

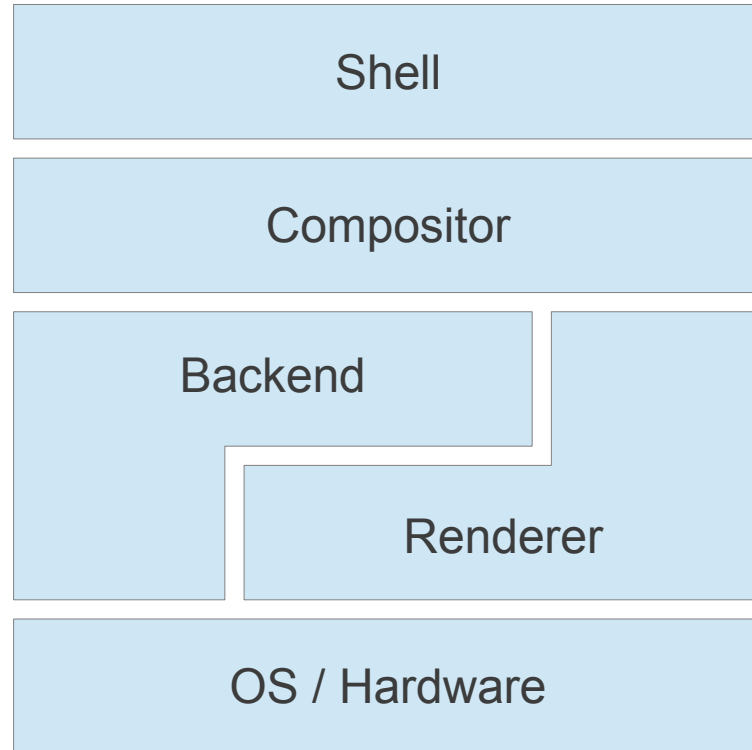
# Using hardware overlays in Weston

Ander Conselvan de Oliveira

FOSDEM 2013

February 2nd

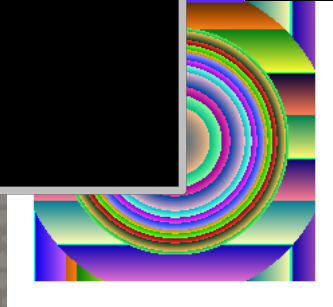
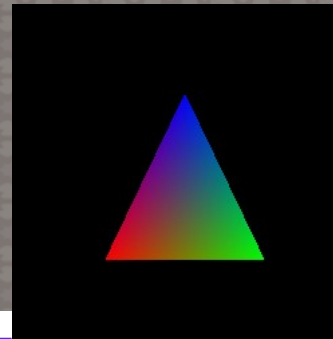
# Overview

