This tutorial teaches how to build Linux distributions as screensavers for Microsoft Windows, with your choice of boot screen and wallpaper. The intent of this is to construct items containing your logos which can be distributed as marketing novelties. Most businesses have controls as to when their logos can be used, so be sure to get the permission you need.
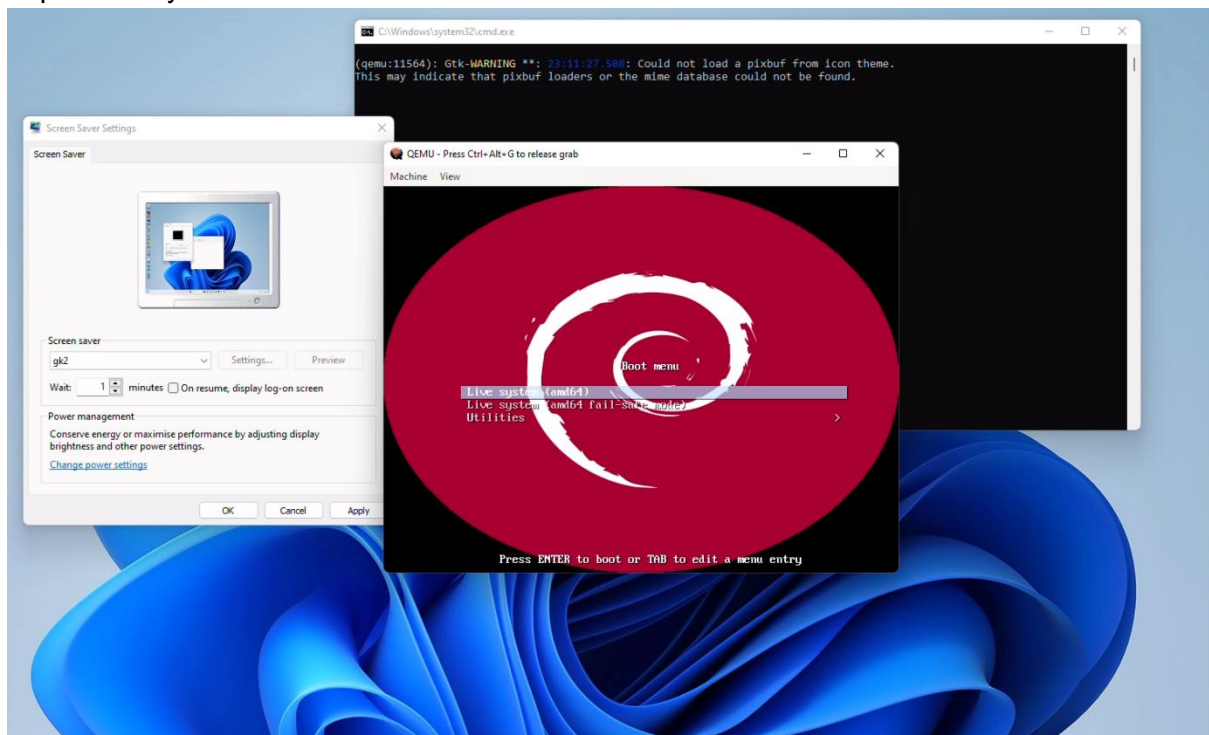
All required software and data is open source and is accessible on the public Internet.

