

I'm not a bot



and more. Finally, you can adjust the menu items that are displayed on your interface, to clean it up a bit. Go to Settings > User Interface > Menu Item Visibility and toggle off the menus you don't want to see. In general, these are the menus I turn off by default: Show 'Explore' > OFF>Show 'Favorites' > OFF>Show 'Images' > OFF>Show 'Music' > OFF>Show 'Netplay' > OFF After you have made your adjustments, be sure to go to Main Menu > Configuration File > Save Current Configuration. RetroArch hotkeys (click to enlarge) Button mapping and hotkeys Button mapping is likely the next thing you want to do. This will align your controller's controls with the RetroArch universal button mapping. If you are using an x-input controller (like an Xbox controller) the buttons will likely be automatically mapped, and if you are using a handheld device that has a RetroArch backend already baked in, then you likely don't have to map the controls. But some bluetooth or wired controllers may behave unexpectedly, so let's adjust the button mapping. To configure your controls, open RetroArch and go to Settings > Input > Port 1 Controls > Set All Controls and follow the prompts. After you are done setting up the controls, you will want to decide which buttons you want to use for OK and Cancel buttons. If you don't like how they are configured by default, you can go into Settings > Input > Menu Controls and swap the buttons. HOTKEYS are simple button combinations that will allow you to make certain adjustments while in games and RetroArch. You will want to set these up next. Open RetroArch and then go to Settings > Input > Hotkeys. Here you will see a number of hotkey options. Here are a couple options that are fundamental to the hotkey experience: Confirm Quit: with this ON, you will have to press the Quit RetroArch hotkey twice to actually exit. This can be good to avoid accidental button presses, but can get annoying over time. I leave this one OFF.Menu Toggle Controller Combo: this option will pause your game and bring up the RetroArch Quick Menu. This can be a specific key combination that works independently of any other hotkey setup. For this one I choose Hold Start (2 Seconds). This means if I hold the START button for two seconds, the RetroArch Quick Menu will appear.Hotkey Enable: this will be your primary hotkey button. Every hotkey you choose in the options below it will need to be used in combination with your hotkey enable button. For this I usually choose the SELECT button. This means that SELECT + whatever other hotkey I choose will be my button combo to activate a hotkey shortcut. There are several hotkeys I recommend you set while you're in these settings. Here are some of my preferred hotkeys: Hotkey Enable: SELECT buttonFast-Forward (Toggle): R2 buttonRewind: L2 button *Load State: L1 buttonSave state: R1 buttonShow FPS (Toggle): Y buttonReset Game: B buttonClose Content (or Quit RetroArch): START button **Menu (Toggle): X buttonVolume Up: Left d-padVolume Down: Right d-padRun-Ahead (Toggle): Up d-pad * For the Rewind function to work, you will need to go into Settings > Frame Throttle > Rewind > ON. This is not something I would recommend turning on as a global configuration, because some systems (like Saturn or PS1) will be very slow with it on, and some (like PSP) may outright crash. Instead, I recommend setting the hotkey now, then for the systems you want to use rewind (like NES, for example), you can go into the Quick Menu by pressing SELECT + X and then go turn Rewind on and save it as a core override. More information is in the section below. ** Note that your SELECT + START hotkey should be set to either "Close Content" or "Quit RetroArch", but this will depend on your use case. If you plan on using RetroArch as your frontend, then you will want to Close Content to return to the RetroArch menu. If you are using a different frontend, like EmulationStation or LaunchBox, you will want to set it to Quit RetroArch so that when using this hotkey it will return you to the frontend instead. After you've made all of your configurations, go to the RetroArch Main Menu > Configuration File > Save Current Configuration. Optional features An option I like to set with my games is AUTO SAVE / AUTO LOAD. This will create a save state when you close down a game, and then load that save state when you launch the game again. It provides a pick-up-and-play feel to your retro gaming. To set this, use the following two commands: Settings > Saving > Auto Save State > ON Settings > Saving > Load State Automatically > ON The auto save/load feature works best when combine with the "Reset Game" hotkey above, so that way if your game loads at a part you don't want, you can press SELECT + B to reboot the game and start over. The REWIND feature in RetroArch is helpful when you want to re-do a mistake on the fly. And while we set it as the SELECT + L2 hotkey above, by default this feature should be turned OFF in RetroArch, and then enabled only for certain systems. That's because this feature has a somewhat high performance tax which can negatively affect performance on systems like PS1 and above. Instead, you will want to use a core override to save this setting. First, start up a game (like an NES game), and then