

# Bringing Windows applications to Linux app stores with WINE snaps

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This presentation is delivered by Ubuntu Member(s) from the Ubuntu Community. They are recognised as having contributed significantly to the Ubuntu Community but are presenting their own views and are not affiliated with Canonical.

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# Lucy Llewellyn

- (Core) Snapcrafter
- Ubuntu membership board
  
- Microsoft MVP
- WSL, Linux, Ubuntu, and Snap Packaging for Linux expert



# Overview

- What is “Snapcrafters”?
- How to snap Windows applications?
- History of snapping Windows apps
- Sommelier deep-dive
- Useful tools for creating WINE snaps
- Useful tools for creating snaps
- Q&A

73 snaps, 33 volunteers

**1.500.000 weekly active users**  
across 57 distributions



Mattermost



Join us



Signal



eclipse

# Snapcrafters

A group of volunteers  
creating snap packages to  
easily install  
**third-party applications**  
on Linux

+ Creating tooling such as  
sommelier-core

# How to snap Windows applications?

kcalc/snapcraft.yaml

*\$ snapcraft*

kcalc.snap

*\$ snapcraft push kcalc.snap*

snapcraft.io/kcalc

































*\$ sudo snap install kcalc*

/snap/kcalc



```
1 name: kcalc
2 version: 19.08.0
3 grade: stable
4 adopt-info: kcalc
5
6 confinement: strict
7 base: core18
8
9 apps:
10   kcalc:
11     common-id: org.kde.kcalc.desktop
12     command: kcalc
13     extensions:
14       - kde-neon
15     plugs:
16       - home
17       - opengl
18       - network
19       - network-bind
```

## We've found 45 snaps

- |   |   |  |   |
|---|---|--|---|
|  <b>Notepad++ (WINE)</b><br>Taqi Raza            |  <b>Foobar2000 (WINE)</b><br>Taqi Raza                 |  <b>TrackMania Nations Forever</b><br>Snapcrafters |  <b>PhotoScape</b><br>Snapcrafters                     |
|  <b>AniTuner (WINE)</b><br>Taqi Raza             |  <b>AniFX (WINE)</b><br>Taqi Raza                      |  <b>GOG Galaxy</b><br>Lucy Llewellyn               |  <b>HeidiSQL (WINE)</b><br>Kianda                      |
|  <b>Notepad3 (WINE)</b><br>Taqi Raza             |  <b>C&amp;C: Red Alert 2 Yuri's Re...</b><br>Taqi Raza |  <b>C&amp;C: Red Alert (WINE)</b><br>Taqi Raza     |  <b>Resourcehacker (WINE)</b><br>Taqi Raza             |
|  <b>µTorrent (WINE)</b><br>Taqi Raza             |  <b>C&amp;C: Tiberian Sun (WINE)</b><br>Taqi Raza      |  <b>Live For Speed (WINE)</b><br>Taqi Raza         |  <b>PSPad (WINE)</b><br>Taqi Raza                      |
|  <b>IrfanView (WINE)</b><br>Taqi Raza            |  <b>WinSnap (WINE)</b><br>Taqi Raza                    |  <b>BlackBox Component Pas...</b><br>Konstantin    |  <b>Legends of Runeterra (Wi...</b><br>Taqi Raza       |
|  <b>Stereogram Lab MTS (Wine)</b><br>Scott Pakin |  <b>Paladins</b><br>Turan Mahmudov                     |  <b>WinRAR (WINE)</b><br>Taqi Raza                 |  <b>CrypTool 1</b><br>Snapcrafters                     |
|  <b>HyperPlay: Game launch...</b><br>HyperPlay   |  <b>PowTTY</b><br>Nils Schimmelmann                    |  <b>MPC-HC</b><br>the-mentor                       |  <b>XNote Stopwatch (UNOFF...</b><br>林博仁(Buo-ren, Lin) |
|  <b>Bridge Designer 2016</b>                   |  <b>Twine</b>  |  <b>firstobject XML editor (Wi...</b>            |  <b>VisualG</b>                                      |



## Helper tools to snap Windows applications

- Prepares the environment for Wine
- Connects to Wine content snap
- Installs winetricks
- Installs theme
- Downloads app
- Runs app in Wine

More info & docs:

<https://github.com/snapcrafters/sommelier-core>

```

parts:
  sommelier-core:
    plugin: make
    source: https://github.com/snapcrafters/sommelier-core.g
    source-branch: "1.0"
  plugs:
    wine-runtime:
      interface: content
      target: $SNAP/wine-runtime
      default-provider: wine-platform-runtime
    wine-5-stable: # number must match the number in default-p
      interface: content
      target: $SNAP/wine-platform
      default-provider: wine-platform-5-stable # must be a val
  apps:
    my-windows-app:
      extensions: [gnome-3-28]
      command: bin/sommelier run-exe
      environment:
        RUN_EXE: C:\path\to\installed\executable.exe
        INSTALL_URL: http://example.com/installer.exe
        INSTALL_FLAGS: /silent # optional commandline flags to
      plugs: # change these as required
        - home
        - network
        - network-bind
        - removable-media
    wine:
  
```



# Step 1: Add sommelier-core script to snap

```
parts:  
  sommelier-core:  
    plugin: make  
    source: https://github.com/snapcrafters/sommelier-core.git  
    source-branch: "1.0"
```

## Step 2: Add Wine content snaps

plugs:

wine-runtime:

interface: content

target: \$SNAP/wine-runtime

default-provider: wine-platform-runtime

wine-5-stable: # number must match the number in default-provider

interface: content

target: \$SNAP/wine-platform

default-provider: wine-platform-5-stable # must be a valid snap

## Step 3: Add app config

apps:



```
my-windows-app:
```

```
  extensions: [gnome-3-28]
```

```
  command: bin/sommelier run-exe
```

```
  environment:
```

```
    RUN_EXE: C:\path\to\installed\executable.exe
```

```
    INSTALL_URL: http://example.com/installer.exe
```

```
    INSTALL_FLAGS: /silent # optional commandline flags to pass to
```

```
  plugs: # change these as required
```

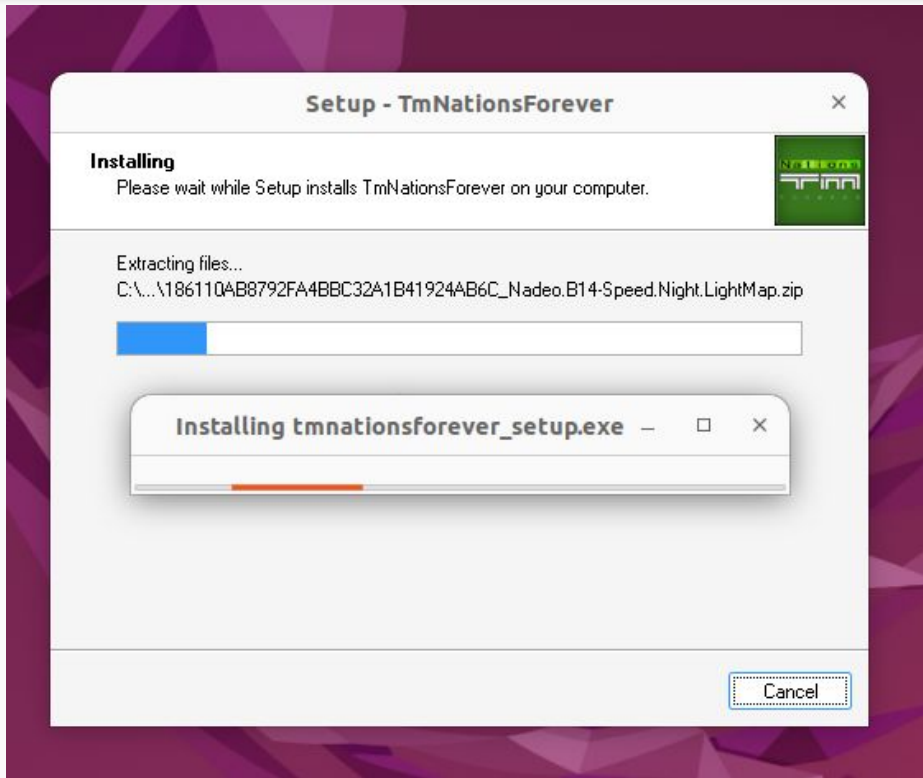
```
- home
```

```
- network
```

```
- network-bind
```

```
- removable-media
```







