The paths for some Windows components have been updated in v39 or v40. Update them and note the older paths underneath.

Windows (WINE)

WINE will play Windows games, both old and recent games, both 32-bit and 64-bit. Some open source games are available in the free Batocera content store (from the EmulationStation menu, **UPDATES & DOWNLOADS → CONTENT DOWNLOADER**)

The following links contain info about some games' compatibility with WINE:

- List liberodark
- The Windows-games-on-Batocera spreadsheet. Direct link to Google sheets document.
- WineHQ AppDB
- ProtonDB
- supertuxland

It is recommended to use **btrfs** or **ext4** for `/userdata/` as WINE explains on their FAQ that some games won't run on a non-Linux native file system. Steam games are notoriously known to be unusable under WINE when using ntfs.

In Batocera **v32** and higher there is a bug where WINE cannot run applications/games stored on a NAS. This can be worked around by not using a NAS for the saves folder.

This system scrapes metadata for the “pc” group and loads the `windows` set from the currently selected theme, if available.

Quick reference

- **Emulator:** wine
- **Cores available:** wine: lutris, wine: proton

- **Folder:** `/userdata/roms/windows/`
- **Accepted ROM formats:** `.pc`, `.exe`, `.wine`, `.wsquashfs`, `.wtgz`

BIOS

No Windows emulator in Batocera needs a BIOS file to run.

Program files

- `/userdata/roms/windows/` : installed windows game (both 32 and 64-bit).
- `/userdata/roms/windows_installers/` : `.iso`, `.msi` or `.exe` used to install games into `/userdata/roms/windows/`.

Games coming with an installer

There are 2 types of formats for a Windows game installer:

- CD-ROM images: An `*.iso` file created from a game on a CD-ROM
- Executable Installers: A `*.exe` or `*.msi` file, that usually contains “setup” or “install” in the name (in some cases, other files may be bundled with them)

In both cases, those files need to be put into the `/userdata/roms/windows_installers/` folder. Once this is done, refresh the gamelist in EmulationStation, then go into the “Windows” system, select “Install a new game”, and run the installer.

After a screen announcing that the configuration is being made, the installer should open up. It'll look the same way it does inside Windows.

Proceed to install the game in the normal way, as for the installation path, leave it to the default: The virtual `C:\` Drive will be located at `/userdata/roms/windows/<game_name>.wine/drive_c/`.

Once the installation is done, it is tried to automatically create the `autorun.cmd` file. If there are several exes or you need to set up command parameters, then head over to the `/userdata/roms/windows/<game_name>.wine/` folder, and edit the `autorun.cmd` accordingly.

The file must use Linux line terminators! Do note use Notepad or other similar Windows-oriented text editors; use Notepad++ or Atom and select Unix (LF) as its line termination format.

Example:

```
DIR=drive_c/Program Files/xmoto 0.6.1
CMD=xmoto.exe --fullscreen
```

or if there are some spaces in the name of the game:

```
DIR=drive_c/Program Files (x86)/Ubisoft/Rayman Origins
CMD="Rayman Origins.exe"
```

This <game name>.wine folder is called the wineprefix.

New in **BATOCERA 42** is the possibility to add a location to the save directory or to save files. These directories or files will be transferred to /userdata/saves/windows/<GAME> and are symlinked to the game specific wineprefix. So in case you have to rebuild all wineprefixes (version change for example), your savegames are still available and working.

Example for a directory:

```
SAVEDIR=drive_c/users/root/documents/localappdata/game/
DIR=drive_c/game
CMD=game.exe
```

Example for files (Use ; as delimiter):

```
SAVEDIR=drive_c/game
SAVEFILES=savefile1.sav;savefile2.save
DIR=drive_c/game
CMD=game.exe
```

There are some additional parameters allowed, ENV and LANG. The language can be changed per game for WINE. It is needed for certain older Windows Unicode games (mostly Japanese). If not used, games with Unicode filenames may fail to launch, and other games may display text incorrectly. May require additional fonts to be installed via Winetricks, depending on the game. Use LANG=[language code].

```
ENV=MESA_EXTENSION_MAX_YEAR=2002
LANG=ja_JP.UTF-8
```