Hardware requirement: A PC running Windows 10 or newer which is capable of running WSL2. WSL2 only runs on some CPUs and requires a BIOS setting to enable virtualization. If you can't enable virtualization, you will need 2 PCs, one running Microsoft Windows and the other running Debian Linux.
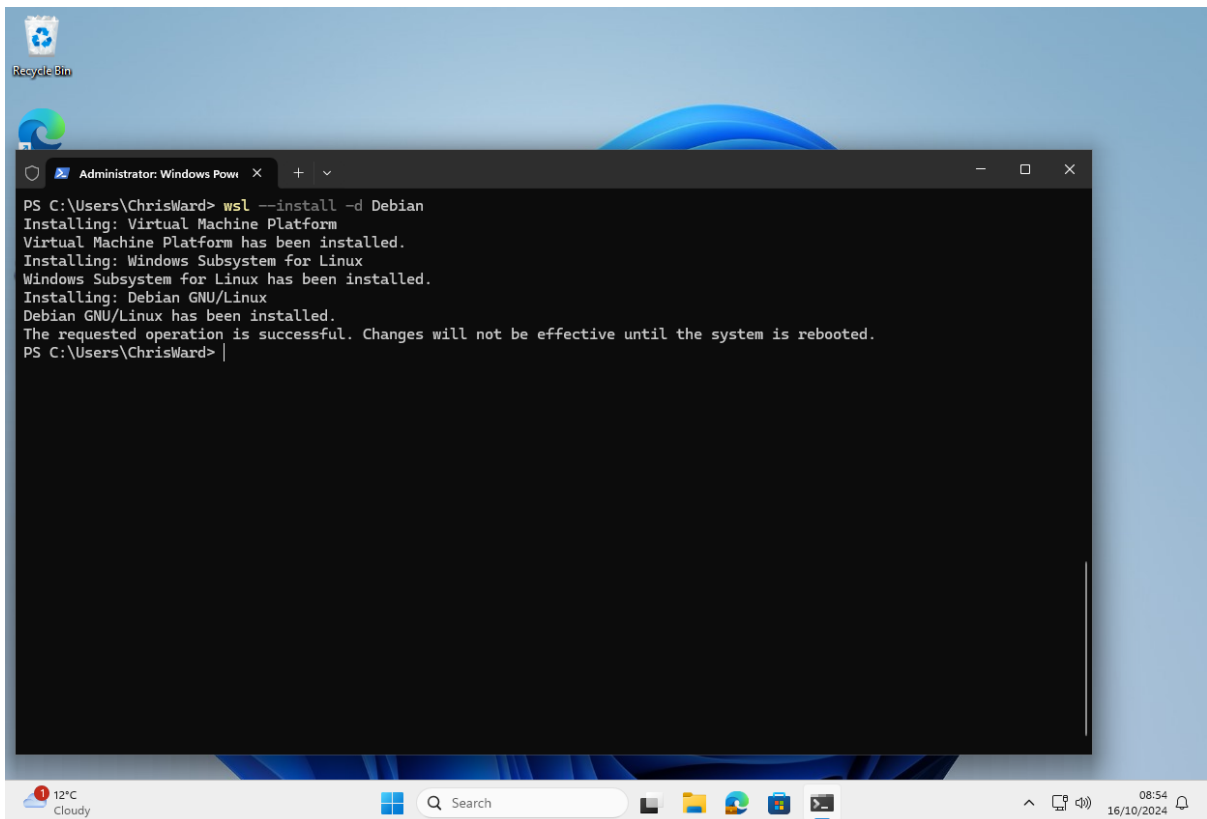
Internet requirement You will download up to 10 GB of data in all cases, and up to 100GB of data if you choose to download all the source code.

The required SVG (scalable vector graphic) files can be edited with Inkscape, an open source item available for Linux, Apple Mac, and Microsoft Windows; or with commercial products such as sold by Adobe.

I set up a screensaver with a Debian logo, because the screensaver is a Debian Linux https://www.debian.org/logos/ . Here is a video from the screensaver kicking in to the point where you can watch the stars with the 'kstars' application https://www.youtube.com/watch?v=J7Jc7uPmLx8

Install WSL2 with Debian

Install cygwin from https://cygwin.com/ with git

Cygwin

Cygwin

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Get that Linux feeling - on Windows

Installing and Updating Cygwin Packages

Installing and Updating Cygwin for 64-bit versions of Windows

Run setup-x86_64.exe any time you want to update or install a

The signature for setup-x86_64.exe can be used to verify the v

General installation notes

When installing packages for the first time, the setup program
from the Cygwin distribution are installed by default, which ta

Clicking on categories and packages in the setup program pack
updated.

Individual packages like *bash, gcc, less*, etc. are released indep
useful as a general Cygwin release number. The setup program
mechanism for **installing** or **updating** everything available fro

Once you've installed your desired subset of the Cygwin distri
running it will update your system with any new package relea

The setup program will check by default if it runs with admini
want to avoid this behaviour and install under an unprivileged account just for your own usage, run setup with the --no-admin option.

Q: How do I add a package to my existing Cygwin installation?

A: Run the setup program and select the package you want to add

Downloads

setup-x86_64.exe
Open file

See more

Cygwin Setup - Choose Download Site(s)

Choose A Download Site
Choose a site from this list, or add your own sites to the list.

Available Download Sites:

https://cygwin.cathedral-networks.org
https://mirrors.dotsrc.org
https://ftp.kr.freebsd.org
https://mirrors.kernel.org
https://www.mirrorservice.org
https://cygwin.osuosl.org
https://mirror.easyname.at
https://mirror.aarnet.edu.au
https://linorg.usp.br
https://ftp.byfly.by
https://mirror.datacenter.by
https://muug.ca
http://cygwin.mirror.rafal.ca

User URL: [Add]

[< Back] [Next >] [Cancel]

Cygwin Setup - Select Packages

Select Packages
Select packages to install.

