2D Graphics with SFML.Net

Simple and Fast Multimedia Library

News

SFML 2.6.0 Latest

eXpl0it3r released this 11 hours ago · 511 commits to master since this release 2.6.0 11b7374

Contributors

ShadowsFriend, TankOs, and 72 other contributors

- Support for Scancodes
- Create windows without OpenGL context
- Create windows with a Vulkan context
- SFML supports ARM64 on macOS, i.e. M1 and M2 chipsets
- Unit testing foundation has been created

What is…?

Simple and Fast Multimedia Library


CENDRIC


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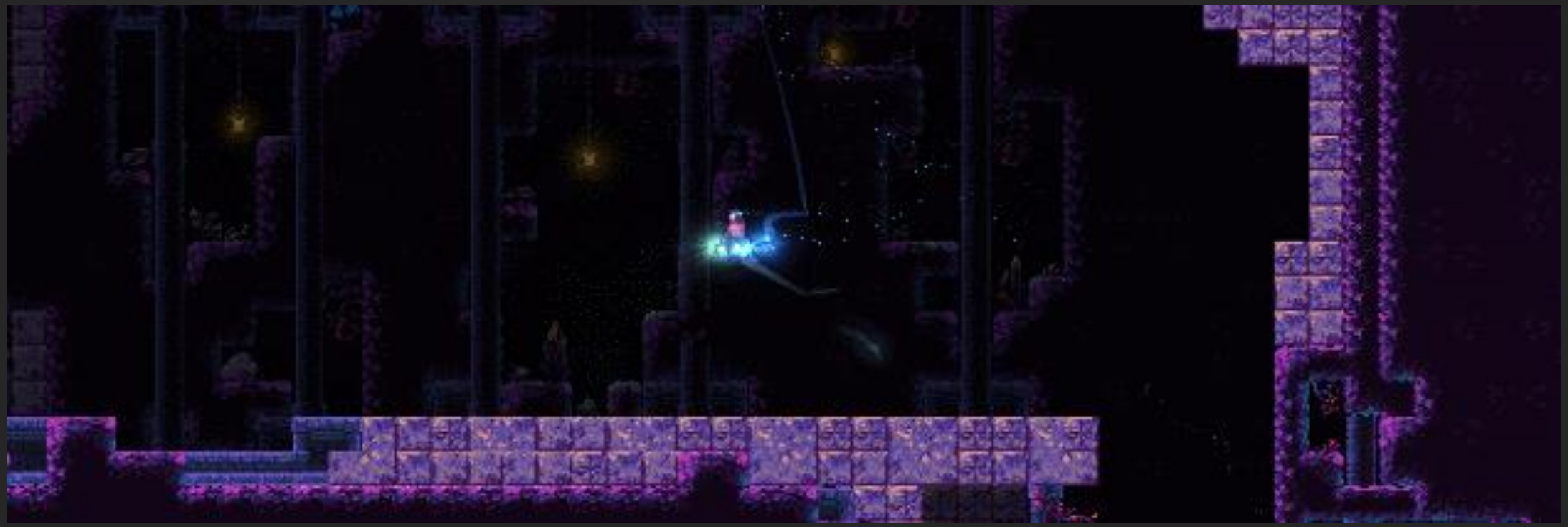
Highlands of Admantris
Zephyra
<E> to talk

REMNANTS OF NAEZITH




REMNANTS OF
NAEZITH


Castle Clamber


CENDRIC
AN RPG-PLATFORMER


AWAY TEAM


ZERAN'S
FOLLY


CUIT


GEMSTONE KEEPER
Gamepopper
Alpha Build
Start Game
Score Attack
Daily Run
Boss Rush
Exit