# History of snapping Windows apps



## TrackMania Nations Forever

- Snap made to appease Martin Wimpress' racing gaming requirements
- Was a "scratch your own itch" effort by Alan Pope and Martin Wimpress

*(Has been unfairly accused of being the reason why Martin loses tournaments)*

There must be a subtle issue in physics or handling #5

 Open mcphail opened this issue on Jun 16, 2018 · 9 comments



mcphail commented on Jun 16, 2018

Contributor · ⋮

Assignees

No one assigned

Labels

None yet

Last night, I played this game online against someone who claims to be "good at driving games". Despite this attribute, my opponent struggled to stay on the track, often rebounding from barrier to barrier like a rabid pinball, despite him "stopping talking for a minute to get a lap in". He was consistently thrashed by all the lesser drivers on the server.

I can only surmise there must be a problem with this snap which affects the physics or

## Call for testing: TrackMania Nations Forever

 wine, game



Wimpress

3 Jun '18

Inspired by some of our community contributors who've been snapping Windows applications we decided to have a go at creating snaps of Windows games as a bank holiday weekend project.

After several evenings of "extensive QA" 😊 we'd like to invite you to test the snap of the free to play Track Mania Nations Forever, the most popular online PC racing game *E-V-E-R!* 🚗 🏁

```
snap install tmnationsforever
snap connect tmnationsforever:joystick
```



## You Can Now Play 'TrackMania Nations Forever' on Ubuntu

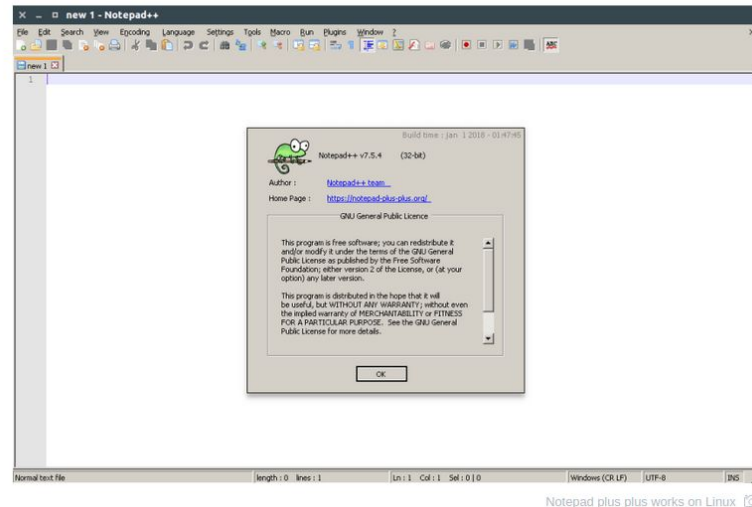


By Joey Sneddon · Updated 22 June 2018 · 44 Comments

## Notepad++

- Open Source Windows-only editor
- Popular on Windows among enthusiasts
- Snap created by Taqi Raza (mmtrt)

## Install Notepad++ in Ubuntu



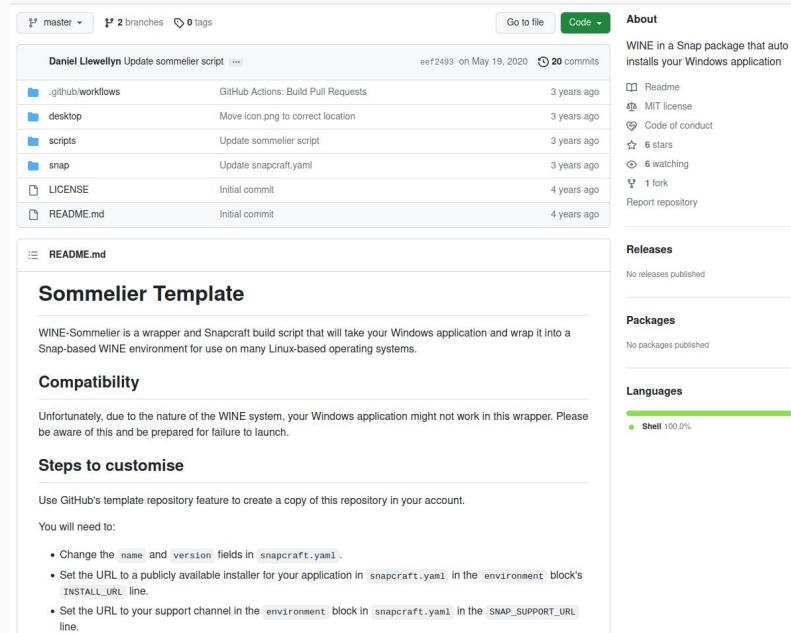
It's long been possible to install and run Notepad++ on Linux distributions like Ubuntu using Wine, a 'Windows' compatibility layer.

