



Testing latest KDE software, from Apps to the Plasma desktop

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Timothée Ravier

CoreOS engineer at Red Hat
Fedora Kinoite maintainer
KDE developer

[m] @siosm:matrix.org

🌐 tim.siosm.fr

Agenda

- Testing: what, when, how?
- KDE Apps in Flatpaks in Flathub & GitLab CI
- KDE Plasma in Fedora Kinoite
- Plasma 6?



Testing: what, when, how?

- Goal: Make testing changes accessible to **non-developers**
- Has to be reasonably **safe** regarding user's **data**
- Users must be able to go back to a **stable state**
- Test changes as **early** as possible:
 - ideally **before** they are committed
 - otherwise **right after**



Let's start with KDE Apps



Flatpak



Flathub



KDE Apps as Flatpaks

- **Flatpak** is a distribution independent **packaging** and **delivery** format
- **Flathub** is a distribution independent **publishing platform** for Flatpaks
- We're now publishing **most** of KDE Apps on Flathub
- Track **latest** stable releases
- Updates **directly shipped** to users

[Akademy 2023: Flatpak and KDE, Albert Astals Cid](#)



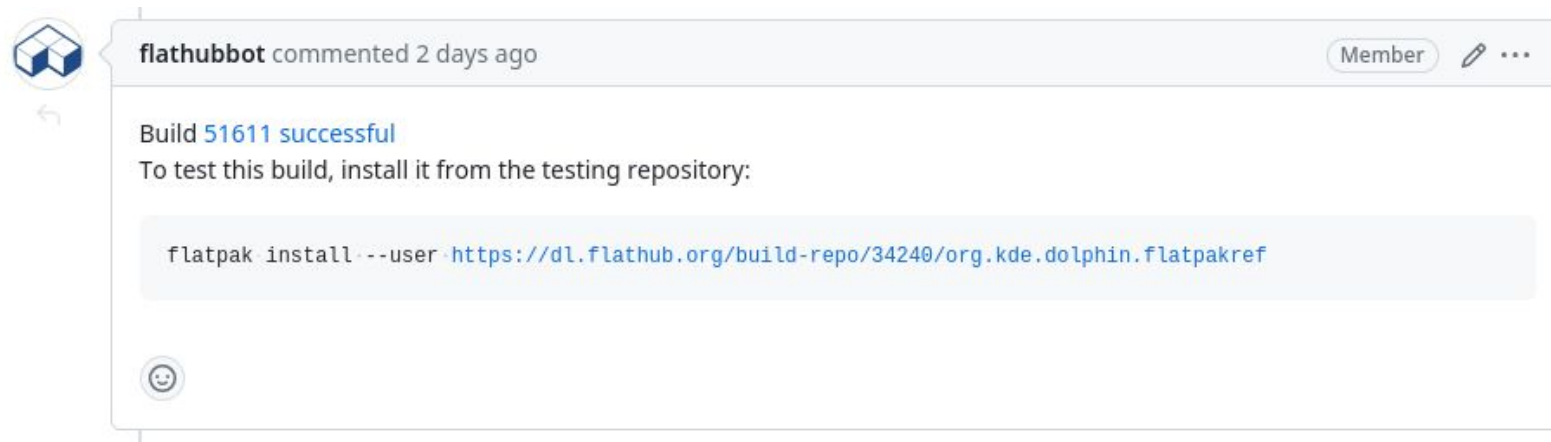
Flatpak



Flathub

Flatpaks: Testing changes?

- Pull-request workflow **enforced** on Flathub
- Each PR will build a **“test”** Flatpak
- Installed with a **single** command
- Test fixes on top of **stable releases**



Flatpak



Flathub



Flatpak

Demo: Testing a Flatpak fix from Flathub



Flathub

Demo transcript:

Testing a Flatpak fix from Flathub

Go to PR:

```
https://github.com/flathub/org.kde.gwenview/pull/97
```

Download Flatpak:

```
$ flatpak install --user \
```

```
https://dl.flathub.org/build-repo/35177/org.kde.gwenview.flatpakref
```

Run Flatpak

```
$ flatpak --user run org.kde.gwenview
```

Run Gwenview from the host to compare versions

Cleanup

```
$ flatpak --user uninstall org.kde.gwenview
```



Flatpak



Flathub

Flatpaks in GitLab CI (invent.kde.org)

- Progressively enabling Flatpak builds in **GitLab CI**
- Flatpak manifests stored in **applications repos**
- Every pull request creates a **Flatpak bundle**
- Can be tested **before** the change is merged



Flatpak



Flatpaks in GitLab CI (invent.kde.org)

Fix KActivities and Purpose detection in KF6

Edit

Code ▾



Open Nicolas Fella requested to merge `work/nico/kf6-features` into `master` 3 days ago

Overview 0

Commits 1

Pipelines 2

Changes 4



Merge request pipeline #431543 passed for 831fff11 2 days ago
Test coverage 20.00% from 1 job



> View 0 exposed artifacts

8 ▾ [Approve additionally](#) Approved by

Code Quality scans found 200 new findings.

Test summary: 12 failed, 62 total tests

Ready to merge!

