



Containerized Desktop

fedora

Silverblue

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SCALE 2019



Spotify



Log in with Facebook

5419def643

or

Password



Remember me

Forgot your password?
Not a user? Sign up



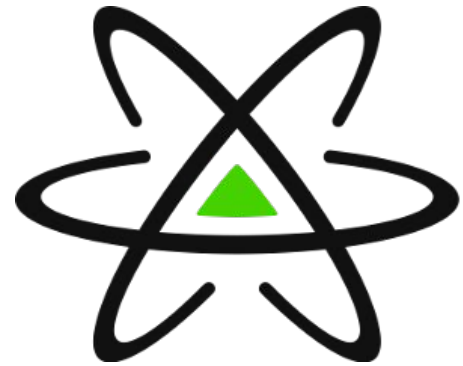
174.8 GiB | Docker

dockercon

15

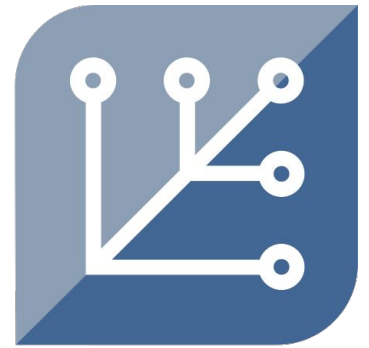
Building Container Desktops

- Docker
- RancherOS
- Atomic Workstation
- CoreOS desktop



What we have now: Silverblue

- An established project
- A new name and logo
- An image-based OS
- Trusted Fedora content



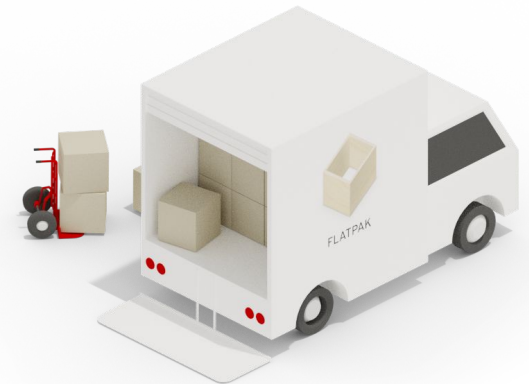


OSTree



Cool OS, but what about the apps ?

- Flatpak - Containers for desktop apps
- Independent from the OS
- Sandboxed
- Flathub - An app store for flatpaks



ActivitiesWeb

Sun 15:38 •

Introducing Silverblue - Google Slides - Mozilla Firefox

https://www.flathub.org/

FLATHUB APPLICATIONS

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The Open Virtual Assistant




Android Studio
Integrated development enviro...




Anki
Powerful, intelligent flash cards




Anydesk
Your desk at any desk




AppEditor
Edit application menu




Arduino IDE
Open-source electronics protot...




ARK Desktop Wallet
Wallet for ARK




Armagetron Advanced
3D motorcycle battle




AstroMenace
Hardcore 3D space shooter with ...




Atom
A hackable text editor for the 21s...




Atomic Tanks
Turn-based artillery strategy game




Audacity
Record and edit audio files



Authenticator
Two Factor Authentication code ...



Avidemux
Multi-purpose video editing an...



AVI MetaEdit
Embed, validate, and export AVI...

Apps are fine, but I need tools!

- Toolbox - Friendly pet containers
- Provides a shell prompt “with dnf”
- Uses podman underneath
- Shared with CoreOS





Use Cases

fedora

Silverblue

Why is this cool for Developers ?

- Isolation and decoupling
- Security & Privacy
- Fearless Updates
- Rollbacks!
- Container Tools

Isolation & Decoupling

No more clobbering your dependencies!

pyGame

requests
2.10.2

pyCharm

requests
2.20.1

Host OS

requests
2.21.1

mclasen@localhost:~

x

```
$ flatpak install visual
Looking for matches...
Found similar ref(s) for 'visual' in remote 'flathub' (user).
Use this remote? [Y/n]: y
Similar refs found for 'visual' in remote 'flathub' (user):
```

