

NVIDIA TXAA with *The Secret World*

The Secret World includes two Anti-Aliasing (AA) technologies developed by NVIDIA to enhance the games' visual fidelity. NVIDIA TXAA is a brand new AA technology introduced with the launch of NVIDIA GeForce GTX680 and built for Kepler based GPUs. *The Secret World* is the first game to use TXAA natively in the video options. FXAA is another NVIDIA developed AA technology that is available with Fermi, Kepler, and competitive GPU using *The Secret World* video options and delivers high image quality with a small performance impact. *The Secret World* has four different AA settings available in the video options menu: No AA, FXAA, FXAA HQ, TXAA 2x, and TXAA 4x. In this guide we focus on NVIDIA TXAA.

NVIDIA TXAA

TXAA is a new film-style AA technique designed specifically to reduce temporal aliasing (crawling and flickering in motion). TXAA is a mix of hardware AA, custom CG film style AA resolve, and a temporal filter. To filter any given pixel on the screen, TXAA uses a contribution of samples both inside and outside of the pixel in conjunction with samples from prior frames, to offer the highest quality filtering possible. TXAA has improved spatial filtering over standard 2xMSAA and 4xMSAA; for example on fences or foliage. In motion scenes, TXAA starts to approach and sometimes exceeds the quality of other high end, professional AA algorithms. The higher quality filtering used by TXAA results in a softer image compared to the lower quality filtering of traditional MSAA.

TXAA uses hardware MSAA in conjunction with a temporal filter. Combining a temporal filter with standard MSAA provides a substantially higher visual quality in motion for a tiny increase in cost. The performance hit of TXAA will vary from game to game and is directly correlated to the performance hit of MSAA. In contrast to methods like FXAA, which attempt to maximize performance while trading off some quality, TXAA attempts to maximize quality with some additional performance impact.

TXAA is an ultra high-end option for those looking for the highest quality AA, with the most efficient performance possible to make *The Secret World* look its absolute best. You will notice the benefits of TXAA best in motion scenes, not in still screenshots. Although we show TXAA examples using screenshots in this document, you may find some of your own screenshots look a bit too soft, while the same scenes in motion look great. TXAA is built reduce aliasing in motion scenes, and its effects are not always properly captured in screenshots.

NOTE: TXAA is only supported on NVIDIA Kepler GPUs and will require a GTX 600 series graphics card to enable the feature in the graphics options. If your system does not meet the requirements to enable TXAA, the feature will be greyed out in the in-game graphics menu.



Figure 1: Without enabling any level of AA, you will see a lot of swimming geometry aliasing as shown above.



Figure 2: With NVIDIA TXAA enabled, you can see that the scene that was filled with jagged edges has been almost completely smoothed out.

NOTE: TXAA is best experienced real-time (in-game or in a video) and not in static screenshots as “swimming” and “crawling” are a byproduct of aliasing in motion. We have created a side-by-side comparison video of TXAA that you can check out here: [LINK](#)

The screenshot below shows the Ealdwick Park area of London. This area has a lot of trees and foliage that show off TXAA very well. “Swimming” and “crawling” are more apparent in a high contrast visual scenario. The trees and foliage against the light background of the sky above will provide a good comparison for TXAA on/off. To get to Ealdwick Park, simply create a new character under the “Templar” faction and head to the center of London.



Figure 3: Ealdwick Park in London is a great area to check out the visual benefit of TXAA. To navigate to this area, simply head to center of London and enter the park.

Additional TXAA examples

The following screenshots show additional examples of ways TXAA can enhance The Secret World experience. Fencing, hard lines, stairs, railings, power lines, foliage, and more all suffer from “swimming” and “crawling” caused by geometric aliasing. The map will show you where you can find the example locations in Kingsmouth. If you are just starting out with the game, Kingsmouth is the first playable area after the starting location of your faction (New York, London, Seoul).

Location “A”



Figure 4: Surrounding the Kingsmouth police station are many chain link fences that suffer from “swimming” and “crawling” caused by aliasing. This is a great area to show the benefit of TXAA.

Location "B"



Figure 5: Another location in Kingsmouth shows the benefit of TXAA on picket fences and the slated siding on the houses in town.

Location "C"



Figure 6: Power lines and shadows also cause aliasing that TXAA will eliminate.

