

# Universal Device Preview



v1.9.2

for Unity 2017.4 to 2020.2

©Arnaud Emilien

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## Contents

<b>1</b>	<b>Overview</b>	<b>5</b>
1.1	Introduction . . . . .	5
1.2	Requirements . . . . .	5
1.3	Known Issues . . . . .	5
<b>2</b>	<b>Quick Start Guide</b>	<b>6</b>
<b>3</b>	<b>Gallery Window</b>	<b>7</b>
<b>4</b>	<b>Device Preview Window</b>	<b>9</b>
<b>5</b>	<b>Settings Window</b>	<b>11</b>
5.1	Preview Settings . . . . .	11
5.1.1	Behavior . . . . .	12
5.2	Resolutions . . . . .	13
5.3	Managing Resolution Presets . . . . .	15
5.4	Destination . . . . .	16
5.5	File Name . . . . .	16
5.6	Hotkeys . . . . .	17
5.7	Permissions . . . . .	17
5.8	Exclude Features from Build . . . . .	19
<b>6</b>	<b>Safe Area</b>	<b>20</b>
6.1	Safe area preview . . . . .	20
6.2	Getting new safe area values . . . . .	20
6.3	Automatic layout adaptation . . . . .	21
6.4	Automatic layout adaptation - Advanced constraints . . . . .	22
6.4.1	Snap. . . . .	22
6.4.2	Push. . . . .	22
6.4.3	Expand. . . . .	22
6.4.4	Check your anchors . . . . .	23
6.5	Custom device borders . . . . .	24
<b>7</b>	<b>API</b>	<b>26</b>
7.1	DeviceInfo . . . . .	26
7.2	Events . . . . .	26
7.2.1	Preview events . . . . .	26
7.2.2	Device events . . . . .	26

<b>8</b>	<b>FAQ</b>	<b>27</b>
8.1	Common issues . . . . .	27
8.1.1	I have a compilation error on iOS . . . . .	27
8.1.2	The PPI mode preview is different from what I see on my device . . . . .	27
8.1.3	My GameView is blinking when I update the device or gallery previews. . . . .	27
8.1.4	My GameView and layout are doing strange things when I update the device or gallery previews. . . . .	27
8.1.5	Nothing Happens when I try to Update the Preview(s) . . . . .	27
<b>9</b>	<b>Versions</b>	<b>28</b>
<b>10</b>	<b>Support</b>	<b>38</b>

**Thank you** for purchasing *Universal Device Preview*! 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,  
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# 1 OVERVIEW

## 1.1 Introduction

*Universal Device Preview* is an advanced and easy-to-use tool that gives you an accurate preview of your game for a huge variety of devices, and help you adapt your games to them. Instantly test how your content looks and feels on each of your target devices within the editor to prevent long and tedious iterations, and incredibly fasten your game development process!



Figure 1: Advanced in-editor preview.

## 1.2 Requirements

Preview and gallery:

- The solution works with Unity 2017.2 and later free or pro edition.

Safe Area requirements:

- For iOS: Unity 2017.2.1 or higher.
- For Android: Unity 2018.4.1 or higher, and the device must be running on API level 28 or higher (Android 9).

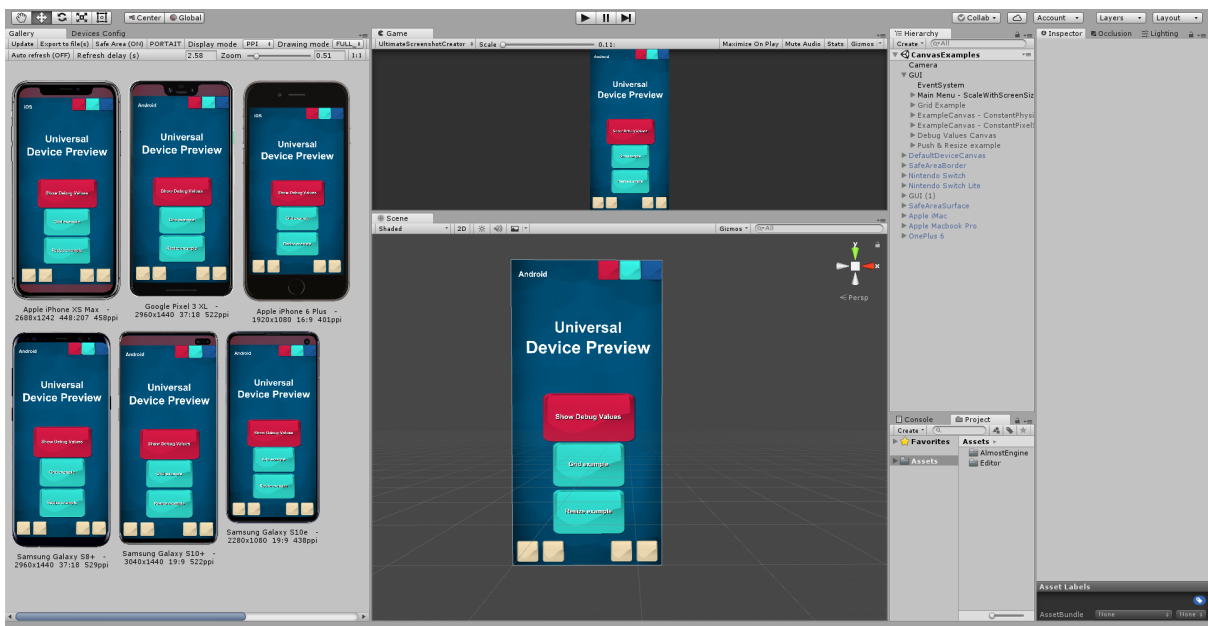
## 1.3 Known Issues

- 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.

## 2 QUICK START GUIDE

1. Open the gallery window in the menu *Window/AlmostEngine/Universal Device Preview/Gallery*, or the preview window in the menu *Window/AlmostEngine/Universal Device Preview/Device Preview*.
2. Open the settings window in the menu *Window/AlmostEngine/Universal Device Preview/Settings*, or using the *Settings* button in the gallery or preview window.
3. Set your screen PPI (Pixel Per Inch) 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 owns, or use the device preset selector 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. Select the drawing mode: *TEXTURE\_ONLY*, *SCREEN\_MASK*, or *FULL\_DEVICE*.
8. 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 5.6).

**Important Android and iOS configuration.** *Universal Device Preview* comes with all *Ultimate Screenshot Creator* features, including the ability to save to iOS and Android galleries. You need to configure it properly (see *Ultimate Screenshot Creator* documentation) or to exclude those features (see Section 5.7).



### 3 GALLERY WINDOW

The Gallery Window allows you to preview multiple devices or resolutions at a glance. The displayed devices are managed in the Settings Windows (see Section 5). Open the gallery window in *Window/AlmostEngine/Universal Device Preview/Gallery*.