OCTO
NAUT
ODYSSEY


TURNOVER


MOONQUEST


DISPERSIO


DoodleBob
Virtual Companion


CREA

SFML Modules

System
- Threads
- Mutex
- Clock

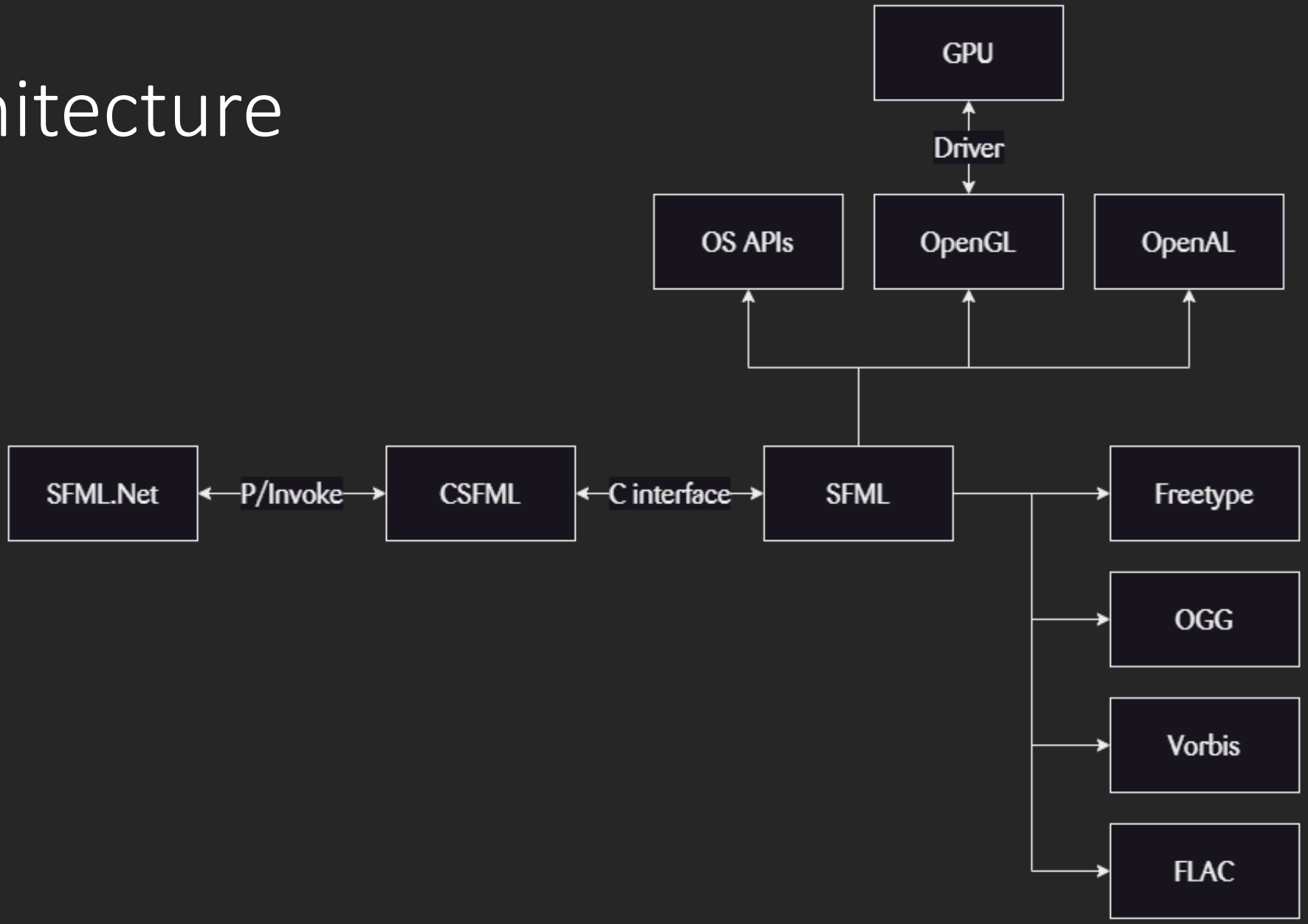
Audio
- Sound
- Music
- 3D Listener

Window
- Window
- OpenGL Context
- Vulkan Context
- Input
  - Keyboard
  - Mouse
  - Joystick / Gamepad
  - Touch

Graphics
- Texture
- Shapes
- Vertex Array/Buffer
- Shaders
- Text
- View
- RenderTexture

Network
- UDP Socket
- TCP Socket
- FTP
- HTTP 1.0
- Packet

Architecture



Community

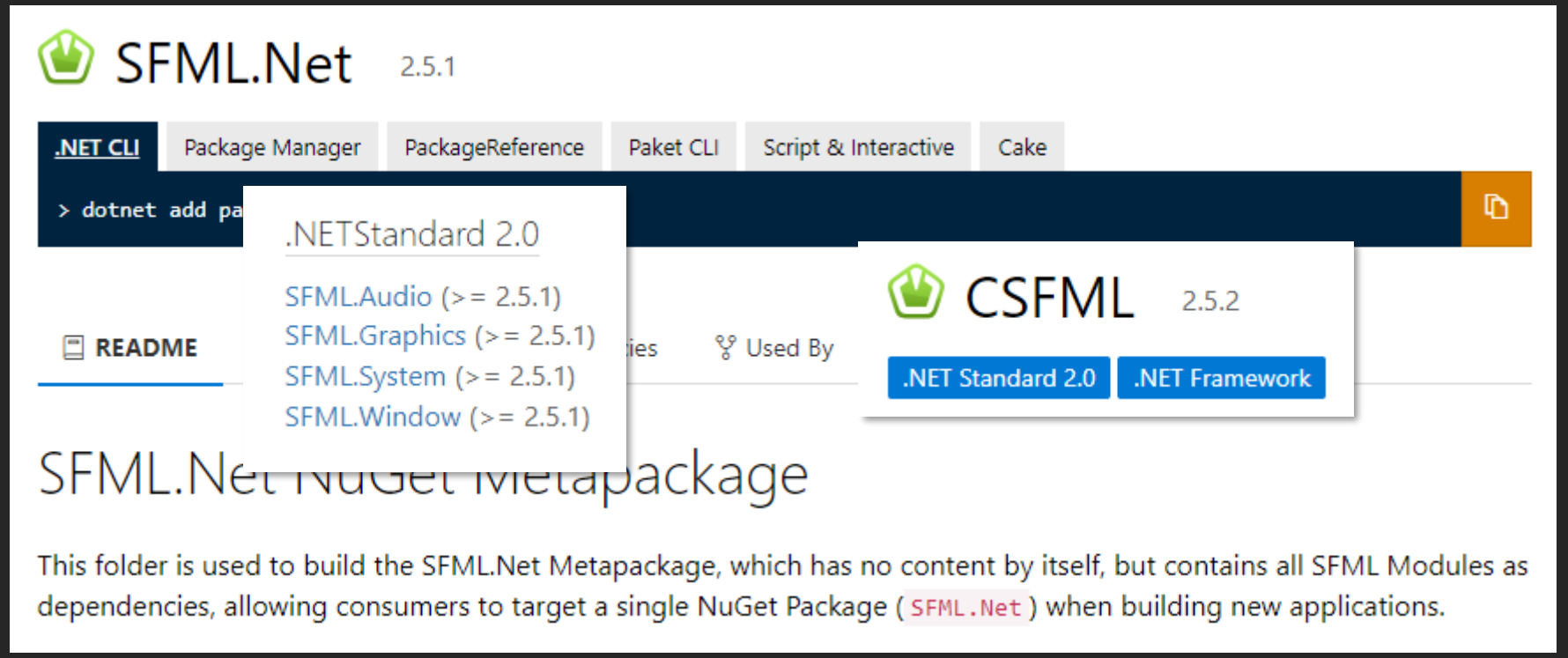
Forum Statistics (since 2012)

- Average posts per day: 31.93
- Average topics per day: 5.27
- Average online per day: 142.38
- Total posts: >140k
- Total topics: >19k

Website Statistics

- ~40k Google search clicks per month
- ~100k visits per month
- ~400k page views per month
- ~16k downloads per month

Getting Started



Main Loop

```
using SFML.Graphics;
using SFML.Window;

var window = new RenderWindow(new VideoMode(800, 800), "Main Loop - Team Meeting 2023");
window.SetFramerateLimit(120);
```


Main Loop

```
using SFML.Graphics;
using SFML.Window;

var window = new RenderWindow(new VideoMode(800, 800), "Main Loop - Team Meeting 2023");
window.SetFramerateLimit(120);

while (window.IsOpen)
{



}
```

