



## Chapter 10: 🧠 So far, The result

```
#include "amGHOST_System.hh"
#include "amVK_Instance.hh"
#include "amVK_Device.hh"

#include "amGHOST_VkSurfaceKHR.hh"
#include "amVK_Surface.hh"

#include "amVK_SwapChain.hh"
#include "amVK_ColorSpace.hh"
#include "amVK_RenderPass.hh"
#include "amVK_RenderPass_Descriptors.hh"
#include "amVK_CommandPoolMAN.hh"

int main(int argumentCount, char* argumentVector[]) {
    REY::cout << "\n";

    // ----- amGHOST -----
    amGHOST_System::create_system();

    amGHOST_Window *W = amGHOST_System::heart->new_window_interface();
    W->create(L"Whatever", 0, 0, 500, 600);
    // ----- amGHOST -----

    REY_LOG("");
    REY_LOG("");
    // ----- amVK -----
    REY_LOG("");
    amVK_Instance::EnumerateInstanceExtensions();
    amVK_Instance::EnumerateInstanceLayerProperties();
    amVK_Instance::addTo_1D_Instance_Layers_Enabled("VK_LAYER_KHRONOS_validation");
    amVK_Instance::addTo_1D_Instance_EXTs_Enabled("VK_KHR_surface");
    amVK_Instance::addTo_1D_Instance_EXTs_Enabled(amGHOST_System::get_vulkan_os_surface_ext_name());
    amVK_Instance::CreateInstance();

    REY_LOG("");
    VkSurfaceKHR VK_S = amGHOST_VkSurfaceKHR::create_surface(W, amVK_Instance::vk_Instance);

    REY_LOG("");
    amVK_Instance::EnumeratePhysicalDevices();
    amVK_GPUProps *GPUProps = amVK_InstanceProps::GetARandom_GPU();
    GPUProps->GetPhysicalDeviceQueueFamilyProperties();
    GPUProps->EnumerateDeviceExtensionProperties();
    GPUProps->REY_CategorizeQueueFamilies();

    amVK_Device* D = new amVK_Device(GPUProps);
    D->addTo_1D_GPU_EXTs_Enabled("VK_KHR_swapchain");
    D->CreateDevice(1);
    D->GetDeviceQueues();

    REY_LOG("")
    amVK_Surface *S = new amVK_Surface(VK_S);
    S->GetPhysicalDeviceSurfaceInfo();
    S->GetPhysicalDeviceSurfaceCapabilitiesKHR();
}
```

```

// ----- SwapChain, RenderPass, FrameBuffers -----
    REY_LOG("")
    amVK_SwapChain *SC = new amVK_SwapChain(this->S, this->D);
    SC->konf_ImageSharingMode(VK_SHARING_MODE_EXCLUSIVE);
    SC->konf_Images(
        amVK_IF::RGBA_8bpc_UNORM,    // VK_FORMAT_R8G8B8A8_UNORM
        amVK_CS::sRGB,                // VK_COLOR_SPACE_SRGB_NONLINEAR_KHR
        amVK_IU::Color_Display        // VK_IMAGE_USAGE_COLOR_ATTACHMENT_BIT
    );
    SC->konf_Compositing(
        amVK_PM::FIFO,                // VK_PRESENT_MODE_FIFO_KHR
        amVK_CC::YES,                 // Clipping:- VK_TRUE
        amVK_TA::Opaque                // VK_COMPOSITE_ALPHA_OPAQUE_BIT_KHR
    );
    SC->sync_SurfCaps();               // refresh/fetch & set/sync ---> latest SurfCaps

    SC->CI.oldSwapchain = nullptr;
    SC->CreateSwapChain();

    amVK_SwapChainIMGs *SC_IMGs = new amVK_SwapChainIMGs(this->SC);
    SC_IMGs->GetSwapChainImagesKHR();
    SC_IMGs->CreateSwapChainImageViews();

    amVK_RenderPass *RP = new amVK_RenderPass(this->D);
    amVK_RPADes::ColorPresentation.format = SC->CI.imageFormat;

    RP->AttachmentInfos.push_back(amVK_RPADes::ColorPresentation);
    RP->SubpassInfos .push_back(amVK_RPSDes::ColorPresentation);
    RP->Dependencies .push_back(amVK_RPSDep::ColorPresentation);

    RP->sync_Attachments_Subpasses_Dependencies();
    RP->CreateRenderPass();

    amVK_RenderPassFBs *RP_FBs = PR->create_FrameBuffers_interface();
    RP_FBs->CreateFrameBuffers();
// ----- SwapChain, RenderPass, FrameBuffers -----

    amVK_CommandPoolMAN *CPMAN = PR->create_CommandPoolMAN_interface();
    CPMAN->init_CMDPool_Graphics();

    CPMAN->CreateCommandPool_Graphics(amVK_Sync::CommandPoolCreateFlags::RecordBuffer_MoreThanOnce);
    CPMAN->AllocateCommandBuffers1_Graphics(1);

    amVK_CommandBufferPrimary *CB = new amVK_CommandBufferPrimary(CPMAN->BUFFs1.Graphics[0]);
// ----- amVK -----
    REY_LOG("");
    REY_LOG("");

// ----- CleanUp & ExportJSON -----
    REY::cin.get(); // wait for terminal input
    amVK_InstancePropsEXT::Export_nilohmannJSON_EXT();
    destroy_everything_serially(); // Last Chapter, copy code from there
    W->m_amGHOST_VkSurface->destroy();
    amVK_Instance::DestroyInstance();
    W->destroy();
// ----- CleanUp & ExportJSON -----

    REY::cout << "\n";
}

```