

Add games/BIOS files to Batocera

Batocera is shipped with a selection of free ROMs - games that are freely available and that can be legally distributed. You can also install additional free games from the [Content Downloader](#). All artwork is pre-scraped for use with themes, including video previews. These can be used to test that everything is working correctly. If you'd like to add your own ROMs and BIOS files, read on.

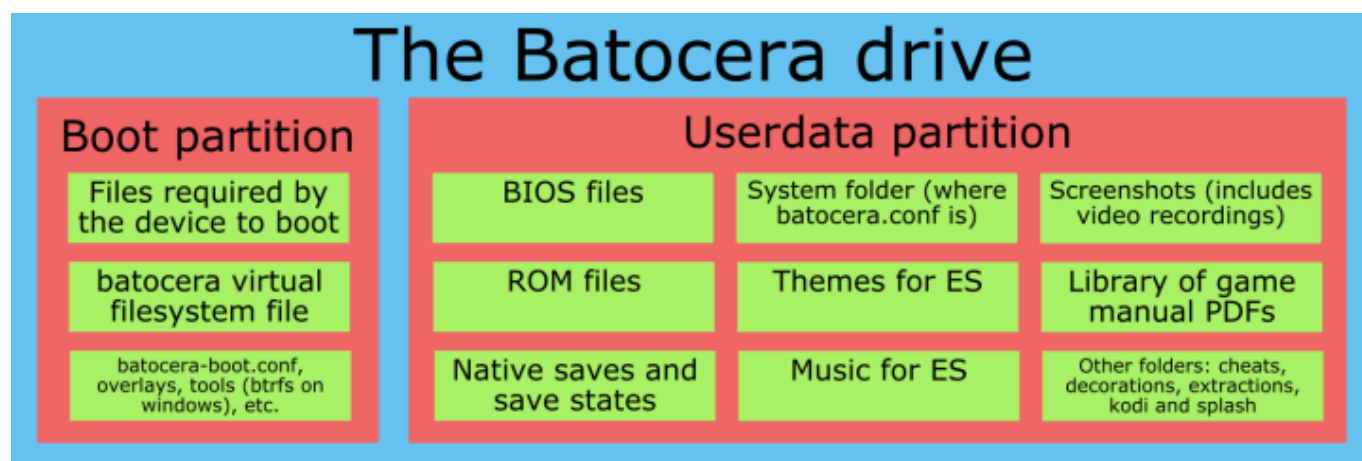
Userdata filesystem options

It's helpful to become familiar with how Batocera has its partitions laid out first to better understand what you're accessing and where they are located.

Batocera uses two main partitions: the **boot** partition and the **userdata** partition.

The **boot** partition is what appears as the FAT32 partition when you plug the drive into another system (this will be the only visible partition to Windows by default). This is where Batocera contains all the files necessary to boot Batocera on your device. While Batocera is running, it is mounted to the `/boot/` folder, but its original location is simply `/` on the FAT32 partition. It is not usually necessary to edit this partition (except for editing a few settings in the `batocera-boot.conf` file if required).

The **userdata** partition contains “the rest”, all the ROMs, BIOS files, saves, configuration (including `batocera.conf`), etc. This is referred to as either userdata or share interchangeably (in reference to it being the default path the network share points to), they both mean one and the same thing. This is designed to be portable between all versions of Batocera, even Batocera builds running on different platforms (granted, weaker platforms like [SBCs](#) won't magically gain the ability to play ROMs for emulators they don't have). Refer to the attached image below:



Using an alternative filesystem for userdata

You are free to use a variety of filesystems for the userdata partition. The best filesystem to use depends on your situation and what capabilities you need/restrictions you can deal with. The boot partition should not be reformatted to a different filesystem (your particular platform may depend on it).