press SELECT + X to bring up the Quick Menu, then navigate to the Rewind section within the Quick Menu. Now select Rewind Support > ON. Now you can go to Quick Menu > Overrides > Save Core Overrides, which will enable rewind support on all NES games running that emulator core. There is also a RUN AHEAD feature which will reduce latency on certain setups. For example, this may be beneficial when using the Android-based version of RetroArch and a bluetooth controller, to give a more natural feel to retro gaming. Like with the rewind feature, this has a performance tax and should only be used on systems that would benefit from it (like SNES and below). For this reason we'll use a core override again. First, start up a game (like an NES game), and then press SELECT + X to bring up the Quick Menu, then navigate to the Latency section within the Quick Menu. Now select Run-Ahead to Reduce Latency > ON. Now you can go to Quick Menu > Overrides > Save Core Overrides, which will enable run ahead support on all NES games running that emulator core. Note that this is one of many advanced features to improve latency; here is more information. Finally, on many versions of RetroArch (specifically those with touchscreen capability, like Android), they may have a TOUCHSCREEN BUTTON OVERLAY on your screen when starting up a game. If you have a controller you likely do not want to see this overlay. To turn it off, go to Settings > On-Screen Display > On-Screen Overlay > Display Overlay > Hide Overlay When Controller is Connected > ON. Create playlists You can set up playlists within RetroArch to browse and launch your games directly in the program. This will be helpful if you just want to remain within RetroArch to launch your games. There are two methods for creating playlists in RetroArch: SCAN DIRECTORY. This is the most straightforward way to make playlists, and is best for systems with unzipped ROMs that have distinct file types (like .nes games). With this option, you will navigate to the folder that contains your ROM files, then select "Scan this Directory". RetroArch will then recognize and scan the directory for games, and assign the console and assets to that system. You should then see it in your playlist. When you have a more common file type for your games (like .bin files for Genesis games, it's better to do a Manual Scan). MANUAL SCAN. This is the preferred way to scan your directories because it gives you more control. Here is the breakdown: Content Directory: navigate to your ROM folder and select "Scan this Directory"System Name: select the system name you want to associate with your playlistCustom System Name: use this if you want to use a special name for this playlist. Note that you will also need to set your "System Name" to "Custom" for this to workDefault Core: select the core you want to associate with this play list. Afterwards you can assign a different core to specific games by selecting the game and choose "Set Core Association"File Extensions: add in all of the file extensions you want to scan for your console. You can leave this blank if they are all the same (e.g. zip files for arcade games), but for the most part it's helpful to add these in, especially if you are using several file types. Separate each file extension with a space (no comma), like this for Dremcast: cdi, gdi, chdScan Recursively: turn this on if you want to scan subfolders tooScan Inside Archives: this will scan the files within the zip file, whether you want this on will depend on the system you are scanning. You will want this off if scanning arcade gamesArcade DAT File: this is important if you are scanning arcade games, because it will associate your zip file ("simps2pj") with a full file name (The Simpsons). To set this up, head to this page and download the latest MAME dat/xml file. Then save this file somewhere that you can access on your device, and choose it when in this part of the menuArcade DAT Filter: with this selected, only arcade games that appear in the DAT file will show up in your playlist. Generally you will want this setting OFFOverwrite Existing Playlist: this will overwrite anything already in the playlist. You generally want this OFF if you are just adding new games to your playlist. If you want thumbnails to appear next to your games, you need two things: 1) the files must be named according to the "No Intro standard" (e.g. "Super Mario Bros. 2 (USA)") and 2) go into Online Updater > On-Demand Thumbnail Downloads > ON so that they will download when you browse through your playlist. Alternatively, you can manually scan each playlist for thumbnails in the Online Updater section instead. Finally, you can go into Settings > Playlists and adjust how your playlists behave. There is also a Manage Playlists section within here that will allow you to adjust things like the default core, how the thumbnails appear, or just delete the playlist altogether. Scaling and video options One of the biggest advantages of using RetroArch is that you can use universal and streamlined video options. So let's take some time to go over the basics here. ASPECT RATIO Let's first define aspect ratio. A square screen aspect ratio would be defined as 1:1 (or 1.0), and very few game systems ran at this aspect ratio (Watara