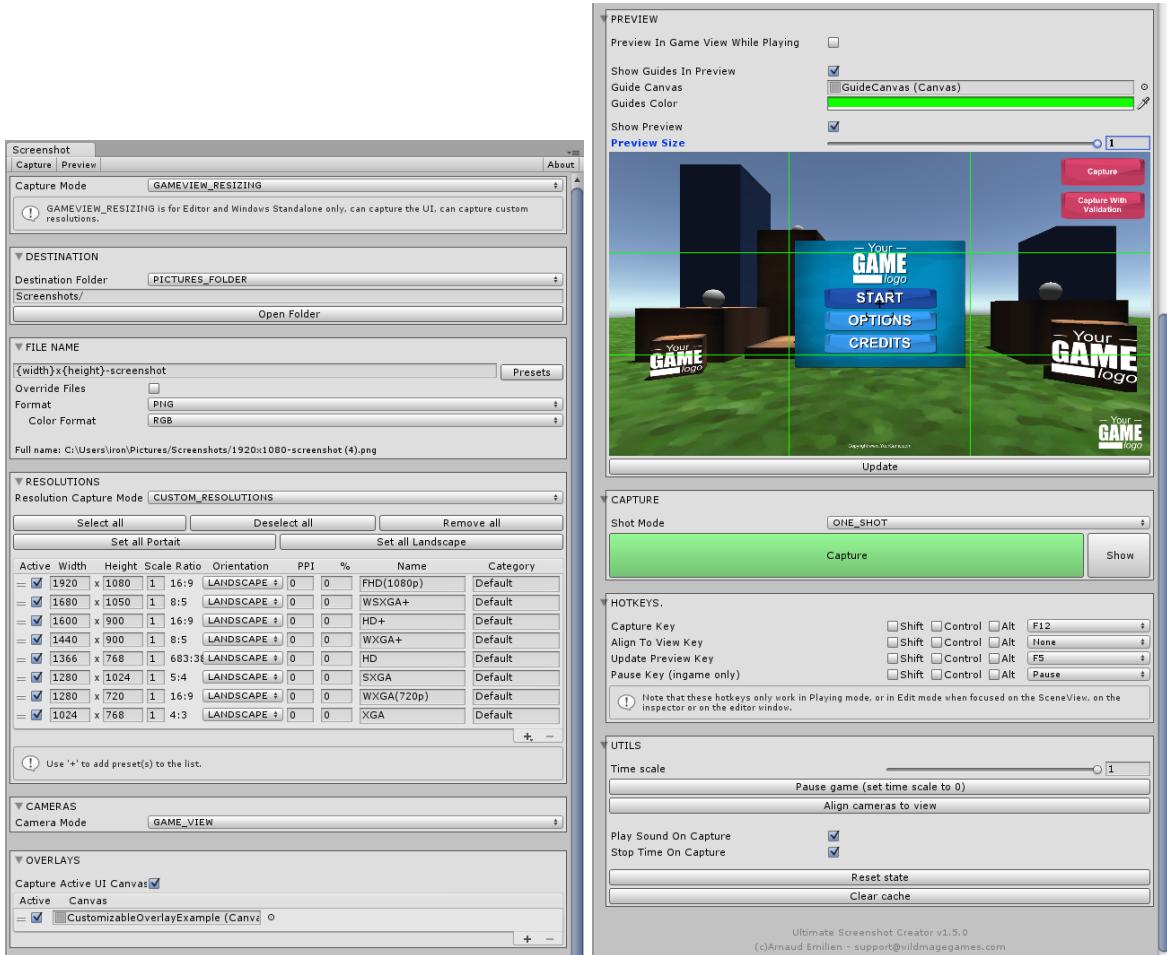


Figure 4: The screenshot window, used to easily take screenshots in the editor.

## 7 CONFIGURATION GUIDE

### 7.1 Gallery.

**Screen PPI.** To use the gallery in PPI mode, you must correctly set your display screen ppi. In ppi mode, with a zoom of 1, the physical preview dimensions on your screen will physically match the device dimensions.

**Auto Refresh.** Can be enabled in play mode, in editor mode, or in both mode.

### 7.2 Destination

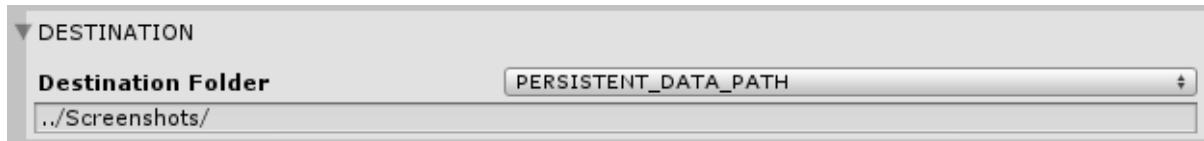


Figure 5: Destination settings.

There are three export modes:

- *CUSTOM\_FOLDER* allows you to select the export folder.
- *DATA\_PATH* exports the screenshots relatively to the project data path.
- *PERSISTENT\_DATA\_PATH* exports the screenshots relatively to the persistent data path.
- *PICTURE\_FOLDER* exports the screenshots relatively to the platform picture folder. It is the recommended mode for taking screenshot in-game on all platforms.

### 7.3 File Name

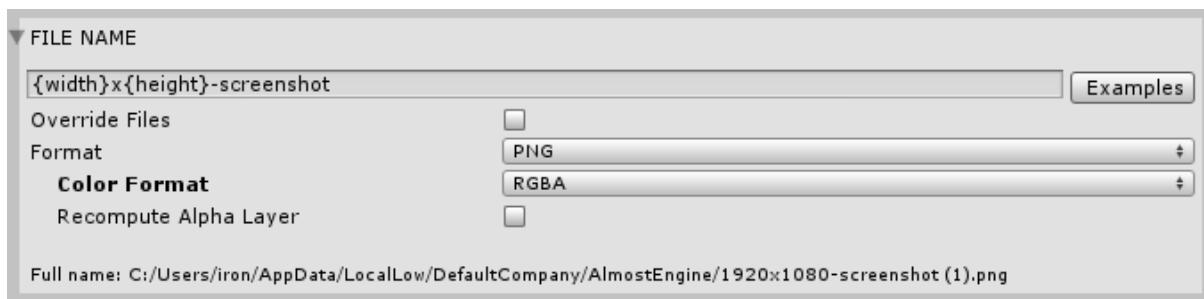


Figure 6: File name settings.

**FileName.** Defines the file name to be used for the screenshots. Use the *Examples* button to select one of the name presets.

You can use and combine the following symbols to better match your needs:

- {year}, {month}, {day}, {hour}, {minute}, {second} for the current time information,

- `{width}, {height}, {scale}, {ratio}, {orientation}, {ppi}, {percent}, {name}, {category}` for the resolution information.
- `{layer}` for the camera name in separated layer mode.