If the path isn't working, try putting ./ before the path. Eg. DIR=./drive_c/Program Files/xmoto 0.6.1

Games that don't need any installation

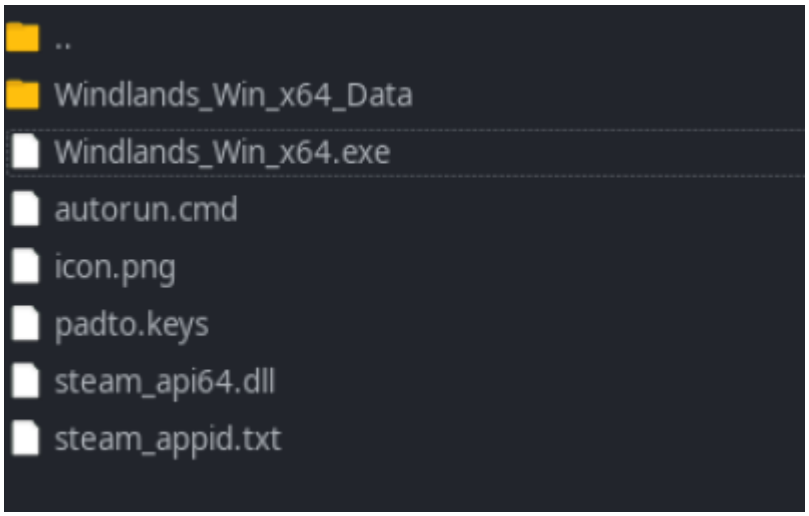
Those games usually come as a game folder containing a *.exe file (or several) as well as other files and subfolders. They may also come as a *.zip file, if that is the case, unzip them first.

For those, there are two easy ways to handle them:

- The EXE method: Just put the game folder into the /userdata/roms/windows, and refresh the gamelist in EmulationStation
- The PC folder method (recommended): Rename the game folder as <game name>.pc (eg.

`Windlands.pc`), put it into the `/userdata/roms/windows/`, create a file named `autorun.cmd` directly into it, edit it so it points to the game executable.

Example:



If the `*.exe` of the game is directly in the `<game name>.pc/` folder, and is called `Windlands_Win_x64.exe`, the `autorun.cmd` file should contain:

```
CMD=Windlands_Win_x64.exe
```

If the name of the executable contains specials characters or spaces however, be sure to put quotes around it, like so:

```
CMD="launch game.exe"
```

If the EXE is instead inside of a subfolder, the DIR command needs to be added first. For example, if the game is at `Game name.pc/64bit/bin/folder with space in its name/Game name 64-bit.exe` and requires special launch parameters:

```
DIR=64bit/bin/folder with space in its name
CMD="Game name 64-bit.exe" --fullscreen
```

The first time a game is run, a `<game name>.wine` folder will be created at `/userdata/saves/windows/proton/` or `/userdata/saves/windows/`.

This `<game name>.wine` folder is called the wineprefix.

Emulators

WINE

WINE configuration

Standardized features available to all cores of this emulator: `windows.videomode`,

