Release Notes

Intel® RealSense™ SDK
User Background Segmentation
for Windows* Release

F200 Gold
SR300 Gold
User Background Segmentation Gold

User Background Segmentation version 11.0.27.2322

These release notes covers Intel® RealSense™ SDK for use with Intel® RealSense™ Camera, model SR300 and Intel® RealSense™ Camera, model F200. Please review the “Intel RealSense SDK License.rtf” for licensing terms. Please refer to attributions.rtf for third party attributions and third_party_programs.txt for third party licenses.

IMPORTANT! PLEASE READ!

- This release supports 2 cameras:
  o The Intel® RealSense™ Developer Kit Camera (F200)
  o The Intel® RealSense™ Developer Kit Camera (SR300), which can be ordered on the Intel® RealSense™ SDK Website (https://software.intel.com/en-us/realsense/devkit)

- This package does not include the driver/service (DCM) for the camera. Camera Driver / DCM Package is hosted on Windows Update. It is automatically installed when you connect your camera to the system. If not automatically installed, please download the Camera Driver / DCM Package from the Intel RealSense downloads website.
  o SR300 Camera: DCM version 3.1.25.1077 or later
  o F200 Camera: DCM version 1.4.27.41944 or later

- This package is a portion of the entire Software Development Kit package. It can install standalone. This package requires the Intel® RealSense™ SDK Essentials for Windows* package which will be installed by the installer if not already present on the system.
  o Intel® RealSense™ SDK Essentials for Windows* version 11.0.27.1384

- If installer requests that you reboot, please restart, or your system will not install correctly.

- F200 Camera OS:
  o * Microsoft* Windows* 8.1 x64 August Update required
  o * Microsoft* Windows* 10

- SR300 Camera OS:
  o Microsoft* Windows* 10
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SDK Features

Please note that SDK features are at various levels of maturity in this release as follows:

<table>
<thead>
<tr>
<th>Maturity</th>
<th>SR300 Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>• User Background Segmentation</td>
</tr>
</tbody>
</table>

Installation steps for SDK

This is for developer systems ONLY

- Run the Intel® RealSense™ SDK User Background Segmentation for Windows* installer (intel_rs_sdk_mw_seg3d_offline_11.0.27.2322.exe).

SDK Interface Changes

- SDK 2016 User Background Segmentation:
  - Features were added to detect whether the lighting conditions of the scene are optimal for the algorithm
    - Two new alerts: ALERT_BRIGHTNESS_LOW and ALERT_BRIGHTNESS_GOOD
    - A GetBrightness() method that returns a normalized float in the range [0, 1). A value below 0.25 can be considered poor lighting conditions.
  - Unity
    - Intel.RealSense.seg3d.unitypackage provided under $RSSDK_DIR/framework/Unity for easy integration of algorithm modules. For more info, ReadMe provided in the same directory.
    - Automated copying of runtime contents in application data directory while building Unity standalone executable. No manual steps required for deploying.
    - Fixed Unity Editor hang issue when subscribing to alert events.

SR300 Release Notes

The following items apply to the SR300 camera.

SR300 SDK Features

Gold Features

- User Background Segmentation
  - Segment the user from the background (e.g. background removal/replacement)
  - Usage cues (fading) at near/far extents
  - Optional callback support for user enter, too close, too far, low lighting, and good lighting events.
  - Segmentation Quality Improvements using Depth HDR and other algorithm changes: Dark hair, finger webbing & other artifacts can be better detected.
  - Scene lighting quality detection.

SR300 Known Issues and Limitations
## Background Segmentation

<table>
<thead>
<tr>
<th>Issue</th>
<th>Recovery/Workaround</th>
</tr>
</thead>
<tbody>
<tr>
<td>When multiple people are in range, the segmentation mask quality degrades</td>
<td>None. The module is implemented to work with one person at a time. We are planning to add support for multiple people in a future release.</td>
</tr>
<tr>
<td>Glossy or IR absorbing materials (e.g. glasses, watches, headphones, hats and scarves) can degrade segmentation mask quality</td>
<td>Remove these items. Will improve in future releases.</td>
</tr>
<tr>
<td>Incorrect segmentation for transparent objects</td>
<td>Will be addressed in future release</td>
</tr>
<tr>
<td>The module confuses black objects from background that are at the same camera eye level of the user’s head.</td>
<td>Will improve in future releases</td>
</tr>
<tr>
<td>Incorrect segmentation for hair and background with similar color tone</td>
<td>Will be addressed in future release</td>
</tr>
<tr>
<td>Background between fingers can be seen in some cases</td>
<td>Increase or decrease the distance between fingers or move hand away from head/object.</td>
</tr>
<tr>
<td>Incorrect segmentation for bright blond hair</td>
<td>Will be addressed in future release</td>
</tr>
<tr>
<td>When holding objects or hands close to the head, mask quality is degraded</td>
<td>Move object, head or hands to avoid this case</td>
</tr>
<tr>
<td>Thin objects (1-2 mm) are not segmented correctly</td>
<td>None</td>
</tr>
<tr>
<td>Incorrect segmentation for mixed light (artificial + natural)</td>
<td>Will be addressed in future release</td>
</tr>
<tr>
<td>The FF_3DSeg samples may crash when recording streams with intel HD graphics card disabled.</td>
<td>Keep Intel HD graphics enabled for recording.</td>
</tr>
<tr>
<td>Clip files recorded in HDR mode may have incorrect timestamp difference between first 2 frames resulting in playback hang in realtime mode.</td>
<td>Remove first frame from the clip using clip_editor tool.</td>
</tr>
<tr>
<td>A crash may occur if you release SDK resources and immediately close the executing process when using segmentation.</td>
<td>Do not free SDK resources directly before process exit (such as at the end of the main() function). A fix will be provided in a future release.</td>
</tr>
<tr>
<td>framework/CSharp/Intel.RealSense.Segmentation.unity VS project does not build successfully on VS2012 or VS2013</td>
<td>Right Click the Project -&gt; Add Reference -&gt; [Unity Install Directory]/Editor/Data/Managed/UnityEngine.dll</td>
</tr>
</tbody>
</table>