Supervision). At the other end of the spectrum, a standard widescreen TV aspect ratio would be 16:9, or 1.76. Most classic home consoles had an aspect ratio of 4:3 to match CRT TVs. Handheld systems had varying aspect ratios, due to having a variety of screens. Arcade system aspect ratios are also all over the place, because each cabinet was different. Some other notes: Aspect ratios for some systems are not set in stone. Atari 2600 games didn't technically have pixels, so they are at a different standard. Similarly, more modern consoles like the PS2 had widescreen options and variable resolutions. The NES had a resolution of 256×240, but only showed 256×224 on NSTC screens (which were limited to 224 vertical pixels); the 256×240 resolution can still be displayed on emulators. So while the NTSC TV showed an aspect ratio of 4:3 (1.33), most emulators show NES at 16:15 (1.07), and likely look best at a 4:3 anyway. Some games actually had different native resolutions on the same system. Most NTSC SNES games had a native resolution of 256×224 pixels, while Star Fox had 224×190, and Yoshi's Island had 256×208. So for the chart below I stuck with the general NTSC aspect ratios. PAL TVs output a 240-pixel height, so PAL ROMs may have different resolutions than shown below. PAL ROMs on Nintendo GameCube have a resolution of 768×576. Some systems introduced scaling for certain games. For example, the PS1 mostly played games at a resolution of 320×240, but some scenes could scale up to 640×480. N64 games could scale from 320×240 up to 640×480 as well. Common aspect ratios for handheld and home console systems (click to enlarge) So why is aspect ratio important? Because if you plan on playing RetroArch on a modern TV or monitor (which likely has a 16:9 aspect ratio), emulated systems at their native aspect ratio will have black bars on the left and right sides. If you want to preserve the native aspect ratio then it's all good, but if you want to stretch out the display to take up more space on your TV, then you will need to adjust scaling options. You can adjust the aspect ratio by going into Settings > Video > Scaling > Aspect Ratio and adjusting your global configuration. I would recommend "Core Provided" since that will allow each emulator core to decide the appropriate aspect ratio. If you want to stretch the aspect ratio to fit your screen no matter what, you would want to set your screen's ratio (like 16:9). Just beware that the emulation police will likely come for you if you don't use the proper aspect ratio. After you have made your adjustment, go to Main Menu > Configuration File > Save Current Configuration. You could also use the Overrides function to make core-specific or game-specific configurations. INTEGER SCALING Because many handheld systems had a much lower pixel density than the resolution of your TV, monitor, or phone, some of these systems will benefit from integer scaling. Integer scaling is defined as scaling by a factor of a whole number (2x, 3x, etc), as opposed to non-integer scaling (1.5x, etc). When turned on, RetroArch will scale up to the greatest integer scale below your device's resolution. So for Nintendo 64 games, which have a native resolution of 640×480, it will scale up to 2x, or 1240×960, with black borders on all sides. This will keep a 1:1 pixel ratio and everything will look nice and crisp, so long as you don't mind the black bars around the image. If you don't turn on integer scaling, the image will scale to match your device's display (while preserving aspect ratio) to fill out as much of the screen as possible, but this may result in pixel distortion which can make some pixels look distorted on your display. You may not notice the difference, which is totally fine. You can also use shaders or filters to re-balance the image, as you'll see in the section below. To turn on integer scaling, go to Settings > Video > Scaling > Integer Scaling and make your adjustment. Like with everything else, you will need to save your configuration file, and you could also use overrides to make per-core or per-game settings, too. Shaders and filters You can add Shaders to your game image to recreate classic looks (like scanlines to mimic CRT displays) or LCD grids, and more. They are stackable and adjustable, giving you a lot of freedom in their implementation. For more information, check out my full guide on shaders, filters, overlays, and more. The guide mostly focuses on handheld screens, but applies to RetroArch as a whole. Core options The last settings worth messing with are core options. You can find these by starting up a game, entering the Quick Menu > Options section, and seeing what core options are available. For example, on higher-end systems like N64 or PSP, within the core options you can find the ability to upscale the resolution from 480p to 720p or 1080p, or higher. Each core options section will be unique to that core, so go in there and see what options you have. If you have any questions about any of these settings, I recommend consulting the LibRetro Docs page and browsing their Core Library to see what options are available and what they do. SGB 1A SGB 2A SGB 3A Sample SGB (Super Game Boy) colorization: 1A, 2A, and 3A An easy example of core options would be to adjust colorization