View [Category]   Search [git]   [Clear]   ○ Keep   ● Best   ○ Sync   □ Test

Package	Current	New	Src?	Categories	Size	Description
⊟ All		Default				
⊞ Debug (6)		Default				
⊟ Devel (16)		Default				
git		Skip		Devel	8,597k	Distributed version control system
git-archive-all		Skip		Devel, Unmaintained	17k	Git archive with submodules support
git-clang-format		Skip		Devel, Unmaintained	7k	C/C++ code formatting support for Git
git-cvs		Skip		Devel	79k	CVS compatibilty support for Git version control system
git-email		Skip		Devel	43k	Email tools for Git version control system
git-filter-repo		Skip		Devel, Python	122k	Quickly rewrite git repository history (filter-branch replacement)
git-gui		Skip		Devel	217k	Graphical interface for Git version control system
git-p4		Skip		Devel	65k	Perforce compatibility support for Git version control system
git-review		Skip		Devel	80k	Tool to submit code to Gerrit
git-svn		Skip		Devel	96k	Subversion compatibility support for Git version control system
gitg		Skip		Devel, Unmaintained	610k	GTK+ git repository viewer
gitk		Skip		Devel	141k	Git repository browser
gitweb		Skip		Devel	134k	Web interface for Git version control system
mingw64-i686-libgit2		Skip		Devel, Unmaintained	594k	libgit2 for Win32 toolchain
mingw64-x86_64-libgit2		Skip		Devel, Unmaintained	613k	libgit2 for Win64 toolchain
stgit		Skip		Devel, Python	227k	Quilt functionality on top of git
⊞ Editors (1)		Default				
⊞ Libs (9)		Default				
⊞ Math (1)		Default				
⊞ Perl (1)		Default				
⊞ Publishing (1)		Default				
⊞ Python (2)		Default				
⊞ Unmaintained (20)		Default				
⊞ Utils (1)		Default				
⊞ Web (1)		Default				

☑ Hide obsolete packages

[< Back] [Next >] [Cancel]