Here are the options available for the **userdata** partition:

- **ext4** is the default userdata partition filesystem. If you own other Linux systems, you're probably already comfortable with it. No major restrictions, except this normally cannot be read directly by Windows without special system drivers. You can always use a Linux-based distro to access these kinds of filesystems directly. [It is still possible to add files to this partition from a Windows machine/drive.](#)
- **BTRFS** is a newer option. If you have Windows machines, Batocera comes with the `btrfs_for_windows` driver on the boot partition to allow Windows machines to read a BTRFS userdata partition. No restriction when using BTRFS, except you can't read it natively with MacOS.
- **NTFS** is an OK option - Windows, MacOS and most Linux distributions can read NTFS just fine. Sophisticated systems that utilize WINE (such as Windows, Steam, Cemu for Wii U, Future Pinball, etc.) may have issues when using this due to certain file attributes not being properly stored. Has no real file size restrictions (that you'd feasibly run into).
- **FAT32** and **extFAT** are *outdated filesystems*. Yes, they are well supported under most OS's (you bet, those filesystems are over forty years old!) but they have restrictions in terms of maximum file size (FAT32 cannot store files larger than 4GB, which most 6th gen and above console ROMs exceed) and the ability to support the exec bit required to run certain Linux applications. It will also limit the use of certain emulators and systems that rely on features like symbolic links or special character filename handling, neither of which are possible with FAT32 or exFAT. Amiga or Wine/Windows are popular systems that won't work well with these filesystems.

You can reformat an external drive to **ext4**, **BTRFS** or **exFAT** using Batocera's built-in formatting tools. Go to **SYSTEM SETTINGS** → **DEVELOPER** → **FORMAT A DISK**. Of course, when you format a partition, you lose everything that was on it. So, backup your userdata (ROMs, saves, etc.) before doing this!

If you're handy with formatting partitions, you can always format the partitions yourself and manually install Batocera.

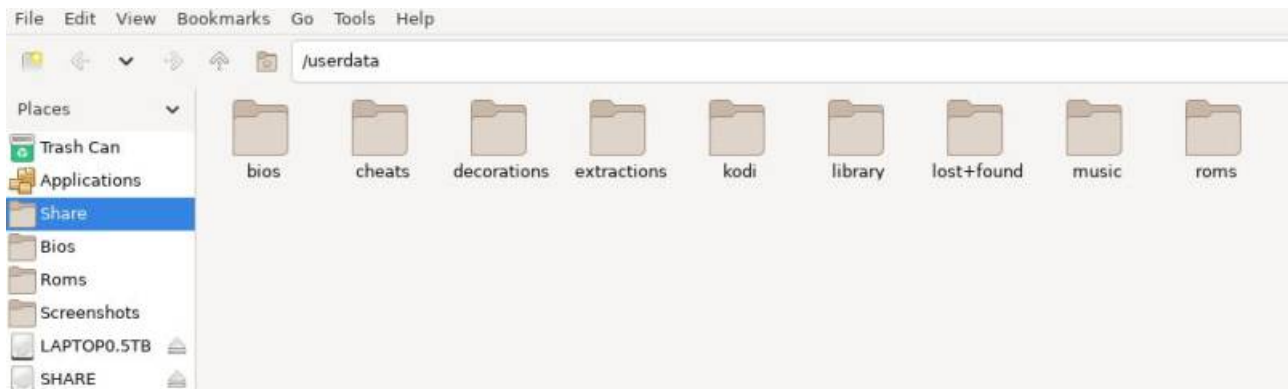
Adding files to Batocera

If you'd like to add your own ROMs and BIOS files, you must first gain a way to access the Batocera. For this, there are multiple ways:

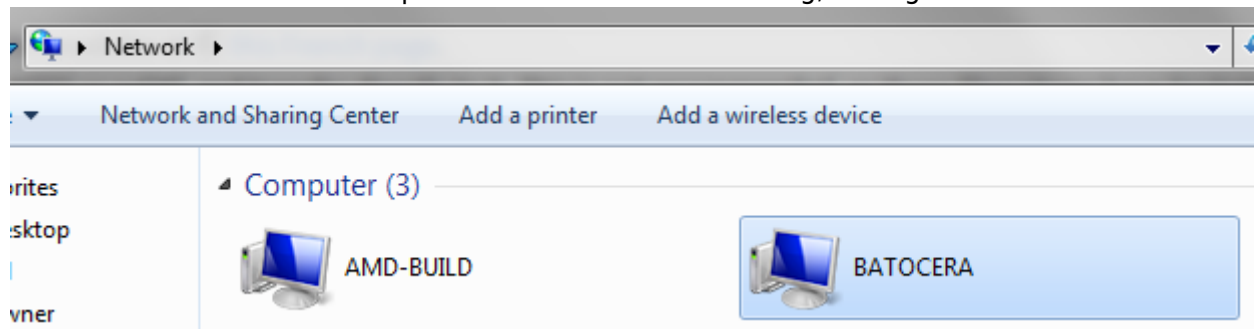
While Batocera is running

This requires Batocera to be up and running first.

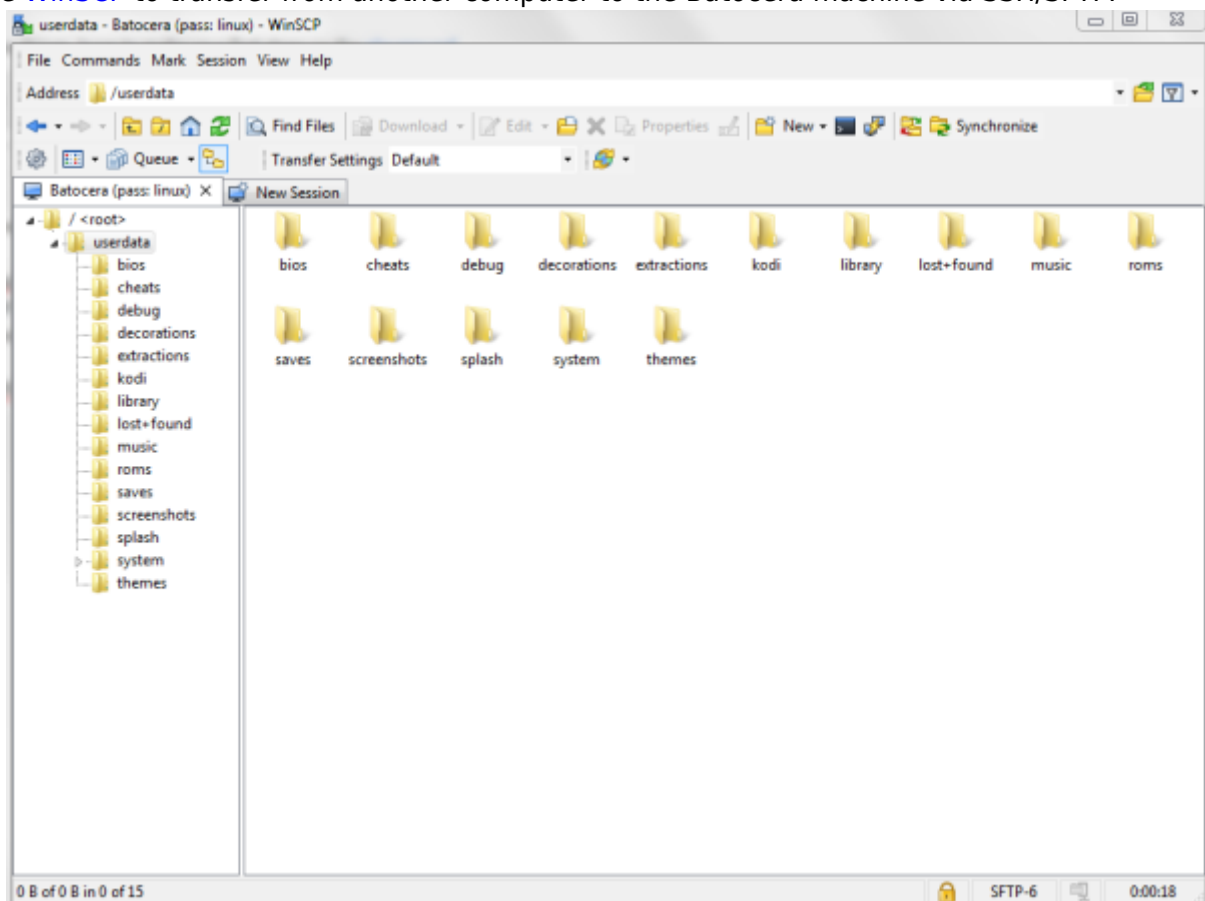
- On x86 and x86_64 platforms, open the [built-in file manager](#) ([F1] on the system list) and transfer the data using the Batocera machine itself. eg. put all your ROMs onto a USB drive, plug it into the Batocera machine while it's running and copy them over. Unfortunately, this is not available for other platforms (yet), but you can still use the [SSH commands](#) if you're familiar with that.