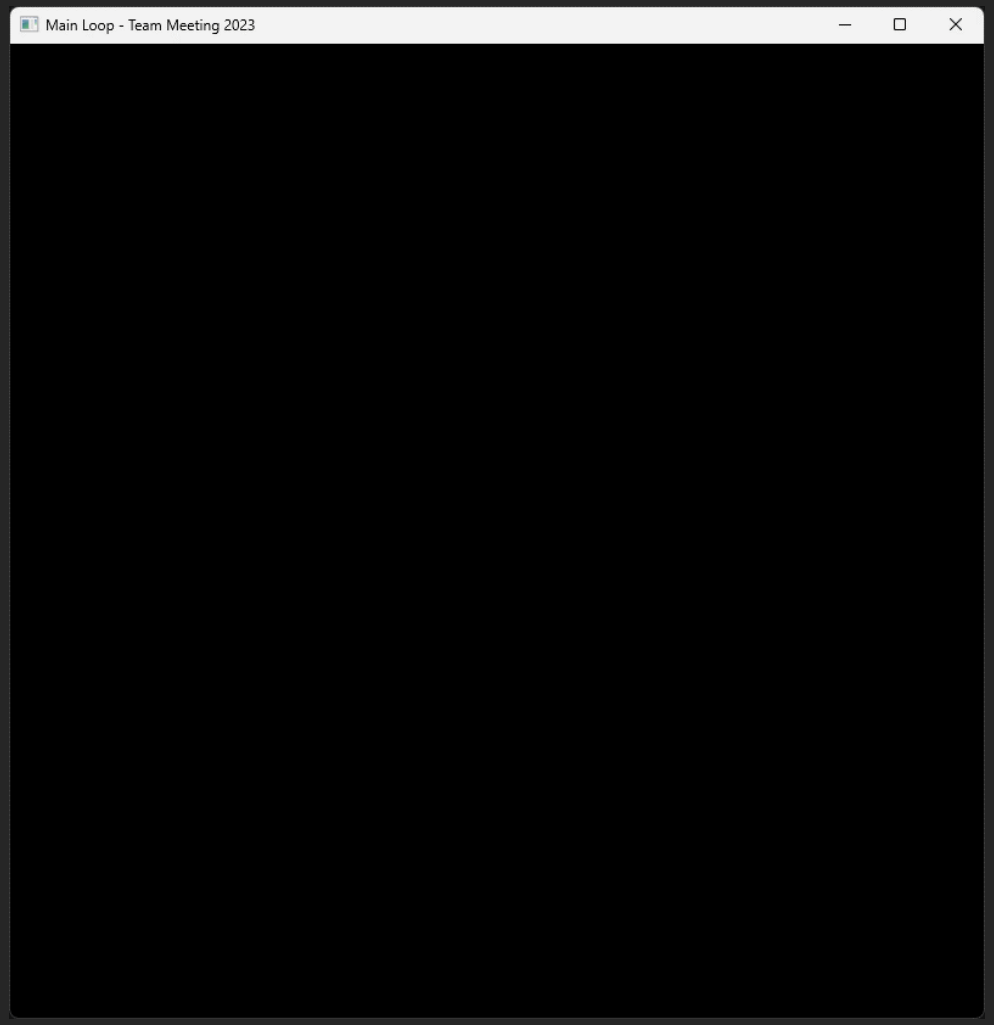

Main Loop

```
using SFML.Graphics;
using SFML.Window;

var window = new RenderWindow(new VideoMode(800, 800), "Main Loop - Team Meeting 2023");
window.SetFramerateLimit(120);

window.Closed += (_, _) => window.Close();

while (window.IsOpen)
{
    window.DispatchEvents();



}
```


Main Loop

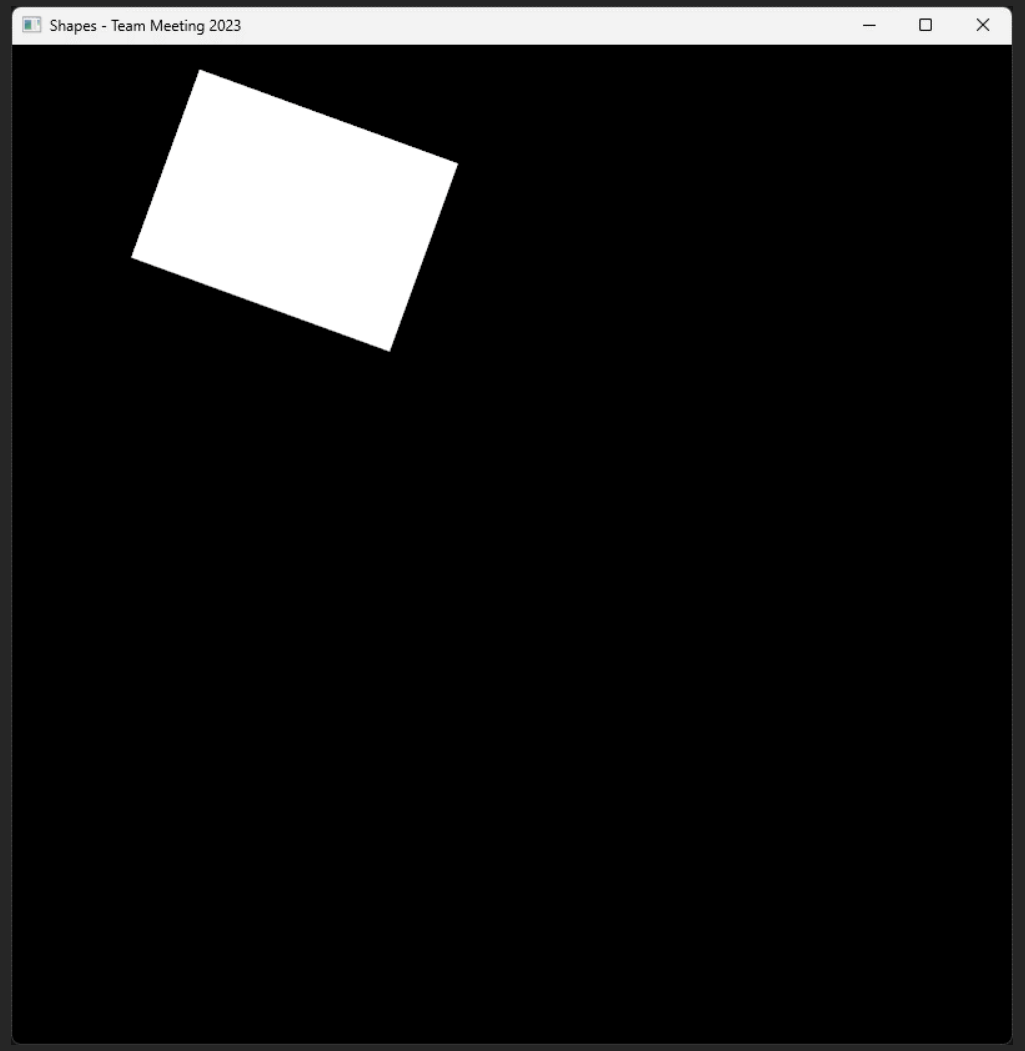
```
using SFML.Graphics;
using SFML.Window;

var window = new RenderWindow(new VideoMode(800, 800), "Main Loop - Team Meeting 2023");
window.SetFramerateLimit(120);

window.Closed += (_, _) => window.Close();

while (window.IsOpen)
{
    window.DispatchEvents();

    window.Clear();
    window.Display();
}
```


