

UnixArena

Cloud | DevOps

Search this website

[HOME](#)
[AZURE](#)
[DEVOPS](#)
[CLOUD](#)
[VMWARE](#)
[BACKUP](#)
[TUTORIALS](#)
[REDHAT-LINUX](#)
[AZURE BACKUP](#)
[CONTACT](#)
[ABOUT](#)

Redhat Linux – LVM Volume Attributes

AUGUST 25, 2013 BY [LINGESWARAN R](#) — 1 COMMENT

Redhat Linux's Logical volume Manager has many attributes which are available for controlling the behavior LVM objects or to changing the default values of LVM. We may not use those attributes very often in typical production environment but knowing is not a bad thing. As a Unix/Linux admin, we should have capability to explain each and every field of commands output as most of the fields will reflect the attributes value. Here we will see some of LVM attributes.



Physical volume(PV) attributes:

To check the physical volume attributes, use “pvs” command. The forth column of pvs command output displays the physical volume attributes.

```
[root@mylinz ~]# pvs
PV          VG          Fmt Attr PSize  PFree
/dev/sda2   vg_mylinz   lvm2 a-   19.51g    0
/dev/sdd1   uavg        lvm2 a-   508.00m 408.00m
/dev/sde    uavg        lvm2 a-   508.00m 508.00m
/dev/sdf    uavg        lvm2 a-    5.00g   5.00g
[root@mylinz ~]#
```

The above command output shows “a” in the attribute field which explains that physical volumes can be “allocated” to the volumes.

Export the volume group “uavg” and check pvs output.



Determined. Data-driven.

Making an impact that matte

```

PV          VG          Fmt Attr PSize   PFree
/dev/sda2   vg_mylinz  lvm2 a-    19.51g    0
/dev/sdd1   uavg       lvm2 ax   508.00m  408.00m
/dev/sde    uavg       lvm2 ax   508.00m  508.00m
/dev/sdf    uavg       lvm2 ax    5.00g    5.00g
[root@mylinz ~]#

```

In attributes field, you can see that “x” is added now. This shows that volume group is exported.

We can stop the allocation to the disk by using pvchnage command. By disabling allocation, volume will not be extended using that specific physical volume.

```

[root@mylinz ~]# pvchange -x n /dev/sdd1
Physical volume "/dev/sdd1" changed
1 physical volume changed / 0 physical volumes not changed
[root@mylinz ~]# pvs
PV          VG          Fmt Attr PSize   PFree
/dev/sda2   vg_mylinz  lvm2 a-    19.51g    0
/dev/sdd1   uavg       lvm2 --   508.00m  408.00m
/dev/sde    uavg       lvm2 a-   508.00m  508.00m
/dev/sdf    uavg       lvm2 a-    5.00g    5.00g
[root@mylinz ~]#

```

You can revert the change any time using below mentioned command.

```

[root@mylinz ~]# pvchange -x y /dev/sdd1
Physical volume "/dev/sdd1" changed
1 physical volume changed / 0 physical volumes not changed
[root@mylinz ~]# pvs
PV          VG          Fmt Attr PSize   PFree
/dev/sda2   vg_mylinz  lvm2 a-    19.51g    0
/dev/sdd1   uavg       lvm2 a-   508.00m  408.00m
/dev/sde    uavg       lvm2 a-   508.00m  508.00m
/dev/sdf    uavg       lvm2 a-    5.00g    5.00g
[root@mylinz ~]#

```

Some of the useful commands to get the details of physical volume.

1. To get the physical volumes with “UID”, use “-v” option.

Note: You can also use “pvs -vv” to get more detailed information.

```

[root@mylinz ~]# pvs -v
Scanning for physical volume names
PV          VG          Fmt Attr PSize   PFree DevSize  PV UUID
/dev/sdd1   uavg       lvm2 ax 508.00m 408.00m 511.98m tJ5YhP-V0ZV-yfQ6-Uyye-WGT7-VLc1-7M3RMK
/dev/sde    uavg       lvm2 ax 508.00m 508.00m 512.00m FadWLT-LjD8-v8VB-pboY-eZbK-vYpE-ZWq0i9
/dev/sdf    uavg       lvm2 ax 5.00g    5.00g    5.00g GbvGWh-l0w3-wCA6-umkD-zfsS-8yAZ-GeOSKF
[root@mylinz ~]#

```

2. To get all the disks connected to the system, use “pvs -a”

```

[root@mylinz ~]# pvs -a
PV          VG          Fmt Attr PSize   PFree
/dev/root                                --      0        0
/dev/sda1                                --      0        0

```

```

/dev/sde          uavg      lvm2 ax   508.00m 508.00m
/dev/sdf          uavg      lvm2 ax    5.00g   5.00g
/dev/sdg          --         --         0         0
/dev/vg_mylinz/lv_swap --         --         0         0
[root@mylinz ~]#

```

/dev/sda1 is not part of LVM but you get the disk list in pvs command.