While Wine is great software, the hurdles and effort required to configure and set it up correctly is often more effort than many folks are willing to spend.

Enter [Snapcraft](#), an easy way to package and distributions apps on Linux with all their dependencies and configurations pre-set.

**Thanks to Wine, you  
can install  
Notepad++ on  
Ubuntu, Linux Mint  
and other distros**

- Primarily based on the TrackMania Nations Forever snap's code
- Lucy incorporated improvements by Taqi Raza in Notepad++ snap's code
- Initial Sommelier template project created on GitHub



The screenshot shows a GitHub repository page for 'Daniel Llewellyn Update sommelier script'. The repository has 2 branches and 0 tags. The commit history shows several updates to workflows, desktop icons, and scripts. The README.md file is selected, showing the 'Sommelier Template' section. The README describes the project as a wrapper and Snapcraft build script for Windows applications on Linux. It includes sections for 'Compatibility' and 'Steps to customise'.

**Sommelier Template**

WINE-Sommelier is a wrapper and Snapcraft build script that will take your Windows application and wrap it into a Snap-based WINE environment for use on many Linux-based operating systems.

**Compatibility**

Unfortunately, due to the nature of the WINE system, your Windows application might not work in this wrapper. Please be aware of this and be prepared for failure to launch.

**Steps to customise**

Use GitHub's template repository feature to create a copy of this repository in your account.



You will need to:

- Change the `name` and `version` fields in `snapcraft.yaml`.
- Set the URL to a publicly available installer for your application in `snapcraft.yaml` in the `environment: block's` `INSTALL_URL` line.
- Set the URL to your support channel in the `environment: block` in `snapcraft.yaml` in the `SNAP_SUPPORT_URL` line.

## Initial efforts to make launch script generic

- Added Hooks
- Added usage of environment variables to control behaviour

```
environment:  
  INSTALL_URL: "<<INSERT URL TO PUBLICLY AVAILABLE INSTALLER>>"  
  TRICKS: "corefonts vcrun2017"  
  WINEPREFIX: "$SNAP_USER_COMMON/.wine"  
  DLLOVERRIDES: "mscoree,mshtml=" # Prevent pop-ups about Wine Mono and Wine Gecko  
  LC_ALL: "C.UTF-8"  
  SNAP_TITLE: "$SNAPCRAFT_PROJECT_SUMMARY"  
  SNAP_ICON: "$SNAP/meta/gui/icon.png"  
  SNAP_SUPPORT_URL: "<<INSERT SUPPORT URL HERE>>"  
  ENABLE_DXVK: 'true'  
  ENABLE_ESYNC: 'true'
```

 snap-post-install snap-post-stop snap-pre-install snap-pre-start sommelier zenity

- More work on making launch script generic
- Convert to use Taqi Raza's WINE content snaps
- Use Gnome extension

## Call for testing: snap Windows apps with sommelier-core

snapcraft



galgalesh

2 30d

[sommelier-core](#) <sup>37</sup> is an attempt to create a universal script for snapping Windows applications. It merges the original sommelier script from [@Wimpress](#), [@popey](#) and [@lucyllewy](#) with the work [@mmtrt](#) is doing to create platform snaps for Wine. The goal of this script is that "everything just works".

Features:

- Uses Wine from the wine-platform snaps to reduce the size of your snap.
- Uses the `gnome-3-28` extension for initializing all the generic desktop stuff.
- Includes the "Modern" theme from [ReactOS](#) <sup>7</sup> so Windows applications look less ugly. [optional]
- Updates the Wine prefix every time Wine changes. Can upgrade a 32-bit Wine prefix to 64-bit.
- Reinstalls the Windows app every time the snap `version` changes.
- Reconfigures Wine every time the snap `revision` or the Wine version changes.
- Users can run `myapp.wine` to run arbitrary applications inside this snap.
- Users can run `myapp.winetricks` to modify the Wine environment.

