



# Manage storage easily with Linux System Roles

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# Linux System Roles

- A set of Ansible roles used to manage and configure common GNU/Linux components.
- Multiple subsystems are supported – selinux, network, firewall, postfix...
- Available for in **rhel-system-roles** on RHEL and **linux-system-roles** on Fedora or in Ansible Galaxy<sup>1</sup>.

<https://linux-system-roles.github.io/>

<sup>1</sup> <https://galaxy.ansible.com/linux-system-roles>



# Storage Role

System role for storage configuration

*Supported technologies*

- LVM, including LVM RAID, thin provisioning, cache and deduplication and compression with VDO
- Software RAID with MD
- LUKS encryption
- Partition management
- Filesystem management including resizing and fstab management

storage\_pools:

- name: fedora

disks:

- vda

volumes:

- name: root

fs\_type: ext4

size: 53.1 GiB

mount\_point: /

- name: home

fs\_type: ext4

Size: 25.9 GiB

mount\_point: /home

## Default Fedora installation with LVM

LVM volume group called “fedora” on top of one disk with two logical volumes  
“root” mounted on / and “home”  
mounted on /home

storage\_pools:

- name: fedora

disks:

- vda

volumes:

- name: root

fs\_type: ext4

size: 53.1 GiB

mount\_point: /

- name: home

fs\_type: ext4

Size: 25.9 GiB

mount\_point: /home

```
[root@fedora ~]# lsblk /dev/vda
```

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINTS
vda	252:0	0	80G	0	disk	
├─vda1	252:1	0	1M	0	part	
├─vda2	252:2	0	1G	0	part	/boot
└─vda3	252:3	0	79G	0	part	
├─fedora-root	253:0	0	53.1G	0	lvm	/
└─fedora-home	253:1	0	25.9G	0	lvm	/home

storage\_pools:

- name: fedora

disks:

- vda
- vdb

volumes:

- name: root

fs\_type: ext4

mount\_point: /

- name: home

Size: 100 GiB

fs\_type: ext4

mount\_point: /home

## More realistic scenario

We bought a new drive and want to add it to our existing volume group and resize our /home

storage\_pools:

- name: fedora

disks:

- vda
- vdb

volumes:

- name: root

fs\_type: ext4

mount\_point: /

- name: home

Size: 100 GiB

fs\_type: ext4

mount\_point: /home

```
[root@fedora ~]# lsblk /dev/vd[ab]
```

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINTS
vda	252:0	0	80G	0	disk	
├─vda1	252:1	0	1M	0	part	
├─vda2	252:2	0	1G	0	part	/boot
└─vda3	252:3	0	79G	0	part	
├─fedora-root	253:0	0	53.1G	0	lvm	/
└─fedora-home	253:1	0	100G	0	lvm	/home
vdb	252:16	0	80G	0	disk	
└─vdb1	252:17	0	80G	0	part	
└─fedora-home	253:1	0	100G	0	lvm	/home

storage\_pools:

- name: fedora

disks:

- vda
- vdb
- nvme0n1

volumes:

- name: root

fs\_type: ext4

mount\_point: /

cached: true

cache\_size: 5 GiB

cache\_devices: nvme0n1

## More realistic scenario 2

We bought another new drive, this time it's a fancy fast NVMe and we want to use it to speed up our root filesystem with LVM cache.



storage\_pools:

- name: fedora

disks:

- vda
- vdb
- nvme0n1

volumes:

- name: root

fs\_type: ext4

mount\_point: /

cached: true

cache\_size: 5 GiB

cache\_devices: nvme0n1

```
[root@fedora ~]# lsblk /dev/vd[ab] /dev/nvme0n1
```

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINTS
vda	252:0	0	80G	0	disk	
├─vda1	252:1	0	1M	0	part	
├─vda2	252:2	0	1G	0	part	/boot
└─vda3	252:3	0	79G	0	part	
├─fedora-home	253:1	0	100G	0	lvm	/home
├─fedora-root_corig	253:4	0	53.1G	0	lvm	
└─fedora-root	253:0	0	53.1G	0	lvm	/
vdb	252:16	0	80G	0	disk	
└─vdb1	252:17	0	80G	0	part	
└─fedora-home	253:1	0	100G	0	lvm	/home
nvme0n1	259:1	0	10G	0	disk	
└─nvme0n1p1	259:3	0	10G	0	part	
├─fedora-pool00_cpool_cdata	253:2	0	5G	0	lvm	
└─fedora-root	253:0	0	53.1G	0	lvm	/
├─fedora-pool00_cpool_cmeta	253:3	0	8M	0	lvm	
└─fedora-root	253:0	0	53.1G	0	lvm	/

vars:

```
storage_safe_mode: false
```

...

storage\_pools:

- name: fedora

disks:

- vda

- vdb

volumes:

- name: root

fs\_type: ext4

mount\_point: /

```
cached: false
```

### More realistic scenario 3

We no longer want to use the NVMe drive for caching. Lets remove it.

vars:

storage\_safe\_mode: false

...

storage\_pools:

- name: fedora

disks:

- vda

- vdb

volumes:

- name: root

fs\_type: ext4

mount\_point: /

cached: false

```
[root@fedora ~]# lsblk /dev/vd[ab] /dev/nvme0n1
```

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINTS
vda	252:0	0	80G	0	disk	
├─vda1	252:1	0	1M	0	part	
├─vda2	252:2	0	1G	0	part	/boot
├─vda3	252:3	0	79G	0	part	
│   └─fedora-root	253:0	0	53.1G	0	lvm	/
│       └─fedora-home	253:1	0	100G	0	lvm	/home
vdb	252:16	0	80G	0	disk	
└─vdb1	252:17	0	80G	0	part	
└─fedora-home	253:1	0	100G	0	lvm	/home
nvme0n1	259:1	0	10G	0	disk	
└─nvme0n1p1	259:3	0	10G	0	part	

# What's next?

- Coming soon (RHEL 8.9/9.3)
  - Filesystem online resize
  - Mount point owner and permission
- In the future
  - More “configuration” options for existing storage.
  - More storage technologies: Stratis, btrfs...
  - Snapshots

# Thank you for your attention

- WWW
  - <https://linux-system-roles.github.io/>
  - <https://galaxy.ansible.com/linux-system-roles>
- GitHub
  - System roles: <https://github.com/linux-system-roles>
  - Storage role: <https://github.com/linux-system-roles/storage>
- Contact:
  - [systemroles@lists.fedorahosted.org](mailto:systemroles@lists.fedorahosted.org)
  - [vtrefny@redhat.com](mailto:vtrefny@redhat.com)