Note that you can use the file name to group screenshots by resolution folders, etc. For instance `{width}-{height}/screenshot.png` will create one folder by resolution and create one `screenshot.png` in each of them.

**Override Existing Files.** By default, if you try to create a screenshot file that already exists, its name will be incremented. For instance: `screenshot.png`, `screenshot(1).png`, ... Set `override` to *true* if you want to override the existing files.

**Format.** You can export to *PNG* or to *JPG* with a custom quality.

**Color Format.** In *PNG*, you can export to *RGB* or to *RGBA*. Use *RGBA* to create screenshots with an alpha layer, enabling transparent backgrounds.

**Recompute Alpha Layer.** Force alpha layer to be recomputed. This is a costly process. Use only if you have alpha problems in *RGBA* mode.

**Full Name Preview.** You can look at the full name preview to check if everything is correct. Note that the resolution information used for the full name preview is the one of the first resolution in the list.

## 7.4 Resolutions

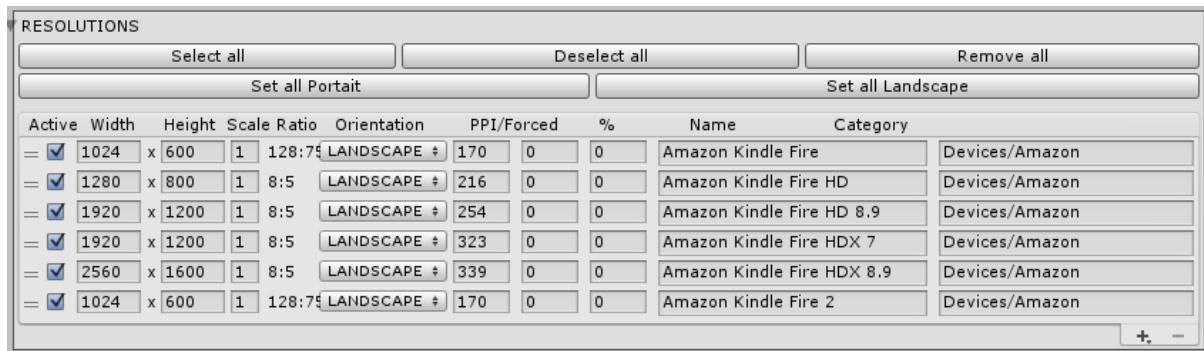


Figure 7: Resolutions settings.

**Managing resolutions.** Use the resolution list to specify which resolutions are going to be captured. Use the list + button to add one of the resolution presets. Select *ALL* to include the whole group in one click. Select the resolution to be removed and press the list – button, or right click on the resolution and select *remove item element*.

**Scale.** This setting allows you to easily take ultra HD screenshots. For instance, a resolution of  $1600 \times 1200$  with a scale of 2 will take a screenshot with a resolution of  $3200 \times 2400$ .

Note that Unity limits the maximum resolution size to  $\sim 8000 \times 4000$

**Orientation.** Switch between *LANDSCAPE* and *PORTRAIT* mode.

**PPI.** All the devices presets come with a *ppi* (pixel per inch) information, to be used to display the devices into the gallery window at their physical size.

Do not forget to set your screen *ppi* (in the Gallery section of the PreviewManager inspector) to the value corresponding to your display screen.

**PPI ”Forced” value.** By default, the gallery uses the *ppi* value to create the resolution previews. This is also the value used to scale the device on the gallery in *PPI* mode. Set the *forced* *ppi* value to override the *ppi* for rendering the content (the device scale will be preserved).

Why?

When rendering Canvas with Constant Physical Size, Unity will use the *Screen.dpi* value returned by the device, to scale the Canvas. Unfortunately, this value is sometime incorrect. If you notice that the preview content scale is different from what you see on your device, the *Screen.dpi* is probably not equals to the real device *ppi*. Use the *ExampleCanvas* scene to test your device. The *DebugText* will display the value of *Screen.dpi*. If the displayed *Screen.dpi* value is wrong, then set the *forced* value to preview what will really appears on the target device.

**Stats.** The stats value (%) contains the user screen resolution percentage of the resolution within the selected popularity statistics (PC, Standalone or Mobile). Use them to ensure that your game works correctly on the most popular resolutions of your target platforms.

**Resolution Name and Category.** The resolution name can be customized, and used in the file name field with the symbol `{name}`. You can also specify a category to be used with the file name symbol `{category}`.

## 7.5 Hotkeys

To update or export screenshots, you can use the menu items hotkeys *Tools/Device Preview/Update Preview(s)* and *Tools/Device Preview/Export Preview(s)*.

The hotkeys can be edited by editing the scripts *UpdateDevicePreviewMenuItem.cs* and *ExportDevicePreviewMenuItem.cs*. More details can be found on the script files. If you change the hotkeys, remember not to overwrite the menu item scripts in the next asset updates.

## 8 Screenshotmanager Configuration

### 8.1 Resolutions

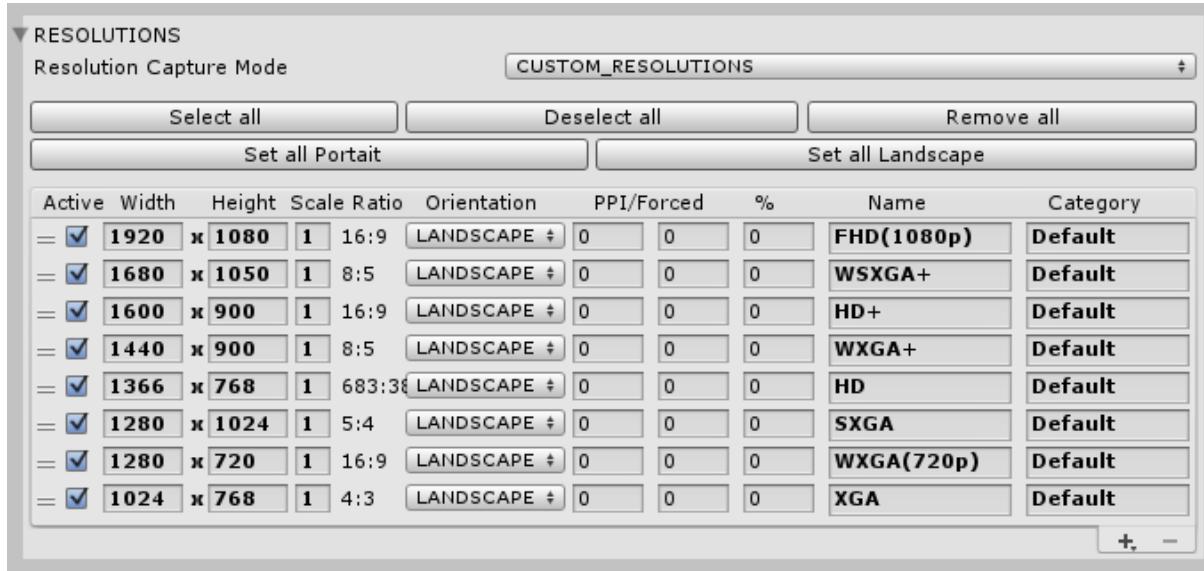


Figure 8: Resolutions settings.