Figure 2: The gallery window

**Update.** Press this button to update all active resolutions. Note that you can use the hotkey (F5) 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 *PreviewManager*. Note that it will also export the device image if you are in *FULL\_DEVICE* drawing mode. To export only the screen content, switch to the *TEXTURE\_ONLY* mode.

**Safe Area.** Show or hide the safe area. Note that only device with valid safe area data will have the safe area rendered.

**Landscape/Portrait.** Switch between landscape or portrait for all active devices.

**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.

**Drawing Mode.** Select the drawing mode. See Section 5 for more details.

**Settings.** Open the settings window.

**Auto Refresh.** Auto refresh can be set to play mode and/or edit mode in the settings window.

**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.

**Device Selection.** You can select which of the active devices you want to preview in the window. To edit the active devices, open the settings window and use the preset selector to add or remove devices.

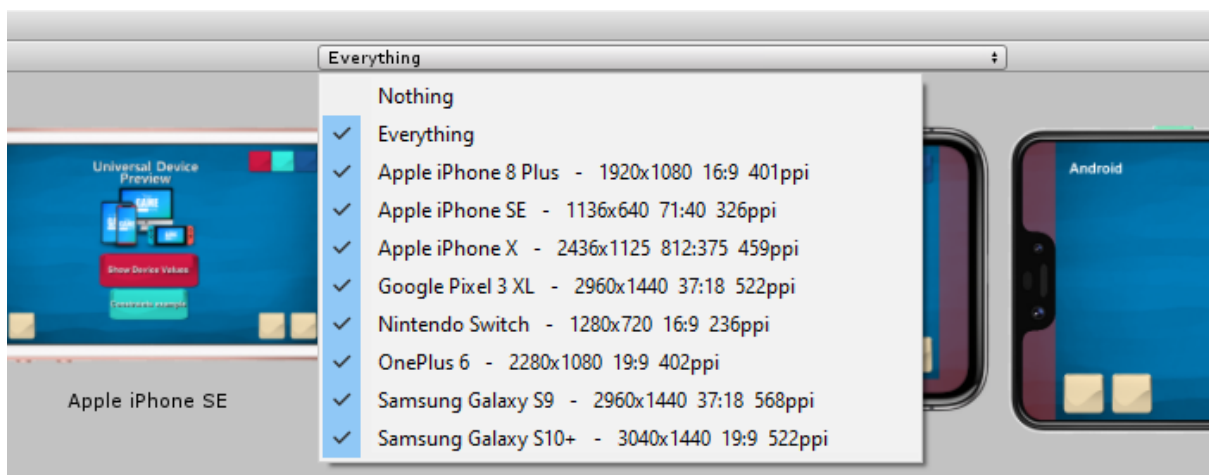


Figure 3: Devices selection.

## 4 DEVICE PREVIEW WINDOW

The Device Preview Window allows to preview a specific device, and do a live preview in play mode. Open the preview window in *Window/AlmostEngine/Universal Device Preview/Device Preview*.



Figure 4: The preview window

**Device Selection.** Select which of the active devices you want to preview in the window.



Figure 5: Device selection.

**Live Preview with Auto refresh.** If you want a live preview of your game, enable auto refresh and start playing. You can stop/start the auto refresh at any time while playing.

Note that it is recommended to close the Gallery Window and only use the Preview Window with the desired resolution. It is also recommended to use the *TEXTURE\_ONLY* mode. 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, or to manually refresh the preview using the hotkeys.

## 5 SETTINGS WINDOW

The settings window allows to configure the gallery and device preview window. Open the settings window in *Window/AlmostEngine/Universal Device Preview/Settings*. The Settings Window settings are saved in the file *MultiDevicePreviewConfig.asset*.

### 5.1 Preview Settings

**PREVIEW SETTINGS**

**Display**

Screen PPI: 130

! Set ScreenPPI to the PPI of your display to have correct physical sizes in PPI mode.

**Safe Area**

Draw Safe Area: ☒

Safe Area Canvas: SafeAreaSurface (Canvas)

! Note that safe area is only displayed with devices containing safe area data.

! Send me your safe area data! If you get more safe area values, please send them to me, so I can update the asset presets and make them available to all users. To get them, simply run the CanvasExamples scene on your target device, and look at the device info values.

**Drawing**

Drawing Mode: FULL\_DEVICE

Transparent Device Back: ☐

Device Renderer Camera: DeviceCameraRenderer (Camera)

Default Device Canvas: DefaultDeviceCanvas (Canvas)

**Auto Refresh**

Auto Refresh: ☐

Refresh Mode: ONLY\_IN\_PLAY\_MODE

Refresh Delay: 2

! Autorefresh recompute all previews periodically using the refresh delay. Because the gameview needs to be resized during the preview capture, it is recommended to use autorefresh with only one or very few devices at a time, and with a high delay value. Prefer using the hotkey (F5) to refresh manually the previews when you need it. For a live preview, it is recommended to use only one device, and to set DrawingMode to texture only.

**Behavior**

Auto Generate Empty Pre: ☒

Backup Preview To Disk: ☒

**Gallery device names**

Show Resolution: ☐

Show PPI: ☐

Show Ratio: ☐

**Misc.**

Zoom Scroll Speed: 0.01

Figure 6: The settings window

**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. It is recommended to enable auto refresh only with one active resolution and in *TEXTURE\_ONLY* mode to prevent the gameview to be constantly resized, but it works with any number of resolutions.

**Safe Area.** Show or hide the safe area. You can customize the safe area renderer by setting a custom canvas.

**Drawing Mode.** You can chose between three device drawing mode.

- *TEXTURE\_ONLY* draws the screen at the correct scale and resolution.
- *SCREEN\_MASK* draws the device screen shape, for instance phone with notches will have the notches part cut.
- *FULL\_DEVICE* draws the device using a device canvas, perfect to really see your game on the target device.

Note that devices with no custom device canvas will be rendered using a generic device contour.

**Device Renderer Camera.** The camera used to render the devices. Use the default Device-CameraRender prefab.

**Default Device Canvas.** When a device do not have a custom canvas, the specified default canvas is used. Note that it can be customized, for instance to change the device color.

**Transparent Device Background.** By default, the background color of the full device preview matches the editor color. If you want to export the full device preview images to files, enable the transparent device background.

### 5.1.1 Behavior

**Auto generate empty preview.** Automatically generate a preview for all devices that have no preview yet. Disable if you want to call the preview yourself.

**Backup preview to disk.** Backup the generated preview images on disk not to lose them when changing play mode or exiting the editor. Note that creating a backup of the preview of a large quantity of devices can take some time, depending on the hardware used. Disable that feature if you experience performance issues when changing game modes.

## 5.2 Resolutions

*Universal Device Preview* comes with hundred of device and resolution presets. Use the preset selector to search and add a device to the active resolution list. Presets are sorted by categories and collections.