Install Inno Setup from https://jrsoftware.org/isinfo.php
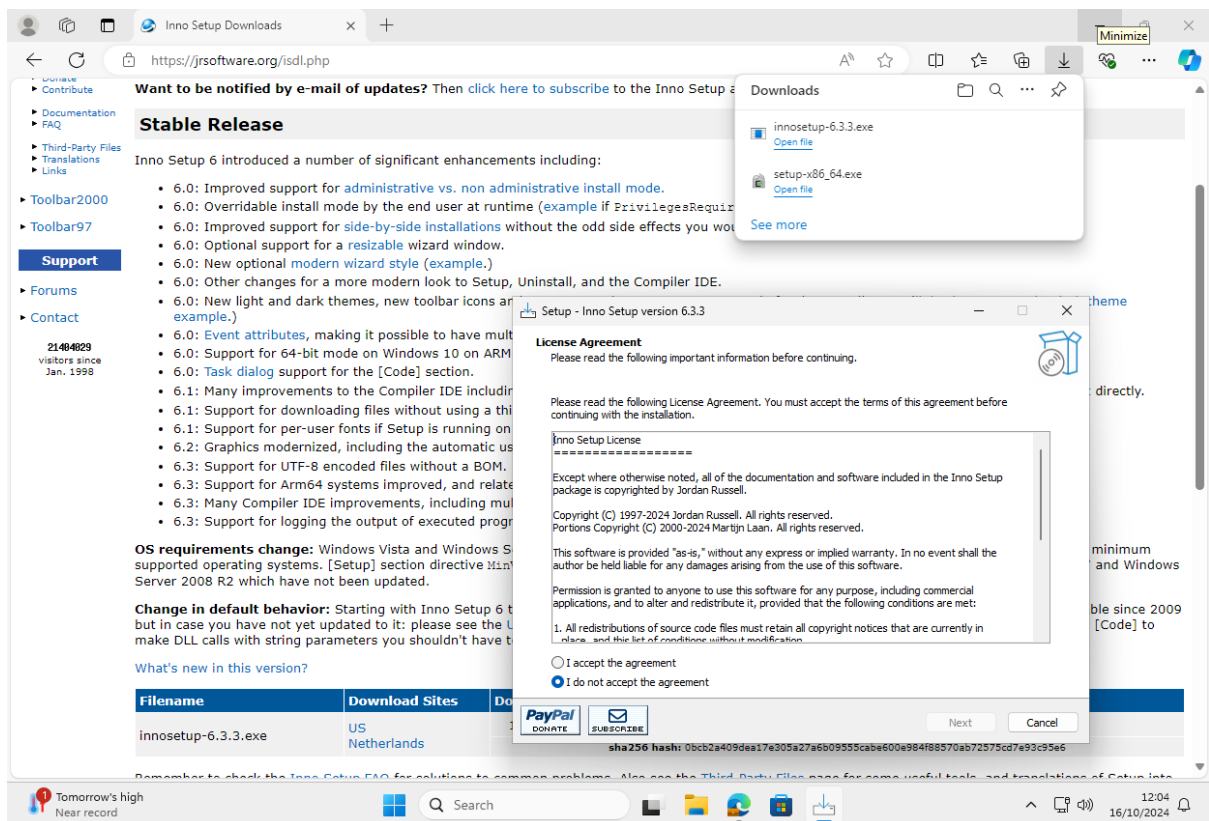
Install Qemu for Windows from https://qemu.weilnetz.de/w64/
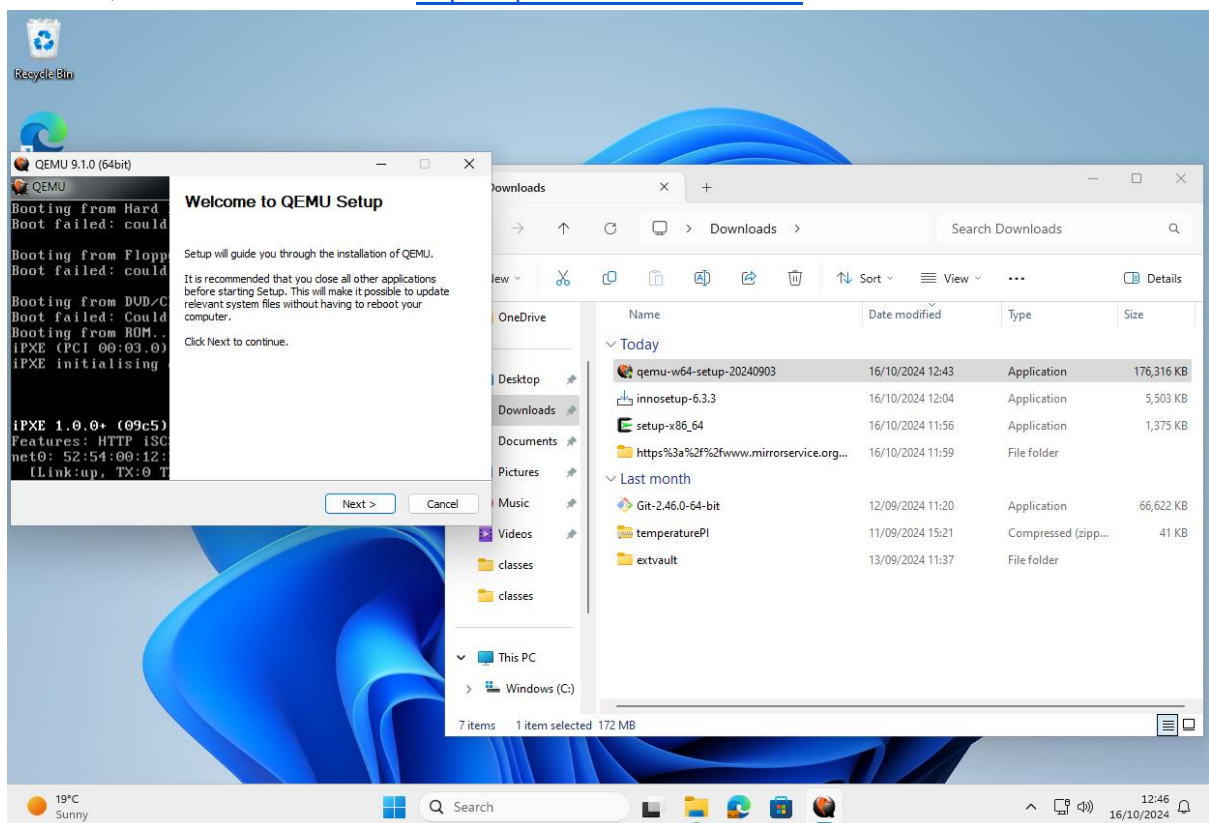
