

# Emulator Evolution

## Nintendo®

### mGBA (Gameboy Advance)

- Started as primarily an interpreter.
- Progressively added dynamic recompilation for performance improvements.
- Modern computers have sufficient power to directly run mGBA without major compatibility problems.



### DeSmuME (Nintendo DS)

- Began with a strong emphasis on accuracy, sometimes sacrificing speed initially.
- Increased use of dynamic recompilation over time.
- The complexity of emulating the two-screen architecture of the DS is a significant challenge.



### Citra (Nintendo 3DS)

- Much more recent than GBA or DS emulators.
- Benefits from advancements in computer hardware and emulation techniques.
- Employs dynamic recompilation extensively for better performance.
- Citra faces the challenge of emulating a more modern console with complex graphics capabilities.



### CEMU (Nintendo Wii U) & YUZU/Ryujinx (Nintendo Switch)

- Representing recent and highly demanding console emulation.
- Push the boundaries of processing power, requiring top-tier modern PCs for smooth performance.
- Utilize dynamic recompilation heavily
- Ongoing work in these emulators focuses on optimizing code translation and overcoming system-specific quirks.



# Emulator Specs

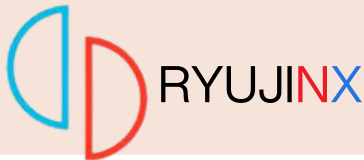
**Nintendo®**



- Windows: Windows XP SP2 or later
- Mac: OS X v10.5.8 Leopard or later
- Linux: Any recent Linux distribution with a 2.6 kernel
- CPU: 2.0 GHz Intel Core 2 Duo or equivalent
- RAM: 1 GB



- 64-bit operating system
- a processor with at least four cores
- a graphics card that supports OpenGL 3.3 or higher.
- at least 4 GB of RAM is recommended.



- At least 8GB RAM
- A video card/GPU that supports OpenGL 4.5 or higher, or Vulkan.
- Your Switch keys and either your dumped firmware or recent game cartridge untrimmed XCI
- Your dumped Nintendo Switch games or homebrew
- A 64-bit Operating System
- OS-specific dependencies installed



- Requires a 64-bit processor and operating system
- OS: Windows 10 64 Bit, Windows 8.1 64 Bit, Windows 8 64 Bit, Windows 7 64 Bit Service Pack 1
- Processor: Intel Core 2 Quad CPU Q6600 2.40GHz (4 CPUs) / AMD Phenom 9850 Quad-Core Processor (4 CPUs) @ 2.5GHz
- Memory: 4 GB RAM
- Graphics: NVIDIA 9800 GT 1GB / AMD HD 4870 1GB (DX 10, 10.1, 11)
- Storage: 10 GB available space
- Sound Card: 100% DirectX 11 compatible