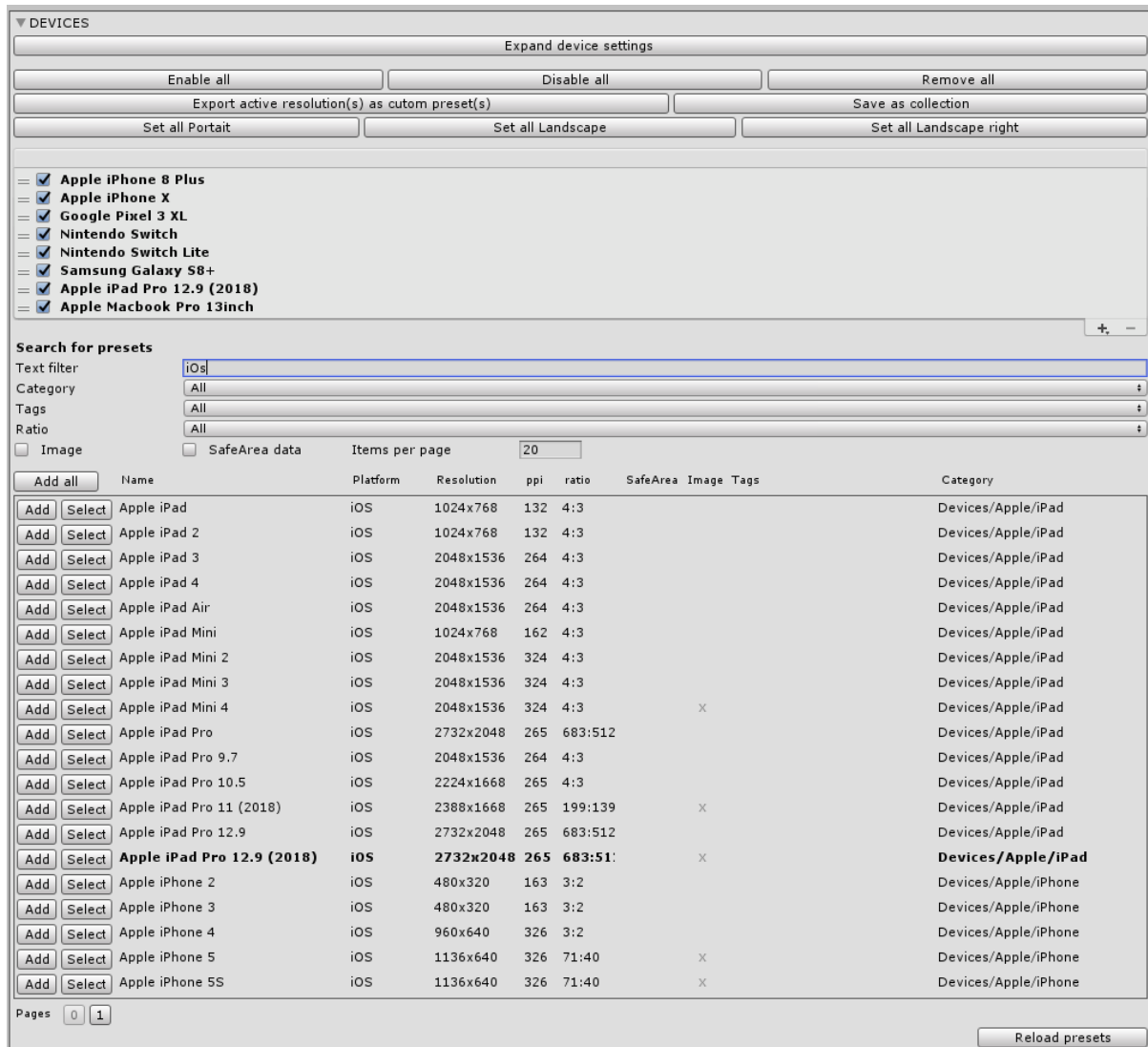


Figure 7: Top: The active resolutions list. Bottom: The device preset selector.

**Expanded settings.** By expanding the active resolution settings, you can see and customize the active resolution settings. Note that they are instances of resolution presets, modifying the resolution does not affect the preset, and preset changes are not applied automatically.

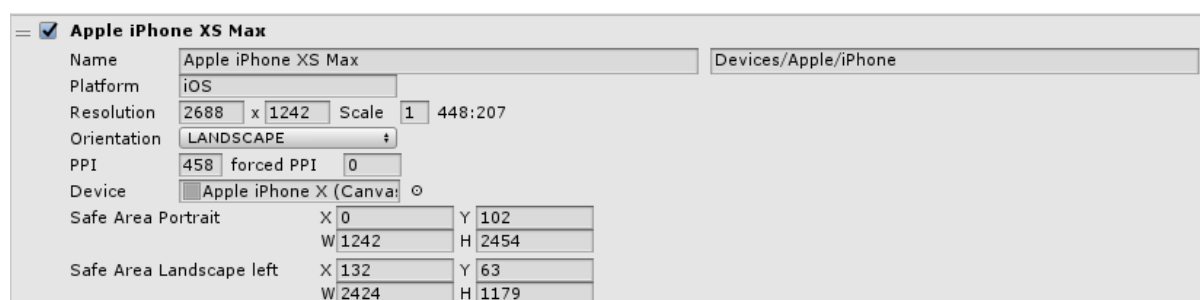


Figure 8: Expanded resolution settings.

**Save as collection.** You can create custom collections by clicking on "save as collection". A new Collection containing the active presets will be created. Note that if your list contains customized presets, i.e. if you changed one of the preset settings (resolution, scale, name, etc.), a new custom preset will also be created. The original preset will not be modified.

**Tags.** You can add tags to presets by clicking on "select" and editing the preset tags in the inspector. Note that tags are not saved on the preset files but in the DeviceTagDatabase.asset file.

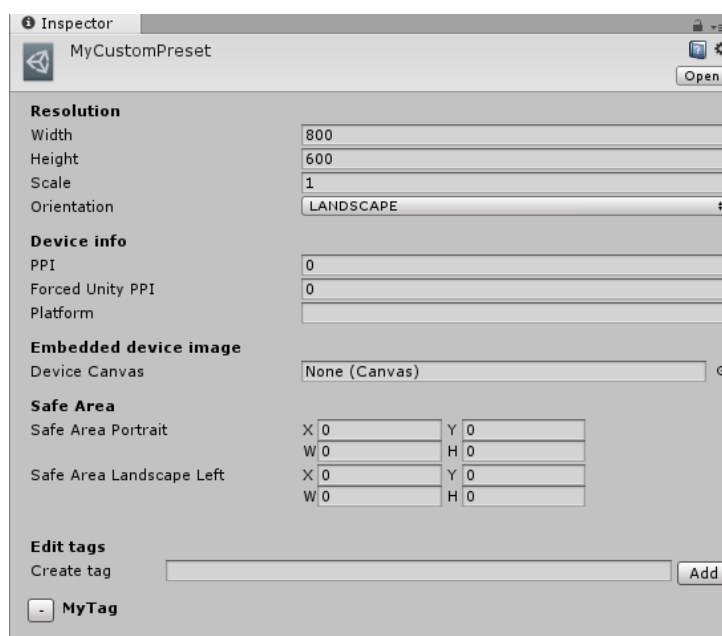


Figure 9: Edit tags in the preset inspector.