Clone my repository https://github.com/tjcw/screensavers.git under cygwin
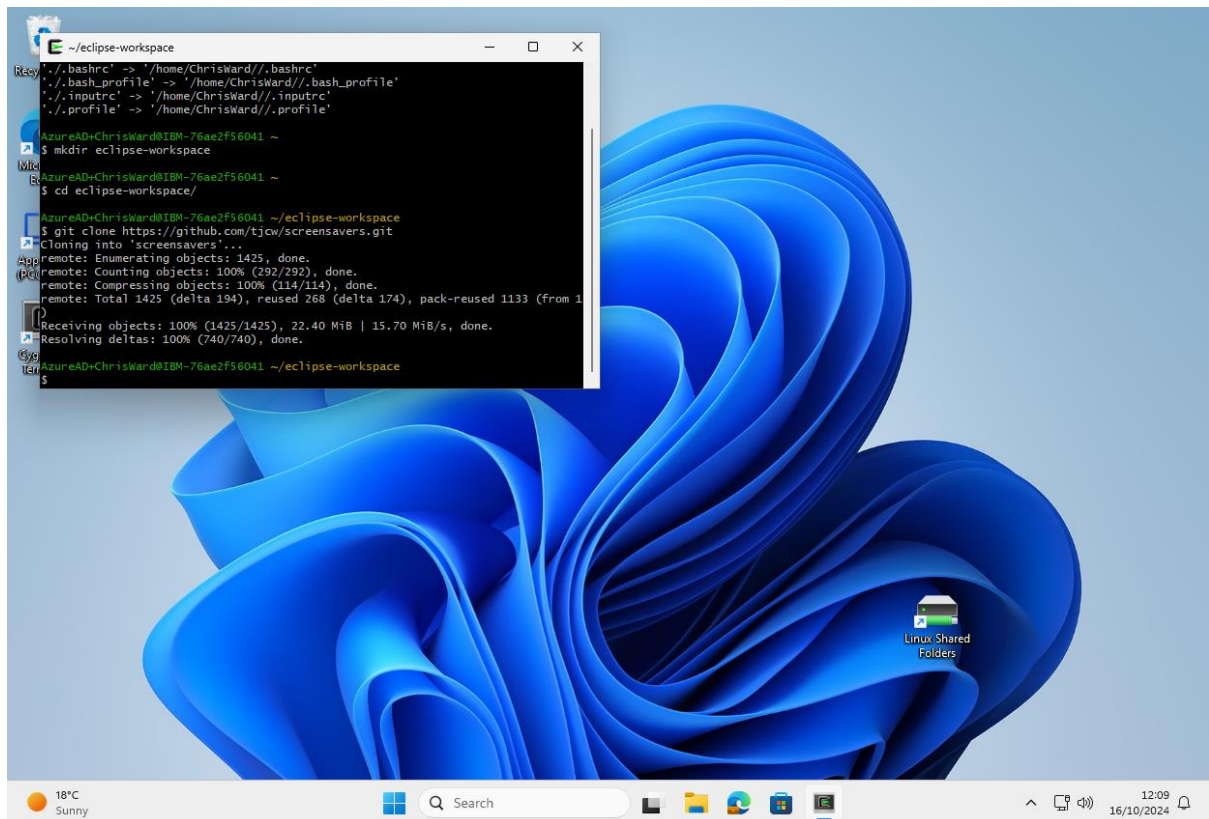
Clone my repository https://github.com/tjcw/screensavers.git under WSL2 into directory ~/eclipse-workspace/