Cons:

- The script is not 100% compatible with the original sommelier. If you need something which is not present, let me know.

I've built a bunch of snaps based on this script:

- [TrackMania Nations Forever](#) <sup>4</sup> (downloads an installer)
- [Notepad ++](#) <sup>12</sup> (ships a portable install version in the snap itself)
- [PhotoScape snap](#) <sup>6</sup> (ships an installer in the snap)
- [Bridge Designer snap](#) <sup>2</sup> (ships an installer in the snap)

The rest of this post is a small tutorial. See the [sommelier-core](#) <sup>37</sup> repository for a complete reference.



# Snap them all

Sommelier now applied to many WINE-based snaps

Taking community contributions to add new features and bug fixes

# Sommelier deep-dive

## Use the TRICKS environment variable

- For example

- To install the corefonts...

```
environment:  
    TRICKS: corefonts
```

- To install multiple tricks append them in order...

```
environment:  
    TRICKS: corefonts vcrun2015 dotnet452 win7
```

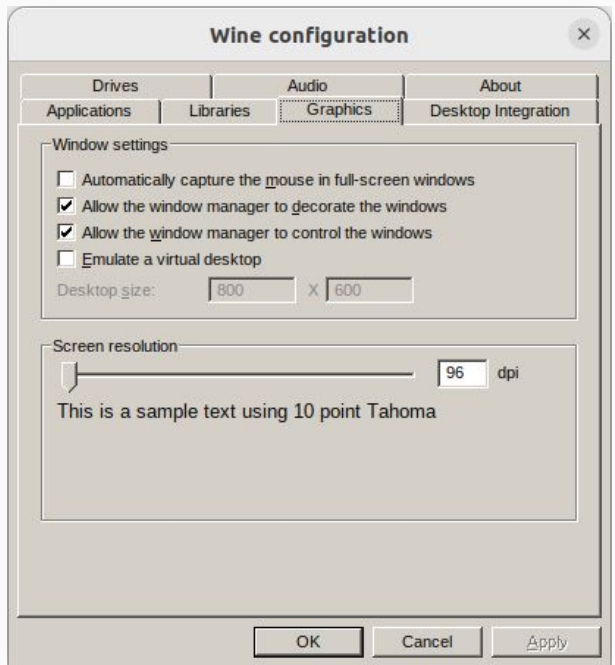
- See what tricks you need at

- <https://appdb.winehq.org/>
- <https://www.protondb.com/>

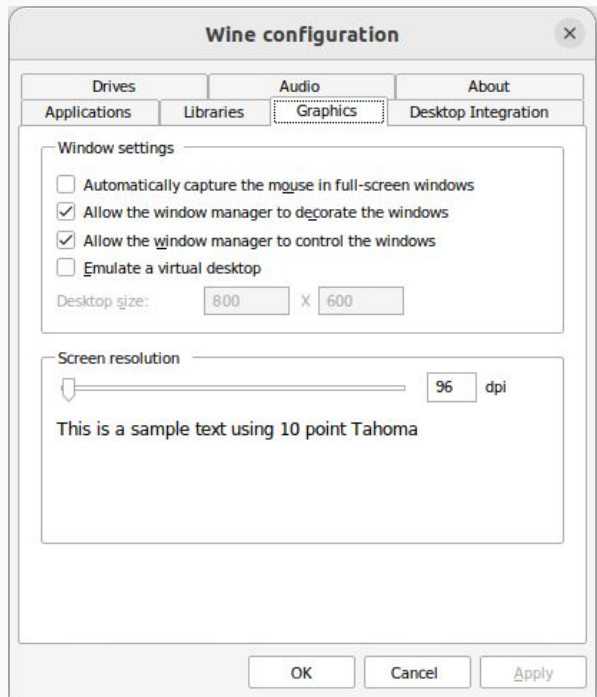


- Supported hooks:
  - `pre-install`
  - `post-install`
  - `pre-start`
  - `Post-stop`
- Copy scripts to `$SNAP/sommelier/hooks`

Without theme  
(SOMMELIER\_NO\_THEME=1)



