
Containerizing Printing

Roadmap to the Future of
Printing

- Rudra Pratap Singh
- GSoC Contributor' 2024



The Challenges

- Many immutable distributions contend with traditional setups, particularly those where desktop applications are intended to be delivered in the Flatpak format, face challenges in installing Snap in their environment.
- Regarding the official OCI image of CUPS and Printer Apps on container registries, it's essential to note that while many unofficial images are available on Docker Hub, none of them originate from OpenPrinting but rather from various third-party organizations.
- The problem with these is that they are not official, so they may contain malicious elements, and many of them are highly specialized.



Why OCI Images ?

- Most immutable distros support adding desktop applications through Flaptak and do not support snap at all. That is where OCI (Open Container Initiative) containers come into play, offering a standardized and portable solution that can transform the way we think about the distribution of printing infrastructure across a wide range of distributions.
- While docker hub is already full with CUPS container images, they are third party. We need official images from OpenPrinting.





Benefits of containerizing printing

- **Consistency:** With containers, we can ensure consistent environments across different platforms, eliminating the dreaded "works on my machine" scenario. This consistency simplifies development, deployment, and troubleshooting processes.
- **Isolation:** Containers provide isolation at both the application and dependency level, reducing conflicts and security vulnerabilities.
- **Portability:** OCI containers are inherently portable, making it easy to deploy printing infrastructure across diverse environments,



Automation in Containerization

Automate the creation of an elegant version for each OCI image whenever there is a change in either the main upstream component or its parts.



Analogy to Snap Automation





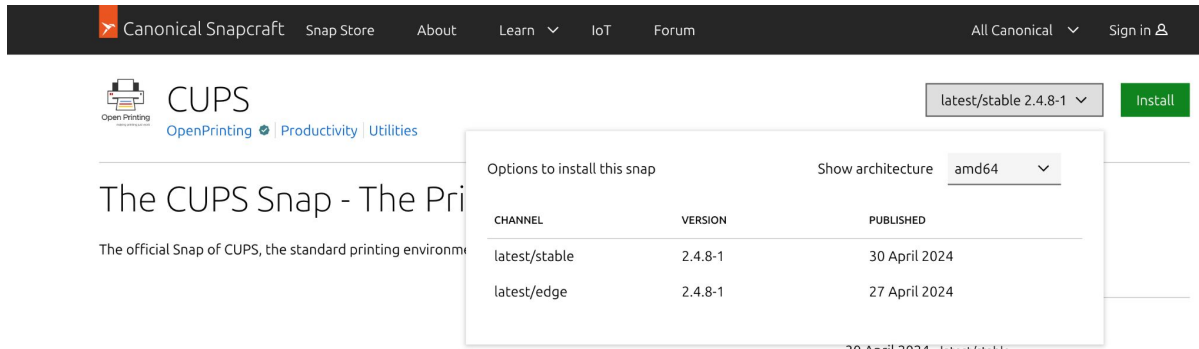
Snap Update Automation

- In Snap, we utilize github actions to automatically keep Snap updated whenever any part or component changes.
- This approach eliminates the tedious process of manual updates and enables us to seamlessly track each part within Snap whenever a change occurs in any secondary component. The GitHub workflow, scheduled to run daily via cron, facilitates monitoring for any tag changes in any part of Snap.




Snap Version Automation

- The snap version automation feature functions by extracting version information from the designated section labeled as adopt-info.
- It provides an elegant version of any snap <primary-upstream>-<package-release>.
- This can also be optionally included in GitHub workflow from ubuntu/desktop-snap.



Canonical Snapcraft Snap Store About Learn IoT Forum All Canonical Sign in

 CUPS
OpenPrinting Productivity Utilities

The CUPS Snap - The Pri
The official Snap of CUPS, the standard printing environm

Options to install this snap Show architecture amd64

CHANNEL	VERSION	PUBLISHED
latest/stable	2.4.8-1	30 April 2024
latest/edge	2.4.8-1	27 April 2024

Install



References

- **ubuntu/desktop-snap** : <https://github.com/ubuntu/desktop-snaps>
- **Improving snap maintenance with automation:**
<https://snapcraft.io/blog/improving-snap-maintenance-with-automation>