windows.padtokeyboard

ES setting name batocera.conf_key	Description ⇒ ES option key_value
DXVK windows.dxvk	Converts the DirectX 9/10/11/12 calls to Vulkan. Should only be used on hardware that natively supports Vulkan. ⇒ Off 0, On 1.
DXVK HUD windows.dxvk_hud	See your FPS and version of Vulkan API/driver. ⇒ Off 0, On 1.
ESYNC windows.esync	Removes wineserver overhead for synchronization objects. Can increase performance for games that stress the CPU. ⇒ Off 0, On 1.
FSYNC windows.fsync	Enables stricter scheduling policies to improve frame rates and responsiveness. Can cause issues in certain apps. ⇒ Off 0, On 1.
PBA windows.pba	Implements a GL-free GPU heap allocator, vastly improving the speed of buffer maps. ⇒ Off 0, On 1.
FSR windows.fsr	AMD FidelityFX Super Resolution uses advanced scaling technologies to boost FPS by rendering the game at a lower resolution and then upscaling it. ⇒ Off 0, On 1.
NVAPI windows.nvapi	NVAPI is NVIDIA's core software that allows direct access to NVIDIA GPU. ⇒ Off 0, On 1.
FPS LIMITER windows.fps_limit	Sets the FPS limiter to 60. Required by some older titles. ⇒ Off 0, On 1.
MF windows.mf	Installs Media Foundation, require by some apps which use the Microsoft-specific codecs for audio and video to run. ⇒ Off 0, On 1.
VIRTUAL DESKTOP windows.virtual_desktop	Define the resolution and a new dedicated window. ⇒ Off 0, On 1.
ENABLE MOUSE windows.force_mouse	Show the cursor. ⇒ Off 0, On 1.
ENABLE XIM windows.allow_xim	Enable XIM support. (Fix Me! what's XIM?) ⇒ Off 0, On 1.
NO WRITE WATCH windows.no_write_watch	Disable support for memory write watches in ntdll. (Fix Me! what is this used for?) ⇒ Off 0, On 1.
FORCE LARGE ADDRESS windows.force_large_adress	Force WINE to run games with large address. (Fix Me! what is this used for?) ⇒ Off 0, On 1.

ES setting name `batocera.conf_key`	Description ⇒ ES option `key_value`
HEAP DELAY FREE `windows.heap_delay_free`	Delay freeing some memory. (Fix Me! what is this used for?) ⇒ Off `0`, On `1`.
HIDE NVIDIA GPU `windows.hide_nvidia_gpu`	Force Nvidia GPUs to always be reported as AMD GPUs. (Fix Me! what is this used for?) ⇒ Off `0`, On `1`.
ENABLE DEBUG `windows.wine_debug`	Enable wine debug. (Fix Me! be more descriptive) ⇒ Off `0`, On `1`.

Advanced options will only be applied on the first launch of the game. Adjusting these values later will not do anything.

If discovered that the wrong settings were used, delete the game's installation from the `saves/windows/<game>` folder, set up the correct settings, and try launching it again.

Folder compression

Installed games can be converted into two other formats: TGZ and SquashFS. Batocera requires changing the extensions to `*.wtgz` and `*.wsquashfs` respectively. This conversion is doable via the command line. For TGZ:

```
batocera-wine windows wine2winetgz xmoto.wine
```

or for SquashFS:

```
batocera-wine windows wine2squashfs xmoto.wine
```

TGZ and SquashFS files cannot be written to (they are read-only). To work around this:

- When a TGZ is detected, it is fully unzipped to the saves directory and a copy is created
- If a SquashFS is detected instead, Batocera will create a new directory in `saves/windows/<game name>/` which saves the difference in files between the read-only SquashFS and what the game writes to its directory during execution.

Ordinarily, Batocera would just let the game directly write data to the `roms/windows/<game name>.wine/` folder when it wants to.

To reiterate, it is preferable to use:

- `wtgz` for small games that make large writes (at least proportionally) where it makes more sense to just quickly repackage the game in order to keep things portable
- `wsquashfs` for larger games that make small writes (such as save files only) where it doesn't make sense to rapidly duplicate it, as that would take too long/wear down the storage hardware too quickly

This makes it easier to remove and restore a game, as it won't be modified with every launch. Remember to keep track of the save directory as well!

Folder compression using Windows PowerShell Script

User sirMagb has developed a Windows Power-Shell Script for folder compression in Windows.

wsquashfs_power-shell_script.zip

- Extract the files to a folder.
- Right click on **CompressFolder.ps1** and choose Run with PowerShell.

Creating autorun.cmd from SSH

To create an `autorun.cmd` you can manually edit each file or you can type `batocera-wine windows autorun <GAME.DIR> <DIR_IN_GAME.DIR>`. If you leave both brackets empty then your current directory is used for **<GAME.DIR>** and as well as **<DIR_IN_GAME.DIR>** - so be warned!