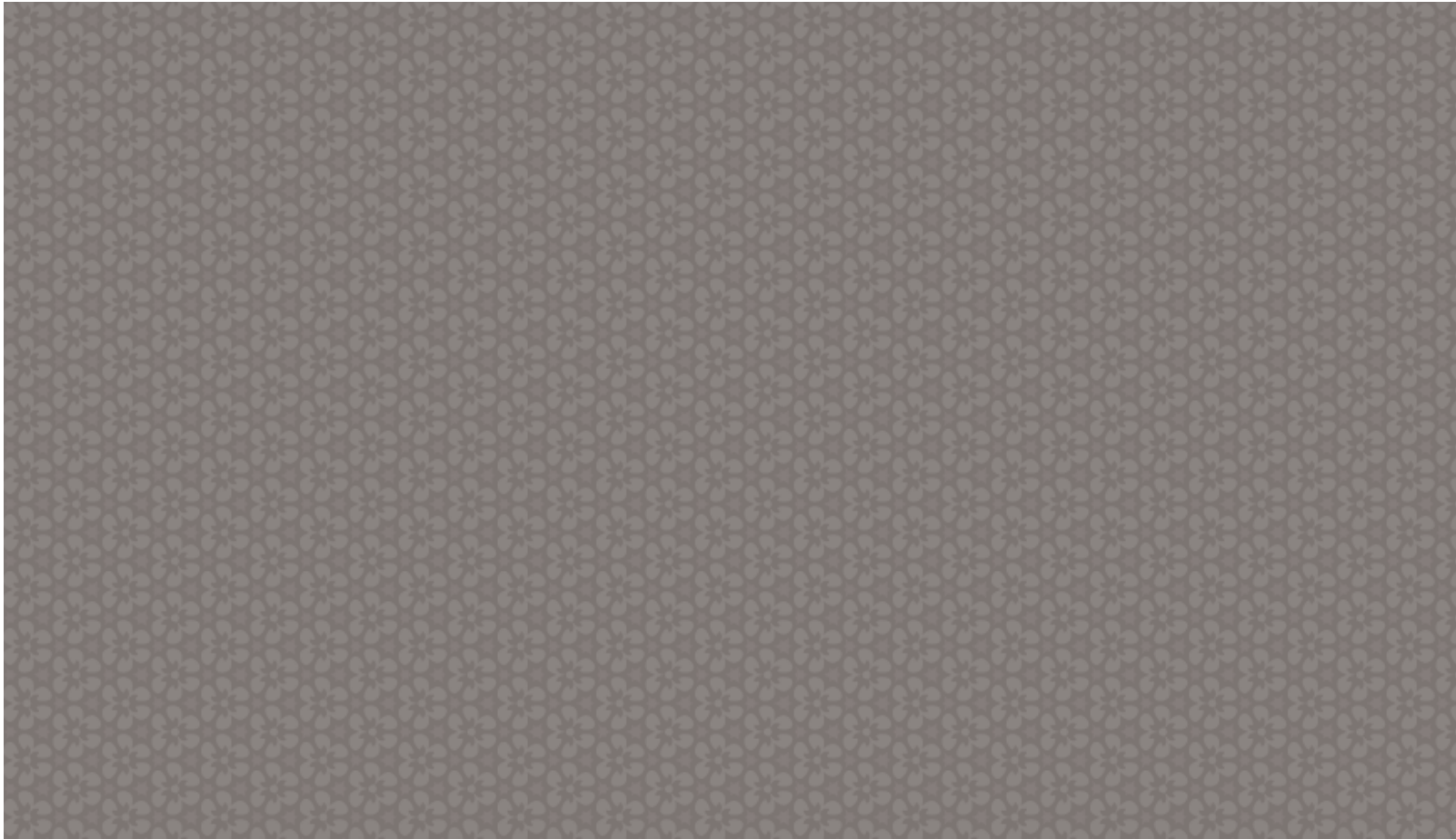


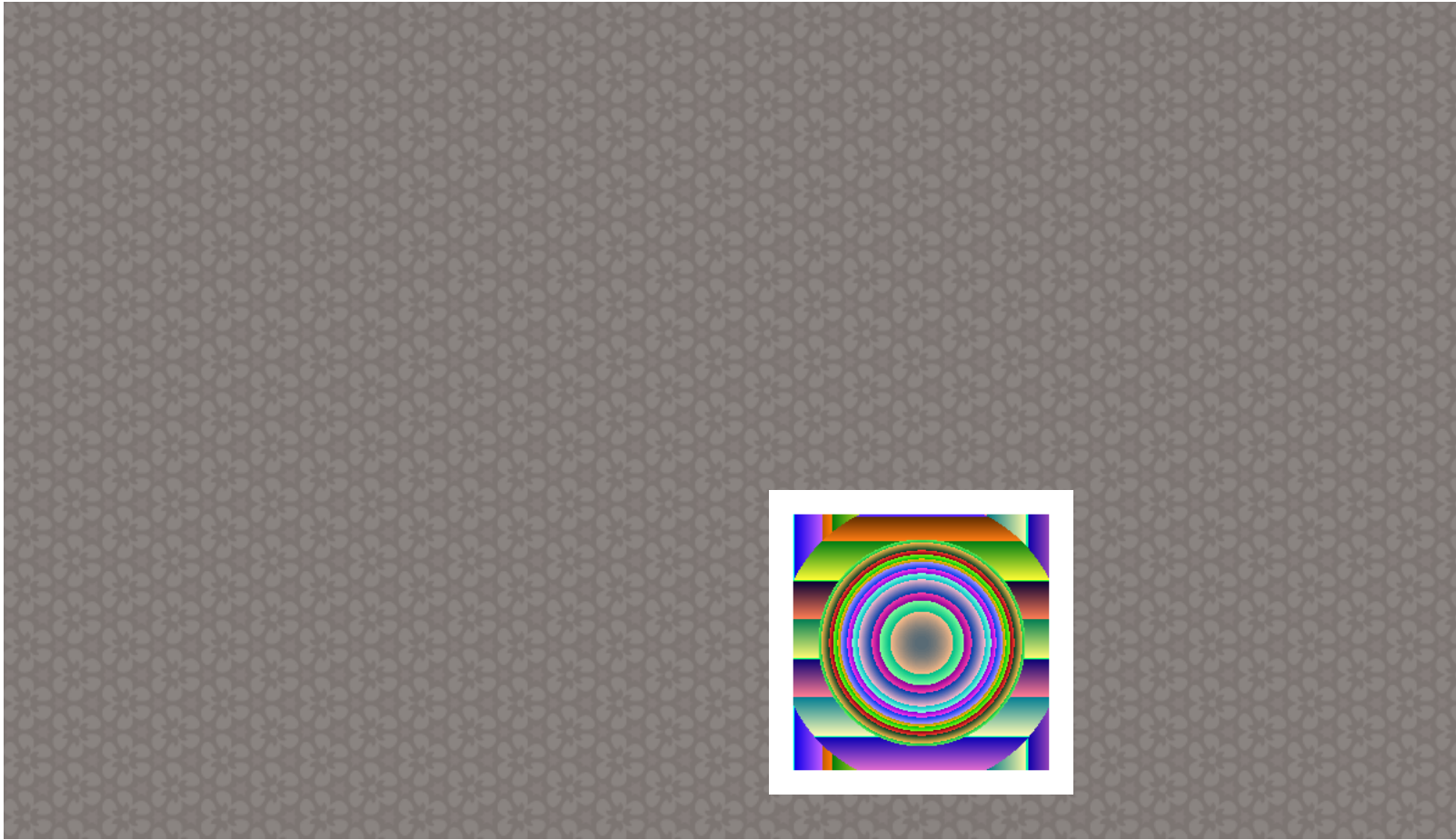
# Repaint cycle

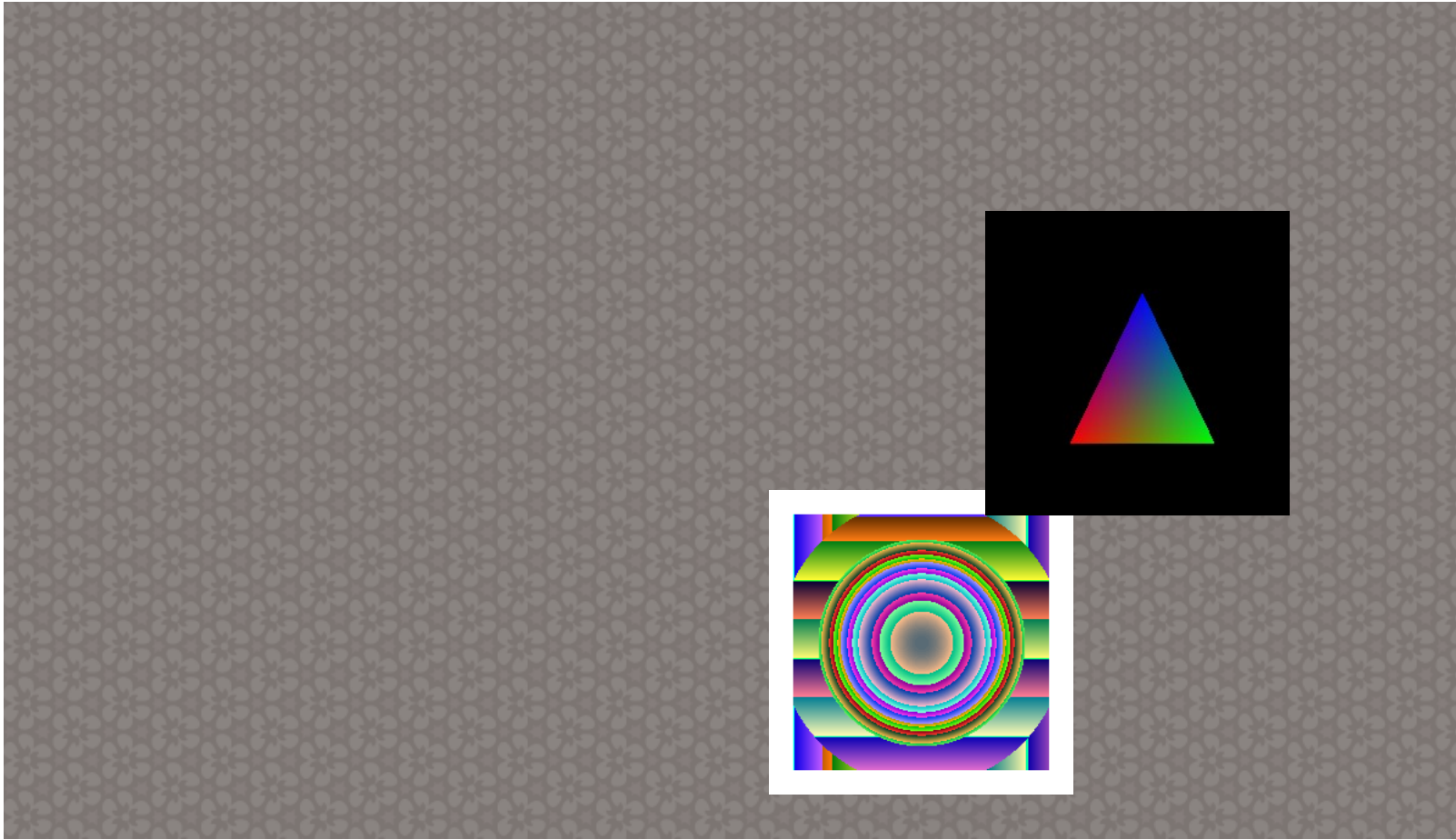
- Driven by the monitor refresh
- Iteration over list of surfaces, drawn backwards
- Optimize out redrawing of obscured areas (needs clients help)

```
ander@ander-mobl1: ~/wayland/weston
ander@ander-mobl1:~/wayland/weston$ ./clients/simple-egl -o
^Z
[1]+  Stopped                  ./clients/simple-egl -o
ander@ander-mobl1:~/wayland/weston$ bg
[1]+ ./clients/simple-egl -o &
ander@ander-mobl1:~/wayland/weston$ ./clients/simple-shm
[]
```

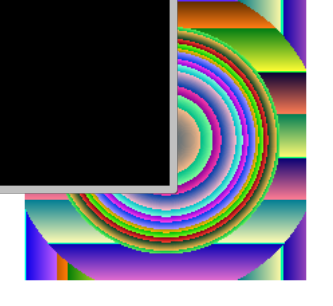
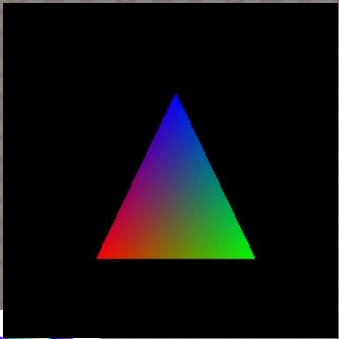






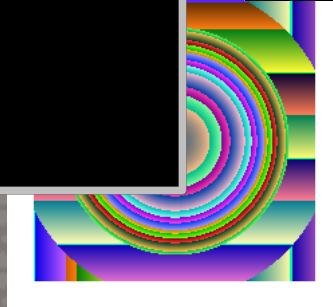
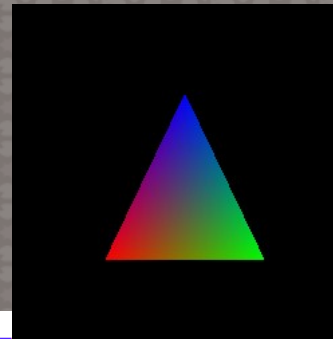


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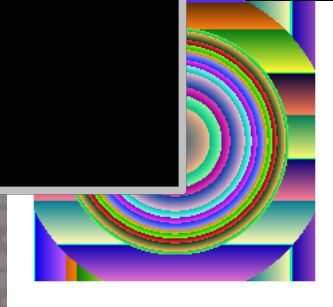
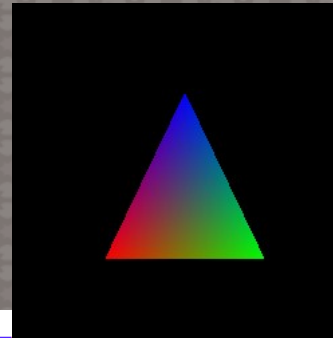