TXAA Location Map

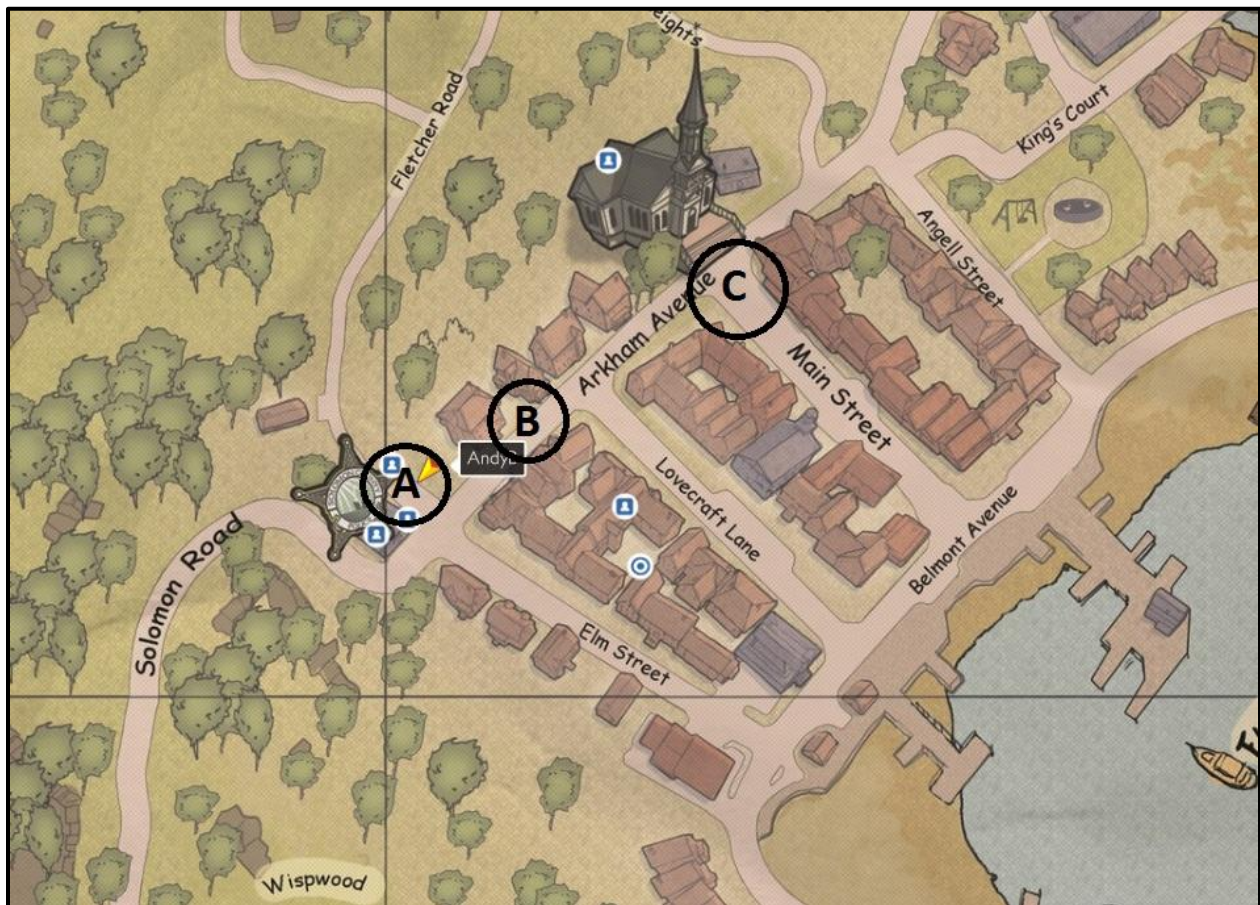


Figure 7: The above map shows the locations of the examples previously shown. Simply use your in game map (Default key "M") to navigate to the specified area.

NVIDIA FXAA

NVIDIA FXAA technology harnesses the power of the GPU's CUDA Cores to reduce visible aliasing. It is applied along with other post processing steps like motion blur and bloom. For game engines like *The Secret World* making use of deferred shading, FXAA provides a performance and memory advantage over deferred shading with multi-sample anti-aliasing (MSAA). NVIDIA FXAA was first implemented in games last year beginning with *Age of Conan*. Since then, FXAA has shipped in over 15 additional titles FXAA is a good solution at any performance level to enhance the visual quality of your *Secret World* experience.