

Introducing AutoSD

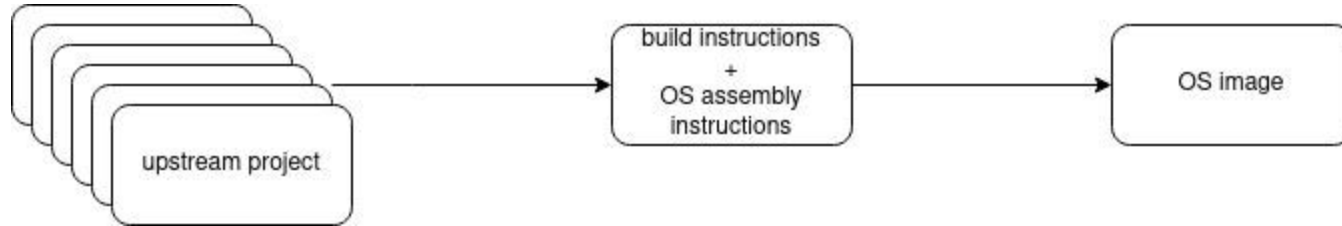
A binary distribution targeting automotive

<https://sigs.centos.org/automotive/>

Source & binary distribution

Source distribution

- A known world



Source distribution

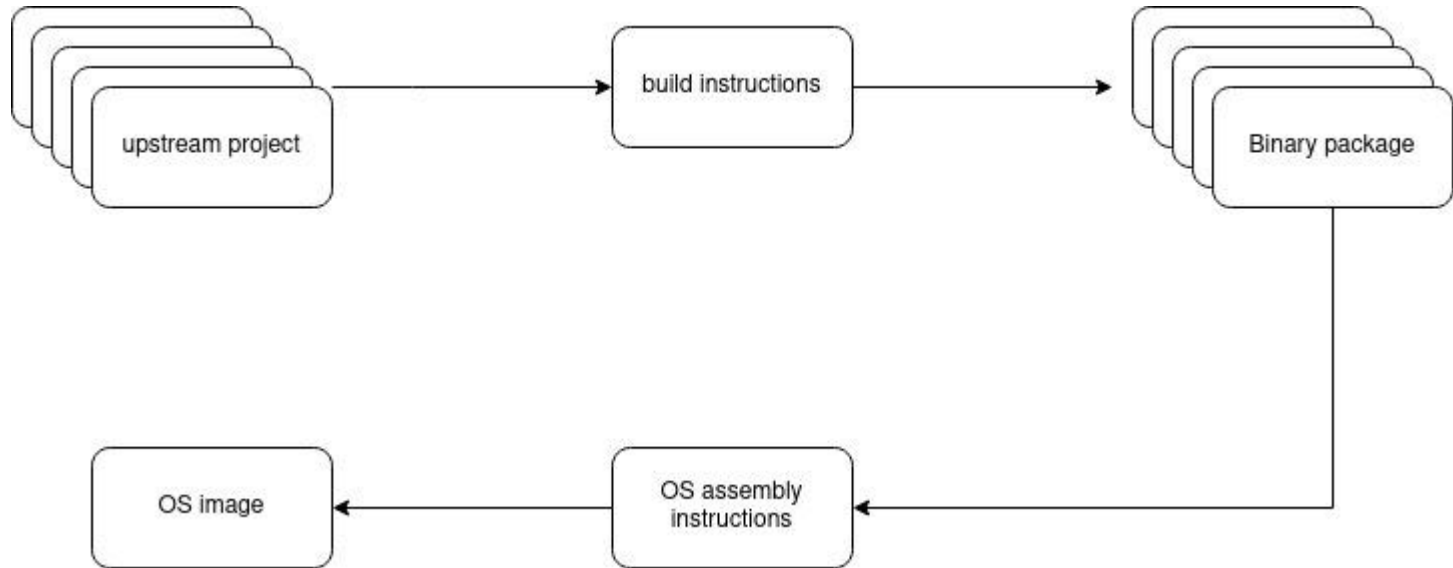
- Pros:
 - Full control
 - Nice development workflow for application developers
 - Heavily customizable
 - Tweaked for your needs
 - “Hand picked” components
- Cons:
 - Time-consuming
 - 1 change == rebuild the entire world/stack
 - Requires a lot of knowledge
 - “What's the best approach, the best options to compile kernel, libfoo, libbar...?”
 - Users are both
 - OS developers
 - Application developers

Source distribution

- Perfect fit for low-resources devices
- Ideal for heavily customized component/OS
- Manageable with low amounts of components/packages
- Straightforward developer workflow

Binary distribution

- A brave new world – for embedded



Binary distribution

- Sources are compiled into binary packages (.deb, .rpm...)
- These binary packages are assembled together to form the final OS image
 - Process often referred to as a “compose”

Binary distribution

- Pros:
 - Often: somebody else's problem
 - Binary packages are provided
 - No need to be an expert on everything
 - Support
 - Security updates, documentation, X years lifecycle
 - Faster “Builds”
 - 1 change == either:
 - 1 package to rebuild - asked/provided
 - 1 new compose
 - Expertise on building the OS, not each component
 - ⇒ Get out of the OS building problem, focus on what's above the OS
- Cons:
 - Potentially less customization
 - Slower development workflow
 - Work patches upstream or with your provider, or requires creating the binary package

Binary distribution

- Best if provided
- Ideal for standardized OS
 - e.g.: 1 OS for multiple devices
- Scales out fine with larger amounts of components/packages

CentOS Automotive SIG

What is the CentOS Automotive SIG?