- 1) app/com.visualstudio.code/x86_64/stable
- 2) runtime/com.visualstudio.code.oss.Tools/x86_64/stable
- 3) app/com.visualstudio.code.oss/x86_64/stable

```
Which do you want to use (0 to abort)? [0-3]: 1
```

```
com.visualstudio.code permissions:
```

```
  ipc          network          pulseaudio      ssh-auth
  x11           dri              devel           file access [1]
  dbus access [2]  tags [3]
```

- [1] host, xdg-config/kdeglobals:ro
- [2] com.canonical.AppMenu.Registrar, com.canonical.AppMenu.Registrar.*,
org.freedesktop.Flatpak, org.freedesktop.Notifications,
org.freedesktop.secrets
- [3] proprietary

	ID	Arch	Branch	Remote	Download
1.	com.visualstudio.code	x86_64	stable	flathub	< 1.6 MB

```
Proceed with these changes to the user installation? [Y/n]:
```



Organize and develop images from digital cameras

Launch

Remove

Update








darktable manages your digital negatives in a database and lets you view them through a lighttable. It also enables you to develop raw images and enhance them in a darkroom.

Other modes besides lighttable and darkroom are a map for geotagging, tethering, print and a slideshow.

darktable supports most modern cameras' raw formats, and do

Website

Details

-  Localized in your Language
-  Documentation
-  Release Activity
-  System Integration
-  Sandboxed

Permissions

Network

Can communicate over the network



Devices

Can access system device files



File system

Can view, edit and create files

Settings

Can view and change any settings

Legacy display system

Uses an old, insecure display system

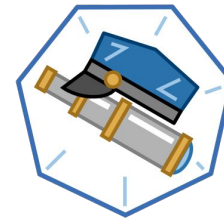
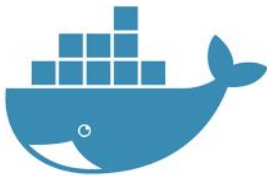
Permissions

High

photography

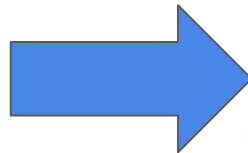
Supporting developers

- Container tools: docker / podman / buildah / skopeo
- Mini-openshift / oc / flatpak-builder
- Tools for ‘pet’ containers: toolbox (soon)
- Terminal support for containers (eventually)



Advantages for Admins

- Faster installs and updates
- Automating Updates
- Locking down installability
- Customized images (in the future)





walk-through

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First impressions

```
$ dnf install gtk3-devel  
bash: dnf: command not found
```

```
$ mount | grep /usr  
/dev/mapper/fedora on /usr type ext4 (ro,relatime,seclabel)
```

```
$ rpm -q kernel  
kernel-4.18.0-0.rc1.git4.1.fc29.x86_64
```

Learning to walk

```
$ rpm-ostree status
State: idle; auto updates enabled (check; timer inactive)
Deployments:
• ostree://onerepo:fedora/rawhide/x86_64/workstation
    Version: Rawhide.20180623.n.0 (2018-06-23
09:14:16)
    Commit: 942d0fa0d62ed7f260b6e9a833c02a7f5d9bcdd...
...
```

```
$ rpm-ostree upgrade
1 metadata, 0 content objects fetched; 569 B transferred in 1
seconds
No upgrade available.
```

Learning to walk

```
$ rpm-ostree install gdb
```

```
$ systemctl reboot
```

Can still install rpms → **package layering**

Learning to walk

```
$ buildah from fedora  
$ buildah run fedora-working-container bash
```

```
$ dnf install /usr/bin/gtk3-demo
```

```
$ gtk3-demo  
(gtk3-demo:23022): Gtk-WARNING **: cannot open display:
```

Taking flight

A ready-made 'toolbox' container:

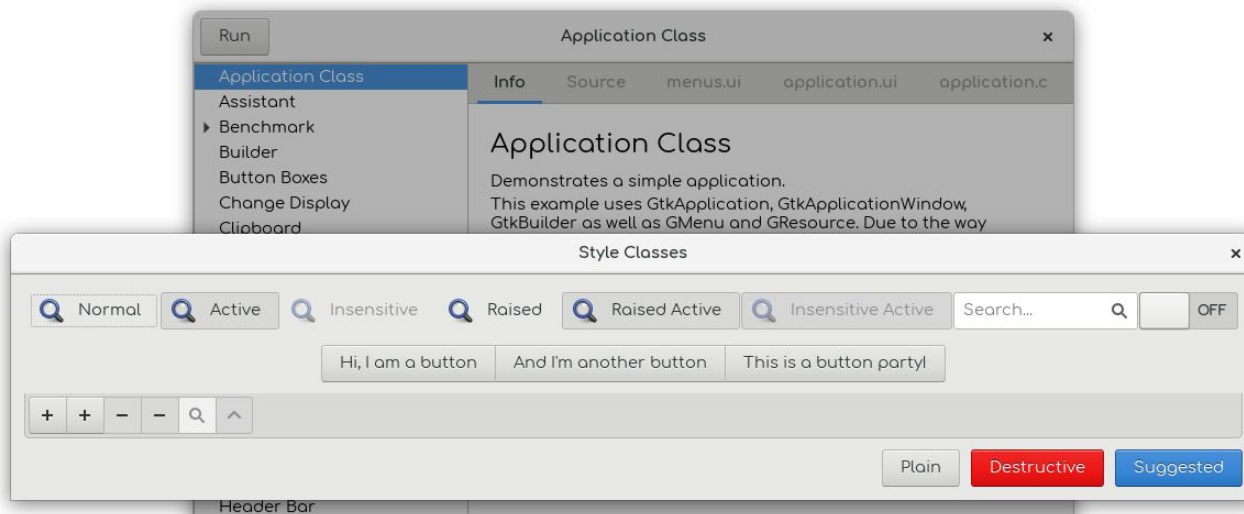
```
$ toolbox create
```

```
toolbox: creating container fedora-toolbox-mclasen:29 [==> ]
```

```
$ toolbox enter
```

```
◆[mclasen@toolbox ~]$
```

```
$ gtk3-demo --run theming_style_classes
```



Other alternatives

- flatpak-builder
- GNOME Builder



```
$ flatpak install flathub org.gnome.Builder
```

Not all roses

Rawhide is still rawhide:

- broken composes
- failing boots

Booting the previous image is easy → **fearless updates**

Not all roses

```
gnome-shell[2934]: Failed to create backend: Failed to  
initialize renderer: Missing extension for GBM renderer:  
EGL_KHR_platform_gbm
```

Asked to provide eglinfo output, I booted into runlevel 3 and:

```
$ rpm-ostree install egl-utils
```

```
$ systemctl reboot
```


Not all roses

Now, at the boot prompt, I was faced with the choice between

- the broken image
- the broken image + egl-utils



Recovery

```
$ ostree log fedora/rawhide/x86_64/workstation  
commit fa09fd6d2551a501bcd3670c84123a22e4c704ac30d9cb421fa76...  
...  
<< History beyond this commit not fetched >>
```

```
# ostree pull --depth=5 onerepo fedora/rawhide/x86_64/workstation
```

```
# ostree admin deploy 76723f34b8591434fd9ec0
```

Future plans

- Nvidia driver support
- Support for rpm-ostree, flatpak in GNOME Software
- A first toolbox release
- Flatpaks available out of the box
- Much faster downloads

⇒ Coming with Fedora 30 in May ⇐

Future plans

- Terminal integration for toolbox
- Ready-made toolboxes, e.g. TensorFlow
- Containerized IDEs
- Containerize 'difficult' apps: chrome, virtualbox

References

Silverblue website: silverblue.fedoraproject.org

Forum: discussion.fedoraproject.org

Flathub: www.flathub.org

mclasen@redhat.com

josh@berkus.org



questions?

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Privacy & Security

Installing in system:

org.freedesktop.Sdk/x86_64/18.08 flathub 33a601fe2c6b

org.freedesktop.Sdk.Locale/x86_64/18.08 flathub 804c56ea7c0b

io.atom.Atom/x86_64/stable flathub 34f8ce7e4577

permissions: ipc, network, pulseaudio, ssh-auth, x11, devices

file access: host, xdg-config/kdeglobals:ro

dbus access: com.canonical.AppMenu.Registrar,

com.canonical.AppMenu.Registrar.*, org.freedesktop.Flatpak,

org.freedesktop.Notifications, org.freedesktop.secrets, org.gtk.vfs, org.gtk.vfs.*

Is this ok [y/n]: n