options for Game Boy within the Gambatte core, demonstrated above. Open a Game Boy game in RetroArch Bring up the RetroArch Quick Menu, then go to Options > GB Colorization > Internal. Next, go to Internal Palette > Special 1. This will produce a night light green colorization. For colorization that is more in line with the original DMG display, set it to Options > GB Colorization > DMG. Experiment to find what you like best! Above you can see three Super Game Boy colorization options. To set it as default for that game or for all Game Boy games no further configuration is necessary. Core options will automatically save when you close the game out. To save it for a specific game, go to Options > Manage Core Options > Save Game Options. Another core options adjustment you could make in Gambatte is LCD ghosting, which will recreate the original blur effect on the Game Boy. Go to Quick Menu > Options > Interframe Blending. There you will see two LCD ghosting effects: LCD Ghosting (Accurate) LCD Ghosting (Fast) To set it as default, go to Overrides > Save Content Directory Overrides. Image courtesy of Libretro Finally, in addition to ghosting and GB colorization, the Gambatte RetroArch core also provides an accurate color correction for Game Boy Color games, as you can see above. This setting is found in Quick Menu > Options > Color Correction Mode > Accurate. You can also adjust the "frontlight position" options within Color Correction Mode to tone down any harsh contrast in your current configuration. Retro Achievements website RetroAchievements One neat feature that is available within RetroArch is a service called RetroAchievements. These function as you would expect — as you complete a milestone in a retro game, you will get an achievement pop-up celebrating that accomplishment. Moreover, you can track your achievements from within RetroArch or on the RetroAchievements website. And if you want to go all the way down the rabbit hole, you could compete with friends or join the community to participate in discussions or contribute to creating or refining achievements in the future. Note the you must be connected to the internet for RetroAchievements to work. To get started, go to RetroAchievements.org and register for a free account. Then in RetroArch, go to Settings > Achievements > ON and enter your username and password. Finally, to save this setting, go to Main Menu > Configuration File > Save Current Configuration. The same account can be used on multiple versions of RetroArch spread across various platforms. If you'd like to add me as a friend or track my (abysmal) progress on retro games, here is my profile. Cheats RetroArch has an embedded universal cheat system, which can be used in a pinch or for the duration of your game. To set these up, you must first go into Main Menu > Online Updater > Update Cheats. This will download the cht database and install everything automatically. If you do not have internet access on your device, or if you use an operating system that doesn't enable the cheats downloader function, you can still load cheats offline. This only needs to be done one time. First, go to this GitHub page and click on the green "Code" button, and select Download Zip. Download that file, and unzip it. Inside you'll find a folder named "cht", and within that, a bunch of game system folders. Grab the game system folders for the systems that you want to enable cheats for, and place those folders somewhere handy, like in a "Cheats" folder within the GAMES folder where your ROMs reside. Open up RetroArch then navigate to Settings > Directory > Cheat File, and then navigate to the Cheats folder, then select. To save this setting, go to Main Menu > Configuration File > Save Current Configuration. Now, whenever you try and load cheats, it will default to your Cheats folder to find your cheat files. Once you have the cheat files installed, it's easy to activate them. Start up a game, then go to Quick Menu > Cheats > Load Cheat File Updating RetroArch The process of updating RetroArch is unique for each system. For example, on Windows, you can update the program by simply overwriting the .exe file with a newer version. For more information, I recommend going to the installation page of your respective RetroArch version and see what the team says to do. I wouldn't sweat too much about keeping the absolute latest version of RetroArch on your device; it's often enough to use a stable build and update your cores via the Online Update tool instead. Another way to update RetroArch is to do a manual reinstallation while preserving your most critical files. To do so, you would want to go into the Settings > Directory section and point some important folders to somewhere besides the default RetroArch folder. Here is the process: Further reading This guide, while quite long, only scrapes the surface of what is available in RetroArch. I've made a couple dedicated guides for other functions, such as multi-disk gameplay, or NetPlay. You can find those guides below, and let me know in the comments if there is something else you'd like me to tackle in the future. Multi-Disk Gameplay GuideNetPlay Guide Changelog 11MAR2025- updated guide to reflect updates over the years and new video guide 28FEB2022- published guide