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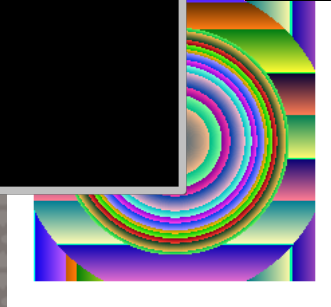
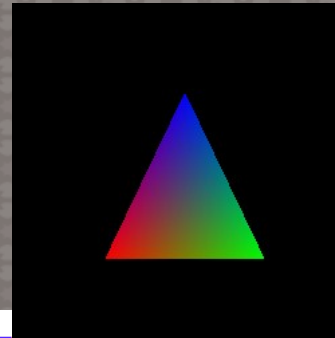


# Opaque region

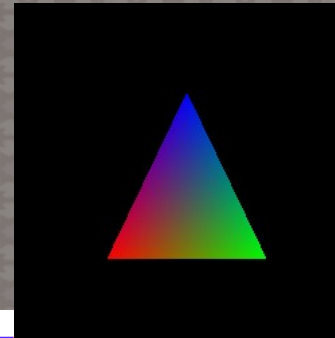
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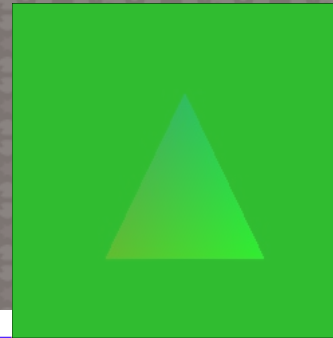
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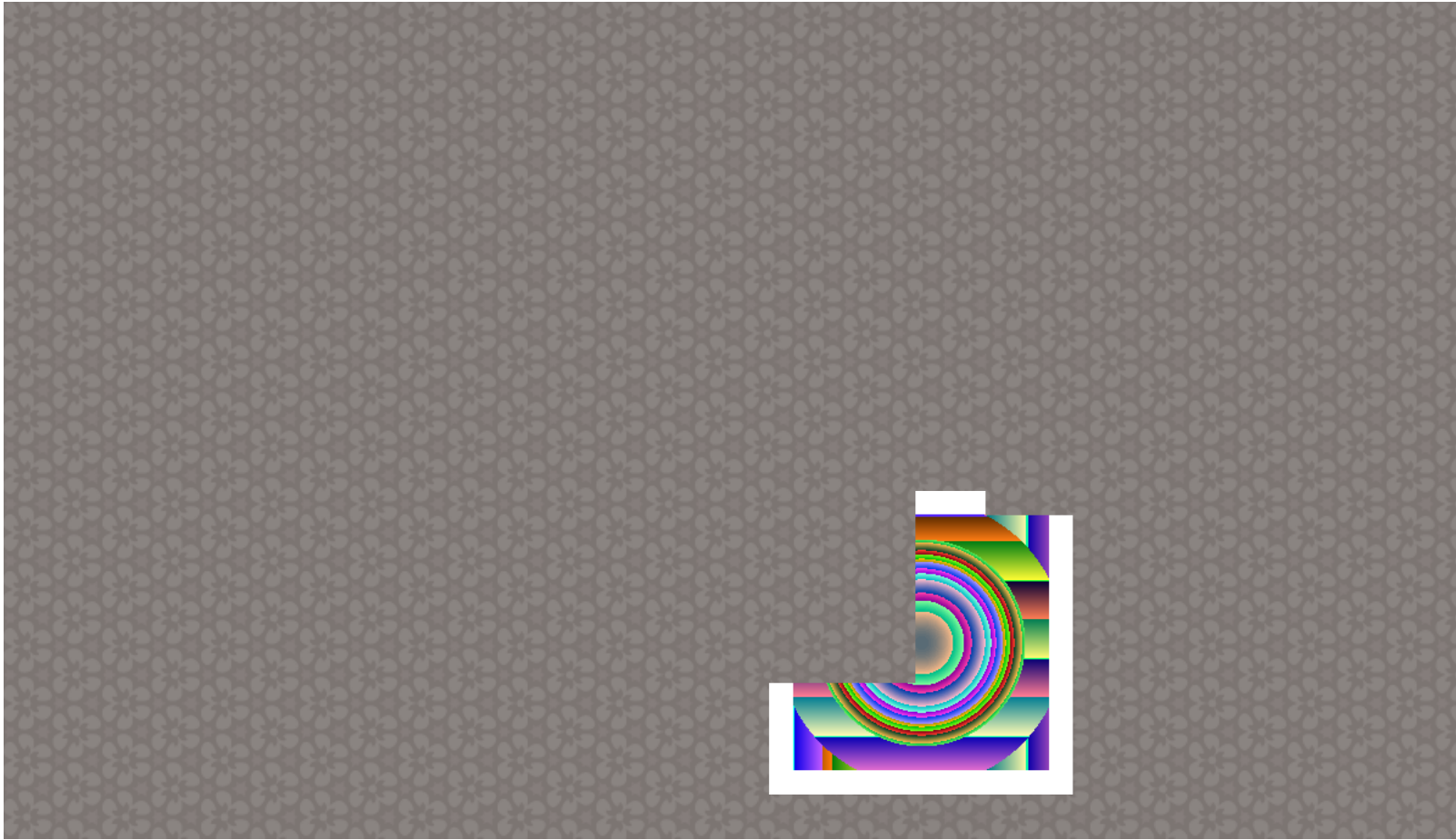


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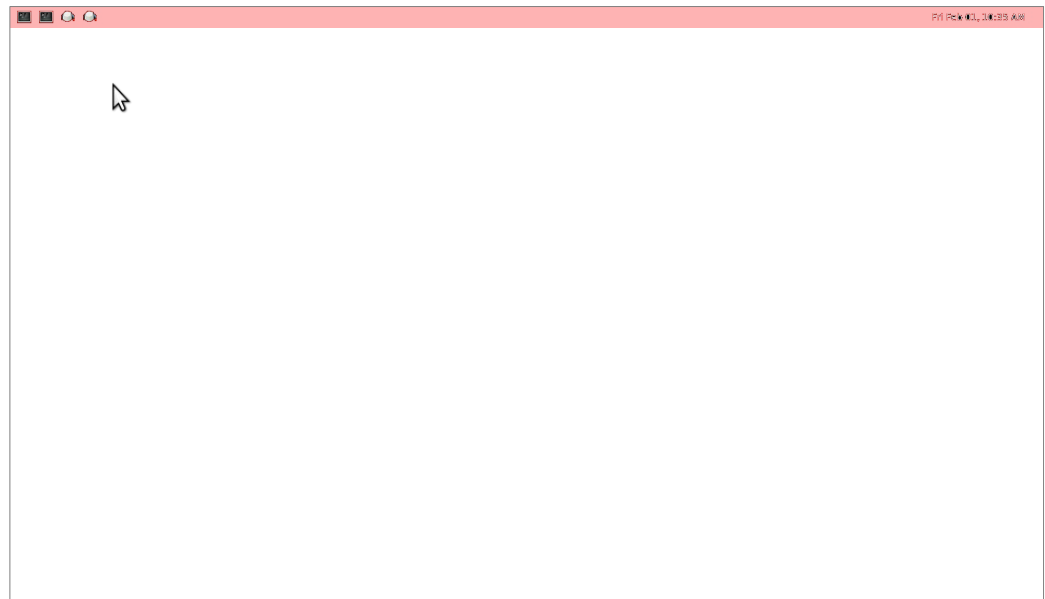
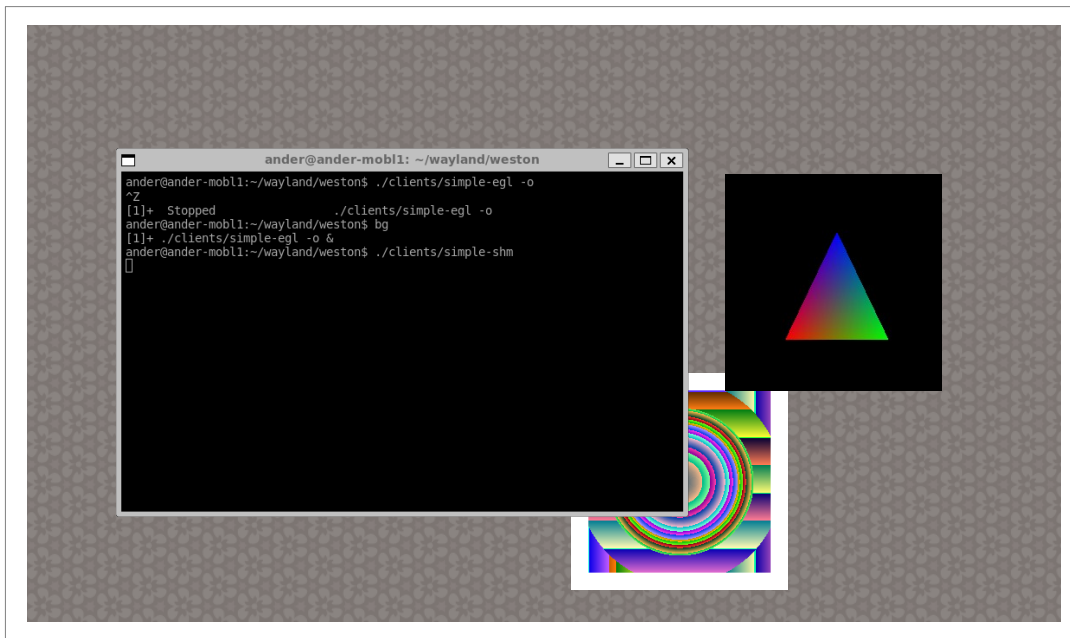