Some examples:

```
batocera-wine windows autorun "Age of Empires.wine"
batocera-wine windows autorun "Age of Empires.wine" drive_c/P*
batocera-wine windows autorun
```

To find the correct **exe**-file batocera-wine can be equipped with a text file that contains regular expression (RegEx) and that will help to **exclude some exe**-files. Ideally we want to find only a single exe because this will lead to an automatic generation (it is same process if you install a Windows Application), if not you can select a file out from a list. If everything is gone well and you found some exe-files the output will likely look like this:

```
'Typhoon 2001.pc'
 Windynomate.pc
'Worms Armageddon.pc'
 Z.pc
'Zuma Deluxe.pc'
'Zuma HD Remake (freeware).pc'
'Zuma Revenge.pc'
[root@BATOCERA /userdata/roms/windows]# batocera-wine windows autorun Z.pc
Found 4 files in Z.pc
1)    .   Installer.exe
2)    .   Loader.exe
3)    .   winz.exe
4)    .   ZEDITOR.EXE

Select entry to write to autorun.cmd:
```

The RegEx list can be placed on two locations and has to be names `autorun-regex.txt`. If you place your strings in both places, only the primary-file one is used! If you want to comment out an

expression then use the hashtag literal.

1. `/userdata/system/roms/windows_installers/` (primary)
2. `/userdata/saves/windows_installers/` (secondary)

| autorun-regex.txt

```
# This is user file to create autorun.cmd by WINDOWS_INSTALLERS or 'batocera-wine windows autorun <GAME_DIR> <PATH_IN_GAME_DIR>'
# Add addition strings, avoid trailing spaces you can comment out values by using # 23.02.2025 crcerror

# Variation of Uninstaller/Install files
^.*/.*[sS]etup\.exe$
^.*/*.[Ee]ditor.*$
^.*/.*[-_\ ][Uu]ninstall\.exe$
^.*/[Rr]emove\.exe$
^.*/[Uu]nwise[[:digit:]]{0,2}\.exe$
^.*/[Uu]ninstall[-_\ ].*\.exe$
^.*/.*[Ii]nstall(..)?\.exe$

# Supplementary Directories
^.*/Adobe AIR/.*$
^.*/[Uu]install[ers]{0,3}/.*$
^.*/InstallShield Installation Information/.*$
^.*/InstallShield/.*$
^.*/_Redist/.*$

# Supplementary Files
^.*/dpinst\.exe$
^.*/[Vv][Cc][\._]?redist[\._]x[86][64]\.exe$
^.*/[Qq]uick[Ss][Ff][Vv]\.[Ee][Xx][Ee]$

# Cracks/Patches
^.*/no-cd.*$
^.*/[Cc]rack(.)?/.*$
^.*/[Pp]atch(..)?/.*$
```

To automate the process you can use a small script, that automatically searches your Windows-games and calls the script for every single directory. You have not worry about losing your previosuly setted `autrun.cmds` - older files will be renamed to `autorun.cmd.bak` and `autorun.cmd.bak.~1~` ……

Autoautorun.sh

```
#!/bin/bash
readarray -t array < <(find /userdata/roms/windows -mindepth 1 -maxdepth 1 -name "*" -type d)
for i in "${array[@]}"; do
```

```
    batocera-wine windows autorun "$i" .
done
```

Launching a Windows game from SSH

For debugging purposes, to launch a Windows game from SSH, use the following commands:

```
export DISPLAY=:0.0
batocera-wine windows play /userdata/roms/windows/Windlands.pc
```

Where `/userdata/roms/windows/Windlands.pc` is the path to the game

Manually add Redistributables, Packages and Registry entries to your game

In this section it is shown how to manually add addition Redistributable, MSI-Packages, Registry entries and some Fonts to your specific game. The process is straightforward and Batocera is able to easily add additional files to your installation.

Filetype	Install location	**Backuplocation**
`.exe`	/userdata/system/wine/exe	/userdata/system/wine/installed.exe
`.msi`	/userdata/system/wine/msi	/userdata/system/wine/installed.msi
`.ttf/.ttc`	/userdata/system/wine/fonts	/userdata/system/wine/installed.fonts
`.reg`	/userdata/system/wine/regs	/userdata/system/wine/installed.regs

Remember: Every installation/adding is logged to `/userdata/system/wine/imports.log`

Manually install an exe files

To install dependencies inside a WINEprefix, is by creating a folder in `/userdata/system/wine/exe`, and then putting the required executables inside. For 32-bit architectures, install the 32-bit version, and for 64-bit architectures, install both the 32 and 64-bit versions. For each one, a download SSH command will be given. Read here the related licenses for those packages.