3.To get the segment wise output,use below command.

```

[root@mylinz ~]# pvs --segments
PV          VG          Fmt Attr PSize   PFree   Start SSize
/dev/sda2   vg_mylinz   lvm2 a-   19.51g    0        0 4234
/dev/sda2   vg_mylinz   lvm2 a-   19.51g    0 4234 760
/dev/sdd1   uavg        lvm2 ax  508.00m 408.00m    0 13
/dev/sdd1   uavg        lvm2 ax  508.00m 408.00m   13 25
/dev/sdd1   uavg        lvm2 ax  508.00m 408.00m   38 89
/dev/sde    uavg        lvm2 ax  508.00m 508.00m    0 127
/dev/sdf    uavg        lvm2 ax    5.00g   5.00g    0 1279
[root@mylinz ~]#

```

Volume Group(VG) Attributes:

You can see the volume group attributes using vgs command.

table.tableizer-table { border: 1px solid #CCC; font-family: Arial, Helvetica, sans-serif font-size: 12px; }.tableizer-table td { padding: 4px; margin: 3px; border: 1px solid #ccc; }.tableizer-table th { background-color: #104E8B; color: #FFF; font-weight: bold; }

ATTRIBUTES	DESCRIPTION
r,w	(r)ead & (w)rite permissions
z	resi(z)eable
x	e(x)ported
p	(p)artial
c,n,a,i	allocation policy (c)ontiguous, c(l)ing, (n)ormal, (a)nywhere, (i)nherited
c	(c)luster

Here we will see sample vgs command output.

```

[root@mylinz ~]# vgs
VG          #PV #LV #SN Attr   VSize  VFree
uavg        3   1   0 wz--n-   5.99g   5.89g
vg_mylinz    1   2   0 wz--n-  19.51g    0
[root@mylinz ~]#

```

✓ [root@mylinz ~]# vgs -v



Determined. Data-driven.

Making an impact that matte

```
vg_mylinz wz--n- 4.00m 1 2 0 19.51g 0 dIgmLP-aoe3-anxY-WHYE-bBtX-u28M-WF6Ye5
[root@mylinz ~]#
```

There are some other volume group attributes which will be useful while creating the new volume group.

```
table.tableizer-table { border: 1px solid #CCC; font-family: Arial, Helvetica, sans-serif font-size: 12px; }.tableizer-
table td { padding: 4px; margin: 3px; border: 1px solid #ccc; }.tableizer-table th { background-color: #104E8B;
color: #FFF; font-weight: bold; }
```

ATTRIBUTES	DESCRIPTION
-l	maximum logical volumes
-p	maximum physical volumes
-s	physical extent size (default is 4MB)
-A	autobackup

All the above mentioned attributes can be set while creating the volume group. You can not modify those values after that. In the below example, I have used most the attributes with specific value to create new volume group.

```
[root@mylinz ~]# vgcreate -l 512 -p 256 -s 32M -Ay newvg /dev/sdf
Volume group "newvg" successfully created
vgs newvg
VG #PV #LV #SN Attr VSize VFree
newvg 1 0 0 wz--n- 4.97g 4.97g
[root@mylinz ~]#
```

You can see the newly set values in vgdisplay command output.

```
[root@mylinz ~]# vgdisplay -v newvg
Using volume group(s) on command line
Finding volume group "newvg"
--- Volume group ---
VG Name                newvg
System ID
Format                 lvm2
Metadata Areas         1
Metadata Sequence No   1
VG Access               read/write
VG Status               resizable
MAX LV                 512
Cur LV                 0
Open LV                 0
Max PV                 256
Cur PV                 1
Act PV                  1
VG Size                 4.97 GiB
PE Size                 32.00 MiB
Total PE                159
Alloc PE / Size         0 / 0
```



Determined. Data-driven.

Making an impact that matte

```
PV Name          /dev/sdf
PV UUID          GbvgWh-10w3-wCA6-umkD-zfsS-8yAZ-GeOSKF
PV Status        allocatable
Total PE / Free PE 159 / 159
```

```
[root@mylinz ~]#
```

Logical Volume (LV) Attributes:

Knowing the logical volume attributes.

```
[root@mylinz ~]# lvs
LV      VG      Attr   LSize   Origin Snap%  Move Log Copy%  Convert
vol1    uavg     -wi-ao 100.00m
lv_root vg_mylinz -wi-ao 16.54g
lv_swap vg_mylinz -wi-ao  2.97g
[root@mylinz ~]#
```

The below tables covers the “lvs” command attributes. `table.tableizer-table { border: 1px solid #CCC; font-family: Arial, Helvetica, sans-serif font-size: 12px; }` `table.tableizer-table td { padding: 4px; margin: 3px; border: 1px solid #ccc; }` `table.tableizer-table th { background-color: #104E8B; color: #FFF; font-weight: bold; }`