# Planes

- Planes are groups of surfaces





# Primary plane

- By default surfaces belong to the *primary* plane
- Only surfaces on the primary plane are composited with the renderer

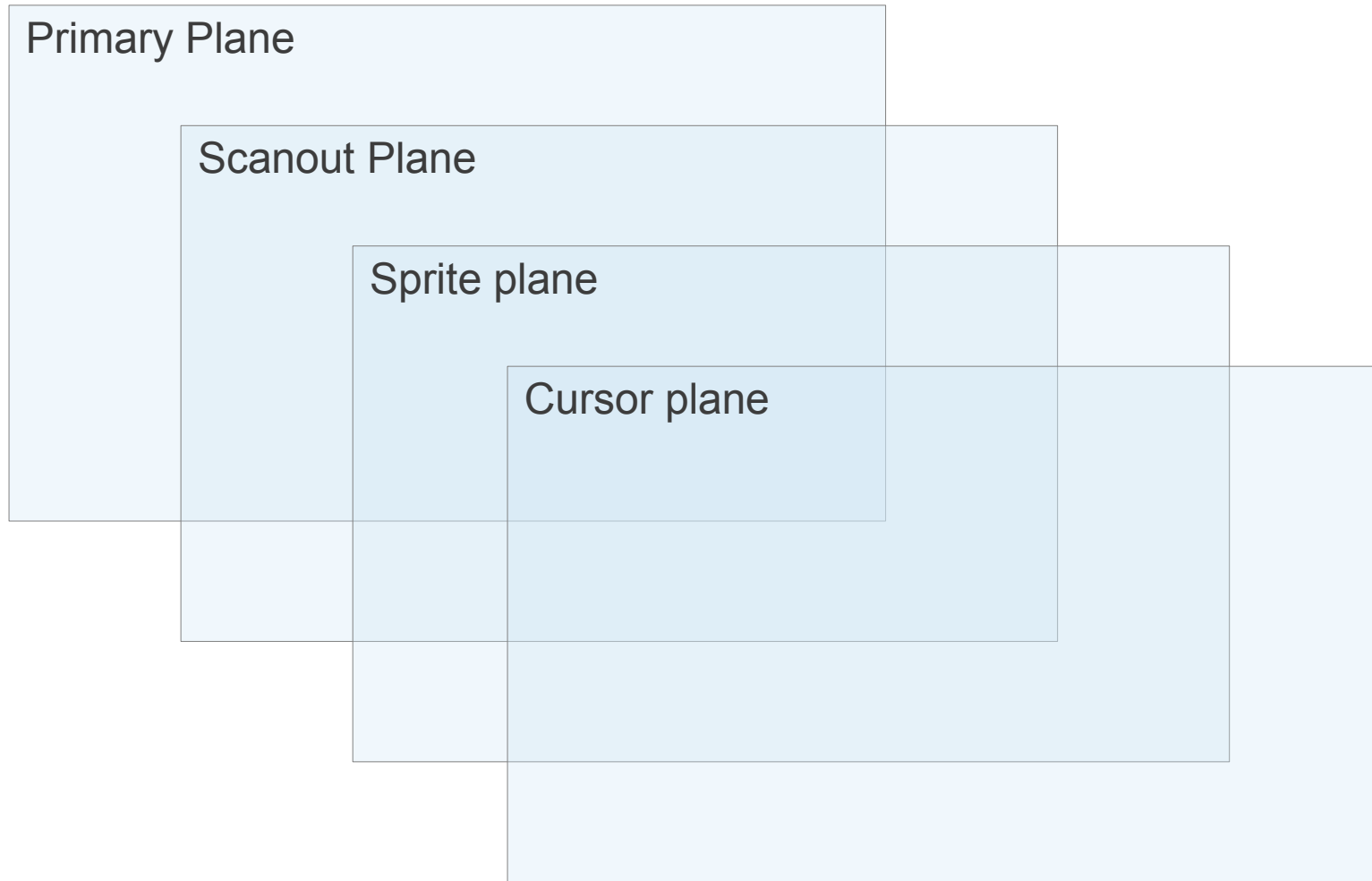
# Plane assignment

- Before each repaint, the backend can move surfaces to other planes

# Planes on the DRM backend

- Cursor plane
- Scanout plane
- Sprite planes

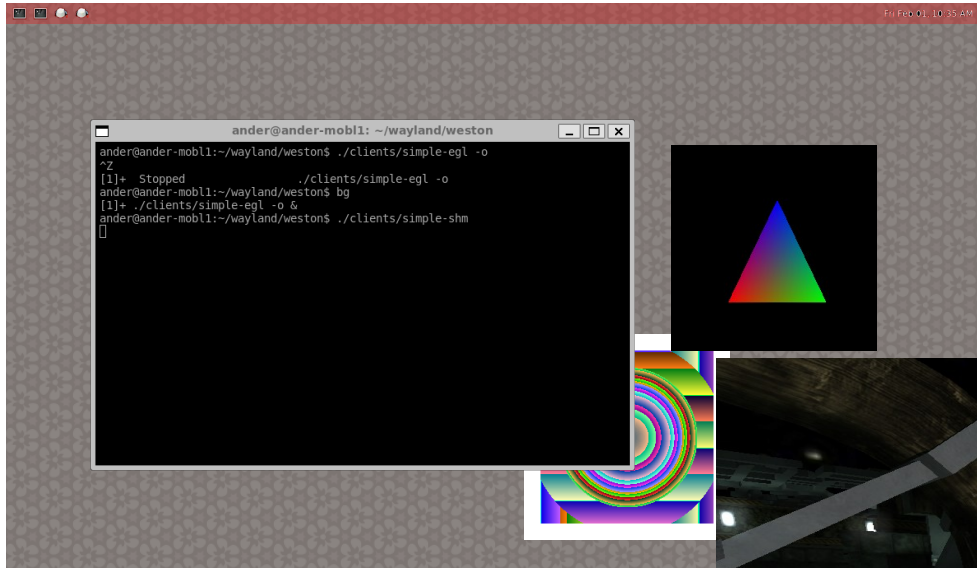
# Planes on the DRM backend



# Scanout plane

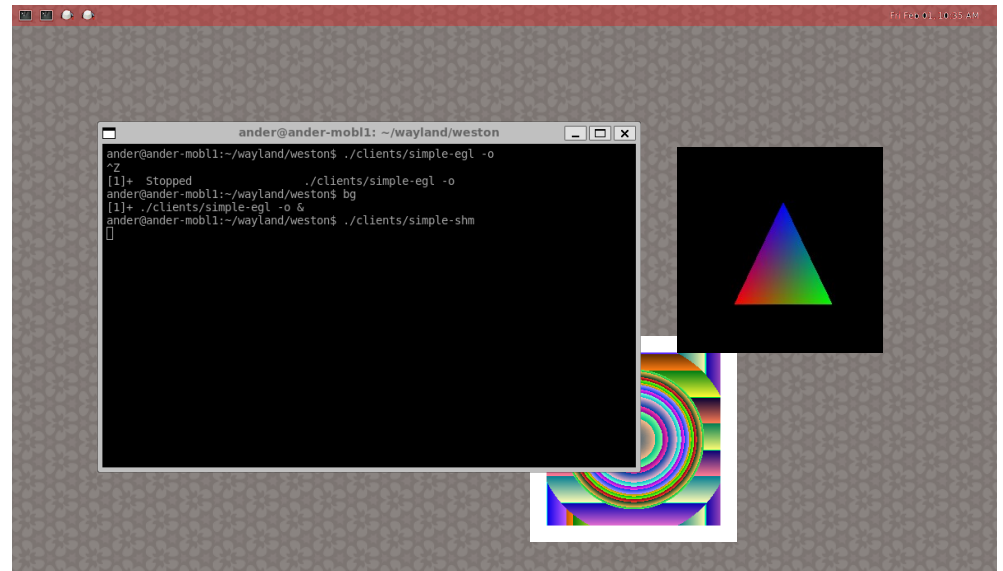
- "Disables" composition for fullscreen clients
- Very low overhead