- Add them from a different computer while Batocera is running, through [the network share](#).



- Use [WinSCP](#) to transfer from another computer to the Batocera machine via SSH/SFTP.



Copying directly from another machine

This is by plugging the Batocera drive into another machine, and copying your files from there directly onto the userdata partition.

- Directly copy the ROM/BIOS files onto the **userdata** partition on a computer that can natively

write to ext4 filesystems (any OS that supports the ext4 filesystem should work; Windows does not support this natively, read below).

- If you are using Windows an ext4 system driver can be installed from one of the modules at [this French page](#).
- Format your **userdata** partition to an older filesystem compatible with more OS's, such as NTFS or exFAT, and copy the files directly to it. This is not recommended, as those filesystems have limitations, [read above](#).
- In Batocera **5.26** and higher, format your **userdata** partition to BTRFS and transfer directly to it.
 - On Windows, you can install the btrfs_for_windows driver from the tools/ folder on the Batocera drive. Check its readme on how to install it.

Using an external storage

Alternatively, you can skip having to access Batocera's drive all together by instead commanding Batocera to use an external storage.

- [Use an external drive for storage](#). The same [limitations about filesystems](#) still apply, but this is easier to reformat to another file system with.
- [Use a Network Access Storage \(NAS\)](#). The same limitations about filesystems still apply, but this is easier to reformat to another file system with.

Adding BIOS files

BIOS files are files required for some emulators to operate correctly. For example, some of the PlayStation and the NeoGeo games require a BIOS file to work.



All of these go into the /userdata/bios/ folder.

BIOS files are copyrighted and are therefore not included with Batocera. We can not legally distribute them, so you will need to supply your own.

What about arcade games? For arcade emulators, it's a little more complicated: many arcade boards were designed for one specific game, or just a few games. And most cases, you don't need BIOS files,

but [you might still need some specific additional files as described on this page](#). For other arcade systems, like Atomiswave or Naomi, they need a proper BIOS file, as listed below.

List of BIOS files that are suitable

You can use the md5sum command to get the checksum of your files. But the easiest way is to check **MISSING BIOS** from the **SYSTEM SETTINGS** menu, it will show you the required path and md5sum of every BIOS file needed for each system. This is always up to date with your current version.

You can find a text document of the BIOS files required by your system [when connected via SSH](#) at `/usr/share/batocera/datainit/bios/readme.txt`. Use more `/usr/share/batocera/datainit/bios/readme.txt` to quickly scroll through it ([Space] to scroll, [Q] to quit).

You can ask Batocera to check your still missing BIOS files with `batocera-systems` (takes a while to process, give it a minute or two).

You can find the current list of required and soon-to-be-implemented BIOS files directly on the [Github repository](#).

Here a the compatible md5 and filenames per system, last updated Batocera **v32**:

Click to expand the list.

