



madVR Envy Whitepaper

Subtitle Management with Scope Screens

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Subtitle Management with Scope Screens

This whitepaper addresses a big challenge that often comes up regarding subtitles. Specifically, how to manage subtitles within the black bars in scope movies. In case you are not familiar, a "scope" screen refers to a screen that is wider than the standard HDTV 16:9 aspect ratio.

This paper describes why embedded subtitles are problematic in scope movies, how the issue is typically addressed without using an Envy, the shortcomings this causes, and how the Envy perfectly solves these shortcomings without compromising your movie experience.

1.0 Understanding the Problem

Subtitles within the black bars of a scope movie are a problem, because when using a scope screen to watch a scope movie (e.g., watching a 2.40 AR movie on a 2.40 screen), the projector lens is zoomed out so that the movie fills the entire screen, like this:



Image 1: A scope movie on a scope screen, as meant to be watched

While filling the screen like this makes for a highly immersive viewing experience, it creates a problem whereby the subtitles will no longer appear on the screen. Where do they go? Well, on the masking and below and above the screen of course! Like shown below.



Image 2: With the projector zoomed to fill the screen, there is no zoom left for the subtitles!

Not only is this a problem because you cannot read the subtitles, but it is also highly distracting to have subtitles on the masking, wall and or ceiling.

In the next section we will look at the way people try to manage this when not using a madVR Envy.

2.0 Managing Without an Envy

Without an Envy there are a couple of ways to try and address the problem. The first is to not zoom out at all to fill the screen and watch the movie like it is 16:9 content. This creates what is referred to as a "window box", since there are now black bars on all four sides of the image, like this:

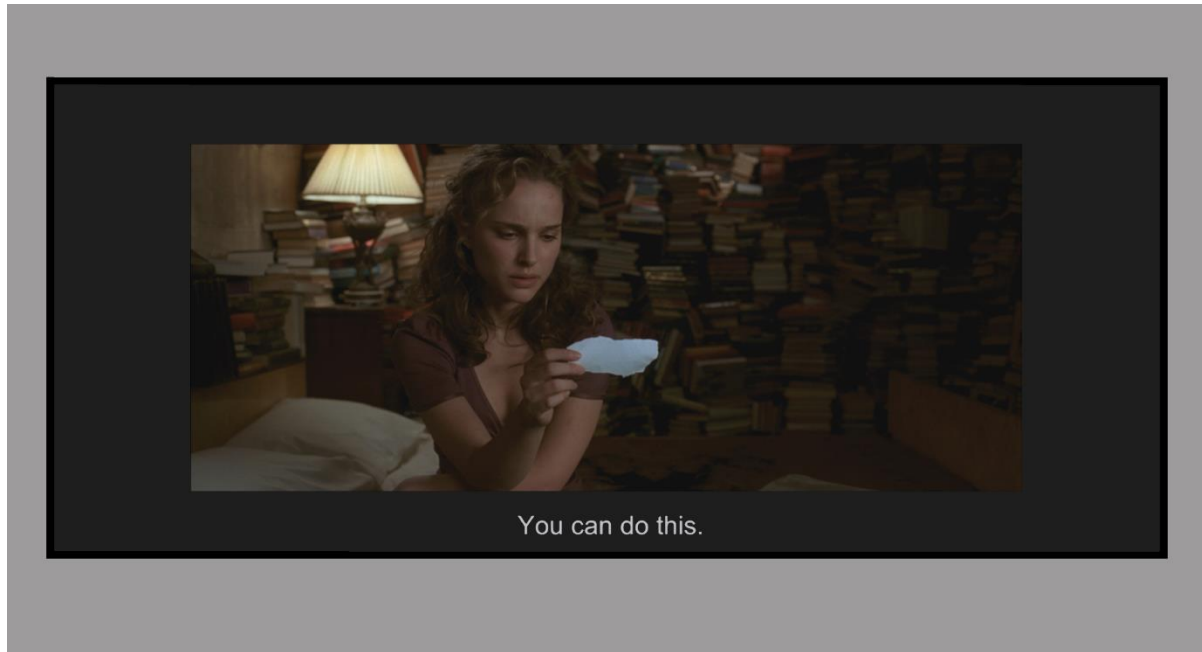


Image 3: Watching at 16:9 with proper subtitle placement, but with a huge loss of immersion due to big black bars.

Although the level of immersion takes a bit hit due to the much smaller image, at least the subtitles are on the screen, regardless of their placement in the movie and regardless of how many lines of subtitles there are.

An alternative approach is to zoom out part way - enough to try and keep most subtitles on the screen. This method can help improve the situation by reducing the size of the black bars a little, which can be better than nothing if you are not using an Envy. But even to get this right, you must manually change the lens zoom position and be careful about the size and position of the subtitles, which often differs with each movie.

