

Create your own pacman package for Batocera

What is pacman?

In Batocera **v27** and higher, you can utilize [pacman](#) to install and manage packages. It is the underlying tool behind the [content downloader](#). It is a straightforward package manager that's easy to work with.

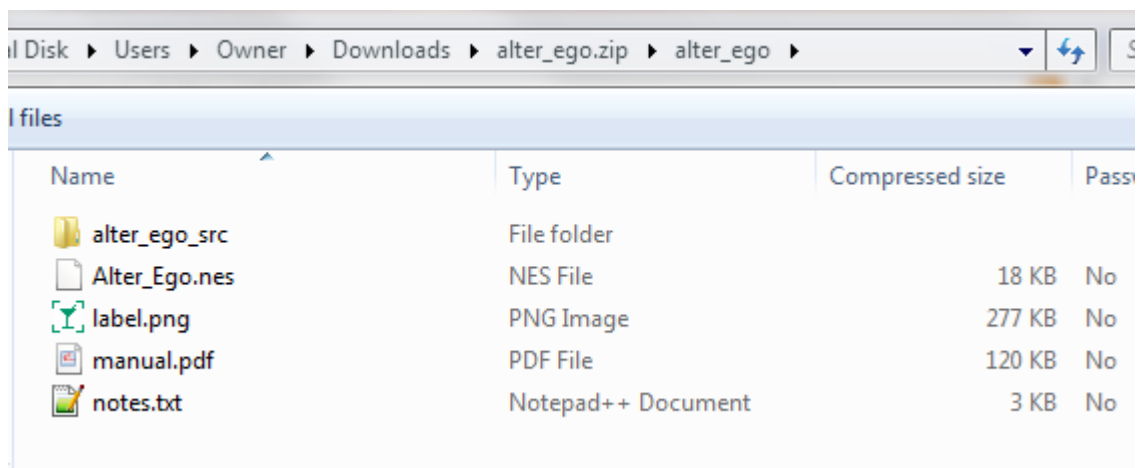
You don't need development skills to create a package, just a bit of patience. If you've copied files too and from directories before, you already have the skill-set required for this.

Create your own package

Pre-setup

The way packages work is that they are essentially just a compressed folder that contains the folder structure that you wish to copy onto the user's machine, starting at root, along with a script file. Essentially, you'll be creating a "userdata" folder inside of the beginning folder of your package, and go from there.

It's easiest to explain with an example. Let's use the NES free homebrew ROM Alter Ego available from <https://www.romhacking.net/homebrew/1/>. Click "Download" from the **Links** section and fill out the captcha to get the ZIP and open it up, it will contain the following contents:



The screenshot shows a file explorer window with the path: D:\Disk > Users > Owner > Downloads > alter_ego.zip > alter_ego. The window displays a list of files and folders:

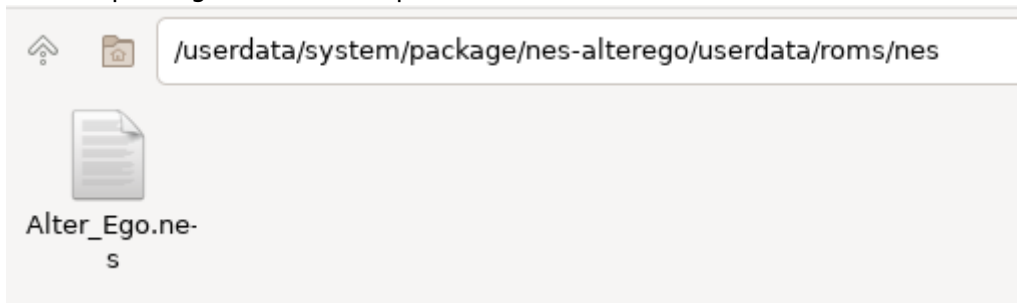
Name	Type	Compressed size	Pass
alter_ego_src	File folder		
Alter_Ego.nes	NES File	18 KB	No
label.png	PNG Image	277 KB	No
manual.pdf	PDF File	120 KB	No
notes.txt	Notepad++ Document	3 KB	No

This contains everything we might need to create a package including media and all!



For the following steps, it is recommended to use Batocera's file manager ([F1] on the system list). You can transfer the files over to Batocera first using [one of the many methods](#) available.