3D0:

```
f47264dd47fe30f73ab3c010015c155b bios/panafz1.bin
51f2f43ae2f3508a14d9f56597e2d3ce bios/panafz10.bin
8639fd5e549bd6238cfee79e3e749114 bios/goldstar.bin
```

Amiga:

```
85ad74194e87c08904327de1a9443b7a bios/kick33180.A500
82a21c1890cae844b3df741f2762d48d bios/kick34005.A500
dc10d7bdd1b6f450773dfb558477c230 bios/kick37175.A500
89da1838a24460e4b93f4f0c5d92d48d bios/kick34005.CDTV
e40a5dfb3d017ba8779faba30cbd1c8e bios/kick40063.A600
b7cc148386aa631136f510cd29e42fc3 bios/kick39106.A1200
646773759326fbac3b2311fd8c8793ee bios/kick40068.A1200
9bdedde6a4f33555b4a270c8ca53297d bios/kick40068.A4000
5f8924d013dd57a89cf349f4cdedc6b1 bios/kick40060.CD32
bb72565701b1b6faece07d68ea5da639 bios/kick40060.CD32.ext
82a21c1890cae844b3df741f2762d48d bios/amiga-os-130.rom
646773759326fbac3b2311fd8c8793ee bios/amiga-os-310-a1200.rom
dc10d7bdd1b6f450773dfb558477c230 bios/amiga-os-204.rom
465646c9b6729f77eea5314d1f057951 bios/amiga-os-205.rom
413590e50098a056cfec418d3df0212d bios/amiga-os-310-a3000.rom
730888fb1bd9a3606d51f772ed136528 bios/amiga-os-310.rom
85ad74194e87c08904327de1a9443b7a bios/amiga-os-120.rom
5f8924d013dd57a89cf349f4cdedc6b1 bios/amiga-os-310-cd32.rom
```

bb72565701b1b6faece07d68ea5da639 bios/amiga-ext-310-cd32.rom
89da1838a24460e4b93f4f0c5d92d48d bios/amiga-ext-130-cdtv.rom

Atari 5200 / Atari 800:

281f20ea4320404ec820fb7ec0693b38 bios/5200.rom
06daac977823773a3eea3422fd26a703 bios/ATARIXL.ROM
0bac0c6a50104045d902df4503a4c30b bios/ATARIBAS.ROM
eb1f32f5d9f382db1bbfb8d7f9cb343a bios/ATARIOA.ROM
a3e8d617c95d08031fe1b20d541434b2 bios/ATARIOSB.ROM

Atari ST:

c1c57ce48e8ee4135885cee9e63a68a2 bios/tos.img
25789a649faff0a1176dc7d9b98105c0 bios/tos100fr.img
c87a52c277f7952b41c639fc7bf0a43b bios/tos100uk.img
d0f682ee6237497004339fb02172638b bios/tos100us.img
a622cc35d8d78703905592dfaa4d2ccb bios/tos102de.img
d6521785627d20c51edc566808a6bf28 bios/tos102fr.img
b2a8570de2e850c5acf81cb80512d9f6 bios/tos102uk.img
41b7dae4e24735f330b63ad923a0bfbcb bios/tos104de.img
143343f7b8e0b1162af206fe8f46b002 bios/tos104es.img
0087e2707c57efa2106a0aa7576655c0 bios/tos104fr.img
036c5ae4f885cbf62c9bed651c6c58a8 bios/tos104uk.img
736adb2dc835df4d323191fdc8926cc9 bios/tos104us.img
992bac38e01633a529121a2a65f0779e bios/tos106de.img
30f69d70fe7c210300ed83f991b12de9 bios/tos106es.img
bc7b224d0dc3f0cc14c8897db89c5787 bios/tos106fr.img
6033f2b9364edfed321c6931a8181fd2 bios/tos106uk.img
a0982e760f9807d82667ff5a69e78f6b bios/tos106us.img
94a75c1c65408d9f974b0463e15a3b11 bios/tos162de.img
ed5fbaabe0219092df74c6c14cea3f8e bios/tos162fr.img
1cbc4f55295e469fc8cd72b7efdea1da bios/tos162uk.img
febb00ba8784798293a7ae709a1dafcb bios/tos162us.img
7aeabdc25f8134590e25643a405210ca bios/tos205de.img
7449b131681f1dfe62ebcd1392847057 bios/tos205es.img
61b620ad951815a25cb37895c81a947c bios/tos205fr.img
7e87d8fe7e24e0b4c55ad1b7955beae3 bios/tos205it.img
7cdd45b6aac66a21bfb357d9334e46db bios/tos205us.img
0604dbb85928f0598d04144a8b554bbe bios/tos206de.img
b2873004a408b8db36321f98daafa251 bios/tos206fr.img
4a0d4f282c3f2a0196681adf88862dd4 bios/tos206.img
e690bec90d902024beed549d22150755 bios/tos206uk.img
c9093f27159e7d13ac0d1501a95e53d4 bios/tos206us.img
066f39a7ea5789d5afd59dd7b3104fa6 bios/tos306de.img
dd1010ec566efbd71047d6c4919feba5 bios/tos306uk.img
ed2647936ce4bd283c4d7dfd7ae09d1c bios/tos400.img
9e880168d0a004f7f5e852be758f39e4 bios/tos402.img
e5ea0f216fb446f1c4a4f476bc5f03d4 bios/tos404.img