$ mkdir ~/eclipse-workspace;cd ~/eclipse-workspace; git clone https://github.com/tjcw/screensavers.git

Install 'live-build' under WSL2 $ sudo apt install live-build
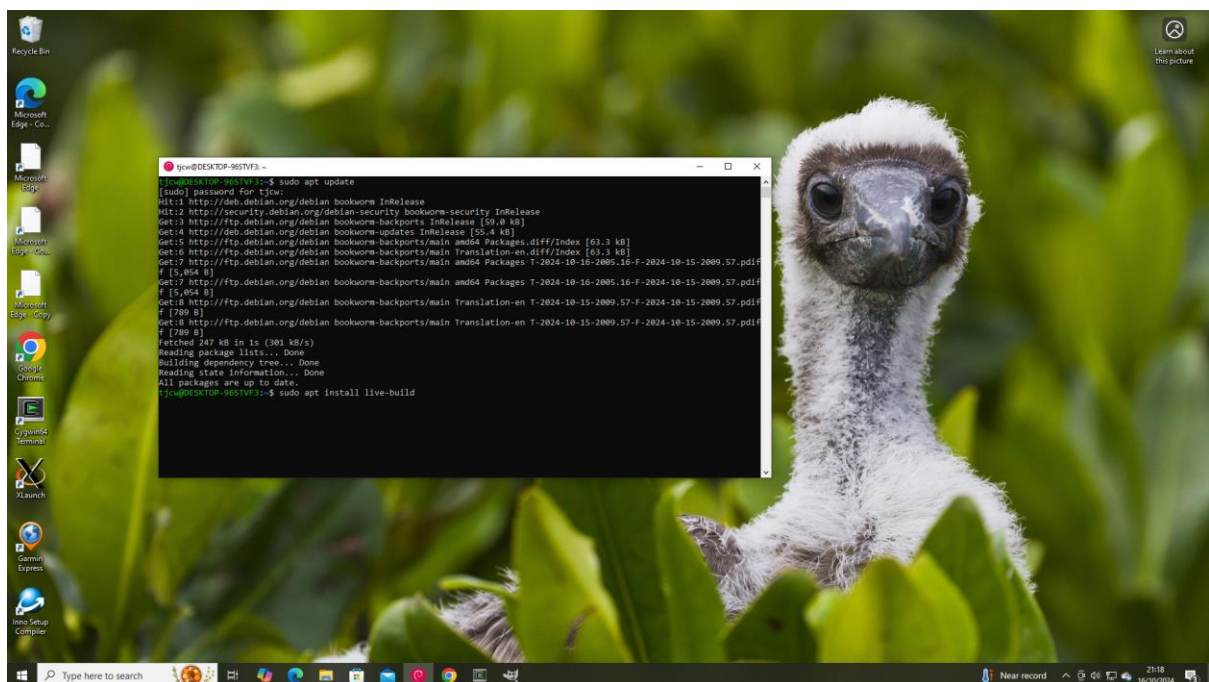
```
tjcw@DESKTOP-96STVF3 ~
$ cd eclipse-workspace/

tjcw@DESKTOP-96STVF3 ~/eclipse-workspace
$ cd screensavers/

tjcw@DESKTOP-96STVF3 ~/eclipse-workspace/screensavers
$ cd packaging/

tjcw@DESKTOP-96STVF3 ~/eclipse-workspace/screensavers/packaging
$ mkdir qemu

tjcw@DESKTOP-96STVF3 ~/eclipse-workspace/screensavers/packaging
$  cp -r "/cygdrive/c/Program Files/qemu/." qemu
tjcw@DESKTOP-96STVF3 ~/eclipse-workspace/screensavers/packaging
$ ./package-qemu-open.sh >fr2-open.iss

tjcw@DESKTOP-96STVF3 ~/eclipse-workspace/screensavers/packaging
$
```

Customise the selection of software to go in the isos (WSL2 commands). There are
approximately 65000 packages available in Debian Linux. I chose a few thousand packages
for each of 2 screensavers, one with an educational theme and one with an open source
games theme.

tjcw@DESKTOP-96STVF3:~/lb$ vi ~/eclipse-workspace/screensavers/lb-package-
lists/freeduc-bookworm.list.chroot

tjcw@DESKTOP-96STVF3:~/lb$ vi ~/eclipse-workspace/screensavers/lb-package-lists/gk-
bookworm.list.chroot