1. On your Batocera machine, create a new folder in /userdata/system/ and call it package/. This folder can technically be anywhere but this is what we will be using for our example.
2. Inside of package/, create another folder named after your package (in this case, nes-alter-ego/).
3. Inside of the package's folder, recreate the folder structure for every relevant file that needs to be copied over to the user's machine.
4. Place the relevant files into their respective folders. For instance, if all you want to add is a ROM for the NES system, then you would simply create the userdata/roms/nes/ folders inside of each other in the package's folder and place the ROM in the final nes/ folder:



In our example package, which includes the media we want to install, the setup would look like this:

```

/userdata/system/package/nes-alterego/
├── userdata/
│   └── roms/
│       └── nes/
│           ├── images/
│           │   └── label.png
│           ├── manuals/
│           │   └── manual.pdf
│           └── Alter_Ego.nes
  
```

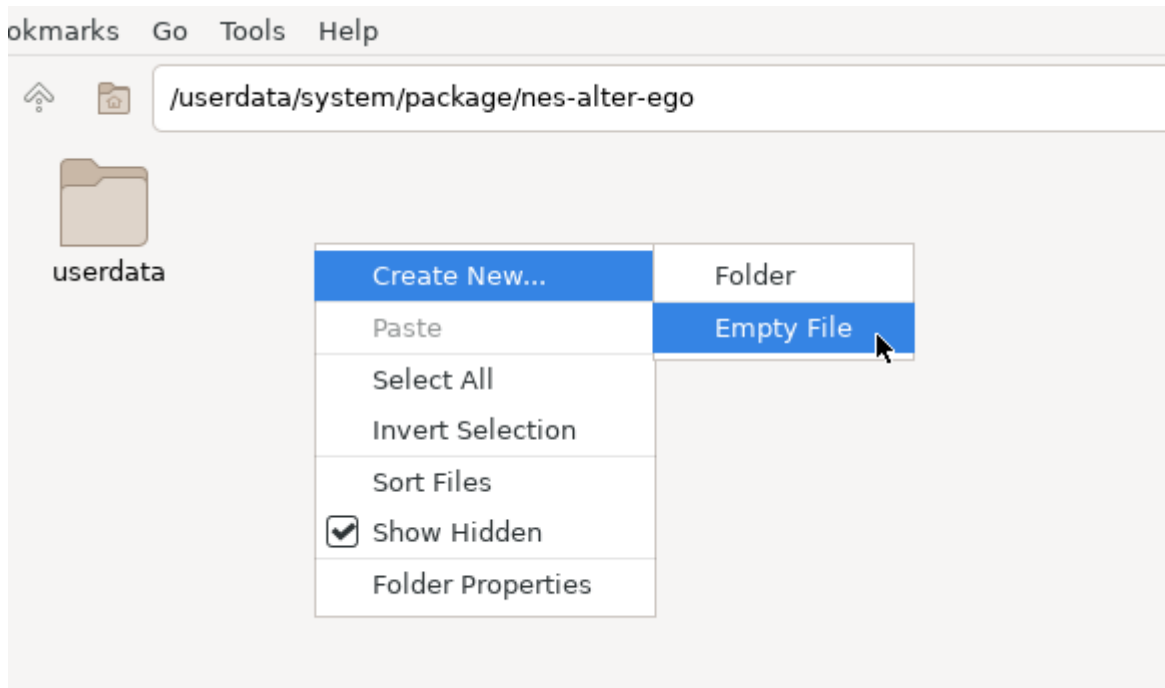
However, these filenames simply won't do! Batocera won't be able to recognize the media files as belonging to Alter Ego. Let's rename them:

```

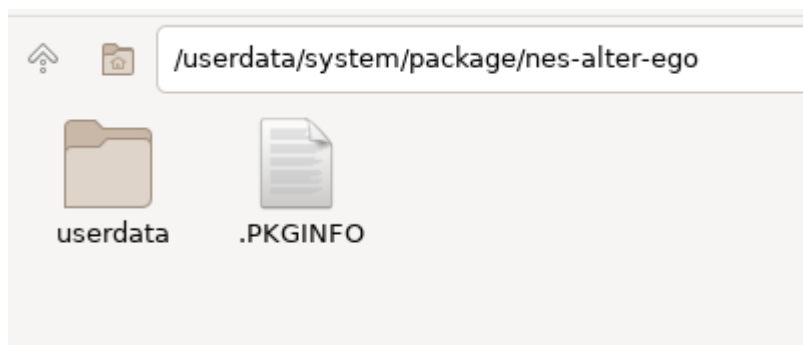
/userdata/system/package/nes-alterego/
├── userdata/
│   └── roms/
│       └── nes/
│           ├── images/
│           │   └── Alter_Ego.png
│           ├── manuals/
│           │   └── Alter_Ego-manual.pdf
│           └── Alter_Ego.nes
  