VOLUME TYPE ATTRIBUTES(FIRST FIELD OF ATTR)

DESCRIPTION

m	(m)irrored
M	(M)irrored without intial sync
o	(o)rgin
p	(p)vmove
s	(s)napshot
S	invalid (S)napshot
v	(v)irtual
i	mirror (i)mage
l	mirror (l)mage without sync
c	under (c)onstruction
-	Simple Volume

`table.tableizer-table { border: 1px solid #CCC; font-family: Arial, Helvetica, sans-serif font-size: 12px; }` `table.tableizer-`



Determined. Data-driven.

Making an impact that matte

ATTRIBUTES (SECOND TO SIXTH FIELD OF ATTR)

w,r (Second Field)	Permissions '(r)'ead '(w)'rite
c,l,n,a,l (Third Field)	Allocation policy (c)ontiguous, c(l)ing, (n)ormal, (a)nywhere, (i)nherited
m (Fourth Field)	Fixed (m)inor
a,s,l (Fifth Field)	(a)ctive, (s)uspended, (l)invalid snapshot,,
S (Fifth Field)	Invalid (S)uspended snapshot
I (Fifth Field)	Mapped device present with (i)nactive table
d (Fifth Field)	Mapped (d)evice present with-out tables
o (sixth Field)	device (o)pen (Volume is in active state or may be mounted)

-

While creating the volume can provide various attributes like stripe size, no of extents etc. These are already covered in [volume creation](#).

Here we will see some of the useful “lvs” command options.

1. To display the logical volumes with underlying physical volumes use,

```
[root@mylinz ~]# lvs -a -o +devices
LV      VG      Attr   LSize   Origin Snap%   Move Log Copy%   Convert Devices
vol1    uavg     -wi-ao 100.00m                               /dev/sdd1(13)
lv_root vg_mylinz -wi-ao 16.54g                               /dev/sda2(0)
lv_swap vg_mylinz -wi-ao 2.97g                               /dev/sda2(4234)
[root@mylinz ~]#
```

2. To see the complete physical disks segments for logical volumes,

```
[root@mylinz ~]# lvs -a -o +seg_pe_ranges --segments
LV      VG      Attr   #Str Type   SSize   PE Ranges
vol1    uavg     -wi-ao 1 linear 100.00m /dev/sdd1:13-37
lv_root vg_mylinz -wi-ao 1 linear 16.54g /dev/sda2:0-4233
lv_swap vg_mylinz -wi-ao 1 linear 2.97g /dev/sda2:4234-4993
[root@mylinz ~]#
```

3. For detailed logical volume information,

```
[root@mylinz ~]# lvdisplay --maps /dev/uavg/vol1
--- Logical volume ---
LV Name                /dev/uavg/vol1
```



Determined. Data-driven.

Making an impact that matte

```
LV Size          100.00 MiB
Current LE       25
Segments         1
Allocation       inherit
Read ahead sectors auto
- currently set to 256
Block device     253:2

--- Segments ---
Logical extent 0 to 24:
  Type           linear
  Physical volume /dev/sdd1
  Physical extents 13 to 37
[root@mylinz ~]#
```

Hope this post is informative for you. Thank you for reading this article. Please leave a comment if you have any doubt. I will get back to you.

Advertisements

FILED UNDER: [LVM](#), [LVM TUTORIALS](#)

Comments

Oflameo says

FEBRUARY 24, 2014 AT 7:47 AM



Determined. Data-driven.
Making an impact that matte

Leave a Reply

Your email address will not be published. Required fields are marked *

Comment

Name *

Email *

Website

POST COMMENT

FOLLOW UNIXARENA

[f](#) [in](#) [t](#)

CHECK-OUT



Determined. Data-driven.

Making an impact that matte



Advertise Here



RECOMMENDED FOR YOU

Azure Cloud Shell – Create a Linux VM using Terraform?

Amazon AWS – Connect to AWS instance using Putty – Part 12

What is Infrastructure as Code ? IaC

Cloud ends Data-center



Determined. Data-driven.

Making an impact that matte

Setup Amazon AWS – Free Tier Account – Part 3

Azure Backup – Recover VM from Crash/ Accidental delete

Amazon AWS – Change volume type – SSD GP2 to SSD IOPS – Part 13

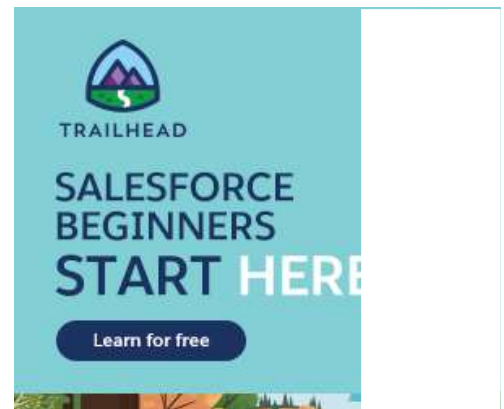
How to Build a Cloud Storage on Solaris 11?