**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.** Sometimes, Canvas with Constant Physical Size scale will not be scaled in the Unity editor as in the device. This can occur because on the device Unity uses the Screen.dpi value, which may be wrong. Set the forced ppi value to the Screen.dpi returned by your device to get the same scaling for Constant Physical Size canvas scaler in the preview than in your device.

Note that there is a known issue on Unity 2018.1 and later: the Canvas with Constant Physical Size scaler may not be scaled properly.

**Device.** The device renderer Canvas to be used to perform the integration of the picture into a real device picture.

Note that with an empty device, the default device canvas will be used.

## 5.3 Managing Resolution Presets

Resolution presets are stored as asset files in the project folder. It is possible to easily create your own presets.

**Creating Custom Presets.** Click on "Save active resolution(s) as custom preset(s)" to automatically create new preset files using the resolutions in your custom resolution list.

Also, you can right click on your project folder and select *Asset/Almost Engine/Ultimate Screenshot Creator/Custom preset*.

**Creating Custom Collections.** Collections are set of presets that can be grouped and loaded simultaneously.

To create a new collection, you can export your active resolution list to a new collection by clicking on "Save as collection".

Also, you can right click on your project folder and select *Asset/Almost Engine/Ultimate Screenshot Creator/Custom collection*. Then, add all desired resolution preset to the list.

**Creating Custom Popularity Collections.** Collections are set of presets that can be grouped and loaded simultaneously.

To create a new popularity collection, right click on your project folder and select *Asset/Almost Engine/Ultimate Screenshot Creator/Popularity preset*. Then, add all desired resolution preset to the list, and specify their associated popularity values.

**Copying Presets and Settings to a New Project.** If you have some custom presets you want to copy to a new project, simply copy and paste your preset .asset and .meta files.

To copy your Screenshot Manager and Device settings, copy ScreenshotWindowConfig.asset and MultiDevicePreviewConfig.asset to your new project.

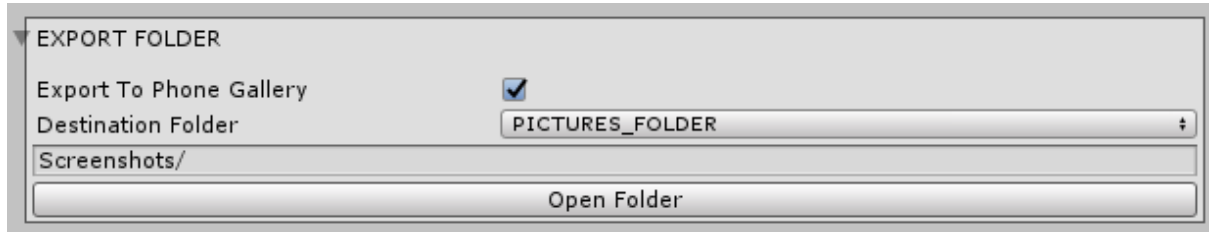


Figure 10: Destination settings.

## 5.4 Destination

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.

**Export to Phone Gallery.** Set if the screenshot should be automatically added to the phone gallery on iOS and Android.

## 5.5 File Name

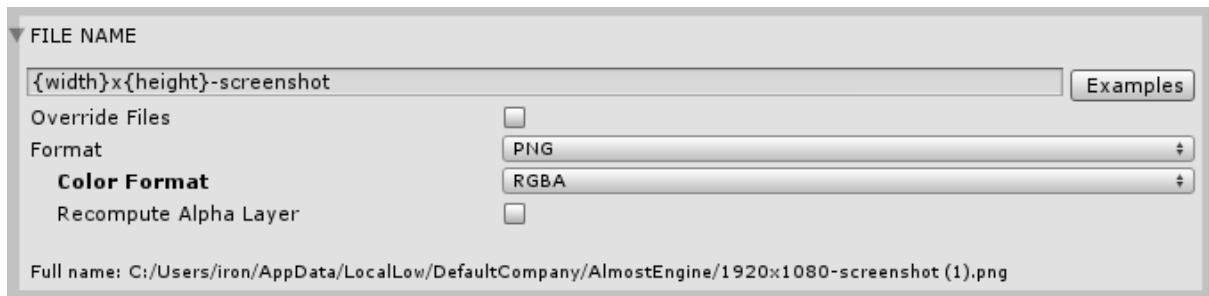


Figure 11: File name settings.

**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.
- {composer} for the current composer name in composition mode.
- {batch} for the current batch process name in batches 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.

**Overwrite 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 `overwrite` to `true` if you want to overwrite 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.

## 5.6 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.

## 5.7 Permissions



Figure 12: Permission settings.

**iOS Gallery Permission** To display your screenshot on the iOS Gallery, you need to request the Gallery permission. Toggle the iOS Gallery permission to do it automatically. You will be able to customize the usage description that is added to your iOS app.

**Android Storage Permission** To export to the Pictures folder, you need to request the storage permission. Toggle the Android Storage Permission button to automatically do it.

## 5.8 Exclude Features from Build

You can choose to exclude some features from the build depending on your needs. If you want only an in-editor use, you can exclude everything and nothing will be added to your project. You can also exclude the Gallery and Share features if you do not use them to prevent the need for any iOS permission request.



Figure 13: Exclude form build settings.

## 6 SAFE AREA

### 6.1 Safe area preview

Enable the safe area preview to better manage phones with notches. Safe area is only displayed with devices having safe area simulation values.

#### Requirements.

- For iOS: Unity 2017.2.1 or higher.
- For Android: Unity 2018.4.1 or higher, with device running on API level 28 or higher (Android 9).