Copy in the SVG files to be used as boot splash screen and wallpaper
tjcw@DESKTOP-96STVF3:~/eclipse-workspace/screensavers$ cp splash.svg
svgs/splash.svg
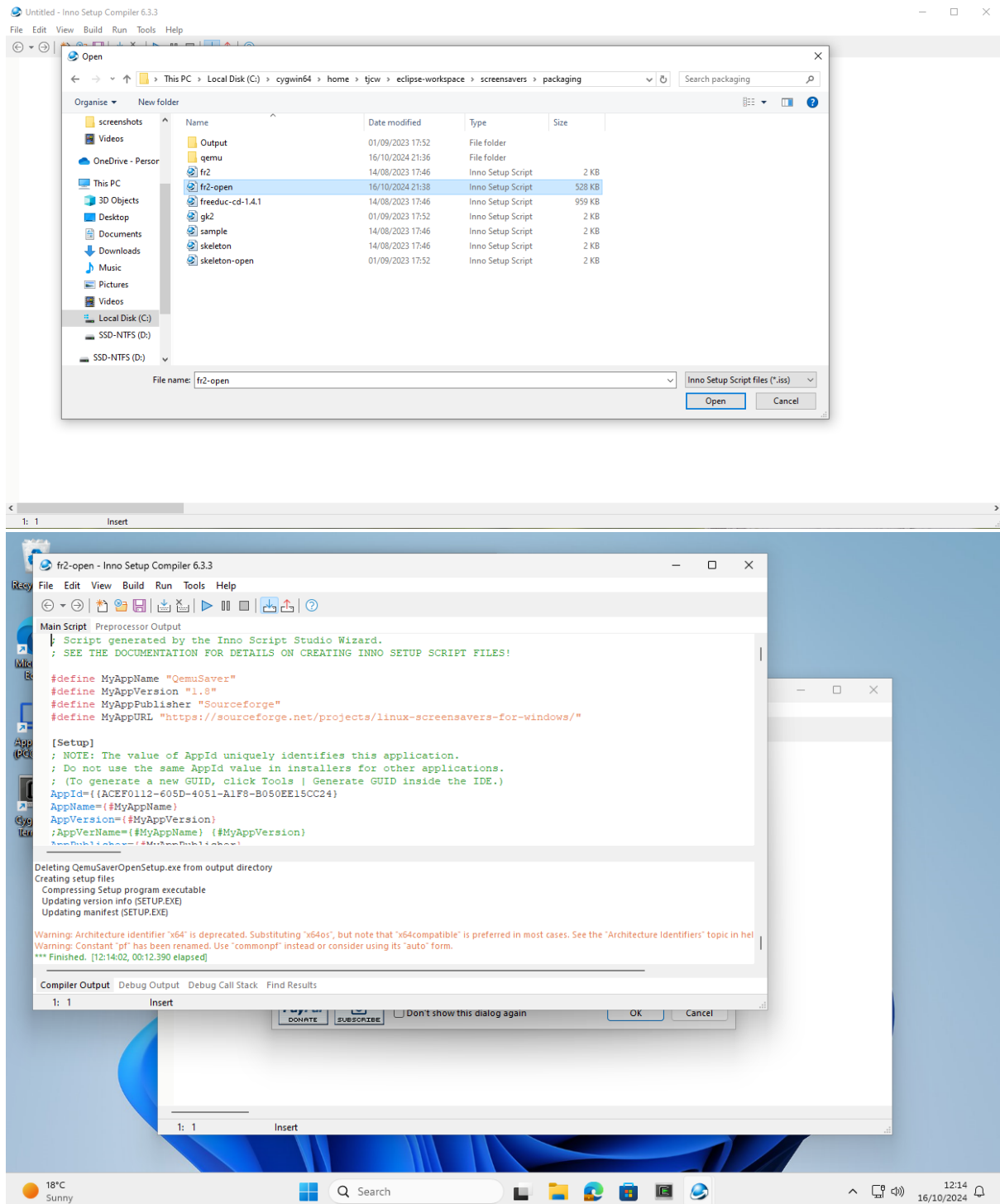tjcw@DESKTOP-96STVF3:~/eclipse-workspace/screensavers$ cp wallpaper.svg
content/common-files/home/user/face

Run 'build-both' under WSL2 to generate the isos
tjcw@DESKTOP-96STVF3:~/lb$ sudo ~/eclipse-workspace/screensavers/bin/build-both

Set up the install script for Inno Setup (Cygwin commands)