# Scanout plane



# Scanout plane

Primary plane



Scanout plane





# Sprite planes

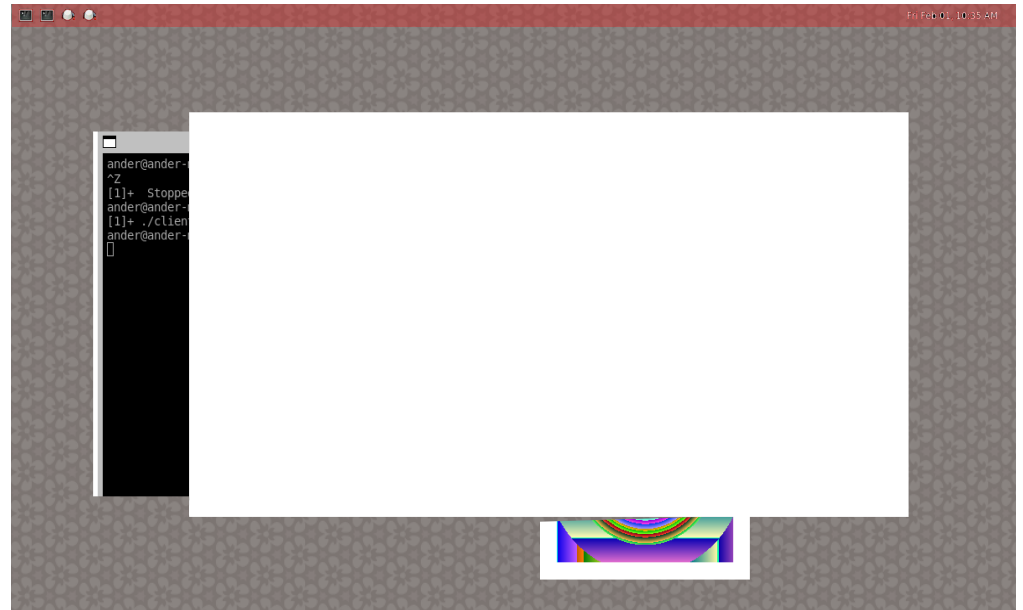
- Use the hardware overlay

# Sprite plane



# Sprite plane

Primary plane



Sprite plane

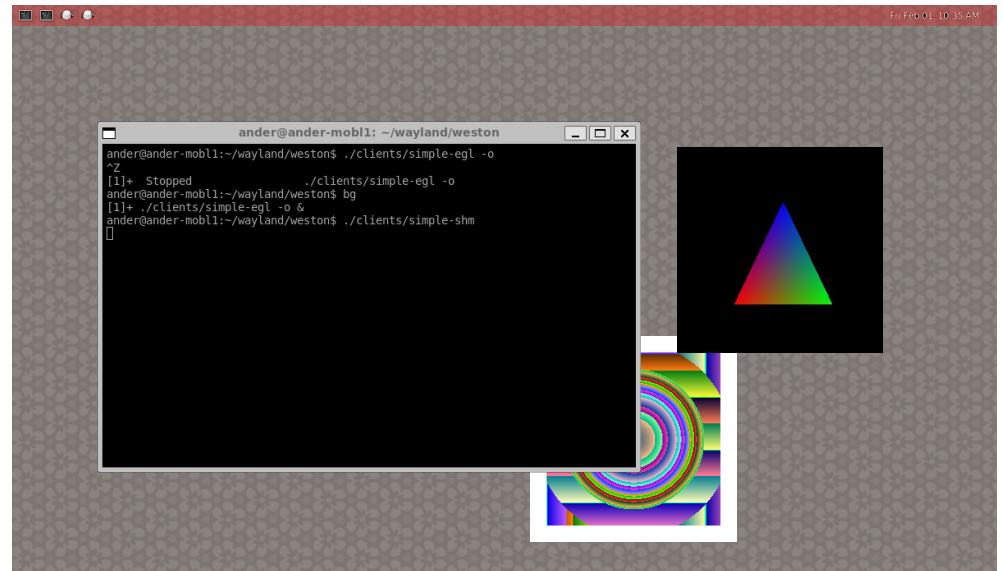


# Cursor Plane

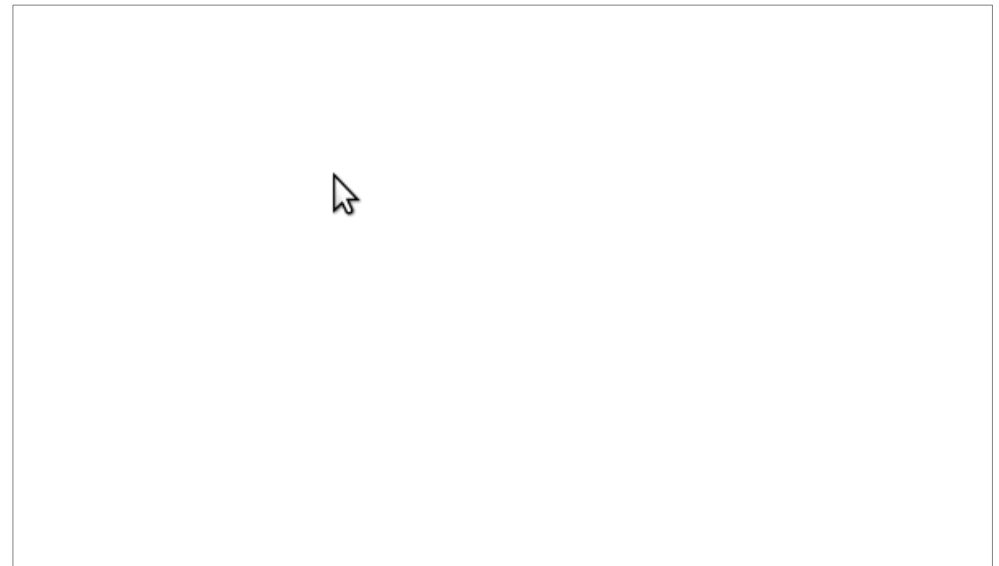
- Supports 64x64 surfaces
- SHM only, contents are copied to an appropriate buffer