With theme



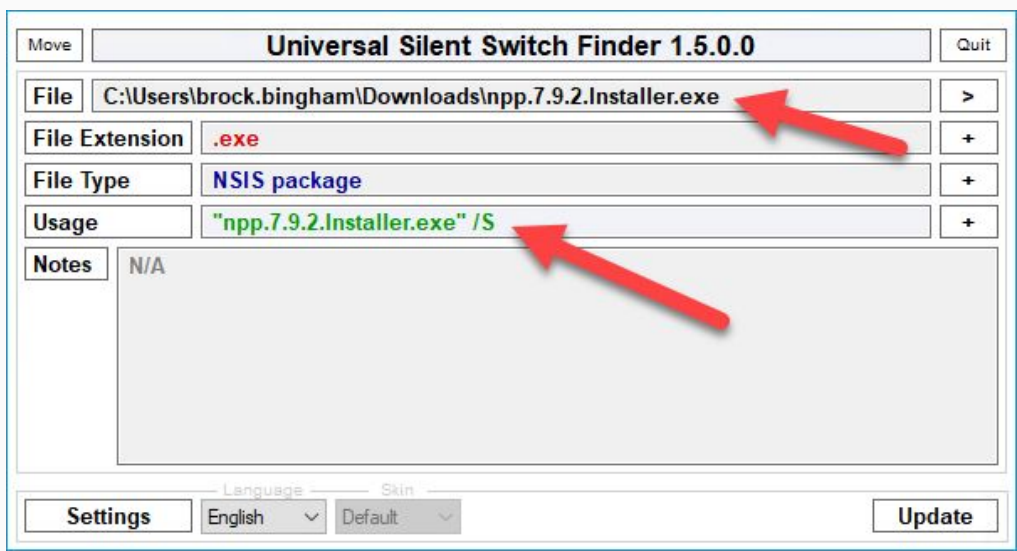
- Wine itself
  - wine-platform-5-stable (core18)
  - wine-platform-6-stable (core18)
  - wine-platform-7-stable-core20
- Dependencies
  - wine-platform-runtime (core18)
  - wine-platform-runtime-core20

# Useful tools for creating WINE snaps

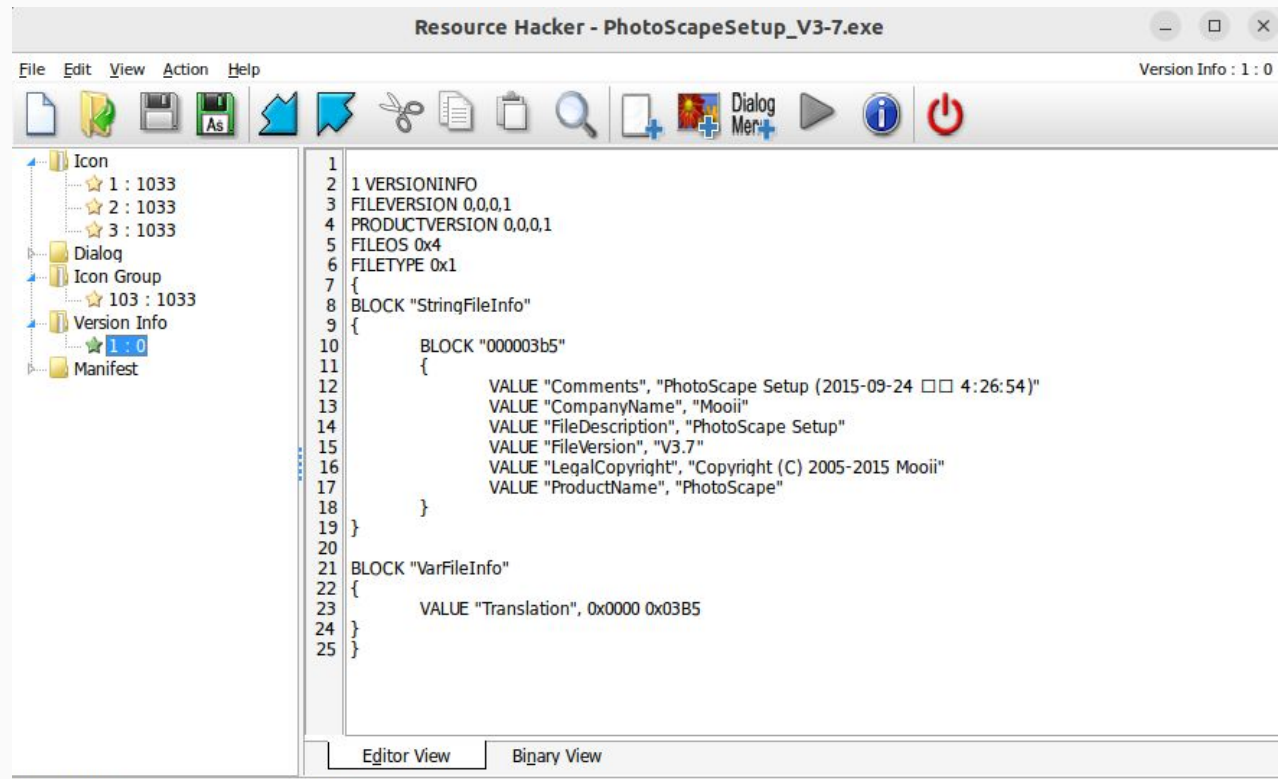
<https://www.softpedia.com/get/System/Launchers-Shutdown-Tools/Universal-Silent-Switch-Finder.shtml>