Main Loop



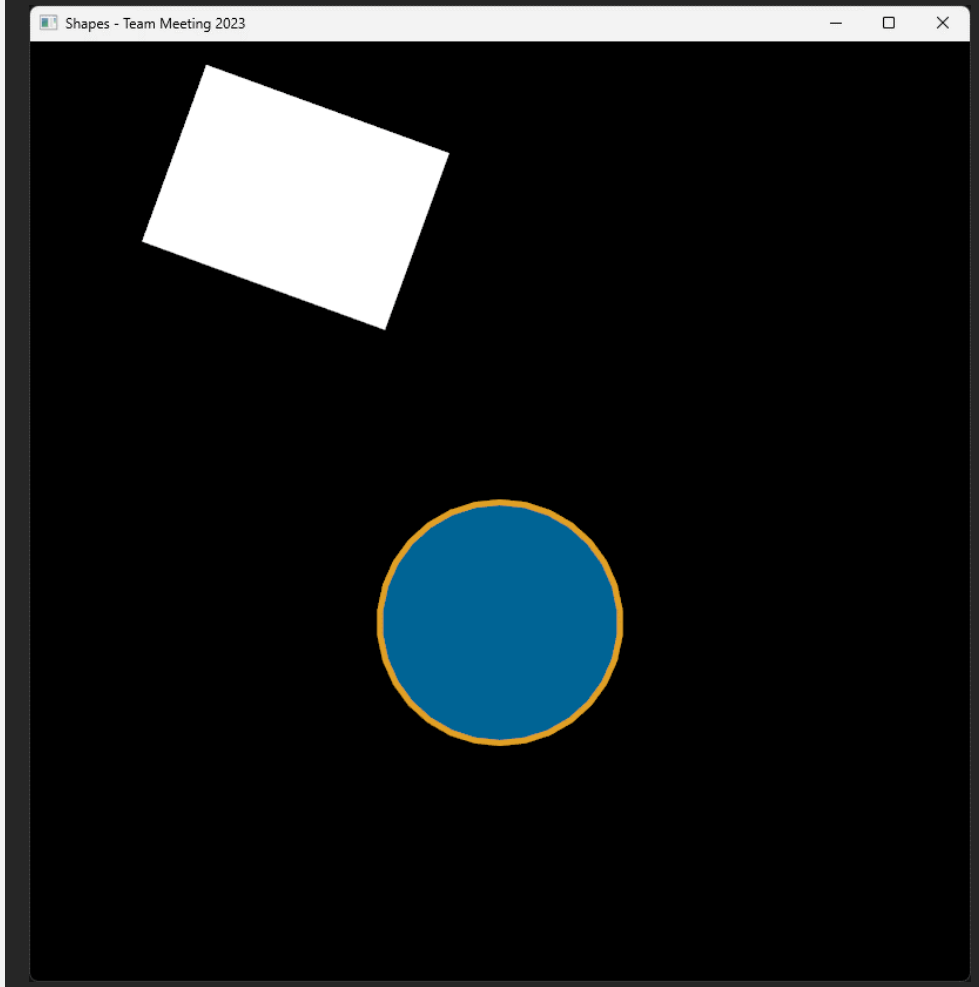
Shapes

```
var rectangle = new RectangleShape(new Vector2f(220f, 160f));
rectangle.FillColor = Color.White;
rectangle.Position = new Vector2f(150f, 20f);
rectangle.Rotation = 20f;


// ...


window.Clear();
window.Draw(rectangle);
window.Display();
```