# Cursor plane

Primary plane



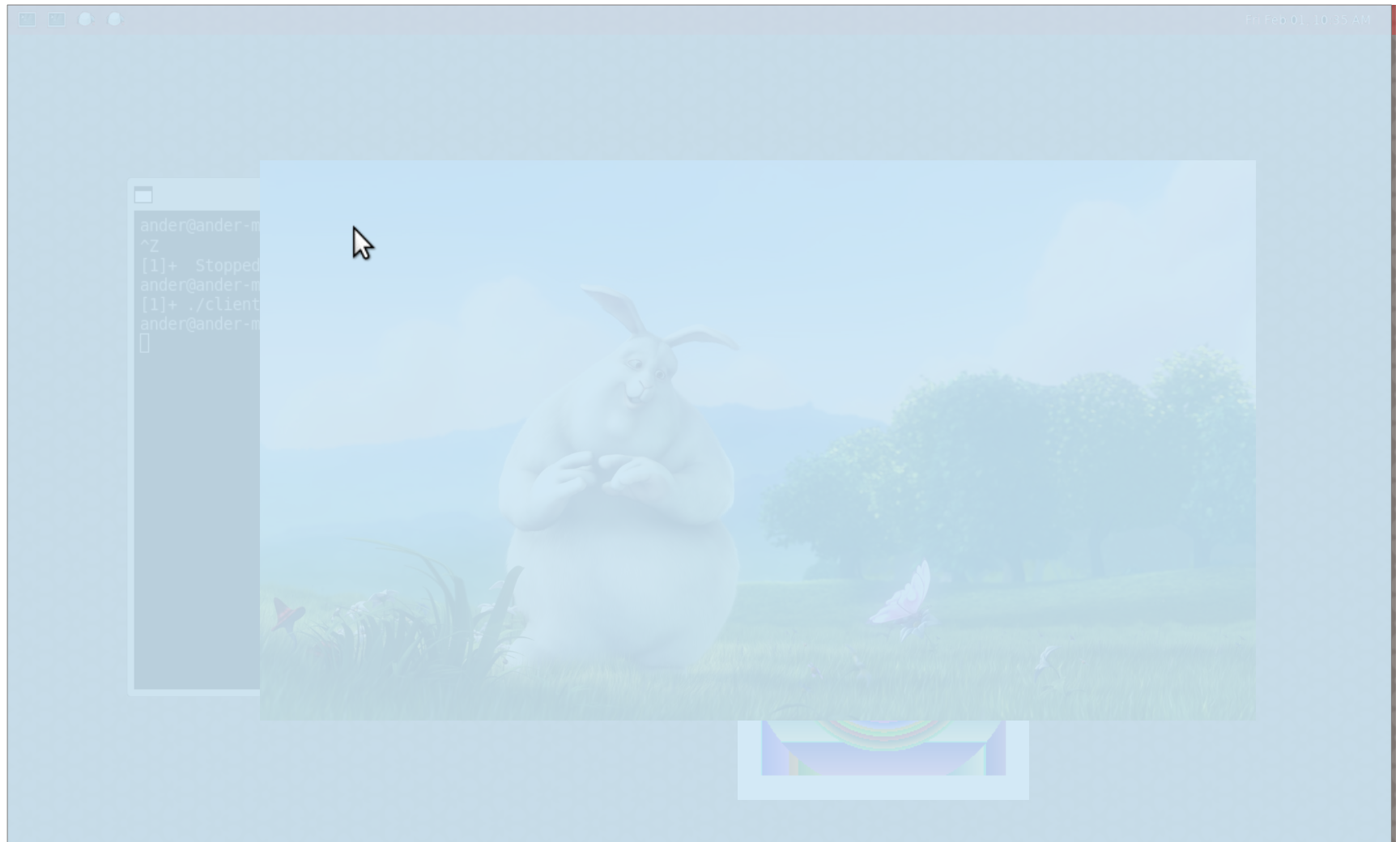
Cursor plane



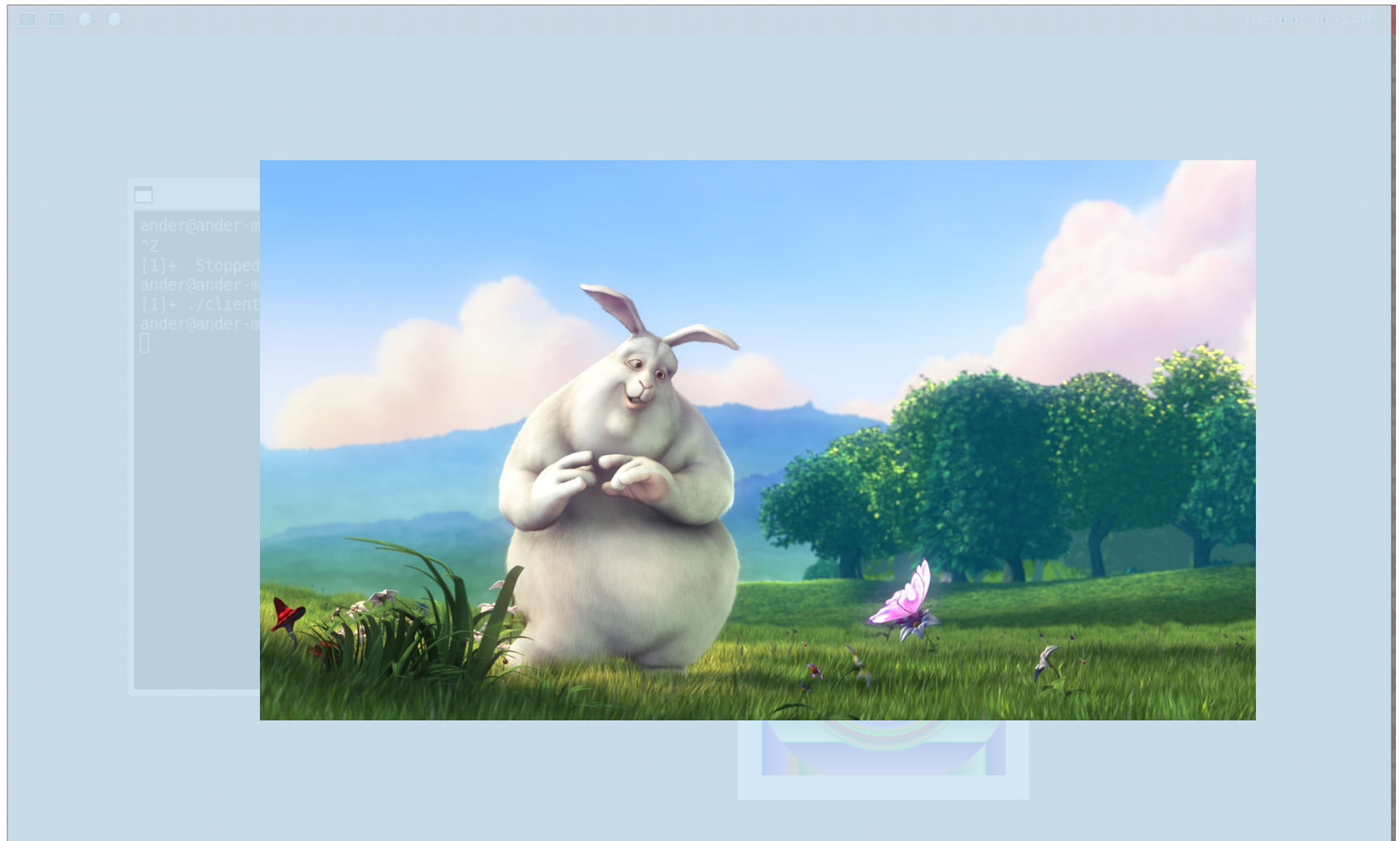
# Plane assignment

- Current implementation is very simple
- First surface that can use a plane gets to use it
- We could do better