```

Package info file

Next we need to create the file that contains meta-information about the package itself. Create a new text file in the package's folder. For our example, this would be /userdata/system/packaging/nes-alterego/.



This can be named anything, but a logical one would be `package-info.txt`.



Open the file for editing and paste the following in (or just download the file and place it there):

[package-info.txt](#)

```
pkgname = nes-alter-ego
pkgver = 1.0.0-1
pkgdesc = NES freeware puzzle game by Shiru, Kulor, Denis Grachev
arch = any
group = sys-nes
packager = your_name
url = https://wiki.batocera.org/start
```

Replace the lines as appropriate! Here are the **required** lines:

- **pkgname:** The internal name of the package. This needs to remain the same for updates that become available for the package.
- **pkgver:** The version of the package. If this number is higher than the one currently installed, Batocera will offer the user to update the package in the store. The only acceptable format for this is X.Y.Z-R, following pacman's conventions.
- **pkgdesc:** The description.

- **arch:** What platforms should this package be available to? Most packages are fine to leave this as “any”, but some may only work on x86_64 for example.
- **group:** What category should the store show this under? If you are creating a package for a specific [system](#), it must be prefixed with sys -, eg. sys -megadrive for [Megadrive/Genesis](#). For the other groups, [read below](#).

The remaining lines are optional, but can provide extra information to users choosing to install them:

- **packager:** The author of the package.
- **url:** URL for the user to go to if they desire more information.



Ensure there is a blank line at the bottom of the text file. This is critical.

```
File Edit Search Options Help
pkgname = nes-alter-ego
pkgver = 1.0.0-1
pkgdesc = Alter Ego - A freeware puzzle game by Shiru, Kulor, Denis Grachev.
arch = any
group = sys-nes
packager = your_name
url = https://wiki.batocera.org/start
|
```

Available groups

In addition to the sys -<system> groups that are available, you have the following to choose from:

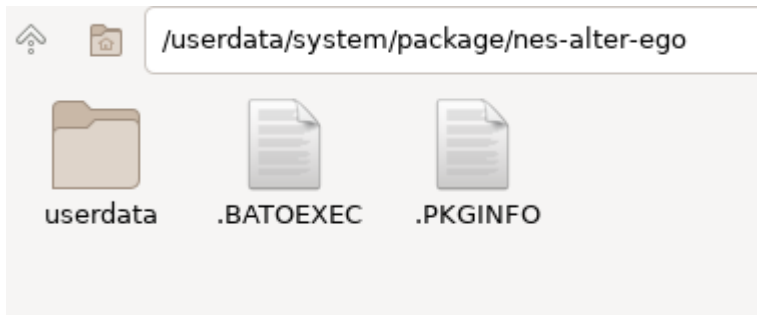
- **music:** Add some more [bangin' tunes](#).
- **theme:** Add an additional [theme](#) for the menu.
- **bezel:** Various decorations!
- **misc:** All the other junk.

Additional actions



If you are simply copying files to the machine, you can move onto [creating the package](#). However, if you need to run some commands (such as to edit already existing files, such as `gamelist.xml`), read this section.