Doesn't work in Wine :( But Microsoft provides free Windows VMs:

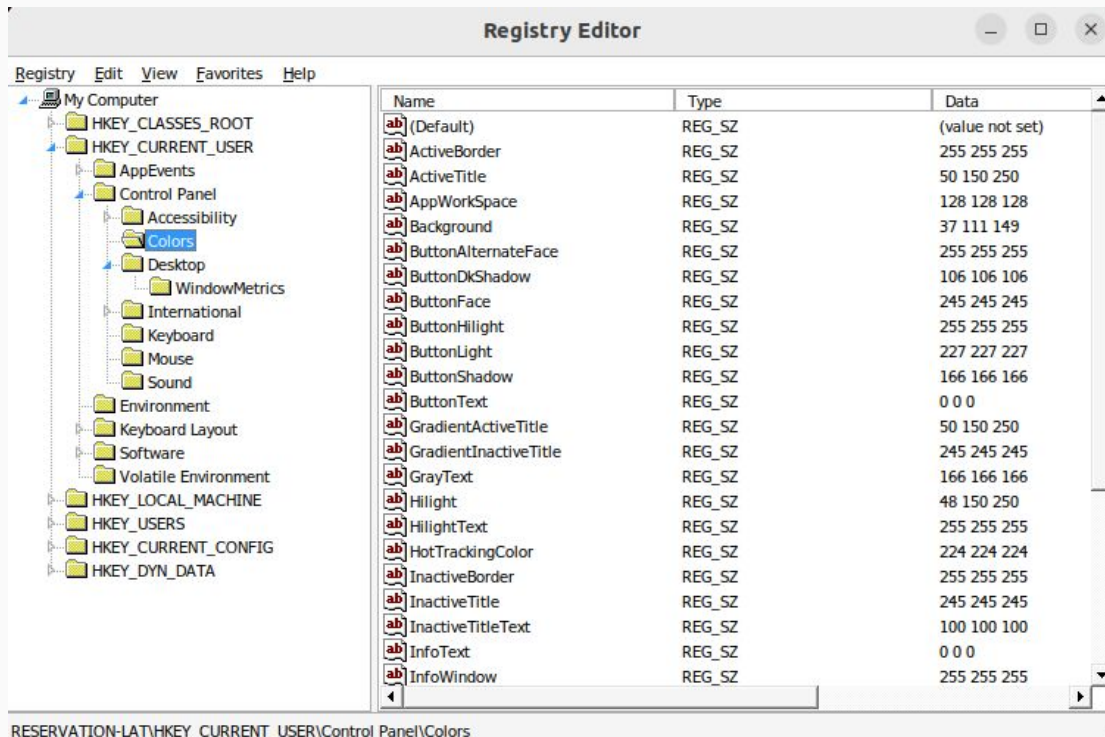
<https://developer.microsoft.com/en-us/windows/downloads/virtual-machines/>



