N64 Setup Guide for SM64

There is always a bit of confusion surrounding exactly what to buy when getting SM64 set up on N64 for the first time, so hopefully this guide can serve as a resource to point people to instead of having to explain the same things over and over. If you are really new and not sure if you're going to take the game seriously enough to commit and buy all this stuff yet, check out this emulator setup guide for a cheap way to try out the game. If you see any mistakes in this guide, or have any suggestions on things that could be added, you can find me in the SM64 discord; my tag is toastrider91.

Which SM64 cart should I buy?

~$12 - This first one is the standard JP 1.0 cart. It is the cheapest cart, and is a few seconds faster than US in 120 star, but a second or so slower than US in 70 star. However, unless you're at a high level, these minor time saves due to region differences won't make a difference for you.

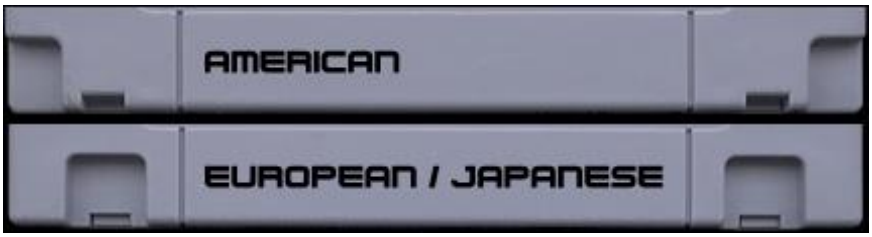
~$25 - This is the US 1.1 cart. This is the most expensive version of SM64, but is fine for all RTA categories. Both the JP 1.0 and US 1.1 carts support all gameshark practice codes.

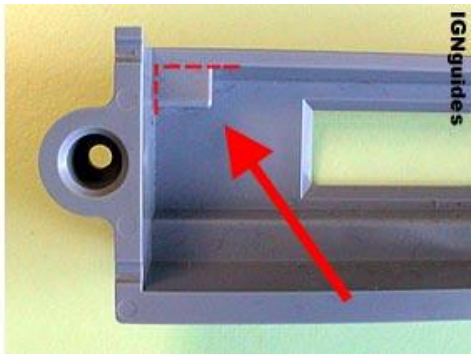
Warning: do NOT buy this version! It looks almost the same as the US version above, but if the ESRB rating is removed on the picture, then it is the European/PAL region cart, and will not work on NTSC consoles. If the ESRB rating is still there, but changed to K-A however, that is still fine. It is only if the ESRB rating is removed that you want to avoid it.

~$10 - This next cart is JP 1.3, also known as Shindou edition. This version patched all bljs, has a weird tree grab animation, and each loading zone is around 1 second slower, making it useless for all forms of full game runs or stage rta. However, it has less lag, so this version is useful for certain single stars that do not require you to grab a tree or pole, have loading zones or bljs, or normally have a lot of lag, e.g. ttm reds, most stars in bbh, etc.

Does the region of my N64 matter?

Make sure to avoid buying any Europe/PAL region N64s. As long as the region is NTSC, aka from either the US or Japan(~$25), either of those can play all 3 versions of SM64 interchangeably. However, if you want to play JP SM64 on a US console, or vice versa, then you will need to region mod your N64. This sounds a little scary but is actually quite simple. The only way that N64 games are region locked are through a little plastic tab on the bottom of the cart and inside the cartridge holder inside the N64:





If you have a US region N64, a US region game that you don't care about, and only want to play JP SM64, you could swap the backs of the cart. You will need a 3.8mm gamebit to do this. Everdrives and gamesharks are region free, so you do not need to worry about those. Otherwise, you will want to follow either one of these two guides to cut out the tabs from inside your N64 so that it can play games from any region.

Which controller should I buy?

The controller on the left is an original N64 controller, and the one on the right is the hori mini pad(~$80). These are the only two controllers that should be used for SM64 speedrunning, as every other 3rd party controller will have very bad angles/deadzone. The hori suffers from the angles and deadzone issue a little bit, but it isn't nearly as bad as any other 3rd party controller, and isn't enough to hinder your gameplay where it matters for SM64. So in the end, it is just preference which one of these controllers you use, especially if you are not doing single star where more precision would be beneficial. Most people who play on an N64 controller will switch to a hori for bowser throws to preserve their N64 stick, because the hori stick does not wear out and get loose like an N64 stick would. In any case, if you play on an N64 controller and do not have a hori, you should try to switch to a different controller, for example just a worse N64 controller for bowser throws. If you already own a gamecube controller, another option for bowser throws is to buy a raphnet gc to N64 controller adapter and switch to that for throws, as horis are a little pricey. You could also use a gamecube controller as your main controller, but it's not recommended as using the c-stick to control the camera is imprecise,

the triggers are a bit too clunky for SM64, and the placement of the A and B buttons makes it awkward to roll your thumb across them like you need to do for every rollout. That being said, a GC controller is far superior to any 3rd party controller, and although worse than an N64 controller or hori, is not by any means unplayable. However, I still recommend trying to get used to an N64 controller or at least a hori because it will be better in the long run.