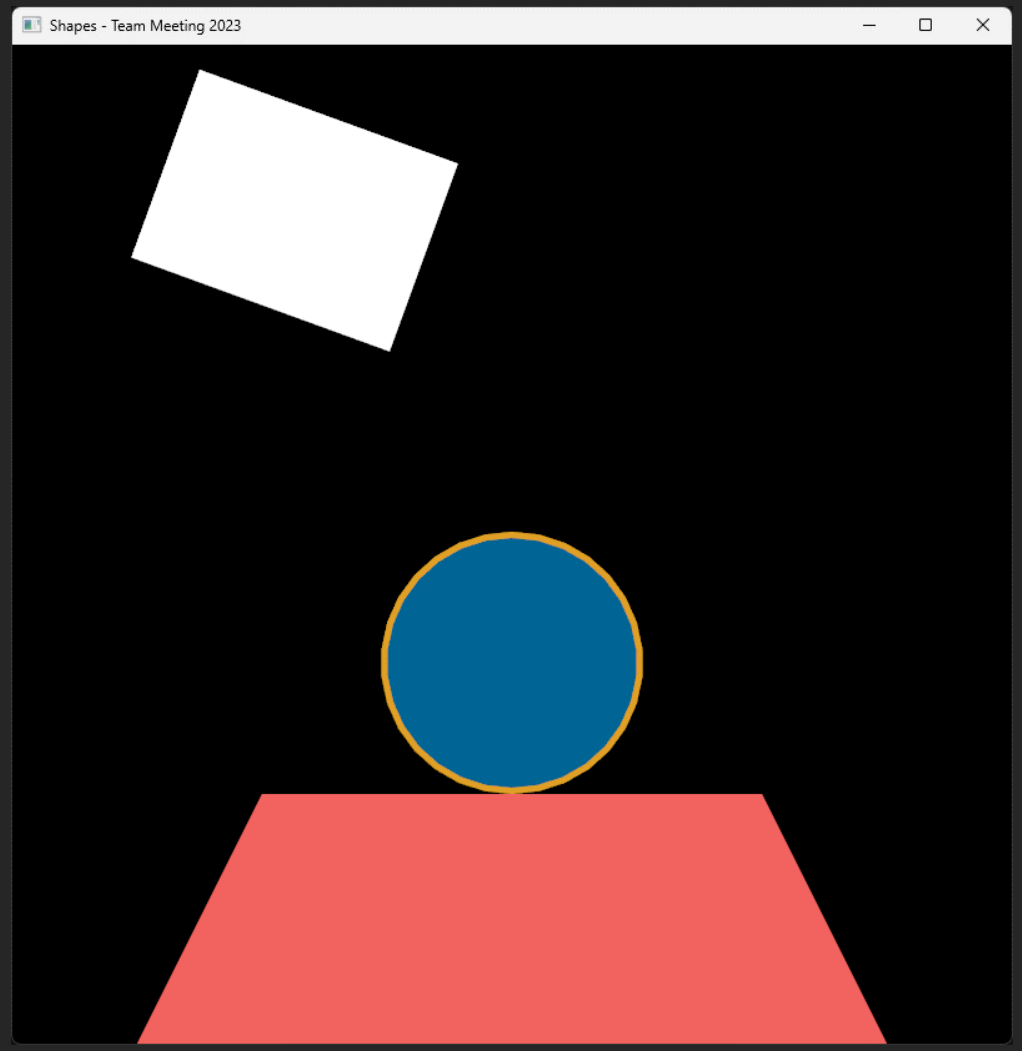
Shapes

```
var circle = new CircleShape(100f);
circle.FillColor = new Color(0x006495FF);
circle.OutlineColor = new Color(224, 160, 37, 255);
circle.OutlineThickness = 5f;
circle.Position = new Vector2f(300f, 395f);


// ...


window.Clear();
window.Draw(rectangle);
window.Draw(circle);
window.Display();
```



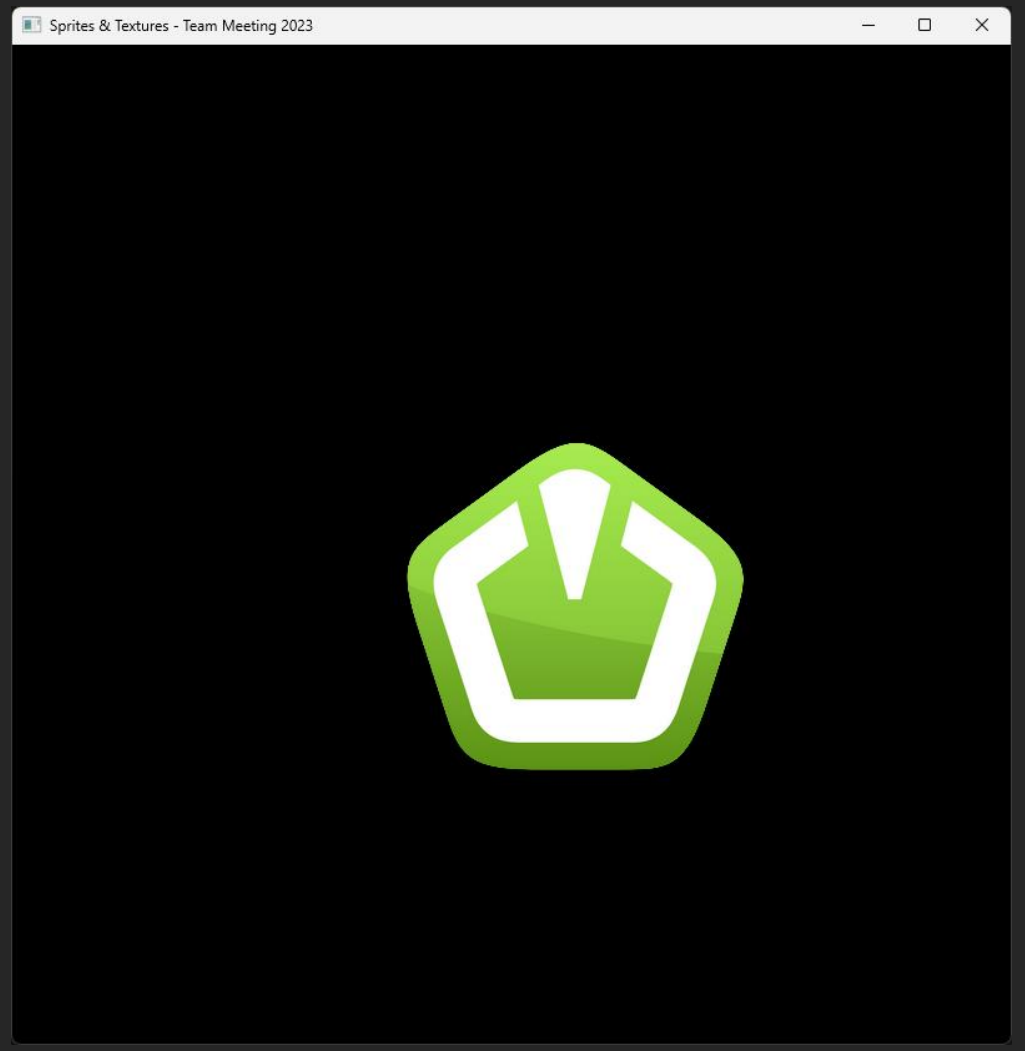
Shapes

```
var trapezoid = new ConvexShape(4);
trapezoid.SetPoint(0, new Vector2f(100f, 0f));
trapezoid.SetPoint(1, new Vector2f(0f, 200f));
trapezoid.SetPoint(2, new Vector2f(600f, 200f));
trapezoid.SetPoint(3, new Vector2f(500f, 0f));
trapezoid.FillColor = new Color(0xF2635FFF);
trapezoid.Position = new Vector2f(100f, 600f);


// ...


window.Clear();
window.Draw(rectangle);
window.Draw(circle);
window.Draw(trapezoid);
window.Display();
```