Common list of Redistributable from Batocera server

- **DirectX3D** : https://batocera.org/users/liberodark/wine/directx.7z
  - `wget -P /userdata/system/wine/exe https://batocera.org/users/liberodark/wine/directx.7z && 7zr x /userdata/system/wine/exe/directx.7z -o/userdata/system/wine/exe && rm /userdata/system/wine/exe/directx.7z`

Common list of Visual C++ Redistributable from Batocera server

- **2015-2019 Visual C++ Redistributable** :
  - 32-bit: https://batocera.org/users/liberodark/wine/vcredist_x86_2015_2019.exe
    - `wget -P /userdata/system/wine/exe https://batocera.org/users/liberodark/wine/vcredist_x86_2015_2019.exe`
  - 64-bit: https://batocera.org/users/liberodark/wine/vcredist_x64_2015_2019.exe
    - `wget -P /userdata/system/wine/exe https://batocera.org/users/liberodark/wine/vcredist_x64_2015_2019.exe`

- **2019 Visual C++ Redistributable** : for missing files `???`, `???`, or files ending with `vc16.dll`.
  - 32-bit: https://batocera.org/users/liberodark/wine/vcredist_x86_2019.exe
    - `wget -P /userdata/system/wine/exe https://batocera.org/users/liberodark/wine/vcredist_x86_2019.exe`
  - 64-bit: https://batocera.org/users/liberodark/wine/vcredist_x64_2019.exe
    - `wget -P /userdata/system/wine/exe https://batocera.org/users/liberodark/wine/vcredist_x64_2019.exe`

- **2017 Visual C++ Redistributable** : for missing files `mfc140ud.dll`, `msvcp150.dll`, or files ending with `vc15.dll`.
  - 32-bit: https://batocera.org/users/liberodark/wine/vcredist_x86_2017.exe
    - `wget -P /userdata/system/wine/exe https://batocera.org/users/liberodark/wine/vcredist_x86_2017.exe`
  - 64-bit: https://batocera.org/users/liberodark/wine/vcredist_x64_2017.exe
    - `wget -P /userdata/system/wine/exe https://batocera.org/users/liberodark/wine/vcredist_x64_2017.exe`

- **2015 Visual C++ Redistributable** : for missing files `mfc140u.dll`, `msvcp140.dll`, or files ending with `vc14.dll`.
  - 32-bit: https://batocera.org/users/liberodark/wine/vcredist_x86_2015.exe
    - `wget -P /userdata/system/wine/exe https://batocera.org/users/liberodark/wine/vcredist_x86_2015.exe`
  - 64-bit: https://batocera.org/users/liberodark/wine/vcredist_x64_2015.exe
    - `wget -P /userdata/system/wine/exe https://batocera.org/users/liberodark/wine/vcredist_x64_2015.exe`

- **2013 Visual C++ Redistributable** : for missing files `mfc120u.dll`, `msvcp120.dll`, or files ending with `vc12.dll`.
  - 32-bit: https://batocera.org/users/liberodark/wine/vcredist_x86_2013.exe
    - `wget -P /userdata/system/wine/exe https://batocera.org/users/liberodark/wine/vcredist_x86_2013.exe`
  - 64-bit: https://batocera.org/users/liberodark/wine/vcredist_x64_2013.exe
    - `wget -P /userdata/system/wine/exe`

```
https://batocera.org/users/liberodark/wine/vcredist_x64_2013.exe
```