It is hard to tell just by looking at ebay pictures whether or not the stick on an N64 controller is any good, but if the stick looks like it is leaning, or if the stick has dust in it, then it is probably a bit more worn out. It will always be a bit of a lottery buying stuff on ebay, but you can improve your chances a little bit by looking closely at the pictures. Also make sure that it is first party and says Nintendo on the front of the controller. If you buy a hori on ebay, usually they will be fine because the sticks don't die the same way that N64 sticks do, just don't buy one that looks obviously fucked up in the picture lol. You could also try buying a controller from someone in this Facebook group to improve your chances of getting a good one.

Does it matter what kind of TV I use for SM64?

The type of TV you use is important, because different types of TVs will have different amounts of input delay, aka the difference between the time when you press a button, and the time it takes for that input to be displayed on the screen. (Check the last page of this guide for an explanation of why it is important to play with minimal input delay.) LCDs/HDTVs will all have some amount of input delay for retro consoles with non-HD inputs. This is mostly because the native resolution of the TV is much higher than the resolution that is outputted by the console, and the HDTV needs to upscale the N64's output signal to match the resolution of your TV, which takes time and causes delay.

So, the TV that you want for your N64 is a CRT, which has extremely fast response times. There are some CRTs that could have some post-processing that adds input delay, generally late-era "HD" CRTs, manufactured after 2000. Check out this smashboards post for some examples of laggy CRTs. Generally though, almost any CRT you can find should be fine in terms of input lag. If you live in the US, some good places to find CRTs include: ebay local pickup(because shipping a crt will cost a lot), craigslist, facebook marketplace, and your local goodwill. If you live in Europe, they are a bit harder to find, because you need to make sure that you buy a 60hz CRT, or else it will be in black and white. I'm not too sure how to best find a CRT in Europe, possibly some of the above options can work, but you might need to just buy a CRT off ebay and pay for shipping. If you are having a hard time finding a CRT, you can also try joining the SSBM Facebook group for your local area, and asking in there if anyone might be selling a CRT, or knows where to get one locally.

The CRT shown in the picture above is a Sony PVM/BVM. If you are serious about having good picture quality for your N64(or other retro systems), I highly recommend looking into getting one of these, although they are kind of expensive if you want a decently sized one. You can find them by checking ebay periodically for a good deal, or looking into one of the options listed in this thread to potentially get one for cheap. If you are a super quality nut, check out this RGB setup guide. However, the quality of your monitor will make by far the most difference in terms of quality, so start with that.

How do I get practice codes for SM64?

Practice codes are gameshark codes that allow you to use things like an in-game timer to time how fast it takes you to get a star, or savestates that allow you to reload the level from a certain point like you can on emulator. They are just ways to make practice much more efficient, because you don't need to exit the level and re-enter if you want to restart a star, and also more fun because you can easily try to beat your best times on each star while practicing them. Every useful code for SM64 can be found here: https://sites.google.com/site/SM64gameshark/

There are 2 ways to get these codes on your N64, with either a gameshark, or an everdrive.

But first things first, with either of the above options, in order to support more than 13 lines of total gameshark codes, you will need to buy an expansion pak(~$15-20). The picture on the left is a jumper pak, which comes with every N64. The expansion pak replaces the jumper pak, and has a red top as seen in the pictures below. You can remove the jumper pak with a spoon or something like that.

Now onto gamesharks. This first cartridge is a gameshark version 2. You do NOT want to buy this version, as it cannot support more than 13 lines of code regardless of whether or not you have an exp pak. Make sure that the gameshark you are buying on ebay says "GameShark Pro" on the picture (as shown in the picture below), as the titles can be mislabeled. A gameshark version 1 is pretty much the same as version 2 and you don't want that one either.

If you go the gameshark route, this is the one you want to buy(~$20). They range from versions 3.0 to 3.3, and any of these will work, but if you want to use the parallel port on the back to transfer codes from your computer, you will want version 3.2. As far as I know it is the only version to have a consistently working parallel port. You can find the cable and instructions on how to transfer them here, and my codelist here(for jp, us and shindou). Here is a comprehensive Gameshark guide.