Atomiswave:

0ec5ae5b5a5c4959fa8b43fcf8687f7c bios/awbios.zip

Fairchild ChannelF:

ac9804d4c0e9d07e33472e3726ed15c3 bios/sl31253.bin
da98f4bb3242ab80d76629021bb27585 bios/sl31254.bin
95d339631d867c8f1d15a5f2ec26069d bios/sl90025.bin

Dreamcast:

e10c53c2f8b90bab96ead2d368858623 bios/dc_boot.bin
0a93f7940c455905bea6e392dfde92a4 bios/dc_flash.bin

Nintendo Family Computer Disk System:

ca30b50f880eb660a320674ed365ef7a bios/disksys.rom

Fujitsu FM-Towns:

8fa4e553f28cfc0c30a0a1e589799942 bios/fmtowns/FMT_DIC.ROM
0585b19930d4a7f4c71bcc8a33746588 bios/fmtowns/FMT_DOS.ROM
ac0c7021e9bf48ca84b51ab651169a88 bios/fmtowns/FMT_F20.ROM
b91300e55b70227ce98b59c5f02fa8dd bios/fmtowns/FMT_FNT.ROM
86fb6f7280689259f0ca839dd3dd6cde bios/fmtowns/FMT_SYS.ROM

Future Pinball:

65a8ebf870420316a939ac44fd4c731d bios/wsh57/scripten.exe

Nintendo Gameboy Advance:

a860e8c0b6d573d191e4ec7db1b1e4f6 bios/gba_bios.bin
32fbbd84168d3482956eb3c5051637f5 bios/gb_bios.bin
dbfce9db9deaa2567f6a84fde55f9680 bios/gbc_bios.bin
d574d4f9c12f305074798f54c091a8b4 bios/sgb_bios.bin

Apple 2 GS:

20a0334c447cb069a040ae5be1d938df bios/ROM1

Mattel Intellivision:

62e761035cb657903761800f4437b8af bios/exec.bin
0cd5946c6473e42e8e4c2137785e427f bios/grom.bin

Lynx:

fcd403db69f54290b51035d82f835e7b bios/lynxboot.img

MSX:

364a1a579fe5cb8dba54519bcfcdac0d bios/MSX.ROM
ec3a01c91f24fbddcbcab0ad301bc9ef bios/MSX2.ROM
2183c2aff17cf4297bdb496de78c2e8a bios/MSX2EXT.ROM
847cc025ffae665487940ff2639540e5 bios/MSX2P.ROM
7c8243c71d8f143b2531f01afa6a05dc bios/MSX2PEXT.ROM

Naomi:

eb4099aeb42ef089cfe94f8fe95e51f6 bios/naomi.zip

Nintendo DS:

145eae5bd3037cbc247c213bb3da1b3 bios/firmware.bin
df692a80a5b1bc90728bc3dfc76cd948 bios/bios7.bin

a392174eb3e572fed6447e956bde4b25 bios/bios9.bin

NeoGeo:

dffb72f116d36d025068b23970a4f6df bios/neogeo.zip

NeoGeo CD:

c733b4b7bd30fa849874d96c591c8639 bios/neocdz.zip

Odyssey 2:

562d5ebf9e030a40d6fabfc2f33139fd bios/o2rom.bin

f1071cdb0b6b10dde94d3bc8a6146387 bios/c52.bin

c500ff71236068e0dc0d0603d265ae76 bios/g7400.bin

279008e4a0db2dc5f1c048853b033828 bios/jopac.bin

NEC PC-8800:

4f984e04a99d56c4cfe36115415d6eb8 bios/quasi88/N88.ROM

793f86784e5608352a5d7f03f03e0858 bios/quasi88/N88SUB.ROM

2ff07b8769367321128e03924af668a0 bios/quasi88/N88N.ROM

d675a2ca186c6efcd6277b835de4c7e5 bios/quasi88/N88EXT0.ROM

e844534dfe5744b381444dbe61ef1b66 bios/quasi88/N88EXT1.ROM

6548fa45061274dee1ea8ae1e9e93910 bios/quasi88/N88EXT2.ROM

fc4b76a402ba501e6ba6de4b3e8b4273 bios/quasi88/N88EXT3.ROM

NEC PC-9800:

e246140dec5124c5e404869a84caefce bios/np2kai/BIOS.ROM

2af6179d7de4893ea0b705c00e9a98d6 bios/np2kai/FONT.ROM

caf90f22197aed6f14c471c21e64658d bios/np2kai/SOUND.ROM

e9fc3890963b12cf15d0a2eea5815b72 bios/np2kai/ITF.ROM

7dale5b7c482d4108d22a5b09631d967 bios/np2kai/font.bmp

PC Engine:

38179df8f4ac870017db21ebcbf53114 bios/syscard3.pce

PC-FX:

08e36edbea28a017f79f8d4f7ff9b6d7 bios/pcfx.rom

PS2:

28922c703cc7d2cf856f177f2985b3a9 bios/SCPH30004R.bin

3faf7c064a4984f53e2ef5e80ed543bc bios/SCPH30004R.MEC

d5ce2c7d119f563ce04bc04dbc3a323e bios/scph39001.bin

3faf7c064a4984f53e2ef5e80ed543bc bios/scph39001.MEC

9a9e8ed7668e6adfc8f7766c08ab9cd0 bios/EROM.BIN

44552702b05697a14ccbe2ca22ee7139 bios/rom1.bin

b406d05922dac2eaf3c2e68157b1b468 bios/ROM2.BIN

PS3:

03373a581934f0d2b796156d2fb28b39 bios/PS3UPDAT.PUP

PSX:

c53ca5908936d412331790f4426c6c33 bios/psxonpsp660.bin

6e3735ff4c7dc899ee98981385f6f3d0 bios/scph101.bin

```
dc2b9bf8da62ec93e868cfd29f0d067d bios/scph1001.bin
8dd7d5296a650fac7319bce665a6a53c bios/scph5500.bin
490f666e1afb15b7362b406ed1cea246 bios/scph5501.bin
32736f17079d0b2b7024407c39bd3050 bios/scph5502.bin
1e68c231d0896b7eadcad1d7d8e76129 bios/scph7001.bin
```

Satellaview:

```
96cf17bf589fcbfa6f8de2dc84f19fa2 bios/BS-X.bin
```

Sega Saturn:

```
85ec9ca47d8f6807718151cbcca8b964 bios/sega_101.bin
3240872c70984b6cbfda1586cab68dbe bios/mpr-17933.bin
255113ba943c92a54facd25a10fd780c bios/mpr-18811-mx.icl
1cd19988d1d72a3e7caa0b73234c96b4 bios/mpr-19367-mx.icl
af5828fdff51384f99b3c4926be27762 bios/saturn_bios.bin
```

Super Cassette Vision:

```
635a978fd40db9a18ee44eff449fc126 bios/upd7801g.s01
```

Sega CD:

```
e66fa1dc5820d254611fdcdba0662372 bios/bios_CD_E.bin
854b9150240a198070150e4566ae1290 bios/bios_CD_U.bin
278a9397d192149e84e820ac621a8edd bios/bios_CD_J.bin
```