**Resolution Capture Mode.** There are two resolution capture modes :

- *GAME\_VIEW* just capture the game view.
- *CUSTOM\_RESOLUTIONS* allows you to capture multiple resolutions in one click.

### 8.2 Cameras

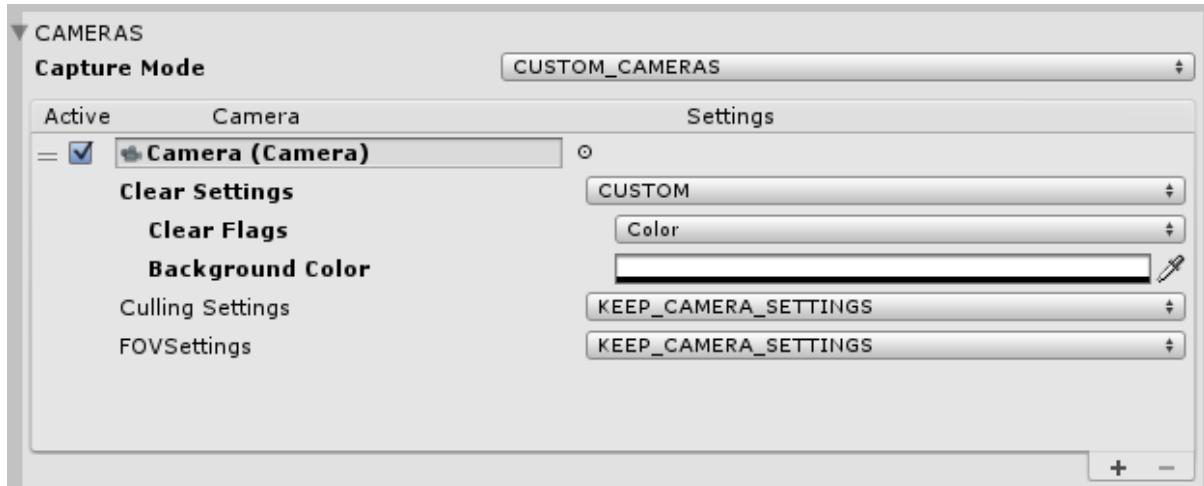


Figure 9: Camera settings.

**Camera Capture Mode.** There are two camera capture modes :

- *GAME\_VIEW* just capture the game view.
- *CUSTOM\_CAMERAS* allows you to customize the cameras to be used for the capture.

**Export to separate layers.** By enabling this option, a screenshot will be created for each camera. See Section 10.5 for more details.

**Managing Cameras.** Use the camera list to specify which cameras are going to be used for the capture. You can select multiple cameras at a time if your game requires a layered camera rendering (for instance for UI elements or overlays, or if you have a camera for the scene rendering and another camera for rendering the player gun).

Note that the other cameras of the scene will be disabled during the capture.

**Custom Camera Settings.** Camera settings can be overwritten during the capture:

- *KEEP\_CAMERA\_SETTINGS* keeps the camera settings unchanged,
- *CUSTOM* allows you to change the camera clear mode and background color, the camera culling mask, and the camera Field Of View.

Note that the custom settings override the current camera settings during the capture process, and should correctly restore them at the end of it.

### 8.3 Overlay Canvas

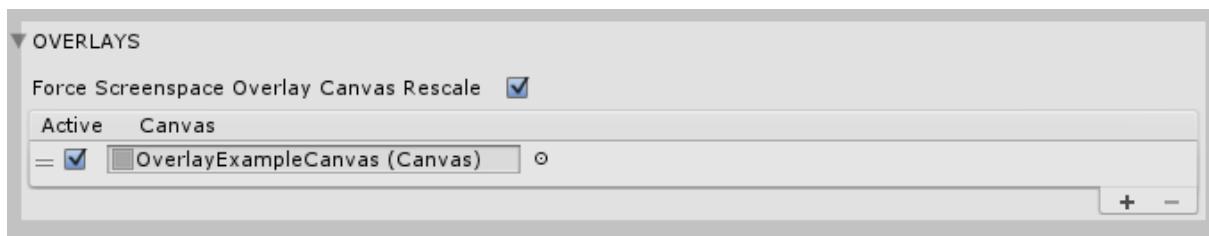


Figure 10: Overlay settings.

The overlay system allows you to easily integrate your game or studio logo into each screenshot, and much more. Use the overlay list to specify which overlays are going to be used for the capture.

**Force Screenspace Overlay Canvas Rescale.** Force Screenspace Overlay Canvas to be rescaled in *RENDER\_TO\_TEXTURE* mode.

**Render Active UI Canvas.** You can choose to hide or not all your active game UI during the capture.

**Default Overlay Customization.** The *OverlayExampleCanvas* is a *Canvas* prefab. You can customize it or create your own overlay canvas.

## 8 ScreenshotManager Configuration

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**Creating your own overlays.** The overlay system is based on the Unity 4.6 Canvas system, and allows unlimited customization of the screenshot overlays. To create an overlay:

1. Create a new Unity *Canvas*.
2. Edit your new *Canvas* as you want.
3. Save the *Canvas* as a prefab and remove it from the scene.
4. Create a new overlay item in the screenshot manager list, and select your new *Canvas* prefab.
5. Disable the *Canvas* game object. This keeps the *Canvas* hidden during the game and only displays it during the capture.



Figure 11: Example of screenshot captured using the default overlay (Viking scene, ©Unity).