If you do not have the transfer cable, it will take around 45 minutes to input all the codes you need, but it is only a one time thing and very worth your time. After that you never have to input codes again at least until your gameshark breaks, which leads us into the next section...

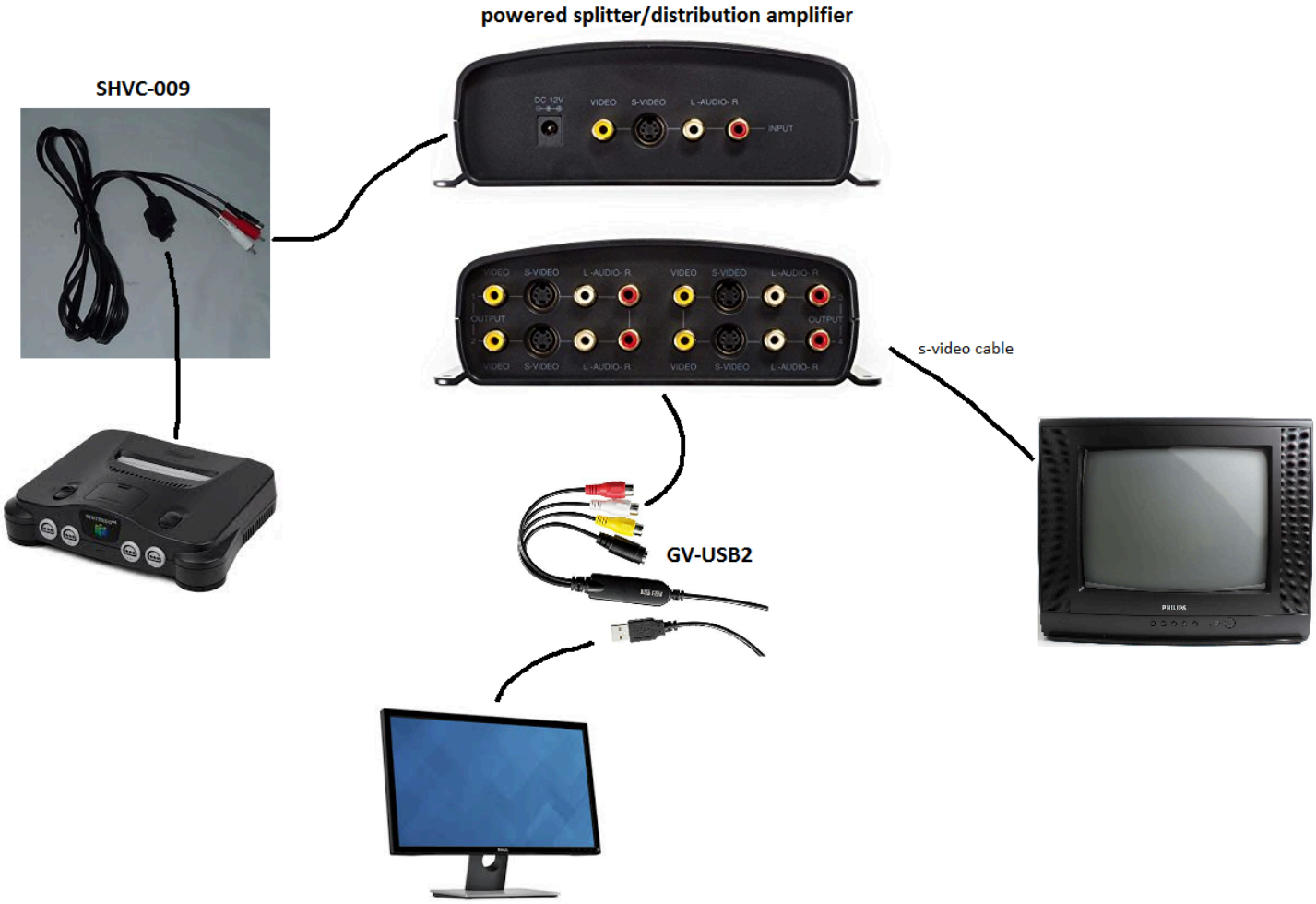
Everdrives! This is an N64 flashcart that allows you to run ROMs and gameshark codes from an SD card. It is quite a bit more expensive than a gameshark, but while gamesharks are known to just stop working randomly, an everdrive will pretty much never break unless you sit on it or something. In addition to being able to add gameshark codes, an everdrive can run practice roms with the codes built in. You can buy an everdrive here(there is a yearly black friday sale with a 20% discount on all products). A full practice rom with togglable codes can be found here.

How do I record/stream my gameplay?