Super Game Boy:

```
d574d4f9c12f305074798f54c091a8b4 bios/sgb_boot.bin
e0430bca9925fb9882148fd2dc2418c1 bios/sgb2_boot.bin
b15ddb15721c657d82c5bab6db982ee9 bios/SGB1.sfc
8ecd73eb4edf7ed7e81aef1be80031d5 bios/SGB2.sfc
```

Sufami:

```
d3a44ba7d42a74d3ac58cb9c14c6a5ca bios/STBIOS.bin
```

Supergrafx:

```
38179df8f4ac870017db21ebcbf53114 bios/syscard3.pce
```

Sharp X1:

```
eeeea1cd29c6e0e8b094790ae969bfa7 bios/xmil/IPLROM.X1
56c28adc1f3a2f87cf3d57c378013f5 bios/xmil/iplrom.x1t
```

Sharp x68000:

```
7fd4caabac1d9169e289f0f7bbf71d8e bios/keropi/iplrom.dat
cb0a5cfcf7247a7eab74bb2716260269 bios/keropi/cgrom.dat
```

Xbox:

```
d49c52a4102f6df7bcf8d0617ac475ed bios/mcpx_1.0.bin
39cee882148a87f93cb440b99dde3ceb bios/Complex_4627.bin
```

Adding ROMs

When installing your own ROMs, make sure that you have them in a suitable format for the emulators you are going to use. For example, if you want to add a NES ROM, make sure that your ROM file extension is listed in the `roms/n/_info.txt` file. For example, in the `nes/_info.txt` you'll see that acceptable ROM formats are `.7z .nes .zip`. You have one `_info.txt` file in each ROM system directory by default. New `_info.txt` files are added as new systems become available.

When multiple emulators are available for the one system, but not all of them accept the same ROM formats, you'll get prompted with a message telling you that your ROM might not be used with the emulator selected when you try to launch a game in an incompatible format. Most of the time, at least.

The `roms/` folder contains all the folders for all the systems available on your platform. Adding more folders will not add the system to Batocera; if the folder for that system isn't there then the emulator for that system is not present on your platform.

The network share

To add ROM files over the network, you can connect to your Batocera machine via its samba share:

1. Open your file explorer of choice and find its "Network" section.
2. Find the BATOCERA share. If it's not appearing, you can directly type `\\BATOCERA` (under Windows or MacOS) or `smb://BATOCERA.local` (under Linux) to directly navigate to it. If your router doesn't support hostnames properly (many old routers do not), type in the IP address of the Batocera machine instead of the hostname (for example, `\\192.168.1.2`). You can find the IP address under **MAIN MENU → NETWORK SETTINGS → IP ADDRESS**.
3. Copy the ROMs into the respective `share/roms/[system shortname]` directory. They should be easy enough to work out, but in case you need help identifying them you can check out the [systems overview page](#) for their shortname.

Alternatively, you can also [connect via SFTP, FTP or SCP to your Batocera machine](#). Then you can add ROMs in the various folders under `/userdata/roms/[system shortname]`.

If you are having trouble access the network share, be sure to check out [the network section on the troubleshooting page](#)!

Directly on the SD card or USB key

Insert your Batocera drive into another computer. Once your SD card/USB drive is mounted (see the link above if you have issues accessing ext4 partitions under Windows), copy and paste the ROM files into their respective systems folders (i.e. `/roms/n` for NES roms).

External USB key

Same as with a SD card, except that you can use FAT32 as the partition format to have access under all major Operating Systems.

File manager

On PC x86 and x86_64, Batocera provides a file explorer that you can access by pressing [F1] from the systems menu in EmulationStation. You can use this file explorer to copy ROMs and metadata files from an external USB drive. Read more about it on the [built-in file manager page](#).

You can quit with [Ctrl] + [Q] or from the **File** menu at the top to return to EmulationStation.

NAS

NAS usage is described in its own section: [Store games on a nas](#).

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Last update: **2021/12/24 10:49**