## 8.4 Preview

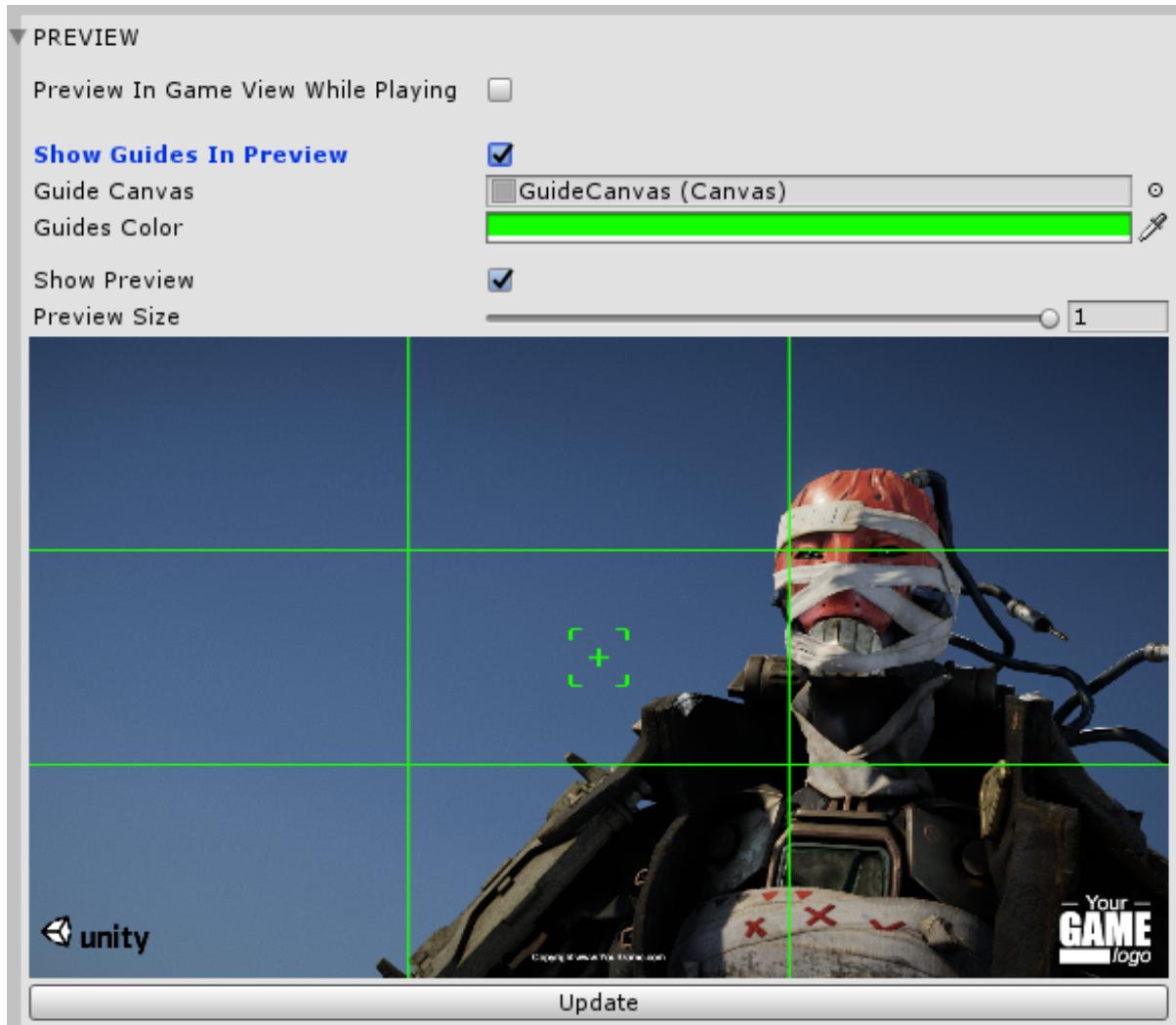


Figure 12: Preview settings. (Character from Adam, ©Unity)

**Guides.** You can display a photography guide to better frame your screenshots. The default guide is a *Canvas* prefab. This guide is visible in the preview picture only, and will not be rendered in the final image.

**Preview in GameView while Playing.** If you want to visualize how the screenshot will look while playing, you can set this option to true. When the game will start playing, the preview settings will be applied to the GameView, and restored when the game is stopped.

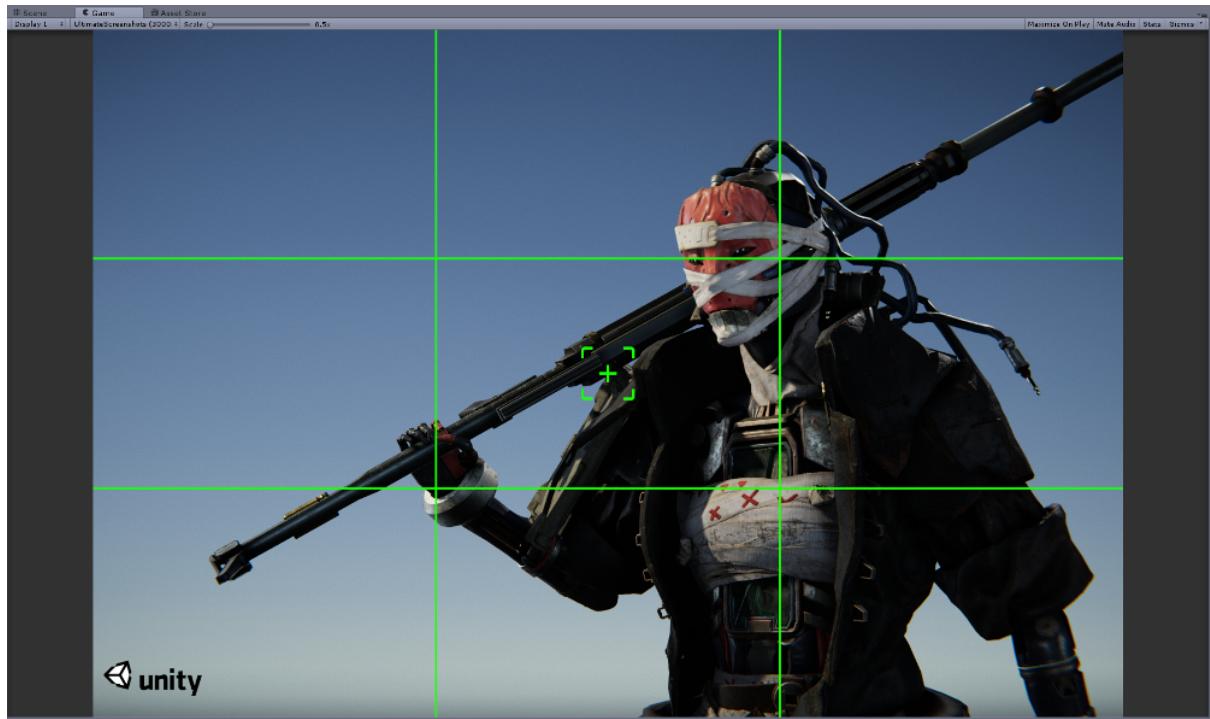


Figure 13: Use the preview in GameView while playing to better frame your screenshot. (Character from Adam, ©Unity)

## 8.5 Capture



Figure 14: Capture settings.

**Capture Mode.** There are two capture modes:

- *ONE\_SHOT* captures one frame,
- *BURST* allows to take a series of screenshots with a fixed and customizable timestep. Note than you can use the screenshots as inputs of a GIF creator software.