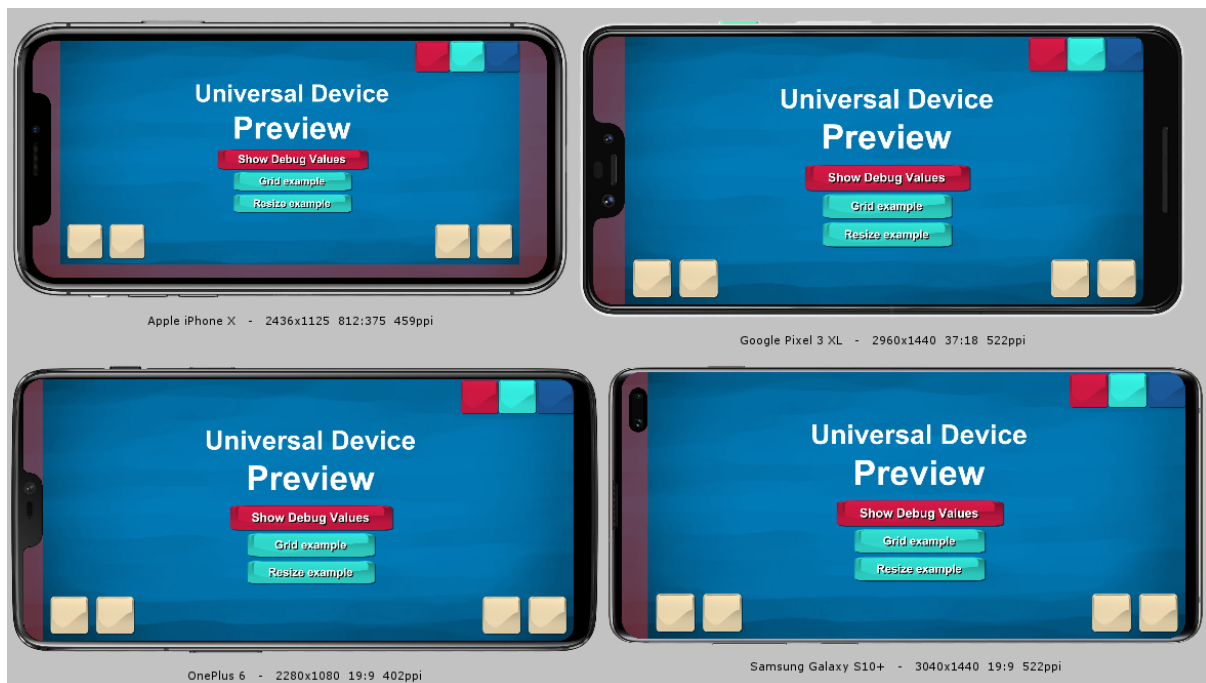


Figure 14: Safe area preview

### 6.2 Getting new safe area values

Getting safe area values for the simulation is not an easy process, since the data must be acquired manually for each device. The asset comes with some safe area values, but not all devices with notches have safe area values.

To get new safe area values, build the project and run the CanvasExample scene on your target devices. Use the "show debug values" to get the safe area values.

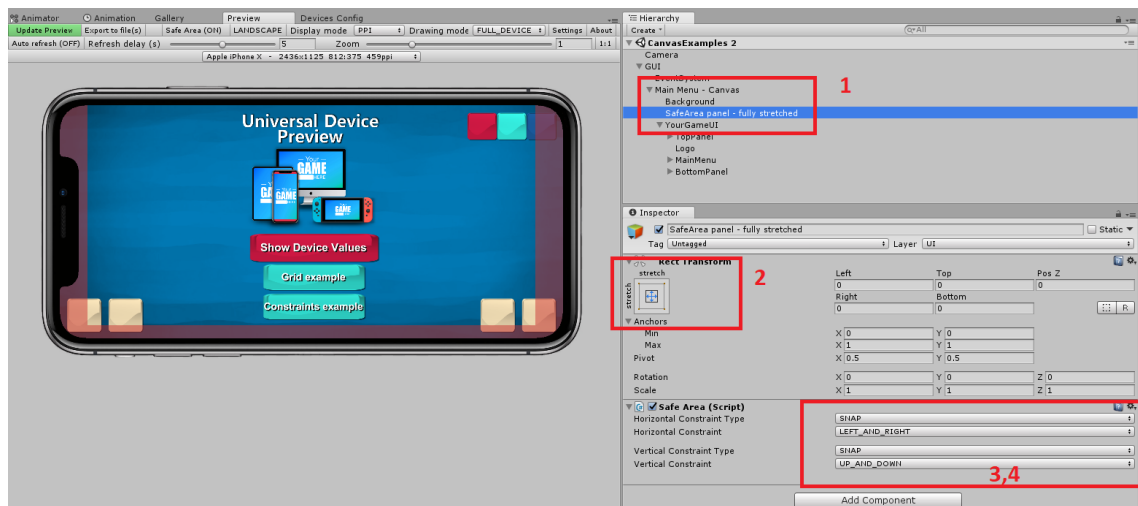
**If you get more safe area values, please send them to me, so I can update the asset presets and make them available to all users.**

### 6.3 Automatic layout adaptation

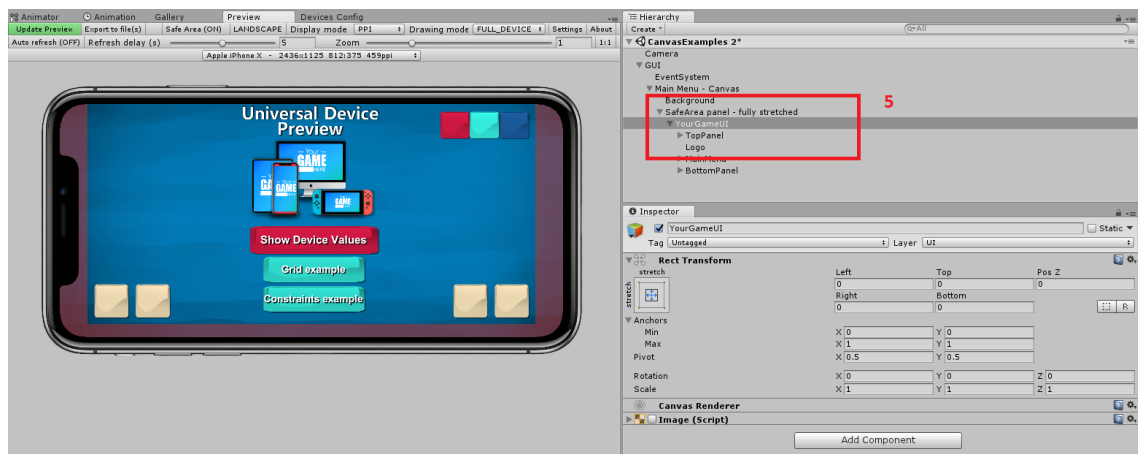
By adding a SafeArea component to a UI layout, you can automatically adapt your UI to the safe area. The most common use of the SafeArea component is to have one unique safe area layout and put all your game UI inside.

To work properly, **the safe area layout must be a child of a Canvas**, or a child of a fully stretched panel in the orientations of the constraints (horizontal and/or vertical).

1. Create an empty panel, as a direct child of your Canvas. It is recommended that the Canvas has a CanvasScaler component "Scale with screen size".
2. Check that the safe area panel anchor is fully stretched.
3. Add a SafeArea component to that panel.
4. Select Horizontal and Vertical SNAP and LEFT AND RIGHT and TOP AND BOTTOM.



5. Move all your game UI inside that panel. Your game UI is now adapted to the safe area constraints. Note that it is best to keep your background out of the safe area constraints so it still covers all the screen.



## 6.4 Automatic layout adaptation - Advanced constraints

For more specific adaptation cases, the asset comes with more customizable safe area constraints.

You can independently set horizontal and/or vertical constraints, and set the constraint to snap, push or expand. Play with the different constraints, explore the example scene to understand how to adapt your content.