Download artifacts

- flatpak:archive
- freebsd_qt65:junit
- suse_tumbleweed_qt65:junit
- freebsd_qt515:junit
- suse_tumbleweed_qt515:junit
- suse_tumbleweed_qt515:cobertura
- cppcheck:codequality



Flatpak





Flatpak

Demo: Testing a Flatpak from GitLab CI



Demo transcript: Testing a Flatpak from GitLab CI

Go to PR:

https://invent.kde.org/graphics/gwenview/-/merge_requests/208

Download the artifact:

https://invent.kde.org/graphics/gwenview/-/jobs/1041125/artifacts/download?file_type=archive

Unzip and install the Flatpak bundle

```
$ unzip Flatpak_artifacts.zip
```

```
$ flatpak --user install --bundle ./gwenview.flatpak
```

Run the Flatpak

```
$ flatpak --user run org.kde.gwenview
```

Cleanup

```
$ flatpak --user uninstall org.kde.gwenview
```



Flatpak



More advanced Flatpak usage

- Flatpak content is stored in an **ostree repo**
- Fetch **any previous build** to test regressions or compare behavior
- Works with Flatpaks from **Flathub**
- Apps strictly tied to Qt versions will also need an **older Runtime**



Flatpak



Flathub



Flatpak

Demo: Bisecting a Flatpak from Flathub



Flathub

Demo transcript:

Bisecting a Flatpak from Flathub

```
# Install a Flatpak from Flathub
$ flatpak --user install org.kde.kcalc
# Look at the log of versions (ostree commit log)
$ flatpak --user remote-info --log flathub org.kde.kcalc | less
# "Checkout" an older version
$ flatpak --user update --commit=... org.kde.kcalc
# Run the older version
$ flatpak --user run org.kde.kcalc
# Reset to latest version
$ flatpak update
# Skipping updates for a Flatpak
$ flatpak --user mask org.kde.kcalc
$ flatpak --user mask
```



Flatpak



Flathub



Can we do the same for KDE Plasma?



(Re-)introducing Fedora Kinoite



- **Fedora variant** featuring the KDE Plasma desktop
- Follows **latest upstream KDE releases**
- **Stable** and **up to date** software stack from Fedora
 - Wayland, Pipewire, systemd user sessions, etc.
- *Immutable* desktop operating system
- **Flatpak** and **container** focused desktop

[Akademy 2021: Kinoite, a new Fedora variant with the KDE Plasma desktop](#) ([slides](#), [video](#))

Benefits of rpm-ostree



- System is shipped as a **single consistent image**
- **Atomic** updates
- Keeps all your data and Flatpak apps **as-is**
- Easy rollback to a previous **known good version**
- **Package diff** between versions
- **No broken update**: always in a working state



rpm-ostree ❤️ containers



- Operating system delivered as a **container image**
- Manage versions with **containers tags**
- Store operating system versions inside a container registry
- Rebase to almost **any version**





Demo: Rebasing to a container on Kinoite



Demo transcript: Rebasing to a container on Kinoite



```
# Looking at current state
$ rpm-ostree status

# Find the version to rebase to in the repo on Quay.io:
https://quay.io/repository/fedora-ostree-desktops/kinoite?tab=tags

# Rebase to this version
$ sudo rpm-ostree rebase \
ostree-unverified-registry:quay.io/fedora-ostree-desktops/kinoite:38.20230710.xyz

$ reboot

# Package diff
$ rpm-ostree db diff

# Cleanup and rollback
$ rpm-ostree cleanup
$ rpm-ostree rollback
```





Looking forward to Plasma 6



Fedora Kinoite Beta & Nightly



- Fedora Kinoite images with
 - official **beta** KDE Plasma releases
 - **nightly builds** directly from KDE Plasma Git repos
- Started for Plasma 5.27 beta release
- Based on **stable** Fedora releases (not Rawhide)
- Pushed as container images on Quay.io:
 - <https://quay.io/repository/fedora-ostree-desktops/kinoite-nightly>
 - <https://quay.io/repository/fedora-ostree-desktops/kinoite-beta>

Plasma 6 Kinoite images?



- **We're working on it!**
- Fedora Kinoite Nightly images
- with **Plasma 6** packages
- on top of **stable** Fedora
- Hopefully coming soon!



Fedora Kinoite Beta & Nightly



- Builds currently **paused** (waiting for Plasma 6)
- **Pre-merge** checks?
- Testing with **OpenQA**? <https://open.qa/>
- Likely too much overhead of **single PRs**
- **Daily** or **weekly** checks?
- Bringing **RPM specfiles** to Git Repos (RPM in CI)?



Join us!



- **Fedora KDE SIG:**

- **Wiki:** <https://fedoraproject.org/wiki/SIGs/KDE>
- **Tracker:** <https://pagure.io/fedora-kde/SIG/issues>
- **Matrix room:** <https://matrix.to/#/#kde:fedoraproject.org>

- **Fedora Kinoite:**

- **Website:** <https://fedoraproject.org/kinoite/>
- **Matrix room:** <https://matrix.to/#/#kinoite:fedoraproject.org>

- **Flathub team:**

- **Tracker:** <https://invent.kde.org/teams/flathub/issues/-/issues>
- **Matrix room:** <https://matrix.to/#/#flatpak:kde.org>

- **KDE Flatpaks:** <https://invent.kde.org/packaging/flatpak-kde-applications>



KDE development on Fedora Kinoite



Flatpaks, containers, toolbox



Guide on how to develop on Kinoite:

<https://tim.siosm.fr/blog/2021/12/10/fedora-kinoite-silverblue-dev-guide/>