## 8.6 Hotkeys.

In this panel you can set the various hotkey values, and specify the sound to be used for the capture. Note that for the hotkeys only works when focused on the SceneView, ScreenshotManager

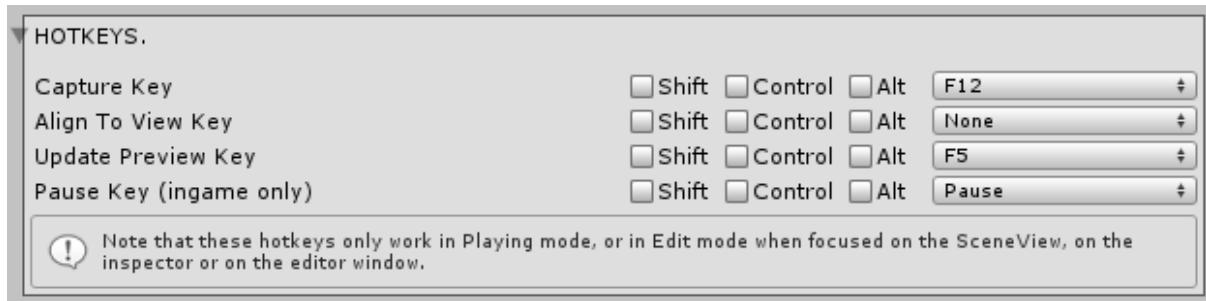


Figure 15: Hotkeys.

Inspector or ScreenshotWindow, or on the GameView in play mode.

## 8.7 Utils

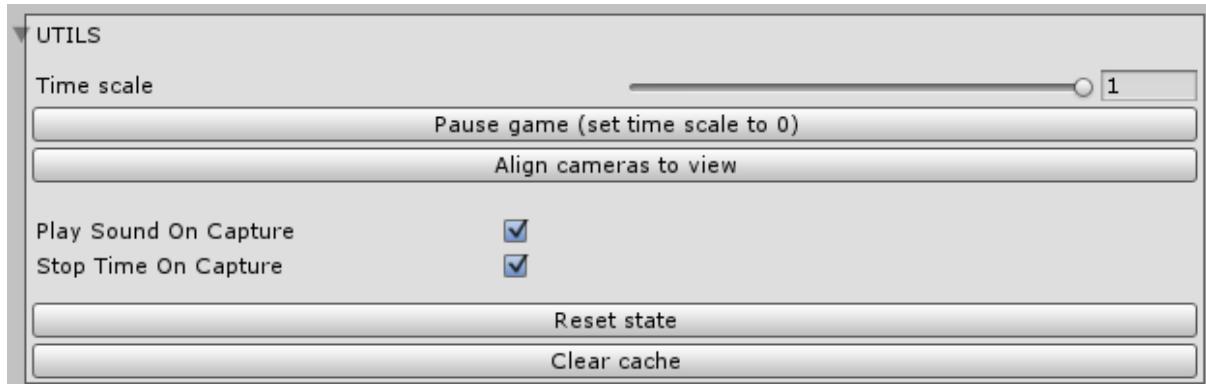


Figure 16: Utils.

**Align to View.** You can align all the cameras in the camera list with the current scene view. Note that this is a reversible operation using Undo/Redo.

**Time Scale.** You can use these tools to pause or slow down the time while playing to edit the scene and/or better frame your screenshot.

**Reset State.** See FAQ [10.15](#).

## 8.8 Screenshot Taker Config

The ScreenshotTaker component is automatically added to each ScreenshotManager.

**GameView Resizing Waiting Mode.** In *GAMEVIEW\_RESIZING* mode, you can specify the number of frame or time to wait between the screen resizing and the screenshot capture. It is particularly useful if you use some script or special effects that need some time to adapt to the screen size.

**Force Layout Preservation.** See Faq [10.14](#).

## 9 SPECIAL FEATURES

### 9.1 In-game Gallery and Screenshots Management

The asset contains an in-game gallery system to display and manage the taken screenshots. It is based on the Grid Gallery to display the images, and the Greybox preview to perform actions on the screenshots.

#### 9.1.1 Customizable Grid Gallery

The GridGalleryCanvas component is an example of component displaying a gallery based on the grid layout component. It inherits from the ScreenshotGallery, a more generic class which contains the basic in-game gallery methods.



Figure 17: Example canvas for the GridGalleryCanvas component.

You can customize the canvas by creating a new canvas prefab and editing it as you want. You can also create a new component inheriting from GridGalleryCanvas or from ScreenshotGallery, for instance to create a gallery script using a different layout than the grid layout.

**Reference to the Greybox Canvas.** By default, when an image is selected, a Greybox canvas is opened with that image to be displayed.

**Automatic folder path.** By default, you have to manually specify the folder path to be used for loading the screenshots from the device. If you are already using a ScreenshotManager, you can add a *SetScreenshotGalleryFolderPath* component to the *GridGalleryCanvas* gameobject to automatically set the path as the ScreenshotManager export directory.

*Available Example:* In the DefaultExample scene, you will find a functional example of the gallery grid, the greybox and the confirmation window.

### 9.1.2 Customizable Greybox

The GreyboxCanvas component is an example of component to handle the gallery image selection, for instance to zoom perform several actions.



Figure 18: Example canvas for the GreyboxCanvas component.

One of the example action is to delete the selected screenshot. When clicked, the ui button shows the confirmation canvas, and the yes button calls the GreyboxCanvas delete method.

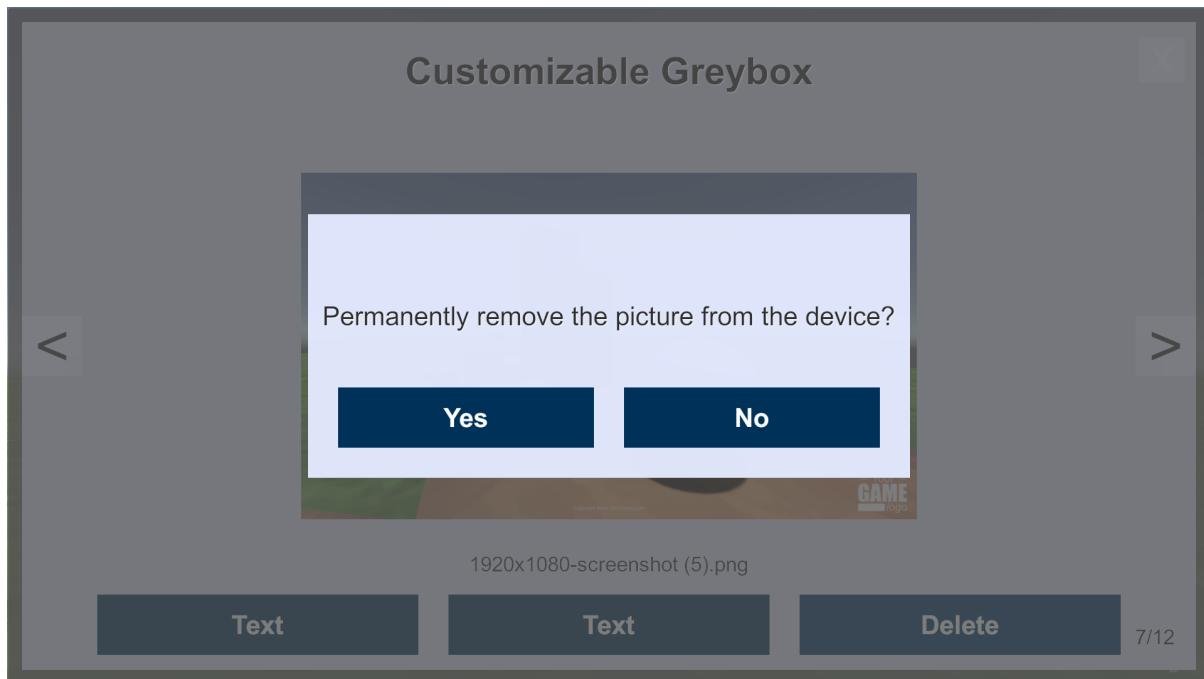


Figure 19: Example of confirmation window when removing a screenshot.