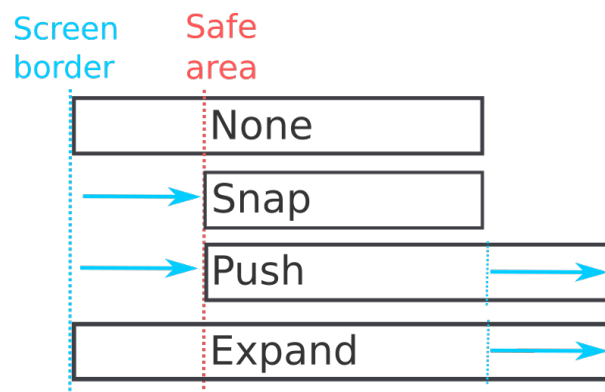


Figure 15: SafeArea constraint types.

### 6.4.1 Snap.

The component borders are snapped to the safe area border. The content size is consequently reduced.

The most common use of the SafeArea component is to add a full snap constraints (horizontal and vertically to top and bottom, right and left) to a fully stretched layout, and put all the game UI inside. This way, you can ensure that everything that is put inside will always be out of the safe area.

### 6.4.2 Push.

The component is pushed away from the safe area, keeping its size.

Note that pushing from left AND right, or top AND bottom, will often do nothing, as the constraints are cancelling each others.

### 6.4.3 Expand.

The component is expanded to compensate the safe area border. Its content is not adapted, it is up to you to make sure it is. For instance, the child of the expanded panel should have an anchor to the expanded side so it moves with the panel border (see example scene).

Note that expanding from left AND right, or top AND bottom, will often do nothing, as the constraints are cancelling each others.



Figure 16: Example of different constraint types.

#### 6.4.4 Check your anchors

Note that the **anchor** of the panel that you are trying to adapt is of **primary importance**. For instance, to push from the left, it is recommended that the panel has an anchor point to the top-left, left, or bottom-left. You should first ensure that your layouts are working properly when deforming the gameview before trying to add a SafeArea component.

Depending on the desired constraints, the following anchor are recommended:

- LEFT: the anchor should be to the top-left, left, or bottom-left.
- RIGHT: the anchor should be to the top-right, right, or bottom-right.
- LEFT AND RIGHT: the anchor should be fully stretched horizontally.
- TOP: the anchor should be to the top-right, top, or top-left.
- BOTTOM: the anchor should be to the bottom-right, bottom, or bottom-left.
- TOP AND BOTTOM: the anchor should be fully stretched vertically.

## 6.5 Custom device borders

You will quickly notice that, depending on the manufactured, the safe area have different shapes. For instance, on iPhone, the safe area borders are very large. On the contrary, on most Android phones, the safe area are minimal, often only corresponding to the camera.

This is because they decided to handle the SafeArea differently. During your UI creation, you may be wanting to change the SafeArea constraints to better match your needs, for instance to have similar safe area on all devices.

The DeviceCustomBorder component has been created to add arbitrary border constraints to a specific list of devices. It can be used in combination or independently of the SafeArea component.

Note that the SafeArea visualization is NOT affected by the DeviceCustomBorder component.

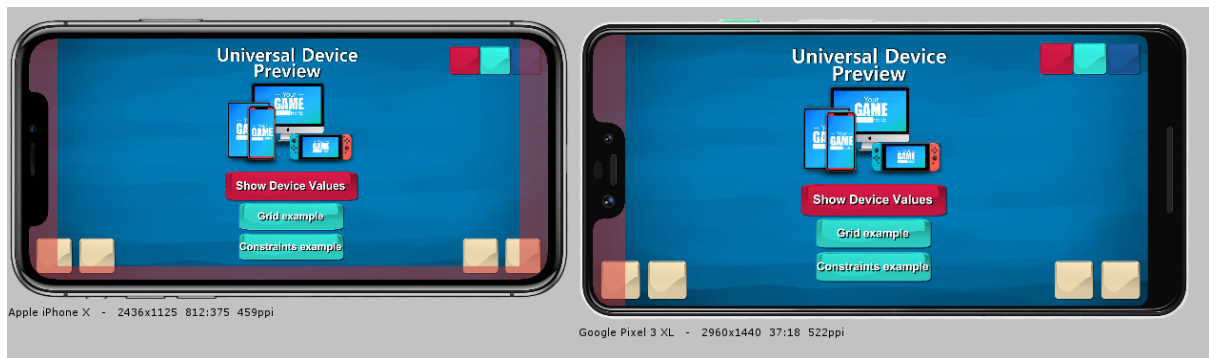


Figure 17: No SafeArea constraints.



Figure 18: SafeArea constraints. The iPhone and Google Pixel have very different safe area borders.



Figure 19: Applying custom constraints to the iPhone SafeArea using a DeviceCustomBorder component. Now the iPhone behaves almost like the Google Pixel. Note that the SafeArea visualization is NOT affected by the DeviceCustomBorder component.

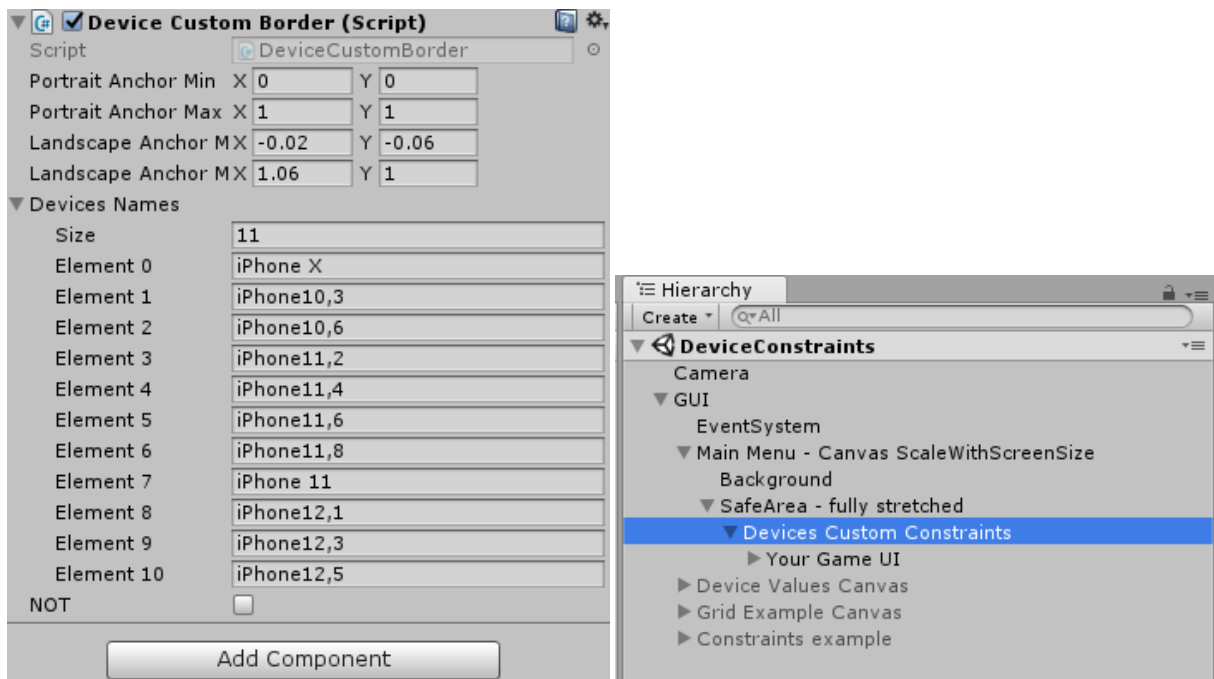


Figure 20: DeviceCustomBorder settings used.