GitOps vs Infrastructure as Code

Safeguard VM Backup in Cloud Using – NAKIVO

[More Posts from this Category](#)

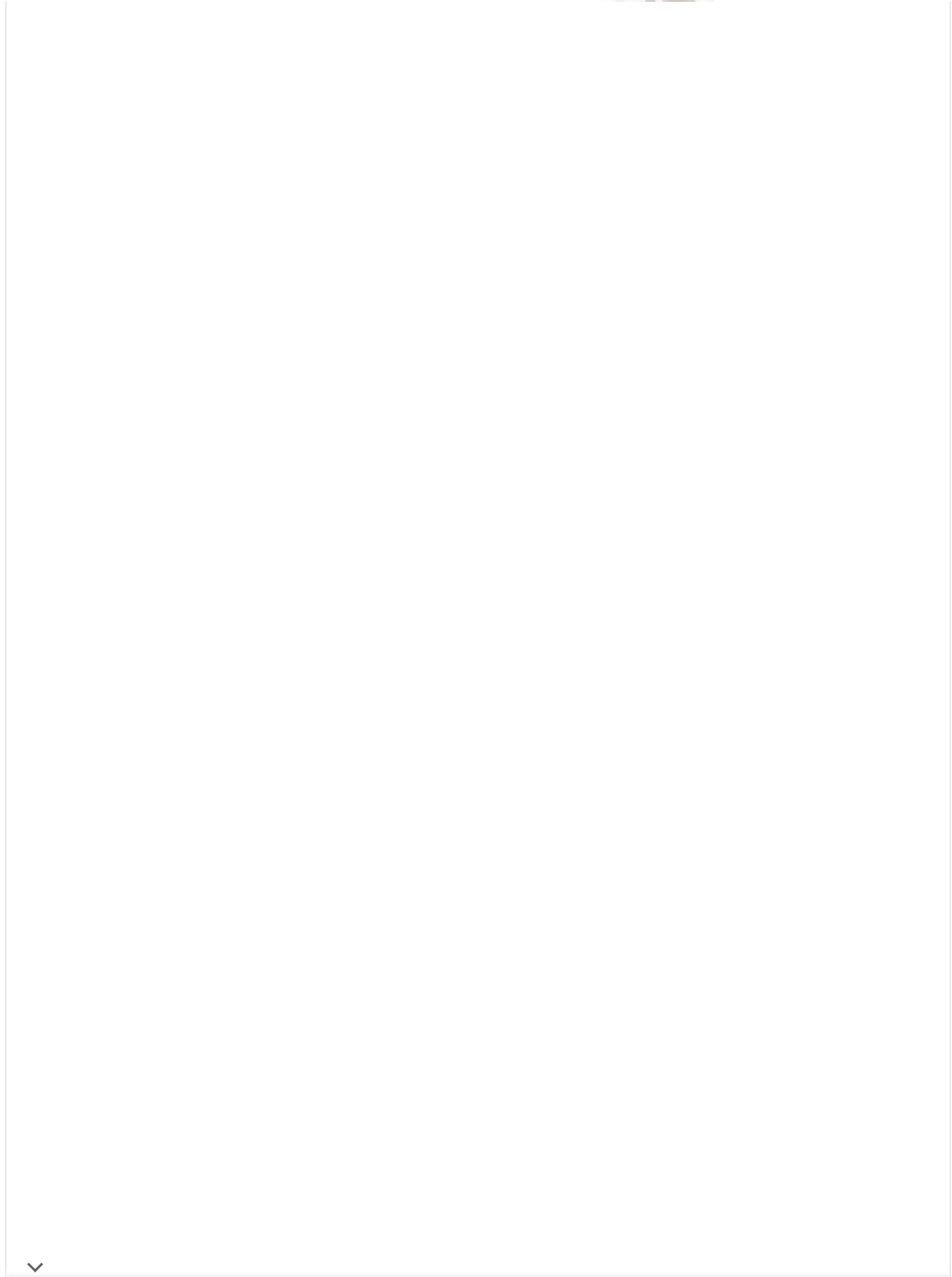
Advertisements



Determined. Data-driven.
Making an impact that matte



Determined. Data-driven.
Making an impact that matte



Determined. Data-driven.
Making an impact that matte



Determined. Data-driven.
Making an impact that matte



Determined. Data-driven.
Making an impact that matte



Copyright © 2021 · UnixArena ·



Determined. Data-driven.
Making an impact that matte