

# Microsoft revealed new features in the upcoming DirectX 12

Microsoft revealed DirectX 12 is getting better at ray tracing and has some new features.

According to Microsoft, DirectX 12 is getting better at ray tracing. The DXR API 1.0 that brought us the Star Wars Raytracing technology demo last year is also moving to version 1.1 with features that provide better performance and flexibility. It is currently in beta but will be available next year. DX12 will also have a host of other features.

1. Microsoft no longer considers Windows to be the most important
2. Microsoft revealed a new tablet experience for Windows 10, specifically for 2-in-1 devices
3. Microsoft has integrated the FPS counter in Windows 10 October update

Yesterday (October 29, 2019), Microsoft revealed some completely new features that will be available in DirectX 12, including Raytracing level 1.1, Grid Shader, Sampler Feedback, etc. Support is currently only available in Preview builds of the Windows Insider Program, namely 20H1, are likely to be released publicly in the first half of 2020.

DirectX Raytracing SDK (DXR level 1.0) was released last year. Since then, game developers and GPU vendors including Nvidia and Epic Games have been pushing it, showing real-life scenes that are rendered in real time.



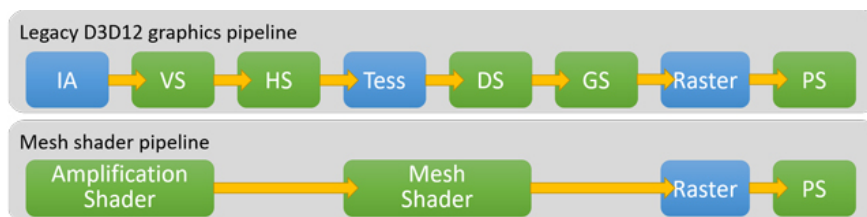
Microsoft has worked with developers and manufacturers to improve DXR level 1.1. Here is a list of improvements:

1. Support adding shaders to the existing PSO Raytracing, greatly increasing the efficiency of dynamic PSO.
2. Support for ExecuteIndirect for Ray tracing, allows adaptive algorithms in which the number of rays is determined on the timeline implementing the GPU.
3. Inline Raytracing provides the ability to directly control ray transmission algorithms and schedule shaders.

Microsoft also explained that game developers should begin to build a leak solution based on the existing 1.0-level APIs, then move to level 1.1 when they can better appreciate the benefits of level 1.1 on the game. their play.

Mesh Shader is another new addition.

The company claims DirectX Mesh Shader is the next generation of GPU geometry processing.



It replaces the current input compiler, vertex shader, hull shader, tessellator, domain shader (domain shader) and geometry shader (geometry shader). This feature will add efficiency and flexibility for geometric manipulations.

Mesh shaders can enhance performance by allowing pre-geometry removal without having to export a new index buffer to memory, while triangles are now only removed by the functionally fixed hardware. The vertex shader completes execution.

DirectX Sampler Feedback allows the game to create Feedback Map while rendering. This map will help the game load only the texture needed for the most detailed MIP levels. Games, especially those with 4K assets, will have faster loading times with lower memory pressure. Sampler Feedback improves texture streaming so that only the necessary data is loaded into the stream. It also helps to create texture spaces more effectively by eliminating redundancy.

DirectX 12 has a number of other features that Microsoft promises to provide technical information over the next few weeks along with all specifications of all features.

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