The other file is `.BATOEXEC` and it gives you the ability add metadata or execute commands. The first line describes the action you want to do. Currently, BATOEXEC accepts two commands: `gamelist` and `exec`. Create a new blank document name `.BATOEXEC` and place it in the same folder next to `package-info.txt`.



gamelist

Typically, for a package that adds a new ROM, you want to add it into the `gamelist.xml`. Add `gamelist = <system>`, where `<system>` is the shortname of the system you'd like to edit the `gamelist.xml` for, and then follow it with the data you'd like to append to the list. For example:

.BATOEXEC

```
gamelist = nes
<game>
  <path>./Alter_Ego.nes</path>
  <name>Alter Ego</name>
  <desc>Freeware puzzle game for NES, a port of the original (by Denis Grachev for the ZX Spectrum). Swap positions with your 'alter ego' to move about the level and obtain all the bouncing pixels.</desc>
  <rating>0.6</rating>
  <releasedate>20110827T000000</releasedate>
  <developer>Shiru</developer>
  <publisher></publisher>
  <genre>Puzzle</genre>
  <players>1</players>
  <image>./images/Alter_Ego.png</image>
  <manual>./manuals/Alter_Ego-manual.pdf</manual>
</game>
```

exec

This is for any other command you might want to run when installing the package. Its syntax depends on which executable you call in `exec = <bin>`.



Only interpreters that takes a `-c` argument for commands are available. For example, `exec = /bin/bash` or `exec = /usr/bin/python`, which are both used heavily by Batocera for its internal functions.

For a basic example that will be executed every time the package is called (whether you are

installing, upgrading or uninstalling it):

.BATOEXEC

```
exec = /bin/bash
echo "You have successfully run a command in a script of a package!"
```

If you define sections between `.INSTALL_START` and `.INSTALL_END` or `.UNINSTALL_START` and `.UNINSTALL_END`, those commands will be executed only on install/upgrade or removal of the package respectively. Commands outside those sections will be executed in any case (ex: `date` in the example below).

.BATOEXEC

```
exec = /bin/bash
date
.INSTALL_START
echo "Installing bezels with glazed effect..."
.INSTALL_END
.UNINSTALL_START
echo "Uninstalling bezels with glazed effect..."
.UNINSTALL_END
```

A `.BATOEXEC` file is not mandatory to use `batocera-makepkg`. Many installable objects don't require it, such as adding themes, music, etc.

Setup complete

This is what the package setup should look like:

```
/userdata/system/package/nes-alterego/
├── userdata/
│   └── roms/
│       └── nes/
│           ├── images/
│           │   └── Alter_Ego.png
│           ├── manuals/
│           │   └── Alter_Ego-manual.pdf
│           └── Alter_Ego.nes
├── package.txt
└── .BATOEXEC
```

Create the package

Batocera uses a custom tool to create its packages: `batocera-makepkg`.

To use it:

1. Access Batocera via [SSH](#).
2. Change the current working directory to the package's folder. In our example, this can be achieved with `cd /userdata/system/package/nes-alterego`.
3. Run `batocera-makepkg package-info.txt` to create the package. It will output something similar to the following:

```
Creating package ../nes-alter-ego-1.0.0-1-any.pkg.tar.zst ...
/*stdin*\           : 45.08% ( 46592 => 21005 bytes, ../nes-alter-ego-1.0.0-1-any.pkg.tar.zst)
SUCCESS: package ../nes-alter-ego-1.0.0-1-any.pkg.tar.zst correctly generated
```



This may take a while depending on the size of your package's contents.

When complete, a package file named `<system>-<pkgname>-<pkgver>-<arch>.pkg.tar.zst` will be created one level above your current working directory. In this example, it would be `/userdata/system/package/nes-alter-ego-1.0.0-1-any.pkg.tar.zst`

`batocera-makepkg` will not overwrite already existing packages with the same name.

Installing your package

If you'd like to test installing your package, you can do so with the following command:

```
pacman -U <package>
```

If you were following the example above, the command for it would be:

```
pacman -U /userdata/system/package/nes-alter-ego-1.0.0-1-any.pkg.tar.zst
```

Troubleshooting

Why is my package so huge?

Most likely you didn't change the current working directory to the folder of the package you wanted to create. By default, the current working directory will be in `/userdata/system`, so all the folders and files in there will be added to your package.

Run `cd /userdata/system/package/nes-alterego` if you were following the example above and try again.

How can I see what's in the package?

The simplest answer is to install it and see what files were added. But that's not always easy, especially when there are multiple files in deep-rooted folder levels. If you'd like to “extract” a package file, you can use the `zstd` tool in Batocera:

```
zstd -d /userdata/system/package/nes-alter-ego-1.0.0-1-any.pkg.tar.zst
```

This will give you a standard `.tar` file that you can use any ordinary compression program to decompress.

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