For example, you may set your zoom position to fit one line of subtitles, but there may be times in the movie where there are two or three lines of subtitles. Without already knowing the movie, it can be hard to predict where to set the lens zoom position. This can require adjusting the lens zoom during the movie as well, interrupting your experience and resulting in a smaller and smaller image (with larger and larger black bars) with each corrective adjustment. It also presents an issue when your significant other, or other family members, want to watch a movie without you there to help them.

In any event, with these approaches you still lose out, because you must watch a less immersive, smaller image with black bars, for the entire movie, even during long scenes that have no subtitles! That said, it is worth a try as a compromise. But we must ask ourselves, why should we have to make any compromises when it comes to our home theater passion? With an Envy, no compromises are needed.

3.0 The Best Solution, Without Compromises

3.1 Subtitles with Minimal Black Bars

At madVR Labs we do not believe you should have to make compromises when it comes to the video quality and elevated level of immersion of your home theater. That is why the madVR Envy is the only video processor that dynamically makes room for embedded subtitles in real-time as they appear, while also ensuring the maximum image size is always available, even while still fitting the subtitles. Let us have a look:



Image 4: Envy dynamically resizes the movie, always maximizing its size, without losing subtitles!

Notice in the image above how Envy brought back just enough of the black bars needed to fit the subtitles on the screen. Notice too that there is also no black bar on top. This enables you to enjoy the movie at a much larger size, while still not missing any subtitles. After your preferred amount of time without subtitles passes, Envy will restore the full 2.40 image so it fills your screen again, until the next scene when subtitles reappear.

But wait – hopefully, you did not think we were done there, and that we would leave you with unnecessary black bars on the sides? The above approach is a substantial improvement over how things work without an Envy. But as you can see, you still wind up with side black bars. But what if Envy could remove the side bars for you too?

3.1 Subtitles with No Black Bars (except to hold subtitles)

Envy also features our next-generation non-linear stretch (NLS+) platform. NLS+ can remove black bars by very carefully stretching the image to fill the screen, regardless of the screen and movie aspect ratios.

Now what if you could combine Envy's subtitle management with NLS+, so that the black bars needed to hold subtitles are dynamically brought back on the screen, while also filling the screen horizontally, with no black bars on the side?

Well, this is an Envy, so of course you can! See the image below as an example of this in action. Scroll back to see image 4 on the previous page and compare the two. Magic!



Image 5: Taking things one step further, Envy then uses NLS+ to get rid of the unnecessary side bars too!

In the next section, we describe how Envy's subtitle management works, and the options available to control it exactly as you wish.

4.0 How Envy Subtitle Management Works

With Envy dynamically adjusting the image size based on the subtitles and their position, naturally people wonder how we ensure the image size is not changing too often to be a distraction. Often there are scenes where there are breaks between dialog, so we would not want the image to keep changing its size as subtitles appear and disappear.

Therefore, we put you in full control over how and when Envy adjusts the image size to fit subtitles. If you prefer to maximize the image size and do not mind the size changing more often, pick a short "Stickiness" setting, like 5 or 15 seconds. Otherwise, an excellent choice is 45 seconds. Or if you do not want the image size to change at all once subtitles are first detected, choose "Until the end of the movie", and Envy will keep the minimum black bars needed to fit the subtitles during the movie, without going back to full size.