- **2012 Visual C++ Redistributable** : for missing files `mfc110u.dll`, `msvcp110.dll`, or files ending with `vc11.dll`.
  - 32-bit: https://batocera.org/users/liberodark/wine/vcredist_x86_2012.exe
    - `wget -P /userdata/system/wine/exe https://batocera.org/users/liberodark/wine/vcredist_x86_2012.exe`
  - 64-bit: https://batocera.org/users/liberodark/wine/vcredist_x64_2012.exe
    - `wget -P /userdata/system/wine/exe https://batocera.org/users/liberodark/wine/vcredist_x64_2012.exe`
- **2010 Visual C++ Redistributable** : for missing files `mfc100u.dll`, `msvcp100.dll`, or files ending with `vc10.dll`.
  - 32-bit: https://batocera.org/users/liberodark/wine/vcredist_x86_2010.exe
    - `wget -P /userdata/system/wine/exe https://batocera.org/users/liberodark/wine/vcredist_x86_2010.exe`
  - 64-bit: https://batocera.org/users/liberodark/wine/vcredist_x64_2010.exe
    - `wget -P /userdata/system/wine/exe https://batocera.org/users/liberodark/wine/vcredist_x64_2010.exe`
- **2008 Visual C++ Redistributable** : for missing files `mfc90u.dll`, `msvcp90.dll`, or files ending with `vc9.dll`.
  - 32-bit: https://batocera.org/users/liberodark/wine/vcredist_x86_2008.exe
    - `wget -P /userdata/system/wine/exe https://batocera.org/users/liberodark/wine/vcredist_x86_2008.exe`
  - 64-bit: https://batocera.org/users/liberodark/wine/vcredist_x64_2008.exe
    - `wget -P /userdata/system/wine/exe https://batocera.org/users/liberodark/wine/vcredist_x64_2008.exe`
- **2005 Visual C++ Redistributable** : for missing files `mfc80u.dll`, `msvcp80.dll`, or files ending with `vc8.dll`.
  - 32-bit: https://batocera.org/users/liberodark/wine/vcredist_x86_2005.exe
    - `wget -P /userdata/system/wine/exe https://batocera.org/users/liberodark/wine/vcredist_x86_2005.exe`
  - 64-bit: https://batocera.org/users/liberodark/wine/vcredist_x64_2005.exe
    - `wget -P /userdata/system/wine/exe https://batocera.org/users/liberodark/wine/vcredist_x64_2005.exe`

Once placing the required `*.exe`-files for the game as described previously, launch the game, and the dependencies will install themselves silently. After closing the game, the deployed redistributable files will be moved to `/userdata/system/wine/installed.exe/` folder. Batocera will never try to reinstall the files again, when the game is started again. You can follow previous installs if you open `/userdata/system/wine/imports.log`, there you find a log of all installed packages. Place only

*.exe-files in the folder named above.

Manually install a msi file

To use a Windows Installer package inside your WINEprefix, create a folder in /userdata/system/wine/msi, and then putting the required msi-package inside. Start the game and the dependencies will install themselves. Place only *.msi-files in the folder named above. After finishing the game you will find the used msi-packages in /userdata/system/wine/installed.msi folder.

Manually put a registry file

To apply specific registry values for a given game, create a folder in /userdata/system/wine/regs/ and put the registry files (*.reg) inside. Once the game is launched, it will import the values contained in this file. Place only *.reg-files in the folder named above. Once the game is closed, the used file can be found in /userdata/system/wine/installed.regs/. Batocera will therfore never try to re-apply those files when the game is started.

Not recommended is to use /var/run/rawinput.reg, this is for developers and after import the file is deleted.

Manually put a font file

You can put font-files to folder /userdata/system/wine/fonts, the extensions *.ttf and *.ttc are accepted. After the game is started these files will be copied to to Wine-windows-fonts-directory. The installed extensions can be found in /userdata/system/wine/installed.fonts

Advanced

This section talks about some advanced topics:

1. WINE DLL Override Instructions
2. Using WINEtricks

DLL Override Instructions

This write-up is an excerpt about handling DLL Overrides from Batoceras WINE. Let us start with some background information about DLLs.

A Dynamic Link Library (DLL) file contains compiled code, data, and resources that can be shared by multiple applications. On Windows, DLL files are typically stored in system folders, but game developers sometimes modify them by adding custom code. These modified DLLs are then placed in the game’s folder with the same name as the original system DLL. By default, Windows (the OS)

prioritizes the DLL located in the game's folder over the one in the system directory. However, **WINE reverses this behavior**:

- it looks for **DLL files in its system directories** at **first**
- then in the **game's folder**, in **second**.

This means WINE may use the default version of a DLL even if a customized version exists in the game's directory.

