

What's New

Intel GPA 2019 R3 includes functional and security updates. Users should update to the latest version.

Intel GPA 2019 R3 offers the following new features:

New Features for Analyzing All Graphics APIs

All Tools

- Added User Interface scaling with small, medium, and large scales available.

Graphics Frame Analyzer

- Added new view modes for output resources. An Original View shows the render target without applied experiments, Current View shows the resource with applied experiments, and Diff View shows the difference between the current and original render targets.
- Added the ability to open frames and streams from outside of the default folder "\\Documents\\GPA".
- Added Multiframe View improvements:
 - The ability to enable frame screenshots to navigate a stream with ease (this feature is only fully supported for Vulkan applications)
 - GPU Time has replaced the CPU Frame Time metric for the frame selector track.
 - Intel® GPU hardware system-wide time-based metrics are available to be collected during stream capture. Collected metrics can be viewed as separate tracks within Multiframe View.

Graphics Trace Analyzer

- Labels for queue packages are shown by default
- Open Trace Capture Window improvements:
 - Graphics Monitor can be launched directly from the window to capture traces.
 - Favorite traces can be pinned at the top of the window, making them quick within reach.
 - Selected trace can be shown in file explorer.
 - Added the ability to open traces and streams from outside of the default folder \\Documents\\GPA.

Graphics Monitor

- Added Capture File Location setting to customize frame, stream, or trace storage location.

New Features for Analyzing Microsoft DirectX 11* Applications

Graphics Trace Analyzer

- Added a new event track called Parallel Event Execution that shows the accurate execution of GPU-intensive calls, such as draws and dispatch call (this feature is only support on Intel® Core™ Processors that are 6th generation or newer).

New Features for Analyzing Microsoft DirectX 12* Applications

Graphics Frame Analyzer

- DXIL shader code modification experiment.

New Features for Intel® GPA Framework

- Added the ability to replay a range of callables for Direct3D12 streams.
- Added Vulkan* Pipeline Statistics Timestamp Query Manager support. Query Manager will default to the Vulkan* Pipeline Statistics Timestamp Query Manager if Intel metrics aren't found and can be specified programmatically.
- Added a new event/message dispatch system for communication between decoupled systems, this enables inter-layer communication.
- Added support for Vulkan SDK 1.1.114.
- Added ability to gather screenshots on a time interval via the screenshot layer.
- Added support for reflection of unions. A new Union class type is available to examine Arguments and Fields of this type.
- Added support for asynchronous GPU-CPU image copy. This setting can be toggled with the layer parameter "async=true/false"
- Added #PROC and #PID wildcards to log file path layer parameter. This will replace the wildcards with the process name or process ID respectively.
- Changed format of screenshot layer args to accept more flexible range specification.
- Removed reference to TIsRef parameter from all dispatch-table function types. LAYER_PREAMBLE macro is no longer required to be executed by the layers.

Known Issues and Limitations

For Vulkan Applications

- To profile Vulkan titles, make sure to download the latest [Vulkan runtimes](#) and [SDK](#).
- Support for Ubuntu, read the [enabling instructions](#) to view metrics on Ubuntu platforms

For Metal Applications

- To run and profile applications from Steam*, manually download and update to the latest 64-bit version of Steam
- 32-bit applications are not supported for profiling
- For full metric support, please upgrade to macOS 10.14.
- Playback of the Metal stream files captured with earlier Intel® GPA versions is not supported. Old Metal stream files can be converted to the new stream format using the following steps:

1. Open Terminal and change the directory to

```
cd/Applications/Intel/FrameAnalyzer.app/Contents/Resources/metal.
```

2. Capture a new stream of the old player running the .gpa_stream file that you want to convert by the following command:

```
./gen2/gpa-injector ./gpa-playback --layer capture -- <path-to-old-  
.gpa_stream-file
```

3. The newly converted stream is automatically added to ~/Documents/GPA/ and is displayed in the Graphics Frame Analyzer open file dialog.

- macOS users who are running OS X* El Capitan or newer must disable System Integrity Protection (SIP) in order to profile Steam* applications. If SIP is enabled on your machine, a message will appear at the top of Graphics Monitor directing you to disable it. If you would prefer not to disable SIP but need to profile a Steam* application, use the following process:

4. Launch and sign into Steam

5. Locate the executable of the desired application and copy the location, it typically looks something like this:

```
/Users/YOUR_USER_NAME/Library/Application\  
Support/Steam/steamapps/common/YOUR_APPLICATION_BINARY
```

6. Launch Graphics Monitor

7. Paste the location of desired application in the first input box and hit start

8. GPA will now be injected into the executable, allowing for live profiling and Trace/Frame Capture

For DirectX Applications

- Parallel Event Execution Track in Graphics Trace Analyzer is not supported on Skull Canyon platforms.
- Real-time GPU metrics are not available for Universal Windows Applications in the Heads-Up Display and System Analyzer.
- Time-based metrics may have a few ranges with no data in Graphics Trace Analyzer
- CPU Load percentage metric values in System Analyzer may be slightly above 100% on 11th generation Intel® Core processors
- Applications, dynamically linked to Microsoft Visual C++ Runtime Library, Version 14.0 or higher, cannot be launched with Auto-Detect Launched Applications Mode enabled on Windows 7 platforms. You can start the application directly from Graphics Monitor or start a command line and launch the target application from it.
- To collect stable metrics on third party graphics, enable Developer Mode in the Windows Settings.
- GEN Assembly is not available in DirectX 11 applications frames on graphics driver 25.20.100.6519 and 25.20.100.6577. To analyze GEN Assembly, update your graphics driver to 25.20.100.6618.
- Real-time GPU metrics are not available for Universal Windows Applications in the Heads-up Display and System Analyzer