

Controlling the framerate

setVerticalSyncEnabled()

Sometimes, when your application runs fast, you may notice visual artifacts such as tearing. The reason is that your application's refresh rate is not synchronized with the vertical frequency of the monitor, and as a result, the bottom of the previous frame is mixed with the top of the next one.

The solution to this problem is to activate **vertical synchronization**. It is automatically handled by the graphics card, and can easily be switched on and off with the `setVerticalSyncEnabled` function.

```
window.setVerticalSyncEnabled(true); // call it once, after creating the window
```

After this call, your application will run at the same frequency as the monitor's refresh rate.

Note

Sometimes `setVerticalSyncEnabled` will have no effect: this is most likely because vertical synchronization is forced to "off" in your graphics driver's settings. It should be set to "controlled by application" instead.

setFramerateLimit()

In other situations, you may also want your application to run at a given framerate, instead of the monitor's frequency. This can be done by calling `setFramerateLimit`:

```
window.setFramerateLimit(60); // call it once, after creating the window
```

Note

- Unlike `setVerticalSyncEnabled`, this feature is implemented by SFML itself, using a combination of `sf::Clock` and `sf::sleep`. An important consequence is that it is not 100% reliable, especially for high framerates: `sf::sleep`'s resolution depends on the underlying operating system and hardware, and can be as high as 10 or 15 milliseconds. Don't rely on this feature to implement precise timing.

- Never use both `setVerticalSyncEnabled` and `setFramerateLimit` at the same time!
They would badly mix and make things worse.

Vertical frequency and Horizontal frequency

Vertical frequency refers to the amount of complete images that can be displayed per second, while horizontal frequency is the amount of single lines of pixels that are changed per second.

Visual artifacts

What Are Visual Artifacts?

You might have heard the term "visual artifacts" used when a computer problem (especially a graphics or video problem) was being described. So what does this term mean, and how can

 <https://www.howtogeek.com/740279/what-are-visual-artifacts/>