## 9.2 Display a Validation UI

The *ValidationCanvas* component shows how to call a capture event, and then display a validation ui to save or discard the screenshot. The idea is as follow:

1. Update the texture without exporting them using *UpdateAll()*.
2. Wait for the capture end event.
3. Display a UI and update its texture by accessing the screenshot texture.
4. Call *ExportAllToFile()* if the user validates the screenshot.



Figure 20: Example of validation canvas to preview the screenshot before saving it.

*Available Example:* In the *DefaultExample* scene, you will find a functional example of the *ValidationGUIExample*.

## 9.3 Screenshot Cutter

If you want to capture only a sub-part of the screen, add the *ScreenshotCutter* component to one of your scene object. Set the *SelectionArea* property to the part of the screen you want to capture. It can be any *RectTransform*, such as an image or a UI panel. The *CutterExample* scene and *ScreenshotCutterExample* prefab illustrate a possible use of the screenshot cutter.

Note that the screenshot cutter only works on *GAMEVIEW\_RESIZING* or *FIXED\_GAMEVIEW* modes.

**WARNING:** The *ScreenshotCutter* will also cut the preview image of the gallery window and of the preview window. If a *ScreenshotCutter* is in your scene, disable its component to preview your game without the picture being cut.

## 9.4 Remove iOS or Android Permission Needs

If you want to use Multi Device Preview and Gallery in editor only, or if you want to remove the iOS and Android permission needs, you can partially exclude some features of Ultimate Screenshot Creator from your Android and iOS builds.

1. Remove the Plugins/iOS folder.
2. In the Player Settings, in the Android tab, add `IGNORE_ANDROID_SCREENSHOT` to Scripting Define Symbols.
3. In the Player Settings, in the iOS tab, add `IGNORE_IOS_SCREENSHOT` to Scripting Define Symbols.
4. In the Player Settings, set *Write Access* to *Internal*.

The ability to export screenshots to files and to add the screenshot to the gallery will be disabled on iOS and Android, but the other features will still be enabled. For instance, it will still be possible to take screenshots on iOS and Android, and to access their texture. All editor features are still enabled.

## 9.5 Message Canvas

The message canvas component is a simple script to display some text when the screenshot manager export succeeds or fails. By adding the MessageCanvas prefab to your scene, the message will be displayed automatically. If you do not want any messages, simply remove the MessageCanvas game object.

## 10 FAQ

### 10.1 How to Hide Some Scene Objects

**Using a component** You can hide a specific object by adding the component *HideOnCapture* to the game object.

**Using a culling layer** You can hide all objects of a specific layer in *CUSTOM\_CAMERAS* mode:

1. For each camera, select the camera and *CUSTOM\_SETTINGS* culling mode.
2. For each camera, deselect the layers to be hidden in the culling list.

### 10.2 How to access the screenshots taken by the ScreenshotManager

After the capture process, the textures can be accessed using the *ScreenshotManager GetActiveResolutions()* method, which returns a list of all active resolutions that were captured. It contains only one element in *FIXED\_GAMEVIEW* mode. The texture used is stored in the *m\_Texture* field, and its full file name in the *m\_Filename* field.

### 10.3 How to share the screenshots on social medias

This plugin does not have a feature to directly share on social medias. However, if you use an asset with social media sharing features (there are some assets on the asset stores providing native API calls to share on twitter, facebook, etc), you can call their methods with the created textures or screenshots.

For instance, using the validation canvas feature, capture the screenshot and show the screenshot preview to the user (see Section 9.2). Customize the button text and script to add the functionality to share on social medias, by calling the appropriate methods of your social media asset. To get the screenshot texture or file name, please refer to Section 10.2.

### 10.4 How to Create a Screenshot with a Transparent Background

In *CUSTOM\_CAMERAS* mode:

1. Select the first camera, and set *CUSTOM\_SETTINGS* clear mode.
2. Select the *color* clear mode.
3. **IMPORTANT** Set the custom color to black and set its alpha to zero.
4. Set the export format to *PNG* and choose the *RGBA* color format.
5. If you have an issue with the alpha layer, try the *RecomputeAlphaLayer* settings.

## 10.5 How to export using separated layers

Exporting to separated layers means that each camera will be rendered separately.

1. Set your export name. The {layer} symbol in the filename will be replaced by the name of the camera.
2. Set the capture settings to *PNG* and *RGBA*.
3. Set the camera mode to *CUSTOM\_CAMERAS*, and toggle *Export to different layers*.
4. For each camera, expect the first one, set the custom color to black and set its alpha to zero, in order to have a transparent background.
5. Set your cameras culling masks and game object layers like you want.

*Available Example:* The *SeparatedLayersExample* scene contains a complete example.

## 10.6 How to capture an offscreen scene

You can use the *ScreenshotTaker* to capture custom cameras to a texture, with your custom cameras being disabled in the scene. If your camera game objects are disabled, the asset will perform an offscreen rendering without enabling them, allowing you to capture something that is not displayed on the gameview.

To prevent any blincking, be sure to set the offscreen camera depth to -1.

*Available Example:* The *OffscreenRenderingExample* scene contains a "CaptureCamerasToTextureCanvas Example" gameobject with a *CaptureCameraToTextureExample* component.

## 10.7 How to capture using an UI button

If you are using the *ScreenshotManager*, you need to call its *Capture()* method. Select the button, add an *onClick* event, set the manager as the target and select the *Capture()* method.

*Available Example:* The *DefaultExample* and *OffscreenRenderingExample* scenes contain several examples to call a capture method, using the *ScreenshotManager*, or direct script calls to *SimpleScreenshotCapture* or *ScreenshotTaker*.

## 10.8 The PPI mode preview is different from what I see on my device

1. Check that your *Screen\_PPI* value is correct.
2. Check that the device *PPI* value is correct. If you find a device preset with an incorrect value, please contact me.
3. Sometimes, Unity does not scale the device UI with the good PPI value. When your app is running on the target device, check that the *Screen.dpi* value returned by Unity matches the real screen PPI value. You can use the *ExampleCanvas* demo on your device to display the *Screen.dpi* value used by Unity to scale the UI. If it is different from the real device PPI, set the *Forced* PPI value to match the value returned by Unity.
4. Still not working? It's time to contact me.