## 7 API

### 7.1 DeviceInfo

In editor, the `DeviceInfo` class provides information on the simulated device, like the name, resolution, ppi, platform. On build, the `DeviceInfo` will return the information of the device.

### 7.2 Events

#### 7.2.1 Preview events

If you want to catch simulation events, you can register to the `ScreenshotTaker` delegates:

```
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.

#### 7.2.2 Device events

If you want to catch the change in orientation event, add a `DetectOrientationChange` component to your scene and listen to:

```
public static UnityAction<bool> onOrientationChangedDelegate = (bool isPortrait)
```

## 8 FAQ

### 8.1 Common issues

#### 8.1.1 I have a compilation error on iOS

The **Photos** framework dependency, required by the *Ultimate Screenshot Creator* plugin, may not have been added automatically. If you do not want the feature to take screenshots in build with the *Ultimate Screenshot Creator*, please exclude that feature from build in the settings windows. If you want to use it, please refer to *Ultimate Screenshot Creator* documentation for more details.

#### 8.1.2 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.

#### 8.1.3 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 [8.1.4](#).

#### 8.1.4 My GameView and layout are doing strange things when I update the device or gallery previews.

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".

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

Sometimes, the renderer may be locked in Editor and refuse to update the preview. This happens rarely, but if you do not have any response from the *ScreenshotManager*, stop and play the game.

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

## 9 VERSIONS

### 1.9.2 - 09/01/2021

- **(New feature)** Exclude features from build depending on your needs.
- Unity 2020.2 support.
- Best selling phones 2020.
- Ratio names simplified.
- (Fix) Safe area delay after screen rotation.
- (Fix) Window error with empty list.
- (Fix) Washed out preview in URP and HDRP.
- (Fix) Device and gallery export only selected devices.
- New devices with safe area:

Google Pixel 4a (4G) Xiami Redmi Note 8 Xiami Redmi Note 8 Pro
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#### Ultimate Screenshot Creator updated to 1.8.1

- Choose gallery order between name, creation date.
- Added delegates to the thumbnail component.
- Cleaned permission needs for iOS and Android.
- (Fix) Share only works when folder exists.
- (Fix) Stack overflow with render to texture.
- (Fix) Export to Pictures folder for Android 10+.

### 1.9.1 - 09/07/2020

- Unity 2020.1 support.
- Minimal supported version is now 2017.4 LTS.
- Asset now includes assembly files.
- New devices presets:

Sony Xperia 1 Sony Xperia 10 Sony Xperia L4 Sony Xperia Pro
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#### Ultimate Screenshot Creator updated to 1.8

- **(New feature)** Share your screenshots on iOS, Android and WebGL.
- **(New feature)** Can now choose to display or not the screenshot in the phone gallery.
- **(New feature)** API improved to allow capture of screen or camera from one line of code.
- (Fix) Saving on Windows Store UWP.
- (Fix) WebGL export on iOS.

## 1.9.0 - 09/07/2020

- **(New feature)** New device presets selector, more intuitive and with a lot of filters.
- **(New feature)** You can now add tags to presets.
- **(New feature)** Easy one-click custom collections creation from device list.
- **(New feature)** Landscape right simulation.
- **(New feature)** Quick devices selection in the gallery window.
- Unity 2019.4 support.
- Reworked folder hierarchy to facilitate adding assembly files.
- Improved preset loading time.
- The SafeArea component is now compatible with the Unity DeviceSimulator package.
- (Fix) Init gameview resolutions on load.
- (Fix) Preview with scale < 1.
- New devices with image:

iPhone SE (2020)
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- New devices presets:

Samsung A10
Samsung A40
Samsung A50

## 1.8.8 - 10/04/2020

- **(New feature)** Add a custom border to a specific list of devices.
- **(New feature)** Detect orientation change.
- Documentation update for SafeArea component.
- Possibility to downscale the preview with device resolution "scale" while keeping the good dimensions in PPI mode.
- Steam hardware stats March 2020.
- (Fix) The previously selected GameView resolution is restored after the preview capture.
- (Fix) Reflection error with Ultimate Survival.

## 1.8.7 - 13/02/2020

- (Fix) Compilation issue.

## 1.8.6 - 09/02/2020

- (Fix) Compilation issue on WebGL.

## 1.8.5 - 05/02/2020

- (Fix) Preview issue in 2019.3 in Editor Mode.

## 1.8.4 - 17/01/2020

- New devices with safe area values:

Huawei Mate 20 Pro
Huawei p20 Pro
Huawei p20 Lite
Motorola G7 Power
OnePlus 6T
Samsung Galaxy S10
Xiaomi Redmi Note 6 Pro
Xiaomi Redmi Note 7

- Added presets for VR displays:

HTC Vive – one eye
Oculus Quest
Oculus Rift
Oculus Rift S
Sony Playstation VR
Valve Index

- New presets:

Motorola G7
Xiaomi Mi 8 Lite
Xiaomi Mi 8 SE
Xiaomi Mi 8

- (Fix) Preview issue in 2019.3 in Editor Mode.
- (Fix) Expand list inspector.
- The editor will now focus back to the last active window after each preview update.
- Textures and prefabs have been moved to an Editor folder to prevent them being added in build.
- Ultimate Screenshot Creator updated to 1.7.11.

## 1.8.3 - 16/12/2019

- (Fix) Namespace for all classes.
- (Fix) AssetUtils update.

## 1.8.2 - 11/12/2019

- (Fix) AssetUtils build error on iOS.

## 1.8.1 - 10/12/2019

- Added settings to enable/disable the preview disk backup and auto refresh.
- Updated most used smartphones stats.
- Added smartphones popularity for Russia, India.
- (Fix) Safe Area inspector.
- (Fix) Improved backup system.
- New devices with images/notches:

Xiaomi Mi Note 10
Xiaomi Note 7 Pro
Xiaomi Redmi Note 4
Google Pixel 4
Google Pixel 4 XL

- New devices presets (resolution only):

Xiaomi Redmi 4
Xiaomi Redmi 4x
Xiaomi Redmi 5a
Xiaomi Redmi 6a
Xiaomi Redmi Note 5
Xiaomi Mi Note Pro
Xiaomi Redmi y2
Motorola G8 Plus
Sony Xperia 5
OnePlus 7T
OnePlus 7T Pro

- **(New feature)** Better alpha computation method for capturing scenes with transparent background.
- (Fix) Waiting frame for Temporal Anti Aliasing
- (Fix) iOS photo library not added automatically

## 1.8.0 - 17/10/2019

**Upgrade Instructions from 1.7 to 1.8.** Several files have been renamed in update 1.8. It is recommended to do a clean re-install by removing the asset folder before importing the update. Do not forget to backup your custom prefabs and MultiDevicePreviewConfig config file before doing so. Otherwise, follow the upgrade process described below:

1. Rename the AlmostEngine/MultiDevicePreview folder to AlmostEngine/UniversalDevicePreview folder