There are a few components required for a full N64 capture setup. The first thing you will need is of course a capture card. The best capture device for standard definition(s-video/composite) video is the GV-USB2, and it is not very expensive. A guide on how to set up your GV-USB2 drivers along with AmaRecTV for recording can be found here. I don't have any recommendations on capture cards other than this one, because there is no reason to buy a more expensive one unless you are going the rgb mod route, which is significantly more expensive. You could buy a cheaper capture card but they are not going to look very good, and are not all that much cheaper in any case.

The second thing you will need is a way to split the signal - in order to send the signal from your N64 to both your CRT and capture card. If your CRT has "line out" ports or something similar, you can just plug your N64 into your CRT, and run a regular composite cable from the line out ports directly into your capture card. Otherwise, you will need some kind of splitters. If you are using the standard N64 composite cables, you can use unpowered splitters, as pictured to the left. Make sure you buy 2 female to 1 male style splitters, and you will need 3 of them. The product I linked comes with 4, but it's still cheaper than any other item I could find. If you would like to use s-video cables, or to listen to your game sound through your pc using the line-in port on your pc(more on this later), I recommend buying this powered splitter to avoid signal loss. Note: There are higher quality unpowered splitters on Amazon, but it's not worth spending more money on them because at that point you should just upgrade to the powered splitter.

If you want to play on s-video, make sure you avoid buying any N64 s-video cables that also have a composite input, as those tend to have checkerboarding effects. While the 1st party Nintendo s-video cable would of course be the best one to buy, that one is a bit expensive. I bought this one a long time ago, and it seems to be perfectly fine. In any case, you will need 2 of each cable for each signal (unless your CRT has a line-out port, in which case you will only need one). This is because you will need to plug your N64 into the splitters, and then one cable will go from your splitters to your CRT, and the other will go into your capture card. If you are using composite video, you just need 2 of these cables. (If you are using the unpowered splitter then you only need one.) If you are using s-video, you will need 2 s-video cables, and 2 audio cables. Also keep in mind that if your CRT does not have s-video input ports, and you want to get s-video quality for your recordings, then you can still convert an s-video signal from your N64 to composite to your CRT through your splitter with no lag. For audio with s-video, if you already have the standard 3 input RCA cables, those are fine as well, just leave the yellow video cable unplugged. On the next page is a picture of roughly how all these parts connect to each other.



As I mentioned earlier, if you have a "line-in" port on your computer, you can use an RCA to 3.5mm adapter cable to listen to game sounds through your headphones with nearly 0 delay. If you do not have a line-in port, or you want truly 0 delay on your game sounds, you can use this headphone splitter. Just plug it into your headphone port, plug your headphones into one port on the splitter, and the adapter cable linked above into another port. Keep in mind that it requires you to have headphones that plug into the 3.5mm jack rather than into a usb port. Here is a rough picture of how the pieces go together (with composite video and no powered splitter). If you bought the powered splitter linked in the last page, you don't need to buy or do anything else, just plug the cables in.

For information on how to set up AmarecTV and OBS for recording and streaming, scroll to the last half of this streaming setup guide.

Controller switcher/Input display

A controller switcher is useful for this game because in order to avoid destroying your N64 controller sticks, you will need to switch to a different controller(preferably a hori) for bowser throws. You could just unplug and replug both of the controllers, but that is a bit of a hassle and can risk crashing the game if you bump the N64 too much. You could also buy an N64 controller extension cord and plug your controllers into that for a cheaper option to avoid crashing the game. An input display allows you to capture your controller inputs through an arduino, letting you display your inputs on your stream using a virtual N64 controller. It is usually bundled with the controller switcher. You can purchase these from @SovloDoto.

Thanks for reading!

Hopefully this guide was helpful. If you have any additional questions about anything related to SM64, either technical or gameplay related, feel free to join the SM64 discord, and I and others will be happy to help out. Actually, just join the discord anyways to hang out and hopefully make some friends! I wish you the best of luck on all of your SM64 speedrunning endeavors!

Footnote about input delay:

It is important to minimize input delay because many inputs in SM64 are very precise timing-wise, and the quicker the game responds to your input, the easier it will be to perform those inputs accurately. It is possible to get used to input delay to some extent, but I believe that you will always be able to play better with no input delay than you would with delay, if you were equally used to both of them. For example, imagine if you had a full second of delay between your input and when the input was registered on your monitor. It would be almost impossible to even do simple wallkicks because of the incredible amount of anticipation you would have to make for every input. It would be hard to get used to this, and even if you thought you were used to it, I think it's obvious that it would be impossible to play as well on this setup as you would be able to with no input delay. I believe that this concept still holds true, but to a lesser extent for monitors with slight input delay.