## 10.9 I have some artefacts with temporal anti-aliasing, or other special effects

In editor, using the *GAMEVIEW\_RESIZING* mode, if you have any artefact when taking a screenshot at a custom resolution, or a UI element at the wrong size, you can increase the *ScreenshotTaker m\_GameViewResizingWaitingFrames* value. The *ScreenshotTaker* component is located on the same game object that the *ScreenshotManager*.

The *m\_GameViewResizingWaitingFrames* value specifies how many frame the screenshot taker waits before to take the screenshot after the gameview has been resized. The default value of 2 should be enough for most settings. Increase this number when some elements are not well updated, like GUI, or when you see some post effects artefacts. Post effects like temporal anti aliasing requier a value of at least 10.

## 10.10 I can not create screenshots with the ScreenshotTaker

Check that you provide a valid full path as the filename. Please refer to Section 11.1 for more details.

## 10.11 I have a compilation error on iOS

Check that you added the **Photos** framework dependency to the iOS plugin. Please refer to Section 2.4.2 for more details.

## 10.12 I can not take screenshots on Android

If you get a message saying the folder or file can not be created, check the storage permissions. Please refer to Section 2.4.1 for a detailed configuration guide.

## 10.13 My GameView is blinking when I update the device or gallery previews.

This is expected. To render the previews, the plugin needs to render the game by deforming or resizing the GameView for a few milliseconds. More details on Section 10.14.

## 10.14 My GameView and layout are doing strange things when I capture a screenshot

Having the GameView deformed or blinking is expected when you use the *GAMEVIEW\_RESIZING* capture mode.

For Unity 4.6 to 5.3, the algorithm rescales the GameView window to match the screenshot dimensions, and this undocks the GameView window. To prevent it, the editor layout is saved before the capture and restored after it, creating a sort of "flashing" effect. If this annoys you, you can set *Force Layout Preservation* to false.

With Unity 5.4 and later, the GameView has an inner "scale" which allows the modification of its dimensions without modifying the editor layout. During the capture, its resolution is changed several times before being restored, creating a sort of "blinking".

## 10.15 Nothing Happens when I try to Update the Preview(s)

Sometimes, the renderer may be locked and refuse to update the preview. This happens rarely, but if you do not have any response from the *ScreenshotManager*, click on *Reset State* button.

Do not hesitate to contact me if you can reproduce this bug, so I can correct it.

# 11 PROGRAMMING

## 11.1 API

### 11.1.1 ScreenshotTaker

The ScreenshotTaker is the component used to capture the screenshots to textures. You can use it directly to capture a texture by calling one of its capture coroutine.

```
/// <summary>
/// Captures the current screen at its current resolution.
/// The texture will be resized if needed to match the capture settings.
/// </summary>
public IEnumerator CaptureScreenToTextureCoroutine (Texture2D texture ,
    bool captureGameUI = true ,
    ScreenshotTaker.ColorFormat colorFormat =
        ScreenshotTaker.ColorFormat.RGB,
    bool recomputeAlphaMask = false)

/// <summary>
/// Captures the scene with the specified width, height, using the mode
RENDER_TO_TEXTURE.
/// Screenspace Overlay Canvas can not be captured with this mode.
/// The texture will be resized if needed to match the capture settings.
/// </summary>
public IEnumerator CaptureCamerasToTextureCoroutine (Texture2D texture , int width
, int height ,
    List<Camera> cameras ,
    int antiAliasing = 8,
    ScreenshotTaker.ColorFormat colorFormat =
        ScreenshotTaker.ColorFormat.RGB,
    bool recomputeAlphaMask = false)

/// <summary>
/// Captures the game with the specified width, height.
/// The texture will be resized if needed to match the capture settings.
/// </summary>
public IEnumerator CaptureToTextureCoroutine (Texture2D texture , int width , int
height ,
    List<Camera> cameras = null ,
    List<Canvas> canvas = null ,
    ScreenshotTaker.CaptureMode captureMode = ScreenshotTaker
        .CaptureMode.RENDER_TO_TEXTURE,
    int antiAliasing = 8,
    bool captureGameUI = true ,
    ScreenshotTaker.ColorFormat colorFormat = ScreenshotTaker
        .ColorFormat.RGB,
    bool recomputeAlphaMask = false)

public IEnumerator CaptureAllCoroutine (List<ScreenshotResolution> resolutions ,
    List<ScreenshotCamera> cameras ,
    List<ScreenshotOverlay> overlays ,
    CaptureMode captureMode ,
    int antiAliasing = 8,
    bool captureGameUI = true ,
```

```
    ColorFormat colorFormat = ColorFormat.RGB,
    bool recomputeAlphaMask = false ,
    bool stopTime = false ,
    bool restore = true)
```

### 11.1.2 SimpleScreenshotCapture

You can capture a screenshot using only the SimpleScreenshotCapture. That static class provides several capture methods, that you can choose depending on your needs.

Note that you need to provide a **valid full path** *fileName* to the Screenshot Taker, for instance *C:/Screenshots/myScreenshot.png*. You can use the ScreenshotNameParser.ParsePath() or ScreenshotNameParser.ParseFileName() to get one.

```
/// <summary>
/// Captures the current screen at its current resolution.
/// The texture will be resized if needed to match the capture settings.
/// </summary>
public IEnumerator CaptureScreenToTextureCoroutine (Texture2D texture ,
    bool captureGameUI = true ,
    ScreenshotTaker .ColorFormat colorFormat =
        ScreenshotTaker .ColorFormat.RGB,
    bool recomputeAlphaMask = false)

/// <summary>
/// Captures the scene with the specified width , height , using the mode
RENDER_TO_TEXTURE.
/// Screenspace Overlay Canvas can not be captured with this mode.
/// The texture will be resized if needed to match the capture settings.
/// </summary>
public IEnumerator CaptureCamerasToTextureCoroutine (Texture2D texture , int width
, int height ,
    List<Camera> cameras ,
    int antiAliasing = 8,
    ScreenshotTaker .ColorFormat colorFormat =
        ScreenshotTaker .ColorFormat.RGB,
    bool recomputeAlphaMask = false)

/// <summary>
/// Captures the game with the specified width , height .
/// The texture will be resized if needed to match the capture settings.
/// </summary>
public IEnumerator CaptureToTextureCoroutine (Texture2D texture , int width , int
height ,
    List<Camera> cameras = null ,
    List<Canvas> canvas = null ,
    ScreenshotTaker .CaptureMode captureMode = ScreenshotTaker
        .CaptureMode.RENDER_TO_TEXTURE,
    int antiAliasing = 8,
    bool captureGameUI = true ,
    ScreenshotTaker .ColorFormat colorFormat = ScreenshotTaker
        .ColorFormat.RGB,
    bool recomputeAlphaMask = false)
```

## 11.2 Delegates

If you want to run some custom code before and after the capture processes, you can use the following delegates:

### 11.2.1 Screenshot Manager

```
public static void onCaptureStartDelegate ()
```

Is called when the capture starts.

```
public static void onCaptureEndDelegate ()
```

Is called when the capture ends.

```
public static void onResolutionExportSucessDelegate (ScreenshotResolution res)
```

Is called just after the screenshot is exported.

```
public static void onResolutionExportFailedDelegate (ScreenshotResolution res)
```

Is called just after the screenshot export fails.

