

FAQ: NVIDIA GPU-ACCELERATED ADOBE ILLUSTRATOR CC

GENERAL INFORMATION

Q: What is Illustrator CC?

A: Adobe Illustrator CC is a hugely popular artistic software tool used by all types of designers to create digital graphics, illustrations, and typography for print, web, interactive, video, and mobile media. It's based on vector graphics, which enables precise drawing and typography that scales very well without compromising image quality.

Q: Who uses Illustrator CC?

A: Any creative image professional working in print, web, or video can work quickly and intuitively on brand identities and marketing materials, web and mobile graphics, or imagery for video productions uses Illustrator CC.

Q: Why is fast Illustrator CC performance better for designers?

A: Designers need smooth interactivity with the creative tools they use. But artwork complexity and growing display resolutions make it increasingly difficult for the CPU to keep up with the fill rate. The result is choppy response times, so designers can't see the results of their changes in real time. This disrupts and stifles creativity.

GPU ACCELERATION

Q: What does the GPU accelerate in Illustrator CC?

A: NVIDIA GPUs accelerate the entire Illustrator CC canvas for all features and functions to enable real-time interactivity for designers, regardless of image size, feature mix or display resolution. This new experimental feature is for Windows-based systems with Fermi- or Maxwell-generation NVIDIA GPUs. See "What GPU Do I Need?" for further guidance.

The GPU Preview mode is available for all RGB documents and optionally enabled for CMYK documents via the "Experimental Feature" tab of the Preferences panel in Illustrator CC. The print market and CMYK functionality are very important to both Adobe and NVIDIA, so we're collaborating to bring native GPU acceleration for this mode in the near future.

Q: Can I quickly switch between the GPU PREVIEW mode and the old CPU-Based mode?

A: Yes. Select "GPU Preview" from the "View" pull-down menu. The tab on your document will say "GPU Preview" to indicate when the mode is active. If the menu item reads "Preview on CPU", you are already in GPU Preview mode.

Q: How much faster does a GPU make Illustrator CC?

A: NVIDIA GPUs enable as much as 12x faster performance than a CPU alone. However, the key value of this speed is in enabling real-time interactivity for all designers, regardless of the image size, feature mix or display resolution. Performance details on select NVIDIA GPUs is available at www.nvidia.com/adobe/illustratorcc

Q: What GPU do I need?

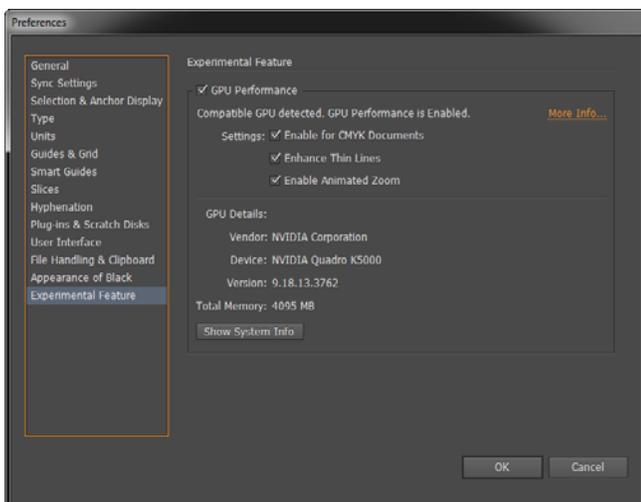
A: We recommend you choose a late model GPU, like the NVIDIA Quadro K-series or GeForce 700-series, to provide the best performance for your creative workflow. At a bare minimum, the model names of the minimum required GPUs for entry-level performance are listed below:

- > Professional Desktop Workstation—Quadro® 600 and above
- > Professional Mobile Workstation—Quadro 500M and above
- > Consumer Desktop—GeForce® GT420 and above
- > Consumer Notebooks—GeForce 410M and above

Q: How can I get a GPU for Illustrator CC?

A: NVIDIA GPUs can be purchased as stand-alone consumer or professional graphics cards to add to your PC / Workstation. You can also choose PC / Workstation solutions pre-configured with NVIDIA GPUs. NVIDIA GPU-based workstations are available from industry leaders including Dell, HP and Lenovo. Illustrator CC does not yet support the Mac since MacOS doesn't currently use the latest OpenGL extensions required for GPU acceleration. However, Mac owners can access GPU acceleration via Bootcamp to Windows. Check below for where to buy NVIDIA Graphics Cards and NVIDIA-Based Systems

- > NVIDIA Quadro: www.nvidia.com/object/workstation-wtb.html
- > NVIDIA GeForce: www.geforce.com/hardware/help-me-choose



Adobe Illustrator CC 2014's GPU Performance settings in the Experimental Feature panel of the Preferences window.

FAQ: NVIDIA GPU-ACCELERATED ADOBE ILLUSTRATOR CC CONTINUED

Q: Are special drivers or other supporting software required?

A: You should always use the latest NVIDIA GPU drivers, regardless of your application focus. NVIDIA recommends updating to the May 26, 2014 driver (Release 337) or later. No other special software is required. Download the latest drivers at www.nvidia.com/drivers

Q: What OS is supported?