To change this behavior in Wine, you can use a **DLL Override**. There are several ways to do this, including through the terminal, but one of the more user-friendly methods is editing the user.reg file using Notepad++ over a network connection.

Quick Instructions

1. First, add your game to the Batocera system and launch it once. This will create the required Windows file structure.
2. On a PC connected to the same network as your Batocera system, navigate to: `/share/system/wine-bottles/windows/ge-custom/<game>.pc.wine`
3. Locate the user.reg file in that directory. Right-click it and choose Edit with Notepad++.
4. Press Ctrl + F and search for: `[Software\\Wine\\DllOverrides]`
5. Add your override in this section:
    - **Here's how you can format your override entries:**
        - `"NameOfDllFile"="native,builtin"`
        - `"NameOfDllFile"="native"`
        - `"NameOfDllFile"="builtin"`
        - `"NameOfDllFile"="disabled"`

Remember, you **DO NOT want to include the file extension in your entry**. For example, if you're overriding `ddraw.dll`, then you would simple say `ddraw` before the equal sign. If you're unsure which to use, start with "`native,builtin`" and test other options if necessary.

WINEtricks

Some games require tricks to run. For example, Age of King requires directplay for network play (https://appdb.winehq.org/objectManager.php?sClass=version&iId=147). It can be installed automatically thanks to the `tricks` command.

```
export DISPLAY=:0.0
batocera-wine windows tricks /userdata/roms/windows/aok.wine directplay
```

A list of WINEtricks commands and more detail about using WINEtricks with Batocera is available right here.

Troubleshooting

Down here there are some tricks to achive a good running on games. It's better to try some procedures written here and then later come back with your outfindigs on discord. A message like **My game isn't working** will not help anyone. Best feedback can be given, if you provide logs (found in

`/userdata/system/logs`)

My game isn't working!

It can be very hard to troubleshoot what exactly is going wrong for games that are failing to run in WINE. First, check that it's on the spreadsheet as confirmed working before continuing troubleshooting, it might just be “borked” and cannot be fixed. Also, check the WineHQ application database.

Next, try launching the game via SSH, as that will display some output in regards to the error it's encountering. This could lead to discovering which WINEtrick is required.

After discovering which advanced system setting adjustment got the game working, be sure to delete its `saves/windows/<game>` folder before trying again.

My application isn't working!

As above, but here there may be more options. Check if the distributor/creator of the program offers a “portable” version, one that doesn't require writing files to the system directories and keeps everything self-contained. Some programs can be told to behave in a portable-like manner by having a `portable.txt` file present in their directory. Of course, for programs set up like this, do not use SquashFS, as games set up in this way require being able to write into their installed directory instead.

Sophisticated applications such as ones that require low-level access to hardware (such as drivers, patchers, kernels, complicated professional production software like compilers, etc.) may just not work due to the nature of WINE.

My game/app was working before but now is no longer!

Try deleting the `/userdata/system/Wine/` folder, then try running the game again. Wine may need to reinstall, so be patient.

Which WINE versions are installed on Batocera?

Knowing which versions of WINE is actually installed on Batocera is essential for troubleshooting.

From v39, Batocera switch to one runner, the Glorious Eggroll runner. Execute the following commands from a remote PC via SSH to get the version:

- Get WINE version for Wine-GE:

```
/usr/wine/ge-custom/bin/wine64 --version
```

For previous Batocera versions, to display the WINE versions for Lutris and Proton, execute the following commands from a remote PC via SSH:

- Get WINE version for Lutris:

```
/usr/wine/lutris/bin/wine64 --version
```

- Get WINE version for Proton:

```
/usr/wine/proton/bin/wine64 --version
```

Custom WINE versions in Batocera?

With v40, you can now install a compatible version of Wine into the folder

```
/userdata/system/wine/custom/
```

The runner should be in it's own folder, i.e.

```
/userdata/system/wine/custom/Wine-9.4/
```

Batocera EmulationStation will then allow you to choose the runner of your choice.

The best compatible versions are from https://github.com/Kron4ek/Wine-Builds

Further troubleshooting

For further troubleshooting, refer to the generic support pages.