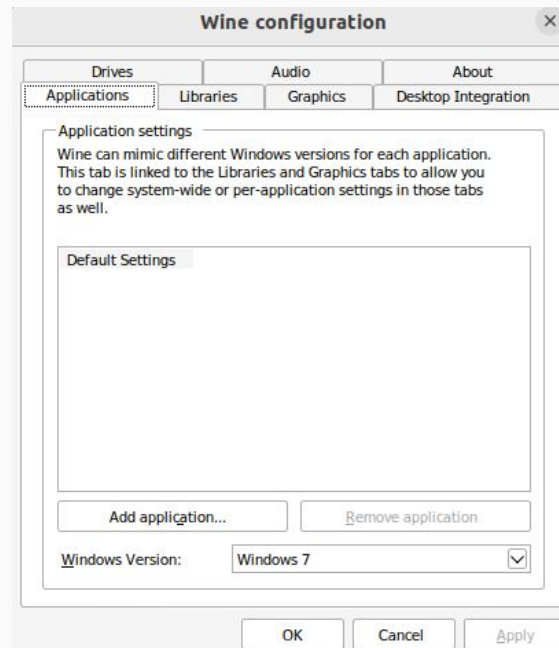
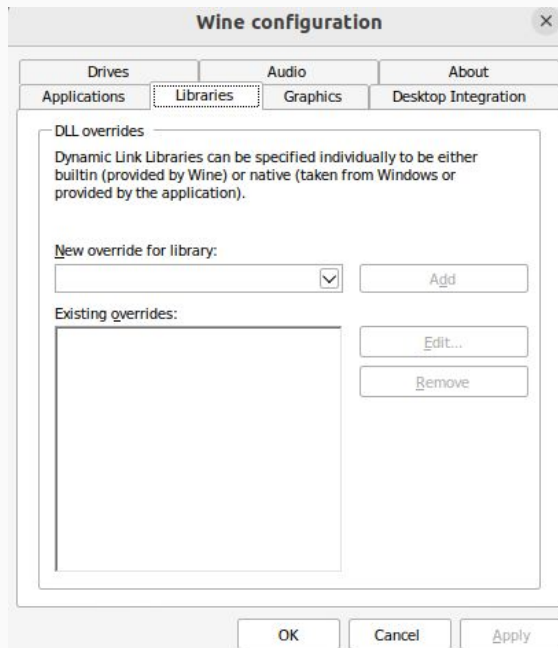
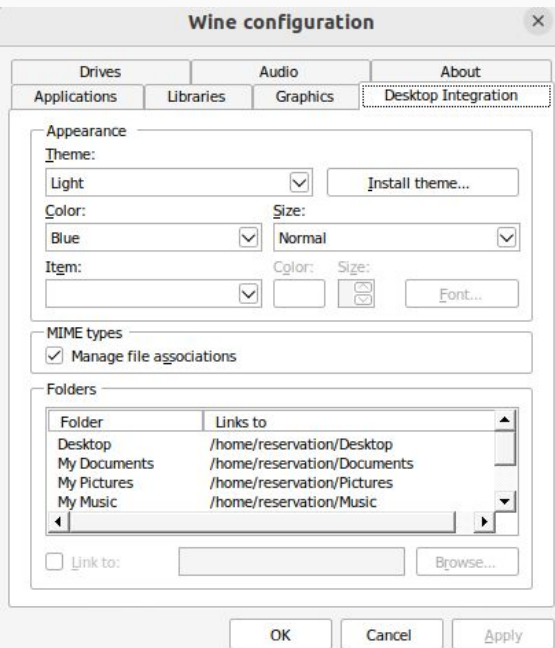
snap install resourcehacker



# app-name.wine regedit



app-name.wine winecfg





# Useful snap debugging tools

- Build your snap with `snapcraft try`
- Install from your build tree with `snap try ./prime`

- Inspect the environment of your app
- Check what your app can access
- Experiment with launching your app while in the shell
- `snap run --shell [your-snap-name]`

- Same as sandboxed environment, but confinement not enforced
- Install with `snap install --devmode ./snap-name.snap`
- `snappy-debug` is useful to see what *would* be denied if sandbox is enforced

# Thanks to everyone involved!

*Click to support the creators*

## Q&A

Find us on the fediverse!

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# Thanks!

We can both be found on the Fediverse.

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