### 11.2.2 Screenshot Taker

```
public static void onResolutionUpdateStartDelegate (ScreenshotResolution res)
```

Is called just before capturing the given resolution.

```
public static void onResolutionScreenResizedDelegate (ScreenshotResolution res)
```

Is called just after resizing the gameview in *GAMEVIEW\_RESIZING* mode.

```
public static void onResolutionUpdateEndDelegate (ScreenshotResolution res)
```

Is called just after capturing the given resolution.

## 12 VERSIONS

### 1.6.0 - 28/08/2018

- (NEW) Customizable ingame gallery to manage screenshots.
- (NEW) Export to separated layers.
- Customize iOS usage description.
- Improved API to simplify taking screenshots without the ScreenshotManager. The ScreenshotTaker now only contains the methods to capture screenshots. It can be called directly to capture textures. The sound and export have been moved to the ScreenshotManager script. The SimpleScreenshotCapture is a new static to easily capture and export screenshots from script. See Section 11.1 for more details.
- Support of Unity 2018.2.
- New scene example which shows how to capture offscreen scenes.
- New example scripts to better illustrate the asset possibilities.
- Improved documentation to better explain the different way to use the Ultimate Screenshot Creator asset.

### 1.5.3 - 17/05/2018

- (NEW) Added support for retina displays for Unity 5.4 and newer.
- (NEW) It is now possible to partially exclude the asset from iOS and Android builds to remove the need for any permission. See Section 9.4 for mode details.
- The preview and gallery windows have now independent display modes.
- Improved documentation for iOS and Android configuration.
- Added several sections in FAQ.
- (Fix) The preview, gallery and settings windows are now repainted when one setting is changed in any window.
- (Fix) Image format setting is now visible in *FIXED\_GAMEVIEW* mode.

### 1.5.2 - 05/04/2018

- (Fix) Android crash with Unity 2017.3.

### 1.5.1 - 30/03/2018

- Changed the default hotkeys for Unity 5.0 to 5.2.
- (Fix) Removed automatic cameras when custom list is empty.

## 1.5.0 - 21/02/2018

Version 1.5 contains several important changes in how to use the plugin. **It is recommended to do a clean re-install by removing the MultiDevicePreview folder before importing the update.**

- There is no more PreviewManager prefab, it has been replaced by the Settings Window (Section 5).
- PreviewManager hotkeys have been replaced by MenuItems hotkeys (Section 7.5). They now work anywhere within the editor.
- **(NEW)** Preview device resolutions are automatically added to the GameView presets.
- Auto-refresh now works in edit mode.

Other modifications:

- Support of Unity 2018.1.
- **(NEW)** Screenshot Window to easily take screenshots in the editor without a manager.
- It is possible to use prefabs as screenshot overlay canvas.
- You can now specify a waiting time in seconds between each screen resize in *GAMEVIEW\_RESIZING* mode.
- API changes. Many methods previously in the ScreenshotManager have been moved to other scripts. Resolutions and cameras methods have been moved to the ScreenshotConfig. The member *m\_GameViewResolution* has been moved to the ScreenshotConfig. Name parsing has been moved to a new script ScreenshotNameParser. Name presets have been moved to a new script ScreenshotNamePresets.

## 1.4.3 - 09/01/2018

- Support of Unity 2017.3.
- **(NEW)** Validation canvas to preview the screenshot before saving.
- You can now request the iOS gallery authorization when you want.
- Added the possibility to increase the number of waiting frames in *GAMEVIEW\_RESIZING*, to prevent post effect artefact like temporal anti aliasing.
- Updated documentation and FAQ.
- **(Fix)** WebGL plugin error.
- 12 new phone presets.
- Updated steam hardware popularity presets.
- **(Fix)** Device selection memory in preview window.

## 1.4.2 - 01/11/2017

- (Fix) GameViewResizing in NET 4.6.

## 1.4.1 - 26/10/2017

- Support of Unity 2017.2.
- Asset renamed from *MultiResolution Preview Gallery* to *Multi Device Preview & Gallery*. Some folders and scripts have been renamed accordingly.
- Cosmetic update: logo updated.
- (Fix) File name update in burst mode.

## 1.4.0 - 17/10/2017

- (**NEW**) Screenshot cutter, capture only a sub-part of the screen.
- Added support to export to secondary storages on Android.

## 1.3.0 - 27/09/2017

In order to simplify the use of the preview gallery, I separated the features of the Gallery Preview from the *ScreenshotManager*. There are now two distinct managers: the *PreviewManager* is used by the preview windows for device preview; the *ScreenshotManager* is used only for taking screenshots. The documentation has been reorganized accordingly.

- (**NEW**) Live preview on a specific device on play mode.
- (**NEW**) Preview Window for previewing a specific device.
- Added scroll area on the Gallery Window.
- 8 new phone presets.
- Better API for developers.
- (Fix) iOS picture export folder.

## 1.2.2 - 12/09/2017

- Added support for WebGL.

## 1.2.1 - 29/08/2017

- (Fix) Android picture export folder.

## 1.2.0 - 16/08/2017

- Support of Unity 2017.1.
- Updated statistics.
- (NEW) Capture mode: *FIXED\_GAMEVIEW* to capture the game screen on all platforms, including UI.
- (NEW) Export mode: *PICTURE\_FOLDER*, to export in the platform specific picture folder.
- (NEW) Automatically export the screenshots to the Android gallery.
- (NEW) Automatically export the screenshots to the iOS gallery.
- Multi-display support.
- Added a message canvas to display a success or failure text in-game.

## 1.1.2 - 26/04/2017

- Fixed inspector background color in Unity Pro.
- Improved example camera controller.

## 1.1.1 - 03/04/2017

- Support of Unity 5.6.
- MultiSampling AntiAliasing support in *RENDER\_TO\_TEXTURE* mode.

## 1.1.0 - 23/03/2017

- Added more phone presets.
- Updated statistics.
- (NEW) Capture mode: *RENDER\_TO\_TEXTURE*.
- (NEW) Possibility to capture screenshots in builds on all platforms using *RENDER\_TO\_TEXTURE*.
- Orientation is now a ScreenshotResolution property.
- Extracted code from ScreenshotManager.cs to ScreenshotTaker.cs for all capture related code, and to TextureExporter.cs for all export related code.
- Added the possibility to recompute the alpha layer in RGBA if destructed by camera effects.
- Programmer friendly API, can now call a capture from code.
- Tooltips added for the inspector.

## 1.0.0 - 08/03/2017

- First public release.

## **13 SUPPORT**

Please do not hesitate to contact me if you have a feature request, or any question, issue or suggestion : [support@wildmagegames.com](mailto:support@wildmagegames.com).