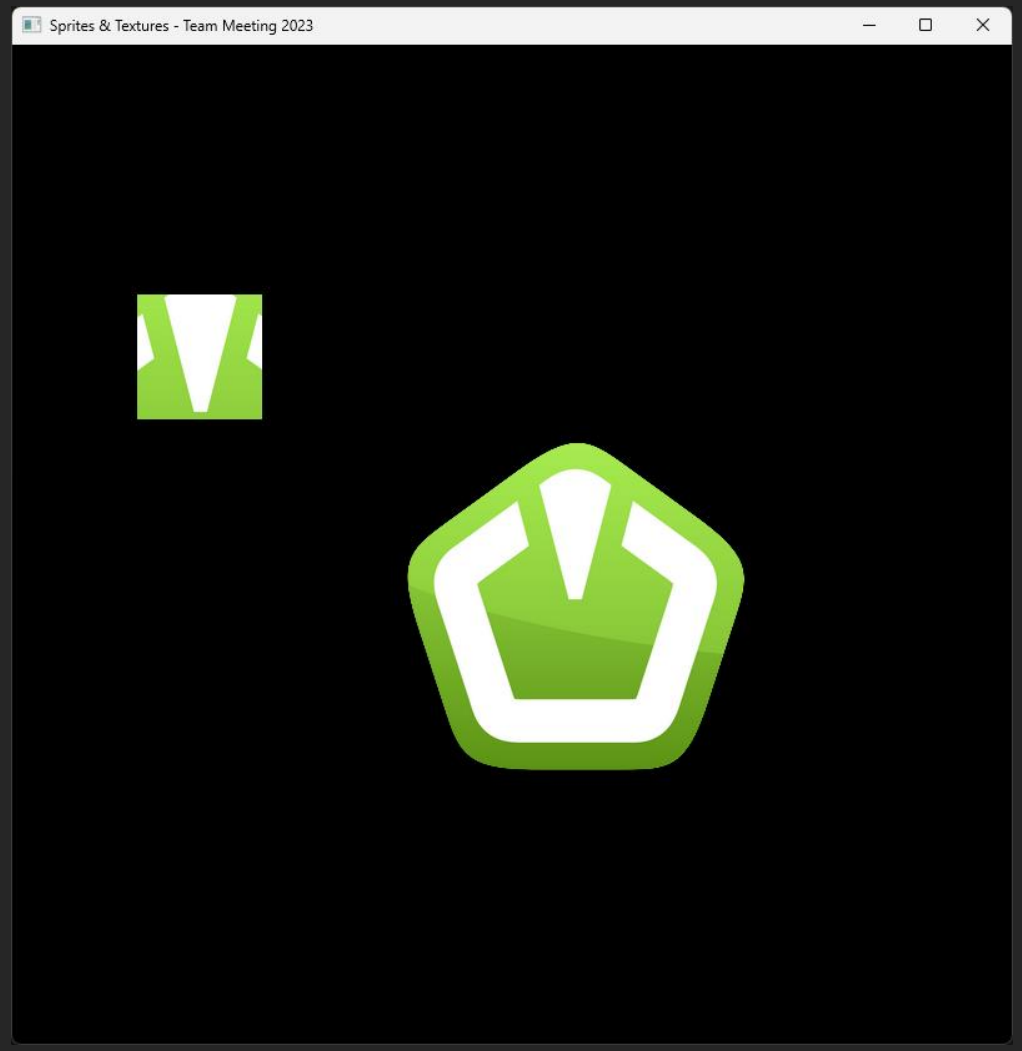
Sprites & Textures

```
var texture = new Texture("sfml-logo.png");

var fullLogo = new Sprite(texture);
fullLogo.Position = new Vector2f(300f, 300f);


// ...


window.Clear();
window.Draw(fullLogo);
window.Display();
```



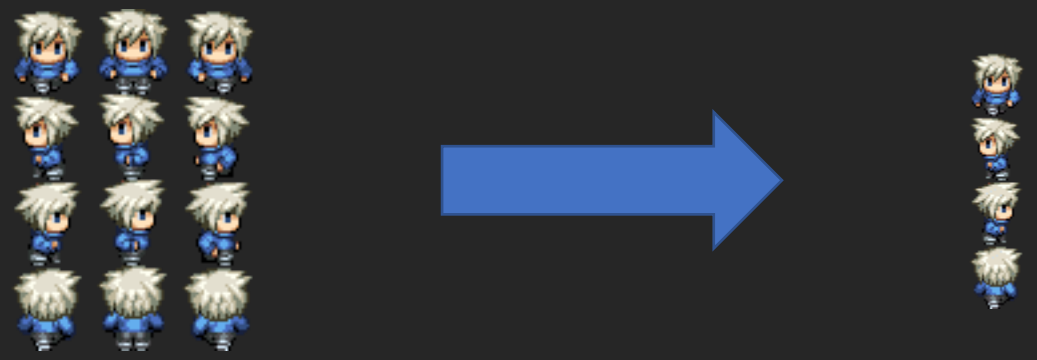
Sprites & Textures

```
var texture = new Texture("sfml-logo.png");

// ...

var partialLogo = new Sprite(texture);
partialLogo.TextureRect = new IntRect(100, 50, 100, 100);
partialLogo.Position = new Vector2f(100, 200);

// ...

window.Clear();
window.Draw(fullLogo);
window.Draw(partialLogo);
window.Display();
```



Sprites & Textures

```
sprite.TextureRect = new IntRect(left, top, width, height);
```