Run Inno Setup to create the installers

After opening 'fr2.iss', choose 'Build/Compile'.
Transfer the installers and 'Qemu for Windows' to WSL2

```
tjcw@DESKTOP-96STVF3:~/assembly/QemuSaverOpen/unzip$ zip -r
../QemuSaverOpen.zip .
tjcw@DESKTOP-96STVF3:~/assembly/GamesKnoppix2/unzip$ zip -r
../GamesKnoppix2.zip .
```

```
mv ~/eclipse-workspace/screensavers/packaging/qemu
~/assembly/QemuSaverOpen/unzip/
cp ~/eclipse-workspace/screensavers/packaging/Output/QemuSaverOpenSetup.exe
~/assembly/QemuSaverOpen/unzip/
cp ~/eclipse-workspace/screensavers/packaging/fr2.scr
~/assembly/QemuSaverOpen/unzip/extras/
ln ~/lb/isos/freeduc-bookworm.iso ~/assembly/QemuSaverOpen/unzip/extras/fr2.iso

cp ~/eclipse-workspace/screensavers/packaging/Output/GamesKnoppix2Setup.exe
~/assembly/GamesKnoppix2/unzip/
cp ~/eclipse-workspace/screensavers/packaging/gk2.scr
~/assembly/GamesKnoppix2/unzip/extras/
ln ~/lb/isos/gk-bookworm.iso ~/assembly/GamesKnoppix2/unzip/extras/gk2.iso
tjcw@DESKTOP-96STVF3:~/eclipse-workspace/screensavers/bin$
```
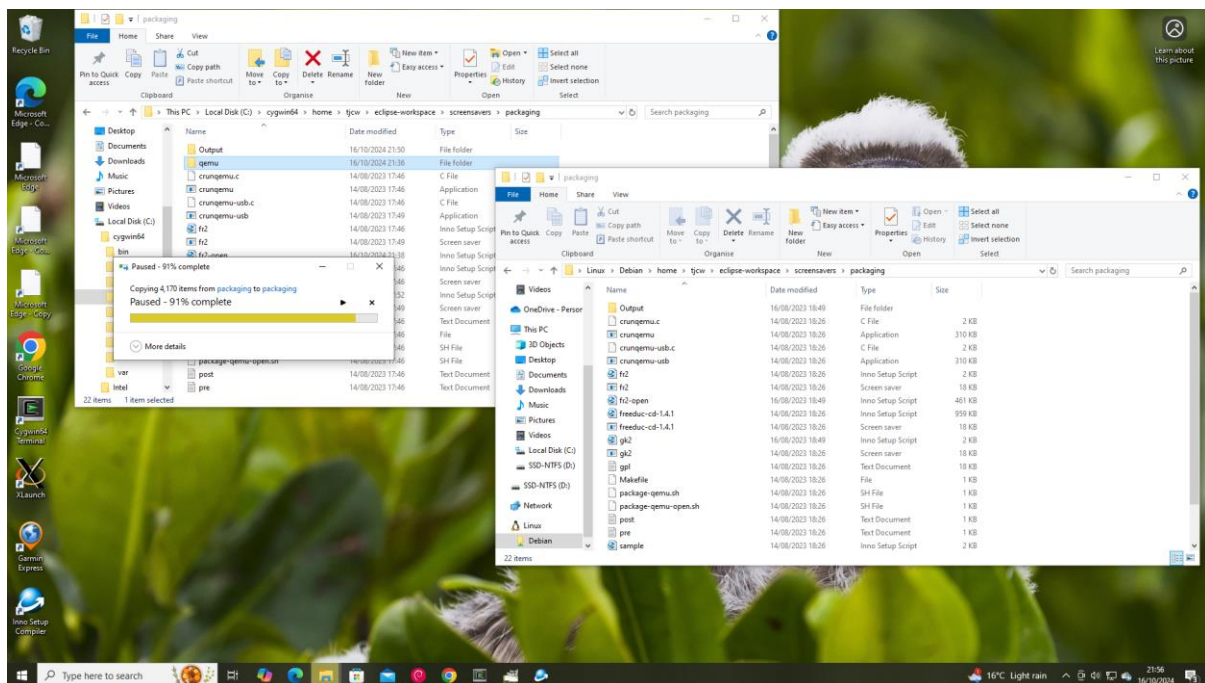

Set up the unzipped files by running "setup_assembly"

Zip up the ISOs, the installers, and 'QEMU for Windows'

Transfer the zip files from WSL2 to Windows

Test

Extract each zip file and run the installer exes. Sometimes the installers are detected as malware. They aren't malware, so if necessary add the QemuSaverOpen and GamesKnoppix2 directories to the exclusion list.
Go to screensaver settings and select fr2 or gk2.

If you want, you can gain confidence that the installers aren't malware by uploading them to
https://virustotal.com

Source code

Optionally, run '~/eclipse-workspace/bin/fetch_source' to fetch the source code for all components. You will need the source code if you propose to distribute the screensavers, as recipients may ask you for it. 'fetch-source' will download more than 100 GB of data, which may stress the available internet connection.

```
#!/bin/bash
# Fetch the qemu source
git clone https://repo.or.cz/qemu/ar7.git
# Fetch the inno setup source
git clone https://github.com/jrsoftware/issrc.git
# Fetch the rufus source
git clone https://github.com/pbatard/rufus.git
# Fetch the Debian source
iso_dir=http://cdimage.debian.org/debian-cd/current/source/iso-dvd
wget ${iso_dir}/SHA512SUMS
while read sha512 name
do
  wget ${iso_dir}/${name}
done <SHA512SUMS
# Check the checksums
sha512sum -c SHA512SUMS#!/bin/bash
# Fetch the qemu source
git clone https://repo.or.cz/qemu/ar7.git
# Fetch the inno setup source
git clone https://github.com/jrsoftware/issrc.git
# Fetch the rufus source
git clone https://github.com/pbatard/rufus.git
# Fetch the Debian source
iso_dir=http://cdimage.debian.org/debian-cd/current/source/iso-dvd
wget ${iso_dir}/SHA512SUMS
while read sha512 name
do
  wget ${iso_dir}/${name}
done <SHA512SUMS
# Check the checksums
sha512sum -c SHA512SUMS
```

Bibliography

https://www.researchgate.net/publication/272094609_Linux_screensaver_for_Windows First publication about running Linux as a Windows screensaver

https://www.linux.com/news/linux-as-a-screensaver-for-windows-the-gift-of-open-source-games-and-sboms-for-the-holidays/ Updated publication about running Linux as a Windows screensaver

https://sourceforge.net/projects/linux-screensavers-for-windows/files/release1/ Location on SourceForge where the screensavers in the above article are avaiable for download