✦ A neutral, public, and transparent **working and discussion space** for collaboration on open development of binary Linux-based software targeted at automotive use cases

✦ Produces and curate the **Automotive Stream Distribution (AutoSD)**, a Linux distribution for in-vehicle applications that functions as a direct upstream to the forthcoming Red Hat in-vehicle OS

- ✦
- [Documentation](#)
 - [Governance & Wiki](#)
 - [Monthly meetings](#)
 - [Mailing list](#)
 - [Matrix chat channel](#)
 - [Gitlab repository](#)

✦ Enabled by **CentOS Stream**

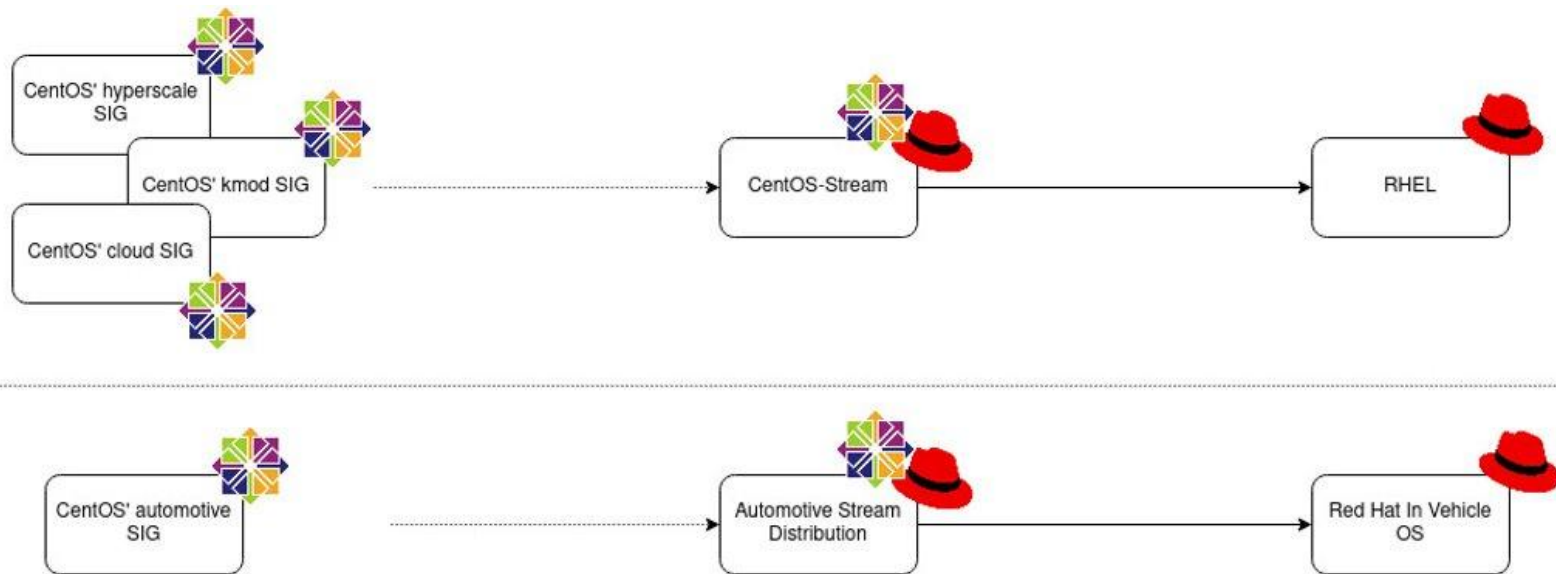


AutoSD

AutoSD

- Built by Red Hat in the CentOS Automotive SIG
 - Open to contribution from the community
- Public, in-development, version of Red Hat's In-Vehicle OS
 - I.e.: upstream of Red Hat's In-Vehicle OS
- Built on-top of CentOS-stream
 - Itself the upstream for RHEL
- Custom kernel (kernel-automotive)
- Currently supported on Raspberry Pi 4, x86, QEMU
- Uses declarative yaml files to describe image's components
- Supports image customization, containers, OSTree images
- Provides continuous integration, development integration, and testing
- Robust documentation
- Sample nightly images available for download

AutoSD: Upstream vs Downstream



Conclusions

- Two distinct worlds available
- Different approaches to solve the same problem

Thanks for Listening!