Texts & Fonts

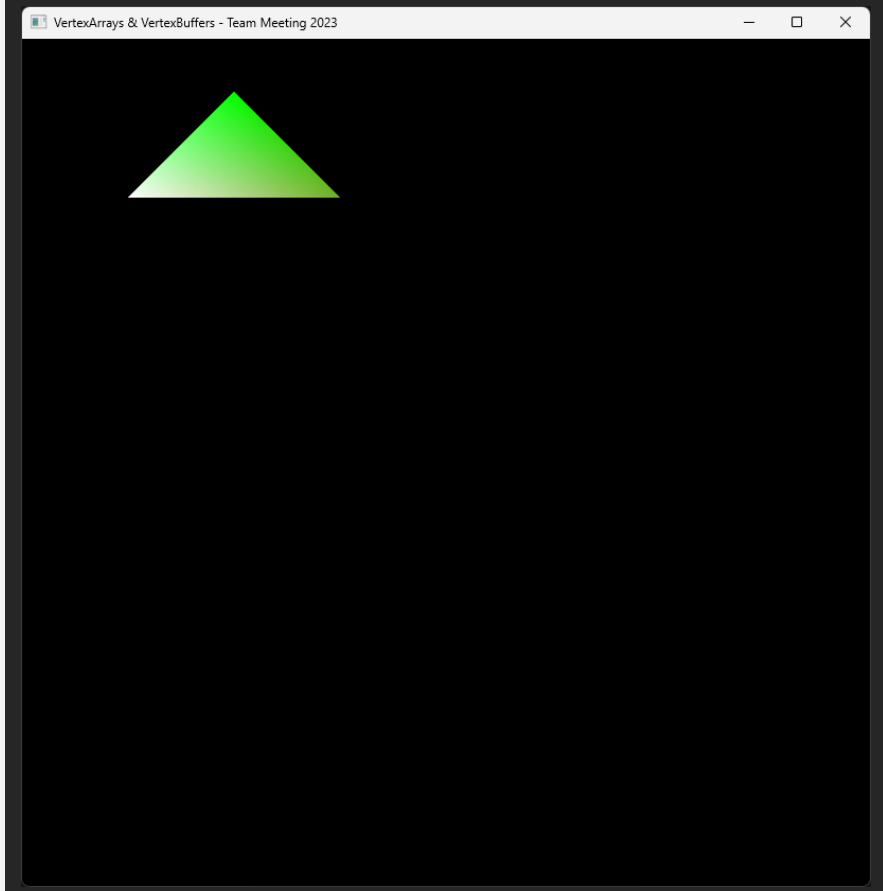
```
var font = new Font("DejaVuSans.ttf");

var teamMeeting = new Text("Team Meeting 2023", font, 60);
teamMeeting.Position = new Vector2f(100, 300);
teamMeeting.Style = Text.Styles.Bold;
teamMeeting.Rotation = 20f;

// ...

window.Clear();
window.Draw(teamMeeting);
window.Display();
```

Texts & Fonts

```
var font = new Font("DejaVuSans.ttf");

// ...

var sfml = new Text("SFML", font, 80);
sfml.Position = new Vector2f(300f, 100f);
sfml.FillColor = Color.White;
sfml.OutlineColor = new Color(0x8ECF3CFF);
sfml.OutlineThickness = 5f;
sfml.LetterSpacing = 1.5f;

// ...

window.Clear();
window.Draw(teamMeeting);
window.Draw(sfml);
window.Display();
```

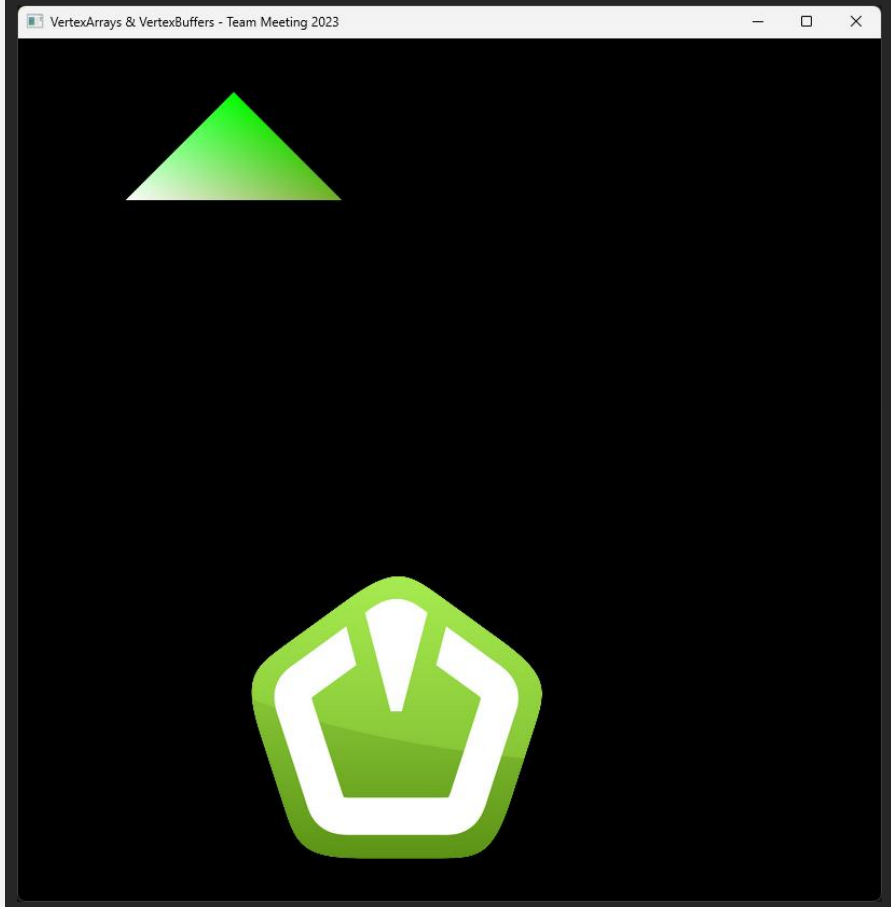
VertexArrays & VertexBuffers

```
var triangle = new VertexArray(PrimitiveType.Triangles);
triangle.Append(new Vertex(new Vector2f(200f, 50f), Color.Green));
triangle.Append(new Vertex(new Vector2f(100f, 150f), Color.White));
triangle.Append(new Vertex(new Vector2f(300f, 150f), new Color(0x73AE27FF)));


// ...


window.Clear();
window.Draw(triangle);
window.Display();
```