A: This is now supported on Windows-based systems. The Mac platform does not currently use the latest OpenGL extensions enabled by NVIDIA's NV Path Rendering technology required for GPU acceleration. Adobe and NVIDIA realize the importance of Mac to designers and continue to investigate how to best enable GPUs in the future. However, Apple determines the capabilities of their products.

Q: How does the GPU accelerate Illustrator CC?

A: Adobe Illustrator CC uses an NVIDIA technology called NV Path Rendering, implemented as an extension to OpenGL. OpenGL is an open standard for graphics performance. Adobe and NVIDIA collaborated closely to weave this

technology into Illustrator CC. Path rendering specifies a scene as a sequence of resolution-independent outlines, known as paths that can be filled or stroked. Unlike bitmap images, path rendering content can be arbitrarily zoomed and re-scaled without pixelated results. Today most path rendering is performed by the CPU. However, in the same way nearly all 3D rendering is now performed by the GPU, applications based on path rendering are also beginning to migrate to the faster and more efficient GPU. Consult the NVIDIA Developer Zone for more information on NV Path Rendering visit developer.nvidia.com/nv-path-rendering

Q: Is CUDA used to accelerate Illustrator CC?

A: No, GPU performance is based on NV Path Rendering, an NVIDIA optimized extension to OpenGL.

Q: What is NV Path Rendering?

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performed with the CPU. However, in the same way nearly all 3D rendering is now performed on the GPU, applications based on path rendering are beginning to migrate to the faster and more efficient GPU. Consult the NVIDIA Developer Zone for more information on NV Path Rendering visit developer.nvidia.com/nv-path-rendering

Q: What is vector graphics?

A: Vector graphics is based on geometry (points, lines, curves, shapes), all of which are based on mathematical calculations. Vector graphics also naturally scales with the considerable variation in pixel resolutions from legacy PCs to phones to tablets to high definition 4K monitors and ultra-high density printing. Traditional pixel-based digital image formats require artwork to be regenerated at multiple resolutions and don't naturally scale without looking blurry or pixelated. However vector graphics provide just as crisp of an image no matter the screen or print resolution.

FEATURE AND PLATFORM SUPPORT

Q: Why is this called an "Experimental" feature by Adobe?

A: It's called "Experimental" because the accelerated GPU Preview mode is available by default for all RGB documents, but optionally enabled for CMYK documents. In RGB mode, NVIDIA GPUs accelerate the entire Illustrator CC canvas for all features. It's fully functional and a tremendous benefit to designers. The print market and supporting CMYK functionality is also very important to both Adobe and NVIDIA, so we are collaborating to bring full GPU acceleration to CMYK mode in the near future.

Q: When will this change from "Experimental" to a standard feature?

A: GPU acceleration will be a standard feature once CMYK mode is added. Adobe and NVIDIA are collaborating to bring GPU acceleration to CMYK mode soon.

Q: Why is GPU acceleration not supported on non-NVIDIA GPUs and when will this be supported?

A: This GPU acceleration is based on an open standard call OpenGL. However, this complex technology required significant development effort by NVIDIA to optimize path rendering

extensions to OpenGL. These extensions comprise a complex set of leading-edge algorithms created by engineers with a deep knowledge of graphics pipelines and GPU architectures. Other developers are free to add their own path rendering extensions to this open standard. Consult the NVIDIA Developer Zone for more information on NV Path Rendering.

Q: Can I use the GPU performance feature on Mac?

A: The GPU Performance feature in Adobe Illustrator CC is not available for MacOS today. The Mac platform does not currently use the latest OpenGL extensions enabled by NVIDIA's NV Path Rendering technology required for GPU acceleration. Adobe and NVIDIA realize the importance of Mac to designers and continue to investigate how to best enable GPUs in the future. However, Apple determines the capabilities of their products.

If your Mac has a modern NVIDIA Fermi- or Maxwell-based GPU and you use Apple's Bootcamp capability to boot your Mac to Windows, then you can use GPU Performance feature. With Adobe Creative Cloud, you can Bootcamp your Mac to Windows and simply download and install the Windows version of Illustrator CC.

Q: What if I work with CMYK documents?

A: An RGB-emulated mode of GPU Preview for CMYK can be enabled in the "Experimental Feature" tab of the Preferences panel of Illustrator CC. In this mode, CMYK documents will render fast with the GPU and preview will be processed in RGB-emulation mode. Currently, RGB-emulation of CMYK may result in imperfect color fidelity, so it not recommended for Illustrator CC artists demanding precise color fidelity. Since RGB mode is fully functional and a tremendous benefit to designers, neither Adobe nor NVIDIA wanted to withhold this benefit from designers. Of course, the print market and supporting CMYK functionality are very important to both Adobe and NVIDIA, so we are collaborating to bring GPU acceleration to CMYK mode in the near future.

For more information about GPU acceleration for Adobe Illustrator visit www.nvidia.com/adobe/illustratorcc