# Plane assignment

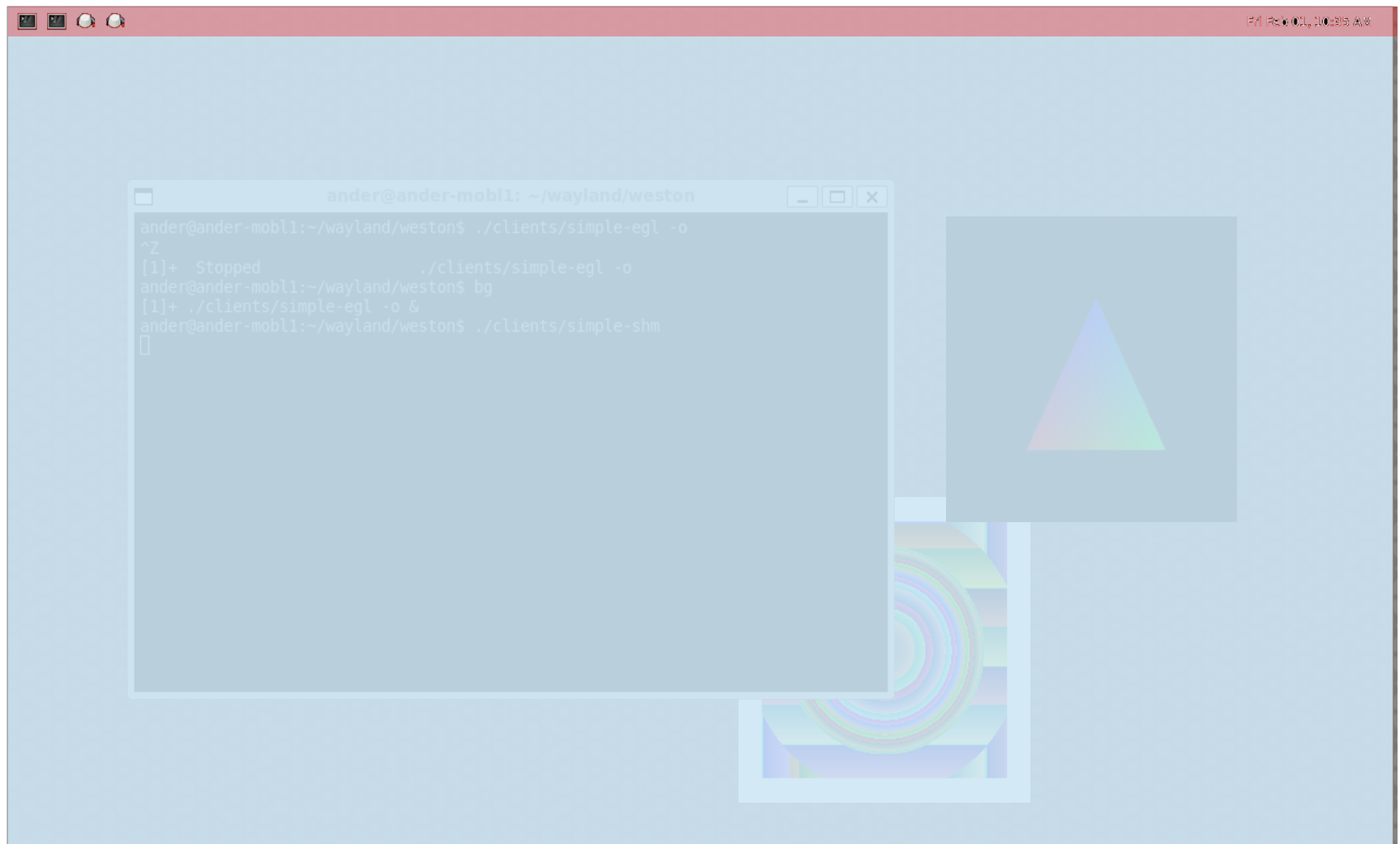


# Plane assignment

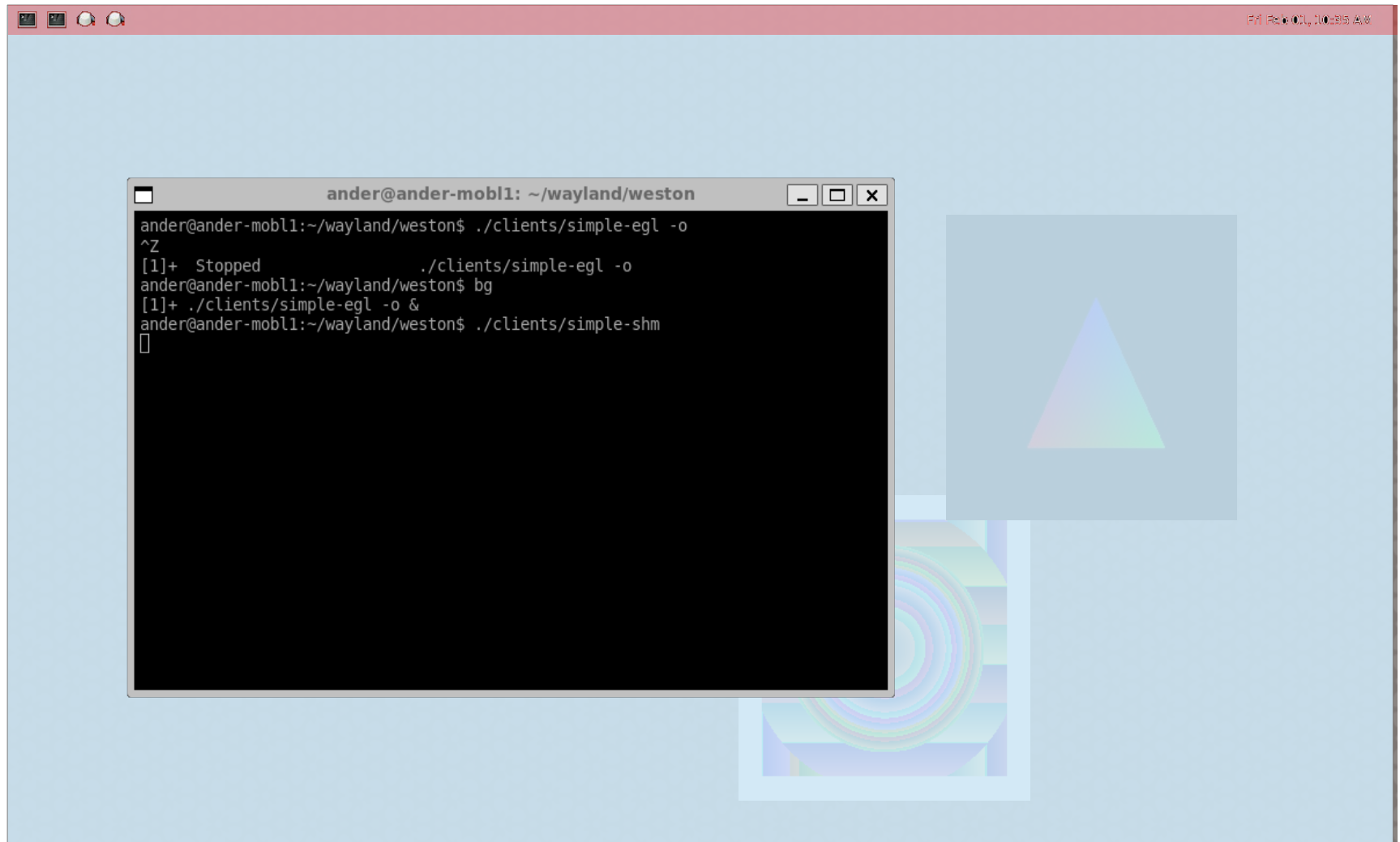




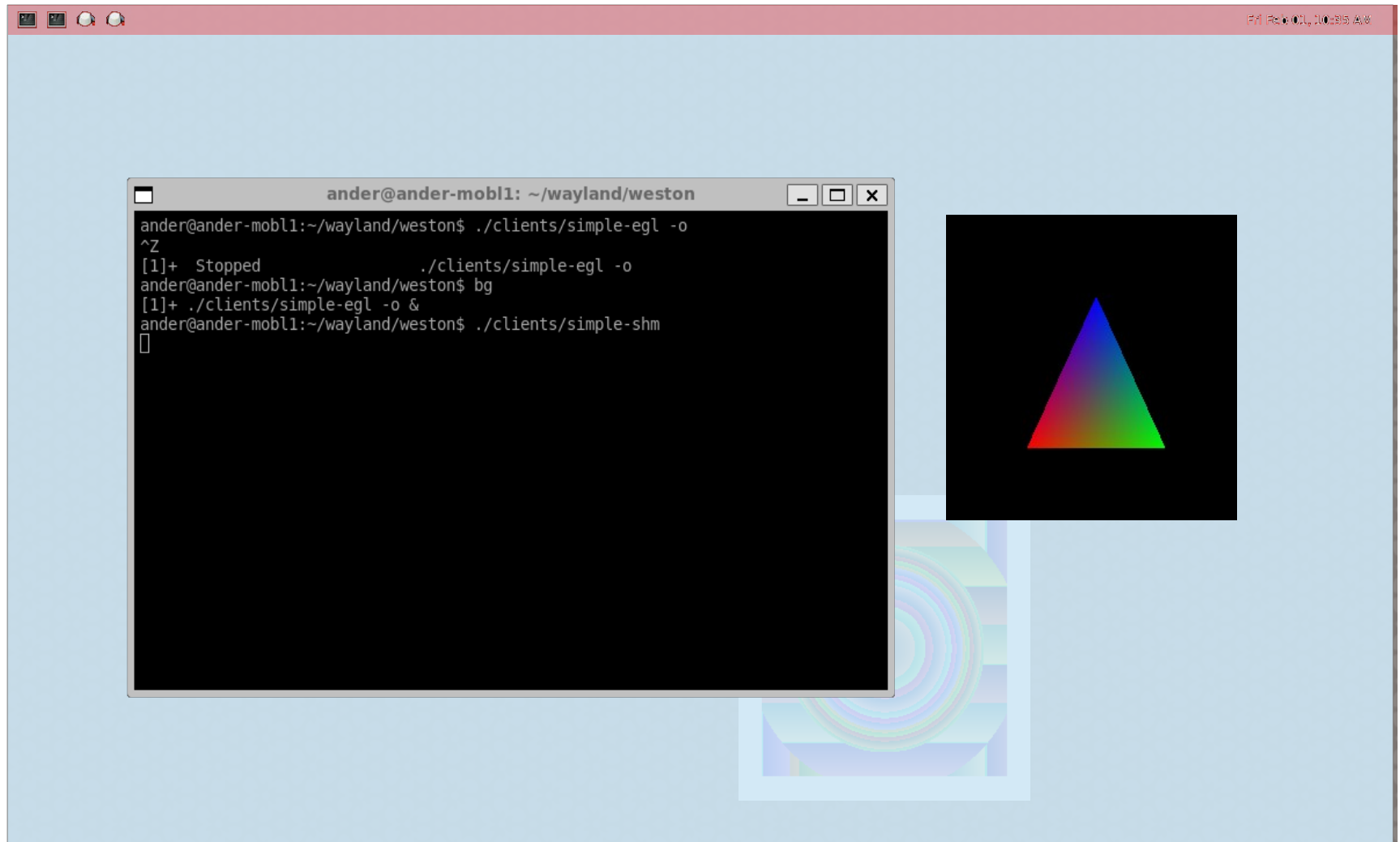
# Plane assignment



# Plane assignment



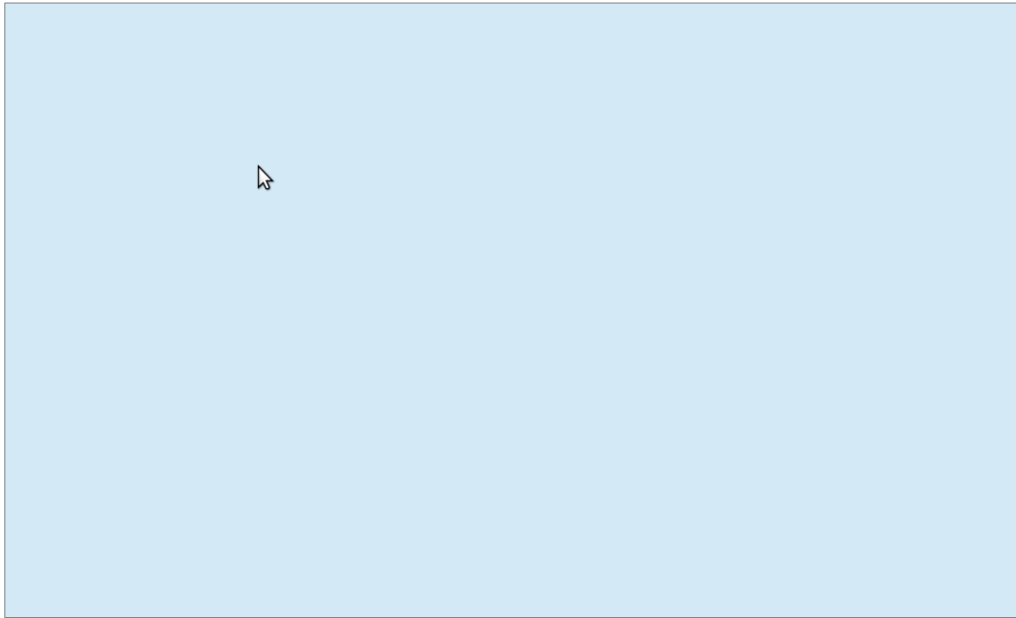
# Plane assignment



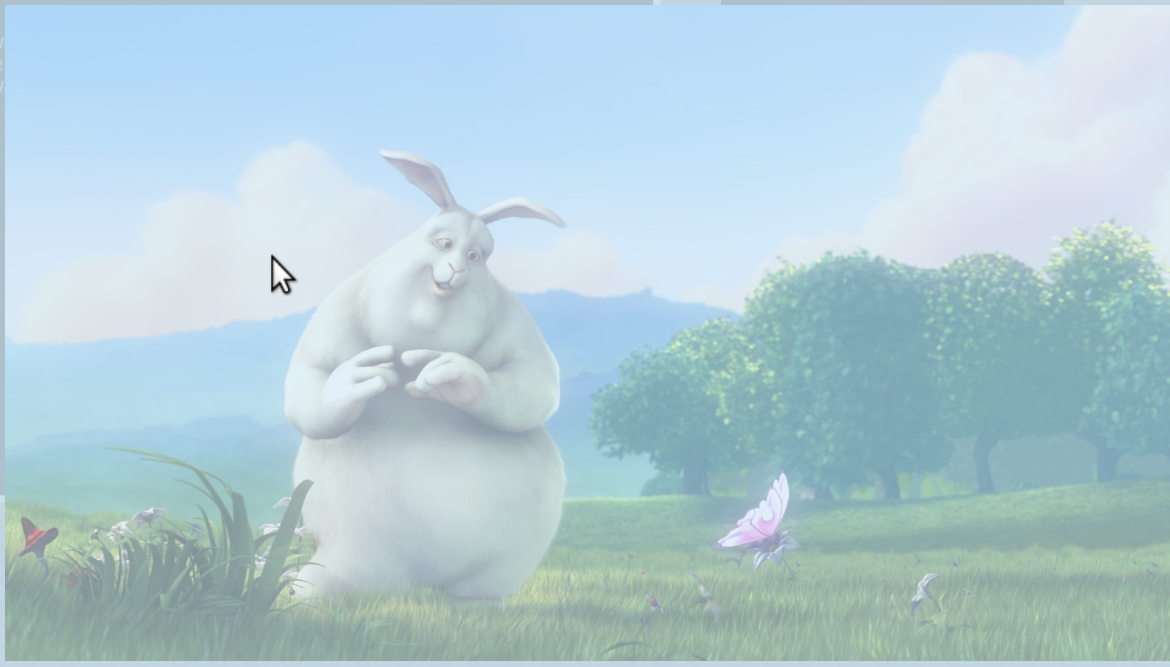
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□
