

OSTree

Atomic Upgrades and the
Development Community

FSOSS 2018

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OSTree

- “git for operating system binaries” [1]
- **file checkouts via hardlinks**

```
[rob@localhost demo]$ ls -li dir1/foo.txt
928716 -rw-rw-r--. 1 rob rob 4 Oct 21 20:56 dir1/foo.txt
[rob@localhost demo]$ ln dir1/foo.txt dir2/bar.txt
[rob@localhost demo]$ ls -li dir1/foo.txt dir2/bar.txt
928716 -rw-rw-r--. 2 rob rob 4 Oct 21 20:56 dir1/foo.txt
928716 -rw-rw-r--. 2 rob rob 4 Oct 21 20:56 dir2/bar.txt
```

inode number

reference count

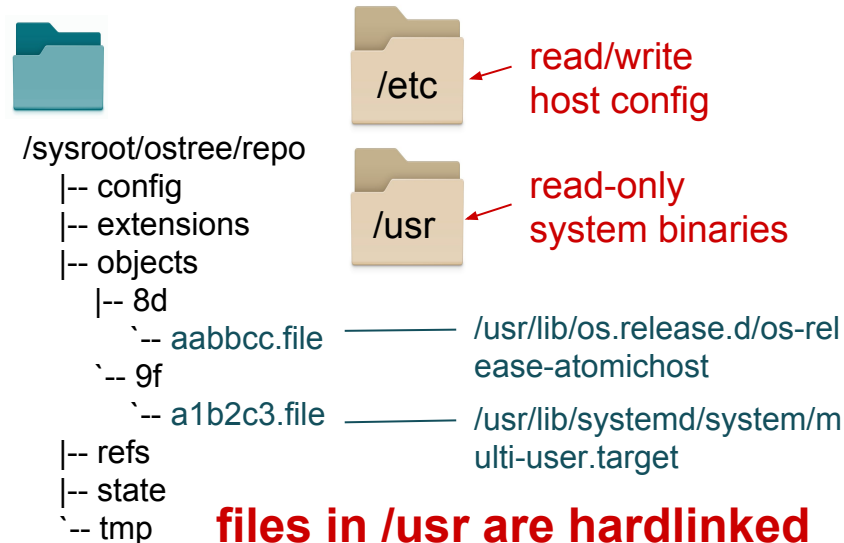
[1] <https://ostree.readthedocs.io/en/latest/manual/introduction/>

Filesystem

Usual layout



OSTree-based deployment



files in /usr are hardlinked to files in the ostree repo

OSTree Commands Demo

<https://asciinema.org/a/208112>

Why is this useful?

- Atomic upgrades and rollback
- “Image-like” replication; easily verify bits are the same
- Handles *recording* of files and their *movement*; no concept of how a filesystem should be laid out
- **libostree** - base for hybrid technologies such as **rpm-ostree**

```
...  
ostree_commit_get_parent (1);  
ostree_commit_get_content_checksum (1);  
ostree_check_version (1);  
ostree_deployment_new (6);  
ostree_deployment_get_osname (1);  
ostree_repo_new (1);  
... [2]
```

[2] library functions in <https://github.com/ostreedev/ostree/tree/master/src/libostree>

rpm-ostree - Atomic Upgrade and Rollback Demo

<https://asciinema.org/a/Am6WZ3Ive6pAZuFz3TT2c2Sy6>

Development Community / Related Projects

- OSTree: <https://ostree.readthedocs.io/>
- rpm-ostree: <https://rpm-ostree.readthedocs.io/>
- Fedora CoreOS: <https://coreos.fedoraproject.org/>
- CoreOS Assembler: <https://github.com/coreos/coreos-assembler>
- Project Atomic: <https://www.projectatomic.io/>
- Team Silverblue: <https://silverblue.fedoraproject.org/>
- Endless OS: <https://rpm-ostree.readthedocs.io/>
- Flatpak: <https://flatpak.org/>
- Internet of Things (IoT) / OTA updates:
<https://docs.atsgarage.com/concepts/yocto-ostree-and-treehub.html>
- Embedded updates: <https://github.com/advancedtelematic/meta-updater>
- Skopeo: <https://github.com/containers/skopeo>
- More!: <https://ostree.readthedocs.io/en/latest/#projects-using-ostree>

Learning More / Getting Involved

Tutorials

- Atomic Host Lab: <https://dustymabe.com/2017/08/29/atomic-host-101-lab-part-0-preparation/>
- OSTree “Hello World”:
<https://ostree.readthedocs.io/en/latest/manual/introduction/#hello-world-example>
- Contributing Guide: <https://ostree.readthedocs.io/en/latest/CONTRIBUTING/>

Community

- Fedora CoreOS issue tracker: <https://github.com/coreos/fedora-coreos-tracker>
- Weekly Community IRC meetings: <https://github.com/coreos/fedora-coreos-tracker#meetings>

Tools

- Fedora Atomic Host: <https://getfedora.org/atomic/prerelease/>
- Vagrant: <https://www.vagrantup.com/>

Thanks Seneca for hosting!

- Any questions/discussion welcomed:
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- rfairley on IRC freenode
- GitHub: <https://github.com/rfairley>
- Twitter: <https://twitter.com/robtfair>