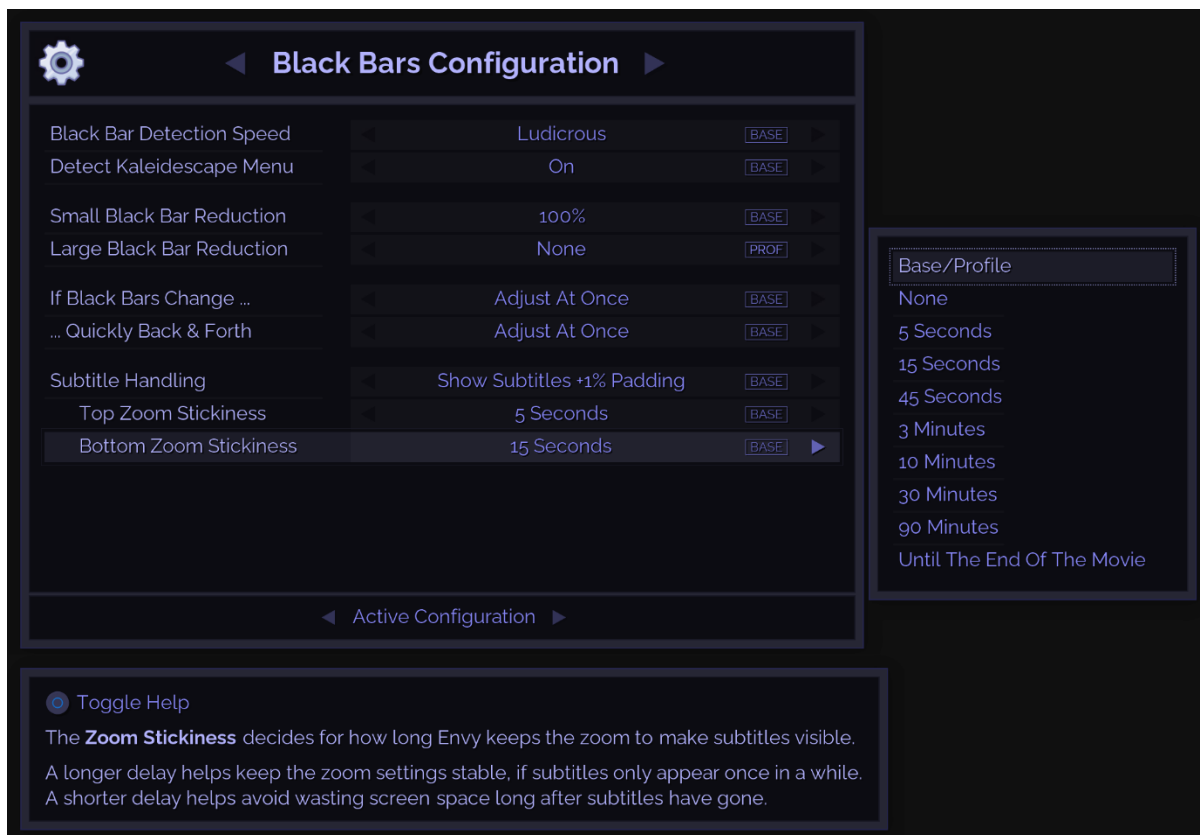


Image 6: Customize how Envy handles subtitles, including different preferences for Top and Bottom

What About Multi-line and Top Subtitles?

You may be wondering "What about subtitles that span multiple lines?" No worries, Envy has that covered too. Envy automatically increases the size of the black bars to fit subtitles that are multi-line.

For example, assume the first subtitle is one line. Then the next subtitle is two or three lines. Envy will increase the black bar area to fit all three lines of subtitle text and hold that size for the duration as set by your "Stickiness" setting.

And of course there are also subtitles in the top bar to consider as well! Envy treats subtitles in the top bar in the same way that we have discussed about the bottom black bar. But it gets even better - Envy manages top and bottom black bars separately!

For example, let us say a movie has two lines of subtitles in the bottom black bar. Envy makes room for these subtitles as we learned. Further, assume that while those subtitles are still shown, a single subtitle line appears in the top bar. Envy will make room for that as well. While at the same time, minimizing the size of both black bars. Both top and bottom subtitles are treated independently, yet also work concurrently, with separate "Stickiness" settings for each.

In the next section, we conclude with a brief recap and a few images.

5.0 Conclusion

In this whitepaper we covered how the Envy increases the level of immersion by maximizing the image size of scope movies with subtitles. Envy brings the black bars back on the screen only as needed to see the subtitles. Both top and bottom subtitles are treated independently yet work together.

A variety of user settings ensure the Envy subtitle management works exactly as you would like. We also showed how you can use non-linear stretch in conjunction with the subtitle management to also eliminate the already reduced vertical black bars.

See Appendix A for a side-by-side comparison of Envy's subtitle management options.

For more information please visit www.madvrenvy.com.

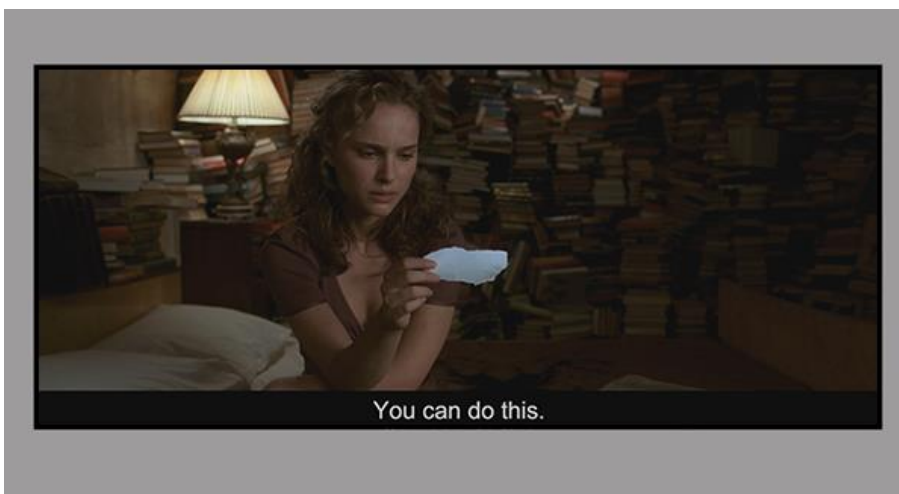
Appendix A – Comparing Subtitle Handing Methods



Watching a scope movie with subtitles - without an Envy. See Section 1.0.



Watching a scope movie with subtitles – with an Envy. Small side bars. See Section 3.0.



Watching a scope movie with subtitles – with an Envy and NLS+. No side bars. See Section 3.1.