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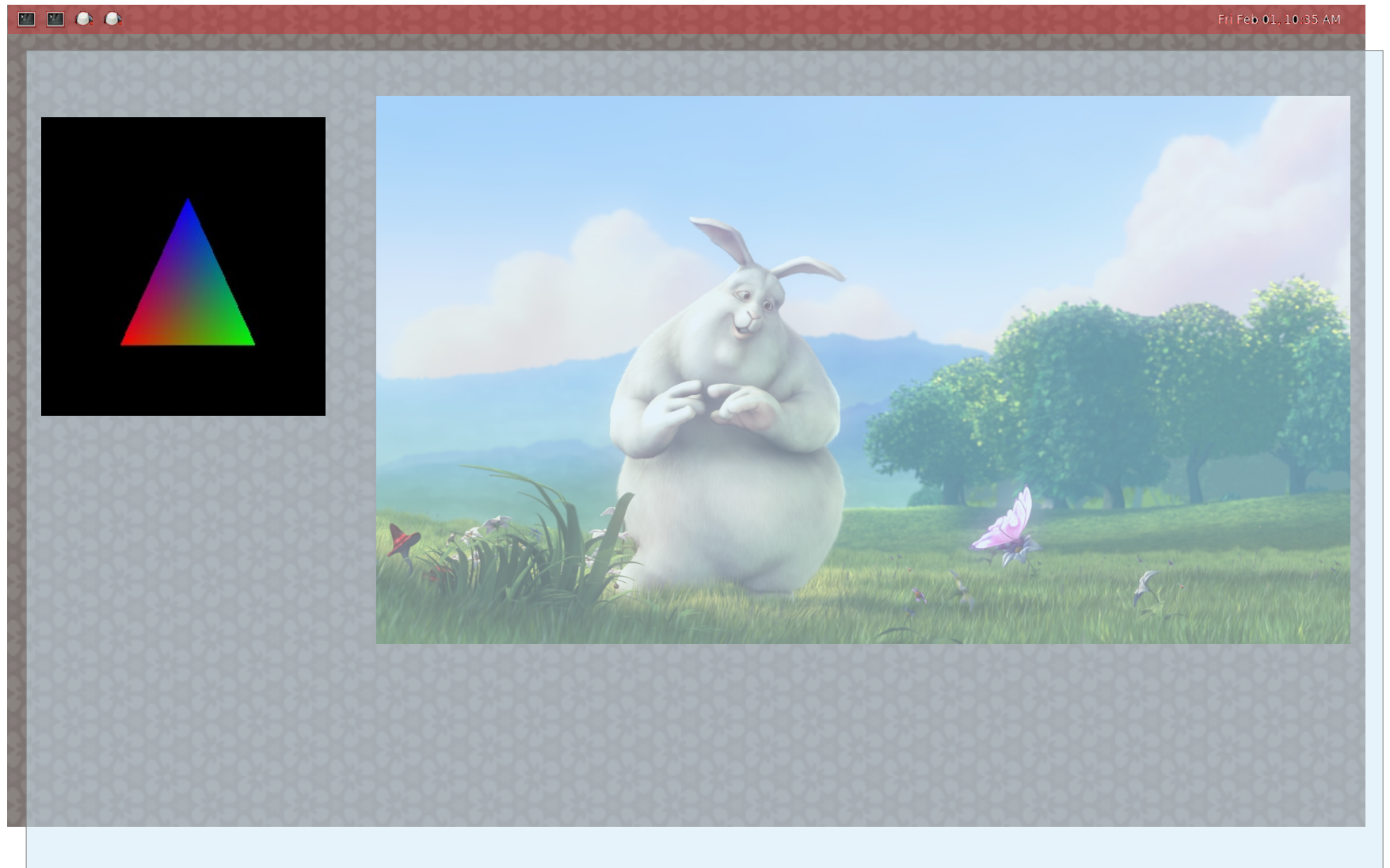




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ander@ander-mobl1:~/w  
[1]+ ./clients/simple  
ander@ander-mobl1:~/w  
□
```



# We could do better



# Demo



# Questions



































































