2. Rename the Assets/Script/MultiDevicePreview.cs to Assets/Script/UniversalDevicePreview.cs
3. Rename the Assets/MultiDevicePreviewConfig to Assets/UniversalDevicePreviewConfig
4. Rename the Documentation/MultiDevicePreview.pdf to Documentation/UniversalDevicePreview.pdf

### Version Changes.

- Asset name changed from *MultiDevice Preview & Gallery* to *Universal Device Preview*. Folders and scripts have been renamed accordingly.
- **(New feature)** Safe area simulation
- **(New feature)** Safe area automatic adaptation layout
- **(New feature)** DeviceInfo API
- Improved overall user experience
- Backup/restore last preview pictures
- Support of Unity 2019.3

- Minimum supported Unity version is now 2017.2
- New devices with images/notches

`Nintendo Switch  
Nintendo Switch Lite  
OnePlus 6  
iMac  
Macbook Pro`

- New devices presets (resolution only)

`Lenovo TAB 2 A7-20  
Lenovo TAB 2 A7-10  
Asus Zenfone 5  
Asus Zenfone 6  
Honor 20  
Honor 20 Pro  
Honor 20 Lite`

### 1.7.6 - 16/09/2019

- Support of Unity 2019.1, 2019.2
- Updated most used smartphones stats
- Updated steam hardware stats
- New devices with images/notches

`iPhone 11  
iPhone 11 pro  
iPhone 11 pro max  
Google Pixel 3a  
Google Pixel 3a XL  
Samsung S9  
Samsung S9+  
Samsung S10  
Samsung S10+  
Samsung S10e  
Samsung Galaxy Tab S5e  
Samsung Galaxy Note 10  
Samsung Galaxy Note 10+  
Huawei P30  
Huawei P30+  
Huawei P30 Lite`

- New devices presets (resolution only)

`LG G8 ThinQ  
Motorola Moto Z4  
Samsung Galaxy A80  
Samsung Galaxy Tab S6`

- (Temporary Fix) Clean preview textures when resolution list is reordered to prevent un-matching devices. A better fix will follow.
- (Fix) Auto add the iOS dependency to Photo framework.
- (Fix) Date is now the same for each screenshots of a same batch.
- Visible ScreenshotManager settings "DontDestroyOnLoad".

## 1.7.5 - 21/05/2019

- Settings for capture delay now visible.
- (Fix) Removed deprecated symbol from full device name preset.
- (Fix) Composer error with null process.
- (Fix) Automatic exclude from build.

## 1.7.4 - 04/05/2019

- (Fix) Automatic creation of config files.

## 1.7.3 - 03/05/2019

- Added presets for AppStore and PlayStore.

## 1.7.2 - 10/04/2019

- (Fix) Capture screenshot in separated layers.

## 1.7.1 - 03/03/2019

- (Fix) Memory leak in auto refresh mode.

## 1.7.0 - 13/01/2019

**READ BEFORE UPDATING** . Several files have been moved or removed in update 1.7. It is recommended to do a clean re-install by removing the AlmostEngine folder before importing the update. Do not forget to backup your custom prefabs before doing so. Otherwise, follow the upgrade process described below.

**Upgrade Instructions from 1.6 to 1.7.** If you want to manually move and remove the files instead of doing a clean reinstall, do as follow:

1. Move MultiDevicePreviewConfig.asset to AlmostEngine/MultiDevicePreview/Assets/. **Not doing it will result in large build resource files.**
2. Move ScreenshotWindowConfig.asset to AlmostEngine/UltimateScreenshotCreator/Assets/. **Not doing it will result in large build resource files.**
3. Move ScreenshotResolutionPresets.cs to AlmostEngine/UltimateScreenshotCreator/Assets/Scripts/Editor.
4. Remove DeviceResolutionPresets.cs
5. Remove PopularityResolutionPresets.cs
6. Remove RatioResolutionPresets.cs
7. Remove ResolutionDebugPresets.cs

Do not hesitate to contact me if you have any issues or questions.

**Version Changes.**

- **(New feature)** Full device preview for more than 40 devices, including phones with notches.
- Contains now more than 200 mobile phone and tablet presets.
- New popularity presets for most used smartphones, steam hardware.
- New preset collections.
- Improved resolution list display.
- **(New feature)** Generate hundreds of multilingual promotional pictures with the composer and batch process.
- **(New feature)** Create custom presets and collections saved as assets that can be shared between projects.
- **(New feature)** Display a screenshot thumbnail when taking screenshots.
- **(New feature)** A localization feature has been added to easily localize your screenshots, and can be used independently to localize your whole game.
- Possibility to automatically remove the permission requirements.
- Automatically add the Photos framework dependency.
- Support of Unity 2018.3.
- (Fix) Fixed gameview size on retina displays.
- (API) Presets are now asset files.
- (API) Popularity preset are now asset files, referencing preset assets.
- (API) Moved ScreenshotManager specific symbols parsing to the ScreenshotManager.
- (API) Moved all extra features to the namespace AlmostEngine.Screenshot.Extra.
- (API) Gallery and preview windows do not use the ScreenshotManager anymore.
- (API) Gallery and preview windows new delegates: onUpdateBeginDelegate, onUpdateEndDelegate.

**1.6.2 - 16/11/2018**

- iOS Photo Framework dependency now automatically set for Unity 5.6 or newer.
- (Fix) Compilation issue on WebGL.

**1.6.1 - 11/09/2018**

- (Fix) Compilation issue on iOS with photo usage description.

**1.6.0 - 28/08/2018**

- **(New feature)** Customizable ingame gallery to manage screenshots.
- **(New feature)** 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 ?? 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 feature)** Added support for retina displays for Unity 5.4 and newer.
- **(New feature)** It is now possible to partially exclude the asset from iOS and Android builds to remove the need for any permission. See Section 5.7 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. **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 5.6). They now works anywhere within the editor.
- **(New feature)** 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 feature)** 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 feature)** 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 feature)** 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 feature)** Live preview on a specific device on play mode.
- **(New feature)** 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 feature)** Capture mode: *FIXED\_GAMEVIEW* to capture the game screen on all platforms, including UI.
- **(New feature)** Export mode: *PICTURE\_FOLDER*, to export in the platform specific picture folder.
- **(New feature)** Automatically export the screenshots to the Android gallery.
- **(New feature)** Automatically export the screenshots to the iOS gallery.
- Multi-display support.
- Added a message canvas do 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 feature)** Capture mode: *RENDER\_TO\_TEXTURE*.
- **(New feature)** 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.

## 10 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).