VertexArrays & VertexBuffers

```
var texture = new Texture("sfml-logo.png");

// ...

var sfmlLogo = new VertexArray(PrimitiveType.Triangles);
sfmlLogo.Append(new Vertex(new Vector2f(200f, 480f), new Vector2f(0f, 0f)));
sfmlLogo.Append(new Vertex(new Vector2f(200f, 780f), new Vector2f(0f, 300f)));
sfmlLogo.Append(new Vertex(new Vector2f(500f, 780f), new Vector2f(300f, 300f)));
sfmlLogo.Append(new Vertex(new Vector2f(500f, 780f), new Vector2f(300f, 300f)));
sfmlLogo.Append(new Vertex(new Vector2f(500f, 480f), new Vector2f(300f, 0f)));
sfmlLogo.Append(new Vertex(new Vector2f(200f, 480f), new Vector2f(0f, 0f)));

// ...

window.Clear();
window.Draw(triangle);
window.Draw(sfmlLogo, new RenderStates(texture));
window.Display();
```

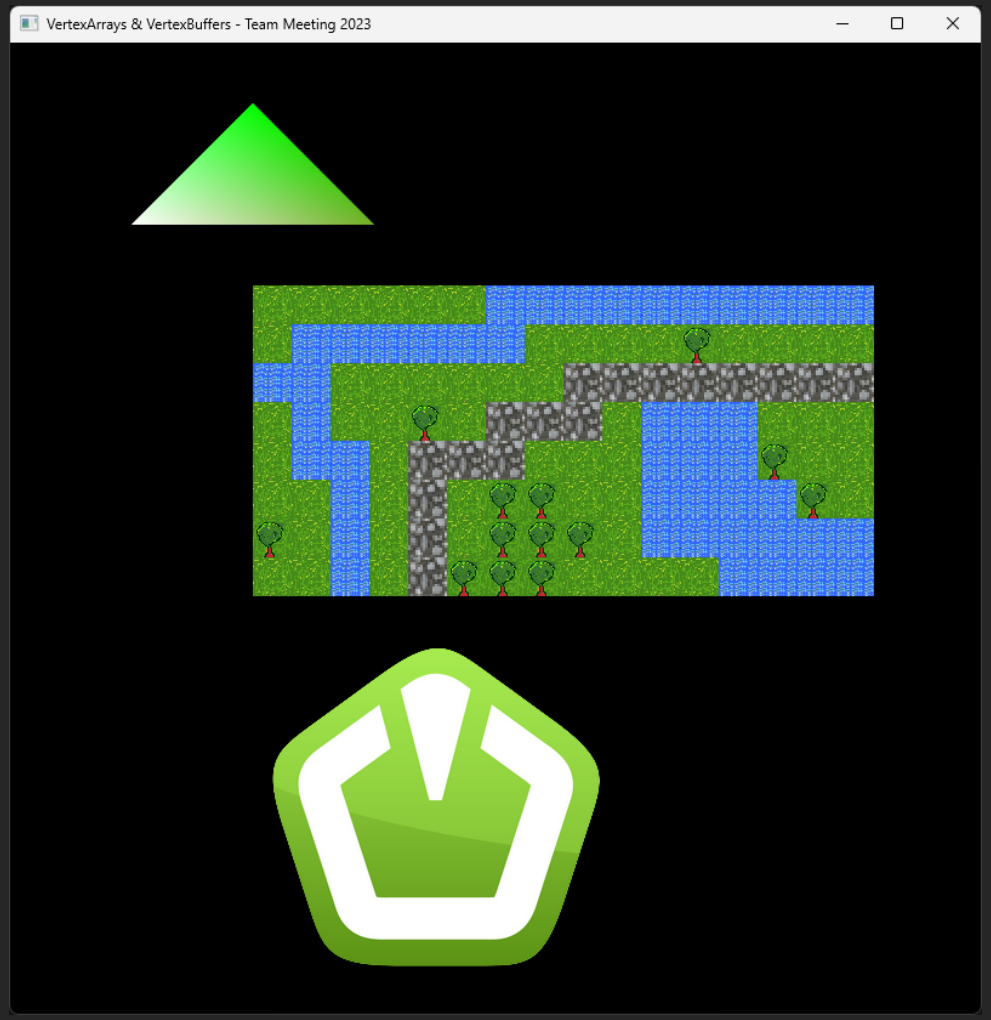


VertexArrays & VertexBuffers

```
private readonly List<Vertex> _verticies;
private readonly Texture _tileset;
private VertexBuffer? _vertexBuffer;

// ...

_vertexBuffer = new VertexBuffer((uint) tiles.Count * 4,
                                 PrimitiveType.Quads,
                                 VertexBuffer.UsageSpecifier.Static);

// ...

_vertexBuffer.Update(_verticies.ToArray());

// ...

states.Texture = _tileset;
target.Draw(_vertexBuffer, states);
```


VertexArrays & VertexBuffers

```
var level = new List<int>
{
    0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
    0, 1, 1, 1, 1, 1, 1, 0, 0, 0, 0, 2, 0, 0, 0, 0,
    1, 1, 0, 0, 0, 0, 0, 0, 3, 3, 3, 3, 3, 3, 3, 3,
    0, 1, 0, 0, 2, 0, 3, 3, 3, 0, 1, 1, 1, 0, 0, 0,
    0, 1, 1, 0, 3, 3, 3, 0, 0, 0, 1, 1, 1, 2, 0, 0,
    0, 0, 1, 0, 3, 0, 2, 2, 0, 0, 1, 1, 1, 1, 2, 0,
    2, 0, 1, 0, 3, 0, 2, 2, 2, 0, 1, 1, 1, 1, 1, 1,
    0, 0, 1, 0, 3, 2, 2, 2, 0, 0, 0, 0, 1, 1, 1, 1
};
```



A few more things…

- Shaders (GLSL)
- Render Texture
- Views
- OpenGL / Vulkan Context
- Windowing
- Keyboard Input
- Mouse Input
- Joystick/Controller Input
- Sound
- Music
- 3D Spatial Audio
- TCP & UDP Sockets
- UTF-32/16/8 Conversion
- Windows, Linux & macOS
- Android & iOS (& Switch)
- …

Thanks!

https://www.sfml-dev.org

https://github.com/eXpl0it3r/Talks

https://duerrenberger.dev/

@DarkCisum